CHAPTER 4

Configuration Attributes

This chapter describes the configuration attributes available in basic mode for LightStream 2020 enterprise ATM switches, and offers advice on how to set them. You can use this chapter as a reference when setting attributes during configuration.

The chapter is organized into sections according to the order that you configure a switch: first you must configure a chassis, then cards and ports, and then you can configure protocol attributes, PVC end points and VLI attributes. Within each section, the attributes are arranged in alphabetical order.

The attribute fields accept fill-in or multiple choice values. Fill-in fields accept only printable ASCII text, and most accept a limited number of characters. The configurator provides a field box for any value that you have to fill in.The configurator provides either an option button or a radio button for any value that has multiple choice selections. To select a value for either of these types of buttons, you simply click on the correct setting.

You can set all the attributes described here using the configurator. Note that LightStream uses a number of attributes that cannot be configured; these are not listed here. For example, there are two card status attributes: cardAdminStatus, which is listed in this section, and cardOperStatus, which is not. The cardAdminStatus attribute specifies whether you want a card to be up or down. The cardOperStatus attribute, which is set by the system, indicates the actual status of the card. The *LightStream 2020 Command and Attribute Guide* provides information on all attributes.

Entries in this chapter list interrelationships between attributes, if any exist. Some attributes listed under the Interrelationships heading are given English names like Hello Time, while others are given MIB names such as ls1InfoOperRcvBaudRate. If the English name is provided, that means the referenced attribute is configurable and you can look it up in this chapter. (Use the index at the end of the book.) If the MIB name is provided, the attribute is not configurable, and is not described in this chapter.

Chassis Attributes

This section describes the attributes that you can set from the Chassis Configuration dialog box. These attributes are associated with the switch as a whole, and they include system attributes, IP addresses, and SNMP agent attributes.

Note Remember that, for ease of reference, the attributes are presented in alphabetical order—not in the order that they appear in the dialog box.

System Attributes

Chassis ID

MIB name	chassisID
Field Type	Fill-in
Legal Values	Printable ASCII characters
Default value	None

Specifies the vendor's unique identification number for the system. If you don't know the chassis ID, you can use the configurator's verify function or the **show chassis general** command in the CLI to display it. See the *LightStream 2020 Operations Guide* for information on the CLI.

Name

Specifies a name for the switch. The field holds up to 32 characters.

MIB name	sysName
Field Type	Fill-in
Legal Values	Printable ASCII characters
Default value	None

Note This must be the same name used at installation and in the /etc/hosts file.

Contact

Identifies the person responsible for this node, including information on how to contact this person. The field holds up to 48 characters.

MIB name	sysContact
Field Type	Fill-in
Legal Values	Printable ASCII characters
Default value	None

Location

Specifies the physical location of this node. (For example: telephone closet, 3rd floor.) The field holds up to 48 characters.

MIB name	sysLocation
Field Type	Fill-in
Legal Values	Printable ASCII characters
Default value	None

IP Address Attributes

See the *LightStream 2020 Installation and Troubleshooting Guide* if you are unfamiliar with IP addresses, network classes, address masks, subnetting and host IDs.

Default Router

Specifies the IP address of the NP Ethernet port's default router. If an Ethernet LAN is attached to the primary NP in order to communicate with an NMS, but the NMS is not directly connected to that LAN, a router on the Ethernet LAN may be configured as the default router. This default router provides a route from the NP to the network management system (NMS).

The IP address for the default router has the network number for the attached Ethernet LAN (not the network number of the LightStream network) plus a host number that is assigned by the network administrator of the Ethernet LAN.

MIB name	chassisDefaultIpRouter
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None

NP IP Address

Specifies the IP address for the NP's Ethernet port. An Ethernet LAN may be attached to the NP solely for communicating management traffic between the node and a network management system (NMS). If an Ethernet LAN is connected to the NP, then the NP's Ethernet IP address must be configured. If there is a backup NP, then both NPs must be attached to the same Ethernet segment and the NP's Ethernet IP address is used by whichever NP is primary.

The NP Ethernet IP address has the network number for the attached Ethernet LAN (not the network number of the LightStream network) plus a host number that is assigned by the network administrator of the Ethernet LAN.

Note Network management can also be done via a LAN that is connected to an ordinary Ethernet or FDDI edge port on any LightStream node. The NMS must be directly attached to that LAN or connected through a bridged network to it. In this case, do not configure any NP Ethernet port IP address or default router address.

MIB name	chassisEthernetIPAddr
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None
Interrelationships	NP IP Mask

NP IP Mask

Specifies the subnet mask for the NP Ethernet port's IP address. The subnet mask specifies which portion of the IP address is the network number and which portion is the host ID. This mask is the same for all nodes on the Ethernet LAN that is attached to the primary NP. You obtain it from the administrator of that Ethernet LAN.

MIB name	chassisEthernetIPMask
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None
Interrelationships	NP IP Address

Primary IP Address

The IP address of the active NP for the node. Nodes in a LightStream network use their primary IP addresses to communicate network management traffic to one another. The address can also be used by any external system with IP connecting to any port of the LightStream network. In a system with two NPs, if the active NP fails and the backup becomes primary, the two NPs exchange management IP addresses so that the primary IP address remains with the active NP.

An IP address is a 32-bit identifier assigned to hosts that use the Internet Protocol. The address is represented by four octets (8-bit fields). In decimal form, an IP address comprises four fields separated by dots; each field contains a value of 0-255.

An IP address consists of two parts. The first part of the address, called the network number, identifies a network on the Internet; the remainder, called the host ID, identifies an individual host on that network. All internal NP IP addresses within the same LightStream network must have the same network number and each must have a unique host ID.

Host IDs are assigned by the administrator of the network. The network number is assigned by the administrator of the internetwork. For a public network on the Internet, the network number is assigned by the Network Information Center (NIC).

MIB name	chassisActiveIpAddr
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None
Interrelationships	Secondary IP Address Subnet Mask

Secondary IP Address

Specifies the secondary IP address for the chassis. If a node has a backup NP, then it uses its primary and secondary IP addresses to pass network management traffic between the two NPs within the node. The secondary IP address is used by whichever NP is the backup. All internal IP addresses within the same LightStream network must have the same network number, and each must have a unique host ID.

MIB name	chassisSecondaryIpAddr
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None
Interrelationships	Primary IP Address Subnet Mask

Subnet Mask

Specifies the subnet mask used for the IP addresses associated with switch ports (the primary and secondary IP addresses). The subnet mask specifies which portion of the IP address is the network number and which portion is the host ID. This mask is the same for all nodes on a given LightStream network.

If you plan to handle just one physical LightStream network under your network ID number, and the LightStream network is a class C network, then record 255.255.255.0 as the subnet mask. (The mask is 255.255.0.0 for a class B network with no subnetting, and 255.0.0.0 for a class A network with no subnetting.)

MIB name	chassisNetworkMask
Field Type	Fill-in
Legal Values	Decimal numbers from 0 to 255 separated by periods
Default value	None
Interrelationships	Primary IP Address Secondary IP Address

SNMP Agent Attributes

Trap Filter

Specifies the lowest priority of traps that are passed from the MMA to the CLI and the NMS. Priorities from highest to lowest are: operational, informational, trace, debug. For a description of LightStream trap filters, see the *LightStream 2020 Operations Guide*. (The default value, Oper, works relatively well in most cases.)

MIB name	mmaTrapFilter
Field Type	Multiple choice
Legal Values	Oper, Info, Trace, Debug
Default value	Oper

Trap Log Status

This parameter specifies the trap log control field. If enabled, the MMA logs traps that it receives from LWMA clients. These traps are logged to the disk. As new traps are added, old traps are deleted. (The default value works relatively well in most cases.)

MIB name	mmaTrapLog
Field Type	Multiple choice
Legal Values	Enabled, Disabled
Default value	Enabled

Card Attributes

This section describes attributes associated with function cards. These are fairly simple attributes: status, name and type.

Note Remember that the attributes are presented in alphabetical order—not in the order that they appear in the dialog box.

Admin Status

Specifies the desired status of the card. (See also Port Status.) The system makes the card's actual status match this value as soon as it can. It's generally best to set this attribute to up in the configuration database; you can change the status temporarily from the CLI.

MIB name	cardAdminStatus
Field Type	Multiple choice
Legal Values	Up, Down
Default value	Up
Interrelationships	cardOpenStatus

Name

This parameter specifies the name for an NP or line card. You can leave this blank if you wish. The field holds up to 20 characters.

MIB name	cardName
Field Type	Fill-in
Legal Values	Printable ASCII characters. (Do not use a name that begins with a number or contains special characters such as quotation marks.)
Default value	None

Type

Specifies the kind of card.

MIB name	cardBoardType
Field Type	Multiple choice
Legal Values	LS-Edge, LS-Trunk, T3-Trunk, E3-Trunk, T3-Edge, E3-Edge, FDDI, Ethernet, OC3-Trunk, OC3-Edge, NP
Default value	LS-Edge, or the type of card most recently created

Port Attributes

This section describes attributes associated with ports. Within this section, attributes are grouped as follows:

- Common attributes (shared by all cards)
- LSC trunk and edge port attributes
- MSC trunk and edge port attributes
- PLC edge port attributes
- CLC trunk and edge port attributes

Note You should configure port 0 on all cards, even if the port is not going to be used. This is because the card type is derived from the setting for port 0. Configuring an unused port does not affect system operation.

Common Attributes

Port Name

Specifies the name of this port.

MIB name	portInfoName
Field Type	Fill-in
Legal Values	Printable ASCII characters. (Do not use a name that begins with a number or contains special characters such as quotation marks.)
Default value	Combination of chassis name, card slot number and port number in the following form: <chassis name.card#.port#>

Port Status

Specifies the desired status of the port. The system makes the port's actual status match this value as soon as it can. A port automatically enters testing mode when you load the diagnostics on its parent card. It's generally best to set this attribute to Up in the database; you can use CLI to change the value for short periods as needed.

MIB name	ifAdminStatus
Field Type	Multiple choice
Legal Values	Up, Down
Default value	Up
Interrelationships	ifOpenStatus

LSC Port Attributes

This subsection contains the definitions of all attributes associated with low-speed edge and trunk ports provided by the LSC. These attributes are found on the LS-Edge Frame Forwarding, LS-Edge Frame Relay and LS-Trunk Port Configuration dialog boxes. Some attributes are common to both types of ports and some are unique to one or the other. Attributes are listed in alphabetical order.

DCE Bit Rate

Specifies, in kilobits per second, the desired bit rate for an edge or trunk port. This rate is in effect only when the interface is configured as a DCE and, therefore, is providing the clock signal.

MIB name	ls1InfoAdminRcvBaudRate
Field Type	Multiple choice
Legal Values	56 Kbps, 64 Kbps, 128 Kbps, 192 Kbps, 256 Kbps, 384 Kbps, 448 Kbps, 512 Kbps, 768 Kbps, 896 Kbps, 1344 Kbps, 1536 Kbps, 1792 Kbps, 2688 Kbps, 3584 Kbps, 4000 Kbps, 5376 Kbps
Default value	56 Kbps
Interrelationships	DTE Bit Rate DCE/DTE Type

Note Although the configurator accepts rates above 3584 Kbps, sustained port throughput cannot exceed that rate.

DCE/DTE Type

Specifies the desired network interface type for a trunk or edge port. If the port is configured as a DCE, then the LightStream port provides the clock signal. If the port is configured as a DTE, then the external device connected to the LightStream port provides the clock signal. The DCE-tt-loop setting is used for connecting to certain DTEs that don't reflect clock (TT) signals, which is required for full V.35 compliance.

MIB name	ls1InfoAdminNetIntType
Field Type	Multiple choice
Legal Values	DTE, DCE, DCE-tt-loop
Default value	DCE
Interrelationships	DCE Bit Rate DTE Bit Rate ls1InfoOperNetIntType

Note Although the configurator accepts rates above 3584 Kbps, sustained port throughput cannot exceed that rate.

DTE Bit Rate

Specifies, in kilobits per second, the bit rate for a trunk or edge port. This rate is in effect only if the port is configured as a DTE, and therefore, is receiving clock from an external device.

MIB name	ls1InfoAdminRcvBaudRate
Field Type	Fill-in
Legal Values	9 kbps to 6,000 kbps
Default value	64 kbps
Interrelationships	DCE Bit Rate DCE/DTE Type

Full Enquiry Interval

Specifies, for frame relay edge ports, the number of status enquiry intervals that pass before the user portion of this frame relay interface (if it is configured as an NNI) issues a full status enquiry message. LMI parameter reference: nN1/N391.

MIB name	frProvMiUserFullEnquiryInterval
Field Type	Fill-in
Legal Values	Decimal numbers from 1 to 255
Default value	6
Interrelationships	LMI Type

LMI Type

Specifies, for frame relay edge ports, the data link connection management scheme, or local management interface (LMI), that's active on this frame relay port. "LMI FRIF" is the original LMI; it uses DLCI 1023 for LMI messages. "ITU-TSS Q.933A" was formerly known as CCITT Q.933A; it uses DLCI 0 for LMI messages. "ANSI T1.617D" also uses DLCI 0.

MIB name	frProvMiState
Field Type	Multiple choice
Legal Values	LMI FRIF, ANSI T1.617D, ITU-TSS Q.933A, No LMI
Default value	No LMI

Max Frame Size

Specifies, for edge ports, the desired maximum frame size for this port, in bytes. (The default value of this attribute, 1536 bytes, is the maximum size of an encapsulated Ethernet frame.)

MIB name	edgeMaxFrameSize
Field Type	Fill-in
Legal Values	Decimal numbers from 1 to 8152
Default value	1536

Max Supported VCs

Specifies, for frame relay edge ports, the maximum number of virtual circuits allowed for this interface. This number is usually dictated by the frame relay network.

MIB name	frProvMiMaxSupportedVCs
Field Type	Fill-in
Legal Values	Decimal numbers in the range 1 to 976
Default value	25
Interrelationships	Max VCs (expert mode attribute)

Note The total Max Supported VCs for a card cannot exceed 2000, the maximum value allowed for the Max VCs attribute.

Net Monitored Events

Specifies, for frame relay edge ports, the number of status polling intervals over which the Net Error Threshold is counted. If this interface receives the number of errors specified in Net Error Threshold within this number of events, the LMI port is declared unreliable. (All PVCs will be reported inactive.) LMI parameter reference: nN3/N393.

MIB name	frProvMiNetMonitoredEvents
Field Type	Fill-in
Legal Values	Decimal numbers from 1 to 10
Default value	5
Interrelationships	LMI Type Net Error Threshold

Net Interface Type

Specifies, for frame relay edge ports, the type of frame relay network interface on this port: UNI for user network interface, NNI for network to network interface. (Some NNI functionality is present in Release 2.0 to support loopback, but full NNI for connection to external systems is not supported.)

MIB name	frProvMiNetInterfaceType
Field Type	Multiple choice
Legal Values	UNI, NNI
Default value	UNI

Net Request Interval

Specifies, for frame relay edge ports, the maximum number of seconds the system expects to elapse between status enquiry messages from the user end of the FR connection. If a status enquiry message does not arrive within this time, trap number LCC-3036 is issued. LMI parameter reference: nT2/T392.

Note This trap is not reported unless the switch has been configured to report trace-level traps.

MIB name	frProvMiNetRequestInterval
Field Type	Fill-in
Legal Values	5, 10, 15, 20, 25 or 30
Default value	10
Interrelationships	LMI Type

Polling Interval

Specifies, for frame relay edge ports, the number of seconds between consecutive status enquiries sent by the user portion of a frame relay interface that has an LMI. This attribute is used only when the LightStream interface is configured as an NNI. LMI parameter reference: nT1/T391.

MIB name	frProvMiUserPollingInterval
Field Type	Fill-in
Legal Values	5, 10, 15, 20, 25 or 30
Default value	10
	LMI Type
	Net Interface Type
	User Error Threshold
Interrelationships	frProvMiUserMonitoredEvents

User Error Threshold

Specifies, for frame relay edge ports, the maximum number of unanswered status enquiries the LightStream system will tolerate before it declares the LMI port unreliable at the user side of the interface. (All PVCs will be reported inactive.) This attribute is used only when the LightStream interface is configured as an NNI.

MIB name	frProvMiUserErrorThreshold
Field Type	Fill-in
Legal Values	Decimal numbers from 1 to 10
Default value	5
	LMI Type
	Net Interface Type
	frProvMiUserMonitoredEvents
Interrelationships	Polling Interval

MSC Port Attributes

This subsection contains the definitions of all attributes associated with medium-speed edge and trunk ports provided by the MSC. These attributes are found on the T3-Trunk, E3-Trunk, T3-Edge and E3-Edge Configuration dialog boxes. Attributes are listed in alphabetical order.

Cable Length

Specifies the length of the cable connected to this T3 or E3 trunk or edge port. The PLPP chip on the medium-speed line card, which sources clock, has several algorithms it can use to synchronize its clock signal; it chooses the best one based on the length of the cable. If this attribute is set incorrectly, the connection will be noisy, or it may not come up.

MIB name	ms1InfoAdminCableLength
Field Type	Multiple choice
Legal Values	T3:0 - 450 feet 450 - 900 feet E3:0 - 400 feet 300 - 1000 feet 800 - 1300 feet 1100 - 1900 feet
Default value	T3 Trunk or Edge: 0 - 450 feet E3 Trunk or Edge: 0 - 400

DS3 Line Type

Specifies the type of DS3 line used on this T3 trunk or edge port. If necessary, check with your carrier to learn the characteristics of the line they provide. (Clear channel is sometimes referred to as M13.)

MIB name	dsx3LineType
Field Type	Multiple choice
Legal Values	C-bit Parity, Clear Channel
Default value	Clear Channel

Cell Payload Scrambling

Turns cell payload scrambling on or off on this T3 or E3 trunk or edge port. Cell payload scrambling is a technique used to maintain framing. It rearranges the data portion of a cell to maintain the line synchronization with certain common bit patterns.

MIB name	ms1InfoAdminScramble
Field Type	Multiple choice
Legal Values	Enabled, Disabled
Default value	Trunk interfaces: T3: Disabled E3: Enabled Edge interfaces: Enabled

PLC Port Attributes

The following subsections contain the definitions of all attributes associated with FDDI and Ethernet ports provided by the PLC. These attributes are found on the FDDI and Ethernet Configuration dialog boxes. Attributes are listed in alphabetical order.

FDDI Port Attributes

Note Port A and Port B attributes are displayed in one dialog box. The attribute descriptions are the same for each port.

Link Error Rate Alarm

Specifies the bit error rate estimate at which a link connection generates an alarm, expressed in negative powers of 10, e.g., 8 = 10^{-8} (or .00000001%).

MIB name	fddimibPORTLerAlarm
Field Type	Fill-in
Legal Values	4 to 15
Default value	8

Link Error Rate Cutoff

Specifies the bit error rate estimate at which a link connection is broken, expressed in negative powers of 10, e.g., 7 = 10^{-7} (or .0000001%).

MIB name	fddimibPORTLerCutoff
Field Type	Fill-in
Legal Values	4 to 15
Default value	7

Notify Timer

Specifies the length of timer (in seconds) used in the FDDI SMT Neighbor Notification protocol.

MIB name	fddimibSMTTNotify
Field Type	Fill-in
Legal Values	2 to 30 seconds
Default value	30 seconds

Ethernet Port Attributes

The Ethernet port has no port-specific attributes.

CLC Port Attributes

This section contains the definitions of all attributes associated with OC-3c ports provided by the CLC. These attributes are found on the OC3-Trunk and OC3-Edge Configuration dialog boxes. Attributes are listed in alphabetical order.

Clocking Type

Specifies the source of the transmit clock used for this OC-3c trunk or edge port. If you specify external, then recovered receive clock (clock derived from the receive data input) is used for the transmit clock. If you specify internal, then a local timing source (such as an oscillator) on the OC-3c access card generates the transmit clock.

MIB name	clcInfoAdminClock
Field Type	Multiple choice
Legal Values	internal/external
Default value	internal

Cell Payload Scrambling

Specifies whether or not cell payload scrambling is enabled for this OC-3c trunk or edge port.

MIB name	clcInfoAdminScramble
Field Type	Multiple choice
Legal Values	enable/disable
Default value	enable

Internetworking Attributes

This section describes attributes associated with internetworking. These attributes are only applicable for switches using Packet Line Card and the FDDI and/or Ethernet access cards.

Release 2.0 of the configurator only supports the bridging internetworking attributes. Within this section, bridging attributes are grouped as follows:

- Spanning Tree Bridge attributes
- Custom Filters attributes
- Static Filtering attributes

Spanning Tree Attributes

This section describes the attributes used to affect the operation and configuration of the LightStream 2020 spanning tree bridge functionality. These attributes are found in the Spanning Tree Configuration dialog box. Attributes are divided into subsections according to switch-level and port-level attributes. Within these subsections, attributes are listed in alphabetical order.

You should be familiar with IEEE 802.1d-1990, *MAC Bridges*, before you attempt to set any of these attributes. Specifically, you should be familiar with the following terms: root bridge, designated port, spanning tree bridge, Hello Time, Forward Delay, Max Age, bridge priority, bridge ID, path cost and port ID. You can also reference RFC 1493, *Definition of Managed Objects for Bridges* for more information on spanning tree bridge attributes.

Switch-Level Attributes

Forward Delay

Specifies the time period, in hundredths of a second, that all bridges use for Forward Delay when this bridge is acting as the root. Forward Delay is the time interval spent in the certain states when the bridge is transitioning between states.

MIB name	dot1dStpBridgeForwardDelay
Field Type	Fill-in
Legal Values	400 to 3000 (hundredths of a second)
Default value	1500 (15 seconds)
Interrelationships	2 x (Forward Delay - 1) >=Max Age 2 x (Hello Time + 1) <= Max Age

Hello Time

Specifies the time period, in hundredths of a second, that all bridges use for Hello Time when this bridge is root. Hello Time is time interval between the transmission of configuration messages by a bridge that is, or is attempting to become, the root.

MIB name	dot1dStpBridgeHelloTime
Field Type	Fill-in
Legal Values	100 to 1000 (hundredths of a second)
Default value	200 (2 seconds)
Interrelationships	2 x (Forward Delay - 1) >=Max Age 2 x (Hello Time + 1) <= Max Age

Max Age

Specifies the time period, in hundredths of a second, that all bridges use for Max Age when this bridge is acting as the root. Max Age is the maximum amount of time that received protocol information is saved before it is discarded.

MIB name	dot1dStpBridgeMaxAge
Field Type	Fill-in
Legal Values	600 to 4000 (hundredths of a second)
Default value	2000 (20 seconds)
Interrelationships	2 x (Forward Delay - 1) >=Max Age 2 x (Hello Time + 1) <= Max Age

Priority

Specifies the value of the priority portion of the bridge ID: the first two octets of the bridge ID. The other six octets of the ID are provided by a read-only MIB attribute: dot1dBaseBridgeAddress. The bridge Priority, along with Port Priority and Path Cost attributes, are used to manage the spanning

tree active topology. The lower the numerical value of the priority attribute, then the higher its priority. The bridge with the lowest bridge ID becomes the root bridge. If the priority portion of two IDs are the same, then the bridge with the lower address portion of the ID becomes bridge.

MIB name	dot1dStpPriority
Field Type	Fill-in
Legal Values	Integers from 0 to 65535
Default value	32768
Interrelationships	dot1dBaseBridgeAddress

Port-Level Attributes

Path Cost

Specifies the contribution of this port to the path cost of paths towards the spanning tree root that includes this port. The Path Cost, along with Port Priority and bridge Priority attributes, are used to manage the spanning tree active topology. The higher the cost value is, then the less likely it is to be chosen as part of the spanning tree.

MIB name	dot1dStpPortPathCost
Field Type	Fill-in
Legal Values	Integers from 1 to 65535
Default value	100 for Ethernet 10 for FDDI
Interrelationships	dot1dStpPort

Port Priority

Specifies the value of the priority field, which is contained in the first octet (in network byte order) of the two-octet port ID. The other octet of the ID is provided by a read-only MIB attribute: dot1dStpPort. The Port Priority, along with Path Cost and bridge Priority attributes, are used to manage the spanning tree active topology. The lower the attribute value is, then the higher its priority: a lower value makes the bridge more likely to be chosen when the bridge has two ports connected in a loop.

MIB name	dot1dStpPortPriority
Field Type	Fill-in
Legal Values	Integers from 0 to 255
Default value	80
Interrelationships	dot1dStpPort

STB Enabled

Specifies the status of the port as either enabled/disabled for bridged traffic.

MIB name	dot1StpPortEnable
Field Type	Multiple choice
Legal Values	Enabled/disabled
Default value	Enabled

Custom Filters Attributes

This section describes the attributes used to create per-node custom filters. These attributes are found in the Custom Filter Configuration dialog box. Attributes are divided into subsections according to those used to define filters and those used to apply filters to a port or ports. Within these subsections, attributes are listed in alphabetical order.

The rules governing the creation and use of custom filters are as follows:

- You can apply the same filter to multiple ports.
- You can apply multiple filters to the same port.
- Custom filters apply only to inbound (receiving) ports. No filters are checked at the outbound (transmitting ports).
- You can have a maximum of 32 filters per port.
- You can have a maximum of 512 filters per chassis.
- You can have a maximum of 256 fields, constants, and operators in a single filter expression.
- You can have a maximum of three nested parentheses in an expression.
- You can make a maximum of 1024 filter-to-port assignments. (You do this by using the same filter more than once because there is a maximum of 512 filters.)

The attributes associated with custom filtering are specified in the LightStream private MIB; they are not defined in any industry standard MIBs.

Defining Filters

Filter ID

Specifies a unique ID for this filter. Each filter ID on a chassis must be unique.

MIB name	lightStreamBrFilterId
Field Type	Fill-in
Legal Values	Integer (1 - 65535)
Default value	None

Filter Expression

MIB name	lightStreamBridgeFilterEntry
Field Type	Multiple choice
	fields
	operators
	constants
	parentheses
Legal Values	(See following descriptions)
Default value	None

Specifies the expression performed by the filter. An expression is a complex condition applied to incoming frames. The syntax of a filter expression is loosely modeled after the syntax of general programming languages, such as C. You create filter expression by entering fields, operators, and constants and using parentheses. Each of these is described in more detail below.

Fields

The configurator provides the following fields, corresponding to the fields of packet headers, for use in constructing the filter expression:

Field Name	Packet Header Field
macSrc	MAC source address field
macDst	MAC destination address field
macProto	Protocol type field
llcSSAP	LLC source SAP field
llcDSAP	LLC destination SAP field
snapOUI	SNAP OUI field
snapProto	SNAP protocol type field

Note Not all fields apply to all packets types. Names of fields aren't case sensitive.

Note *Operators* The configurator provides the following operators for use in constructing the filter expression:

Operator	Description
Boolean	
&&	Boolean AND
||	Boolean OR
Comparison	
==	equal

Operator	Description
!=	not equal
>	greater than
>=	greater than or equal
<	less than
<=	less than or equal
Arithmetic	
&	bitwise AND (used for masking)

Note The left and right sides of a Boolean operation must evaluate as either true or false. The result of applying operators in a Boolean expression is true or false.

- The left side of a comparison operation must be either an arithmetic expression or a field. (Arithmetic expressions are described in Figure 4-1, and fields are described above.) The right side must be a field. The result of applying operators in a comparison expression is true or false.
- The left side of an arithmetic operation must be a field (described above) and the right side must be a constant (described below). The result of applying the operator in an arithmetic expression is a numerical value to be used by a comparison operator.

Constant

The configurator allows you to enter constants for use in constructing the filter expression. The format of the constant depends upon the associated field (or masked field) as shown below:

Field Names	Packet Header Field
macSrc	6 hex digit pairs (xx.xx.xx.x.xx.xx)
macDst	6 hex digit pairs (xx.xx.xx.x.xx.xx)
macProto	4 hex digits (must have leading 0s if necessary)
llcSSAP	2 hex digits (must have leading 0s if necessary)
llcDSAP	2 hex digits (must have leading 0s if necessary)
snapOUI	6 hex digits (must have leading 0s if necessary)
snapProto	4 hex digits (must have leading 0s if necessary)

Parentheses

Use parentheses to:

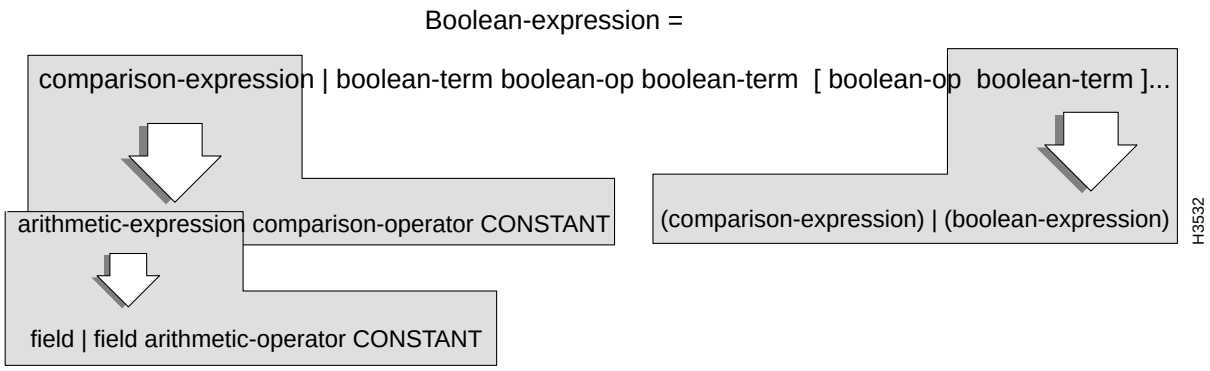
- force the evaluation of arithmetic operators before comparison operators
- force the evaluation of comparison operators before Boolean operators
- determine the order in which Boolean operators are evaluated if some other order than strictly left to right is desired

Syntax

An expression is evaluated from left to right at both the top level of the expression and within a pair of parentheses. The result of a filter expression is either a Boolean true (if the received packet matches the expression) or a Boolean false (if the received packet doesn't match). Then, based on the Action attribute setting, the packet is either blocked or forwarded.

You create a filter expression using the building blocks of fields, operators, constants and parentheses, which have been described above. Figure 4-1 shows the composition of a filter expression.

Figure 4-1 Composition Of A Filter Expression



Note: Fields, constants and operator types are described above.

The following are some examples of filter syntax:

```
llcSSAP >= 01
(snapOUI & 00ff00) >= 005500
macSrc == 00:00:dd:00:00:12
(macSrc==00:00:dd:00:00:12) && (macDst != 00:00:dd:00:00:76)
(macSrc && ff:ff:00:00:00:00) == 00:dd:00:00:00:00
((macSrc & ff:ff:00:00:00:00) == 00:dd:00:00:00:00) &&
((macDst & ff:ff:00:00:00:00) != 00:dd:00:00:00:00)
(llcSSAP >= 01) && (macProto == 1234) && (macSrc == 00:00:dd:00:00:12)
((llcSSAP == 02) || (llcSSAP == 04)) &&
((macSrc == 00:00:dd:00:00:12) || (macSrc == 00:00:dd:00:00:14))
```

Sample Filters

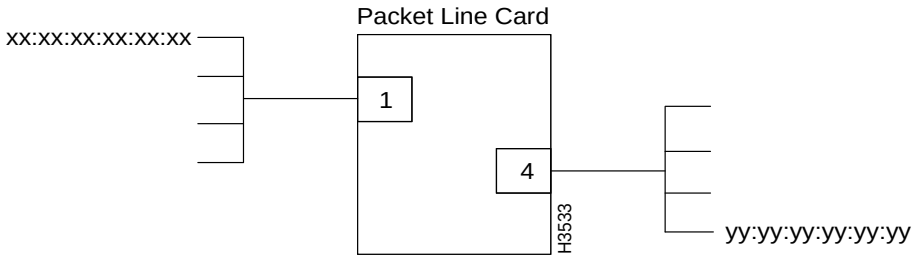
Sample 1. Suppose that you want the network to only allow Local Area Transport (LAT) traffic to be passed between two LANs. You would create a filter for the ports that support those LANs that blocks any traffic that is not LAT and forwards only LAT traffic. This filter would be specified as follows:

macProto==6004. (6004 is the hexadecimal value assigned to the LAT protocol type in RFC 1340, Assigned Numbers.)

You would then apply this filter to the ports that you want to use exclusively for LAT traffic with the Action attribute *for the filter* set to forward. You would also need to set the Default Action *for the port* to block. This combination of settings forwards LAT frames and blocks all others.

Sample 2. Consider the connections shown in Figure 4-2. Suppose that you want to prohibit end stations xx:xx:xx:xx:xx:xx and yy:yy:yy:yy:yy:yy from communicating with each other. You would create a filter for each port that blocks the traffic to the other end station.

Figure 4-2 Connections to Be Filtered



The filters would be specified as follows:

For Port 1:

(macSrc==xx:xx:xx:xx:xx:xx) && (macDst==yy:yy:yy:yy:yy:yy)

For Port 4:

(macDst==xx:xx:xx:xx:xx:xx) && (macSrc==yy:yy:yy:yy:yy:yy)

You then assign each filter to the appropriate port and set the Action attribute *for the filter* to block. You would set the Default Action *for the port* to forward. This combination of settings prevents communication between the two end stations, but allows all other communication.

Sample 3. Using the same connections shown in Figure 4-2, suppose that you wanted to allow communication only between end station xx:xx:xx:xx:xx:xx and yy:yy:yy:yy:yy:yy. You would create a filter for each port that allows communication between the two end stations.

The filters would be specified as follows:

For Port 1:

(macSrc==xx:xx:xx:xx:xx:xx) && (macDst==yy:yy:yy:yy:yy:yy)

For Port 4:

(macDst==xx:xx:xx:xx:xx:xx) && (macSrc==yy:yy:yy:yy:yy:yy)

You then assign each filter to the appropriate port, but this time you would set the Action attribute *for the filter* to forward. You would set the Default Action *for the port* to block. This combination forwards traffic between the two end stations and blocks all other traffic.

Assigning Filters

Action

Specifies the action to be taken if a frame meets the conditions defined by the filter. This is a filter-level attribute. You can either specify that the frame should be forwarded into the network or blocked, in which case it is dropped at the edge. If you don't specify a setting for the filter-level Action attribute, then the opposite of the setting for the port-level Default Action attribute is used.

MIB name	lightStreamBrFilterParmAction
Field Type	Multiple choice
Legal Values	Forward or block
Default value	Block if Port Default Action = Forward Forward if Port Default Action = Block
Interrelationships	Default Action

Broadcast Limit

Specifies the number of receive broadcast packets that this port accepts and attempts to forward per second. The node discards all broadcast packets above this number per second.

MIB name	lightStreamBrPortBcastRateLimit
Field Type	Fill-in
Legal Values	0 = all broadcast packets are discarded. 1 - 128 = Packets above that number per second are discarded. -1 = all broadcast packets are forwarded.
Default value	-1

Default Action

Specifies the default action (either forward or block) to be taken for the port in the absence of any specific port filters or if there is not a match with the configured filter/s for the port. This is a port-level attribute.

MIB name	lightStreamBrPortDefaultAction
Field Type	Multiple choice
Legal Values	Forward or block
Default value	Forward
Interrelationships	Action

Priority

Specifies the precedence assigned to this filter. The lower the number, then the higher the filter's priority with regard to the other filters assigned to the port. Filters are performed in order of priority, with the highest priority filter being performed first. The lowest numerical priority value has the highest priority.

The rules regarding the assignment of priority are as follows:

- No two filters on any port should have the same priority. This attribute must be filled in for each filter on each port.
- Do not assign priority numbers sequentially because that makes it more difficult to reprioritize the filters. We recommend that you leave a gap between priority numbers then you can use one of the unused numbers to either raise or lower the priority level of a port filter without having to adjust any others.

MIB name	lightStreamBrFilterParmFilterPriority
Field Type	Fill-in
Legal Values	1 - 65,535
Default value	1 (highest priority)

Static Routes Attributes

This section describes the attributes used to create static entries in the bridge's filtering database. These attributes are found in the Static Route Configuration dialog box. Attributes are listed in alphabetical order.

The filtering database equates a MAC destination address with a LightStream port that can receive the frames with this MAC destination address and a set of LightStream ports on which the frames can then be transmitted. (The association between the receive port and the transmit port/s is called a profile. The assignment of a MAC address to a profile is called a static route.) The forwarding process uses the entries in the filtering database to determine if frames with a given MAC destination address should be specifically forwarded to a given port/s.

Through the configurator (or the CLI), you can explicitly make an entry in the filtering database; this is called a static entry. You may, for instance, want to make a static entry if you are directing a broadcast to specific ports in order to limit broadcast propagation. You would also make a static entry if you have an end station that only receives traffic, in which case the bridge can't learn about the station.

The rules governing the creation of static filters are as follows:

- You can create a maximum of 256 receive port/transmit ports profiles.
- You can create a maximum of 1024 static routes.

You should be familiar with IEEE 802.1d-1990, *MAC Bridges*, before you attempt to set any of these attributes. Specifically, you should be familiar with the following terms: filtering database, forwarding, MAC destination addresses, and receive port and transmit ports. You can also reference RFC 1493, *Definition of Managed Objects for Bridges*, for more information on static filtering attributes.

MAC

Specifies the destination MAC address to which this entry in the filtering database applies. The address can be a unicast, multicast or broadcast address. You can obtain MAC addresses from the appropriate network administrators.

MIB name	dot1dStaticAddress
Field Type	Fill-in
Legal Values	xx:xx:xx:xx:xx:xx (48-bit MAC address)
Default value	None

Receive Port

Specifies the LightStream interface number that must receive the frame in order for this filtering database entry to apply.

MIB name	dot1dStaticReceivePort
Field Type	Fill-in
Legal Values	0 = this entry applies on all ports of the bridge for which there is no other applicable entry; a frame with the specified MAC address can be received on any port of the bridge. Interface number comprised of the card slot number and the port number
Default value	None

Note In the dialog box, the card and port numbers are entered in separate field boxes.

Transmit Ports

Specifies the interface numbers of the LightStream ports that the frames with the associated MAC destination can be transmitted to. You can specify up to eight transmit ports. Transmit ports can be on the same card or on different cards within the same chassis.

MIB name	dot1dStaticAllowedToGoTo
Field Type	Fill-in
Legal Values	Interface number comprised of the card slot number and port number
Default value	None

Note In the dialog box, the card and port numbers are entered in separate field boxes.

PVC Attributes

The attributes described in this section are used by LightStream software to set up PVCs between two switches. These attributes are found in the PVC Configuration dialog box.

The two endpoint switches are called Node A and Node B in the configurator. You need to provide the same type of information for Node A and Node B. Node A attributes are for the PVC from Node A to Node B. Node B attributes are for the PVC from Node B to Node A. The configurator allows you to specify the attributes for both nodes at the same time. By supplying this information, you are provisioning for PVCs.

Note This section describes PVC attributes that are normally accessible. See Appendix A for a description of PVC attributes that are accessible only in expert mode.

Chassis A Attributes

The endpoint identification attributes (A Card, A Name and A Port) in this section are named from the Chassis A end of the PVC. On the other end of the PVC (Chassis B), the endpoint attributes are reversed: on Chassis A the cktAdminDestNode and cktAdminDestIfIndex contain the values for the node at the other side of the PVC (Chassis B).

A Card

Specifies the LightStream card at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit.

MIB name	rCktSrcIfIndex ffCktSrcIfIndex sUniCktSrcIfIndexf
Field Type	Multiple choice
Legal Values	2 - 10
Default value	None

A Insured Rate

Specifies, in bits per second (for FR and FF) or cells per second (for ATM UNI), the data throughput from node A to node B that the LightStream network commits to support under normal network conditions. See the *LightStream 2020 System Overview* for more information on Insured Rate.

MIB name	frCktAdminSrcInsuredRate ffCktAdminSrcInsuredRate sUniCktAdminSrcInsuredRate
Field Type	Fill-in
Legal Values	LSC: 0, or 5456 - 3548000 bps MSC: T3: 0, or 109 - 96000 cps E3: 0, or 109 - 72000 cps E3/G.804: 0, or 109 - 80000 cps CLC: 0, or 218 - 350000 cps
Default value	LSC: 5456 bps MSC: 109 cps CLC: 218 cps
Interrelationships	A Insured Burst (expert mode attribute) Max Frame Size

Notes:

- The Insured Rate *cannot* be higher than the line rate.
- The Insured Rate *cannot* be higher than the Max Rate.
- If the Insured Rate is not 0, then it cannot be lower than the minimum shown above.
- If Max Rate equals Insured Rate, then only insured traffic is configured for the PVC and you must set the Insured Burst equal to the Max Burst.
- If Max Rate is less than or equal to the line rate and Insured Rate equals 0, then the PVC is configured to carry all uninsured (excess) traffic.
- If the Insured Rate is greater than 0 and less than the Max Rate, then the difference between the two is the Excess Rate, which is used for uninsured traffic. See the *LightStream 2020 System Overview* for more information on Excess Rate.

A Max. Rate

Specifies the maximum amount of insured plus uninsured data in bits per second (for FR and FF) or cells per second (for ATM UNI) that the LightStream network will attempt to deliver from node A to node B under normal conditions. The uninsured portion of traffic may be discarded if the network is congested. See the *LightStream 2020 System Overview* for more information on Maximum Rate.

MIB name	frCktAdminSrcMaxRate ffCktAdminSrcMaxRate sUniCktAdminSrcMaxRate
Field Type	Fill-in
Legal Values	LSC: 5456 - 3548000 bps MSC: T3: 109 - 96000 cps E3: 109 - 72000 cps E3/G.804: 109 - 80000 cps CLC: 218 - 350000 cps
Default value	LSC: Physical line rate for the port MSC: 109 cps CLC: 218 cps
Interrelationships	A Insured Rate

Notes:

- Max Rate *cannot* be higher than the line rate.
- If Max Rate equals Insured Rate, then only insured traffic is configured for the PVC and you must set the Insured Burst equal to the Max Burst.
- If Max Rate is less than or equal to the line rate and Insured Rate equals 0, then the PVC is configured to carry all uninsured (excess) traffic.
- If the PVC is configured for any excess traffic, then LightStream software can allocate less than the Max Rate if the link for the circuit doesn't have enough bandwidth available. LightStream software can scale back the Max Rate to be as low as the Insured Rate. (The CLI **show port** commands display actual bandwidth allocation.)

A Name

Specifies the LightStream node at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit, using the node's name.

MIB name	frCktSrcNode ffCktSrcNode sUniCktSrcNode
Field Type	Multiple choice
Legal Values	ASCII characters
Default value	None
Interrelationships	frCktOperDestNodes ffCktOperDestNodes sUniCktOperDestNodes

A Port

Specifies the LightStream port at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit.

MIB name	frCktSrcIfIndex ffCktSrcIfIndex sUniCktSrcIfIndex
Field Type	Multiple choice
Legal Values	LSC: 0 - 7 MSC: 0 - 1 CLC: 0 - 1
Default value	None

DLCI A

Specifies the DLCI (data link connection identifier) of the LightStream port at this end of the frame relay virtual circuit. Along with the endpoints of the VCC, the DLCI number is used to identify and distinguish one VCC from another. You are not required to use the same DLCI number at both ends of a connection. You can use the same DLCI number in many places in your network; however, all VCCs connecting to a given port must have different DLCI numbers at that port.

DLCIs are used to identify frame relay VCCs. If you are provisioning for UNI VCCs then the configurator requires a VCI number. If you are provisioning for frame forwarding ports, then no number is required.

If a port attaches to a device (such as a frame relay router) that also maintains DLCI numbers, then the LightStream DLCI for the corresponding PVC *must* be the same number. If you are not the system administrator for the attached router, then you should obtain the numbers and associated endpoints from that person. Many routers can automatically learn DLCI numbers if you activate LMI on that port and the router is configured for the same type of LMI.

MIB name	frCktSrcDlci
Field Type	Fill-in
Legal Values	Decimal numbers from 16 to 991
Default value	16 or the next highest unused number

VCI A

Specifies the virtual channel identifier at this end of the ATM UNI VCC. Along with the endpoints of the VCC, the VCI number is used to identify and distinguish one VCC from another. You are not required to use the same VCI number at both ends of a connection. You can use the same VCI number in many places in your network; however, all VCCs connecting to a given port must have different VCI numbers at that port.

If a port attaches to another ATM device that also maintains VCI numbers, then the LightStream VCI for the corresponding PVC *must* be the same number. If you are not the system administrator for the attached ATM device, then you should obtain the numbers and associated end points from that person.

Note VCIs are used to identify ATM UNI VCCs. If you are provisioning for frame relay VCCs then the configurator requires a DLCI number. If you are provisioning for a frame forwarding port, then no number is required.

MIB name	sUniCktSrcVCI
Field Type	Fill-in
Legal Values	MSC: 1 to 8191 CLC: 1 to 32399
Default value	1 or the next highest unused number

Chassis B Attributes

The endpoint identification attributes (B Card, B Name and B Port) in this section are named from the Chassis B end of the PVC. On the other end of the PVC (Chassis A), the endpoint attributes are reversed: on Chassis B the cktAdminDestNode and cktAdminDestIfIndex contain the values for the node at the other side of the PVC (Chassis A).

B Card

Specifies the LightStream card at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit.

MIB name	frCktAdminDestIfIndex ffCktAdminDestIfIndex sUniCktAdminDestIfIndex
Field Type	Multiple choice
Legal Values	2 - 10
Default value	None

B Insured Rate

Specifies, in bits per second (for FR and FF) or cells per second (for ATM UNI), the data throughput from node B to Node A that the LightStream network commits to support under normal network conditions. See the *LightStream 2020 System Overview* for more information on Insured Rate.

MIB name	frCktAdminDestInsuredRate ffCktAdminDestInsuredRate sUniCktAdminDestInsuredRate
Field Type	Fill-in
Legal Values	LSC: 0 or 5456 - 3548000 bps MSC: T3: 0 or 109 - 96000 cps E3: 0 or 109 - 72000 cps E3/G.804: 0 or 109 - 80000 cps CLC: 0 or 218 - 350000 cps
Default value	LSC: 5456 bps MSC: 109 cps CLC: 218 cps
Interrelationships	B Insured Burst (expert mode attribute) Max Frame Size

Note

- The Insured Rate *cannot* be higher than the line rate.
- The Insured Rate *cannot* be higher than the Max Rate.
- If the Insured Rate is not 0, then it cannot be lower than the minimum listed above.
- If Max Rate equals Insured Rate, then only insured traffic is configured for the PVC and you must set the Insured Burst equal to the Max Burst.
- If Max Rate is less than or equal to the line rate and Insured Rate equals 0, then the PVC is configured to carry all uninsured (excess) traffic.

- If the Insured Rate is greater than 0 and less than the Max Rate, then the difference between the two is the Excess Rate, which is used for uninsured traffic.

B Max. Rate

Specifies the maximum amount of insured plus uninsured data in bits per second (for FR and FF) or cells per second (for ATM UNI) that the LightStream network will attempt to deliver under normal conditions, from node B to node A. The uninsured portion of this traffic may be discarded if the network is congested. See the *LightStream 2020 System Overview* for more information on Max Rate.

MIB name	frCktAdminDestMaxRate ffCktAdminDestMaxRate sUniCktAdminDestMaxRate
Field Type	Fill-in
Legal Values	LSC: 5456 - 3548000 bps MSC: T3: 109 - 96000 cps E3: 109 - 72000 cps E3/G.804: 109 - 80000 cps CLC: 218 - 350000 cps
Default value	LSC: Physical line rate for the port MSC: 109 cps CLC: 218
Interrelationships	B Insured Rate

Notes:

- Max Rate *cannot* be higher than the line rate.
- If Max Rate equals Insured Rate, then only insured traffic is configured for the PVC and you must set the Insured Burst equal to the Max Burst.
- If Max Rate is less than or equal to the line rate and Insured Rate equals 0, then the PVC is configured to carry all uninsured (excess) traffic.
- If the PVC is configured for any excess traffic, then LightStream software can allocate less than the Max Rate if the link for the circuit doesn't have enough bandwidth available. LightStream software can scale back the Max Rate to be as low as the Insured Rate. (The CLI **show port** commands display actual bandwidth allocation.)

B Name

Specifies the LightStream node at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit, using the node's name.

MIB name	frCktAdminDestNode ffCktAdminDestNode sUniCktAdminDestNode
Field Type	Multiple choice
Legal Values	ASCII characters
Default value	None
Interrelationships	frCktOperDestNodes ffCktOperDestNodes sUniCktOperDestNodes

B Port

Specifies the LightStream port at this end of the frame relay, frame forwarding, or ATM UNI virtual circuit.

MIB name	frCktAdminDestIfIndex ffCktAdminDestIfIndex sUniCktAdminDestIfIndex
Field Type	Multiple choice
Legal Values	LSC: 0 - 7 MSC: 0 - 1 CLC: 0 - 1
Default value	None

DLCI B

Specifies the DLCI (data link connection identifier) of the LightStream port at this end of the frame relay virtual circuit. Along with the endpoints of the VCC, the DLCI number is used to identify and distinguish one VCC from another. You are not required to use the same DLCI number at both ends of a connection. You can use the same DLCI number in many places in your network; however, all VCCs connecting to a given port must have different DLCI numbers at that port.

DLCIs are used to identify frame relay VCCs. If you are provisioning for UNI VCCs then the configurator requires a VCI number. If you are provisioning for frame forwarding ports, then no number is required.

If a port attaches to a device (such as a frame relay router) that also maintains DLCI numbers, then the LightStream DLCI for the corresponding PVC *must* be the same number. If you are not the system administrator for the attached router, then you should obtain the numbers and associated end points from that person. Many routers can automatically learn DLCI numbers if you activate LMI on that port and the router is configured for the same type of LMI.

MIB name	frCktDestDlci
Field Type	Fill-in
Legal Values	Decimal numbers from 16 to 991
Default value	16 or the highest unused number

VCI B

Specifies the virtual channel identifier at this end of the ATM UNI VCC. Along with the endpoints of the VCC, the VCI number is used to identify and distinguish one VCC from another. You are not required to use the same VCI number at both ends of a connection. You can use the same VCI number in many places in your network; however, all VCCs connecting to a given port must have different VCI numbers at that port.

If a port attaches to another ATM device that also maintains VCI numbers, then the LightStream VCI for the corresponding PVC *must* be the same number. If you are not the system administrator for the attached ATM device, then you should obtain the numbers and associated end points from that person.

Note VCIs are used to identify ATM UNI VCCs. If you are provisioning for frame relay VCCs then the configurator requires a DLCI number. If you are provisioning for a frame forwarding port, then no number is required.

MIB name	sUniCktDestVCI
Field Type	Fill-in
Legal Values	MSC: 1 to 8191 CLC: 1 to 32399
Default value	1 or the highest unused number

VLI Attributes

You use workgroups to perform automatic specialized filtering, based on MAC source and destination addresses. This feature allows you to specify which interfaces can communicate with each other.

You don't *have* to configure any workgroups; it is optional. If you don't configure a interface for workgroups, then it automatically belongs to the Default workgroup (ID = 1).

The following attributes are used to create workgroups and to assign interfaces to those workgroups.

Port Selection Attributes

Card

The card that contains the interface you are assigning to a workgroup/s.

MIB name	cardName
Field Type	Multiple choice
Legal Values	Printable ASCII characters
Default value	None

Chassis

The node that contains the interface you are assigning to a workgroup/s.

MIB name	sysName
Field Type	Multiple choice
Legal Values	Printable ASCII characters
Default value	None

Port

The port number of the interface you are assigning to a workgroup/s.

MIB name	lightStreamVnaPortWorkGroupPort
Field Type	Multiple choice
Legal Values	Integer 0 -7
Default value	None

Interface Control Mode

Determines if the interface is included in or excluded from the workgroup/s in the list. (Read notes before changing this value.)

As a default, an interface is automatically included in the workgroup called Default that has an ID of 1. Therefore, by default, all interfaces are initially included in the same workgroup and can communicate with one another.

MIB name	lightStreamVnaPortCtlMode
Field Type	Multiple choice
Legal Values	include/exclude
Default value	include

Notes:

- An interface can be included in a maximum of seven workgroups or excluded from a maximum of six workgroups.

- An empty include list is treated as belonging to the Default group and therefore allows communication with any other ports included in the Default workgroup.
- An include list restricts communication between interfaces if the interfaces *don't* have at least one common workgroup.
- An empty exclude list allows communication with *all* ports.
- An exclude list is the exception because it can only stop a interface from communicating with a small number (six maximum) of workgroups. It should be used if you want to ensure that a port will always be able to communicate with all (or almost all) of the workgroups. For instance, within the LightStream system, all NP management ports belong to an empty exclude list so that each node can be managed from any physical ports on the network. (The NP port's workgroup assignment *can't* be changed.)

Work Group Selection

ID

The numerical identifier of the workgroup being assigned to the specified port.

MIB name	lightStreamVnaPortWorkGroupID
Field Type	Fill-in
Legal Values	Integer 1 - 65535
Default value	None

Note

- Workgroup IDs must be unique within the entire network.
- The value 1 is assigned to the Default workgroup and can't be changed.
- The value 65535 is reserved and cannot be used.

Name

The name of the workgroup being assigned to the specified port.

MIB name	None
Field Type	Fill-in
Legal Values	Printable ASCII characters
Default value	None