



ION System C3210

Command Line Interface (CLI)

```

C:\ Telnet 192.168.1.10
Hello, this is S3240 command line (version 1.00).
Copyright 2010 Transition Networks.

S3240>show ether config
Error: this command should be executed on a port!
S3240>go llp=1
Port 1>show ether config
Port-1
TP port:
-----
Link operation status:      up
Admin status:              up
Speed:                     10M
Duplex:                    half
Autocross:                 auto
PHY mode change cap:       false
PHY operation mode:        phy10-100-1000BaseT

AutoNeg admin state:       disable
Dot3 pause admin mode:    disabled
Dot3 pause oper mode:     disabled
Dot3 ctrl func supported:  none
Port 1>

```

A photograph of the ION System C3210 network card. It is a green printed circuit board (PCB) with a white metal faceplate. The faceplate features two RJ45 ports, a BNC connector, and a power jack. The card is shown at an angle, highlighting its compact size and industrial design.

Reference Manual

33497 Rev. D



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ION System C3210 Command Line Interface (CLI) Reference Manual
33497 Rev. D

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Revision History

Rev	Date	Description
A	05/04/11	Released for firmware version 1.0.4. New features include Circuit ID support, SNMP v1/v2c setting, Web Interface enhancements, and updated Help files.
B	05/16/11	Revised for ION Rel. 1.1.0 . New features include 1) ION x6010 T1/E1 support, 2) Reset Counters, 3) Connector Type display, and 4) Updated Help files.
C	09/09/11	Revised for ION Rel. 1.2.0 with: 1) Increased Rate Limiting options. 2) DHCP, Static, and BootP Address Modes. 3) WRR or Strict Egress Queue Modes. 4) Serial File Transfer (X/Y/Zmodem) commands. 5) IONMM System Name displays in CLI prompt. 6) Password can be changed using the community write string, and any login or password that is not fixed. 7) Fixed MEF-related bugs. 8) Added MEF certifications.
D	04/05/12	Revised for v 1.2.0 with Egress and Rate Limit changes.

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General

This manual describes the USB and Telnet command line interface (CLI) commands available for ION C3210 operation in an ION System chassis. This manual is for experienced network administrators who are responsible for configuring and maintaining the ION system.

CLI offers the most comprehensive set of management features. CLI is used during the initial setup, configuration, and troubleshooting, but can also be used for day-to-day management (device management, firmware upgrades, managing security features, etc.).

This manual documents the following models:

- **C3210-1013** 10/100/1000BASE-T / 1000BASE-SX media converter*
- **C3210-1014** 10/100/1000BASE-T / 1000BASE-LX media converter*
- **C3210-1015** 10/100/1000BASE-T / 1000BASE-LX media converter*
- **C3210-1017** 10/100/1000BASE-T / 1000BASE-LX media converter
- **C3210-1024** 10/100/1000BASE-T / 1000BASE-SX media converter
- **C3210-1029-A1** 10/100/1000BASE-T / 1000BASE-LX media converter*
- **C3210-1029-A2** 10/100/1000BASE-T / 1000BASE-LX media converter*
- **C3210-1029-B1** 10/100/1000BASE-T / 1000BASE-LX media converter
- **C3210-1029-B2** 10/100/1000BASE-T / 1000BASE-LX media converter
- **C3210-1035** 10/100/1000BASE-T / 1000BASE-LX media converter
- **C3210-1040** 10/100/1000BASE-T (RJ-45) [100 m/328 ft.] 100BASE Open SFP

Models shown with an asterisk (*) are available in a model with an open SFP port. SFP models that support DMI have a D at the end of the model number (e.g., **TN-SFP-SXD**).

CLI commands are case sensitive. Enter the CLI commands as shown in this document.

In order to execute the commands described in this manual, you must press the **Enter** key after the command has been entered.

Documentation Conventions

The conventions used within this manual for commands/input entries are described in the table below.

Table 1: Documentation Conventions

Convention	Meaning
Boldface text	<p>Indicates the entry must be made as shown. For example:</p> <p style="text-align: center;">ipaddr=<addr></p> <p>In the above, only ipaddr= must be entered exactly as you see it, including the equal sign (=).</p>
< >	<p>Arrow brackets indicate a value that must be supplied by you. Do not enter the symbols < >. For example:</p> <p style="text-align: center;">ipaddr=<addr></p> <p>In place of <addr> you must enter a valid IP address.</p>
[]	<p>Indicates an optional keyword or parameter. For example:</p> <p style="text-align: center;">go [s=<xx>]</p> <p>In the above, go must be entered, but s= does not have to be.</p>
{ }	<p>Indicates that a choice must be made between the items shown in the braces. The choices are separated by the symbol. For example:</p> <p style="text-align: center;">state={enable disable}</p> <p>Enter state=enable or state=disable.</p>
“ ”	<p>Indicates that the parameter must be entered in quotes. For example:</p> <p style="text-align: center;">time=<“value”></p> <p>Enter time=“20100115 13:15:00”.</p>
>	<p>Indicates a selection string. For example:</p> <p style="text-align: center;">Select File>Save.</p> <p>This means to first select/click File then select/click Save.</p>

Related Manuals

The ION system and related manuals are listed below.

1. C3210 CLI Reference Manual, 33497 (this manual)
2. C3210 User Guide, 33496
3. ION Management Module (IONMM) User Guide, 33457
4. ION219-A 19-Slot Chassis Installation Guide, 33412
5. ION219-D 19-Slot Chassis Installation Guide, 33xx
6. ION Dry Contact Relay (DCR) Kit Install Guide, 33422
7. IONPS-A AC Power Supply Install Guide, 33423
8. IONPS-D DC Power Supply Install Guide, 33424
9. IONPS-A ION AC Power Supply (flat) Install Guide, 33464
10. ION ADP PointSystem Card Adapter for ION Chassis 33413
11. E-MCR-04 Media Converter Rack User's Guide, 33297 / 33392
12. ION NID Manuals (model specific)
13. SFP manuals (product specific)
14. Release Notes (software version specific)
15. Product Documentation Postcard, 33504

Note: This manual may provide links to third part web sites for which Transition Networks is not responsible. Information in this document is subject to change without notice. All information was deemed accurate and complete at the time of publication. This manual documents the latest software/firmware version. While all screen examples may not display the latest version number, all of the descriptions and procedures reflect the latest software/firmware version, noted in the [Revision History](#) on page 2.

Reboot and Reset Command Notes

IMPORTANT



Certain CLI commands affect important stored files. Doing a reboot, restart or upgrade of the IONMM, a power restart of the chassis, or a reset to factory removes temporary files (e.g. configuration backup files, Syslog file). A Factory Reset also removes the permanent settings (e.g. configuration files, HTTPS certification file, SSH key).

These CLI commands cause a loss of files:

- **reboot** - cold start the C3210
- **reset** - reset to factory configuration

See the specific command description for additional information.

Command Line Editing

This section describes how to enter CLI commands.

A CLI command is a series of keywords and arguments. Keywords identify a command, and arguments specify configuration parameters.

Display Similar Commands

At the command line, you can use the **Tab** key or the **?** key to show available commands in a category of commands after entering a part of the command.

For example, use the **Tab** key to enter part of the command (**show ether** in this example) to display all of the available commands that start with **show ether**. The commands display in a single row.

```
C1|S7|L1D>show ether <tab key>
config      loopback    security    statistics  tdr
```

Use the **?** key after a partial CLI command entry to display all of the available commands that start with **show ether**, but in a single column:

```
C1|S7|L1D>show ether ?
config
loopback
security
statistics
tdr
```

Partial Keyword Lookup

If you terminate a partial keyword with a question mark, alternatives that match the initial letters are provided. (Remember to not leave a space between the command and question mark.) For example “**s?**” shows all the keywords starting with “**s**.”

Recall Commands

To recall recently-entered commands from the command history, perform one of the optional actions below:

Ctrl-P or **Up arrow** (↑) key: Recall commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall successively older commands.

Ctrl-N or **Down arrow** (↓) key: Return to more recent commands in the history buffer after recalling commands with Ctrl-P or the Up arrow key. Repeat the key sequence to recall successively more recent commands.

Keystroke Commands

The table below shows the optional keystrokes available to edit command lines (*indicates HyperTerm support, ** indicates command prompt support, *** indicates both HT and command prompt support by this keystroke).

Table 2: Editing Commands

Capability	Keystroke	Purpose
Move the command line around to make changes or corrections	Ctrl-B *** or left (←) arrow key ***	Move the cursor back one character
	Ctrl-F *** or right (→) arrow key ***	Move the cursor forward one character
	Ctrl-A ***	Move the cursor to the beginning of the command line
	Ctrl-E ***	Move the cursor to the end of the command line
Recall commands from the buffer and paste them in the command line	Ctrl-Y ***	Recall the most recent entry in the buffer
	Ctrl-T **	Transpose the character to the left of the cursor with the character located at the cursor
	Ctrl-Y **	Recall the most recent entry in the buffer
Delete entries (if you make a mistake or change your mind)	Delete key *** or Backspace key ***	Erase the character to the left of the cursor
	Ctrl-D ***	Delete the character at the cursor
	Ctrl-K ***	Delete all characters from the cursor to the end of the command line
	Ctrl-U *** or Ctrl-X ***	Delete all characters from the cursor to the beginning of the command line
	Ctrl-W ***	Delete the word to the left of the cursor
	Esc D **	Delete from the cursor to the end of the word
Capitalize or lowercase words or capitalize a set of letters	Esc C *	Change case from capital to lower-case (or lower-case to capital) at the cursor
Redisplay the current command line if the switch unexpectedly sends a message to your screen	Ctrl-L *** or Ctrl-R ***	Redisplay the current command line (reverse-i-search)

Command Matrix

The table below lists all of the CLI commands and categories, and indicates if the command applies to the IONMM, other C3210s, or both.

Note: CLI commands are case sensitive. Enter the CLI commands as shown.

Table 3: CLI Command Matrix

System Commands	IONMM	C3210
Login Password for Access	x	x
Log Out (Quit)	x	x
Clear the Screen	x	x
Go Back to IONMM	x	x
Go to Another Location	x	x
Help (?)	x	x
List	x	x
Ping	x	
Reboot	x	x
Reset Factory Configuration	x	x
Reset System Uptime	x	x
Set Debug Level	x	x
Set Power Relay State	(PS)	(PS)
Set PS Sensor Notification / Relation / Severity / Value	(PS)	(PS)

System Commands	IONMM	C3210
Set System Name	x	x
Show Card Information	x	x
Show Card Type	x	x
Show Chassis Information	x	x

Bandwidth Commands	IONMM	C3210
Set Bandwidth Rate Limiting Mode	x	x
Set Bandwidth Rate Limit	x	x

Dot1bridge / Dot1dbridge Commands	IONMM	C3210
Show Dot1bridge Aging Time		x
Set SNMP Read Community	x	x
Set SNMP Write Community	x	x

Command Matrix

Ethernet Port Commands	IONMM	C3210
Clear Ethernet Port Counters		x
Reset All Ports Counters		x
Set Ethernet Port Admin Status		x
Set Ethernet Port Advertisement Capability		x
Set Ethernet Port AutoCross		x
Set Ethernet Port Auto-Negotiation Status		x
Set Ethernet Port Duplex		x
Set Ethernet Port Pause Frames		x
Set Ethernet Port Source MAC Address Lock		x
Set Ethernet Port Source MAC Address Lock Action		x
Set Ethernet Port Speed		x
Show Ethernet Port Configuration		x
Show Ethernet Port Security Configuration		x
Show Ethernet Port TDR Test Configuration		x
Show Ethernet Port TDR Test Result		x
Start Ethernet Port TDR Test		x

Show Ethernet Statistics		x
Set Circuit ID		x
Show Circuit ID		x

Firmware Upgrade Commands	IONMM	C3210
Show Firmware Database Update Results	x	
Show Firmware Upgrade Results	x	
Show Upgrade File Name	x	
Update Firmware Database	x	
Upgrade Device Firmware	x	

Forwarding Database Commands	IONMM	C3210
Show Forwarding Database Ports		x

LPT Commands	IONMM	C3210
Set Link Pass Through Monitoring Port		x
Set Link Pass Through Status		x
Show Link Pass Through Configurations		x

Command Matrix

Performance/RMON Statistics	IONMM	C3210
Show RMON Statistics	x	x

QoS Commands	IONMM	C3210
Set Default Priority for a Port		x
Set Frame Priority: Destination MAC Address is Used		x
Set Frame Priority: IEEE Tag is Used		x
Set Frame Priority: IP Tag is Used		x
Set Frame Priority: Source MAC Address is Used		x
Set Frame Priority: VLAN ID is Used		x
Set IEEE Priority Remapping		x
Set Ingress Priority Remapping		x
Set IP Traffic Class Priority Remapping		x
Set Priority Type		x
Show Priority Remapping		x
Show QoS Configuration of a Port		x

Serial File Transfer Protocol (X/Y/Zmodem) Commands	IONMM	C3210
Serial Get Protocol	x	
Serial Put Protocol	x	
Serial Upgrade Protocol	x	

TFTP Transfer / Upgrade Commands	IONMM	C3210
TFTP Get	x	x
TFTP Put	x	x
TFTP Upgrade	x	x

VLAN Port-Level Commands	IONMM	C3210
Set Ethernet Type When VLAN Tagging Mode Is Provider		x
Set Force Port To Use Default VID		x
Set VLAN Network Tagging Mode		x
Set VLAN Port Admin State		x
Set VLAN Port Default VID		x
Set VLAN Port Discard Tagged Non-Management Frames		x
Set VLAN Port Discard Untagged Non-Management Frames		x
Set VLAN Port Tag Mode		x

System Commands

The following are basic system level commands. These commands are used to show configuration / mode, show help, reboot the system, reset the configuration, and other basic functions.

Password for Login / Access

Syntax: Password: **private**

Description: The default device CLI password. CLI entry requires a successful password entry.

```

Example: Password:
          Login incorrect
          login: ION
          Password:private

          Hello, this is ION command line (version 1.00).
          Copyright 2009 Transition Networks.

          AgentIII C1|S1|L1D>
    
```

In order to control the NIDs via a USB interface, the command line prompt must be showing the location of the module to be managed. Use the procedure below to access the NID and login via USB connection.

1. Start the terminal emulator program (e.g., HyperTerminal).
2. When the emulator screen displays, press **Enter**. The login prompt displays. If your system uses a security protocol (e.g., RADIUS, SSH, etc.), you must enter the login and password required by that protocol.
3. Type **ION** (all upper case) and press **Enter**. The password prompt displays. If a “Login incorrect” message displays, ignore it.
4. Type your password. The default is **private** (all lower case).
5. Press **Enter**. The HyperTerminal command line prompt displays (C1|S3|L1D>).
6. Enter CLI commands to set up, configure, operate, and maintain the NID.

Log Out (Quit)

Syntax : **q**(uit)

Description: Exit the current mode and return to the previous mode (i.e., the CLI command line prompt).

```

Example : C1|S3|L1D>q
          login:
    
```

Note: The NID does not automatically log out upon exit or after a timeout period, which could leave it vulnerable if left unattended. Follow your organizational policy on when to log out.

Clear the Screen

Syntax: **cls**

Description: Clears the screen.

Go Back to IONMM

Syntax: **home**

Description: Sets the command prompt back to the location of the IONMM.

Example: If the IONMM card is in chassis 1/slot 1 and the following command was entered.

```
C1 | S13 | L0AP1 | L1P2 | L2D > home
```

The new command line prompt would be

```
C1 | S1 | L1D />
```

Go to Another Location

Syntax: **go** [**c**=<vv>] [**s**=<ww>] [**l1ap**=<xx>] [**l2ap**=<yy>] <zz>

Description: Defines the location (card or port) where subsequent commands are destined for. This information will appear on the command prompt line as the location where the command will be executed.

where:

vv = optional; number (1–16) of the chassis where the card/port is located

ww = optional; number (1–32) of the slot in the chassis where the card/port is located.

Note: if the chassis parameter (c=) is specified you must specify a slot number.

xx = optional; port number (1–16) on a level 1 device that is used to attach to a level 1 device.

yy = optional; port number (1–16) on a level 2 device that is used to attach to a level 2 device.

zz = mandatory; specifies the port or device where subsequent commands are destined for. Valid choice are:

- **l1d** – indicates the level 1 device
- **l1p**=<port#> – port number (1–16) on a level 1 device
- **l2d** – indicates the level 2 device
- **l2p**=<port#> – port number (1–16) on a level 2 device
- **l3d** – indicates the level 3 device
- **l3p**=<port#> – port number (1–16) on a level 3 device

Usage: **go** [**c**=CHASSIS] [**s**=SLOT] [**l1ap**=PORT] [**l2ap**=PORT] (**l1p**=PORT/**l2p**=PORT/**l3p**=PORT/**l1d**/**l2d**/**l3d**)

Example 1: The following command would cause all subsequent commands to be executed for the device in slot 5 of chassis 1.

```
C1|S1|L1D>go s=5 l1d
```

The new command prompt would be:

```
C1|S5|L1D>
```

Example 2: The following would cause all subsequent commands to be executed for port 2 on the device in slot 5.

```
C1|S5|L1D>go 11p=2
```

The new command prompt would be:

```
C1|S5|L1P2>
```

Example 3: The following would cause all subsequent commands to be executed for a remote device connected to port 2 of a chassis-resident module in slot 5.

```
C1|S5|L1D>go 11ap=2 12d
```

The new command prompt would be:

```
C1|S5|L1AP2|L2D>
```

Help

Syntax: ?

Description: Display help for CLI commands by typing a question mark (?). Typing a ? at the command line prompt displays a list of base commands (show, set, etc.). To display a list of the options for a particular command or parameter, type the command/parameter then a space then ?. See “[Appendix A](#)” on page 139 for a complete **list** command listing.

Examples:

The following will display a list of all base commands.

```
C1|S2|L1D>?
```

While the following will display a list of all the entries for the **set** commands that start with the letter “l”.

```
C1|S15|L1P1>set l ?
l2cp
loam
lpt
```

The following displays a list of all the entries for the **set lpt** commands:

```
C1|S15|L1P1>set lpt ?
monitor-port
state
```

The following displays a list of the valid values for the **set lpt state** command:

```
C1|S15|L1P1>set lpt state ?
disable
enable
notSupported
C1|S15|L1P1>
```

By typing a ? after each parameter in a command string you can see what are the options, either for what the next parameter is or for what options must be specified following an equal sign.

List

Syntax: **list**

Description: Displays all available command line commands.

Example (partial list):

```
C1|S7|L1D>list
cat [OPTION] [FILE]
cd [DIR]
clear ether all counters
cls
go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT]
(l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
home
list
:
:
show rmon statistics
show timezone
show upgrade firmware file (IONMM command)
start ether tdr test
stat
upgrade module
C1|S5|L1D>
```

Note: See “[Appendix A](#)” on page 139 for a complete **list** command listing.

Ping

Syntax: **ping**

Description: Sends an ICMP ECHO-REQUEST to a network host and displays ping statistics (e.g., 4 packets received, 0% packet loss if successful or 0 packets received 100% packet loss if unsuccessful).

Example:

```
C1|S7|L1D>ping 192.168.1.10
PING 192.168.1.10 (192.168.1.10): 56 data bytes
64 bytes from 192.168.1.10: icmp_seq=0 ttl=64 time=2.3 ms
64 bytes from 192.168.1.10: icmp_seq=1 ttl=64 time=0.8 ms
64 bytes from 192.168.1.10: icmp_seq=2 ttl=64 time=0.8 ms
64 bytes from 192.168.1.10: icmp_seq=3 ttl=64 time=0.8 ms

--- 192.168.1.10 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.8/1.1/2.3 ms
```

Options:

```
C1|S7|L1D>ping [OPTION]... host
where:
-c CNT    Send only CNT pings
-s SIZE   Send SIZE data bytes in packets (default=56)
-I IP     Use IP as source address
-q        Quiet mode, only displays output at start and when finished
```

Note: the **Ping** command can only be entered from the IONMM.

Process Snapshot

Syntax: ps

Description: Displays a snapshot of the current memory processes. For example:

```
C1|S16|L1P1>ps
  PID  Uid      VmSize  Stat  Command
    1  root         308  S     init
    2  root          SWN   [ksoftirqd/0]
    3  root          SW    [watchdog/0]
    4  root          SW<   [events/0]
    5  root          SW<   [khelper]
    6  root          SW<   [kthread]
   36  root          SW<   [kblockd/0]
   39  root          SW<   [khubd]
   52  root          SW    [pdflush]
   53  root          SW    [pdflush]
   54  root          SW<   [kswapd0]
   55  root          SW<   [aio/0]
  650  root          SW    [mtdblockd]
  680  root          SW<   [spi_gpio.0]
  693  root          SWN   [jffs2_gcd_mtd4]
  698  root          SWN   [jffs2_gcd_mtd7]
  699  root          SWN   [jffs2_gcd_mtd8]
  715  root         272  S     syslogd -m 0 -L -O /var/log/sys.log -l 6 -s 200 -b 3
  719  root         328  S     upgradeManager -d -l 1
  729  root       15968  S     snmpd -Lsd -c /agent3/conf/snmp/snmpd.conf
  730  root         240  S <   bpd_linux
  735  root         240  S     pure_ftp (SERVER)
  738  root        1092  S     entityManager -Lsd
  740  root        2448  S     subagent
  741  root        1960  S     upgradeSubAgent
  742  root         244  S     xxdp
  743  root         324  S     agent_pm
  747  root         216  S     init
  748  root        1960  S     upgradeSubAgent
  749  root        1960  S     upgradeSubAgent
  750  root        2448  S     subagent
  751  root        2448  S     subagent
  754  root        2448  S     subagent
  769  root         344  S     radiuscd
  778  root         280  S     sntpcd
  796  root        1020  S     lighttpd -f /etc/lighttpd.conf
  805  root         172  S     telnetd -p 17800
  809  root         228  S     telnetd -l /usr/local/bin/a3cli
  812  root        2448  S     subagent
  813  root        2448  S     subagent
  814  root        2448  S     subagent
  815  root        2448  S     subagent
  816  root        2448  S     subagent
 1401  root       2068  S     /usr/local/bin/a3cli -
 3136  root         324  S     agent_pm
 3137  root         324  S     agent_pm
 3138  root          Z    [a3cli]
 4600  root         308  S     sh -c ps
 4601  root         288  R     ps
C1|S16|L1P1>
```

System Commands

Show Current Directory

Syntax: **pwd**

Description: Displays the current directory.

Example: C1|S7|L1D>pwd
 /

Change Modes (Quit)

Syntax : **quit**

Description: Exit the current mode and return to the previous mode (i.e., the CLI command line prompt). Note that the C3210 does not automatically log out upon exit or after a timeout period, which could leave it vulnerable if left unattended. Follow your organizational policy on when to log out.

Example: C1|S7|L1D>quit
 login:

Reboot

Syntax: **reboot**

Description: Performs a reboot (“Cold start the system”) of the device in the command line prompt. After a C3210 reboot via CLI while connected via USB port, you must disconnect and then reconnect USB cable for the console to become accessible again.

Example: C1|S7|L1D>**reboot**
 Warning: this command will restart system, connection will be
 lost and please login again!
 C1|S7|L1D>



Warning: doing a reboot or restart of the C3210 may cause some configuration backup files to be lost and the USB or Telnet session to drop. Doing a reboot, restart or upgrade of the IONMM, a power restart of the chassis, or a reset to factory removes temporary files (e.g. configuration backup files, Syslog file). A Factory Reset also removes the permanent settings (e.g. configuration files, HTTPS certification file, SSH key).

Reset Factory Configuration

Syntax: **reset factory**

Description: Resets a card to its factory default configuration.

Example: C1|S7|L1D>**reset factory**
 Warning: this command will restart the specified card, connection
 will be lost!
 C1|S7|L1D>



Warning: doing a C3210 reset to factory restarts the device and drops the Telnet or HyperTerminal connection. Doing a reset to factory removes temporary files (e.g. configuration backup files, Syslog file) and also removes the permanent settings (e.g. configuration files, HTTPS certification file, SSH key).

Set Power Relay State

Syntax: **set power relay state=[disable|enable]**

Description: Enables or disables the Power Supply's Power Relay

Example: C1|S22|L1D>**set power relay state=enable**

Note: This command must be executed on a relay.

Note: Use the **stat** command to view the chassis slot assignments. Use the **show power config** command to view the existing power supply configuration.

Set PS Sensor Notification / Relation / Severity / Value

Syntax:

```

set sensor stid=SENSORID notif=(enable|disable)

set sensor stid=SENSORID
relation=(lessThan|lessOrEqual|greaterThan|greaterOrEqual|equalTo|notEqualTo)

set sensor stid=SENSORID severity=(other|minor|major|critical)

set sensor stid=SENSORID value=VALUE
  
```

Description: Sets the Power Supply Sensor or Fan's notification, relation, severity, or value, where:

SENSORID = { Temperature | Voltage | Power | Fan }

notif = { true enables sensor notification | false disables sensor notification }.

This variable controls generation of SensorThresholdNotification for this threshold.

relation={lessThan | lessOrEqual | greaterThan | greaterOrEqual | equalTo | notEqualTo }

This variable indicates the relation between sensor value (SensorValue) and threshold value (SensorThresholdValue), required to trigger the alarm.

severity = { other | minor | major | critical } } This variable indicates the severity of this threshold. Critical is the most severe, major is the next most severe, and minor is the least severe.

value = VALUE. This variable indicates the value of the threshold.

Note: This command must be executed on a power sensor or fan.

Example: The following commands set the power supply sensor notification, relation, severity, and value for Sensor Transaction ID (stid) 9.

```

C1 | S22 | L1D>set sensor stid=9 notif=true
C1 | S22 | L1D>set sensor stid=9 relation=lessThan
C1 | S22 | L1D>set sensor stid=9 severity=major
C1 | S22 | L1D>set sensor stid=9 value=9
  
```

Note: Use the **show power config** command to display sensor configuration.

Show Card Information

Syntax: **show card info**

Description: Displays the system information for the IONMM or slide-in module.

Example: (C3210 in slot 7):

```
AgentIII C1|S7|L1D>show card info
System name:        C3210
Uptime:            5 days, 02:47:32
Port number:        2
Serial number:      4779272
Config mode:        software
Software:           0.7.4
Bootloader:         0.1.0
Hardware:           1.0.0
AgentIII C1|S7|L1D>
```

Note: This command does not function for the Power Supply.

Show Card Type

Syntax: **show cardtype**

Description: Displays the device's card type (model number).

Example 1: (C3210 in slot 8):

```
C1|S8|L1D>show cardtype
Card type:                    C3210-1013
C1|S8|L1D>
```

Example 2: (IONMM in slot 1):

```
C1|S1|L1D>show cardtype
Card type:                    IONMM
```

Example 3: (IONPS-A power supply in slot 22):

```
C1|S22|L1D>show cardtype
Card type:                    IONPS-A
```

Show Chassis Information

Syntax: **stat**

Description: Displays information about all slide-in modules installed in the chassis and all standalone modules connected to the slide-in modules (remotes), and their ports.

```

Example: AgentIII C1|S1|L1D>stat
ION statck
    Chassis -- BPC
    [  1] IONMM
           Port 1
           Port 2
    [  3] C3230-1040
           Port 1
           Port 2
    [  4] C6010-3040
           Port 1
           Port 2
    [  5] C3230-1040
           Port 1
           Port 2
    [  7] C3210-1013
           Port 1
           Port 2
    [  8] C3221-1040
           Port 1
           Port 2
           Port 3
    [ 12] C2110-1013
           Port 1
           Port 2
    [ 14] C2210-1013
           Port 1
           Port 2
    [ 16] C2220-1014
           Port 1
           Port 2
    [ 18] C3220-1040
           Port 1
           Port 2
    [ 22] IONPS-A
           Temperature Sensor
           Voltage Sensor
           Power Sensor
           Fan-1
           Fan-2
    [ 23] IONPS-D
           Temperature Sensor
           Voltage Sensor
           Power Sensor
           Fan-1
           Fan-2
AgentIII C1|S1|L1D>

```

Show Power Supply Configuration

Syntax: **show power config**

Description: Displays the current configuration of the specified ION system power supply.

Example:

```
C1|S22|L1D/>show power config

Power supply sensors information:

Temperature Sensor:
  Type:                celsius
  Scale:               units
  Precision:           0
  Value:               30
  Operation status:    ok
  Units display:       The data units displayed is degrees

Threshold information:
index      severity      relation      value      evaluation  notifEnable
-----
1          other         greaterThan   80         false      false
2          minor         greaterThan   60         false      false
3          major         greaterOrEqual 65         false      false
4          critical      greaterOrEqual 70         false      true

Voltage Sensor:
  Type:                voltsAC
  Scale:               millivolts
  Precision:           2
  Value:               12684
  Operation status:    ok
  Units display:       The data units displayed for volts is mV

Threshold information:
index      severity      relation      value      evaluation  notifEnable
-----
1          critical     lessThan      11220     false      true
2          minor         greaterThan   13000     false      false
3          major         greaterOrEqual 14000     false      false
4          critical     greaterOrEqual 14673     false      true

Power Sensor:
  Type:                watts
  Scale:               units
  Precision:           2
  Value:               19
  Operation status:    ok
  Units display:       The data units displayed for watts is units
```

```

Threshold information:
index          severity      relation      value      evaluation  notifEnable
-----
1              critical      lessOrEqual   10         false       true
2              minor         greaterThan   225        false       false
3              major         greaterOrEqual 250        false       false
4              critical      greaterOrEqual 275        false       true

Relay:
  Type:                other
  Scale:               units
  Precision:           0
  Value:               2
  Operation status:    ok
  Units display:       The data units displayed for Relay is units
  Installed:           false
  State:               disable
  Module type:         acModule
  Oper mode:           master

Fan-1:
  Type:                rpm
  Scale:               units
  Precision:           2
  Value:               3015
  Operation status:    ok
  Units display:       The data units for Fan 1 in RPM is in units

Threshold information:
index          severity      relation      value      evaluation  notifEnable
-----
1              critical      equalTo       0          false       true
2              minor         greaterThan   9000       false       false
3              major         greaterOrEqual 9500       false       false
4              critical      greaterOrEqual 9900       false       true

```

Set Circuit ID

Syntax: **set circuit-ID=<xx>**

Description: Lets you define an ASCII text string up to 63 bytes and override the default Circuit ID, which is *vlan-module-port* in binary format, for a device and/or device ports. Use the **show circuit-ID** command to display the Circuit ID information for a device or port.

```
Example: C1|S16|L1D>set circuit XX/YYYY/000000/111/CC/SEG
C1|S16|L1D>show circuit-ID
Circuit-ID:          XX/YYYY/000000/111/CC/SEG
C1|S16|L1D>
```

Note: the dash (“-“) is required, and the letters “ID” must be upper-case. The C3210 supports the Circuit ID, a company-specific identifier assigned by the user to identify the converter and individual ports in any manner the user chooses. In the ION system, the Circuit ID port identifier is based on the agent-local identifier of the circuit (defined in RFC 3046), detected by the agent and associated with a particular port.

Show Circuit ID

Syntax: **show circuit-ID**

Description: Displays the current Circuit ID for the device or port. Use the **show circuit-ID** command to display the current Circuit ID information defined for a device or port.

```
Example: C1|S5|L1D>set circuit-ID=xx
C1|S5|L1D>show circuit-ID
Circuit-ID:          xx
C1|S5|L1D>
```

Note: the dash (“-“) is required, and the letters “ID” must be upper-case (in capital letters).

Set Debug Level

Syntax: **set dbg level=<0-2>**

where:

0 = debug Severity level 0 (Emergency: system is unusable – e.g., serious hardware failure or imminent power failure).

1 = debug Severity level 1 (Alert: action must be taken immediately).

2 = debug Severity level 2 (Critical condition).

Description: Defines the system debug level.

Example:

```
C1 | S5 | L1D> set dbg level 0
C1 | S5 | L1D> set dbg level 1
C1 | S5 | L1D> set dbg level 2
C1 | S5 | L1D>
```

Bandwidth Commands

The following commands are used to set bandwidth limiting rates.

Note: These commands can only be entered at the port level - when the last part of the command line prompt indicates the location is a port (e.g., `L1P1>`).

Set Bandwidth Rate Limiting Mode

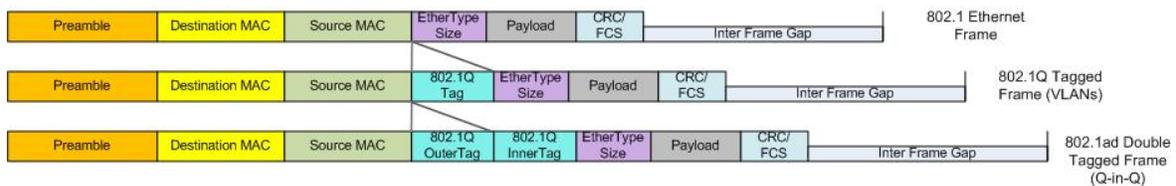
Syntax: `set bw alloc-type={countAllLayer1 | countAllLayer2 | countAllLayer3}`

Description: Defines which transmission layer is to be counted when determining the rate limit.

Note: this command is not supported on all models.

- **Counts All Layer 1:** (the default): in determining the rate limit, this selection counts the following bytes in a frame: Preamble (8 Bytes) + DA to CRC + Inter Frame Gap (12 bytes).
- **Counts All Layer 2:** in determining the rate limit, this selection counts the bytes in a frame from the DA to the CRC in determining the rate limit.
- **Counts All Layer 3:** in determining the rate limit, this selection counts the following bytes in a frame:
 - from the DA (Destination MAC Address) to the CRC (18 bytes if untagged)
 - from the DA (Destination MAC Address) to the CRC (22 bytes if tagged)

Note: The Counts All Layer 3 selection will skip the Ethernet header, the CRC, and Tags (if any tags exist).



Example: `C1|S5|L1P1>set bw alloc-type=countAllLayer2`

```
C1|S5|L1P1>show bandwidth allocation
Bandwidth allocation type:    countAllLayer2
Ingress rate:                unLimit
Egress rate:                 unLimit
C1|S5|L1P1>
```

Set Bandwidth Rate Limit

Syntax: `set irate=<xx> erate=<yy>`

Description: Defines the ingress and egress rate limits of a port. Note that you must set the irate or erate to a rate lower than the port speed.

where:

xx= In-rate: Ingress rate in kbps

yy = Egress-rate: Egress rate in kbps

The valid selections for irate (ingress) and egress-rate (erate) are:

On 1000M port: Unlimited, 1M, 2M, 3M, 4M, 6M, 8M, 10M, 20M, 30M, 40M, 50M, 60M, 70M, 80M, 100M, 200M, 300M, 400M, 500M, 600M, 700M, 800M, and 900M bps.

On 100M port: Unlimited, 1M, 2M, 3M, 4M, 6M, 8M, 10M, 20M, 30M, 40M, 50M, 60M, 70M, and 80M bps.

The default Egress and Ingress Rate Limit are "Unlimited" for both copper ports and fiber ports.

Example:

```
C1|S5|L1P1>set irate rate1M erate rate1M
C1|S5|L1P1>show bandwidth allocation
Bandwidth allocation type:    countAllLayer2
Ingress rate:                rate1M
Egress rate:                 rate1M
C1|S5|L1P1>set irate=unLimit erate=unLimit
C1|S5|L1P1>show bandwidth allocation
Bandwidth allocation type:    countAllLayer2
Ingress rate:                unLimit
Egress rate:                 unLimit
C1|S5|L1P1>
```

Note: The rate parameters are case-sensitive.

If you set the irate or erate to a rate higher than the port speed, an informational message displays:

```
Agent III C1|S1|L1P1>set irate rate900M erate rate1M
Cannot set irate because irate is bigger than port speed!
Agent III C1|S1|L1P1>set irate rate1M erate rate900M
Cannot set erate because erate is bigger than port speed!
Agent III C1|S1|L1P1>
```

Show Bandwidth Allocation Configuration

Syntax: **show bandwidth allocation**

Description: Shows the bandwidth allocation type and ingress and egress rates for a port.

Example:

```
C1|S5|L1P1>set bw alloc-type countAllLayer2
C1|S5|L1P1>show bandwidth allocation
Bandwidth allocation type:    countAllLayer2
Ingress rate:                unLimit
Egress rate:                 unLimit
C1|S5|L1P1>
```

Note: this command is not supported on all models.

DMI Commands

The following commands are used for Diagnostic Monitoring Interface (DMI) operations.

Note: These commands can only be entered for a fiber port that supports DMI. Not all C3210 models or SFP models support DMI. The SFP models that support DMI have a “D” at the end of the model number. If you enter a DMI command on a C3210 model that does not support DMI, the message “*The DMI feature is not supported on current port.*” displays.

Show DMI Configuration

Syntax: **show dmi info**

Description: Displays the configuration of the Diagnostic Monitoring Interface (DMI).

```

Example: C1|S13|L0AP1|L1P2/>show dmi info
Diagnostic monitoring interface information:
-----
DMI connect type:                               LC
DMI bit rate:                                   13*100Mbps
DMI link length(single mode fiber, 100m):      100*100m
DMI link length(50 micron multi-mode fiber, 10m): 50*10m
DMI link length(62.5 micron multi-mode fiber, 10m): 50*10m
DMI link length(copper cable, m):              N/A
DMI indentifier:                               SFP
DMI laser wavelength:                          1310*nm
DMI temperature:                               47.3*C
DMI temperature alarm setting:                 normal
DMI bias current:                              20912*uA
DMI bias current alarm setting:                normal
DMI Tx power:                                  249*uW
DMI Tx power:                                  normal
DMI Rx power:                                  0*uW
DMI Rx power:                                  normal
DMI Rx power preset level:                    0*uW

```

Set DMI Receive Power Preset Level

Syntax: `set dmi rx-power-preset-level=<xx>`

Description: Defines the lowAlarm threshold for RxPowerAlarm. If a non-zero value (in microwatts) is specified, the module will stop passing traffic when the receive power drops below the new threshold. This feature is sometimes referred to as Intrusion Detection, since tapping into a fiber to intercept traffic leads to a reduction in receive power.

Sets the Diagnostic Monitoring Interface (DMI) receive preset power level.

where:

xx = Pwr-val: A preset level for Rx Power on the Fiber port (1-100).

Example:

```
C1|S3|L1P2>set dmi rx-power-preset-level=110
C1|S3|L1P2>show dmi info
Diagnostic monitoring interface information:
-----
DMI connect type:                LC
DMI bit rate:                    13*100Mbps
DMI link length(single mode fiber, 100m):  N/A
DMI link length(50 micron multi-mode fiber, 10m):  50*10m
DMI link length(62.5 micron multi-mode fiber, 10m):  30*10m
DMI link length(copper cable, m):          N/A
DMI indentifier:                 SFP
DMI laser wavelength:           850*nm
DMI temperature:                 40.9*C
DMI temperature alarm setting:   normal
DMI bias current:                4752*uA
DMI bias current alarm setting:   normal
DMI Tx power:                    254*uW
DMI Tx power:                    normal
DMI Rx power:                    0*uW
DMI Rx power:                    normal
DMI Rx power preset level:      110*uW
C1|S3|L1P2>
```


Ethernet Port Commands

The following commands are used for Ethernet port operations. The functions of some of the Ethernet port commands below depend on the type of port, as shown in the “Port Type” column in the table below.

Note: These commands can only be entered at the port level - when the last part of the command line prompt indicates the location is a port (e.g., L1P1>). In the table below, an asterisk * indicates Read only (ON) capability.

Table 4: Ethernet Port Feature Compatibility

Feature	Port Type			
	10/100/1000 BaseT	100 BaseFX	1000 BaseX	SGM II
Advertised Capabilities	√			
<i>AutoCross</i>	√			
Auto Negotiation	√		*	*
Duplex	√	√		
Pause	√	√		
PHY mode		√	√	√
Speed	√			

Clear Ethernet Port Counters

Syntax: **clear ether all counters**

Description: Clears the Ethernet port counters on a C3210. The port's counts (RMON statistics counters, dot3 counters, etc.) are reset to zero.

```

Example:  C1|S5|L1D>go llp=1
          C1|S5|L1P1>clear ether all counters
          C1|S5|L1P1>go llp=2
          C1|S5|L1P2>clear ether all counters
          C1|S5|L1P2>
    
```

Note: Use the **show ether statistics** command to display the current Ethernet port counter information.

Clear All Ports Counters

Syntax: **reset all ports counters**

Description: Resets all counters on all ports of the specified Ethernet device. The device's counts (RMON statistics counters, dot3 counters, etc.) are reset to zero and begin incrementing immediately.

```

Example:  C1|S5|L1D>reset all ports counters
          C1|S5|L1D>
    
```

Note: Use the **show ether config** command to show the current Link operation status.

Set Ethernet Port Admin Status

Syntax: **set ether admin state={up | down}**

Description: Specifies whether or not the Ethernet port is available for use.

```

Example:  C1|S3|L1P2>set ether admin state ?
          down
          up
          C1|S5|L1P2>set ether admin state up
          C1|S5|L1P2>
    
```

Note: Use the **show ether config** command to show the current Link operation status.

Set Ethernet Port Advertisement Capability

Syntax: **set ether adv-cap=<xx>**

Description: Specifies the linking capability to be auto-negotiated for this Ethernet port.

The auto-negotiate feature must be enabled for this command to have any affect (see “[Set Ethernet Port Auto-Negotiation Status](#)” on page 31). In addition to the speed and duplex function, the port also advertises whether it supports pause frames (see “[Set Ethernet Port Pause Frames](#)” on page 33).

Where:

xx = valid choices are:

- **10TFD** (TP port 10 Mbps full duplex)
- **10THD** (TP port 10 Mbps half-duplex)
- **100TFD** (TP port 100 Mbps full duplex)
- **100THD** (TP port 100 Mbps half-duplex)
- **1000TFD** (TP port 1000 Mbps full duplex)
- **1000THD** (TP port 1000 Mbps half-duplex)
- **1000XFD** (Fiber port 1000 Mbps full duplex)
- **1000XHD** (Fiber port 1000 Mbps half-duplex)

To specify more than one capability use a plus sign (+) between entries (e.g., adv-cap=10TFD+100TFD+1000THD)

```

Example: C1|S8|L1P2>set ether adv-cap ?
STR_ETHER_ADV_CAPABILITY A combination of 10THD,10TFD,100TFD,
100THD,1000THD and 1000TFD for copper port, like
10TFD+100TFD+100THD+1000TFD; and N/A for none capability;
Cannot set this attribute for fiber port
C1|S8|L1P2>set ether adv-cap 10THD,10TFD
Cannot set advertisement capability on this port!
C1|S8|L1P2>go llp=1
C1|S7|L1P1>set ether adv-cap ?
STR_ETHER_ADV_CAPABILITY A combination of 10THD,10TFD,100TFD,
100THD,1000THD and 1000TFD for copper port, like
10TFD+100TFD+100THD+1000TFD; and N/A for none capability;
Cannot set this attribute for fiber port
C1|S7|L1P1>set ether adv-cap N/A
C1|S7|L1P1>set ether adv-cap 10THD
C1|S7|L1P1>set ether adv-cap 10TFD
C1|S7|L1P1>set ether adv-cap 100TFD
C1|S7|L1P1>

```

Set Ethernet Port *AutoCross*

Syntax: `set ether autocross=<xx>`

Description: Defines whether the cabling for this Ethernet port is cross-over or straight through, or whether the system will automatically adjust as needed. Transition Networks recommends leaving AutoCross in default mode (auto).

where:

xx = valid choices are:

- **auto** – automatically correct errors in cable selection (default – recommended)
- **mdi** – transmit pair on one end of the cable is connected to the receive pair on the other end
- **mdi-x** – straight through cable (transmit to transmit/receive to receive)

Example:

```
C1|S5|L1P2>set ether autocross mdi
Cannot set autocross on Fiber port!
C1|S5|L1P2>go l1p=1
C1|S5|L1P1>set ether autocross mdi
```

Note: This command is only applicable on a copper port (port 1).

Use the **show ether config** command to display the current auto-negotiation state.

Set Ethernet Port Duplex Mode

Syntax: `set ether duplex={full | half}`

Description: Defines whether the Ethernet port operates in full or half-duplex. The C3210 must have Auto negotiation set to “Disabled” for this command to work. If you enter this command with Auto negotiation set to “Enabled”, the message “*Auto-negotiation is enabled, you can not set port speed now!*” displays.

Example:

```
C1|S5|L1P1>set ether duplex full
C1|S5|L1P1>set ether duplex half
C1|S5|L1P1>
```

Note: Use the **show ether config** command to display the current auto-negotiation state.

Set Ethernet Port Filter 802.1Q Tagged Non-Management Frames

Syntax: **set ether filter-unknown-unicast**={disable | enable}

Description: Defines whether 802.1Q tagged non-management frames can be transmitted/received through the Ethernet port.

802.1Q-compliant switch ports can be configured to transmit tagged or untagged frames. A tag field containing VLAN (and/or 802.1p priority) information can be inserted into an Ethernet frame. If a port has an 802.1Q-compliant device attached (such as another switch), these tagged frames can carry VLAN membership information between switches, thus letting a VLAN span multiple switches.

Example:

```
C1 | S5 | L1P2 > set ether filter-unknown-multicast=enable
C1 | S5 | L1P2 > set ether filter-unknown-unicast=disable
C1 | S5 | L1P2 >
```

Set Ethernet Port Filter 802.1Q Untagged Non-Management Frames

Syntax: **set ether filter-unknown-multicast** = {disable | enable}

Description: Defines whether 802.1Q untagged non-management frames can be transmitted/received through the Ethernet port.

802.1Q-compliant switch ports can be configured to transmit tagged or untagged frames. It is important to ensure ports with non-802.1Q-compliant devices attached are configured to transmit untagged frames. Many NICs for PCs and printers are not 802.1Q-compliant. If they receive a tagged frame, they will not understand the VLAN tag and will drop the frame.

Example:

```
C1 | S5 | L1P2 > set ether filter-unknown-multicast=disable
C1 | S5 | L1P2 > set ether filter-unknown-unicast=enable
C1 | S5 | L1P2 >
```

Set Ethernet Port Pause Frames

Syntax: `set ether pause=<xx>`

Description: Defines whether the Ethernet port supports pause frames (data pacing). Pause frames are used as a method of flow control on full duplex Ethernet connections. If a sending device is transmitting data faster than the receiving device can accept it, the receiving station will send a pause frame to halt the transmission of the sender for a specified period of time.

Pause frames are only used on full duplex Ethernet link segments that are defined by IEEE 802.3x and use MAC control frames to carry the pause commands. Only stations configured for full duplex operation can send pause frames.

where:

xx = pause type; valid choices are:

- **nopause** (the port will advertise that it has no pause capabilities)
- **apause** (asymmetric; the port will advertise that it can only transmit pause frames)
- **bpause** (asym/sym; the port will advertise that it supports both asymmetric and symmetric capabilities)
- **pause** (the port will advertise it has pause capability)
- **spause** (symmetric; the port will advertise that it can transmit and receive pause frames)

```

Example: C1|S8|L1P1>set ether pause ?
STR_ETHER_PAUSE  If no pause capability, setting nopause; otherwise, for copper port , use a combination of pause and apause, like pause+apause or pause or apause; for fiber port, use a combination of apause and spause, like apause+spause or spause or apause
C1|S8|L1P1>set ether pause=nopause
C1|S8|L1P1>set ether pause=apause
C1|S8|L1P1>set ether pause=bpause
Invalid pause value!
C1|S8|L1P1>set ether pause=spause
Invalid pause value!
C1|S8|L1P1>set ether pause=pause
C1|S8|L1P1>
  
```

Note : Use the **show ether config** command to display the current pause capability and pause setting.

Set Ethernet Port Source MAC Address Lock

Syntax: **set ether src-addr-lock**={true | false}

Description: Defines whether or not there is a source MAC address lock for the Ethernet port.

In its most basic form, this feature remembers the Ethernet MAC address connected to the switch port and allows only that MAC address to communicate on the port. If any other MAC address tries to communicate through the port, port security will take the action specified by the [Set Ethernet Port Source MAC Address Lock Action](#) command.

Example:

```

C1|S5|L1P2>set ether src-addr-lock true
C1|S5|L1P2>set ether src-addr-lock action ?
  all
  discard
  discardandnotify
  shutdown
C1|S5|L1P2>set ether src-addr-lock action=discard
C1|S5|L1P2>set ether src-addr-lock action=discardandnotify
C1|S5|L1P2>set ether src-addr-lock action=shutdown
C1|S5|L1P2>set ether src-addr-lock action=all
C1|S5|L1P2>show ether security config
Ethernet port security configuration:
-----
Source MAC address lock:           disable
Source MAC address lock action:    discard
Filter unknown dest unicast:      enable
Filter unknown dest multicast:     enable
C1|S8|L1P1>

```

Set Ethernet Port Source MAC Address Lock Action

Syntax: `set ether src-addr-lock action=<xx>`

Description: Defines the action to be taken when the MAC address lock feature is enabled through the Set Ethernet Port Source MAC Address Lock Action command.

Description: [Set Ethernet Port Source MAC Address Lock](#) command.

where:

xx = valid choices are:

- **discard** (discard any transmissions received on the port)
- **discardandnotify** (discard any transmissions received on the port and send an SNMP trap to the trap server)
- **shutdown** (disables the port)
- **all**

```

Example: C1|S5|L1P2>set ether src-addr-lock enable
C1|S5|L1P2>set ether src-addr-lock action ?
    all
    discard
    discardandnotify
    shutdown
C1|S5|L1P2>set ether src-addr-lock action=discard
C1|S5|L1P2>set ether src-addr-lock action=discardandnotify
C1|S5|L1P2>set ether src-addr-lock action=shutdown
C1|S5|L1P2>set ether src-addr-lock action=all
C1|S5|L1P2>show ether security config
Ethernet port security configuration:
-----
Source MAC address lock:          disable
Source MAC address lock action:   discard
Filter unknown dest unicast:     enable
Filter unknown dest multicast:    enable
C1|S5|L1P2>

```

Set Ethernet Port Speed

Syntax: **set ether speed**={10M | 100M | 1000M}

Description: Defines the transmission speed to be used on the Ethernet copper port.
If Auto-negotiation is enabled, you can not set the port speed.

Example (copper port):

```
C1|S16|L1P1>set ether speed ?
 1000M
 100M
 10M
C1|S16|L1P1>set ether speed 1000M
Fail to set Ethernet port speed!
C1|S16|L1P1>set ether speed 100M
C1|S16|L1P1>set ether speed 10M
```

This command does not work on a fiber port.

Note: Use the **show ether config** command to display the current speed setting of an Ethernet port.

Show Ethernet Port Configuration

Syntax: `show ether config`

Description: Displays the Ethernet port configurations on a slide-in module. Different ports capabilities vary, so the display content will vary according to the model and port type.

Example 1: An example for a TP Port (copper port) is shown below.

```
Agent III C1|S6|L1P1>show ether config
Port-11013
TP port:
-----
Link operation status:      down
Admin status:              up
Port mode:                 RJ-45
PHY operation mode:        phy10-100-1000BaseT
Speed:                     Negotiating
Duplex:                    Negotiating
Autocross:                 auto
PHY mode change cap:      false

AutoNeg admin state:      enable
Advertisement:
Capability:                10THD+10TFD+100THD+100TFD+1000THD+1000TFD
Pause:                     nopause
Agent III C1|S6|L1P1>
```

Example 2: An example of a Fiber port is shown below.

```
Agent III C1|S6|L1P1>go 11p=2
Agent III C1|S6|L1P2>show ether config
Port-21013
FIBER port:
-----
Link operation status:      down
Admin status:              up
Port mode:                 SC Multimode Fiber
PHY operation mode:        phy1000BaseX
Speed:                     Negotiating
Duplex:                    Negotiating
PHY mode change cap:      false

AutoNeg admin state:      enable
Advertisement:
Capability:                1000XHD+1000XFD
Pause:                     nopause
Agent III C1|S6|L1P2>
```

Ethernet Port Commands

Show Ethernet Port Security Configuration

Syntax: `show ether security config`

Description: Displays the security configuration for an Ethernet port.

Example: C1|S7|L1P1>`show ether security config`

```
Ethernet port security configuration:
-----
Source MAC address lock:           disable
Source MAC address lock action:    discard
Filter unknown dest unicast:      disable
Filter unknown dest multicast:     disable
C1|S7|L1P1>go llp=2
C1|S7|L1P2>show ether security config
Ethernet port security configuration:
-----
Source MAC address lock:           disable
Source MAC address lock action:    discardandnotify
Filter unknown dest unicast:      disable
Filter unknown dest multicast:     disable
C1|S7|L1P2>
```

Show Ethernet Port TDR Test Configuration

Syntax: `show ether tdr config`

Description: Displays the Time Domain Reflectometry (TDR) test configuration for the Ethernet port. This command is only available for a copper port.

Example: C1|S16|L1P2>`show ether tdr config`

```
No TDR test result on FIBER port!
C1|S16|L1P2>go llp=1
C1|S16|L1P1>show ether tdr config
Time-domain reflectometer configuration:
-----
TDR test state:                   success
TDR test init time:               08:35:26
TDR test result valid:            true
C1|S16|L1P1>go c=1 s=7 lld
C1|S7|L1P1>show ether tdr config
Time-domain reflectometer configuration:
-----
TDR test state:                   unknown
TDR test init time:               00:00:00
TDR test result valid:            false
```

Show Ethernet Port TDR Test Result

Syntax: `show ether tdr test result`

Description: Displays the results of an Ethernet port TDR test. This command is only available for a copper port.

```

Example 1: C1|S18|L1P1>show ether tdr test result
Cable pair :
index                distance to fault(unit)      status
-----
pair1and2            unknown                      unknown
pair3and6            unknown                      unknown
pair4and5            unknown                      unknown
pair7and8            unknown                      unknown
C1|S18|L1P1>
  
```

```

Example 2: C1|S8|L1P1>show ether tdr test result
Cable pair :
index                distance to fault(unit)      status
-----
pair1and2            0 (meter)                   open
pair3and6            0 (meter)                   open
pair4and5            0 (meter)                   open
pair7and8            0 (meter)                   open
C1|S8|L1P1>
  
```

Note: Run the TDR test several times to ensure accurate results. Do not change port status (e.g., remove the cable at the near end or far end) as this may cause inaccurate results.

Show Ethernet Statistics

Syntax: **show ether statistics**

Description: Displays Ether-like counters and If-MIB counters for a port. This command is not available on the IONMM or Power Supply.

```

Example: C1|S15|L1P2>show ether statistics
Port Counters Received:
-----
Total Octets:                0
Unicast Packets:             0
Broadcast Packets:           0
Multicast Packets:           0
Rx Discards:                 0
Rx Errors:                   0

Port Counters Sent:
-----
Total Octets:                0
Unicast Packets:             0
Broadcast Packets:           0
Multicast Packets:           0
Rx Discards:                 0
Rx Errors:                   0

Dot3 Statistics:
-----
Alignment Errors:           0
FCS Errors:                  0
SQE Test Errors:            0
Deferred Frames:            0
Internal MAC Tx Errors:     0
Internal MAC Rx Errors:     0
Carrier Sense Errors:       0
Symbol Errors:              0
Single Collisions:          0
Multiple Collisions:        0
Late Collisions:            0
Excessive Collisions:       0
Oversized Frames:           0
Duplex Status:               unknown
Rate Control Ability:        true
Rate Control Status:         off
Fail to get MAC control frames statistics!
C1|S15|L1P2>

```

Start Ethernet Port TDR Test

Syntax: **start ether tdr test**

Description: Starts a Time Domain Reflector (TDR) test on the Ethernet port. TDR is a method for determining the general characteristics of impedance variations in a transmission line. In this method a test pulse is transmitted down the line and the reflection from an impedance discontinuity is detected together with the time it takes for the pulse to reach the discontinuity and return. The location of the discontinuity is determined by observation of the elapsed time between the transmitted pulse and the reflected pulse.

This technique is highly sensitive, revealing not only gross defects, such as open or short circuited cables and terminations, but also revealing quite minute variations, e.g., cable impedance variations, frayed shields, and impedances introduced by making tap connections to the cable.

Use the **show ether tdr test result** command to display the TDR test results.

Use the **show ether tdr config** command to display the TDR test validity and init time.

```

Example: C1|S16|L1P1>start ether tdr test
C1|S16|L1P1>show ether tdr test result
Cable pair :
index                distance to fault(unit)      status
-----
pair1and2            0 (meter)                   open
pair3and6            1 (meter)                   open
pair4and5            0 (meter)                   open
pair7and8            0 (meter)                   open
C1|S16|L1P1>show ether tdr config
Time-domain reflectometer configuration:
-----
TDR test state:                success
TDR test init time:            2 days, 03:29:24
TDR test result valid:         true
C1|S16|L1P1>go llp=2
C1|S16|L1P2>show ether tdr config
No TDR test result on FIBER port!
C1|S16|L1P2>
  
```

Forwarding Database Commands

The following commands are used to add, remove, set, and show fwddb (forwarding database) functions and parameters.

Note: These commands can only be entered at the port level - when the last part of the command line prompt indicates the location is a port (e.g., L1P1>).

Set Forwarding Database Ports

Syntax: `set fwd portlist`

Description: Define the forwarding (fwd) port list of a device port. This is the complete set of ports that frames ingressing this interface can be forwarded to (port 1, port 2 or both).

```

Example: C1|S8|L1P1>set fwd ?
          portlist
C1|S8|L1P1>set fwd portlist ?
          PORT_LIST
C1|S8|L1P1>set fwd portlist=1
C1|S8|L1P1>set fwd portlist=2
C1|S8|L1P1>set fwd portlist=3
Invalid forward port list!
C1|S8|L1P1>show fwd portlist
port-id          fwd portlist          mgmt access
-----
1                 2                     disable
C1|S8|L1P1>set fwd portlist=1
C1|S8|L1P1>show fwd portlist
port-id          fwd portlist          mgmt access
-----
1                 none                  disable
C1|S8|L1P1>

```

Show Forwarding Database Ports

Syntax: `show fwd portlist`

Description: Displays the forwarding (fwd) port list of a device port. This is the complete set of ports that frames ingressing this interface can be forwarded to.

```

Example: C1|S16|L1P1>show fwd portlist
port-id          fwd portlist          mgmt access
-----
1                 2                     enable
C1|S16|L1P1>

```

LPT Commands

Link Pass Through (LPT) is a troubleshooting feature that allows the media converter to monitor both the fiber and copper RX ports for loss of signal. In the event of a loss of RX signal on one media port, the NID will automatically disable the TX signal of the other media port, thus passing through the link loss.

Note: These commands can only be entered at the device level - when the last part of the command line prompt indicates the location is a device (e.g., L1D>).

The following commands are used for Link Pass Through (LPT) operations.

Set Link Pass Through Monitoring Port

Syntax: **set lpt monitor-port=<xx>**

Description: Defines the port on this slide-in module used for LPT monitoring, where xx = the port number

```

Example: C1|S8|L1D>set lpt ?
             monitor-port
             state
C1|S8|L1D>set lpt monitor-port ?
             PORT
C1|S8|L1D>set lpt monitor-port 1
C1|S8|L1D>set lpt monitor-port 2
C1|S8|L1D>set lpt monitor-port 3
The specified monitor-port does not exist!
C1|S8|L1D>

```

Use the **show lpt config** command to display the current link pass through configuration.

Set Link Pass Through Status

Syntax: **set lpt state={enable | disable | notSupported}**

Description: Enables or disables the link pass through function on a slide-in module, or configures it as 'not supported'.

```

Example: C1|S8|L1D>set lpt state ?
             disable
             enable
             notSupported
C1|S8|L1D>set lpt state=enable
C1|S8|L1D>

```

Use the **show lpt config** command to display the current link pass through configuration.

Show Link Pass Through Configuration

Syntax: **show lpt config**

Description: Displays the Link Pass Through (LPT) configuration for the slide-in module.

Example: C1|S15|L1D>**show lpt config**
 Link pass through configuration:

 Link pass through state: enable
 Transparent link pass through state: notSupported
 Selective link pass through state: notSupported
 Link pass through monitor port: 3
 Remote fault detect state: notSupported
 C1|S15|L1D>

Performance/RMON Statistics

Remote Network Monitoring (RMON) provides standard information that a network administrator can use to monitor, analyze, and troubleshoot a group of distributed LANs and interconnecting T-1/E-1 and T-3/E-3 lines from a central site. RMON specifically defines the information that any network monitoring system will be able to provide. It's specified as part of the MIB as an extension of the SNMP.

Note: this command can only be entered for the port, not the device - when the last part of the command line prompt indicates the location is a port (e.g., L1P1>).

Show RMON Statistics

Syntax: **show rmon statistics**

Description: Displays the Remote Network Monitoring (RMON) statistics for a port.

Sample Syntax:

RMON statistics:

```
-----
Rx octets:                pp
Rx packets:              qq
Rx broadcast packets:    rr
Rx multicast packets:    ss
Rx CRC align errors:     tt
Rx undersize packets:    uu
Rx oversize packets:     vv
Rx fragments:            ww
Rx jabbers:              xx
Rx collisions:           YY
Rx 64 octets packets:    zz
Rx 65-127 octets packets:  zz
Rx 128-255 octets packets:  zz
Rx 256-511 octets packets:  zz
Rx 512-1023 octets packets:  zz
Rx 1024-1518 octets packets:  zz
```

where:

- pp = Number of octets received on the interface since the device was last refreshed. This number includes bad packets and FCS octets, but excludes framing bits.
- qq = Number of packets received on the interface, including bad packets, multicast and broadcast packets, since the device was last refreshed.
- rr = Number of good broadcast packets received on the interface since the device was last refreshed. This number does not include multicast packets.

Performance/RMON Statistics Commands

- ss = Number of good Multicast packets received on the interface since the device was last refreshed.
- tt = Number of CRC and Align errors that have occurred on the interface since the device was last refreshed.
- uu = Number of undersized packets (less than 64 octets) received on the interface since the device was last refreshed.
- vv = Number of oversized packets (over 1518 octets) received on the interface since the device was last refreshed.
- ww = Number of fragments (packets with less than 64 octets, excluding framing bits, but including FCS octets) received on the interface since the device was last refreshed.
- xx = Number of packets received that were more than 1,518 octets long and had a FCS during the sampling session.
- yy = Number of collisions received on the interface since the device was last refreshed.
- zz = Number of xx-byte frames received on the interface since the device was last refreshed.

Example: C1|S7|L1P1>**show rmon statistics**

RMON statistics:

```
-----
Rx octets:                44190203
Rx packets:              98764
Rx broadcast packets:    11929
Rx multicast packets:    4
Rx CRC align errors:     0
Rx undersize packets:    0
Rx oversize packets:     0
Rx fragments:            7
Rx jabbers:              0
Rx collisions:           0
Rx 64 octets packets:    13745
Rx 65-127 octets packets: 11208
Rx 128-255 octets packets: 2169
Rx 256-511 octets packets: 1628
Rx 512-1023 octets packets: 68673
Rx 1024-1518 octets packets: 1340
C1|S7|L1P1>
```

QoS Commands

In QoS (Quality of Service) the bandwidth, error rates and latency can be monitored, sampled and possibly improved. QoS also delivers the set of tools to help deliver data efficiently by reducing the impact of delay during peak times when networks are approaching full capacity. QoS does not add capacity; nor does it multiplex the signals like WDM. It simply tries to manage data traffic better so that top priority traffic will not be compromised. QoS helps manage the use of bandwidth by applying a set of tools like priority scheme, so certain packets (mission critical must go packets) will be forwarded first.

These commands let you set QoS Priority either 1) by-dst-mac, 2) by-src-mac, 3) by-vlan-id, 4) ieee-tag, 5) ip-tag, or 6) tag-type.

Note: this command can only be entered for a port, not the device - when the last part of the command line prompt indicates the location is a port (e.g., L1P1>).

The following commands are used for QoS operations.

Set QoS Default Priority for a Port

Syntax: `set qos default-priority=<xx>`

Description: Defines the default priority (0–7) of a port (where 0 is the lowest priority).

Example:

```
C1|S8|L1P1>set qos ?
    default-priority
    ingress-priority
    priority
C1|S8|L1P1>set qos default-priority ?
    <0-7>
C1|S8|L1P1>set qos default-priority 5
C1|S8|L1P1>
```

Set Frame Priority: Destination MAC Address is Used

Syntax: `set qos priority by-dst-mac={enable | disable}`

Description: Defines whether the destination MAC address is used to decide frame priority.

Example:

```
C1|S8|L1P1>set qos priority by-dst-mac ?
    disable
    enable
C1|S8|L1P1>set qos priority by-dst-mac=enable
C1|S8|L1P1>
```

Set Frame Priority: IEEE Tag is Used

Syntax: **set qos priority ieee-tag={enable | disable}**

Description: Defines whether the IEEE tag is used to decide frame priority of a port.

```

Example:    C1|S8|L1P1>set qos priority ieee-tag ?
                disable
                enable
C1|S8|L1P1>set qos priority ieee-tag=enable
C1|S8|L1P1>

```

Set Frame Priority: IP Tag is Used

Syntax: **set qos priority ip-tag={enable | disable}**

Description: Defines whether the IP tag is used to decide the frame priority of a port.

```

Example:    C1|S8|L1P1>set qos priority ip-tag ?
                disable
                enable
C1|S8|L1P1>set qos priority ip-tag=enable
C1|S8|L1P1>

```

Set Frame Priority: Source MAC Address is Used

Syntax: **set qos priority by-src-mac={enable | disable}**

Description: Defines whether the source MAC address is used to decide the frame priority of a port.

```

Example:    C1|S8|L1P1>set qos priority by-src-mac ?
                disable
                enable
C1|S8|L1P1>set qos priority by-src-mac enable
C1|S8|L1P1>

```

Set Frame Priority: VLAN ID is Used

Syntax: **set qos priority by-vlan-id**={enable | disable}

Description: Defines whether the VLAN ID (VID) is used to decide frame priority of a port.

```
Example: C1|S8|L1P1>set qos priority by-vlan-id ?
          disable
          enable
C1|S8|L1P1>set qos priority by-vlan-id=enable
C1|S8|L1P1>
```

Set Ingress Priority Remapping

Syntax: **set qos ingress-priority**=<x>**remap-priority**=<y>

Description: Defines a port's priority remapping for traffic that originates outside of the network.

where:

- x = index number, 0 – 7
- y = priority to remap to, 0 – 7

```
Example: C1|S8|L1D>set qos ingress-priority=4 remap-priority=4
          Error: this command should be executed on a port!
C1|S8|L1D>go l1p=1
C1|S8|L1P1>set qos ingress-priority=4 remap-priority=4
C1|S8|L1P1>go l1p=2
C1|S8|L1P2>set qos ingress-priority=4 remap-priority=4
C1|S8|L1P2>
```

Set Priority Type

Syntax: **set qos priority tag-type**={useIEEE | useIP}

Description: Defines which tag type (IEEE or IP) will be used to decide frame priority type for a port if both tags are available. Both IEEE and IP cannot be configured at the same time.

```
Example: C1|S3|L1P1>set qos priority tag-type useIEEE
          C1|S3|L1P1>set qos priority tag-type useIP
          C1|S3|L1P1>
```

Use the **show qos config** command to display the current Tag type for priority if both tag types are available.

Show Priority Remapping

Syntax: `show qos priority remapping`

Description: Displays the IEEE priority remapping on a port.

Example:

```
C1|S13|11p2>show qos priority remapping
ingress-priority          remapping-priority
-----
0                          0
1                          1
2                          2
3                          3
4                          4
5                          5
6                          6
7                          7
C1|S13|11p2>
```

Show QoS Configuration of a Port

Syntax: `show qos config`

Description: Displays the QoS configuration of the port indicated in the command prompt.

```
Example: C1|S3|L1P1>show qos config
Default priority:          0
Use IEEE tag for priority: enable
Use IP tag for priority:   enable
Tag type for priority if both tag available: useIP
Use source MAC address for priority: disable
Use destination MAC address for priority: disable
Use VLAN id for priority:  disable
C1|S3|L1P1>
```


Serial Put Protocol

Syntax: serial put protocol=xxx

Meaning: Sends a request to servers / local file system to upload content.

Example:

```
C1|S1|L1D>serial put protocol zmodem file xxxx
now start to transfer the file ...
Šlsz: cannot open /tftpboot/xxxx: No such file or directory
  B B0  B B0  B B0  
B B0  B B0
Can't open any requested files.
  B B0  B B0  B B0  B B0  B B0  B B0
file transfer failed!
```

Serial Upgrade Protocol

Command: Serial Upgrade Protocol

Syntax: serial upgrade protocol=xxx

Meaning: Performs a firmware upgrade over the selected serial line.

Example:

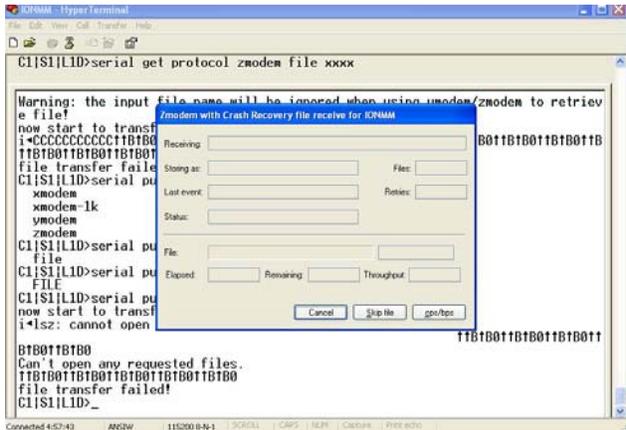
```
C1|S1|L1D>serial upgrade protocol ?
xmodem
xmodem-1k
ymodem
zmodem
C1|S1|L1D>serial upgrade protocol zmodem file xxxx
now start to transfer the file ...

**B000000063f694ceive.**B000000063f694

CCCCCCCCCBB0BBBB0BBBB0BBBB0BB0BB0BB0BB0
file transfer failed!
C1|S1|L1D>
```

If the serial file transfer causes HyperTerminal (HT) to have problems recognizing ION CLI commands, type **q** and press **Enter**, and then log back in to HT.

Message: Zmodem with Crash Recovery file receive for IONMM



Zmodem with Crash Recovery dialog fields:

Receiving:

Storing as:

Files:

Last event: Connection timed out

Retries:

Status: Connection timed out

File:

Elapsed:

Remaining:

Throughput:

Cancel button:

Skip File button:

cps/bps button: characters per second / bits per second.

ZMODEM timing is receiver driven. The transmitter should not time out at all, except to abort the program if no headers are received for an extended period of time (e.g., one minute). Accurate crash recovery requires that the receiver's copy of the file match the sender's copy up to the point where the transfer was cut off. If you don't call back instantly the file may change, and simply resuming the transfer will corrupt the file. If this is a concern, choose a program that verifies the accuracy of Crash Recovery.

The X-Y-ZMODEM group of protocols allows you to transfer any kind of data on a disk drive. There are a number of technical differences between the protocols in this group, but the only thing you really need to be concerned about is to select them in reverse alphabetical order. If the system you are connecting with will allow you to use ZMODEM, then use it. If ZMODEM isn't available, use one of the YMODEM protocols. If XMODEM is the only protocol available, use XMODEM. If other protocols are available, it is still usually best to use one of the X-Y-Z protocols.

With HTPE, for Zmodem downloads, start the download on the host and HTPE will start to receive. For downloads with other protocols, start the download on the host and then tell HTPE which file transfer protocol to use to receive. For HTPE uploads, you must tell the host to start to receive and which file transfer protocol to use, then tell HTPE what file to send using which protocol. Any of these file protocols will timeout if one side starts and doesn't get an acknowledgment from the other side after a certain period of time.

TFTP Transfer / Upgrade Commands

TFTP is a simple protocol used to transfer files. A TFTP client needs the IP address entered in one action. The TFTP server can be an IPv4 address, an IPv6 address or a DNS name, but only the latest TFTP IP address or DNS name can be saved. If IPv6 is disabled and the TFTP server address is an IPv6 address, the server can not be used. In this case you must change the TFTP server either to an IPv4 address or a DNS name.

The Trivial File Transfer Protocol (TFTP) can be used to transfer files between the IONMM or a standalone local C3210 and a TFTP server. **Note:** A TFTP server must be online and operational.

These commands can only be entered when the last part of the command line prompt indicates the location is a device (e.g., L1D>). These commands are only available to Admin level login users.

The following commands are used for TFTP operations.

TFTP Get

Command: TFTP Get

Syntax: `tftp get iptype=(ipv4|ipv6|dns) ipaddr=ADDR remotefile=RFILE [localfile=LFILE]`

Description: This command gets (downloads) a file from a TFTP server, where:

iptype = the type of IP addressing to be used (IPv4, IPv6, or DNS).

ipaddr = the TFTP server's IPv4 or IPv6 address. This TFTP server must be configured and running.

remotefile = the name of the remote file to be transferred with a *.bin* suffix.

localfile = the name of the local file when transferred (optional) with a *.bin* suffix.

```

Example: Agent III C1|S1|L1D>tftp get iptype ?
         ipv4
         ipv6
         dns
Agent III C1|S1|L1D>tftp get iptype ipv4 ipaddr 192.168.1.30 re-
motefile x323x_0.8.5_AP.bin
TFTP transferring...
Agent III C1|S1|L1D>

Usage: tftp get iptype=(ipv4|dns) ipaddr=ADDR remotefile=RFILE
[localfile=LFILE]
    
```

Example:

```

C1|S3|L1D>tftp get iptype=ipv4 ipaddr=192.168.1.30 remotefile=cert localfile=cert
TFTP transferring...

File transfer successful!
    
```

TFTP Put

Command: TFTP Put

Syntax: `tftp put iptype=(ipv4|ipv6|dns) ipaddr=ADDR localfile=LFILE [remotefile=RFILE]`

Description: This command puts (uploads) a file to a TFTP server. This server must be configured and running, [where](#):

iptype = the type of IP addressing to be used (IPv4,IPv6, or DNS).

ipaddr = the TFTP server's IPv4 or IPv6 address. This TFTP server must be configured and running.

remotefile = the name of the remote file to be transferred with a *.bin* suffix.

localfile = the name of the local file when transferred (optional).

Example:

```
Agent III C1|S1|L1D>tftp put iptype ipv4 ipaddr 192.168.1.30 localfile
x323x_0.8.5_AP.bin
TFTP transferring...

Fail to transfer the file!
Agent III C1|S1|L1D>tftp put iptype ipv6 ipaddr fe80::2c0:f2ff:fe20:de9e lo-
calfile IONMM_0.8.5_AP.bin
TFTP transferring...

Fail to transfer the file!
Agent III C1|S1|L1D>
```

TFTP Upgrade

Command: TFTP Update

Syntax: `tftp upgrade iptype=(ipv4|ipv6|dns) ipaddr=ADDR remotefile=RFILE`

Description: This command gets (downloads) a file from a TFTP server. The TFTP server must be configured and running, [where](#):

iptype = the type of IP addressing to be used (IPv4,IPv6, or DNS).

ipaddr = the TFTP server's IP address. This server must be configured and running.

remotefile = the name of the remote file to be transferred with a *.bin* suffix.

Example:

```
Agent III C1|S1|L1D>tftp upgrade iptype ipv4 ipaddr 192.168.1.30 remote-
file IONMM_0.8.5_AP

Processing...

TFTP transfer failed!
Agent III C1|S1|L1D>tftp upgrade iptype ipv4 ipaddr 192.168.1.30
remotefile IONMM_0.8.5_AP.bin

Processing...

TFTP upgrade succeeded!
```

Prov Get TFTP Server Address

Command: Set TFTP Server

Syntax: `prov set tftp svr type=(ipv4|ipv6|dns) addr=ADDR`

Description: This command sets the current TFTP server type and address, where:
type = the type of IP addressing (IPv4, IPv6 or DNS).
addr = the TFTP server's IP address (IPv4, IPv6 or DNS server address).

Mode: Global mode

Example:

```
Agent III C1|S1|L1D>prov set tftp svr type ipv4 addr 192.168.1.30
Agent III C1|S1|L1D>
```

Prov Set TFTP Server Type

Syntax: `prov set tftp svr type=(ipv4|ipv6|dns) addr=ADDR`

Description: Provision the TFTP Server type and address. Available to an Admin level login user only.
 where:

x = type = (ipv4|ipv6|dns)

y = addr = ADDR

Example:

```
Agent III C1|S1|L1P1>prov set tftp svr type ?
  ipv4
  ipv6
  dns
Agent III C1|S1|L1P1>prov set tftp svr type ipv4 addr 192.168.1.10
Agent III C1|S1|L1P1>prov set tftp svr type ipv6 addr e80::2c0:f2ff:fe20:de9e
Agent III C1|S1|L1P1>
```

VLAN Commands

The VLAN commands include the C3210 Port-level VLAN commands.

Note: The device-level and port-level Management VLAN commands do not function when entered from an IONMM or C3210.

VLAN Port-Level Commands

Note: These commands can only be entered at the port level - when the last part of the command line prompt indicates the location is a port (e.g., L1P1>).

Set Port Ethernet Tag Type when VLAN Tagging Mode is Provider

Syntax: `set port vlan tag provider ethtype={x8100 | x88a8 | x9100}`

Description: Set Ethernet [tagging](#) type when VLAN tagging mode is set to “Provider” on a port interface.

```
Example: C1|S8|L1P1>set port vlan tag provider ethtype ?
          x8100
          x88a8
          x9100
C1|S8|L1P1>set port vlan tag provider ethtype=x8100
C1|S8|L1P1>
```

Note: If you enter this command with the current VLAN tagging mode not set to 'Provider', the message “*Current VLAN tagging mode is not 'provider'!*” displays.

Set Force Port to Use Default VID

Syntax: `set port force-default-vid={true | false}`

Description: If set =true, forces all untagged and 802.1Q tagged frames to use the default VLAN-ID.

```
Example: C1|S16|L1P1>set port force-default-vid ?
          false
          true
C1|S16|L1P1>set port force-default-vid=true
C1|S16|L1P1>
```

Note: Use the `show port vlan config` command to display the current setting.

Set VLAN Port Default VID

Syntax: **set port default-vid=<xx>**

Description: Sets the default VLAN ID (VID) for this port. The factory default is 1. The valid range is port numbers 2-4094.

Where:

xx= VID: (2-4094)

Example:

```
C1|S16|L1D>set port default-vid=2
Error: this command should be executed on a port!
C1|S16|L1D>go llp=1
C1|S16|L1P1>set port default-vid=2
C1|S16|L1P1>go llp=2
C1|S16|L1P2>set port default-vid=2
C1|S16|L1P2>set port default-vid=1
C1|S16|L1P2>set port default-vid=10
C1|S16|L1P2>set port default-vid=20
C1|S16|L1P2>set port default-vid=100
```

Note: Use the **show port vlan config** command to display the current default VID.

Set VLAN Port Discard Tagged Non-Management Frames

Syntax: **set port discard-tagged={true | false}**

Description: Sets if tagged non-management frames are to be discarded for this port.

Example:

```
C1|S3|L1P2>set port discard-tagged ?
false
true
C1|S3|L1P2>set port discard-tagged true
C1|S3|L1P2>set port discard-tagged false
C1|S3|L1P2>
```

Note: Use the **show port vlan config** command to display the current VLAN Discard-untagged state.

Set VLAN Port Discard Untagged Non-Management Frames

Syntax: `set port discard-untagged={true | false}`

Description: Sets if untagged non-management frames are to be discarded for this port.

```
Example: C1|S3|L1P2>set port discard-untagged ?
            false
            true
C1|S3|L1P2>set port discard-untagged true
C1|S3|L1P2>set port discard-untagged false
C1|S3|L1P2>
```

Use the **show port vlan config** command to display the current VLAN Discard-untagged state.

Set Port VLAN Tag Mode

Syntax: `set port vlan tag mode={network | provider | customer}`

Description: Sets the VLAN tagging mode of a port interface.

```
Example: C1|S5|L1P1>set port vlan tag mode ?
            customer
            network
            provider
C1|S5|L1P1>set port vlan tag mode=customer
C1|S5|L1P1>set port vlan tag mode=provider
C1|S5|L1P1>set port vlan tag mode=network
C1|S5|L1P1>
```

Show VLAN Port Configuration

Syntax: `show port vlan config`

Description: Displays the VLAN configuration of a port.

```
Example: C1|S16|L1P1>show port vlan config
Dot1q state:                vlanDisabled
Discard-tagged:              false
Discard-untagged:           false
Default VLAN id:            2
Force use default VLAN id:  true
C1|S16|L1P1>
```

Show VLAN Port Tag Configuration

Syntax: **show port vlan tag config**

Description: Displays the VLAN tag configuration of a port.

Example 1: C1|S16|L1P1>**show port vlan tag config**
 Tagging mode: network
 Network tagging: addTag

Example 2: C1|S16|L1P1>**show port vlan tag config**
 Tagging mode: customer

Example 3: C1|S16|L1P1>**show port vlan tag config**
 Tagging mode: provider
 Provider Ethernet type: x88a8

Technical Support

Technical support is available 24-hours a day at:

United States: 1-800-260-1312
International: 00-1-952-941-7600

Live Web chat

Chat live via the Web with a Transition Networks Technical Support Specialist.

Go to:

<http://www.transition.com/TransitionNetworks/TechSupport/Contact.aspx>

Click **Transition NOW** to begin a live chat session.

Web-based training

Transition Networks provides 12-16 seminars per month via live web-based training.

Log onto www.transition.com and click the **Learning Center** link at the top of the page.

E-Mail

Ask a question anytime by sending an e-mail message to our technical support staff: techsupport@transition.com

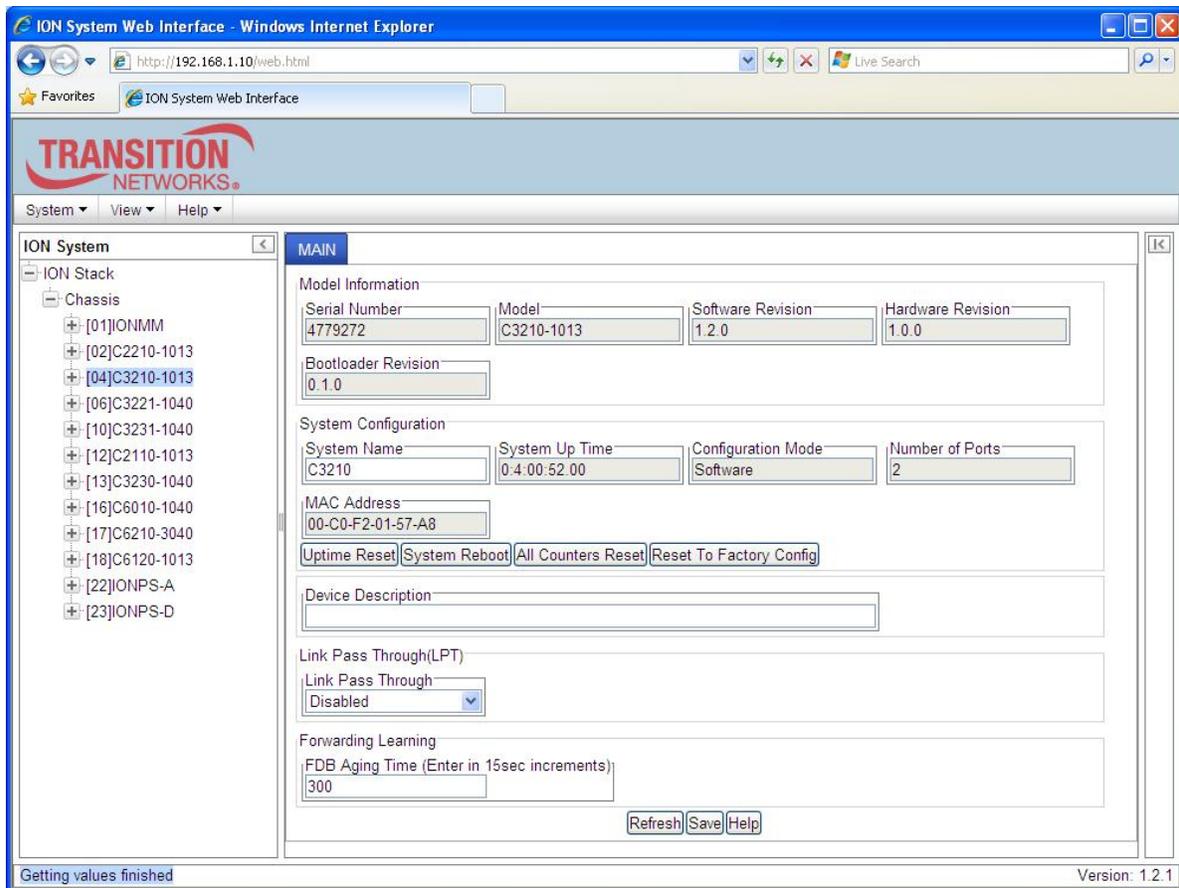
Address

Transition Networks
10900 Red Circle Drive
Minnetonka, MN 55343, U.S.A.
Telephone: 952-941-7600
Toll free U.S.A & Canada: 800-526-9267
Fax: 952-941-2322

Recording Model Information and System Information

After performing the troubleshooting procedures, and before calling or emailing Technical Support, please record as much information as possible in order to help the Transition Networks Technical Support Specialist.

1. Select the C3210 **MAIN** tab. (From the CLI, use the commands needed to gather the information requested below. This could include commands such as **stat**, **show card info**, **show slot info**, **show ether config**, **show port vlan tag config**, or others as request by the TN Support Specialist.



2. Record the **Model Information** for your system.

Serial Number: _____ Model: _____
 Software Revision: _____ Hardware Revision: _____
 Bootloader Revision: _____

3. Record the **System Configuration** information for your system.

System Uptime: _____ Configuration Mode: _____
 Number of Ports: _____ MAC Address: _____
 Device Description: _____

4. Provide additional Model and System information to your Technical Support Specialist. See “[Basic ION System Troubleshooting](#)” on page 190.

Your Transition Networks service contract number: _____

A description of the failure: _____

A description of any action(s) already taken to resolve the problem (e.g., changing switch mode, rebooting, etc.): _____

The serial and revision numbers of all involved Transition Networks products in the network:

A description of your network environment (layout, cable type, etc.): _____

Network load and frame size at the time of trouble (if known): _____

The device history (i.e., have you returned the device before, is this a recurring problem, etc.):

Any previous Return Material Authorization (RMA) numbers: _____

Important note on product identification: When the full part number of a ION System device is abbreviated for use in catalogs and marketing literature, the first set of numeric digits in the string is dropped and replaced by the last. In most ION System products, the first set of numeric digits in the full part number is the same as the last, so this process is transparent. With the IONMM, this is not true.

Appendix A: CLI Command Summary

This appendix provides the list of available CLI commands via the help (?) command and the list command. Commands are arranged in alphabetical order. **Note:** CLI commands are case sensitive. Enter the CLI commands in lower case. **Note:** To execute these commands, you must press the Enter key after the command has been entered.

ION CLI Commands via the *help* Command (C1|S8|L1D> ?)

1. **add** Add a sub-command function (add acl).
2. **cat** Show the content of the FILES.
3. **cd** Change to another directory.
4. **clear** Clear all counters of the specified Ethernet port.
5. **cls** Clear the screen.
6. **generate** Generate the specified SSH host key.
7. **go** Set location to device/port of the SIC to be operated.
8. **home** Go back to IONMM card.
9. **list** Display command list.
10. **ls** List the information about the FILES.
11. **more** A filter for paging through text one screenful at a time.
12. **ping** Send ICMP ECHO-REQUEST to network hosts.
13. **prov** Get / set current TFTP server address.
14. **ps** Report a snapshot of the current processes.
15. **pwd** Show current directory.
16. **quit** Exit current mode and move down to previous mode.
17. **reboot** Cold start the system.
18. **remove** Remove sub-command conditions (acl, fwddb, ssh, vlan, vlan-db).
19. **reset** Reset factory configuration.
20. **restart** Restart ACL.
21. **set** Set sub-command function (ACL, bw, community, curr-time, etc.).
22. **show** Show sub-command function (ACL, community, curr-time, cardtype, etc.).
23. **start** Start TDR test of a specified Ethernet port.
24. **stat** Show topology information of a chassis, devices and ports.
25. **tftp** Get a file from, put a file on, or upgrade via a TFTP server.
26. **update** Update firmware database (IONMM command).
27. **upgrade** Upgrade firmware modules (IONMM command).

ION CLI Commands via the *list* Command (C1|S8|L1D>*list*)

Note: CLI commands are case sensitive. Enter the CLI commands as shown.

Note: To execute these commands, you must press the **Enter** key after the command has been entered.

C1|S7|L1D>*list*

1. cat [OPTION] [FILE]
2. cd [DIR]
3. clear ether all counters
4. cls
5. go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
6. home
7. list
8. ls [OPTION] [FILES]
9. more [OPTION] [+linenum] FILE ...
10. ping [-c COUNT] [-t TTL] A.B.C.D (IONMM command)
11. prov get tftp svr addr
12. prov set tftp svr type=(ipv4|dns) addr=ADDR
13. ps [OPTION]
14. pwd
15. quit
16. reboot
17. reset all ports counters
18. reset factory
19. reset uptime
20. set bw alloc-type=(countAllLayer1|countAllLayer2|countAllLayer3)
21. set circuit-ID=CIRCUIT
22. set community read=COMMUNITY
23. set community write=COMMUNITY
24. set dbg level=<0-2>
25. set dmi rx-power-preset-level=POWER
26. set dot1bridge aging-time=<0-3825>
27. set ether admin state=(up|down)
28. set ether adv-cap=CAPABILITY
29. set ether autocross=(mdi|mdi-x|auto)
30. set ether autoneg state=(enable|disable)
31. set ether duplex=(full|half)
32. set ether filter-unknown-multicast=(true|false)
33. set ether filter-unknown-unicast=(true|false)
34. set ether pause=PAUSEVALUE
35. set ether speed=(10M|100M|1000M)
36. set ether src-addr-lock action=(discard|discardandnotify|shutdown|all)
37. set ether src-addr-lock=(true|false)
38. set fwd portlist=PORT_LIST

Appendix C: CLI Command Messages

39. set irate=IRATE erate=ERATE
40. set lpt monitor-port=PORT
41. set lpt state=(enable|disable|notSupported)
42. set port discard-tagged=(true|false)
43. set port discard-untagged=(true|false)
44. set port force-default-vid=(true|false)
45. set port vlan tag mode=(network|provider|customer)
46. set port vlan tag network tagging=(unmodified|removeTag|addTag)
47. set port vlan tag provider ethtype=(x8100|x9100|x88a8)
48. set qos default-priority=<0-7>
49. set qos ingress-priority=<0-7> remap-priority=<0-7>
50. set qos priority by-dst-mac=(enable|disable)
51. set qos priority by-src-mac=(enable|disable)
52. set qos priority by-vlan-id=(enable|disable)
53. set qos priority ieee-tag=(enable|disable)
54. set qos priority ip-tag=(enable|disable)
55. set qos priority tag-type=(useIEEE|useIP)
56. set system name=NAME
57. show bandwidth allocation
58. show card info
59. show cardtype
60. show circuit-ID
61. show dmi info
62. show dot1bridge aging-time
63. show ether config
64. show ether security config
65. show ether statistics
66. show ether tdr config
67. show ether tdr test result
68. show firmware upgrade result (IONMM command)
69. show firmware-db update result (IONMM command)
70. show fwd portlist
71. show lpt config
72. show mgmt vlan config
73. show port vlan config
74. show port vlan tag config
75. show power config (power supply command)
76. show qos config
77. show qos priority remapping
78. show rmon statistics
79. show upgrade firmware file (IONMM command)
80. start ether tdr test
81. stat
82. upgrade module (IONMM command)

C1|S7|L1D>

Appendix B: Web Interface vs. CLI Commands

This appendix provides a cross-reference of the functions configurable via the Web interface versus CLI commands.

Web Field	CLI Command
System Level MAIN tab	System Level Commands
System Name	set system name
Device Description	set device description show device description
Uptime Reset button	reset uptime
System Reboot button	reboot
All counters Reset button	reset all ports counters
Reset to Factory Config	reset factory
Link Pass Through(LPT)	set lpt state
FDB Aging Time	set fwd portlist
Port Level MAIN tab	Port Level Commands
Circuit ID	set circuit-id / show circuit-id
Admin Status	set port mgmt access set usb-port state
AutoCross Mode	set ether autocross
Auto Negotiation	set ether autoneg
Force Speed	set ether speed
Force Duplex	set ether duplex
Capabilities Advertised	set ether adv-cap
Forward Settings	set fwd portlist
Virtual Cable Test button	start ether tdr test
Port Level ADVANCED tab	Port Level Adv. Commands
Rate Limiting Mode	set bw alloc-type
Egress Rate Limit	set irate=ratexx erate=ratezz
Ingress Rate Limit	set irate=ratexx erate=ratezz
Filter Unknown Unicast	set ether filter-unknown-unicast
Filter Unknown Multicast	set ether filter-unknown-multicast

Web Field	CLI Command
Discard Tagged	set port discard-tagged
Discard Untagged	set port discard-untagged
Default VLAN ID	set port default-vid
Default Priority	set qos default-priority
IEEE Priority Class	set qos priority set dot1dbridge ieee-tag-priority
IP Traffic Class	set qos priority set dot1dbridge ip-priority-index
Priority Precedence	set qos priority
Frame Tag Mode	set vlan vid=x port=2 memetag-
Provider Ether Type	set port vlan tag provider ethtype
Network Mode Tagging	none
User Priority - Remap 0 to:	show qos priority remapping
Port Level COUNTERS tab	Port Level Counters Commands
All fields are read only	show ether statistics reset all / factory / uptime
Port Level DMI tab	Port Level DMI Commands
The DMI feature is not supported on current port.	set dmi rx-power-preset-level

Appendix C: CLI Messages and Recovery

The following messages may display during CLI operations.

Add ACL rule failed.

This message indicates that the rule could not be added.

1. Verify the CLI command syntax.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Ambiguous command

A. This message indicates either a) the input for one of the parameters is incorrect, or b) a hyphen is missing between two parts of the command.

1. Verify the CLI command syntax.
2. Retry the operation.

B. You typed part of a valid CLI command and pressed **Enter** before completing the command syntax. For example, if you type

```
C1|S7|L1D>add v
```

and then press the **Enter** key, the message “% *Ambiguous command.*” displays.

1. Type the part of the command that failed (**add v** in the example above), type a question mark (?), and the press **Enter**. The valid commands that start with the part of the command you initially entered are displayed.
2. Verify the CLI command syntax.
3. Retry the operation.

C. The system was unable to resolve the desired command based on the portion of the command entered. For example, you entered the following: C1|S7|L1D>set dot1

1. Verify the command syntax.
2. Retry the CLI command syntax. See Appendix A.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Bad advertisement capability!

This message indicates that the capabilities specified for the Set Ethernet Port Advertisement Capability command are not valid choices. For example:

```
C1|S5|L1P2>set ether adv-cap 1000TFD
Bad advertisement capability!
```

1. Verify the command syntax.
2. Retry the operation. For a complete list of the available commands, see Appendix A
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot get link pass through information on this card

This message indicates that a link pass through (LPT) CLI command was entered for an IONMM. CLI commands for LPT operations are only valid for slide-in modules other than the IONMM.

1. Use the **go** command to change from the IONMM to the specific slide-in module. The **go** command format is:

```
go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
```
2. Retry the operation. For a complete list of the available commands, see the ION System CLI Reference Manual, 33473.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot get LOAM configuration on this port!

Cannot get LOAM event log on this port!

Cannot get LOAM peer information on this port!

This message indicates that a port level command was entered for the IONMM but the command is only valid for the other types of slide-in modules.

1. Use the **go** command to change location of where the command operates. The **go** command format is:

```
go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
```
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot get port security on this port!

This message indicates that a port level command was entered for the IONMM but the command is only valid for the other types of slide-in modules.

1. Use the **go** command to change location of where the command operates. The **go** command format is: **go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)**
2. Retry the operation. For a complete list of the available commands, see the ION System CLI Reference Manual, 33473.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Command incomplete

This message indicates that not all of the required fields were entered for the CLI command.

1. Verify the command syntax.
2. Retry the operation. For a complete list of the available commands, see the ION System CLI Reference Manual, 33473.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Could not open connection to the host on port 23. Connection failed.

This message indicates that the Telnet server and client are configured for different ports. For Telnet operations the default port is 23.

1. Ensure that the Telnet port is set to 23 for both the server and the client. This will require someone with administrative rights in order to make a change.
2. Add the port number to the Telnet command. For example:

```
Telnet <ipaddr> <port#>
```

3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error: this command should be executed on a device

This message indicates that the CLI command was entered for a port and it is only applicable for a device.

1. Use the **go** command to change location of where the command operates. The **go** command format is:
`go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)`
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error: this command should be executed on a port

This message indicates that the CLI command was entered for a card and it is only applicable for a port.

1. Use the **go** command to change location of where the command operates. The **go** command format is:
`go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)`
2. Retry the operation.
3. For a complete list of the available commands, see [Appendix A](#).
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to get MAC address!

This message indicates that communications to the module can not be established.

1. Verify that the correct hierarchy has been specified in the command (see [“Managing Slide-In and Remote Modules Using CLI Commands”](#) on page 49).
2. For all modules (slide-in and remote) check the following:
 - module is properly seated/connected
 - module is powered up
3. Wait 60 seconds, then retry the operation.
4. Cycle power for the module in question. **Note:** for slide-in modules pull the module out so it is no longer connected to the backplane, then slide the module back in, ensuring that it is firmly seated.
5. Retry the operation.
6. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to get port type!

This message indicates that a port level command was entered for the IONMM but the command is only valid for the other types of slide-in modules.

1. Use the **go** command to change location of where the command operates.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Incomplete location command!

This message indicates that one or more parameters for the **go** command are missing. The go command was entered to set location parameters, but the module, slot and/or port value(s) were no included in the command string.

The go command can operate on a local or remote card/port, and you must give the last parameter to specify the target is a port or device. For example, the input go c=1 s=14 does not include the port parameter, so the CLI module displays “Incomplete location parameters”.

1. Verify the command syntax.
2. Re-enter the **go** command and be sure to include all of the location parameters:

```
go [c=CHASSIS] [s=SLOT] [11ap=PORT] [12ap=PORT] (11p=PORT|12p=PORT|13p=PORT|11d|12d|13d)
```

3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid ACL condition index!

This message indicates that you tried to associate an ACL condition with an ACL rule but the condition does not exist.

1. Check what conditions exist; type:

```
show acl condition
```

2. Associate the correct condition with the correct rule, or create the condition if it does not exist.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid ACL rule index!

This message indicates that you tried to associate an ACL condition with an ACL rule that does not exist.

1. Check what rules exist; type:

```
show acl rule
```

2. Associate the correct condition with the correct rule, or create the rule if it does not exist.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid condition value: xxxx

This message indicates that the input for the value= parameter on the **add acl condition** command is not valid.

1. Verify the value being input; it must match with the value input for type=.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid location parameters, cannot find the physical entity!

This message indicates that the system can not detect the presence of the device or port specified in the **go** command.

1. Verify that the correct hierarchy has been specified in the command (see [“Managing Slide-In and Remote Modules Using CLI Commands”](#) on page 49).
2. For all modules (slide-in and remote) check the following:
 - module is properly seated/connected
 - module is powered up
3. Wait 60 seconds then retry the operation.
4. Cycle power for the module in question. **Note:** for slide-in modules pull the module out so it is no longer connected to the backplane, then slide the module back in, ensuring that it is firmly seated.
5. Retry the operation.
6. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid user!

This message indicates that the specified user is not valid.

1. Verify the user.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Login incorrect

This message indicates that either the login or password entered while trying to establish a USB or Telnet connection is incorrect.

1. Verify the login/password.

Note: the login and password are case sensitive. The default login is **ION** and the default password is **private**.

2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

No DMI support on this port!

This message indicates that you entered a DMI command for a port that does not support DMI.

1. Verify that the port supports DMI. For Transition Networks C3210s and SFPs, the model number has a “-D” at the end.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Now the value of table can only be "filter"!

You entered an unsupported ACL table or chain parameter value. For example:

```
C1|S7|L1D>set acl table {raw|nat|mangle}
C1|S7|L1D>set acl table raw chain
prerouting|input|forward|output|postrouting}
C1|S7|L1D>set acl table nat chain
{prerouting|input|forward|output|postrouting}
C1|S7|L1D>set acl table mangle chain {prerouting|forward|output|postrouting}
```

1. Enter the parameters **table=filter** and **chain=input**.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

There is no matched command

This message indicates that there is no such command available on this system.

1. Verify the command syntax.
2. Retry the operation.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Unable to open xx. Please check your port settings.

This message indicates that HyperTerminal no longer recognizes which COM port to use for its connection.

1. Check that the USB cable is connected to the management station and the IONMM.
2. Check that the COM port is listed for the device manager on the management station (PC).
 - a) On the desktop, right-click on **My Computer**.
 - b) Select **Manage**.
 - c) Click **Device Manager**.
 - d) In the right panel, expand the list for **COM & LPT**.
3. Is the COM port in the list?

Yes	No
Continue with step 4 .	Restart the management station.

4. In the HyperTerminal window, select **File>Properties**.
5. Check that the correct port is listed in the **Connect using** field.
6. Restart the management station.
7. Reboot the IONMM.
8. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error, you should first give full location parameters

The location value is incomplete; it is missing the module, slot and/or port value(s). This message can display when a device-level command is entered (e.g., **show lpt config**).

When you change a bigger container, the value of smaller object is cleared. For example, originally the operated object is Chassis=1, slot=4, L1AP=1 L2AP=2 L3D, and then when the command chassis 3 is entered. This automatically sets the value of module, slot and port to 0.

If the value of module, slot and port are not set in later commands, and then you run a device-level command (e.g., **show lpt config**), this error message displays.

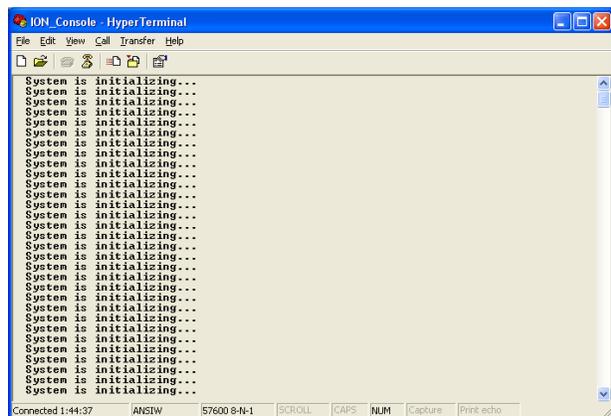
Enter the **go** command and be sure to include all of the location parameters.

```
go [c=CHASSIS] [s=SLOT] [l1ap=L1APORT] [l2ap=L2APORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
```

Appendix C: CLI Command Messages

System is initializing...

CLI is receiving continuous error message "*system is initializing...*"



1. Wait for a few minutes for the message to clear.
2. Cycle power to the IONMM.
3. Retry the operation.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Start HTTPS certificate failed.

1. Verify the HTTPS parameters (HTTPS is enabled, the certificate type is defined, certificate file defined, private key file defined, password defined).
2. Verify that the HTTPS server is operational.
3. Retry the operation (i.e., type **start https certificate** and press **Enter**).
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

This command is only available on <x323x> card!

The command you entered is not supported on the card from which it was entered (e.g., you entered **set soam ma**, **set soam meg**, or **set soam mep** from a C3210 card, which does not support SOAM).

1. Verify the command entered is the one you want.
2. Verify that the device for the command entered can support the function of the command.
3. Retry the operation.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error: this command should be executed on a port!

1. Verify the command entered is the one you want.
2. Change to the desired port; enter the **go** command with all of the location parameters (chassis / slot / port).
3. Retry the operation from the port (i.e., type **show fwd portlist** and press **Enter**).

Unknown command!

The command you entered is not supported, or you entered the wrong command format / syntax.

1. Verify the CLI command syntax.
2. Retry the operation.
3. For a complete list of the available commands, see Appendix A.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

There is no matched command.

The command you entered is not supported, or you entered the wrong command format / syntax.

1. Verify the CLI command syntax.
2. Retry the operation.
3. For a complete list of the available commands, see Appendix A.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error location parameter number!

The go command you entered had an invalid or missing parameter.

1. Enter the **go** command with all of the location parameters (chassis / slot / port) in the format:

```
go [c=CHASSIS] [s=SLOT] [l1ap=PORT] [l2ap=PORT] (l1p=PORT|l2p=PORT|l3p=PORT|l1d|l2d|l3d)
```

Fail to set link pass through state!

You tried to set the LPT state to an unacceptable state. For example, you typed:

```
C1|S3|L1D>set lpt state=enable
```

1. Verify the CLI command syntax.
2. Check the **set lpt monitor-port** and **set selective lpt state** command settings.
3. Enter the **show lpt config** command and in the Link Pass Through configuration, check if the Link pass through state is set to **notSupported** or if the **Remote fault detect state** is set to **notSupported**.

If either is set to **notSupported**, change the setting to enable (e.g., type **set rfd state enable** and press **Enter**).

4. Retry the operation.
5. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid dot1dbridge MAC address!

You tried to add a fwddb (Forwarding Database) with an unacceptable address. For example, you typed:

```
C1|S3|L1D>add fwddb mac 11
```

and then pressed **Enter**.

1. Verify the CLI command syntax. See “[Forwarding Database Commands](#)” on page 76.
2. Retry the operation with a valid MAC address.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid erate!

Invalid irate!

You tried to set the Ingress or Egress rate to an unacceptable limit. For example, you typed:

```
C1|S3|L1D> C1|S7|L1D>set irate=100m erate=100m
```

and then pressed **Enter**.

1. Verify the CLI command syntax.
2. Retry the operation. See the “[Set Bandwidth Rate Limit](#)” command on page 53.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

TFTP transfer failed!

The attempted firmware upgrade via the **tftp upgrade** command was unsuccessful.

1. Verify the CLI command syntax.
2. Verify the firmware version.
3. Be sure the TFTP server is configured and running.
4. Check that the remotefile is in the proper location (e.g., the file *x323x.bin.0.5.4* is at *C:\TFTP-Root*).
5. Retry the operation. See the **tftp upgrade** command.
6. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to transfer the file!

tftp get: set address type failed.

tftp put failed.

The file transfer attempt failed. The command you entered to do a tftp file transfer was unsuccessful (e.g., tftp get or tftp put or tftp transfer). For example:

```
C1|S4|L1D>tftp get iptype ipv4 ipaddr 192.168.1.30 remotefile xxxx
tftp get: set address type failed.
C1|S4|L1D>tftp put iptype ipv4 ipaddr 192.168.1.30 localfile xxxx
tftp put failed.
C1|S4|L1D>tftp upgrade iptype ipv4 ipaddr 192.168.1.30 remotefile xxxx
tftp get: set address type failed.
```

1. Check the command syntax. See “[TFTP Commands](#)” page on page 157.
2. Make sure the TFTP server is configured and running.
3. Verify the filename to be transferred, its location, and the IP address of the TFTP server.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set remote fault detect state on this card!

The attempted **set rfd state** command was rejected. For example:

```
C1|S7|L1D>set rfd state enable
```

1. Verify that the card you entered the command on supports this function. See “[Set RFD State](#)” on page 190.
2. Either use the **go** command to switch to another card or enter a different (supported) command.
3. Retry the operation.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set service vid for tag on this card!

The attempted **set dot1bridge vid** command was rejected (e.g., C1|S7|L1D>set dot1bridge vid 2).

1. Verify that the card you entered the command on supports this function.
2. Retry the operation. See the **dot1bridge aging-time** command.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to set aging time!

The attempted **set dot1bridge aging-time** command was not able to complete.

1. Verify the **dot1bridge aging-time** command syntax. See “[Configure Forwarding Learning Aging Time](#)” on page 191.
2. Retry the operation. See the **dot1bridge aging-time** command.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Get aging time failed!

The attempted show dot1bridge aging-time command failed to complete.

1. Verify the **dot1bridge aging-time** command syntax. See “[Configure Forwarding Learning Aging Time](#)” on page 191.
2. Retry the operation. See the **dot1bridge aging-time** command
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Redundancy is not supported on this card!

The attempt to set or show fiber redundancy failed. For example, you entered the command: **show redundancy info**, but the device does not support fiber redundancy.

1. Verify that the card you entered the command on supports this function (must have at least 2 fiber ports) .
2. Retry the operation on a card that supports this function.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Invalid user!
Fail to set SSH server state!

You entered the command **show ssh public-key user admin**, but the C3210 does not support SSH.

1. Use the **go** command to switch to a device that supports SSH.
2. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to set management VLAN id!
Fail to set management VLAN state!

You entered the command **set mgmt vlan state** or **set mgmt vlan port** or **set mgmt vlan vid** to enable or configure Management VLAN, but the operation failed.

1. Verify the VLAN Management configuration using the **show vlan** command and the **show vlan service** command.
2. Review the **set mgmt vlan** command syntax for the port / state / vid. See the “[VLAN Commands](#)” on page 119.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Upgrade is only supported on IONMM card!

You entered a firmware *upgrade* or firmware *update* command from a device other than the IONMM. For example:

```
C1|S3|L1D>show firmware upgrade result
C1|S3|L1D>show firmware-db update result
C1|S3|L1D>show upgrade firmware file
C1|S3|L1D>update firmware-db file cert
C1|S3|L1D>upgrade module
```

1. Make sure of the command you want to enter. See “[Firmware Upgrade Commands](#)” on page 137.
2. Use the **home** command to go to the IONMM device.
3. Re-enter the firmware upgrade command from the IONMM.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Cannot set bandwidth alloc type on this card!

You entered the command **set bw alloc-type countAllLayerx** on a card that does not support it. For example:

```
C1|S7|L1P1>set bw alloc-type countAllLayer2
Cannot set bandwidth alloc type on this card!
```

1. Verify if the card supports bandwidth allocation.
2. Use the **go** command to switch to a different card and switch to the port level.
3. Verify the command entry. See “[Bandwidth Commands](#)” on page 53.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set ingress and egress rate on this card!

You entered the command **set irate=xx erate=xx** on a card that does not support it. For example:

```
C1|S7|L1P1>set irate unLimit erate noLimit
Cannot set ingress and egress rate on this card!
```

1. Verify if the card supports rate limiting.
2. Use the **go** command to switch to a different card and switch to the port level.
3. Verify the command entry. See “[Bandwidth Commands](#)” on page 43.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

DMI is only supported on FIBER port!

You entered the command **show dmi info** on a card that does not support it. For example:

```
C1|S7|L1P1>show dmi info
DMI is only supported on FIBER port!
```

1. Verify if the card supports DMI.
2. Use the **go** command to switch to a different card port supporting Fiber.
3. Verify the command entry. See “[DMI Commands](#)” on page 55.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Link OAM is not supported on this card!

You entered the command **show loam rx loopback control** on a card that does not support it. For example:

```
C1|S7|L1P1>show loam rx loopback control
Link OAM is not supported on this card!
```

1. Verify if the card supports loopback.
2. Use the **go** command to switch to a different card port supporting loopback.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot clear loopback counters on this card!
Cannot set administrate state on this port!
Cannot set advertisement capability on this port!
Cannot set autocross on this card!
Cannot set auto negotiation state on this port!
Cannot set Ethernet port speed for this card!
Cannot set Ether port duplex mode on this card!
Cannot set far end fault on this card!
Cannot set filter unknown dest multicast frames on this port!
Cannot set filter unknown dest unicast frames on this port!
Cannot set pause on this port!
Cannot set source address lock action on this port!
No Time-domain reflectometer support on this card!
Cannot get port security configuration on this port!
Fail to get MAC control frames statistics!
Cannot show forwarding port list on this card!
Cannot show slot info on this card!
Cannot show USB port state on this card!

You entered a command (e.g., **clear ether all counters**) for a function not supported on the card. For example:

```
C1|S7|L1P1>clear ether all counters
Cannot clear loopback counters on this card!
```

1. Verify if the card supports the desired function. See Table 3 in the section “[Ethernet Port Commands](#)” on page 64.
2. Use the **go** command to switch to a different card port supporting loopback.
3. Verify the command entry. The command functions include 1) admin, 2) adv-cap, 3) autocross, 4) autoneg, 5) duplex, 6) fef, 7) filter-unknown-multicast, 8) filter-unknown-unicast, 9) loopback, 10) pause, 11) speed, and 12) src-addr-lock, 13) tdr, 14) ether security config, 15) fwddb, etc.

Appendix C: CLI Command Messages

Cannot show port QoS configuration in this card!
Cannot show port QoS priority remapping in this card!
Cannot set tag type for priority in this card!
Cannot set default priority in this card!
Cannot set IEEE tag for priority in this card!

You entered a QoS command for a function not supported on the card. For example:

```
C1|S7|L1P1>show qos config
Cannot show port QoS configuration in this card!

C1|S7|L1P1>show qos priority remapping
Cannot show port QoS priority remapping in this card!
```

1. Verify if the card supports the desired function.
2. Use the **go** command to switch to a different card port supporting loopback.
3. Verify the command entry. See “[QoS Commands](#)” on page 98.

Cannot get VLAN database configuration on this card!

You entered a VLAN command for a function not supported on the card. For example:

```
C1|S7|L1D>show vlan
Cannot get VLAN database configuration on this card!
C1|S7|L1D>show vlan service
Cannot show VLAN service configuration on this card!
```

1. Verify if the card supports the desired function.
2. Use the **go** command to switch to a different card port supporting VLAN.
3. Verify the command entry. See “[VLAN Commands](#)” on page 160.

The specified ACL rule index does not exist!

You tried to set an ACL Rule ID and traprate, but did not first create the associated rule. For example:

```
C1|S16|L1D>set acl rule 1 traprate 4444
The specified ACL rule index does not exist!
```

1. Make sure ACL operations are enabled; see the **set acl state** command on page 48.
2. Create an ACL rule. See “[Add a New ACL Rule](#)” on page 48.
3. Try entering the **set acl rule** command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Current VLAN tagging mode is not 'provider'!

You tried to set the port vlan tag type, but the current tag mode doesn't match. For example:

```
C1|S16|L1P2>set port vlan tag provider ethtype=x8100
Current VLAN tagging mode is not 'provider'!
```

1. Set the VLAN tag mode to the desired mode using the **set port vlan tag mode** command.
2. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set VLAN network tagging on this port!

You tried to set the port's VLAN tag type, but the device does not support it. For example:

```
C1|S16|L1P2>set port vlan tag network tagging addTag
Cannot set VLAN network tagging on this port!
```

1. Make sure this is the command / function that you wanted.
2. Use the **go** command to switch to a device that supports VLAN tagging.
3. Try entering the **set port vlan tag** command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot show system information on this card!

You entered the **show system information** command from an unsupported device. For example:

```
C1|S22|L1D>show system information
Cannot show system information on this card!
```

1. Use the **go** command to switch to a different device (e.g., from the Power Supply to the IONMM or an x222x/32xx card).
2. Try entering the **show system information g** command again.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Getting remapping priority fail

You entered a **show dot1dbridge** command but the command failed to execute. For example:

```
C1|S10|L1D>show dot1dbridge ieee-tag priority remapping
IEEE priority-index                remapping-priority
-----
Getting remapping priority fail
```

1. Verify the command syntax.
2. Use the **set dot1dbridge** command to set the remapping priority. See the “[Dot1dbridge Commands](#)” on page 64.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Set IEEE tag priority remapping failed!

You entered a **set dot1dbridge** command but the command failed to execute. For example:

```
C1|S10|L1D>set dot1dbridge ieee-tag-priority 0 remap-priority 1
Set IEEE tag priority remapping failed!
```

1. Verify the command syntax.
2. Use the **show dot1dbridge** command to display the remapping priority setting. See the “[Dot1dbridge Commands](#)” on page 64.
3. Try the **set dot1dbridge** command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Set IP traffic class priority remapping failed!

You entered a **set dot1dbridge** command but the command failed to execute. For example:

```
C1|S10|L1D>set dot1dbridge ip-priority-index 2 remap-priority 1
Set IP traffic class priority remapping failed!
```

1. Verify the command syntax.
2. Use the **show dot1dbridge** command to display the remapping priority setting. See the “[Dot1dbridge Commands](#)” on page 64.
3. Try the **set dot1dbridge** command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

No such file or directory

You entered a **cat** or **ls** command, but the parameters you specified could not be found. For example:

```
C1|S16|L1P1>ls 1 2
ls: 1: No such file or directory
ls: 2: No such file or directory
C1|S16|L1P1>
```

or

```
C1|S16|L1P1>cat 1 2
cat: 1: No such file or directory
cat: 2: No such file or directory
2C1|S16|L1P1>
```

1. Verify the [OPTION] and [FILE] parameters are entered accurately.
2. Review the **cat** or **ls** command section of this manual.
3. Try entering the **cat** or **ls** command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set slot power on this card!

You entered a **set slot power=** command on a device that does not support it. For example:

```
C1|S16|L1P1>set slot 16 power on
Cannot set slot power on this card!
```

1. Verify this is the command you want.
2. Verify the command parameter; make sure you are not trying to power up a slot that already has power.
3. Use the **go** command to switch to the slot you want.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error: this command should be executed on a power sensor or fan!

You entered a **set sensor** command on a device that does not support it. For example:

```
C1|S16|L1P1>set sensor stid 1 notif true
Error: this command should be executed on a power sensor or fan!
```

1. Verify this is the command you want.
2. Use the **stat** command to show the chassis configuration. For example:


```
[ 22] IONPS-A
      Temperature Sensor
      Volatage Sensor
      Power Sensor
      Fan-1
      Fan-2
```
3. Use the **go** command to switch to the power sensor or fan.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Invalid forward port list!

You entered an invalid parameter in response to a prompt (e.g., for a module number for firmware upgrade). For example:

```
C1|S7|L1D>upgrade module
Available modules:
index      module                                     loc
-----
1          ION219                                    c=1 s=0 l1d
2          C3230-1040                               c=1 s=3 l1d
3          C3230-1040                               c=1 s=5 l1d
4          S3230-1040                               c=1 s=5 l1ap=2 l2d
5          IONMM                                     c=1 s=7 l1d
6          C3231-1040                               c=1 s=10 l1d
7          C2220-1014                               c=1 s=16 l1d
8          C3220-1040                               c=1 s=18 l1d
9          IONPS-A                                  c=1 s=22 l1d

Choose the module you want to upgrade: (eg. 1,3,16; at most 8 modules
to upgrade, press 'q' to exit upgrade)
show card info

Invalid forward port list!
```

1. Re-enter the command, wait for the prompt, and then enter a response in the correct syntax.
2. See the related command / function section of this manual.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

L2CP is not supported on this card!

You tried to perform an L2CP function but the device does not support L2CP.

1. Make sure this is the command / function that you wanted.
2. Use the **go** command to switch to a device that supports L2CP.
3. Try entering the command again. See “[Configuring L2CP](#)” on page 268.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot show circuit-ID on this card!

You tried to display the Circuit ID information, but the function is not supported.

1. Make sure this is the command / function that you wanted.
2. Use the **go** command to switch to a device that supports Circuit ID display.
3. Try entering the command again. See “[Circuit ID](#)” on page 268.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set circuit-ID on this card!

You tried to enter Circuit ID information, but the function is not supported.

1. Verify the Circuit ID parameters. See “[Circuit ID](#)” on page 268 and try entering the command again.
2. Use the **go** command to switch to a device that supports Circuit ID entry.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Can not set speed on this port!

You entered the CLI command to define the C3210 port's operating speed, but the command failed. For example:

```
C1|S5|L1P2>set ether speed 100M
Can not set speed on this port!
C1|S5|L1P2>
```

1. Verify the C3210 supports this speed.
2. Verify the command syntax.
3. Re-enter the **set ether speed=** command with a speed supported by the card.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Fail to set port advertisement capability!

This message indicates that the capabilities specified for the Set Ethernet Port Advertisement Capability (set ether adv-cap) command are not valid choices. For example:

```
C1|S5|L1P2>set ether adv-cap 1000XFD
C1|S5|L1P2>set ether adv-cap 1000XHD
Fail to set port advertisement capability!
C1|S5|L1P2>
```

1. Verify the C3210 supports this capability.
2. Verify the command syntax.
3. Retry the operation. For a complete list of the available commands, see “[Appendix A: CLI Command Summary](#)” on page 174.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Currently HTTPS certification type is self-certificated, so you need not set private key file!

You entered a command to set the private key file, but the HTTPS certification type is currently set to “self-certificated”. For example:

```
C1|S5|L1D>set https private-key file=privkey
Currently HTTPS certification type is self-certificated, so you need
not set private key file!
```

1. Make sure this is the HTTPS certification type that you want.
2. Use the **set https certificate-type** command to change the HTTPS certification type.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Auto-negotiation is enabled, you can not set port speed now!

You entered a command to set the port speed, with the Auto-negotiation feature enabled; the Auto-negotiation function takes precedence.

1. Make sure of the port speed that you want.
2. Use the **set ether autoneg state** command and/or the set ether speed command as required.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot create VLAN database on this card!

This model of C3210 does not support the VLAN database. For example:

```
C1|S7|L1D>add vlan-db vid 2 priority=5 pri-override=enable
Cannot create VLAN database on this card!
C1|S7|L1D>
```

1. Make sure this is the function that you want.
2. Use the go command to switch to a NID that supports the VLAN database.
3. Re-enter the **add vlan-db** command.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot remove vlan on this card!

You entered a command to delete one or all VLANs from the C3210, but the action cannot be performed. For example:

```
C1|S7|L1D>remove vlan all
Cannot remove vlan on this card!
C1|S7|L1D>remove vlan vid=3
Cannot remove vlan on this card!
C1|S7|L1D>
```

1. Make sure this is the function that you want.
2. Use the **go** command to switch to a C3210 that supports the VLAN database.
3. Use the **add vlan-db** command to add a VLAN VID if needed.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot remove forward database rows on this card!

You entered a command to delete a VLAN forward database VID (forward database row) from the C3210, but the action cannot be performed. For example:

```
C1|S7|L1D>remove vlan-db vid 3
Cannot remove forward database rows on this card!
C1|S7|L1D>
```

1. Make sure this is the function that you want.
2. Use the **go** command to switch to a NID that supports the VLAN FDB.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Error symbol period window low is out of range, its range is 12500000 - 268435455!
Error frame period window is out of range, its range is 174762 - 104857560!
Error frame period threshold is out of range, its range is 0 - 268435455!
Error frame window is out of range, its range is 10 - 600!
Error frame threshold is out of range, its range is 0 - 268435455!
Error frame seconds summary window is out of range, its range is 100 - 9000!
Error frame seconds summary threshold is out of range, its range is 0 - 268435455!

A parameter entered in the "Event Configuration" has exceeded the range limitation.

1. Enter a parameter within the valid range displayed.
2. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

No data in VLAN forward database table now!

You entered the command to display FWDDDB information, but the VLAN forward database table has no data to report. For example:

```
C1|S16|L1D>show fwddb config fdbid 1
No data in VLAN forward database table now!
```

1. Make sure this is the function that you want.
2. Use the [Forwarding Database Commands on page 92](#) to create the VLAN FDB entry.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

set forward database connection port failed.

set forward database priority failed.

set forward database entry type failed.

Please input a number to specify the priority!

The range of priority is 0 .. 7!

You tried to create a new FWDDDB entry but the effort failed. For example:

```
C1|S16|L1D>add fwddb mac 00-c0-f2-21-02-b3 conn-port=1 priority=7 type=static
set forward database connection port failed.
C1|S16|L1D>
```

1. Make sure this is the function that you want.
2. Use the “[Forwarding Database Commands](#)” to create the VLAN FDB entry. See the *ION x323x NID User Guide* for more information.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

The specified conn-port does not exist!

You specified a connection port (conn-port) number outside the valid range.

1. Make sure this is the function that you want.
2. See “[Configuring MAC Address Filtering](#)” in the *ION x323x NID User Guide* for more information.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

The specified monitor-port does not exist!

You specified a monitoring port (monitor-port) number outside the valid range.

1. Make sure this is the function that you want.
2. See the related section (e.g., “Redundancy” or “Link Pass Through”) for more information.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot show cable length for fiber port!

You entered the command to display the length of the copper cable for a port that does not support it.

1. Make sure the DEVICE supports the **show cable length** command (only for x2110).
2. Verify the command syntax. See the related *User Guide* manual.
3. Type **show ether config** to show the Ethernet port’s configuration.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Auto-negotiation is enabled, you can not set port duplex now!

You entered the command to assign a duplex mode, but the command is not functional if Auto-negotiation is currently enabled.

1. Either leave the Auto-negotiation setting and use the current duplex setting, or disable AutoNegotiation and set the Duplex mode as required.
2. See the “[Set Ethernet Port Speed / Duplex Mode](#)” section on page 105 for more information.
3. Use the show ether config command to display the current Auto-negotiation and Duplex settings.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

IP management is not supported on this card!

No tdm loopback supported on this card!

Syslog is not supported on this card!

TAOS status setting is not supported on this card!

TNDP is not supported on this card!

You entered a command for a function that is not supported on the C3210. For example:

```
C1|S15|L1D>set dhcp state disable
IP management is not supported on this card!
C1|S15|L1D>
```

1. Try another command on the C3210.
2. Try the command on another card that supports the attempted function.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set if this port can be managed by CPU on this card!

You entered the command to set or show a port mgmtaccess function, but the C3210 does not support it. For example:

```
C1|S15|L1P1>set port mgmtaccess enable
Cannot set if this port can be managed by CPU on this card!
C1|S15|L1P1>
```

1. Review the related command section of this manual.
2. Verify that this device supports the function attempted.
3. Try a related function on this device.
4. Switch to another NID and try this function again.
5. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Cannot set USB port state on this card!

You entered the command to set or show the current USB port state, but the C3210 does not support it. For example:

```
C1|S15|L1D>set usb state enable
Cannot set USB port state on this card!
C1|S15|L1D>
```

1. Review the related command section of this manual.
2. Verify that this device supports the function attempted.
3. Try a related function on this device.
4. Switch to another device and try this function again.
5. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Message: *tftp get: set address type failed.*

Meaning: You entered a tftp command, but the address entered was not accepted.

```
C1|S15|L1D>tftp get iptype ipv4 ipaddr 192.168.1.30 remotefile
C3210_1.0.4_AP
tftp get: set address type failed.
C1|S15|L1D>
```

Recovery:

1. Make sure the tftp server address is valid.
2. Verify that the TFTP Server is running and properly configured.
3. Try entering the tftp command again.
4. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

Appendix C: CLI Command Messages

Cannot proceed because some other TFTP operation is currently in progress!

Please input config file name!

TFTP file transferring failed! Please make sure the TFTP server is up and the file being transferred does exist.

TFTP Server Address is empty or invalid!

The firmware has been successfully upgraded and the system will be rebooted soon

The specified firmware on the TFTP server will be upgraded to the current module, operation is currently in progress!

The sys.log file will be transferred to the TFTP server, are you sure to proceed?

You tried a TFTP transfer operation, but the operation failed or is still in process.

1. Wait for the "*operation is currently in progress!*" message to clear.
2. If an entry was requested in the message, enter the required information (e.g., valid TFTP Server address, or config file name).
3. Follow any on-screen instructions (e.g., "make sure the TFTP server is up").
4. Verify that this is the operation you want (e.g., click **OK** at the "*are you sure to proceed?*" message).
5. Verify the related command syntax in the applicable section of this manual (e.g., Syslog, or TFTP Upgrade section).
6. Retry the operation.
7. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

ERROR: Current user is not authorized to do this operation!

% There is no matched command.

You tried to enter a CLI command but the entry failed.

An Admin user has full rights to read/write all configurations through Web/CLI. An Admin user can create new users and delete any users other than itself and ION.

A Read-Write user can read/write all configurations except for Upgrade and Backup/Restore via the Web or CLI. A read-write user can also change its own login password. When a read-write user logs in via the Web, the "UPGRADE" tab and the "BACKUP/RESTORE" tab are disabled. When a read-write user logs in via the CLI, all set commands except for upgrade and backup/restore can be executed.

A Read-Only user can read all configurations except for Upgrade and Backup/Restore though the Web/CLI.

1. Try another command on the C3210.
2. Check with the Admin if the command should be supported.
3. If the problem persists, contact Technical Support. US/Canada: 1-800-260-1312, International: 00-1-952-941-7600.

TFTP Server Messages

Messages like the ones below may display during TFTP Server operation, depending on the TFTP Server package that you use.

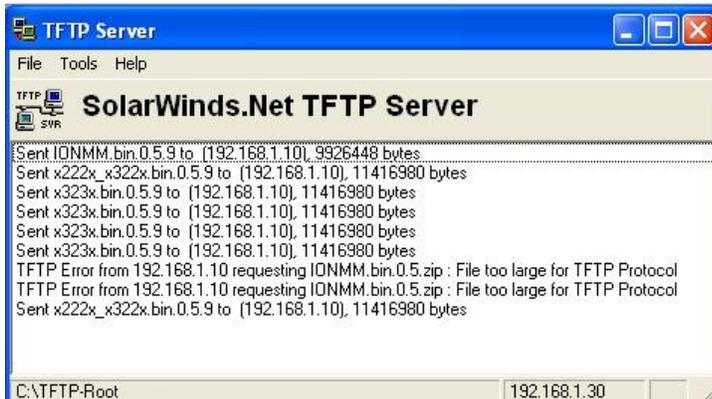
Message: *File does not exist*



Meaning: A TFTP Server error - the TFTP Server Address that you specified does not contain the Firmware File Name specified.

Recovery: 1) Verify the TFTP server's correct file location (e.g., local disk at *C:\TFTP-Root*). 2) Make sure of the filename / extension. 3) Check the TFTP Server's online helps for suggestions.

Message: *File too large for TFTP Protocol*



Meaning: A TFTP Server error - you tried to upload a file e.g., (IONMM.bin.0.5 – 50Mb) but the TFTP server failed. The file you tried to upload via the TFTP server exceeded the file size capability.

Recovery: 1) Check if some extra files ended up in the zip folder – some repeated – 6 FW files total. 2) Remove some of the files from the zip folder and try the upload again. 3) Send the remaining files in a separate file. 4) Check the TFTP Server's online helps for suggestions.

Appendix D: Linux Commands

ION supports certain standard Linux file system commands such as **cat**, **cd**, **ls**, **more**, **pwd**, and **rm**. These commands are restricted to the user directories; internal Linux file systems are not accessible.

The ION standard Linux file system commands are based on BSD 4; refer to the related documentation for more information.

cat Command

Command: cat

Description: Show the content of the FILES. Concatenate files and print on the standard output.

Example: C1|S7|L1D>cat [OPTION]

Options: Refer to the BSD 4 documentation for options and Interactive commands for the **more** command.

cd Command

Command: cd

Description: Change to another directory.

Example:

Options: Refer to the BSD 4 documentation for options and Interactive commands for the **more** command.

ls Command

Command: ls

Description: Unix and Unix-like operating systems maintain the concept of a current working directory, (i.e., where you are currently positioned in the hierarchy of directories).

When invoked without any arguments, **ls** lists the files in the current working directory. This command is restricted to the IONMM user directories; internal Linux file systems are not accessible.

The IONMM card stores all configuration backup files, HTTPS certification file, SSH key file, and Syslog file. For example, the HTTPS certificate is stored in `/agent3/conf/lighttpd`. For SSH, the host keys (RSA and DSA) are stored in `/agent3/conf/dropbear`. For the SSH user key, there is a 'root' user and the user key for 'root' is stored in `/root/.ssh`.

Example:

```
C1|S7|L1D>ls
agent3
app
bin
dev
etc
lib
linuxrc
mnt
proc
root
sbin
sys
tftpboot
tmp
usr
var
www
C1|S7|L1D>
```

Options:

Without options, **ls** displays files in a bare format. This bare format however makes it difficult to establish the type, permissions, and size of the files. The most common options to reveal this information or change the list of files are:

-l long format, displaying Unix file types, permissions, number of hard links, owner, group, size, date, and filename

-F appends a character revealing the nature of a file, for example, `*` for an executable, or `/` for a directory. Regular files have no suffix.

-a lists all files in the given directory, including those whose names start with `."` (which are hidden files in Unix). By default, these files are excluded from the list.

-R recursively lists subdirectories. The command `ls -R /` would therefore list all files.

Appendix C: CLI Command Messages

-d shows information about a symbolic link or directory, rather than about the link's target or listing the contents of a directory.

-t sort the list of files by modification time.

-h print sizes in human readable format. (e.g., 1K, 234M, 2G, etc.)

Example:

```
C1 | S3 | L1D > ls etc
```

```
TZ
VERSION
dropbear
factory
fstab
group
gshadow
host.conf
hostname
hosts
init.d
inittab
lighttpd
lighttpd.conf
motd
openssl
passwd
profile
protocols
radius
rcS.d
resolv.conf
rpc
script
services
shadow
snmpd.conf
sysconfig
terminfo
```

```
C1 | S3 | L1D >
```

Refer to the BSD 4 documentation for additional options and Interactive commands for the **more** command.

more Command

Command: more

Description: A filter for paging through text one screenful at a time.

Example: C1|S7|L1D>more [OPTION]

Options: Refer to the BSD 4 documentation for options and Interactive commands for the **more** command.

pwd Command

Command: pwd

Description: Show current directory.

Example:

```
C1|S7|L1D>pwd
/
C1|S7|L1D>
```

Options: Refer to the BSD 4 documentation for options and Interactive commands for the **pwd** command.

rm Command

Command: rm

Description: Removes each specified file. By default, it does not remove directories.

Example:

Options: Refer to the BSD 4 documentation for options and Interactive commands for the **rm** command.

Glossary

This section describes many of the terms and mnemonics used in this manual. Note that the use of or description of a term does not in any way imply support of that feature or of any related function(s).

100BASE-FX

100BASE-FX is a version of Fast Ethernet over optical fiber. It uses a 1300 nm near-infrared (NIR) light wavelength transmitted via two strands of optical fiber, one for receive (RX) and the other for transmit (TX). Maximum length is 400 meters (1,310 ft) for half-duplex connections (to ensure collisions are detected), 2 kilometers (6,600 ft) for full-duplex over multimode optical fiber, or 10,000 meters (32,808 feet) for full-duplex single mode optical fiber. 100BASE-FX uses the same 4B5B encoding and NRZI line code that 100BASE-TX does. 100BASE-FX should use SC, ST, or MIC connectors with SC being the preferred option. 100BASE-FX is not compatible with 10BASE-FL, the 10 MBit/s version over optical fiber.

1000BASE-X

Refers to gigabit Ethernet transmission over fiber, where options include 1000BASE-CX, 1000BASE-LX, and 1000BASE-SX, 1000BASE-LX10, 1000BASE-BX10 or the non-standard -ZX implementations.

802.1

The IEEE standard for port-based Network Access Control. IEEE 802.1 is a working group of the IEEE 802 project of the IEEE Standards Association. It's concerns include 802 LAN/MAN architecture, internetworking among 802 LANs, MANs and other wide area networks, 802 Link Security, 802 overall network management, and those protocol layers above the MAC and LLC layers.

802.1ad

IEEE 802.1ad (Provider Bridges) is an amendment to IEEE standard IEEE 802.1Q-1998 (aka QinQ or Stacked VLANs), intended to develop an architecture and bridge protocols to provide separate instances of the MAC services to multiple independent users of a Bridged LAN in a manner that does not require cooperation among the users, and requires a minimum of cooperation between the users and the provider of the MAC service.

802.1ah

IEEE 802.1ah-2008 is a set of architecture and protocols for routing of a customer network over a provider network, allowing interconnection of multiple Provider Bridge Networks without losing each customer's individually defined VLANs. The final standard was approved by the IEEE in June 2008.

802.1p

The IEEE standard for QoS packet classification.

802.1p Prioritization

The ability to send traffic to various prioritization queues based on the 802.1q VLAN Tag priority field. (AKA, CoS. Standard: IEEE 802.1p.)

802.1q

IEEE 802.1Q, or VLAN Tagging, is a networking standard allowing multiple bridged networks to transparently share the same physical network link without leakage of information between networks. IEEE 802.1Q (aka, dot1q) is commonly refers to the encapsulation protocol used to implement this mechanism over Ethernet networks. IEEE 802.1Q defines the meaning of a VLAN with respect to the specific conceptual model for bridging at the MAC layer and to the IEEE 802.1D spanning tree protocol.

802.1Q VLAN

802.1Q is a standardized way of segmenting and distributing VLAN information. Switches that support 802.1Q can recognize and forward, a tag packet upon egress. See also VID, dot1Q, IEEE 802.1Q. Contrast “PVLAN”.)

AC

(Alternating Current) Electrical power that comes from wall outlets. Contrast with DC.

ANSI

(American National Standards Institute) A private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States. The organization also coordinates U.S. standards with international standards so that American products can be used worldwide.

ARP

(Address Resolution Protocol) A protocol for mapping an IP address to a physical machine address that is recognized in the local network.

Auto-Negotiation

With Auto-Negotiation in place, Ethernet can determine the common set of options supported between a pair of "link partners." Twisted-pair link partners can use Auto-Negotiation to figure out the highest speed that they each support as well as automatically setting full-duplex operation if both ends support that mode. (AKA, N-WAY Protocol. Standard: IEEE 802.3u.)

Auto MDI / MDIX

Auto MDI/MDIX automatically detects the MDI or MDIX setting on a connecting device in order to obtain a link. This means installers can use either a straight through or crossover cable and when connecting to any device, the feature is pretty self explanatory.

Auto-provisioning

A process that enables centralized management for multiple end user devices. It uses DHCP option 60, 66 and 67 to provide centralized firmware and configuration management. The feature provides mass firmware upgrade capability as well as booting-up full end device configuration without any manual intervention.

BIA

(Burned-In Address) The last six bytes of a MAC address that are assigned by the manufacturer of a network interface card (NIC).

BPC

(Back Plane Controller) the ION system component that provides communication between the SIC cards and the IONMM. The BPC is an active device with a microprocessor and management software used to interconnect IONMM and SIC cards via the Ethernet management plane. The BPC has knowledge of the cards that are present in the system, and is responsible for managing the Ethernet switch that interconnects all the chassis slots.

BPDU

(Bridge Protocol Data Unit) Data messages that are exchanged across the switches within an extended LAN that uses a spanning tree protocol topology. BPDU packets contain information on ports, addresses, priorities and costs and ensure that the data ends up where it was intended to go.

Bridge

A device that connects one local area network (LAN) to another LAN.

BT

(Bit Time) The time it takes for one bit to be ejected from a Network Interface Card (NIC) operating at some predefined standard speed, such as 10 Mbit/s. The time is measured between the time the logical link control layer 2 sublayer receives the instruction from the operating system until the bit actually leaves the NIC. The bit time has nothing to do with the time it takes for a bit to travel on the network medium, but has to do with the internals of the NIC.

CBN

(Common Bonding Network) The set of metallic components that are intentionally or incidentally interconnected to provide the principal means for effecting bonding and grounding inside a telecommunications building. These components include: structural steel or reinforcing rods, metallic plumbing, AC power conduit, cable racks, and bonding conductors. The CBN is connected to the exterior grounding electrode system.

CE

A mandatory conformity mark on many products placed on the single market in the European Economic Area (EEA). The CE marking certifies that a product has met EU consumer safety, health or environmental requirements.

Circuit ID

A company-specific identifier assigned to a data or voice network between two locations. This circuit is then leased to a customer by that ID. If a subscriber has a problem with the circuit, the subscriber contacts the telecommunications provider to provide this circuit id for action on the designated circuit.

Several Circuit ID formats exist (Telephone Number Format, Serial Number Format, Carrier Facility Format and Message Trunk Format). Telecom Circuit ID formats (LEC circuit IDs) provide service codes for DSL, HDSL, ADSL, Digital data, SST Network Trunk, Switched Access, E1, Switched Access, Basic Data and Voice, LAN, SONET, Ethernet, Video, Voice, Digital Transmission, and others.

Glossary

CISPR

(Comité Internationale Spécial des Perturbations Radioelectrotechnique) An International Special Committee on Radio Interference.

CLI

(Command-Line Interface) A mechanism for interacting with a computer operating system or software by typing commands to perform specific tasks. The CLI allows users to set up switch configurations by using simple command phrases through a console / telnet session.

Community

Two levels of ION system access privileges are password protected:

- Read access (Read ONLY) - a Community Name with a particular set of privileges to monitor the network without the right to change any of its configuration.
- Read/Write (Read and make changes) - a Community Name with an extended set of privileges to monitor the network as well as actively change any of its configuration.

CoS

(Class of Service) a 3-bit field within an Ethernet frame header when using 802.1Q tagging. The field specifies a priority value from 0 and 7 inclusive that can be used by Quality of Service (QoS) disciplines to differentiate traffic. While CoS operates only on Ethernet at the data link layer, other QoS mechanisms (such as DiffServ) operate at the network layer and higher. Others operate on other physical layer. See also ToS and QoS.

CoS Queues

Class of Service allows traffic to be directed into different priority levels or “internal queues” in the switch on a particular network transaction. When network traffic congestion occurs, the data assigned to a higher queue will get through first. (Standard: IEEE 802.1p.)

CPU

(Central Processing Unit) The portion of a computer system that carries out the instructions of a computer program, and is the primary element carrying out the computer's functions.

CRC

(Cyclic Redundancy Check) A technique for detecting errors in digital data, but not for making corrections when errors are detected. It is used primarily in data transmission. In the CRC method, a

certain number of check bits, often called a checksum, are appended to the message being transmitted. The receiver can determine whether or not the check bits agree with the data, to ascertain with a certain degree of probability whether or not an error occurred in transmission. If an error occurred, the receiver sends a negative acknowledgement (**Error! Reference source not found.**) back to the sender, requesting that the message be retransmitted.

CSA

(Canadian Standards Association) A not-for-profit membership-based association serving business, industry, government and consumers in Canada and the global marketplace.

C-Tag

(Customer Tag) When the 0x8100 tag is added twice, the outer tag is called the Provider tag and the inner one is called the Customer IEEE 802.1Q tag. The inner VLAN tag is referred to as the customer VLAN tag (C-Tag) because the customer assigns it. Contrast S-Tag. Before the standardization, some vendors used 0x8100 and 0x9100 for outer Provider tagging. The 0x88A8 tag was adapted by the IEEE later.

The C-Tag is one of several ION system VLAN tagging options. The ION system can provide QinQ service where a frame may contain one or more tags by adding or stripping provider tags on a per-port basis. There are different cases for VLAN service translation options that are possible in the ION system for dealing with C-Tags and S-Tags. Contrast with S-Tag. See also Service Provider tag (S-Tag).

dBm

(DeciBels below 1 Milliwatt) A measurement of power loss in decibels using 1 milliwatt as the reference point. A signal received at 1 milliwatt yields 0 dBm. A signal at .1 milliwatt is a loss of 10 dBm.

DC

(Direct Current) Electrical power that comes from a battery. Contrast with AC.

DCE

(Data Circuit-terminating Equipment) A device that sits between the data terminal equipment (DTE) and a data transmission circuit. Also called data communications equipment and data carrier equipment.

DHCP

(Dynamic Host Configuration Protocol) A protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network.

DHCP lets a network administrator supervise and distribute IP addresses from a central point, and automatically sends a new address when a computer is plugged into a different place in the network. (Standard: RFC 2131.)

DiffDerv

In terms of traffic classification, DiffDerv lets a network perform differentiated service treatments.

Discovery

Discovery allows a Service OAM-capable device to learn sufficient information (e.g. MAC addresses etc.) regarding other SOAM capable NIDs so that OAM frames can be exchanged with those discovered devices. With EVCs, discovery allows SOAM capable NIDs to learn about other Service OAM capable devices that support the same EVCs. These devices are expected to be at the edges of the OAM domain in which the discovery is carried out. See "LLDP" and "TNDP" for discovery mechanisms. Discovery occurs when a SOAM-capable NID learns sufficient information (e.g. MAC addresses etc.) regarding other SOAM capable NIDs to exchange OAM frames with those discovered NIDs.

DMI

(Diagnostic Monitoring Interface) Adds parametric monitoring to SFP devices.

DMM / DMR

(Delay Measurement Message / Delay Measurement Response) DMM/DMR is used to measure single-ended (aka, two-way) Frame Delay (FD) and Frame Delay Variation (FDV, aka, Jitter).

DNS

(Domain Name System) An internet service that translates domain names into IP addresses. DNS allows you to use friendly names, such as www.transition.com, to easily locate computers and other resources on a TCP/IP-based network

Dr. Watson

Dr. Watson for Windows is a program error debugger. The information obtained and logged by Dr. Watson is used by technical support groups to diagnose a program error for a computer running Windows. A text file (Drwtsn32.log) is created whenever an error is detected, and can be delivered to support personnel by the method they prefer. There is an option to create a crash dump file, which is a binary file that a programmer can load into a debugger.

DSCP

DiffServ (Differentiated Services) Prioritization provides the ability to prioritize traffic internally based on the DSCP field in the IP header of a packet. (AKA, DiffServ Modification DSCP / DiffServ. Standard: RFC 3290.)

DST

(Daylight Savings Time) Advancing clocks so that afternoons have more daylight and mornings have less. Typically clocks are adjusted forward one hour near the start of spring (March) and are adjusted backward in autumn (November).

DTE

(Data Terminal Equipment) The RS-232C interface that a computer uses to exchange data with a modem or other serial device. An end instrument that converts user information into signals or reconverts received signals (e.g., a terminal).

Dynamic IP addressing

"Dynamic" means moving or changing. A dynamic IP address is an address that is used for the current session only; when the session is terminated, the IP address is returned to the list of available addresses.

If a network uses dynamic addressing, it means that when a network interface asks to join the network, it is randomly allocated an IP address from a pool of available addresses within that network. Thus, under dynamic addressing, a computer may possess over time (e.g. across reboots) a variety of different IP addresses. Dynamic addressing is often used in scenarios where end-user computers are intermittently connected to the network.

The DHCP protocol provides a means to dynamically allocate IP addresses to computers on a network. A system administrator assigns a range of IP addresses to a DHCP server, and each client computer on the LAN has its TCP/IP software configured to request an IP address from the DHCP server, which can grant the request. The request and grant process uses a lease concept with a controllable time period.

EEA

(European Economic Area) Established on 1 January 1994 following an agreement between member states of the European Free Trade Association, the European Community, and all member states of the

Glossary

European Union (EU). It allows these EFTA countries to participate in the European single market without joining the EU.

Egress Frame

A service frame sent from the Service Provider network to the CE. Contrast “Ingress Frame”.

Egress rules

Egress rules determine which frames can be transmitted out of a port, based on the Egress List of the VLAN associated with it. Each VLAN has an Egress List that specifies the ports out of which frames can be forwarded, and specifies whether the frames will be transmitted as tagged or untagged frames.

ESD

(Electrostatic Discharge) A sudden and momentary electric current that flows between two objects.

EtherType

One of two types of protocol identifier parameters that can occur in Ethernet frames after the initial MAC-48 destination and source identifiers. Ethertypes are 16-bit identifiers appearing as the initial two octets after the MAC destination and source (or after a tag).

Implies use of the IEEE Assigned EtherType Field with IEEE Std 802.3, 1998 Edition Local and Metropolitan Area Networks. The EtherType Field provides a context for interpretation of the data field of the frame (protocol identification). Several well-known protocols already have an EtherType Field.

The IEEE 802.3, 1998 Length/EtherType Field, originally known as EtherType, is a two-octet field. When the value of this field is greater than or equal to 1536 decimal (0600 hexadecimal) the EtherType Field indicates the nature of the MAC client protocol (EtherType interpretation). The length and EtherType interpretations of this field are mutually exclusive.

The ION system **Ether Type** parameters are set at the ION device port’s **ADVANCED** tab in the **VLAN Tag Management** section.

Event log

Records events such as port link down, configuration changes, etc. in a database.

FCC

(Federal Communications Commission) An independent United States government agency established by the Communications Act of 1934 that is charged with regulating interstate and international

communications by radio, television, wire, satellite and cable. The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions.

FDB

The Forwarding Database for an ION system VLAN, identified by a unique FDB ID and kept for a specified aging time.

FDX

(Full Duplex) Communication in both directions simultaneously.

FID

(Forwarding Information Database) The address database in the switch; may be the same as the V-LAN ID (VID) or different, depending on the device.

Filtering Database

When a bridge receives data, it determines to which VLAN the data belongs either by implicit or explicit tagging. In explicit tagging, a tag header is added to the data. The bridge also keeps track of VLAN members in a filtering database which it uses to determine where the data is to be sent. Membership information for a VLAN is stored in a filtering database. The filtering database consists of two types of entries:

- *Static Entries*: Static information is added, modified, and deleted by management only. Entries are not automatically removed after some time (ageing), but must be explicitly removed by management.
- *Dynamic Entries*: Dynamic entries are “learned” by the bridge and cannot be created or updated by management. The learning process observes the port from which a frame with a given source addresses and VLAN ID (VID) is received, and updates the filtering database. The entry is updated only if a) this port allows learning, b) the source address is a workstation address and not a group address, and c) there is space available in the database.

Entries are removed from the filtering database by the aging process where, after a certain amount of time specified by management, entries allow automatic reconfiguration of the filtering database if the topology of the network changes.

Firmware

Computer programs and data stored in hardware - typically in read-only memory (ROM) or programmable read-only memory (PROM) - such that the programs and data cannot be dynamically written or modified during execution of the programs.

Flow Control

Prevents congestion and overloading when a sending port is transmitting more data than a receiving port can receive. (Standard: IEEE 802.3X.)

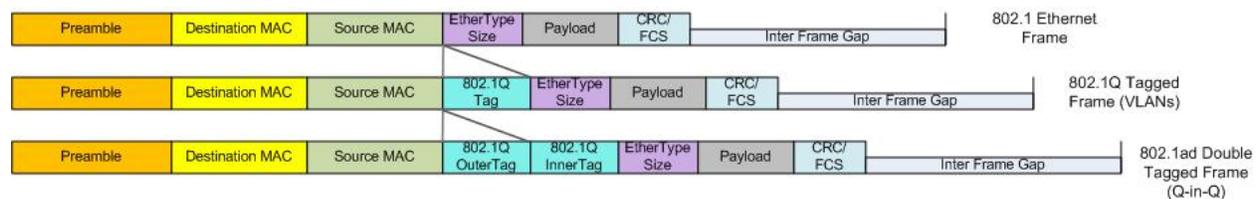
Frame

A unit of data that is transmitted between network points on an Ethernet network. An Ethernet frame has explicit minimum and maximum lengths and a set of required data that must appear within it. Each frame on an IEEE 802 LAN MAC conveys a protocol data unit (PDU) between MAC Service users. There are three types of frame; untagged, VLAN-tagged, and priority-tagged.

Frame Format

In Ethernet, a frame is a way of arranging sections of data for transfer over a computer network. The frame is a key element of an Ethernet system. A typical Ethernet frame is made up of three elements: a pair of addresses, the data itself, and an error checking field.

Frame Formats for 802.1, 802.1Q and 802.1ad are illustrated below.



FTP

(File Transfer Protocol) A standard network protocol used to exchange and manipulate files over a TCP/IP based network, such as the Internet. See also TFTP.

GBIC

(Gigabit Interface Converter) A transceiver that converts serial electrical signals to serial optical signals and vice versa. In networking, a GBIC is used to interface a fiber optic system with an Ethernet system, such as Fibre Channel and Gigabit Ethernet.

Gbps

(Gigabits Per Second) Data transfer speeds as measured in gigabits.

GUI

(Graphical User Interface) A type of user interface item that allows people to interact with programs in more ways than typing. A GUI offers graphical icons, and visual indicators, as opposed to text-based interfaces, typed command labels or text navigation to fully represent the information and actions available to a user. The actions are usually performed through direct manipulation of the graphical elements.

HSCP

(High-Security Console Password)

HTML

(HyperText Markup Language) The predominant markup language for web pages. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists etc as well as for links, quotes, and other items.

HTTPS

(Hypertext Transfer Protocol Secure) A combination of the Hypertext Transfer Protocol with the SSL/TLS protocol to provide encryption and secure identification of the server.

Hz

(Hertz) A unit of frequency that defines the number of complete cycles per second.

ICMP

(Internet Control Message Protocol) Part of the internet protocol suite that is used by networked computers to send error, control and informational messages indicating, for instance, that a requested service is not available or that a host or router could not be reached.

IEC

(International Electrotechnical Commission) The world's leading organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

IEEE

(Institute of Electrical and Electronics Engineers) An international non-profit, professional organization for the advancement of technology related to electricity.

IGMP

(Internet Group Management Protocol) A communications protocol used to manage the membership of Internet Protocol multicast groups. IGMP is used by IP hosts and adjacent multicast routers to establish multicast group memberships.

IGMP snooping

Internet Group Multicast Protocol snooping allows a switch to "listen in" on the IGMP conversation between hosts and routers. Based on the query and reports being passed through the switch, a forwarding database for multicast is created.

Ingress

The direction from the CE into the Service Provider network. Contrast Egress.

Ingress rules

A means of filtering out undesired traffic on a port. When Ingress Filtering is enabled, a port determines if a frame can be processed based on whether the port is on the Egress List of the VLAN associated with the frame.

IP

(Internet Protocol) One of the core protocols of the Internet Protocol Suite. IP is one of the two original components of the suite (the other being TCP), so the entire suite is commonly referred to as TCP/IP. IP is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet.

IPC

(Interprocess Communications) The exchange of data between one program and another either within the same computer or over a network. It implies a protocol that guarantees a response to a request.

IP Stacking

The capability to stack multiple switches together and manage them under one IP address.

IPToS

(IP Type of Service) Prioritization - The ability to prioritize traffic internally based on the IPToS field in the IP header of a packet.

ITU

ITU is the leading United Nations agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services. For nearly 145 years, ITU has coordinated the shared global use of the radio spectrum, worked to improve telecommunication infrastructure in the developing world, and established worldwide standards that foster seamless interconnection of a vast range of communications systems. See <http://www.itu.int/net/about/itu-t.aspx>.

Jumbo Frame

Jumbo frames are frames larger than the standard Ethernet frame size, which is 1518 bytes (1522 if VLAN-tagged). Though this is not a standard, more vendors are adding support for jumbo frames. An initiative to increase the maximum size of the MAC Client Data field from 1500-bytes to 9000-bytes. The initiative was not adopted by the IEEE 802.3 Working Group, but it was endorsed by a number of other companies. Larger frames would provide a more efficient use of the network bandwidth while reducing the number of frames that have to be processed. The Jumbo Frame proposal restricts the use of Jumbo Frames to full-duplex Ethernet links, and defines a "link negotiation" protocol that allows a station to determine if the station on the other end of the segment is capable of supporting Jumbo Frames.

Kbps

(Kilobits Per Second) Data transfer speeds as measured in kilobits.

LAN

(Local Area Network) A group of computers and associated devices that share a common communications line or wireless link. Typically, connected devices share the resources of a single processor or server within a small geographic area (for example, within an office building).

Layer 2 Switch

A network device that functions as multi-port switch.

Layer 3 Switch

A network device that functions as a router and a multi-port switch.

Layer 4 Switch

A switch that makes forwarding decisions taking Layer 4 protocol information into account.

LED

(Light Emitting Diode) An electronic light source.

LLDP

(Link Layer Discovery Protocol) A standard method for Ethernet Network devices such as switches, routers and wireless LAN access points to advertise information about themselves to other nodes on the network and store the information they discover. LLDP runs on all 802 media. The protocol runs over the data-link layer only, allowing two systems running different network layer protocols to learn about each other.

LPT

(Link Pass Through) A troubleshooting feature that allows a device to monitor both the fiber and copper RX ports for loss of signal. In the event of a loss of RX signal on one media port, the device will automatically disable the TX signal of the other media port, thus “passing through” the link loss.

MAC

(Media Access Control) An address that is a unique value associated with a network adapter. MAC addresses are also known as hardware addresses or physical addresses. They uniquely identify an adapter on a LAN.

MAC-based Security

the ability to lock the learning mechanism down on a port. This means that no further MACs will be learned on those ports. (AKA, MAC Lockdown.)

MAC Table Size

the location where switches store learned addresses. The size of the MAC table determines how many unicast streams the switch can support without flooding. (AKA, FDB (Forwarding Data Base) table, CAM table, MAC.)

MAU

(Media Attachment Unit) In an Ethernet LAN, a device that interconnects the attachment unit interface port on an attached host computer to the Ethernet network medium (such as Unshielded Twisted Pair or coaxial cable). The MAU provides the services that correspond to the physical layer of the Open Systems Interconnection (OSI) reference model. A MAU can be built into the computer workstation or other device or it can be a separate device

Mbps

(Megabits per second) Data transfer speed measured in thousands of bits per second.

MDI

(Medium Dependent Interface) A type of Ethernet port connection using twisted pair cabling. The MDI is the component of the media attachment unit (MAU) that provides the physical and electrical connection to the cabling medium. MDI ports connect to MDIX ports via straight-through twisted pair cabling; both MDI-to-MDI and MDIX-to-MDIX connections use crossover twisted pair cabling. See also MDIX.

The standard wiring for end stations is known as Media Dependent Interface (MDI), and the standard wiring for hubs and switches is known as Media Dependent Interface with Crossover (MDIX). The x222x/32xx device's *AutoCross* feature makes it possible for hardware to automatically correct errors in cable selection.

MDIX

(MDI Crossover) A version of MDI that enables connection between like devices. The standard wiring for end stations is known as Media Dependent Interface (MDI), and the standard wiring for hubs and switches is known as Media Dependent Interface with Crossover (MDIX).

The x222x/32xx device's *AutoCross* feature makes it possible for hardware to automatically correct errors in cable selection. See also MDI.

Media converter

Media converters transparently connect one type of media, or cabling, to another – typically copper to fiber. By bridging the gap between legacy copper infrastructures and fiber growth, media converters provide an economical way to extend the distance of an existing network, extend the life of non-fiber based equipment, or extend the distance between two like devices.

Transition Networks' brand of media converters makes conversion between disparate media types possible; while helping companies leverage their existing network infrastructure. These media conversion technologies are offered across a broad spectrum of networking protocols including Ethernet, Fast Ethernet, Gigabit, T1/E1, DS3, ATM, RS232/485, video, Power-over-Ethernet, and many more.

MIB

(Management Information Base) The set of variables that are used to monitor and control a managed device. A formal description of a set of network objects that can be managed using the Simple Network Management Protocol (SNMP). The format of the MIB is defined as part of the SNMP.

Glossary

MIBs stems from the OSI/ISO Network management model and are a type of database used to manage the devices in a communications network. A MIB comprises a collection of objects in a (virtual) database used to manage entities (such as routers and switches) in a network. Objects in the MIB are defined using a subset of Abstract Syntax Notation One (ASN.1) called "Structure of Management Information Version 2 (SMIv2)" RFC 2578. The database is hierarchical (tree-structured) and entries are addressed through object identifiers. IETF RFCs discuss MIBs, notably RFC 1155, "Structure and Identification of Management Information for TCP/IP based internets", RFC 1213, "Management Information Base for Network Management of TCP/IP-based internets", and RFC 1157, "A Simple Network Management Protocol".

MIB Module

Strictly speaking, a MIB is just a set of ideas; however, since the MIB Module is the most tangible representation of the MIB, the terms "MIB" and "MIB Module" are used interchangeably by many. To prevent naming conflicts and provide organization, all of the manageable features of all products from all vendors are arranged into one enormous tree structure referred to as the MIB Tree or "The MIB," which is managed by the Internet Assigned Numbers Authority (IANA). Each vendor of SNMP equipment has an exclusive section of The MIB Tree that they control.

MSA

(Multi-Source Agreement) Common product specifications for pluggable fiber optic transceivers.

MSDU

(MAC Service Data Unit) The service data unit that is received from the logical link control (LLC) sub-layer which lies above the medium access control (MAC) sub-layer in a protocol stack (communications stack).

MT-RJ

(Mechanical Transfer-Registered Jack) A small form-factor fiber optic connector which resembles the RJ-45 connector used in Ethernet networks.

Multicast

One of the four forms of IP addressing, each with its own unique properties, a multicast address is associated with a group of interested receivers. Per RFC 3171, addresses 224.0.0.0 through 239.255.255.255, the former Class D addresses, are designated as multicast addresses in IPv4. The sender sends a single datagram (from the sender's unicast address) to the multicast address, and the intermediary routers take care of making copies and sending them to all receivers that have registered their interest in data from that sender. See also "Unicast".

MVRP

(Multiple VLAN Registration Protocol) a standards-based Layer 2 network protocol, for automatic configuration of VLAN information on switches. It was defined in the IEEE 802.1ak amendment to 802.1Q-2005 standard. MVRP provides a method to dynamically share VLAN information and configure the needed VLANs within a layer 2 network.

Native VLAN

The initial VLAN to which a switch port belonged before becoming a trunking port. If the trunking port becomes an access port, in most of the cases, that port will go back to its native VLAN. Traffic coming from the initial VLAN is untagged. To avoid VLAN hopping, do not to use this VLAN for other purposes.

NIC

(Network Interface Card or Network Interface Controller) A computer hardware component designed to allow computers to communicate over a computer network. It is both an OSI layer 1 (physical layer) and layer 2 (data link layer) device, as it provides physical access to a networking medium and provides a low-level addressing system through the use of MAC addresses. It allows users to connect to each other either by using wireless communications or cables.

NID

(Network Interface Device) A device that serves as the demarcation point between the carrier's local loop and the customer's premises wiring. In telecommunications, a NID is a device that serves as the demarcation point between the carrier's local loop and the customer's premises wiring. In fiber-to-the-premises systems, the signal is transmitted to the customer premises using fiber optic technologies. In general terms, a NID may also be called a Network Interface Unit (NIU), Telephone Network Interface (TNI), Slide-in-card (SIC), or a slide-in-module.

NMS

(Network Management Station) A high-end workstation that, like the Managed Device, is also connected to the network. A station on the network that executes network management applications that monitor and control network elements such as hosts, gateways and terminal servers.

NTP

(Network Time Protocol) A protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks.

OAM

(Operation, Administration and Maintenance) A group of network management functions that provide network fault indications, performance information, data, and diagnosis.

OAMPDU

(Ethernet OAM protocol data unit) The mechanism by which two directly connected Ethernet interfaces exchange OA information.

OID

(Object Identifier) Known as a “**MIB** object identifier” or “MIB variable” in the SNMP network management protocol, an OID is a number assigned to devices in a network for identification purposes. Each branch of the MIB Tree has a number and a name, and the complete path from the top of the tree down to the point of interest forms the name of that point. A name created in this way is known as an Object ID or OID.

OSI

(Open Systems Interconnection) A standard description or reference model for how messages should be transmitted between any two points in a telecommunication network. Its purpose is to guide product implementors so that their products will consistently work with other products. The reference model defines seven layers of functions that take place at each end of a communication.

OUI

(Organizationally Unique Identifier) the Ethernet Vendor Address component. Ethernet hardware addresses are 48 bits, expressed as 12 hexadecimal digits (0-9, plus A-F, capitalized). These 12 hex digits consist of the first/left 6 digits (which should match the vendor of the Ethernet interface within the station) and the last/right 6 digits, which specify the interface serial number for that interface vendor. These high-order 3 octets (6 hex digits) are called the Organizationally Unique Identifier or OUI.

Pause

The Pause feature (data pacing) uses Pause frames for flow control on full duplex Ethernet connections. If a sending device is transmitting data faster than the receiving device can accept it, the receiving station will send a pause frame to halt the transmission of the sender for a specified period of time.

Pause frames are only used on full duplex Ethernet link segments defined by IEEE 802.3x that use MAC control frames to carry the pause commands. Only stations configured for full duplex operation can send pause frames.

PD

(Powered Device) Modules that are designed to extract power from a conventional twisted pair Category 5 Ethernet cable. All PD modules are IEEE802.3af compatible, with built-in signature chip, output voltage adjustment and class programming.

PDU

(Protocol Data Units) **1.** Information that is delivered as a unit among peer entities of a network and that may contain control information, address information or data. **2.** In a layered system, a unit of data which is specified in a protocol of a given layer and which consists of protocol control information and possibly user data of that layer.

PoE

(Power over Ethernet) A system to safely transfer electrical power, along with data, to remote devices over standard category 5 cable in an Ethernet network. It does not require modification of existing Ethernet cabling infrastructure.

Port-Based Rate Limiting

The ability to regulate throughput on a per-port basis. (AKA, metering, Rate Limiting.)

Port Labeling

The ability to assign names to ports through the management interface.

Protocol Endpoint

A communication point from which data may be sent or received. It represents communication points at various levels on an Open Systems Interconnection (OSI) structure.

Primary VID

The VID, among a list of VIDs associated with a service instance, on which all CFM PDUs generated by MPs except for forwarded LTMs are to be transmitted.

PSE

(Power Sourcing Equipment) In power over Ethernet (PoE), equipment that serves as power injectors to provide output of 48V DC power over the twisted-pair cable plant to terminal units with PoE compliant

Glossary

devices known as powered devices (PDs). For devices not PoE-compliant, splitters inserted into the Ethernet cabling provide 12V or 6V DC output.

PVID

(Port VID) A default VID that is assigned to an access port to designate the virtual LAN segment to which this port is connected. The PVID places the port into the set of ports that are connected under the designated VLAN ID. Also, if a trunk port has not been configured with any memberships, the virtual switch's PVID becomes the default VLAN ID for the ports connection.

PVLAN

(Private Virtual-LAN) a non-standardized way of segmenting ports into separate groups. (Contrast "802.1Q VLAN".)

Q-in-Q (or "QinQ" or "Q in Q")

(IEEE 802.1Q in 802.1Q) an Ethernet networking standard for Ethernet frame formats (actually, 802.1Q-in-Q is an amendment to IEEE 802.1Q, and not a separate specification). It is also known simply as "QinQ" or "Q in Q". The original 802.1Q specification allows a single VLAN header to be inserted into an Ethernet frame. Q-in-Q allows multiple VLAN headers to be inserted into a single frame. In the context of an Ethernet frame, a Q-in-Q frame has 2 VLAN 802.1Q headers (i.e., the Q-in-Q frame is 'double-tagged').

QoS

(Quality of Service) A mechanism to allow different classes of services to the customers. The QoS varies on a per customer basis, depending on their Service Level Agreement (SLA) they chose, and the kind of service they want. Customer traffic priorities are assigned based on their SLAs. QoS is standardized at both layer 2 and layer 3.

Service providers offering Layer 2 services can use the IEEE 802.1 Q/p standard for QoS. It allows a service provider to attach special tags, called VLAN IDs, to all incoming frames from a customer. With this, the service provider can have multiple customers using the same circuit, but still maintain separation between them. Each customer's traffic is identified by a different VLAN tag. The method also allows for the addition of a priority value to be associated to the VLAN tag. By using the priority field, service providers can offer various classes of service.

The two current Layer 3 (IP) QoS standards are IETF RFC-791, which defines the ToS, and RFC-2475, which defines DSCP. Both standards use the same field in the IP packet header to identify the level of service for the packet.

The various QoS parameters (either for Layer 2 or 3) are stored as part of the overhead in the transmitted frames. See also CoS and ToS.

RADIUS

(Remote Authentication Dial In User Service) Is a networking protocol that provides centralized authentication, authorization, and accounting management for computers to connect and use a network service.

RJ-45

The standard connector utilized on 4-pair (8-wire) UTP (Unshielded Twisted Pair) cable. The RJ-45 connector is the standard connector for Ethernet, T1, and modern digital telephone systems.

RMON

(Remote Network Monitoring) Software that supports the monitoring and protocol analysis of LAN. A part of SNMP, RMON is a network management protocol that gathers remote network information. (Standard: RFC 1271.)

RS-232

(Recommended Standard 232) A standard for serial binary data signals connecting between a **Error! Reference source not found.** (Data Terminal Equipment) and a DCE (Data Circuit-terminating Equipment). It is commonly used in computer serial ports.

RTOS

(Real-Time Operating System) An operating system that guarantees a certain capability within a specified time constraint.

SAP

(Service Access Point) The point at which an Ethernet service is offered.

SFP

(Small Form-Factor Pluggable) A compact, hot-pluggable transceiver used in telecommunication and data communications applications. It interfaces a network device mother board (for a switch, router, media converter or similar device) to a fiber optic or copper networking cable. The SFP transceiver is specified by a multi-source agreement (MSA) between competing manufacturers. The SFP was designed after the GBIC interface, and allows greater port density (number of transceivers per inch along the edge of a mother board) than the GBIC, thus SFP is also known as “mini-GBIC”. Optical SFP transceivers support digital diagnostics monitoring (DDM) functions according to the industry-standard SFF-8472. This feature lets you monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage. AKA, Digital Optical Monitoring (DOM), DMI (Diagnostic Monitoring Interface), or DMM (Diagnostic Maintenance Monitoring).

SGMII

(Serial Gigabit Media Independent Interface) A standard Gigabit Ethernet interface used to connect an Ethernet MAC-block to a PHY. To carry frame data and link rate information between a 10/100/1000 PHY and an Ethernet MAC, SGMII uses a different pair for data signals and for clocking signals, with both being present in each direction (i.e., TX and RX). The C3210 uses the **set ether phymode=SGMII** CLI command to select SGMII mode.

SLA

(Service Level Agreement) In general terms, a part of a service contract where the level of service is formally defined in terms of a contracted delivery time or performance. In Metro Ethernet, the contract between the Subscriber and Service Provider specifying the agreed to service level commitments and related business agreements.

SMAC

(Static MAC) A MAC address that is manually entered in the address table and must be manually removed. It can be a unicast or multicast address. It does not age and is retained when the switch restarts. You can add and remove static addresses and define the forwarding.

SNMP

(Simple Network Management Protocol) A request-response protocol that defines network communication between a Managed Device and a Network Management Station (NMS). A set of protocols for managing complex IP networks. (Standard: RFC 1157.)

SNTP

(Simple Network Time Protocol) A less complicated version of Network Time Protocol, which is a system for synchronizing the clocks of networked computer systems, primarily when data transfer is handled via the Internet. SNTP is used to synchronize times on IP devices over a network. (Standard: RFC 2030.)

SSH

(Secure Shell) A network protocol that allows data to be exchanged using a secure channel between two networked devices. SSH was designed as a replacement for Telnet and other insecure remote shells, which send information, notably passwords, in plain text, leaving them open for interception. The encryption used by SSH provides confidentiality and integrity of data over an insecure network, such as the Internet. SSH is used to provide a secure Telnet session to the console/command line interface of a network device through an insecure environment. (AKA, Secured Telnet; Standard: SSH RFC 1034).

SSL

(Secure Socket Layer) A protocol for transmitting private documents via the Internet. SSL uses a cryptographic system that uses two keys to encrypt data; a public key known to everyone and a private or secret key known only to the recipient of the message. SSL is used to manage a network device via its web interface. (AKA, HTTPS, Standard: RFC 2818).

Static IP addressing

"Static" comes from the word stationary, meaning not moving. A static IP address means it never changes. A static IP address is an IP address permanently assigned to a workstation. If a network uses static addressing, it means that each network interface has an assigned IP address that it always uses whenever it is online. With static addressing, the computer has a well-defined IP address which it uses always and which no other computer ever uses.

Static MAC Entry

Static MAC entry support means that users can assign MAC addresses to ports manually that never age out.

STID

(Sensor Transaction Identifier) The STID is used for power supply / sensor / IONDCR configuration via the set sensor stid command to define notification, relation, severity, and value parameters. The show power config command displays the power supply sensors information. The STID is shown in the Web interface at the Power Supply tab > Temp, Volt, Power, and Fan sub-tabs.

STP

(Spanning-Tree Protocol) A link layer network protocol that ensures a loop-free topology for any bridged LAN. STP prevents loops from being formed when switches are interconnected via multiple paths.

STP

(Shielded Twisted Pair) A special kind of copper telephone wiring used in some business installations. An outer covering or shield is added to the ordinary twisted pair telephone wires; the shield functions as a ground.

S-VLAN

Service VLAN (also referred to as Provider VLAN).

Syslog

A service run mostly on Unix and Linux systems (but also available for other OSes) to track events that occur on the system. Analysis can be performed on these logs using available software to create reports detailing various aspects of the system and/or the network.

TCP

(Transmission Control Protocol) One of the core protocols of the Internet Protocol Suite. TCP is one of the two original components of the suite (the other being Internet Protocol, or IP), so the entire suite is commonly referred to as TCP/IP. Whereas IP handles lower-level transmissions from computer to computer as a message makes its way across the Internet, TCP operates at a higher level, concerned only with the two end systems, for example a Web browser and a Web server. In particular, TCP provides reliable, ordered delivery of a stream of bytes from a program on one computer to another program on another computer.

TCP/IP

(Transmission Control Protocol/Internet Protocol) The basic communication language or protocol of the Internet and/or a private network (either an intranet or an extranet).

TCP/IP is a two-layer program. The higher layer, Transmission Control Protocol (TCP), manages the assembling of a message or file into smaller packets that are transmitted over the Internet and received by a TCP layer that reassembles the packets into the original message. The lower layer, Internet Protocol (IP), handles the address part of each packet so that it gets to the right destination.

TDM

(Time Division Multiplexing) A method of putting multiple data streams in a single signal by separating the signal into many segments, each having a very short duration. Each individual data stream is reassembled at the receiving end based on the timing.

TDR

1. (Time Domain Reflectometry) A measurement technique used to determine the characteristics of electrical lines by observing reflected waveforms. **2.** (Time Domain Reflector) An electronic instrument used to characterize and locate faults in metallic cables (for example, twisted wire pairs, coaxial cables). It can also be used to locate discontinuities in a connector, printed circuit board, or any other electrical path.

Telnet

A user command and an underlying TCP/IP protocol for accessing remote computers. Through Telnet, an administrator or another user can access someone else's computer remotely. Telnet is a terminal emulation program for TCP/IP networks that runs on your computer and connects your PC to a switch management. (Standard: RFC 854.)

TFTP

(Trivial File Transfer Protocol) A file transfer protocol, with the functionality of a very basic form of File Transfer Protocol (FTP). Due to its simple design, TFTP can be implemented using a very small amount of memory. Because it uses UDP rather than TCP for transport, TFTP is typically used to transfer firmware upgrades to network equipment.

TFTP Download / Upload

The ability to load firmware, configuration files, etc. through a TFTP server. (AKA, TFTP. Standard: RFC 1350.)

TFTP Root Directory

The location on the console device (PC) where files are placed when received, and where files to be transmitted should be placed (e.g., *C:\TFTP-Root*).

TFTP Server

An application that uses the TFTP file transfer protocol to read and write files from/to a remote server. In TFTP, a transfer begins with a request to read or write a file, which also serves to request a connection. If the server grants the request, the connection is opened and the file is sent in fixed length blocks of 512 bytes. Each data packet contains one block of data, and must be acknowledged by an acknowledgment packet before the next packet can be sent. Examples of available packages include Open TFTP Server, Tftpd32, WinAgents TFTP Server for Windows, SolarWinds free TFTP Server, TFTP Server 1.6 for Linux, and TftpServer 3.3.1, a TFTP server enhancement to the standard Mac OSX distribution.

Threshold crossing event

See OAM Event.

Throughput

The maximum rate at which no frame is dropped. This is typically measured under test conditions.

TLS

(Transport Layer Security) A protocol that ensures privacy between communicating applications and their users on the Internet. When a server and client communicate, TLS ensures that no third party may eavesdrop or tamper with any message. TLS is the successor to the Secure Sockets Layer (SSL).

TLV

Type, Length, Value format - LLDP frames are sent by each equipment on each port at a fixed frequency. A frame contains a Link Layer Discovery Protocol Data Unit (LLDPDU) which is a set of type, length, value (TLV) structures. An LLDP frame should start with mandatory TLVs (e.g., Chassis ID, Port ID, and Time to live). These mandatory TLVs are followed by any number of optional TLVs. The frame should end with a special TLV named end of LLDPDU. The IEEE 802.1ab specification contains a description of all of the TLV types.

TNDP

(TN Topology Discovery Protocol) the Transition Networks implementation of LLDP. When set to Enabled, the device entering this command/setting will no longer be discovered by the IONMM if it is remotely managed through this port. See also "LLDP" and the "set tndp" and "show tndp" CLI commands. See also "Discovery".

TOS

(Type of Service) The ToS byte in the IPv4 header has had several purposes over time, and has been defined in various ways by IETF RFC 791, RFC 1122, RFC 1349, RFC 2474, and RFC 3168. Currently, the ToS byte is a six-bit Differentiated Services Code Point and a two-bit Explicit Congestion Notification field.

The ToS model described in RFC 2474 uses the Differentiated Services Field (DS field) in the IPv4 Header and IPv6 Header. See also CoS and QoS.

TPID

(Tag Protocol Identifier) a field in a VLAN Tag for which IEEE802.1Q specifies a value of 0x8100.

Trap

In SNMP, a trap is a type of PDU used to report an alert or other asynchronous event about a managed subsystem.

Also, a place in a program for handling unexpected or unallowable conditions - for example, by sending an error message to a log or to a program user. If a return code from another program was being checked by a calling program, a return code value that was unexpected and unplanned for could cause a branch to a trap that recorded the situation, and take other appropriate action.

An ION system trap is a one-way notification (e.g., from the IONMM to the NMS) that alerts the administrator about instances of MIB-defined asynchronous events on the managed device. It is the only operation that is initiated by the IONMM rather than the NMS. For a management system to understand a trap sent to it by the IONMM, the NMS must know what the object identifier (OID) defines. Therefore, it must have the MIB for that trap loaded. This provides the correct OID information so that the NMS can understand the traps sent to it.

TCP/UDP Port Prioritization

The ability to prioritize traffic internally based on a TCP or UDP port number. (AKA, Layer 4 Prioritization.)

TTL

(Time to live) an Ethernet counter that records the number of times a transmission is sent/received without errors. TTL specifies how long a datagram is allowed to “live” on the network, in terms of router hops. Each router decrements (reduces by one) the value of the TTL field prior to transmitting it. If the TTL field drops to zero, the datagram is assumed to have taken too long a route and is discarded.

Glossary

The default TTL for ION software is 64. This means that a test packet must be successfully sent and received 63 times before a TTL expired message is generated. You can change the TTL value (e.g., a value of 255 is a demanding test because the packet must be sent and received error free 254 times).

Tunnel

A communication channel created in a computer network by encapsulating a communication protocol's data packets in (on top of) a second protocol that normally would be carried above, or at the same layer as, the first one (as in L2TP and VPN).

Tunneling

Encapsulating one type of packet inside the data field of another packet. This allows transmitting data that is structured in one protocol within the protocol or format of a different protocol. Tunneling can involve most OSI or TCP/IP protocol layers.

UAC

(User Account Control) Technology and security infrastructure of some *Microsoft* operating systems that improve OS security by limiting application software to standard user privileges until an administrator authorizes an increase.

UDP

(User Datagram Protocol) A connectionless protocol that, like TCP, runs on top of IP networks. Unlike TCP/IP, UDP/IP provides very few error recovery services, offering instead a direct way to send and receive datagrams over an IP network. It's used primarily for broadcasting messages over a network.

Unicast

One of the four forms of IP addressing, each with its own unique properties. The most common concept of an IP address is in unicast addressing, available in both IPv4 and IPv6. It normally refers to a single sender or a single receiver, and can be used for both sending and receiving. Usually, a unicast address is associated with a single device or host, but it is not a one-to-one correspondence. Some individual PCs have several distinct unicast addresses, each for its own distinct purpose. Sending the same data to multiple unicast addresses requires the sender to send all the data many times over, once for each recipient. See also Multicast.

USB

(Universal Serial Bus) A plug-and-play interface between a computer and add-on devices, such as media players, keyboards, telephones, digital cameras, scanners, flash drives, joysticks and printers.

UTC

(Coordinated Universal Time) A time standard based on International Atomic Time (TAI) with leap seconds added at irregular intervals to compensate for the Earth's slowing rotation. Leap seconds are used to allow UTC to closely track UT1, which is mean solar time at the Royal Observatory, Greenwich.

UTP

(Unshielded Twisted Pair) The most common form of twisted pair wiring, because it is less expensive and easier to work with than STP (Shielded Twisted Pair). UTP is used in Ethernet 10Base-T and 100Base-T networks, as well as in home and office telephone wiring. The twist in UTP helps to reduce crosstalk interference between wire pairs.

VAC

Volts AC (alternating current, as opposed to DC – direct current). See also “DC”.

VCP

(Virtual Com Port) A driver that allows a USB device to appear as an additional COM port. The USB device can be accessed by an application in the same manner as a regular COM port.

VDC

Volts DC (direct current, as opposed to AC – alternating current).

VID

(VLAN Identifier) The identification of the VLAN, which is defined by the standard IEEE 802.1Q. VID has 12 bits and allows the identification of 4096 VLANs.

VLAN

(Virtual LAN) Refers to a group of logically networked devices on one or more LANs that are configured so that they can communicate as if they were attached to the same wire, when in fact they are located on a number of different LAN segments.

VLAN-tagged frame

A tagged frame whose tag header carries both VLAN identification and priority information. A VLAN-tagged frame carries an explicit identification of the VLAN to which it belongs (i.e., it carries a tag header

Glossary

that carries a non-null VID). A VLAN-tagged frame is classified as belonging to a particular VLAN based on the value of the VID that is included in the tag header. The presence of the tag header carrying a non-null VID means that some other device, either the originator of the frame or a VLAN-aware Bridge, has mapped this frame into a VLAN and has inserted the appropriate VID. Contrast “untagged frame”.

VLAN Tunneling

(Virtual LAN Tunneling) A mechanism that allows service providers to use a single VLAN to support multiple VLANs of customers, while preserving customer VLAN IDs and keeping traffic in different customer VLANs segregated. At the same time, it significantly reduces the number of VLANs required to support the VPNs. VLAN Tunneling encapsulates the VLANs of the enterprise customers into a VLAN of the service provider. Also called 802.1q Tunneling.

Web-based Management

Allows users to manage the switch through a web browser. (AKA, Web GUI, Web interface, Web IF.)

Well Known Ethernet Multicast Addresses

Some common Ethernet multicast MAC addresses are shown below with their related Field Type and typical usage.

Ethernet Multicast Address	Usage
01-00-0C-CC-CC-CC	CDP (Cisco Discovery Protocol), VTP (VLAN Trunking Protocol)
01-00-0C-CC-CC-CD	Cisco Shared Spanning Tree Protocol Address
01-80-C2-00-00-00	Spanning Tree Protocol (for bridges) (IEEE 802.1D)
01-80-C2-00-00-01	Ethernet OAM Protocol (IEEE 802.3ah)
01-80-C2-00-00-02	IEEE Std 802.3 Slow Protocols multicast address
01-80-C2-00-00-03	IEEE Std 802.1X PAE address
01-80-C2-00-00-04	IEEE MAC-specific control protocols
01-80-C2-00-00-08	Spanning Tree Protocol (for provider bridges) (IEEE 802.1AD)
01-00-5E-xx-xx-xx	IPv4 Multicast (RFC 1112)
33-33-xx-xx-xx-xx	IPv6 Multicast (RFC 2464)

Well Known Ports

The set of all available port numbers are divided into three ranges: Well Known Ports, Registered Ports, and Dynamic and/or Private Ports. The Well Known Ports are those from 0 through 1023. The Registered Ports are those from 1024 through 49151. Registered ports require IANA registration. The Dynamic and/or Private Ports are those from 49152 through 65535. Port 443 is reserved for the HTTPS, port 179 for the BGP Border Gateway Protocol, and port 161 for SNMP.

To see all the used and listening ports on your computer, use the **netstat** (or similar) command line command. For further port assignment information, see IETF RFC 1700.

Port Number	Description
20	FTP
22	SSH Remote Login Protocol
23	Telnet
25	Simple Mail Transfer Protocol (SMTP)
53	Domain Name System (DNS)
69	Trivial File Transfer Protocol (TFTP)
80	HTTP
143	Interim Mail Access Protocol (IMAP)
161	SNMP /TCP
161	SNMP /UDP
161	SNMPTRAP /TCP
162	SNMPTRAP /UDP
179	Border Gateway Protocol (BGP)
190	Gateway Access Control Protocol (GACP)
389	Lightweight Directory Access Protocol (LDAP)
443	HTTPS
514	Syslog UDP
546	DHCP Client
547	DHCP Server

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