297-8013-904

Nortel Networks

BroadBand STP

Centillion 1200N ATM Switch Command Manual

SSR3.0 Standard 1.01 August 2000

NORTEL NETWORKS

Published in Canada

REGULATORY INFORMATION

Network Equiipment Building Systems (NEBS)

This product has been tested and found to comply with the criteria of NEBS level 1, 2, and 3.

FCC Part 15 Requirements

In compliance with FCC Part 15 Rules, the following statement is provided:

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at their expense will be required to take whatever measures may be required to correct the interference.

FCC Part 68 Registration

Company Notification

If this product is provided with either a CE-DS1 or an ATM-DS1 interface then the following applies:

Before installing the Centillion 1200N ATM Switch to the telephone network, the telephone company must be provided with the following:

- Your telephone number
- The FCC registration number: AY5JPN-32775-XD-N
- The required USOC jack is RJ45

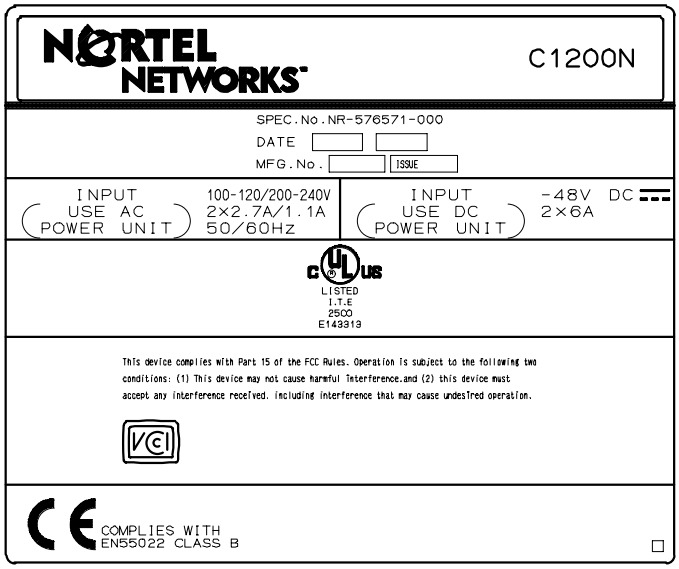
Without a CE-DS1 or an ATM-DS1 interface, the Centillion 1200N FCC registration number is 5CNJPN-32940-XD-N.

Service Requirements

In the event of equipment malfunction, Nortel Networks or an authorized distributor of Nortel Networks will perform all repairs. It is the responsibility of users requiring service to report the need for service to Nortel Networks or to one of their authorized distributors.

Location of FCC Compliance Labels

Labels stating the Centillion 1200N ATM Switch FCC registration number and compliance with FCC Part 15 and 68 are attached to the Base Chassis. The appearance of the labels is as shown below:



Regulatory Information for Analog Telephone

The equipment uses the following USOC jacks: RJ45.

If the equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact NEC America, Inc.'s National Technical And Support Center (NTAC) at 800-538-8166 for repair and/or warranty information. If the trouble is causing harm to the telephone network, the

telephone company may request that you remove the equipment form the network until the problem is resolved.

NO REPAIRS CAN BE DONE BY THE CUSTOMER.

IC CS03 Certification (Canada)

Certification number: 140 8642

Load Number of the equipment: N/A

NOTICE: The Industry Canada label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the companies inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situation.

Repairs to certified equipment should b made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or installations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request that the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This protection may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

CAUTION: The act of monitoring or recording telephone conversations under certain circumstances may violate federal or state statutes. Consultation with your legal counsel prior to engaging in such practices would be advisable.

Safety Certifications

This equipment has been listed by Underwriters Laboratories and found to comply with all the applicable requirements of the standard for Information Technology equipment UL 1950 3rd edition. This equipment complies with CSA standard C22.2 No 950 3rd edition.

Table of Contents

1 Instructions on Commands

Principal Commands

The ATM Switch is controlled by entering commands from an external Maintenance and Administration Terminal (MAT) connected via an RS-232C interface.

The commands of the ATM Switch are divided into two types:

- General Commands
- Privileged Commands

While *General Commands* can only be used to see system data, *Privileged Commands* can be used to set or change system data. Privileged Commands should only be used by system managers and service personnel. The execution of a Privileged Command requires the entry of a password registered in advance. Commands are divided into the two types to prevent system data and network-related data from being changed by unauthorized personnel.

The mode in which General Commands (only) can be used is referred to as the General Command Mode. The mode in which *both* General Commands and Privileged Commands can be used is referred to as the Privileged Command Mode.

When the power is turned on, the ATM Switch defaults to General Command Mode.

To change from the General Command Mode to the Privileged Command Mode, execute the **ENABLE** command.

NOTE All commands may be shortened at the command line for quicker entry; however, there is no listing of abbreviated commands. Simply type the fewest number of letters until the command displays. For example:

Long: **HOSTNAME#show interface**

Short: **HOSTNAME#sh int**

The ATM Switch will then prompt for a password. The password is set on the initial entry into Privileged Mode, whereby the ATM Switch will prompt for a **new password** and verification, along with a Telnet password and verification.

To change from the Privileged Command Mode to the General Command Mode, execute the **EXIT** command.

The format of the prompt displayed on the MAT screen is used to determine whether the current mode is the General Command Mode, indicated by the **>** prompt, or the Privileged Command Mode, indicated by the **#** prompt. In addition, if a host name is set to the system, the host name is also displayed as part of the prompt. The host name is set by executing the **SET LOCAL** command.

Default Prompt

General Command Mode:	**HOSTNAME>**
Privileged Command Mode:	**HOSTNAME#**

Entering Commands

A command is entered after the prompt (**>** or **#**). While some commands are used alone, many are used in combination with a subcommand or parameter. When entering a subcommand or parameter, enter a **[space]** to divide the entries.

Some parameters can be defaulted while others cannot, depending on the type of command and the conditions of specification. In this manual, parameters that can be defaulted are enclosed in brackets, such as {P1}. When you have finished entering a command, press the **[ENTER]** key.

A command may be entered in capital letters or lower case letters; however, the **password is case sensitive.**

Example Command Entry Formats

General Command Mode

1. **>Command[ENTER]**

   Example: **HOSTNAME>enable[ENTER]**

2. **>Command[space]Subcommand[ENTER]**

   Example: **HOSTNAME>show[space]time[ENTER]**

3. **>Command[space]Subcommand[space]Parameter1[ENTER]**

   Example: **HOSTNAME>show[space]pvc[space]00[ENTER]**

Privileged Command Mode

1. **#Command[ENTER]**

   Example: **HOSTNAME#save[ENTER]**

2. **#Command[space]Subcommand[ENTER]**

   Example: **HOSTNAME#save[space]act[ENTER]**

3. **#Command[space]Subcommand[space]Parameter1[space] Parameter2[space]...[ENTER]**

   Example: **HOSTNAME#set[space]local[space]switch1 [space]10.5.1.50[space]255.255.255.0[space]3900 [ENTER]**

Command Help

Help is available for each command. Use **HELP** or **?** for a brief description of each command and learn the types of parameters and their possible setting ranges.

Following are example Help Commands.

.

Command	Function
#?[ENTER]	Displays list of commands that can be entered in General Mode or Privileged Mode and a brief description.
#COMMAND?[ENTER]	Displays list of subcommands that follow the specified commands and a brief description.
#COMMAND[space] Subcommand?[ENTER]	Displays the next parameter and the possible setting ranges. (Displays types of parameters and possible setting ranges following the specified command+subcommand.) Example: **#DELETE configserver ?** **0-3 LECS index**
#COMMAND[space]Subcommand[space] P1[space]?[ENTER]	Displays the next parameter and the possible setting ranges. (If there is more than one parameter, the types of parameters and their possible setting ranges following the specified command+subcommand+parameter will be displayed.) Example: **#DELETE configserver 0 ?** **ATM ADDRESS LECS ATM address (up to 20-octet)**

NOTE Entering **?** after a command only shows the next parameter versus all parameters. For example, if a command has five parameters and a **?** is typed after entering two of them, only the next parameter is shown, not the remaining three.

ATM Switch commands are described in "Commands" on Page 3-1.

Error messages are described in "Error Messages" on Page 4-1.

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Commands Reference

General Commands

Command	Sub-Command	Function	Page
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DISPLAY/SHOW	**?**	DISPLAY command help	3-37
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	boot	Display boot mode	3-50
	calledsoftpvp	Display recognition standard of called SoftPVP	3-52
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	configserver	Display ILMI ATM address table of LAN emulation configuration server (LECS)	3-57
	configuration	Display all configuration data	3-58
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	froam	Display OAM endpoint information (FR-ATM).	3-63
	frprofile	Display FR profile information	3-64

Command	Sub-Command	Function	Page
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	ilmi	Display ILMI connection information	3-69
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	line	Display line status	3-83
	looptime	Display per port clock recovery status; on or off	3-85
	mac	Display MAC address	3-86
	manufacturingid	Display manufacturing ID number	3-87
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	oamend	Display OAM end point information	3-91
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	pnni	Display PNNI connection information	3-95
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	redundancy	Display redundancy of the server card	3-107
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	scope	Display Scope	3-110
	scroll	Display MAT display line count	3-111
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	sscop	Display SSCOP parameter	3-119
	status	Display hardware status	3-121
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	svcline	Display signaling line status	3-128
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Command	Sub-Command	Function	Page
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ENABLE	**-**	Go to Privileged Mode	3-148
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Privileged Commands

Command	Sub-Command	Function	Page
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CLEAR	**?**	CLEAR command help	3-5
	config	Initialize all configuration data	3-6
DEBUG	**?**	DEBUG command help	3-7
	ilmi	Set ILMI debug flag	3-8
	pnni	Set PNNI debug flag	3-9
	signaling	Set Q.2931 debug flag	3-12
	sscop	Set SSCOP debug flag	3-13
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	cevc	Delete circut emulation information	3-15
	configserver	Delete ILMI ATM address table entry of LAN emulation configuration server	3-16
	dlci	Delete DLCI data	3-17
	froam	Delete OAM endpoint information (FR-ATM)	3-18
	frprofile	Delete FR profile information	3-19
	ilmi	Delete ILMI connection (0, 16)	3-20
	iproute	Delete IP routing information	3-21
	nms	Delete NMS information	3-22
	oamcon	Delete OAM connecting point	3-23
	oamend	Delete OAM endpoint	3-24
	oamf5end	delete F5 OAM endpoint	3-25
	pnni	Delete PNNI connection (0, 18)	3-26
	profile	Delete profile information	3-27
	shaper	Delete shaping rate	3-28
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Command	Sub-Command	Function	Page
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	slot	Diagnose line packages	3-35
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FAILURELOG		Display failure log	3-156
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	feac	Transmit FEAC code at DS3 package	3-160
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OPEN	**-**	Open an access to a CPU built-in card, for example LAE/IPOA card	3-163
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Command	Sub-Command	Function	Page
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SET	**?**	Set command help	3-184
	atmsig	Set Q.2931 parameter	3-185
	boot	Set boot mode	3-186
	calledsoftpvp	Switch recognition standard of called SoftPVP	3-188
	cdvt	Set CDVT configuration	3-189
	cevc	Set circuit emulation connection information	3-191
	clock	Set clock mode (master, slave)	3-195
	configserver	Set ILMI ATM address table of LAN emulation configuration server	3-197
	dlci	Set DLCI data	3-198
	ether	Set Ethernet IP address	3-199
	froam	Set OAM endpoint information (FR-ATM)	3-200
	frprofile	Set FR profile information	3-201
	iisp	Set ON/OFF status of Split Horizon, loopcheck or swaproute	3-200
	ilmi	Enable ILMI and set configuration	3-204
	interface	Set port configuration	3-206
	iproute	Set IP routing information	3-212
	linestatus	Set line status; up or down	3-213
	local	Set Switch name, ATM IP address, mask, and ATM prefix information	3-215
	loopback	Set loopback on line interface	3-216
	looptime	Set per port clock recovery	3-217
	mib	Set MIB contact/location information	3-218

Command	Sub-Command	Function	Page
SET	**nms**	Set NMS information	3-219
	oamcon	Set OAM connecting point	3-220
	oamend	Set OAM endpoint	3-221
	oamf5end	Set F5 OAM endpoint	3-222
	pnni	Set PNNI configuration	3-222
	profile	Set UPC (policing) information	3-230
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	scope	Set Scope	3-233
	scroll	Set MAT display line count	3-234
	server	Set server IP address	3-235
	shaper	Set shaping rate	3-236
	signaling	Set signaling connection	3-237
	sscop	Set SSCOP information	3-238
	svcline	Enable/disable signaling	3-239
	t309trg	Set signaling line failure timing	3-240
	telnetlimit	Set time limit of Telnet	3-241
	time	Set system date/time	3-242
	tunneling	Set tunneling connection information	3-243
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	delete	Delete soft PVPC/PVCC	3-246
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	establish	Set soft PVPC/PVCC	3-248
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TELNETPASSWD	**-**	Set Telnet password	3-253

This page is for your notes.

3 Commands

ATM Switch Commands

NOTE The Centillion 1200N is a 2.5 Gbps ATM switch.

For details on command error messages, see "Error Messages" on Page 4-1.

?/HELP

Function

This command is used to display system commands.

Format

HOSTNAME# HELP

Output (General Mode)

```
DISPLAY<cmd>                Display configuration data.
                            (Type "display ?" for list.)

ENABLE                      Enable privileged commands
                            (Password required)

EXIT                        Exit from privileged mode or close
                            current Telnet session

?/HELP                      Show available commands

OPEN                        Enable access to card's CPU

SHOW<cmd>                   Display configuration data
                            (Type "show ?" for list.)
```

Output (Privileged Mode)

```
BACKUP<cmd>              Backup configuration data

CLEAR<cmd>               Clear configuration data or traffic counter (Type "clear
                         ?" for list.)

DEBUG<cmd>               Debug protocol (Type "debug ?" for list.)

DELETE<cmd>              Delete configuration data (Type "delete ?" for list.)

DIAGNOSIS<cmd>           Diagnose hardware (Type "diagnosis ?" for list.)

DISPLAY<cmd>             Display configuration data (Type "display ?" for list.)

ENABLE                   Enable privileged commands(Password required)

EXIT                     Exit from privileged mode or close current Telnet session

GENERATE<cmd>            Generate OAM cells (Type "generate ?" for list.)

?/HELP                   Show available commands

INSTALL                  Install system files or configuration data. OPEN Enable
                         access to card's CPU

PASSWD                   Change password

PVC<cmd>                 PVC commands (Type "pvc ?" for list.)

RESET<cmd>               Reset switch/line card (Type "reset ?" for list.)

ROUTE<cmd>               Configure SVC routing table (Type "route ?" for list.)

SAVE                     Save configuration data to flash memory

SET<cmd>                 Set configuration data (Type "set ?" for list.)

SHOW<cmd>                Display configuration data (Type "show ?" for list.)

SOFTPVP<cmd>             Softpvp commands
                         (Type "softpvp ?" for list.)

TELNETPASSWD             Change Telnet password
```

NOTE The output for **?** or **HELP** lists all possible commands in General Mode and Privileged Mode.

BACKUP ? (Privileged Command)

Function

This command is used to display the help message for the **BACKUP** command.

Format

```
HOSTNAME# BACKUP ?
```

Output

```
config       Backup configuration data
```

BACKUP config (Privileged Command)

Function

This command is used to back up configuration data from the DRAM into the specified Trivial File Transfer Protocol (TFTP) server.

Format

```
HOSTNAME# BACKUP config P1 P2
```

Format Explanation

P1 : Server IP address (x.x.x.x (x=0~255))

P2 : Configuration directory file name (max. 127 characters)

Example

```
HOSTNAME# Backup config 10.1.1.3 /user/2.5G/config.file
```

Output

```
<File name>....!......
Configuration data have been written?
```

NOTE

1. This command uses a TFTP server to write binary data to a backup file. A blank file MUST be created on the TFTP server beforehand to allow a TFTP write to work properly.
2. The backup file must be accessible for reading and writing; otherwise an error message will be displayed.
3. "!" will be displayed if the command is retried due to timeout (2, 4, 8, 16, 32 sec.) during transmitting and 64 sec time-out will result in command error.

CLEAR ? (Privileged Command)

Function

This command is used to display the help message for the **CLEAR** command.

Format

```
HOSTNAME# CLEAR ?
```

Output

```
config            Clear configuration data
```

NOTE This command will clear all of your configuration data and reset the switch to factory default. It should only be used by your network administrator.

CLEAR config (Privileged Command)

Function

This command is used to initialize all the configuration data currently saved and reset the system.

Format

```
HOSTNAME# CLEAR config
```

Output

If **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? y

Do not push reset button until save finishes.
#####

The system coming up now.
If you want to enter boot program, push [ESC] key immediately.

If the [ESC] key is detected within 3 seconds, boot program is
loaded.

Otherwise, online program will be loaded from the flash memory.:
```

If anything other than **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? n

Configuration data stored in flash memory is not erased !
```

NOTE This command will clear all of your configuration data and reset the switch to factory default. It should only be used by your network administrator. System passwords are not affected.

DEBUG ? (Privileged Command)

Function

This command is used to display the help message for the **DEBUG** command.

Format

```
HOSTNAME# DEBUG ?
```

Output

```
ilmi                    ILMI debug flag
pnni                    PNNI debug flag
signaling               Q.2931 debug flag
sscop                   SSCOP debug flag
```

NOTE Debug information is only displayed on a RS-232 connected MAT. Debug information is not displayed over a Telnet session.

DEBUG ilmi (Privileged Command)

Function

This command is used to turn on the display tree for **DEBUG ilmi**.

Format

```
HOSTNAME# DEBUG ilmi P1 {P2}
```

Format Explanation

P1: Flag ID

0 - off ILMI flag off

1 - on ILMI flag on

P2: Line number (00~33)

Output

```
ILMI debug flag has been set.
```

DEBUG pnni (Privileged Command)

Function

This command is used to set a flag for Private Network-Network Interface (PNNI) debugging.

If this flag is set, the PNNI unit outputs a message to the MAT each time it receives a signaling message.

Format

```
HOSTNAME# DEBUG pnni P1 {P2} {P3}
```

Format Explanation

P1 : Flag ID

"00" or "disable"	all flags off
"01" or "event"	event flag on
"02" or "process"	process flag on
"03"	event and process flag on
"04" or "data"	data flag on
"05"	event and data flag on
"06"	process and data flag on
"07"	event, process, and data flag on
"08"	error flag on
"09"	event and error flag on
"10"	process and error flag on
"11"	event, process, and error flag on
"12"	data and error flag on
"13"	event, data, and error flag on
"14"	process, data, and error flag on
"15"	event, process, data, and error flag on
"16" or "packet"	packet flag on
"17"	event and packet flag on
"18"	process and packet flag on
"19"	event, process, and packet flag on
"20"	data and packet flag on
"21"	event, data, and packet flag on
"22"	process, data, and packet flag on

"23"	event, process, data, and packet flag on
"24"	error and packet flag on
"25"	event, error, and packet flag on
"26"	process, error, and packet flag on
"27"	event, process, error, and packet flag on
"28"	data, error, and packet flag on
"29"	event, data, error, and packet flag on
"30"	process, data, error, and packet flag on
"31"	All flags on

P2 : Packet type (flag)

"00" or "hello"	to specify a logical port number without specifying a packet type
"01"	hello select
"02" or "PTSP"	PTSP select
"03"	hello and PTSP select
"04" or "PTSP Ack."	PTSP Ack. select
"05"	hello and PTSP Ack. select
"06"	PTSP and PTSP Ack. select
"07"	hello, PTSP and PTSP Ack. select
"08" or "DSSummary"	DS Summary select
"09"	hello and DS Summary select
"10"	PTSP and DS Summary select
"11"	hello, PTSP and DS Summary select
"12"	PTSP Ack. and DS Summary select
"13"	hello, PTSP Ack. and DS Summary select
"14"	PTSP, PTSP Ack. and DS Summary select
"15"	hello, PTSP, PTSP Ack. and DS Summary select
"16" or "PTSEReq."	PTSE Req. select
"17"	hello and PTSE Req. select
"18"	PTSP and PTSE Req. select
"19"	hello, PTSP and PTSE Req. select
"20"	PTSP Ack. and PTSE Req. select
"21"	hello, PTSP Ack. and PTSE Req. select

"22"	PTSP, PTSP Ack., and PTSE Req. select
"23"	hello, PTSP, PTSP Ack,. and PTSE Req. select
"24"	DS Summary and PTSE Req. select
"25"	hello, DS Summary, and PTSE Req. select
"26"	PTSP, DS Summary, and PTSE Req. select
"27"	hello, PTSP, DS Summary, and PTSE Req. select
"28"	PTSP Ack., DS Summary, and PTSE Req. select
"29"	hello, PTSP Ack., DS Summary, and PTSE Req. select
"30"	PTSP, PTSP Ack., DS Summary, and PTSE Req. select
"31"	hello, PTSP, PTSP Ack., DS Summary, and PTSE Req. select

P3 : Logical port number (00~157)

Output

```
PNNI debug flag has been set.
```

DEBUG signaling (Privileged Command)

Function

This command is used to set a flag for Q.2931 debugging.

If this flag is set, the Q.2931 unit outputs a message to the MAT each time it receives a signaling message.

Format

```
HOSTNAME# DEBUG signaling P1
```

Format Explanation

P1 : Flag ID

00 - disable all "flag" types

01 - or event - event flag on

02 - or packet - packet flag on

03 - event and packet flag on

04 - error flag on

05 - event and error flag on

06 - packet and error flag on

07 - all flag on (error, packet and event)

Output

```
Q.2931 debug flag has been set.
```

NOTE Debug information is only displayed on a RS-232 connected MAT. Debug information is not displayed over a Telnet session.

DEBUG sscop (Privileged Command)

Function

This command is used to set a flag for **SSCOP** debugging.

If this flag is set, the **SSCOP** unit outputs a message to the MAT each time it receives a **SSCOP** message.

Format

```
HOSTNAME# DEBUG sscop P1
```

Format Explanation

P1 : Flag ID

00 - disable all flag types

01 - event flag on

02 - packet flag on

03 - event and packet flag on

04 - error flag on

05 - event and error flag on

06 - packet and error flag on

07 - all flag on (error, packet, and event)

Output

```
SSCOP debug flag has been set.
```

NOTE Debug information is only displayed on a RS-232 connected MAT. Debug information is not displayed over a Telnet session.

DELETE ? (Privileged Command)

Function

This command is used to display the help message for the **DELETE** command.

Format

```
HOSTNAME# DELETE ?
```

Output

```
cevc                    Circuit emulation configuration
configserver            Configuration server information
ilmi                    ILMI connection
iproute                 IP route information
nms                     IMS information
oamcon                  OAM connecting point
oamend                  OAM endpoint
PNNI                    PNNI information
profile                 PCR,SCR,MBS,EPD configuration
shaper                  Shaping rate
signaling               Signaling connection
tunneling               Tunneling information
```

DELETE cevc (Privileged Command)

Function

This command is used to delete the connection information for circuit emulation (CE).

Format

```
HOSTNAME# DELETE cevc P1 P2
```

Format Explanation

P1 : Line number (00~33)

P2 : VCI

CE-J2:32~127

CE-DS3:256~287

CE-DS1/E1 Port0:256~287

CE-DS1/E1 Port1:288~319

CE-DS1/E1 Port2:320~351

CE-DS1/E1 Port3:352~383

Output

```
Circuit emulation connection has been deleted.
```

NOTE PVCs must be deleted before executing this command.

DELETE configserver (Privileged Command)

Function

This command is used to remove a LAN Emulation Configuration Server (LECS) address in the LECS address table.

Format

```
HOSTNAME# DELETE configserver P1 P2
```

Format Explanation

P1 : LECS address table index (0~3)

P2 : ATM address (max. 40char (0~9, a~f, A~F))

Example

```
Configuration server has been deleted.
```

NOTE

Through Interim Link Management Interface (ILMI), a user may request LECS addresses from the switch. This table has a maximum of four entries. The user should use these addresses to locate the LECS for joining into a LAN Emulation (LANE) server.

DELETE dlci (Privileged Command)

Function

This command is used to delete the DLCI data for each line or connection.

Format

HOSTNAME# DELETE dlci P1 (P2)

Format Explanation

P1: Line Number (00~33)

P2: DLCI Number (16~991)

NOTE If only line number is specified, all the DLCI data of the line will be deleted.

Output

When DLCI number is not specified:

```
Line xxx All DLCI interface will be deleted.
1
Are you sure [Y or N]?
```

If **Y** is input:

```
Line xxx DLCI interface has been deleted.
1
```

If **N** is input:

```
Line xxx DLCI interface not deleted.
1
```

When DLCI number is specified:

```
Line xxx DLCI interface has been deleted.
1
```

Output Explanation

1. Line Number

DELETE froam (Privileged Command)

Function

This command is used to delete the OAM endpoint of f5 (VC level) between frame relay and ATM.

Format

```
HOSTNAME# DELETE froam P1 P2 P3 P4 P5 P6
```

Format Explanation

P1: Line Number of Point 1 (00~33)

P2: VPI of Point 1 (0~4095)

P3: VCI of Point 1 (32~16383)

P4: Line Number of Point 2 (00~33)

P5: VPI of Point 2 (0~4095)

P6: VCI of Point 2 (32~16383)

Output

```
FROAM connection has been deleted.
```

DELETE frprofile (Privileged Command)

Function

This command is used to delete the profile for frame relay.

Format

```
HOSTNAME# DELETE frprofile P1
```

Format Explanation

P1: Name of the profile for frame relay
(Up to 10 alphanumeric letters)

Output

```
FR profile data has been deleted.
```

DELETE ilmi (Privileged Command)

Function

This command is used to delete an ilmi connection.

Format

HOSTNAME# DELETE ilmi CONNECTION P1 P2

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

Example

```
HOSTNAME# Delete ilmi connection 01 0
```

Output

```
ILMI connection has been deleted.
```

DELETE iproute (Privileged Command)

Function

This command is used to delete IP routing information.

Format

```
HOSTNAME# DELETE iproute P1 P2 P3
```

Format Explanation

P1 : Interface type (atm0 or ec0)

P2 : Destination type (network or host)

P3 : Destination IP address (x.x.x.x (x=0~255) or default (default router IP address)

Example

```
HOSTNAME# Delete iproute ec0 net 10.1.1.2
```

Output

```
IP route information has been deleted.
```

DELETE nms (Privileged Command)

Function

This command is used to delete Network Management System (NMS) information.

Format

```
HOSTNAME# DELETE nms P1
```

Format Explanation

P1 : NMS number (0~3)

Example

```
HOSTNAME# Del nms 1
```

Output

```
nms has been deleted.
```

NOTE To display currently configured NMS IP addresses, use the DISPLAY network command.

DELETE oamcon (Privileged Command)

Function

This command is used to delete the connecting point setting of a connection for transferring an alarm by OAM cell (alarm cell).

Format

(1) HOSTNAME# DELETE oamcon f4 P1 P2 P3 P5 P6

(2) HOSTNAME# DELETE oamcon f5 P1 P2 P3 P4 P5 P6 P7

Format Explanation

P1 : Point type

(segcon or 0 if the switch is a connecting point in the segment flow)

(endcon or 1 if the switch is a connecting point in the end-to-end flow)

P2 : Ingress line number (00~33)

P3 : Ingress Virtual Path Identifier (VPI) (0~4095)

P4 : Ingress Virtual Channel Identifier (VCI) (32~16383)

P5 : Egress line number (00~33)

P6 : Egress VPI (0~4095)

P7 : Egress VCI (32~16383)

NOTE In f4 mode it is not necessary to specify VCI value.

Example (f4)

```
HOSTNAME# del oamcon f4 seg 00 1 10 2
```

Example (f5)

```
HOSTNAME# del oamcon f5 end 00 1 100 10 2 200
```

Output

```
OAM connecting point has been deleted.
```

DELETE oamend (Privileged Command)

Function

This command is used to delete the endpoint setting of an OAM connection for transferring an alarm by OAM cell (alarm cell).

Format

```
HOSTNAME# DELETE oamend P1 P2 P3 P4 {P5}
```

Format Explanation

P1 : Mode (f4 (Virtual Path (VP) level) or f5 (Virtual Channel (VC) level))

P2 : Point type

(segend or 0 if the switch is an endpoint in the segment flow)

(endend or 1 if the switch is an endpoint in the end-to-end flow) (f4 only)

P3 : Line number (00~33)

P4 : VPI (0~4095)

P5 : VCI (32~16383 (defaulted when the mode is f5)

Example (f4)

```
HOSTNAME# del oamend f4 1 00 1
```

Example (f5)

```
HOSTNAME# del oamend f5 0 00 1 100
```

Output

```
OAM endpoint has been deleted.
```

DELETE oamf5end (Privileged Command)

Function

This command is used to delete F5 (VC level) OAM endpoint.

Format

HOSTNAME# DELETE oamf5end P1 P2 P3

Format Explanation

P1: Line Number (00~33)

P2: VPI (0~4095)

P5: VCI (32~16383)

Output

```
OAM f5end endpoint has been deleted.
```

DELETE pnni (Privileged Command)

Function

This command is used to delete PNNI information.

1. To delete the PNNI reachable address:

Format

```
HOSTNAME# DELETE pnni address
PNNI>P1 P2 P3 P4 P5  P6
```

This command cancels the PNNI reachable address. After the command is executed, the **PNNI>** prompt is shown in the Editor Mode. Type a period (**.**) to exit the Editor Mode.

Format Explanation

P1 : Address type (“internal” or “exterior”)

P2 : SCOPE (0~104)

P3 : Valid bit length for reachable address

P4 : Reachable address

P5 : Line number (00~33)

P6 : VPI (0~4095)

Output

```
PNNI reachable address has been deleted.
```

2. To delete the PNNI connection:

Format

```
HOSTNAME# DELETE pnni connection P1 P2
```

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

Output

```
PNNI connection has been deleted.
```

DELETE profile (Privileged Command)

Function

This command is used to delete a policing profile.

Format

```
HOSTNAME# DELETE profile P1
```

Format Explanation

P1 : Profile name

Example

```
HOSTNAME# del pro my_cbr
```

Output

```
Profile data has been deleted.
```

NOTE If a PVC connection exists that is currently using this profile when this command is entered, an error message is displayed.

DELETE shaper (Privileged Command)

Function

This command is used to delete shaping rate.

Format

```
HOSTNAME# DELETE shaper P1 P2
```

Format Explanation

P1 : Line number (00~33)

P2 : Shaper number (1~8)

Example

```
HOSTNAME# del shaper 12 4
```

Output

```
Shaping rate has been deleted.
```

NOTE If a PVC connection using the specified shaper exists when this command is entered, an error message is displayed.

DELETE signaling (Privileged Command)

Function

This command is used to delete a signaling path. This command effectively removes a Switched Virtual Circuit (SVC) signaling connection.

Format

```
HOSTNAME# DELETE signaling P1 P2
```

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

Example

```
HOSTNAME# set svcl 13 0 suspend
```

NOTE To delete the signaling path on an interface, the signaling path **svcline** must be suspended.

```
HOSTNAME# del sig 13 0
```

Output

```
Signaling connection has been deleted.
```

DELETE tunneling (Privileged Command)

Function

This command is used to delete a tunneling connection.

Deletion Procedure

1. All connections (PVCs or soft PVPs), if any, must be deleted from the tunneling VPI that you wish to delete.
2. Use the **SET svcline** command to suspend the line (and VPI).
3. If signaling connection has been set in the tunneling VPI that you wish to delete, use the **DELETE signaling** command to delete the connection.
4. If ILMI connection has been set in the tunneling VPI that you wish to delete, use the **DELETE ilmi** command to delete the connection
5. If PNNI connection has been set in the tunneling VPI that you wish to delete, use the **DELETE pnni connection** command to delete the connection
6. Enter the **DELETE tunneling** command.
7. Resume the line by executing the **SET svcline** command.

Format

```
HOSTNAME# DELETE tunneling P1 P2
```

Format Explanation

P1 : Line number (00~33)

P2 : VPI (1~4095)

Example

```
HOSTNAME# del sig 30 2
```

```
HOSTNAME# del ilmi 30 2
```

```
HOSTNAME# del pnni 30 2
```

```
HOSTNAME# del tun 30 2
```

Output

```
Tunneling information database has been deleted.
```

NOTE The tunneling connection cannot be deleted if signaling/ILMI/pnni connection exists on the specified line.

DIAGNOSIS ? (Privileged Command)

Function

This command is used to display the help message for the **DIAGNOSIS** command.

Format

```
HOSTNAME# DIAGNOSIS ?
```

Output

```
all                         CPU, Switch and Slot diagnosis
cpu                         CPU diagnosis
slot                        Slot diagnosis
switch                      Switch diagnosis
```

DIAGNOSIS all (Privileged Command)

Function

This command is used to perform a full diagnosis.

The diagnostic result is reported as an autonomous message. If the diagnostic result is not good (NG), the detailed possible causes can be viewed by executing the **`DISPLAY alarm`** command.

NOTE

Important: All communication is interrupted during diagnosis. This command should normally be executed when a hardware error is detected or when the system is initially installed. This testing takes approximately 3 to 5 minutes to complete.

Format

```
HOSTNAME# DIAGNOSIS all
```

Output

```
Diagnosis in progress...
```

DIAGNOSIS cpu (Privileged Command)

Function

This command is used to diagnose the CPU board.

The diagnostic result is reported as an autonomous message. If the diagnostic result is not good (NG), the detailed possible causes can be viewed by executing the **DISPLAY alarm** command.

NOTE

Important: All communication is interrupted during diagnosis. This command should normally be entered when a hardware error is detected or when the system is initially installed. This testing takes approximately 1 to 2 minutes to complete.

Format

```
HOSTNAME# DIAGNOSIS cpu
```

Output

```
Diagnosis in progress...
```

DIAGNOSIS slot (Privileged Command)

Function

This command is used to diagnose installed line packages.

The diagnostic result is reported as a restart message during startup after diagnosis. If the diagnostic result is not good (NG), the detailed possible causes can be viewed by executing the **`DISPLAY alarm`** command.

Format

```
HOSTNAME# DIAGNOSIS slot {P1}
```

Format Explanation

P1 : Slot number (00-33)

Output

If **Y** is entered in response to confirmation message:

```
Are you sure? [Y or N] y

Diagnosis in progress...
```

NOTE This command should normally be used when when setting up the system for the first time, or when a hardware failure is detected.

DIAGNOSIS switch (Privileged Command)

Function

This command is used to diagnose the switch board.

The diagnostic result is reported as an autonomous message. If the diagnostic result is not good (NG), the detailed possible causes can be viewed by executing the **`DISPLAY alarm`** command.

NOTE

Important: All communication is interrupted during diagnosis. This command should normally be entered when a hardware error is detected or when the system is initially installed. This testing takes approximately 1 to 2 minutes to complete.

Format

```
HOSTNAME# DIAGNOSIS switch
```

Output

```
Diagnosis in progress...
```

DISPLAY ? (General Command)

Function

This command is used to display the help message for the **DISPLAY** command.

NOTE **DISPLAY ?** and **SHOW ?** serve the same purpose.

Format

```
HOSTNAME> DISPLAY ?
```

Output

```
alarm                   All alarms
all                     All configuration data
atmsig                  Q.2931 parameters
boot                    Boot parameters
calledsoftpvp           Called softpvp check flag
cdvt                    CDVT configuration
cevc                    Circuit emulation configuration data
clock                   Clock mode
configserver            Configuration server information
configuration           All configuration data
dynamicroute            Dynamic route information
ether                   IP address of Ethernet interface
iisp                    Crankback information
ilmi                    ILMI connection
interface               Line interface parameters
iproute                 IP route information
line                    Line interface status
looptime                Looptime switch
mac                     LAN card MAC address
network                 Network configuration data
oamcon                  OAM connecting point
oamend                  OAM endpoint
pnni                    PNNI information
profile                 PCR,SCR,MBS,EPD configuration
pvc                     PVC information
redundancy              Redundancy of card's CPUs
route                   SVC static routing table
scope                   Scope information
scroll                  Scroll lines
server                  Server IP address
shaper                  Shaping rate
signaling               Signaling connection
softpvp                 Soft PVPC/PVCC
sscop                   SSCOP parameters
status                  Hardware operating status
svc                     SVC connection
svcline                 SVC line status of the line interface
T309trg                 T309 when interface failure has occured
telnetlimit             Telnet session timeout
time                    System time
traffic                 Traffic & Performance value
tunneling               Tunneling information
version                 Boot/Software Version
```

DISPLAY alarm (General Command)

Function

Displays the latest information on errors in progress. Displays each error by failed area. (This command will not display information on properly functioning areas.)

Format

```
HOSTNAME> DISPLAY alarm
```

Output

```
Hardware Alarm
**.**.** **:**:** - ************ ************ ********
  1                   2            3             4
```

Output Explanation

1. Date and time of failure (year.month.day hour:minute:second)
2. Failed part

   Environment

   FAN <side number>

   Power Unit <side number>

   CPU

   Switch

   Line Board <slot number>

   Line Buffer <slot number>

   Line Card <slot number> : <Line Card Type>
3. Alarm type

   Control Alarm : Indicates a control error.

   Clock Alarm : Indicates a clock error.

   Path Alarm : Indicates a path error.

   Diagnosis NG : Indicates diagnosis NG.
4. Alarm ID

   Refer to Hardware Alarms table.

Example

```
Hardware Alarm
96.03.10 20:11:48 - Environment000001
96.03.12 12:33:21 - FAN 0
96.02.22 08:47:38 - FAN 1
96.02.07 15:56:08 - Power Unit 0
96.02.08 12:36:15 - CPUDiagnosis NG070002
96.10.13 21:02:40 - SwitchClock Alarm010002
96.03.24 05:32:20 - Line Board 0 Buffer 2Clock Alarm000001
96.02.17 18:36:28 - Line Buffer 1 Control Alarm010001
96.07.18 02:03:49 - Line Card 2 OC3c/STM-1(MMF)Path Alarm010001
```

Hardware Alarms

Alarm	Alarm number	
<Shell error>		
POWER alarm	-	-
FAN alarm	-	-
<Environment error>		
Abnormal rise in environmental temperature	-	000001
<Switch/CPU card error>		
Cell alignment signal error	Path Alarm	020002
BMT parity error	Path Alarm	020003
SC diagnosis NG	Path Alarm	020004
Regression enable match error	Path Alarm	030001
Regression clear match error	Path Alarm	030002
BF0 parity error	Path Alarm	030003
BF diagnosis NG	Path Alarm	030004
BF1 parity error	Path Alarm	030103
ES0 Up side sync error	Path Alarm	040001
ES0 Down side sync error	Path Alarm	040002
ES0 port A FIFO overflow	Path Alarm	040004
ES0 port B FIFO overflow	Path Alarm	040006
ES0 diagnosis NG	Path Alarm	040007
ES1 Up side sync error	Path Alarm	040101
ES1 Down side sync error	Path Alarm	040102
ES1 port A FIFO overflow	Path Alarm	040104

Alarm	Alarm number
ES1 port B FIFO overflow	Path Alarm 040106
ES1 diagnosis NG	Path Alarm 040107
SAR register NG	Diagnosis NG 050005
Header conversion table parity error	Path Alarm 060004
<Switch/CPU card error>	
DI diagnosis NG	Diagnosis NG 610010
Memory diagnosis NG	Diagnosis NG 070002
<Line buffer error>	
Received cell parity error	Path Alarm 040001
RIRO SGRAM test error	Control Alarm 040002
HT SGRAM test error	Control Alarm 040003
RIRO SRAM test error	Control Alarm 040004
Illegal interruption	Control Alarm 040005
Illegal cell transmission error	Control Alarm 040007
IBC diagnosis NG	Diagnosis NG 040008
IBC RIRO SGRAM diagnosis NG	Diagnosis NG 040009
IBC HT SGRAM diagnosis NG	Diagnosis NG 040010
IBC RIRO SRAM diagnosis NG	Diagnosis NG 040011
OBC diagnosis NG	Diagnosis NG 040012
OBC Cell Buff diagnosis NG	Diagnosis NG 040013
OBC HTM diagnosis NG	Diagnosis NG 040014
OBC BCT/BMT diagnosis NG	Diagnosis NG 040015
<Line card error>	
OC-3c/STM-1	
PHY0 reception FIFO overflow	Path Alarm 010001
PHY1 reception FIFO overflow	Path Alarm 010101
PHY2 reception FIFO overflow	Path Alarm 010201
PHY3 reception FIFO overflow	Path Alarm 010301
PHY0 diagnosis NG	Diagnosis NG 010002
PHY1 diagnosis NG	Diagnosis NG 010102
PHY2 diagnosis NG	Diagnosis NG 010202
PHY3 diagnosis NG	Diagnosis NG 010302
PHY (OC3C-SMF-L) diagnosis NG	Diagnosis NG 010002
UTOPIA parity error	Path Alarm 020001

Alarm	Alarm number
50 MHz clock interruption	Clock Alarm 020002
MUX diagnosis NG	Diagnosis NG 020012
OC-12c/STM-4	
UTOPIA parity error	Path Alarm 030001
CU2INF diagnosis NG	Diagnosis NG 030002
Transmission clock interruption	Clock Alarm 040001
SFIT4 FIFO error	Path Alarm 040002
UNIC diagnosis NG	Diagnosis NG 040003
UCFAD reception FIFO overflow	Path Alarm 050001
UCFAD transmission FIFO overflow	Path Alarm 050002
CFAD diagnosis NG	Diagnosis NG 050003
Reception clock interruption	Clock Alarm 070002
System clock interruption	Clock Alarm 070003
FPGA diagnosis NG	Diagnosis NG 070004
reception FIFO underrun	Path Alarm 120001
reception FIFO overrun	Path Alarm 120002
transmission parity error	Path Alarm 120003
S/UNI diagnosis NG	Path Alarm 120004
TAXI	
UTOPIA level 2 parity error	Path Alarm 020001
50 MHz clock interruption	Clock Alarm 020002
12.5 MHz clock interruption	Clock Alarm 020003
Input 8 MHz clock interruption	Clock Alarm 020004
MUX diagnosis NG	Diagnosis NG 020012
TAC0 diagnosis NG	Diagnosis NG 130002
TAC1 diagnosis NG	Diagnosis NG 130102
TAC2 diagnosis NG	Diagnosis NG 130202
TAC3 diagnosis NG	Diagnosis NG 130302
6.3M	
TX UTOPIA level 2 parity error	Path Alarm 020001
TX UTOPIA level 2 operation clock interrupted	Clock Alarm 020002
Transmission clock interrupted	Clock Alarm 020005
PLO transmission clock interrupted	Clock Alarm 020006
MUX diagnosis NG	Diagnosis NG 020012

Alarm	Alarm number	
UCFAD reception FIFO overflow	Path Alarm	050001
UCFAD transmission FIFO overflow	Path Alarm	050002
LCA Common diagnosis NG	Diagnosis NG	150001
LCA Separate diagnosis NG	Diagnosis NG	150002
UCFAD2 diagnosis NG	Diagnosis NG	160001
DS3/E3		
UTOPIA level 2 parity error	Path Alarm	020001
50 MHz clock interruption	Clock Alarm	020002
UTOPIA level 1 parity error #0	Path Alarm	020007
UTOPIA level 1 parity error #1	Path Alarm	020008
MUX diagnosis NG	Diagnosis NG	020012
Input 8 KHz clock interruption	Clock Alarm	060001
PLD diagnosis NG	Diagnosis NG	060003
FRAMER#0 reception FIFO underflow	Path Alarm	080001
FRAMER#0 reception FIFO overflow	Path Alarm	080002
FRAMER#0 transmission FIFO overflow	Path Alarm	080003
FRAM0 diagnosis NG	Diagnosis NG	080004
FRAMER#1 reception FIFO underflow	Path Alarm	080101
FRAMER#1 reception FIFO overflow	Path Alarm	080102
FRAMER#1 transmission FIFO overflow	Path Alarm	080103
FRAM1 diagnosis NG	Diagnosis NG	080104
PR-1.5M		
UTOPIA level 2 parity error	Path Alarm	020001
50 MHz clock interruption	Clock Alarm	020002
Transmission clock interrupted	Clock Alarm	020005
PLO transmission clock interrupted	Clock Alarm	020006
MUX diagnosis NG	Diagnosis NG	020012
LCA diagnosis NG	Diagnosis NG	150001
Frame aligner parity error	Path Alarm	150003
UCFAD2 diagnosis NG	Diagnosis NG	160001
UCFAD reception FIFO overflow	Path Alarm	160002
UCFAD transmission FIFO overflow	Path Alarm	160003
DS1/E1		
UTOPIA level 2 parity error	Path Alarm	020001

Alarm	Alarm number	
50 MHz clock interruption	Clock Alarm	020002
UTOPIA level 1 parity error #0	Path Alarm	020007
UTOPIA level 1 parity error #1	Path Alarm	020008
UTOPIA level 1 parity error #2	Path Alarm	020009
UTOPIA level 1 parity error #3	Path Alarm	020010
19 MHz clock interruption	Clock Alarm	020011
MUX diagnosis NG	Diagnosis NG	020012
8 KHz clock interruption	Clock Alarm	060001
16 KHz oscillator clock interruption	Clock Alarm	060002
PLD diagnosis NG	Diagnosis NG	060003
12 KHz oscillator clock interruption	Clock Alarm	060004
FRAMER#0 reception FIFO overflow	Path Alarm	140001
FRAMER#0 reception FIFO underflow	Path Alarm	140002
FRAMER#0 transmission FIFO overflow	Path Alarm	140003
FRAMER#0 UTOPIA level 1 Down side	Path Alarm	140004
FRAMER#0 (PM7345) diagnosis NG	Diagnosis NG	140005
FRAMER#1 reception FIFO overflow	Path Alarm	140101
FRAMER#1 reception FIFO underflow	Path Alarm	140102
FRAMER#1 transmission FIFO overflow	Path Alarm	140103
FRAMER#1 UTOPIA level 1 Down side	Path Alarm	140104
FRAMER#1 (PM7345) diagnosis NG	Diagnosis NG	140105
FRAMER#2 reception FIFO overflow	Path Alarm	140201
FRAMER#2 reception FIFO underflow	Path Alarm	140202
FRAMER#2 transmission FIFO overflow	Path Alarm	140203
FRAMER#2 UTOPIA level 1 Down side	Path Alarm	140204
FRAMER#2 (PM7345) diagnosis NG	Path Alarm	140205
FRAMER#3 reception FIFO overflow	Path Alarm	140301
FRAMER#3 reception FIFO underflow	Path Alarm	140302
FRAMER#3 transmission FIFO overflow	Path Alarm	140203
FRAMER#3 UTOPIA level 1 Down side	Path Alarm	140304
FRAMER#3 (PM7345) diagnosis NG	Diagnosis NG	140305
FRAMER#0 (PM4341A) diagnosis NG	Diagnosis NG	170001
FRAMER#1 (PM4341A) diagnosis NG	Diagnosis NG	170101
FRAMER#2 (PM4341A) diagnosis NG	Diagnosis NG	170201

Alarm	Alarm number
FRAMER#3 (PM4341A) diagnosis NG	Diagnosis NG 170301
FRAMER#0 (PM6341) diagnosis NG	Diagnosis NG 180001
FRAMER#1 (PM6341) diagnosis NG	Diagnosis NG 180101
FRAMER#2 (PM6341) diagnosis NG	Diagnosis NG 180201
FRAMER#3 (PM6341) diagnosis NG	Diagnosis NG 180301
Server Card	
WDT overflow	Control Alarm 090001
CPU clock disconnected	Clock Alarm 090002
PCI bus clock disconnected	Clock Alarm 090003
PCI bus parity error	Control Alarm 090004
RICE401 memory parity error	Control Alarm 090005
FR-Buffer SDRAM diagnosis NG	Diagnosis NG 090006
PCI bus clock disconnected	Clock Alarm 100001
PCI SERR	Control Alarm 100002
SW50M clock disconnected	Clock Alarm 100003
MemOut	Control Alarm 100004
DMAOut	Control Alarm 100005
SSCOP link interrupted among cards	Control Alarm 110003
CE-DS1	
UTOPIA level2 parity error	Path Alarm 020001
50MHz clock interrupted	Clock Alarm 020002
19MHz clock interrupted	Clock Alarm 020011
MUX diagnosis NG	Diagnosis NG 020012
FRAMER #0 (PM4341A) diagnosis NG	Diagnosis NG 170001
FRAMER #1 (PM4341A) diagnosis NG	Diagnosis NG 170101
FRAMER #2 (PM4341A) diagnosis NG	Diagnosis NG 170201
FRAMER #3 (PM4341A) diagnosis NG	Diagnosis NG 170301
1.544M clock generated in PKG interrupted	Clock Alarm 210001
38.8M clock generated in PKG interrupted	Clock Alarm 210002
FPGA diagnosis NG	Diagnosis NG 210003
IGT SAR diagnosis NG	Diagnosis NG 240001
FR-DS1	
WDT overflow	Control Alarm 090001
CPU clock interrupted	Clock Alarm 090002

Alarm	Alarm number
PCI BUS clock interrupted	Clock Alarm 090003
PCI BUS parity error	Control Alarm 090004
RICE401 mamory parity error	Control Alarm 090005
FR-Buffer SDRAM diagnosis NG	Control Alarm 090006
Server Card / FR-DS1	
CPU DRAM on card side diagnosis NG	Diagnosis NG 250001
CPU on card side diagnosis timeout	Diagnosis NG 250002

DISPLAY all (General Command)

Function

This command is used to display all the information registered in the configuration data.

Format

```
HOSTNAME> DISPLAY all
```

Output

Same as output for **DISPLAY ?** command.

NOTE Information for a line that is in **Admin Down** status cannot be displayed.

DISPLAY atmsig (General Command)

Function

This command is used to display Q.2931 parameters.

Format

```
HOSTNAME> DISPLAY atmsig
```

Example

```
HOSTNAME# display atmsig
 Line   VPI U/N     301 303 308 309 310 313 316 317 322 397 398 399 UNIver
   00     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   01     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   02     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   03     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   10     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   11     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   12     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   13     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   20     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   21     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   22     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   23     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   30     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   31     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   32     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )
   33     0 Network 180   4  30  10  10   4 120  60   4 180   4  14 4.0( - )

    1      2    3     4    5   6   7   8    9  10 11   12  13   14 15  16 17
```

NOTE Timer designation may be found in the User Network Interface (UNI) specifications of the ATM Forum.

Output Explanation

1. Line number (00~33)
2. VPI
3. IISP user side "User" or IISP network side "Network"
4. T301 timer value
5. T303 timer value
6. T308 timer value
7. T309 timer value
8. T310 timer value
9. T313 timer value

10. T316 timer value
11. T317 timer value
12. T322 timer value
13. T397 timer value
14. T398 timer value
15. T399 timer value
16. UNI Version in the configuration data
17. UNI Version under operation (may be different than configured version if reported differently through ILMI)

DISPLAY boot (General Command)

Function

This command is used to display the firmware boot source for the next restart. After restart, the boot mode will default back to the flash mode.

Format

```
HOSTNAME> DISPLAY boot
```

Output

-FLASH mode

```
Online program stored in the flash memory will be loaded after
reset.
```

-FLASH_UP mode

```
Online program stored in the PCMCIA#0 flash memory will be loaded
after reset.Configuration data will be loaded from the PCMCIA#1
flash memory.Configuration data will not be stored to the PCMCIA#0
flash memory.
```

-FLASH_UP SAVE mode

```
Online program stored in the PCMCIA#0 flash memory will be loaded
after reset.Configuration data will be loaded from the PCMCIA#1
flash memory.Configuration data will be stored to the PCMCIA#0
flash memory.
```

-INITIALIZE mode

```
Online program stored in the workstation will be loaded after re-
set.Configuration data will be initialized.Online program and con-
figuration data will not be stored to the flash memory.
```

-INITIALIZE_SAVE mode

```
Online program stored in the workstation will be loaded after re-
set.Configuration data will be initialized.Online program and con-
figuration data will be stored to the flash memory.
```

-NETWORK mode

Online program stored in the workstation will be loaded after reset.Configuration data will be loaded from the flash memory. Online program and configuration data will not be stored to the flash memory.

-NETWORK_SAVE mode

Online program stored in the workstation will be loaded after reset.Configuration data will be loaded from the flash memory.Online program and configuration data will be stored to the flash memory.

DISPLAY calledsoftpvp (General Command)

Function

This command is used to display the recognition standard of **calledsoftpvp**.

Format

```
HOSTNAME> DISPLAY calledsoftpvp
```

Output

```
Called softpvp check flag:off
                           1
```

Output Explanation

1. Flag (“ON” (enable), “OFF” (disable))

DISPLAY cdvt (General Command)

Function

This command is used to display the Cell Delay Variation Tolerance (CDVT) data the system currently manages.

Format

```
HOSTNAME> DISPLAY cdvt
```

Example

```
HOSTNAME# display cdvt
                      PCR CDVT                  SCR CDVT
              ----------------------+---------------------------
 Line   VPI  CBR  rtVBR nrtVBR  UBR  UPC-Mode2 UPC-mode3 UPC-mode4
   00    -   2000  2000   2000  2000    2000      2000      2000
   01    -   2000  2000   2000  2000    2000      2000      2000
   02    -   2000  2000   2000  2000    2000      2000      2000
   03    -   2000  2000   2000  2000    2000      2000      2000
   10    -   2000  2000   2000  2000    2000      2000      2000
   11    -   2000  2000   2000  2000    2000      2000      2000
   12    -   2000  2000   2000  2000    2000      2000      2000
   13    -   2000  2000   2000  2000    2000      2000      2000
   20    -   2000  2000   2000  2000    2000      2000      2000
   21    -   2000  2000   2000  2000    2000      2000      2000
   22    -   2000  2000   2000  2000    2000      2000      2000
   23    -   2000  2000   2000  2000    2000      2000      2000
   30    -   2000  2000   2000  2000    2000      2000      2000
   31    -   2000  2000   2000  2000    2000      2000      2000
   32    -   2000  2000   2000  2000    2000      2000      2000
   33    -   2000  2000   2000  2000    2000      2000      2000
```

NOTE Cell delay variation is dependent on cell transfer rate.

DISPLAY cevc (General Command)

Function

This command is used to display Circuit Emulation (CE) connection information.

Format

```
HOSTNAME> DISPLAY cevc P1 {P2}
```

Format Explanation

P1 : Line number (00~33)

P2 : VCI

CE-DS1/E1 Port0 : 256~287

CE-DS1/E1 Port1 : 288~319

CE-DS1/E1 Port2 : 320~351

CE-DS1/E1 Port3 : 352~383

Output

When VCI is defaulted:

```
Line:          xx          1
VCI           Direction    Number of Timeslot
              Up/Down
xxx           xxxx         xx/xx
2             3               4
```

Output Explanation

1. Line number (00~33)
2. VCI
3. Direction (“bi,” “up” (STM->ATM), “down” (ATM->STM))
4. Number of timeslot

When VCI is specified:

```
Line:              xxx     VCI:     xxx      Direction:xxxx
                  1        2        3
                  Condition data:   xxx      4
-------------------------------------------------------------------------------
up                Partial Fill Size:xxx      5
                  PCR      :        xxxxx(cell/sec)6
                  Number of Timeslot:xx      7
                  Timeslot :        x x xx xx xx xx xx8
-------------------------------------------------------------------------------
down              Partial Fill Size:xxx
                  CDVT     :        xxxxxx   9
                  PCR      :        xxxxx(cell/sec)
                  Channel Status:   xxxxxx   10
                  Number of Timeslot:xx
                  Timeslot :        x x xx xx xx xx xx
```

Output Explanation

1. Line number (00~33)
2. Virtual Channel Identifier (VCI)
3. Direction (“bi,” “up,” “down”)
4. Condition data. IDLE cell pattern of CE
5. Partial Fill Size
6. Peak Cell Rate (PCR)
7. Number of Timeslot
8. Timeslot
9. Value of Cell Delay Variation Tolerance (CDVT)
10. Channel Status (“Normal,” “Sequence Error,” “Pointer Mismatch,” “Pointer Parity Error,” “FIFO overflow,” “FIFO underflow”)

NOTE In case of a single direction (either up or down), only information for up or down will be displayed. In case of bi-direction, information for both up and down directions will be displayed. With this software, Channel Associated Signaling (CAS)/Basic is fixed to Basic.

DISPLAY clock (General Command)

Function

This command is used to display the current clocking source mode.

Format

```
HOSTNAME> DISPLAY clock
```

Example

If the "master" system clock mode is selected:

```
Clocking mode: Master
```

If the "slave" system clock mode is selected and the slave lines are registered:

```
Clocking mode:Slave
SlavelineStatus
*030Good
031Good
032Failure
033Failure
```

If the "slave" system clock mode is selected:

```
Clocking mode: Slave
Slave line      Status\
      **        ****
       1          2
```

NOTE Output format for slave mode. Output format is not needed for master mode.

Output Explanation

1. Line number (00~13)

   The current clock sampling line (slave clock mode) is identified by an asterisk (*) at the left of the line number.

2. Line status (GOOD, Failure, AdminDown, Not Installed, Not supported or Diagnostics, Inaccurate, Frequency out of range, Loss of 8K clock or Loss of 64K clock)

NOTE Slave lines do not include 100M-TAXI lines. If, after a line package has been removed, another line package of different type is inserted, and no slave line is available, that line will be indicated as "Not installed."

DISPLAY configserver (General Command)

Function

This command is used to display the LECS ATM address table. These addresses may be retrieved, through ILMI, by an end-user. In turn, the end-user may use these addresses to connect to the LECS.

Format

```
HOSTNAME> DISPLAY configserver {P1}
```

Format Explanation

P1 : LECS address table index (00~33) (optional)

NOTE All entries will be shown unless a specific index {P1} is given.

Example

```
INDEX            Configuration server
  *           *.**********.****.********
  1                       2
  0          47.0000000000000000000000000.00A145711144.00
```

Output Explanation

1. Index
2. ATM address

DISPLAY configuration (General Command)

Function

This command is used to display the entire configuration data of the switch.

Format

```
HOSTNAME> DISPLAY configuration
```

DISPLAY dlci (General Command)

Function

This command is used to display the DLCI set information of the specified line.

1. Display DLCI set information

Format

```
HOSTNAME> DISPLAY dlci configuration P1
```

Format Explanation

P1: Line Number (00~33)

Output

```
LINE :  xx     Interworking : xxxxxxx
        1                     2
DLCI    VPI    VCI    FR-Profilename   PCR  SCR     MBS     PVC
xxx     xxx    xxx    xxxxxxxxxx       xxxx xxxx    xxxx    xxxx
3       4      5      6                7    8       9       10
```

Output Explanation

1. Line Number
2. Interworking type
3. DLCI Number
4. VPI
5. VCI
6. Profile name for frame relay
7. PCR
8. SCR
9. MBS
10. Set PVC set / not set (“exist” / ”-”)

2. Display frame relay PVC status confirmation procedure/OAM setting

Format

HOSTNAME> DISPLAY dlci status P1 (P2) (P3)

Format Explanation

P1: Line Number (00~33)

P2: Display start DLCI Number (16 - 991; 16 is default)

P3: Displayed data count (1-120; 120 is default)

Output

```
Line: xxx1
DLCI    Status    OAM
xxx     xxxxxx    xxx
(xxx    xxxxxx    xxx)
2       3         4
```

Output Explanation

1. Line Number
2. DLCI Number
3. Status (“Active,” “Inactive”)
4. OAM setting (“on,” “off”)

DISPLAY dynamicroute (General Command)

Function

This command is used to display the information registered in the dynamic routing table. Through ILMI, a user registers an ATM address and associated port with the switch. Upon successful ILMI address registration, the information may be displayed with this command. Also, LANE server routing addresses are stored in this table.

Format

```
HOSTNAME> DISPLAY dynamicroute {P1}
```

Format Explanation

P1 : Line number (00~33)

NOTE All registered addresses will be shown, unless a specific port {P1} is designated. Then only information pertaining to the chosen port is shown.

Output

```
Destination                                    Type       Line     VPI    HopCount
*.************.******.*                       ****        ***     ***     *******
          1                                        2   3 4 5
47.000000000000000000000000.123456781012.00 NSAP 01 - 1
```

NOTE Two digits designate one byte.

Output Explanation

1. End user ATM address (switch prefix + ESI + SEL)
2. ATM address type (NSAP or E.164)
3. Line number associated with address
4. Tunneling VPI value or “-”
5. Hop count if tunneling; displays the number of tunneled switches.

NOTE If the server address has been registered from the server card, the slot number of the server card will be displayed as the line number. In addition, the following server type will be displayed as the VPI:

VPI :	Server type
66:	LECS
67:	LECS
68:	BUS

DISPLAY ether (General Command)

Function

This command is used to display IP address and mask value of the Ethernet port. The Ethernet port is used for download of system software, Telnet sections for MAT commands, and a NMS link.

Format

```
HOSTNAME> DISPLAY ether
```

Output

```
IP address/mask of Ethernet interface:***.***.***.***, ***.***.***.***
                                        1                2
                                      153.208.205.115,255.255.255.0
```

Output Explanation

1. Ethernet IP address
2. Mask value of Ethernet

DISPLAY froam (General Command)

Function

This command is used to display the OAM endpoint of f5 (VC level) between frame relay and ATM.

Format

```
HOSTNAME> DISPLAY froam
```

Output

```
Line    VPI/VCI     Line      VPI/VCI      status
xxx     xxx/xxx     xxx       xxx/xxx      xxxxxx
xxx     xxx/xxx     xxx       xxx/xxx      xxxxxx
1       2 3         4         5 6          7
```

Output Explanation

1. Line Number of Point 1 (00~33)
2. VPI of Point 1 (0~4095)
3. VCI of Point 1 (32~16383)
4. Line Number of Point 2 (00~33)
5. VPI of Point 2 (0~4095)
6. VCI of Point 2 (32~16383)
7. Status (“Normal,” “Failure,” “AIS,” “RDI”)

DISPLAY frprofile (General Command)

Function

This command is used to display the set information of profile for frame relay.

Format

```
HOSTNAME> DISPLAY frprofile (P1)
```

Format Explanation

P1: Name of the profile for frame relay

NOTE If a profile name is specified, only the data related to this profile name is displayed. If not, all profiles are displayed.

Output

If the profile name is not specified:

```
FR-Profilename Interworking type [kbps]
xxxxxxxxxx     xxxxxxx           xxx
xxxxxxxxxx     xxxxxxx           xxx
1              2                 3
```

Output Explanation

1. Frame relay profile name
2. Interworking type (“Network,” “Service”)
3. CIR value (1~1984)

If the profile name is specified:

```
FR-Profilename:              xxxxxxxxxx    1
Interworking Type:           xxxxxxx       2
CIR [kbps]:                  xxxx          3
DE to CLP mapping mode:      xxxxx         4
CLP value:                   x             5
CLP to DE mapping mode:      xxxxx         6
DE value:                    x             7
Protocol encapsulation mode: xxxxxxxxxxx   8
Congestion indication mode:  xxxxx         9
```

Output Explanation

1. Frame relay profile name
2. Interworking type (“Network,” “Service”)
3. CIR value (1~1984)
4. Cell loss priority mode (“Mode1,” “Mode2”)
5. Set CIR value (0/1)
6. Frame discard priority mode (“Mode1,” “Mode2”)
7. Set DE value (0/1)
8. Encapsulation mode (“Transparent,” “Translation”)
9. Forward congestion (FECN) mode (“Mode1,” “Mode2”)

DISPLAY frversion (General Command)

Function

This command is used to display the version of software and boot ROM of the frame relay card CPU in the specified slot.

Format

```
HOSTNAME> DISPLAY frversion P1
```

Format Explanation

P1: Slot Number (0~3)

Output

```
Slot:                           xx          1
Frame relay software version:   xxxxxxx     2
Frame relay boot ROM version:   xxxxxxx     3
```

Output Explanation

1. Slot Number
2. Frame relay software version
3. Frame relay Boot ROM version

DISPLAY iisp (General Command)

Function

This command is used to display the status of the three different IISP mode types the system currently manages.

Format

```
HOSTNAME DISPLAY iisp P1
```

Format Explanation

P1: Mode type (loopcheck, splithorizon, or swaproute)

- "Loopcheck" displays a setup loop protection.
- "Splithorizon" displays status whether or not to allow a call forwarding to the signaling connection which has received a setup message.
- "Swaproute" displays an operation status of the simulated crank back.

Output

If P1 is loopcheck:

```
 *******    1
Hopcount:** 2
```

If P1 is splithorizon:

```
 Line          VPI   Splithorizon
   **         ****     *******
    3            4        5
```

If P1 is swaproute:

```
 *******                6
Timer[min]:**           7
```

NOTE See **SET IISP** for mode type explanation.

Output Explanation

1. Status (disabled or enabled)
2. Hop count (not displayed in disabled status)
3. Line number (00~33)
4. VPI
5. Status (disabled or enabled)
6. Status (disabled or enabled)
7. Resume timer value (not displayed in disabled status)

DISPLAY ilmi (General Command)

Function

This command is used to display the ILMI path and parameters the system currently uses.

Format

HOSTNAME> DISPLAY ilmi P1{P2}

Connection	{P1}	Control connection
Configuration	{P1}	Auto configuration
Neighbor	{P1}	Neighbor information
Discovery	{P1}	Auto discovery information
Process	{P1}	Process flag information

Format Explanation

P1: One of “connection,” “configuration,” etc.

P2: Line number (00~33) (optional)

NOTE If a line number {P1} is specified, only the data related to this line number is displayed. If not, all lines are displayed.

Output

```
HOSTNAME# display ilmi ?
connection      Control connection
configuration   Auto configuration
neighbor        Neighbor information
discovery       Auto discovery information
process         Process flag information


HOSTNAME# display ilmi connection ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)
<cr>

HOSTNAME# display ilmi connection 00 ?
<cr>

HOSTNAME# display ilmi connection 00
 Line   VPI/VCI   Timeout Retry Keepalive
   00     0/16        1      4       5

HOSTNAME# display ilmi connection
 Line   VPI/VCI   Timeout Retry Keepalive
   00     0/16        1      4       5
   01     0/16        1      4       5
   02     0/16        1      4       5
   03     0/16        1      4       5
   10     0/16        1      4       5
   11     0/16        1      4       5
   12     0/16        1      4       5
   13     0/16        1      4       5
   20     0/16        1      4       5
   21     0/16        1      4       5
   22     0/16        1      4       5
   23     0/16        1      4       5


HOSTNAME# dis ilmi configuration ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)
<cr>

HOSTNAME# dis ilmi configuration 00 ?
<cr>

HOSTNAME# dis ilmi configuration 00
 Line   VPI/VCI   Valid VPI/VCI  Interface   UNIver  PNNIver  IME
   00     0/16        - / -         -         -       -        -
```

```
HOSTNAME# dis ilmi configuration
 Line   VPI/VCI   Valid VPI/VCI  Interface   UNIver  PNNIver  IME
   00     0/16        - / -         -         -       -        -
   01     0/16        - / -         -         -       -        -
   02     0/16        - / -         -         -       -        -
   03     0/16        - / -         -         -       -        -
   10     0/16        - / -         -         -       -        -
   11     0/16        - / -         -         -       -        -
   12     0/16        - / -         -         -       -        -
   13     0/16        - / -         -         -       -        -
   20     0/16        - / -         -         -       -        -
   21     0/16        - / -         -         -       -        -
   22     0/16        - / -         -         -       -        -
   23     0/16        - / -         -         -       -        -


HOSTNAME# display ilmi neighbor ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)
<cr>

HOSTNAME# display ilmi neighbor 00 ?
<cr>

HOSTNAME# display ilmi neighbor 00
 Line   VPI/VCI   Valid VPI/VCI  Interface   UNIver  PNNIver
   00     0/16        - / -         -         -       -

HOSTNAME# display ilmi neighbor
 Line   VPI/VCI   Valid VPI/VCI  Interface   UNIver  PNNIver
   00     0/16        - / -         -         -       -
   01     0/16        - / -         -         -       -
   02     0/16        - / -         -         -       -
   03     0/16        - / -         -         -       -
   10     0/16        - / -         -         -       -
   11     0/16        - / -         -         -       -
   12     0/16        - / -         -         -       -
   13     0/16        - / -         -         -       -
   20     0/16        - / -         -         -       -
   21     0/16        - / -         -         -       -
   22     0/16        - / -         -         -       -
   23     0/16        - / -         -         -       -


HOSTNAME# display ilmi discovery ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)
<cr>

HOSTNAME# display ilmi discovery 00 ?
<cr>

HOSTNAME# display ilmi discovery 00
 Line   VPI/VCI   IP address          IfName
   00     0/16           -             -
```

```
HOSTNAME# display ilmi discovery
 Line   VPI/VCI   IP address          IfName
   00     0/16           -              -
   01     0/16           -              -
   02     0/16           -              -
   03     0/16           -              -
   10     0/16           -              -
   11     0/16           -              -
   12     0/16           -              -
   13     0/16           -              -
   20     0/16           -              -
   21     0/16           -              -
   22     0/16           -              -
   23     0/16           -              -

HOSTNAME# display ilmi process ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)
<cr>

HOSTNAME# display ilmi process 00 ?
<cr>

HOSTNAME# display ilmi process 00
 Line   VPI/VCI   Flag   MIB
   00     0/16    OFF     -

HOSTNAME# display ilmi process
 Line   VPI/VCI   Flag   MIB
   00     0/16    OFF     -
   01     0/16    OFF     -
   02     0/16    OFF     -
   03     0/16    OFF     -
   10     0/16    OFF     -
   11     0/16    OFF     -
   12     0/16    OFF     -
   13     0/16    OFF     -
   20     0/16    OFF     -
   21     0/16    OFF     -
   22     0/16    OFF     -
   23     0/16    OFF     -
```

DISPLAY interface (General Command)

Function

This command is used to display line interface information.

Format

```
HOSTNAME> DISPLAY interface {P1}
```

Format Explanation

P1 : Line number (00~33) (optional)

NOTE If a line number {P1} is specified, only the data related to this line number is displayed. If not, all information for all data lines is displayed.

Example

If P1 is not specified:

```
Line                **              1
Interface           ********        2
Physical Layer      **********      3
Forum/ITU           ********        4
Unassigned/Idle     ************    5
Valid VPI/CPI       **/**           6
```

Output Explanation

1. Line number
2. Interface type (in the case of other than CE or FR, “pri_uni,” “pri-nni,” “pub_uni; in the case of FR, “UNI,” “NNI”; in the case of CE, “-” is displayed)
   - pri_uni
   - pri_nni
   - pub_nni
3. Physical layer type
4. ATM Forum/ITU/TTC/ITU-T/FR-Forum/ANSI (in the case of CE, “-” is displayed)
5. Unassigned Cell/Idle Cell (in the case of CE, “-” is displayed)
6. Valid VPI/ VCI bit counts

If P1 is specified, in case of OC-3c, OC-12c, STS-3c/STM1(COAXIAL) and 100M-TAXI:

```
Line:                   xxx              1
Interface type:         xxxxxxxxx        2
Physical layer:         xxxxxxx          3
Forum/ITU:              xxxxx            4
Unassigned/Idle:        xxxxxxxxx        5
Valid VPI:              xx               6
Valid VCI:              xx               7
Filter mask VPI:        xx               8
Filter mask VCI:        xx               9
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. ATM Forum/ITU
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value

If P1 is specified, in case of DS3:

```
Line:                   xx              1
Interface type:         xxxxxxxxx       2
Physical layer:         xxxxxxx         3
Forum/ITU:              xxxxx           4
Unassigned/Idle:        xxxxxxx         5
Valid VPI:              xx              6
Valid VCI:              xx              7
Filter mask VPI:        xx              8
Filter mask VCI:        xx              9
Cell mapping mode:      xxxx            10
Scramble:               xx              11
LBO:                    xx              12
Frame mode:             xxxx            13
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. ATM Forum (fixed)
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value
10. Cell mapping (PLCP, Direct)
11. Scramble (OFF, ON)
12. Line Build Out (Lo or Hi)
13. Frame mode (C-bit, M23)

If P1 is specified, in case of E3:

```
Line:                   xx              1
Interface type:         xxxxxxxxx       2
Physical layer:         E3              3
Forum/ITU:              xxxxx           4
Unassigned/Idle:        xxxxxxx         5
Valid VPI:              xx              6
Valid VCI:              xx              7
Filter mask VPI:        xx              8
Filter mask VCI:        xx              9
Cell mapping mode:      xxxx            10
Scramble:               xx              11
Frame mode:             xxxx            12
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. ITU (fixed)
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value
10. Cell mapping (PLCP, Direct)
11. Scramble (OFF, ON)
12. Frame mode Frame (G382, G804, G751)

If P1 is specified, in case of DS1, E1:

```
Line:                   xx              1
Interface type:         xxxxxxxxx       2
Physical layer:         xxxxxxx         3
Forum/ITU:              xxxxx           4
Unassigned/Idle:        xxxxxxx         5
Valid VPI:              xx              6
Valid VCI:              xx              7
Filter mask VPI:        xx              8
Filter mask VCI:        xx              9
Cell mapping mode:      xxxx            10
Scramble:               xx              11
LBO:                    xx              12
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. ITU (fixed)
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value
10. Cell mapping (PLCP, Direct)
11. Scramble (OFF, ON)
12. Line Build Out (DS1 only)

If P1 is specified, in case of J2:

```
Line:                   xx              1
Interface type:         xxxxxxxxx       2
Physical layer:         xxxxxxx         3
Forum/ITU:              xxxxx           4
Unassigned/Idle:        xxxxxxx         5
Valid VPI:              xx              6
Valid VCI:              xx              7
Filter mask VPI:        xx              8
Filter mask VCI:        xx              9
Line rate:              xxxx            10
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. ITU (fixed)
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value
10. Line rate

If P1 is specified (Primary):

```
Line:                    xx              1
Interface type:          xxxxxxxxx       2
Physical layer:          xxxxxxx         3
Forum/ITU:               xxxxx           4
Unassigned/Idle:         xxxxxxx         5
Valid VPI:               xx              6
Valid VCI:               xx              7
Filter mask VPI:         xx              8
Filter mask VCI:         xx              9
Line rate:               xxxx            10
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni)
3. Physical layer type
4. TTC/ITU-T
5. Unassigned Cell / Idle Cell
6. Valid VPI bit counts
7. Valid VCI bit counts
8. VPI filter mask value
9. VCI filter mask value
10. Line rate

If P1 is specified, in case of CE-DS1:

```
Line:                   xx              1
Interface type:         xxxxxxxxxx      2
Physical layer:         xxxxxxxxx       3
Forum/ITU:              xxxxx           4
Unassigned/Idle:        xxxxxxx         5
Valid VPI:              xx              6
Valid VCI:              xx              7
Service:                xxxxxxxxx       8
LBO:                    xx              9
Frame mode:             xxx             10
CAS mode:               xxxx            11
```

Output Explanation

1. Line number
2. Interface type (pri_uni, pri_nni, pub_uni) (not displayed)
3. Physical layer type
4. ATM Forum (fixed) (not displayed)
5. Unassigned Cell / Idle Cell (not displayed)
6. Valid VPI bit counts
7. Valie VCI bit counts
8. Service mode (Structured/Unstructured)
9. Line Build Out
10. Frame mode (ESF/SF)
11. CAS mode (“CAS/Basic” in the case of “Structured”; “-” in the case of “Unstructured”)

If P1 is specified, in case of FR-DS1:

```
Line:                   xxx               1
Interface type:         xxx               2
Physical layer:         FR-DS1            3
Forum/ITU/ANSI:         xxxx              4
Interworking:           xxxxxxx           5
LBO:                    xxxxxxx           6
Fractional type:        xxxxxxxxx         7
Fractional set:         xx xx xx xx       8
```

Output Explanation

1. Line number
2. Interface (“UNI,” “NNI”)
3. Physical layer type
4. FR-Forum/ITU_T/ANSI
5. Interworking type (“Network,” “Service”)
6. Line Build Out (0-110, 110-220, 220-330, 330-440, 440-550, 550-660)
7. Fractional type (“Unchannelized,” “Fractional”)
8. Fractional setting (“-”, if fractional type is unchannelized)

DISPLAY iproute (General Command)

Function

This command is used to display IP routing information the system currently uses.

Format

```
HOSTNAME> DISPLAY iproute {P1} {P2} {P3}
```

Format Explanation

P1 : Interface type (atm0 or ec0) (optional)

P2 : Destination type (net or host) (optional)

P3 : Destination on IP address (x.x.x.x (x=0~255)) or default (optional).

Example

NOTE All routes will be shown unless information is requested for a particular P1, P2, or P3.

```
Type      Destination         Gateway          Interface   Line      VPI/VCI
***       ***.***.***.***     ***.***.***.***  ***         **        ***/***
1          2                   3                4           5         6
net       default             10.1.1.10        ec0                   -1-
```

Output Explanation

1. Destination type
2. Destination IP address
3. Gateway IP address
4. Interface type
5. Line number (00~33)
6. VPI/VCI

DISPLAY line (General Command)

Function

This command is used to display physical line status.

NOTE

No information will be displayed for uninstalled lines and lines whose installation cannot be recognized due to an error, etc.

Format

```
HOSTNAME> DISPLAY line
```

Output

```
Line    Line status          Hardware status   Loop back
**      ******************   *****             *****
 1       2                    3                 4
```

Output Explanation

1. Line number (00~33)
2. Line error

Admin down	This port has been put out of service by **SET linestatus** command.
AIS	Alarm Indication Signal (AIS) received.
AIS path	Path layer AIS received.
AIS section	Section layer AIS received.
Good	Functioning properly.
Idle	IDLE signal received.
Initializing	Initialization is in progress.
Loss of cell delineation	Cell is out of sync.
Loss of frame	Frame is out of sync.
Loss of pointer	STS frame pointer error.
Loss of signal	Signal interruption occurred.
Payload All One	Payload in transmission frame is all “1” (main signal all “1”).
PLCP loss of frame	Physical Layer Convergence Protocol (PLCP) layer frame is out of sync.
PLCP out of frame	PLCP layer frame end cannot be detected.
PLCP yellow	PLCP layer yellow signal received.

RDI	Yellow alarm signal received.
Red alarm	Red alarm signal received.
Remote Alarm Indication	Remote alarm received.
Yellow path	Path layer remote alarm received.
Yellow section	Section layer remote alarm received.

3. Line card status

   Normal

   Failure

   Diagnosis

   Diagnosis NG

   Initializing

4. Loopback status ("Normal" if not set)

   Normal

   local

   remote

DISPLAY looptime (General Command)

Function

This command is used to display whether the per-port clocking recovery mode has been set (for active lines only). By default, all lines use the switch clock source (whether slave or master).

Format

```
HOSTNAME> DISPLAY looptime
```

Output

```
Line **:  ***
1         2

Line 012:On
```

Output Explanation

1. Line number (00~33)
2. Loop time setting status
   - on: Loop time is on
   - off: Loop time is off
   - -: Package type is illegal.

DISPLAY mac (General Command)

Function

This command is used to display the Personal Computer Memory Card International Association (PCMCIA) Local Area Network (LAN) card Moves, Adds, and Changes (MAC) address.

Format

```
HOSTNAME> DISPLAY mac
```

Example

```
HOSTNAME# display mac
PCMCIAHOSTNAME#1: 00.80.45.06.2e.5d
```

Output Explanation

1. PCMCIAHOSTNAME#1: MAC address

DISPLAY manufacturingid (General Command)

Function

This command is used to display Manufacturing ID of the SW-CPU card.

Format

```
HOSTNAME> DISPLAY manufacturingid
```

Output

```
xx.xx.xx.xx.xx.xx
       1
```

Output Explanation

1. Manufacturing ID

DISPLAY network (General Command)

Function

This command is used to display network information.

Format

```
HOSTNAME# DISPLAY network
```

Output

```
Local Information:
Host Name :                    ********                              1
IP address :                   ***.***.***.***                       2
Net Mask :                     ***.***.***.***                       3
Ether IP Address:              ***.***.***.***                       4
Ether net mask :               ***.***.***.***                       5
Default router:                ***.***.***.***                       6
sysContact :                   **********************************    7
sysLocation :                  **********************************    8
ATM Address :                  ******************************        9

NMS Information:
  NMS Number          IP address             Community name        Accessprivilege
------------------+----------------+-----------------------+----------------
       *          ***.***.***.***        ********          ********
      10               11                  12                13
```

Output Explanation

1. Hostname of ATM displayed at the prompt: **HOSTNAME**
2. ATM IP address
3. Mask value of ATM IP address
4. Ethernet IP address
5. Mask value of Ethernet IP address
6. Default router IP address of Ethernet
7. sysContact of MIB
8. sysLocation of MIB
9. ATM prefix address (node ID)
   If the ATM address is less than 26 digits, it will be padded with 0.
10. NMS Number (0-3)
11. IP address of NMS
12. Community Name
13. Access privilege of Management Information Base (MIB)

DISPLAY oamcon (General Command)

Function

This command is used to display Operations, Administration, and Maintenance (OAM) connecting point information.

Format

```
HOSTNAME> DISPLAY oamcon
```

Output

```
Line   VPI/VCI        Line     VPI/VCI         Point
**     ***/***        **       ***/***        *******
1         2            3          4             5
```

Output Explanation

1. Ingress line number (00~33)
2. Ingress VPI/VCI
3. Egress line number (00~33)
4. Egress VPI/VCI
5. Point type (f4/f5,Segment/End-to-End)

DISPLAY oamend (General Command)

Function

This command is used to display line status in line number ascending order when Alarm Indication Signal/Remote Defect Indication (AIS/RDI) cells are received by the switch at the end point.

Format

```
HOSTNAME> DISPLAY oamend {P1} {P2} {P3}
```

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

P3 : VCI (32~16383)

NOTE When line numbers {P1}and beyond are not specified, the end-point information and status (AIS/RDI) of all lines is displayed. If specified, the OAM cell being received when the command is entered is displayed in detail (only the specified line number, VPI, and VCI are displayed).

Output

When no line is specified:

```
Line   VPI/VCI       Status    Defect        NODE-ID
**     ***/***        ***       ***      **************
 1        2             3         4              5
```

Output Explanation

1. Line number of endpoint
2. VPI/VCI of endpoint
3. Status of endpoint
4. Failure type of endpoint

- In case of OC-3c, OC-12c:
  LOS, LOF, LOP, LOC, Path AIS (P_AIS), Segment AIS (S_AIS)
- In case of TAXI: LOS, LOC
- In case of 6.3M: LOS, LOF, LOC, AIS, PAO
- In case of DS3, E3:
  *LOS, OOF, AIS, LOC, PLCP_LOF, PLCP_OOF

5. Node ID of the defective switch in the AIS/RDI cells

Output

When line numbers {P1} and beyond *are* specified:

```
Line:                xxx                 1
VPI:                 xxx                 2
VCI:                 xxx                 3
Point:               xxxx                4
Status:              xxxx                5
Defect:              xxxx                6
Node-ID:             xxxxxxxxxxxxxxxx    7
```

Output Explanation

1. Line number of endpoint
2. VPI of endpoint
3. VCI of endpoint
4. Endpoint type (F4/F5, Segment/End-to-End)
5. Status of endpoint
6. Failure type of endpoint

- In case of OC-3c, OC-12c
  - Loss of Signal (LOS)
  - Loss of Frame (LOF)
  - Loss of Pointer (LOP)
  - Loss of Cell Delineation (LOC)
  - Alarm Indication Signal (P_AIS)
  - Alarm Indication Signal (S_AIS)
- In case of TAXI
  - LOS
  - LOC
- In case of 6.3M
  - LOS
  - LOF
  - LOC
  - Alarm Indication Signal (AIS)
  - PAO

- In case of DS3, E3
  - LOS
  - Out of Frame (OOF)
  - AIS
  - LOC
  - Physical Layer Convergence Protocol (PLCP)_LOF
  - PLCP_OOF

7. Node ID of the defective switch in the AIS/RDI cells.

DISPLAY oamf5end (General Command)

Function

This command is used to display the OAM end points set at F5 (VC level). The end points are displayed in the descending order of line number, VPI, and VCI.

Format

```
HOSTNAME> DISPLAY oamf5end
```

Output

```
Line    VPI     VCI
xx      xxx     xxx
xx      xxx     xxx
1       2       3
```

Output Explanation

1. Line Number
2. VPI
3. VCI

DISPLAY pnni (General Command)

Function

This command is used to display PNNI connection information.

1. To display PNNI's reachable address:

Format

```
HOSTNAME> DISPLAY pnni {P1}
```

Displays PNNI's reachable addresses currently managed by the system set with the **SET pnni address** command.

Format Explanation

P1: Address type (Internal/External) may be omitted.

Output

When address type is internal:

```
Internal reachable address
Address                          Length  Scope  Line   VPI
xxxxxxxxxxxxxxxxxxxxxxxxxx       xx      xx     xx     xxxxx
1                                2       3      4      5
```

When address type is external:

```
Exterior reachable address
Address                       Length  Scope    Line     VPI
  /Transit network ID date            /Transit network ID
xxxxxxxxxxxxxxxxxxxxxxxxxx    xx      xx       xx       xxxxx
           1                  2       3        4        5
                                      /xxxxxxxxxx
                                           6
```

NOTE Internal address: an end user not supporting Interim Link Management Interface (ILMI) registration.

External address: an Information Infrastructure Standards Panel (IISP) connected node/network.

When address type is omitted:

```
Internal reachable address
Address                     Length  Scope     Line    VPI
xxxxxxxxxxxxxxxxxxxxxxxxx   xx      xx        xx      xxxxx
     1                      2       3         4         5

Exterior reachable address
Address                     Length  Scope     Line    VPI
     /Transit network ID date       /Transit network ID
xxxxxxxxxxxxxxxxxxxxxxxxx   xx      xx        xx       xxxxx
              1             2       3         4        5
                                    /xxxxxxxxxx
                                          6
```

Output Explanation

1. Reachable address
2. Significant address bits
3. Transferable level
4. Line number (00~33)
5. VPI
6. Other network's identifier

2. To display PNNI's architectural variables:

Format

HOSTNAME> DISPLAY pnni architectural

Displays PNNI's timing/rate variables that have been set by **SET pnni architectural** command, and are currently managed by the system.

Output

```
Minimum hello interval(s):          xx       1
Hello interval(s):                  xx       2
DS rxmt interval(s):                xx       3
Minimum PTSE interval(s):           xx       4
PTSE interval(s):                   xx       5
Horizontal link inactivity(s):      xx       6
Available of cell rate PM(%):       xx       7
Available of cell rate mT(%):       xx       8
```

Output Explanation

1. Minimum transmission interval of “hello” (seconds)
2. Transmission interval of “hello” (seconds)
3. Transmission interval of database summary packet (seconds) and communication interval of PNNI Topology State Element (PTSE) request packet
4. Minimum transmission interval of PTSE (seconds)
5. Communication and retransmission interval of PTSE (seconds)

NOTE One-fifth of this time setting becomes the PTSE response delay time.

6. Ring down recognition time (seconds)
7. Percentage at which average cell rate change is notified (%)
8. Minimum value at which average cell rate change is notified (%)

3. To display PNNI connection:

Format

HOSTNAME> DISPLAY pnni connection {P1}

Displays the PNNI path (0, 18) that has been set by the **SET pnni connection** command and is currently managed by the system. If a line number is specified, only the relevant data is displayed. When no line is specified, all the data are displayed.

Format Explanation

P1 : Line number (00~33)

Output

```
Line   VPI    VCI    Weight    Token    Best effort band
       xx     xxx     xxxxx    xxx      xxx     xxxx
       1      2      3         4          5      6
```

Output Explanation

1. Line number (00~33)
2. VPI
3. VCI
4. Administrative weight
5. Aggregation token
6. UBR Best effort separate band

4. To display PNNI's longest match table:

Format

HOSTNAME> DISPLAY pnni longestmatch

Displays the flooded reachable addresses in the longest match sequence.

Output

```
Length        Reachable address
0: xxx                    xxxxxxxxxxxxxxxxxxxxxxxxx
              1           2
```

Output Explanation

1. Transferable length
2. Reachable address

5. To display PNNI routing type:

Format

HOSTNAME> DISPLAY pnni method

Displays the PNNI routing type that has been set by the **SET pnni method** command and is currently managed by the system.

Output

```
Routing method : xxxxxxxx
          1
```

Output Explanation

1. Routing method (**HOPBYHOP** or **SOURCE**)
   - Hopbyhop: IISP
   - Source: PNNI 1.0

6. To display PNNI node information:

Format

HOSTNAME> DISPLAY pnni nodal

Displays the PNNI node information that has been set with the **SET pnni nodal** command and is currently managed by the system.

Output

```
Level indicator :          xx                                  1
Restricted transit bit :   xxx                                 2
Restricted branching bit : xxx                                 3
ATM end system address :   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx 4
Leadership priority :      xx                                  5
LGN ID :                   xxxxxxxxxxxxxxxxxxxxxxxxx           6
Peer group ID :            xxxxxxxxxxxxxxxxxxx                 7
```

Output Explanation

1. Set level indicator
2. Trunk circuit restriction

   ON: Disables SVC setups through this switch.

   OFF: Allows SVC setups through this switch.
3. P to MP branch point judgement flag

   ON: Own node is not used as branch point

   OFF: Own node is used as branch point
4. ATM address corresponding to level
5. Priority of becoming peer group leader ("0" cannot be set as PGL)
6. Logical node ID corresponding to level
7. Peer group ID

7. To display PNNI reachable node:

Format

HOSTNAME> DISPLAY pnni node

Displays the PNNI logical node recognized by each physical node if a table for source routing has been prepared in the PNNI routing unit.

Output

```
Destination node ID              Administrative weight
0 : xxxxxxxxxxxxxxxxxxxxxxxxxxxx      1
1 : xxxxxxxxxxxxxxxxxxxxxxxxxxxx      1000
                :                :
                :                :
                1                2
```

Output Explanation

1. PNNI logical node ID
2. Minimum cost to logical node

DISPLAY profile (General Command)

Function

This command is used to display the PVC profile information.

Format

```
HOSTNAME> DISPLAY profile {P1}
```

Format Explanation

P1 : Profile name

NOTE If a profile name is specified, only the data related to this profile name is displayed. If not, all data is displayed.

Output

If the profile name is defaulted:

Profile name	Traffic type	PCR	SCR	MBS	EPD
*********	*******	***	***	***	***
1	2	3	4	5	6

Output Explanation

1. Profile name
2. Traffic type (CBR, ABR, VBR_RT, VBR_NRT, UBR)
3. Peak Cell Rate (PCR) (cell/s) (“-” for “not used”)
4. Sustainable Cell Rate (SCR) (cell/s) (“-” for “not used”)
5. Maximum Burst Size (MBS) (cell) (“-” for “not used”)
6. Early Packet Discard (EPD) flag (on or off)

If the profile name is specified:

```
Profile name:                          **********      1
Traffic type:                          *******         2
Peak cell rate [cell/s]:               *******         3
Sustainable cell rate [cell/s]:        *******         4
Maximum burst size [cell]:             *******         5
EPD:                                   ***             6
```

DISPLAY pvc (General Command)

Function

This command is used to display established PVCs for the given port.

Format

```
HOSTNAME> DISPLAY pvc P1 {P2} {P3}
```

NOTE If only the parameter "P1" is entered, all the PVC connections established on that line will be displayed. If "P1" and "P2" are entered, all PVCs on line "P1" with a VPI of "P2" will be displayed. If all three parameters are entered, only information on that one specific connection will be shown.

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095) (optional)

P3 : VCI (0~16383) (optional)

Example

```
HOSTNAME> display pvc 20
 Line: 020
 Bandwidth Available (Forward/Backward/Line rate): 348207/348207/353207 cell/s
 Tunneling bandwidth available                : 0/0/0 cell/s
 Display/Existing connection
 Uni-direction:     0/0       Bi-direction:     1/1
 Multipoint:        0/0       Gateway:          2/2

 Line   VPI/VCI   Line   VPI/VCI   Traffic Connection    F-profile  B-profile
  020     0/5      -      -  /  -    -       Gateway       -          -
  020    0/16      -      -  /  -    -       Gateway       -          -
  020   1/100     021    2/200       CBR     Bi-direction  test       test
```

Output

When VCI is not specified:

```
Line :xxx       1
Bandwidth available (Forward/Backward/Line rate): xxx/xxx/xxx/ cell/s
                                                      2
Tunneling bandwidth available                : xxx/xxx/xxx/ cell/s
                                                      3
Display/Existing connection
Uni-direction:  xxxx/xxxx         Bi-direction:xxxx/xxxx
Multipoint:     xxxx/xxxx         Gateway:    xxxx/xxxx
                4
Line   VPI/VCI   Line   VPI/VCI  Traffic  Connection   F-profile  B-profile
xxx    xxx/xxx   xxx    xxx/xxx   xxxxxx  xxxxxxxxxx   xxxxxx     xxxxxx
5       6         7      8         9       10           11           12
```

Output Explanation

1. Line number (00~33)
2. Band (Forward available/Backward available/Line rate) (“-” for “don't care”)
3. Bandwidth for tunneling
4. Number of connection for each type
5. Ingress line number (00~33)
6. Ingress VPI/VCI number
7. Egress line number (00~33)
8. Egress VPI/VCI number
9. Traffic type
10. Connection type
11. Forward profile
12. Backward profile

NOTE If no bandwidth is secured in tunneling, then nothing is displayed for the bandwidth secured in tunneling.

When all parameters are entered (uni-directional):

```
Connection type:   Uni-direction
Traffic type:      xxxxxx
Line    VPI/VCI    Direction  Line   VPI/VCI UPC   Shaper  Profile
xxx     xxx/xxx    ->         xxx    xxx/xxx xxx   xxxx    xxxxx
```

When all parameters are entered (bi-directional):

```
Connection type:   Bi-direction
Traffic type:      xxxxxx
Line    VPI/VCI    Direction  Line   VPI/VCI UPC   Shaper  Profile
xxx     xxx/xxx    ->         xxx    xxx/xxx xxx   xxxx    xxxxx
                   <-                        xxx   xxxx    xxxxx
```

When all parameters are entered (multipoint):

```
Connection type:   Multipoint
Traffic type:      xxxxxx
Line    VPI/VCI    Direction  Line   VPI/VCI UPC   Shaper  Profile
xxx     xxx/xxx    ->  leaf 0 xxx    xxx/xxx xxx   xxxx    xxxxx
                   ->  leaf 1 xxx    xxx/xxx -     xxxx    -
```

DISPLAY redundancy (General Command)

Function

This command is used to display the redundancy status of the server card.

Format

```
HOSTNAME> DISPLAY redundancy {P1}
```

Format Explanation

P1 : Slot number (0-3)

Example

```
HOSTNAME> display redundancy
 Slot SoftType Mode   Location          ACH cause      Alarm ID
  04  LANE    Single/ACT   Local       -              -
  12  LANE    Duplex/SBY   Local       Command        -
  13  LANE    Duplex/ACT   Local       Command        -


HOSTNAME> display red 13
 Slot:               13
 SoftType:           LANE
 Mode:               Duplex/ACT
 Location:           Local
 Remote node ID:     -
 Remote slot:        -
 ACH cause:          Command
 Alarm ID:           -
HOSTNAME>
```

Output

When slot number is omitted:

```
Slot  SoftType   Mode   Location    ACH cause  AlarmID
      xx         xxxx   xxxxx/xxx   xxxxxx     xxxxxxx  xxxxxx
      1          2      3/4         5          6        7
```

Output Explanation

1. Slot number
2. Software type in server card (“LANE,” “MPOA”)
3. Server card configuration (“Single,” “Duplex”)

4. Server card operating status
5. Server card configuration location (“Local,” “Remote”)
6. Cause of Active Change (ACH)
7. Alarm ID or “-”

When slot number is specified:

```
Slot:                                   xx              1
SoftType:                               xxxx            2
Mode:                                   xxxxx/xxx       3
Location:                               xxxxx           4
Remote node ID:                         xxxxxxxxxxxxx   5
Remote slot:                            xx              6
ACH cause:                              xxxxxxx         7
Alarm ID:                               xxxxxx          8
```

Output Explanation

1. Slot number
2. Software type in server card (“LANE,” “NHRP”)
3. Server card operating status (for example, “Single/ACT”)
4. Server card configuration status (“Local,” “Remote”)
5. Remote side switch node ID (when local and duplex: "-")
6. Remote side slot number (when local and duplex: "-")
7. Cause of ACH (“Command,” “Alarm,” “Other,” “-”)
8. Alarm ID or “-”

DISPLAY route (General Command)

Function

This command is used to display the contents of the SVC static routing table. The contents of this table are set by executing the **ROUTE add** command. This routing table is only relevant for IISP (hop-by-hop) routing.

Format

```
HOSTNAME> DISPLAY route {P1}
```

Format Explanation

P1 : Line number (00~33)

NOTE If a line number is specified, only the data related to this line number is displayed. If not, all data is displayed for all lines.

Example

```
HOSTNAME> display route
 Destination                                    Type  Line   VPI
 39.877503xxxxxxxxxxxxxxxx.xxxxxxxxxxxx.xx NSAP   * 023    -
                                                    22    -
```

Output

```
Destination                                      Type  Line  VPI
**********. **********. **********. ***************  **   ***
                                                      **   ***
     1                                          2      3     4
```

Output Explanation

1. Destination address (NSAP:40char, E.164:16char)
2. Destination address type (NSAP or E.164)
3. Line number (00~03)

NOTE An asterisk (*) denotes the primary port for routing. Should the primary port fail, the next port (if specified) will resume routing.

4. Tunneling VPI ("-" if not tunneling)

DISPLAY scope (General Command)

Function

This command is used to display the mapping to scope layer.

Format

```
HOSTNAME> DISPLAY scope
```

Output

```
                          1       2
uni scope0 : PNNI HierarchyX Level XXX)
uni scope1 : PNNI HierarchyX Level XXX)
uni scope2 : PNNI HierarchyX Level XXX)
uni scope3 : PNNI HierarchyX Level XXX)
uni scope4 : PNNI HierarchyX Level XXX)
uni scope5 : PNNI HierarchyX Level XXX)
uni scope6 : PNNI HierarchyX Level XXX)
uni scope7 : PNNI HierarchyX Level XXX)
uni scope8 : PNNI HierarchyX Level XXX)
uni scope9 : PNNI HierarchyX Level XXX)
uni scope10 : PNNI HierarchyX Level XXX)
uni scope11 : PNNI HierarchyX Level XXX)
uni scope12 : PNNI HierarchyX Level XXX)
uni scope13 : PNNI HierarchyX Level XXX)
uni scope14 : PNNI HierarchyX Level XXX)
uni scope15 : PNNI HierarchyX Level XXX)
```

Output Explanation

1. Hierarchy number (1-3)
2. Level indicator (0-104)

DISPLAY scroll (General Command)

Function

This command is used to display the number of lines displayed by the MAT. The initial value is 24 lines. Number of lines can be changed by executing the **SET scroll** command.

Format

```
HOSTNAME> DISPLAY scroll
```

Output

If scroll line count is set correctly:

```
Scroll filter:     ON
Number of line:    **
                   1
```

If scroll line count is set to 0:

```
Scroll filter: OFF
```

Output Explanation

1. Number of lines displayed on the MAT screen.

DISPLAY server (General Command)

Function

This command is used to display TFTP server IP address, default router gateway IP address, and location name of boot file.

Format

```
HOSTNAME> DISPLAY server
```

Example

```
display server
IP address:                [1]  10.1.1.69
Default router IP address: [2]  0.0.0.0
Rboot file name:           [3]  /2.5G/ver6035/bootfile
```

Output Explanation

1. IP address of TFTP server. This is for software downloaded from a TFTP server.
2. Router IP address, if the ATM 2.5 Gbps switch has to "hop" a router to find the TFTP server.
3. Name of the directory and file for download.

NOTE If no router is present, the IP address will read "0.0.0.0."

DISPLAY shaper (General Command)

Function

This command is used to display shaping information.

Format

```
(1)HOSTNAME> DISPLAY shaper {P1}{P2}
```

Format Explanation

P1 : Line number (00~33)

P2 : Shaper number (1~8)

NOTE All shaper information will be shown unless a specific line {P1} and shaper number {P2} are entered.

Example

```
display shaper
                  Configuration              Active
                 -----------------------+-----------------------
Line     Shaper   PCR      SCR     MBS    PCR     SCR    MBS
000      1        1000     500     15     987     493    22

 display shaper 00 1
 Line:     000
 Shaper:    1
 Configuration PCR: 1000
 Configuration SCR: 500
 Configuration MBS: 15
 Active PCR:        987
 Active SCR:        493
 Active MBS:        22
```

Output

In case of (1):

```
                              Configuration  Active
                              -------------+----------
   Line Shaper-number PCR    SCR   MBS   PCR  SCR   MBS
    **        **       ***    ***   ***   ***  ***   ***
     1         2        3     4     5     6    7     8
```

Output Explanation

1. Line number (00~33)
2. Shaper number
3. PCR in the configuration data (cell/s)
4. SCR in the configuration data (cell/s) (“-” if SCR is not registered)
5. MBS in the configuration data (cell) (“-” if MBS is not registered)
6. PCR under operation (cell/s)
7. SCR under operation (cell/s) (“-” if SCR is not registered)
8. MBS under operation (cell) (“-” if MBS is not registered)

In case of (2):

```
Line:                **                    1
Shaper-number:       **                    2
Config PCR:          *****                 3
Config SCR:          *****                 4
Config MBS:          *****                 5
Active PCR:          *****                 6
Active SCR:          *****                 7
Active MBS:          *****                 8

PVC's VPI/VCI
***/*** ***/*** ***/*** ***/*** ***/***    9

SoftPVC's VPI/VCI
***/*** ***/*** ***/*** ***/*** ***/***    10
```

Output Explanation

1. Line number (00~33)
2. Shaper number
3. PCR in the configuration data (cell/s)
4. SCR in the configuration data (cell/s)
5. MBS in the configuration data (cell)
6. PCR under operation (cell/s)
7. SCR under operation (cell/s)
8. MBS under operation (cell)
9. PVC path using the specified shaper-number (VPI/VCI)
10. SoftPVP connection using the specified shaper-number (VPI/VCI)

DISPLAY signaling (General Command)

Function

This command is used to display signaling path information the system currently uses (0/5 unless tunneling). If a particular line number is not shown, signaling has not been set for that line.

Format

```
HOSTNAME> DISPLAY signaling {P1}
```

Format Explanation

P1 : Line number (00~33)

NOTE If a line number is specified, only the data related to this line number is displayed. If not, all data is displayed for all lines.

Example

```
display sig
     Line       VPI/VCI
     000        0/5
     001        0/5
     02         0/5
```

Output Explanation

1. Line number (00~33)
2. VPI/VCI

DISPLAY softpvp (General Command)

Function

This command is used to display the soft PVPC/PVCC currently set.

Format

```
HOSTNAME> DISPLAY softpvp P1 {P2} {P3}
```

Format Explanation

P1 : Line number (00~33)

P2 : Incoming VPI (0~4095)

P3 : Incoming VCI (0, 32~16383)

Example

When only a line number is specified:

```
Line: 030                    1
                  Local      Remote
                  ---------------------------------
Endpoint          VPI/VCI    Line   VPI/VCI TrafficF-prfileB-profile
Calling           1/100      31     1/100   CBR   cbr     cbr
2                 3          4      5       6     7       8
```

Output Explanation

1. Line number (00~33)
2. "Calling"/"Called"
3. Local VPI/VCI
4. Remote line number
5. VPI/VCI
6. Traffic type
7. Forward profile
8. Backward profile

When VPI is specified:

```
Line              : **                1
VPI/VCI           : ***/***           2
Traffic type      : *****             3
Endpoint          : *****             4
Retry             : *****             5
Status            : *****             6

                     Remote
Direction Line  VPI/VCI     UPC      Shaper    Profile      PCR      SCR     MBS     EPD
   ->       **   ***/***     ***       ***     *******     ****     ****    ****    ****
   <-                        ***       ***     *******     ****     ****    ****    ****
  7         8       9         10        11        12        13       14      15      16
        Remote node ID
************************************
                     17
```

Output Explanation

1. Line number (00~33)
2. Local VPI/VCI
3. Traffic type
4. "Calling"/"Called"
5. Number of retry
6. Status (“Established,” “Retry,” or “Suspended”)
7. Direction
8. Remote line number
9. Remote VPI/VCI
10. UPC function mode
11. Shaper number
12. Profile name (“-” if it called.)
13. PCR (cell/s)
14. SCR (cell/s)
15. MBS (cell)
16. EPD flag (on or off)
17. Remote node ID

When VCI is specified:

```
        Local      Remote
        ------------------------------+---------------------------------
Line    VPI/VCI    Line    VPI/VCITrafficF-profileB-profile
xxxxxx  xxxx/xxxx  xxx     xxxx/xxxxxxxxxxxxxxxxxxxxx
xxxxxx  xxxx/xxxx  xxx     xxxx/xxxxxxxxxxxxxxxxxxxxx
 1       2         3       4    5     6       7
```

Output Explanation

1. Local line number
2. Local VPI/VCI
3. Remote line number
4. Remote VPI/VCI
5. Traffic type
6. Forward profile
7. Backward profile

DISPLAY sscop (General Command)

Function

This command is used to display Service Specific Connection Orientation (SSCOP) parameters.

Format

```
HOSTNAME> DISPLAY sscop
```

Example

```
display sscop

 Line   VPI    MaxCC  TimerCC Keepalive NORESP  POLL    MaxPD  MaxSTAT clr-buff
  [1]   [2]     [3]     [4]     [5]       [6]     [7]     [8]     [9]      [10]
  000    0       4       1       30        10      1       10      4        Yes
  001    0       4       1       30        10      1       10      4        Yes
122 003  0       4       1       30        10      1       10      4        Yes
```

Output Explanation

1. Line number (00~33)
2. VPI
3. MaxCC

   Maximum number of messages that can be sent without the SSCOP waiting for a reply.
4. TimerCC (sec)

   Retransmission interval when no response message is received for connection setting, release, realignment, or restoration.
5. Timer_KEEPALIVE(sec)

   Time that the connection can be maintained without any data transfer.
6. Timer_NORESPONSE (sec)

   Time that the connection can be maintained without receiving a status request message.
7. Timer_POLL (sec)

   Transmission interval of status request message.
8. MaxPD

   Maximum number of data messages that are sent after the SSCOP sends a status notice message.

9. MaxSTAT

   Maximum number of elements contained in a status notice message. (Elements refer to the combination of the beginning and end of unreceived data message number +1.)

10. Clear-buffers

    Asks the question, "must the transmission queue of the transmission buffer be cleared after the connection is released?" (**Y** or **N**).

DISPLAY status (General Command)

Function

This command is used to display the hardware status. When this command is entered, the system performs an installation check.

The system displays the status of all installed switch components, including power, fan units, and interface cards.

Format

```
HOSTNAME> DISPLAY status
```

Example

```
Environment:      xx                  1
Power0:           xxxxxxxxxxxx        2
Power1:           xxxxxxxxxxxx
FAN0:             xxxxxxxxxxxx        3
FAN1:             xxxxxxxxxxxx
FAN2:             xxxxxxxxxxxx
CPU:              xxxxxxxxxx          4
Switch:           xxxxxxxxxx          5
Slot:             x                   6
Slot:             xxxxxxxxxxx         7
Slot:             xxxxxxxx            8
Slot:             xxxxxxxxxxxxx       9
```

Output Explanation

1. Environment status (normal, failure)
2. Power Unit status (normal, failure)
3. Fan status (normal, failure)
4. CPU status (normal, failure, diagnostics, diagnosis status NG)
5. Switch status (initializing, normal, failure, diagnostics, diagnosis status NG)
6. Slot installation status (0~3)
7. Buffer type (Buffer1, Buffer2, FR Buffer1, FR Buffer2, initializing, not installed)

NOTE If no line package is installed, the “Not installed” message is displayed. If a package was inserted in this line card slot in the past, the system still has the configuration data of that package and will display the package information (buffer and card type) before the “Not installed” message.

This information will not be displayed after the **`CLEAR config [slot]`** command is input to delete the retained configuration data.

8. Line type

   OC-12c/STM4 (SMF-S) TypeA
   OC-12c/STM4 (SMF-S) TypeB
   OC-12c/STM4 (MMF)
   OC-12c/STM4 (SMF-L)
   OC-3c/STM1 (SMF-L)
   OC-3c/STM1 (MMF)
   OC-3c/STM1 (STF-S)
   UTP-5
   J2 (3M-6M)
   Primary
   100M-TAXI
   DS3
   E3
   DS1
   E1
   CD-DS1
   STS-3c/STM1 (COAXIAL)
   FD-DS1
   SERVER
   SERVER 2

9. Line Board status (0~3)

   Normal
   Initializing
   Failure
   Diagnostics
   Diagnosis status NG
   Configuration data is kept

DISPLAY svc (General Command)

Function

This command is used to display SVC connections and associated information currently established on a given line.

Format

HOSTNAME> DISPLAY svc P1 {P2} {P3}

Format Explanation

P1: Line number (00~33)

P2: VPI (0~4095)

P3: VCI (0, 32~16383)

Example

```
HOSTNAME>

HOSTNAME> display svc 10
 Line: 010
 Bandwidth Available (Forward/Backward/Line Rate): 353207/353207/353207 cell/s
 Tunneling bandwidth available                   : 0/0/0 cell/s
 Existing connections: 3

                                  Incoming         Outgoing
                                ---------------+---------------
 Traffic type   Connection type   Line   VPI/VCI    Line   VPI/VCI
 UBR                P-to-M        040     0/6072     010     0/48
 UBR                P-to-M        040     0/6076     010     0/50
 UBR                P-to-P        010     0/47       040     0/3099
```

Output

All SVCs will be displayed for a given port (P1) unless a specific VPI {P2} / VCI {P3} is given.

```
Line : ** 1
Bandwidth available (Forward/Backward/Line rate):*****/*****/*****cell/s 2

Tunneling bandwidth available:xxx/xxx/xxx cell/s   3

Existing connections:**** 4

                                IncomingOutgoing
Traffic type  Connection TypeLineVPI/VCILineVPI/VCI
****          **** ****       ***********/***
5             6    7          8  9    10
```

Output Explanation

1. Line number (00~33)
2. Bandwidth (forward/backward/specified line capacity)
3. Secured band in tunneling
4. Number of connections
5. Traffic type
6. Connection type
7. Incoming line number
8. Incoming VPI/VCI
9. Outgoing line number
10. Outgoing VPI/VCI

NOTE If no band is secured in tunneling, then nothing is displayed for the band secured in tunneling.

Example

When VCI is specified:

```
display svc 10 0 51
Connection Type: P-to-P
Traffic Type:    UBR

Traffic parameters information:
                  PCR              SCR               MBS
Direction     CLP=0  CLP=0+1    CLP=0  CLP=0+1    CLP=0  CLP=0+1   Tagging
    ->        -      365566     -      -          -      -          off
    <-        -      365566     -      -          -      -          off

Incoming information:
Line     VPI/VCI     UPC     Shaper
 010       0/51      off     off

Outgoing information:
Line     VPI/VCI     UPC     Shaper
 002       0/147       1     off

Calling information:
Line   Call ref.           Type  Address
 010         4             NSAP  39.877501000000000000000000.00A024B28F50.00

Called information:
Line   Call ref.  End ref.   Type  Address
 002       36953         -   NSAP  39.877501000000000000000000.000077875EA6.00
```

Output

```
Connection Type :  xxxxxx     1
Traffic Type :     xxx        2

Traffic parameters information :
        PCR        SCR        MBS
Direction    CLP=0 CLP=0+1    CLP=0  CLP=0+1 CLP=0 CLP=0+1
Tagging
        ->         xxx        xxx    xxx     xxx   xxx
xxx     xxx
        <-         xxx        xxx    xxx     xxx   xxx
xxx     xxx
        3          4          5      6       7     8
9       10

        Incoming information :
        Line       VPI/VCI    UPC    Shaper
        xxx        xxx/xxx    xxx    xxx
        11         12         13     14

        Outgoing information :
        Line       VPI/VCI    UPC    Shaper
        xxx        xxx/xxx    xxx    xxx
        15         16         17     18

        Calling information :
        Line       Call ref.  Type   Address
        xxx        xx         xxxx   xx.
xxxxxxxxxxxxxxxxxxxxxxx. xxxxxxxxxxx. xx
        19         20         21     22

        Called information :
        Line       Call ref.  End ref.Type   Address
        xxx        xx         xx     xxxx    xx.
xxxxxxxxxxxxxxxxxxxxxxx. xxxxxxxxxxx. xx
        23         24         25     26      27
```

NOTE If the SVC being displayed is a point-to-multipoint SVC, the response shows only one of the leaves of the multipoint SVC, even if more leaves exist.

Output Explanation

1. Connection type (“P-to-P,” “P-to-M” : “(SoftPVP),” “(RCC)”)
2. Traffic type
3. Direction of the connection
4. PCR (cell/sec) in case of CLP=0 or “-”
5. PCR (cell/sec) in case of CLP=0+1 or “-”
6. SCR (cell/sec) in case of CLP=0 or “-”
7. SCR (cell/sec) in case of CLP=0+1 or “-”
8. MBS (cell) in case of CLP=0 or “-”
9. MBS (cell) in case of CLP=0+1 or “-”
10. Tagging (“on,” “off” or “-”)
11. Incoming line number or “-”
12. Incoming VPI/VCI or “-”
13. Incoming UPC mode (“off,” 1-5) or “-”
14. Incoming shaper (“off,” 1-8) or “-”
15. Outgoing line number or “-”
16. Outgoing VPI/VCI or “-”
17. Outgoing UPC mode (“off,” 1-5) or “-”
18. Outgoing shaper (“off,” 1-8) or “-”
19. Calling line number or “-”
20. Calling call reference or “-”
21. Calling address type or “-”
22. Calling address or “-”
23. Called line number or “-”
24. Called call reference or “-”
25. Called end reference or “-”
26. Called address type or “-”
27. Called address or “-”

DISPLAY svcline (General Command)

Function

This command is used to display the current SVC signaling status of the line interfaces.

Format

HOSTNAME> DISPLAY svcline {P1}

Format Explanation

P1: Line number (00~33)

Example

```
HOSTNAME> display svcl
 Line   VPI     Configuration   Active
  000      0    Resume          Suspend
  001      0    Resume          Normal
  002      0    Resume          Normal
  003      0    Resume          Normal
```

Output

```
  Line         VPI     Configuration    Active
   **          ***        *******       *******
    1           2            3            4
```

Output Explanation

1. Line number
2. VPI of the signaling channel
3. Signaling status in the configuration data

   Suspend (**SET svcline** command)

   Resume (**SET svcline** command)
4. Signaling status under operation

   Suspend (disabled or not physically connected)

   Resume (connected and operational)

   Normal

NOTE SVC status becomes “Suspend” during line failure or "Admin Down," even if the configuration is set to “Resume.”

DISPLAY t309trg (General Command)

Function

This command is used to display the timing when signaling line failure is recognized.

Format

```
HOSTNAME> DISPLAY t309trg
```

Output

```
Timing value: xxxx
              1
```

Output Explanation

1. Timer value (1~ 511[sec] or “-”)

DISPLAY telnetlimit (General Command)

Function

This command is used to display the time limit of Telnet.

Format

```
HOSTNAME> DISPLAY telnetlimit
```

Example

```
display tel
Telnet time-limit : 10[min]
```

Output

If no time limit is set:

```
No Telnet time-limit.
```

If time limit is set:

```
Telnet time-limit : ***** [min]
                          1
```

Output Explanation

1. Telnet will automatically disconnect upon expiration of the given time limit after the last activity.

   Setting the time limit to zero allows the Telnet session to stay open indefinitely.

DISPLAY time (General Command)

Function

This command is used to display system date and time.

Format

```
HOSTNAME> DISPLAY time
```

Example

```
display time
97-12-10 11:39:54
```

Output

```
YY-MM-DD hh:mm:ss
     1      2
```

NOTE

YY-MM-DD indicates the year (the last two digits of the year), month, and day of the month.

hh:mm:ss indicates the hour, minute, and second.

Example

1. January 10, 1999 is displayed as: 99-01-10
2. 2:30 p.m. and 15 seconds is displayed as: 14:30:15

DISPLAY traffic (General Command)

Function

This command is used to display traffic and performance information of each line, connection, and physical unit.

The command format differs depending on line, connection, or physical unit.

Format

```
1. HOSTNAME> DISPLAY traffic line P1
2. HOSTNAME> DISPLAY traffic connection P1 P2 P3
3. HOSTNAME> DISPLAY traffic physical P1
```

Format Explanation

P1 : Line Number (00~33)

P2 : VPI (0~4095)

P3 : VCI (0, 32~16383)

Output of Format 1:

```
Line:   xxx                                      1
Total of received cells:         xxxxxxxxxx      2
Total of transmitted cells:      xxxxxxxxxx      3
Total of misdelivered cells:     xxxxxxxxxx      4
Total of threshold excess cells: xxxxxxxxxx      5
Total of UPC violated cells:     xxxxxxxxxx      6
```

Output Explanation

1. Line Number
2. Received cell count on each line
3. Transmitted cell count on each line
4. Transmission side undefined cell count on each line
5. Number of dropped cells due to an exceeded threshold on each line

   Possible causes are an excess of lower priority threshold, an excess of maximum threshold, and an excess of EPD threshold.
6. Number of UPC violation cells of each line

In case of FR-DS1:

```
Line:   xx                          Received     Transmitted 1
Total of throughput frames:         xxxxxxxxxx   xxxxxxxxxx  2
Total of error frames:              xxxxxxxxxx   xxxxxxxxx   3
Total of congestion discard frames: xxxxxxxxxx   xxxxxxxxxx  4
Total of LMI (Status) frames:       xxxxxxxxxx   xxxxxxxxxx  5
```

Output Explanation

1. Line Number
2. Received/Transmitted throughput frame count
3. Received/Transmitted error frame count
4. Received/Transmitted congestion discard frame count
5. Received/Transmitted LMI input frame count

NOTE This command is valid for Buffer 2 (except CE-J2/DS1/E1/DS3). If a command of that format is entered for any other buffer, an error message will be displayed.

Output of Format 2, in case of uni-direction:

```
Connection type: xxx Uni-direction
                    1
Line    VPI/VCI              Line   VPI/VCI
xx      xxxx/xxxx            xx     xxxx/xxxx
2        3                   4      5
Number of received cells:           xxxxxxxxxx     6
Number of transmitted cells:        xxxxxxxxxx     7
Number of dropped received cells:   xxxxxxxxxx      8
```

Output Explanation

1. PVC/SVC
2. Point 1 Line Number
3. Point 1 VPI/VCI
4. Point 2 Line Number
5. Point 2 VPI/VCI
6. Received cell count of Point 1
7. Transmitted cell count of Point 2
8. Number of received drop cells of Point 1

   Possible causes are an excess of lower priority threshold, an excess of maximum threshold, a UPC violation, and an excess of EPD threshold.

NOTE When "traffic" is set in NMS, not "Number" but "Total" will be displayed. If the buffer of the specified line is FR-buffer, an error will occur.

Output of Format 2, in case of bi-direction:

```
Connection type : xxx Bi-direction
                    1
Line    VPI/VCI    Line          VPI/VCI
xxx     xxxx/xxxx  xxx           xxxx/xxxx
2        3          4               5
Number of received cells:        xxxxxxxxxx   6
Number of transmitted cells:     xxxxxxxxxx   7
Number of dropped received cells:xxxxxxxxxx   8
```

Output Explanation

1. PVC/SVC
2. Point 1 Line Number
3. Point 1 VPI/VCI
4. Point 2 Line Number
5. Point 2 VPI/VCI
6. Received cell count of Point 1
7. Transmitted cell count of Point 2
8. Number of received drop cells of Point 1

   Possible causes are an excess of lower priority threshold, an excess of maximum threshold, a UPC violation and an excess of EPD threshold.

NOTE When "traffic" is set in NMS, not "Number" but "Total" will be displayed. Bi-directional traffics are displayed on two lines for each direction. Therefore, the "Incoming" and "Outgoing" information sets are replaced by each other on the top and bottom lines.

Output of Format 2, in case of PVC Multicast / SVC P-to-MP:

```
Connection type : xxx Multipoint
                  1
Line    VPI/VCI
xx      xxxx/xxxx
2        3
Number of received cells:xxxxxxxxxx4
Number of dropped received cells:xxxxxxxxxx5

       Line       VPI/VCI   Transmitted cells
Leaf 0 xx         xxxx/xxxx xxxxxxxxxx
       6          7          8
```

Output Explanation

1. PVC/SVC
2. Point 1 Line Number
3. Point 1 VPI/VCI
4. Received cell count of Point 1
5. Number of received drop cells of Point 1

   Possible causes are an excess of lower priority threshold, an excess of maximum threshold, a UPC violation and an excess of EPD threshold.
6. Point 2 Line Number
7. Point 2 VPI/VCI
8. Transmitted cell count of Point 2

NOTE When "traffic" is set in NMS, not "Number" but "Total" will be displayed. If the buffer of the specified line is FR-buffer, an error will occur.

Output of Format 2, in case of PVC GWPAD-path:

```
Connection type : PVC Gateway
Line    VPI/VCI
        xx         xxxx/xxxx
         1             2
Number of received cells:        xxxxxxxxxx   3
Number of transmitted cells:     xxxxxxxxxx   4
Number of dropped received cells:xxxxxxxxxx   5
```

Output Explanation

1. Point 1 Line Number
2. Point 1 VPI/VCI
3. Received cell count of Point 1
4. Transmitted cell count of Point 1
5. Number of received drop cells of Point 1

   Possible causes are an excess of lower priority threshold, an excess of maximum threshold, a UPC violation and an excess of EPD threshold.

NOTE When "traffic" is set in NMS, not "Number" but "Total" will be displayed. If the buffer of the specified line is FR-buffer, an error will occur.

Output of Format 3, in case of OC3, OC12, J2, Primary and STS-3c/STM1 (COAXIAL):

```
Line :                              xx          1
Receive cell count:                 xxxxxxxxxx  2
Transmit cell count:                xxxxxxxxxx  3
HEC error cell count:               xxxxxxxxxx  4
Corrected HEC error cell count:     xxxxxxxxxx  5
Uncorrected HEC error cell count: xxxxxxxxxx  6
B1 error count:                     xxxxxxxxxx  7
B2 error count:                     xxxxxxxxxx  8
B3 error count:                     xxxxxxxxxx  9
Path FEBE count:                    xxxxxxxxxx  10
Line FEBE count:                    xxxxxxxxxx  11
```

Output Explanation

1. Line Number
2. Received cell count
3. Transmitted cell count
4. HEC error cell count
5. Corrected HEC error cell count
6. Uncorrected HEC error cell count
7. B1 error cell count
8. B2 error cell count
9. B3 error cell count
10. Path FEBE (Far End Block Error) count
11. Line (Section) FEBE (Far End Block Error) count

NOTE Counters that cannot be displayed due to package type will be represented as "-".

Output of Format 3, in case of DS3:

```
Line:                              xx          1
Receive cell count:                xxxxxxxxxx  2
Transmit cell count:               xxxxxxxxxx  3
Idle/Unassigned cell count:        xxxxxxxxxx  4
Uncorrected HEC error cell count:xxxxxxxxxx  5
FEBE error count:                  xxxxxxxxxx  6
B1 error count:                    xxxxxxxxxx  7
Framing error count:               xxxxxxxxxx  8
FEBE event count:                  xxxxxxxxxx  9
Path parity error count:           xxxxxxxxxx  10
Parity error count:                xxxxxxxxxx  11
SEZ detect count:                  xxxxxxxxxx  12
F-bit or M-bit error count:        xxxxxxxxxx  13
Line code violation count:         xxxxxxxxxx  14
```

Output Explanation

1. Line Number
2. Received cell count
3. Transmitted cell count
4. Idle/Unassigned cell count
5. Uncorrected HEC error cell count
6. FEBE (Far End Block error) counts in PLCP mode
7. BIP (Bit Interleaved Parity) error counts in PLCP mode
8. Framing Pattern Octet error counts and Path Overhead Identification Octet error counts in PLCP mode
9. FEBE (Far End Block Error) count
10. C-bit parity error counts
11. P-bit parity error counts
12. Summed Excessive Zero detected count
13. F-bit/M-bit error count
14. Line Code Violation error count

NOTE Counters that cannot be displayed due to DS3 mode will be represented as "-".

Output of Format 3, in case of E3:

```
Line : xx                                    1
Receive cell count:              xxxxxxxxxx  2
Transmit cell count:             xxxxxxxxxx  3
Idle/Unassigned cell count:      xxxxxxxxxx  4
Uncorrected HEC error cell count:xxxxxxxxxx  5
FEBE error count:                xxxxxxxxxx  6
B1 error count:                  xxxxxxxxxx  7
Framing error count:             xxxxxxxxxx  8
FEBE event count:                xxxxxxxxxx  9
BIP-8 error count:               xxxxxxxxxx  10
IEC error count:                 xxxxxxxxxx  11
Framing pattern error count:     xxxxxxxxxx  12
Line code violation count:       xxxxxxxxxx  13
```

Output Explanation

1. Line Number
2. Received cell count
3. Transmitted cell count
4. Idle/Unassigned cell count
5. Uncorrected HEC error cell count
6. FEBE (Far End Block error) counts in PLCP mode
7. BIP (Bit Interleaved Parity) error counts in PLCP mode
8. Framing Pattern Octet error counts and Path Overhead Identification Octet error counts in PLCP mode
9. FEBE (Far End Block Error) count
10. Bit Interleaved Parity-8 error counts
11. Incoming error counts
12. Framing pattern error count
13. Line Code Violation error count

NOTE Counters that cannot be displayed due to E3 mode will be represented as "-".

Output of Format 3, in case of DS1:

```
Line : xx                                      1
Framing bit error count:          xxxxxxxxxx   2
CRC error count:                  xxxxxxxxxx   3
Line code violation count:        xxxxxxxxxx   4
Uncorrected HEC error cell count:xxxxxxxxxx   5
B1 error count:                   xxxxxxxxxx   6
Framing bit error count:          xxxxxxxxxx   7
PLCP FEBE error count:            xxxxxxxxxx   8
```

Output Explanation

1. Line Number
2. Framing Bit error count
3. CRC error count
4. Line Code Violation error count
5. Uncorrected HEC error cell count
6. B1 error count
7. Framing error count
8. PLCP FEBE (Far End Block Error) count

NOTE Counters that cannot be displayed due to DS1 mode will be represented as "-".

Output of Format 3, in case of E1:

```
Line : xx                                    1
Uncorrected HEC error cell count:xxxxxxxxxx   2
PLCP FEBE error count:          xxxxxxxxxx   3
B1 error count:                 xxxxxxxxxx   4
Framing error count:            xxxxxxxxxx   5
FEBE event count:               xxxxxxxxxx   6
Framing bit error count:        xxxxxxxxxx   7
CRC error count:                xxxxxxxxxx   8
Line code violation count:      xxxxxxxxx    9
```

Output Explanation

1. Line Number
2. Uncorrected HEC error cell count
3. PLCP FEBE (Far End Block Error) count
4. B1 error count
5. Framing error count
6. Framing Bit error count
7. FEBE (Far End Block Error) count
8. CRC error count
9. Line Code Violation error count

NOTE Counters that cannot be displayed due to E1 mode will be represented as "-".

Output of Format 3, in case of CE-DS1:

```
Line : xx                              1
FEBE event count:          xxxxxxxxxx  2
Path parity error count:   xxxxxxxxxx  3
Parity error count:        xxxxxxxxxx  4
Framing bit error count:   xxxxxxxxxx  5
CRC error count:           xxxxxxxxxx  6
Line code violation count:xxxxxxxxxx  7
Bit error count:           xxxxxxxxxx  8
```

Output Explanation

1. Line Number
2. FEBE (Far End Block Error) count
3. C-bit parity error counts
4. P-bit parity error counts
5. Framing Bit error count
6. CRC error count
7. Line Code Violation error count
8. Bit error count

NOTE Counters that cannot be displayed due to package type will be represented as "-".

Output of Format 3, in case of FR-DS1:

```
Line : xx                              1
FEBE event count:         xxxxxxxxxx   2
Framing bit error count:  xxxxxxxxxx   3
CRC error count:          xxxxxxxxxx   4
Line code violation count:xxxxxxxxxx   5
```

Output Explanation

1. Line Number
2. FEBE counts (Far End Block error counts)
3. Framing Bit error counts
4. CRC error counts
5. LCV error counts (Line Code Violation error counts)

NOTE Counters that cannot be displayed due to package type will be represented as “-”.

DISPLAY tunneling (General Command)

Function

This command is used to display tunneling connection information.

Format

```
HOSTNAME> DISPLAY tunneling
```

Example

```
display tun
Line   VPI Throughput UPC Shaper
000      1       1000   1      1
```

Output

```
Line     VPI    Throughput       UPC      Shaper
**       ***       ******        ***         ***
1          2             3         4           5
```

Output Explanation

1. Line number
2. VPI
3. Tunneling bandwidth (cell/s)
4. Forward UPC function mode (off or 1)
5. Forward shaper number (off or 1-8)

DISPLAY version (General Command)

Function

This command is used to display the Software Version, boot program, and configuration data.

Format

HOSTNAME> DISPLAY version

Example

```
HOSTNAME# display version
 Software     version: 6.0(3)  , 32Mbytes
 Boot program version: 3.01 4 Nov 97
```

ENABLE (General Command)

Function

This command is used to switch from General Command Mode to Privileged Command Mode.

Privileged Command Mode is a function to be used by the system manager. It is necessary to register a password in advance to use the **ENABLE** command to switch modes. If this command is executed when there is no password registered, you will be prompted to register a password.

Format

```
HOSTNAME> ENABLE
```

Example

```
enable
 Input new enable password:
 Retype new enable password:

Do not push reset button until save finishes
#######
[OK]
##
Input new Telnet password:
 Retype new Telnet password:

Do not push reset button until save finishes
#######
[OK]
```

Output

If no password has been registered:

```
 Input new enable password:
 Retype new enable password:

 [OK]
```

If a password has been registered:

```
Input enable password:
```

If no Telnet password has been registered:

```
Input new enable password:
Retype new enable password:

[OK]
```

NOTE

Password is not displayed on the screen

Only alphanumeric characters may be used in the password. (Symbols such as +, =, %, and & may not be used.)

Password characters are case-sensitive.

Do not forget the password once it is registered.

The password must contain no less than four and no more than eight characters. If the correct password is entered, the prompt will change from **>** to **#** to indicate that a Privileged Command may be entered. Once you complete **password** in the Privileged Command Mode, be sure to use the **EXIT** command to return to the General Command Mode.

EXIT (General Command)

Function

The user can log out by entering this command in the General Mode during Telnet connection.

Format

```
HOSTNAME> EXIT
```

Output

none

EXIT (Privileged Command)

Function

This command is used to switch from the Privileged Command Mode to General Command Mode.

The prompt will change from **#** to **>**.

Format

HOSTNAME# EXIT

Output

```
HOSTNAME>
```

NOTE To prevent the set data of the ATM switch from being changed by unauthorized personnel, be sure to return to the General Command Mode after completing work in the Privileged Command Mode.

FAILUREDUMP (Privileged Command)

Function

This command is used to display the failure information. The failure information is the information for system administrators to use for software analysis.

Format

```
HOSTNAME# FAILUREDUMP P1 {P2}
```

Format Explanation

P1: Log Number (1~2)

P2: Display Information (all)

NOTE If “Display Information” parameter is not specified, only the information collected by OS is displayed and the information collected by the application is not. If “all” is specified, the information collected by both OS and application is displayed. The information collected by application includes alarm log information.

Output

```
####################################
#       Failure dump               #
####################################
LM version  :      x.x(x).x xxxx xxxx.xxx.x                1
ROM version  :     x.xx xx xxx xx                          2
Fault occurred time  :  xx-xx-xx : xx : xx : xx            3
Exception name  :  xxxx                                   4
Fault kind  :  xxxxxxxx                                   5
TKN : xxxxxxxx                                            6
INT0: xxxxxxxx                                            7
INT1: xxxxxxxx
INT2: xxxxxxxx
INT3: xxxxxxxx
INT4: xxxxxxxx

#####  VR4300 CPU Registers  #####                         8
$0=xxxxxxxx     at=xxxxxxxx  v0=xxxxxxxx   v1=xxxxxxxx
a0=xxxxxxxx     a1=xxxxxxxxa 2=xxxxxxxx    a3=xxxxxxxx
t0=xxxxxxxx     t1=xxxxxxxx  t2=xxxxxxxx   t3=xxxxxxxx
t4=xxxxxxxx     t5=xxxxxxxx  t6=xxxxxxxx   t7=xxxxxxxx
t8=xxxxxxxx     t9=xxxxxxxx  k0=xxxxxxxx   k1=xxxxxxxx
s0=xxxxxxxx     s1=xxxxxxxx  s2=xxxxxxxx   s3=xxxxxxxx
s4=xxxxxxxx     s5=xxxxxxxx  s6=xxxxxxxx   s7=xxxxxxxx
gp=xxxxxxxx     sp=xxxxxxxx  fp=xxxxxxxx   ra=xxxxxxxx
hi=xxxxxxxx     lo=xxxxxxxx
```

```
#####  VR4300 CP0 Registers  #####                9
epc      =xxxxxxxx  status    =xxxxxxxx  cause   =xxxxxxxx
badvaddr     =xxxxxxxx        count=xxxxxxxx  compare =xxxxxxxx
watchlo  =xxxxxxxx  watchhi   =xxxxxxxx  content =xxxxxxxx
ecc      =xxxxxxxx  cacheerr  =xxxxxxxx  errepc  =xxxxxxxx
content  =xxxxxxxx
pagmask  =xxxxxxxx  wired     =xxxxxxxx  config  =xxxxxxxx
lladdr   =xxxxxxxx  taglo     =xxxxxxxx  taghi   =xxxxxxxx
entry_hi =xxxxxxxx  entry_lo0 =xxxxxxxx  entry_lo1=xxxxxxxx
index    =xxxxxxxx  random    =xxxxxxxx  prid    =xxxxxxxx

  ###  Stack ( SP )  ###                          10
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........                                            ********
:  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
                           |
                           |
                           |
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........

Run task ID  :  xxxxxxxx                           11
Run task sp addr  :  xxxxxxxx                      12
  ###  Stack ( run task )  ###                     13
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
                           |
                           |
                           |
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........******** :  xxxxxxxx    xxxxxxxx    xxxxxxxx    xxxxxxxx
..........
```

Output Explanation

1. Software version
2. Boot program version)
3. Failure occurred time (yy - mm - dd : hh : mm : ss)
4. Exception cause (See below)

Exception Cause	Type of Exception
Int	Interrupt exception
Mod	TLB modified exception
TLBL	TLB invalid exception (load or fetch)
TLBS	TLB invalid exception (store)
AdEL	Address error exception (load or instruction fetch)
AdES	Address error exception (store)
IBE	Bus error exception (instruction fetch)
DBE	Bus error exception (load or store data)
Sys	System call exception
BP	Breakpoint exception
RI	Reserved instruction exception
Cpu	Co-processor unusable exception
Ov	Integer overflow exception
Tr	Trap exception
FPE	Floating-point exception
WATCH	Watch exception
WDT	WDT overflow

5. Exception occurrence mode [-1 (task runnning), -2 (Kernel running), -3 (not-task)]
6. Exception task token
7. Interruption control [cause of each interrupt (INT0 - INT 4), trigger, contents of mask]
8. VR4300 CPU registers
9. VR4300 CPO registers
10. Stack information indicated by CPU stack pointer (SP) register [Display size: 1024 (byte)]
11. RUN status task ID

12. RUN status task stack area base address
13. RUN status task stack information [Display size: 1024 (byte)]
14. Alarm log information [Display size: 69104 (byte)]

NOTE If display information parameter is not specified, the 14th item is not displayed. “xxxxxxxx” is displayed for the registers that are not collected.

FAILURELOG (Privileged Command)

Function

This command is used to display the failure log information.

Format

```
HOSTNAME# FAILURELOG
```

Output

```
Log no   Occurred time       Exception name
  x      xx-xx-xx:xx:xx:xx   xxxx
  x      xx-xx-xx:xx:xx:xx   xxxx
  1      2                   3
```

Output Explanation

1 : Log number (1 - 2)

2 : Failure occurred time (yy - mm - dd : hh : mm : ss, "----------" is displayed when failure information is not being logged.)

3 : Exception cause

Exception Cause	Type of Exception
Int	Interrupt exception
Mod	TLB modified exception
TLBL	TLB invalid exception (load or fetch)
TLBS	TLB invalid exception (store)
AdEL	Address error exception (load or instruction fetch)
AdES	Address error exception (store)
IBE	Bus error exception (instruction fetch)
DBE	Bus error exception (load or store data)
Sys	System call exception
BP	Breakpoint exception
RI	Reserved instruction exception
Cpu	Coprocessor unusable exception
Ov	Integer overflow exception
Tr	Trap exception
FPE	Floating-point exception
WATCH	Watch exception
WDT	WDT overflow

GENERATE ? (Privileged Command)

Function

This command is used to display the help message for the **GENERATE** command.

Format

HOSTNAME# GENERATE ?

Output

```
f4                VP level
f5                VC level
feac              FEAC Code generate for DS3
```

GENERATE f4 (Privileged Command)

Function

This command is used to generate OAM cells (loopback cells) in the "f4" mode to perform loopback test.

An autonomous message indicating the result of the test is output to the MAT.

Format

```
HOSTNAME# GENERATE f4 P1 P2 P3 P4 P5 P6
```

Format Explanation

P1 : Test base flow (0|seg (segment base) or 1|end (end-to-end base))

P2 : Node ID of the switch which returns loopback cell (up to 13-octet)

P3 : Correlation tag (up to 4 hexadecimal octets)

P4 : Loopback test count (1~16)

P5 : Line number (00~03)

P6 : VPI (0~4095)

Example

```
gen f4 0 398 12345678 2 30 1
Generating OAM cells...
```

NOTE The loopback test can only start if the node ID for the switch is set with the **SET local** command.

GENERATE f5 (Privileged Command)

Function

This command is used to generate Operations, Administration, and Maintenance (OAM) cells (loopback cells) in the "f5" mode to perform loopback test.

An autonomous message indicating the result of the test is output to the MAT.

Format

```
HOSTNAME# GENERATE f5 P1 P2 P3 P4 P5 P6 P7
```

Format Explanation

P1 : Test base flow (0|seg (segment base) or 1|end (end-to-end base))

P2 : Node ID of the switch which returns loopback cell(up to 13-octet)

P3 : Correlation tag (up to 4 hexadecimal octets)

P4 : Loopback test count (1~16)

P5 : Line number (00~33)

P6 : VPI (0~4095)

P7 : VCI (32~16383)

Example

```
Privileged Command# gen f5 0 39866501 87
654321 2 30 0 50
```

NOTE The loopback test can only start if the node ID of the switch is set with the **SET local** command.

GENERATE feac (Privileged Command)

Function

This command is used to transmit Feature Code (FEAC) at DS3 package in C-bit parity mode.

Format

```
HOSTNAME# GENERATE feac P1 P2
```

Format Explanation

P1: Line number (00~33)

P2: Command condition

0 : Line loopback activated

1 : Line loopback deactivated

Example

```
HOSTNAME# gen feac 00 0
```

NOTE FEAC code can only be transmitted when DS3 line is set to C-bit parity mode.

INSTALL config (Privileged Command)

Function

This command is used to download previously backed-up data from a TFTP server via the Ethernet port.

Format

```
HOSTNAME# INSTALL P1 P2 P3
```

Format Explanation

P1 : Data type (system or config)

P2 : IP address (x.x.x.x (x=0~255))

P3 : Directory and file name

Setting Procedure

1. Before installing configuration data, a previously backed-up file must be present. See **BACKUP config** command.
2. If a gateway is present between the TFTP server and the switch, set the IP routing information by executing the **SET iproute** command.
3. To install the data via ATM, set the ATM IP address of the switch by executing the **SET local** command. To install the data via Ethernet, set the switch Ethernet IP address by executing the **SET ether** command.
4. The switch will restart if the installation fails. Therefore, it is recommended that you save the data using the **SAVE** command.
5. Perform the installation by executing the **INSTALL** command.
6. Save the newly installed data by executing the **SAVE** command.

Example

```
HOSTNAME# install config 10.1.1.3 /2.5G/config/file1
Are you sure? [Y or N] y

</2.5G/config/file1>
```

Output

In case of system install:

```
System files have been loaded.
```

In case of config install:

```
Configuration data have been loaded/written.
```

NOTE

A file of up to 2 MB in size may be booted by system installation.

Specify a file prepared by the **BACKUP** command for the config installation.

If an installation error is detected, reset and return to the operation status, or re-enter the installation command.

It is impossible to resume system installation after the write to flash memory fails. Therefore, when starting the system the next time, do so in the boot mode.

When booting the system from NMS via ATM line, set the NMS information with **SET nms** command in the applicable switch in advance.

When booting the system from a workstation via ATM/Ethernet, set the IP route by executing the **SET iproute** command in the applicable switch in advance.

The system will automatically reset after the installation is properly completed.

OPEN (General Command)

Function

This command is used to open access to a server card interface, for example, LANE server card, IP.

Format

```
HOSTNAME> OPEN P1
```

Format Explanation

P1: Slot number (0-3)

Output

If no password has been registered:

```
Input new password:
Retype new password:

[OK]
```

If a password has been registered:

```
Input password:
Card02#
```

NOTE When this command is entered, all control is passed to the specified card. When the **EXIT** command is executed, control is returned to the active CPU.

PASSWD (Privileged Command)

Function

This command is used to change the password for switching to the Privileged Command Mode.

After entering the current password, enter the new password twice to complete the password change. The entered characters are not echoed back.

Format

HOSTNAME# PASSWD

Output

If a password is registered:

```
Input old password:
Input new enable password:
Retype new enable password:

[OK]
```

NOTE The password must contain no less than four and no more than eight characters. The password is case sensitive.

PVC ? (Privileged Command)

Function

This command is used to display the help message for the Permanent Virtual Circuit (PVC) command.

Format

HOSTNAME# PVC ?

Output

```
add         Add endpoint to existing uni-directional multipoint
            PVC PVC
delete      Delete PVC
establish   Establish PVC
flush       Delete all PVCs on a line interface
remove      Remove endpoint from existing uni-directional multi-
            point PVC
```

PVC add (Privileged Command)

Function

This command is used to add a PVC end point or "leaf" to an existing multipoint.

- Before entering this command, use the **SHOW PVC** (or **PVC establish**) command to verify a previously set multipoint route, to which a leaf may be added.
- Enter the same incoming side parameters (line number, VPI, VCI) that have been set as the incoming side parameters with the PVC establish command.
- The type of end point bit rate (traffic type and throughput) is the same as that set with PVC establish.

Reference Command

DISPLAY pvc

Cancel Command

PVC remove, PVC flush, SHOW pvc

Format

HOSTNAME# PVC add P1 P2 P3 P4 P5 P6

Format Explanation

P1: Ingress line number (00~33)

P2: Ingress VPI number (0~4095)

P3: Ingress VCI number (0, 32~16383)

P4: Egress line number (00~33)

P5: Egress VPI number (0~4095)

P6: Egress VCI number (0, 32~16383)

Example

```
HOSTNAME# SET profile 1 cbr
HOSTNAME# PVC establish 1 1 40 1 100 42 2 200 0 0 cbr
HOSTNAME# pvc add 40 1 100 43 2 200
```

Output

```
***Connection endpoint has been added.
Connection type         : Multipoint
Traffic type            : ****
Line     VPI/VCI Direction             Line       VPI/VCI UPC    Shaper     Profile
**       ***/***  ->           leaf 0  **         ***/*** ***     ***       *****
                  ->           leaf 1  **         ***/***  -      ***        -
                  ->           leaf 2  **         ***/***  -      ***        -
                  ->           leaf 3  **         ***/***  -      ***        -
```

PVC delete (Privileged Command)

Function

This command is used to delete a previously established PVC (not a leaf).

If the connection is a multipoint, execute only after removing all leafs with the **PVC remove** command (described later in this chapter).

Format

```
HOSTNAME# PVC delete P1 P2 P3 P4 P5 P6 P7
```

Format Explanation

P1 : Connection type (0 (bi-directional), 1 (multipoint) or 2 (uni-directional))

P2 : Ingress line number (00~33)

P3 : Ingress VPI (0~4095)

P4 : Ingress VCI (0, 32~16383)

P5 : Egress line number (00~33)

P6 : Egress VPI (0~4095)

P7 : Egress VCI (0, 32~16383)

Example

```
HOSTNAME# PVC delete 0 10 1 100 20 2 200
```

Output

In case of uni-directional:

```
***Connection has been deleted.
Connection type         : Uni-direction
Traffic type            : ****
Line     VPI/VCI    Direction   Line     VPI/VCI    UPC      Shaper   Profile
**       ***/***    ->          **       ***/***    ***      ***      *****
```

In case of bi-directional:

```
***Connection has been deleted.
Connection type         : Bi-direction
Traffic type            : ****
Line      VPI/VCI     Direction   Line      VPI/VCI   UPC      Shaper    Profile
**        ***/***     ->          **        ***/***   ***      ***       *****
                      <-          **        ***/***   ***      ***       *****
```

In case of multipoint:

```
***Connection has been deleted.
Connection type         : Multipoint
Traffic type            : ****
Line      VPI/VCI     Direction   Line      VPI/VCI   UPC      Shaper    Profile
**        ***/***     ->          leaf 0    **        ***/***  ***       ********
```

PVC establish (Privileged Command)

Function

This command is used to establish a permanent connection. The PVC will become effective immediately upon being set.

Reference Command

DISPLAY pvc

Cancel Command

PVC delete, PVC flush, SHOW pvc

Setting Procedure

1. Use the **SET profile** command to set the profile of the traffic type used in PVC.
2. If you wish to use the shaper function, set the shaper by executing the **SET shaper** command (shaper cannot be used in Buffer 1).
3. Use the **DISPLAY interface** command to check the effective bit length of VPI/VCI. (An error will result if a VPI/VCI in excess of this bit length is specified.)
4. Establish a PVC by executing the **PVC establish** command. (An error will result if there is insufficient remaining band.)

NOTE To route only on the Virtual Path Identifier (VPI), set the VCI to 0.

Format

```
HOSTNAME# PVC establish P1 P2 P3 P4 P5 P6 P7 P8 P9
P10 P11 {P12~14}
```

Format Explanation

P1 : Connection type (0 (bi-directional), 1 (multipoint) or 2 (uni-directional))

P2 : Traffic type (0 (abr), 1 (cbr), 2 (nrt-vbr), 3 (rt-vbr) or 4 (ubr))

P3 : Ingress line number (00~33)

P4 : Ingress VPI number (0~4095)

P5 : Ingress VCI number (0, 32~16383)

P6 : Egress line number (00~33)

P7 : Egress VPI number (0~4095)

P8 : Egress VCI number (0, 32~16383)

P9 : (Ingress » Egress) UPC mode (off(0) or 1~5)

P10 : (Ingress » Egress) shaper number (off(0) or 1~8)

P11 : Forward (Ingress » Egress) profile name

P12 : (Egress » Ingress) UPC mode (off(0) or 1~5)

P13 : (Egress » Ingress) shaper number (off(0) or 1~8)

P14 : Backward (Egress » Ingress) profile name

NOTE The shaper number must be fixed to "1" to use the Shaper function for the multipoint connection.

If a shaper number is specified and no rate has been set by the **`set shaper`** command, the process terminates abnormally.

The profile name must have been previously registered by executing the **`set profile`** command.

Example

```
HOSTNAME> PVC establish 0 1 10 1 100 20 2 200 0 0 cbr 0 0 cbr
```

Output

In case of uni-directional:

```
Connection has been established.
Connection type         : Uni-direction
Traffic type            : ****
Line    VPI/VCI   Direction Line VPI/VCI UPC   Shaper  Profile
**      ***/***   ->    **     ***/***   ***    ***     *****
```

In case of bi-directional:

```
Connection has been established.
Connection type         : Bi-direction
Traffic type            : ****
Line    VPI/VCI   Direction Line VPI/VCI  UPC  Shaper  Profile
**      ***/***   ->        **   ***/***  ***  ***     *****
                  <-        **   ***/***  ***  ***     *****
```

In case of multipoint:

```
Connection has been established.
Connection type         : Multipoint
Traffic type            : ****
Line  VPI/VCI  Direction     Line  VPI/VCI UPC  Shaper Profile
**    ***/***  ->     leaf 0 **    ***/*** ***  ***    *****
```

PVC flush (Privileged Command)

Function

This command is used to delete all the PVCs of each line.

The command also deletes any leaf applied with a multipoint.

Format

```
HOSTNAME# PVC flush P1
```

Format Explanation

P1 : Line number (00~33)

Example

```
HOSTNAME# PVC flush 01
```

Output

If **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? y

All connections on the line interface have been deleted.
```

If anything other than **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? y
```

PVC remove (Privileged Command)

Function

This command is used to delete a PVC endpoint or leaf from a multipoint path.

This command deletes one endpoint at a time. The incoming side setting specified by this command must be the same as the incoming setting of the existing path.

The sequence of deletion may be different from the sequence in which the endpoints were set.

Format

```
HOSTNAME# PVC remove P1 P2 P3 P4 P5 P6
```

Format Explanation

P1: Ingress line number (00~33)

P2: Ingress VPI number (0~4095)

P3: Ingress VCI number (0, 32~16383)

P4: Egress line number (00~33)

P5: Egress VPI number (0~4095)

P6: Egress VCI number (0, 32~16383)

Example

```
HOSTNAME# PVC remove 40 1 100 42 2 200
```

Output

```
***Connection endpoint has been removed.
Connection type         : Multipoint
Traffic type            : ****
Line  VPI/VCI   Direction  Line    VPI/VCI   UPC  Shaper  Profile
**    ***/***   ->     leaf 0**    ***/***   ***  ***     *****
                ->     leaf 1**    ***/***    -   ***      -
                ->     leaf 2**    ***/***    -   ***      -
```

RESET ? (Privileged Command)

Function

This command is used to display the help message for the **RESET** command.

Format

```
HOSTNAME# RESET ?
```

Output

```
slot                Slot reset
switch              Switch reset
```

RESET slot (Privileged Command)

Function

This command is used to restart (reset) the line card.

Format

```
HOSTNAME# RESET slot P1
```

Format Explanation

P1 : Slot number (0-3)

Example

```
HOSTNAME# reset slot 3
```

Output

If **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? y
Slot 3 has been reset.
               1
```

If anything other than **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? n

Slot reset is not executed.
```

Output Explanation

1. Slot number

RESET switch (Privileged Command)

Function

This command is used to restart (reset) the entire switch, including the line cards.

Format

```
HOSTNAME# RESET switch {P1}
```

Format Explanation

P1 : Switch or slot

Output

If **Y** is entered in response to the confirmation message:

```
HOSTNAME# reset switch
Are you sure [Y or N] ? y
The system is coming up now.
If you want to enter boot program, push [ESC] key immediately.
If the [ESC] key is detected within 3 seconds, boot program is
loaded.
Otherwise, online program will be loaded from the flash memory.
```

If anything other than **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? n

System reset is not executed.
```

ROUTE ? (Privileged Command)

Function

This command is used to display the help message for the **ROUTE** command.

Format

```
HOSTNAME# ROUTE ?
```

Output

```
add             Add route to static SVC routing table
delete          Delete route from SVC static routing table
flush           Delete all entries from SVC static routing table
resume          Resume primary route
```

ROUTE add (Privileged Command)

Function

This command is used to set an entry in the SVC static routing table. A static route is entered to associate an ATM address (usually another switch) with a specific port.

NOTE

The routing table has a maximum of 128 entries.

One address may be set to route to multiple ports, yet only one is active at any given time. Should the active port fail, routing resumes on the next specified line.

Reference Command

```
DISPLAY route
```

Cancel Command

```
ROUTE delete, ROUTE flush
```

Format

```
HOSTNAME# ROUTE add P1 P2 P3 {P4~P16}
```

Format Explanation

P1 : Address Type (NSAP or E.164)

P2 : Destination Address

When P1 is NSAP, up to 40 characters (0~9, A~F, X)

When P1 is E.164, up to 16 characters (0~9, X)

P3 : 1st Choice line (00~33)

P4 : 1st TunnelingVPI (-, 0~4095)

P5 : 2nd Choice line (00~33)

P6 : 2nd TunnelingVPI (-, 0~4095) (- for no tunneling)

P7 : 3rd Choice line (00~33)

P8 : 3rd TunnelingVPI (-, 0~4095)

P9 : 4th Choice line (00~33)

P10 : 4th TunnelingVPI (-, 0~4095)

P11 : 5th Choice line (00~33)

P12 : 5th TunnelingVPI (-, 0~4095)

P13 : 6th Choice line (00~33)

P14 : 6th TunnelingVPI (-, 0~4095)

P15 : 7th Choice line (00~33)

P16 : 7th TunnelingVPI (-, 0~4095)

NOTE Enter "**-**" to default VPI.

Example

```
HOSTNAME# route add nsap 39100 00
```

Output

```
SVC route has been added.
```

ROUTE delete (Privileged Command)

Function

This command is used to delete the specified entry from the SVC static routing table.

Format

HOSTNAME# ROUTE delete P1 P2

Format Explanation

P1 : Address Type (NSAP or E.164)

P2 : Destination Address

When P1 is NSAP, up to 40 characters (0~9, A~F, X)

When P1 is E.164, up to 16 characters (0~9, X)

Example

```
HOSTNAME# route del nsap 39100
```

Output

```
SVC route has been deleted.
```

ROUTE flush (Privileged Command)

Function

This command is used to delete all entries of the SVC routing table.

Format

HOSTNAME# ROUTE flush

Output

If **Y** is entered in response to the confirmation message:

```
HOSTNAME# route flush
Are you sure [Y or N] ? y


SVC routing table has been flushed.
```

If anything other than **Y** is entered in response to the confirmation message:

```
Are you sure [Y or N] ? n
```

ROUTE resume (Privileged Command)

Function

This command is used to return the primary port of the static routing table to the initial status. If more than one port was specified for a given address with **ROUTE add** command, and the initial port is not active, this **resume** command will return routing to the first port specified that is active.

Format

```
HOSTNAME# ROUTE resume P1 P2
```

Format Explanation

P1 : Address Type (NSAP or E.164)

P2 : Destination address

When P1 is NSAP, 40 characters max (0~9,A~F,X)

When P1 is E.164, 16 characters max (0~9,X)

Example

```
HOSTNAME# route resume nsap 39100
```

Output

```
SVC route priority has been initialized.
```

SAVE (Privileged Command)

Function

This command is used to save the configuration data to active and standby sides. Configuration data that is not saved with this command will be lost when the power is turned off, or when **RESET** is executed.

Format

HOSTNAME# SAVE

Format Explanation

Output

```
HOSTNAME# save
Do not push reset button until save finishes.
#########
[OK]
```

Output Explanation

Process result (OK/No Good (NG))

SET ? (Privileged Command)

Function

This command is used to display the help message for the **SET** command.

Format

```
HOSTNAME# SET ?
```

Output

```
HOSTNAME# set ?
atmsig          Q.2931 parameters
boot            Boot parameters
calledsoftpvp   Called softpvp check flag
cdvt            CDVT configuration
cevc            Circuit emulation configuration
clock           Clock mode
configserver    Configuration server information
ether           IP address of ethernet interface
iisp            Crankback information
ilmi            ILMI connection
interface       Line interface parameters
iproute         IP route information
linestatus      Administrative status
local           Switch local configuration
loopback        Line interface status
looptime        Looptime switch
mib             MIB information
nms             NMS information
oamcon          OAM connecting point
oamend          OAM endpoint
pnni            PNNI information
profile         PCR,SCR,MBS,EPD configuration
prompt          Prompt information
scope           Scope information
scroll          Scroll lines
server          Server IP address
shaper          Shaping rate
signaling       Signaling connection
sscop           SSCOP parameters
svcline         SVC line status of line interface
t309trg         T309 when interface failure has occurred
telnetlimit     Telnet session timeout
time            System time
tunneling       Tunneling information
```

SET atmsig (Privileged Command)

Function

This command is used to set Q.2931 signaling parameters.

Before the parameters may be changed, the system lines must be "suspended" by executing the **SET svcline** command. The parameter modification is valid after the line is reset to "resume."

Reference Command

DISPLAY atmsig

Format

HOSTNAME# SET atmsig P1 {P2}

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095) (0 is default)

Subsequent parameters can be set interactively.

Interactive Parameters

```
HOSTNAME# set atmsig 00 0
 Interface (network|0  user|1)?
 T301 (1-511,default=180)?
 T303 (1-255,default=4)?
 T308 (1-511,default=30)?
 T309 (1-511,default=10)?
 T310 (1-255,default=10)?
 T313 (1-255,default=4)?
 T316 (1-511,default=120)?
 T317 (1-255,default=60)?
 T322 (1-255,default=4)?
 T397 (1-511,default=180)?
 T398 (1-255,default=4)?
 T399 (1-511,default=14)?
 UNI version (UNI3.0|0  UNI3.1|1 UNI4.0|2,default=4.0)?
```

NOTE Value set before the modification is displayed as default value. (Default values shown are the initial values). Timing parameters should only be changed by knowledgeable administrators.

Output

```
Q.2931 parameters have been set.
```

SET boot (Privileged Command)

This command is used to set the BOOT mode of the ATM switch.

Refer to **DISPLAY boot** command for details of each mode.

Reference Command

DISPLAY boot

Change Command

SET boot

Setting Procedures for Loading New Software

1. Set the IP address of the switch by executing the **SET ether** command.
2. Set the IP address and boot file name of the server and router by executing the **SET server** command.
3. Save the settings of Step 1 and Step 2 by executing the **SAVE** command.
4. Set the mode by executing the **SET boot** command.
5. Enter the **RESET switch** command to boot the system.

Format

HOSTNAME# SET boot P1

Format Explanation

P1: Booting mode

Flash

Flash_up

Flash_up_save

Initialize

Initialize_save

Network

Network_save

Output

```
Boot mode has been set.
```

NOTE Following the next system reset, the specified boot location will be loaded.

Software Download Procedure

1. Set Ethernet address of the ATM switch (**SET ether**).
2. Set TFTP server Ethernet address and directory/name of boot file (**SET server**).
3. Save configuration (**SAVE**; configuration will be lost if not saved).
4. Set boot mode (**SET boot**; either initialize or network).
5. Reset the switch (**RESET switch**).

The ATM switch will locate the TFTP server, then the boot file. The boot file has a listing that instructs the ATM switch where to find the software modules. If the boot attempt is unsuccessful, the ATM switch will reset itself and boot from flash.

Example and Output

```
HOSTNAME# set ether 208.205.40.15.255.255.255.0
Ethernet IP address has been set.
HOSTNAME# set server 208.205.40.45.0.0.0.0 /2.5G/ver4_3/bootfile
Server configuration has been set.
HOSTNAME# save
configuration saved
HOSTNAME# set boot net
Boot mode has been set.
HOSTNAME# reset switch
Are you sure [Y or N] ? n
System reset has been executed.
```

SET calledsoftpvp (Privileged Command)

Function

This command is used to switch the recognition standard of called SoftPVP.

Reference Command

DISPLAY calledsoftpvp

Change Command

SET calledsoftpvp

Format

HOSTNAME# SET calledsoftpvp P1

Format Explanation

P1 : “0” (disable) or “1” (enable) (default = “0”)

Output

```
Called softpvp check flag has been set.
```

NOTE If P1 is set to "0" (disable), then the recognition of called SoftPVP is assured. However, the ATM switch will no longer recognize SoftPVP calls from Software Version 5.1 or earlier.

If P1 is set to "1" (enable), the ATM switch will recognize called SoftPVPs regardless of software version. However, their operation will not be assured.

SET cdvt (Privileged Command)

Function

This command is used to set the Cell Delay Variation Tolerance (CDVT) value for each line or tunneling.

Reference Command

```
DISPLAY cdvt
```

Format

```
HOSTNAME# SET cdvt P1 P2 P3 P4 P5 P6 P7 P8 P9
```

Format Explanation

P1 : Port number (00~33)

P2: VPI

P3 : CDVT value for CBR (1-12000 µs)

P4: CDVT value for rt-VBR (1-12000 µs)

P5: CDVT value for nrt-VBR (1-12000 µs)

P6: CDVT value for UBR (1-12000µs)

P7: CDVT value for UPC-Mode 2 (1-12000 µs)

P8: CDVT value for UPC-Mode 3 (1-12000 µs)

P9: CDVT value for UPC-Mode 4 (1-12000 µs)

NOTE Default CDVT value is 1000 µs.

Example

```
HOSTNAME# set cdvt ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)

HOSTNAME# set cdvt 00 ?
0-4095          VPI
-               Not applicable

HOSTNAME# set cdvt 00 - ?
1-12000         CDVTp for CBR[us]
-               default=2000

HOSTNAME# set cdvt 00 - - ?
1-12000         CDVTp for rt-VBR[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - ?
1-12000         CDVTp for nrt-VBR[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - - ?
1-12000         CDVTp for UBR[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - - - ?
1-12000         CDVTs for UPC-Mode2[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - - - - ?
1-12000         CDVTs for UPC-mode3[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - - - - - ?
1-12000         CDVTs for UPC-mode4[us]
-               default=2000

HOSTNAME# set cdvt 00 - - - - - - - - ?
<cr>
```

Output

```
CDVT parameters have been set.
```

SET cevc (Privileged Command)

Function

This command is used to set circuit emulation (CE) information.

Reference Command

DISPLAY cevc

Delete Command

DELETE cevc

Setting Procedure

1. Set the interface of a line by executing the **SET interface** command.
2. Set the interface of a VC by executing the **SET cevc** command.
3. If profile is to be used, then set the profile of traffic type CBR by executing the **SET profile** command. Here, set the PCR so it is larger than the PCR as can be seen by CE line VCI executing the **DISPLAY cevc** command.
4. Use the **PVC establish** command to set traffic type to CBR, VPI to 0, and shaper to "off" (fixed). Set VCI to the value specified in Step 2, set connection type to a connection type other than "bi-directional" if "uni-directional" was specified in Step 2, and set the profile to "-" (default; other than P-to-MP) or to the profile specified in Step 3.

Format

HOSTNAME# SET cevc P1 P2 P3

Format Explanation

P1 : Line number (00~33)

P2 : VCI

CE-DS1/E1 Port0 : 256~287

CE-DS1/E1 Port1 : 288~319

CE-DS1/E1 Port2 : 320~351

CE-DS1/E1 Port3 : 352~383

P3: Direction (“bi-directional,” “up” (STM->ATM), “down” (ATM->STM))

Subsequent parameters can be set interactively.

The possible setting range of CDVT varies depending on the structured size and partial fill size.

A series of time slots can be set by using hyphens (for example, 1-32).

The same time slot may not be set to different VCs.

In case of “unstructured,” VC is not fixed.

Overwrite is not possible with this command.

In case of bi-directional, the number of time slots must be the same for “up” and “down” sides.

In case of CE-DS1 structured (bi-directional):

```
up      Timeslot (1-24)?
down    Timeslot (1-24)?
up      Partial Fill Size (0, xx-47)?
down    Partial Fill Size (0, xx-47)?
(“xx”indicates “number of Timeslot”+1)
Condition data (0-255)?
CDVT (1-255)?
```

In case of CE-DS1 unstructured (bi-directional):

```
up      Partial Fill Size (0, 33-47)?
down    Partial Fill Size (0, 33-47)?
CDVT (1-255)?
```

In case of CE-DS1 structured (uni-directional):

```
Timeslot (1-24)?
Partial Fill Size (0, xx-47)?
(“xx”indicates “number of Timeslot”+1)
Condition data (0-255)?
CDVT (1-255)?
```

In case of CE-DS1 unstructured (uni-directional):

```
up      Timeslot (2-16, 18-32)?
down    Timeslot (2-16, 18-32)?
up      Partial Fill Size (0, xx-47)?
down    Partial Fill Size (0, xx-47)?
(“xx”indicates “number of Timeslot”+1)
Condition data (0-255)?
CDVT (1-255)?
```

NOTE CDVT is a setting only for the “down” side. When the uni-direction is “up,” no CDVT is displayed. The unit of CDVT is 125 µsec.

A series of time slots can be set by using hyphens (for example, 1-32).

The same time slot may not be set to different VCs.

In case of “unstructured,” VC is not fixed.

Overwrite is not possible with this command.

In case of bi-directional, the number of time slots need not be the same for “up” and “down” sides.

In case of CE-E1 structured (bi-directional):

```
Partial Fill Size (0, 33-47)?
CDVT (1-255)?
```

In case of CE-E1 unstructured (bi-directional):

```
up      Partial Fill Size (0, 33-47)?
down    Partial Fill Size (0, 33-47)?
CDVT (1-255)?
```

In case of CE-E1 structured (uni-directional):

```
Timeslot (2-16, 18-32)?
Partial Fill Size (0, xx-47)?
("xx"indicates "number of Timeslot"+1)
Condition data (0-255)?
CDVT (1-255)?
```

In case of CE-E1 unstructured (uni-directional):

```
Partial Fill Size (0, 33-47)?
CDVT (1-255)?
```

NOTE CDVT is a setting only for the "down" side. When the uni-direction is "up," no CDVT is displayed. The unit of CDVT is 125 µsec for "structured" and 165.8 µsec for "unstructured."

A series of time slots can be set by using hyphens (for example, 1-32).

The same time slot may not be set to different VCs.

In case of "unstructured," VC is not fixed.

Overwrite is not possible with this command.

In case of bi-directional, the number of time slots need not be the same for "up" and "down" sides.

Output

```
Circuit Emulation connection has been set.
```

SET clock (Privileged Command)

Function

This command is used to set the clock source mode.

Master: When set to *master,* all the line cards synchronize transmitted data to the self-running Master clock generated by the ATM switch.

Slave: When set to *slave*, all the line cards synchronize transmitted data to the clock derived from the receive port specified by parameter P3.

Reference Command

DISPLAY clock

Format

HOSTNAME# SET clock P1 {P2 P3} {P4} {P5}

Format Explanation

P1 : Clock mode

Master (default)

Slave

P2~5: Line number (00~13)

NOTE When the clock mode is set to master, no other parameters may be set.

For slave mode, up to four clock source ports may be set. If the first port fails, the next port will be used for the slave port.

Example

```
HOSTNAME# set clock sl 30 31 32 33
Clocking Mode:Slave
Slaveline Status
* 030     Good
  031     Good
  032     Failure
  033     Failure
```

Output

When set to master mode:

```
Clocking Mode: Master
```

If the slave system clock mode is selected:

```
Clocking Mode:     Slave
Slave line         Status
  **                 **
  1                  2
```

Output Explanation

1. Line number

   The clock sampling line in slave clock mode currently being used is identified by an asterisk (*) at the left of the line number.

2. Line status (GOOD, Failure, AdminDown, Not installed, Not supported or Diagnostics)

NOTE If the installed line package is removed and a different type of line package is installed, the related lines will automatically be released from slave mode.

SET configserver (Privileged Command)

Function

This command is used to add an ATM address of a LAN emulation configuration server. This table may have four entries. An end-user may retrieve these addresses through ILMI and, in turn, use the address to locate the LECS.

Reference Command

DISPLAY configserver

Cancel Command

DELETE configserver

Format

HOSTNAME# SET configserver P1 P2

Format Explanation

P1 : LECS address table index (0~3)

P2 : ATM address (max. 40 char (0~9, a~f, A~F))

Example

```
HOSTNAME# set configserver 0
```

Output

```
Configuration server has been set.
```

SET dlci (Privileged Command)

Function

This command is used to change set data for each DLCI connection.

Setting Procedure

1. Check the interworking type of the specified line by using the **DISPLAY interface** command.
2. Set the profile of the traffic type that is used for the connection by using the **SET frprofile** command. (Specify same interworking type as that of the line)
3. Use this command to set DLCI data.

Format

```
HOSTNAME# SET dlci P1 P2 P3
```

Format Explanation

P1: Line Number (00~33)

P2: DLCI (16~991) (DLCI+16=VCI)

P3: Frame Relay Profile Name (up to 10 alphanumeric characters)

Output

```
DLCI interface xxx has been set.
              1
```

Output Explanation

1. Line Number

NOTE Frame relay profile must be registered with **SET frprofile** in advance. The interworking type of the specified line has to be the same as that of the profile.

SET ether (Privileged Command)

Function

This command is used to set the Ethernet IP address and subnet mask of the ATM switch PCMCIA Ethernet port LANcard (optional).

Reference Command

DISPLAY ether, DISPLAY network

Format

HOSTNAME# SET ether P1 P2

Format Explanation

P1 : Ethernet IP address (x.x.x.x (x=0~255))

P2 : Ethernet subnet mask (x.x.x.x (x=0~255))

Example

```
HOSTNAME# set ether 100.10.5.6 255.255.255.0
```

Output

```
Ethernet IP address has been set.
```

NOTE The Ethernet port is used for "telnetting" into the ATM switch as a MAT, and for software downloads and configuration storing to/from a TFTP server.

SET froam (Privileged Command)

Function

This command is used to set the OAM endpoint of f5 (VC level) between frame relay and ATM.

Format

HOSTNAME# DELETE froam P1 P2 P3 P4 P5 P6

Format Explanation

P1: Line Number of Point 1 (00~33)

P2: VPI of Point 1 (0~4095)

P3: VCI of Point 1 (32~16383)

P4: Line Number of Point 2 (00~33)

P5: VPI of Point 2 (0~4095)

P6: VCI of Point 2 (32~16383)

Output

```
FROAM connection has been set.
```

NOTE The connection specified by this command must have been registered using the **PVC establish** command in advance. The connection cannot be established for the same line.

SET frprofile (Privileged Command)

Function

This command is used to set the profile for frame relay.

Format

```
HOSTNAME# SET frprofile P1
```

Format Explanation

P1: Name of the profile for frame relay (up to 10 alphanumeric letters)

Interactive Parameters

- Interworking (network|0 service|1)?
- CIR (1-1984[kbps])?
- DE to CLP mapping mode (Mode1|0 Mode2|1)?
- CLP value (0 or 1)?
  (Can be set only if “Mode2” had been selected for DE to CLP mapping mode)
- CLP to DE mapping mode (Mode1|0 Mode2|1)?
- DE value (0 or 1)?
  (Can be set only if “service” had been selected for interworking and “Mode2” for CLP to DE mapping mode)
- Protocol encapsulation mode (transparent|0 translation|1)?
  (Can be set only if “service” had been selected for interworking)
- Congestion indication (forward) mode (Mode1|0 Mode2|1)?
  (Can be set if service is selected for interworking)

Output

```
FR profile data has been set.
```

SET iisp (Privileged Command)

Function

This command is used to set IISP mode.

Swaproute enables the operation of **crankback**. If a switch, while attempting to signal a connection down one path of a multi-directional network, rejects the connection, the signaling path will backtrack and attempt to branch down an alternate path, bypassing the blocked switch.

Reference Command

DISPLAY iisp

Format

(1)HOSTNAME# SET iisp loopcheck P1 {P2}

(2)HOSTNAME# SET iisp splithorizon P1 {P2 P3}

(3)HOSTNAME# SET iisp swaproute P1 P2

Format Explanation (1)

P1 : Action (on or off)

P2 : Hop count (1~64 (default=7))

Format Explanation (2)

P1 : Action (on or off)

P2 : Line number (00~33)

P3 : VPI (0~4095)

NOTE If a line number is specified, VPI cannot be defaulted.

Format Explanation (3)

P1 : Action (on or off)

P2 : Resume timer value (1~20 min. (default=10))

Example (1)

```
Loop check    ******
                1
```

Example (2)

```
Split Horizon ******
               1
```

Example (3)

```
Swapping      ******
               1
```

Output Explanation

1. enabled = on

   disabled = off

SET ilmi (Privileged Command)

Function

This command is used to set the VPI/VCI path (0/16) for enabling ILMI (Interim Local Management Interface). This command also sets the time allowed for attempting address registry, the timer for performing a retry when registry fails, and the cycles at which the address registered for ILMI is checked.

ILMI and Functions

Upon initial connection of end-user equipment, pertinent information is swapped between the two endpoints of the ILMI connects (PVCs on a line card port). This information will be useful for signaling, once ILMI registration is complete. Parameters such as valid VPI/VCI bits, UNI Version, maximum number of possible connections, LECs addresses, are discovered. Also, the switch adds to its route table an entry for the end user's address and associated port.

It is recommended that you learn the pertinent configuration data of a connected end user.

Reference Command

```
DISPLAY ilmi
```

Cancel Command

```
DELETE ilmi
```

Format

```
HOSTNAME# SET ilmi P1 {P2} {P3} {P4} {P5} {P6} {P7}
```

Format Explanation

P1 : Connection / process (00~33)

P2 : Line number (00~33)

P3 : VPI (0~4095) (default=0)

P4 : VCI (0~16383) (default=16)

P5 : Timer value (1~511(s): default=10(s))
P6 : Times of retry (1~511: default=60)
P7 : Keepalive (1~511(s): default=60(s))

If P1 is connection

If P1 is process, P5 is:

0/off ILMI process flag off

1/on ILMI process flag on

Example

```
HOSTNAME# set ilmi ?
connection      Control connection
process         Process flag information

HOSTNAME# set ilmi process ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)

HOSTNAME# set ilmi process 00 ?
0-4095          VPI

HOSTNAME# set ilmi process 00 0 ?
0|off           ILMI process flag OFF
1|on            ILMI process flag ON

HOSTNAME# set ilmi process 00 0 1 ?
<cr>


HOSTNAME# set ilmi connection ?
xy      x:Slot number, y:Port number (0 <= x <= 3, 0 <= y <= 3)

HOSTNAME# set ilmi connection 00 ?
0-4095          VPI
<cr>            default=0

HOSTNAME# set ilmi connection 00 0 ?
1-16383         VCI
<cr>            default=16

HOSTNAME# set ilmi connection 00 0 16 ?
1-511   Timeout[sec]
<cr>    default=1[sec]

HOSTNAME# set ilmi connection 00 0 16 1 ?
1-511   Times of retrial
<cr>    default=4

HOSTNAME# set ilmi connection 00 0 16 1 4 ?
1-511   Keepalive timer[sec]
<cr>    default=5[sec]

HOSTNAME# set ilmi connection 00 0 16 1 4 5 ?
<cr>
```

Output

```
ILMI connection has been set.
```

SET interface (Privileged Command)

Function

This command is used to register a line, provided a line card is installed and no connection is set in the specified line.

Format

```
HOSTNAME# SET interface P1
```

Format Explanation

P1 : Line number (00~33)

Subsequent parameters can be set interactively.

Procedures for Setting the Line Interface

1. Delete connections (PVC, Soft PVP), if any are established.
2. Suspend the line by executing the **SET svcline** command.
3. Delete signaling connections by executing the **DELETE signaling** command.
4. Delete ILMI connections by executing the **DELETE ilmi connection** command.
5. Delete PNNI connections by executing the **DELETE pnni connection** command.
6. Delete IP routing connections by executing the **DELETE iproute** command.
7. Enter the **SET interface** command.
8. Establish the connections by executing the **SET ilmi connection** command, **SET signaling** command, **SET pnni connection** command, and **SET iproute** command.
9. Resume the line by executing the **SET svcline** command.
10. If any connections were deleted in Step 1, then re-establish as necessary.

NOTE Subsequent parameters can be set interactively.

Interactive Parameters for the Interfaces

For OC-3c, OC-12c and STS-3c/STM1(COAXIAL):

```
Interface (pri_uni/0 pri_nni/1 pub_uni/2)?
Forum/ITU (forum/0 itu/1)?
IDLE Cell (unassigned/0 idle/1)?
Valid VPI
Valid VCI
VPI filter mask range (0-12[bit], default=Valid VPI)?
VCI filter mask range (x-16[bit], default=Valid VCI)?
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

For 100M-TAXI:

```
Interface (pri_uni/0 pri_nni/1 pub_uni/2)?
IDLE Cell (unassigned/0 idle/1)?
Valid VPI
Valid VCI
VPI filter mask range (0-12[bit], default=Valid VPI)?
VCI filter mask range (0-16[bit], default=Valid VCI)?
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

For DS3:

```
Interface (pri_uni/0 pri_nni/1 pub_uni/2)?
IDLE Cell (unassigned/0 idle/1)?
Valid VPI
Valid VCI
VPI filter mask range (0-12[bit], default=Valid VPI)?
VCI filter mask range (0-16[bit], default=Valid VCI)?
Frame mode (cbit/0 m23/1)?
Cell mapping (plcp/0 direct/1)?
Scramble (off/0 on/1)?
LBO (hi/0 lo/1)?
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

For E3:

```
Interface (pri_uni/0 pri_nni/1 pub_uni/2)?
IDLE Cell (unassigned/0 idle/1)?
Valid VPI
Valid VCI
VPI filter mask range (0-12[bit], default=Valid VPI)?
VCI filter mask range (0-16[bit], default=Valid VCI)?
Frame mode (g832(g804)/0 g751/1)?
Cell mapping (plcp/0 direct/1)?
Scramble (off/0 on/1)?
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

For DS1, E1:

```
Interface (pri_uni/0 pri_nni/1 pub_uni/2)?
IDLE Cell (unassigned/0 idle/1)?
Valid VPI
Valid VCI
VPI filter mask range (0-12[bit], default=Valid VPI)?
VCI filter mask range (0-16[bit], default=Valid VCI)?
Cell mapping (plcp/0 direct/1)?
Scramble (off/0 on/1)?
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface
LBO for DS1: (0-110/0 110-220/1 220-330/2 330-440/3 440-550/4 550-660/5 660/6

For J2:

```
Interface(pri_uni/0  pri_nni/1  pub_uni/2)?
Valid VPI
Valid VCI
VPI filter mask range(0-12[bit], default=Valid VPI)?
VCI filter mask range(0-16[bit], default=Valid VCI)?
Line rate(6M/0 4.5M/1 3M/2)?

Slot * is reset. Are you sure? [Y or N]
```

NOTE Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

For Primary:

```
Interface(pri_uni/0  pri_nni/1  pub_uni/2)?
TTC/ITU-T (ttc/0 itu_t/1)?
Valid VPI
Valid VCI
VPI filter mask range(0-12[bit], default=Valid VPI)?
VCI filter mask range(0-16[bit], default=Valid VCI)?
Line rate(1.5M/0 1.1M/1 768K/2 512K/3 384K/4 256K/5 192K/6)?
```

NOTE

Valid VPI: (0-8)[bit] for UNI interface; (0-12[bit]) for NNI interface
Valid VCI: (0-14)[bit] for UNI interface; (0-14)[bit]) for NNI interface

Changing a CE Line Interface

1. Delete all connections (PVCs, Soft PVPs) from the line, if any.
2. Delete all cevc settings on the line by executing the **`DELETE cevc`** command.
3. Change the interface of a line by executing the **`SET interface`** command.
4. Set cevc and establish a connection as necessary.

Interactive Parameters for the CE Line Interfaces

For CE-DS1:

```
Service (Unstructured/0  structured/1)?
LBO (0-110/0 110-220/1 220-330/2 330-440/3 440-550/4 550-660/5 660/6)?
```

For structured service:

```
CAS mode (Basic/0 CAS/1?
```

For FR-DS1:

```
Interface (uni/0 nni/1?
FR Forum/ITU_T/ANSI (fr_forum/0 itu_t/1 ansi/2)?
Interworking (network/0 service/1)?
LBO (0-110/0 110-220/2 220-330/2 330-440/3 440-550/4 550-660/5)?
Fractional type (unchannelized/0 fractional/1)?
```

For fractional:

```
Fractional set (1-24)?
```

Output

```
Line Interface xx has been registered.
             1
```

Output Explanation

1. Line Number

NOTE The range of ValidVCI settings varies depending on the bit count specified by ValidVPI.

Output

```
Line Interface *** has been registered.
                                  1
```

Output Explanation

1. Line number

NOTE The permissible setting range of valid VCI differs depending on the bit count specified for valid VPI.

SET iproute (Privileged Command)

Function

This command is used to set IP routing information. The parameters differ depending on the interface type.

Reference Command

DISPLAY iproute

Cancel Command

DELETE iproute

Format

HOSTNAME# SET iproute ec0 P2 P3 P4

HOSTNAME# SET iproute atm0 P2 P3 P5 P6 P7

Format Explanation

P1 : Interface type (atm0 or ec0)

P2 : Destination type (net or host)

P3 : Destination IP address (x.x.x.x (x=0~255)) or default router

P4 : Router IP address (x.x.x.x (x=0~255)) (set only when ec0 is specified)

P5: Line number (00~33) (set only when atm0 is specified)

P6 : VPI (0~4095) (set only when atm0 is specified)

P7 : VCI (0~16383) (set only when atm0 is specified)

NOTE

Ec0 – Used to designate a route for Telnet, NMS, or software downloaded over Ethernet that must traverse a router.

ATM0- Used to designate a route for Telnet, NMS, or software downloaded over an ATM interface.

Example

```
HOSTNAME# set iproute ec0 net default 10.5.6.1
```

Output

```
IP route information has been set.
```

SET linestatus (Privileged Command)

Function

This command is used to change the operating status of the line.

By specifying the *down* parameter, all operation for that port is disabled. The signaling/ilmi/pnni/line error operation on the specified line is stopped.

Reference Command

DISPLAY line

Format

HOSTNAME# SET linestatus P1 P2

Format Explanation

P1 : Line number (00~33)

P2 : Line status (down or up)

Output

If the line is not clock sampling line:

```
Linestatus has been set.
```

If the line is clock sampling line:

```
Linestatus has been set.
Clocking mode has been changed.(Slaveline:**)
                                    1
```

If the line is maintenance PVC line:

```
Linestatus has been set.
Linestatus not registered.
```

If there is a maintenance PVC on the specified line and if P2 is “down”:

```
This will disable atm0 iproute configuration.
Are you sure ? [Y or N]
```

If **Y** is entered:

```
Line status has been set.
```

If **N** is entered:

```
Line status not registered.
```

Output Explanation

1. Line number

NOTE If the line for which "down" is specified is the only line that can be selected among the slave lines of the clock, the setting will result in a command error since the clock cannot be sampled.

SET local (Privileged Command)

Function

This command is used to set the host name, ATM interface IP address, IP mask, and ATM prefix information of the ATM switch.

Reference Command

DISPLAY network

Change Command

SET local

Format

HOSTNAME# SET local P1 P2 P3 P4

Format Explanation

P1 : Host name (up to eight alphanumeric characters)

P2 : ATM IP Address (x.x.x.x (x=0~255))

P3 : Mask value of ATM IP Address (x.x.x.x (x=0~255))

P4 : ATM prefix node ID (up to 26 hexadecimal alphanumeric characters). If less than 26 characters, the remaining spaces will automatically be padded with zeros.

Example

```
HOSTNAME# set local HOSTNAME 10.1.1.3 255.255.255.0 390102
HOSTNAME# show net
```

Output

```
Local configuration has been set.
```

NOTE The ATM IP address must be on a separate IP network from the Ethernet address.

SET loopback (Privileged Command)

Function

This command is used to set the loopback on the line interface.

Reference Command

DISPLAY line

Change Command

SET loopback

Format

HOSTNAME# SET loopback P1 P2

Format Explanation

P1 : Line number (00~33)

P2 : Line status (“ normal,” “local” or “remote”)

NOTE local and remote indicate loopback

Output

If there is a maintenance PVC on the specified line and if P2 is “down”:

```
This will disable atm0 iproute configuration.
Are you sure ? [Y or N]
```

If **Y** is entered:

```
Line interface *** has been set.
```

If **N** is entered:

```
Line interface *** not registered.
```

If other than the above is entered:

```
Line interface *** has been set.
Line interface *** not registered.
                          1
```

Output Explanation

1. Line number

NOTE If the specified line is 100M-TAXI, it cannot be set to “remote.”

SET looptime (Privileged Command)

Function

This command is used to set the per port clock recovery. A port with looptime set to "on" will recover the *receive* port clock and synchronize the transmit clock to it. The transmit port "slaves" its clock to the clock recovered from the receive port. This has priority over "clock master or slave."

Reference Command

DISPLAY looptime

Format

HOSTNAME# SET looptime P1 P2

Format Explanation

P1 : Looptime (on (1) or off (0))

P2 : Line number (00~33)

Output

```
Line interface ** has been set.
                      1
```

Output Explanation

1. Line number

NOTE

No loop time may be set for 100M-TAXI.

- Loop time cannot be set while the switch and line are being diagnosed.
- Lines for which loop time has been set cannot be connected to each other.
- Only one line may be set for DS/E3 loop time.

SET mib (Privileged Command)

Function

This command is used to set the MIB syscontact and syslocation found in fields by the **SHOW net** command. This command merely sets two text strings for simple user information.

Reference Command

DISPLAY network

Format

HOSTNAME# SET mib P1 P2

Format Explanation

P1 : Manager (up to 32 alphanumeric characters)

P2 : Installation location (up to 32 alphanumeric characters)

Example

```
HOSTNAME# set mib "NEC 1-800-832-6632" "Irving, Texas"
```

Output

```
MIB information has been set.
```

NOTE You may enter the information for both parameters in one command line by using double quotes.

Example

```
HOSTNAME# set mib "Nortel Networks" Texas
HOSTNAME# show net
      .
      .
      .
syscontact:  Nortel Networks
syslocation: Texas
      .
      .
      .
```

SET nms (Privileged Command)

Function

This command is used to set the NMS information. Up to four (4) NMSs can be set.

Reference Command

DISPLAY network

Cancel Command

DELETE nms

Setting Procedure

1. To set the information via ATM, set the ATM IP address of the switch by executing the **SET local** command. To set the information via Ethernet, set the Ethernet IP address by executing the **SET ether** command.
2. If the subnet is different, set the IP routing by executing the **SET iproute** command.
3. Register the NMS by executing the **SET nms** command.

Format

HOSTNAME# SET nms P1 P2 P3 P4

Format Explanation

P1 : NMS number (0~3)

P2 : IP Address (x.x.x.x (x=0~255))

P3 : Community name (up to 16 alphanumeric characters)

P4 : Access right (read-only (0) or read-write (1))

Output

```
NMS information has been set.
```

SET oamcon (Privileged Command)

Function

This command is used to set the connecting point of a connection for transferring an alarm by OAM cell (alarm cell).

Reference Command

DISPLAY oamcon

Cancel Command

DELETE oamcon

Format

(1) HOSTNAME# SET oamcon f4 P1 P2 P3 P5 P6

(2) HOSTNAME# SET oamcon f5 P1 P2 P3 P4 P5 P6 P7

NOTE In f4 mode, it is not necessary to specify VCI value.

Format Explanation

P1: Point type

(segcon or 0 if the switch is a connecting point in the Segment flow)

(endcon or 1 if the switch is a connecting point in the End-to-End flow)

P2 : Ingress line number (00~33)

P3 : Ingress VPI (0~4095)

P4 : Ingress VCI (32~16383) [Not required for f4.]

P5 : Egress line number (00~33)

P6 : Egress VPI (0~4095)

P7 : Egress VCI (32~16383) [Not required for f4.]

Example

```
HOSTNAME# set oamcon f5 1 23 3 35 51 2 33
```

Output

```
OAM connecting point has been established.
```

NOTE Connections specified by this command must be previously registered by executing the **PVC establish** command.

SET oamend (Privileged Command)

Function

This command is used to set the endpoint of a connection for transferring an alarm by OAM cell (alarm cell).

Reference Command

DISPLAY oamend

Format

HOSTNAME# SET oamend P1 P2 P3 P4 {P5}

Format Explanation

P1 : Mode (f4 (VP level) or f5 (VC level))

P2 : Point type

(segend or 0 if the switch is an endpoint in the Segment flow)

(endend or 1 if the switch is an endpoint in the End-to-End flow)

NOTE When P1 is f5, specifying “endend” results in an error.

P3 : Line number (00~33)

P4 : VPI (0~4095)

P5 : VCI (32~16383 (defaulted when the mode is f4))

Output

```
OAM endpoint has been established.
```

NOTE Connections specified by this command must be previously registered by executing the **PVC establish** command.

SET oamf5end (Privileged Command)

Function

This command is used to set an OAM endpoint at f5 (VC level). The endpoint in f5 end-to-end mode supports the OAM loopback cell receiving process.

Format

```
HOSTNAME# SET oamf5end P1 P2 P3
```

Format Explanation

P1: Line Number (00~33)

P2: VPI (0~4095)

P3: VCI (32~16383)

Output

```
OAM f5end endpoint has been set.
```

SET pnni (Privileged Command)

Function

This command is used to enable PNNI connection.

This command sets a path to exchange the network topology, link status, and other network information between the switches. Using this information, the switch creates a dynamic routing table and refers to it during routing between the Private Network-to-Network Interfaces (P-NNIs).

If the "private NNI" interface type has been set by the **SET interface** command, the routing path (0, 18) is automatically set during system startup.

One or more PNNI paths can be set for a single physical line. However, only a single PNNI path can be set for a single VPI.

1. To set the reachable address of PNNI:

Format

```
HOSTNAME# SET pnni address
PNNI>P1 P2 P3 P4 P5 P6 P7 {P8} {P9}
```

This sets a reachable address for PNNI. Enter **SET pnni address** to enter the edit mode. While in the edit mode, the **PNNI>** prompt is displayed. Exit edit mode by entering a period (**.**) The reachable address information of PNNI can be displayed by entering the **DISPLAY pnni address** command. "Internal" addresses are set for end-user devices that do not support ILMI registration. "External" addresses are set for IISP attached switches.

Format Explanation

P1 : Process type (either "Add" or "Change." All parameters other than length, reachable address, and address type may be changed.)

P2 : Address type ("Internal" or "Exterior")

P3 : SCOPE (0~104) (limits the broadcast domain. 0 = no limit.)

P4 : Effective bit count of reachable address (0~160)

P5 : Reachable address (up to 40 characters 0~9, A~F, a~f)

P6 : Line number (00~33)

P7 : VPI (0~4095

P8 : Content of transit network ID data (effective only when "Exterior" is specified for the address type) (0-127) <hexadecimal value>

P9 : Identifiers of the networks that will be passed through to reach the address.

NOTE These addresses, internal and external, will be broadcast, depending on "scope," to all nodes in the network.

Example

```
HOSTNAME# set pnni address
PNNI>
PNNI> add ext 0 12 490 02 0
PNNI>.
HOSTNAME#
```

Output

```
PNNI reachable address has been set.
```

2. To set the architectural variables of PNNI:

Format

HOSTNAME# SET pnni architectural P1 P2 P3 P4 P5 P6 P7 P8

This sets the timer/value parameters of PNNI. Information on PNNI's architectural variable can be displayed by executing the **DISPLAY pnni architectural** command.

Format Explanation

P1: Minimum transmission interval of Hello (1~120 second(s))

P2: Transmission interval of Hello (1~120 second(s))

P3: Transmission interval of database summary packet (5~120 second(s)) and communication interval of PTSE request packet

P4: Minimum transmission interval of PTSE (1~120 second(s))

P5: Communication and retransmission interval of PTSE (5~120 second(s))

(One-fifth of this time setting becomes the PTSE response delay time.)

P6: Ring down recognition time (1~225 second(s))

P7: Percentage at which average cell rate change is notified (1~99%)

P8: Minimum value at which average cell rate change is notified (1~99%)

Example

```
HOSTNAME# set pnni arch 1 15 15 1 15 120 50 3
```

Output

```
PNNI architectural variables have been set.
```

3. To set the virtual path of PNNI:

Format

HOSTNAME# SET pnni connection P1 {P2} {P3} {P4} {P5} {P6}

This sets the path of PNNI. Information on PNNI's connection can be displayed by executing the **DISPLAY pnni connection** command.

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095, default=0)

P3 : VCI (1~16383, default=18)

P4 : Administrative weight (0~50400, default=5040)

Weight for cost calculation in link selection

P5 : Aggregation token (0~225, currently fixed to 0)

Value that decides the number of logical link divisions between LGNs in the logical layer

P6 : UBR Best effort separate band (0~1412830)

Bandwidth secured for UBR

Example

```
HOSTNAME# set pnni conn 00
```

Output

```
PNNI connection has been set.
```

4. To set the routing type of PNNI:

Format

HOSTNAME# SET pnni method P1

This sets the routing type of PNNI. "Hop by hop" is performed by IISP's routing method and "source" is routed according to the DTL prepared by the routing unit of PNNI 1.0. Information on PNNI's routing type can be displayed by executing the **DISPLAY pnni method** command.

Format Explanation

P1 : Routing type ("HOP BY HOP" or "SOURCE")

Example

```
HOSTNAME# set pnni conn 00
```

Output

```
PNNI routing method has been set.
```

5. To set the node information of PNNI:

Format

```
HOSTNAME# SET pnni nodal P1 P2
```

Because of the recursive nature of PNNI, each hierarchical level has a repeated set of parameters. The software currently limits PNNI to three (3) levels of hierarchy. After the initial command line is entered for number of levels and peer-group-leader (PGL) election participation, subroutine values will be requested. PGL and Logical Group Node (LGN) parameters are generally defaulted.

Format Explanation

P1 : Number of hierarchal levels (1~3)

P2 : Peer Group Leader (PGL) flag ("1" if able to participate in peer group leader election)

NOTE

Subsequent parameters can be set interactively.

Subsequent parameters:

```
-Hierarchy (, 0 - 104)?
```

Level number:

```
-Restricted transit bit (on|1 off|0)?
```

Through switch SVC restriction. Restricted if "on," not restricted if "off."

```
-Restricted branching bit (on|1 off|0)?
```

Judgement flag to restrict whether to serve as a branching point upon P-to-MP. Restricted if "on," not restricted if "off."

```
-Leadership priority (0 - 255)?
```

Priority of becoming the PGL. Not selected as PGL if set to "0." The higher the value, the greater the priority.

```
-Peer group ID (, up to 28 hexadecimal characters)?
```

ID of the PG to which every node must have to join. Automatically set when defaulted.

```
-LGN ID (, up to 44 hexadecimal characters)?
```

PNNI logical node ID. Automatically set when defaulted.

Example

```
HOSTNAME# set pnni nodal 1 1

Hierarchy 1

Level indicator (0-104)? 12
Restricted transit bit (0|off,1|on)? 0
Restricted branching bit (0|off,1|on)? 0
Leadership priority (1-255)? 100
Peer group ID (up to 28 hexadecimal characters)?
LGN ID (up to 44 hexadecimal characters)?
 PNNI node information have been set.
HOSTNAME#
```

Output

```
PNNI node information has been set.
```

SET profile (Privileged Command)

Function

This command is used for setting the profile that is requested upon setting PVC and soft PVP. These parameters are for policing if enabled in **`PVC establish`**. command.

Reference Command

`DISPLAY profile`

Cancel Command

`DELETE profile`

Format

`HOSTNAME# SET profile P1 P2`

Format Explanation

P1 : Traffic type (0(abr), 1(cbr), 2(nrt-vbr), 3(rt-vbr) or 4(ubr))

P2 : Profile name (up to ten alphanumeric characters)

Subsequent parameters can be set interactively.

Example

```
HOSTNAME# set profile 1 mycbr
```

Interactive Parameters

```
PCR (1-1412830 [cells/s])?
      Peak cell rate

SCR (1-1412830 [cells/s])?
      Sustainable cell rate

MBS (1-1412830 [cells])?
      Maximum burst size

EPD (off/0 on/1)?
      EPD function flag
```

Output

```
Profile data has been set.

Profile name                        :**********
Traffic type                        :*******
Peak cell rate [cell/s]             :*******
Sustainable cell rate [cell/s]      :*******
Maximum burst size [cell]           :*******
EPD                                 :***
```

SET prompt (Privileged Command)

Function

This command is used to set the prompt type. This setting is not included in the configuration data; therefore the prompt type is returned to the default prompt type when the system is restarted.

Change Command

SET prompt

Format

HOSTNAME# SET prompt P1

Format Explanation

P1 : Prompt type (“host” or “1,” “time” or “2,” “all” or “3”)

Output

This prompt appears when "host" or "1" is specified (host name prompt).

```
HOSTNAME# ..........
```

This prompt appears when “time” or “2” is specified (time prompt).

```
hh:mm:ss:#..........
```

This prompt appears when “all” or “3” is specified (host name and time prompt).

```
HOSTNAME hh:mm:ss#..........
```

SET scope (Privileged Command)

Function

This command is used to change the scope mapped to each hierarchical level of PNNI.

Reference Command

DISPLAY scope

Change Command

SET scope

Format

HOSTNAME# SET scope

Interactive Parameters

Hierarchy1 : UNI scope (xx~xx)?

Hierarchy2 : UNI scope (xx~xx)?

Output

```
PNNI mode scope information has been set.
```

NOTE The scope must be mapped with the **SET pnni nodal** command in advance.

SET scroll (Privileged Command)

Function

This command is used to set the number of lines displayed on the MAT screen. If the P1 parameter is set to zero, displayed lines will continue being displayed until completion.

Reference Command

DISPLAY scroll

SHOW scroll

Format

HOSTNAME# SET scroll P1

Format Explanation

P1 : Number of lines displayed on MAT (0~49)

Example

```
HOSTNAME# set scroll 40
 Scroll filter:  On
```

Output

```
Scroll filter: ***
               1
```

Output Explanation

1. Scroll control (on or off)

SET server (Privileged Command)

Function

This command is used to set TFTP server IP address, default router IP address and name of boot file. The TFTP server is used for system software download and system configuration backup.

Reference Command

DISPLAY server

Format

HOSTNAME# SET server P1 {P2 P3}

Format Explanation

P1 : Server IP address (x.x.x.x (x=0~255))

P2 : Default router IP address (x.x.x.x (x=0~255)) 0.0.0.0 if no router present

P3 : Boot file name (up to 127 characters) and directory

Example

```
HOSTNAME# set server 10.5.3.4 0.0.0.0 2.5G/bootfiles/boot.txt
```

NOTE If the **boot** command is set to **network** or **initialize,** and the switch is reset, it will attempt to connect to the TFTP server and load software located there. If the **backup** or **install** commands are used, the switch will attempt to store/retrieve configuration information.

Output

```
Server configuration data has been set.
```

SET shaper (Privileged Command)

Function

This command is used to set a shaping rate.

Only PCR is set for CBR connections. PCR, SCR, and MBS are set for other traffic type connections.

Reference Command

```
DISPLAY shaper
```

Cancel Command

```
DELETE shaper
```

Format

```
HOSTNAME# SET shaper P1 P2 P3 {P4} {P5}
```

Format Explanation

P1 : Line number (ATM 2.5 Gbps switch)

P2 : Shaper number (1~8)

P3 : PCR (cell/s) (1~1412830)

P4 : SCR (cell/s) (1~1412830)

P5 : MBS (cell)

Output

```
Shaping rate has been set.
```

NOTE For PCR and SCR the maximum range specified is for an OC-12 interface. For a OC-3 or UTP-5 interface, the maximum is actually 353207.

If the specified rate cannot be set due to the limited hardware capacity, an approximate value is selected and set automatically. A PCR or SCR exceeding the physical rate cannot be set. Also, the following requirement must be satisfied:

- PCR >= SCR & PCR >= MBS

SET signaling (Privileged Command)

Function

This command is used to set the signaling path (0, 5).

Reference Command

DISPLAY signaling

Cancel Command

DELETE signaling

Format

HOSTNAME# SET signaling P1 {P2} {P3}

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095) (default=0)

P3 : VCI (1~16383) (default=5)

Output

```
Signaling connection has been set.
```

NOTE Signaling will not be active if it has been suspended by the **SET svcline** command.

To set a signaling connection whose VPI is 1 or greater, it is necessary to set the tunneling with that VPI in advance.

Before changing the VCI with this command, suspend the operation by executing the **SET svcline** command, delete signaling connections by executing the **DELETE signaling** command, and reset the connection. Then resume the operation by executing the **SET svcline** command to validate the change.

SET sscop (Privileged Command)

Function

This command is used to set the SSCOP parameters of ATM signaling for the signaling connection set with the **SET signaling** command. These values should rarely be changed unless the administrator is fully aware of values.

Reference Command

DISPLAY sscop

Format

HOSTNAME# SET sscop P1 P2

Format Explanation

P1: Line number (00~33)

P2: VPI (0~4095)

Subsequent parameters can be set interactively.

Setting Procedure

1. Disable signaling by executing the **SET svcline** command.
2. Set the parameters by executing the **SET sscop** command.
3. The parameters become effective when the operation is resumed by executing the **SET svcline** command.

Interactive Parameters

```
MaxCC (1-255, default=4) ?
TimerCC (1-255, default=1) ?
Timer Keepalive (1-255, default=30) ?
Timer NORESPONSE (1-255, default=10) ?
Timer POLL (1-255, default=1) ?
MaxPD (1-255, default=10) ?
MaxSTAT (1-255, default=4) ?
clear_buffers (Yes No, default=Yes) ?
```

NOTE The value set before modification is displayed as the default value. (Default values shown above are the initial values.)

Output

```
SSCOP parameters have been set.
```

NOTE Before the parameters are set again by this command, the system lines must be suspended by executing the **set svcline** command. The parameter modification is valid after the line is reset to "resume."

SET svcline (Privileged Command)

Function

This command is used to set the signaling status; suspended or resume.

When the **suspend** command is entered, the SVC of the related line is disconnected and all subsequent signaling messages are ignored. The SVC functions are resumed by setting the line to "resume."

Reference Command

DISPLAY svcline

Format

HOSTNAME# SET svcline P1 P2 P3

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0 ~ 4095)

P3 : SVC Status (suspend or resume)

NOTE

suspend : suspends signaling function

resume : resumes signaling function

Output

```
SVC status of the line interface **: ***
                                     1   2
```

Output Explanation

1. Line number
2. SVC status

SET t309trg (Privileged Command)

Function

This command is used to set the timing of recognizing signaling line fault separately from T309.

Reference Command

DISPLAY t309trg

Change Command

SET t309trg

Setting Procedure

1. If the line is active, suspend signaling of a line or VPI by executing the **SET svcline** command.
2. Set the parameters by executing this command.
3. The parameters become effective when the operation is resumed with the **SET svcline** command.

Format

HOSTNAME# SET t309trg {P1}

Format Explanation

P1 : Time value (1~511[sec], T309 is used if defaulted)

Output

```
Timing has been set.
```

NOTE Before the parameters are set again by this command, the system lines must be "suspended" with the **SET svcline** command. The parameter modification is valid after the line is set to "resume."

SET telnetlimit (Privileged Command)

Function

This command is used to set the time limit of a Telnet session.

Reference Command

```
DISPLAY telnetlimit
```

Format

```
HOSTNAME# SET telnetlimit P1
```

Format Explanation

P1: Time limit to forced disconnection of the session after the last input/output (0~32767 minutes).

NOTE Forced disconnection will be disabled if the time limit is set to 0.

Output

```
Telnet time-limit has been set.
```

SET time (Privileged Command)

Function

This command is used to set the system date and time.

Reference Command

DISPLAY time

Format

HOSTNAME# SET time P1 P2

Format Explanation

P1: Date (YY-MM-DD)

Year:	0-99 (the last two digits of the year)
Month:	1-12
Day:	1-31

P2: Time (hh:mm:ss)

Hour:	0-23
Minute:	0-59
Second:	0-59

NOTE Split the date with "-" and the time with ":"

Example

```
HOSTNAME# set time 97-08-18 15:45:22
```

Output

```
System Timer has been set.
YY-MM-DD hh:mm:ss
```

NOTE YY-MM-DD indicates the year, month, and day of the month.
hh:mm:ss indicates the hour, minute, and second.

Example

January 10, 1999 is set as:	99-01-10
2:30pm and 15 seconds is set as:	14:30:15

SET tunneling (Privileged Command)

Function

This command is used to set tunneling connection information.

Reference Command

DISPLAY tunneling

Setting Procedure

1. Choose a VPI path for tunneling; then issue the set tunneling, signaling, ILMI and/or PNNI paths with the chosen VPI.
2. Enter the **SET tunneling** command.

Follow the steps below to set signaling and ILMI.

3. Establish tunneled signaling connection by executing the **SET signaling** command to the chosen tunneling VPI.
4. If necessary, change the UNI Version, using **SET atmsig/sscop**.
5. Set the ILMI tunneling connection by executing the **SET ilmi connection** command to the chosen tunneling VPI.
6. Resume the line (or VPI specification) using **SET svcline** command.
7. If using IISP, set the appropriate routes. For PNNI, use the **SET PNNI connection** command to establish the routing VP.

Format

HOSTNAME# SET tunneling P1 P2 P3 P4 P5

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

P3 : Tunneling bandwidth (cell/s) (1~1412830)

P4 : UPC function mode (0(off) or 1)

P5 : Shaper number (off(0) or 1~8)

NOTE Only the shaper number whose shaping rate has already been set with the **SET shaper** command can be specified.

The tunneling bandwidth displays a maximum rate of 1,412,830, which is an OC-12 rate. OC-3 or UTP-5 maximum rate is 353,207.

Output

```
Tunneling information has been set.
```

SOFTPVP ? (Privileged Command) Function

Function

This command is used to display the help message for the SOFTPVP command.

Format

HOSTNAME# SOFTPVP ?

Output

```
HOSTNAME# softpvp ?
delete         Delete soft PVPC/PVCC
establish      Establish soft PVPC/PVCC
setup          Setup soft PVPC/PVCC
addparty       Add endpoint to existing multipoint soft PVPC/PVCC
release        Release soft PVPC/PVCC
dropparty      Delete endpoint from existing multipoint soft PVPC/PVCC
flush          Delete all soft PVPC/PVCC on a line interface
```

SOFTPVP addparty (Privileged Command)

Function

This command is used to add endpoint to point-to-multipoint soft PVPC/PVCC.

Before entering this command:

- Enter the same incoming side (point 1) parameters that have been set as the incoming side parameters for the existing connection.
- Use the **SOFTPVP setup** command to ensure that the incoming side parameters (line number, VPI, VCI) are set to multipoint.

Format

```
HOSTNAME# SOFTPVP addparty P1 P2 P3 P4 {P5} {P6}
```

Format Explanation

P1 : Local Terminal Line Number (000~073)

P2 : Local VPI (0~4095)

P3 : Local VCI (0 (for PVPC), 32~16383)

P4 : Destination ATM address (0~9, a~f, A~F, up to 40 digits)

P5 : Remote VPI (0-4095 can be defaulted)

P6 : Remote VCI (0 (for PVPC)~ 65535 can be defaulted unless P5 is entered).

Output

```
Soft PVPC/PVCC endpoint has been added.
```

SOFTPVP delete (Privileged Command)

Function

This command is used to delete the soft PVPC/PVCC.

Format

HOSTNAME# SOFTPVP delete P1 P2 P3

Format Explanation

P1 : Line number (00~33)

P2 : VPI (0~4095)

P3 : VCI (0, 32~16383)

Example

```
HOSTNAME# SOFTPVP del 03 3 34
```

Output

```
Soft PVPC/PVCC has been deleted.
```

SOFTPVP dropparty (Privileged Command)

Function

This command is used to delete endpoint to point-to-multipoint soft PVPC/PVCC.

Format

```
HOSTNAME# SOFTPVP dropparty P1 P2 P3 P4
```

Format Explanation

P1 : Local Line Number. (00~33)

P2 : Local VPI (0~4095)

P3 : Local VCI (0 (for PVPC), 32~16383)

P4 : Destination ATM address (0~9, a~f, A~F, up to 40 digits)

Output

```
Soft PVPC/PVCC endpoint has been deleted.
```

SOFTPVP establish (Privileged Command)

Function

This command is used to set permanent virtual path connections (PVPCs) or permanent virtual circuit connections (PVCCs) spread over a number of switches.

Unless the PVPCs/PVCCs are deleted using the **SOFTPVP delete** command described elsewhere in this chapter, the switch will try to reset the PVPCs/PVCCs up to the number of times specified by this command.

The data set with this command is stored (using the **SAVE** command) and retained after the power is turned off. When power is turned back on, the connection is automatically established.

Up to 128 soft PVPCs/PVCCs can be registered with this command.

Reference Command

DISPLAY softpvp

Cancel Command

SOFTPVP delete

Setting Procedure

1. Execute the **SET local** command to assign an ATM address to each border switch on the network.
2. Set dynamic routing table by executing the **SET pnni connection** command. In case of static routing, use the **ROUTE add** command to set the SVC static routing table.
3. Execute the **SET atmsig** command to set the relationship with the other port as "user network."
4. Execute this command to the other border switch.

Format

HOSTNAME# SOFTPVP establish P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16

Format Explanation

P1 : Traffic type (1(cbr), 2(nrt-vbr), 3(rt-vbr) or 4(ubr) default is UBR)

P2 : Local terminal line number (00~33)

P3 : Local VPI (0~4095)

P4 : Local VCI (0 (for PVPC), 32~16383)

P5 : Called party ATM Address (0~9, a~f, A~F, up to 26 digits)

P6 : Remote device (0(M5), 1(M7), 2(M5E))

The following parameters can be set in the setting range indicated if the remote device is an ATM 2.5 Gbps switch:

P7 : Remote Line Number

P8 : Remote VPI (0~4095)

P9 : Remote VCI (0(for PVPC), 32~16383)

P10 : Local UPC mode (off(0) or 1~5)

P11 : Local shaper number (off(0) or 1~8)

P12 : Forward profile name

P13 : Remote UPC mode (off(0) or 1~5)

P14 : Remote shaper number (off(0) or 1~8)

P15 : Backward profile name

P16 : Retry count (0~15, infinity) (default=2)

Output

```
Soft PVPC/PVCC has been set.
```

NOTE If the ATM address has not been set with the **`SET local`** command, this command will display an error message and the Soft PVP setting will not be performed.

SOFTPVP flush (Privileged Command)

Function

This command performs the same function as **DELETE**, except that all SOFTPVPs are removed on the specified port.

Format

```
SOFTPVP flush P1
```

Format Explanation

P1: <slot port>

Example

```
HOSTNAME# SOFTPVP flush 23
Are you sure? [Y or N] y
SOFTPVP has been flushed.
HOSTNAME#
```

SOFTPVP release (Privileged Command)

Function

This command is used to delete point-to-point soft PVPC/PVCC or all endpoints of point-to-multipoint soft PVPC/PVCC.

Format

```
HOSTNAME# SOFTPVP release P1 P2 P3
```

Format Explanation

P1 : Line Number (00~33)

P2 : VPI (0~4095)

P3 : VCI (0, 32~16383)

P4 : Destination ATM address (0~9, a~f, A~F, up to 40 digits)

Output

```
Soft PVPC/PVCC has been released.
```

SOFTPVP setup (Privileged Command)

Function

This command is used to set point-to-point or point-to-multipoint soft PVPC/ PVCC by PNNI.

Setting Procedure

1. Execute the **SET local** command to assign an ATM address to each border switch on the network.
2. Set the path for dynamic routing table by executing the **SET pnni connection** command.
3. Set PNNI environment in the network.
4. Execute the **SET atmsig** command to set the relationship with the other port as "network-network."
5. Execute this command to the other border switch.

Format

```
HOSTNAME# SOFTPVP setup P1 P2 P3 P4 P5 P6 P7 P8 {P9}
{P10} {P11}
```

Format Explanation

P1 : Connection type ("ptop"(0), "ptom"(1))

P2 : Traffic type ("abr"(0), "cbr"(1), "nrt-vbr"(2), "rt-vbr"(3) or "ubr"(4) abr cannot be specified if P-to-MP)

P3 : Local Line Number (00~33)

P4 : Local VPI (0~4095)

P5 : Local VCI (0 (for PVPC), 32~16383)

P6 : Destination ATM address (0~9, a~f, A~F, up to 40 digits)

P7 : Forward profile name (can be defaulted with "-" for CE and Frame Relay; however this cannot be defaulted in case of Multipoint.

P8 : Backward profile name ("-" if P-to-MP) (can be defaulted with "-" for CE and Frame Relay in case of P-to-P)

P9 : Retry count (0~15, infinity) (default=2)

P10 :Remote VPI (0~4095 can be defaulted)

P11 :Remote VCI (0 (for PVPC)~65535 can be defaulted unless P10 is entered)

Output

```
Soft PVPC/PVCC has been set.
```

TELNETPASSWD (Privileged Command)

Function

This command is used to set the password for accessing Telnet.

After entering the current password, enter the new password twice to complete the password change. The entered characters are not echoed back.

Format

```
HOSTNAME# TELNETPASSWD
```

Output

If a password is not registered:

```
Input new Telnet password:
Retype new Telnet password:


[OK]
```

If a password is registered:

```
Input old Telnet password:
Input new Telnet password:
Retype new Telnet password:


[OK]
```

NOTE The password must contain no less than four and no more than eight characters. Characters are case sensitive.

This page is for your notes.

4

Error Messages

Command Error Message	Action
*****Already assigned.**	Based on the command entered, the port is already defined, in use or disabled.
*****Already disabled.**	Based on the command entered, the port is already defined, in use or disabled.
*****Already enabled.**	Based on the command entered, the port is already defined, in use or disabled.
*****Already registered.**	Based on the command entered, the port is already defined, in use or disabled.
*****Already set.**	A mode (single/duplex) is already set.
*****Another card status error.**	An error has occurred in the card of the other side or the card is not installed. Check the fault or installation condition.
*****ATM routing information exceeds the limit.**	ATM routing information exceeds the limit. Delete unnecessary information before repeating the entry.
*****CAC overbooking factor still existent.**	The CAC still exists. Delete the CAC before repeating the entry.
*****Cannot drop the last leaf with SoftPVP dropparty. Try SoftPVP release.**	**SoftPVP dropparty** command cannot be used to remove the last multicast endpoint. Execute the **SoftPVP release** command.
*****Cannot remove the last leaf with PVC remove. Try PVC delete.**	**PVC remove** command cannot be used to remove the last multicast end point. Execute the **PVC delete** command.
*****Card I/F busy.**	Due to high load on the card side, the 2.5 Gbps switch and the card cannot communicate. The load must be reduced.
*****Card is not single mode.**	Check with Reference command before repeating the entry.

Command Error Message	Action
*****Card is remote duplex mode.**	Check with Reference command before repeating the entry.
*****CEVC data still existent.**	The CEVC still exists. Delete unnecessary CEVC before repeating the entry.
*****Changing admin status.**	Administration status is being changed by another process. Repeat the entry later.
*****Circuit emulation data is not registered.**	Check with Reference Command before repeating the entry.
*****Connection already exists.**	The connection already exists. Repeat the entry.
*****Connection(s) still existent.**	The connection still exists. Delete the connection before repeating the entry. Check if the same address is already set.
*****Diagnostics fault found.**	Check the fault status with the **DISPLAY alarm** command, then remove the cause of the fault before repeating the entry.
*****DLCI still existent.**	Delete the DLCI before repeating the entry.
*****Duplicate assignment.**	Based on the command entered, the port is already defined, in use or disabled.
*****Dynamic routing table registration failure.**	Check the setting before repeating the entry.
*****Flash memory status is busy.**	Repeat the entry later.
*****FR DLCI is not registered.**	Set FR DLCI with the **SET dlci** command before repeating the entry.
*****Gateway package is not installed.**	Remove the cause of the fault and repeat the entry using the correct data.
*****Hardware failure found.**	Remove the cause of the fault and repeat the entry,
*****Illegal access privilege.**	A value other than "0" or "1" has been entered in the access privilege parameter. Repeat the entry using correct data.
*****Illegal access range.**	The access range parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal address type.**	The address type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal administrative weight.**	The administrative weight parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal aggregation token.**	The aggregation token parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal ATM address.**	The ATM address parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal available cell rate mT.**	The available cell rate mT parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal available cell rate PM.**	The available cell rate PM parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal base.**	The test flow base parameter is in a format other than the specified format. Repeat the entry using correct data.
*****Illegal boot mode.**	The specified boot mode is undefined. Repeat the entry using correct data.
*****Illegal call reference.**	The call reference is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal CAS mode.**	The CAS mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal CDVT value.**	The CDVT value parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal cescondition.**	The cescondition is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal CIR.**	The CIR parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal clear-buffers.**	A parameter other than **Y** or **N** has been entered as the clear-buffers parameter. Repeat the entry
*****Illegal clock mode.**	The specified clock mode is undefined. Repeat the entry using correct data.
*****Illegal CLP to DE mapping mode.**	The CLP to DE mapping mode (frame discard priority) parameter is in a format other than the specified format or exceeds the range.
*****Illegal CLP value.**	The CLP value parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal command.**	The command name is undefined Repeat the entry using correct data.
*****Illegal community name.**	Escape sequence has been entered as the community name. Repeat the entry using correct data.
*****Illegal congestion indication mode.**	The congestion indication mode (forward congestion indication) parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal connection type.**	The connection type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal correlation tag.**	The correlation tag parameter is in a format other than the specified format or exceeds the range. Repeat the entry
*****Illegal count.**	The count parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal data.**	The data type parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal data type.**	The data type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal dataname.**	The data name parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal date.**	The date parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal DE to CLP mapping mode.**	The DE to DLP mapping mode (cell loss priority) parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal DE value.**	The specified DE value cannot be set. Repeat the entry.
*****Illegal destination IP address.**	The destination IP address parameter is in a format other than the specified format. Repeat the entry using correct data.
*****Illegal destination type.**	The destination type parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal direction.**	The direction parameter is in a format other than the specified format or the specified direction cannot be set. Repeat the entry using correct data.
*****Illegal DLCI.**	The DLCI parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal DS rxmt interval.**	The DS rxmt interval parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal EPD.**	The EPD parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal failure dump information.**	A value other than "all" has been entered in the failure dump information parameter. Repeat the entry.

Command Error Message	Action
*****Illegal failure log number.**	A value other than "1" or "2" has been entered in the failure log number parameter. Repeat then entry.
*****Illegal filename.**	The filename parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal flag.**	The flag parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal Forum/ITU.**	A value other than “0” or “1” has been entered in the Forum/ ITU parameter. Repeat the entry using correct data.
*****Illegal fractional type.**	The fractional type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal Frame mode.**	The frame mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal FR_Forum/ITU_T/ANSI.**	The standard parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal hello interval.**	The hello interval parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal hierarchy.**	The hierarchy parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal hop count.**	The hop count range for "SETUP loop" prevention is invalid. Repeat the entry in the range of 0 to 20.
*****Illegal hostname.**	Escape sequence has been entered as the host name. Repeat the entry using correct data.
*****Illegal idle cell.**	Cannot specify idle cell type. Repeat the entry using correct data.
*****Illegal IISP mode.**	The IISP mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal index.**	The index parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal interface.**	The interface parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal IP address.**	The IP address parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal interworking type.**	The interworking type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal keepalive value.**	The keepalive parameter exceeds the range. Repeat the entry using correct data.
*****Illegal LBO.**	A value other than "0" or "1" has been entered in the LBO parameter. Repeat the entry using correct data.
*****Illegal length.**	The valid bit count exceeds the range. Repeat the entry.
*****Illegal level.**	The level exceeds the range. Repeat the entry.
*****Illegal line.**	The line parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal line rate.**	The line rate parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal line speed.**	The line speed parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal link down discover time.**	The link down discover time exceeds the range. Repeat the entry.
*****Illegal logical port number.**	The logical port number exceeds the range. Repeat the entry.
*****Illegal loopback condition.**	The loopback condition parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal looptime mode.**	The looptime mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal mask range.**	The mask value exceeds the range. Repeat the entry.
*****Illegal MaxCC.**	The MaxCC parameter exceeds the range. Repeat the entry.
*****Illegal MaxPD.**	The MaxPD parameter exceeds the range. Repeat the entry.
*****Illegal MaxSTAT.**	The MaxSTAT parameter exceeds the range. Repeat the entry.
*****Illegal MBS.**	The MBS parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal memory type.**	The memory type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal method.**	The routing method parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal minimum hello interval.**	The minimum hello interval parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal minimum PTSE interval.**	The minimum PTSE interval parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal network interface.**	The network interface parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal network interface.**	The network interface parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal new line.**	The new line parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal new scope.**	The new scope parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal new VPI.**	The new VPI parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal NMS number.**	The NMS parameter exceeds the range. Repeat the entry.
*****Illegal NMS number.**	The NMS parameter exceeds the range. Repeat the entry using correct data.
*****Illegal node ID.**	The node ID parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal noresponse.**	The noresponse parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal number of parameters.**	Excess parameter has been entered or the number of parameters is insufficient. Repeat the entry.
*****Illegal number of parameters.**	Excess parameter has been entered or the number of parameters is insufficient. Repeat the entry using correct data.
*****Illegal numbering ID.**	The numbering ID parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal OAM mode.**	The OAM mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal packet type.**	The packet type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal parameter.**	The parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal partial fill size.**	The partial fill size parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal password.**	The password is in a format other than the specified format. Repeat the entry using correct data.
*****Illegal PCR.**	The PCR parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal PLCP.**	A value other than "0" or "1" has been entered in the PLCP parameter. Repeat the entry using correct data.
*****Illegal point.**	The point parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal pointer.**	The pointer parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal poll.**	The poll parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal priority.**	The priority parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal profile.**	The profile parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal prompt mode.**	The prompt mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal protocol encapsulation mode.**	The protocol encapsulation mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal PTSE ID.**	The PTSE ID parameter is in a format other than the specified. format or exceeds the range. Repeat the entry.
*****Illegal PTSE interval.**	The PTSE interval parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal PTSE type.**	The PTSE type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal reachable address.**	The reachable address parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal remote node.**	The remote node parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal retry number.**	The retry number parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.

Command Error Message	Action
*****Illegal router IP address.**	The router IP address parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal scope.**	The scope parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal SCR.**	The SCR parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal scramble.**	A value other than "0" or "1" has been entered in the scramble parameter. Repeat the entry using correct data.
*****Illegal scroll number.**	The specified scroll line count is out of range. Repeat the entry using correct data.
*****Illegal service.**	The service parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal shaper number.**	The shaper number parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal side.**	The side parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal slot.**	The slot parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal status.**	The specified "status" is undefined. Repeat the entry using correct data.
*****Illegal sub-command.**	The specified subcommand name is undefined. Repeat the entry using correct data.
*****Illegal sub-netmask.**	The sub-netmask value is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal sysContact.**	The sysContact parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal sysLocation.**	The sysLocation parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal T301 value.**	A value outside the range has been entered as the parameter for T301. Repeat the entry.
*****Illegal T303 value.**	A value outside the range has been entered as the parameter for T303. Repeat the entry using correct data.
*****Illegal T308 value.**	A value outside the range has been entered as the parameter for T308. Repeat the entry using correct data.

Command Error Message	Action
*****Illegal T309 value.**	A value outside the range has been entered as the parameter for T309. Repeat the entry using correct data.
*****Illegal T310 value.**	A value outside the range has been entered as the parameter for T310. Repeat the entry using correct data.
*****Illegal T313 value.**	A value outside the range has been entered as the parameter for T313. Repeat the entry using correct data.
*****Illegal T316 value.**	A value outside the range has been entered as the parameter for T316. Repeat the entry using correct data.
*****Illegal T317 value.**	A value outside the range has been entered as the parameter for T317. Repeat the entry using correct data.
*****Illegal T322 value.**	A value outside the range has been entered as the parameter for T322. Repeat the entry using correct data.
*****Illegal T397 value.**	A value outside the range has been entered as the parameter for T397. Repeat the entry.
*****Illegal T398 value.**	A value outside the range has been entered as the parameter for T398. Repeat the entry using correct data.
*****Illegal T399 value.**	A value outside the range has been entered as the parameter for T399. Repeat the entry using correct data.
*****Illegal throughput.**	The throughput parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal time-out.**	The time-out parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal time.**	The time parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal timer.**	A value outside the range has been entered as the parameter for timer. Repeat the entry using correct data.
*****Illegal TimerCC.**	A value outside the range has been entered as the parameter for TimerCC. Repeat the entry using correct data.
*****Illegal timeslot.**	The timeslot parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal traffic type.**	The traffic type parameter is in a format other than the specified format or exceeds the range. Repeat the entry using correct data.
*****Illegal transit network ID.**	The transit network ID parameter is in a format other than the specified format or exceeds the range. Repeat the entry.

Command Error Message	Action
*****Illegal transit network ID data.**	An incorrect ID was entered. Repeat the entry.
*****Illegal TTC/ITU.**	The specified standard is undefined. Repeat the entry.
*****Illegal type.**	The type parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal UNI version value.**	The specified UNI Version is undefined. Repeat the entry using correct data.
*****Illegal UPC mode.**	The UPC mode parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal valid length for reachable address.**	The valid length for reachable address parameter is in a format other than the specified format or exceeds the range. Repeat the entry.
*****Illegal valid VCI bits.**	The specified valid VCI bit count is out of range. Repeat the entry using correct data.
*****Illegal valid VPI bits.**	The specified valid VPI bit count is out of range. Repeat the entry using correct data.
*****Illegal VCI.**	The specified VCI value is out of range or cannot be used. Repeat the entry using correct data.
*****Illegal VPI.**	The specified VPI value is out of range or cannot be used. Repeat the entry using correct data.
*****Inconsistent connection label.**	Invalid connect information entered. Repeat the entry using correct data.
*****Inconsistent number for timeslot.**	An incorrect timeslot was entered. Repeat the entry.
*****Insufficient PCR of profile.**	PCR value of profile is less than that set by the **SET cevc** command. Check the profile with **DISPLAY profile** command before repeating the entry.
*****Interface configuration failed.**	Specified interface could not be configured. Repeat the entry after remedying the error.
*****Interface is not NNI.**	Check the setting before repeating the entry.
*****Interworking type is inconsistent with PR-profile.**	Check the Reference command before repeating the entry.
*****Invalid CDVT value.**	The CDVT value is out of range. Repeat the entry using correct data.
*****Invalid connection type.**	Cannot set the specified connection type. Repeat the entry.
*****Invalid directional(uni/bi) connection.**	Cannot set the specified directional (uni/bi) connection. Repeat the entry.
*****Invalid directional(uni/bi) connection.**	Cannot set the specified directional (uni/bi) connection. Repeat the entry using correct data.

Command Error Message	Action
*****Invalid endpoint for VP level.**	The specified VP level OAM point is invalid. Repeat the entry using correct data.
*****Invalid IP routing information.**	The specified IP routing information is invalid. Repeat the entry using correct data.
*****Invalid line.**	The specified line cannot be used. Check the line card installation status and error status.
*****Invalid package.**	Mounted package cannot be used. Check the package.
*****Invalid remote node ID.**	The specified remote node ID is invalid. Repeat the entry using correct data.
*****Invalid shaper number.**	The specified shaper number is invalid. Repeat the entry using correct data.
*****Invalid slot.**	The specified slot is invalid or no package is installed. Repeat the entry using correct data.
*****Invalid standby.**	The specified switch/CPU cannot be set to SBY or switch/CPU is in single mode. Repeat the entry.
*****Invalid traffic for the specified direction.**	Cannot set the specified traffic for the specified direction. Check the traffic type before repeating the entry.
*****Invalid UPC for the specified traffic.**	Cannot set the specified UPC for the specified traffic. Check the UPC before repeating the entry.
*****Invalid value.**	The specified value is invalid. Repeat the entry.
*****Invalid VPI.**	The specified VPI is invalid. Repeat the entry using correct data.
*****IP address is inconsistent with another interface.**	Specified IP address is different from other interfaces. Check with Reference Command before repeating the entry.
*****IP routing information exceeds the limit.**	IP routing information exceeds the limit. Delete unnecessary information before repeating the entry.
*****Leaf already set to another port.**	Leaf is already set to another port (with CE-DS1, only one leaf may be set in a package). Repeat the entry.
*****Leaf/Leaves still existent.**	An endpoint exists at the specified address. Delete the end point with the **PVC remove** command before repeating the entry.
*****Line is not installed.**	Check the line card installation status.
*****Line not suspended.**	The specified line is not in "suspend" status. Suspend the line with the **SET svcline** command before repeating the entry.
*****Line out of service.**	The specified line has failed. Check the installation status and error status.

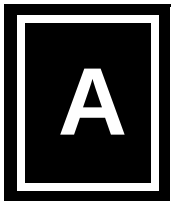
Command Error Message	Action
***Line rate is less than shaping rate or tunneling throughput.	Shaping at the specified rate cannot be done. Specify different shaping rate.
***Line status failure found.	Remove the cause of the fault before repeating the entry.
***Line status is admindown.	Specified line is inactive. Entry cannot be accepted. Activate the line before repeating the entry.
***Line undergoing loopback test.	The specified line is undergoing loopback test. Repeat the entry after the test.
***Loading failed.	Software or office data loading failed. Check the device mounting and connection statuses before repeating the entry.
***Local IP address and server IP address are not saved yet.	Local IP address and server IP address have not been saved (are not yet valid). Use the **SAVE** command to validate the data.
***Looptime already set to another port.	Looptime is already set on another line of the same linecard (DS3/E3 only). Repeat the entry.
***Loss of 64K clock.	A 64 k clock interruption (DCS only) occurred. Eliminate the cause before repeating the entry.
***Loss of 8K clock.	An 8 k clock interruption (DCS only) occurred. Eliminate the cause before repeating the entry.
***NMS information already exists.	Based on the command entered, the port is already defined, in use or disabled.
***No data registered.	CPU under load. Wait awhile before repeating the entry.
***No memory block available.	CPU under load. Wait awhile before repeating the entry.
***No route to server.	Server route is not set. Check the routing information before repeating the entry.
***No such connection.	Check the currently set connection.
***No such entry.	Check the currently set connection.
***No such FR-profile.	Check the currently set FR profile.
***No such ILMI connection.	Check with Reference command before repeating the entry.
***No such information.	Check with Reference command before repeating the entry.
***No such shaper registered.	Register shaper.
***Node ID is not registered.	Register node ID before repeating the entry.
***Non-volatile memory is in use [Failed].	The command has been entered from another terminal. Repeat the entry later.
***Non-volatile memory is in use.	The command has been entered from another terminal. Wait awhile before repeating the entry.

Command Error Message	Action
***Can not create task.	Cannot create task to display failure information. Wait a while before repeating the entry.
***Can not start task.	Cannot start task to display failure information. Wait a while before repeating the entry.
***Number of access times exceeds the limit (100,000).	Replace the switch/CPU.
***Number of available connections for UPC exceeds the limit.	Delete unnecessary connection for UPC before repeating the entry.
***Number of available connections for UPC exceeds the limit.	Delete unnecessary connection for UPC before repeating the entry.
***Number of Connections exceeds the limit.	Delete unnecessary connection before repeating the entry.
***Number of ILMI connections exceeds the limit.	Delete unnecessary ILMI connection before repeating the entry.
***Number of PNNI connections exceeds the limit.	Delete unnecessary PNNI connection before repeating the entry.
***Number of reachable address exceeds the limit.	Delete unnecessary address before repeating the entry.
***Number of Signaling connections exceeds the limit.	Delete unnecessary signaling connection before repeating the entry.
***Number of Soft PVPC/PVCCs exceeds the limit.	Delete unnecessary soft PVPC/PVCC before repeating the entry.
***Number of timeslots exceeds the limit.	Delete unnecessary timeslot before repeating the entry.
***Number of VCs exceeds the limit.	Delete unnecessary VC before repeating the entry.
***OAM cell monitor is busy.	Repeat the entry later.
***OAM information exceeds the limit.	OAM information exceeds the limit. Delete unnecessary information before repeating the entry.
***OAMCON/OAMEND delete failure.	Deletion of OAM connecting point or endpoint failed. Check for any OAM cell being transmitted.
***Out of effective bits range.	Specified bit count exceeds the effective range. Check the effective range with the Help Command and Repeat the entry using correct data.
***Package initializing now.	Wait awhile before repeating the entry.
***PC-card access failed.	Access to PCMCIA card failed. Check the card installation condition before repeating the entry.
***PC-card access is busy.	PCMCIA card is being accessed. Repeat the entry later.

Command Error Message	Action
*****PC-card is not installed.**	PCMCIA card is not installed. Install the card before repeating the entry.
*****PC-card status failure.**	PCMCIA card has failed. Replace the card before repeating the entry.
*****PC-card type mismatch.**	PCMCIA card is not an ATA card. Check the installed card.
*****PNNI connection still existent.**	PNNI connection still exists. Delete PNNI connection before repeating the entry.
*****PNNI node information is not registered.**	Execute **set PNNI nodal** command.
*****Profile information exceeds the limit.**	Delete unnecessary profile information before repeating the entry.
*****Signaling connection does not exist.**	Repeat the entry using correct data.
*****Specified line speed dose not execute shaping function.**	Shaping cannot be performed at the specified rate. Specify a different shaping rate.
*****Switch-Engine initializing now.**	Repeat the entry later.
*****Switch-Engine is single mode.**	Check the mounting status.
*****Synchronized failure.**	Clock synchronization failed in changing slave to specified line. Check the line status before repeating the entry.
*****The function is not supported by buffer on the package.**	Check the buffer type.
*****The function is not supported by the package.**	This function is not supported by the current package. Check the mounted package.
*****This card has no space.**	There is not enough idle space on the card. Replace the card before repeating the entry.
*****This card is write protected.**	The card is write protected (the card is a master card). Check the card.
*****Throughput exceeds the line rate.**	Change the setting.
*****Time out.**	Tunneling information exceeds the limit. Delete unnecessary information before repeating the entry.
*****Timeslot(s) already assigned.**	Repeat the entry.
*****Total of CIR exceeds the limit.**	Delete unnecessary CIR information before repeating the entry.
*****Traffic type is inconsistent with profile.**	Check the profile with **DISPLAY profile** command before repeating the entry.
*****Tunneling information exceeds the limit.**	Repeat the entry using correct data.

Command Error Message	Action
*****Unchangeable slave line exists.**	Specified line is a slave line and cannot switch to another line. Set another line as slave line before repeating the entry.
*****Undergoing diagnostics test.**	Repeat the entry after the diagnosis.
*****Undergoing execution.**	Wait awhile.
*****Unknown error occurred.**	Unknown error has occurred. Contact the system manager.
*****Valid VPI + valid VCI exceeded the limit.**	The specified VPI+VCI parameter exceeds the valid bit count. Repeat the entry using correct data.
*****VC(s) already assigned.**	Check the VC information before repeating the entry.
*****VPI and/or VCI exceeded the limit of valid bit number.**	The specified VPI and/or VCI parameter exceeds the limit. Repeat the entry using correct data.
*****Writing failed [Tftp timeout].**	Data write failed. Check the mounting status of the package and flash card before repeating the entry.
*****Wrong password.**	The entered password does not match the registered password. Repeat the entry using correct data.

Glossary



A

AAL

ATM Adaptation Layer. A collection of standardized protocols that adapt user traffic to 48-octet payloads that can be placed in a cell-formatted stream.

ABR

Available Bit Rate: One of the ATM Forum-defined service layers. ABR supports variable bit rate data traffic with flow control, a minimum guaranteed data transmission rate, and specified performance parameters.

ACH

Active Change: When an active CPU/switch module in a redundant chassis changes over to standby, and vice versa (when a standby module becomes active).

ACT

Applied Computer Technologies: Software that integrates voice and database technologies. With ACT, the call and the caller's database record arrive at the telephone simultaneously.

AIS

Alarm Indication Signal: One of the OAM function types used for fault management. An alarm sent upstream denoting a link failure.

ATM

Asynchronous Transfer Mode: A high-bandwidth, low-delay, connection-oriented, packet-like transfer mode in which information is organized into cells, and recurrence of these cells is not necessarily periodic (and, therefore, asynchronous).

ATM Address

Defined in the UNI Specification as three 20-byte formats, including country, area, and end-system identifiers.

ATM Forum

A consortium that recommends and defines specifications for ATM standards and promotes industry cooperation in implementing ATM strategies.

ATM-NIC

ATM Network Interface Card: Electronic circuitry—usually a card that fits into a PC's expansion slot—that works with the network software and computer operating system to transmit and receive messages on the network.

ATM Switch

A generic term that usually refers to a hardware-based, self-routing, high-speed switching system rather than a switching element.

B

Bandwidth

The width of a communications channel. Transmission capacity of a communications medium, measured in either bps or Hz.

BCI

Broadcast Channel Identifier.

B-ISDN

Broadband ISDN: A high-speed network standard that allows voice, data, and video to be delivered over the same network.

BISUP

Broadband ISDN User's Part: A protocol that defines the signaling messages to control connections and services.

BRI

Basic Rate Interface. An ISDN service specification, intended for carrying (compressed) video, voice, and data.

BUS

Broadcast and Unknown Server: A server that handles data sent by an LE Client to the broadcast MAC address ('FFFFFFFFFFFF'), all multicast traffic, and initial unicast frames sent by a LAN Emulation Client.

C

CAC

Connection Admission Control: Actions taken by the network during the call set-up phase or call re-negotiation phase to determine whether a connection request should be accepted or rejected, or whether a re-allocation request can be accommodated.

CAS

Channel Associated Signaling: A form of circuit state signaling in which the circuit state is indicated by one or more bits of signaling status sent repetitively and associated with that specific circuit.

CBR

Constant Bit Rate: An ATM service category that supports a constant or guaranteed rate to transport services such as video or voice, as well as circuit emulation which requires rigorous timing control and performance parameters.

CDV

Cell Delay Variation: A component of cell transfer delay, induced by buffering and cell scheduling. Peak-to-peak CDV is a QoS delay parameter associated with CBR and VBR services.

CDVT

Cell Delay Variation Tolerance: The acceptable tolerance of the cell delay variation (jitter). Used in CBR traffic.

CE

Circuit Emulation.

CEPT1

Conference European des Administration des Postes et des Telecommunications 1. The European standard for digital transmission at the rate of 2.048 Mbps. Same as E-1.

CEVC

Circuit Emulation Virtual Circuit: A virtual circuit used in circuit emulation.

CIR

Committed Information Rate: The information rate that the network is committed to provide to the user, under any network conditions. (Used in frame relay.)

CLP

Cell Loss Priority: A field in the ATM cell header that corresponds to the loss priority of a cell. Lower priority cells (CLP=1) can be discarded in a congestion situation.

CLR

Cell Loss Ratio: A QoS parameter defined as the ratio of lost cells to the total number of transmitted cells.

CPR

Common Peer Group: The lowest level peer group in which a set of nodes is represented. A node is represented in a peer group either directly or through one of its ancestors.

CPU

Central Processing Unit: The “brain” of the computer that manipulates data and processes instructions.

Crankback

A mechanism for partially releasing a connection setup that has encountered a failure. This mechanism allows PNNI to perform alternate routing.

CTD

Cell Transfer Delay: The elapsed time between a cell exit event and the corresponding cell entry event for a particular connection. The cell transfer delay between two measurement points is the sum of the total inter-ATM node transmission delay and the total ATM node-processing delay.

D

DA

Destination Address: Information sent in a forward direction indicating the address of the called station or customer.

DLCI

Data Link Connection Identifier: The address field in a frame relay header. The name given to the numeric identifier of a specific virtual circuit in a frame relay.

DRAM

Dynamic Random Access Memory. The readable/writable memory used to store data.

DS

Distributed Single Layer Test Method: An abstract test method in which the upper tester is located in the system under test, and the point of control and observation (PCO) is located at the upper service boundary of the Implementation Under Test (IUT) - for testing one protocol layer. Test events are specified in terms of the abstract service primitives (ASP) at the upper tester above the IUT, and ASPs and/or protocol data units (PDU) at the lower tester PCO.

DS-1

Digital Signal Level 1: North American digital hierarchy signaling standard for transmitting at 1.544 Mbps.

DS-3

Digital Signal Level 3: North American digital hierarchy signaling standard for transmitting at 44.736 Mbps.

DTL

Data Transit List: A list of nodes and optional link IDs that completely specify a path across a single PNNI peer group.

E

E.164

A public network addressing standard that uses a maximum of 16 digits. ATM uses E.164 addressing for public network addressing.

E-1

Rate used by European CEPT carriers. Also known as CEPT1.

E-3

Rate used by European CEPT carriers to transmit 16 CEPT1s.

Egress

The exit point. Typically refers to information being sent out of, rather than into, a network communications port.

ELAN

Emulated Local Area Network: A logical network initiated by using the mechanisms defined by LAN Emulation. This could include ATM and legacy attached end stations.

EPD

Early Packet Discard: A procedure for discarding cells related to one user frame to minimize the impact of congestion. Also known as Partial Packet Discard (PPD) or Frame Discard (the official ATM term).

F

FIFO

First-in First-out: The way that most queues handle calls: the first call to come in is handled first.

G

GCRA

Generic Cell Rate Algorithm: A specification for defining cell rate conformance in terms of certain traffic parameters for VBR virtual circuits. Its implementation is commonly known as the Leaky Bucket algorithm.

H

Hello Packet

A type of PNNI Routing packet that is exchanged between neighboring logical nodes.

Hop-by-Hop Route

A route that is created when each switch along the path uses its own routing knowledge to determine the next hop of the route, with the expectation that all switches will choose consistent hops and the call will reach the desired destination.

I

IETF

Internet Engineering Task Force: A group that developed specifications for the interoperable implementation of IP.

IISP

Interim Interswitch Signaling Protocol: A protocol that uses UNI-based signaling (i.e., UNI 3.0/3.1) and pre-fixed routing for switch-to-switch communication. A precursor to, but incompatible with, PNNI.

ILMI

Interim Link Management Interface: An ATM Forum-defined interim specification for network management functions between an end user and a network, or between a public network and a private network

Ingress

A means of entering. Typically refers to information being sent in to, rather than out of, a network communications port.

IP

Internet Protocol: A connectionless protocol that operates at the network layer (layer 3) of the OSI model. This protocol works in conjunction with TCP and is usually identified as TCP/IP.

IPOA

(Classical) IP Over ATM: IETF-defined protocols for developing IP-over-ATM networks (i.e., IP support for the QoS classes, ARP over SVC and PVC networks), so that common applications can be supported in an ATM environment. The main issues in the transport of IP over ATM are packet encapsulation and address resolution.

ITU Q.2931

The signaling standard for ATM to support Switched Virtual Connections. This is based on the signaling standard for ISDN.

L

LAN

Local Area Network: A short-distance, data communications network (typically within a building or campus) used to link computers and peripheral devices (such as printers).

LANE

LAN Emulation: Services, functional groups, and protocols that provide for the emulation of LANS (using ATM as a backbone) to allow connectivity among LAN- and ATM-attached end stations.

LE

LAN Emulation. Refer to LANE.

Leaf

Endpoint of possibly several destination links of a Point-to-Multipoint connection. (The originating endpoint is the root.)

LE_ARP

LAN Emulation Address Resolution Protocol: A message issued by an LE client to solicit the ATM address of another function.

LEC

LAN Emulation Client: The entity in end systems that performs data forwarding, address resolution, and other control functions.

Local Exchange Carrier: A telephone company affiliate of a regional Bell operating company or an independent telephone company.

LECS

LAN Emulation Configuration Server: This implements the policy-controlled assignment of individual LE clients to different emulated LANs by providing the LES ATM addresses.

LES

LAN Emulation Server: This implements the control coordination function for the Emulated LAN. Examples are enabling a LEC to join an ELAN, and resolving MAC to ATM addresses.

LGN

Logical Group Node: A single node that represents the lowest level peer groups in the higher level peer group.

Line Card

A plug-in electronic Printed Circuit (PC) card that operates some aspect of a network communications device, such as a multi-port physical interface card for terminating communication cables.

LLC

Logic Link Control: The upper sub-layer of the IEEE Layer 2 (OSI) protocol that complements the MAC protocol. IEEE standard 802.2 includes end-system addressing and error checking. LLC provides a common access control standard and governs the assembly of data packets and their exchange between data stations.

LOC

Loss of Cell Delineation: A condition at the receiver, or a maintenance signal transmitted in the PHY overhead, which indicates that the receiving equipment has lost cell delineation. Used to monitor the performance of the PHY layer.

LOF

Loss of Frame: A condition at the receiver, or a maintenance signal transmitted in the PHY overhead, which indicates that the receiving equipment has lost frame delineation. This is used to monitor the performance of the PHY layer.

Logical Group Node

A logical node that represents a lower-level peer group as a single point for purposes of operating at one level of the PNNI routing hierarchy.

Logical Node

An abstract representation of a peer group or a switching system as a single point.

Logical Node ID

A string of bits that unambiguously identifies a logical node within a routing domain.

LOP

Loss of Pointer: A condition at the receiver, or a maintenance signal transmitted in the PHY overhead, indicating that the receiving equipment has lost the pointer to the start of cell in the payload. This is used to monitor the performance of the PHY layer.

LOS

Loss of Signal: A condition at the receiver, or a maintenance signal transmitted in the PHY overhead, which indicates that the receiving equipment has lost the received signal. This is used to monitor the performance of the PHY layer.

LPF

Low Pass Filter: A technique for smoothing or averaging changes to the system clock in a MPEG-2 clock recovery circuit.

LSAP

Link Service Access Point: Logical address of boundary between layer 3 and the LLC sub-layer 2.

M

MAC

Media Access Control: IEEE specifications for the lower half of the data link layer (layer 2) that defines topology-dependent access control protocols for IEEE LAN specifications.

MAC Address

The address for a device as it is identified at the Media Access Control layer in the network architecture.

MAT

Maintenance and Administration Terminal: The command line interface for direct configuration of the communications equipment.

MBS

Maximum Burst Size: In the signaling message, the Burst Tolerance (BT) is conveyed through the MBS, which is coded as a number of cells. The BT, together with the SCR and the GCRA, determines the MBS that may be transmitted at the peak rate and still be in conformance with the GCRA.

MCLR

Maximum Cell Loss Ratio: The maximum ratio of the number of cells that do not make it across the link or node compared to the total number of cells arriving at the link or node.

MCR

Minimum Cell Rate: An ABR service traffic descriptor, in cells per second. The rate at which the source is always allowed to send.

MIB

Management Information Base: A directory of the logical names of all information resources that reside in a network and pertain to the network's management. A MIB includes the names of objects it contains and the type of information retained.

MIB Object

A collection of attributes that can be used to configure, manage, or analyze an aspect of a network component.

MPOA

Multi-Protocol Over ATM: IETF-defined specifications and procedures that enable Network Layer protocols to operate directly on top of ATM and provide end-to-end internetworking between hosts in an ATM and non-ATM environment.

MPOA Client

Multi-Protocol Over ATM Client: A device that implements the client side of one or more of the MPOA protocols. An MPOA Client is either an Edge Device Functional Group (EDFG) or a Host Behavior Functional Group (HBFG).

MPOA Server

Multi-Protocol Over ATM Server: A device that implements the server side of one or more of the MPOA protocols.

MPOA Service Area

Multi-Protocol Over ATM Service Area: The collection of server functions and their clients. A collection of physical devices consisting of an MPOA server plus the set of clients served by that server.

MPOA Target

Multi-Protocol Over ATM Target: A set of protocol address, path attributes (e.g., internetwork layer QoS, other information derivable from received packet) describing the intended destination and its path attributes that MPOA devices may use as lookup keys.

MTBF

Mean Time Between Failures: The length of time a user may reasonably expect a device or system to work before an incapacitating fault occurs.

MTP

Message Transfer Part: Level 1 through 3 protocols of the SS7 protocol stack. MTP 3 (level 3) is used to support BISUP.

Multicasting

The transmit operation of a single PDU by a source interface where the PDU reaches a group of one or more destinations.

Multiplexing

A function within a layer that interleaves information from multiple connections into one connection.

Multipoint Access

User access in which more than one terminal equipment (TE) is supported by a single network termination.

Multipoint-to-Multipoint Connection

A collection of associated ATM VC or VP links and their associated nodes.

MUX

Multiplexer: Electronic equipment that allows two or more signals to pass over one communications circuit, such as a phone line, a microwave circuit, or a through-the-air TV signal. There are many multiplexing techniques to accommodate both analog and digital circuits.

N

NC

Network Connection

NG

No good: A command occasionally displayed on the MAT indicating a failure of a particular switch entity.

NIC

Network Interface Card: The attachment that connects a device to a network. The NIC, usually a PC expansion board, executes the code needed by the connected device to share a cable or some other media with other stations.

N-ISDN

Narrowband Integrated Services Digital Network: Services include basic rate interface (2B+D or BRI) and primary rate interface (23B+D or PRI). Supports narrowband speeds at/or below 1.5 Mbps.

NMS

Network Management System: An entity that implements functions at the Network Management Layer. It may also include Element Management Layer functions. A Network Management System may manage one or more other Network Management Systems.

NMS Environment

A set of NMSs that cooperate to manage one or more subnetworks.

NNI

Network Node Interface: The standard interface between two network nodes (typically ATM switches) within the same network.

Node

Synonymous with logical node.

NSAP

Network Service Access Point: OSI generic standard for a network address consisting of 20 octets. ATM has specified E.164 for public network addressing and the NSAP address structure for private network addresses.

O

OAM

Operations, Administration, and Maintenance: A group of network management functions that provide network fault indication, performance information, and data and diagnosis functions.

OC

Optical Carrier. Fiber-based network communication medium.

Octet

A term for eight (8) bits that is sometimes used interchangeably with “byte.”

OOF

Out of Frame. Refer to LOF.

OSI

Open Systems Interconnection: The OSI Reference Model (OSIRM) introduced by the ISO consists of seven (7) layers, each specifying the protocols and functions required for two nodes to communicate using the underlying network infrastructure and enable user-defined applications to access the network. The seven layers are Physical, Data Link, Network, Transport, Session, Presentation, and Application.

P

Packet

Term for the OSIRM Layer 3 data transfer unit defined for packet switching networks. A packet is of variable or fixed size, and is passed from one network node to another. Successive packets can belong to the same message, but they have individual headers and trailers and may be routed independently through the network.

Packet Switch

A device that routes and forwards structured messages (packets).

Packet Switching

A data transmission method used in a network where user information is segmented and routed in discreet data envelopes called packets, each with its own appended control information for routing, sequencing, and error checking. Packet switched networks typically employ a full three-layer protocol stack (physical link, data link, network) in every node.

PCMCIA

Personal Computer Memory Card International Association: Standardizes credit-card size packages for memory and input/output (modems, LAN cards etc.) for computers, laptops, palmtops, etc. There are three physical standard for PCMCIA cards-Type 1,2,3 and undefined standard called type 4, which only Toshiba has at this moment.

PCR

Peak Cell Rate: The cell rate (in cells per second) which the source may never exceed.

Program Clock Reference: A timestamp that is inserted by the MPEG-2 encoder into the Transport Stream to aid the decoder in the recovering and tracking the encoder clock.

PDU

Protocol Data Unit. A term that describes the primitive passed across the different layers containing control and data information.

PG

Peer Group: A set of logical nodes which are grouped for purposes of creating a routing hierarchy. PTSEs are exchanged among all members of the group.

PGL

Peer Group Leader: A single real physical system which has been elected to perform some of the functions associated with a logical group node.

Physical Layer (PHY) Connection

The physical transmission medium that links devices, over fiber or copper.

PLCP

Physical Layer Convergence Protocol: The PLCP is defined by the IEEE 802.6. It is used for DS3 transmission of ATM. ATM cells are encapsulated in a 12 5microsecond frame defined by the PLCP which is defined inside the DS3 M-frame.

PNNI

Private Network-Network Interface: A routing information protocol that enables extremely scalable, full function, dynamic multi-vendor ATM switches to be integrated in the same network.

PPD

Partial Packet Discard: A procedure for discarding cells related to one user frame to minimize the impact of congestion.

PRI

Primary Rate Interface: An ISDN specification that provides twenty-three 64-kbps B-channels and one 64-kbps D-channel, or thirty 64-kbps B-channels and one 64-kbps D-channel.

Private ATM Address

A 20-byte address used to identify an ATM connection termination point.

Protocol

Rules and formats (semantic and syntactic) that determine the communication behavior of layer entities in the performance of the layer functions.

P-to-MP

Point-to-Multipoint Connection: A single ingress VC/VP copied to multiple egress endpoints. Traffic only flows from the root to the endpoints.

P-to-P

Point-to-Point Connection: A connection with only two endpoints.

PTSE

PNNI Topology State Element: A collection of PNNI information that is flooded among all logical nodes within a peer group.

PTSP

PNNI Topology State Packet: A type of PNNI Routing packet that is used for flooding PTSEs among logical nodes within a peer group.

PVC

Permanent Virtual Circuit: This is a link with static route defined in advance, usually by manual setup.

PVCC

Permanent Virtual Circuit Connection: A Virtual Circuit Connection (VCC) is an ATM connection where switching is performed on the VPI/VCI fields of each cell. A Permanent VCC is one which is provisioned through some network management function and left up indefinitely.

PVP

Permanent Virtual Path: A grouped set of PVCs that exist between two crosspoints (e.g., switches). See also Soft PVP.

PVPC

Permanent Virtual Path Connection: An ATM connection where switching is performed on the VPI field only of each cell. A Permanent VPC is one which is provisioned through some network management function and left up indefinitely.

Q

Q.2931

ITU-T recommendation to provide SVC specifications and standards. Used in signaling to set up and tear down virtual connections.

QoS

Quality of Service: Performance of transmission over a given virtual connection (VC), as measured by several QoS parameters (Cell Loss Ratio, Cell Transfer Delay, Cell Delay Variation, etc.).

R

RCC

Routing Control Channel: An SVC established between two PNNI leaders of a multi-level hierarchy, enabling the exchange of PTSEs.

RDI

Remote Defect Indication: A link failure fault management indication (downstream).

Route Server

A physical device that runs one or more network layer routing protocols, and uses a route query protocol to provide forwarding descriptions to clients.

Router

A physical device that is capable of forwarding packets based on network layer information, using one or more network layer routing protocols.

Routing

A network management function responsible for forwarding packets from their source to their destination, using look-up routing tables and routing protocols (such as EGP, OSPF, and RIP).

RS-232C

A set of standards specifying various electrical and mechanical characteristics for interfaces between computers, terminals, and modems. The standard applies to both synchronous and asynchronous binary data transmission.

S

SAP

Service Access Point: Software interface between the layers in the OSI model through which layers can communicate with each other by passing over PDUs. SAPs are identified as OSI addresses.

SCCP

Signaling Connection and Control Part: A SS7 protocol that provides additional functions to the Message Transfer Part (MTP). It typically supports Transaction Capabilities Application Part (TCAP).

SCP

Service Control Point: A computer and database system that executes service logic programs to provide customer services through a switching system. Messages are exchanged with the SSP through the SS7 network.

SCR

Sustainable Cell Rate: An ATM traffic parameter (in cells per second) that characterizes a bursty source and specifies the average rate at which cells can be sent over a virtual connection.

SDT

Structured Data Transfer: An AAL1 data transfer mode in which data is structured into blocks, which are then segmented into cells for transfer.

SNMP

Simple Network Management Protocol: The IETF standard management protocol for TCP/IP networks.

Soft PVC

Soft Permanent Virtual Connection: A PVC-type connection where SVCs' services are used for virtual circuit establishment and automatic re-routing within the network.

SONET

Synchronous Optical Network: An ANSI standard for transmitting information over optical fiber. This standard is used or accepted in the United States and Canada and is a variation of the SDH International standard.

Source Route

As used in this document, a hierarchically complete source route. The course of connecting a pending network call request is determined by the initial switch.

Source Traffic

A set of traffic parameters belonging to the ATM Traffic Descriptor used during the connection set-up to capture the intrinsic traffic characteristics of the connection requested by the source.

SPE

SONET Synchronous Payload Envelope. The SONET frame format is divided into two main areas: Synchronous Payload Envelope (SPE) and Transport Overhead (TOH). The SPE contains the information being transported by the frame.

SR

Source Routing: A bridged method whereby the source at a data exchange determines the route that subsequent frames will use.

SRT

Source Routing Transparent: An IETF Bridging Standard combining Transparent Bridging and Source Route Bridging.

SSCOP

Service Specific Connection Oriented Protocol: An adaptation layer protocol defined in ITU-T Specification: Q.2110.

STM

Synchronous Transfer Module: A basic building block used for a synchronous multiplexing hierarchy defined by the CCITT/ITU-T.

STM-1

Synchronous Transport Module 1: SDH standard for transmission over OC-3 optical fiber at 155.52 Mbps.

STM-n

Synchronous Transport Module-n: SDH standard for transmission over optical fiber at n times the basic STM-1 rate.

STS-1

Synchronous Transport Signal 1: SONET standard for transmission over OC-1 optical fiber at 51.84 Mbps.

STS-n

Synchronous Transport Signal-n: SONET signaling standard for transmission over optical fiber at n times the basic STS-1 signal.

STS-nc

Synchronous Transport Signal “n” concatenated: SONET standards for transmission over OC-n optical fiber by multiplexing “n” STS-1 frames.

Sublayer

A logical sub-division of a layer.

Subnetwork (subnet)

In general, a collection of managed entities grouped together from a connectivity perspective, according to their ability to transport ATM cells. For MPOA, more specific terms are Internetwork Address Sub-Group, Direct Set, Host Apparent Address Sub-Group, and One Hop Set.

subNMS

Subnetwork Management System: A Network Management System that is managing one or more subnetworks and that is managed by one or more Network Management Systems.

Summary Address

An address prefix that tells a node how to summarize reachability information.

SVC

Switched Virtual Circuit: A connection established via signaling. The user defines the endpoints when the call is initiated.

SVCC

Switched Virtual Circuit Connection: A Switched VCC is one which is established and taken down dynamically through control signaling.

SVPC

Switched Virtual Path Connection: A Switched Virtual Path Connection is one which is established and taken down dynamically through control signaling. A Virtual Path Connection (VPC) is an ATM connection where switching is performed on the VPI field only of each cell.

Switched Connection

A connection established via signaling.

Switching System

One or more systems that act together and appear as a single switch for the purposes of PNNI routing.

T

TAXI

Transparent Asynchronous Transmitter/Receiver Interface: An interface that provides connectivity over multimode fiber links at a speed of 100 Mbps.

TCAP

Transaction Capabilities Applications Part: A connectionless SS7 protocol for the exchange of information outside the context of a call or connection. It typically runs over SCCP and MTP 3.

TE

Terminal Equipment: One of the two ends (at the protocol level) of an ISDN connection (typically a PBX or a computer). An endpoint.

Telnet

A virtual terminal protocol that allows for remote host access.

T1E1

An ANSI standards sub-committee dealing with network interfaces.

T1M1

An ANSI standards sub-committee dealing with inter-network Operations, Administration and Maintenance.

T1Q1

An ANSI standards sub-committee dealing with performance.

T1S1

An ANSI standards sub-committee dealing with services, architecture and signaling.

T1X1

An ANSI standards sub-committee dealing with digital hierarchy and synchronization.

TCAP

Transaction Capabilities Application Part.

TCP

Transmission Control Protocol: A standardized transport protocol developed for interconnecting end systems over IP-based networks.

TDM

Time Division Multiplexing: A method in which a transmission facility is multiplexed among a number of channels by allocating the facility to the channels on the basis of time slots.

TFTP Server

Trivial File Transfer Protocol: A simplified version of FTP that transfers files but does not provide password protection or user-directory capability. It is associated with the TCP/IP family of protocols.

U

UBR

Unspecified Bit Rate: An ATM service category that does not specify traffic-related service guarantees. Specifically, UBR does not include per-connection negotiated bandwidth. No numerical commitments are made regarding cell loss ratio or cell transfer delay.

UNI

User-Network Interface: An interface point between ATM end users and a private ATM switch, or between a private ATM switch and the public carrier ATM network. Defined by physical and protocol specifications, UNI is the standard adopted by the ATM Forum to define connections between users (or end stations) and a local switch.

UPC

Usage Parameter Control: Actions taken by the network to monitor and control traffic that could affect the QoS of established connections.

V

VBR

Variable Bit Rate: An ATM Forum-defined service category which supports variable bit rate data traffic with average and peak traffic parameters.

VBR-NRT

Variable Bit Rate—Non-Real Time: One of the two VBR service types for transmitting traffic where timing information is not critical. VBR-NRT is delay-tolerant and, therefore, well-suited for bursty traffic such as data communications.

VBR-RT

Variable Bit Rate—Real Time: One of the two VBR service types for transmitting traffic that depends on timing (between source and destination) and control information. VBR—RT is suitable for carrying delay-sensitive traffic such as packetized (compressed) video and audio.

VC

Virtual Channel: One of several logical connections defined within one virtual path.

Virtual Circuit: A connection between a source and a destination, where a fixed route is chosen for the entire session and bandwidth is dynamically allocated to the user.

Virtual Connection: A connection between a source and a destination, where packets are forwarded along the same path and bandwidth is not permanently allocated until it is used.

VCC

Virtual Circuit Connection: A concatenation of VCLs. An ATM connection where switching is performed on the VPI/VCI fields of each cell.

VCCI

VCC Identifier.

VCI

Virtual Channel Identifier: A unique numerical tag as defined by a 16-bit field in the ATM cell header that identifies a virtual channel, over which the cell is to travel.

VCL

Virtual Channel Link: A means of transporting ATM cells between the point where a VCI value is assigned and the point where that value is translated or removed.

VP

Virtual Path: A logical connection between two ATM devices (CPEs, switches). A virtual path consists of a set of virtual channels.

VPC

Virtual Path Connection: A concatenation of VPLs. Switching cells within an ATM switch for a given VPC is based on the VPI value indicated on the cell header.

VPI

Virtual Path Identifier: A value in the cell header that identifies the virtual path to which the cell belongs. The field is eight (8) bits in cells traversing the UNI circuit and 12 bits in cells traversing network circuits.

VPL

Virtual Path Link: A means of unidirectional transport of ATM cells between the point where a VPI value is assigned and the point where that value is translated or removed.

W

WAN

Wide Area Network: A network that spans a large geographic area and typically includes public telephone circuits.

X

XATOM

Expandable ATM Output Modular Switch.