ELS10-26 MIB REFERENCE GUIDE

9032244-01

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Order Number: 9032244-01 September 1997

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Manufacturer's Address:	**35 Industrial Way** **PO Box 5005** **Rochester, NH 03867**
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Conformance to Directive(s)/Product Standards:	**EC Directive 89/336/EEC** **EC Directive 73/23/EEC** **EN 55022** **EN 50082-1** **EN 60950**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial or Light Industrial Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

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Principal Compliance Engineer	Managing Director - E.M.E.A.
Title	Title
Rochester, NH, USA	Newbury, Berkshire, England
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CHAPTER 1

INTRODUCTION

This manual is for system administrators responsible for configuring, monitoring, and maintaining the ELS10-26. Much of the configuration of the ELS10-26 needs to be done using an SNMP-based network management station. This manual contains the SNMP MIB variables you may need to configure, monitor, and manage your ELS10-26. You should use this manual with the *ELS10-26 User Guide* and with the documentation provided with your NMS.

The contents of each chapter are described below.

- Chapter 1, **Introduction**, provides an overview of the SNMP primitives, describes the functions the MIB variables can be used to perform, and describes how to use TFTP to download the ELS10-26 system software.
- Chapter 2, **TCP/IP MIB-II**, describes the standard TCP/IP MIB variables.
- Chapter 3, **Ethernet MIB**, describes the standard Ethernet MIB variables.
- Chapter 4, **Bridge MIB**, describes the Bridge MIB variables.
- Chapter 5, **PPP MIB**, describes the PPP link control and IP table MIB variables.
- Chapter 6, **ELS10-26 MIB**, describes the Cabletron enterprise MIB variables.
- Chapter 7, **Traps**, describes generic and enterprise-specific traps.

1.1 RELATED DOCUMENTATION

You may need to refer to the following Cabletron documentation:

- *ELS10-26 User Guide* – contains installation, configuration, and management instructions for the ELS10-26. It also describes how to use the Local Console Manager (LCM), which is a non-intelligent terminal interface to the ELS10-26.

If you need internetworking reference material, you may find the following books helpful:

- *Interconnections, Bridges and Routers,* Radia Perlman, Addison Wesley © 1992.
- *Internetworking with TCP/IP: Principles, Protocols, and Architecture* (2nd edition), Volumes I and II, Douglas Comer, Prentice Hall © 1991.
- *The Simple Book, An Introduction to Management of TCP/IP-based internets* (2nd edition), Marshall T. Rose, Prentice Hall © 1994.

This manual describes the software interface between the NMS and the ELS10-26. This is relevant for an ELS10-26 running Version 1.0 software. The NMS communicates with the ELS10-26 software.

The Network Management, or UART, port is the interface to the Local Console Manager (LCM). LCM is a non-intelligent terminal interface that can be used to configure and monitor status for the ELS10-26.

1.2 GETTING HELP

If you need additional support related to the ELS10-26, or if you have any questions, comments, or suggestions concerning this manual, contact Cabletron Systems Global Call Center:

Phone:	(603) 332-9400
Internet mail:	support@ctron.com
FTP:	ctron.com (134.141.197.25)
Login:	anonymous
Password:	your email address
BBS:	(603) 335-3358
Modem setting:	8N1: 8 data bits, No parity, 1 stop bit

Before calling Cabletron Systems Global Call Center, have the following information ready:

- Your Cabletron Systems contract number
- A description of the failure
- The serial and revision numbers of all Cabletron Systems products in the network
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

For additional information about Cabletron Systems products, visit our World Wide Web site: http://www.cabletron.com

1.3 DOCUMENT CONVENTIONS

The following conventions are used throughout this document:

LCM commands, prompts, and information displayed by the computer appear in Courier typeface, for example:

```
Current Number of Learned Addresses: 133
```

Information that you enter appears in Courier bold typeface, for example:

```
ELS10-26 >status
```

Information that you need to enter with a command is enclosed in angle brackets < >. For example, you must enter a port number and an IP address to execute the `ipaddr <port #> <IP address>` command:

```
ELS10-26 >ipaddr 6 192.138.217.40
```

Field value options appear in bold typeface.

The following conventions are also used in this document:

Note: *Calls the reader's attention to any item of information that may be of special importance.*

Tip: *Conveys helpful hints concerning procedures or actions.*

Caution: *Contains information essential to avoid damage to the equipment.*

1.4 SNMP PRIMITIVES

The major software interface between the NMS and ELS10-26 consists of one simple mechanism – the exchange of SNMP (Simple Network Management Protocol, RFC 1157) datagrams over any available physical media. The following restrictions apply:

- All datagrams must obey SNMP format.
- All datagrams must be sent via UDP and IP. Thus, all datagrams will have UDP and IP headers.
- Datagrams may be sent over any of the following physical media:
  - Ethernet/802.3 LAN - the datagram must have an Ethernet MAC header, with an Ethernet frame type of IP; or, the datagram must be in 802.3 format with IP-encapsulation as defined by RFC 1042.
  - UART (out-of-band management port) - the datagram must have a PPP header, which indicates that the datagram contains an IP packet. (The ELS10-26 automatically detects the presence of a PPP connection versus being connected to a non-intelligent terminal.)

The NMS must rely on IP, rather than MAC addressing for all datagrams sent to an ELS10-26. Therefore:

- All datagrams from the ELS10-26 are addressed to either an NMS or the broadcast IP address.
- Within the context of this document, the terms “datagram,” “packet,” and “PDU” are synonymous.

1.5 MIB PRIMITIVE TYPES

The MIB definitions in this document may reference the primitive types that are described in the Structure and Identification of Management Information for TCP/IP-based Internets, RFC 1155. RFC 1155 is based on the Specification of Abstract Syntax Notation One, ASN.1. The primitive types are described in Table 1-1.

Table 1-1 Primitive Descriptions

Primitive	Size	Description
Boolean	1 byte	Enumerated Integer with possible true (1) or false (2) values; note that the ASN.1 BOOLEAN primitive type is not used
BridgeID	8 bytes	Priority and MAC address used to identify a spanning tree bridge
Counter	4 bytes max	Unsigned value
DisplayString	n X 1 byte	Array of printable ascii characters
Gauge	4 bytes	Non-negative integer
Integer	4 bytes max	Signed value
IpAddress	4 bytes	Internet address
MacAddress	6 bytes	Ethernet address
OctetString	n X 1 byte	Array of bytes
PhysAddress	n X 1 byte	Array of bytes, using the same as a MAC Address
PortID	2 bytes	Priority and port number used to identify a spanning tree port
TimeTicks	4 bytes	Max time counter with a granularity of 1/100th of a second (also known as centiseconds)

1.6 USER FUNCTIONS

The SNMP primitives may be used to accomplish the following functions:

- Obtain the ELS10-26's current value of certain parameters - the NMS uses the GetRequest or GetNextRequest PDU, and the ELS10-26 responds with a GetResponse PDU. If the NMS issues a GetRequest for an unsupported parameter, the ELS10-26 sends a GetResponse with a noSuchName ErrorStatus[1]. If the NMS issues a GetNextRequest for an unsupported parameter, the ELS10-26 skips to the next object.

- Change the ELS10-26's value of certain parameters - the NMS uses the SetRequest PDU, and the ELS10-26 responds with a GetResponse PDU. The ELS10-26 will change both its current value and its local default to be used when the ELS10-26 reboots, unless noted otherwise.

- Obtain the current value of certain parameters and simultaneously change the value of other parameters - the NMS uses the SetRequest PDU, and the ELS10-26 responds with a GetResponse PDU. For the parameters which are being obtained rather than changed, the NMS must use the ASN.1 NULL value with the SetRequest PDU.

- Provide notification of significant events - the ELS10-26 uses the Trap PDU and/or the GetResponse PDU. The NMS uses the SetRequest PDU to control the frequency that the ELS10-26 may send Trap PDUs.

---

1. If implementing the parameter is required, it might seem more reasonable to return a GetResponse with no error and the ASN.1 NULL value as the parameter's value; however, leading authorities such as Marshall T. Rose (author of *The Simple Book*) suggest that noSuchName be returned, because many existing SNMP management stations do not handle NULL values correctly.

The ELS10-26 implements two non-standard features with respect to the SNMP SetRequest:

- The variable bindings within a SetRequest are sometimes processed sequentially rather than simultaneously. For example, if a SetRequest contains two parameters with an incorrect value specified for the second parameter, the ELS10-26 returns a badValue error to the NMS; however, the ELS10-26 may have updated its value for the first parameter.

- The values within the variable bindings of the returned GetResponse may reflect meaningful information, rather than being an exact copy of the values from the SetRequest. For example, if a SetRequest contains two variable bindings, the first specifying that memory should be examined and the second specifying the contents of the memory, then the ELS10-26's GetResponse will update the value of the second variable binding to contain the actual contents of the memory.

1.7 NAVIGATING THROUGH THE MIBTREE STRUCTURE

The MIB structure is a hierarchical tree structure. Each MIB variable has a numeric value that indicates its place in the hierarchy. The structure was originally created, and is still maintained by the International Organization for Standardization (ISO) and the International Telecommunications Union (ITU), two international standards organizations. You can get and set MIB variables by navigating down the tree to a specific MIB, a group or table within that MIB, and then to the individual variable. Figure 1-1 shows the path down the MIB tree structure. Under the "mib-2" and the Cabletron enterprise branch, are all the relevant MIBs that the ELS10-26 supports.

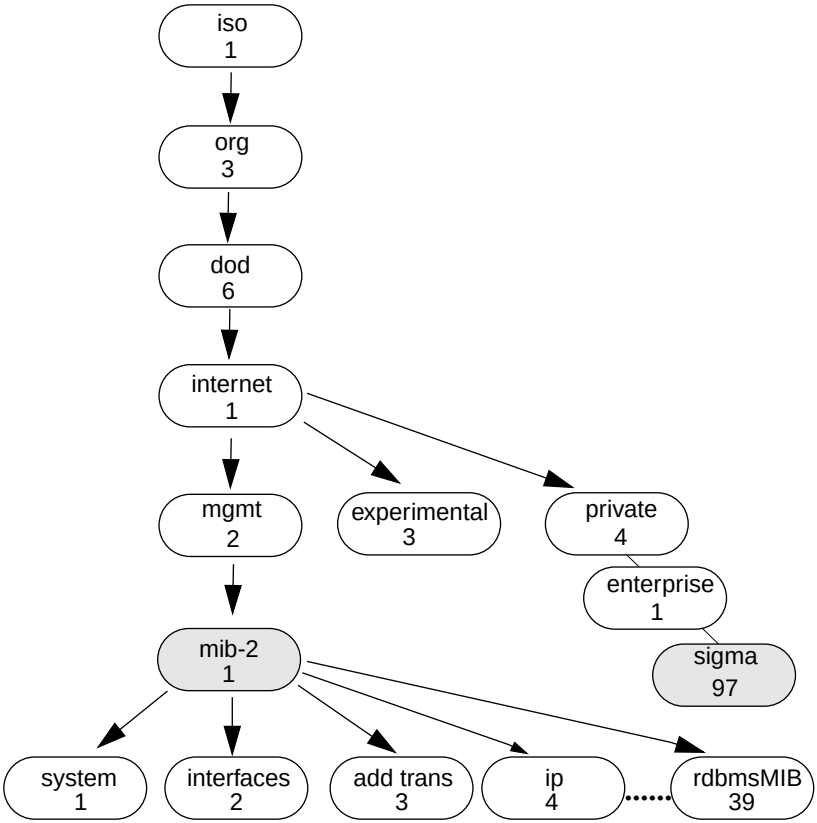

Figure 1-1 MIB Hierarchical Structure

Table 1-2 provides the branch structure that is under MIB-II. To reach any of the MIB-II objects you would start with the prefix 1.3.6.1.2.1. For example, to reach an object in the system group, you would start with 1.3.6.1.2.1.1. To find the amount of time the ELS10-26 had been running, you would want to get the sysUpTime variable, which is the third object in the system group. So the get command would look like:

```
get 1.3.6.1.2.1.1.3.0
```

The zero at the end (.0), indicates that this is a single instance, and that only one value can be returned. Whenever you are looking for a variable with only one value, you must include the .0 at the end. Some variables may have multiple values, such as an IP address and an associated port number.

Table 1-2 MIB-II Group Descriptions

MIB-II Group	Number (1.3.6.1.2.1.)
System	1
Interfaces	2
Address Translation	3
Internet Protocol (IP)	4
Internet Control Message (ICMP)	5
Transmission Control Protocol (TCP)	6
User Datagram Protocol (UDP)	7
Exterior Gateway Protocol (EGP)	8
CMIP over TCP (CMOT)	9
Transmission	10
SNMP	11
GenericIF	12
AppleTalk	13
Open Shortest Path First (OSPF)	14
Border Gateway Protocol (BGP)	15
Remote Network Monitoring (RMON)	16
Bridge	17

There are additional groups under MIB-II, but all groups are not supported by the ELS10-26.

The Cabletron MIB is under the private enterprise MIB branch. To identify a variable in the Cabletron MIB, you would start with the private enterprise prefix of 1.3.6.1.4.1, and add the specific Cabletron ID of 97. The result, 1.3.6.1.4.1.97, is the complete prefix for a Cabletron MIB variable. You would then add the specific object ID to complete the MIB variable.

For example, to find the sysID currently defined in the ELS10-26, you would want to get the sysID variable in the Cabletron MIB group and add it to the prefix 1.3.6.1.4.97. After the prefix, add the Cabletron MIB, 1.1. As stated above, the zero {0} indicates that this variable is a single instance and only one variable can be returned.

The get command would look like:

```
get 1.3.6.1.4.1.97.1.1
```

At the beginning of each chapter in this Reference Guide, the prefix for each MIB group is provided. To calculate the specific MIB variable, you add the specific object ID to the prefix for that MIB group.

1.8 TFTP

TFTP (Trivial File Transfer Protocol, RFC 1350) is used for:

- Distribution of new software.
- Bulk retrieval of all of the parameters of a ELS10-26.
- Bulk setting of all of the parameters of a ELS10-26.

TFTP has no inherent security provision; however, all files have special data encryption, and the ELS10-26 will reject files that have not been encrypted. In addition, SNMP primitives may be used to prevent the ELS10-26 from accepting unauthorized TFTP requests, even if the files have the special data encryption. Refer to the description of the sxswdis branch of Cabletron's private MIB for TFTP security details.

Software Distribution

TFTP is used for the distribution of new software. The new software will be automatically invoked when an ELS10-26 reboots.

New software is released in two files:

- dnld_hdr
- dnld_software

To distribute the new software to an ELS10-26, the TFTP procedure is as follows:

1. Start TFTP on the NMS, or on any other device which can provide TFTP services. (Typically, TFTP must be started from the same directory that contains the files to be transferred.) TFTP must be told the IP address of the remote host (the IP address of the ELS10-26), and the file transfer mode (which must be "binary").

2. Use TFTP to retrieve all of the ELS10-26's parameters, as described in a subsection below. This step is not required, but it

is recommended if you need to go back to the version of software that is currently being executed by the ELS10-26.

3. Tell TFTP to transfer ("put") the first file, (dnld_hdr).

4. Wait one minute, or until the ELS10-26 sends the SNMP Trap described in the swdis branch of SMC's private MIB. (The Trap will be sent when the ELS10-26 is ready for the second file, which will be somewhat shorter than three minutes.)

5. Tell TFTP to transfer the second file, (dnld_software). This transfer should take approximately one minute.

   The initial one minute waiting may be omitted and this second transfer may be initiated immediately following the first transfer; however, that causes the second transfer to take approximately two minutes, and creates a slightly heavier network load during the file transfer.

Note: *If the above TFTP sequence is abnormally terminated, there is no cause for alarm, since the ELS10-26 maintains a back-up set of software, and the ELS10-26 will not use the incomplete new software.*

Older versions of software may be distributed to an ELS10-26, provided that the older software is at least Version 2.3. To distribute the older software to an ELS10-26, the above TFTP procedure should be altered, with the following step being performed before the older software is distributed.

If the bulk retrieval of all of the parameters of the ELS10-26 had been performed while the ELS10-26 was executing that older software, that retrieved file should be used to do a bulk set of all parameters (as described below). Otherwise, when the older software is distributed and the ELS10-26 reboots, the older software will not understand the format of the ELS10-26's parameters.[2]

1.8.1 Retrieving All Parameters

TFTP is used for retrieval of the parameters of an ELS10-26, as follows:

1. Start TFTP (as described earlier). TFTP must be told the IP address of the remote host (i.e., the ELS10-26), and the file transfer mode (which must be "binary").

2. Tell TFTP to retrieve (i.e., "get") the ELS10-26's Configuration file (i.e., file name "config").

3. After about ten seconds, the TFTP operation will complete.

1.8.2 Setting All Parameters

TFTP is used for bulk setting of all of the parameters of an ELS10-26, as follows:

1. Start TFTP (as described earlier). TFTP must be told the IP address of the remote host (i.e., the IP address of the ELS10-26), and the file transfer mode (which must be "binary").

2. Tell TFTP to send (i.e., "put") the ELS10-26's Configuration file (i.e., file name "config").

3. After about twenty seconds, the TFTP operation will complete.

[2.] The software will re-initialize all of the ELS10-26's parameters to the factory specified defaults.

1.9 ADDITIONAL INTERFACES

In addition to SNMP and TFTP, the ELS10-26 employs the following protocols, as part of its software interface with an NMS:

- UDP - User Datagram Protocol, RFC 768.
- IP - Internet Protocol, RFC 791.
- ARP - Ethernet Address Resolution Protocol, RFC 826.
- RARP - Reverse Address Resolution Protocol, RFC 903. RARP is only used when no IP addresses have been assigned to the ELS10-26.

CHAPTER 2

TCP/IP MIB-II

The ELS10-26 supports the TCP/IP MIB-II, as defined by *Management Information Base for Network Management of TCP/IP-based Internets MIB-II*, RFC 1213 (K. McCloghrie, editor), dated March 1991. The MIB is divided into groups of parameters. The individual groups are described in the subsections below. You may want to refer to the actual TCP/IP MIB, since this document paraphrases the standard MIB in order to provide ELS10-26-related descriptions.

Note: *The access types of some of the TCP/IP MIB parameters have been extended from Read-Only to Read-Write. However, unless otherwise indicated, the access type of all parameters is as indicated in the standard MIB.*

The MIB tree prefix for reaching the TCP/IP MIB-II is:

```
1.3.6.1.2.1.
```

2.1 SYSTEM GROUP

system {mib-2 1}

The TCP/IP System Group parameters are described below.

sysDescr {system 1}
DisplayString Read-Only

A textual description of the ELS10-26 is Cabletron "moduleName" Rev "FirmwareRevision" "LinkTimeandDate" i.e., Cabletron ELS10-26 Rev xx:xx:xx 03/04/97--11:30:25

sysObjectID {system 2}
Object Identifier Read-Only

The identifier of the variable used to identify the type of entity. Cabletron's MIB sysID parameter will have a value that indicates that it is a bridge. So sysObjectID contains the object identifier of

the Cabletron MIB sysID object, i.e., {1 3 6 1 4 1 97 5 7}. Special versions of the ELS10-26, made for third-party vendors may use different values for sysID.

sysUpTime {system 3}
TimeTicks Read-Only

The time, in centiseconds, since the ELS10-26 was last booted.

sysContact {system 4}
DisplayString Read-Write

The name and address of the contact person for the ELS10-26.

sysName {system 5}
DisplayString Read-Write

The Internet name of the contact person for the ELS10-26. The LCM prompt consists of sysName followed by ">". (LCM is a non-intelligent terminal interface that can be used to configure and monitor status for the ELS10-26.)

sysLocation {system 6}
DisplayString Read-Write

The physical location of the ELS10-26.

sysServices {system 7}
Integer Read-Only

The sum of the services supported by the ELS10-26. Values include:

(2) the ELS10-26 is a bridge only

2.2 INTERFACES GROUP

interfaces {mib-2 2}

The TCP/IP Interfaces Group parameters are described below.

ifNumber {interfaces 1}
Integer Read-Only

The number of ports (whether alive or dead), including the UART.

ifTable {interfaces 2}
Not Accessible

A list of interface entries; one per port (ifNumber in total).

ifEntry {ifTable 1}
Not Accessible

A set of objects for an interface entry. The individual components are described below.

ifIndex {ifEntry 1}
Integer Read-Only

The port number, beginning with 1 for the first port. This number always matches the instance of the ifEntry. For example, {ifIndex 3} contains the value “3”.

ifDescr {ifEntry 2}
DisplayString Read-Only

A textual description of the port. One of the following text strings:

- Ethernet/802.3 TP
- Network Management Port (this is the UART port)
- Fast Ethernet/802.3u TP (twisted pair connection)
- Fast Ethernet/802.3u FX (fiber connection)
- Fast Ethenet/802.3u T4 (2 twisted pairs, category 5)

ifType {ifEntry 3}
Integer Read-Only

The type of the port, i.e., one of the following:

- (6) - ethernet-csmacd
- (23) - ppp (for the UART port).

ifMtu {ifEntry 4}
Integer Read-Only

The size (in bytes) of the largest network datagram which may be sent or received on the port. This does not include the MAC header, LLC header, and FCS. For CSMA/CD ports, the Ethernet Frame Type is considered part of the MAC header, but there is no LLC header. Specifying a value of zero in a SetRequest indicates that the interface is to default to the largest MTU available for that media. The effective value is always returned in the GetResponse.

ifSpeed {ifEntry 5}
Integer Read-Only

The port's estimated MAC-level bandwidth, in bits per second. The bandwidth will be in the range 1,200 - 100,000,000.

ifPhysAddress {ifEntry 6}
Physical Address Read-Write[1]

The MAC address of the port. For the UART port, this field should be an octet string of zero length.

ifAdminStatus {ifEntry 7}
Integer Read-Write

The desired state of the port, i.e., one of the following:

- up (1) - setting the port's state to up causes the port's statistics to be reset
- down (2) - the port is not to be used
- testing (3) - the port is to be put into local loopback (this value is not saved if the unit reboots)

ifOperStatus {ifEntry 8}
Integer Read-Only

The current status of the port, i.e., one of the following:

- up (1) - the port can send/receive NMS packets; however, whether or not the port has its bridging functions enabled is unknown.
- down (2) - the port is broken, or is intentionally physically disabled.
- testing (3) - the port is in local loopback.

ifLastChange {ifEntry 9}
TimeTicks Read-Only

The time, in centiseconds relative to sysUpTime, since the port entered its last state (as defined by ifOperStatus).

---

1. The standard MIB definition is Read-Only.

ifInOctets {ifEntry 10}
Counter Read-Only

The total number of bytes received on the port, counting the MAC header and FCS, but not counting the bytes in packets that were rejected due to hardware errors. **All counters are 32-bit wide wrap-around counters which can only be reset by restarting the port or by rebooting the ELS10-26.**

ifInUcastPkts {ifEntry 11}
Counter Read-Only

The number of non-multicast packets received by the port, regardless of the packet's outcome (i.e., whether the packet was filtered or forwarded).

ifInNUcastPkts {ifEntry 12}
Counter Read-Only

The number of multicast packets received by the port, regardless of the packet's outcome (i.e., whether the packet was filtered or forwarded).

ifInDiscards {ifEntry 13}
Counter Read-Only

The number of packets received by the port, which were filtered because of a lack of resources to receive the packet (see lxifRxQueues).

ifInErrors {ifEntry 14}
Counter Read-Only

The number of packets received by the port, which were discarded due to hardware reception errors.

ifInUnknownProtos {ifEntry 15}
Read-Only

This value is always zero.

ifOutOctets {ifEntry 16}
Counter Read-Only

The total number of bytes transmitted out the port, counting the MAC header and FCS.

ifOutUcastPkts {ifEntry 17}
Counter Read-Only

The number of non-multicast packets transmitted out the port, regardless of whether or not hardware transmission errors were encountered.

ifOutNUcastPkts {ifEntry 18}
Counter Read-Only

The number of multicast packets transmitted out the port, regardless of whether or not hardware transmission errors were encountered.

ifOutDiscards {ifEntry 19}
Counter Read-Only

The number of packets to be transmitted out the port, but were not transmitted due to non-error reasons. The definition of non-error reasons is implementation dependent. The ELS10-26 defines non-error reasons as packet congestion. Packet congestion occurs when too many packets are to be queued for transmission, or when packets have been awaiting transmission for too long a time period.

ifOutErrors {ifEntry 20}
Counter Read-Only

The number of packets that were to be transmitted out the port, but incurred transmission hardware errors.

ifOutQLen {ifEntry 21}
Gauge Read-Only

The maximum length ever obtained by the port's outbound packet queue (in packets) is not available, so this value is always one.

ifSpecific {ifEntry 22}
Object Identifier Read-Only

The object identifier of the MIB for the type of port, i.e., one of the following:

{dot3}	for Ethernet ports (dot3 is defined later, as {transmission 7}).
{ppp}	for the UART (ppp is defined later, as {experimental 18}).

2.3 ADDRESS TRANSLATION GROUP

at {mib-2 3}

The TCP/IP Address Translation Group parameters are minimally supported (i.e., for any parameter in this group, the ELS10-26 returns a GetResponse with a noSuchName ErrorStatus). It is anticipated that the Address Translation Group will be deleted from TCP/IP MIB III, since there will be separate address translation tables for every type of network protocol (indeed, TCP/IP MIB II already defines the IP Address Translation Table).

The TCP/IP Address Translation Group parameters are described below.

atTable {at 1}
Not Accessible

atEntry {atTable 1}
Not Accessible

atIfIndex {atEntry 1}
Integer Read-Write

All GetResponse PDUs indicate a noSuchName ErrorStatus.

atPhysAddress {atEntry 2}
Physical Address Read-Write

All GetResponse PDUs indicate a noSuchName ErrorStatus.

atNetAddress {atEntry 3}
Network Address Read-Write

All GetResponse PDUs indicate a noSuchName ErrorStatus.

2.4 IP GROUP

ip {mib-2 4)

The TCP/IP IP Group parameters are described below.

ipForwarding {ip 1}
Integer Read-Write

Whether the ELS10-26 is an IP router. This value is always host (2). Attempts to write a different value to this field will not change its value, and "badValue" GetResponse PDUs are returned for all such SetRequest PDUs.

ipDefaultTTL {ip 2}
Integer Read-Write

The value, in seconds, to insert into the Time-To-Live field of the IP header when this ELS10-26 creates IP datagrams.

ipInReceives {ip 3}
Counter Read-Only

The total number of IP packets received from all ports (including the UART).

ipInHdrErrors {ip 4}
Counter Read-Only

The number of packets received that were discarded due to errors in the IP header.

ipInAddrErrors {ip 5}
Counter Read-Only

The number of packets received that were discarded due to an invalid (or nonroutable) destination IP address in the IP header.

ipForwDatagrams {ip 6}
Counter Read-Only

The number of packets received that were routed towards a final IP destination.[2]

ipInUnknownProtos {ip 7}
Counter Read-Only

The number of packets received that were addressed to this ELS10-26's IP, but were discarded because of an unknown or unsupported protocol.

ipInDiscards {ip 8}
Counter Read-Only

The number of packets that were received without error, but were not processed (due to insufficient resources, for example).

---

2. This appears to be a typographical error in the TCP/IP MIB, since the name should be ip**In**ForwDatagrams.

ipInDelivers {ip 9}
Counter Read-Only

The total number of input packets successfully delivered to the IP user-protocol layers.

ipOutRequests {ip 10}
Counter Read-Only

The total number of IP output packets generated by this ELS10-26. This count does not include any packets represented in ipForwDatagrams.

ipOutDiscards {ip 11}
Counter Read-Only

The total number of output packets which were discarded (due to lack of resources, for example). This counter includes packets which would be included in ipForwDatagrams if any such packets were discarded.

ipOutNoRoutes {ip 12}
Counter Read-Only

The number of packets which were discarded because no route could be found to transmit them to their destination. This counter includes any packets counted in ipForwDatagrams which meet this “no-route” criterion.

ipReasmTimeout {ip 13}
Integer Read-Only

The maximum time, in seconds, that received fragments are held while they are awaiting reassembly within this ELS10-26.

ipReasmReqds {ip 14}
Counter Read-Only

The number of IP fragments received which needed to be reassembled within this ELS10-26.

ipReasmOKs {ip 15}
Counter Read-Only

The number of IP datagrams which were successfully reassembled.

ipReasmFails {ip 16}
Counter Read-Only

The number of failures (for whatever reason timed-out, errors, etc.) detected by the IP reassembly algorithm. This is not necessarily a count of discarded IP fragments since some algorithms (notably RFC 815) can lose track of the number of fragments by combining them as they are received.

ipFragOKs {ip 17}
Counter Read-Only

The number of IP datagrams that have been successfully fragmented within this ELS10-26.

ipFragFails {ip 18}
Counter Read-Only

The number of IP datagrams that have been discarded because they needed to be fragmented but could not be (e.g., because their "Don't Fragment" flag was set).

ipFragCreates {ip 19}
Counter Read-Only

The number of IP datagram fragments that have been generated by this ELS10-26.

2.4.1 IP Address Table

The TCP/IP IP Address Table contains the IP addressing information for each port. The parameters are described below.

ipAddrTable {ip 20}
Not Accessible

A list of IP address entries; one per IP address. If a port has not yet learned its IP address, then an ipAddrEntry might not exist for the port (i.e., having an ipAddrEntry with an IP address of zero is not acceptable).

ipAddrEntry {ipAddrTable 1}
Not Accessible

A set of objects for an ipAddrTable entry. The individual components are described below.

ipAdEntAddr {ipAddrEntry 1}
IP Address Read-Only

The IP address itself. Although this field is *Read-Only*, the ELS10-26's lxifIPAddr parameter can be written to affect changes.

ipAdEntIfIndex {ipAddrEntry 2}
Integer Read-Only

The port number which has the indicated IP address.

ipAdEntNetMask {ipAddrEntry 3}
IP Address Read-Only

The network/subnet mask associated with the IP address. For SetRequests, a mask of zero may be specified, in which case, the ELS10-26 will create the correct network mask for a non-subnetted network. For GetRequests, the ELS10-26 will always convert a value of zero into the correct network mask.

ipAdEntBcastAddr {ipAddrEntry 4}
Integer Read-Only

The value for the least significant bit for broadcasts, i.e., the constant 1.

ipAdEntReasmMaxSize {ipAddrEntry 5}
Integer Read-Only

The largest IP datagram which can be reassembled, i.e., the constant 4470.

2.4.2 IP Routing Table

The TCP/IP IP routing table contains the routing information for each route currently known by the ELS10-26. When adding a row, the entire row must be specified, except for the following defaults:

- ipRouteDest is obtained from the row's instance identifier.
- ipRouteMetric1 defaults to 0.
- ipRouteMetric2 defaults to lxadminStaticPreference.
- ipRouteMetric3 through ipRouteMetric5 default to -1.
- ipRouteNextHop is obtained from the row's instance identifier.
- ipRouteType defaults to "direct" if ipRouteNextHop is not specified, or if ipRouteNextHop is specified and it, combined with ipRouteMask, equals the same network as that defined by ipRouteDest.
- ipRouteProto defaults to "netmgmt".
- ipRouteMask defaults to the standard network class mask based on the row's instance identifier (except 255.255.255.255 is used if the row's instance identifier contains a non-zero host portion).

Parameters include the following variables:

ipRouteTable {ip 21}
Not Accessible

A list of routing entries; one per route. An entry is keyed by an IP address (ipRouteDest, defined below). If there are multiple entries

for the same IP address, then only the entry being used by the IP forwarding process is available for SNMP access.

ipRouteEntry {ipRouteTable 1}
Not Accessible

A set of objects for an ipRouteTable entry. The individual components are described below.

ipRouteDest {ipRouteEntry 1}
IP Address Read-Write

The destination IP address of this route.

ipRouteIfIndex {ipRouteEntry 2}
Integer Read-Write

The port number of the next hop.

ipRouteMetric1 {ipRouteEntry 3}
Integer Read-Write

The primary routing metric for this route. This is the zero-based hop count to ipRouteDest. That is, a hop count of zero indicates that ipRouteDest is on a directly connected network.

ipRouteMetric2 {ipRouteEntry 4}
Integer Read-Write

An alternative routing metric for this route. This must be greater than zero.

ipRouteMetric3 {ipRouteEntry 5}
Integer Read-Write

An alternative routing metric for this route.

ipRouteMetric4 {ipRouteEntry 6}
Integer Read-Write

An alternative routing metric for this route.

ipRouteNextHop {ipRouteEntry 7}
IP Address Read-Write

The IP address of the route's next hop.

ipRouteType {ipRouteEntry 8}
Integer Read-Write

The type of the route, one of the following:

- other (1) - none of the below.
- invalid (2) - the entry should be considered to be non-existent.
- direct (3) - the entry is a route to a directly connected network.
- indirect (4) - the entry is a route to a remote network.

ipRouteProto {ipRouteEntry 9}
Integer Read-Only

The manner in which the route was learned.

ipRouteAge {ipRouteEntry 10}
Integer Read-Write

The number of seconds since the route was last updated or deemed to be correct.

ipRouteMask {ipRouteEntry 11}
IP Address Read-Write

The mask to be combined with the destination IP address using the AND operator, before being compared to the value in the ipRouteDest field.

ipRouteMetric5 {ipRouteEntry 12}
Integer Read-Write

An alternative routing metric for this route.

ipRouteInfo {ipRouteEntry 13}
Object Identifier Read-Write

A reference to additional MIB definitions, specific to the routing protocol which is responsible for this route. This information is not present in the ELS10-26, so ipRouteInfo should be set to the object identifier {0 0}.

2.4.3 IP Address Translation Table

The TCP/IP IP address translation table contains mappings of Internet addresses to MAC addresses, except for the Internet addresses of the ELS10-26 itself. The parameters are Read/Write, according to TCP/IP MIB-II; however, the ELS10-26 has the restriction that a dynamic entry should not be modified, except to be made "invalid" (any other modifications will cause a static entry to be created). When adding a row, the following defaults are used:

- ipNetToMediaIfIndex is obtained from the row's instance identifier.
- ipNetToMediaPhysAddress defaults to 0.
- ipNetToMediaNetAddress is obtained from the row's instance identifier.
- ipNetToMediaType defaults to "static".

Parameters include the following:

ipNetToMediaTable {ip 22}
Not Accessible

A list of IP address translation entries; one per port number and IP address.

ipNetToMediaEntry {ipNetToMediaTable 1}
Not Accessible

A set of objects for an ipNetToMediaTable entry. The individual components are described below.

ipNetToMediaIfIndex {ipNetToMediaEntry 1}
Integer Read-Write

The port number for which this entry is effective.

ipNetToMediaPhysAddress {ipNetToMediaEntry 2}
Physical Address Read-Write

The MAC address (for the PPP port, this should be a zero length octet string; for Ethernet ports, this should be a little-endian six byte address).

ipNetToMediaNetAddress {ipNetToMediaEntry 3}
IP Address Read-Write

The IP address which corresponds to the ipNetToMediaPhysAddress.

ipNetToMediaType {ipNetToMediaEntry 4}
Integer Read-Write

The type of address mapping, one of the following:

- other (1) - none of the below.
- invalid (2) - the entry should be considered to be non-existent.
- dynamic (3) - the mapping was dynamically learned.
- static (4) - the mapping was statically configured.

2.4.4 IP Additional Objects

The TCP/IP additional IP objects are described below.

ipRoutingDiscards {ip 23}
Counter Read-Only

The number of valid routing entries that were discarded.

2.5 ICMP GROUP

icmp {mib-2 5}

The TCP/IP ICMP Group parameters are described below.

icmpInMsgs {icmp 1}
Counter Read-Only

The total number of ICMP messages which were received by this ELS10-26. This includes all messages represented by icmpInErrors.

icmpInErrors {icmp 2}
Counter Read-Only

The number of ICMP messages which were received with errors (bad checksums, bad length, etc.).

icmpInDestUnreachs {icmp 3}
Counter Read-Only

The number of ICMP “Destination Unreachable” messages received.

icmpInTimeExcds {icmp 4}
Counter Read-Only

The number of ICMP “Time Exceeded” messages received.

icmpInParmProbs {icmp 5}
Counter Read-Only

The number of ICMP “Parameter Problem” messages received.

icmpInSrcQuenchs {icmp 6}
Counter Read-Only

The number of ICMP “Source Quench” messages received.

icmpInRedirects {icmp 7}
Counter Read-Only

The number of ICMP “Redirect” messages received.

icmpInEchos {icmp 8}
Counter Read-Only

The number of ICMP “Echo (request)” messages received.

icmpInEchoReps {icmp 9}
Counter Read-Only

The number of ICMP “Echo Reply” messages received.

icmpInTimestamps {icmp 10}
Counter Read-Only

The number of ICMP “Timestamp (request)” messages received.

icmpInTimestampsReps {icmp 11}
Counter Read-Only

The number of ICMP “Timestamp Reply” messages received.

icmpInAddrMasks {icmp 12}
Counter Read-Only

The number of ICMP “Address Mask Request” messages received.

icmpInAddrMaskReps {icmp 13}
Counter Read-Only

The number of ICMP “Address Mask Reply” messages received.

icmpOutMsgs {icmp 14}
Counter Read-Only

The total number of ICMP messages which were sent by this ELS10-26. This includes all messages counted by icmpOutErrors.

icmpOutErrors {icmp 15}
Counter Read-Only

The number of ICMP messages which this ELS10-26 did not send due to problems discovered entirely within the ICMP subsystem (such as lack of buffers).

icmpOutDestUnreachs {icmp 16}
Counter Read-Only

The number of ICMP "Destination Unreachable" messages sent.

icmpOutTImeExcds {icmp 17}
Counter Read-Only

The number of ICMP "Time Exceeded" messages sent.

icmpOutParmProbs {icmp 18}
Counter Read-Only

The number of ICMP "Parameter Problem" messages sent.

icmpOutSrcQuenchs {icmp 19}
Counter Read-Only

The number of ICMP "Source Quench" messages sent.

icmpOutRedirects {icmp 20}
Counter Read-Only

The number of ICMP "Redirect" messages sent.

icmpOutEchos {icmp 21}
Counter Read-Only

The number of ICMP "Echo (request)" messages sent.

icmpOutEchoReps {icmp 22}
Counter Read-Only

The number of ICMP "Echo Reply" messages sent.

icmpOutTimestamps {icmp 23}
Counter Read-Only

The number of ICMP "Timestamp (request)" messages sent.

icmpOutTimestampReps {icmp 24}
Counter Read-Only

The number of ICMP "Timestamp Reply" messages sent.

icmpOutAddrMasks {icmp 25}
Counter Read-Only

The number of ICMP "Address Mask Request" messages sent.

icmpOutAddrMaskReps {icmp 26}
Counter Read-Only

The number of ICMP "Address Mask Reply" messages sent.

2.6 TCP GROUP

tcp {mib-2 6}

The TCP Group is not supported since the ELS10-26 does not support TCP.

2.7 UDP GROUP

udp {mib-2 7}

The TCP/IP UDP Group parameters are described below.

udpInDatagrams {udp 1}
Counter Read-Only

The total number of UDP datagrams delivered to UDP users.

udpNoPorts {udp 2}
Counter Read-Only

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

udpInErrors {udp 3}
Counter Read-Only

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

udpOutDatagrams {udp 4}
Counter Read-Only

The total number of UDP datagrams sent from this ELS10-26.

2.7.1 UDP Listener Table

The TCP/IP UDP Listener Table parameters are described below.

udpTable {udp 5}
Not Accessible

A table containing UDP listener information. The table has entries for the following UDP port numbers port 69 (default TFTP port number), port 161 (SNMP port number), and port 520 (RIP port number).

udpEntry {udpTable 1}
Not Accessible

The entry information of the IP address and UDP port combination.

udpLocalAddress {udpEntry 1}
IP Address Read-Only

The all zeroes IP address (0.0.0.0), which indicates that the UDP listener is willing to accept UDP datagrams for any IP address associated with the ELS10-26.

udpLocalPort {udpEntry 2}
Integer Read-Only

The UDP port number, i.e., one of 69, 161, and 520. Note that reception of SNMP Traps (UDP port number 162) is not supported by the ELS10-26.

2.8 EGP GROUP

egp {mib-2 8}

The EGP Group is not supported since the ELS10-26 does not support EGP.

2.9 OIM SUBTREE

cmot {mib-2 9}

The OSI Subtree, as defined in *OSI internet management, Management Information Base*, RFC 1214 (L. LaBarre, editor), dated April 1991, is not supported.

2.10 TRANSMISSION GROUP

transmission {mib-2 10}

The supported TCP/IP Transmission Group parameters are described in later sections of this document. The transmission group supported is:

dot3 {transmission 7}

2.11 SNMP MANAGEMENT GROUP

snmp {mib-2 11}

The TCP/IP SNMP Group parameters are described below.

snmpInPkts {snmp 1}
Counter Read-Only

The number of SNMP PDUs received by the ELS10-26.

snmpOutPkts {snmp 2}
Counter Read-Only

The number of SNMP PDUs created by the ELS10-26.

snmpInBadVersions {snmp 3}
Counter Read-Only

The number of SNMP PDUs received by the ELS10-26 which had an unsupported SNMP version.

snmpInBadCommunityNames {snmp 4}
Counter Read-Only

The number of SNMP PDUs received by the ELS10-26 which had an unrecognized SNMP community name.

snmpInBadCommunityUses {snmp 5}
Counter Read-Only

The number of SNMP PDUs received by the ELS10-26 which had an authentication failure.

snmpInASNParseErrs {snmp 6}
Counter Read-Only

The number of SNMP PDUs received by the ELS10-26 which had an ASN.1 parsing error while being decoded by the ELS10-26.

snmpInBadTypes {snmp 7}
Counter Read-Only

All GetResponse PDUs indicate a noSuchName ErrorStatus, since this variable is no longer used.

snmpInTooBigs {snmp 8}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInNoSuchNames {snmp 9}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInBadValues {snmp 10}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInReadOnlys {snmp 11}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInGenErrs {snmp 12}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInTotalReqVars {snmp 13}
Counter Read-Only

The total number of MIB objects which have been successfully retrieved by the ELS10-26 as a result of SNMP GetRequest or GetNext PDUs.

snmpInTotalSetVars {snmp 14}
Counter Read-Only

The total number of MIB objects which have been successfully altered by the ELS10-26 as a result of SNMP SetRequest PDUs.

snmpInGetRequests {snmp 15}
Counter Read-Only

The total number of SNMP GetRequest PDUs received by the ELS10-26, which have been processed with no errors.

snmpInGetNexts {snmp 16}
Counter Read-Only

The total number of SNMP GetNext PDUs received by the ELS10-26, which have been processed with no errors.

snmpInSetRequests {snmp 17}
Counter Read-Only

The total number of SNMP SetRequest PDUs received by the ELS10-26, which have been processed with no errors.

snmpInGetResponses {snmp 18}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP response PDUs.

snmpInTraps {snmp 19}
Counter Read-Only

Always zero, since the ELS10-26 ignores all SNMP Trap PDUs.

snmpOutTooBigs {snmp 20}
Counter Read-Only

The total number of SNMP PDUs created by the ELS10-26, with a value of “tooBig” in the PDU’s “ErrorStatus”.

snmpOutNoSuchNames {snmp 21}
Counter Read-Only

The total number of SNMP PDUs created by the ELS10-26, with a value of “noSuchName” in the PDU’s “ErrorStatus”.

snmpOutBadValues {snmp 22}
Counter Read-Only

The total number of SNMP PDUs created by the ELS10-26, with a value of “badValue” in the PDU’s “ErrorStatus”.

snmpOutReadOnlys {snmp 23}
Counter Read-Only

All GetResponse PDUs indicate a noSuchName ErrorStatus, since this variable is no longer used.

snmpOutGenErrs {snmp 24}
Counter Read-Only

The total number of SNMP PDUs created by the ELS10-26, with a value of “genErr” in the PDU’s “ErrorStatus”.

snmpOutGetRequests {snmp 25}
Counter Read-Only

Always zero, since the ELS10-26 never creates any SNMP request PDUs.

snmpOutGetNexts {snmp 26}
Counter Read-Only

Always zero, since the ELS10-26 never creates any SNMP request PDUs.

snmpOutSetRequests {snmp 27}
Counter Read-Only

Always zero, since the ELS10-26 never creates any SNMP request PDUs.

snmpOutGetResponses {snmp 28}
Counter Read-Only

The total number of SNMP GetResponse PDUs created by the ELS10-26.

snmpOutTraps {snmp 29}
Counter Read-Only

The total number of SNMP Trap PDUs created by the ELS10-26.

snmpEnableAuthenTraps {snmp 30}
Integer Read-Write

Whether authentication failures should cause the ELS10-26 to generate authentication-failure Trap PDUs. Values include:

- enabled (1) - generate traps
- disabled (2) - do not generate traps

2.12 CABLETRON INTERFACE GROUP

ctIfTable {ctIf 1}

This table defines an extension to the interface table.

SYNTAX SEQUENCE OF ctIfEntry
ACCESS not accessible
STATUS mandatory

ctIfEntry {ctIfTable 1}

This defines each conceptual row within the ctIfTable.

SYNTAX CtIfEntry
ACCESS not accessible
STATUS mandatory

ctIfNumber {ctIfEntry 1}

This defines the interface that is being described. This is the same as IfIndex.

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

ctIfPortCnt {ctIfEntry 2}

This defines the number of ports on the interface that are being described.

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

ctIfConnectionType {ctIfEntry 3}

This defines the specific type of interface connection (BRIM, etc.). This is defined within ctron-oids. This differs from the nature of the interface as defined by IfType as found in MIB-II.

SYNTAX OBJECT IDENTIFIER

ACCESS read-only

STATUS mandatory

ctIfLAA {ctIfEntry 4}

This object is used by a device (with Token Ring interface) to set a Locally Administered Address (LAA) for its MAC hardware address. When set, this LAA will override the default Universally Administered Address, or burned in address of the interface. For devices that do not support LAA, a read will return all zeros. Any write attempt return BADVALUE. For devices that support LAA, valid values are 4000 0000 0000 to 4000 7fff ffff, and 0000 0000 0000 (a value of all zeros causes interface to use the burned in address). A set (write) with an invalid value, returns BADVALUE. After a write, new values will only become active after the Token Ring

interface has been closed and then opened again. A read of ctIfLAA will always return the same values as IfPhysAddress, except in the case where; o ctIfLAA has been set, but interface has not yet been closed and reopened, in this case the last set value is returned. Note that a read of IfPhysAddress will always return the physical address currently being used by the interface.

SYNTAX OCTET STRING (SIZE (6))

ACCESS read-write

STATUS mandatory

ctIfDuplex {ctIfEntry 5}

This defines the capability of the underlying hardware in supporting full duplex. This object will have a value of fullDuplex(3) if all hardware is capable of supporting full duplex operation.

SYNTAX INTEGER {other(1), standard(2), full(3)}

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.2.1.1.5

The OID will actually be 1.3.6.1.4.1.52.4.3.3.2.1.1.5.X where X is the interface number requested. This is what the port is set to, NOT of what it is capable. It will report full (3) or standard (2) on ethernet ports, and other (1) for fast ethernet ports. It will report other (1) on our UART (Local Console Management or PPP) port.

ctIfCapability {ctIfEntry 6}

DESCRIPTION

Defines the capability of the underlying hardware in supporting full duplex. This object will have a value of fullDuplex (3) if all hardware is capable of supporting full duplex operation.

SYNTAX INTEGER {other (1), standard (2), fullDuplex (3), fastEthernet (4)}

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.2.1.1.6

The OID will actually be 1.3.6.1.4.1.52.4.3.3.2.1.1.6.X where X is the interface number (port number) requested. It will report fullDuplex (3) on our ethernet ports, and fastEthernet (4) on our fast ethernet ports. It will report other (1) on our UART (Local Console Management or PPP) port.

2.13 CABLETRON INTERFACE PORT GROUP

ctIfPortTable {ctIfPort 1}

This table defines an extension to the interface table.

SYNTAX SEQUENCE OF ctIfPortEntry

ACCESS not accessible

STATUS mandatory

ctIfPortEntry {ctIfPortTable 1}

DESCRIPTION

This defines each conceptual row within the ctIfPortTable.

SYNTAX CtIfPortEntry

ACCESS not-accessible

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.3.1.1

INDEX

ctIfPortIfNumber

ctIfPortPortNumber

ctIfPortPortNumber {ctIfPortEntry 1}

This defines the port that is being described.

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.3.1.1.1

The OID will actually be 1.3.6.1.4.1.52.4.3.3.3.1.1.1.X.Y where X is the interface number and Y is the port requested. X will increment from 1 to 28 (25 Ethernet, 2 Fast Ethernet, and the LCM port). Y will always be 1 because there is only one port per interface. We will always return a value of 1, because there is only one port on the interface.

ctIfPortIfNumber {ctIfPortEntry 2}

This defines the interface on which the port is being defined.

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.3.1.1.2

The OID will actually be 1.3.6.1.4.1.52.4.3.3.3.1.1.1.X.Y where X is the interface number and Y is the port requested. X will increment from 1 to 28 (25 Ethernet, 2 Fast Ethernet, and the LCM port). Y will always be 1 because there is only one port per interface. We will return our port number, which will actually be the same as X.

ctIfPortType {ctIfPortEntry 3}

DESCRIPTION

This defines the specific type of port (EPIM, TPIM). This is defined within ctron-oids.

SYNTAX OBJECT IDENTIFIER

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.3.1.1.3

The OID will actually be 1.3.6.1.4.1.52.4.3.3.3.1.1.1.X.Y where X is the interface number and Y is the port requested. X will increment from 1 to 28 (25 Ethernet, 2 Fast Ethernet, and the LCM port). Y will always be 1 because there is only one port per interface. This variable should describe the hardware device itself by media type and type of connection. We have an Ethernet connection to an RJ45. This means that we will return an OID of 1.3.6.1.4.1.52.3.8.1.1.1.6 to show portRJ45 (CTRON-OIDS): oid_value_assignment.

ctIfPortLinkStatus {ctIfPortEntry 4}

This defines the status of the port connection.

SYNTAX INTEGER {notLinked(1), linked(2), notApplicable(3)}

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.52.4.3.3.3.1.1.4

The OID will actually be 1.3.6.1.4.1.52.4.3.3.3.1.1.1.X.Y where X is the interface number and Y is the port requested. We will return the link status for the ethernet and fast ethernet ports. We will return notApplicable (3) for the UART port.

2.14 CABLETRON COM PORT CONFIGURATION GROUP

ctCpTable {ctIfCp 1}

This table defines a Com Port Table.

SYNTAX SEQUENCE OF ctCPEntry
ACCESS not accessible
STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1

ctCpEntry {ctCpTable 1}

This defines each conceptual row within the ctCpTable.

SYNTAX ctCpEntry
ACCESS not accessible
STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1

INDEX
ctComPort

ctComPort {ctCpEntry 1}

This is the index into the Com Port Table and defines the Com Port that is being described. com1 = 1, com2 = 2.

SYNTAX INTEGER
ACCESS read-only
STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1.1

We only have one UART port. This means the OID will always be OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1.1.1, and we will always return a value of 1.

ctCpFunction {ctCpEntry 2}

DESCRIPTION

This defines the Com Port Function supported by that Com Port.

SYNTAX INTEGER {lm(1), ups(2), slip(3), ppp(4)}

ACCESS read-write

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1.2

The OID will actually be 1.3.6.1.4.1.52.4.3.3.4.1.1.2.1 because there is only one UART port. We support LM and PPP simultaneously. If we detect a PPP packet we do negotiations and enter into PPP mode. As long as PPP keeps live messages we'll stay there. If they don't we revert back to VT100 emulation. We will sample the port at the time the request comes in and return a value of LM (1), or PPP (4) depending on what state the port is in at the time of the request.

ctIfNum {ctCpEntry 3}

DESCRIPTION

This defines the interface that is being described. This is the same as ifIndex. This is only valid if ctCpFunction is PPP, otherwise 0.

SYNTAX INTEGER

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1.3

The OID will actually be 1.3.6.1.4.1.52.4.3.3.4.1.1.3.1 because we only have the one UART port. We will return our port number for the UART port.

ctCpAdminStatus {ctCpEntry 4}

DESCRIPTION

The administrative state of the Com Port.

SYNTAX INTEGER {disabled(1), enabled(2)}

ACCESS read-only

STATUS mandatory

OBJECT IDENTIFIER: 1.3.6.1.4.1.52.4.3.3.4.1.1.4

The OID will actually be 1.3.6.1.4.1.52.4.3.3.4.1.1.4.1 because we only have the one UART port.

We don't allow this port to be turned on or off. Because of this, it will be READ-ONLY.

It will always return enabled (2).

2.15 SNMP VERSION GROUP

enableSNMPv1 **Not Supported** {ctSNMP 1}

This object allows control over the SNMPv1 protocol. If set to a value of disable(1) then the SNMPv1 protocol will not be accepted by the device.

SYNTAX INTEGER {disabled(1), enabled(2)}

ACCESS read-write

STATUS mandatory

enableSNMPv2 **Not Supported** {ctSNMP 2}

This allows control over the SNMPv2 protocol. If set to a value of disable(1) then the SNMPv2 protocol will not be accepted by the device.

SYNTAX INTEGER {disabled(1), enabled(2)}

ACCESS read-write

STATUS mandatory

2.16 TRAP DESCRIPTION

InterfacePortInsertion **Not Supported.**

Specific Trap Type Code - 0x1A0

This trap will be generated when it is detected that an interface port has been inserted. The information will include:

ctIfNumber	{ctIfEntry 1}
ctIfPortNumber	{ctIfPortEntry 1}
ctPortType	{ctIfPortEntry 3}

Specific Trap Type Code - 0x1A1

This trap will be generated when it is detected that an interface port has been removed. The information will include:

ctIfNumber	{ctIfEntry 1}
ctIfPortPortNumber	{ctIfPortEntry 1}

InterfacePortLinkUp

Specific Trap Type Code - 0x1A2

This trap will be generated when it is determined that a port on a strictly bridging interface (not “repeater”) has been connected to a LAN. This is only appropriate for ports that support the concept of a link state. The information will include:

ctIfNumber	{ctIfEntry 1}
ctIfPortPortNumber	{ctIfPortEntry 1}

InterfacePortLinkDown

Specific Trap Type Code - 0x1A3

This trap will be generated when a previously attached bridging port has been disconnected from a LAN. This is only appropriate for ports that support the concept of a link state. The information will include:

ctIfNumber {ctIfEntry 1}

ctIfPortPortNumber {ctIfPortEntry 1}

This trap will be sent when a link goes down.

2.17 CABLETRON MIB 2 EXTENSIONS

ctmib2-ext-mib Cabletron's extension to the MIB-II

This module provides authoritative definitions for part of the naming tree below:

cabletron {enterprises 52}

This module will be extended, as additional sub-sections of this naming tree are defined.

IMPORTS ctronMib2FROM CTRON-MIB-NAMES OBJECT-TYPE FROM RFC-1212

Textual Convention

DisplayString ::= OCTET STRING

This data type is used to model textual information from the NVT ASCII character set. By convention, objects of this syntax are declared as having: SIZE (0.255)

This MIB defines Cabletron extensions to MIB-II. Groups within this MIB refer to the group in which the objects pertain within MIB-II.

Groups within this MIB are:

commonDevOBJECT IDENTIFIER {ctronMib2 1}

ctIfPortOBJECT IDENTIFIER {ctronMib2 2}

ctIfPortOBJECT IDENTIFIER {ctronMib2 3}

ctIfCpOBJECT IDENTIFIER {ctronMib2 4}

ctSNMP OBJECT IDENTIFIER {ctronMib2 5}

ctSONET OBJECT IDENTIFIER {ctronMib2 6}

The commonDevice group of this group is an extension to the system group MIB2. It contains similar information to that defined within the system group of MIB-II.

Implementation of this group is optional for Cabletron devices.

comDeviceTime

OBJECT-TYPE	
SYNTAX DisplayString(SIZE (8))	
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The current time of day, in 24 hour format, as measured by the device. The representation shall use the standard HHMMSS format.

::= {commonDev 1}

comDeviceDate

OBJECT-TYPE

SYNTAX DisplayString(SIZE (8))

ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The current date, as measured by the device. The representation shall use the standard MMDDYY format.

::= {commonDev 2}

comDeviceBoardMap

OBJECT-TYPE

SYNTAXINTEGER

ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Contains a bit encoded representation of slots that contain MIM boards. If a bit is one, then that slot is occupied by a board.

::= {commonDev 3}

ctIF group implementation of this group is optional.

The ctIf group contains information about the type of interface, i.e. the type of BRIM etc. This information is not available in the interface group of MIB-II.

ctIfTable

OBJECT-TYPE

SYNTAXSEQUENCE OF CtIfEntry

ACCESS	not accessible
STATUS	mandatory
DESCRIPTION	This table defines an extension to the interface table.

::= {ctIf 1}

ctIfEntry

OBJECT-TYPE	
SYNTAXCtIfEntry	
ACCESS	not accessible
STATUS	mandatory
DESCRIPTION	This defines each conceptual row within the ctIfTable.
INDEX	{ctIfNumber}

::= {ctIfTable 1}

CtIfEntry::=

SEQUENCE
{ctIfNumber INTEGER,
ctIfPortCnt INTEGER,
ctIfConnectionType OBJECT IDENTIFIER,
ctIfLAA OCTET STRING,
ctIfDuplex INTEGER,
ctIfCapability INTEGER,
ctIfRedundancy INTEGER }

ctIfNumber

OBJECT-TYPE	
SYNTAXINTEGER	
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	This defines the interface that is being described. This is the same as ifIndex.

::= {ctIfEntry 1}

ctIfPortCnt

OBJECT-TYPE	
SYNTAXINTEGER	
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	This defines the number of ports on the interface that is being described.
INDEX	{ctIfNumber}

::= {ctIfEntry 2}

ctIfConnectionType

OBJECT-TYPE	
SYNTAXOBJECTIDENTIFIER	
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Defines the specific type of interface connection (BRIM etc.). This is defined within ctron-oids. This differs from the nature of the interface as defined by ifType as found in MIB-II.
INDEX	{ctIfNumber}

::= {ctIfEntry 3}

ctIfLAA

OBJECT-TYPE	
SYNTAXOCTET STRING (SIZE (6))	
ACCESS	read-write

STATUS	mandatory
DESCRIPTION	This object is used by a device (with a Token Ring interface) to set a Locally Administered Address (LAA) for its MAC hardware address. When set, this LAA will override the default Universally Administered Address or burned-in address of the interface.

For devices that do not support LAA:

a read will return all zeroes

any write attempt will return BADVALUE

For devices that suport LAA:

valid values are 4000 0000 0000 to 4000 7fff ffff, and 0000 0000 0000 (a value of all zeroes causes interface to use the burned-in address).

a set (write) with an invalid value returns BADVALUE.

after a write, new values will only become active after Token Ring interface has been closed and then opened again.

a read of ctIfLAA will always return the same value as ifPhysAddress, except in the case where; o ctIfLAA has been set, but interface has not yet been closed and re-opened. In this case the last set value is returned.

Note that a read of ifPhysAddress will always return the physical address currently being used by the interface.

::= {ctIfEntry 4}

ctIfDuplex

OBJECT-TYPE	
SYNTAXINTEGER	{other (1), standard (2), full (3)}
ACCESS	read-write

STATUS	mandatory
DESCRIPTION	Defines the specific type of interface connection (BRIM etc.). Defines the duplex mode in which the interface is set to operate.

For devices that do not support this capability:

a read will return standard (2).

any write attempt will return BADVALUE.

fast ethernet devices will report other (1).

::= {ctIfEntry 5}

ctIfCapability

OBJECT-TYPE	
SYNTAXINTEGER	{other (1), standard (2), full duplex (3), fastEthernet (4)}
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Defines the capability of the underlying hardware in supporting full duplex. This object will have a value of fullDuplex (3) if all hardware is capable of supporting full duplex operation.

::= {ctIfEntry 6}

ctIfRedundancy

OBJECT-TYPE	
SYNTAXINTEGER	{redundant (1), not-redundant (2)}
ACCESS	read-only
STATUS	mandatory

DESCRIPTION Defines whether or not an interface supports redundancy.

::= {ctIfEntry 7}

ctIfPort group implementation of this group is optional

The ctIfPort group contains information about the type of port on the interface i.e., the type of EPIM,TPIM etc. This information is not available in the interface group of MIB-II.

ctIfPortTable

OBJECT-TYPE

SYNTAXSEQUENCEOF CtIfPortEntry

ACCESS not accessible

STATUS mandatory

DESCRIPTION This defines each conceptual row within the ctIfPortTable.

INDEX {ctIfPortNumber}

ctIfPortPortNumber

::= {ctIfPortTable 1}

ctIfPortEntry

OBJECT-TYPE

SYNTAX {CtIfPortPortNumber}

ACCESS not accessible

STATUS mandatory

DESCRIPTION This defines each conceptual row within the ctIfPortTable.

INDEX {ctIfPortNumber}

ctIfPortPortNumber

::= {ctIfPortTable 1}

ctIfPortEntry::=
SEQUENCE
{ctIfPortPortNumber INTEGER,
ctIfPortIfNumber INTEGER,
ctIfPortType OBJECT IDENTIFIER,
ctIfPortLinkStatus INTEGER}

ctIfPortPortNumber
OBJECT-TYPE
SYNTAX
INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION This defines the port being described.

::= {ctIfPortEntry 1}

ctIfPortIfNumber
OBJECT-TYPE
SYNTAX
INTEGER
ACCESS read-only
STATUS mandatory
DESCRIPTION This defines the interface that the port being described is on.

::= {ctIfPortEntry 2}

ctIfPortType

OBJECT-TYPE	
SYNTAX	OBJECT IDENTIFIER
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Defines the specific type of the port (EPIM,TPIM). This is defined within ctron oids.

::= {ctIfPortEntry 3}

ctIfPortLinkStatus

OBJECT-TYPE	
SYNTAX	
INTEGER	{not linked (1), linked (2), notApplicable (3).}
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Defines the status of the port connection.

::= {ctIfPortEntry 4}

ctIfPort group implementation of this group is optional

The ctIfCp group contains information about the com port configuration on the MMAC Management Modules (i.e., EMME, TRMM) and on the MMAC-Plus Environmental Module.

ctCpTable

OBJECT-TYPE

SYNTAXSEQUENCEOF CtIfCpEntry

	ACCESS	not accessible
	STATUS	mandatory
	DESCRIPTION	This table defines a Com Port Table.

::= {ctIfCp 1}

ctCpEntry

	OBJECT-TYPE	
	SYNTAX	CtCpEntry
	ACCESS	not accessible
	STATUS	mandatory
	DESCRIPTION	This defines each conceptual row within the ctCpTable.
	INDEX	{ctComPort}

::= {ctCpTable 1}

ctCpEntry::=

SEQUENCE
{ctComPort INTEGER,
ctCpFunction INTEGER,
ctIfNum INTEGER,
ctCpAdminStatus INTEGER}

ctComPort

	OBJECT-TYPE	
	SYNTAXINTEGER	
	ACCESS	read-only
	STATUS	mandatory
	DESCRIPTION	This is the index into the Com Port Table and defines the Com Port that

	is being described. com1 = 1, com2 = 2

{ctCpEntry 1}

ctCpFunction

OBJECT-TYPE	
SYNTAXINTEGER	{lm(1), Local Management (default), ups (2) UPS, slip (3) SLIP, ppp (4) PPP}
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	Defines the Com Port Function supported by that Com Port.

{ctCpEntry 2}

ctIfNum

OBJECT-TYPE	
SYNTAXINTEGER	
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	This defines the interface that is being described. This is the same as ifIndex. This is only valid if ctCp-Function is SLIP or PPP, otherwise 0.

{ctCpEntry 3}

ctCpAdminStatus

OBJECT-TYPE	
SYNTAXINTEGER	{disabled (1), enabled (2) (default)}
ACCESS	read-write

STATUS	mandatory
DESCRIPTION	The administrative state of the Com Port.

{ctCpEntry 4}

The SNMP group. Implementation of this group is mandatory when the SNMPv2 protocol is present within the device.

enableSNMPv1

OBJECT-TYPE	
SYNTAXINTEGER	{disable (1), enable (2)}
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	This object allows control over the SNMPv1 protocol. If set to a value of disable (1) then the SNMPv1 protocol will not be accepted by the device.

{ctSNMP 1}

enableSNMPv2

OBJECT-TYPE	
SYNTAXINTEGER	{disable (1), enable (2)}
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	This object allows control over the SNMPv2 protocol. If set to a value of disable (1) then the SNMPv2 protocol will not be accepted by the device.

{ctSNMP 2}

{ctSNMP 3} is obsolete

The ctSonet group is an optional group. It contains information pertaining to the optical connectivity speed.

ctSonetEntry

OBJECT-TYPE	
SYNTAXSEQUENCEOF	CtSonetEntry
ACCESS	not accessible
STATUS	mandatory
DESCRIPTION	This table defines the Sonet table.
INDEX	{ctSonetIfIndex}

{ctSonetTable 1}

CtSonetEntry::=

SEQUENCE

{ctSonetIfIndex INTEGER,

ctSonetMediumType INTEGER}

ctSonetIfIndex

OBJECT-TYPE	
SYNTAX	
INTEGER	
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	This defines the interface being described. It is the same as IfIndex.

{ctSonetEntry 1}

ctSonetMediumType

OBJECT-TYPE	
SYNTAX	
INTEGER	{sonet (1), sdh (2)}
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	This variable identifies whether a SONET or an SDH signal is used across this interface.

{ctSonetEntry 2}

Trap description

InterfacePortInsertion

Specific Trap Type Code- 0x1A0

This trap will be generated when it is detected that an interface port has been inserted. The interesting information will include:

ctIfNumber {ctIfEntry 1}, ctIfPortPortNumber {ctIfPortEntry 1}, ctIfPortType {ctIfPortEntry 3}

Trap description

InterfacePortInsertion

Specific Trap Type Code - 0x1A1

This trap will be generated when it is determined that a port has been removed. The interesting information will include:

ctIfNumber {ctIfEntry 1}, ctIfPortPortNumber {ctIfPortEntry 1},

Trap description

InterfacePortLinkUp

Specific Trap Type Code - 0x1A2

This trap will be generated when it is determined that a port on a strictly bridging interface (not a “repeater”) has been connected to a LAN. This is only appropriate for ports that support the concept of a link state. The interesting information will include:

ctIfNumber {ctIfEntry 1}, ctIfPortPortNumber {ctIfPortEntry 1},

Trap description

InterfacePortLinkDown

Specific Trap Type Code - 0x1A3

CHAPTER 3

ETHERNET MIB

The ELS10-26 supports the Ethernet MIB as defined in *Definitions of Managed Objects for the Ethernet-like Interface Types*, RFC 1284 (J. Cook, editor), dated December 1991.

The MIB tree prefix for reaching the GenericIF group is:

```
1.3.6.1.2.1.12.
```

3.1 GENERIC ETHERNET-LIKE GROUP

dot3Table {dot3 1}
Not Accessible

A list of interface entries; one per Ethernet port. The entry instances correspond to the ELS10-26's port numbers.

dot3Entry {dot3Table 1}
Not Accessible

A set of operational attributes for an Ethernet entry. The individual components are described below.

dot3Index {dot3Entry 1}
Integer Read-Only

The ELS10-26's Ethernet port number.

dot3InitializeMAC {dot3Entry 2}
Integer Read-Write

Whether the port has been initialized. Initializing a port automatically resets all of the port's statistics, and enables transmit and receive (the receiver will be in promiscuous mode). The value of dot3InitializeMAC is not saved in the event that the ELS10-26 reboots. Values include:

- initialized (1)
- uninitialized (2)

dot3MACSubLayerStatus {dot3Entry 3}
Integer Read-Write

Treated identically to dot3InitializeMAC. Values include:

- enabled (1)
- disabled (2)

dot3MulticastReceiveStatus {dot3Entry 4}
Integer Read-Write

Whether the port is able to receive multicasts. This is always enabled when the port is enabled, and always disabled when the port is disabled. Values include:

- enabled (1)
- disabled (2)

dot3TxEnabled {dot3Entry 5}
Integer Read-Write

Whether the port is able to transmit. This is always enabled when the port is enabled, and always disabled when the port is disabled. Values include:

- true (1)
- false (2)

dot3TestTdrValue {dot3Entry 6}
Gauge Read-Only

Always zero, since the results of TDR tests are not available.

3.2 ETHERNET-LIKE STATISTICS GROUP

The dot3StatsTable is specified in a unique manner. That is, the RFC specifies that value of 0 should be returned for counters that are not implemented.

dot3StatsTable {dot3 2}
Not Accessible

A list of interface entries; one per Ethernet port, which correspond to the dot3Table entries.

dot3StatsEntry {dot3StatsTable 1}
Not Accessible

A set of statistics for an Ethernet entry. The individual components are described below.

dot3StatsIndex {dot3StatsEntry 1}
Integer Read-Only

The ELS10-26's Ethernet port number.

dot3StatsAlignmentErrors {dot3StatsEntry 2}
Counter Read-Only

Number of received packets with frame alignment errors since the port was last enabled.

dot3StatsFCSErrors {dot3StatsEntry 3}
Counter Read-Only

Number of received packets with FCS errors (and without frame alignment errors) since the port was last enabled.

dot3StatsSingleCollisionFrames {dot3StatsEntry 4}
Counter Read-Only

The number of frames that experienced a single collision.

dot3StatsMultipleCollisionFrames {dot3StatsEntry 5}
Counter Read-Only

The number of successfully transmitted frames that experienced more than one collision.

dot3StatsSQETestErrors {dot3StatsEntry 6}
Counter Read-Only

The number of times an SQE failure (i.e., heartbeat lost) occurred, since the port was last enabled.

dot3StatsDeferredTransmissions {dot3StatsEntry 7}
Counter Read-Only

The number of frames for which the first transmission attempt was successful, but delayed because the medium was busy.

dot3StatsLateCollisions {dot3StatsEntry 8}
Counter Read-Only

The number of times that a late collision was detected while the ELS10-26 was transmitting a frame.

dot3StatsExcessiveCollisions {dot3StatsEntry 9}
Counter Read-Only

The number of times a frame transmission attempt experienced excessive collisions, since the port was last enabled.

dot3StatsInternalMACTransmitErrors {dot3StatsEntry 10}
Counter Read-Only

The number of times a frame transmission attempt experienced an error other than dot3StatsSQETestErrors, dot3StatsExcessiveCollisions, or dot3StatsCarrierSenseErrors, since the port was last enabled.

dot3StatsCarrierSenseErrors {dot3StatsEntry 11}
Counter Read-Only

The number of times that a carrier sense condition was lost during a transmission attempt, since the port was last enabled.

dot3StatsExcessiveDeferrals {dot3StatsEntry 12}
Counter Read-Only

The number of times that transmission was deferred for an excessive period of time.

dot3StatsFrameTooLongs {dot3StatsEntry 13}
Counter Read-Only

The number of times a received packet was too long, since the port was last enabled.

dot3StatsInRangeLengthErrors {dot3StatsEntry 14}
Counter Read-Only

The number of received frames with an incorrect LLC data size. Zero is always returned.

dot3StatsOutOfRangeLengthErrors {dot3StatsEntry 15}
Counter Read-Only

The number of received frames with an LLC data size that is too large (not including frames that have an Ethernet frame type field). Zero is always returned.

dot3StatsInternalMACReceiveErrors {dot3StatsEntry 16}
Counter Read-Only

The number of times a frame reception failed due to an error condition not already accounted for, since the port was last enabled.

3.3 ETHERNET-LIKE COLLISION STATISTICS GROUP

dot3CollTable {dot3 5}

This group is minimally supported (i.e., the ELS10-26 returns a GetResponse with a noSuchName ErrorStatus).

3.4 ETHERNET-LIKE TESTS GROUP

dot3Tests {{dot3 6}

There are no MIB variables in this group.

3.5 ETHERNET-LIKE ERRORS GROUP

dot3Errors {dot3 7}

There are no MIB variables in this group.

3.6 ETHERNET-LIKE CHIPSETS GROUP

dot3ChipSets {dot3 8}

There are no MIB variables in this group.

CHAPTER 4

BRIDGE MIB

The ELS10-26 supports the Bridge MIB {mib-2 17} as defined in Definitions of Managed Objects for Bridges, RFC 1286 (Decker, Langille, Rijsinghani, and McCloghrie, editors).

The MIB tree prefix for reaching the Bridge MIB-II is:

```
1.3.6.1.2.1.17
```

4.1 BASE GROUP

dot1dBase {dot1dBridge 1}

dot1dBaseBridgeAddress {dot1dBase 1}
Octet String Read-Only

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 BridgeIdentifier is formed which is used in the Spanning Tree Protocol.

The ELS10-26 dot1dBaseBridgeAddress is the MAC address of port 1.

dot1dBaseNumPorts {dot1dBase 2}
Integer Read-Only

The number of ports controlled by this bridging entity.

Identical to ifNumber; however, the ELS10-26 prevents bridging from being enabled for the last (port 25), which is reserved for out-of-band management.

dot1dBaseType {dot1dBase 3}
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.

The ELS10-26 is always transparent-only (2).

dot1dBasePortTable {dot1dBase 4}
Not Accessible

A table that contains generic information about every port that is associated with this bridge.

All ELS10-26 Ethernet ports are included in this table, regardless of whether any form of bridging is currently enabled for the ports.

dot1dBasePortEntry {dot1dBasePortTable 1}
Not Accessible

A list of information for each port of the bridge.

dot1dBasePort {dot1dBasePortEntry 1}
Integer Read-Only

The port number of the port for which this entry contains bridge management information.

Identical to dot1dBasePortIfIndex.

dot1dBasePortIfIndex {dot1dBasePortEntry 2}
Integer Read-Only

The value of the instance of the ifIndex object for the interface corresponding to this port.

dot1dBasePortCircuit {dot1dBasePortEntry 3}
Object Identifier Read-Only

For a port which (potentially) has the same value of dot1dBasePortIfIndex as another port on the same bridge, this object contains the name of an object instance unique to this port.

For example, in the case where multiple ports correspond one-to-one with multiple X.25 virtual circuits, this value might identify an (e.g., the first) object instance associated with the X.25 virtual circuit corresponding to this port. For a port which has a unique value of dot1dBasePortIfIndex, this object can have the value {0 0}.

Always {0 0}.

dot1dBasePortDelayExceededDiscards {dot1dBasePortEntry 4}
Counter Read-Only

The number of frames discarded by this port due to excessive transit delay through the bridge.

dot1dBasePortMtuExceededDiscards {dot1dBasePortEntry 5}
Counter Read-Only

The number of frames discarded by this port due to an excessive size.

4.2 SPANNING TREE GROUP

dot1dStp {dot1dBridge 2}

dot1dStpProtocolSpecification {dot1dStp 1}
Integer Read-Only

An indication of what version of the Spanning Tree Protocol is being run. The value decLb100(2) indicates the DEC LANbridge 100 Spanning Tree protocol. IEEE 802.1d implementations will 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.

Always iee8021d (3).

dot1dStpPriority {dot1dStp 2}
Integer Read-Write

The value of the write-able portion of the Bridge ID, i.e., the first two octets of the (8 octet long) Bridge ID. The other (last) 6 octets of the Bridge ID are given by the value of dot1dBaseBridgeAddress.

Any value from 0 to 65535 may be specified.

dot1dStpTimeSinceTopologyChange {dot1dStp 3}
Time Ticks Read-Only

The time (in hundredths of a second) since the last time a topology change was detected by the bridge entity.

Zero if a topology change is in progress; otherwise, the time since the topology last stabilized.

dot1dStpTopChanges {dot1dStp 4}
Counter Read-Only

The total number of topology changes detected by this bridge since the management entity was last reset or initialized.

dot1dStpDesignatedRoot {dot1dStp 5}
Octet String Read-Only

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.

dot1dStpRootCost {dot1dStp 6}
Integer Read-Only

The cost of the path to the root as seen from this bridge.

dot1dStpRootPort {dot1dStp 7}
Integer Read-Only

The port number of the port which offers the lowest cost path from this bridge to the root bridge.

Port number of this bridge's current spanning tree root port, or 0, if this bridge is the current spanning tree root bridge.

dot1dStpMaxAge {dot1dStp 8}
Integer Read-Only

The maximum age of Spanning Tree Protocol information learned from the network on any port before it is discarded, in units of hundredths of a second. This is the actual value that this bridge is currently using.

dot1dStpHelloTime {dot1dStp 9}
Integer Read-Only

The amount of time between the transmission of Configuration bridge PDUs by this node on any port when it is the root of the spanning tree or trying to become so, in units of hundredths of a second. This is the actual value that this bridge is currently using.

dot1dStpHoldTime {dot1dStp 10}
Integer Read-Only

This time value determines the interval length during which no more than two Configuration bridge PDUs shall be transmitted by this node, in units of hundredths of a second.

dot1dStpForwardDelay {dot1dStp 11}
Integer Read-Only

This time value, measured in units of hundredths of a second, controls how fast a port changes its spanning state when moving towards the Forwarding state. The value determines how long the port stays in a particular state before moving to the next state. For example, how long a port stays in the Listening state when moving from Blocking to Learning. 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 if/when this bridge were to become the root.

dot1dStpBridgeMaxAge {dot1dStp 12}
Time Ticks Read-Write

The value that all bridges use for MaxAge when this bridge is acting as the root. Note that 802.1d/D9 specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime. The granularity of this timer is specified by 802.1d/D9 to be 1 second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds.

The Max Age Time must be at least 6 seconds, and must adhere to the following equations involving Max Age Time, Forward Delay Time, and Hello Time:

2 x (Forward Delay Time - 1) >= Max Age Time

Max Age >= 2 x (Hello Time + 1)

dot1dStpBridgeHelloTime {dot1dStp 13}
Time Ticks Read-Write

The value that all bridges use for HelloTime when this bridge is acting as the root. The granularity of this timer is specified by 802.1d/D9 to be 1 second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds.

The Hello Time must adhere to the equation described in the variable dot1dStpBridgeMaxAge, involving Max Age Time and Hello Time.

dot1dStpBridgeForwardDelay {dot1dStp 14}
Time Ticks Read-Write

The value that all bridges use for ForwardDelay when this bridge is acting as the root. Note that 802.1d/D9 specifies that the range for this parameter is related to the value of dot1dStpBridgeMaxAge. The granularity of this timer is specified

by 802.1d/D9 to be 1 second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds.

The Forward Delay Time must be at least 4 seconds, and must adhere to the aforementioned equation involving Max Age Time and Forward Delay Time.

dot1dStpPortTable {dot1dStp 15}
Not Accessible

A table that contains port-specific information for the Spanning Tree Protocol.

All ELS10-26 ports, except for the last port (port 25), are included in this table, regardless of whether the Spanning Tree Protocol is currently enabled for the ports.

dot1dStpPortEntry {dot1dStpTable 1}
Not Accessible

A list of information maintained by every port about the Spanning Tree Protocol state for that port.

dot1dStpPort {dot1dStpPortEntry 1}
Integer Read-Only

The port number of the port for which this entry contains Spanning Tree Protocol management information.

dot1dStpPortPriority {dot1dStpPortEntry 2}
Integer Read-Write

The value of the priority field which is contained in the first (in network byte order) octet of the (2 octet long) Port ID. The other octet of the Port ID is given by the value of dot1dStpPort.

Any value from 0 to 255 may be specified.

dot1dStpPortState {dot1dStpPortEntry 3}
Integer Read-Only

The port's current state as defined by application of the Spanning Tree Protocol. This state controls what action a port takes on reception of a frame. If the bridge has detected a port that is malfunctioning it will place that port into the broken (6) state. For ports which are disabled (see dot1dStpPortEnable), this object will have a value of disabled (1).

dot1dStpPortEnable {dot1dStpPortEntry 4}
Integer Read-Write

The enabled/disabled status of the port.

The ELS10-26 does not change the parameter's value when processing a SetRequest - refer to the lxsprotoBridge parameter in Cabletron's enterprise-specific MIB for the SetRequest capabilities.

dot1dStpPortPathCost {dot1dStpPortEntry 5}
Integer Read-Write

The contribution of this port to the path cost of paths towards the spanning tree root which include this port.

Any value from 0 to 65535 may be specified; specifying a value of 0 will cause the ELS10-26 to automatically compute the proper default value. [1]

dot1dStpPortDesignatedRoot {dot1dStpPortEntry 6}
Octet String Read-Only

The unique Bridge Identifier of the Bridge recorded as the Root in the Configuration BPDUs transmitted by the Designated Bridge for the segment to which the port is attached.

---

[1] The proper default is the inverse of the media baud rate (e.g., 10 for FDDI, 100 for Ethernet). The effective value is always returned in the GetResponse.

dot1dStpPortDesignatedCost {dot1dStpPortEntry 7}
Integer Read-Only

The path cost of the Designated Port of the segment connected to this port. This value is compared to the Root Path Cost field in received bridge PDUs.

dot1dStpPortDesignatedBridge {dot1dStpPortEntry 8}
Octet String Read-Only

The Bridge Identifier of the bridge which this port considers to be the Designated Bridge for this port's segment.

dot1dStpPortDesignatedPort {dot1dStpPortEntry 9}
Octet String Read-Only

The Port Identifier of the port on the Designated Bridge for this port's segment.

dot1dStpPortForwardTransitions {dot1dStpPortEntry 10}
Counter Read-Only

The number of times this port has transitioned from the Learning state to the Forwarding state.

4.3 TRANSPARENT GROUP

do1dTp {dot1dBridge 4}

dot1dTpLearnedEntryDiscards {dot1dTp 1}
Counter Read-Only

The total number of Forwarding Database entries, which have been or would have been learned, but have been discarded due to a lack of space to store them in the Forwarding Database. If this counter is increasing, it indicates that the Forwarding Database is regularly becoming full (a condition which has unpleasant performance effects on the subnetwork). If this counter has a significant value but is not presently increasing, it indicates that the problem has been occurring but is not persistent.

dot1dTpAgingTime {dot1dTp 2}
Integer Read-Write

The timeout period in seconds for aging out dynamically learned forwarding information.

dot1dTpFdbTable {dot1dTp 3}
Not Accessible

A table that contains information about unicast entries for which the bridge has forwarding and/or filtering information. This information is used by the transparent bridging function in determining how to propagate a received frame.

A superset of this table's information can be found by using Cabletron's enterprise-specific Addresses Configuration Group.

dot1dTpFdbEntry {dot1dTpFdbTable 1}
Not Accessible

Information about a specific unicast MAC address for which the bridge has some forwarding and/or filtering information.

dot1dTpFdbAddress {dot1dTpFdbEntry 1}
Octet String Read-Only

A unicast MAC address for which the bridge has forwarding and/or filtering information.

dot1dTpFdbPort {dot1dTpFdbEntry 2}
Integer Read-Only

Either the value 0, or the port number of the port on which a frame having a source address equal to the value of the corresponding instance of dot1dTpFdbAddress has been seen. A value of 0 indicates that the port number has not been learned but that the bridge does have some forwarding/filtering information about this address (e.g., in the dot1dStaticTable). Implementors are encouraged to assign the port value to this object whenever it is learned even for addresses for which the corresponding value of dot1dTpFdbStatus is not learned(3).

dot1dTpFdbStatus {dot1dTpFdbEntry 3}
Integer Read-Only

The status of this entry. The meanings of the values are other (1) none of the following. This would include the case where some other MIB object (not the corresponding instance of dot1dTpFdbPort, nor an entry in the dot1dStaticTable) is being used to determine if and how frames addressed to the value of the corresponding instance of dot1dTpFdbAddress are being forwarded. invalid (2) this entry is not longer valid (e.g., it was learned but has since aged-out), but has not yet been flushed from the table. learned (3) the value of the corresponding instance of dot1dTpFdbPort was learned, and is being used. self (4) the value of the corresponding instance of dot1dTpFdbAddress represents one of the bridge's addresses. The corresponding instance of dot1dTpFdbPort indicates which of the bridge's ports has this address. mgmt (5) the value of the corresponding instance of dot1dTpFdbAddress is also the value of an existing instance of dot1dStaticAddress.

dot1dTpPortTable {dot1dTp 4}
Not Accessible

A table that contains information about every port that is associated with this transparent bridge.

A table that contains all Ethernet ports, not just those enabled for bridging.

dot1dTpPortEntry {dot1dTpPortTable 1}
Not Accessible

A list of information for each port of a transparent bridge.

dot1dTpPort {dot1dTpPortEntry 1}
Integer Read-Only

The port number of the port for which this entry contains Transparent bridging management information.

dot1dTpPortMaxInfo {dot1dTpPortEntry 2}
Integer Read-Only

The maximum size of the INFO (non-MAC) field that this port will receive or transmit.

The type/length field (2 octets) in Ethernet/802.3 packets are considered to be part of the MAC header.

dot1dTpPortInFrames {dot1dTpPortEntry 3}
Counter Read-Only

The number of frames that have been received by this port from its segment. Note that a frame received on the interface corresponding to this port is only counted by this object if and only if it is for a protocol being processed by the local bridging function.

dot1dTpPortOutFrames {dot1dTpPortEntry 4}
Counter Read-Only

The number of frames that have been transmitted by this port to its segment. Note that a frame transmitted on the interface corresponding to this port is only counted by this object if and only if it is for a protocol being processed by the local bridging function.

dot1dTpPortInDiscards {dot1dTpPortEntry 5}
Counter Read-Only

Count of valid frames received which were discarded (i.e., filtered) by the Forwarding Process.

Count of valid frames which were discarded, including local traffic that was discarded.

CHAPTER 5

PPP MIB

The ELS10-26 supports RFC 1471 for PPP link control and RFC 1473 for PPP IP support.

The MIB tree for reaching the PPP group is:

1.3.6.1.2.1.10

ppp {transmission 23}

5.1 PPP LINK CONTROL TABLE

pppLCP {ppp 1}

pppLinkStatusTable {pppLink1}
Not-Accessible

A table containing PPP-Link specific variables for this PPP implementation.

pppLinkStatusEntry {pppLinkStatusTable 1}
Not-Accessible

Management information about a particular PPP Link.

pppLinkStatusPhysicalIndex {pppLinkStatusEntry 1}
Integer Read-only

The value of ifIndex that identifies the lower-level interface over which this PPP Link is operating. This interface would usually be an HDLC or RS-232 type of interface. If there is no lower layer interface element, or there is no ifEntry for the element, or the element can not be identified, then the value of this object is 0. For example, suppose that PPP is operating over a serial port. This would use two entries in the ifTable. The PPP could be running over 'interface' number 123 and the serial port could be running over 'interface' number 987. Therefore, ifSpecific.123 would contain the OBJECT IDENTIFIER ppp pppLinkStatusPhysicalIndex.123 would contain 987, and

ifSpecific.987 would contain the OBJECT IDENTIFIER for the serial-port's media-specific MIB.

pppLinkStatusBadAddresses {pppLinkStatusEntry 2}
Counter Read-only

The number of packets received with an incorrect address field. This counter is a component of the ifInErrors variable that is associated with the interface that represents this PPP Link.

pppLinkStatusBadControls {pppLinkStatusEntry 3}
Counter Read-only

The number of packets received on this link with an incorrect control field. This counter is a component of the ifInErrors variable that is associated with the interface that represents this PPP Link.

pppLinkStatusPacketTooLongs {pppLinkStatusEntry 4}
Counter Read-only

The number of received packets that have been discarded because their length exceeded the MRU. This counter is a component of the ifInErrors variable that is associated with the interface that represents this PPP Link.

Note: *Packets which are longer than the MRU but which are successfully received and processed are NOT included in this count.*

pppLinkStatusBadFCSs {pppLinkStatusEntry 5}
Counter Read-only

The number of received packets that have been discarded due to having an incorrect FCS. This counter is a component of the ifInErrors variable that is associated with the interface that represents this PPP Link.

pppLinkStatusLocalMRU {pppLinkStatusEntry 6}
Integer Read-only

The current value of the MRU for the local PPP Entity. This value is the MRU that the remote entity is using when sending packets to

the local PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

Set to 8192 for the maximum HIOM frame size.

pppLinkStatusRemoteMRU {pppLinkStatusEntry 7}
Integer Read-only

The current value of the MRU for the remote PPP Entity. This value is the MRU that the local entity is using when sending packets to the remote PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

pppLinkStatusLocalToPeerACCMap {pppLinkStatusEntry 8}
Octet String Read-only

The current value of the ACC Map used for sending packets from the local PPP entity to the remote PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

Value of 0 indicates that ACC Map is not supported.

pppLinkStatusPeerToLocalACCMap {pppLinkStatusEntry 9}
Octet String Read-only

The ACC Map used by the remote PPP entity when transmitting packets to the local PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

pppLinkStatusLocalToRemoteProtocolCompression

{pppLinkStatusEntry 10}

Integer Read-only

Indicates whether the local PPP entity will use protocol compression when transmitting packets to the remote PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

- enabled (1) - supports protocol compression.
- disabled (2) - no support for protocol compression.

pppLinkStatusRemoteToLocalProtocolCompression

{pppLinkStatusEntry 11}

Integer Read-only

Indicates whether the remote PPP entity will use Protocol Compression when transmitting packets to the local PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

- enabled (1) - supports protocol compression.
- disabled (2) - no support for protocol compression.

pppLinkStatusLocalToRemoteACCompression

{pppLinkStatusEntry 12}

Integer Read-only

Indicates whether the local PPP entity will use Address and Control Compression when transmitting packets to the remote PPP entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

- enabled (1) - supports ACC map compression.
- disabled (2) - no support for ACC map compression.

pppLinkStatusRemoteToLocalACCompression

{pppLinkStatusEntry 13}

Integer Read-only

Indicates whether the remote PPP entity will use address and control compression when transmitting packets to the local PPP

entity. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

- enabled (1) - supports ACC map compression.
- disabled (2) - no support for ACC map compression.

pppLinkStatusTransmitFcsSize {pppLinkStatusEntry 14}
Integer Read-only

The size of the Frame Check Sequence (FCS) in bits that the local node will generate when sending packets to the remote node. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up). 16 bit FCS is the only FCS supported.

pppLinkStatusReceiveFcsSize {pppLinkStatusEntry 15}
Integer Read-only

The size of the Frame Check Sequence (FCS) in bits that the remote node will generate when sending packets to the local node. The value of this object is meaningful only when the link has reached the open state (ifOperStatus is up).

pppLinkConfigTable {pppLink 2}
Not-Accessible

A table containing the LCP configuration parameters for this PPP Link. These variables represent the initial configuration of the PPP Link. The actual values of the parameters may be changed when the Link is brought up via the LCP options negotiation mechanism.

pppLinkConfigEntry {pppLinkConfigTable 1}
Not-Accessible

Configuration information about a particular PPP Link.

pppLinkConfigInitialMRU {pppLinkConfigEntry 1}
Integer Read-Write

The initial Maximum Receive Unit (MRU) that the local PPP entity will advertise to the remote entity. If the value of this variable is 0 then the local PPP entity will not advertise any MRU to the remote entity and the default MRU will be assumed. Changes to this object take effect when the link is next restarted.

Currently, only 8192 is supported and read-only access.

pppLinkConfigReceiveACCMap {pppLinkConfigEntry 2}
Octet String Read-Write

The Asynchronous Control Character Map (ACC) that the local PPP entity requires for use on its receive side. In effect, this is the ACC Map that is required in order to ensure that the local modem will successfully receive all characters. The actual ACC map used on the receive side of the link will be a combination of the local node's pppLinkConfigReceiveACCMap and the remote node's pppLinkConfigTransmitACCMap. Changes to this object take effect when the link is next restarted. The only value supported is (0) no ACC map.

pppLinkConfigTransmitACCMap {pppLinkConfigEntry 3}
Octet String Read-Write

The Asynchronous Control Character Map (ACC) that the local PPP entity requires for use on its transmit side. In effect, this is the ACC Map that is required in order to ensure that all characters can be successfully transmitted through the local modem. The actual ACC map used on the transmit side of the link will be a combination of the local node's pppLinkConfigTransmitACCMap and the remote node's pppLinkConfigReceiveACCMap. Changes to this object take effect when the link is next restarted. The only value supported is (0) no ACC map.

pppLinkConfigMagicNumber {pppLinkConfigEntry 4}
Integer Read-Write

If true (2) then the local node will attempt to perform magic number negotiation with the remote node. If false (1) then this negotiation is not performed. In any event, the local node will comply with any magic number negotiations attempted by the remote node, per the PPP specification. Changes to this object take effect when the link is next restarted.

- true (2) - ELS10-26 will attempt to perform magic number negotiation
- false (1) - will not attempt to perform Magic Number negotiation

pppLinkConfigFcsSize {pppLinkConfigEntry 5}
Integer Read-Write

The size of the FCS, in bits, the local node will attempt to negotiate for use with the remote node. Regardless of the value of this object, the local node will comply with any FCS size negotiations initiated by the remote node, per the PPP specification. Changing this object will have effect when the link is next restarted.

Currently only 16 bit FCS is supported.

pppLqrTable {pppLqr 1}
Not-Accessible

Table containing the LQR parameters and statistics for the local PPP entity.

The ELS10-26 always has an empty table.

pppLQREntry {pppLqrTable 1}
Not-Accessible

LQR information for a particular PPP Link. A PPP Link will have an entry in this table if and only if LQR quality monitoring has been successfully negotiated for the specified link.

pppLqrQuality {pppLqrEntry 1}
Integer Read-only

The current quality of the link as declared by the local PPP entity's Link-Quality Management modules. No effort is made to define good or bad, nor the policy used to determine it. The not-determined value indicates that the entity does not actually evaluate the link's quality. This value is used to distinguish the 'determined to be good' case from the 'no determination made and presumed to be good' case.

pppLqrInGoodOctets {pppLqrEntry 2}
Counter Read-only

The LQR InGoodOctets counter for this link.

pppLqrLocalPeriod {pppLqrEntry 3}
Integer Read-only

The LQR reporting period, in hundredths of a second that is in effect for the local PPP entity.

pppLqrRemotePeriod {pppLqrEntry 4}
Integer Read-only

The LQR reporting period, in hundredths of a second, that is in effect for the remote PPP entity.

pppLqrOutLQRs {pppLqrEntry 5}
Counter Read-only

The value of the OutLQRs counter on the local node for the link identified by ifIndex.

pppLqrInLQRs {pppLqrEntry 6}
Counter Read-only

The value of the InLQRs counter on the local node for the link identified by ifIndex.

pppLqrConfigTable {pppLqr 2}
Not-Accessible

Table containing the LQR configuration parameters for the local PPP entity.

The ELS10-26 always has an empty table.

pppLqrConfigEntry {pppLqrConfigTable 1}
Not-Accessible

LQR configuration information for a particular PPP link.

pppLqrConfigPeriod {pppLqrConfigEntry 1}
Integer Read-Write

The LQR reporting period that the local PPP entity will attempt to negotiate with the remote entity, in units of hundredths of a second. Changes to this object take effect when the link is next restarted.

pppLqrConfigStatus {pppLqrConfigEntry 2}
Integer Read-Write

If enabled (2) then the local node will attempt to perform LQR negotiation with the remote node. If disabled (1) then this negotiation is not performed. In any event, the local node will comply with any magic number negotiations attempted by the remote node, per the PPP specification. Changing this object will have effect when the link is next restarted. Setting this object to the value disabled (1) has the effect of invalidating the corresponding entry in the pppLqrConfigTable object. It is an implementation-specific matter as to whether the agent removes an invalidated entry from the table. Accordingly, management stations must be prepared to receive tabular information from agents that corresponds to entries not currently in use.

pppLqrExtnsTable {pppLqr 3}
Not-Accessible

Table containing additional LQR information for the local PPP entity.

The ELS10-26 always has an empty table.

pppLqrExtnsEntry {pppLqrExtnsTable 1}
Not-Accessible

Extended LQR information for a particular PPP Link. Assuming that this group has been implemented, a PPP Link will have an entry in this table if and only if LQR Quality Monitoring has been successfully negotiated for the specified link.

pppLqrExtnsLastReceivedLqrPacket {pppLqrExtnsEntry 1}
Octet String Read-only

This object contains the most recently received LQR packet. The format of the packet is as described in the LQM Protocol specification. All fields of the packet, including the 'save' fields, are stored in this object. The LQR packet is stored in network byte order. The LAP-B and PPP headers are not stored in this object; the first four octets of this variable contain the magic number field, the second four octets contain the LastOutLQRs field and so on. The last four octets of this object contain the SaveInOctets field of the LQR packet.

5.2 PPP IP TABLE

pppIp [ppp 3]

pppIpTable {pppIp 1}
Not-Accessible

Table containing the IP parameters and statistics for the local PPP entity.

pppIpEntry {pppIpTable 1}
Not-Accessible

IPCP status information for a particular PPP link.

pppIpOperStatus {pppIpEntry 1}
Integer Read-only

The operational status of the IP network protocol. If the value of this object is up, then the finite state machine for the IP network protocol has reached the Opened state.

- opened (1) - the IPCP protocol is in open state.
- not-opened (2) - the IPCP protocol is in anything but the open state.

pppIpLocalToRemoteCompressionProtocol{pppIpEntry 2}
Integer Read-only

The IP compression protocol that the local PPP-IP entity uses when sending packets to the remote PPP-IP entity. The value of this object is meaningful only when the link has reached the open state (pppIpOperStatus is opened).

- none (1) - no IP compression protocol supported.
- vj-tcp(2) - the Van Jacobsen TCP/IP header compression protocol is supported.

The ELS10-26 does not support protocol compression.

pppIpRemoteToLocalCompressionProtocol{pppIpEntry 3}
Integer Read-only

The IP compression protocol that the remote PPP-IP entity uses when sending packets to the local PPP-IP entity. The value of this object is meaningful only when the link has reached the open state (pppIpOperStatus is opened).

- none (1) - no IP compression protocol supported.

- vj-tcp(2) - the Van Jacobsen TCP/IP header compression protocol is supported.

pppIpRemoteMaxSlotId {pppIpEntry 4}
Integer Read-only

The Max-Slot-Id parameter that the remote node has advertised and that is in use on the link. If vj-tcp header compression is not in use on the link then the value of this object shall be 0. The value of this object is meaningful only when the link has reached the open state (pppIpOperStatus is opened).

pppIpLocalMaxSlotId {pppIpEntry 5}
Integer Read-only

The Max-Slot-Id parameter that the local node has advertised and that is in use on the link. If vj-tcp header compression is not in use on the link then the value of this object shall be 0. The value of this object is meaningful only when the link has reached the open state (pppIpOperStatus is opened).

pppIpConfigTable {pppIp 2}
Not-Accessible

Table containing configuration variables for the IPCP for the local PPP entity.

pppIpConfigEntry {pppIpConfigTable 1}
Not-Accessible

IPCP information for a particular PPP link.

pppIpConfigAdminStatus {pppIpConfigEntry 1}
Integer Read-Write

The immediate desired status of the IP network protocol. Setting this object to open (1) will inject an administrative open event into the IP network protocol's finite state machine. Setting this object to close (2) will inject an administrative close event into the IP

network protocol's finite state machine. The ELS10-26 only supports open (1).

pppIpConfigCompression {pppIpConfigEntry 2}
Integer Read-Write

If none (1), then the local node will not attempt to negotiate any IP Compression option. Otherwise, the local node will attempt to negotiate compression mode indicated by the enumerated value. Changes to this object take effect when the link is next restarted. The other option Van-Jacobsen TCP/IP header compression (2), is not supported on the ELS10-26.

CHAPTER 6

ELS10-26 MIB

The Cabletron MIB {enterprise 97} is divided into several groups of parameters. The individual groups are described in the subsections below.

The MIB tree prefix for reaching the private enterprise ELS10-26 MIB is:

```
1.3.6.1.4.1.97.
```

6.1 SYSTEM GROUP

sigma {enterprise 97}

sys {sigma 1}

The System Group contains those parameters which are likely to be applicable to Fast Network product lines. A detailed description of the parameters follows.

sysID {sys 1}
Integer Read-Only

An integer which serves to identify the type of hardware platform. This document describes the es-1xe-bridge, which uses the value (7) for sysID. Special third-party versions of the ELS10-26 may use different values (3, 4,
or 5).

sysReset {sys 2}
Time Ticks Read-Write

The time, in centiseconds, before the ELS10-26 should reboot. A GetResponse value of zero indicates that no reboot time has been specified.

sysTrapPort {sys 6}
Integer Read-Write

zero, or the UDP port number to which a second copy of SNMP traps should be sent. Valid values are 0 through 65535.

6.1.1 Hardware Configuration Group

lxhwDiagCode {lxhw 1}
Octet String Read-Only

This variable is for Cabletron internal use only.

lxhwManufData {lxhw 2}
DisplayString Read-Only

This is a 64-byte array which contains the part number, serial number, and hardware revision level of this unit.

lxhwPortCount {lxhw 3}
Integer Read-Only

The number of ports, including the out-of-band management port.

lxhwPortTable {lxhw 4}
Not Accessible

A table that includes information for each port.

lxhwPortEntry {lxhwPortTable 1}
Not Accessible

An entry for an individual port, keyed by lxhwPortIndex.

lxhwPortIndex {lxhwPortEntry 1}
Integer Read-Only

The port number. The value is from 1 to 25.

lxhwPortType {lxhwPortEntry 2}
Integer Read-Only

A value indicating the type of port. The values are defined as:

- csma (1) - Ethernet or 802.3 port
- uart (6) - UART port

lxhwPortSubType {lxhwPortEntry 3}
Integer Read-Only

An integer representing port type. The following values have been defined:

- csmacd-tpx (13) – 10BASE-T with crossover
- uart-female-9pin (80)
- csmacd-100-tfx (17) – 100BASE-F
- csmacd-100-tpx (16) – 100BASE-T with crossover

lxhwPortDiagPassed {lxhwPortEntry 4}
Integer Read-Only

An integer representing the status of the port. The following values have been defined:

- diag-passed (1)
- diag-failed (2)

lxhwAddr {lxhwPortEntry 5}
Octet String Read-Only

The unique hard-wired 48 bit MAC address for the port.

lxhwUpLink {lxhw 5}
Integer Read-Only

An integer that specifies if the Fast Ethernet (FE) Up-Link module is installed. The following values have been defined:

- true (1)
- false (2)

lxhwUpLinkManufData {lxhw 6}
Octet String Read-Only

A 32-byte array that contains the part number, serial number, and hardware revision level of the Up-Link I/O module. The array is valid only when the lxhwUpLink value is true. If lxhwUplink is false, it returns an error.

6.1.2 LXSW Configuration Group

lxswNumber {lxsw 1}
Integer Read-Only

The number of file sets. This number is fixed as 2.

lxswFilesetTable {lxsw 2}
Not Accessible

lxswFileset {lxswFilesetTable 1}
Not Accessible

A set of objects for each file set. The individual components are described below.

lxswIndex {lxswFilesetEntry 1}
Integer Read-Only

The file set number, beginning with 1 for the first file set. This number always matches the instance of the lxswFiles. For example, {lxswIndex 2} contains the value “2”.

lxswDesc {lxswFilesetEntry 2}
Octet String Read-Only

The description (1-255 bytes) of the software file set.

lxswCount {lxswFilesetEntry 3}
Integer Read-Only

The number of files in the file set. This number may range from 1 to 255.

lxswType {lxswFilesetEntry 4}
Octet String Read-Only

The types of files within the file set. The size of lxswType may be determined by lxswCount, since 1 octet is required for each file. The possible file types are:

- file-nam (1) - the operational software for the ELS10-26's NAM processor.
- file-powerup (10) - power-up diagnostics for the entire ELS10-26.
- file-diagnostics (11) - manufacturing diagnostics for the entire ELS10-26.

lxswSizes {lxswFilesetEntry 5}
Octet String Read-Only

An array (4 octets per file), containing the size of each of the files. Each size is encoded as a series of 4 bytes, which should be converted into a 32-bit integer.

lxswStarts {lxswFilesetEntry 6}
Octet String Read-Only

An array (4 octets per file), containing the software's execution starting address of each of the files. Each address is encoded as a series of 4 bytes, which should be converted into a 32-bit integer.

lxswBases {lxswFilesetEntry 7}
Octet String Read-Only

An array (4 octets per file), containing the software's base loading address of each of the files. Each address is encoded as a series of 4 bytes, which should be converted into a 32-bit integer.

lxswFlashBank {lxswFilesetEntry 8}
Integer Read-Only

The bank number where the software file set resides. The possible values are:

- first-bank (1)
- second-bank (2)

6.1.3 Administration Group

lxadminFatalErr {lxadmin 1}
Octet String Read-Only

This is a 32-byte array which contains information about the cause of the previous system reset. This will describe the circumstances which forced the system software to perform a reboot. The values in the first byte have the following meanings:

- (0) - Power failure
- (1) - Watchdog Timeout
- (2) - NMS Requested Shutdown; next three bytes are not applicable; next four bytes contain the NMS's IP address; remaining 24 bytes are not applicable)
- (3-255) - Fatal Error

lxadminAnyPass {lxadmin 2}
Octet String Read-Write

The authentication password (0-24 bytes) which must match the community name in an SNMP Get, Getnext, or Set PDU, in order for the operation to be performed. A zero length password indicates that any community name is acceptable.

lxadminGetPass {lxadmin 3}
Octet String Read-Write

The authentication password (0-24 bytes) which must match the community name in an SNMP Get or Getnext PDU (except for debug or password parameters). A zero length password indicates that any community name is acceptable. Alternatively, it is acceptable if the community name matches lxsdminAnyPass, defined above.[1]

lxadminNMSIPAddr {lxadmin 4}
IP Address Read-Write

The address of the NMS to which Trap PDUs are to be sent. A value of zero indicates that Trap PDUs should be sent to the NMS last heard from.

lxadminStorageFailure {lxadmin 7}
Integer Read-Only

Whether the ELS10-26's storage facility for its configuration parameters has failed during the last update operation (if the ELS10-26 reboots after such a failure, it will use the factory specified defaults for all MIB parameters). Values include:

- true (1)

---

1. Certain SetRequest PDUs are used for read operations and using lxadminGetPass for the community name is sufficient. Those special conditions consist of SetRequest PDUs for lxaddrOperation (for read-random, read-next, and read-block only), and for all MIB variables in the lxaddr group described as Write-Ignore.

- false (2)

lxadminAuthenticationFailure {lxadmin 8}
IP Address Read-Only

All nulls, or the IP source address within the last SNMP PDU which caused an SNMP authentication failure.

lxadminNAMReceiveCongests {lxadmin 10}
Counter Read-Only

Number of packets not received due to internal buffer congestion.

lxadminArpEntries {lxadmin 11}
Counter Read-Only

The number of ARP entries for all interfaces.

lxadminArpStatics {lxadmin 12}
Counter Read-Only

The number of statically defined ARP entries for all interfaces.

lxadminArpOverflows {lxadmin 13}
Counter Read-Only

The number of times an ARP entry could not be learned due to insufficient address table space.

lxadminIpEntries {lxadmin 14}
Counter Read-Only

The number of IP Routing Database entries.

lxadminIpStatics {lxadmin 15}
Counter Read-Only

The number of statically defined IP Routing Database entries.

lxadminStaticPreference {lxadmin 16}
Integer Read-Write [2]

The value to assign to ipRouteMetric2, when adding a statically-defined entry to the IP Routing Table.

lxadminRipPreference {lxadmin 17}
Integer Read-Write

The value to assign to ipRouteMetric2, when adding a RIP-learned entry to the IP Routing Table.

lxadminRipRouteDiscards {lxadmin 18}
Counter Read-Only

The number of times a route learned via RIP was not added to the IP Routing Table due to insufficient Routing Table space.

lxadminRebootConfig {lxadmin 19}
Integer Read-Write

The configuration file that will be used when the ELS10-26 reboots. This parameter is normally set by the ELS10-26 automatically; however, an NMS may explicitly set it to either no-change (1) or revert-to-defaults (3). The possible values include:

- no-change (1) – the ELS10-26 will not change its configuration parameters when it reboots.
- tftp-config (2) – the ELS10-26 will use a file that was sent via TFTP when it reboots .
- revert-to-defaults (3) – the ELS10-26 will revert to its factory specified defaults when it reboots .

Setting this parameter to a value of 2 will result in an error condition.

[2.] If a value for ipRouteMetric2 is explicitly provided when an entry is created, then lxadminStaticPreference will be ignored.

lxadminDisableButton {lxadmin 21}
Integer Read-Write

An integer that can be set to prevent the push button on the front of the ELS10-26 from controlling the LED display. Values include:

- true (1)
- false (2)

lxadminButtonSelection {lxadmin 22}
Integer Read-Write

An integer that indicates which statistic has been selected. Values include:

- led-any activity (1)
- led-rx-activity (2)
- led-tx-activity (3)
- led-any-collision (4)
- led-programmed (5)
- led-duplex (6)

When illuminated indicates Full Duplex, when dark indicates Half Duplex.

- led-speed (7)

When illuminated indicates 100MB speed when dark indicates 10 MB speed.

- led-mirror (8)

Used to indicate which port is being mirrored by the Mirror port. Both the MON port and the port being monitored are illuminated.

lxadminLEDProgramOption {lxadmin 23}
Integer Read-Write

Meaning of the LED display when led-programmed has been selected for lxadminButtonSelection. Value is:

program-led-any-error (1)

6.1.4 Software Distribution Group

lxswdisDesc {lxswdis 1}
Octet String Read-Only

The description (0-32 bytes) of the software set currently being downloaded, or a description of the software set last downloaded since the ELS10-26 booted.

lxswdisAccess {lxswdis 2}
Integer Read-Write

The version of software that may be downloaded. Attempts to download other versions of software will be rejected. The value for lxswdisAccess is embedded within the software files that are to be distributed via TFTP. Its value may be derived from the names of the software files. For example, file name dnld_hdr.10.2 indicates that the file contains Version 10.2 software. The corresponding value for lxswdisAccess would be 523, and can be determined by the following algorithm start with the number 1, add the first number, add 256 times the second number, add 256 times 256 times the third number (if present), and add 256 times 256 times 256 times the fourth number (if present). In addition, the NMS operator may wish to use the following special values:

- protected (1) - No software downloads will be accepted.
- any-software (2) - A software download of any version of new software will be accepted - this is the factory default.

lxswdisWriteStatus {lxswdis 3}
Integer Read-Only

The status of the erase/write operation. The possible values are:

- in-progress (1) - An operation is currently in progress.
- success (2) - The last operation completed successfully.
- config-error (3) - Configuration EPROM encountered an error.
- flash-error (4) - Flash EPROM encountered an error.
- config-and-flash-errors (5) - Both Configuration EPROM and Flash EPROM encountered errors.

lxswdisConfigIp {lxswdis 4}
IP Address Read-Write

The IP address of the NMS (i.e., any IP host) that is allowed to use TFTP to send/retrieve the configuration file of the ELS10-26. A value of 0.0.0.0 (which is the factory specified default) prevents any NMS from obtaining access, while a value of 255.255.255.255 gives every NMS permission.

lxswdisConfigRetryTime {lxswdis 5}
Integer Read-Write

The number of seconds that the ELS10-26 will wait for an acknowledgment before it retransmits an unacknowledged TFTP data block. The factory specified default is 5 seconds.

slxwdisConfigTotalTimeout {lxswdis 6}
Integer Read-Write

The number of seconds that the ELS10-26 will wait for an acknowledgment to a data block before it cancels a TFTP session. The factory specified default is 25 seconds.

6.1.5 Addresses Configuration Group

The Addresses Configuration Group consists of the parameters described below.

lxaddrStatics {lxaddr 1}
Counter Read-Only

The number of static addresses which are currently stored in the ELS10-26.

lxaddrDynamics {lxaddr 2}
Counter Read-Only

The number of learned addresses in the ELS10-26's address table.

lxaddrDynamicMax {lxaddr 3}
Gauge Read-Write

The maximum number of spanning tree addresses which have been learned since the ELS10-26 was last booted (or this parameter was last reset by the NMS).

lxaddrDynamicOverflows {lxaddr 4}
Counter Read-Write

The number times an address was not learned due to insufficient address table space.

lxaddrFlags {lxaddr 5}
Integer Read-Write

Flags to describe the use and control of this address entry. Each bit has a different meaning. The NMS must always set either entry-static or entry-none; however, for GetRequests, the NMS will see either no bits set (if the entry does not exist), or exactly one of the following bits set:

- bit 29 is reserved.
- entry-static = 28, if set then this is a pre-defined customer address, e.g., an IEEE Spanning Tree static address.

- entry-none = 26, or this address does not exist.
- bit 25 is reserved.
- bit 24 is reserved.
- bit 31 is reserved.

Any combination of the restriction bits (bits 23-21) may be set for any type of entry, except entry-other:

- Bit 21 is reserved.
- Bits 20-18 are reserved.

Exactly one of the special entry bits (bits 17-10) must be set for entry-other entries, and none of the bits may be set for other than entry-other entries:

- entry-lma = 15, reserved for future enhancements.
- Bits 11-10 are reserved for future expansion.
- Bits 9-0 are reserved.

lxaddrMAC {lxaddr 6}
MAC Address Read-Write

The MAC address for this address definition.

lxaddrPort {lxaddr 7}
Integer Write-Ignore

The port through which this address is connected to the ELS10-26 (only valid for entry-dynamic-local, entry-static and entry-port entries).

lxaddrOperation {lxaddr 8}
Integer Read-Write

The operation to be performed upon the described address. The possibilities include:

- read-random (1)
- read-next (2)
- update (4)
- delete (5)
- read-block (6)

lxaddrIndex {lxaddr 9}
Integer Read-Write

The index number to be used for read-next and read-block operations. When the ELS10-26 boots, lxaddrIndex is initialized to -1

lxaddrNext {lxaddr 10}
Integer Write-Ignore

The next value to use for lxaddrIndex, when you use read-next or read-block operations to read the address table. When the ELS10-26 boots, lxaddrNext is initialized to -1.

lxaddrBlockSize {lxaddr 19}
Integer Write-Ignore

The number of addresses contained by lxaddrBlock, defined below. This parameter is only used for dumping blocks of MAC addresses.

lxaddrBlock {lxaddr 20}
Octet String Write-Ignore

A series of 0-700 octets, which represents 0-100 addresses. Each address consists of a 6 octet MAC Address followed by a 1 byte

port number. If the port number is zero, then the address is that of a specially configured address; otherwise, the address is a dynamically learned address. This parameter is only used for dumping blocks of MAC addresses.

6.1.6 Cabletron Interfaces Group

lxifTable {lxif 1}
Not Accessible

A list of interface entries; one per port.

lxifEntry {lxifTable 1}
Not Accessible

A set of objects for an interface entry. The individual components are described below.

lxifIndex {lxifEntry 1}
Integer Read-Only

The port number, beginning with 1 for the first port.

lxifRxCnt {lxifEntry 2}
Integer Read-Only

The number of data buffers for receiving packets. This value is the same for all Ethernet ports.

lxifTxCnt {lxifEntry 3}
Integer Read-Only

The maximum size of the port's transmit queue, i.e., the number of packets that can be in the port's transmit queue, waiting to be transmitted.

lxifThreshold {lxifEntry 4}
Integer Read-Write

Reserved. Maximum number of combined receive and transmit packet hardware errors before an alarm should be generated. See ifInErrors.

lxifThresholdTime {lxifEntry 5}
Integer Read-Write

Reserved. The time period (in seconds) to which sifThreshold applies. A value of zero will disable the `sifThreshold` alarm.

lxifRxQueueThresh {lxifEntry 6}
Integer Read-Write

Reserved. Maximum number of receive packet queue overflow errors before an alarm should be generated.

lxifRxQueueThreshTime {lxifEntry 7}
Integer Read-Write

Reserved. The time period (in seconds) to which `sifRxQueueThresh` applies. A value of zero will disable the `sifRxQueueThresh` alarm.

lxifTxStormCnt {lxifEntry 8}
Integer Read-Write

The maximum number of multicasts to transmit with a certain period of time (not applicable for the UART port).

lxifTxStormTime {lxifEntry 9}
Time Ticks Read-Write

The period of time, in centiseconds, which qualifies sifTxStormCnt (not applicable for the UART port).

llxifFunction {lxifEntry 16}
Integer Read-Only

The current functional state (protocols which have been activated and are operational) of the port. The following values or combinations thereof are supported:

0x0001	NMS - the port may be used for communicating with the NMS (see ifOperStatus).
0x0002	TBRIDGE - use the port for Transparent IEEE 802.1d bridging (see lxsprotoBridge).
0x0020	NO_BPDU - if TBRIDGE is set, this disables the sending of BPDUs (see lxsprotoSuppressBpdu) and keeps the port in forwarding state (this is to provide interoperability with non-compliant IEEE 802.1d implementations; however, if the physical topology has any loops, then LAN segments will most likely be flooded with duplicates of packets).
0x0040	RIP_LISTENER - use RIP on the port for IP Routing (see sprotoRip).
0x0800	ARP - use the port for resolving ARP.
0x10000	TRUNKING - use the port for Trunking Protocol.

These values can be configured through the lxsprotoTable.

lxifRxHwFCSs {lxifEntry 18}
Counter Read-Only

Number of received packets discarded due to FCS errors.

lxifRxQueues {lxifEntry 19}
Counter Read-Only

Number of received packets lost because of insufficient receive buffers.

lxifStatisticsTime {lxifEntry 27}
Time Ticks Read-Only

Length of time during which statistics were collected. In particular, the following statistics may be examined to determine the exact utilization rate of a port:

- ifInOctets
- ifInUcastPkts
- ifInNUcastPkts
- ifOutOctets
- ifOutUcastPkts
- ifOutNUcastPkts
- lxifForwardedChars
- lxifFilteredChars

lxifIpAddr {lxifEntry 28}
IP Address Read-Write

The IP address assigned to the port. If this is zero, then the port must learn its IP address via Reverse ARP or PPP's IPCP.

lxifIpGroupAddr {lxifEntry 29}
IP Address Read-Write

Zero, or an IP group address assigned to the port.

lxifForwardedChars {lxifEntry 30}
Counter Read-Only

Number of characters in the forwarded received packets.

lxifDesc {lxifEntry 32}

lxifGoodRxFrames {lxifEntry 33}
Counter Read-Only

lxifGoodTxFrames {lxifEntry 34}
Counter Read-Only

6.1.7 Cabletron Dot3 Group

This group provides additional objects that are not part of the standard dot3 MIB.

lxdot3Table {lxdot3 1}
Not Accessible

A list of dot3 interfaces entries, one per dot3 port.

lxdot3Index {lxdot3Entry 1}
Integer Read-Only

The port number that identifies the entry.

lxdot3TPLinkOK {lxdot3Entry 2}
Integer Read-Only

An integer that indicates if the port's 10BASE-T link is okay. It also indicates if the port's Link LED is on. Values include:

- true (1)
- false (2)

lxdot3LedOn {lxdot3Entry 3}
Integer Read-Only

An integer indicating whether the port's programmable LED is on. Values include:

- led-on (1)
- led-off (2)

lxdot3RxCollisions {lxdot3Entry 4}
Counter Read-Only

Counter indicating the number of receive collisions.

Note: *10BASE-T cannot count received collisions.*

lxdot3RxRunts {lxdot3Entry 5}
Counter Read-Only

Counter indicating the number of runt packets received (and discarded).

lxdot3RxLateColls {lxdot3Entry 6}
Counter Read-Only

Counter indicating the number of packets received with a late collision (and discarded).

lxdot3TxJabbers {lxdot3Entry 7}
Counter Read-Only[3]

Counter indicating the number of packets transmitted with jabber errors.

[3] These statistics are only updated if the ELS10-26 has been configured to gather extended statistics (lxadminStatsExtended).

lxdot3TxBabbles {lxdot3Entry 8}
Counter Read-Only[4]

Counter indicating the number of packets transmitted with babble errors.

lxdot3TxCollisions {lxdot3Entry 9}
Counter Read-Only

Counter indicating the total number of transmit collisions.

lxdot3SpeedSelection {lxdot3Entry 13}
Integer Read-Write

Speed may only be selected for the Fast Ethernet Ports. In addition, the speed -10 mbit option (2) may only be selected for Fast Ethernet copper ports.

The returned value reflects what has been selected, not the actual speed value; e.g. the port may actually be 10 or 100 Mbps, but speed-auto will be the value returned if it was previously selected.

- speed - 10mbit (1)
- speed - 100mbit (2)
- speed - auto (3)

lxdot3DuplexSelection {lxdot3Entry 14}
Integer Read-Write

All duplex options are valid for all 10 and 100 Mbps ports. The returned value reflects what has been selected, not the actual duplex value; e.g. the port may actually be in half-duplex or full duplex mode, but duplex-auto will be the value returned if it was previously selected.

- duplex-auto (1)

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4. These statistics are only updated if the ELS10-26 has been configured to gather extended statistics (lxadminStatsExtended).

- duplex-half (2)
- duplex-full (3)

6.1.8 Cabletron UART Interface Group

lxuartTable {lxuart 1}
Not Accessible

A list of interface entries; one per UART port.

lxuartEntry {lxuartTable 1}
Not Accessible

A set of objects for an interface entry. The individual components are described below.

lxuartIndex {lxuartEntry 1}
Integer Read-Only

The ELS10-26's port number of the port. This is always 25.

lxuartBaud {suartEntry 2}
Integer Read-Write

This is the desired baud rate. Only 1200 baud through 19,200 baud are supported by the ELS10-26, but the complete set of possibilities is:

- external-clock (1)
- 1200-baud (2)
- 2400-baud (3)
- 4800-baud (4)
- 9600-baud (5)
- 19200-baud (6)

- 38400-baud (7)
- 56-kilobits (8)
- 1.544-megabits (9)
- 2.048-megabits (10)
- 45-megabits (11)

lxsuartAlignmentErrors {lxuartEntry 3}
Counter Read-Only

Number of received packets with frame alignment errors, since the port was last enabled.

lxsuartOverrunErrors {lxuartEntry 4}
Counter Read-Only

Number of received packets with data overrun errors, since the port was last enabled.

6.1.9 Cabletron Protocol Group

This group specifies which protocols apply to each interface.

lxprotoTable {lxsproto 1}
Not Accessible

This table contains configuration information specifying the types of protocols used for each port.

lxprotoEntry {lxsprotoTable 1}
Not Accessible

Each entry in this table specifies which protocols are used by a particular port in the ELS10-26.

lxprotoIfIndex {lxsprotoEntry 1}
Integer Read-Only

Identifies the interface (port) to which this entry's information belongs. The value of this variable corresponds to lxifIndex, as well as to most of the other port identification values in related MIBs.

lxprotoBridge {lxsprotoEntry 2}
Integer Read-Write

Defines the bridging method to be applied to frames received at, or destined for this port. Ethernet and FDDI ports may be configured for transparent, srt, or none. Token Ring ports may be configured for any of the four options. The UART may only be configured to none.

lxprotoSuppressBpdu {lxsprotoEntry 3}
Integer Read-Write

Allows transmission of spanning tree protocol packets to be suppressed. Values include:

- normal (1) – 802.1d Spanning Tree protocol packets are transmitted as usual
- suppressed (2) – these packets are not transmitted. This option may be useful for interoperability with non-802.1d spanning tree protocols.

lxprotoRipListen {lxsprotoEntry 4}
Integer Read-Write

Specifies whether the port should listen for internet RIP packets so the ELS10-26 can build a routing table for the unit. Values include:

- enabled (1)
- disabled (2)

lxprotoTrunking {lxsprotoEntry 5}
Integer Read-Write

Specifies whether Cabletron's trunking protocol (an extension to the standard Spanning Tree) is to be used over this port. Values include:

- enabled (1)
- disabled (2)

lxprotoTransmitPacing {lxprotoEntry 6}
Integer Read-Write

When enabled, introduces delays into normal transmission of frames to reduce the probability of collisions during heavy traffic.

- enabled (1)
- disabled (2)

6.1.10 Cabletron Trunking Group

lxtrunkTable {lxtrunk 1}
Not Accessible

This table describes the trunking status and attributes of the interfaces that are configured for bridge trunking.

lxtrunkEntry {lxtrunkTable 1}
Not Accessible

An entry exists for every port that has trunking enabled.

lxtrunkIfIndex {lxtrunkEntry 1}
Integer Read-Only

Identifies the port that is configured for trunking.

lxtrunkState {lxtrunkEntry 2}
Integer Read-Only

Indicates the trunking condition for this port. Values include:

- off (1) – this link has not been enabled for trunking.
- closed (2) – this link has not yet received any PDUs.
- oneway (3) – incoming trunking PDUs do not indicate that the ELS10-26's PDUs are being successfully received by the far end.
- joined (4) – this link is actively participating in the trunk group.
- perturbed (5) – this link is actively participating in the trunk group; however, the transmission of data packets has been temporarily stopped due to a change in membership of the trunk group.
- helddown (6) – an error has been detected and this link is being held out of service until the error clears.
- broken (7) – this link has been configured for trunking but the port is physically non-operational.

lxtrunkRemoteBridgeAddr {lxtrunkEntry 3}
Octet String Read-Only

The MAC address portion of the bridge ID of the remote bridge.

lxtrunkRemoteIp {lxtrunkEntry 4}
IP Address Read-Only

The IP address of the remote bridge.

lxtrunkLastError {lxtrunkEntry 5}
Integer Read-Only

The reason for failure when the link is in the held-down state. Values include:

- none (1) – no error; the trunking protocol may re-start with no error conditions when trunking is turned on for a port, or when the MIB variable that controls extra trunk groups is modified.
- in-bpdu (2) – a Spanning Tree BPDU was received, indicating that the connection is not point-to-point, or the far end does not have trunking turned on.
- multiple-bridges (3) – a different bridge has been connected at the far end and the trunking protocol will re-start.
- ack-lost (4) – the far end has detected a problem, and the trunking protocol will re-start.
- standby (5) – this trunk group is filled to capacity using other ports; this port is now a hot standby.
- too-many-groups(6) – the maximum number of groups a ELS10-26 can handle has been reached and a new group cannot be added. This port will not be used until the condition clears.
- no-ack (7) – this port has not received a valid trunking packet, and the trunking protocol will re-start.
- perturbed-threshold (8) – errors are preventing stabilization, and the trunking protocol will re-start.
- self-connect (9) – this port is connected to another port on the same ELS10-26 and cannot be used until this condition clears.
- port-moved (10) – a different port has been connected at the far end, and the trunking protocol will re-start.

lxtrunkLinkOrdinal {lxtrunkEntry 6}
Integer Read-Only

The position of this link within the trunk group.

lxtrunkLinkCount {lxtrunkEntry 7}
Integer Read-Only

The number of links with the trunk group.

lxtrunkLastChange {lxtrunkEntry 8}
Integer Read-Only

The number of seconds since lxtrunkState changed.

6.1.11 Cabletron Workgroup Management Group

lxWorkGroupNextNumber {lxworkgroup 1}
Integer Read-Only

The next available workgroup number to be used. When creating a new workgroup, it is recommended to read the value and use it as a workgroup table key.

lxWorkGroupCurrentCount {lxworkgroup 2}
Integer Read-Only

The total number of workgroups currently defined.

lxWorkGroupMaxCount {lxworkgroup 3}
Integer Read-Only

The maximum number of workgroups allowed.

lxWorkGroupTable {lxworkgroup 4}
Not Accessible

This table contains workgroup definitions for the interfaces.

lxWorkGroupEntry {lxWorkGroupTable 1}
Not Accessible

Each entry in this table contains a definition of a workgroup. The lxWorkGroupNumber serves as the table index. The sequence of elements in the table is as follows:

- lxWorkGroupNumber Integer Read-Write

- lxWorkGroupName Display String Read-Write
- lxWorkGroupPorts Octet String Read-Write
- lxWorkGroupType Integer Read-Write
- lxWorkGroupIpAddress IP Address Read-Write
- lxWorkGroupIpMask IP Address Read-Write
- lxWorkGroupIpxNetwork Octet String Read-write

lxWorkGroupNumber {lxWorkGroupEntry 1}
Integer Read-Write

An integer that identifies the workgroup and is used as an index to this table.

lxWorkGroupName {lxWorkGroupEntry 2}
Display string Read-Write

A 1-16 character workgroup name.

lxWorkGroupPorts {lxWorkGroupEntry 3}
Octet String Read-Write

A list of all ports within the group. The first octet specifies ports 1-8, the second 9-16, etc.

lxWorkGroupType {lxWorkGroupEntry 4}
Integer Read-Write

The type of work group, as indicated by the following values:

all (3)- all broadcast packets.
invalid (4)- not a valid workgroup type.

6.1.12 Cabletron Trap Management Group

This group presents the Cabletron MIB variables that are included as varbinds with the traps generated by the ELS10-26. Chapter 7 of this manual describes the traps generated by the ELS10-26.

lxtrapControlTable {lxtrapMgt 1}
Not Accessible

This table contains information about the severity of each trap and whether the trap is currently enabled.

lxtrapControlEntry {lxtrapControlTable 1}
Not Accessible

The sequence of elements in the lxtrapControlTable are shown below:

- lxtrapIndex Integer Read-Only
- lxtrapEnabled Integer Read-Write
- lxtrapSeverity Integer Read-Write
- lxtrapTex Display String Read-Only

lxtrapIndex {lxtrapControl 1}
Integer Read-Only

Identifies the specific trap number.

lxtrapEnabled {lxtrapControl 2}
Read-Write

Allows you to enable or disable the generation of this trap.

lxtrapSeverity {lxtrapControl 3}
Integer Read-Write

A user-definable severity indicating the importance of the trap. The severity levels are defined as follows:

- informational (1)
- warning (2)
- minor (3)
- major (4)
- critical (5)

lxtrapText {lxtrapControl 4}
Display String Read-Only

Provides a description of the trap.

lxtrapSeverityControlTable {lxtrapMgt 2}
Not Accessible

This table contains information about whether traps of a particular severity are enabled or disabled.

lxtrapSeverityControl {lxtrapControlTable 1}
Not Accessible

The sequence of elements in the lxtrapSeverityControlTable are as follows:

lxtrapSeverity Integer Read-Only

lxtrapSeverityControl {lxtrapSeverityControl 1}
Integer Read-Only

A user-definable severity indicating the importance of the trap. The severity levels are defined as follows:

- informational (1)
- warning (2)
- minor (3)
- major (4)

- critical (5)

lxtrapSeverityEnable {lxtrapSeverityControl 2}
Integer Read-Write

Allows you to enable or disable all traps of a given security level. The values are as follows:

- enabled (1)
- disabled (2)

lxtrapIncludeText {lxtrapMgt 3}
Integer Read-Write

Indicates whether or not a formatted text string is included in the trap PDU. Values include:

- true (1)
- false (2)

lxtrapTime {lxtrapMgt 4}
Time Ticks Read-Write

The time, in centiseconds, which should expire between the sending of traps. The default value is 100 centiseconds.

Note: *This MIB variable (lxtrapTime) replaces sysTrapTime.*

lxtrapRetry {lxtrapMgt 5}
Integer Read-Write

The number of times any enterprise-specific trap is to be sent for a given event. PDUs are retried using a truncated exponential back off: 2 seconds, 4 seconds, 8 seconds, 16 seconds and then 32 seconds for all succeeding intervals. The default value is 1 retry.

lxtrapEntryNumber {lxtrapMgt 6}
Integer Read-Only

The number of traps that are in the lxtrapTable.

lxtrapTable {lxtrapMgt 7}
Not Accessible

This table contains the latest traps that have been generated.

lxtrapEntryIndex {lxtrapEntry 1}
Integer Read-Only

The sequence of elements in the lxtrapControlTable 1 are shown below.

A number representing the order (in time) in which the trap occurred. This 32-bit number can wrap.

lxtrapEntryTimeStamp {lxtrapEntry 2}
Time Ticks Read-Only

The time the trap occurred.

lxtrapEntryText {lxtrapEntry 3}
Display String Read-Only

Provides a description of the trap.

lxtrapEntryNumber {lxtrapEntry 4}
Integer Read-Only

The trap number specified in the trap PDU.

lxtrapEntrySeverity {lxtrapEntry 5}
Integer Read-Only

A user-definable severity indicating the importance of the trap. The severity levels are defined as follows:

- informational (1)
- warning (2)
- minor (3)
- major (4)

- critical (5)

6.1.13 Ping Management MIB

lxpingDataTimeout OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The time, in centiseconds, from the last ping activity (a send or receive of an ECHO_RESPONSE or ECHO_REQUEST message), to when the lxpingEntry information for that ping request will be deleted.

::={lxpingMgt 1}

lxpingTable OBJECT-TYPE

SYTAX	SEQUENCE OF lxpingEntry
ACCESS	not-accessible
STATUS	mandatory
DESCRIPTION	The set of information describing the active ping requests and their results.

::={lxpingMgt2}

lxpingEntry OBJECT-TYPE

SYNTAX	lxpingEntry
ACCESS	not-accessible
STATUS	mandatory

DESCRIPTION	The parameters, state, and results of a ping request.
INDEX	{lxpingNMSAddr,lxpingDestAddr}

::= {lxpingTable 1}

lxpingEntry ::= SEQUENCE

{lxpingNMSAddr	IpAddress,
lxpingDestAddr	IpAddress,
lxpingState	INTEGER,
lxpingCount	INTEGER,
lxpingDataSize	INTEGER,
lxpingWait	TimeTicks,
lxpingTimeOut	TimeTicks,
lxpingOperation	INTEGER,
lxpingMin	TimeTicks,
lxpingMax	TimeTicks,
lxpingAvg	TimeTicks,
lxpingNumTransmitted	INTEGER,
lxpingNumReceived	INTEGER}

lxpingNMSAddr OBJECT-TYPE

SYNTAX	IpAddress
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The IP address of the NMS, used to determine on which ping request to return information.

::= {lxpingEntry 1}

lxpingDestAddr OBJECT-TYPE

SYNTAX	IpAddress
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The IP address which is to be the destination of the ping ECHO_REQUEST. This variable cannot be set while lxpingOperation is on.

::= {lxpingEntry 2}

lxpingState OBJECT_TYPE

SYNTAX	INTEGER {not-started (1) active (2) timed-out (3) completed (3)}
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The current state of the ping request.

::= {lxpingEntry 3}

lxcpingCount OBJECT -TYPE

SYTAX	INTEGER
ACCESS	read-write
STATUS	mandatory

DESCRIPTION	The number of ping requests which are to be sent. This variable cannot be set while lxping-Operation is on.

::= {lxpingEntry 4}

lxpingDataSize OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The datagram packet size which will be sent with the ECHO_REQUEST in bytes. This variable cannot be set while lxpingOperation is on.

::= {lxpingEntry 5}

lxpingWait OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The time, in centiseconds, between the sending of each ECHO_REQUESTmessage. This variable cannot be set while lxpingOperation is on.

::= {lxpingEntry 6}

lxping TimeOut OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-write

STATUS	mandatory
DESCRIPTION	The time, in centiseconds, since the last ECHO-RESPONSE was received (or the last ECHO-RESPONSE was sent, if there have been no responses) when the ping request will time out. This variable cannot be set while the lxpingOperation is on.

::= {lxpingEntry 7}

lxpingOperation OBJECT-TYPE

SYNTAX	INTEGER {on (1), off (2) }
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	Setting lxpingOperation to on will begin the ping request. Setting lxpingOperation to off will terminate the ping request.

::= {lxpingEntry 8}

lxpingMin OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The minimum round trip time for the ping requests and responses, in centiseconds.

::= {lxpingEntry 9}

lxpingMax OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The maximum round trip time for the ping requests and responses, in centiseconds.

::= {lxpingEntry 10}

lxpingAvg OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The average round trip time for the ping requests and responses, in centiseconds.

::= {lxpingEntry 11}

lxpingNumTransmitted OBJECT-TYPE

SYTAX	INTEGER
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The number of ICMP ECHO_REQUEST messages that have been transmitted during this ping request.

::= {lxpingEntry 12}

lxpingNumReceived OBJECT-TYPE

SYTAX	INTEGER
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The number of ICMP ECHO_RESPONSE messages that have been received as a result of this ping request.

::= {lxpingEntry 13}

6.1.14 Traceroute

An implementation of traceroute was added in order to add the ability to orginate a traceroute request from the ELS10-26. The request can be started from LCM, or from SNMP. If the request is originated from the LCM, the results are printed out on the LCM console.

The LCM command is as follows:

traceroute [-m max_ttl] [-q nqueries] [-w wait] host_IP [data_size]

The traceroute MIB has a variable which indicates the amount of time the results of a traceroute request is accessible from SNMP. It also has a table, indexed by NMS IP address, ping destination IP address, hop count, and probe count which is used to start the traceroute request and fetch the results. Each entry in the table will contain the round trip time and state of each particular probe in each hop.

6.1.15 Traceroute Management MIB

lxtraceDataTimout OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The time, in centiseconds, from the last traceroute activity, (the response to, or timeout of the last probe sent) to when the lxtraceEntry information for that traceroute request will be deleted.

::= {lxtraceMgt 1}

lxtraceTable OBJECT-TYPE

SYNTAX	SEQUENCE OF lxtraceEntry
ACCESS	not accessible
STATUS	mandatory
DESCRIPTION	The set of information describing the active traceroute request.

::= {lxtraceMgt 2}

lxtraceEntry OBJECT-TYPE

SYNTAX	lxtraceEntry
ACCESS	not accessible
STATUS	mandatory
DESCRIPTION	The parameters, state, and results of a traceroute request.
INDEX	{lxtraceNMSAddr, lxtraceDestAddr, lxtraceHop, lxtraceProbe}

::= {lxtraceTable 1}

lxtraceEntry ::= SEQUENCE

{lxtraceNMSAddr	IpAddress
lxtraceDsetAddr	IpAddress
lxtraceMaxTTL	INTEGER
lxtraceDataSize	INTEGER
lxtraceNumProbes	INTEGER
lxtraceWait	TimeTicks
lxtraceOperation	INTEGER
lxtraceHop	INTEGER
lxtraceHopAddr	IpAddress
lxtraceProbe	INTEGER
lxtraceState	INTEGER
lxtraceTime	TimeTicks}

traceNMSAddr OBJECT-TYPE

SYNTAX	IpAddress
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The IP address of the NMS, used to determine on which traceroute request to return information.

::= {lxtraceEntry 1}

lxtraceDsetAddr OBJECT-TYPE

SYNTAX	IpAddress
ACCESS	read-write
STATUS	mandatory

DESCRIPTION	The IP address which is to be the destination of the traceroute request. This variable cannot be set while traceOperation is on.

::= {lxtraceEntry 2}

lxtraceMaxTTL OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The maximum time-to-live for outgoing traceroute probe packets. This determines the number of hops that can be in a traceroute. This variable cannot be set while lxtraceOperation is on.

::= {lxtraceEntry 3}

lxtraceDataSize OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The size of the datagram sent with each probe. This variable cannot be set while lxtraceOperation is on.

::= {lxtraceEntry 4}

lxtraceNumProbes OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-write

STATUS	mandatory
DESCRIPTION	The number of probes which are sent for each hop. This variable cannot be set while lxtraceOperation is on.

::= {lxtraceEntry 5}

lxtraceWait OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The time to wait in response to a probe. This variable cannot be set while lxOperation is on.

::= {lxtraceEntry 6}

lxtraceOperation OBJECT-TYPE

SYNTAX	INTEGER {on (1), off (2) }
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	Setting lxtraceOperation to on will begin the traceroute request. Setting lxtraceOperation to off will terminate the traceroute request.

::= {lxtraceEntry 7}

lxtraceHop OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-only

STATUS	mandatory
DESCRIPTION	The hop count for a set of probes with a particular TTL.

::= {lxtraceEntry 8}

lxtraceHopAddress OBJECT-TYPE

SYNTAX	IpAddress
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The IP address of the host which responded for a probe with a particular TTL.

::= {lxtraceEntry 9}

lxtraceProbe OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The probe instance for a particular hop.

::= {lxtraceEntry 10}

lxtraceState OBJECT-TYPE

SYNTAX	INTEGER
	{not-started (0),
	active (1),
	time-exceeded (2)
	host-unreachable (3)
	net-reachable (4),

	completed (5)}
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	The current state of the traceroute.

::={lxtraceEntry 11}

lxtraceProbe OBJECT-TYPE

SYNTAX	TimeTicks
ACCESS	read-only
STATUS	mandatory
DESCRIPTION	Round trip time of a probe for a particular hop.

::= {lxtraceEntry 12}

6.1.16 Port Mirroring

lxmirrorMode OBJECT-TYPE

SYNTAX	INTEGER
	{off (0),
	tx (1),
	rx (2)
	rx and tx (4)
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	To turn off port mirroring, or turn on by specifying rx, tx or rxandtx, which is the type of data to be mirrored.

::= {lxmirrorgroup 1}

lxmirrorTargetPort OBJECT-TYPE

SYNTAX	INTEGER
ACCESS	read-write
STATUS	mandatory
DESCRIPTION	The number of the port whose data will be mirrored by the special mirror port.

::= {lxmirrorgroup 2}

CHAPTER 7

TRAPS

The unit sends Trap PDUs to the NMS, using the pre-configured NMS IP address (see lxadminNMSIPAddr). If no address has been pre-configured, then the unit sends the Traps to the source IP address of the last SNMP datagram received from an NMS. If no address has been pre-configured, and if no datagrams have been received since the unit was booted, then the unit uses the broadcast IP address.

The Trap PDUs are sent from source UDP port number 161, to destination UDP port number 162, which are the SNMP standard numbers reserved for Trap PDUs. The unit may be configured to send an additional copy of each Trap PDU to a user specified destination UDP port number (see sysTrapPort).[1]

7.1 GENERIC TRAPS

The ELS10-26 issues generic and enterprise-specific (Cabletron) traps. SNMP defines the generic traps below.

coldStart (0) - The ELS10-26 has restarted.

warmStart (1) - Not used by the ELS10-26.

linkDown (2) - A port has failed, and ELS10-26's response is to automatically disable usage of the port. If the port comes back to life, ELS10-26 will automatically re-enable usage of the port. The "variable-bindings" portion of the trap contains the ifIndex of the port.

linkUp (3) - A port has come back to life, and the ELS10-26's local management agent has re-enabled usage of the port. The "variable-bindings" portion of the trap contains the ifIndex of the port.

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1. The additional traps are not sent when the ELS10-26 is using the broadcast IP address.

authenticationFailure (4) - This trap is generated whenever the community name in a PDU does not match the corresponding password. All SetRequest PDUs must match the configAnyPass (refer to the of lxadminGetPass for SetRequest exceptions), GetRequest PDUs must match either the lxadminGetPass or the configAnyPass. The GetRequest exception is for one of the debugging attributes; those PDUs must always provide the lxadminAnyPass.

egpNeighborLoss (5) - Not used by the ELS10-26.

7.2 ENTERPRISE SPECIFIC TRAPS FOR THE ELS10-26

This section lists the enterprise-specific traps that can be generated by the ELS10-26. ELS10-26 traps contain enterprise-specific variables that are defined in the system group of the Cabletron MIB in Chapter 6 of this manual.

lxWriteStatusTrap (2) - Sent when a bank of Flash EPROM has been erased. If lxswdisWriteStatus indicates success, then the unit is ready to be downloaded with the new software.

Cabletron MIB variables include:

- lxTrapSeverity
- lxswdisWriteStatus
- lxwdisDesc

lxPortFunctionsTrap (3) - Sent whenever the current functional state (active protocols) of the port has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- lxifFunction

lxRxQuesTrap (4) - Sent whenever the number of times that the port's receiver has missed receiving packets due to buffer space shortages has exceeded the port's limit.

Cabletron MIB variables include:

- lxTrapSeverity
- lxifRxQueues

lxTxStormFlagTrap (5) - Sent whenever multicast storm protection has been invoked for the port.

Cabletron MIB variables include:

- lxTrapSeverity

lxTxCongestsTrap (6) - Sent whenever packets destined for the unit itself were discarded due to lack of buffer space.

Cabletron MIB variables include:

- lxTrapSeverity
- lxadminNamReceiveCongests

lxDebugStringIdTrap (8) - Send whenever the unit has a debug text string to be displayed. The text strings are sent in a stream-like fashion.

Cabletron MIB variables include:

- lxTrapSeverity
- lxdebugStringId
- lxdebugString

lxLpbkOperationTrap (9) - Send whenever the unit has finished a loop back test, or a loop back error has been detected.

Cabletron MIB variables include:

- lxTrapSeverity
- lxlpbkOperation
- lxlpbkErrorNoReceives
- lxlpbkErrorBadReceives

lxTrunkStateTrap (10) - A trunking state change transition has occurred. The possible transitions are:

- CLOSED-ONWAY
- ONEWAY-PERTURBED
- PERTURBED-JOINED
- JOINED-HELDDOWN
- CLOSED-HELDDOWN
- ONEWAY-HELDDOWN
- PERTURBED-HELDDOWN

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkState

lxTrunkBridgeAddrTrap (11) - The associated trunking MAC address of the remote bridge ID has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkRemoteBridgeAddr

lxTrunkIPAddrTrap (12) - The associated trunking IP address of the remote bridge has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkRemoteIP

lxTrunkErrorTrap (13) - An error has occurred in trunking.

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkLastError

lxTrunkLinkOrdinalTrap (14) - The port's index in the trunking group has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkLinkOrdinal

lxTrunkLinkCountTrap (15) - The number of ports in the trunking group has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- lxtrunkLinkCount

lxDiagUnitBootedTrap (16) - The unit has booted. Variable lxadminFatalErr contains information about why the unit rebooted.

Cabletron MIB variables include:

- lxTrapSeverity
- lxadminFatalError

lxStorageFailureTrap (17) - Sent if the unit's Configuration EEPROM has failed.

Cabletron MIB variables include:

- lxTrapSeverity

lxPortCongestionTrap (18) - Sent whenever outbound congestion control has been invoked for the port.

Cabletron MIB variables include:

- lxTrapSeverity
- ifOutDiscards

lxTopChangeBegunTrap (19) - The spanning tree topology has begun to change.

Cabletron MIB variables include:

- lxTrapSeverity

lxTopChangeEndTrap (20) - The spanning tree topology has stopped changing.

Cabletron MIB variables include:

- lxTrapSeverity

lxIfErrorsTrap (21) - Sent whenever the number of hardware errors in received and transmitted packets has exceeded the port's limit.

Cabletron MIB variables include:

- lxTrapSeverity
- ifInErrors
- ifOutErrors

lxStRootIDTrap (22) - The spanning tree root bridge ID has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpDesignatedRoot

lxStRootCostTrap (23) - The unit's spanning tree cost to the root bridge has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpDesignatedRoot

lxStRootPortTrap (24) - The unit's spanning tree root port has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpRootPort

lxStMaxAgeTrap (25) - The spanning tree maximum age has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpMaxAge

lxStHelloTimeTrap (26) - The spanning tree hello time has changed.

Cabletron MIB variables include:

- lxTrapSeverity

- dot1dStpHelloTime

lxStForwardDelayTrap (27) - The spanning tree forward delay time has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1StpForwardDelay

lxStDesigRootTrap (28) - The root bridge ID in received spanning tree configuration BPDUs from the port has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpPortDesignatedRoot

lxStPortDesigBridgeTrap (29) - The bridge ID of the spanning tree designated bridge of the LAN to which the port is attached has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpPortDesignatedBridge

lxStPortDisgCostTrap (30) - The cost to the spanning tree root bridge from the designated port of the LAN/WAN to which the port is attached has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpPortDesignatedCost

lxStPortDesigPortTrap (31) - The port ID of the spanning tree designated port of the LAN/WAN to which the port is attached has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpPortDesignatedPort

lxStPortStateTrap (32) - The spanning tree state of the port has changed.

Cabletron MIB variables include:

- lxTrapSeverity
- dot1dStpPortState

lxhwDiagTrap (100) - Sent whenever the unit's diagnostics have indicated an error.

Cabletron MIB variables include:

- lxTrapSeverity
- lxhwDiagCode