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SmartCell 6A000/ZX-250 Reference Manual

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Part # 04-0044-02 Rev. A
Order # 9032400

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REVISION HISTORY

Document Name: SmartCell 6A000/ZX-250 Reference Manual
Document Order Number: Order # 9032400
Document Part Number: Part # 04-0044-02 Rev. A

Author: Bruce Jordan

Editor: Carre Gibson

Date	Revision	Description
October 1997	A	Initial release

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1 INTRODUCTION

This reference manual describes the console commands for the SmartCell 6A000 and SmartCell ZX-250 ATM switches. The two switches share a common console interface and are referred to in this manual as the SmartCell 6A000/ZX-250.

Audience and Scope

The manual is intended for network administrators and others responsible for maintaining the SmartCell 6A000/ZX-250. You do not need to read the manual from start to finish. You can use it to study the console commands you use.

Definitions

The manual is organized alphabetically by switch attribute.

- The definition of a switch attribute is a function that manipulates the switch in a specific way. For example, buselan.
- The definition of an operator is the active verb that makes the switch attribute perform a specific task. For example, show.
- The definition of a command is the combination of an operator plus a switch attribute. For example, show buselan.

Content

- Chapter 2, "SmartCell 6A000/ZX-250 Commands," gives definitions, descriptions, and examples of all available commands on the SmartCell 6A000 and SmartCell ZX-250 switches.
- Chapter 3, "Boot Load Commands" gives definitions, descriptions, and examples of the low-level boot load commands.
- Appendix A, "Acronyms," spells out the ATM acronyms used in this manual as well as those found in the SmartCell 6A000 User Guide, SmartCell ZX-250 User Guide, and SmartCell ZX Administrator Installation Guide.
- Appendix B, "Cause Codes," describes the codes that appear in some console messages.
- Appendix C, "Technical Support," gives instructions for contacting Cabletron by telephone, fax, electronic mail, and the World Wide Web.

Sections

Read "Switch Attribute" for an example and definition of the various sections under each switch attribute as well as a description of how the manual is organized.

Each section begins with a switch attribute heading (for example, "PVCByID"). Then come the details of relevant operators, parameters, and commands.

Most sections have two parameter tables—one for input and another for output. The tables contain the parameter names, descriptions, and definitions of their values, field sizes, and defaults.

The section ends with examples copied from the switch console for each console command for that switch attribute.

Conventions

The SmartCell 6A000/ZX-250 Reference Manual uses the following conventions to convey instructions and information:

- Information you enter (console commands and input parameters) is shown in bold Courier 10 font and requires a space between operator and switch attribute.

- Input and output parameters are shown in [Square Brackets].

- Input definitions are shown in <anglebrackets>, as joined text and not case sensitive.

- Filter flags </s> (summary) or </d> (detail) are available with certain show commands and apply to different information viewing levels. Filter flags require a space between them and the full command. For example, show client /d. The/s option is the same as the standard default option. You can find more details at the relevant switch attribute sections. See the following examples:

```
switch_prompt # show client
ClientNumber(ALL)                           :
Client Type     IP Address      Server Type  Server Conn  Status
================================================================
    1   LANE   90.1.1.186      LECS         Established  Operational
    3   IP/ATM 90.1.1.124      Local        Established  Operational
switch_prompt #

switch_prompt # show client /s
ClientNumber(ALL)                           :
Client Type     IP Address      Server Type  Server Conn  Status
================================================================
    1   LANE   90.1.1.186      LECS         Established  Operational
    3   IP/ATM 90.1.1.124      Local        Established  Operational
switch_prompt #

switch_prompt # show client /d
ClientNumber(ALL)                           :
LANE Client 1
================================================================
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:00
LAN Name          : elan1
LECS Addr Source  : ILMI
LECS Address      : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:01
LES Address       : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02
LAN Type          : 802.3
MTU               : 1516
IP Address        : 90.1.1.186
```

```
IP NetMask        : 255.255.255.0

IP/ATM Client 3
==========================================================================
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server            : is local
Server Connection : Established
MTU               : 9180
IP Address        : 90.1.1.124
```

Abbreviations

Pay close attention to how switch attributes appear in each section heading. Switch attributes are not case sensitive. If the heading states BUSStat, you must type **busstat** and not **busstats**, because the switch will not recognize the latter. See the following example:

```
switch_prompt # show busstats
Command busstats not Valid for Action show
Type  Help <command>  for help
switch_prompt #

switch_prompt # show busstat
ELANNumber(ALL)                          :
BUS ELANs
==========================================================================
  ELAN ELAN000 Statistics
  Out Octets          : 0
  Out Unicast         : 0
switch_prompt #
```

You can, however, abbreviate the switch attribute to the extent that it is unique. For example, instead of typing show porttrafficcongestion, you can just type show portt. The same can be done with operators. Instead of typing modify, you can type mod. You should type at least three characters for any operator. For example,

```
switch_prompt # modify portmode
PortNumber(ALL)                          :
PortMode(SONET)                          :
switch_prompt #

switch_prompt # mod portm
PortNumber(ALL)                          :
PortMode(SONET)                          :
switch_prompt #
```

See "Switch Attribute" for an explanation of how the sections are organized.

Help Options

If you want information on a specific command, type **?** or **help** before typing the command and you will get a brief description of the command and all its input parameters. If you want information about a specific input parameter while executing a command, type **?** or **help** after it appears on the console and it will give you details relating to that parameter. For example,

```
switch_prompt # ? add lecselan
Create/Add  ELAN for LECS(LECSELAN)
==============================================================================
ELANNumber    ELAN Number in the range 0-127
ELANName      ELAN Name ( max. length 32 characters)
LESAddress    ATM Address for the LES
ELANType      802.3 : Ethernet  or 802.5 : TokenRing
MTU           Maximum Frame Size - 1516(def for 802.3), 4544(def for 802.5), 9234
TLVSet        TLV Set Number in the range 1-65535
switch_prompt #

switch_prompt # add lecselan
ELANNumber(0)                          : ?
ELAN Number in the range 0-127
ELANName(ELAN000)                      : ?
ELAN Name ( max. length 32 characters)
LESAddress(39:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02): ?
ATM Address for the LES
ELANType(802.3)                        : ?
802.3 : Ethernet  or 802.5 : TokenRing
MTU(1516)                              : ?
Maximum Frame Size - 1516(def for 802.3), 4544(def for 802.5), 9234
TLVSet()                               : ?
TLV Set Number in the range 1-65535
LECSELAN 0 already exists
switch_prompt #
```

Other Reference Options

You will find a list of acronyms, details about technical support, and an index at the back of this manual. The index contains page references for all switch attribute sections, command parameters, operators, command descriptions and command examples. There is also a table of commands at the end of this chapter. It lists all switch attributes by their operator.

See the SmartCell 6A000 User Guide and SmartCell ZX-250 User Guide for details on how to use the switch. The user guides contain information about switch configuration, maintenance, and SNMP (simple network management protocol), as well as an overview of switch capabilities.

Switch Attribute

This section—immediately below the heading—gives a brief description of what the switch attribute does. A detailed description of each command is available under "Descriptions."

SERVER	SVC
X	X

"X" under any of these headings indicates the switch attribute is applicable to that software type.

Parameters

Operators make the switch attribute work. Operators pertaining to each switch attribute are listed immediately below the "Operators" heading. The command is the switch attribute combined with the operator. A list of possible switch operators follows. You can use an alias when a word in parentheses appears. However, only the operators not in parentheses are used in this manual.

Table 1-1 List of Operators

Operator	Action
add (create)	Adds new object
activate	Activates an existing but deactivated object
backup	Backs up switch configuration
clear	Clears (initializes to 0) properties of an object
disable	Lowers privilege level
deactivate	Deactivates an existing object
delete (remove)	Deletes existing object
enable	Raises privilege level
exit	Exits from console
flush	Flushes all entries
history	Shows past console commands
modify (set)	Sets properties of an existing object

Table 1-1 List of Operators (Continued)

Operator	Action
passwd	Changes passwords
reboot	Reboots the switch
restart	Restarts LANE and IP-ATM clients
restore	Restores switch configuration
setup	Sets up switch
show (display)	Shows properties of an object
OPERATOR	ACTION
shutdown	Shuts down switch
start	Starts server
stop	Stops server
update	Upgrades firmware

Operators

Table 1-2 Operator Table Explanation

Parameter	Description	Value/Field Size	Default
[Input or Output Field] (</d>)	What the switch puts on your screen (either as input or output) relating to the console command you are executing. The [InputParameter] is an entry you need to complete if you do not accept the default. The [OutputParameter] shows information from the switch. Requires no input. This example is available only within the detailed information table.	Unit of measurement/ Maximum field size for input entry.	Option offered by the switch.

Parameters appear in the parameter tables in the same order and spelling as the switch shows them.

Most switch attribute descriptions show two tables—Input Parameter and Output Parameter. If the parameter has already been described in the input parameter table, no reference to it appears in the output parameter table. The output parameter table contains only parameters that have not been described in the input parameter table or that are written very differently on output despite having the same meaning.

Only one parameter table in a switch attribute section means either that switch attribute uses only input parameters or that the output parameters are identical to the input parameters. The heading of the table indicates which is the case. If the table heading says Input Parameter or Output Parameter, only input or output parameters apply to this switch attribute. However, if the table heading says Parameter, the table contains both input and output parameters, and their field names and definitions are identical.

Some output parameters show either (</d>) or (</s>) to indicate that a filter flag is available and that parameter is available only when you type either /d (detailed information) or /s (summarized information) after the command. If you do not type these command extensions, the parameters do not appear. Further explanations are given at relevant sections. See "SVC" for an example.

The following table gives details about several of the most common parameters in this manual; a shorter description of these parameters appears at the relevant sections within the manual:

Table 1-3 Parameter Table Explanation

Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch. Port numbers can be any of the physical ports on the local switch. Specifying "ALL" causes all related values for the ports to be affected by the command.	Port B4 is the CPU port. The SmartCell 6A000/ZX-250 reserve this port for use by the CPU for local servers and clients. Therefore, B4 port is usually not listed. Only ALL, A1-A4, B1-B3, C1-C4, and D1-D4 are listed.	ALL or A1
[ATM Address]	ATM address assigned to the port, client, or server according to ATM Forum specifications.	13-20 bytes. Hex-based, dot-decimal format separated by colons/ 59 characters	usually no default
[ClientNumber]	Number of the client. Each client on the switch must have a unique client number. Client numbers are shared between LAN emulation (LANE) clients and IP/ATM (IP over ATM) clients.	0 through 127/ Up to 3 characters	ALL

With [IndexNumber], [PortNumber], [Client Number], and other parameters that default to "ALL", unless you specify a number at that input field, the switch gives ALL information pertaining to that parameter field.

Descriptions

Table 1-4 Description Table Explanation

Operator	Parameters/Permissions	Description
`console command`	[InputParameter] `<whatyoutype>` (Privilege level this console command allows:) Administrator or All	This section provides detailed descriptions of the command (operator and switch attribute) and discusses what the command does and how and when it is used. Other relevant information appears here.

The following is an example of a description section. It is located under "BUSELAN." Note the detailed description of the command following the table.

Table 1-5 Description Table Example

Operator	Permissions/Parameters	Description
`modify buselan`	[ELANNumber] `<elannumber>` [ELANName] `<elanname>` [ConnectMethod] `<connectmethod>` [ELANType] `<elantype>` [Multipoint] `<distributevcctpe>` [MTU] `<maximumframesize>` Administrator	Changes the behavior of the BUS parameters for a specified ELAN. The specified ELAN is then deleted and recreated. If the corresponding LESELAN exists, then the modified BUSELAN should have the same characteristics as that existing LESELAN because their parameters need to match.

Examples

Examples are copied exactly from the switch console to show you what you should see. They appear at the end of each section in the same order as the operators are listed at the start of each section. There is no significance to the order in which the examples appear, except that show usually appears after the other command examples to demonstrate how a command can change a characteristic of the switch. Unless they fit on the current page, examples usually begin at the top of a page. The location of every command example appears in the index under "Examples".

Examples show how you must enter console commands at the switch prompt (indicated in bold - modify buselan (console command)). The other bold text (1, 103, pvc, 802.5, 4544) is the input parameters that modify this switch attribute (BUSELAN). The text in brackets (immediately following the parameter field - for example, ELANType(802.3)) indicates the current default. See the following examples.

```
switch_prompt # modify buselan(console command)
ELANNumber(0)        :103(input entry)
ELANName(ELAN102)    :elan103(input entry)
ConnectMethod(SVC)   :pvc(input entry)
ELANType(802.3)      :802.5(input entry)
Multipoint(YES)      : (accept default)
MTU(1516)            :4544 (input entry)
switch_prompt #
```

```
switch_prompt # show buselan
ELANNumber : 103

ELAN : elan103
ELAN Number      : 103
ELAN Name        : elan103
ATM Address      :39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
Max Frame Size   : 4544
Connection Method : PVC
Distribute VPI/VCI: 0/50
LAN Type         : 802.5
Multipoint       : YES
switch_prompt #
```

List of Commands and Possible Switch Attributes

add (create)

AlarmConfig	BUSELAN	Community	ELAN
IISPRoute	IPATMClient	IPATMPVC	LANEClient
LECSAddress	LECSELAN	LECSELANLEC	LECSTLVSET
LESELAN	PVC	Route	TrafficDescriptor
TrapCommunity	UNIRoute	WellKnownAddress	

delete (remove)

BUSClient	BUSELAN	Client	Community
ELAN	IISPRoute	IPATMPVC	LECSAddress
LECSELAN	LECSELANLEC	LECSTLVPARAM	LECSTLVSET
LESClient	LESELAN	PVC	PVCByID
Route	TrafficDescriptor	TrapCommunity	UNIRoute
WellKnownAddress			

modify (set)

AlarmConfig	AlarmVerbose	BUSELAN	CACParams
ILMIAdminStatus	IPAddress	IPATMClient	LANEClient
LECSAddress	LECSELAN	LECSELANLEC	LECSTLVSET
LESELAN	LogAlarmMask	LogBuffer	LogPrint
LogTrace	MyNMAddr	NetPrefix	PortAutoDetect
PortConifg	PortMode	PortTrafficCongestion	Prompt
Rows	SigConfig	SwitchConfig	SwitchName
SwitchTrafficCongestion	TrustedNMS	VCMask	

show (display)

ALARM	AlarmConfig	AlarmVerbose	BUSClient
BUSELAN	BUSLECStat	BUSStat	CACParams
CACStat	Client	ClientARP	ClientStat
ClientVC	Community	ELAN	IISPRoute
ILMIAdminStatus	IPATMARP	IPATMPVC	IPATMStat
LECS	LECSAddress	LECSELAN	LECSELANLEC
LECSStat	LECSTLVSET	LECSVCC	LESArp
LESClient	LESELAN	LESLECStat	LESStat
LogAlarmMask	LogBuffer	LogBufferSize	LogPrint
LogTrace	MyNMAddr	NetPRefix	PortAutoDetect
PortConfig	PortMode	PortStat	PortTrafficCongestion
Privilege	PVC	Route	SarStat
SigConfig	SigFlags	SigStat	SSCOPConfig
SVC	SwitchConfig	SwitchTrafficCongestion	Traffic Descriptor
TrapCommunity	TrustedNMS	UNIROUTE	VCCMask
WellKnownAddress			

activate/deactivate

PVC	PVCByID

backup/restore

switch

clear

ALARM	BUSStat	Config	LESStat
LogBuffer	LogTrace	PortStat	

disable/enable

disable/enable

exit

exit

flush

ALARM	IISPRoute	PVC	UNIRoute
WellKnownAddress			

history

history

passwd

passwd

restart

client

setup

Switch

shutdown

shutdown

start

LECS   LES   log   Ping

stop

LECS   LES   log

update

firmware

2 CONSOLE COMMANDS

Alarm

Use Alarm to set alarm messaging features.

```
SERVER      SVC
   X          X
```

Operators

show, clear, flush

Parameters

Input Parameter	Description	Value/Field Size	Default
[Index]	Index for showing the particular alarm.	1, 2, 3, 4.../ n/a	ALL

In the Output Parameter table below, (**</d>**) indicates parameters that are available only through the **show alarm /d** (detailed) command. (**</s>**) (summarized) appears next to a parameter to indicate that this parameter appears in both the summarized table and the detailed table

Output Parameter	Description	Default
[AlarmNumber] (**</s>**)	Numeric position of specified alarm within alarm message buffer.	1, 2, 3, 4...
[Module] (**</s>**)	Four-character name of the software module that generated the log and alarm entries.	See **Software Modules Table** under "LogTrace" .
[SubModule] (**</s>**)	Four-character name of the software submodule that generated the log entry that created this alarm message.	See **Software SubModules Table** under "LogTrace" .

Output Parameter	Description	Default
[TimeStamp] (**</s>**)	Time (in system up time) when the alarm message entry was created. The time stamp is in the format [hrs:mins:secs:msecs].	n/a
[Message] (**</s>**)	Numeric code that specifies the message in the log entry that generated this alarm message. Actual alphanumeric message is not stored with the alarm because of the limited space within the flash files.	n/a
[SequenceNum] (**</d>**)	Sequence number (within the log message buffer) of the log message entry that generated this alarm message entry.	1, 2, 3, 4...
[NumParameters] (**</d>**)	Number of informational parameters within alarm message entry.	1, 2, 3, 4...
[LogLevel] (**</d>**)	Log debug level of the log message that caused the alarm message to be generated.	1, 2, 3, 4...
[Parameter] (**</d>**)	List of parameters displayed by the alarm message. Fields include parameter number, type, length, and value.	n/a

The following parameters are visible only with **flush alarm**:

[Alarm directory]	Name of the directory within the flash file system that contains the alarm message buffer.	ALARM
[AlarmConfig file]	Name of the file that contains the current configuration of the alarm message buffer.	alarmc.db
[Alarm Filename]	Base name of the set of files within the flash file system where alarm messages are stored. Alarm message file names are composed of the base name and a numeric offset.	zalarm
[Num of alarm files]	Number of alarm files (within the flash file system) to be used for saving alarm messages.	32
[Starting file number]	Offset to starting file for alarm messages in relation to number of alarm message files stated by [Num of alarm files].	0
[Num of used files]	Number of files currently used within the alarm message buffer.	0

Output Parameter	Description	Default
[Num of logs per file]	Number of alarm messages that can be held by each file within the alarm message buffer.	8

Descriptions

Operator	Parameters/Permissions	Description
show alarm	(/s | /d) [Index] **<index>** Administrator	Displays alarm messages contained within the alarm message buffer. Alarm messages are referred to by their index numbers. Index numbers correspond to the order in which an alarm message is logged into the alarm message buffer. The amount of information displayed is controlled by **modify alarmverbose,** described on page 9. Alarmverbose has two additional options —**/s** (summary) and **/d** (detail) filter flags. These filter flags control the amount of information displayed only when alarmverbose is on. When alarmverbose is off, **/s** and **/d** display the same information.
clear alarm	Administrator	Clears the current alarm message and alarm configuration files from the buffer for saving or showing alarms. If the alarm message file is cleared, all currently stored alarm messages are cleared as well. You must confirm that you wish to clear the alarm before you can continue to clear the alarm configuration file. If you respond **n** to the clear alarm confirmation prompt, it assumes you have canceled the command. If you respond **y**, you will see details of the alarm configuration file. You must confirm at this prompt also before the command is completed. Use **add alarmconfig** on page 6 to create an alarm message buffer file again
flush alarm	Administrator	Flushes alarms and deletes saved alarm messages from the flash file system. You must confirm at the prompt before the command is completed. Use **add alarmconfig** on page 6 to create an alarm message buffer file again.

Examples

```
 (AlarmVerbose is off)
switch_prompt # modify alarmverbose
Mode(On)                                : off
Setting Alarm Verbose Mode to Off

switch_prompt # show alarm 1 /s

----------------------------------------------------
Num Mod SubMod T(h:m:s:ms)   Msg
----------------------------------------------------
1   HW   LINK   000:00:13:886 14910: Port (null) DOWN

switch_prompt # show alarm 1 /d

---------------------------------------------------------------------------------------------
Num Mod SubMod T(h:m:s:ms)  Msg  Seq  L P P-532387424(TLV) P-532387424(TLV) P-532387424(TLV)
---------------------------------------------------------------------------------------------
1   HW   LINK   000:00:13:886 14910: Port (null) DOWN 1 2 3
---------------------------------------------------------------------------------------------
531652752 0(0x0)  531652752 0(0x2)      531652752 0(0x0)
switch_prompt #

(AlarmVerbose is on)
switch_prompt # modify alarmverbose
Mode(Off)                               : on
Setting Alarm Verbose Mode to On

switch_prompt # show alarm 1 /s

-----------------------------------
 AlarmNumber        : 1
 Module             : HW
 SubModule          : LINK
 TimeStamp          : 000:00:13:886
 SequenceNum        : 1
 NumParameters      : 3
 LogLevel           : 2
 Parameter          : Num      Type    Len     Val
                    : 0        STR     0       -531130720(0xe05796a0)
                    : 1        INT     0       2(0x2)
                    : 2        STR     0       -535494944(0xe014fee0)
 Message            : [14910] Port (null) DOWN

switch_prompt # show alarm 1 /d

-----------------------------------
 AlarmNumber        : 1
 Module             : HW
 SubModule          : LINK
 TimeStamp          : 000:00:13:886
 SequenceNum        : 1
 NumParameters      : 3
 LogLevel           : 2
 Parameter          : Num      Type    Len     Val
                    : 0        STR     0       -531130720(0xe05796a0)
                    : 1        INT     0       2(0x2)
                    : 2        STR     0       -535494944(0xe014fee0)
 Message            : [14910] Port (null) DOWN
switch_prompt #
switch_prompt # clear alarm
Confirm(y/n)?: y
```

```
Writing into Alarm Configuration
Alarm directory     : ALARM
Alarm Config file   : alarmc.db
Alarm Filename      : zalarm
Num of alarm files  : 32
Starting file number: 0
Num of used files   : 18
Num of logs per file: 8

Would you also like to clear this Alarm Configuration file(y/n)?: y
switch_prompt #

switch_prompt # flush alarm
Writing into Alarm Configuration
Alarm directory     : ALARM
Alarm Config file   : alarmc.db
Alarm Filename      : zalarm
Num of alarm files  : 32
Starting file number: 0
Num of used files   : 18
Num of logs per file: 8
Confirm(y/n)?: y
switch_prompt #
```

AlarmConfig

Use AlarmConfig (alarm configuration) to determine alarm message buffer file configuration.

SERVER   **SVC**
   X   X

Operators

`add, modify, show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[AlarmNumFiles]	Number of alarm files (within the flash file system) to be used for saving alarm messages.	1, 2, 3, 4.../ 1-32	32
[StartFileNum]	Offset to the starting file for alarm messages in relation to number of alarm message files specified by [AlarmNumFiles].	0, 1, 2, 3, 4.../ n/a	0
[NumFilesUsed]	Number of files currently used within the alarm message buffer (cannot exceed number of files to store alarms).	0, 1, 2, 3, 4.../ n/a	0
[NumAlarmsPerFile]	Number of alarm messages that can be stored per file within the alarm message buffer. Using a smaller value results in less file system rewriting but increases the space wasted per entry, as each file has fixed overhead.	0, 1, 2, 3, 4.../ n/a	8

Output Parameter	Description	Default
[Alarm directory]	Name of the directory within the flash file system that contains the alarm message buffer.	ALARM

Output Parameter	Description	Default
[Alarm Config file]	Name of the file that contains the current configuration of the alarm message buffer.	alarmc.db
[Alarm Filename]	Base name of the set of files within the flash file system where alarm messages are stored. Alarm message file names are composed of the base name and a numeric offset.	zalarm
[Num of alarm files]	Same as [AlarmNumFiles] Input Parameter.	32
[Starting file number]	Same as [StartFileNum] Input Parameter.	0
[Num of used files]	Same as [NumFilesUsed] Input Parameter.	0
[Num of logs per file]	Same as [NumAlarmsPerFile] Input Parameter.	8

Descriptions

Operator	Parameters / Permissions	Description
add alarmconfig	[AlarmNumFiles] **<numfiles>** [StartFileNum] **<startfiles>** [NumFilesUsed] **<numfilesused>** [NumAlarmsPerFile] **<numalarms>** Administrator	Creates the alarm message buffer file configuration, which specifies how alarm messages are saved to the flash file system. Alarm messages are saved in the flash file system and are persistent through system reboots. If a configuration file is already present, the parameters within the file override any alarm message configuration parameters entered through the console. The number of alarm files ranges from 0 to whatever value you decide using the [AlarmNumFiles] parameter. The alarm file number starts at whatever value you specify using the [StartFileNum] parameter. The number of files that contain alarm messages is specified by the[NumFilesUsed] parameter, which ranges between 0 and whatever value you have specified using the [AlarmNumFiles] parameter. The maximum number of alarm messages that can be stored is [NumAlarmsPerFile] multiplied by [AlarmNumFiles], and is limited by the size of the flash file system.

Operator	Parameters / Permissions	Description
modify alarmconfig	[AlarmNumFiles] **<numfiles>** [StartFileNum] **<stfile>** [NumFilesUsed] **<numfilesused>** [NumAlarmsPerFile] **<numalarms>** All	Modifies the current alarm message configuration parameters for saving alarms. The current values of each configuration parameter are displayed. You can either accept the current value or enter a new value.
show alarmconfig	Administrator	Displays the current alarm message buffer file configuration parameters for saving alarms. These parameters define the location of the configuration file, alarm message buffer filename, number of alarm message files, number used, and the number of alarm messages that each file can contain.
flush alarmconfig	Administrator	Flushes and deletes alarms and current alarm message buffer configurations from the flash file system. You must confirm at the prompt before the command is entered.

Examples

```
switch_prompt # add alarmconfig
AlarmNumFiles(32)  :
StartFileNum(0)    :
NumFilesUsed(0)    :
NumAlarmsPerFile(8):
switch_prompt #

switch_prompt # modify alarmconfig
AlarmNumFiles(32)  :
StartFileNum(0)    :
NumFilesUsed(0)    :
NumAlarmsPerFile(8):
switch_prompt #

switch_prompt # show alarmconfig
Writing into Alarm Configuration
Alarm directory     : ALARM
Alarm Config file   : alarmc.db
Alarm Filename      : zalarm
Num of alarm files  : 32
Starting file number: 0
Num of used files   : 18
Num of logs per file: 8
switch_prompt #

switch_prompt # flush alarmconfig
Writing into Alarm Configuration
Alarm directory     : ALARM
Alarm Config file   : alarmc.db
Alarm Filename      : zalarm
Num of alarm files  : 32
Starting file number: 0
Num of used files   : 18
Num of logs per file: 8
Confirm(y/n)?:y
switch_prompt #
```

AlarmVerbose

Use AlarmVerbose to determine how much information is displayed in the alarm messages.

SERVER	**SVC**
X	**X**

Operators

modify, show

Parameter

Input Parameter	Description	Value/Field Size	Default
[Mode]	The method of switching verbose on or off.	On/Off	On

Descriptions

Operator	Parameters/Permissions	Descriptions
modify alarmverbose	[Mode] **<verbosemode>** Administrator	Sets the verbose mode for displaying alarm messages. If verbose mode is set to on, each alarm message is printed separately. If verbose mode is set to off, alarm messages are displayed in tabular format.
show alarmverbose	Administrator	Displays the current setting for verbose mode, which affects how alarm messages are displayed.

Examples

```
switch_prompt # modify alarmverbose
Mode(On): off
Setting Alarm Verbose Mode to Off
switch_prompt #

switch_prompt # show alarmverbose
Verbose mode for printing log and alarms is Off
switch_prompt #
```

BUSClient

Use BUSClient (broadcast and unknown server client) to manage the mapping between the BUSELAN and the LANE clients that have joined the BUSELAN. Clients are uniquely identified by their LECId.

SERVER	SVC
X	

Operators

delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-127	ALL
[LECId]	LEC identification number of the specified client.	1-65279	0

Output Parameter	Description
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of control direct VCC (virtual channel connection) or multicast send VCC.
[ATM Address]	ATM address of the client.

Descriptions

Operator	Parameters/Permissions	Description
delete busclient	[ELANNumber] **<elannumber>** [LecID] **<lecidvalue>** Administrator	Removes a specified client from the BUS on the specified ELAN.

Operator	Parameters/Permissions	Description
show busclient	[ELANNumber] **<elannumber>** All	Displays information about all clients that have joined the BUS on the specified ELAN.

Examples

```
switch_prompt # delete busclient
ELANNumber(0) :
LECId(0)       : 14
LECId          : 14
ATMAddress     : 39:00:00:00:00:00:00:00:20:D4:14:11:80:00:20:D4:00:D6:C0:00
Confirm(y/n)? : y
switch_prompt #

switch_prompt # show busclient 0

 Client table entries for ELAN  ELAN000

=========================================================================

LECId          : 1
VPI/VCI        : 0/219
ATM Address    : 39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
switch_prompt #
```

BUSELAN

Use BUSELAN (broadcast and unknown server emulated LAN) to determine the characteristics of the specified ELAN maintained by the BUS. If the corresponding LESELAN exists, it should be identical.

SERVER	**SVC**
X	

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-127	ALL
[ELANName]	Name of the ELAN to which the BUS belongs.	Up to 32 characters	ELAN000
[ConnectMethod]	Type of connection used.	PVC, SVC	SVC
[ELANType]	Data-link type used by the ELAN.	802.3 (Ethernet), 802.5 (TokenRing)	802.3
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	YES: VCC is PMP NO: VCC is PTP	YES
[MTU]	Maximum transfer unit assigned for this client.	1516 or 9234 (Ethernet), 4544 (Token Ring)	1516

Output Parameter	Description
[ATM Address]	ATM address of the ELAN.
[Distribute VPI/VCI]	VPI/VCI values of control direct VCC or multicast send VCC.

Descriptions

Operator	Parameters/Permissions	Description
add buselan	[ELANNumber] **<elannumber>** [ELANName] **<elanname>** [ConnectMethod] **<connectmethod>** [ELANType] **<elantype** [Multipoint] **<distributevcctpe>** [MTU] **<maximumframesize>** Administrator	Creates a BUS on a specified ELAN. If the corresponding LESELAN exists, then the added BUSELAN should have similar characteristics.
delete buselan	[ELANNumber] **<elannumber>** Administrator	Removes the BUS from a specified ELAN and drops clients connected to it.
modify buselan	[ELANNumber] **<elannumber>** [ELANName] **<elanname>** [ConnectMethod] **<connectmethod>** [ELANType] **<elantype>** [Multipoint] **<distributevcctpe>** [MTU] **<maximumframesize>** Administrator	Changes the behavior of the BUS parameters for a specified ELAN. The specified ELAN is then deleted and recreated. If the corresponding LESELAN exists, then the modified BUSELAN should have the same characteristics as that existing LESELAN because their parameters need to match.
show buselan	[ELANNumber] **<elannumber>** All	Displays the BUS parameters for the specified ELAN. Enter **show buselan** to confirm that changes you made.

Examples

```
switch_prompt # add buselan
ELANNumber(0)                             : 102
ELANName(ELAN102)                         :
ConnectMethod(SVC)                        :
ELANType(802.3)                           :
Multipoint(YES)                           :
MTU(1516)                                 :
switch_prompt #

switch_prompt # delete buselan
ELANNumber(0)  : 3
ELAN Number    : 3
ELAN Name      : ELAN003
ATM Address    : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:03:02
Confirm(y/n)?  : y
switch_prompt #
```

The example below changes ELAN102 from an Ethernet BUSELAN to a Token Ring BUSELAN, changing the MTU to reflect the change in ELAN type. It assumes the LES has already been changed.

```
switch_prompt # modify buselan 102
ELANName(ELAN102)                        :
ConnectMethod(svc)                       :
ELANType(802.3)                          : 802.5
Multipoint(yes)                          :
MTU(1516)                                : 4544
switch_prompt #

switch_prompt # show buselan 102
ELAN: ELAN102
ELAN Number      : 102
ELAN Name        : ELAN102
ATM Address      : 39:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
MTU              : 4544
Connection Method: SVC
Distribute VPI/VCI: 0/2423
LAN Type         : 802.5
Multipoint       : YES
switch_prompt #
```

BUSLECStat

Use BUSLECStat (broadcast and unknown server LAN emulation client statistics) to view traffic statistics for all or specified clients that have joined the BUSELAN.

SERVER	SVC
X	

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-127	ALL
[LECId]	LEC identification number of the specified client.	0-65279	0

Output Parameter	Description
[ATMAddress]	ATM address of the client.
[Receives]	Number of multicast and broadcast and unknown forward requests received by the BUS from this LEC.
[Forwards]	Number of requests forwarded by the BUS from this LEC.
[Discards]	Number of requests discarded by the BUS from this LEC.

Description

Operator	Parameters/Permissions	Description
show buslecstat	[ELANNumber] **\<elannumber\>** [LecId] **\<lecidvalue\>** All	Displays statistical information about a specific client or all clients on that ELAN. To verify the LECId, enter **show client** first to obtain the ELAN number.

Example

```
switch_prompt # show buslecstat
ELANNumber(0)  :
LECId(0)       :

 Client statistics for ELAN ELAN000
========================================================================
LECId         : 1
ATM address   : 39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
Receives      : 17185
Forwards      : 17185
Discards      : 0
switch_prompt #
```

BUSStat

Use BUSStat (broadcast and unknown server statistics) to view statistics that the BUS maintains for each ELAN.

SERVER   SVC
X

Operators

show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the BUS belongs.	0-127	ALL

Output Parameter	Description
[Out Octets]	Number of octets (bytes) the BUS has sent since its initialization.
[Out Unicast]	Number of unicast frames forwarded by the BUS.
[Out Multicast]	Number of multicast frames forwarded by the BUS.
[In Octets]	Number of octets (bytes) the BUS has received since its initialization.
[In Unicast]	Number of unicast frames received by the BUS.
[In Multicast]	Number of multicast frames received by the BUS.
[Frame Timeouts]	Number of frames dropped by the BUS due to timeout.
[VCC Rejects]	Number of frames rejected because VCC is not available.

Descriptions

Operator	Parameters/Permissions	Description
show busstat	[ELANNumber] **<elannumber>** All	Displays BUS statistics for the specified ELAN or for all ELANs.
clear busstat	[ELANNumber] **<elannumber>** Administrator	Clears BUS statistics for the specified ELAN or for all ELANs.

Examples

```
switch_prompt # show busstat 3

  ELAN ELAN003 Statistics
  Out Octets          : 450432
  Out Unicast         : 7030
  Out Multicast       : 3
  In Octets           : 450432
  In Unicast          : 7030
  In Multicast        : 3
  Frame Timeouts      : 0
  VCC Rejects         : 0
switch_prompt #

switch_prompt # clear busstat
ELANNumber(ALL):
Clearing ALL  BUS ELAN Statistics
Confirm(y/n)?:y
switch_prompt #
```

CACParams

Use CACParams (call admission control parameters) to determine the allocation of bandwidth to SVCs (switched virtual circuits) and PVCs (permanent virtual circuits) for individual ports on the switch.

SERVER	SVC
X	X

Operators

`modify, show`

Parameters

Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[AllocScheme]	Three allocation levels you can choose for connection admission.	LIBERAL, MODERATE, CONSERVATIVE	LIBERAL

Descriptions

Operator	Parameters/Permissions	Description
modify cacparams	[PortNumber] **<portnumber>** [AllocScheme] **<allocationlevel>** Administrator	Modifies the CAC parameter scheme used for bandwidth calculation. Three different levels can be set for each port. • LIBERAL: More calls are admitted. These can total up to 4,000 VCs per switch with aggressive allocation of bandwidth, reserving less bandwidth for each connection. • MODERATE: A moderate allocation is a balance between the number of calls versus the bandwidth for each connection. Moderate allocation admits fewer calls and more bandwidth per call than a liberal setting. • CONSERVATIVE: A conservative allocation allocates more bandwidth for each connection. Conservative allocation admits fewer calls and more bandwidth per call than a moderate setting.
show cacparams	[PortNumber] **<portnumber>** All	Displays the CAC parameter scheme used for bandwidth calculation.

Examples

```
switch_prompt # modify cacparams
PortNumber :( ALL ): a2
AllocScheme :( )   : moderate
switch_prompt #

switch_prompt # modify cacparams
PortNumber :( ALL ): a3
AllocScheme :( )   : liberal
switch_prompt #

switch_prompt # show cacparams
PortNumber :( ALL ):
Port#       Allocation Scheme
=========================================================================
A1          CONSERVATIVE
A2          MODERATE
A3          LIBERAL
A4          MODERATE
B1          MODERATE
B2          MODERATE
B3          MODERATE
B4(CPU)     LIBERAL
switch_prompt #
```

CACStat

Use CACStat to see the CAC (call admission control) statistics.

SERVER	SVC
X	**X**

Operator

`show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL

Output Parameter	Description
[Bandwidth Available]	Total bandwidth (in Kb/s) available on that port.
[Bandwidth Allocated] - CBR, RTVBR, NRTVBR, UBR	Total bandwidth (in Kb/s) allocated for CBR (constant bit rate), RTVBR (real time variable bit rate), NRTVBR (non real time variable bit rate) and UBR (unspecified bit rate) connections, or specific circuit connection allocation (CBR, RTVBR, NRTVBR, UBR).

Description

Operator	Parameters/Permissions	Description
show cacstat	[PortNumber] **<portnumber>** ALL	Displays the CAC statistics of allocated bandwidth for all or specified ports and each traffic category (CBR, RTVBR, NRTVBR and UBR).

Examples

```
switch_prompt #  show cacstat
PortNumber(ALL) :

Port#   Bandwidth Available       Bandwidth Allocated
        (In Kb/s)                 (In Kb/s)
                            Total   CBR   RTVBR   NRTVBR  UBR
=============================================================================
A1          136393          823     0      0      823      0
A2          136393          823     0      0      823      0
A3          136393          823     0      0      823      0
A4          136393          823     0      0      823      0
B1          136393          823     0      0      823      0
B2          136393          823     0      0      823      0
B3          136393          823     0      0      823      0
B4(CPU)     131318         5898     0      0     5759     139
switch_prompt #

switch_prompt # show cacstat
PortNumber(ALL): a1

Port#   Bandwidth Available       Bandwidth Allocated
        (In Kb/s)                 (In Kb/s)
                            Total   CBR   RTVBR   NRTVBR  UBR
=============================================================================
A1          136393          823     0      0      823      0
switch_prompt #
```

Client

Use Client to determine all or local LANE (LAN emulation) and IP/ATM (IP over ATM) clients on the switch.

```
SERVER        SVC
    X          X
```

Operators

delete, restart, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the local client.	0-127	ALL

In the Output Parameter table below, **(</d>)** appears next to parameters that are available only through the **show client /d** (detailed) command.

Output Parameter	Description
[Type]	Type of client.
[IP Address]	IP address of client.
[Server Type]	Specifies what server type the client is on.
[Server Conn]	Type of connection the client has with the server.
[Status]	Current status of the client.
[Client State] **(</d>)**	Status of where the client is in the process of making a connection.
[Client Address] **(</d>)**	ATM address of the client.
[LAN Name] **(</d>)**	ELAN name for this client.
[LECS Addr Source] **(</d>)**	ILMI, well-known address, or LECS address.

Output Parameter	Description
[LECS Address] **(</d>)**	ATM address of the LECS.
[LES Address] **(</d>)**	ATM address of the LANE server.
[LAN Type] **(</d>)**	Type of ELAN.
[MTU] **(</d>)**	Maximum transfer unit assigned for this client.
[IP NetMask] **(</d>)**	IP netmask assigned to the client.

Descriptions

Operator	Parameters/Permissions	Description
delete client	[ClientNumber] **<clientnumber>** Administrator	Removes a client from the switch.
restart client	[ClientNumber] **<clientnumber>** Administrator	Restarts a client from the switch. If a client fails to successfully join a VLAN, you can restart the client to retry. The switch software, on a periodic basis, automatically tries to restart clients that have not successfully joined. Enter **show client** to confirm that the client(s) have restarted.
show client (/d)	[ClientNumber] **<clientnumber>** All	Displays the details of a client on the switch. You can obtain more details of all the clients on the switch by adding **/d** to the end of the command. For example, **show client /d**.

Examples

```
switch_prompt # delete client 4
IP/ATM Client4 Address: 39:00:00:00:00:00:00:00:00:14:15:00:00:00:7A:01:01:5B:00
Confirm(y/n)?:y
switch_prompt #

switch_prompt # show client
ClientNumber(ALL)    :

Client Type     IP Address      Server Type  Server Conn  Status
================================================================================
    1  LANE    90.1.1.186      LECS         Established  Operational
    3  IP/ATM  90.1.1.124      Local        Established  Operational
switch_prompt #

switch_prompt # restart client
ClientNumber(ALL)    :
switch_prompt #

switch_prompt # show client
ClientNumber(ALL)    :

Client Type     IP Address      Server Type  Server Conn  Status
================================================================================
    1  LANE    90.1.1.186      LECS         Shutdown     Initial
    3  IP/ATM  90.1.1.124      Local        Shutdown     Initial
switch_prompt #

switch_prompt # show client /s
ClientNumber(ALL)    :

Client Type     IP Address      Server Type  Server Conn  Status
================================================================================
    1  LANE    90.1.1.186      LECS         Established  Operational
    3  IP/ATM  90.1.1.124      Local        Established  Operational
switch_prompt #
```

With the following example (</d>), notice how you get the same amount of detail whether you specify the client or accept the default "ALL":

```
switch_prompt # show client /d
ClientNumber(ALL) :

LANE Client 1
==========================================================================
Client State    : Operational
Client Address  : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:00
LAN Name        : elan1
LECS Addr Source: ILMI
LECS Address    : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:01
LES Address     : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02
LAN Type        : 802.3
MTU             : 1516
IP Address      : 90.1.1.186
IP NetMask      : 255.255.255.0

IP/ATM Client 3
==========================================================================
Client State    : Operational
Client Address  : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server          : is local
Server Connection: Established
MTU             : 9180
IP Address      : 90.1.1.124
IP NetMask      : 255.0.0.0
switch_prompt #


switch_prompt # show client 3 /d

IP/ATM Client 3
==========================================================================
Client State    : Operational
Client Address  : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:00:5A:01:01:7C:00
Server          : is local
Server Connection: Established
MTU             : 9180
IP Address      : 90.1.1.124
IP NetMask      : 255.0.0.0
switch_prompt #
```

ClientARP

Use ClientARP (client address resolution protocol) to view the mapping of the MAC (media access control) or IP addresses to an ATM address for LANE (LAN emulation) or IP/ATM (IP over ATM) clients.

SERVER	SVC
X	X

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL

Output Parameter	Description
[MAC Address]	MAC (media access control) address of the LANE client.
[IP Address]	IP address of IP/ATM destination client.
[ATM Address]	ATM address of either LANE or IP/ATM destination client.

Description

Operator	Parameters/Permissions	Description
show clientarp	[ClientNumber] **<clientnumber>** All	Displays details about LANE or IP/ATM client ARP entries.

Example

```
switch_prompt # show clientarp
ClientNumber(ALL) :

LANE Client 0 ARP Table

MAC Address        ATM Address
==============================================================================
00:20:D4:14:15:00  39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:02


IP/ATM Client 3 ARP Table

IP Address     ATM Address
=====================================================================================
10.1.1.1       39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:2F:00:00:0A:01:01:02:00

switch_prompt #
```

ClientStat

Use ClientStat (client statistics) to view LANE (LAN emulation) or IP/ATM (IP over ATM) client statistics.

SERVER	SVC
X	**X**

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL

In the Output Parameter table below, **(</d>)** appears next to parameters that are available only through the **show clientstat /d** (detailed) command. The (IP/ATM) and (LANE) client indicators after particular parameters indicate that these parameters will display only if that particular client type is active.

Output Parameter	Description
[Client Type]	Type of client.
[RxPkts]	Number of packets received.
[TxPkts]	Number of packets transmitted.
[RxOctets]	Number of octets (bytes) received.
[TxOctets]	Number of octets (bytes) transmitted.
[Bytes Received] **(</d>)**	Number of bytes received.
[Unicast Packets] **(</d>)**	Number of unicast packets received or transmitted.
[Multicast Packets] **(</d>)**	Interface maximum transfer unit to assign to the local interface associated with this client.

Output Parameter	Description
[Broadcast Packets] `(</d>)`	Number of broadcast packets received or transmitted.
[Error Packets] `(</d>)`	Number of error packets received or transmitted.
[Dropped Packets] `(</d>)`	Number of received or transmitted packets dropped.
[Bytes Transmitted] `(</d>)`	Number of bytes transmitted.
[ARP Requests Sent] `(</d>)`	ARP requests from a server sent to the client.
[ARP Replies Rcvd] `(</d>)`	ARP replies from a client received by the server.
[ARP Requests Rcvd] `(</d>)`	ARP requests from a client received by the server.
[ARP Replies Sent] `(</d>)`	ARP replies from a server sent to the client.
[Ctrl Frames Sent] (LANE) `(</d>)`	Number of control frames sent.
[Ctrl Frames Rcvd] (LANE) `(</d>)`	Number of control frames received.
[SVC Failures] (LANE) `(</d>)`	Number of clients who failed to join the SVC (switched virtual circuit).
[ARP Unreachables] (IP/ATM) `(</d>)`	ARP unreachable clients.
[ARP NAKs] (IP/ATM) `(</d>)`	Number of inverse ARP NAKs (negative acknowledges) received.

Description

Operator	Parameters/Permissions	Description
`show clientstat (/d)`	[ClientNumber] <clientnumber> All	Displays the packet count statistics for a local LANE or IP/ATM interface client on the switch. Some output parameters are different for LANE and IP/ATM clients. In the parameter table above, it is stated in parentheses ((LANE) or (IP/ATM)) after that parameter if it applies only to that type of client.

Examples

The examples show statistics for all clients, detail `(</d>)` for all clients, an IP/ATM client, and a LANE client.

```
switch_prompt # show clientstat
ClientNumber(ALL):

Client Type         RxPkts    TxPkts   RxOctets   TxOctets
=========================================================================
    1   LANE          0         0         0          0
    3   IP/ATM        0         0         0          0
switch_prompt #

switch_prompt # show clientstat /d
ClientNumber(ALL):

Stats for LANE client 1
=========================================================================
Rx Stats
Bytes Received                      : 0
Unicast Packets                     : 0
Multicast Packets                   : 0
Broadcast Packets                   : 0
Error Packets                       : 0
Dropped Packets                     : 0
Tx Stats
Bytes Transmitted                   : 0
Unicast Packets                     : 0
Multicast Packets                   : 0
Broadcast Packets                   : 0
Error Packets                       : 0
Dropped Packets                     : 0
LAN Emulation Statistics
ARP Requests Sent                   : 3
ARP Replies Rcvd                    : 3
ARP Requests Rcvd                   : 0
ARP Replies Sent                    : 0
Ctrl Frames Sent                    : 9
Ctrl Frames Rcvd                    : 9
SVC Failures                        : 0

Stats for IP/ATM client 3
=========================================================================
Rx Stats
Bytes Received                      : 0
Unicast Packets                     : 0
Multicast Packets                   : 0
Broadcast Packets                   : 0
Error Packets                       : 0
Dropped Packets                     : 0
Tx Stats
Bytes Transmitted                   : 0
Unicast Packets                     : 0
Multicast Packets                   : 0
Broadcast Packets                   : 0
Error Packets                       : 0
Dropped Packets                     : 0
IP/ATM Statistics
ARP Requests Sent                   : 0
ARP Replies Rcvd                    : 0
ARP Requests Rcvd                   : 0
ARP Replies Sent                    : 0
ARP Unreachables                    : 0
ARP NAKs                            : 0
switch_prompt #
```

```
switch_prompt # show clientstat 3

Stats for IP/ATM client 3
===========================================================================
Rx Stats
Bytes Received                        : 0
Unicast Packets                       : 0
Multicast Packets                     : 0
Broadcast Packets                     : 0
Error Packets                         : 0
Dropped Packets                       : 0
Tx Stats
Bytes Transmitted                     : 0
Unicast Packets                       : 0
Multicast Packets                     : 0
Broadcast Packets                     : 0
Error Packets                         : 0
Dropped Packets                       : 0
IP/ATM Statistics
ARP Requests Sent                     : 0
ARP Replies Rcvd                      : 0
ARP Requests Rcvd                     : 0
ARP Replies Sent                      : 0
ARP Unreachables                      : 0
ARP NAKs                              : 0
switch_prompt #

switch_prompt # show clientstat 1

Stats for LANE client 1
===========================================================================
Rx Stats
Bytes Received                        : 0
Unicast Packets                       : 0
Multicast Packets                     : 0
Broadcast Packets                     : 0
Error Packets                         : 0
Dropped Packets                       : 0
Tx Stats
Bytes Transmitted                     : 0
Unicast Packets                       : 0
Multicast Packets                     : 0
Broadcast Packets                     : 0
Error Packets                         : 0
Dropped Packets                       : 0
LAN Emulation Statistics
ARP Requests Sent                     : 3
ARP Replies Rcvd                      : 3
ARP Requests Rcvd                     : 0
ARP Replies Sent                      : 0
Ctrl Frames Sent                      : 9
Ctrl Frames Rcvd                      : 9
SVC Failures                          : 0
switch_prompt #
```

ClientVC

Use ClientVC (client virtual circuit) to view which VCs are associated with a particular local LANE or IP over ATM client's ARP (address resolution protocol) entries. ClientVC is similar to ClientARP, except that it also includes details of VPI/VCI numbers.

SERVER	SVC
X	**X**

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL

Output Parameter	Description
[MAC Address]	MAC address of the client.
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of control direct VCC (virtual channel connection) or multicast send VCC.
[ATM Address]	ATM address of the client.

Description

Operator	Parameters/Permissions	Description
show clientvc	[ClientNumber] **<clientnumber>** All	Displays VC details for local IP/ATM or LANE clients in addition to client ARP mapping details. For IP/ATM, the associated IP address appears, while for LANE, the associated MAC address appears. The associated address is what is located at the other end of the VC.

Example

```
switch_prompt # show clientvc
ClientNumber(ALL) :
LANE Client 0 VC Table

MAC Address         VPI/VCI
                    ATM Address
=============================================================================
00:02:D4:14:22:80   0/2453
                    39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:22:80:00

IP/ATM Client 50 VC Table

IP Address          VPI/VCI
                    ATM Address
=============================================================================
10.1.1.2            0/130
                    39:00:00:00:00:00:00:00:20:D4:14:22:80:00:00:0A:01:01:02:00

switch_prompt #
```

Community

Use Community to group NMS (network management system) hosts by privilege level. Hosts are collectively called communities, and their privilege level determines the type of information access permitted by the switch. The switch provides access to the information only if the request comes from a community configured with the necessary privileges.

SERVER	SVC
X	X

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Name]	SNMP community name. Needs to be defined on the switch to access SNMP.	64 characters	ILMI, public, and zeitnet
[IPAddr]	IP address of the host or hosts that can use this community name. Entering 0.0.0.0 allows access by any host.	dot decimal/ 7-15 characters	0.0.0.0
[Privilege]	Privileges associated with this community.	read, write, read-write/ n/a	ILMI--write public--read zeitnet--write

Output Parameter	Description
[Community Name]	Same as [Name] Input Parameter.

Caution Do not modify the ILMI community. The ILMI protocol will not work correctly if modified.

Descriptions

Operator	Parameters/Permissions	Description
add community	[Name] **<communityname>** [IPAddr] **<ipaddress>** [Privilege] **<privilege>** Administrator	Creates a community on the switch.
delete community	[Name] **<communityname>** [IPAddr] **<ipaddress>** Administrator	Removes an existing community from the switch.
show community	All	Displays all the communities that are configured on the switch.

Examples

```
switch_prompt # add community
Name()                                   : boris
IpAddr()                                 : 90.1.1.1
Priviledge(read)                         :
switch_prompt #

switch_prompt # show community

Community Name              IP Address           Privilege
========================================================================
ILMI                        0.0.0.0              READ
boris                       90.1.1.1             READ
public                      0.0.0.0              READ
zeitnet                     0.0.0.0              WRITE
switch_prompt #

switch_prompt # delete community
Name()                                   : boris
IpAddr()                                 : 90.1.1.1
switch_prompt #

switch_prompt # show community

Community Name              IP Address           Privilege
========================================================================
ILMI                        0.0.0.0              READ
public                      0.0.0.0              READ
zeitnet                     0.0.0.0              WRITE
switch_prompt #
```

Config

Use Config to erase the configuration information on the SmartCell ZX-250. Before using the **clear config** command, you should backup the switch configuration using the **backup switch** command. See page 182.

SERVER	SVC
X	X

Operator

clear

Parameters

Input Parameter	Description	Value/Field Size	Default
none			

Output Parameter	Description
none	

Description

Operator	Parameters/Permissions	Description
clear config	Administrator	Erases all switch configuration information, including Ethernet interface address, VLAN and ELAN configurations, signaling configuration, port configurations, and so on.

Example

```
switch_prompt # clear config
You should backup your configuration using the "backup switch" command, in case
you want to recover this configuration
Continuing will permanently erase the current switch configuration,
and requires a switch reboot.
Are you sure this is what you want to do?
Confirm(y/n)?:y
Configuration cleared.
Rebooting is required to ensure correct operation,
Do you want to reboot now?
Confirm(y/n)?:y
```

ELAN

Use ELAN (emulated local area network) to create or delete ELANs on the switch. This is a quick configuration method of managing ELAN server entries within one command. For details of how to create or delete these entries individually, see "BUSELAN", "LECSELAN", and "LESELAN".

```
SERVER      SVC
   X
```

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of ELAN to which the BUS (broadcast and unknown server), LECS (LAN emulation configuration server) or LES (LANE server) belong.	0-127	0
[ELANName]	Name of ELAN to which the LES or BUS belongs.	Up to 32 characters	ELAN000
[ConnectMethod]	Type of connection used.	PVC, SVC	SVC
[ELANType]	Data-link type used by the ELAN.	802.3 (Ethernet) 802.5 (TokenRing)	802.3
[Multipoint]	Indicates whether control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	YES: VCC is PMP NO: VCC is PTP	YES
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516 or 9234 (Ethernet), 4544 (Token Ring)	1516
[Distribute]	LES establishes control distribute VCC to all the clients if distribute is ALL. If distribute is PROXY, LES establishes control distribute VCC only to proxy clients.	ALL, PROXY	PROXY

Output Parameter	Description
[LES Address]	ATM address of the LANE server.
[Distribute VPI/VCI]	VPI/VCI values of the control direct VCC or multicast send VCC.
[Distribute Method]	Indicates whether the control distribute VCC is established for ALL clients or only PROXY clients.
[LAN Type]	Type of ELAN.
[BUSATMAddress]	ATM address of the BUS (specify when the LES and BUS are not co-located).

Descriptions

Operator	Parameters/Permissions	Description
`add elan`	`[ELANNumber]` **`<elannumber>`** `[ELANName]` **`<elanname>`** `[ConnectMethod]` **`<connectmethod>`** `[ELANType]` **`<elantype>`** `[Multipoint]` **`<distributevcctype>`** `[MTU]` **`<maximumframesize>`** `[Distribute]` **`<controldistributevccoption>`** Administrator	Quickly configures the switch. This command adds the ELAN entry in all three databases (BUSELAN, LESELAN, and LECSELAN) and activates the ELAN.
`delete elan`	`[ELANNumber]` **`<elannumber>`** Administrator	Quickly configures the switch. This removes a specific ELAN. This command first checks that all servers (LECS, LES, and BUS) exist before deleting any of them.
`show elan`	`[ELANNumber]` **`<elannumber>`** All	Displays an ELAN created by either the quick `add elan` or the multiple set of commands to add an ELAN. There might not be LECS information (as seen in the first example) if the ELAN was created by `add buselan`, and `add leselan` and `add lecselan` had not been completed. The LECS information is displayed if you use `add elan` or if not, after you enter `add lecselan` (as seen in the following **B** example below).

Examples

```
switch_prompt # add elan
ELANNumber(0)                            : 11
ELANName(ELAN011)                        :
ConnectMethod(SVC)                       :
ELANType(802.3)                          :
Multipoint(YES)                          :
MTU(1516)                                :
Distribute(PROXY)                        :
switch_prompt #


switch_prompt # delete elan
ELANNumber(0): 11
Confirm(y/n)?: y
switch_prompt #
```

A

```
switch_prompt # show elan 0
There is no LECS Record. Retrieving LES Information
ELAN Number     : 0
ELAN Name       : ELAN000
LES Address     : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:02
Max Frame Size  : 1516
Connection Method : SVC
Distribute VPI/VCI: 0/32
Distribute Method: PROXY
LAN Type        : 802.3
Multipoint      : YES
switch_prompt #
```

B

```
switch_prompt # add leselan 4
ELANName(ELAN004)                             :
ConnectMethod(SVC)                            :
ELANType(802.3)                               :
Multipoint(YES)                               :
MTU(1516)                                     :
Distribute(PROXY)                             :
BUSATMAddress()                               :
switch_prompt #

switch_prompt # add buselan 4
ELANName(ELAN004)                             :
ConnectMethod(SVC)                            :
ELANType(802.3)                               :
Multipoint(YES)                               :
MTU(1516)                                     :
switch_prompt #

switch_prompt # add lecselan 4
ELANName(ELAN004)                             :
LESAddress(39:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:84:02):
ELANType(802.3)                               :
MTU(1516)                                     :
switch_prompt #

switch_prompt # show elan 4
ELAN  4

========================================================================
ELAN Number      : 4
LECS Address     : 39:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:01
LES Address      : 39:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:84:02
ELAN Name        : ELAN004
ELAN Type        : 802.3
MTU              : 1516
Connection Method: SVC
Distribute VPI/VCI: 0/147
Distribute Method: PROXY
Multipoint       : YES
switch_prompt #
```

Exit

Use Exit to disconnect your console connection from the switch.

SERVER	**SVC**
X	**X**

Operator

exit

Parameters

There are no parameters for this command. Just type **exit** at the switch prompt.

Description

Operator	Permission	Description
exit	[exit] **<exit>** All	This command closes your console connection. Enter this command when you are finished with a console session. If you do not exit your session, the switch remains unavailable to anyone else.

Example

```
switch_prompt # exit
Exiting SmartCell 2X Command Console
SmartCell 2X version 1.2(c) Cabletron Systems, Inc.
```

Firmware

Use Firmware to re-program the switch application software when you want to perform a switch upgrade.

SERVER	SVC
X	X

Operator

update

Parameters

Input Parameter	Description	Value/Field Size	Default
[ServerIP]	IP address of server with the updated image files.	dot decimal/ 7-15 characters	Last IP address
[Path]	Full pathname from server (directory) to image files.	n/a	last path used

Description

Operator	Parameters/Permissions	Description
update firmware	[Server IP] **<serverip>** [Path] **<path>** Administrator	Updates the switch software (for example, when upgrading your switch). You must know the full pathname of these updated image files. The switch uses the TFTP protocol, so it needs to be implemented on your server to complete this command. You must then reboot your switch (see "Reboot") for the new firmware to take effect. Reboot will not affect your previous network configuration.

Example

```
SmartCell ZX # update firmware
ServerIP()                    :204.95.77.240
Path()   :server/server.ima
You are updating the code image in the flash.
Are you sure this is what you want to do?
Confirm(y/n)?:y
Verifying bootfile server/server.ima on 204.95.77.240...passed.
Erasing Flash.
Using TFTP to get and program bootfile server/server.ima from 204.95.77.240.
2787K (2854508 bytes) received.
Flash update succeeded.
You will have to reboot for the new image to take effect.
SmartCell ZX #
```

History

Use History to view the last five commands you entered. Enter History if you want to use one of those commands again.

SERVER	SVC
X	X

Operator

history

Parameters

This command has no parameters. Just type **history** at the switch prompt.

Description

Operator	Parameters/Permissions	Description
history	[history] **<history>** All	This command displays the five most recently entered commands. It also displays an index number you can select to invoke the listed command. To repeat any of the commands listed by history, type **!<indexnumber>**. For example, to repeat **passwd** in the following example, type **!4**.

Example

```
switch_prompt # history
 5-     modify prompt
 4-     passwd
 3-     show privilege
 2-     enable
 1-     history
switch_prompt # !4
switch_prompt # passwd
```

IISPRoute

Use IISPRoute (interim inter-switch signaling protocol) to manipulate the IISP routes configured on the switch (see "UNIRoute" for further routing commands).

SERVER	SVC
X	X

Operators

add, delete, show, flush

Parameters

Input Parameter	Description	Value/Field Size	Default
[ATMAddress]	ATM address assigned to the port, client, or server.	13-20 byte hex-based/ Up to 59 characters	NONE
[PortNumber]	Port number on the switch.	A1...A4, B1...B3, C1...C4, D1...D4	A1
[Metric]	Metric value. Used when the next hop is accessible through various parallel links. If there are two IISP routes to a destination, every time a call setup arrives, it is routed using one of the parallel IISP routes, alternatively. You can specify the number of times each route is used in a row by the metric variable.	1-5	1
[EntryIndex]	Index into the IISP route table for the IISP ATM address entry.	2 characters	0

Output Parameter	Description
[Length]	Address length in number of bits. IISP allows you to enter any number of bits. Only multiples of a byte (an even number of bits) can be entered and the calculated address length is displayed.

Descriptions

Operator	Parameters/Permissions	Description
`add iisproute`	`[ATMAddress]` **`<iispatmaddress>`** `[PortNumber]` **`<portnumber>`** `[Metric]` **`<metric>`** Administrator	Creates an IISP routing entry to the switch. These entries usually use a 13-byte netprefix ATM address. Routing between switches is decided at each segment of the path by determining a best match of the destination address in the call setup with address entries in the IISP routing table. When a signaling request arrives across an IISP or UNI link, the switch checks the destination ATM address against the entries in the IISP address prefix table and selects the port with the longest prefix match. The IISP table is configured with a set of address prefixes that are accessible-each IISP port on the switch.
`delete iisproute`	[EntryIndex] <entryindex> Administrator	Removes an IISP route. Enter show iisproute before entering this command to display information you will need as input.
`show iisproute`	Administrator	Displays the configured IISP routes with their UNI ATM addresses on the switch.
`flush iisproute`	All	Flushes the IISP route addresses from the switch.

Note You can create a default IISP route if you enter only the port number and a weighting value [Metric] for the route (see Examples below). You can set multiple local configurations to choose one of the parallel links for next-hop routing. A weight of "1" assigned to all parallel routes mandates alternative routing in a round-robin fashion. In other words, given parallel routes, based on best address matching, use the weighting to decide which route to use. If, however, there is no best address match, then use the default route. If you define more than one default route, you can weight them differently, so there is a calculated decision, instead of round-robin.

Examples

```
switch_prompt # add iisproute
AtmAddress()  : 39:00:00:00:00:00:00:00:00:00:11:22:33
PortNumber(A1):
Metric(1)     :
switch_prompt # add iisproute
AtmAddress()  : 39:00:00:00:00:00:00:00:00:00:11:22:44
PortNumber(A1):
Metric(1)     : 2
switch_prompt # add iisproute
AtmAddress()  : 39:00:00:00:00:00:00:00:00:00:11:22:55
PortNumber(A1):
Metric(1)     : 3
switch_prompt # add iisproute
AtmAddress()  : 39:00:00:00:00:00:00:00:00:00:11:22:66
PortNumber(A1): a2
Metric(1)     : 2
switch_prompt #

switch_prompt # show iisproute

EntryNum  PortNum   Metric  Length  ATM Address
=============================================================================
    0     A1          1      104    39:00:00:00:00:00:00:00:00:00:11:22:33
    1     A1          2      104    39:00:00:00:00:00:00:00:00:00:11:22:44
    2     A1          3      104    39:00:00:00:00:00:00:00:00:00:11:22:55
    3     A2          2      104    39:00:00:00:00:00:00:00:00:00:11:22:66

switch_prompt # delete iisproute
EntryIndex(0)                           : 0
PortNum     : A1
Metric      : 1
Length      : 104
ATM Address : 39:00:00:00:00:00:00:00:00:00:11:22:33
Confirm(y/n)?:y
switch_prompt #

switch_prompt # show iisproute

EntryNum  PortNum   Metric  Length  ATM Address
=============================================================================
    1     A1          2      104    39:00:00:00:00:00:00:00:00:00:11:22:44
    2     A1          3      104    39:00:00:00:00:00:00:00:00:00:11:22:55
    3     A2          2      104    39:00:00:00:00:00:00:00:00:00:11:22:66

switch_prompt # flush iisproute
Confirm(y/n)?:y
switch_prompt #

switch_prompt # show iisproute

EntryNum  PortNum   Metric  Length  ATM Address
=============================================================================
switch_prompt #
```

ILMIAdminStatus

Use ILMIAdminStatus (integrated local management interface administration status) to control the operation of the ILMI protocol on every port on the switch.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[ILMIAdminStatus]	Enables or disables ILMI administration status for a specific port.	enable, disable	enable

Descriptions

Operator	Parameters/Permissions	Description
modify ilmiadminstatus	[PortNumber] **<portnumber>** [ILMIAdminStatus] **<enable/disable>** Administrator	Enables or disables ILMI on a specific port or all ports. Disable ILMI on the port if the device to which it is connected does not support ILMI or does not support a function (such as signaling).
show ilmiadminstatus	[PortNumber] **<portnumber>** All	Displays the status of ILMI as enabled or disabled on a per-port basis. This tells you if ILMI is running or not.

Examples

```
switch_prompt # modify ilmiadminstatus
PortNum :( ALL ): a1
IlmiAdminStatus :( enable ): disable
switch_prompt #

switch_prompt # show ilmiadminstatus
PortNum :( ALL ):
Port#      ILMI Admin Status
=========================================================================
A1              disable
A2              enable
A3              enable
A4              enable
B1              enable
B2              enable
B3              enable
switch_prompt #
```

IPAddress

Use IPAddress to change IP addresses of the Ethernet port and IP netmask on the switch.

SERVER	SVC
X	X

Operator

modify

Parameters

Input Parameter	Description	Value/Field Size	Default
[IPAddress]	IP address of the Ethernet port.	dot decimal/ 7-15 characters	NONE
[IPNetMask]	IP netmask of the Ethernet port. Defaults to the appropriate netmask, based on the class of the IP address. Calculated from the first two high bits of the IP address, so it is either 255.0.0.0, 255.255.0.0, or 255.255.255.0. Must be specified only if IP subnets are being used.	dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0.

Description

Operator	Parameters/Permissions	Description
modify ipaddress	[IPAddress] **<ipaddress>** [IPNetMask] **<ipnetmask>** Administrator	Sets the IP address of the Ethernet port and the IP netmask. You should accept the IP netmask default unless you are experienced with configuring IP subnets.

Example

```
switch_prompt # modify ipaddress
IPAddress(200.30.72.122) : 1.1.1.11
IPNetMask(255.255.255.0) :
Confirm(y/n)?: y
Changing IP Address on System. Telnet Session (if any) will be lost.
switch_prompt #
```

IPATMARP

Use IPATMARP (IP over ATM address resolution protocol) to see IP/ATM ARP server tables. Unlike LANE client or IP/ATM (IP over ATM) client ARP tables (see **show clientarp**), these ARP entries are registered with the IP/ATM ARP server.

SERVER	**SVC**
X	

Operator

show

Parameter

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL

Description

Operator	Parameters/Permissions	Descriptions
show ipatmarp	[ClientNumber] **<clientnumber>** All	This command displays the ARP entries associated with active IP/ATM clients which are IP/ATM servers.

Example

```
switch_prompt # show ipatmarp
ClientNumber(ALL):
IP/ATM Server 1 ARP Table

IP Address      ATM Address
============================================================================
11.1.1.3        39:00:00:00:00:00:00:00:20:D4:14:22:80:00:00:0B:01:01:03:00

switch_prompt #
```

IPATMClient

Use IPATMClient (IP over (/) ATM client) to manipulate either local IP/ATM clients or IP/ATM clients acting as an IP/ATM server, or if you want to configure an IP/ATM client on the IP/ATM server itself.

SERVER	SVC
X	X

Operators

add, modify, (**show client**)

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL
[ServerType]	IP/ATM server type.	LOCAL, EXTERNAL, NONE	NONE
[ServerAddress]	ATM address of the IP/ATM server. If [ServerType]states NONE or LOCAL, then accept the default. LOCAL means the client also acts as an IP/ATM server for that VLAN (virtual LAN). If [ServerType]states EXTERNAL, enter the ATM address of the external server.	13-20 byte hex-based/ Up to 59 characters	NONE
[IPAddress]	IP address of the client.	dot decimal/ 7-15 characters	NONE
[NetMask]	IP netmask of the client. This parameter defaults to the appropriate netmask, based on the class of IP address. Must be specified only if IP subnets are being used. Calculated from the first two high bits of the IP address, so it is either 255.0.0.0, 255.255.0.0, or 255.255.255.0. With less address left, you have fewer bits to use to define subnets.	dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0
[MTU]	Maximum transfer unit assigned for this client.	64 to 10160	9180

Descriptions

Operator	Parameters/Permissions	Description
add ipatmclient	[ClientNumber] **<clientnumber>** [ServerType] **<servertype>** [ServerAddress] **<serveraddress>** [IPAddress] **<ipaddress>** [NetMask] **<netmask>** [MTU] **<maxtransferunit>** Administrator	Creates a new IP/ATM client to the switch. If the circuits in this VLAN (virtual LAN) are SVCs, (switched virtual circuits) and you want to use this client as the ARP server, enter **local** for the server type. If you do not want to use this client as the ARP server, enter **external** as the server type, and use the address of any configured ARP server as the server address. If adding an IP/ATM client in a PVC-only environment, enter **none** for the server type.
modify ipatmclient	[ClientNumber] **<clientnumber>** [ServerType] **<servertype>** [ServerAddress] **<serveraddress>** [IPAddress] **<ipaddress>** [NetMask] **<netmask>** [MTU] **<maxtransferunit>** Administrator	Modifies an existing local IP/ATM client on the switch.
show client	[ClientNumber] **<clientnumber>** All	Displays all or specified clients on the switch. Enter **show client** to establish the activity of all the different client types on the switch. See "Client" for details.

Examples

```
switch_prompt # add ipatmclient
ClientNumber(0)   : 50
ServerType(NONE)  : local
ServerAddr()      :
IpAddr()          : 101.1.1.50
NetMask(255.0.0.0):
MTU(9180)         :
switch_prompt #

switch_prompt # add ipatmclient
ClientNumber(0) : 1
ServerType(NONE): external
ServerAddress() :39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:00:0A:01:01:02:00
IPAddress()     : 10.1.1.1
NetMask(255.0.0.0):
MTU(9180)         :
switch_prompt #

switch_prompt # add ipatmclient
ClientNumber(0)   : 60
ServerType(NONE)  :
ServerAddr()      :
IpAddr()          : 101.1.1.60
```

```
NetMask(255.0.0.0):
MTU(9180)        :
switch_prompt #

switch_prompt # modify ipatmclient
ClientNumber(0)   : 50
ServerType(LOCAL) :
ServerAddr()      :
IpAddr(101.1.1.50): 101.1.1.150
NetMask(255.0.0.0):
MTU(9180)        :

switch_prompt # show client

switch_prompt #
```

IPATMPVC

Use IPATMPVC (IP over ATM permanent virtual circuit) to manipulate IP/ATM PVC clients on a PVC IP/ATM VLAN (virtual LAN).

SERVER	SVC
X	X

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL
[DestinationIP]	Destination IP address of external IP/ATM client.	dot decimal/ 7-15 characters	NONE
[DestinationVPI]	VPI on port B4 to reach a particular IP/ATM client.	0-maximum	0
[DestinationVCI]	VCI on port B4 to reach a particular IP/ATM client.	0-maximum	33

Output Parameter	Description
[IPAddress]	IP address of the client.
[VPI/VCI]	VPI/VCI values of control direct VCC or multicast send VCC.

Descriptions

Operator	Parameters/Permissions	Description
add ipatmpvc	[ClientNumber] **<clientnumber>** [DestinationIP] **<destinationIP>** [DestinationVPI]**<destinationVPI>** [DestinationVCI]**<destinationVCI>** Administrator	Creates an IP/ATM PVC. To achieve this, you must first enter **add pvc** (see "PVC" for more details), and then **add ipatmclient** for a new client (see "IPATMClient" for more details). You can then enter **add ipatmpvc**.
delete ipatmpvc	[ClientNumber] **<clientnumber>** [DestinationIP] **<destinationIP>** Administrator	Removes the specified IP/ATM PVC.
show ipatmpvc	[ClientNumber] **<clientnumber>** Administrator	Displays the details of an IP/ATM PVC.

Examples

```
switch_prompt #add pvc
ConnType(PTP)                                 :
LowPort(A1)                                   :
LowVPI(0)                                     :
LowVCI(33)                                    : 130
HighPort(A1)                                  : b4
HighVPI(0)                                    :
HighVCI(34)                                   : 130
Fwd
iptorIndex(1)                 :
BkwTrafficDescriptorIndex(1)                  :
switch_prompt #

switch_prompt #show pvc all
CrossConnectId(ALL)                           :

Conn   Conn   Traffic Conn      Low                 High           Admin
Id     SubId  Type    Type  Port    VPI/VCI     Port      VPI/VCI   Status
===========================================================================
 134    138   UBR     PTP   A1       0/130      B4(CPU)   0/130     UP
switch_prompt #

switch_prompt #add ipatmclient
ClientNumber(0)                               :
ServerType(NONE)                              :
ServerAddress()                               :
IPAddress()                                   : 10.1.1.2
NetMask(255.0.0.0)                            :
MTU(9180)                                     :
switch_prompt #
```

```
switch_prompt #show client 0

IP/ATM Client 0
==========================================================================
Client State      : Operational
Client Address    : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:00:0A:01:01:02:00
Server            : is none
MTU               : 9180
IP Address        : 10.1.1.2
IP NetMask        : 255.0.0.0
switch_prompt #

switch_prompt #add ipatmpvc
ClientNumber(0)                           :
DestinationIP()                           : 10.1.1.7
DestinationVPI(0)                         :
DestinationVCI(33)                        : 130
switch_prompt #


switch_prompt #show ipatmpvc 0

IP/ATM Client 0 PVC Table
IP Address        VPI/VCI
==========================================================================
10.1.1.7          0/130
switch_prompt #

switch_prompt # delete ipatmpvc
ClientNumber(0) :
DestinationIP() : 10.1.1.7
Confirm(y/n)?: y
switch_prompt #

switch_prompt # show ipatmpvc

IP/ATM Client 0 PVC Table
IP Address        VPI/VCI
==========================================================================
10.1.1.7          0/130
switch_prompt #
```

IPATMStat

Use IPATMStat (IP over ATM statistics) to view details of the IP/ATM (IP over ATM) client server.

SERVER	**SVC**
X	

Operator

`show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL

Output Parameter	Description
[ARP Requests Recvd]	ARP requests from a client received by the server.
[ARP Replies Sent]	ARP replies from the server sent to the client.
[INARP Requests Sent]	Inverse ARP requests from the server sent to the client.
[INARP Replies Recvd]	Inverse ARP replies from a client received by the server.
[INARP Unreachables]	Inverse ARP unreachable clients.
[INARP NAKs]	Number of inverse ARP NAKs received.

Description

Operator	Parameters/Permissions	Description
show ipatmstat	[ClientNumber] **<clientnumber>** All	Displays statistics associated with the IP/ATM client server.

Examples

```
switch_prompt # show ipatmstat
ClientNumber(ALL):

Client     ArpReqs     ArpReps     ArpUnrch     ArpNaks
========================================================================
   50          0           0            0            0
   51          0           0            0            0
switch_prompt #

switch_prompt # show ipatmstat 50

Stats for IP/ATM server 50
========================================================================
ARP Requests Recvd  :          0
ARP Replies Sent    :          0
InARP Requests Sent :          0
InARP Replies Recvd :          0
InARP Unreachables  :          0
InARP NAKs          :          0
switch_prompt #
```

LANEClient

Use LANEClient (local area network emulation client) to allow inband management of LANE clients on the switch.

SERVER	SVC
X	X

Operators

```
add, modify, (show client)
```

Parameters

Input Parameter	Description	Value/Field Size	Default
[ClientNumber]	Number of the client.	0-127	ALL
[LanName]	Name of the ELAN for this client to join.	Up to 32 characters	ELAN000
[ServerType]	Type of LANE server.	LECS, LES	LECS
[ServerAddress]	ATM Address of the LANE server or LECS. If at a local server, enter the switch ATM address.	13-20 byte hex-based/ Up to 59 characters	Registered LECS address
[IPAddress]	IP address of the client.	dot decimal/ 7-15 characters	NONE
[NetMask]	IP netmask of the client. Defaults to the appropriate netmask, based on the class of the IP address. Calculated from the first two high bits of the IP address, so it is either 255.0.0.0, 255.255.0.0, or 255.255.255.0. Must be specified only if IP subnets are being used.	dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0, or 255.255.255.0.
[MTU]	Maximum transfer unit for this client.	1516, 9234, NONE	1516

Description

Operator	Parameters/Permissions	Description
add laneclient	[ClientNumber] **<clientnumber>** [LanName] **<lanname>** [ServerType] **<servertype>** [ServerAddress] **<serveraddress>** [IPAddress] **<ipaddress>** [NetMask] **<netmask>** [MTU] **<maxtransferunit>** Administrator	Creates a new LANE (LAN emulation) client to the switch. Add a LANE client if you want to access the switch command console using LANE.
modify laneclient	[ClientNumber] **<clientnumber>** [LanName] **<lanname>** [ServerType] **<servertype>** [ServerAddress] **<serveraddress>** [IPAddress] **<ipaddress>** [NetMask] **<netmask>** [MTU] **<maxtransferunit>** Administrator	Changes an existing LANE client on the switch.
show client	[ClientNumber] **<clientnumber>** All	Displays all or specified clients on the switch. Enter show client to establish the different client types on the switch. See "Client" for further details.

Examples

```
switch_prompt # add laneclient
ClientNumber(0) :100
LanName(ELAN100):
ServerType(LECS):
ServerAddress() :39:00:00:00:00:00:11:11:11:11:11:11:11:00:11:22:22:44:55:01
IPAddress()     :101.1.1.100
NetMask(255.0.0.0):
MTU(1516)      :
switch_prompt #

switch_prompt # modify laneclient
ClientNumber(0) : 100
LanName(ELAN100): New100
ServerType(LECS):
ServerAddress() :39:00:00:00:00:00:11:11:11:11:11:11:11:00:11:22:22:44:55:01
IPAddress(101.1.1.100):
NetMask(255.0.0.0):
MTU(1516)      :
switch_prompt #
```

LECS

Use LECS (local area network emulation configuration server) to manage the operational status of the LECS on the network.

```
SERVER      SVC
   X         X
```

Operators

start, stop

Parameters

This command has no parameters. Just type **start lecs** or **stop lecs** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
start lecs	Administrator	Starts an LECS not previously started. If you have stopped an LECS, you must restart it before adding ELANs to the LECS or clients to the ELAN. You normally keep only one LECS in your network, across all VLANs, ELANs, and switches. Creating more than one LECS functionally splits the network unless the databases are fully replicated.
stop lecs	Administrator	Shuts down the LECS on the local switch.

Note The status of the LECS setting is persistent, so if you reboot the switch while you have the LECS stopped, the LECS will continue to be stopped, even after rebooting. You have to manually start the LECS again.

Examples

```
switch_prompt # start lecs

NOTICE - 'LECS' ***** LECS started *****
switch_prompt #

switch_prompt # stop lecs

NOTICE - 'LECS' ***** LECS exiting *****
switch_prompt #
```

LECSAddress

Use LECSAddress (LAN emulation configuration server ATM address) to configure addresses on the switch. This address identifies the LECS on the network that will be contacted for information when LAN emulation is used. While there can be many switches in a network, there should be only one active LECS, with the LECS address on each switch being configured to point to that LECS.

SERVER	SVC
X	X

Operators

add, delete, modify, show

Parameter

Parameter	Description	Value/Field Size	Default
[LECSAddress]	ATM address given to the LECS.	13-20 byte hex-based/ Up to 59 characters	Registered LECS address

Descriptions

Operator	Parameters/Permissions	Description
add lecsaddress	[LECSAddress] **<lecsaddr>** Administrator	Defines the LECS ATM address to be used by LANE clients. If a local LECS is running, this address is automatically set to this LECS. If another LECS is to be used, stop the local LECS and add the new LECS ATM address. Remember that you can have only one LECS in an ATM network.
delete lecsaddress	Administrator	Removes the LECS ATM address from the switch.
modify lecsaddress	[LECSAddress] **<lecsaddr>** Administrator	Modifies the ATM address of the LECS. Enter modify lecsaddress if the LECS is not on the local switch and you want to redirect the LECS requests to another switch. To make your modification permanent between reboots, be sure to stop the LECS before entering this command.

Operator	Parameters/Permissions	Description
show lecsaddress	All	Displays the currently configured LECS ATM address on the network.

Examples

```
switch_prompt # add lecsaddress
LECSAddress :39:00:00:00:00:00:11:22:33:44:55:66:77:11:22:33:44:55:66:01
switch_prompt #

switch_prompt # delete lecsaddress
Confirm? (y/n): y
switch_prompt #

switch_prompt # modify lecsaddress
LECSAddress (39:00:00:00:00:00:11:22:33:44:55:66:77:11:22:33:44:55:66:01):
39:00:00:00:00:00:00:11:22:33:44:55:66:00:20:D4:14:15:00:01
switch_prompt #

switch_prompt # show lecsaddress

LECS Address
==========================================================================
39:00:00:00:00:00:00:11:22:33:44:55:66:00:20:D4:14:15:00:01
switch_prompt #
```

LECSELAN

Use LECSELAN (LAN emulation configuration server emulated LAN) to manage the LECS entries on the ELAN.

SERVER	SVC
X	

Operators

add, delete, modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which LECS belongs.	0 - 127	0
[ELANName]	Name of ELAN to which LECS belongs.	Up to 32 characters	ELAN000
[LESAddress]	LES address of the ELAN to which LECS belongs.	13-20 byte hex-based/ 59 characters	NONE
[ELANType]	The data-link type used by the ELAN.	802.3 (Ethernet) 802.5 (TokenRing)	802.3
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516 or 9234 (Ethernet) 4544 (Token Ring)	1516 or 4544
[TLVSet]	The TLV (type, length, and value) set number (set of TLV parameters) corresponding to the members joining this ELAN.	1-32767	n/a

Descriptions

Operator	Parameters/Permissions	Description
add lecselan	[ELANNumber] **<elannumber>** [ELANName] **<elanname>** [LESAddress] **<lesatmaddress>** [ELANType] **<elantype>** [MTU] **<maxframesize>** [TLVSet] **<tlvsetid>** Administrator	Creates a specified ELAN on the LECS. Enter **add lecselan** to add an ELAN the long way—with the **add buselan, add leselan,** and **add lecselan** commands. Enter **show elan** before this command to display the LES address to be added to the LECS.
delete lecselan	[ELANNumber] **<elannumber>** Administrator	Removes an existing ELAN from the LECS.
modify lecselan	[ELANNumber] **<elannumber>** [ELANName] **<elanname>** [LESAddress] **<lesatmaddress>** [ELANType] **<elantype>** [MTU] **<maxframesize>** [TLVSet] **<tlvsetid>** Administrator	Modifies the parameters of a specified ELAN on the LECS by deleting and then recreating the ELAN. Enter **modify lecselan** if you are moving an ELAN and have a new LES and BUS ATM address to assign to the ELAN, or if you want to change the ELAN type. The [ElanNumber] parameter is the key field for finding the correct ELAN.
show lecselan	[ELANNumber] **<elannumber>** All	Displays a specified ELAN configuration on the LECS.

Examples

```
switch_prompt # add lecselan
ELANNumber(0)                                 : 4
ELANName(ELAN004)                             :
LESAddress(39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:04:02):
ELANType(802.3)                               :
MTU(1516)                                     :
TLVSet()                                      :
switch_prompt #

switch_prompt # delete lecselan
ELANNumber(0)                                 : 4

ELAN 4 Configured on LECS
==========================================================================
ELAN Number      : 4
ELAN Name        : ELAN004
LES Address      : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:04:02
ELAN Type        : 802.3
MTU              : 1516
Confirm(y/n)?:y
switch_prompt #
```

```
switch_prompt # modify lecselan
ELANNumber(0)                                    :
ELANName(elan1)                                  :
LESAddress(39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:02):
39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:04
ELANType(802.3)                                  :
MTU(1516)                                        :
TLVSet()                                         :
switch_prompt #

switch_prompt # show lecselan
ELANNumber(ALL)                                  :

All the ELANs Configured on the LECS
============================================================================
ELAN Number     : 0
ELAN Name       : elan1
LES Address     : 39:00:00:00:00:00:00:00:00:00:14:15:00:00:20:D4:14:15:00:04
ELAN Type       : 802.3
MTU             : 1516
switch_prompt #
```

LECSELANLEC

Use LECSELANLEC (LAN emulation configuration server emulated LAN LANE client) to manage the way LANE clients are assigned to a specified ELAN on the LECS.

SERVER	SVC
X	

Operators

add, delete, modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[LECAddress]	ATM address of the LANE client.	13-20 byte hex-based/ Up to 59 characters	n/a
[MACAddress/ RouteDesc]	MAC (media access control) address/Route Descriptor of the LANE client.	SegId: 0-4095 Bridge Num: 0-15	n/a
[ELANNumber]	Number of the ELAN to which the LECS belongs.	0-127	0

Descriptions

Operator	Parameters/Permissions	Description
add lecselanlec	[LECAddress] **\<clientatmaddress>** [MACAddress/RouteDesc] **\<clientmacaddress/routedescriptor>** [ELANNumber] \<elannumber> Administrator	Adds a LANE client to an existing ELAN on the LECS. The client must have a unique ATM and MAC address for an entry to be accepted. You do not have to specify both addresses, but whatever you specify has to be unique. These addresses must be added before entering this command because you cannot modify these address parameters once they are set. If modification is needed, you must first enter **delete lecselanlec**, and then create another LECSELANLEC by entering **add lecselanlec.**
delete lecselanlec	[LECAddress/MACAddress/RouteDesc] **\<clientatm/macaddress/routedescriptor>** Administrator	Removes a LANE client entry from an existing ELAN on the LECS. The length of the address (ATM, MAC, Route Descriptor) that you specify determines which LANE client entry is deleted.
modify lecselanlec	[LECAddress/MACAddress/RouteDesc] **\<clientatm/macaddress/routedescriptor>** [ELANNumber] **\<elannumber>** Administrator	Changes the ELAN number of the LECSELANLEC. You cannot modify the LECS address, MAC address or Route Descriptor. The [LECAddress/MACAddress/RouteDesc] input parameter functions only as a pointer to the relevant ELAN, so you can change the number of the ELAN. That is the only thing you can modify with this command. The only way to modify the LECSELANLEC is to enter **delete lecselanlec** and then enter **add lecselanlec,** adding the new addresses within that command.
show lecselanlec	[ELANNumber] **\<elannumber>** All	Displays the LANE clients configured on an existing ELAN on the LECS. You can see the ATM and MAC addresses of LANE clients by entering this command.

Examples

```
switch_prompt # add lecselanlec
LECAddress: 39:00:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
MACAddress/RouteDesc: 01:02:03:04:05:06
ELANNumber(0):1
switch_prompt #

switch_prompt # delete lecselanlec
LECAddress/MACddress/RouteDesc(): 39:00:00:00:00:00:00:00:20:D4:14:05:80:11:22:33:44:55:66:00
ELANNum        :10
Confirm(y/n): y
switch_prompt #

switch_prompt # show lecselanlec
ELANNumber(ALL): 1
Elan#  MacAddr/RouteDesc LECAddress
=============================================================================
1      01:02:03:04:05:06
       39:00:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
switch_prompt #

switch_prompt # modify lecselanlec
LECAddress/MACddress/RouteDesc: 01:02:03:04:05:06
ELANNumber(0): 2
switch_prompt #

switch_prompt # show lecselanlec
ELANNumber(ALL): 2

Elan#  MacAddr/RouteDesc LECAddress
=============================================================================
2      01:02:03:04:05:06
       39:00:00:00:00:00:00:00:00:00:14:7B:00:00:20:D4:14:7B:00:01
switch_prompt #
```

LECSStat

Use LECSStat (LAN emulation configuration server statistics) to see statistical information about incoming configuration requests to the LECS.

SERVER	SVC
X	

Operator

show

Parameters

Output Parameter	Description
[Successful Configuration Requests]	Number of successful configuration requests.
[Bad Configuration Requests]	Number of bad configuration requests.
[Invalid Request Parameters]	Number of configuration requests with invalid request parameters.
[Insufficient Resources]	Number of configuration requests LECS could not process due to insufficient resources.
[Access Denied]	Number of configuration requests for which LECS denied access to assign an ELAN.
[Invalid Requester Ids]	Number of configuration requests with invalid requester IDs.
[Invalid Destination]	Number of configuration requests with an invalid destination address.
[Invalid Address]	Number of configuration requests with an invalid MAC/ATM address.
[LEC Configs]	Number of LANE client configuration requests for which LECS could not find configuration.
[Configuration Errors]	Number of configuration request errors.
[Insufficient Information]	Number of configuration requests with insufficient information.

Description

Operator	Parameters/Permissions	Description
show lecstat	All	Displays statistical information about configuration requests to the LECS.

Example

```
switch_prompt # show lecsstat

Statistics on LECS
============================================================================
Successful Configuration Requests : 3
Bad Configuration Requests        : 0
Invalid Request Parameters        : 1
Insufficient Resources            : 0
Access Denied                     : 0
Invalid Requester Ids             : 0
Invalid Destination               : 0
Invalid Address                   : 0
LEC Configs                       : 0
Configuration Errors              : 0
Insufficient Information          : 0
switch_prompt #
```

LECSTLVParam

Use LECSTLVParam (LAN emulation configuration server type, length, and value parameters) to remove a specific TLV parameter from the TLV set on the LECS.

SERVER	SVC
X	

Operator

delete

Parameters

Input Parameter	Description	Value/Field Size	Default
[TLVSetNumber]	Number that identifies TLV parameters set in the LECS.	1-32767	1
[TLVIndex]	Number that identifies the specific TLV in the TLV set.	1-15	1

Description

Operator	Parameters/Permissions	Description
delete lecstlvparam	[TLVSetNumber] **<tlvsetnumber>** [TLVIndex] **<tlvindex>** Administrator	Removes a TLV parameter from a TLV set on the LECS. Use show lecstlvset before entering this command, so you know the index number of the TLV parameter you want to delete.

Examples

The **show lecstlvset** example is used here to show how **delete lecstlvparam** works. Observe that [2] in **show lecstlvset** is [Max Unknown Frame Time]. That is why [Max Unknown Frame Time] appears in **delete lecstlvparam** when "2" is entered at the [TLVIndex] prompt.

```
switch_prompt # show lecstlvset

TlvsetNumber(ALL)                       :2
            TlvIndex   TlvDescription              Value
========================================================================
TLVSet 2 :
            1          Control Timeout             200
            2          Max Unknown Frame Time      4
            6          Arp Aging Time              250
            7          Forward Delay               30
switch_prompt #

switch_prompt # delete lecstlvparam
TlvsetNumber()                          : 2
TlvIndex()                              : 2

            TLVIndex   TLVDescription              Value
========================================================================
            2          Max Unknown Frame Count     4
Confirm(y/n)?:y
switch_prompt #
```

LECSTLVSet

Use LECSTLVSet (LAN emulation configuration server type, length, and value set) to manipulate TLV parameters on the LECS. A TLV set is a collection of TLV parameters associated with an ELAN (emulated LAN).

SERVER	SVC
X	

Operators

add, delete, modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[TLVSetNumber]	Number that identifies the set of TLV parameters on the LECS.	1-32767	1
[ControlTimeout]	Time-out period used for timing out most request/response control-frame interactions.	seconds/10-300	n/a
[MaxUnknownFrameCount]	Total counter frames a LANE client will send to the LECS for a given unicast LAN destination.	1-10	n/a
[MaxUnknownFrameTime]	Total time frames a LANE client will send the LECS for a given unicast LAN destination.	seconds/1-160	n/a
[VCCTimeout]	Time-out period for releasing a data direct VCC on an LEC if it has not been used to transmit or receive any data.	seconds/0-65535	n/a
[MaxRetryCount]	Maximum number of times a LEC should try for a given LAN destination.	0-2	n/a
[ArpAgingTime]	Maximum time that a LEC maintains an entry in its cache in the absence of updates.	seconds/10-300	n/a
[ForwardDelay]	Maximum time a LEC will maintain an entry for a non-local MAC address in its cache in the absence of updates.	seconds/4--30	n/a

Parameter	Description	Value/Field Size	Default
[ArpResponseTime]	Maximum time that the LEC expects a request/response cycle to take.	seconds/1-30	n/a
[FlushTimeout]	Time limit on flush response after flush request has been sent, before taking recovery action.	seconds/1-4	n/a
[PathSwitchingDelay]	Time since sending a frame to the LECS after which the LANE client may assume that the frame has been either discarded or delivered to the recipient.	seconds/1-8	n/a
[LocalSegId]	Segment ID of the ELAN.	seconds/0-4095	n/a
[MulticastSendVCCType]	Signaling parameter used by the LEC when establishing multicast send VCC.	0-2	n/a
[MulticastSendVCCAvgRate]	Signaling parameter used by the LEC when establishing multicast send VCC.	cells p/second/ 0-370370	n/a
[MulticastSendVCCPeakRate]	Signaling parameter used by the LEC when establishing multicast send VCC.	cells p/second/ 0-370370	n/a
[ConnectionCompeteTime]	Time period in which data or a message is expected from a calling party when establishing a connection.	seconds/ 1-10	n/a

Descriptions

Operator	Parameters/Permissions	Description
add lecstlvset	[TLVSetNumber] **<tlvsetnumber>** [ControlTimeout] **<controltimeout>** [MaxUnknownFrameCount] **<maxunknframecount>** [MaxUnknownFrameTime] **<maxunknframetime>** [VCCTimeout] **<vcctimeout>** [MaxRetryCount] **<maxretrycount>** [ArpAgingTime] **<arpagingtime>** [ForwardDelay] **<forwarddelay>** [ArpResponseTime] **<arpresponsetime>** [FlushTimeout] **<flushtimeout>** [PathSwitchingDelay] **<pathswitchingdelay>** [LocalSegId] **<localsegid>** [MulticastSendVCCType] **<m/castsendvcctype>** [MulticastSendVCCAvgRate] **<m/sendvccavgrate>** [MulticastSendVCCPeakRate] **<m/castsendvccpeakrate>** [ConnectionCompeteTime] **<connectioncompetetime>** Administrator	Creates a TLV set on the LECS.
delete lecstlvset	[TLVSetNumber] **<tlvsetnumber>** Administrator	Removes a TLV set from the LECS.
modify lecstlvset	[TLVSetNumber] **<tlvsetnumber>** [ControlTimeout] **<controltimeout>** [MaxUnknownFrameCount]**<maxunknframecount>** [MaxUnknownFrameTime]**<maxunknframetime>** [VCCTimeout] **<vcctimeout>** [MaxRetryCount] **<maxretrycount>** [ArpAgingTime] **<arpagingtime>** [ForwardDelay] **<forwarddelay>** [ArpResponseTime] **<arpresponsetime>** [FlushTimeout] **<flushtimeout>** [PathSwitchingDelay] **<pathswitchingdelay>** [LocalSegId] **<localsegid>** [MulticastSendVCCType] **<m/castsendvcctype>** [MulticastSendVCCAvgRate] **<m/castsendvccavgrate>** [MulticastSendVCCPeakRate] **<m/castsendvccpeakrate>** [ConnectionCompeteTime] **<connectioncompetetime>** Administrator	Changes an existing TLV set on the LECS.
show lecstlvset	[TLVSetNumber] **<tlvsetnumber>** All	Displays either all or a specified TLV set on the LECS.

Examples

```
switch_prompt # add lecstlvset
TLVSetNumber[1-32767](1)              : 3
ControlTimeout[10-300]()              : 200
MaxUnknownFrameCount[1-10]()          : 5
MaxUnknownFrameTime[1-60]()           : 50
VCCTimeout[0-65535]()                 : 50000
MaxRetryCount[0-2]()                  : 1
ArpAgingTime[10-300]()                : 250
ForwardDelay[4-30]()                  : 27
ArpResponseTime[1-30]()               : 27
FlushTimeout[1-4]()                   : 2
PathSwitchingDelay[1-8]()             : 2
LocalSegId[0-4095]()                  : 2000
MulticastSendVCCType[0-2]()           : 1
MulticastSendVCCAvgRate[0-370370]()   :
MulticastSendVCCPeakRate[0-370370]()  :
ConnectionCompeteTime[1-10]()         : 8
switch_prompt #

switch_prompt # delete lecstlvset
TlvsetNumber(1): 2


          TlvIndex  TlvDescription              Value
===============================================================================
TLVSet 2 :
          1         Control Timeout             200
          3         Max Unknown Frame Time      2
          6         Arp Aging Time              250
          7         Forward Delay               30
Confirm(y/n)?:y
switch_prompt #

switch_prompt # modify lecstlvset
TLVSetNumber[1-32767](1)              : 3
ControlTimeout[10-300](200)           : 250
MaxUnknownFrameCount[1-10](5)         : 4
MaxUnknownFrameTime[1-60](50)         : 40
VCCTimeout[0-65535](50000)            : 40000
MaxRetryCount[0-2](1)                 : 2
ArpAgingTime[10-300](250)             : 200
ForwardDelay[4-30](27)                : 20
ArpResponseTime[1-30](27)             : 20
FlushTimeout[1-4](2)                  : 3
PathSwitchingDelay[1-8](2)            : 5
LocalSegId[0-4095](2000)              : 2500
MulticastSendVCCType[0-2](1)          : 2
MulticastSendVCCAvgRate[0-370370]()   :
MulticastSendVCCPeakRate[0-370370]()  :
ConnectionCompeteTime[1-10](8)        : 6
switch_prompt #


switch_prompt # show lecstlvset


TlvsetNumber(ALL) : 3


TlvIndex  TlvDescription            Value
===============================================================================
TLVSet 3 :
          1         Control Timeout             250
          2         Max Unknown Frame Count     4
```

```
        3          Max Unknown Frame Time      40
        4          VCC Timeout                 40000
        5          Max Retry Count             2
        6          Arp Aging Time              200
        7          Forward Delay               20
        8          ARP Response Time           20
        9          Flush Timeout               3
        10         Path Switching Delay        5
        11         Local Seg Id                2500
        12         Multicast Send VCC Type     2
        15         Connection Complete Time    6
switch_prompt #
```

LECSVCC

Use LECSVCC (LAN emulation configuration server virtual channel connection) to view the VCCs that are waiting to join the LECS. These VCCs are set up by the LANE client (or other entity) as part of the LECS connection. As soon as they join the LECS, the VCCs will no longer be displayed here. You can only view—and not change—the VCCs because they are unmodifiable.

SERVER	SVC
X	

Operator

show

Parameters

Output Parameter	Description
[VC Type]	Type of virtual connection.
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of Control Direct VCC (virtual channel connection) or Multicast Send VCC.

Description

Operator	Parameters/Permissions	Descriptions
show lecsvcc	[VC Type] **\<vctype\>** [VPI/VCI] **\<vpi/vci\>** All	Displays the active VCCs (SVCs and PVCs) on the LECS.

Example

```
switch_prompt # show lecsvcc

VC Type              VPI/VCI
==========================================
PVC                  0/31
PVC                  0/33
SVC                  0/112
switch_prompt #
```

LES

Use LES (LAN emulation server) to control the status of the LES and BUS (broadcast and unknown server) servers which are co-located. You can control both servers using LES.

SERVER	**SVC**
X	

Operators

start, stop

Parameters

This command has no parameters. Just type **start les** or **stop les** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
start les	Administrator	Starts the LES and BUS on the switch.
stop les	Administrator	Stops the LES and BUS on the switch.

Examples

```
switch_prompt # start les
```

If there are either local or external LANE clients with retry capability, you will see the following messages for each client as connection is re-established:

```
NOTICE - 'ZLESSRV' LES sendjoinresp:
LES Join :  39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:00
NOTICE - 'ZLESSRV'
Bus Connect 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:00:00
switch_prompt #

switch_prompt # stop les
         STOPPING  LES/BUS
Confirm(y/n)?:y
NOTICE - 'ZLESSRV' ***** LES shutdown *****
switch_prompt # start les
NOTICE - 'ZLESSRV' ***** LES started *****
switch_prompt # NOTICE - 'ZLESSRV' LES sendjoinresp:
```

LESARP

Use LESARP (LAN emulation server address resolution protocol) to see details of the clients registered with the LES. LESARP also gives the MAC (media access control) address of the client.

SERVER   **SVC**

    X

Operator

show

Parameter

Output Parameter	Description
[ELANNumber]	Number of the ELAN (emulated LAN) served by the LES.

Description

Operator	Parameters/Permissions	Description
show lesarp	[ElanNumber] <elannumber> All	Displays the LESARP entry for the specified ELAN.

Example

```
switch_prompt # show lesarp
ELANNumber(0)    : 1

 ARP Table entries for ELAN  ELAN001
=========================================================================
LECId          : 1
MACAddr/RouteDesc: 00:20:D4:14:22:80
ATM Address    : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:00
switch_prompt #
```

LESClient

Use LESClient (LAN emulation server client) to determine mapping between LESELANs and the LANE (LAN emulation) clients that have joined the specified ELAN (emulated LAN). Clients are uniquely identified by their LECId.

SERVER	SVC
X	

Operators

delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN served by the LES.	0-127	0
[LECId]	LEC identification number of the client.	1-65279	0

Output Parameter	Description
[VPI/VCI]	VPI/VCI (virtual path/channel identifier) values of control direct VCC (virtual channel connection) or multicast send VCC.
[ATM address]	ATM address of the client.
[Flags]	Indicates whether the client is a PROXY or a NON-PROXY client.

Descriptions

Operator	Parameters/Permissions	Description
delete lesclient	[Elan Number] <**elannumber**> [LECId] <**lecidvalue**> Administrator	Removes a client from the specified ELAN on the LES.
show lesclient	**[Elan Number] <elannumber>** All	Displays information about all clients that have joined the specified ELAN on the LES.

Examples

```
switch_prompt # delete lesclient
ELANNumber (0):
LECId (0) : 12
Confirm? (y/n) : y
switch_prompt #

switch_prompt # show lesclient
ELANNumber (0):

 Client table entries for ELAN  ELAN000
=========================================================================

 LECId          : 1
 VPI/VCI        : 0/215
 ATM Address    : 39:00:00:00:00:00:00:00:20:D4:14:2F:00:00:20:D4:14:2F:00:00
 Flags          : NONPROXY
switch_prompt #
```

LESELAN

Use LESELAN (LAN emulation server emulated LAN) to manage the properties of the specified ELAN maintained by the LES. If the corresponding BUSELAN exists, it should have the same characteristics as the LESELALN.

SERVER	SVC
X	

Operators

add, delete, modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN served by the LES.	0-127	0
[ELANName]	Name of the ELAN to which the LES belongs.	Up to 32 characters	ELAN000
[ConnectMethod]	Type of connection used.	PVC, SVC	SVC
[ELANType]	The data-link type used by the ELAN.	802.3 (Ethernet) 802.5 (TokenRing)	802.3
[Multipoint]	Indicates whatever control distribute VCC is PMP (point-to-multipoint) or PTP (point-to-point).	Yes: VCC is PMP No: VCC is PTP	YES
[MTU]	Maximum transfer unit for the clients joining this ELAN.	1516 or 9234 (Ethernet), 4544 (Token Ring)	1516
[Distribute]	Establishes control distribute VCC to all clients if distribute is "ALL". If distribute is "PROXY", LES establishes control distribute VCC only to PROXY clients.	ALL, PROXY	PROXY
[BUSATMAddress]	ATM address of the BUS (specify when the LES and BUS are not co-located).	13-20 byte hex-based/ Up to 59 characters	NONE

Output Parameter	Description
[ATM Address]	ATM address of the LES on the ELAN.
[Distribute VPI/VCI]	VPI/VCI values of the control direct VCC or multicast send VCC.
[Distribute Method]	Indicates whether the control distribute VCC is established for ALL clients or only PROXY clients.
[LAN Type]	Same as [ELANType] Input Parameter.

Descriptions

Operator	Parameters/Permissions	Description
add leselan	[ELANNumber] **\<elannumber\>** [ELANName] **\<elanname\>** [ConnectMethod] **\<connectmethod\>** [ELANType] **\<elantype\>** [Multipoint] **\<distributevcctype\>** [MTU] **\<maxframesize\>** [Distribute] **\<controldistributevccoption\>** [BUSATMAddress] **\<busatmaddress\>** Administrator	Creates a specified ELAN on the LES. Each ELAN must have both a LES and a BUS assigned to it.
delete leselan	[ELANNumber] **\<elannumber\>** Administrator	Removes a specified ELAN from the LES and drops all the clients connected to it.

Operator	Parameters/Permissions	Description
modify leselan	[ELANNumber] **<elannumber>** [ELANName] **<elanname>** [ConnectMethod] **<connectmethod>** [ELANType] **<elantype>** [Multipoint] **<distributevcctype>** [MTU] **<maxframesize>** [Distribute] **<controldistributevccoption>** [BUSATMAddress] **<busatmaddress>** Administrator	Modifies parameters on the specified ELAN of the LES by deleting and then recreating the ELAN.
show leselan	[ELANNumber] **<elannumber>** All	Displays which ELANs are currently on the LES.

Examples

The following example creates ELAN 102 with default parameters for LES:

```
switch_prompt # add leselan
ELANNumber(0)                              : 102
ELANName(ELAN102)                          :
ConnectMethod(SVC)                         :
ELANType(802.3)                            :
Multipoint(YES)                            :
MTU(1516)                                  :
Distribute(PROXY)                          :
BUSATMAddress(39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02):
switch_prompt #

switch_prompt # delete leselan
ELANNumber(0)  : 11
ELAN Number    : 11
ELAN Name      : ELAN011
ATM Address    : 39:00:00:00:00:00:00:11:22:33:44:55:66:00:20:D4:14:15:0B:02
Confirm(y/n)?  : y
switch_prompt #
```

The following example resets an ELAN with default parameters:

```
switch_prompt # modify leselan
ELANNumber(0)       : 102
ELANName(ELAN102)   :
ConnectMethod(svc)  :
ELANType(802.3)     :
Multipoint(yes)     :
MTU(1516)           : 9234
Distribute(proxy)   :
BUSATMAddress(39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02):
switch_prompt #

switch_prompt # show leselan
ELANNumber(ALL)  : 102
ELAN             : ELAN102
ELAN Number      : 102
ELAN Name        : ELAN102
ATM Address      : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
Max Frame Size   : 9234
Connection Method: SVC
Distribute VPI/VCI: 0/0
Distribute Method: PROXY
LAN Type         : 802.3
Multipoint       : YES
BUS Address      : 39:00:00:00:00:00:00:00:20:D4:14:15:00:00:20:D4:14:15:66:02
switch_prompt #
```

LESLECStat

Use LESLECStat (LAN emulation server LAN emulation client statistics) to view details of control traffic between the LES and its LANE (LAN emulation) clients. You can see information on all or specified clients that are on that specified ELAN (emulated LAN).

SERVER	SVC
X	

Operator

show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of the ELAN to which the LES belongs.	0-127	0
[LECId]	LEC identification number of the specified client.	1-65279	0

Output Parameter	Description
[ATMAddress]	ATM address of the LANE client.
[Receives]	Number of multicast, broadcast and unknown forward requests received by the BUS and the LES from this LEC.
[Forwards]	Number of ARP (address resolution protocol) requests forwarded by the BUS and the LES from this LEC.
[Sends]	Number of requests or responses sent to this LEC by LES.

Description

Operator	Parameters/Permissions	Description
show leslecstat	[ELANNumber] <**elannumber**> [LECId] <**lecid**> All	Displays statistical information about LANE clients on a specific ELAN. To verify the LECId, enter show client first to obtain the ELAN number.

Examples

```
switch_prompt # show leslecstat
ELANNumber(0)  :
LECId(0)       : 3

 Client 3 statistics for ELAN ELAN000

===========================================================================
  ATM Address : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:00
  Receives    : 2
  Forwards    : 0
  Sends       : 0
switch_prompt #

switch_prompt # show leslecstat 3
LECId(0)       :

 Client statistics for ELAN ELAN003
===========================================================================
LECId         : 1
ATM address   : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:83:00
Receives      : 75
Forwards      : 0
Sends         : 0
LECId         : 2
ATM address   : 39:00:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:15:D4:83:00
Receives      : 10405
Forwards      : 10365
Sends         : 0
switch_prompt #
```

LESStat

Use LESStat (LAN emulation server statistics) to manage the statistics that the LES maintains for each ELAN.

```
SERVER        SVC
   X
```

Operators

show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[ELANNumber]	Number of ELAN to which the LES belongs.	0-127	ALL

Output Parameter	Description
[Join OK]	Successful join responses sent out by the LES.
[Join version not supported errors]	Version not supported errors for join request.
[Reg. version not supported errors]	Version not supported errors for register request.
[Unreg. version not supported errors]	Version not supported errors for unregister request.
[Join invalid request param errors]	Version not supported errors for register request.
[Reg. invalid request param errors]	Invalid request parameters errors for register request.
[Unreg. invalid request param errors]	Invalid request parameters errors for unregister request.
[Join duplicate LAN destination errors]	Duplicate LAN destination join errors.
[Reg. duplicate LAN destination errors]	Duplicate LAN destination registration.
[Join duplicate ATM destination errors]	Duplicate ATM address errors for join request.

Output Parameter	Description
[Reg. duplicate ATM destination errors]	Duplicate ATM address errors for register request.
[Join insufficient resource errors]	Insufficient resources to grant errors for join request.
[Reg. insufficient resource errors]	Insufficient resources to grant errors for register request.
[Join access denied errors]	Access denied errors for join request.
[Reg. access denied errors]	Access denied errors for register request.
[Join invalid requestid errors]	Invalid LECID errors for join request.
[Reg. invalid requestid errors]	Invalid LECID errors for register request.
[Join invalid LAN destination errors]	Invalid LAN destination errors for join request.
[Reg. invalid LAN destination errors]	Invalid LAN destination errors for register request.
[Join invalid ATM address errors]	Invalid ATM address errors for join request.
[Reg. invalid ATM address errors]	Invalid ATM address errors for register request.

Descriptions

Operator	Parameters/Permissions	Description
show lesstat	[ELANNumber] <elannumber> All	Displays statistical information about the specified ELAN on the LES.
clear lesstat	[ELANNumber] <elannumber> Administrator	Clears statistical information about the specified ELAN on the LES.

Examples

```
switch_prompt # show lesstat
ELANNumber(ALL)                              :102

  ELAN : ELAN102 Statistics
 Join OK                                     : 0
 Join version not supported errors           : 0
 Reg. version not supported errors           : 0
 UnReg. version not supported errors         : 0
 Join invalid request param errors           : 0
 Reg. invalid request param errors           : 0
 UnReg. invalid request param errors         : 0
 Join duplicate LAN destination errors       : 0
 Reg. duplicate LAN destinations errors      : 0
 Join duplicate ATM address  errors          : 0
 Reg. duplicate ATM address errors           : 0
 Join insufficient resource errors           : 0
 Reg. insufficient resources errors          : 0
 Join access denied errors                   : 0
 Reg. access denied errors                   : 0
 Join invalid requestid errors               : 0
 Reg. invalid requestid errors               : 0
 Join invalid LAN destination errors         : 0
 Reg. invalid LAN destination  errors        : 0
 Join invalid ATM address errors             : 0
 Reg. invalid ATM address errors             : 0
switch_prompt #

switch_prompt # clear lesstat
ELANNumber(ALL)   :3
Clear LES ELAN 3 Statistics
Confirm(y/n)?: y
switch_prompt #
```

Log

Use Log to control log message recording onto the log message buffer.

SERVER	SVC
X	

Operators

start, stop

Parameters

This command has no parameters. Just type **start log** or **stop log** at the switch prompt.

Descriptions

Operator	Parameters/Permissions	Description
start log	Administrator	Enables messages to be logged into the log message buffer.After entering this command, messages begin logging to the buffer, which could lead to alarms being generated, depending on which flags were set with modify **logalarmmask** (see "LogAlarmMask").You can also print messages directly to the console instead of the log.
stop log	Administrator	Disables message logging into the buffer. After entering this command, no alarms are generated from log messages. Logging can be enabled again by entering **start log**.

Examples

```
switch_prompt # start log
Enabling logging into buffer at time:165:41:09:486
switch_prompt #

switch_prompt # stop log
Disabling logging into buffer at time:166:01:55:332
switch_prompt #
```

LogAlarmMask

Use LogAlarmMask to determine—by setting masking flags—which log messages generate alarms.

SERVER	SVC
X	X

Operators

modify, show

Parameters

For more options see [FilterFlags] input parameter under "LogTrace".

Parameter	Description	Value/Field Size	Default
[Emergency]	Emergency class flag set.	y/n	n
[Alert]	Alert class flag set.	y/n	n
[Critical]	Critical class flag set.	y/n	n
[Error]	Error class flag set.	y/n	n
[Warning]	Warning class flag set.	y/n	n
[Notice]	Notice class flag set.	y/n	n
[Info]	Information class flag set.	y/n	n
[Debug]	Debug class flag set.	y/n	n
[Trace]	Trace class flag set.	y/n	n
[ALARM]	Alarm class flag set.	y/n	n

Descriptions

Operator	Parameters/Permissions	Description
modify logalarmmask	Emergency] `<y/n>` [Alert] `<y/n>` [Critical] `<y/n>` [Error] `<y/n>` [Warning] `<y/n>` [Notice] `<y/n>` [Info] `<y/n>` [Debug] `<y/n>` [Trace] `<y/n>` [ALARM] `<y/n>` Administrator	Controls which log messages are accepted into the alarm message buffer. The log alarm mask enables you to specify which alarms you want in the alarm message buffer by typing `y` or `n` at the relevant parameter field.
show logalarmmask	All	Displays the current settings of the flags within the alarm message buffer. If no flags are on, all log messages are accepted into the alarm message buffer. If one flag is on, only those log messages that have the flag set are accepted into the alarm message buffer. You can "ell if a particular masking flag is active or not by whether "ON" or "OFF" is visible next to it.

Examples

```
switch_prompt # modify logalarmmask
Emergency(n):y
Alert(n)    :
Critical(n) :
Error(n)    :
Warning(n)  :y
Notice(n)   :
Info(n)     :
Debug(n)    :
Trace(n)    :
ALARM(n)    :
switch_prompt #

switch_prompt # show logalarmmask

SwitchNameFlags generating alarms for following log types
----------------------------------------------
Emergency Flag  : ON
Alert Flag      : OFF
Critical Flag   : OFF
Error Flag      : OFF
Warning Flag    : ON
Notice Flag     : OFF
Info Flag       : OFF
Debug Flag      : OFF
Trace Flag      : OFF
Alarm Flag      : OFF
switch_prompt #
```

LogBuffer

Use LogBuffer if you want to record your messages on the log message buffer.

SERVER	SVC
X	X

Operators

modify, show, clear

Parameters

Input Parameter	Description	Value/Field Size	Default
[LogBufferSize]	Size of the message log buffer in the switch memory. It is recommended that you use the default.	bytes	10240
[Index]	Index Number of the alarm.	1, 2, 3, 4.../ n/a	ALL

Output Parameter	Description
[Num]	Same as [Index] Input Parameter.
[Mod]	Category in which alarm was generated.
[SubMod]	Specific switch module that generated the alarm.
[T]	Time—since last switch reboot— that alarm was generated.
[Msg]	Description of the alarm.

Descriptions

Operator	Parameters/Permissions	Description
modify logbuffer	[Log Buffer Size] **<logbuffersize>** Administrator	Modifies the size of the log buffer. When full, the circular log buffer wraps around and begins writing over the oldest log messages. The log buffer size is an allocation of switch memory. Setting this value too high constrains available memory.
show logbuffer	[Index] **<indexnumber>** Administrator	Displays all of the alarms in the log message buffer or a particular alarm if you specify an index number.
clear logbuffer	Administrator	Clears all the messages contained in the log message buffer.

Examples

```
switch_prompt # modify logbuffer
LogBufferSize(10240): 7000
switch_prompt #

switch_prompt # show logbuffer

Index(ALL)                                     :
----------------------------------------------------
Num Mod SubMod T(h:m:s:ms)   Msg
----------------------------------------------------
  0 HW  LINK  000:00:36:387 14910: Port A1     (1) DOWN
  1 HW  LINK  000:00:36:413 14910: Port A2     (2) DOWN
  2 HW  LINK  000:00:36:439 14910: Port A3     (3) DOWN
  3 HW  LINK  000:00:36:465 14910: Port A4     (4) DOWN
  4 LES BUSS  000:00:36:566 26955:26955
switch_prompt #

switch_prompt # clear logbuffer
Confirm(y/n)?:y
switch_prompt #
```

LogBufferSize

Use LogBufferSize to determine the size of the log buffer.

SERVER	SVC
X	**X**

Operator

show

Parameter

Parameter	Description	Value/Field Size	Default
[LogBufferSize]	Size of the message log buffer in the switch memory. It is recommended that you use the default.	bytes	10240

Description

Operator	Parameters/Permissions	Description
show logbuffersize	Administrator	Displays the current memory size of the log message buffer. When the circular log buffer is full, it wraps around and begins writing over the oldest messages. Alarms also are generated from this log buffer.

Example

```
switch_prompt # show logbuffersize
Log Buffer Size: 7000
switch_prompt #
```

LogPrint

Use LogPrint to print log messages on the console.

SERVER	SVC
X	**X**

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Logprint]	Enables or disables printing of log messages to the console.	ON/OFF	OFF

Output Parameter	Description
[Printing Log Messages on Console]	Indicates status of LogPrint on the console.

Descriptions

Operator	Parameters/Permissions	Description
modify logprint	[LogPrint] <**logprint**> Administrator	Modifies the setting for printing log messages to the console. The current status is shown in parentheses. Messages will print to the console if you set the log print level on.
show logprint	Administrator	Displays the current setting for printing log messages to the console.

Examples

```
switch_prompt # modify logprint
LogPrint(OFF)       :on
switch_prompt #
switch_prompt # show logprint
Printing Log Messages on Console : ON
switch_prompt #
```

LogTrace

Use LogTrace to control filtering and configuration parameters for logging and tracing messages.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[LocalPortNum]	The port through which remote log trace clients can connect to the switch and receive messages.	5 characters	6005
[LogBufferSize]	Size of the log trace buffer in bytes.	5 characters	1000
[Output Type]	Output format of the switch.	ASCII	ASCII
[EndRecordNum]	Ending record for message range. Log trace prints messages within specified range. All messages are sent to the client. However, messages can be filtered by setting the log trace flags on the switch.	5 characters	infinity
[FilterModuleId]	Module ID flag. Only log messages corresponding to the specified module ID are printed on the console, otherwise messages from all modules are printed.	See Software Modules Table on page 2-111	OFF
[Filter SubModuleId]	Submodule ID flag. When this flag is on, log messages are filtered for the submodule ID.	See Software SubModules Table on page 2-111	OFF
[Filter MessageId]	Enables or disables the printing of messages with a specific message ID. This parameter is intended for use by field engineers only. When this flag is on, log messages are filtered for the submodule ID.	See Software SubModules Table on page 2-111	OFF

Parameter	Description	Value/Field Size	Default
[Filter Parm Val]	User-specified parameter value. Log trace filters messages so that only those with a parameter equal to the specified value are printed. Use in conjunction with [Filter Parm Pos] to identify in which position the parameter value should appear.	10 characters	-1
[Filter Parm Pos]	Indicates at which position the filter parameter should appear in the message (that is, first, second, third). Only messages matching this filter will be printed. Use in conjunction with [Filter Parm Val].	1-7	0
[Filter Search Str]	Filter search string. If this is not null, only messages with the specified search pattern are printed to the console.	Any word/ module/ submodule name within alarm string	null
[Filter Debug Lvl]	Indicates which debug level to use as a message filter. Only messages with the given debug level are printed. If the debug level is equal to or less than 0, all messages are printed.	-1 - 9/ n/a	-1
[Input File Flags]	Indicates whether the switch is in log mode or debug mode. Debug mode is for troubleshooting and testing, and should not be used unless under advice from a customer service engineer.	log, debug	log
[Print Debug Msg]	If the print debug message flag is enabled (ON), full debug messages print to the console. If this flag is disabled (OFF), then only the message numbers print to the screen.	ON/OFF	ON
[NLS mode]	Natural Language Syntax indicates which language to use for displaying messages.	Only English currently supported	OFF
[Output Destination]	Output from the log trace buffer can be modified to print either to console or to file. Only console output is supported.	n/a	console
[Print Parms Flags]	Indicates whether a message prints to console without specific parameter values displayed (OFF), or whether the message includes and prints each parameter value individually (ON). Disabling this parameter increases the speed at which you receive messages. Enabling it might be desired if you identify a message requiring more specific details.	ON/OFF	OFF

Parameter	Description	Value/Field Size	Default
[Quiet mode]	Suppresses the printing of messages to the console but continues to forward messages to clients.	ON/OFF	ON
[Start record]	Starting record for message range. Log trace prints messages within specified range. If both starting and ending record numbers are set to infinity, log trace captures all messages. All messages are always sent to the client. However, console messages can be filtered by setting the log trace flags on the switch.	5 characters	infinity
[Timestamp inactive]	Indicates how the time stamp will print on log messages. In absolute <ABS> mode, the system up time is used (this resets to 0 at each reboot). In relative <REL> mode, you can specify a start time by setting the timestamp to 0. In delta <DEL> mode, the time difference between successive log messages is printed.	ABS, REL, DEL	flag=0
[Filter Flags]	Limits printed messages to the designated message type. Filter flag values are bitmapped, however, enabling you to also print a combination of message types by specifying alternate values. For example, by entering 13, you can display messages that have error, critical or emergency flags (13= 8 + 4 + 1). See the following table:	See table below	n/a

Table 2-1 Filter Flags

MESSAGES PRINTED	VALUE
All messages printed	0
Emergency messages only	1
Alert messages only	2
Critical messages only	4
Error messages only	8
Warning messages only	16

Table 2-1 Filter Flags (Continued)

MESSAGES PRINTED	VALUE
Notice messages only	32
Information messages only	64
Debug messages only	128
Trace messages only	256
Alarm messages only	512

Descriptions

Operator	Parameters/Permissions	Description
modify logtrace	[Filter Parm Pos] **<filterparamposition>** [Filter Search Str] **<filtersrchstring>** [Filter Debug Lvl] **<filterdebuglevel>** [Input File Flags] **<inputfilterflags>** [Print Debug Msg] **<printdebugmessage>** [NLS mode] **<n/a>** [Output Destination] **<outputdestination>** [Print Parms flags] **<printparamflags>** [Quiet mode] **<quietmode>** [StartRecordNum] **<startrecordnumber>** [Timestamp] **<time>** Administrator	Modifies logging and tracing configuration parameters by logging, filtering and forwarding logging and tracing messages to the log trace buffer. See the Software Modules Table on page 2-110 and Software SubModules Table on page 2-111 for further details.

Operator	Parameters/Permissions	Description
`show logtrace`	All	Displays the parameters of the currently configured log trace. Logged messages can also generate alarms, depending on how the log alarm mask is configured.
		Setting the log trace opens a TCP port through which other log trace clients can connect and receive messages. Filtering the messages can be done either on the switch or from the external log trace clients. Filtering through external log trace clients can be done using module, submodule, message, parameter type, parameter values, or flags. See the Software Modules Table on page 2-110 and Software SubModules Table on page 2-111 for further details.

Examples

```
switch_prompt # modify logtrace
LocalPortNum(6005)                              :
LogBufferSize(1000)                             :1300
OutputType(ascii)                               :
EndRecordNum(-1)                                :
FilterModid(0)                                  :off
FilterSubModid(0)                               :off
FilterMsgid(0)                                   :
FilterParamVal(-1)                              :
FilterParamPos(0)                               :
FilterSearch()                                  :
FilterLevel(0)                                  :
FilterFlags(0)                                  :
InputMode(log)                                  :
DebugMsgMode(ON)                                :
NLSMode()                                       :
OutputFile()
PrintParameters()                               :on
QuietMode(ON)                                   :
StartRecordNum(-1)                              :
Timestamp(None)                                 :
switch_prompt #

switch_prompt # show logtrace

Logging and Tracing configuration data
----------------------------------
Local port number : 6005
Buffer size       : 1300
Output type       : ascii
Ending record     : infinity
Filter ModuleId   : OFF
Filter SubModuleId: OFF
Filter MessageId  : OFF
Filter Parm Val   : 0
Filter Parm Pos   : 0
Filter Search Str :
Filter Debug Lvl  : -1
Filter Flags      : 0
Input File Flags  : log
Print Debug Msg   : ON
NLS mode          : OFF
Output Destination: console
Print Parms flags : ON
Quiet mode        : ON
Start record      : infinity
Timestamp inactive: flag=0
switch_prompt #
```

Table 2-2 Software Modules for LogTrace

MODULE ID	DESCRIPTION
AALM	ATM Adaptation Layer Mux
BE	Bridged Ethernet

Table 2-2 Software Modules for LogTrace (Continued)

MODULE ID	DESCRIPTION
CONS	Console specific
HW	Hardware specific
ILMI	ILMI module
IPSR	IP over ATM Server
LEC	Lan Emulation Client
LECS	Lan Emulation Configuration Server
LES	Lan Emulation Server
S10D	S10 Driver specific
SIG	Signaling
SYS	System specific
VX	VxWorks OS specific

Table 2-3 Software Submodules for LogTrace

SUBMODULE ID	DESCRIPTION
MODULE ID - AALM	
AINT	Initialization
AMUX	Multiplexing
ASRC	ATM Adaptation Layer source
MODULE ID - BE	
BEAL	Bridged Ethernet client ATM Adaptation Layer

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - BE	
BEAR	Bridged Ethernet Address Resolution Protocol functions
BECF	Bridged Ethernet Configuration specific
MODULE ID - HW	
LINK	Link specific
SWIT	Switch fabric
SYST	Overall system specific
MODULE ID - ILMI	
ADDR	ATM address
AGN	Agent specific
AGNK	Agent kernel functions
AGPI	Agent API
AUTD	Auto detect
CBFN	Callback function
CNSI	Console functions
FSM	Finite state machines
IAAL	ILMI ATM Adaptation Layer
IFIO	File Input/Output
IINT	Initialization
IIPC	Interprocess communication
ILIB	Library functions

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - ILMI	
ILMN	Main functions
IMSC	Miscellaneous functions
ITMR	Timers
MSGH	Message handlers
PORT	Port functions
REQ	Request handlers
SLOS	Solaris specific Operating System
UME	UNI management entity
VXOS	VxWorks specific Operating System
WRAP	Wrapper functions
MODULE ID - IPSR	
IPS	IP over ATM Server
IPST	Timers in IP over ATM Server
MODULE ID - LEC	
AALC	ATM Adaptation Layer
AARP	ATM Address Resolution Protocol in IP over ATM Client
BE	Bridged Ethernet
BUSC	Broadcast Unknown Server Client
CFG	Configuration specific
CONN	Connection specific

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - LEC	
CTL	Control specific
DATA	Data specific
DEF	Default Message
ERR	Errors
ILMC	ILMI specific
INIT	Initialization
IPAT	IP over ATM Client
LECS	LECS specific
LOG	Log specific
MIBC	MIB Client specific
RD	Route Descriptor
SEND	Send specific
SIG	Signaling specific
SRVR	LES specific
UTL	Utilities related
MODULE ID - LECS	
CFGC	LEC Configuration functions
CNFC	Other Configuration functions
CNNC	Connection specific
CSAL	ATM Adaptation Layer specific

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - LECS	
CSIL	ILMI functions
CSIN	Initialization function
CSSG	Signaling functions
CSTM	Timer functions
CSUT	Utilities functions
CSVL	VLAN specific
CTLC	Control functions
DB	Database functions
GLOB	Global functions
MEMB	Member functions
MNC	Main functions
PROF	Profile functions
MODULE ID - LES	
AALS	ATM Adaptation Layer specific
ARPS	Address Resolution Protocol specific
BUSS	BUS specific submodule
HDLR	Handlers specific
ILMS	ILMI specific
LECT	LANE Client Traverse specific
LINS	Link specific

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - LES	
MIBS	MIB specific
PROT	Prototype specific
SIGS	Signaling specific
SMN	Main functions
SMSC	Miscellaneous
VLAN	VLAN specific functions
MODULE ID - S10D	
DIAG	Diagnostics
ISR	Interrupt Service Routine
SIF	Interface
SINT	Initialization
SOPN	Opening channels
SOS	Operating System specific
SRX	Receive functions
STX	Transmit functions
SUTL	Utilities
TUNE	Tunable parameters in S10 driver
MODULE ID - SIG	
CCM	Call Control Module
QSAL	QSAAL specific

Table 2-3 Software Submodules for LogTrace (Continued)

SUBMODULE ID	DESCRIPTION
MODULE ID - SIG	
QS31	QSAAL3.1 specific
Q293	Q.2931 signaling
MODULE ID - SYS	
FILE	Flash file system related
SAAL	ATM Adaptation Layer related
SMP	Packet Memory related
MODULE ID - VX	
SBUF	Buffers related
SMEM	Memory related
SSPC	Heap related
VXTM	Timer related
VXTR	Task Registration

MyNMAddr

Use MyNMAddr (my network management address) to manage the switch through the specified IP address.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[IPAddr]	IP address of the switch.	dot decimal/15 characters	RegisteredIP address

Descriptions

Operator	Parameters/Permissions	Description
modify mynmaddr	[IPAddress] **<ipaddress>** Administrator	Sets the IP address through which the switch allows itself to be managed by the SNMP manager. The switch comes with a default MyNMAddr that matches its Ethernet address. However, MyNMAddr can be changed to an IP address that corresponds to a LANE or IP/ATM (IP over ATM) client on the switch. This allows the switch to be managed through an ATM interface.
show mynmaddr	[IPAddress] **<ipaddress>** All	Displays the current IP address through which the switch allows itself to be managed.

Examples

```
switch_prompt # modify mynmaddr
IpAddr()          : 204.95.75.186
My Nm IP-Address : 204.95.75.186
switch_prompt #

switch_prompt # show mynmaddr
My Nm IP-Address : 204.95.75.186
switch_prompt #
```

NetPrefix

Use NetPrefix to manipulate network ATM address prefixes on a particular port. This 13-byte net prefix is based on a hierarchical addressing scheme. The default value starts with the first byte being set to 39 (DCC address format), followed by nine pairs of 00s. The net prefix value is typically supplied by the network side of the UNI (user network interface). The net prefix, combined with the ESI (End System Identifier) and the SEL (selector) fields supplied by the user side of UNI, forms the ATM address. See the Structure of ATM address and NetPrefix diagram page 2-121.

SERVER	SVC
X	**X**

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[NetPrefix]	Net prefix within the ATM address.	13 bytes	Current net prefix for that port

Descriptions

Operator	Parameters/Permissions	Description
modify netprefix	[PortNumber] **<portnumber>** [NetPrefix] **<netprefix>** Administrator	Changes a net prefix for a particular port. Only one net prefix can be assigned per port. When a net prefix for a port is modified, all routes under the old net prefix are flushed and all SVC connections, QSAAL, and ILMI links are released. You must reboot for this command to take effect.
show netprefix	[PortNumber] **<portnumber>** [NetPrefix] **<netprefix>** All	Displays net prefixes for a specified port or for all ports if you did not specify.

Examples

```
switch_prompt # modify netprefix
PortNumber(ALL) :a1
NetPrefix(39:00:00:00:00:00:00:00:00:00:20:D4:14:15:00):
39:00:00:00:00:00:00:00:77:88:99:10:11:12:01
switch_prompt #

switch_prompt # show netprefix
PortNumber :( ALL ):a1

    Port#               NetPrefix
========================================================================
     A1       39:00:00:00:00:00:00:00:77:88:99:10:11:12:01
switch_prompt #
```

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
39	00	00	00	00	00	00	11	22	33	44	55	66	11	22	33	44	55	66	01

switch MAC address   end system MAC address   selector byte

Netprefix
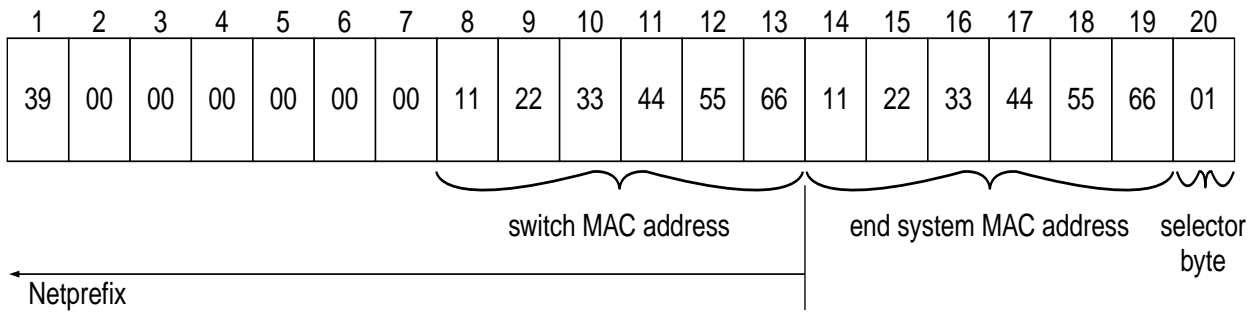
Passwd

Use Passwd (password) to change the password of the current or lower-privileged user.

SERVER	**SVC**
X	**X**

Operator

passwd

Parameters

Input Parameter	**Description**	**Value/Field Size**	**Default**
[Old Password]	Your current password.	5-8 characters	n/a
[New Password]	Your new password.	5-8 characters	n/a

Description

Operator	**Parameters/Permissions**	**Description**
passwd	[Old Password] **<oldpasswd>** [New Password] **<newpasswd>** [Reenter Password] **<newpasswd>** All	Changes the password of the current or lower-privileged user.

Example

```
switch_prompt # passwd
Old Password: admin
Changing Password for User Administrator
New Password: levelone
Reenter Password: levelone
Password Changed Successfully
switch_prompt #
```

Ping

Use Ping to test IP (internet protocol) connectivity of a client. However, the client must be on the same subnet or be reachable by routing from the subnet that is pinging

.

SERVER	SVC
X	**X**

Operator

start

Parameters

Input Parameter	Description	Value/Field Size	Default
[DestIP]	IP address for ping packets.	5-8 characters	RegisteredIP address
[Count]	Number of times you want to send ping packets.	100	1

Description

Operator	Parameters/Permissions	Description
start ping	[DestIP] **<destinationipaddress>** [Count] **<numberoftries>** All	Starts the pinging of the external destination you are trying to reach.

Example

```
switch_prompt # start ping
DestIP() : 204.95.77.254
Count(1) : 1
204.95.77.254 is alive
switch_prompt #
```

PortAutoDetect

Use PortAutoDetect to manage the automatic-detection features of the switch on an individual port basis.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[AutoDetectType]	Signaling type auto-detection capability of the port.	sigtype, vpivcibits, ALL	ALL
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[Value]	Status of auto-detection flag.	on/off	on

Output Parameter	Description
[AutoDetectSigType]	Current setting of the auto-detection flag for signaling type.
[AutoDetectVpiVciBits]	Current setting of the auto-detection flag for VPI and VCI bits.

Descriptions

Operator	Parameters/Permissions	Description
modify portautodetect	[AutoDetectType] **\<signalingtype\>** [PortNumber] **\<portnumber\>** [Value] **\<value\>** Administrator	Modifies the flag settings that control auto-detection of signaling type and VPI and VCI bits. This function can be enabled or disabled for each port, but signaling type and VPI and VCI bits are default enabled. You should disable auto-detection if the device at the other end does not support auto-detection (for example, if the other device is a PVC switch.)
show portautodetect	[AutoDetectType] **\<signalingtype\>** [PortNumber] **\<portnumber\>** All	Displays the current flag settings that control the auto-detection of signaling type and VPI and VCI bits.

Examples

```
switch_prompt # modify portautodetect
AutoDetectType(ALL)                          : sigtype
PortNumber(ALL)                              : a1
Value(on)                                    : off
switch_prompt #

switch_prompt # show portautodetect

AutoDetectType(ALL)                  :
PortNumber(ALL)                      :

PortNumber          AutoDetectSigType          AutoDetectVpiVciBits
==============================================================================
A1                      off                          on
A2                      on                           on
A3                      on                           on
A4                      on                           on
B1                      on                           on
B2                      on                           on
B3                      on                           on
switch_prompt #
```

PortConfig

Use PortConfig (port configuration) to manage the configuration of a port on the switch.

SERVER	SVC
X	X

Operators

`modify, show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1... B3, C1...C4, D1...D4	A1
[MaxVPIBits]	Maximum number of bits in the VPI (virtual path identifier) number.	0-12	0
[MaxVCIBits]	Maximum number of bits in the VCI (virtual channel identifier) number.	0-12	12
[InterfaceAddressType]	Interface address type.	PRIVATE, NSAP-E164, NATIVE-E164, OTHER	PRIVATE

Output Parameter	Description	Value/Field Size	Default
[Port ID]	Same as [Port Number] Input Parameter.	See above	See above
[Port Admin State]	Administrative state based on current port status.	ACTIVE	ACTIVE

Output Parameter	Description	Value/Field Size	Default
[Port QSAAL State]	Signaling AAL (ATM adaptation layer). Indicates if the SSCOP (service specific connection oriented protocol) link is up or down.	UP, DOWN	UP
[Port Operational State]	State of the link, based on port status (set by internal protocols).	UP, DOWN	DOWN
[Transmission Type]	Type of transmission.	STS-3c, STS-12c, STM-1, STM-4	
[Media Type]	Media type can be either copper or fiber. Fiber can be either single mode or multimode.	MMF, SMF, UTP-5	
[Bandwidth]	Bandwidth in Mbps for the port.	155 Mbps, 622 Mbps	
[Address Type]	ATM address format.	PRIVATE, NSAP-E164, NATIVE-E164, OTHER	PRIVATE
[Active VPI Bits]	Active VPI bits are programmed in hardware. A minimum/maximum algorithm is used to find the hardware programmed VPI/VCI set that corresponds most closely to VPI/VCI values requested for a specific port.	0-12	0
[Active VCI Bits]	Active VCI bits are programmed in hardware. A minimum/maximum algorithm is used to find the hardware programmed VPI/VCI set that corresponds most closely to the VPI/VCI values requested for a specific port.	0-12	12
[Configured VPI Bits]	Number of VPI bits configured by the user.	0-7	0
[Configured VCI Bits]	Number of VCI bits configured by the user.	5-12	12
[Current VPI Bits]	Current VPI bits are derived from the VPI/VCI set closest to the configured, as well as active, VPI/VCI sets. Used by the software when generating VPIs and VCIs. Often equal to active VPI bits.	0-12	0

Output Parameter	Description	Value/Field Size	Default
[Current VCI Bits]	Current VCI bits are derived from the VPI/VCI set closest to the configured, as well as active, VPI/VCI sets. Used by the software when generating VPIs and VCIs. Often equal to active VCI bits.	0-12	12
[Current In Use VCCs]	Number of current VCCs (virtual channel connections), end-to-end connections of either SVCs (switched virtual circuits) or PVCs (permanent virtual circuits) in use.	0-4096	16
[Current Max VCCs]	Maximum number of current VCCs, end-to-end connections of either SVCs or PVCs.	0-4096	4096

Descriptions

Operator	Parameters/Permissions	Description
modify portconfig	[PortNumber] **<portnumber>** [MaxVPIBits] **<cfgmaxvpibits>** [MaxVCIBits] **<cfgmaxvcibits>** [InterfaceAddressType] **<intfaddrtype>** Administrator	Changes maximum VPI and VCI bits, and the interface address type, for a given port configuration. [MaxVPIBits] and [MaxVCIBits] can be changed only to one of four VPI/VCI sets predefined in the system—0/12, 2/10, 4/8 or 6/6. If you want to deviate from these predefined options, enter **modify vccmask.**
show portconfig	[PortNumber] **<portnumber>** All	Displays configuration and signaling status of a specified port or all ports. The status of a port is based on its signaling status. Because of this—even when a port is reported as being down—there may still be active PVCs on the port. You will see more details with this command when you specify a particular port, rather than accepting the ALL default. The alternative is to add **/d** after the command. For example, **show portconfig /d.**

Examples

```
switch_prompt # modify portconfig
PortNumber(A1)                          :
MaxVPIBits(0)                           :
MaxVCIBits(12)                          :
InterfaceAddressType(PRIVATE)           :
switch_prompt #
```

The following examples show the port configuration of all ports, port A4, and then port B4 (CPU port):

```
switch_prompt # show portconfig
PortNumber(ALL)                       :
Port ID    Trans     Media     Speed    Admin    Op      QSAAL
           Type      Type      (MB/s)   State    State   State
==============================================================================
A1         STS-12c   MMF (S)   622 MB   ACTIVE   UP      UP
B1         STS-3c    MMF (S)   155 MB   ACTIVE   DOWN    DOWN
B2         STS-3c    MMF (S)   155 MB   ACTIVE   UP      UP
B3         STS-3c    MMF (S)   155 MB   ACTIVE   DOWN    DOWN
B4(CPU)    STS-3c    MMF (S)   155 MB   ACTIVE   UP      UP
C1         STS-3c    SMF (I)   155 MB   ACTIVE   DOWN    DOWN
C2         STS-3c    MMF (S)   155 MB   ACTIVE   DOWN    DOWN
C3         STS-3c    MMF (S)   155 MB   ACTIVE   DOWN    DOWN
C4         STS-3c    MMF (S)   155 MB   ACTIVE   DOWN    DOWN
D1         STS-3c    CAT5 UTP  155 MB   ACTIVE   DOWN    DOWN
D2         STS-3c    CAT5 UTP  155 MB   ACTIVE   DOWN    DOWN
D3         STS-3c    CAT5 UTP  155 MB   ACTIVE   DOWN    DOWN
D4         STS-3c    CAT5 UTP  155 MB   ACTIVE   DOWN    DOWN
switch_prompt #


switch_prompt # show portconfig a1
Port A1     Configuration
==============================================================================
Port Id                              : A1
Port Admin State                     : ACTIVE
Port QSAAL State                     : UP
Port Operational State               : UP
Transmission Type                    : STS-12c
Media Type                           : MMF (S)
Bandwidth                            : 622 MB
Address Type                         : PRIVATE
Active VPI Bits                       : 0
Active VCI Bits                       : 12
Configured VPI Bits                  : 0
Configured VCI Bits                  : 12
Current VPI Bits                     : 0
Current VCI Bits                     : 12
Current In Use VCCs                  : 2
Port A1      Configuration
Current Max VCCs                     : 4096
switch_prompt #


switch_prompt # show portconfig
PortNumber(ALL)                      : b4
Port B4(CPU) Configuration
==============================================================================
Port Id                              : B4(CPU)
Port Admin State                     : ACTIVE
Port QSAAL State                     : UP
Port Operational State               : UP
Transmission Type                    : STS-3c
Media Type                           : MMF (S)
Bandwidth                            : 155 MB
Address Type                         : PRIVATE
Active VPI Bits                      : 0
Active VCI Bits                      : 12
Configured VPI Bits                  : 0
Configured VCI Bits                  : 12
```

```
Current VPI Bits                      : 0
Current VCI Bits                      : 12
Current In Use VCCs                   : 24
Port B4(CPU) Configuration
Current Max VCCs                      : 4096
switch_prompt #


switch_prompt # show portconfig /d
PortNumber(ALL)                       :
Port A1     Configuration
============================================================================
Port Id                               : A1
Port Admin State                      : ACTIVE
Port QSAAL State                      : UP
Port Operational State                : UP
Transmission Type                     : STS-12c
Media Type                            : MMF (S)
Bandwidth                             : 622 MB
Address Type                          : PRIVATE
Active VPI Bits                       : 0
Active VCI Bits                       : 12
Configured VPI Bits                   : 0
Configured VCI Bits                   : 12
Current VPI Bits                      : 0
Current VCI Bits                      : 12
Current In Use VCCs                   : 2
More(<space>/q)?:
```

PortMode

Use PortMode to control the port framing protocol on the switch when communicating with other switches that use different standards (such as the European SDH type).

SERVER	SVC
X	X

Operators

`modify, show`

Parameters

Input Parameter	Description	Field Size/Value	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B4, C1...C4, D1...D4	ALL
[PortMode]	Physical mode type of the port.	SONET, SDH	SONET

Output Parameter	Description
[Port ID]	Same as [PortNumber] Input Parameter.
[Frame Type]	Same as [PortMode] Input Parameter.

Descriptions

Operator	Parameters/Permissions	Description
modify portmode	[PortNumber]<**portnumber**> [PortMode]<**portmode**> Administrator	Sets the framing mode protocol of the specified port on the local switch to that of any other switch connected to that port. However, changing the port transmission mode from SONET to SDH is not supported.
show portmode	[PortNumber]<**portnumber**> All	Displays the current framing mode protocol of all ports or a specified port on the switch.

Examples

```
switch_prompt # modify portmode
PortNumber(ALL)                           : a1
PortMode(SONET)                           : sdh
switch_prompt #

switch_prompt #  show portmode
PortNumber(ALL)                           :
Port ID    Frame Type
===========================================================================
A1         SDH
A2         SONET
A3         SONET
A4         SONET
B1         SONET
B2         SONET
B3         SONET
B4(CPU)    SONET
C1         SONET
C2         SONET
C3         SONET
C4         SONET
D1         SONET
D2         SONET
D3         SONET
D4         SONET
switch_prompt #
```

PortStat

Use PortStat (port statistics) to manage traffic statistics for a given port or all ports. These statistics relate to network resources management, congestion, and performance issues.

SERVER	SVC
X	X

Operators

show, clear

Parameter

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL

Output Parameter	Description
[Total OAM Cells Received]	Total OAM (operations and maintenance) cells the system received.
[Total RM Cells Received]	Total cells dropped when the switch drops cells (includes those dropped when unknown VCs (virtual circuits) and CLP1 (cell loss priority) cells are dropped).
[Total Cells Dropped]	Total cells dropped across the system. (includes those dropped when unknown VCs (virtual circuits) and CLP1 (cell loss priority) cells are dropped).
[Total Unknown VC Cells Dropped]	Total unknown VC cells dropped.
[Total CLP1 Cells Received]	Total CLP1 cells received.
[Total CLP1 Cells Dropped]	Total CLP1 cells dropped.

Descriptions

Operator	Parameters/Permissions	Descriptions
show portstat	[PortNumber] <**portnumber**> All	Displays ATM statistics for a given port or all ports, represented in number of cells. These statistics relate to network resources management, congestion, and performance issues. The counter has a 32-bit maximum before it wraps around. Enter **show portstat /d** (detail) to obtain more details about the ports. Use clear portstat to reset port statistic counters.
clear portstat	[PortNumber] <**portnumber**> All	Clears the ATM cell counts and reinitializes all port statistics to "0" for the specified port or all ports. This command clears only the software values and does not flush the hardware registers, which might have counts accumulated since the registers were last read.

Examples

```
switch_prompt # show portstat

PortNumber(ALL)                          :

Port ID    OAM      RM      CLP1    Unk VC    CLP1     Total
           Recvd    Recvd   Recvd   Dropped   Dropped  Dropped
============================================================================
A1            0        0       0        0         0        0
A2            0        0       0        0         0        0
A3            0        0       0        0         0        0
A4            0        0       0     13839        0     13839
B1            0        0       0        0         0        0
B2            0        0       0        0         0        0
B3            0        0       0        0         0        0
B4(CPU)       0        0       0  16777215        0  16777215
switch_prompt #

switch_prompt # show portstat /d
PortNumber(ALL)                          :

Port A1     Statistics
============================================================================
OAM Cells Received           : 0
RM Cells Received            : 0
CLP1 Cells Received          : 0
Unknown VC Cells Dropped     : 0
CLP1 Cells Dropped           : 0
Total Cells Dropped          : 0

Port A2     Statistics
============================================================================
OAM Cells Received           : 0
RM Cells Received            : 0
CLP1 Cells Received          : 0
```

```
Unknown VC Cells Dropped      : 0
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 0


Port A3      Statistics
===========================================================================
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 0
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 0


Port A4      Statistics
===========================================================================
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 13851
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 13851
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 0
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 0


Port B2      Statistics
===========================================================================
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 0
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 0


Port B3      Statistics
===========================================================================
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 0
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 0


Port B4(CPU) Statistics
===========================================================================
OAM Cells Received            : 0
RM Cells Received             : 0
CLP1 Cells Received           : 0
Unknown VC Cells Dropped      : 16777215
CLP1 Cells Dropped            : 0
Total Cells Dropped           : 16777215
switch_prompt #
```

PortTrafficCongestion

Use PortTrafficCongestion (port traffic congestion) to manage traffic congestion parameter for the specified port.

SERVER	SVC
X	X

Operators

modify, show

Parameter

Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[Queue # Minimum/Maximum CellCounter]	Value programmed into the switch for minimum/ maximum threshold (in number of cells) for the specified priority queue (where "#" is 1, 2, 3, or 4). If the number of cells received by the switch on the specified priority queue for this port exceeds maximum threshold value, the switch discards the cell.	0-4096	0 (Min.) 4096 (Max.)

Descriptions

Operator	Parameters/Permissions	Description
modify porttrafficcongestion	[PortNumber] **<portnumber>** [Queue#Min/MaxCellCounter] **<queue#min/maxcellcounter>** Administrator	Modifies the traffic congestion settings for a specified port or all ports. You can change the minimum and maximum buffer thresholds, in cells, for each priority queue on a port. Cell buffer memory then reserves the minimum buffer size for cells on the specified priority queue of that port. Cells are discarded when the maximum buffer threshold is reached.

Operator	Parameters/Permissions	Description
show porttrafficcongestion	[PortNumber] **<portnumber>** All	Displays the traffic congestion settings for the ports. The minimum buffer threshold is reserved in cell buffer memory for cells in the specified priority queue for the given port. Cells are discarded when the maximum buffer threshold is reached.

Examples

```
switch_prompt # modify portrafficcongestion
Port(ALL)                               :
Queue1MinimumCellCounter(0)             : 40
Queue2MinimumCellCounter(0)             : 40
Queue3MinimumCellCounter(0)             : 40
Queue4MinimumCellCounter(0)             : 40
Queue1MaximumCellCounter(4096)          : 2000
Queue2MaximumCellCounter(4096)          : 2000
Queue3MaximumCellCounter(4096)          : 2000
Queue4MaximumCellCounter(4096)          : 2000
switch_prompt #


switch_prompt # show porttrafficcongestion
PortNumber(ALL)                         :

Port ID    Queue 1      Queue 2      Queue 3      Queue 4
           Min   Max    Min   Max    Min   Max    Min   Max
==============================================================================
A1          0  4096      0  4096      0  4096      0  4096
A2          0  4096      0  4096      0  4096      0  4096
A3          0  4096      0  4096      0  4096      0  4096
A4          0  4096      0  4096      0  4096      0  4096
B1          0  4096      0  4096      0  4096      0  4096
B2          0  4096      0  4096      0  4096      0  4096
B3          0  4096      0  4096      0  4096      0  4096
B4(CPU)     0  4096      0  4096      0  4096      0  4096
switch_prompt #
```

Privilege

Use Privilege to manage the privilege level of the current user.

SERVER	**SVC**
X	X

Operators

show, enable, disable

Parameter

Input Parameter	Description	Value/Field Size	Default
[Password]	Current password for that privilege level.	5-8 characters	n/a

Descriptions

Operator	Parameters/Permissions	Description
show privilege	All	Displays the privilege level of the current user. The two available levels are Administrator and Read Only.
enable	[Password] <**currentpassword**> All	Raises the privilege level. There are two levels in the switch—Read-Only and Administrator. If you are logged on with a Read-Only privilege status and then issue this command, the switch prompts you for the Administrator [Password] before allowing access to Administrator commands.
disable	Administrator	Lowers the privilege level from Administrator to Read Only. No password is required.

Examples

```
switch_prompt # show privilege
The current user is Administrator
switch_prompt #

switch_prompt # enable
password: ********
switch_prompt # disable
The current user is ReadOnly
switch_prompt #
```

Prompt

Use Prompt to control how the switch prompt is displayed on the console monitor.

SERVER	SVC
X	X

Operator

modify

Parameter

Input Parameter	Description	Value/Field Size	Default
[Prompt]	New prompt name.	1-25 characters	switch_prompt

Descriptions

Operator	Parameters/Permissions	Description
modify prompt	[Prompt] **<newpromptname>** All	Changes the displayed prompt on your console monitor.

Example

```
switch_prompt # set prompt
Prompt(switch_prompt) : My_Switch
My_Switch #
```

PVC

Use PVC (permanent virtual circuit) to manage PVCs on specific ports configured on the switch.

SERVER	SVC
X	X

Operators

add, delete, activate, deactivate, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[ConnType]	Connection type for PMP (point-to-multipoint) or PTP (point-to-point).	PMP, PTP	PTP
[LowPort]	Port receiving the backward traffic flow of the high/low pair.	A1...A4, B1...B3, C1...C4, D1... D4	A1
[LowVPI]	Low VPI (virtual path identifier) number. The range is modifiable by setting [MaxVpibits] at **modify portconfig.**	0-maximum	0
[LowVCI]	Low VCI (virtual circuit identifier) number. Modifiable by setting [MaxVcibits] at **modify portconfig**.	0-maximum	33
[HighPort]	Port sending the forward traffic flow of the high/low pair.	A1...A4, B1...B3, C1...C4, D1... D4	A1
[HighVPI]	High VPI number. Modifiable by setting [MaxVpibits] at **modify portconfig**.	0-maximum	0
[HighVCI]	High VCI number. Modifiable by setting [MaxVcibits] at **modify portconfig**.	0-maximum	34
[FwdTrafficDescIndex]	Index of the traffic descriptor for the forward (low-to-high) connection of VCs (virtual circuits). Create traffic descriptor prior to creating this PVC.	1, 2, 3, 4.../ 1-20	1

Input Parameter	Description	Value/Field Size	Default
[BkwTrafficDescIndex]	Index of the traffic descriptor for the backward (high-to-low) connection of VCs. This PVC traffic descriptor must have no reserved bandwidth.	1, 2, 3, 4.../ 1-20	1
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[CrossConnId]	Chronological sequential index marker of the circuits. All PMP cross-connect IDs of the same low port have the same cross-connect ID.	1, 2, 3, 4.../ n/a	ALL

In the Output Parameter table below, (</d>) appears next to the parameter that is available only through the show pvc /d (detailed) command. When (</s>) appears next to a parameter, the parameter appears in both the summarized table and the detailed table.

Output Parameter	Description	Value/Field Size
[ConnId] (</s>)	Same as [CrossConnId] Input Parameter.	See above
[Conn SubId] (</s>)	ID of the leaf in PMP connection. If you do not specify a sub ID, all leaves of a PMP connection identified by the cross-connect ID will be deleted.	1, 2, 3, 4.../ n/a
[Traffic Type] (</s>)	Traffic type of the descriptor.	CBR, NRTVBR, RTVBR, UBR
[Admin Status] (</s>)	Status of the VC. Modified by the Administrator.	UP, DOWN
[LowPort] (</s>) [LowVPI] (</s>) [LowVCI] (</s>) [HighPort] (</s>) [HighVPI] (</s>) [HighVCI] (</s>) [FwdTrafficDescIndex] (</s>) [BkwTrafficDescIndex] (</s>)	These parameters are available in the **show pvc /s** option, as well as those listed above. See the Input Parameter table above for descriptions.	n/a/ n/a

Output Parameter	Description	Value/Field Size
[Low to High Operational Status] (</d>)	Status of the forward connection. Status is from the low-to-high VCL (virtual channel link)—the connection between host and switch.	UP, DOWN
[High to Low Operational Status] (</d>)	Status of the backward connection. Status is from the high-to-low VCL—the connection between host and switch.	UP, DOWN
[Low to High Last Change (Time in 1/100 seconds since last reboot)] (</d>)	Time stamp of last change in operations status of forward traffic connection.	1/100 seconds
[High to Low Last Change (Time in 1/100 seconds since last reboot)] (</d>)	Time stamp of last change in status of backward connection.	1/100 seconds
[Fwd TrafficType] (</d>)	Traffic type of this forward cross-connect.	CBR, NRTVBR, RTVBR, UBR
[Fwd Bandwidth Allocated in Kb/s] (</d>)	Forward bandwidth allocated to this cross-connect, as calculated by CAC (call admission control).	Kb/s/0-622000
[Fwd Priority Queue] (</d>)	Forward priority of the internal queue of this cross-connect, as calculated by CAC.	HIGH, MEDIUM-HIGH, MEDIUM-LOW, LOW
[Fwd Early Packet Discard (for Lower...)] (</d>)	Forward early packet discard of this cross-connect, as calculated by CAC for the low threshold of congestion.	Enabled, Disabled
[Fwd Early Packet Discard(for Higher...)] (</d>)	Forward early packet discard of this cross-connect, as calculated by CAC for the high threshold of congestion.	Enabled, Disabled
[Fwd RM Cell Priority] (</d>)	Forward RM cell priority for this cross-connect, as calculated by CAC.	Enabled, Disabled
[Fwd Cell Loss Priority (CLP)] (</d>)	Indicates status of CLP in the forward direction.	Enabled, Disabled
[Number of Cells received in the Fwd Direction] (</d>)	Number of cells received in the forward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4.../ n/a
[Number of Cells dropped in the Fwd Direction] (</d>)	Number of cells dropped in the forward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4.../ n/a

Output Parameter	Description	Value/Field Size
[Number of EPD Packets dropped in the Fwd Direction] (</d>)	Number of EPD (early packet discard) packets dropped in the forward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4.../ n/a
[Bkw TrafficType] (</d>)	Traffic type of this backward cross-connect.	CBR, NRTVBR, RTVBR, UBR
[Bkw Bandwidth allocated in Kb/s] (</d>)	Backward bandwidth allocated to this cross-connect, as calculated by CAC.	Kb/s/ 0-622000
[Bkw Priority Queue] (</d>)	Backward priority of the internal queue of this cross-connect, as calculated by CAC.	HIGH, MEDIUM-HIGH, MEDIUM-LOW, LOW
[Bkw Early Packet Discard(for Lower...)] (</d>)	Backward early packet discard of this cross-connect, as calculated by CAC for the low threshold of congestion.	Enabled, Disabled
[Bkw Early Packet Discard (for Higher...)] (</d>)	Backward early packet discard of this cross-connect, as calculated by CAC for the high threshold of congestion.	Enabled, Disabled
[Bkw RM Cell Priority] (</d>)	Backward RM cell priority for this cross-connect, as calculated by CAC.	Enabled, Disabled
[Bkw Cell Loss Priority] (CLP)] (</d>)	Indicates status of CLP in the backward direction.	Enabled, Disabled
[Number of Cells received in the Bkw Direction] (</d>)	Number of cells received in the backward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4.../ n/a
[Number of Cells dropped in the Bkw Direction] (</d>)	Number of cells dropped in the backward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4... /n/a
[Number of EPD Packets dropped in the Bkw Direction] (</d>)	Number of EPD packets dropped in the backward direction of this cross-connect. Updated every 40 seconds.	1, 2, 3, 4... /n/a
[Cross-connect Id]	Same as [CrossConId] Input Parameter.	1, 2, 3, 4.../ n/a

Descriptions

Operator	Parameters/Permissions	Description
add pvc	[ConnType] **\<connectiontype>** [LowPort] **\<lowport>** [LowVPI] **\<lowvpi>** [LowVCI] **\<lowvci>** [HighPort] **\<highport>** [HighVPI] **\<highvpi>** [HighVCI] **\<highvci>** [FwdTrafficDescIndex] **\<fwdtrafficdescindex>** [BkwTrafficDescIndex] **\<bkwtrafficdescindex>** Administrator	Adds a PVC cross-connect to the switch, which sets up a virtual circuit on the specified ports. When referring to ports, the terms "low" and "high" refer to the direction of data flow, inbound (forward) and outbound (backward). Thus, forward is the connection from the low port to the high port and backward is the connection from the high port to the low port. Before adding a PVC you can define the traffic descriptor for both the forward and backward directions using **add trafficdescriptor**.
delete pvc	[LowPort] **\<lowport>** [LowVPI] **\<lowvpi>** [LowVCI] **\<lowvci>** [HighPort] **\<highport>** [HighVPI] **\<highvpi>** [HighVCI] **\<highvci>** Administrator	Removes a PVC cross-connect based on a cross-connect ID or a cross-connect sub ID. The sub IDs identify a leaf in PMP connections. Enter show pvc before this command to display the cross-connect ID and sub IDs.
activate pvc	[LowPort] **\<lowport>** [LowVPI] **\<lowvpi>** [LowVCI] **\<lowvci>** [HighPort] **\<highport>** [HighVPI] **\<highvpi** [HighVCI] **\<highvci>** Administrator	Activates a PVC. This is applicable only if the PVC was deactivated by the Administrator. In a PMP PVC, this command must be repeated for every leg of the PVC.
deactivate pvc	[LowPort] **\<lowport>** [LowVPI] **\<lowvpi>** [LowVCI] **\<lowIPvci>** [HighPort] **\<highport** [HighVPI] **\<highvpi>** [HighVCI] **\<highvci>** Administrator	Deactivates a PVC. This is applicable only if the PVC is operational and it must be made inactive. However, this command is not persistent. If you reboot the switch, the PVC becomes active again.
show pvc	[Port Number] **\<portnumber>** [CrossConId] **\<crossconnectid>** All	Displays all PVCs configured for the specified port. It has two modes of printing—detailed **\</d>** and summary **\</s>**. The **\</d>** option flag displays detailed information; the **\</s>** flag displays summarized information. Every PVC is assigned a unique number, called the cross-connect id.The 40-second interval is the maximum duration for holding these counters without overflowing them.Special PVCs are signaling and ILMI. They use VCI 5 and 16, respectively.

> **Note** You can create either a PTP (point-to-point) or PMP (point-to-multipoint) PVC when you define the ports and low identifiers [vci] and [vpi]. To send traffic from one port to multiple ports, enter the same low port and low identifiers for all the PVCs at a single port. Then, for each PVC from that single incoming port, enter unique high ports and high identifiers. PTP PVCs must have unique low and high ports and identifiers. A PMP connection is used when you want to multicast (restrict broadcasting) from a single point (root) to multiple points (leaves). Leaves could be home computers receiving and simultaneously viewing a single video program.

Examples

```
switch_prompt # add pvc
ConnType(PTP)                           :
LowPort(A1)                             :d2
LowVPI(0)                               :
LowVCI(33)                              :
HighPort(A1)                            :d3
HighVPI(0)                              :
HighVCI(34)                             :
FwdTrafficDescriptorIndex(1)            :7
BkwTrafficDescriptorIndex(1)            :8
switch_prompt #

switch_prompt # delete pvc
LowPort(A1)                             : d2
LowVPI(0)                               :
LowVCI :( 0 )                           : 33
HighPort :( A1 )                        : d3
HighVPI :( 0 )                          :
HighVCI :( 0 )                          : 34
Confirm? (y/n): y
switch_prompt #

switch_prompt # activate pvc
LowPort(A1)                             : d2
LowVPI(0)                               :
LowVCI :( 0 )                           : 33
HighPort :( A1 )                        : d3
HighVPI :( 0 )                          :
HighVCI :( 0 )                          : 34
switch_prompt #

switch_prompt # deactivate pvc
LowPort(A1)                             : d2
LowVPI(0)                               :
LowVCI :( 0 )                           : 33
HighPort :( A1 )                        : d3
HighVPI :( 0 )                          :
HighVCI :( 0 )                          : 34
switch_prompt #
```

These examples show a standard, summarized and detailed listing of the PVC parameters of one port - d2.

Standard Report

```
switch_prompt # show pvc d2
CrossConnId :( ALL ):

Conn  Conn   Traffic Conn         Low                High           Admin
Id    SubId  Type    Type  Port   Vpi/Vci      Port  Vpi/Vci        Status
============================================================================
00024 00049  CBR     PTP   D2     000/00033    D3    000/00034      UP
switch_prompt #
```

Summarized Report ([/s d2])

```
switch_prompt # show pvc /s d2
CrossConnId :( ALL ):
Conn  Conn   Traffic Conn         Low                High           Admin
Id    SubId  Type    Type  Port   Vpi/Vci      Port  Vpi/Vci        Status
============================================================================
00024 00049  CBR     PTP   D2     000/00033    D3    000/00034      UP
00032 00048  CBR     PTP   D1     000/00033    D2    000/00034      UP
switch_prompt #
```

Detailed Report for One Port ([/d b2])

```
switch_prompt # show pvc /d b2
CrossConnectId(ALL)                            :
Show Cross Connection in Detailed Mode
=============================================================================
Cross Connect Id                                          : 4099
Connection Type                                           : PTP
Low Port                                                  : B4(CPU)
Low VPI                                                   : 0
Low VCI                                                   : 1046
High Port                                                 : B2
High VPI                                                  : 0
High VCI                                                  : 5
Administrative Status                                     : UP
Low to High Operational Status                            : UP
High to Low Operational Status                            : UP
Low to High Last Change(In 100ths of a sec since last reboot): 1610
High to Low Last Change(In 100ths of a sec since last reboot): 1610
Forward Traffic Type                                      : NRTVBR
Forward Bandwidth Allocated in Kb/s                       : 411
Forward  Priority Queue                                   : MEDIUM-LOW
Fwd Early Packet Discard(For Lower Threshold of Congestion)  : Disabled
Fwd Early Packet Discard(For Higher Threshold of Congestion) : Enabled
Forward RM Cell Priority                                  : Disabled
Forward Cell Los Priority(CLP)                            : Enabled
Number of Cells Received in the Fwd Direction             : 25973
Number of Cells Dropped in the Fwd Direction              : 0
Number of Epd Packets  Dropped in the Fwd Direction       : 0
Backward Traffic Type                                     : NRTVBR
Backward Bandwidth Allocated in Kb/s                      : 411
Backward Priority Queue                                   : MEDIUM-LOW
Bkwd Early Packet Discard(For Lower Threshold of Congestion)  : Disabled
Bkwd Early Packet Discard(For Higher Threshold of Congestion): Enabled
Backward RM Cell Priority                                 : Disabled
Backward Cell Los Priority(CLP)                           : Enabled
Number of Cells Received in the Bkwd Direction            : 26388
Number of Cells Dropped in the Bkwd Direction             : 0
Number of Epd Packets  Dropped in the Bkwd Direction      : 0
Cross Connect Id                                          : 4103
Connection Type                                           : PTP
Low Port                                                  : B4(CPU)
Low VPI                                                   : 0
Low VCI                                                   : 1062
High Port                                                 : B2
High VPI                                                  : 0
High VCI                                                  : 16
Administrative Status                                     : UP
Low to High Operational Status                            : UP
High to Low Operational Status                            : UP
Low to High Last Change(In 100ths of a sec since last reboot): 1722
High to Low Last Change(In 100ths of a sec since last reboot): 1722
Forward Traffic Type                                      : NRTVBR
Forward Bandwidth Allocated in Kb/s                       : 411
Forward  Priority Queue                                   : MEDIUM-LOW
Fwd Early Packet Discard(For Lower Threshold of Congestion)  : Disabled
Fwd Early Packet Discard(For Higher Threshold of Congestion) : Enabled
Forward RM Cell Priority                                  : Disabled
Forward Cell Los Priority(CLP)                            : Enabled
Number of Cells Received in the Fwd Direction             : 4590
Number of Cells Dropped in the Fwd Direction              : 0
Number of Epd Packets  Dropped in the Fwd Direction       : 0
```

```
Backward Traffic Type                                      : NRTVBR
Backward Bandwidth Allocated in Kb/s                       : 411
Backward Priority Queue                                    : MEDIUM-LOW
Bkwd Early Packet Discard(For Lower Threshold of Congestion) : Disabled
Bkwd Early Packet Discard(For Higher Threshold of Congestion): Enabled
Backward RM Cell Priority                                  : Disabled
Backward Cell Los Priority(CLP)                            : Enabled
Number of Cells Received in the Bkwd Direction             : 4588
Number of Cells Dropped in the Bkwd Direction             : 0
Number of Epd Packets  Dropped in the Bkwd Direction      : 0
SmartCell ZX #
```

PVCByID

Use PVCByID (permanent virtual circuit by identification number) to manage cross-connect based PVCs on a cross-connect ID or sub ID.

SERVER	SVC
X	X

Operators

activate, deactivate, delete

Parameters

Input Parameter	Description	Value/Field Size	Default
[CrossConnId]	Identifies the PVC on the switch. Chronological sequential index marker of the circuits.	0, 1, 2, 3, 4... /n/a	0
[CrossConnSubId]	ID of the leaf in PMP connection.	0, 1, 2, 3, 4.../ n/a	0

Descriptions

Operator	Parameters/Permissions	Description
activate pvcbyid	[CrossConnId] <crossconnid> [CrossConnSubId] <crossconnsubid> Administrator	Activates a PVC by its unique identifier. Can be used instead of **activate pvc** and requires fewer input parameters if the PVC had been created using **create pvc**. If the CrossConnSubId is "0", then all the PVCs with same CrossConnId are deactivated.
deactivate pvcbyid	[CrossConnId] <crossconnid> [CrossConnSubId] <crossconnsubid> Administrator	Deactivates a PVC by its unique identifier. Can be used instead of **deactivate pvc** and requires fewer input parameters if the PVC had been created using **create pvc**. If the CrossConnSubId is "0", then all the PVCs with same CrossConnId are deactivated.

Operator	Parameters/Permissions	Description
`delete pvcbyid`	`[CrossConnId] <crossconnid>` `[CrossConnSubId]` `<crossconnsubid>` Administrator	Removes a PVC by the cross-connect ID or sub ID. The sub IDs identify a leaf in PMP connections. Enter `show pvc` before this command to display the cross-connect ID and sub IDs. If you do not specify a sub ID, all leaves of a PMP identified by the cross-connect ID will be deleted.

Examples

```
switch_prompt # activate pvcbyid
CrossConnId(0)        : 4097
CrossConnSubId(0)     : 2061
switch_prompt #

switch_prompt # delete pvcbyid
CrossConnId:(0)       : 24
CrossConnSubId:(0)    : 49
Confirm? (y/n)        : y
switch_prompt #
```

Reboot

Use Reboot to reboot the switch. Enter Reboot with caution as it is instantly entered without offering the chance to confirm your decision.

SERVER	SVC
X	X

Operator

reboot

Parameters

This command has no parameters. Just type reboot at the switch prompt and the switch reboots. You should be aware that there is no confirm option.

Description

Operator	Parameters/Permissions	Description
reboot	[Reboot] **<reboot>** Administrator	Reboots the switch. Be aware that most switch attributes are persistent, so if you reboot, you will need to manually start any switch attribute that you had stopped before the switch reboot (for example, the LECS switch attribute).
		Do not enter this command from a telnet session because it breaks any connection you have with the switch. You should be located near the switch—most probably the switch console—so you can conveniently reconnect to the switch from there.
		Press any key during the first seven seconds after entering this command as a way to avoid the full switch diagnostic session. By pressing any key and then typing **go**, the switch will conduct a basic diagnostic session. See the following example for more details:

Example

```
switch_prompt # reboot
Luxor Start-up Code Version  1.0.0, Nov 13 1996
Copyright 1995, ZeitNet Inc.
CPU Board Details:
   Board Revision: 1   CPU Speed: 25 MHZ.
   Common DRAM Base Address: e0000000, Size:    8 MB.
   No CPU DRAM.
   Secondary Flash Base Address: 90000000, Size:    4 MB.
Switch Board 1 Present:
Press any key to exit to debug monitor. Waiting for 07 seconds...
04
=>go
Verifying Checksum of Secondary Flash...
Attaching network interface ei0... done.
Attaching network interface lo0... done.
0xe0576440 (tRootTask): flashFsLib: Initialized
Initializing Flash File-System
Initializing System
Initializing Hardware
Initializing Alarms, Logging and Tracing
Initializing Signalling (please wait)
Initializing ILMI
NOTICE - 'tZILMId' Sending Ilmi Up Trap for link 1
NOTICE - 'tRootTask' Port A1      (1) DOWN
NOTICE - 'tZILMId' *************** Bringing Port A1  (1) down ****************
NOTICE - 'tZILMId' Sending ILMI Down Trap for link 1
NOTICE - 'tRootTask' Port A2      (2) DOWN
NOTICE - 'tRootTask' Port A3      (3) DOWN
NOTICE - 'tZILMId' ZQ2110: QSAAL Link 1 Down
NOTICE - 'tRootTask' Port A4      (4) DOWN
NOTICE - 'tRootTask' Port B1      (5) DOWN
NOTICE - 'tRootTask' Port B2      (6) DOWN
NOTICE - 'tRootTask' Port B3      (7) DOWN
Initializing LANE Servers
NOTICE - 'ZLESSRV' ***** LES started *****
Initializing LANE & IP/ATM Client
Initializing Watchdog Timer
SmartCell ZX Command Console
SmartCell ZX Version 1.1(22) (c) Cabletron Systems Inc.
password: NOTICE - 'tZTOTask' LECS Operational
NOTICE - 'tZILMId' LECS Address Registration with ILMI complete
The current user is           Administrator
switch_prompt #
```

Route

Use Route to administer IP (internet protocol) route management to an ATM client through an Ethernet network. It allows network management software to communicate across a network of switches.

SERVER	SVC
X	X

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[DestNetIP]	IP network number of a remote network.	dot decimal/ 7-15 characters	NONE
[GatewayIP]	IP address for gateway to the remote network.	dot decimal/ 7-15 characters	NONE

Output Parameter	Description
[flags]	The flags field is a bitmask of different options: • 0x1 – Route is usable ("up") • 0x2 – Destination address is a gateway0x4 – Host-specific routing entry • 0x10 – Created dynamically by ICMP redirect • 0x20 – Modified dynamically by ICMP redirect
[Refcnt]	Internal/debugging info.
[Use]	Number of times this route has been used to send a packet.
[Interface]	Interface used for forwarding packets on this route.

Descriptions

Operator	Parameters/Permissions	Description
add route	[DestNetIP] **<destnetip>** [GatewayIP] **<gatewayip>** Administrator	Creates an IP route to an ATM client when it is not directly connected to the NMS (network management system). You must assign both the destination IP address and the gateway IP address to reach the ATM client, and these addresses must already exist.
delete route	[DestNetIP] **<destnetip>** [GatewayIP] **<gatewayip>** Administrator	Removes an IP route from the switch configuration when it is not directly connected to the NMS.
show route	All	Displays IP routes used by the switch. The flag numbers shown in the flags column relate to the hexadecimal figures listed in the Output Parameter table above. Whatever number is shown defines what flags are active. For example, 1 equals flag 0x1; 5 equals flag 0x1 + flag 0x4; 7 equals flag 0x1 + flag 0x2 + flag 0x4 and so on.

Examples

```
switch_prompt # add route
DestNetIP()                               : 204.95.77.187
GatewayIP()                               : 204.95.77.186
switch_prompt #

switch_prompt # show route

ROUTE NET TABLE
destination     gateway         flags  Refcnt  Use          Interface
-----------------------------------------------------------------------
90.1.1.0        90.1.1.186      1      0       6508         zn1
204.95.77.0     204.95.77.186   1      3       6312         ei0
-----------------------------------------------------------------------
ROUTE HOST TABLE
destination     gateway         flags  Refcnt  Use          Interface
-----------------------------------------------------------------------
127.0.0.1       127.0.0.1       5      0       0            lo0
204.95.77.187   204.95.77.186   5      0       0            ei0
-----------------------------------------------------------------------
switch_prompt #

switch_prompt # delete route
DestNetIP()                               : 204.95.77.187
GatewayIP()                               : 204.95.77.186
switch_prompt #
```

Rows

Use Rows to alter the number of rows per page on the console display.

SERVER	SVC
X	X

Operator

modify

Parameter

Input Parameter	Description	Value/Field Size	Default
[Rows]	Number of rows per page (0 turns off pagination).	0 to 999	18

Description

Operator	Parameters/Permissions	Description
modify rows	[rows] **<number>** Administrator	Sets the number of rows per page on the console display, by telling the switch how many lines your console supports. If you do not want screen breaks in the output, set the number of rows to "0".

Example

```
switch_prompt # modify rows
Rows(18): 25
There are now 25 rows per page
switch_prompt #
```

SARStat

Use SARStat (segmentation and reassembly statistics) to view statistics from the SAR on the CPU port. This is useful for debugging hardware problems.

SERVER	SVC
X	X

Operator

show

Parameters

This command has no input parameters. Just type show sarstat at the switch prompt.

Output Parameter	Description
[Rcv Pkts]	Number of packets received since last up-time or clear.
[RCV Byts]	Number of bytes received since last up-time or clear.
[Raw Cell]	Number of raw cells received.
[Buf UF]	Number of underflow buffers received since last up-time or clear.
[FIFO OR]	Number of first in, first out overruns received.
[Max Len]	Maximum length of packet.
[Len Err]	Number of packet-length errors received.
[Crc Err]	Number of packet-length errors received.
[U Abrts]	Number of user aborts received since last up-time or clear.
[T1 Err]	Number of T1 errors received since last up-time or clear.
[Chnl DVT]	Number of channel DVT (delay variation tolerance) indicators since last up-time or clear.
[spur Int]	Number of spurious indicators since last up-time or clear.
[Ttl Err]	Total errors received since last up-time or clear.

Output Parameter	Description
[ISR Int]	Total interrupts received.
[RQU Int]	Receive queue underrun indicator since last up-time or clear.
[RQA Int]	Receive queue alert indicator since last up-time or clear.
[MM Int]	Mailbox modified indicator.
[MF Int]	Mailbox full indicator.
[SBE Int]	System bus error indicator since last up-time or clear.
[SPE Int]	System parity error indicator since last up-time or clear.
[CPE Int]	Number of control monitor parity error indicators.
[PI Int]	Physical interface indicator.
[RD Int]	Receive deactivated indicator since last up-time or clear.
[RCR Int]	Raw cell received indicator.
[Pkts Qd]	Number of packets queued.
[Pkts Cmp]	Number of packets completed.
[Byts Cmp]	Number of bytes completed since last up-time or clear.
[Pkts Drp]	Number of packets dropped.

Description

Operator	Parameters/Permissions	Description
show sarstat	Administrator	Displays all levels of statistics for the SAR. AAL (ATM adaptation layer) commands act on the SAR of VCs (virtual circuits) and VC statistics.

Example

```
switch_prompt # show sarstat

Receive Statistics
Rcv Pkts:         6 Rcv Byts:       648 Raw Cell:        0 Buf UF  :        0
FIFO OR :         0 Max Len :         0 Len Err :        0 Crc Err :        7
U Abrts :         0 T1 Err  :         0 Chnl DVT:       26 spur Int:        0
Ttal Err:         7 ISR  Int:        39 RQU  Int:        0 RQA  Int:        0
MM   Int:        39 MF   Int:         0 SBE  Int:        0 SPE  Int:        0
CPE  Int:         0 PI   Int:         0 RD   Int:        0 RCR  Int:        0

Transmit Statistics
Pkts Qd :        20 Pkts Cmp:        20 Byts Cmp:     1712  Pkts Drp:        0
switch_prompt #
```

Shutdown

Use Shutdown to shut down the switch to a state where it can be powered off. It stops all logging and synchronizes the file system. This must be run before turning off the switch.

SERVER	SVC
X	X

Operator

shutdown

Parameters

This command has no parameters. Just type **shutdown** at the switch prompt.

Description

Operator	Parameters/Permissions	Descriptions
shutdown	Administrator	After issuing this command, you will be prompted for confirmation. Reply **y** to confirm; then you can safely power off or reset the switch. By comparison, use **exit** when you have only finished a console session.

Example

```
switch_prompt # shutdown
Confirm(y/n)?: y
switch_prompt #
You can switch off the system now
```

SigConfig

Use SigConfig (signaling configuration) to manage signaling configuration of all or specific ports.

```
SERVER      SVC
   X          X
```

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1...A4, B1...B3, C1...C4, D1... D4	A1
[CurrentInterfaceType]	Current signaling version type for the given port number.	UNI3.0, UNI3.1, IISP3.0, IISP3.1	UNI3.0
[CurrentInterfaceRole]	Current signaling role for the given port number.	USER, NETWORK	NETWORK
[DefaultInterfaceType]	Default signaling version for the given port number.	UNI3.0, UNI3.1, IISP3.0, IISP3.1	UNI3.0
[DefaultInterfaceRole]	Default signaling role for the given port number.	USER, NETWORK	NETWORK

Descriptions

Operator	Parameters/Permissions	Description
modify sigconfig	[PortNumber] **<portnumber>** [CurrentInterfaceType] **<interfacetype>** [CurrentInterfaceRole] **<interfacerole>** [DefaultInterfaceType] **<interfacetype>** [DefaultInterfaceRole] **<interfacerole>** Administrator	Modifies the current signaling configuration. This command turns off AutoDetectSigType. Enter **modify portautodetect** to turn AutoDetectSigType on again. After you reboot the switch, if auto-detect is active (even if it is set to IISP3.0 (interim inter-switch signaling protocol)), the switch resets to the default IISP3.1 setting. The UNI (user-network interface) setting remains the same. If auto-detect is inactive, the IISP3.0 setting remains after reboot.
show sigconfig	[PortNumber] <portnumber> All	Displays the current signaling configuration—including signaling timer details—of all or specified ports.

Examples

```
switch_prompt # modify sigconfig
PortNumber(A1)                          : A2
CurrentInterfaceType(UNI3.0)            : UNI3.1
CurrentInterfaceRole(NETWORK)           : USER
DefaultInterfaceType(UNI3.0)            : UNI3.1
DefaultInterfaceRole(NETWORK)           : USER
switch_prompt #
```

The following examples are for a specific port - A2, and then for all ports:

```
switch_prompt # show sigconfig a2
PortNumber             : A2
Current Signaling Type   : UNI3.1
Current Signaling Role   : NETWORK
Default Signaling Type   : UNI3.1
Default Signaling Role   : NETWORK
Signaling Timers :
   TimerId      MaxInterval      RetryCount
             ( In millisecs)
============================================================
    303          008000          01
    308          030000          01
    309          050000          00
    310          050000          00
    313          040000          00
    316          120000          02
    317          119000          00
    322          004000          02
    398          004000          00
    399          014000          00
    400          003000          00
    401          003000          00
switch_prompt #

switch_prompt # show sigconfig
PortNumber(ALL) :
Port        Current                  Default
         SigType      SigRole      SigType      SigRole
=============================================================================
A1         UNI3.0      NETWORK      UNI3.0      NETWORK
A2         UNI3.1      USER         UNI3.1      USER
A3         UNI3.0      NETWORK      UNI3.0      NETWORK
A4         UNI3.0      NETWORK      UNI3.0      NETWORK
B1         UNI3.0      NETWORK      UNI3.0      NETWORK
B2         UNI3.0      NETWORK      UNI3.0      NETWORK
B3         UNI3.0      NETWORK      UNI3.0      NETWORK
B4(CPU)    UNI3.0      NETWORK      UNI3.0      NETWORK
switch_prompt #
```

SigFlags

Use SigFlags (signaling flags) to view the status of flags related to signaling. This command is unmodifiable, and the switch defaults to a UNI3.1 to UNI3.0 translation.

SERVER	SVC
X	**X**

Operator

show

Parameter

Output Parameter	Description
[Translation3130]	UNI route translation from UNI3.1 to UNI3.0.

Description

Operator	Parameters/Permissions	Description
show sigflags	All	Displays the signaling flag settings. This command is unmodifiable.

Example

```
switch_prompt # show sigflags
Translation31To30 is enabled
switch_prompt #
```

SigStat

Use SigStat (signaling statistics) to see current signaling statistics of all ports or a specific port.

SERVER	SVC
X	**X**

Operator

`show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	A1...A4, B1...B3, C1...C4, D1...D4	A1

Output Parameter	Description
[Detect Unavailable Routes]	Number of SVC calls rejected because of unavailable IISP or UNI routes not generated on this switch.
[Emit Unavailable Routes]	Number of SVC calls this switch rejected because of unavailable IISP or UNI routes.
[Detect Unavailable Resources]	Number of calls rejected because of unavailable resources on other switches.
[Emit Unavailable Resources]	Number of calls rejected because of unavailable resources on this switch.
[Detect Called Party Problems]	Number of calls other switches rejected (such as incorrect or invalid called party number or called party being busy).
[Emit Called Party Problems]	Number of calls this switch rejected (such as incorrect or invalid called party number or called party being busy).
[Detect Signaling Message Errors]	Number of signaling message errors for other switches (such as invalid information elements (IE) or missing mandatory elements in the IEs).

Output Parameter	Description
[Emit Signaling Message Errors]	Number of signaling message errors for this switch (such as invalid information elements (IE) or missing mandatory elements in the IEs).
[Detect Timer Expirations]	Number of calls terminated by other switches due to timer expirations.
[Emit Timer Expirations]	Number of calls terminated by this switch due to timer expirations.
[Detect Restarts]	Number of requests (by the user) on other switches to release all resources associated with the circuit controlled by signaling.
[Emit Restarts]	Number of requests (by the user) on this switch to release all resources associated with the circuit controlled by signaling.
[In Call Establishments]	Number of successful call establishments from incoming call setups.
[Out Call Establishments]	Number of successful call establishments.

Description

Operator	Parameters/Permissions	Description
show sigstat	[PortNumber] **<portnumber>** All	Displays the current signaling statistics of all ports or specified ports on the switch.

Example

```
switch_prompt # show sigstat
PortNumber(ALL)                          : a2

Signaling per Port Statistics
============================================================================
 Port#                         :  A2
 Detect Unavailable Routes     :  0
 Emitt  Unavailable Routes     :  0
 Detect Unavailable Resources  :  0
 Emitt  Unavailable Resources  :  0
 Detect Called Party Problems  :  0
 Emitt  Called Party Problems  :  0
 Detect Signaling Message Errors :  0
 Emitt  Signaling Message Errors :  0
 Detect Timer Expirations      :  0
 Emitt  Timer Expirations      :  0
 Detect Restarts               :  0
 Emitt  Restarts               :  0
 In Call Establishments        :  0
 Out Call Establishments       :  0
switch_prompt #
```

SSCOPConfig

Use SSCOPConfig (service-specific connection-oriented protocol configuration) to view timers and other parameter values.

SERVER	SVC
X	**X**

Operator

`show`

Parameters

Parameter	Description	Value/Field Size	Default
[Port#]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[MaxPD]	Number of SD (switching delay) PDUs (protocol data unit) after which a poll PDU is generated.	5-20	10
[MaxCC]	Number of begin PDUs sent during line establishment.	4-10	4
[PollTm]	Time between generation of PDUs.	m/seconds/ 100-200	200
[KpAliveTm]	Controls poll exchange rate in the absence of SD PDU traffic.	m/seconds/ 1000-2000/	1000
[NoRespTm]	Maximum time within which a poll has to be acknowledged by a PDU.	m/seconds/ 10000-15000	10000
[CCTm]	Rate at which begin and end PDUs are generated.	m/seconds/ 1000-2000	1000
[TxWindowSz]	Setting of transmit direction window size.	32-256	256
[RxWindowSz]	Setting of receive window size.	32-256	256

Description

Operator	Parameters/Permissions	Description
show sscopconfig	[PortNumber] **<portnumber>** All	Displays the SSCOP configuration control parameters.

Examples

```
switch_prompt # show sscopconfig
PortNumber(ALL)                                : A1

Port#  MaxPD MaxCC PollTm KpAliveTm NoRespTm CCTm   TxWindowSz RxWindowSz
========================================================================
  A1    15    5    250    1500      15000    1500   256        256

switch_prompt # show sscopconfig /d
PortNumber(ALL)                                :

Port#  MaxPD MaxCC PollTm KpAliveTm NoRespTm CCTm   TxWindowSz RxWindowSz
========================================================================
  A1    15    5    250    1500      15000    1500   256        256
  A2    10    4    500    1000      30000    1000   256        256
  A3    10    4    500    1000      30000    1000   256        256
  A4    10    4    500    1000      30000    1000   256        256
  B1    10    4    500    1000      30000    1000   256        256
  B2    10    4    500    1000      30000    1000   256        256
  B3    10    4    500    1000      30000    1000   256        256
  B4    10    4    500    1000      30000    1000   256        256
switch_prompt #
```

SVC

Use SVC (switched virtual circuit) to see the SVCs created on the switch.

SERVER	SVC
X	X

Operator

`show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[CrossConnId]	Chronological sequential index marker of the circuits. All point-to-multipoint (PMP) cross-connect IDs of the same low port have the same cross-connect ID.	1,2,3,4.../ n/a	

In the Output Parameter table below, (`</d>`) appears next to parameters that are available only through the `show svc /d` (detailed) command. When (`</s>`) (summarized) appears next to a parameter, it means that this parameter is displayed in both the summarized and the detailed tables.

Output Parameter	Description	Value/Field Size
[ConnId] (`</s>`)	Same as [CrossConnId] input parameter	1,2,3,4.../ n/a
[Conn SubId] (`</s>`)	Id of the leaf in PMP connection. If you do not specify a sub ID, all leaves of a PMP connection identified by the cross-connect ID will be deleted.	1,2,3,4.../ n/a
[Traffic Type] (`</s>`)	Traffic type of the descriptor.	CBR, NRTVBR, RTVBR, UBR

Output Parameter	Description	Value/Field Size
[ConnType] (</**s**>)	Either PMP to PTP connection type.	PMP, PTP
[LowPort] (</**s**>) [LowVPI] (</**s**>) [LowVCI] (</**s**>) [HighPort] (</**s**>) [HighVPI] (</**s**>) [HighVCI] (</**s**>)	These parameters are available in the show svc /s option, as well as those listed above. See Input Parameter table above for descriptions.	See Input Parameter table
[AdminStatus] (</**s**>)	Status of the VC. It can be modified by the Administrator.	UP, DOWN
[L2HOpStatus] (</**d**>)	Status of the forward connection. Status is from the low-to-high VCL (virtual channel link), the connection between host and switch.	UP, DOWN
[H2LOpStatus] (</**d**>)	Status of the backward connections. Status is from the high-to-low VCL, the connection between host at switch.	UP, DOWN
[L2HLastChange(Time in 1/100 second since last reboot)] (</**d**>)	Time stamp of the last change in operation status of the forward traffic connection.	1/100 second
[H2LLastChange)(Time in 1/100 second since last reboot)] (</**d**>)	Time stamp of the last changed in operation status of the backward connections.	1/100 second
[FwdTrafficType] (</**d**>)	Traffic type of this forward cross-connect.	CBR, NRTVBR, RTVBR, UBR
[FwdBandwidthAllocated in Kb/s] (</**d**>)	Forward bandwidth allocated to this cross-connect, as calculated by CAC.	Kb/s/ 0-622000
[FwdPriorityQueue] (</**d**>)	Forward priority of the internal queue of this cross-connect, as calculated by CAC.	HIGH, MEDIUM-HIGH, MEDIUM-LOW, LOW
[FwdEarlyPacketDiscard (for Lower...)] (</**d**>)	Forward EPD of this cross-connect, as calculated by CAC for the low threshold of congestion.	Enabled, Disabled
[FwdEarlyPacketDiscard (for Higher...)] (</**d**>)	Forward EPD of this cross-connect, as calculated by CAC for the high threshold of congestion.	Enabled, Disabled

Output Parameter	Description	Value/Field Size
[FwdRMCellPriority] (</d>)	Forward RM (resource management) cell priority for this cross-connect, as calculated by CAC.	Enabled, Disabled
Fwd Cell Loss Priority (CLP)] (</d>)	Forward bandwidth allocated to this cross-connect, as calculated by CAC.	Enabled, Disabled
[Number of Cells received in the Fwd Direction] (</d>)	Number of cells received the forward direction of this cross-connect.	0,1,2,3,4.../ n/a
[Number of Cells dropped in the Fwd Direction] (</d>)	Number of cells dropped in the forward direction of this cross-connect.	0,1,2,3,4.../ n/a
[Number of EPD Packets dropped in the Fwd Direction] (</d>)	Number of EPD packetsdropped in the forward direction of this cross-connect.	0,1,2,3,4.../ n/a
[Backward Traffic Type] (</d>)	Traffic type of this backward cross-connect.	CBR, NRTVBR, RTVBR, UBR
[Backward Bandwidth Allocated in KB/s] (</d>)	Backward bandwidth allocated to this cross-connect, as calculated by CAC.	Kb/s/ 0-622000
[Backward Priority Queue] (</d>)	Backward priority of the internal queue of this cross-connect, as calculated by CAC.	HIGH, MEDIUM-HIGH, MEDIUM-LOW, LOW
[Bkwd Early Packet Discard (For Lower...)] (</d>)	Backward EPDof this cross-connect, as calculated by CAC for the low threshold of congestion.	Enabled, Disabled
[Bkwd Early Packet Discard (For Higher...)] (</d>)	Backward EPDof this cross-connect, as calculated by CAC for the high threshold of congestion.	Enabled, Disabled
[Backward RM Cell Priority] (</d>)	Backward RM cell priority for this cross-connect, as calculated by CAC.	Enabled, Disabled
[Backward Cell Loss Priority (CLP)] (</d>)	Backward CLP for this cross-connect, as calculated by CAC.	Enabled, Disabled

Output Parameter	Description	Value/Field Size
[Number of Cells Received in the Bkwd Direction] (</**d**>)	Number of cells received in the backward direction of this cross-connect.	0, 1, 2, 3, 4.../ n/a
[Number of Cells Dropped in the Bkwd Direction] (</**d**>)	Number of cells dropped in the backward direction of this cross-connect.	0, 1, 2, 3, 4.../ n/a
[Number of EPD Packets Droppedin the Bkwd Direction] (</**d**>)	Number of EPD packets dropped in the forward direction of this cross-connect.	0, 1, 2, 3, 4.../ n/a

Descriptions

Operator	Parameters/Permissions	Description
show svc (/s | /d)	[PortNumber] **<portnumber>** [CrossConId **<crossconnectid>** All	Displays SVCs configured for all ports or a specified port. The cross-connect ID is a unique number generated for every SVC. PMP SVCs have only one cross-connect ID, though they might have several legs. All cell statistics are updated every 40 seconds, which is the maximum time for holding these counters without overflowing them.

Examples

The following examples show a summarized and detailed listing of an SVC.

Summarized Report (</s>)

```
switch_prompt # show svc /s
PortNumber(ALL)                              :
CrossConnectId(ALL)                          :
Conn  Conn   Traffic Conn      Low                High           Admin
Id    SubId  Type    Type  Port     VPI/VCI    Port     VPI/VCI   Status
===============================================================================
 4654   61   UBR     PTP   B4(CPU)   0/52      B4(CPU)   0/53      UP
 4655   63   UBR     PTP   B4(CPU)   0/54      B4(CPU)   0/55      UP
 4656   65   UBR     PMP   B4(CPU)   0/56      B4(CPU)   0/57      UP
switch_prompt #
```

Detailed Report (</d>)

```
switch_prompt # show svc /d
PortNumber(ALL)                               :
CrossConnectId(ALL)                           :
Show cross-connection in Detailed Mode
=========================================================================
cross-connect Id                                         : 4654
Connection Type                                          : PTP
Low Port                                                 : B4(CPU)
Low VPI                                                  : 0
Low VCI                                                  : 52
High Port                                                : B4(CPU)
High VPI                                                 : 0
High VCI                                                 : 53
Administrative Status                                    : UP
Low to High Operational Status                           : UP
High to Low Operational Status                           : UP
Low to High Last Change(In 100ths of a sec since last reboot): 1117917
High to Low Last Change(In 100ths of a sec since last reboot): 1117917
Forward Traffic Type                                     : UBR
Forward Bandwidth Allocated in Kb/s                      : 28
Forward  Priority Queue                                  : LOW
Fwd Early Packet Discard(For Lower Threshold of Congestion)  : Enabled
Fwd Early Packet Discard(For Higher Threshold of Congestion) : Disabled
Forward RM Cell Priority                                 : Disabled
Forward Cell Los Priority(CLP)                           : Enabled
Number of Cells Received in the Fwd Direction            : 6
Number of Cells Dropped in the Fwd Direction             : 0
Number of Epd Packets  Dropped in the Fwd Direction      : 0
Backward Traffic Type                                    : UBR
Backward Bandwidth Allocated in Kb/s                     : 28
Backward Priority Queue                                  : LOW
Bkwd Early Packet Discard(For Lower Threshold of Congestion)  : Enabled
Bkwd Early Packet Discard(For Higher Threshold of Congestion): Disabled
Backward RM Cell Priority                                : Disabled
Backward Cell Los Priority(CLP)                          : Enabled
Number of Cells Received in the Bkwd Direction           : 6
Number of Cells Dropped in the Bkwd Direction            : 0
Number of Epd Packets  Dropped in the Bkwd Direction     : 0
switch_prompt #
```

Switch

Use Switch to backup and restore switch configuration files.

SERVER	SVC
X	X

Operators

backup, restore

Parameters

Input Parameter	Description	Value/Field Size	Default
[ServerIP]	IP address of the backup server.	dot decimal/ 7-15 characters	NONE
[Path]	Pathname of the backup directory.	256 characters	**backup:** public/smartcell.ztr (initially, then last path used) **restore:** public/smartcell.ztr (initially, then last path used)

Descriptions

Operator	Parameters/Permissions	Description
backup switch	[ServerIP] <serverip> [Path] **</back_dir/backup_file>** Administrator	Backs up the configuration of the switch to an end station. This command backs up the switch configuration only. It does not back up the load image. It will prompt you for the IP address of the workstation to which you are saving the switch configuration as well as the backup path and filename. The end station must have TFTP Server software running in order to transfer files from the switch. If you have previously entered backup switch, these values appear as the parameter defaults for [ServerIP] and [Path]. The default is the name of the switch— smartcell. If you change the switch name using **modify switchname,** the backup filenames are automatically adjusted to reflect this new switch name. You can back up directly to the /tftpboot directory or create a subdirectory under /tftpboot (for example, /back_dir). However, your backup file must exist under the /tftpboot directory or the sub-directory on the target end station. The backup file can be created with any name. Both the directory and file must have appropriate read and write permissions to complete the backup successfully.
restore switch	[ServerIP] <serverip> [Path] **</back_dir/backup_file>** Administrator	Restores the switch configuration from a prior backup. It requires an IP address, as well as the file name. As with **backup switch**, this command also requires TFTP protocol. The switch must be rebooted after **restore switch** for the new configuration to take effect.

Examples

```
switch_prompt # backup switch
ServerIP(1.1.1.200)                       : 1.1.1.200
Path(public/smartcell.ztr)                 : /back_dir/cnfg_wk04
switch_prompt #

switch_prompt # restore switch
ServerIP()                                : 1.1.1.200
Path(/back_dir/cnfg_wk04)                 :
Backup file is valid.
Restoring a backup file will completely replace any data stored in the flash.
Are you sure this is what you want to do?
Confirm(y/n)?: y
switch_prompt #
```

SwitchConfig

Use SwitchConfig (switch configuration) to manage switch-related parameters, like switchname and IP address.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[SwitchName]	Name of the switch.	1-19 characters	switch_1
[IPAddress]	IP address of Ethernet port on the switch.	dot decimal/ 7-15 characters	1.1.1.200
[IPNetMask]	IP netmask of the client. Defaults to the appropriate netmask, based on IP address class. Calculated from the first two high bits of the IP address. Must be specified only if IP subnets are being used.	dot decimal/ 7-15 characters	255.0.0.0, 255.255.0.0 or 255.255.255.0

Output Parameter	Description	Value/Field Size
[CPU Model]	Model of the i960 CPU.	Up to 7 characters
[CPUSpeed]	Speed of the CPU.	25 (CA) - 33 (CF) MHz
[CPU Board ID]	Hardware version level of the CPU board.	1 character
[Secondary Flash Type]	Type of secondary flash.	ASYNCHRONOUS, SYNCHRONOUS
[CPU DRAM]	CPU DRAM memory size.	megabytes/Up to 4 characters

Output Parameter	Description	Value/Field Size
[Common DRAM]	Common DRAM memory size.	megabytes/Up to 4 characters
[SAR Control SRAM]	SAR control memory size.	kilobytes/Up to 5 characters
Power Mode	Type of power modules used by the switch	Redundant, Non-Redundant
[Number of Switch Boards]	Number of switch boards on the system.	1, 2
[Switch Board 1 ID]	Revision number of Board 1.	kilobytes/1-16
[Switch Board 2 ID]	Revision number of Board 2.	kilobytes/1-16
[Cell Memory Size]	Total cell buffer size.	bytes
[Number of Quad Boards]	Number of quad boards on the system.	1, 2, 3, 4.../ n/a
[Number of Ports]	Number of installed ports, less CPU (for example, if 8 ports are installed, 7 ports are listed). One port (B4) is reserved for CPU.	1, 2, 3, 4.../ n/a
[Quad Board Type]	Bandwidth of ports on each installed I/O module. Bandwidth used to distinguish between four port (155 Mbps) and single port boards (622 Mbps).	155 Mbps, 622 Mbps
[IP Address]	IP address of the switch.	0.0.0.0 - 255.255.255.255
[MAC Address (Base)]	Base MAC (media access control) address for the board. There are 128 addresses, starting at this base address. The first is used for the Ethernet port. The ATM stack uses all the addresses (including the first).	00:20:d4:XX:XX:XX
[Switch Software Type]	Type of switch software package.	SVC, Server
[Software Version]	Version of the software.	X.X
[Build Number]	The build number for this version of switch software.	XX

Output Parameter	Description	Value/Field Size
[Build Date]	The date which the code was loaded on the switch.	day/month/date/ hr:min:sec year
[Software Image Size]	Binary image size.	bytes
[Heap Space Used/Total/%Free]	Total heap space used, total memory allocated to heap, and percent of free memory.	bytes/bytes/%

Descriptions

Operator	Parameters/Permissions	Description
modify switchconfig	[SwitchName] **<switchname>** [IPAddress] **<ipaddress>** [IPNetMask] **<ipnetmask>** Administrator	Runs automatically when you first configure the switch, then prompts you for the required input. Enter **modify switchconfig** if you want to change any of the above parameters after the initial switch configuration. Unless you are experienced with configuring IP subnets, it is recommended that you accept the IP netmask default.
show switchconfig	All	Displays hardware and software configuration information about the switch. It also includes auto-detect hardware configuration information, such as number of switch boards and memory, and software information such as the type and version. Any future hardware or software changes will be detected automatically when the switch is rebooted.

Examples

```
switch_prompt # modify switchconfig
SwitchName(switch_1)                  : switch_2
IPAddress(200.30.72.122)              : 1.1.1.202
IPNetMask(255.255.255.0)              : 255.255.255.128
switch_prompt #

switch_prompt # show switchconfig
Switch Configuration
==========================================================================
Switch Name                          :switch 1
CPU Model                            : i960 CX
CPU Speed                            : 33 MHz
CPU Board ID                         : 2
Secondary Flash Type                 : Asynchronous
CPU DRAM                             : 8 MB
Common DRAM                          : 8 MB
SAR Control SRAM                     : 128 KB
Power Mode                           : Non-Redundant
Number of Switch Boards              : 1
Switch Board 1 ID                    : 5
Cell Memory Size                     : 32768 cells
Switch Configuration
Number of Quad Boards                : 2
Number of Ports                      : 4
Quad Board A Type                    : 622 MBps
Quad Board B Type                    : 155 MBps
IP Address                           : 204.95.77.254
MAC Address (Base)                   : 00:20:D4:14:41:80
Switch Software Type                 : Server
Software Version                     : 1.2RQA
Build Number                         : 9
Build Date                           : Tue Sep 23 16:39:36 PDT 1997
Software Image Size                  : 2676256 bytes
Heap Space (Used/Total/%Free)        : 2473888/5712288/56.69%
switch_prompt #
```

SwitchName

Use SwitchName to change the name of the switch.

SERVER	SVC
X	**X**

Operator

modify

Parameter

Input Parameter	Description	Value/Field Size	Default
[SwitchName]	Current name of the switch.	Up to 19 characters	switch_1

Description

Operator	Parameters/Permissions	Description
modify switchname	[SwitchName] <**newswitchname**> Administrator	Changes the name you gave your switch. You can also change switchname using **modify switchconfig** on page 2-186 if you want to change other switch features at the same time.

Example

```
switch_prompt # modify switchname
SwitchName(switch_1): switch_2
Confirm(y/n)?: y
switch_prompt #
```

SwitchTrafficCongestion

Use SwitchTrafficCongestion to manage global switch traffic congestion thresholds on the switch.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Parameter	Description	Value/Field Size	Default
[Queue # EFCI Threshold]	Threshold used to trigger EFCI (explicit forward congestion indicator) cell marking in the switch for the specified priority queue (where "#" is 1, 2, 3, or 4).	1, 2, 3, 4.../ n/a	16383
[Low EPD Watermark/Threshold]	Threshold (in cells) used by the switch to trigger low EPD (early packet discard), EFCI, and backward RM (resource management) cell marking.	1, 2, 3, 4.../ n/a	5461
[High EPD Watermark/Threshold]	Threshold (in cells) the switch uses to trigger high EPD.	0-16951	7551
[Switch Discard Threshold]	Threshold the switch uses to discard cells when the memory buffer is full.	1, 2, 3, 4.../ n/a	n/a
[RM Cell Marking Enable]	Indicates whether RM cell marking is enabled across the switch.	OFF (disable) or ON (enable)	ON
[EFCI Marking Enable]	Indicates whether the EFCI cell is enabled on the switch.	OFF (disable) or ON (enable)	ON

Descriptions

Operator	Parameters/Permissions	Descriptions
modify switchtrafficcongestion	[Queue#EFCIThreshold] <**queue#efcithreshold**> [LowEPDWatermark] <**lowepdwatermark**> [HighEPDWatermark] <**highepdwatermark**> [RMCellMarkingEnable] <**rmcellmarkingenable**> [EFCIMarkingEnable] <**efcimarkingenable**> Administrator	Modifies the congestion control parameters for the switch. For example, the EFCI thresholds indicate when a threshold is exceeded; the switch discard threshold discards cells when the memory buffer is full. 1 enables the parameters [RMCellMarkingEnable] and [EFCIMarkingEnable]. 0 disables them.
show switchtrafficcongestion	All	Displays the current traffic congestion settings for the switch.

Examples

```
switch_prompt # modify switchtrafficcongestion
Queue1EFCIThreshold(16383)            : 2000
Queue2EFCIThreshold(16383)            : 2000
Queue3EFCIThreshold(16383)            : 2000
Queue4EFCIThreshold(16383)            : 2000
LowEPDWatermark(7552)                 : 4000
HighEPDWatermark(7552)                : 8000
RMCellMarkingEnable(0)            : 1
EFCIMarkingEnable(0)              : 1
switch_prompt #

switch_prompt # show switchtrafficcongestion

Switch Traffic Congestion Parameters
============================================================================
Queue 1 EFCI Threshold (cells)   : 16383
Queue 2 EFCI Threshold (cells)   : 16383
Queue 3 EFCI Threshold (cells)   : 16383
Queue 4 EFCI Threshold (cells)   : 16383
Low EPD Threshold (cells)        : 7551
High EPD Threshold (cells)       : 7551
Switch Discard Threshold (cells) : 15103
RM Cell Marking Enable           : 0
EFCI Enable                      : 0
switch_prompt #
```

TrafficDescriptor

Use TrafficDescriptor to manage the templates that describe traffic characteristics of a VC (virtual circuit) that are used in the creation of PVCs (permanent virtual circuits. A traffic descriptor is a list of parameters that specify the characteristics of a PVC ATM connection. Each descriptor is defined from a specific combination of parameters.

SERVER	SVC
X	**X**

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Traffic Type]	Traffic class type.	CBR, NRTVBR, RTVBR, UBR	UBR
[TrafficDescriptorType]	Numerical description of traffic class, which integrates predefined values for three traffic descriptor variables—end-to-end timing requirements, traffic type, and broadband bearer class. See table "Traffic Descriptor Defining Entry Combinations" for full details.	1-8	8
[TrafficDescriptorIndex]	Traffic descriptor index number for deletion.	1-20	1
[PCRCLP01]	PCR (peak cell rate) of cells with their CLP (cell loss priority) bit is equal to one. Specifies the maximum rate at which cells can be transmitted over a VC.	Kb/s/ 0-622000	0
[PCRCLP0]	PCR of cells with their CLP bit is equal to zero. Specifies the maximum rate at which cells can be transmitted over a VC.	Kb/s/ 0-622000	0
[SCRCLP01]	SCR (sustainable cell rate) of cells with their CLP bit is equal to one. Specifies maximum average rate at which cells can be sent over a VC.	Kb/s/ 0-622000	0

Input Parameter	Description	Value/Field Size	Default
[SCRCLP0]	Specifies maximum average rate at which cells can be sent over a VC. SCR of cells with their CLP bit equals zero.	Kb/s/ 0-622000	0
[MBSCLP01]	MBS (maximum burst size) of cells with their CLP set to one. Specifies the maximum number of cells that can be transmitted at the peak rate.	Kb/s/ 0-622000	0
[MBSCLP0]	MBS of cells with their CLP set to zero. Specifies the maximum number of cells that can be transmitted at the peak rate.	Kb/s/ 0-622000	0
[QOSClass]	Quality of service. Requested level of service for bandwidth and resources assigned to the connection.	1-4/ 1= high, 4 = low	1
[AALType]	AAL (ATM adaptation layer) protocol to be used on the connection defined by the traffic descriptor.	1, 2, 3, 4, 5, 16	5

Output Parameter	Description	Value/Field Size
[TD#]	Traffic descriptor sequential index number.	1 or more
[VC Type]	Type of VC (virtual channel).	SVC, PVC

Descriptions

Operator	Parameters/Permissions	Description
add trafficdescriptor	[TrafficType] **\<type\>** [TrafficDescriptorType] **\<descrtype\>** [TrafficDescriptorIndex] **\<descrindex\>** [PCRCLP01] **\<pcrclp01\>** [PCRCLP0] **\<pcrclp0\>** [SCRCLP01] **\<scrclp01\>** [SCRCLP0] **\<scrclp0\>** [MBSCLP01] **\<mbsclp01\>** [MBSCLP0] **\<mbsclp0\>** [QOSClass] **\<qosclass\>** [AALType] **\<aaltype\>** Administrator	Creates both forward and backward PVC traffic descriptors.
delete trafficdescriptor	[TrafficDescriptorType] \<descrtype\> Administrator	Removes a traffic descriptor from the traffic descriptor table. Enter show trafficdescriptor before this command to obtain the traffic descriptor index number.
show trafficdescriptor	All	Lists existing traffic descriptors and the current values of their parameters. To use a particular traffic descriptor, note the traffic descriptor index number and enter the index number when adding a PVC. See the table "Traffic Descriptor Defining Entry Combinations" on page 2-188, which summarizes all possible entry variables that can be used to define traffic parameters.

Examples

The following example creates a traffic descriptor of type 4. After the traffic descriptor is created, it is listed in a table and associated with an index number. Although the index numbers are defined sequentially, they are only a counter of how many traffic descriptors have ever been defined. The numbers are historically ordered, so that if five traffic descriptors are defined and then the fourth one, with the index number of 4 is deleted, the remaining traffic descriptors remain indexed with the original numbers of 1, 2, 3, and 5.

```
switch_prompt # add trafficdescriptor
TrafficType(UBR)                          : cbr
TrafficDescriptorType(8)                  : 4
PCRCLP01(0)                               : 180
PCRCLP0(0)                                : 155
SCRCLP01(0)                               :
SCRCLP0(0)                                :
MBSCLP01(0)                               :
MBSCLP0(0)                                :
QOSClass(1)                               :
AALType(5)                                : 1
switch_prompt #

switch_prompt #  delete trafficdescriptor
TrafficDescriptorIndex :(0): 4
Confirm? (y/n): y
switch_prompt #

switch_prompt #  show trafficdescriptor

TD#  Traffic Desc  QoS  Peak Cell Rate  Sust Cell Rate Max Burst Size AalType VC
     Type    Type           (Kb/s)          (Kb/s)          (Kb)              Type
                      CLP_0  CLP_0+1  CLP_0  CLP_0+1  CLP_0  CLP_0+1
================================================================================
  1  UBR      8    4      0       34     0        0      0        0      5   PVC
  2  NRTVBR   2    1      0     1372     0        0      0        0      5   PVC
  3  UBR      8    1      0    12345     0        0      0        0      5   PVC
  5  UBR      8    1      0   123456     0        0      0        0      5   PVC
  switch_prompt #
```

Table 2-4 Traffic Descriptor Defining Entry Combinations

Traffic Descriptor Number and Description	Valid Traffic Types	Valid Parameters	Tagging	Congestion Management Action	Possible AAL Types
2 - No CLP or SCR.	CBR, NRTVBR, RTVBR	pcrclp01	x	All non-compliant cells dropped.	1, 2, 3, 4, 5, 16
3 - With CLP, but no Tagging or SCR.	CBR, NRTVBR, RTVBR	pcrclp0, pcrclp01	0	Evaluates cells set with CLP=1 and cells set with CLP=0 separately. Because tag option is not set, all non-compliant cells in both groups are dropped.	1, 2, 3, 4, 5, 16

Table 2-4 Traffic Descriptor Defining Entry Combinations (Continued)

Traffic Descriptor Number and Description	Valid Traffic Types	Valid Parameters	Tagging	Congestion Management Action	Possible AAL Types
4 -With CLP and Tagging, but no SCR.	CBR, NRTVBR, RTVBR	pcrclp0, pcrclp01	1	Evaluates cells set with CLP=1 and cells set with CLP=0 separately. Because tag option is set, non-compliant CLP=0 cells are tagged and non-compliant CLP=1 cells are dropped.	1, 2, 3, 4, 5, 16
5 -With SCR, but no CLP.	NRTVBR, RTVBR	pcrclp01, scrclp01, mbsclp01	x	All non-compliant cells dropped. SCR for CLP=0 is guaranteed.	2, 3, 4, 5, 16
6 -With CLP and SCR, but no Tagging.	NRTVBR, RTVBR	pcrclp01, scrclp01, mbsclp01	0	Evaluates cells set with CLP=1 and cells set with CLP=0 separately. Because tag option is not set, all non-compliant cells in both groups are dropped. SCR for CLP=0 is guaranteed.	2, 3, 4, 5, 16
7 -With CLP, Tagging and SCR.	NRTVBR, RTVBR	pcrclp01, scrclp01, mbsclp01	1	Assesses PCR, SCR and MBS of both CLP=0 and CLP=1 cells. Because the tag option is set, non-compliant CLP=0 cells are tagged, and non-compliant CLP=1 cells are dropped.	2, 3, 4, 5, 16
8 - With CLP and Best Effort.	UBR	pcrclp01	x	Best effort traffic descriptor with no guarantees.	

TrapCommunity

Use TrapCommunity to manage the list of hosts that the switch sends trap notifications to concerning significant events. Each trap community has a name, IP address, and port number. The trap community name and address combination must be unique.

```
SERVER        SVC
   X           X
```

Operators

add, delete, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[Name]	Name of trap community.	64 characters	n/a
[IPAddr]	IP address of the host to which a trap is to be sent.	dot decimal/ 15 characters	n/a
[Port]	Host port number to which the trap should be sent.	0-65535	162

Output Parameter	Description
[TrapCommunityName]	Same as [Name] Input Parameter.

Descriptions

Operator	Parameters/Permissions	Descriptions
add trapcommunity	[Name] **<name>** [IPAddr] **<ipaddress>** [Port] **<portnumber>** Administrator	Creates a trap community entry on the switch.
delete trapcommunity	[Name] **<name>** [IPAddr] **<ipaddress>** Administrator	Removes an existing trap community from the switch.
show trapcommunity	All	Displays all trap communities configured on the switch.

Examples

```
switch_prompt # add trapcommunity
Name()                               : boris
IpAddr()                             : 204.95.77.148
Port (162)                           : 100
switch_prompt #

switch_prompt # show trapcommunity

TrapCommunity Name              IP Address           Port
========================================================================
trapcomm                        204.95.77.147        162
boris                           204.95.77.148        100
switch_prompt #

switch_prompt # delete trapcommunity
Name()                               : boris
IpAddr()                             : 204.95.77.148
switch_prompt #

switch_prompt # show trapcommunity

TrapCommunity Name              IP Address           Port
========================================================================
trapcomm                        204.95.77.147        162
switch_prompt #
```

TrustedNMS

Use TrustedNMS (trusted network management system) to configure a "trusted network management system" on the switch. The trusted NMS is identified by its IP address. Only the trusted network management system is allowed to perform critical operations such as:

- Backup or restore a switch configuration

- Add trap destinations for another NMS

- Download switch software images

When SNMP is used, the IP address of the requesting station is checked against the trusted NMS address as a method of switch security. There can be only one trusted NMS configured on a switch.

SERVER	SVC
X	X

Operators

`modify, show`

Parameters

Input Parameter	Description	Value/Field Size	Default
[IPAddr]	IP address of the authorized NMS.	dot decimal/15 characters	0.0.0.0

Output Parameter	Description
[Trusted NMS IP-Address]	Same as [IPAddr] Input Parameter.

Descriptions

Operator	Parameters/Permissions	Description
modify trustednms	[IPAddr] <ipaddr> Administrator	Configures the switch to treat a particular host IP address as a trusted NMS.
show trustednms	All	Displays the currently configured IP address of the host that is treated as the trusted NMS. If trusted NMS is not configured, it will display 0.0.0.0.

Examples

```
switch_prompt # modify trustednms
IpAddr()                                   : 90.1.1.1
Trusted NMS IP-Address : 90.1.1.1
switch_prompt #

switch_prompt # show trustednms
Trusted NMS IP-Address : 90.1.1.
switch_prompt #
```

UNIRoute

Use UNIRoute (user-network interface route) to manage UNI routes and UNI routing tables. The routes are static using this command, compared to the dynamic UNI routes created through ILMI registration.

SERVER	SVC
X	X

Operators

add, delete, show, flush

Parameters

Input Parameter	Description	Value/Field Size	Default
[PortNumber]	Port number on the switch.	ALL, A1...A4, B1...B3, C1...C4, D1...D4	ALL
[UNIATMAddress]	ATM address for the UNI route.	13-20 byte hex-based/ Up to 59 characters	NONE

Descriptions

Operator	Parameters/Permissions	Description
add uniroute	[PortNumber] **<portnumber>** [UNIATMAddress] **<uniatmaddress>** Administrator	Creates a UNI route. More than one UNI ATM address can be assigned per port. When adding a UNI ATM address to a port, the switch provides a default value for the net prefix. You can accept the default, or you can list the net prefixes (see **show netprefix**) and construct a valid ATM address by using one of the net prefixes displayed.
delete uniroute	[PortNumber] **<portnumber>** [UNIATMAddress] **<uniatmaddress>** Administrator	Removes a UNI ATM address from the specified port. Only static routes (routes added with the console) are removed. To remove all routes, use **flush uniroute**.

Operator	Parameters/Permissions	Description
show uniroute	[PortNumber] **<portnumber>** [UNIATMAddress] **<uniatmaddress>** All	Displays the UNI ATM addresses for the specified port and specifies whether they are static or dynamic.
flush uniroute	[PortNumber] **<portnumber>** [UNIATMAddress] **<uniatmaddress>** Administrator	Flushes all (static and dynamic) UNI routes (ATM addresses) for the specified port. To flush all UNI routes for all ports, enter **all** at the port number prompt. Enter **show uniroute** before this command to display information you will need as input. Enter it again to confirm that the flush was successful.

Examples

```
switch_prompt # add uniroute
PortNumber(A1) : a3
UNIATMAddress():39:00:00:00:00:00:00:11:22:33:44:55:66:11:22:33:44:55:66:01

switch_prompt # add uniroute
PortNumber(A1) : a3
UNIATMAddress():39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:02

switch_prompt # add uniroute
PortNumber(A1) : a3
UNIATMAddress():39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:03
switch_prompt #

switch_prompt # delete uniroute
PortNumber(A1)  : a3
UNIATMAddress() :39:00:00:00:00:00:00:00:99:00:11:22:33:11:22:33:04:05:06:02
Deleting Static Route.
Confirm(y/n)?: y
switch_prompt #

switch_prompt # show uniroute
PortNumber(ALL)                          :a3

Port#    RouteType           Atm Address
========================================================================
 A3      STATIC       39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:01
 A3      STATIC       39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:03
switch_prompt #
```

The following example shows the uniroute listing, before and after all ports are flushed:

```
switch_prompt # show uniroute
PortNumber(ALL):

Port#    RouteType           Atm Address
=====================================================================
 A1      STATIC      39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:44:55:66:01
 A3      STATIC      39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:01
 A3      STATIC      39:00:00:00:00:00:00:00:20:d4:14:15:00:11:22:33:04:05:06:03

switch_prompt # flush uniroute
PortNumber(A1)                            : a1
Confirm(y/n)?: y
switch_prompt #

switch_prompt # show uniroute
PortNumber(ALL)                            :
Port#    RouteType           Atm Address
=====================================================================
switch_prompt #
```

VCCMask

Use VCCMask (virtual channel connection mask) to manage the combination of VPI (virtual path identifier) bit and VCI (virtual channel identifier) bit settings. There are only four different VCC mask entries allowed by the switch and the VPI and VCI shift must total 12.

SERVER	SVC
X	X

Operators

modify, show

Parameters

Input Parameter	Description	Value/Field Size	Default
[MaskIndex]	Index of mask to be changed.	0-3	0
[VpiShift]	Current number of bits assigned for use by the VPI, for each of the four mask indexes.	0-12	0
[VciShift]	Current number of bits assigned for use by the VCI, for each of the four mask indexes.	0-12	12

Descriptions

Operator	Parameters/Permissions	Description
modify vccmask	[MaskIndex] **<maskindex>** [VpiShift] **<vpishift>** [VciShift] **<vcishift>** Administrator	Modifies the proportion of bits assigned to the VPI and VCI for a given VCC or VPI/VCI set. The combined total of VPI and VCI bits must equal 12. The four most common VCC masks are predefined in the system (see **modify portconfig**). When modifying a VPI/VCI set, you must specify the VCC mask by using the mask index identifier. If you modify a specific mask index, for example a VPI/VCI set is modified from 6/6 to 7/5, you will modify occurrences of the 6/6 configuration on all ports, as only four different VCC masks configurations can exist at any one time.

Operator	Parameters/Permissions	Description
show vccmask	All	Displays the four VPI/VCI sets currently defined in the system as VCC masks.

Examples

```
switch_prompt # modify vccmask
MaskIndex(0)                               : 0
VPIShift(0)                                : 3
VCIShift(12)                               : 9
switch_prompt #

switch_prompt # show vccmask

MaskIndex    VpiShift      VciShift
             (In bits)    (In bits)
========================================================================
  0            0            12
  1            2            10
  2            4            8
  3            6            6
switch_prompt #
```

WellKnownAddress

Use WellKnownAddress to manage the mapping between the ATM forum defined well-known address for the LECS (LAN emulation configuration server) and a registered address for another LECS.

SERVER	SVC
X	X

Operators

add, delete, show, flush

Parameters

Input Parameter	Description	Value/Field Size	Default
[WellKnownAddress]	ATM address used by a client to connect to a server. The first byte (AFI byte) must be hex 47. The well-known address is an alias for the registered address of the server.	13-20 byte hex-based/ Up to 59 characters	47:00:79:00:00:00:00:00 :00:00:00:00:00:00:A0:3 E:00:00:01:00
[RegisteredAddress]	ATM address of the server registered in the network.	13-20 byte hex-based/ Up to 59 characters	Server ATM Address
[WellKnownAddrId]	Unique entry ID generated by the switch for each well-known address mapping.	1, 2, 3, 4.../ n/a	1
[RouteType]	Route type can be either static or dynamic.	ALL, STATIC, DYNAMIC	ALL

Output Parameter	Description
[AddressId]	Same as [WellKnownAddrId] Input Parameter.
[AddressType]	Indicates how address is configured in the system. Static addresses are manually entered. Dynamic addresses are registered by ILMI procedures.

Descriptions

Operator	Parameters/Permissions	Description
add wellknownaddress	[WellKnownAddress] <**clientatmaddress**> [RegisteredAddress] <**serveratmaddress**> Administrator	Maps well-known address to the registered address of the server. This only can be done one address at a time, although you can add multiple well-known addresses. This mapping translates incoming call setups using the well-known address to the registered address of the server. Using a well-known address for the server provides location independence for accessing services (such as LECS). You are automatically assigned an address ID number when entering this command. This ID is useful when deleting well-known addresses, because you have to type only the ID number and not the whole ATM address. Specifically for the LECS, you can map the well-known LECS address to the registered LECS address manually. Once the mapping is set, if the client fails to get the address through ILMI (integrated local management interface), it tries the well-known address. You can configure the server (LECS) anywhere in the network. Some applications expect to address packets to the well-known address. Clients use the same well-known address, so the location of the server does not matter. The AFI byte is set to 47 to indicate this is a well-known address.
delete wellknownaddress	[WellKnownAddrId] <**addressid**> Administrator	Deletes the mapping between one well-known address and its registered address of an entity (such as LECS). Enter **show wellknownaddress** before entering this command to display the ID number to use as input.
show wellknownaddress	All	Displays the mapping between the well-known address and the registered address of an entity (such as LECS). It also shows whether the address is dynamic or static. It lists all well-known addresses currently active. It is used for autodiscovery of the LECS by LANE clients.
flush wellknownaddress	[RouteType] <**routetype**> Administrator	Flushes all well-known addresses on the switch. Enter **flush wellknownaddress** with caution because it deletes all addresses of the indicated route type within the one command. This is the fast method of deleting a set of well-known addresses.

Examples

```
switch_prompt # add wellknownaddress
WellKnownAddress(47:00:79:00:00:00:00:00:00:00:00:00:00:a0:3e:00:00:01:00):
RegisteredAddress(39:00:00:00:00:00:00:20:D4:14:22:80:00:20:D4:14:22:80:01):
10.20.30.40.50
switch_prompt #
switch_prompt # show wellknownaddress
WellKnown Vs Registered Addresses
================================================================================
AddressId    : 2
AddressType  : STATIC
WellKnownAddr : 47:00:79:00:00:00:00:00:00:00:00:00:00:A0:3E:00:00:01:00
RegknownAddr : 10:20:30:40:50:00:00:00:00:00:00:00:00:00:00:00:00:00:00
switch_prompt #

switch_prompt # delete wellknownaddress
WellKnownAddrId(1): 2
switch_prompt #

switch_prompt # flush wellknownaddress
RouteType(ALL) : static
Confirm(y/n)?: y
switch_prompt #

switch_prompt # show wellknownaddress
WellKnown Vs Registered Addresses=
================================================================================

switch_prompt #
```

3 BOOT LOAD COMMANDS

This chapter describes the low-level boot load commands. Boot load commands are used for setting switch start-up behavior and for performing software downloads. Use the boot load commands to:

- Set which copy of the boot load software is the default copy

- Clear all configurations stored within the flash file system

- Check boot load software version numbers

- Load switch software upgrades

- Set whether power on system tests (POST) are run by default

Note For detailed information on using the boot load Commands, see your product's SmartCell User Guide.

Caution The commands described in this section are intended to be used only for loading upgrade software or to reinstall software that has become corrupt.

Accessing the Boot Load Commands

Boot load commands are executed from the boot load prompt. The boot load prompt is not part of the switch console, and is accessible only after a reboot and before the switch software is loaded. Perform the following steps to gain access to the boot load prompt:

1. Connect a terminal (or PC running terminal emulation software) to the RJ-45 terminal port on the front of the SmartCell ZX-250.

2. Enter the **reboot** command from the terminal.

3. Wait for the following message to appear:

```
Press any key to exit to boot load prompt..
07
```

4. Before the countdown reaches zero, press a key to access the boot load prompt. Notice that the boot load prompt (**=>**) differs from the prompt used in the switch console.

chpi

Use **chpi** to set one of the two boot load software images as the default. Unless otherwise specified within the initial reboot countdown, the default boot load software image is the image that is loaded into DRAM and executed.

Parameter	Explanation
0	Set boot load software image stored in area 0 of the boot PROM as the default image.
1	Set boot load software image stored in area 1 of the boot PROM as the default image.

Example

Set the boot load software image in boot PROM location 1 as the default image.

```
=>chpi 1
Modifying Default value for Boot Load Software,
please wait...
New default Boot Load Software value programmed
successfully.
New Default Boot Load Software value: 1
=>
```

clfs

Use **clfs** to clear the switch flash file system. The **clfs** command clears all VLAN and ELAN configurations, route definitions, port settings, and PVC configurations. **clfs** also clears all IP addresses, including the IP address for the switch Ethernet interface.

Example

```
=>clfs
Clearing Flash File System, please wait...
Successfully cleared Flash File System
=>
```

dcfg

Use **dcfg** to display information about the current boot PROM configuration

- Revision numbers of both boot load software images

- Display the switch MAC address

- Number (in hexadecimal) of contiguous MAC addresses after the base MAC address

- Show whether POST is on or off

Example

```
=>dcfg
Default Boot Load Software: 0
Boot Load Software0 Rev Number =    1
Boot Load Software1 Rev Number =    1
MAC address: 0 20 d4 14 85 0
Number of contiguous MAC addresses, starting at this base: 80
POST OFF
=>
```

df

Use **df** (download firmware) to download software images from a TFTP/Bootp server to the flash RAM of the switch. The **df** command uses three parameters: **b**, **s**, and **p**. These parameters specify which software component to download.

Parameter	Explanation
b	Download boot load image into boot PROM. The boot PROM contains two boot load images (one is a backup copy). The **df b** command always downloads over the boot load image that is not currently running.
s	Download the switch operating software (PVC, SVC, or Server) into flash RAM.
p	Download POST diagnostics into flash RAM.
none	Same as **s**, downloads switch operating software into flash RAM.

Examples

```
=>df s
You've requested a Switch Software download
Are you sure?(Y/N)y
Initializing ethernet...
Starting Bootp...
   Boot file: c:\tftpboot\switch.ima
Using TFTP to get bootfile "c:\tftpboot\switch.ima" .
.................................................................
.................................................................
.................................................................
............................


                                 .............................
.................................................................
.................................................................
.............................................
Validity checks of the Switch Software Downloaded file...
All Validity checks OK
Programming downloaded image into Switch Software section, please wait...
New Switch Software programmed successfully
=>
```

go

Use the `go` command to exit the boot load prompt and run switch software (with or without POST).

Parameter	Explanation
s	Bypass POST and go directly to switch software.
p	Run POST, and then run switch software.
none	Same as **s**; bypass POST and go directly to switch software.

Example

```
=>go s
Verifying Checksum of Secondary Flash...
Host Name:
Attaching network interface ei0... done.
Attaching network interface lo0... done.
0xe05764e0 (tRootTask): flashFsLib: Initialized
Initializing Flash File-System
Initializing System
Initializing Hardware
Initializing Alarms, Logging and Tracing
Initializing Signalling (please wait)
Initializing ILMI
Initializing LANE Servers
NOTICE - 'ZLESSRV' ***** LES started *****
Initializing LANE & IP/ATM Client
Initializing Watchdog Timer
SmartCell ZX Command Console
SmartCell ZX Version 1.2 (c) Cabletron Systems Inc.
password:
```

he

Use **he** to get help on boot load commands or show list of all boot load commands. The question mark (**?**) can be entered in place of **he**.

Parameter	Explanation
[<command>]	Explain designated boot load command.
none	Show list of all boot load commands.

Example

```
=>he chpi
chpi [option]
  option: 0 ..changes the Boot Load default to be Boot Load Software0;
          1 ..changes the Boot Load default to be Boot Load Software1
  Changes Boot Load default to be Boot Load Software (0) or (1)
```

ponf

Use **ponf** to set whether POST diagnostics are run by default when the switch is started.

Parameter	Explanation
s	POST is off. Switch goes directly to start-up.
p	POST is on. Switch runs POST before going to switch operating software.
none	Same as **s**; POST is off.

Example

```
=>ponf p
Modifying Control/Stat field to execute POST, please wait...
New postOnOff value programmed successfully into Control/Stat field.
=>
```

> **Note** **ponf** does not affect the behavior of the **go** command.

APPENDIX A ACRONYMS

A

AAL	ATM Adaptation Layer
AAL1	ATM Adaptation Layer Type 1
AAL2	ATM Adapter Layer Type 2
AAL3/4	ATM Adapter Layer Type 3/4
AAL5	ATM Adapter Layer Type 5
AALM	ATM Adaptation Layer Mux
ABR	Available Bit Rate
AFI	Authority and Format Identifier
ANSI	American National Standards Institute
API	Application Programming Interface
ARP	Address Resolution Protocol
ASCII	American Standard Code for Information Interchange
ATM	Asynchronous Transfer Mode

B

BE	Bridged Ethernet
BER	Bit Error Ratio (Rate)
B-ICI	Broadband Inter-Carrier Interface
B-ISDN	Broadband Integrated Services Digital Network
BOOTP	Boot Protocol

BUS	Broadcast and Unknown Server

C

CAC	Call Admission Control
CAN	Campus Area Network
CAT-3	Category 3 unshielded twisted pair cable
CAT-5	Category 5 unshielded twisted pair cable
CBR	Constant Bit Rate
CCITT	Comite Consultatif Internationale de Telegraphique et Telephonique (Consultative Committee on International Telegraphy and Telephony)
CCR	Current Cell Rate
CDV	Cell Delay Variation
CER	Cell Error Ratio
CES	Circuit Emulation Service
CI	Congestion Indicator
CLP	Cell Loss Priority
CLR	Cell Loss Ratio
CMIP	Common Management Information Protocol
COM	Communication
COS	Class of Service
CPE	Customer Premise Equipment
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
CRS	Cell Relay Service
CS	Convergence Sublayer
CTD	Cell Transfer Delay

D

DCC	Digital Cross Connect, generic DACS or Direct Connect Card, data interface module
DF	Download Flash
DS-0	Digital Signaling 0
DS-1	Digital Signaling 1
DS-3	Digital Signaling 3
DTE	Data Terminal Equipment
DVT	Delay Variation Tolerance

E

E-1	European standard for digital transmission service at 2 Mb/s.
E-3	European standard for digital transmission service at 34.4 Mb/s (transports 16 E1 circuits)
E-NET	Ethernet
EFCI	Explicit Forward Congestion Indicator
EISA	Extended Industry Standard Architecture
ELAN	Emulated Local Area Network
EMI	Electro-Magnetic Interference
ENR	Enterprise Network Roundtable
EOF	End of Frame
EPD	Early Packet Discard
EPROM	Erasable Programmable Read-Only Memory
ESD	Electro-Static Device
ESI	End System Identifier
ESM	Expansion Switch Module

F

FCS	Frame Check Sequence
FIFO	First In First Out
FTP	File Transfer Protocol

G

GB/S	Gigabits per second
GCRA	Generic Cell Rate Algorithm
GFC	Generic Flow Control

H

HEC	Header Error Check

I

IEEE	Institute of Electrical and Electronic Engineers
ICMP	Internet Control Message Protocol
ID	Identification Number
IE	Information Element
IETF	Internet Engineering Task Force
IISP	Interim Inter-Switch Signaling Protocol
ILMI	Integrated Local Management Interface

I/O	Input/Output
IOM	Input/Output Module
IP	Internet Protocol
IP/ATM	Internet Protocol over ATM
IPX	Internetwork Packet Exchange protocol
ITU-TSS	International Telecommunications Union-Telecommunications Standards Sector
ISDN	Integrated Service Digital Network

J

JPEG	Joint Photographic Experts Group

K

KB/S	Kilobits per second

L

LAN	Local Area Network
LANE	LAN Emulation
LE	LAN Emulation
LE-ARP	LAN Emulation-Address Resolution Protocol
LEC	LANE Client
LECS	LAN Emulation Configuration Server

LECSELAN LAN Emulation Configuration Server Emulated LAN

LES   LANE Server

LESELAN   LANE Server Emulated LAN

LIS   Logical IP Subnetwork

LLC   Logical Link Control

LMI   Local Management Interface

M

MAC   Media Access Control

MAN   Metropolitan Area Network

MB/S   Megabits per second

MBS   Maximum Burst Size

MCR   Minimum Cell Rate

MIB   Management Information Base

MMF   Multi-Mode Fiber

MP   Multi-Point

MSM   Main Switch Module

MTU   Maximum Transfer Unit

N

NAKS   Negative Acknowledges

NDIS   Network Driver Interface Specification

NETBEUI   NetBIOS Extension User Interface

NFS   Network File System

NIC   Network Interface Controller/Card

NLS   Natural Language Syntax

NMS   Network Management System

NNI   Network Node Interface or Network-to-Network Interface

NRT-VBR   Non Real Time - Variable Bit Rate

NRZ   Non-Return to Zero

NSAP   Network Services Access Point

O

OAM   Operations and Maintenance

OAM&P   Operations, Administration, Maintenance and Provisioning

OC-1   Optical Carrier 1

OC-N   Optical Carrier n (where "n" is an integer)

ODI   Open Data-link Interface

OOB   Out of Band

OSI   Open Systems Interconnection

P

PC   Personal Computer

PC   Priority Control

PCI   Peripheral Component Interconnect

PCR   Peak Cell Rate

PDU	Protocol Data Unit
PMD	Physical Media Dependent Sub-layer
PMP	Point-to-Multipoint
P-NNI	Private Network Node Interface or Private Network-to-Network Interface
PPD	Partial Packet Discard
PROM	Programmable Read-Only Memory
PTI	Payload Type Indicator
PTP	Point-to-Point
PVC	Permanent or Provisioned Virtual Circuit

Q

QOS	Quality of Service
QSAAL	Q-Signaling ATM Adaptation Layer. (Q represents the Q-series of the ITU-T (International Telecommunications Union).

R

R	Read-Only Access
RAM	Random Access Memory
RCR	Raw Cell Received
RD	Receive Deactivated
RFC	Request for Comment
RM	Resource Management
RMA	Return Merchandise Authorization
RQU	Receive Queue Underrun
RS-#	Recommended Standard defined by Electronic Industries Association

RT-VBR   Real Time - Variable Bit Rate

RW   Read-Write Access

S

SAAL   Signaling ATM Adaptation Layer

SAR   Segmentation And Reassembly

SAR-PDU   SAR Protocol Data Unit

SBE   System Bus Error

SCR   Sustainable Cell Rate

SDH   Synchronous Digital Hierarchy

SEAL   Simple Efficient Adaptation Layer

SMF   Single Mode Fiber

SMDS   Switched Multimegabit Data Service

SNMP   Simple Network Management Protocol

SONET   Synchronous Optical Network

STM-1   Synchronous Transport Module 1

STM-N   Synchronous Transport Module n (where 'n' is an integer)

STM-NC   Synchronous Transport Module n - concatenated (where 'n' is an integer)

STP   Shielded Twisted Pair

STS-1   Synchronous Transport Signal 1

STS-N   Synchronous Transport Signal n (where 'n' is an integer)

STS-NC   Synchronous Transport Signal n - concatenated (where 'n' is an integer)

SVC   Switched Virtual Circuit

T

T-1	Transmission System 1
T-3	Transmission System 3
TAXI	Transparent Asynchronous Transmitter/Receiver Interface
TCP	Transmission Control Protocol
TD	Traffic Descriptor
TDM	Time-Division Multiplexing
TFTP	Trivial File Transfer Protocol
TLV	Type, Length and Value

U

UBR	Unspecified Bit Rate
UME	UNI Management Entity
UNI	User-Network Interface
UP	Unnumbered Poll
UPC	Usage Parameter Control
UTOPIA	Universal Test and Operations Physical Interface for ATM
UTP	Unshielded Twisted Pair

V

VBR/RT	Variable Bit Rate/Real Time
VBR/NRT	Variable Bit Rate/Non-real Time
VC	Virtual Circuit

VCC   Virtual Channel Connection

VCI   Virtual Channel Identifier

VCL   Virtual Channel Link

VLAN   Virtual LAN

VP   Virtual Path

VPC   Virtual Path Connection

VPI   Virtual Path Identifier

VPN   Virtual Private Network

VT   Virtual Tributary

W

WAN   Wide Area Network

APPENDIX B CAUSE CODES

ATM events often generate messages that appear on the console. Most messages are self-explanatory. However, some messages contain additional information in the form of cause codes. These codes identify the cause of the event.

For example, the following SmartCell ZX-250 error message contains `cause code 31`:

```
SmartCell ZX # NOTICE - NOTICE - 'ZLESSRV'   AddPartyReject BUS  epref : 7  Cause : 31
NOTICE - 'ZLESSRV'  ADDPartyReject - BUS Connect refused  LEC : 39:00:00:00:00:0
0:00:00:00:00:14:41:80:00:20:D4:14:41:82:00
```

The following table is a list of cause codes and their meanings:

> **Note**   Cause codes are defined in detail in the ATM Forum *User Network Interface Specification* (version 3.1).

Table B-1 Cause code values and meanings

Cause Code	Meaning
1	Unassigned number
2	No route to specified transit network
3	No route to destination
10	VPI/VCI pair is unacceptable
16	Normal cell clearing
17	User busy
18	No user responding
21	Call rejected
22	Number changed
23	User rejects all calls with calling line identification
27	Destination out of order
28	Invalid number format
30	Response to STATUS ENQUIRY
31	Normal, unspecified
35	Requested VPI/VCI not available
36	VPI/VCI assignment failure
37	User cell rate not available

Table B-1 Cause code values and meanings

Cause Code	Meaning
38	Network out of order
41	Temporary failure
43	Access information discarded
45	No VPI/VCI available
47	Resource unavailable, unspecified
49	Quality of Service unavailable
51	User cell rate unavailable
57	Bearer capability not authorized
58	Bearer capability not presently available
63	Service or option not available, unspecified
65	Bearer capability not implemented
73	Unsupported combination of traffic parameters
78	AAL parameters cannot be supported
81	Invalid call reference value
82	Identified channel does not exist
88	Incompatible destination
89	Invalid endpoint reference
91	Invalid transit network selection
92	Too many pending add party requests
96	Mandatory information element is missing
97	Message type non-existent or not implemented
99	Information element non-existent or not implemented
100	Invalid information element contents
101	Message not compatible with call state
102	Recovery on timer expire
104	Incorrect message length
111	Protocol error, unspecified
112	No response from network
113	No response to out-going call process
114	No response to connect

Table B-1 Cause code values and meanings

Cause Code	Meaning
115	No response to restart request
116	Link not active
117	Link not found
118	Calling party number not set.
119	Call control block not found
120	Internal resource error
121	SAP not active

APPENDIX C TECHNICAL SUPPORT

This appendix tells you what to do if you need technical support for your SmartCell ZX-250 switch.

Cabletron offers several support and service programs that provide high-quality support to our customers. For technical support, first contact your place of purchase. If you need additional assistance, contact Cabletron Systems, Inc. There are several easy ways to reach Cabletron Customer Support and Service.

Telephone Assistance

Our Technical Support Center is available Monday through Friday, 8am to 8pm Eastern Time, by calling 603-332-9400.

FAX Service

You can fax support questions to us any time at 603-337-3075.

Electronic Services

You can contact Cabletron's Bulletin Board Service by dialing 603-335-3358.

Our internet account can be reached at support@ctron.com.

You can also check our home pages on the World Wide Web.
*   http://www.Cabletron.com
*   http://www.ctron.com

Placing A Support Call

To expedite your inquiry, please provide the following information:
*   Your Name
*   Your Company Name
*   Address
*   Email Address
*   Phone Number
*   FAX Number

- Detailed description of the issue (including history, what you've tried, and conditions under which you see this occur)
- Hardware model number, software version, and switch configuration (that is, what part types are in what slots)

Hardware Warranty

Cabletron warrants its products against defects in the physical product for one year from the date of receipt by the end user (as shown by Proof of Purchase). A product that is determined to be defective should be returned to the place of purchase. For more detailed warranty information, please consult the Product Warranty Statement received with your product.

Software Warranty

Cabletron software products carry a 90-day software warranty. During this period, customers may receive updates and patches for verified, reported software issues.

Repair Services

Cabletron offers an out-of-warranty repair service for all our products at our Santa Clara Repair Facility. Products returned for repair will be repaired and returned within 5 working days. A product sent directly to Cabletron Systems, Inc. for repair must first be assigned a Return Material Authorization (RMA) number. A product sent to Cabletron Systems, Inc., without an RMA number displayed outside the box will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, contact the Cabletron Technical Support. When you call for an RMA number, your support representative will spend a few minutes with you, making sure the board is defective. Once they confirm the board is defective, they will assign an RMA number. Payment, shipping instructions, and turnaround time will be confirmed when the RMA number is assigned.

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