

54 Managing DS3/E3 Modules

DS3/E3 Overview

DS3 and E3 are two interface types for running data across Wide Area Networks at clocking speeds of 44.736 and 34.368 Mbps, respectively. DS3, defined by ANSI standards, is used in North American networks. E3, defined by the ITU-T (formerly CCITT) standard, is used throughout the rest of the world.

These physical interfaces were originally designed to carry multiplexed digital data for voice services. Today, their use has been expanded to incorporate ATM services.

DS3 Framing

DS3 uses a framing structure of 4760 bits per “M-frame.” The M-Frame consists of 7 “M-subframes” each having 680 bits. Each M-subframe consists of 8 blocks of 85 bits, in which 84 of the 85 bits carry payload data. In the case of “legacy” DS3, the payload data consists of 28 T1 circuits. In the case of ATM DS3, the payload data bits consist of the ATM cells. The data is clocked at a bit rate of 44.736 Mbps. Control bits consist of X-bits, P-bits, and C-bits.

E3 Framing

The E3 module supports both the G.751 and G.832 protocols. G.751 E3 uses a frame of 1536 bits (192 octets), consisting of 24 bits of overhead and 1512 bits of payload data. G.832 E3 uses a framing structure of 4296 bits (537 octets) per frame, with 7 octets of overhead and 530 octets of payload data. In the case of “legacy” E3, the payload data consists of 16 E1 circuits. In the case of ATM DS3, the payload data bits consist of the ATM cells. The data is clocked at a bit rate of 34.368 Mbps. The G.751 control octet consists of frame alignment signal bits, an alarm indication bit, a national use bit, and justification service bits. The G.832 control octets consist of frame alignment signal (2 octets), error monitoring (1 octet), trail trace (1 octet), a maintenance and adaptation byte (1 octet that includes a 3-bit payload type), a network operator byte, and general-purpose communications channel (1 octet).

DS3/E3 Port Management Menu

The commands for configuring and monitoring DS3 and E3 ports are listed in the **ds3** submenu. To access this menu, enter **ds3**, followed by **<Enter>**, at the system prompt. TO display a summary of the DS3 menu commands, enter **?**, followed by **<Enter>**. A screen similar to that shown below will be displayed:

Command	DS3 Port Management Menu
dss	View a DS3/E3 port configuration, status, and statistics
dsmod	Modify a DS3/E3 port configuration
dscls	Clear former statistics of a DS3/E3 port
dsllts	Display 24-hour period statistics of a local DS3/E3 port
dsllcs	Display current 15-minute statistics of a local DS3/E3 port
dsllis	Display 15-minute interval statistics of a local DS3/E3 port
vps	View a DS3/E3 port status and statistics
vpis	View a DS3/E3 port interval statistics
cpis	Clear a DS3/E3 port interval statistics
Main	File
Interface	Security
	Summary
	System
	VLAN
	Services
	Networking
	Help

The commands in this menu are described in the following sections. The first command, **dss**, displays configuration information on ports. This configuration information is configured through the **dsmod** command. The remaining commands, listed after the **dsllts** command provide a variety of interval statistics for local and remote DS3 and E3 connections.

Configuring a DS3 Port

The **dsmod** command configures a DS3 port at the physical level. It is generic to all such ports, regardless of the logical level service that controls them and regardless of the board type.

To configure a DS3 port, enter the following command, followed by **<Enter>**

dsmod <slot>/<port>

in which **<slot>** is the slot number of the board on which the port is located and **<port>** is the port number on the board you want to modify. For example, to modify port number 2 on the switch slot 5, enter:

dsmod 5/2

A screen similar to the following displays:

DS3 Port Configuration for slot 5, port 2		
1) Circuit Identifier (30 chars max)		: Alcatel DS3 Circuit
2) PL Scramble { False(1), True(2) }		: True
3) Timing Mode { Loop(1),Local(2) }		: Local
4) Loopback Config { NoLoop(1), InwardLoop(2), LineLoop(3), CellLoop(4), PayloadLoop(5) }		: NoLoop
5) Line Type { CbitParity(1), M23(2) }		: CbitParity
6) Sublayer { PLCP(1), ADM(2) }		: PLCP
7) Trap Generation { enabled (1), disabled (2) }		: disabled
8) Line Length (0-64000)		: 50 meters
Enter (option=value/save/cancel) :		

After you have entered the required values, be sure to save your configuration.

Field Descriptions

The following section explains the fields and their corresponding values.

1) Circuit Identifier

Enter a textual description of this DS3 port, up to 30 characters. This text will be used in other screen displays to identify this DS3 port.

2) PL Scramble

This field specifies whether Cell Payload Scramble is enabled. PL Scramble is a technique that enables framing to be maintained on certain medium-speed edge and trunk interfaces. Available values are **True(1)** (enabled) or **False(2)** (disabled).

3) Timing Mode

This field specifies the transmit clock timing source of the DS3 port. The possible values are **Loop(1)** and **Local(2)**. In loop timing, the transmit timing is recovered from the receive data stream and then the timing “looped” back onto the transmit data stream (NOTE: this is different from loop diagnostics modes (see below), in which the actual receive data stream is looped back to the transmit data stream). In local timing, the timing for the transmit data stream is generated internally, rather than using the clock recovered from the receive data stream of the DS3 port. For more details on timing, refer to the chapter “Clocking ATM Networks.”

4) Loopback Config

This field is used for diagnostic purposes to set various receive-to-transmit data loops. Possible types are:

- | | |
|-----------------------|--|
| NoLoop(1) | The port is not in a loopback state. This is the typical live network state for a DS3 port. |
| InwardLoop(2) | The transmit function of the DS3 port is looped back internally to the receive function. This state should only be used for debugging purposes. |
| LineLoop(3) | The received signal at this DS3 port does not go through the port’s framing functionality, and is instead looped straight back out the transmit function of the port. This state should only be used for debugging purposes. |
| CellLoop(4) | The cells received (valid cells only) are looped back and sent out the transmit function of the port. This state should only be used for debugging purposes. |
| PayloadLoop(5) | The received signal (bit level) at this DS3 port is looped through the port after passing through the port’s framing functionality. |

5) Line Type

Enter the physical format of the DS3 port. The possible line types for DS3 port are **CbitParity(1)** or **M23(2)**. The type must match the type as specified by your service provider.

6) Sublayer

Specify the sublayer type to be used for this port. The available values for a DS3 port are **PLCP(1)**, (Physical Layer Convergence Protocol) and **ADM(2)** (ATM Direct Mapping). The type must match the type as specified by your service provider.

7) Trap Generation

Specifies whether the SNMP-related status traps for this port are enabled. The possible values are **enabled(1)** and **disabled(2)**.

7) Line Length

The allowable range for line length is 0-64000 meters. The default setting is 50 meters.

Configuring an E3 Port

The **dsmod** command is also used to configure E3 ports at the physical level and is generic to all such ports regardless of the logical level service that controls them and regardless of the board type.

To configure an E3 port, enter the following command:

```
dsmod <slot>/<port>
```

in which **<slot>** is the slot number of the board on which the port is located, and **<port>** is the E3 port number on the board you want to modify. For example, to modify port number 2 on switch slot 4, enter:

```
dsmod 4/2
```

If this E3 port is configured for the G.751 line type, a screen similar to the following displays:

E3 Port Configuration for slot 4, port 2

1) Circuit Identifier (30 chars max)	: Alcatel E3 Circuit
2) PL Scramble { False(1), True(2) }	: True
3) Timing Mode { Loop(1), Local(2) }	: Local
4) Loopback Config { NoLoop(1), InwardLoop(2), LineLoop(3), CellLoop(4), PayloadLoop(5) }	: NoLoop
5) Line Type { G.751(1), G.832(2) }	: G.751
6) Sublayer { PLCP(1), ADM(2) }	: PLCP
7) Trap Generation { enabled (1), disabled (2) }	: disabled

Enter (option=value/save/cancel) :

Field Descriptions

The following section explains the fields and their corresponding values.

1) Circuit Identifier

Enter a textual description of this E3 port, up to 30 characters. This text will be used in other screen displays to identify this port.

2) PL Scramble

This field specifies whether Cell Payload Scramble is enabled. Possible values are **True(1)** (enabled) or **False(2)** (disabled).

3) Timing Mode

This field specifies the transmit clock timing source of the E3 port. The possible values are **Loop(1)** and **Local(2)**. In loop timing, the transmit timing is recovered from the receive data stream and then the timing “looped” back on the transmit data stream (NOTE: this is different than the loop diagnostic modes (see below), in which the actual receive data stream is looped back to the transmit data stream). In local timing, the timing for the transmit data stream is generated internally, rather than using the clock recovered from the receive data stream of the E3 port.

4) Loopback Config

This field is used for diagnostic purposes to set various Receive to Transmit data loops. Possible types are:

- | | |
|-----------------------|---|
| NoLoop(1) | The port is not in a loopback state. This is the typical live network state for an E3 port. |
| InwardLoop(2) | The transmit function of the E3 port is looped back internally to the receive function. This state should only be used for debugging purposes. |
| LineLoop(3) | The received signal at this E3 port does not go through the port’s framing functionality, and is instead looped straight back out the transmit function of the port. This state should only be used for debugging purposes. |
| CellLoop(4) | The cells received (valid cells only) are looped back and sent out the transmit function of the port. This state should only be used for debugging purposes. |
| PayloadLoop(5) | The received signal (bit level) at this E3 port is looped through the port after passing through the port’s framing functionality. |

5) Line Type

Enter the line type for the port. The possible line types for an E3 port are **G.751** and **G.832**. The type must match the type as specified by your service provider.

6) Sublayer

This field specifies the sublayer type used for this port. The available options for an E3 G.751 port are **PLCP(1)**, (Physical Layer Convergence Protocol) and **ADM(2)** (ATM Direct Mapping). For an E3 G.832 port, only **ADM(2)** is allowed. The type must match the type as specified by your service provider.

7) Trap Generation

This field specifies whether the SNMP-related status traps for this port are enabled. The available options are **enabled(1)** and **disabled(2)**.

If this port is configured for G.832, additional parameters (fields 8-11) are displayed, as shown in the example below:

1) Circuit Identifier (30 chars max)	: Alcatel E3 Circuit
2) PL Scramble { False(1), True(2) }	: True
3) Timing Mode { Loop(1),Local(2) }	: Local
4) Loopback Config { NoLoop(1), InwardLoop(2), LineLoop(3), CellLoop(4), PayloadLoop(5) }	: NoLoop
5) Line Type { G.751(1), G.832(2) }	: G.832
6) Sublayer { PLCP(1), ADM(2) }	: ADM
7) Trap Generation { enabled (1), disabled (2) }	: disabled
8) Transmitted Payload Type { Unequipped(1), ATM(2), Equipped,non-specific(3), SDH TU-12s(4) }	: Unequipped
9) Expected Payload Type { Unequipped(1), ATM(2), Equipped,non-specific(3), SDH TU-12s(4) }	: Unequipped
10)Transmitted Trail Trace ID { Allzeros(0), or 15 chars max}	: Allzeros
11)Expected Trail Trace ID { Allzeros(0), or 15 chars max}	: Allzeros

Enter (option=value/save/cancel) :

8) Transmitted Payload Type (E3-G.832 Only)

Specify the G.832 payload type used for transmit data. The possible values are:

Unequipped(1)
ATM(2)
Equipped, non-specific(3)
SDH-TU12s(4)

9) Expected Payload type(E3-G.832 only)

Specify the G.832 payload type expected to be used for receive data. The possible values are:

Unequipped(1)
ATM(2)
Equipped, non-specific(3)
SDH-TU12s(4)

10) Transmitted Trail Trace ID(E3-G.832 only)

Specify the data to be used for G.832 Trail Trace ID to be transmitted. The Trail Trace ID is a 16-octet field that contains 1 octet of CRC-7 (first octet) and 15 octets of data. The CRC field is automatically calculated by the system. The possible values are:

Allzeroes(0)
1 to 15 characters of text

11) Expected Trail Trace ID(E3-G.832 only)

Specify the G.832 Trail Trace ID expected to be received for receive data. The possible values are:

Allzeroes(0)
1 to 15 characters of text

Viewing DS3/E3 Configuration and Alarm Information

You can view all current parameters and alarms for a DS3 or E3 port using the **dss** command. The configurable parameters will be either the default parameters or parameters you modified through the **dsmod** command or network management software.

You have a choice of viewing status information and configurable parameters at the chassis, slot or port level. You will receive different displays, depending upon which level you choose. The following sections describe the various ways to use the **dss** command.

Viewing Information for all DS3/E3 Ports in the Switch

To view port parameters for all DS3/E3 boards and ports in a chassis, enter the following command, followed by **<Enter>**:

dss

A screen similar to following displays:

DS3/E3 Chassis Status		
Slot/Port	Type	Active Alarms
4/2	E3	NoAlarm
4/3	E3	NoAlarm
5/2	DS3	NoAlarm
5/3	DS3	NoAlarm

Field Descriptions

The following section explains the fields and their corresponding values.

Slot/Port

This field displays the DS3 or E3 slot and port for which information is supplied. The slot is listed first, followed by a slash (/), followed by the port number.

Type

The port type. The port type will be either a DS3 or E3 port.

Active Alarms

Indicates current active alarms on the given port. Possible alarms for each port are:

NoAlarm	The port is free of any alarms.
LossOfSignal	Loss of Signal alarm
RcvOOF	Out of Frame alarm
RcvAIS	Alarm Indication Signal alarm
RcvFerb	Far End Receive Failure alarm (Non-E3 G.751 cases)
RedAlarm	Red alarm
RcvCloss	Cell Loss alarm
RcvCOFA	Change of Frame Alignment alarm

RcvFEBE	Far End Block Error alarm
RcvPERR	Parity Error alarm

The following alarms are applicable only if the DS3 or E3 port is configured for PLCP timing. For E3 G.832, the only configurable sublayer is ADM (PLCP is not allowed). Therefore, these alarms are not applicable to E3 G.832:

RcvPlcpYellow	PLCP Yellow Alarm
RcvPlcpLOF	PLCP Loss of Frame Alarm
RcvPlcpOOF	PLCP Out of Frame Alarm
RcvPlcpFEBE	PLCP Far End Block Error Alarm
RcvPlcpFBE	PLCP Framing Error Alarm
RcvPlcpBPE	PLCP Bit interleaved Parity Error Alarm

The following alarms are applicable only for an E3 port configured with the G.832 line type:

RcvUneq	Unequipped Payload type Received Alarm
RcvTIM	Trail Trace ID Mismatch Alarm
RcvPLM	Rx Payload Mismatch Alarm

The following alarm is applicable only for an E3 port configured with the G.751 line type:

RcvRAI	Remote Alarm Indication Alarm
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Viewing Information for DS3/E3 Ports on a Board

To view port parameters for all ports on a board in a particular slot, enter the following command:

dss <slot>

in which <slot> is the slot number of the board containing the DS3 or E3 ports for which you want to view information. For example, to view configuration parameters for the board in slot 5, enter

dss 5

A screen similar to following is displayed:

DS3/E3 Port Status for slot 5		
Port	Type	Active Alarms
=====	=====	=====
2	DS3	NoAlarm
3	DS3	XmtYellow, RedAlarm, LossOfSignal

Explanations of the columns in this table are described in the section, *Viewing Information for all DS3/E3 Ports in the Switch* on page 54-7.

Viewing Information for a DS3 Port

To view DS3 port status and configurable parameters, enter the following command, followed by **<Enter>**:

```
dss <slot>/<port>
```

in which **<slot>** is the slot number of the board containing the DS3 or E3 port, and **<port>** is the DS3 port number on the board on which you want to view information. For example, to view information for port 1 on slot 5, enter

```
dss 5/1
```

A screen similar to following displays:

DS3 Port Status for slot 5, port 1

Circuit Identifier	: Alcatel DS3 Circuit		
Line Type	: CbitParity	Sublayer	: PLCP
Transmit Clock Source	: localTiming	Trap Generation	: disabled
Line Length (meters)	: 50		
Status Change Time	: 0 days, 00:00:00.00		
Far End Alarm Code Rx	: No Code		
Cell Payload Scramble	: True		
Loopback Status	: NoLoopBack		
Line Status	: NoAlarm		

DS3 Port Statistics for slot 5, port 1

Loss of Signal	: 0	Alarm Indication Signal	: 0
Out of Frame	: 0	Far End Receive Failure	: 0
Framing Bit Errors	: 0	Change of Frame Alignment	: 0
Line Coding Violations	: 0	Red Alarms	: 0
Far End Block Errors	: 0	Path Parity Errors	: 0
Parity Errors	: 0	Cell Loss	: 0

DS3 Port PLCP Statistics for slot 5, port 1

Out of Frame	: 0	Loss of Frame	: 0
Framing Errors	: 0	Yellow Alarms	: 0
Far End Block Errors	: 0	Bit Interlvd. Parity Errs	: 0

Note: The above example shows PLCP Receive statistics. These statistics will only be displayed if the DS3 port is configured for PLCP timing.

Field Descriptions

The following section explains the fields and their corresponding values.

Circuit Identifier, Line Type, Line Length, and Cell Payload Scramble

These parameters are described in the section, *Configuring a DS3 Port* on page 54-2. Please refer to that section for descriptions.

Status Change Time

This field refers to the system time when the last change in line status occurred to this port.

Loopback Status

This field shows the type of loopback mode configured for this port through the **dsmod** command. The possible values are NoLoopBack, LocalPayloadLoop, LocalLineLoop, LocalInwardLoop, RemotePayloadLoop, RemoteLineLoop, and LocalOtherLoop (this will display when Cell loop or Inward loop is selected). These parameters are described in *Configuring a DS3 Port* on page 54-2.

Line Status

Indicates current active alarms on the given port. Possible alarms for each port are:

NoAlarm	The port is free of any alarms.
LossOfSignal	Loss of Signal alarm
RcvOOF	Out of Frame alarm
RcvAIS	Alarm Indication Signal alarm
RcvFerf	Far End Receive Failure alarm (Non-E3 G.751 cases)
RedAlarm	Red alarm.
RcvCLOSS	Cell Loss alarm
RcvCOFA	Change of Frame Alignment alarm
RcvFEBE	Far End Block Error alarm
RcvPERR	Parity Error alarm

The following alarms are applicable only if the DS3 port is configured for PLCP timing.

RcvPlcpYellow	PLCP Yellow Alarm
RcvPlcpLOF	PLCP Loss of Frame Alarm
RcvPlcpOOF	PLCP Out of Frame Alarm
RcvPlcpFEBE	PLCP Far End Block Error Alarm
RcvPlcpFBE	PLCP Framing Error Alarm
RcvPlcpBPE	PLCP Bit interleaved Parity Error Alarm

Viewing Information for an E3 Port

To view E3 port status and configurable parameters, enter the following command, followed by **<Enter>**:

dss <slot>/<port>

in which **<slot>** is the slot number for the board containing the DS3 or E3 port, and **<port>** is the number of the DS3 or E3 port on that slot for which you want to view information. For example, to view information for port 2 on slot 5, enter:

dss 5/2

A screen similar to following displays:

E3 Port Status for slot 5, port 2

Circuit Identifier	: Alcatel E3 Circuit		
Line Type	: G.751	Sublayer	: PLCP
Transmit Clock Source	: loopTiming	Trap Generation	: disabled
Status Change Time	: 0 days, 00:00:00.00		
Cell Payload Scramble	: True		
Loopback Status	: NoLoopBack		
Line Status	: NoAlarm		

E3 Port Statistics for slot 5, port 2

Loss of Signal	: 0	Alarm Indication Signal	: 0
Out of Frame	: 0	Remote Alarm Indication	: 0
Framing Bit Errors	: 0	Change of Frame Alignment	: 0
Line Coding Violations	: 0	Cell Loss	: 0

E3 Port PLCP Statistics for slot 5, port 2

Out of Frame	: 0	Loss of Frame	: 0
Framing Errors	: 0	Yellow Alarms	: 0
Far End Block Errors	: 0	Bit Interlvd. Par. Errors	: 0

Note: The above example shows PLCP receive statistics. These statistics will only be displayed if the E3 port is configured for PLCP timing.

If the port is an E3 G.832 port, a screen similar to the following displays:

E3 Port Status for slot 5, port 2

Circuit Identifier	: Alcatel E3 Circuit		
Line Type	: G.832	Sublayer	: ADM
Transmit Clock Source	: localTiming	Trap Generation	: disabled
Status Change Time	: 0 days, 00:00:00.00		
Cell Payload Scramble	: True		
Loopback Status	: NoLoopBack		
Line Status	: RcvTIM		

	Trail Trace ID	Payload Type
Transmit	0xfd Abcdefghijklmno	Unequipped
Received	0x00 123456789012345	Unequipped
Expected	0xf8 123456789Abcdef	Unequipped
Status	Alarm	Ok

E3 Port Statistics for slot 4, port 1

Loss of Signal	: 0	Alarm Indication Signal	: 0
Out of Frame	: 0	Far End Receive Failure	: 0
Framing Bit Errors	: 0	Change of Frame Alignment	: 0
Line Coding Violations	: 0	Unequipped Payload Recvd	: 0
Parity Errors	: 0	Payload Type Mismatch	: 0
Far End Block Errors	: 0	Trail Trace ID Mismatch	: 0
		Cell Loss	: 0

Field Descriptions

The following section explains the fields and their corresponding values.

Circuit Identifier, Line Type, Sublayer, Transmit Clock Source, Trap Generation, Line Length.

These parameters are described in the section, *Configuring a DS3 Port* on page 54-2. Please refer to that section for descriptions.

Status Change Time

The system time when the last change in line status occurred to this E3 port.

Cell Payload Scramble

This field indicates whether Cell Payload Scramble is configured as **True** or **False**.

Loopback Status

This field displays the type of loopback mode configured for this port through the **dsmod** command. The possible values are NoLoopBack, LocalPayloadLoop, LocalLineLoop, LocalInwardLoop, RemotePayloadLoop, RemoteLineLoop, and LocalOtherLoop (This will display when Cell loop is selected). These parameters are described in *Configuring a DS3 Port* on page 54-2.

Line Status

Indicates current active alarms on the given port. Possible alarms for each port are:

NoAlarm	The port is free of any alarms.
LossOfSignal	Loss of Signal alarm
RcvOOF	Out of Frame alarm
RcvAIS	Alarm Indication Signal alarm
RcvFerf	Far End Receive Failure alarm (Non-E3 G.751 cases)
RedAlarm	Red alarm
RcvCLoss	Cell Loss alarm
RcvCOFA	Change of Frame Alignment alarm
RcvFEBE	Far End Block Error alarm
RcvPERR	Parity Error alarm

The following alarms are applicable only if the E3 G.751-configured port is configured for PLCP timing:

RcvPlcpYellow	PLCP Yellow alarm
RcvPlcpLOF	PLCP Loss of Frame alarm
RcvPlcpOOF	PLCP Out of Frame alarm
RcvPlcpFEBE	PLCP Far End Block Error alarm

RcvPlcpFBE	PLCP Framing Error alarm
RcvPlcpBPE	PLCP Bit Interleaved Parity Error alarm

The following alarms are applicable only if the E3 port is configured as G.832:

RcvFerf	Far End Receive Failure alarm
RcvUneq	Unequipped Payload Type Received alarm
RcvTIM	Trail Trace ID Mismatch alarm
RcvPLM	Rx Payload Mismatch alarm

The following two line status alerts are status rather than alarms:

RcvPlcpTIMEMK	Timing Marker Bit (bit 8 of the G.832 Maintenance and Adaptation byte) received. This string is displayed in the “line status” field of the “dss slot/port” command only.
RcvNATUSE	National Use bit (bit 12 of the frame in E3 G.751 frame received. This string is displayed in the “line status” field of the “dss slot/port” command only.

Viewing DS3/E3 Local Statistics

There are a number of commands available for viewing local DS3 and E3 statistics. These commands provide statistics for the past 24 hours (**dslts**), the current 15-minute interval (**dslcs**), or any or all of the past 96, 15-minute intervals (**dsics**). The following sections describe these commands.

Viewing DS3/E3 Local Total Statistics

You can view the statistics totals for events occurring during the past 24 hours on a single DS3 or E3 port by entering the **dslts** command, as shown below:

dslts <slot>/<port>

in which **<slot>** is the slot number of the board the port is located on, and **<port>** is the port number on the board for which you want statistics. For example, to get statistics for port number 1 on switch slot 5, enter

dslts 5/1

A screen similar to the following displays:

```

Local 24-hour Period Statistics for port 1 on slot 5

Circuit Identifier : Alcatel DS3 Circuit
Valid Intervals   : 0 of 96      Elapsed Time : 504 of 900

PES  PSES SEFS UAS  LCV  PCV  LES  CCV  CES  CSES
=====
      0      0      0      0      0      0      0      0      0      0

```

Field Descriptions

The following section explains the fields and their corresponding values.

Circuit Identifier

The textual description of this DS3 or E3 port as configured through the **dsmod** command.

Valid Intervals

This field indicates the number of 15-minute intervals for which valid statistics were gathered over the last 24 hours. Statistics may be gathered and stored for up to 96, 15-minute intervals. The number of valid intervals will be 96 unless the interface was brought on-line within the last 24 hours.

Elapsed Time

This field indicates the number of seconds that have elapsed since the beginning of the current error-measurement 15 minute sample. This time will be reset to zero when a 15-minute session of statistics gathering is complete (and stored) and the next 15-minute interval begins.

Displayed Statistics

The statistics gathered and stored (as per the IETF RFC 1407 DS3 MIB standard) are:

PES - P-bit Errored Seconds

A P-bit Errored Second is a second with one or more P-bit Coding Violations, one or more Out Of Frame defects, or a detected incoming Alarm Indication Signal. This counter is not incremented when Unavailable Seconds statistics are counted.

PSES P-bit Severely Errored Seconds

A P-bit Severely Errored Second is a second with 44 or more P-bit Coding Violations, 44 or more Out Of Frame defects, or a detected incoming Alarm Indication Signal. This counter is not incremented when Unavailable Seconds statistics are counted.

SEFS Severely Errored Framing Seconds

A Severely Errored Framing Second is a second with one or more Out Of Frame defects or a detected incoming Alarm Indication Signal. This statistic is not incremented during unavailable seconds.

UAS Unavailable Seconds

Unavailable Seconds are calculated by counting the number of seconds that the interface is "unavailable". The DS3 or E3 interface is said to be unavailable from the onset of 10 contiguous P-bit Severely Errored Seconds, or the onset of the condition leading to a failure.

LCV Line Coding Violations

This statistic is a count of both Bipolar Violations and Excess Zeros occurring during the sample period.

PCV P-bit Coding Violations

A P-bit Coding violation error event is equivalent to P-bit Parity Error event. A P-bit Parity Error event is the occurrence of a received P-bit code on the DS3 M-frame that is not identical to the corresponding locally-calculated code.

LES Line Errored Seconds

A Line Errored Second is a second in which one or more Coding Violations occurred or one or more Loss Of Signal defects is detected.

CCV C-bit Coding Violations

For C-bit Parity and SYNTRAN DS3 applications, this is the count of coding violations reported via the C-bits. For C-bit Parity, it is a count of CP-bit parity errors occurring in the sample period. For SYNTRAN, it is a count of CRC-9 errors occurring in the sample period.

CES C-bit Errored Seconds

A C-bit Errored Second is a second with one or more C-bit coding violations, or one or more Out Of Frame defects occur, or a detected incoming Alarm Indication Signal. This count is applicable only to SYNTRAN and C-bit Parity DS3 applications. This statistic is not incremented when Unavailable Seconds statistics are counted

CSES C-bit Severely Errored Seconds

A C-bit Errored Second is a second with 44 or more C-bit coding violations, or 44 or more Out Of Frame defects occur, or a detected incoming Alarm Indication Signal. This count is applicable only to SYNTRAN and C-bit Parity DS3 applications. This statistic is not incremented when Unavailable Seconds statistics are counted.

Viewing DS3/E3 Local Current Statistics

To view the statistics totals for events occurring during the current 15-minute sample period on a single DS3 or E3 port, enter the **dslcs** command, followed by **<Enter>**, as shown below:

```
dslcs <slot>/<port>
```

in which **<slot>** is the slot number of the board the port is located on, and **<port>** is the port number on the board you for which you want statistics. For example, to get statistics for port number 1 on switch slot 5, enter

```
dslcs 5/1
```

A screen similar to the following displays:

```

Local Current 15-minute Measurement for port 1 on slot 5

Circuit Identifier : Alcatel DS3 Circuit
Valid Intervals   : 0 of 96      Elapsed Time : 555 of 900

PES  PSER  SEFS  UAS  LCV  PCV  LES  CCV  CES  CSES
=====
0    0    0    555  64981 45230 555  63221 0    0

```

Definitions of the fields and columns in this display are the same as those used for the **dslts** command. See *Viewing DS3/E3 Local Total Statistics* on page 54-13 for an explanation of these statistics.

Viewing DS3/E3 Local Interval (Historical) Statistics

You can view the statistics totals for events occurring during all currently stored 15-minute sample periods on a single DS3 or E3 port by entering the **dslis** command, as shown below:

dslis <slot>/<port>

in which **<slot>** is the slot number of the board the port is located on, and **<port>** is the port number on the board you want to get statistics on. For example to get statistics for port number 1 on switch slot 5, enter

dslis 5/1

A screen similar to the following displays:

Local 15-minute Interval Statistics for port 1 on slot 5

Circuit Identifier : Alcatel DS3 Circuit

Valid Intervals : 96 of 96

Elapsed Time : 47 of 900

Intv#	PES	PSES	SEFS	UAS	LCV	PCV	LES	CCV	CES	CSES
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
1	0	0	0	900	64636	19894	900	10288	0	0
2	0	0	0	394	28278	9725	394	4832	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0

More? [<SPACE> for next page, <RETURN> for next line, Quit]

If more than 15 sample periods are stored, a “More” prompt will be displayed. You can then step through the remaining samples either a line at a time pressing **<Enter>** or a page at a time by pressing **<space>**.

Definitions of the fields and columns in this display are the same as those used for the **dslts** command. See “Viewing DS3/E3 Local Statistics” on page 31-13 for an explanation of these statistics.

Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)

The **vps** command displays status and statistics for the specified DS3 or E3 port. If you have a DS3 interface configured with the CbitParity Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

DS3 RX Line Status								
Slot	Port	LOS	OOF	AIS	FERF	RED	Cell Loss	Loopback Status
=====	=====	=====	=====	=====	=====	=====	=====	=====
4	1	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack
4	2	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack

DS3 RX Line Status

Slot	Port	FEAC Code Rx
=====	=====	=====
4	1	No Code
4	2	No Code

DS3 RX Line Status

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL
=====	=====	=====	=====	=====
4	1	Ok	Ok	OK
4	2	Ok	Ok	OK

DS3 RX Line Statistics

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	2	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	1	3	7	96

DS3 RX Line Statistics

Slot	Port	FEBE	PPERR
=====	=====	=====	=====
4	1	0	0
4	2	5	5

DS3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEBE
=====	=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0	0
4	2	1	0	0	2	2	0

Physical layer statistics available only for DS3 and E3.

Status Definitions for DS3

The following section explains the status definition fields.

LOS	Loss of signal defect.
OOF	Out of frame defect.
AIS	Alarm Indication Signal.
FERF	Far end receive failure defect.
RED	Red defect indication. Result of a persistent LOS or OOF defect.
Cell Loss	Loss of cell delineation has occurred.
Loopback Status:	<p>The current loopback status of this port. Loopback may be activated by local management or from the remote end through FEAC code. Possible values for this column are as follows:</p> <p><i>NoLoopBack.</i> The port is not in loopback mode.</p> <p><i>LocalPayloadLoop.</i> The port is in payload loopback.</p> <p><i>LocalLineLoop.</i> The port is in line loopback.</p> <p><i>LocalOtherLoop.</i> The port is in inward loopback.</p> <p><i>RemotePayloadLoop.</i> The far-end port is in payload loopback.</p> <p><i>RemoteLineLoop.</i> The far-end port is in line loopback.</p>
FEAC Code Rx	<p>The FEAC code being received at this DS3 interface. The possible values are as follows:</p> <p><i>No Code.</i> No code is being received.</p> <p><i>DS3 Eqpt. Failure (SA).</i> The remote DS3 equipment is in a failure state (service affecting) and requires immediate attention.</p> <p><i>DS3 LOS.</i> The remote DS3 port is in loss of signal.</p> <p><i>DS3 OOF.</i> The remote DS3 port is in loss of frame.</p> <p><i>DS3 AIS Received.</i> The remote DS3 is receiving AIS.</p> <p><i>DS3 IDLE Received.</i> The remote DS3 is receiving Idle code.</p> <p><i>DS3 Eqpt. Failure (NSA).</i> The remote DS3 equipment is in a failure state (non-service affecting). This failure state could be suspended services, not activated, or not available for use.</p> <p><i>Common Eqpt. Failure (NSA).</i> The remote DS3 equipment is in a failure state (non-service affecting).</p> <p><i>Loopback Received.</i> The remote DS3 is sending loopback activation code.</p> <p><i>Unsupported Code.</i> The DS3 interface is receiving unsupported code, such as DS1 loopback activation/deactivation code.</p> <p><i>Unknown Code.</i> The DS3 interface is receiving unknown code.</p>
PLCP OOF	PLCP out of frame defect.
PLCP LOF	PLCP loss of frame defect.
PLCP YEL	PLCP yellow alarm defect.

Statistics Definitions for DS3

The following section explains the statistics definition fields.

Note

The statistics tables indicate the number of times an alarm has occurred since start up.

LOS	Loss of frame defect count.
OOF	Out of frame defect count.
FERF	Far end receive failure defect count.
RED	RED alarm count.
Cell Loss	Number of times loss of cell delineation has occurred.
AIS	Alarm indication signal count.
COFA	Count of change of frame alignment occurrences.
LCV	Line code violation. This statistic is a count of Bipolar violations and Excessive zeros.
PERR	Parity bit errors. This statistic is the number of DS3 P-bit errors.
FERR	Framing bit errors. This statistic is the number of DS3 F-bit or M-bit errors.
FEBE	Far-end block error. This statistic is the number of times that DS3 frames with three C-bits of M-frame 4 are different from 111.
PPERR	Path Parity Bit Error. The number of DS3 path parity errors or C-bit parity errors.
PLCP OOF	PLCP out of frame defect count.
PLCP LOF	PLCP loss of frame defect count.
PLCP YEL	PLCP yellow alarm defect count.
PLCP FOE	PLCP framing octet error count.
PLCP BPE	PLCP bit interleaved parity error count.
PLCP FEBE	PLCP far end block error count.

Viewing ATM Physical Layer Statistics for DS3 (CbitParity ADM Sublayer)

If you have a DS3 interface configured with a CbitParity Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	AIS	FERF	RED	Cell Loss	Loopback Status
=====	=====	=====	=====	=====	=====	=====	=====	=====
4	1	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack
4	2	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack

DS3 RX Line Status

Slot	Port	FEAC Code Rx
=====	=====	=====
4	1	No Code
4	2	No Code

DS3 RX Line Statistics

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	2	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	1	3	7	96

DS3 RX Line Statistics

Slot	Port	FEBE	PPERR
=====	=====	=====	=====
4	1	0	0
4	2	5	5

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)* on page 54-17.

Viewing ATM Physical Layer Statistics for DS3 (M23 Type PLCP Sublayer)

If you have a DS3 interface configured with an M23 Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	AIS	FERF	RED	Cell Loss	Loopback Status
=====	=====	=====	=====	=====	=====	=====	=====	=====
4	1	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack
4	2	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack

DS3 RX Line Status

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL
=====	=====	=====	=====	=====
4	1	Ok	Ok	OK
4	2	Ok	Ok	OK

DS3 RX Line Statistics

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	2	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	1	3	7	96

DS3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEBE
=====	=====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0	0
4	2	1	0	0	2	2	0

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)* on page 54-17.

Viewing ATM Physical Layer Statistics for DS3 (M23 Type ADM Sublayer)

If you have a DS3 interface configured with an M23 Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

DS3 RX Line Status

Slot =====	Port =====	LOS =====	OOF =====	AIS =====	FERF =====	RED =====	Cell Loss =====	Loopback Status =====
4	1	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack
4	2	Ok	Ok	OK	Ok	Ok	Ok	NoLoopBack

DS3 RX Line Statistics

Slot =====	Port =====	LOS =====	OOF =====	FERF =====	RED =====	Cell Loss =====
4	1	0	0	0	0	0
4	2	0	2	0	0	0

DS3 RX Line Statistics

Slot =====	Port =====	AIS =====	COFA =====	LCV =====	PERR =====	FERR =====
4	1	0	0	0	0	0
4	2	0	1	3	7	96

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)* on page 54-17.

Viewing ATM Physical Layer Statistics for E3 (G.751 PLCP Sublayer)

If you have an E3 interface configured with a G.751 Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

E3 RX Line Status

Slot	Port	LOS	OOF	AIS	Cell Loss	Loopback Status
=====	=====	=====	=====	=====	=====	=====
5	1	Ok	Ok	OK	Ok	NoLoopBack
5	2	Ok	Alarm	OK	Alarm	NoLoopBack

E3 RX Line Status

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL
=====	=====	=====	=====	=====
5	1	Ok	Ok	OK
5	2	Alarm	Alarm	OK

E3 RX Line Status

Slot	Port	RAI	Nat Use
=====	=====	=====	=====
5	1	Ok	Off
5	2	Ok	On

E3 RX Line Statistics

Slot	Port	LOS	OOF	FERR	LCV	Cell Loss
=====	=====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	142716	142716	11	1

E3 RX Line Statistics

Slot	Port	AIS	COFA	RAI
=====	=====	=====	=====	=====
5	1	0	0	0
5	2	0	0	0

E3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEFE
=====	=====	=====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0	0
5	2	142716	1	0	2	2	1

Physical layer statistics available only for DS3 and E3.

Status Definitions for E3 G.751 PLCP

The following section explains the status definition fields.

LOS	Loss of signal defect.
OOF	Out of frame defect.
AIS	Alarm Indication Signal.
Cell Loss	Loss of cell delineation has occurred.
Loopback Status	The current loopback status of this E3 port. Loopback may be activated by local management or the remote end through FEAC code. Possible values for this column are as follows: <i>NoLoopBack</i> . The port is not in loopback mode. <i>LocalPayloadLoop</i> . The port is in payload loopback. <i>LocalLineLoop</i> . The port is in line loopback. <i>LocalOtherLoop</i> . The port is in diagnostic loopback. <i>RemotePayloadLoop</i> . The far-end port is in payload loopback. <i>RemoteLineLoop</i> . The far-end port is in line loopback.
PLCP OOF	PLCP out of frame defect.
PLCP LOF	PLCP loss of frame defect.
PLCP YEL	PLCP yellow alarm defect.
RAI	Remote alarm indication.
Nat Use	National use. Reflects the state of the National use bit in the G.751 frame.

Statistics Definitions for E3, PLCP G.751

The following section explains the statistics definition fields.

Note

The statistics tables indicate the number of times an alarm has occurred since start up.

LOS	Loss of frame defect count.
OOF	Out of frame defect count.
FERR	Framing bit error count event.
LCV	Line code violation. This statistic is a count of Bipolar violations and Excessive zeros.
Cell Loss	Number of times loss of cell delineation has occurred.
AIS	Alarm indication signal count.
COFA	Count of change of frame alignment occurrences.
RAI	Remote Alarm Indicator count.
PLCP OOF	PLCP out of frame defect count.
PLCP LOF	PLCP loss of frame defect count.

PLCP YEL	PLCP yellow alarm defect count.
PLCP FOE	PLCP framing octet error count.
PLCP BPE	PLCP bit interleaved parity error count.
PLCP FEBE	PLCP far end block error count.

Viewing ATM Physical Layer Statistics for E3 (G.751 ADM Sublayer)

If you have an E3 interface configured with a G.751 Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

E3 RX Line Status

Slot	Port	LOS	OOF	AIS	Cell Loss	Loopback Status
====	====	=====	=====	=====	=====	=====
5	1	Ok	Ok	OK	Ok	NoLoopBack
5	2	Ok	Ok	OK	Alarm	NoLoopBack

E3 RX Line Status

Slot	Port	RAI	Nat Use
====	====	=====	=====
5	1	Ok	Off
5	2	Ok	On

E3 RX Line Statistics

Slot	Port	LOS	OOF	FERR	LCV	Cell Loss
====	====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	299895	299895	11	1

E3 RX Line Statistics

Slot	Port	AIS	COFA	RAI
====	====	=====	=====	=====
5	1	0	0	0
5	2	0	2	1

Physical layer statistics available only for DS3 and E3.

Statistics Definitions for E3, ADM G.751

The following section explains the statistics definition fields.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity ADM Sublayer)* on page 54-20.

Viewing ATM Physical Layer Statistics for E3 (G.832 ADM Sublayer)

If you have an E3 interface configured with a G.832 Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

E3 RX Line Status

Slot	Port	LOS	OOF	AIS	Cell Loss	Loopback Status
====	====	=====	=====	=====	=====	=====
5	1	Ok	Ok	OK	Ok	NoLoopBack
5	2	Ok	Ok	OK	Alarm	NoLoopBack

E3 RX Line Status

Slot	Port	FEBE	FERF	Time Marker	Payload Type
====	====	=====	=====	=====	=====
5	1	Ok	Ok	Off	0
5	2	Ok	Alarm	Off	0

E3 RX Line Statistics

Slot	Port	LOS	OOF	FERR	LCV	Cell Loss
====	====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	307744	307744	11	0

E3 RX Line Statistics

Slot	Port	AIS	COFA	FERF	FEBE	PERR
====	====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	3	2	8	9

E3 RX Line Statistics

Slot	Port	SLM	UNEQ	TIM
====	====	=====	=====	=====
5	1	0	0	0
5	2	0	3	2

Status Definitions for G.832 ADM

The following section explains the status definition fields.

LOS	Loss of signal defect.
OOF	Out of frame defect.
AIS	Alarm Indication Signal.
Cell Loss	Loss of cell delineation has occurred.
Loopback Status	The current loopback status of this port. Loopback may be activated by local management or the remote end through FEAC code. Possible values for this column are as follows:

NoLoopBack. The port is not in loopback mode.

LocalPayloadLoop. The port is in payload loopback.

LocalLineLoop. The port is in line loopback.

LocalOtherLoop. The port is in diagnostic loopback.

RemotePayloadLoop. The far-end port is in payload loopback.

RemoteLineLoop. The far-end port is in line loopback.

FEBE	Far end block error indication.
FERF	Far end receive failure indication.
Time Marker	Timing marker. Reflects the state of the Timing Marker bit in the G.832 frame.
Payload Type	Payload type. Reflects the state of the Payload Type bits in the G.832 frame.

Statistics definitions for E3, ADM G.832

The following section explains the statistics definition fields.

Note

The statistics tables indicate the number of times an alarm has occurred since start up.

LOS	Loss of frame defect count.
OOF	Out of frame defect count.
FERR	Framing bit error count event.
LCV	Line code violation. This statistic is a count of Bipolar violations and Excessive zeros.
Cell Loss	Number of times loss of cell delineation has occurred.
AIS	Alarm indication signal count.
COFA	Count of change of frame alignment occurrences.
FERF	Far end receive failure count.
FEBE	Far end block error count.
PERR	Bit interleaved parity event count. Number of times one or more BIP-8 (8-bit interleaved parity) errors have occurred.
SLM	Signal Label Mismatch Count. Number of payload type mismatch occurrences.
UNEQ	Unequipped Count. Number of unequipped payload received.
TIM	Trail Trace Id Mismatch Count.

Viewing ATM Physical Layer Interval Statistics for DS3 (CbitParity PLCP Sublayer)

You can view DS3 statistics over a certain time interval. The **vpis** command displays statistics similar to the **vps** command, but displays total values over a specified time.

If you have a DS3 interface configured with the CbitParity Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vpis** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	FEBE	PPERR
====	====	=====	=====
4	1	0	0
4	2	0	0

DS3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEBE
====	====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0	0
4	2	0	0	0	0	0	0

Slot	Port	Elapsed Time
====	====	=====
4	1	0 days, 00:00:01.63
4	2	0 days, 00:00:01.63

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)* on page 54-17.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Viewing ATM Physical Layer Interval Statistics for DS3 (CbitParity ADM Sublayer)

The **vpis** command allows you to view DS3 statistics that have accumulated over time, either since the system was started, or since the **cpis** command (See “Clearing Interval Statistics” on page 31-33) was issued. The **vpis** command displays statistics similar to the **vps** command, but displays total values over the elapsed period of time.

If you have a DS3 interface configured with the CbitParity Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vpis** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	FEBE	PPERR
====	====	=====	=====
4	1	0	0
4	2	0	0

Slot	Port	Elapsed Time
====	====	=====
4	1	0 days, 00:00:03.55
4	2	0 days, 00:00:03.55

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity ADM Sublayer)* on page 54-20.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Viewing ATM Physical Layer Interval Statistics for DS3 (M23 Type PLCP Sublayer)

If you have a DS3 interface configured with the M23 Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vpis** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEBE
====	====	=====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0	0
4	2	0	0	0	0	0	0

Slot	Port	Elapsed Time
====	====	=====
4	1	0 days, 00:00:02.43
4	2	0 days, 00:00:02.43

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Statistics definitions for E3, ADM G.832* on page 54-27.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Viewing ATM Physical Layer Interval Statistics for DS3 (M23 Type ADM Sublayer)

If you have a DS3 interface configured with the M23 Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vpis** command.

DS3 RX Line Status

Slot	Port	LOS	OOF	FERF	RED	Cell Loss
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

DS3 RX Line Statistics

Slot	Port	AIS	COFA	LCV	PERR	FERR
====	====	=====	=====	=====	=====	=====
4	1	0	0	0	0	0
4	2	0	0	0	0	0

Slot	Port	Elapsed Time
====	====	=====
4	1	0 days, 00:00:02.99
4	2	0 days, 00:00:02.99

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Viewing ATM Physical Layer Statistics for DS3 (CbitParity PLCP Sublayer)* on page 54-17.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Viewing ATM Physical Layer Interval Statistics for E3 (G.832 PLCP Sublayer)

The **vpis** command allows you to view E3 statistics that have accumulated over time, either since the system was started, or since the **cpis** command (See “Clearing Interval Statistics” on page 31-33) was issued. The **vpis** command displays statistics similar to the **vps** command, but displays total values over the elapsed period of time.

For an E3 interface configured with a G.832 Type and PLCP Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

E3 RX Line Status

Slot	Port	LOS	OOF	FERR	LCV	Cell Loss
====	====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	30848	30848	0	0

E3 RX Line Statistics

Slot	Port	AIS	COFA	RAI
====	====	=====	=====	=====
5	1	0	0	0
5	2	0	0	0

E3 RX Line Statistics

Slot	Port	PLCP OOF	PLCP LOF	PLCP YEL	PLCP FOE	PLCP BPE	PLCP FEBE
====	====	=====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0	0
5	2	30848	0	0	0	0	0

Slot	Port	Elapsed Time
====	====	=====
5	1	0 days, 00:00:05.51
5	2	0 days, 00:00:05.51

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, *Statistics definitions for E3, ADM G.832* on page 54-27.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Viewing ATM Physical Layer Interval Statistics for E3 (G.751 ADM Sublayer)

If you have an E3 interface configured with a G.751 Type and ADM Sublayer (via the **map** command), a screen similar to following displays for the **vps** command.

E3 RX Line Status

Slot	Port	LOS	OOF	FERR	LCV	Cell Loss
====	====	=====	=====	=====	=====	=====
5	1	0	0	0	0	0
5	2	0	31354	31354	0	0

E3 RX Line Statistics

Slot	Port	AIS	COFA	RAI
====	====	=====	=====	=====
5	1	0	0	0
5	2	0	0	0

E3 RX Line Statistics

Slot	Port	SLM	UNEQ	TIM
====	====	=====	=====	=====
5	1	0	0	0
5	2	0	3	2

Slot	Port	Elapsed Time
====	====	=====
5	1	0 days, 00:00:07.87
5	2	0 days, 00:00:07.87

Physical layer statistics available only for DS3 and E3.

The statistics in this display are described in the section, “Viewing ATM Physical Layer Statistics for E3 (G.751 PLCP Sublayer)” on page 23.

The **Elapsed Time** column indicates the time interval over which these statistics were gathered. The format used for the time interval is as follows:

<xxx> days, <hours>:<minutes>:<seconds>.<tenths of second>

Clearing Interval Statistics

You can clear interval statistics (viewed through the **vpis** command) using the **cpis** command. You clear statistics on a port-by-port basis. The **Elapsed Time** variable and all statistics in **vpis** displays are reset after you use the **cpis** command.

To clear statistics on a given DS3 or E3 port, enter the following command:

cpis <slot>/<port>

in which slot is the slot number for the ASM in the switch, and port is the port number on the ASM module for which you want to clear statistics. For example, to clear interval statistics on port 1 on the DS3 or E3 module in slot 5, enter:

cpis 5/1

A message similar to the following confirms the operation:

Physical layer interval statistics of port 5/1 has been cleared

