Show Commands

Hardware Show Commands

chassis

Syntax **chassis** *chassis-id* [**environment**] [**power-supply**] [**ccm**]
chassis [**detail**]
chassis [**environment**] [**power-management**] [**ccm**]

Context show

Description This command displays general chassis status information.

Parameters *chassis-id* — Displays chassis 1, 2, etc for router chassis.

environment — Displays chassis environmental status information.

Default Displays all chassis information.

power-supply — Displays chassis power supply status information.

Default Displays all chassis information.

ccm — Displays chassis control module information.

Output **Chassis Output —** The following table describes chassis output fields.

Label	Description
Name	The system name for the router.
Type	Displays the router model number.
Chassis Topology	The Chassis Topology is determined by the Active CPM when it boots up: - Standalone - Extended (XRS-40): The active CPM is running in a Master chassis.
Chassis role	Chassis Roles are: - Standalone: the value for all non-XRS SR OS systems
Location	The system location for the device.
Coordinates	A user-configurable string that indicates the Global Positioning System (GPS) coordinates for the location of the chassis. For example: N 45 58 23, W 34 56 12 N37 37' 00 latitude, W122 22' 00 longitude N36*39.246' W121*40.121'

Label	Description (Continued)
CLLI Code	The Common Language Location Identifier (CLLI) that uniquely identifies the geographic location of places and certain functional categories of equipment unique to the telecommunications industry.
Number of slots	The number of slots in this chassis that are available for plug-in cards. The total number includes the IOM/CCM slot(s) and the CPM/CFM slots
Number of ports	The total number of ports currently installed in this chassis. This count does not include the Ethernet ports on the CPMs/CFMs that are used for management access.
Critical LED state	The current state of the Critical LED in this chassis.
Major LED state	The current state of the Major LED in this chassis.
Minor LED state	The current state of the Minor LED in this chassis.
Base MAC address	The base chassis Ethernet MAC address.
Over Temperature state	Indicates if there is currently an over temperature condition (OK = not currently over temp)
Admin chassis mode	The configured chassis mode.
Oper chassis mode	The current chassis mode.
Part number	The part number of the particular hardware assembly. In the `show chassis` output, the first set of Hardware Data output is for the chassis midplane.
CLEI code	The Common Language Equipment Code of the particular hardware assembly.
Serial number	The serial number of the particular hardware assembly.
Manufacture date	The manufacture date of the particular hardware assembly.
Manufacturing string	The factory inputted manufacturing text string for the particular hardware assembly.
Manufacturing deviations	Additional manufacturing data.
Manufacturing assembly number	Additional manufacturing data.
Time of last boot	The date and time the most recent boot occurred.
Current alarm state	Displays the alarm conditions for the specific board.

Label	Description (Continued)
Number of fan trays	The total number of fan trays installed in this chassis.
Number of fans	The total number of fans installed in this chassis.
Fan tray number	The ID for each fan tray installed in the chassis
Operational status	Current status of the fan tray.
Speed	Indicates the speed of the fans.
Status	Current status of the particular hardware assembly.
Number of power supplies	The number of power supplies installed in the chassis.
Power supply number	The ID for each power supply installed in the chassis.
Power supply type	The basic type of the power supply.
Power supply model	The model of the power supply.
CCM Slot	The identifier of the CCM (A or B).
Equipped	Indicates if the CCM is detected as physically present.
Temperature	The current temperature detected by the particular hardware assembly.
Temperature threshold	The temperature at which the particular hardware assembly considers an over temperature condition to exist.

Sample Output

```
ALA-1# show chassis
=======================================================
Chassis Information
=======================================================
    Name                          : Dut-D
    Type                          : 7750 SR-7
    Location                      :
    Coordinates                   :
    CLLI code                     :
    Number of slots               : 7
    Number of ports               : 19
    Critical LED state            : Off
    Major LED state               : Off
    Minor LED state               : Off
    Base MAC address              : 00:03:fa:14:cf:a7
    Admin chassis mode            : a
    Oper chassis mode             : a
```

```
Hardware Data
    Part number                 : 3HE00186AAAA01
    CLEI code                   :
    Serial number               : NS042450133
    Manufacture date            : 06172004
    Manufacturing string        :
    Manufacturing deviations    :
    Time of last boot           : 2007/04/11 09:37:51
    Current alarm state         : alarm cleared

Environment Information
    Number of fan trays         : 2
    Number of fans              : 4

    Fan tray number             : 1
    Status                      : up
    Speed                       : half speed

    Fan tray number             : 2
    Status                      : up
    Speed                       : half speed

Power Supply Information
    Number of power supplies    : 2

    Power supply number         : 1
    Defaulted power supply type : none
    Status                      : not equipped

    Power supply number         : 2
    Defaulted power supply type : dc
    Status                      : up
===============================================
ALA-1#
A:ALA-4# show chassis environment
===============================================================================
Chassis Information
Environment Information
    Number of fan trays         : 1
    Number of fans              : 2

    Fan tray number             : 1
    Status                      : up
    Speed                       : half speed
===============================================================================
A:ALA-4#


A:ALA-4# show chassis power-supply
===============================================================================
Chassis Information
===============================================================================
Power Supply Information
    Number of power supplies    : 2

    Power supply number         : 1
    Defaulted power supply type : dc
    Status                      : up
```

```
    Power supply number           : 2
    Defaulted power supply type   : dc
    Status                        : up
===============================================================================
A:ALA-4#


A:7750-3# show chassis ccm
===============================================================================
Chassis Information
===============================================================================
Chassis Control Module (CCM) Information
    CCM number                    : 1
    Equipped                      : yes
    Type                          : ccm-xp

Hardware Data
    Part number                   : Sim Part#
    CLEI code                     : Sim CLEI
    Serial number                 : ccm-0
    Manufacture date              : 01012003
    Manufacturing string          : Sim MfgString ccm-0
    Manufacturing deviations      : Sim MfgDeviation ccm-0
    Administrative state          : up
    Operational state             : up
    Temperature                   : 32C
    Temperature threshold         : 75C
    Time of last boot             : N/A
    Current alarm state           : alarm cleared
===============================================================================
A:7750-3>
```

card

Syntax **card** [*slot-number*] [**detail**]
card state
card*slot-number* [**card**] **fp** [1..2] **ingress queue-group** *queue-group-name* **instance** [1..65535]
mode {**access**|**network**} [**statistics**]

Context show

Description This command displays card information.

If no command line parameters are specified, a card summary for all cards is displayed.

Parameters *slot-number* — Displays information for the specified card slot.

Default Displays all cards.

Depending on the chassis model, IOM slots can be numbered from 1 - 10
SF/CPM slots are A, B (upper or lowercase)
state — Displays provisioned and equipped card and MDA information.

detail — Displays detailed card information.

Default Displays summary information only.

Output **Show Card Output —** The following table describes show card output fields.

Label	Description
Slot	The slot number of the card in the chassis.
Provisioned Card-type	The card type that is configured for the slot.
Equipped Card-type	The card type that is actually populated in the slot.
Admin State	Up — The card is administratively up. Down — The card is administratively down
Operational State	Up — The card is operationally up. Down — The card is operationally down. active — The CPM is the Active CPM for the system (actively managing the system components, processing various protocols, etc) standby — The CPM is the Standby CPM. The standby is hot synchronized with the Active CPM ext-actv — The CPM is operating in an Extension role in an XRS-40 system and is the active extension CPM for the chassis in which it sits ext-stby — The CPM is operating in an Extension role in an XRS-40 system and is the standby extension CPM for the chassis in which it sits

Sample Output

```
A:ALU-48# show card
===============================================================================
Card Summary
===============================================================================
Slot      Provisioned         Equipped            Admin      Operational
          Card-type           Card-type           State      State
-------------------------------------------------------------------------------
1         iom3-xp             iom3-xp             up         up
2         iom3-xp             iom3-xp             up         up
3         iom3-xp             iom3-xp             up         up
4         iom3-xp                                 up         provisioned
5         iom3-xp                                 up         provisioned
6         iom3-xp                                 up         provisioned
7         iom3-xp                                 up         provisioned
8         iom3-xp                                 up         provisioned
9         iom3-xp                                 up         provisioned
10        iom3-xp                                 up         provisioned
```

```
A         sfm3-12             sfm3-12             up         up/standby
B         sfm3-12             sfm3-12             up         up/active
===============================================================================
A:ALU-48#
A:ALA-48# show card 1
===============================================================================
Card Summary
===============================================================================
Slot      Provisioned         Equipped            Admin      Operational
          Card-type           Card-type           State      State
-------------------------------------------------------------------------------
1         iom-xp           iom-xp           up         up
A         cfm-xp           cfm-xp           up         up/active
B         cfm-xp                               up         down/standby
===============================================================================
A:ALA-48#
A:ALA-50# show card 1
===============================================================================
Card Summary
===============================================================================
Slot Provisioned Equipped Admin Operational
Card-type Card-type State State
-------------------------------------------------------------------------------
1 iom-c4-xp  iom-c4-xp up up
A cfm-c4-xp cfm-c4-xp up up/active
B cfm-c4-xp up down/standby
===============================================================================
A:ALA-50#
```

Show Card State Output — The following table describes show card state output fields.

Label	Description
Slot/MDA	The slot number of the card in the chassis.
Provisioned Type	The card type that is configured for the slot.
Equipped Type	The card type that is actually populated in the slot.
Admin State	Up — The card is administratively up.
	Down — The card is administratively down.
Operational State	Up — The card is operationally up.
	provisioned — There is no card in the slot but it has been pre-configured.
Num Ports	The number of ports available on the MDA.
Num MDA	The number of MDAs installed.
Comments	Indicates whether the SF/CPM is the active or standby.

Sample Output

```
A:ALA-48# show card state
===============================================================================
Card State
===============================================================================
Slot/  Provisioned      Equipped         Admin Operational   Num   Num Comments
MDA    Type             Type             State State         Ports MDA
-------------------------------------------------------------------------------
1      iom-20g          iom-20g          up    up                  2
1/1    m60-10/100eth-tx m60-10/100eth-tx up    up            60
1/2    m60-10/100eth-tx m60-10/100eth-tx up    up            60
2      iom-20g                           up    provisioned         2
2/1    m10-1gb-sfp                       up    provisioned   10
2/2    m8-oc12/3-sfp                     up    provisioned   8
3      iom-20g                           up    provisioned         2
3/1    m12-chds3                         down  provisioned   12
3/2    m4-atmoc12/3-sfp                  up    provisioned   4
4      iom-20g                           up    provisioned         2
4/1    m12-chds3                         up    provisioned   12
4/2    m1-choc12-sfp                     up    provisioned   1
5      iom-20g                           up    provisioned         2
5/1    m1-oc192                          down  provisioned   1
5/2    m12-chds3                         down  provisioned   12
6      iom-20g                           up    provisioned         2
6/1    m12-chds3                         up    provisioned   12
6/2    m1-choc12-sfp                     up    provisioned   1
7      iom-20g                           up    provisioned         2
7/1    m12-chds3                         up    provisioned   12
7/2    m1-choc12-sfp                     up    provisioned   1
8      iom-20g                           up    provisioned         2
8/1    m8-oc12/3-sfp                     up    provisioned   8
8/2    m1-choc12-sfp                     up    provisioned   1
9      iom-20g                           up    provisioned         2
9/1    m20-1gb-sfp                       up    provisioned   20
9/2    m4-atmoc12/3-sfp                  up    provisioned   4
10     iom-20g                           up    provisioned         2
10/1   vsm-cca                           up    provisioned   6
10/2   vsm-cca                           up    provisioned   6
1/1    vsm-cca          vsm-cca-xp       up    up            6
A      sfm3-12          sfm-400g         up    up                      Active
B      sfm3-12                           up    provisioned             Standby
===============================================================================
A:ALA-48#
```

The following example displays the card state for a 7750 SR-c12.

```
A:7750-3>config>card# show card state
===============================================================================
Card State
===============================================================================
Slot/  Provisioned      Equipped         Admin Operational   Num   Num Comments
Id     Type             Type             State State         Ports MDA
-------------------------------------------------------------------------------
1      iom-xp          iom-xp            up    up                  12
1/1    mcm-xp           mcm-xp           up    up
1/3                     mcm-xp           up    unprovisioned
1/1    m60-10/100eth-tx m60-10/100eth-tx up    up                  60
1/5    c8-10/100eth-tx  c8-10/100eth-tx  up    up                  8
1/6                     c1-1gb-sfp       up    unprovisioned
1/7                     c8-chds1         up    unprovisioned
1/8                     c4-ds3           up    unprovisioned
```

```
1/9                   c8-10/100eth-tx  up    unprovisioned
1/10                  c1-1gb-sfp       up    unprovisioned
1/11                  c8-chds1         up    unprovisioned
1/12                  c4-ds3           up    unprovisioned
A      cfm-xp         cfm-xp           up    up                        Active
B      cfm-xp                          up    down                      Standby
===============================================================================
A:7750-3>
```

Show Card Detail Output — The following table describes detailed card output fields.

Label	Description
Clock source	Source of clock for the IOM. Note: Currently this parameter always displays 'none'
Available MDA slots	The number of MDA slots available on the IOM.
Installed MDAs	The number of MDAs installed on the IOM
Part number	The IOM part number.
CLEI code	The Common Language Location Identifier (CLLI) code string for the router.
Serial number	The serial number. Not user modifiable.
Manufacture date	The chassis manufacture date. Not user modifiable.
Manufacturing string	Factory-inputted manufacturing text string. Not user modifiable.
Manufacturing deviations	Displays a record of changes by manufacturing to the hardware or software and which is outside the normal revision control process.
Administrative state	Up — The card is administratively up.
	Down — The card is administratively down.
Operational state	Up — The card is operationally up.
	Down — The card is operationally down.
Temperature	Internal chassis temperature.
Temperature threshold	The value above which the internal temperature must rise in order to indicate that the temperature is critical.
Software boot version	The version of the boot image.
Software version	The software version number.

Label	Description (Continued)
Time of last boot	The date and time the most recent boot occurred.
Current alarm state	Displays the alarm conditions for the specific board.
Base MAC address	Displays the base MAC address of the hardware component.
Memory Capacity	Displays the memory capacity of the card.

Sample Output

```
A:Dut-A# show card 10 detail
===============================================================================
Card 10
===============================================================================
Slot      Provisioned      Equipped         Admin   Operational        Comments
          Card-type        Card-type        State   State
-------------------------------------------------------------------------------
10        iom3-xp          iom3-xp          up      up


IOM Card Specific Data
    Clock source                  : none
    Named Pool Mode               : Disabled
    Fail On Error                 : Disabled
    Available MDA slots           : 2
    Installed MDAs                : 1

FP 1 Specific Data
    WRED Admin State              : Out Of Service
    WRED buffer-allocation max    : 2500
    WRED buffer-allocation min    : 2500
    WRED reserved-cbs max         : 2500
    WRED reserved-cbs min         : 2500
    WRED Slope Policy             : default
    hi-bw-mc-srcEgress Alarm      : 2
    hi-bw-mc-srcEgress Group      : 0
    mc-path-mgmt Admin State      : Out Of Service
    Ingress Bandwidth Policy      : default

Hardware Data
    Platform type                 : 7750
    Part number                   : 3HE03619AAAK01
    CLEI code                     : IPU3AC9EAA
    Serial number                 : NS1112F0955
    Manufacture date              : 03182011
    Manufacturing string          :
    Manufacturing deviations      :
    Manufacturing assembly number : 82-0107-09
    Administrative state          : up
    Operational state             : up
    Temperature                   : 50C
    Temperature threshold         : 75C
    Software boot (rom) version   : X-0.0.I3122 on Mon Oct 17 18:16:02 PDT 2011*
```

```
    Software version              : TiMOS-I-8.0.B1-250 iom/hops ALCATEL SR 7750*
    Time of last boot             : 2011/11/15 08:44:52
    Current alarm state           : alarm cleared
    Base MAC address              : 8c:90:d3:a4:fb:33
    Last bootup reason            : hard boot
    Memory capacity               : 2,048 MB

A:ALA-49# show card 3 detail
===============================================================================
Card 3
===============================================================================
Slot      Provisioned         Equipped            Admin      Operational
          Card-type           Card-type           State      State
-------------------------------------------------------------------------------
3         iom2-20g                                up         provisioned

IOM Card Specific Data
    Clock source                : none
    Available MDA slots         : 2
    Installed MDAs              : 0

Hardware Data
    Part number                 :
    CLEI code                   :
    Serial number               :
    Manufacture date            :
    Manufacturing string        :
    Manufacturing deviations    :
    Administrative state        : up
    Operational state           : provisioned
    Software boot version       :
    Software version            :
    Time of last boot           : N/A
    Current alarm state         : alarm cleared
    Base MAC address            : 00:00:00:00:00:00
    Memory capacity             : 0 MB
===============================================================================
A:ALA-49#
```

CPM Output — The following table describes the output fields for a CPM card.

Label	Description
Slot	The slot of the card in the chassis.
Card Provisioned	The SF/CPM type that is configured for the slot.
Card Equipped	The SF/CPM type that is actually populated in the slot.
Admin State	Up — The SF/CPM is administratively up. Down — The SF/CPM is administratively down.
Operational State	Up — The SF/CPM is operationally up.

Label	Description (Continued)
	Down – The SF/CPM is operationally down.
BOF last modified	The date and time of the most recent BOF modification.
Config file version	The configuration file version.
Config file last modified	The date and time of the most recent config file modification.
Config file last modified	The date and time of the most recent config file modification.
Config file last saved	The date and time of the most recent config file save.
CPM card status	active – The card is acting as the primary (active) CPM in a redundant system. standby – The card is acting as the standby (secondary) CPM in a redundant system.
Administrative state	Up – The CPM is administratively up. Down – The CPM is administratively down.
Operational state	Up – The CPM is operationally up. Down – The CPM is operationally down.
Serial number	The compact flash part number. Not user modifiable.
Firmware revision	The firmware version. Not user modifiable.
Model number	The compact flash model number. Not user modifiable.
Size	The amount of space available on the compact flash card.
Free space	The amount of space remaining on the compact flash card.
Part number	The SF/CPM part number.
CLEI code	The code used to identify the router.
Serial number	The SF/CPM part number. Not user modifiable.
Manufacture date	The chassis manufacture date. Not user modifiable.
Manufacturing string	Factory-inputted manufacturing text string. Not user modifiable.
Administrative state	Up – The card is administratively up. Down – The card is administratively down.

Label	Description (Continued)
Operational state	Up — The card is operationally up. Down — The card is operationally down.
Time of last boot	The date and time the most recent boot occurred.
Current alarm state	Displays the alarm conditions for the specific board.
Status	Displays the current status.
Temperature	Internal chassis temperature.
Temperature threshold	The value above which the internal temperature must rise in order to indicate that the temperature is critical.
Software boot version	The version of the boot image.
Memory capacity	The total amount of memory.

Sample Output

```
B:Dut-D# show card
===============================================================================
Card Summary
===============================================================================
Slot      Provisioned         Equipped            Admin      Operational
          Card-type           Card-type           State      State
-------------------------------------------------------------------------------
1         iom-20g             iom-20g             up         up
2         iom-20g             iom-20g             up         up
A         sfm-400g            sfm-200g            up         up/standby
B         sfm-400g            sfm-200g            up         up/active
===============================================================================
B:Dut-D#


B:Dut-D# show card A detail
===============================================================================
Card A
===============================================================================
Slot      Provisioned         Equipped            Admin      Operational
          Card-type           Card-type           State      State
-------------------------------------------------------------------------------
A         sfm-400g            sfm-200g            up         up/standby


BOF last modified               : N/A
Config file version             :
Config file last modified       : N/A
Config file last saved          : N/A
CPM redundancy status           : standby ready
```

```
Flash - cf1:
    Administrative State          : up
    Operational state             : not equipped

Flash - cf2:
    Administrative State          : up
    Operational state             : not equipped

Flash - cf3:
    Administrative State          : up
    Operational state             : up
    Serial number                 :     109917C1204W513
    Firmware revision             : HDX 2.1
    Model number                  : SanDisk SDCFBI-128
    Size                          : 125,038 KB
    Free space                    : 116,238 KB

Hardware Data
    Part number                   : 3HE00316AAAA01
    CLEI code                     : IPUCACMFAA
    Serial number                 : NS043610538
    Manufacture date              : 02252005
    Manufacturing string          :
    Manufacturing deviations      :
    Administrative state          : up
    Operational state             : up
    Temperature                   : 43C
    Temperature threshold         : 75C
    Software boot version         : X-2.0.R12 on Mon Jan 24 12:03:16 PST 2007 *
    Software version              : TiMOS-C-4.0.private cpm/hops ALCATEL SR 77*
    Time of last boot             : 2007/04/11 09:39:23
    Current alarm state           : alarm cleared
    Base MAC address              : 00:03:fa:30:7c:3c
    Memory capacity               : 2,016 MB
===============================================================================
B:Dut-D#
B:NS082761964# show card B detail
===============================================================================
Card B
===============================================================================
Slot      Provisioned      Equipped         Admin   Operational        Comments
          Card-type        Card-type        State   State
-------------------------------------------------------------------------------
B         sfm3-12          sfm3-12          up      up/active
BOF last modified                 : N/A
Config file version               : WED AUG 11 19:33:06 2010 UTC
Config file last modified         : N/A
Config file last saved            : N/A
M/S clocking ref state            : primary

Flash - cf1:
    Administrative State          : up
    Operational state             : not equipped

Flash - cf2:
    Administrative State          : up
    Operational state             : not equipped
```

```
Flash - cf3:
    Administrative State          : up
    Operational state             : up
    Serial number                 : 365ST295S3453SC01311
    Firmware revision             : V2.23
    Model number                  : SILICONSYSTEMS INC 256MB
    Size                          : 253,932 KB
    Free space                    : 121,368 KB

Hardware Data
    Platform type                 : 7750
    Part number                   : 3HE03617AAAA01
    CLEI code                     : IPUCAN4FAA
    Serial number                 : NS987456321
    Manufacture date              : 05072010
    Manufacturing string          :
    Manufacturing deviations      :
    Manufacturing assembly number :
    Administrative state          : up
    Operational state             : up
    Temperature                   : 34C
    Temperature threshold         : 75C
    Software boot (rom) version   : X-0.0.I2627 on Thu Jun 10 18:03:16 PDT 2010*
    Software version              : TiMOS-C-0.0.private cpm/hops ALCATEL SR 775*
    Time of last boot             : 2010/08/24 13:07:56
    Current alarm state           : alarm cleared
    Base MAC address              : 00:03:fa:1b:d7:16
    Memory capacity               : 4,096 MB
    System timing oscillator type : OCXO
===============================================================================
```

PW Shaping Feature Output

```
*A:Dut-T# show card 9 fp 1 ingress queue-group "QGIng1" mode network instance 1 statistics
===============================================================================
Card:9  Net.QGrp: QGIng1  Instance: 1
===============================================================================
Group Name    : QGIng1
Description   : (Not Specified)
Pol Ctl Pol   : pcp                     Acct Pol      : None
Collect Stats : disabled
-------------------------------------------------------------------------------
Statistics
-------------------------------------------------------------------------------
                        Packets                 Octets

Ing. Policer:  1  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         91836202                91465530792
Dro. All              :         6678807                 6649127172
For. All              :         85157395                84816403620

Ing. Policer:  2  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93584703                90933906888
Dro. All              :         8320200                 6106644900
For. All              :         85264503                84827261988

Ing. Policer:  3  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93584703                90933906888
```

```
Dro. All              :         8320049                 6106288404
For. All              :         85264654                84827618484

Ing. Policer:  4  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93584703                90933906888
Dro. All              :         8326509                 6110568864
For. All              :         85258194                84823338024

Ing. Policer:  5  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93584703                90933906888
Dro. All              :         24877143                22616873028
For. All              :         68707560                68317033860

Ing. Policer:  6  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93434643                90919501128
Dro. All              :         24727111                22602499656
For. All              :         68707532                68317001472

Ing. Policer:  7  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93584703                90933906888
Dro. All              :         24877214                22616941944
For. All              :         68707489                68316964944

Ing. Policer:  8  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         93430663                90919119048
Dro. All              :         24723280                22602263280
For. All              :         68707383                68316855768

Ing. Policer:  9  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 10  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 11  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 12  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 13  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 14  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 15  Grp: QGIng1 (Stats mode: minimal)
```

```
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0

Ing. Policer: 16  Grp: QGIng1 (Stats mode: minimal)
Off. All              :         0                       0
Dro. All              :         0                       0
For. All              :         0                       0
===============================================================================
*A:Dut-T#
```

cflowd

Syntax

elmi

Syntax **elmi**

Context show

Description This command displays Ethernet Link Management Interface (eLMI) information.

ELMI Output — The following table describes eLMI output fields.

Field	Description
Link Status	Status of the E-LMI protocol when the elmi mode is set to uni-n. Link Status will indicate up if eLMI mode is set to "none".
T391	pooling timer used by UNI-C. UNI-N will send the consecutive single EVC asynchronous status messages every (T391/10) rounded to the second interval.
T392	Pooling verification timer for UNI-N
N393	Status counter for UNI-N
Rx Enq. Time	Last time when a status enquiry message was received from UNI-C.
Rx Enq Msg	Number of status enquiry messages received.
Rx Check Time	Last time when a status enquiry E-LMI check message was received.
Rx Inv. SeqNum	Counts the number of E-LMI messages received with invalid sequence number.
Enq Timeouts	Counts the number of T392 timer expired.
Tx Status Time	Last time when a status message was sent by UNI-N.
Tx Status Msg	Number of status messages sent by UNI-N.

Field	Description
Tx Check Time	Last time when a status eLMI check message was sent by UNI-N.
Tx Async Status Msg	Counter for single EVC asynchronous status messages sent by UNI-N.
Discard Msg	Counter for the status enquiry messages discarded due to errors.

evc

Syntax **evc** [*port-id* [**vlan** *vlan-id*]]

Context show>elmi

Description This command displays Ethernet Virtual Connections (EVC). No argument displays all the EVC on the service router. The port and VLAN arguments display information related to EVC associated with the port and VLAN.

Parameters *port-id* — Displays information related to the EVCs configured on the port

Values slot/mda/port

vlan *vlan-id* — Specifies the VLAN Identifier of the EVC.

Values 0 — 4094, *

Sample Output

```
*A:Dut-C# show elmi evc
===============================================================================
ELMI EVC Table
===============================================================================
Port     Vlan  Status    Type  Evc Id
-------------------------------------------------------------------------------
1/1/1    10    New-Act   P2p   EVC11110
1/1/3    30    New-Act   P2p   EVC11220
1/1/5    100   Act       P2p   EVC115100
1/1/5    200   Act       P2p   EVC115200
-------------------------------------------------------------------------------
Number of Evcs : 4
===============================================================================
*A:Dut-C#


A:Dut-C# show elmi evc 1/1/5
===============================================================================
ELMI EVC Table
===============================================================================
Port     Vlan  Status    Type  Evc Id
-------------------------------------------------------------------------------
1/1/5    100   Act       P2p   EVC115100
1/1/5    200   Act       P2p   EVC115200
-------------------------------------------------------------------------------
```

```
Number of Evcs : 2
===============================================================================
A:Dut-C#


*A:Dut-C# show elmi evc 1/1/5 vlan 100
===============================================================================
Evc Detailed Information
===============================================================================
Port          : 1/1/5                   vlanId        : 100
Evc Status    : Act                     Evc Type      : P2p
Evc Identifier: EVC115100
===============================================================================
*A:Dut-C#
```

uni

Syntax **uni** [*port-id*]

Context show>elmi

Description This command displays information about ELMI (mode, status, number of EVCs (SAPs) configure on the port for all the ports on the service router.

Parameters *port-id* — Displays UNI information for the specified port.

Sample Output

```
*A:Dut-C# show elmi uni
===============================================================================
ELMI UNI-N Table
===============================================================================
Port     Mode  Status   #Evcs Uni Identifier
-------------------------------------------------------------------------------
1/1/1    None  Up       0     10/100 Ethernet TX
1/1/2    None  Up       0     port-21
1/1/3    None  Up       0     10/100 Ethernet TX
1/1/4    None  Up       0     10/100 Ethernet TX
1/1/5    Uni-N Up       2     UNI115
1/1/6    None  Up       0     10/100 Ethernet TX
1/1/7    None  Up       0     10/100 Ethernet TX
1/1/8    None  Up       0     10/100 Ethernet TX
1/1/9    None  Up       0     10/100 Ethernet TX
1/1/10   None  Up       0     10/100 Ethernet TX
1/1/11   None  Up       0     10/100 Ethernet TX
1/1/12   None  Up       0     10/100 Ethernet TX
1/1/13   None  Up       0     10/100 Ethernet TX
1/1/14   None  Up       0     10/100 Ethernet TX
1/1/15   None  Up       0     10/100 Ethernet TX
1/1/16   None  Up       0     10/100 Ethernet TX
1/1/17   None  Up       0     10/100 Ethernet TX
...
===============================================================================
*A:Dut-C#
```

```
*A:Dut-C# show elmi uni 1/1/5
===============================================================================
Uni-N Detailed Information
===============================================================================
Uni Mode      : Uni-N                  Link Status         : Up
Uni Identifier: UNI115
T391          : 10 seconds             T392                : 15 seconds
N393          : 4                      UniType             : Bundling
Rx Enq. Time  : 02/18/2010 17:11:44    Tx Status Time      : 02/18/2010 17:11:44
Rx Enq Msg    : 24                     Tx Status Msg       : 24
Rx Check Time : 02/18/2010 17:12:34   Tx Check Time       : 02/18/2010 17:12:34
Rx Inv. SeqNum: 0                     Tx Async Status Msg : 0
Enq Timeouts  : 0                     Discard Msg         : 0
===============================================================================
*A:Dut-C#
```

eth-tunnel

Syntax **eth-tunnel**

Context show

Description This command displays Ethernet tunnel information.

Sample

```
*A:PE-E# show eth-tunnel
===============================================================================
Ethernet Tunnel Groups
===============================================================================
Tunnel Admin  Oper   Protection    Active Paths
ID     State  State  Type           1  2  3  4  5  6  7  8
-------------------------------------------------------------------------------
1      Up     Up     g.8031-1to1     x  2
2      Up     Up     g.8031-1to1     1  x
===============================================================================
*A:PE-E#
*A:PE-E# show eth-tunnel aps
===============================================================================
Ethernet Tunnel APS Groups
===============================================================================
Tunnel Admin  Oper   Working Path           Path   Active Rx PDU
ID     State  State  Protecting Path        State  Path   Tx PDU
-------------------------------------------------------------------------------
1      Up     Up     1 - 1/1/2 1            Down   No     BF010100 (  SF)
                     2 - 2/1/2 1            Up     Yes    BF010100 (  SF)
2      Up     Up     1 - 2/1/2 2            Up     Yes    0F000000 (  NR)
                     2 - 1/1/2 2            Down   No     EF000000 (SF-P)
===============================================================================
*A:PE-E#

*A:PE-E# show eth-tunnel 1
===============================================================================
```

```
Ethernet Tunnel Group 1 Information
===============================================================================
Description        : Eth Tunnel
IfIndex            : 1476395009
Admin State        : Up                  Oper State       : Up
Protection Type    : G.8031-1to1         Max Revert Time  :    1 seconds
MAC Address        : 00:1a:f0:44:d2:03   Time to Revert   : N/A
                                         Hold Down Time   :    0 centiseconds
-------------------------------------------------------------------------------
Ethernet Tunnel Group APS Information
-------------------------------------------------------------------------------
APS PDU Rx         : BF010100 (  SF)     Switchover Time  : 05/28/2009 10:10:17
APS PDU Tx         : BF010100 (  SF)
Defect Status      :
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Ethernet Tunnel Group Path Summary
-------------------------------------------------------------------------------
Path ID   Member   Control-Tag Precedence      Admin/Oper      Active  Mgmt
-------------------------------------------------------------------------------
   1      1/1/2    1           primary           Up/Down      No      Yes
   2      2/1/2    1           secondary         Up/Up        Yes     No
===============================================================================
*A:PE-E#

*A:PE-E# show eth-tunnel 1 path 1
===============================================================================
Ethernet Tunnel Group 1 Path Information
===============================================================================
Description        : (Not Specified)
Member             : 1/1/2               Control-Tag      : 1
Admin State        : Up                  Oper State       : Down
-------------------------------------------------------------------------------
Ethernet Tunnel Group Path APS Information
-------------------------------------------------------------------------------
Active Count       : 2                   Active Time      : 0d 00:12:09
-------------------------------------------------------------------------------
Eth-Cfm Configuration Information
-------------------------------------------------------------------------------
Md-index           : 1                   Direction        : Down
Ma-index           : 1                   Admin            : Enabled
MepId              : 1                   CCM-Enable       : Enabled
LowestDefectPri    : macRemErrXcon       HighestDefect    : defRemoteCCM
Defect Flags       : bDefRemoteCCM
Mac Address        : 00:16:4d:c0:c1:ca   ControlMep       : True
===============================================================================
*A:PE-E#

*A:PE-E# show eth-tunnel 1 path 1 detail
===============================================================================
Ethernet Tunnel Group 1 Detailed Path Information
===============================================================================
Description        : (Not Specified)
Member             : 1/1/2               Control-Tag      : 1
Admin State        : Up                  Oper State       : Down
-------------------------------------------------------------------------------
Ethernet Tunnel Group Path APS Information
-------------------------------------------------------------------------------
Active Count       : 2                   Active Time      : 0d 00:12:09
```

```
-------------------------------------------------------------------------------
Eth-Cfm Configuration Information
-------------------------------------------------------------------------------
Md-index           : 1                  Direction        : Down
Ma-index           : 1                  Admin            : Enabled
MepId              : 1                  CCM-Enable       : Enabled
LowestDefectPri    : macRemErrXcon      HighestDefect    : defRemoteCCM
Defect Flags       : bDefRemoteCCM
Mac Address        : 00:16:4d:c0:c1:ca  ControlMep       : True
CcmLtmPriority     : 7
CcmTx              : 0                  CcmSequenceErr   : 0
Eth-Ais:           : Disabled
Eth-Tst:           : Disabled
LbRxReply          : 0                  LbRxBadOrder     : 0
LbRxBadMsdu        : 0                  LbTxReply        : 0
LbNextSequence     : 1                  LtNextSequence   : 1
LtRxUnexplained    : 0
===============================================================================
*A:PE-E#
```

interface-group-handler

Syntax **interface-group-handler** [*igh-id*]

Context show

Description This command displays Interface Group Handler (IGH) information.

If no command line options are specified, a summary listing of all IGHs is displayed.

Parameters *igh-id* — Displays information only on the specified IGH ID.

Sample

```
A:ALU-27# show interface-group-handler
===============================================================================
Interface Group Handler Summary Information
===============================================================================
IGH Index Admin     Number of Threshold
          State     Members
-------------------------------------------------------------------------------
1         Up        4         4
2         Up        2         2
===============================================================================
A:ALU-27#

A:ALU-27#show interface-group-handler 2
===============================================================================
Interface Group Handler 2 Information
===============================================================================
Admin Status       : Up
Threshold          : 2                  Last Change      : 02/02/2010 18:10:04
-------------------------------------------------------------------------------
Interface Group Handler Protocol Information
-------------------------------------------------------------------------------
```

```
Protocol Oper Status  Active Links                          Up Time
-------------------------------------------------------------------------------
ipcp     up           2                                     0d 00:15:04
ipv6cp   none         0                                             N/A
mplscp   waiting      0                                             N/A
osicp    none         0                                             N/A
-------------------------------------------------------------------------------
Port 1/5/2.2 Information
-------------------------------------------------------------------------------
Protocol Oper Status                                       Up Time
-------------------------------------------------------------------------------
ipcp     up                                                0d 00:15:05
ipv6cp   none                                                     N/A
mplscp   running                                                  N/A
osicp    none                                                     N/A
-------------------------------------------------------------------------------
Port 1/5/2.3 Information
-------------------------------------------------------------------------------
Protocol Oper Status                                       Up Time
-------------------------------------------------------------------------------
ipcp     up                                                0d 00:15:05
ipv6cp   none                                                     N/A
mplscp   running                                                  N/A
osicp    none                                                     N/A
===============================================================================
A:ALU-27#
```

mcm

Syntax **mcm** [*slot* [*/mcm*]] [**detail**]

Context show

Description This command displays MCM information.

If no command line options are specified, a summary output of all MCMs is displayed in table format.

Parameters *slot* — The slot number for which to display MCM information.

Values 1

mcm — The MCM number in the slot for which to display MCM information.

Values 7750 SR-c4 — 1, 3 7750 SR-c12 — 1, 3, 5, 7, 9, 11

detail — Displays detailed MDA information.

Output **MDA Output —** The following table describes MDA output fields.

Label	Description
Slot	The chassis slot number.
MCM	The MCM slot number.

Label	Description
Provisioned MCM-type	The MCM type provisioned.
Equipped MCM-type	The MCM type actually installed.
Admin State	Up — Administratively up.
	Down — Administratively down.
Ops State	Up — Operationally up.
	Down — Operationally down.

Sample Output

```
A:7750-3# show mcm
===============================================================================
MCM Summary
===============================================================================
Slot Mcm  Provisioned          Equipped             Admin    Operational
          Mcm-type             Mcm-type             State    State
-------------------------------------------------------------------------------
1    1    mcm-xp               mcm-xp               up       up
     3                         mcm-xp               up       unprovisioned
===============================================================================
A:7750-3#

A:7750-3# show mcm 1
===============================================================================
MCM 1/1
===============================================================================
Slot Mcm  Provisioned          Equipped             Admin    Operational
          Mcm-type             Mcm-type             State    State
-------------------------------------------------------------------------------
1    1    mcm-xp               mcm-xp               up       up
===============================================================================
MCM 1/3
===============================================================================
Slot Mcm  Provisioned          Equipped             Admin    Operational
          Mcm-type             Mcm-type             State    State
-------------------------------------------------------------------------------
     3                         mcm-xp               up       unprovisioned
===============================================================================
A:7750-3#
```

mda

Syntax **mda** [*slot* [/*mda*]] [**detail**]

Context show

Description This command displays MDA information.

If no command line options are specified, a summary output of all MDAs is displayed in table format.

Parameters *slot* — The slot number for which to display MDA information.

Values 1 — 10

mda — The MDA number in the slot for which to display MDA information.

Values 1, 2
7750 SR-c12 - 1, 3, 5, 7, 9, 11
7710 SR-c4 — 1, 3

detail — Displays detailed MDA information.

Output **MDA Output —** The following table describes MDA output fields.

Label	Description
Slot	The chassis slot number.
MDA	The MDA slot number.
Provisioned MDA-type	The MDA type provisioned.
Equipped MDA-type	The MDA type actually installed.
Admin State	Up — Administratively up.
	Down — Administratively down.
Operational State	Up — Operationally up.
	Down — Operationally down.

Sample Output

```
A:ALA-1# show mda
===============================================================================
MDA Summary
===============================================================================
Slot Mda  Provisioned          Equipped             Admin    Operational
          Mda-type             Mda-type             State    State
-------------------------------------------------------------------------------
1    1    m1-oc192             m1-oc192             up       up
     2    m1-10gb              m1-10gb              up       up
```

```
===============================================================================
A:ALA-1#
```

MDA Detailed Output — The following table describes detailed MDA output fields.

Label	Description
Slot	The chassis slot number.
Slot	The MDA slot number.
Provisioned Provisioned-type	The provisioned MDA type.
Equipped Mda-type	The MDA type that is physically inserted into this slot in this chassis.
Admin State	Up — The MDA is administratively up.
	Down — The MDA is administratively down.
Operational State	Up — The MDA is operationally up.
	Down — The MDA is operationally down.
Failure Reason	This hardware component has failed.
Maximum port count	The maximum number of ports that can be equipped on the MDA card.
Number of ports equipped	The number of ports that are actually equipped on the MDA.
Transmit timing selected	Indicates the source for the timing used by the MDA.
Sync interface timing status	Indicates whether the MDA has qualified one of the timing signals from the CPMs.
Network Ingress Queue Policy	Specifies the network queue policy applied to the MDA to define the queueing structure for this object.
Capabilities	Specifies the minimum size of the port that can exist on the MDA.
Egress XPL error threshold	The Egress XPL Error Threshold value used by the **fail-on-error** feature.
Egress XPL error window	The Egress XPL Error Window value used by the **fail-on-error** feature.
Max channel size	Specifies the maximum size of the channel that can exist on the channelized MDA.

Label	Description (Continued)
Channels in use	Applicable for SONET and TDM MDAs only. Indicates the total number of leaf SONET paths, TDM channels and bundles on the MDA which are presently provisioned for passing traffic.
Part number	The hardware part number.
CLEI code	The code used to identify the MDA.
Serial number	The MDA part number. Not user modifiable.
Manufacture date	The MDA manufacture date. Not user modifiable.
Manufacturing string	Factory-inputted manufacturing text string. Not user modifiable.
Administrative state	Up – The MDA is administratively up.
	Down – The MDA is administratively down.
Operational state	Up – The MDA is operationally up.
	Down – The MDA is operationally down.
Time of last boot	The date and time the most recent boot occurred.
Current alarm state	Displays the alarm conditions for the specific MDA.
Base MAC address	The base chassis Ethernet MAC address. Special purpose MAC addresses used by the system software are constructed as offsets from this base address.

Sample Output

```
*A:Dut-A# show mda 5/1 detail
===============================================================================
MDA 5/1 detail
===============================================================================
Slot  Mda   Provisioned           Equipped              Admin     Operational
            Mda-type              Mda-type              State     State
-------------------------------------------------------------------------------
5     1     m20-1gb-xp-sfp        m20-1gb-xp-sfp        up        up

MDA Specific Data
    Maximum port count            : 20
    Number of ports equipped      : 20
    Network ingress queue policy  : default
    Capabilities                  : Ethernet
    Fail On Error                 : disabled
    Egress XPL error threshold    : 1000
    Egress XPL error window       : 60
```

```
Hardware Data
    Platform type                : 7750
    Part number                  : 3HE03612AAAB01
    CLEI code                    : IPPAABFBAA
    Serial number                : NS093464752
    Manufacture date             : 08232009
    Manufacturing string         :
    Manufacturing deviations     :
    Manufacturing assembly number :
    Administrative state         : up
    Operational state            : up
    Temperature                  : 37C
    Temperature threshold        : 75C
    Software version             : N/A
    Time of last boot            : 2011/11/15 11:32:49
    Current alarm state          : alarm cleared
    Base MAC address             : 00:23:3e:ea:38:4b
-------------------------------------------------------------------------------
QOS Settings
-------------------------------------------------------------------------------
Ing. Named Pool Policy           : None
Egr. Named Pool Policy           : None
===============================================================================
```

The following example shows the detail of a CMA in slot 1 (on a 7750 SR-c12/c4 system).

```
A:7750-3# show mda 1/5 detail
===============================================================================
MDA 1/5 detail
===============================================================================
Slot Mda  Provisioned          Equipped             Admin    Operational
          Mda-type             Mda-type             State    State
-------------------------------------------------------------------------------
1    5    c8-10/100eth-tx      c8-10/100eth-tx      up       up

MDA Specific Data
    Maximum port count           : 8
    Number of ports equipped     : 8
    Network ingress queue policy : default
    Capabilities                 : Ethernet
    Fail On Error                : disabled
    Egress XPL error threshold   : 1000
    Egress XPL error window      : 60


Hardware Data
    Part number                  : Sim Part#
    CLEI code                    : Sim CLEI
    Serial number                : mda-5
    Manufacture date             : 01012003
    Manufacturing string         : Sim MfgString mda-5
    Manufacturing deviations     : Sim MfgDeviation mda-5
    Administrative state         : up
    Operational state            : up
    Temperature                  : 33C
    Temperature threshold        : 75C
    Time of last boot            : 2007/04/11 15:13:48
```

```
    Current alarm state          : alarm cleared
    Base MAC address             : 04:7b:01:05:00:01
===============================================================================
7750A:SR-7/Dut-C# show mda 5/1 detail (channelized)
===============================================================================
MDA 5/1 detail
===============================================================================
Slot Mda  Provisioned          Equipped            Admin    Operational
          Mda-type             Mda-type            State    State
-------------------------------------------------------------------------------
5    1    m1-choc12-sfp        m1-choc12-sfp       up       up

MDA Specific Data
    Maximum port count           : 1
    Number of ports equipped     : 1
    Transmit timing selected     : CPM Card A
    Sync interface timing status : Qualified
    Network ingress queue policy : default
    Capabilities                 : Sonet, TDM, PPP, FR
    Fail On Error                : disabled
    Egress XPL error threshold   : 1000
    Egress XPL error window      : 60


    Min channel size             : PDH DS0 Group
    Max channel size             : PDH DS3
    Max number of channels       : 512
    Channels in use              : 0

Hardware Data
    Part number                  : 3HE00193AAAA01
    CLEI code                    :
    Serial number                : NS042510655
    Manufacture date             : 07072004
    Manufacturing string         :
    Manufacturing deviations     :
    Administrative state         : up
    Operational state            : up
    Time of last boot            : 2007/04/11 12:51:48
    Current alarm state          : alarm cleared
    Base MAC address             : 00:03:fa:1a:7c:6f
===============================================================================
A:SR-7/Dut-C#
```

pools

Syntax **pools** *mda-id* [*/port*] [**access-app** [*pool-name* | **service** *service-id*]] | **queue-group** *queue-group-name*]]
pools *mda-id* [*/port*] [*network-app* [*pool-name* |**queue-group** *queue-group-name*]]
pools *mda-id* [*/port*] [*direction* [*pool-name* |**service** *service-id*| **queue-group** *queue-group-name*]]

Context show

Description This command displays pool information.

Parameters *mda-id*[*/port*] — Displays the pool information of the specified MDA and port.

access-app *pool-name* — Displays the pool information of the specified QoS policy.

Values access-ingress, access-egress

service *service-id* — Displays pool information for the specified service.

Values 1 — 2147483647

queue-group *queue-group-name* — Display information for the specified queue group.

direction — Specifies to display information for the ingress or egress direction.

Values ingress, egress

Output **Show Pool Output —** The following table describes show pool output fields.

Label	Description
Type	Specifies the pool type.
ID	Specifies the card/mda or card/MDA/port designation.
Application/Type	Specifies the nature of usage the pool would be used for. The pools could be used for access or network traffic at either ingress or egress.
Pool Name	Specifies the name of the pool being used.
Resv CBS	Specifies the percentage of pool size reserved for CBS.
Utilization	Specifies the type of the slope policy.
State	The administrative status of the port.
Start-Avg	Specifies the percentage of the buffer utilized after which the drop probability starts to rise above 0.
Max-Avg	Specifies the percentage of the buffer utilized after which the drop probability is 100 percent. This implies that all packets beyond this point will be dropped.
Time Avg Factor	Specifies the time average factor the weighting between the previous shared buffer average utilization result and the new shared buffer utilization in determining the new shared buffer average utilization.

Label	Description (Continued)
Actual ResvCBS	Specifies the actual percentage of pool size reserved for CBS.
Admin ResvCBS	Specifies the percentage of pool size reserved for CBS.
PoolSize	Specifies the size in percentage of buffer space. The value '-1' implies that the pool size should be computed as per fair weighting between all other pools.
Pool Total	Displays the total pool size.
Pool Shared	Displays the amount of the pool which is shared.
Pool Resv	Specifies the percentage of reserved pool size.
Pool Total In Use	Displays the total amount of the pool which is in use.
Pool Shared In Use	Displays the amount of the pool which is shared that is in use.

```
*A:ALA-48# show pools 1/1
===============================================================================
Type    Id        App.    Pool Name                  Actual ResvCBS  PoolSize
                                                     Admin ResvCBS
-------------------------------------------------------------------------------
MDA     1/1       Acc-Ing default
                                                     Sum
MDA     1/1       Acc-Ing MC Path Mgnt
                                                     50
MDA     1/1       Acc-Egr default
                                                     Sum
MDA     1/1       Net-Ing default
                                                     Sum
MDA     1/1       Net-Egr default
                                                     50
Port    1/1/1     Acc-Ing default
                                                     Sum
Port    1/1/1     Acc-Egr default
                                                     Sum
Port    1/1/1     Net-Egr default
                                                     Sum
Port    1/1/2     Acc-Ing default
                                                     Sum
Port    1/1/2     Acc-Egr default
                                                     Sum
Port    1/1/2     Net-Egr default
                                                     Sum
Port    1/1/3     Acc-Ing default
                                                     Sum
Port    1/1/3     Acc-Egr default
                                                     Sum
Port    1/1/3     Net-Egr default
                                                     Sum
```

```
Port    1/1/4     Acc-Ing default
                                                        Sum
Port    1/1/4     Acc-Egr default
                                                        Sum
...
Port    1/1/12    Acc-Egr default
                                                        Sum
Port    1/1/12    Net-Egr default
                                                        Sum
===============================================================================
*A:ALA-48#


*A:ALA-48# show pools 1/1/1 network-egress
===============================================================================
Pool Information
===============================================================================
Port                 : 1/1/1
Application          : Net-Egr           Pool Name          : default
Resv CBS             : Sum
-------------------------------------------------------------------------------
Utilization                    State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                     Down              70%        90%         80%
Low-Slope                      Down              50%        75%         80%

Time Avg Factor      : 7
Pool Total           : 3072 KB
Pool Shared          : 1536 KB           Pool Resv          : 1536 KB

Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
FC-Maps                          ID      MBS         Depth  A.CIR     A.PIR
                                         CBS                O.CIR     O.PIR
-------------------------------------------------------------------------------
be                               1/1/1   1536        0      0         100000
                                         28                 0         Max
l2                               1/1/1   1536        0      25000     100000
                                         96                 25000     Max
af                               1/1/1   1536        0      25000     100000
                                         320                25000     Max
l1                               1/1/1   768         0      25000     100000
                                         96                 25000     Max
h2                               1/1/1   1536        0      100000    100000
                                         320                Max       Max
ef                               1/1/1   1536        0      100000    100000
                                         320                Max       Max
h1                               1/1/1   768         0      10000     100000
                                         96                 10000     Max
nc                               1/1/1   768         0      10000     100000
                                         96                 10000     Max
===============================================================================
*A:ALA-48#
```

```
*A:Dut-T# show pools 4/1/1 access-ingress
===============================================================================
Pool Information
===============================================================================
Port                 : 4/1/1
Application          : Acc-Ing           Pool Name          : default
CLI Config. Resv CBS : 10%
Resv CBS Step        : 1%                Resv CBS Max       : 30%
Amber Alarm Threshold: 10%               Red Alarm Threshold: 0%
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%

Time Avg Factor      : 7
Pool Total           : 66048 KB
Pool Shared          : 46080 KB          Pool Resv          : 19968 KB


-------------------------------------------------------------------------------

-------------------------------------------------------------------------------
Current Resv CBS    Provisioned    Rising         Falling        Alarm
%age                all Queues     Alarm Thd      Alarm Thd      Color
-------------------------------------------------------------------------------
30%                 40320 KB       NA             1797 KB        Amber
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
2->4/1/1:1->11
                MCast      be l2 af l1   30720 KB   3072 KB    25000000 0
                           h2 ef h1 nc   0 KB       0          Max      0
2->4/1/1:1->4
                3/1        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->4
                3/1        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->4
                4/*        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                3/1        l2            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                3/1        l2            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                4/*        l2            81408 KB   9216 KB    25000000 0
```

```
                                        3360 KB    0          Max      0
2->4/1/1:1->2
                3/1       l1            81408 KB   9216 KB    25000000 0
                                        3360 KB    0          Max      0
2->4/1/1:1->2
                3/1       l1            81408 KB   9216 KB    25000000 0
                                        3360 KB    0          Max      0
2->4/1/1:1->2
                4/*       l1            81408 KB   9216 KB    25000000 0
...
===============================================================
*A:Dut-T#


*A:ALU-2011# show pools 2/1/1 access-egress
===============================================================
Pool Information
===============================================================
Port                : 2/1/1
Application         : Acc-Egr           Pool Name          : default
Resv CBS            : Sum
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
policer-output-queues
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%

Time Avg Factor     : 7
Pool Total              : 6336 KB
Pool Shared           : 4416 KB           Pool Resv          : 1920 KB

-------------------------------------------------------------------------------
Pool Resv CBS         Provisioned       Rising          Falling           Alarm
       %age               All Queues     Alarm Thd     Alarm Thd       Color
-------------------------------------------------------------------------------
   40%                      300KB            350KB         250KB          Amber

Pool Total In Use   : 0 KB
Pool Shared In Use  : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use    : 0 KB

Hi-Slope Drop Prob  : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
2->2/1/1:100->1
     be l2 af l1   123 KB     15 KB      100000   0
     h2 ef h1 nc   0 KB       0          Max      0
accQGrp->policer-output-queues(2/1/1)->1
     n/a  123 KB     15 KB      100000   0
              0 KB       0          Max      0
accQGrp->policer-output-queues(2/1/1)->2
     n/a  123 KB     15 KB      100000   0
```

```
          0 KB       0          Max      0


*A:ALU-2011# show pools 2/1/1 access-egress
===============================================================
Pool Information
===============================================================
Port                 : 2/1/1
Application          : Acc-Egr           Pool Name          : default
Resv CBS             : Sum
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
policer-output-queues
-------------------------------------------------------------------------------
Utilization                    State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                     Down              70%        90%         80%
Low-Slope                      Down              50%        75%         80%

Time Avg Factor      : 7
Pool Total               : 6336 KB
Pool Shared            : 4416 KB           Pool Resv          : 1920 KB

-------------------------------------------------------------------------------
Pool Resv CBS          Provisioned       Rising          Falling           Alarm
       %age               All Queues     Alarm Thd     Alarm Thd       Color
-------------------------------------------------------------------------------
CBS Oversubscription Alarm Info Pending

Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
2->2/1/1:100->1
     be l2 af l1   123 KB     15 KB      100000   0
     h2 ef h1 nc   0 KB       0          Max      0
accQGrp->policer-output-queues(2/1/1)->1
     n/a               123 KB     15 KB      100000   0
          0 KB       0          Max      0
accQGrp->policer-output-queues(2/1/1)->2


*A:ALU-2011#show pools 1/1/1 egress
===============================================================================
Pool Information
===============================================================================
Port                 : 1/1/1
Application          : Egress            Pool Name          : PoolData
Resv CBS             : 25%               Policy Name        : Port1-1-1
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
```

```
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%
Time Avg Factor      : 7
Pool Total           : 64 KB
Pool Shared          : 48 KB             Pool Resv          : 16 KB
-------------------------------------------------------------------------------
Pool Resv CBS         Provisioned       Rising          Falling           Alarm
      %age               All Queues     Alarm Thd     Alarm Thd       Color
-------------------------------------------------------------------------------
   40%                      300KB            350KB         250KB          Amber
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB
Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                                       CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
1->1/1/1:10->2
                           af            128 KB     16 KB      100000   0
                                         0 KB       0          Max      0
1->1/1/1:10->4
                           l1            128 KB     16 KB      100000   0
                                         0 KB       0          Max      0
-------------------------------------------------------------------------------
Port                 : 1/1/1
Application          : Egress            Pool Name          : PoolVideo
Resv CBS             : 25%               Policy Name        : Port1-1-1
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%
Time Avg Factor      : 7
Pool Total           : 64 KB
Pool Shared          : 48 KB             Pool Resv          : 16 KB
-------------------------------------------------------------------------------
Pool Resv CBS         Provisioned       Rising          Falling           Alarm
      %age               All Queues     Alarm Thd     Alarm Thd       Color
-------------------------------------------------------------------------------
   40%                      300KB            350KB         250KB          Amber
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB
Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                                       CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
1->1/1/1:10->5
                           ef            128 KB     16 KB      100000   0
                                         0 KB       0          Max      0
-------------------------------------------------------------------------------
```

```
Port                : 1/1/1
Application         : Egress            Pool Name          : PoolVoice
Resv CBS            : 50%               Policy Name        : Port1-1-1
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down             70%        90%         80%
Low-Slope                     Down             50%        75%         80%
Time Avg Factor     : 7
Pool Total              : 64 KB
Pool Shared           : 32 KB                          Pool Resv          : 32 KB
-------------------------------------------------------------------------------
Pool Resv CBS         Provisioned       Rising          Falling           Alarm
      %age              All Queues     Alarm Thd     Alarm Thd       Color
-------------------------------------------------------------------------------
   40%                      300KB            350KB         250KB          Amber
Pool Total In Use   : 0 KB
Pool Shared In Use  : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use    : 0 KB
Hi-Slope Drop Prob  : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                                       CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
1->1/1/1:10->3
                          nc            128 KB     16 KB      100000   0
                                        0 KB       0          Max      0
===============================================================================
*A:ALU-2011#
```

When alarm information is pending:

```
*A:Dut-T# show pools 4/1/1 access-ingress
===============================================================================
Pool Information
===============================================================================
Port                : 4/1/1
Application         : Acc-Ing           Pool Name          : default
CLI Config. Resv CBS : 10%
Resv CBS Step       : 1%                Resv CBS Max       : 35%
Amber Alarm Threshold: 10%              Red Alarm Threshold: 0%
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down             70%        90%         80%
Low-Slope                     Down             50%        75%         80%

Time Avg Factor     : 7
Pool Total          : 66048 KB
Pool Shared       : 46080 KB        Pool Resv        : 19968 KB
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Current Resv CBS    Provisioned    Rising         Falling        Alarm
```

```
%age                all Queues     Alarm Thd      Alarm Thd      Color
-------------------------------------------------------------------------------
CBS Oversubscription Alarm Info Pending
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
2->4/1/1:1->11
                MCast      be l2 af l1   30720 KB   3072 KB    25000000 0
                           h2 ef h1 nc   0 KB       0          Max      0
2->4/1/1:1->4
                3/1        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->4
                3/1        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->4
                4/*        af            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                3/1        l2            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                3/1        l2            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->3
                4/*        l2            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->2
                3/1        l1            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->2
                3/1        l1            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->2
                4/*        l1            81408 KB   9216 KB    25000000 0
                                         3360 KB    0          Max      0
2->4/1/1:1->1
                3/1        be h2 ef h1   81408 KB   9216 KB    25000000 0
                           nc            3360 KB    0          Max      0
2->4/1/1:1->1
                3/1        be h2 ef h1   81408 KB   9216 KB    25000000 0
                           nc            3360 KB    0          Max      0
2->4/1/1:1->1
                4/*        be h2 ef h1   81408 KB   9216 KB    25000000 0
                           nc            3360 KB    0          Max      0
===============================================================================
*A:Dut-T#
```

show pools command with named pools.

```
*A:Dut-T# show pools 9/2/1 egress
===============================================================================
Pool Information
===============================================================================
Port                 : 9/2/1
Application          : Egress            Pool Name          : pool1
CLI Config. Resv CBS : 10%               Policy Name        : namedEgr
Resv CBS Step        : 1%                Resv CBS Max       : 25%
Amber Alarm Threshold: 30%               Red Alarm Threshold: 45%
-------------------------------------------------------------------------------
Queue-Groups
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%

Time Avg Factor      : 7
Pool Total           : 258 KB
Pool Shared          : 192 KB            Pool Resv          : 66 KB
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Current Resv CBS    Provisioned    Rising         Falling        Alarm
%age                all Queues     Alarm Thd      Alarm Thd      Color
-------------------------------------------------------------------------------
25%                 39 KB          NA             24 KB          Red
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
1 Net=be Port=9/2/1
                          be            66048 B    7680 B     1000000  0
                                        39 KB      0          Max      0
-*A:Dut-T#-------------------------------------------------------------------------------
```

When alarm information is pending:

```
*A:Dut-T# show pools 9/2/1 egress
===============================================================================
Pool Information
===============================================================================
Port                 : 9/2/1
Application          : Egress            Pool Name          : pool1
CLI Config. Resv CBS : 10%               Policy Name        : namedEgr
Resv CBS Step        : 1%                Resv CBS Max       : 35%
Amber Alarm Threshold: 30%               Red Alarm Threshold: 45%
-------------------------------------------------------------------------------
```

```
Queue-Groups
-------------------------------------------------------------------------------
Utilization                   State       Start-Avg    Max-Avg    Max-Prob
-------------------------------------------------------------------------------
High-Slope                    Down              70%        90%         80%
Low-Slope                     Down              50%        75%         80%

Time Avg Factor      : 7
Pool Total           : 258 KB
Pool Shared         : 192 KB           Pool Resv         : 66 KB
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
Current Resv CBS    Provisioned    Rising         Falling        Alarm
%age                all Queues     Alarm Thd      Alarm Thd      Color
-------------------------------------------------------------------------------
CBS Oversubscription Alarm Info Pending
Pool Total In Use    : 0 KB
Pool Shared In Use   : 0 KB              Pool Resv In Use   : 0 KB
WA Shared In Use     : 0 KB

Hi-Slope Drop Prob   : 0                 Lo-Slope Drop Prob : 0
-------------------------------------------------------------------------------
Name            Tap        FC-Maps       MBS       HP-Only    A.PIR    A.CIR
                                         CBS       Depth      O.PIR    O.CIR
-------------------------------------------------------------------------------
1 Net=be Port=9/2/1
                          be            66048 B    7680 B     1000000  0
                                        39 KB      0          Max      0
-------------------------------------------------------------------------------
*A:Dut-T#
```

In Use Stat Note:

The pool shared in use stat only increases when a queue is asking for a buffer outside it's reserved size. If all the buffers in a pool are assigned to queues within their reserved size, then only the reserved in use size will increase. In case of resv CBS oversubscription (CBS sum for all queues is bigger then pool resvCbs), it is possible that pool resv in use stat can increase above the actual pool reserved size. For example:

```
Pool Total      : 57344 KB
Pool Shared      : 32768 KB Pool Resv : 24576 KB

Pool Total In Use    : 57344 KB
Pool Shared In Use   : 0 KB Pool Resv In Use: 57344 KB
```

Syntax

megapools

Syntax **megapools** *slot-number*

megapools *slot-number* **fp** *forwarding-plane* [**service-id** *service-id*] [**queue-group** *queue-group-name*] [**ingress** | **egress**]

Context show

Description This command displays megapool information. A megapool is a mechanism the IOM-3 flexpath traffic manager uses to allow oversubscription of buffer pools. Every buffer pool is created in the context of a megapool.

By default, all buffer pools are associated with a single megapool and the pools are not oversubscribed. When WRED queue support is enabled on the IOM, three megapools are used.

- The original megapool services the default and named pools.
- The second megapool services the system internal use pools.
- The third megapool is used by the buffer pools used by the WRED queues.

The traffic manager buffers are allocated to the three megapools without oversubscription. The WRED queue pools are allowed to oversubscribe their megapool, but the megapool protects the pools associated with the other megapools from buffer starvation that could be caused by that oversubscription.

Parameters *slot-number* — Displays information for the specified card slot.

fp-number — The fp-number parameter is optional following the **fp** command. If omitted, the system assumes forwarding plane number 1.

queue-group *queue-group-name* **—** Displays information for the specified port queue group name.

ingress — Displays ingress queue group information.

egress — Displays egress queue group information.

APS Show Commands

aps

Syntax **aps** [*aps-id*] [**detail**]

Context show

Description This command displays Automated Protection Switching (APS) information.

Parameters *aps-id* — Displays information for the specified APS group ID.

Values

aps-*group-id*	
aps:	keyword
group-id:	1 — 128

detail — Displays detailed APS information.

Output **APS Output —** The following table describes APS output fields.

Label	Description
`Interface`	Specifies the APS interface name (the APS group port).
`Admin State`	`Up` — APS is administratively up.
	`Down` — APS port is administratively down.
`Oper State`	`Up` — APS port is operationally up.
	`Down` — APS is operationally down.
`MC-CTL State`	Specifies the multi-chassis state.
`Work Circuit`	Specifies the working circuit ID.
`Prot Circuit`	Specifies the physical port that acts as the protection circuit for this APS group.
`Active Circuit`	Specifies the active circuit.
`Tx/Rx K1 Byte`	Displays the value of the SONET/SDH K1 byte received or transmitted on the protection circuit.
`Group Id`	Displays the APS group name.
`Protection Circuit`	Displays the physical port that will act as the protection circuit for this APS group.
`Switching-mode`	Displays the switching mode of the APS group.

Label	Description (Continued)
Switching-arch	The architecture of the APS group.
Revertive-mode	Displays the revertive mode of the APS group. nonrevertive — Traffic remains on the protection line until another switch request is received. revertive — When the condition that caused a switch to the protection line has been cleared the signal is switched back to the working line.
Revert-time	Displays the configured time, in minutes, to wait after the working circuit has become functional again, before making the working circuit active again. If the revertive mode is non-revertive, then this field will be empty.
Rx K1/K2 byte	Displays the value of the SONET/SDH K1/K2 byte received on the interface.
Tx K1/K2 byte	Displays the value of the SONET/SDH K1/K2 byte transmitted on the interface.
Current APS Status	Displays the current APS status.
Mode Mismatch Cnt	Indicates the number of times a conflict occurs between the current local mode and the received K2 mode information.
Channel mismatch Cnt	Indicates the number of mismatches between the transmitted K1 channel and the received K2 channel has been detected.
PSB failure Cnt	Displays a count of Protection Switch Byte (PSB) failure conditions. This condition occurs when either an inconsistent APS byte or an invalid code is detected.
FEPL failure Cnt	Displays a count of far-end protection-line (FEPL) failure conditions. This condition is declared based on receiving SF on the protection line in the K1 byte.
No. of Switchovers	Displays the number of times a switchover has occurred.
Last Switchover	Displays the time stamp of the last switchover.
Switchover seconds	Displays the cumulative Protection Switching Duration (PSD) time in seconds. For a working channel, this is the cumulative number of seconds that service was carried on the protection line. For the protection line, this is the cumulative number of seconds that the protection line has been used to carry any working channel traffic. This information is only valid if revertive switching is enabled.
Signal Degrade Cnt	Displays the number of times the signal was degraded.

Label	Description (Continued)
Signal Failure Cnt	Displays the number of times the signal failed.
Last Switch Cmd	Reports the last switch command that was performed on a circuit.
Last Exercise Result	The result of the last exercise request on a circuit.
Neighbor address	Displays the neighbor IP address.
Advertise Interval	Displays the advertise interval.
Hold time	Displays the hold time.

Sample Output

show aps on a working multi-chassis APS node:

```
*A:Dut-A# show aps aps-1
===============================================================================
APS Group Info
===============================================================================
Interface Admin  Oper   MC-Ctl  Work      Prot      Active    Tx/Rx
          State  State  State   Circuit   Circuit   Circuit   K1 Byte
-------------------------------------------------------------------------------
aps-1     Up     Up     N/A     1/5/1     1/9/5     1/5/1     PC-Tx: No-Req
===============================================================================
*A:Dut-A#


*A:Dut-A# show aps aps-1 detail
===============================================================================
APS Group: aps-1
===============================================================================
Description        : APS Group
Group Id           : 1                       Active Circuit       : 1/5/1
Admin Status       : Up                      Oper Status          : Up
Working Circuit    : 1/5/1                   Protection Circuit   : 1/9/5
Switching-mode     : Uni-1plus1              Switching-arch       : 1+1(sig,data)
Revertive-mode     : Non-revertive           Revert-time (min)    :
Rx K1/K2 byte      : 0x00/0x00 (No-Req on Protect)
Tx K1/K2 byte      : 0x00/0x00 (No-Req on Protect)
Current APS Status : OK
Multi-Chassis APS  : No
Neighbor           : 0.0.0.0
Control link state : N/A
Advertise Interval : 1000 msec               Hold Time            : 3000 msec
APS SF Hold Time   : 6000 msec               APS SD Hold Time     : 9000 msec
Mode mismatch Cnt  : 0                       Channel mismatch Cnt : 0
PSB failure Cnt    : 0                       FEPL failure Cnt     : 0
-------------------------------------------------------------------------------
 APS Working Circuit - 1/5/1
-------------------------------------------------------------------------------
Admin Status       : Up                      Oper Status          : Up
```

```
Current APS Status : OK                     No. of Switchovers   : 0
Last Switchover    : None                   Switchover seconds   : 0
Signal Degrade Cnt : 1                      Signal Failure Cnt   : 1
Last Switch Cmd    : No Cmd                 Last Exercise Result : Unknown
Tx L-AIS           : None
-------------------------------------------------------------------------------
 APS Protection Circuit - 1/9/5
-------------------------------------------------------------------------------
Admin Status       : Up                     Oper Status          : Up
Current APS Status : OK                     No. of Switchovers   : 0
Last Switchover    : None                   Switchover seconds   : 0
Signal Degrade Cnt : 1                      Signal Failure Cnt   : 1
Last Switch Cmd    : No Cmd                 Last Exercise Result : Unknown
Tx L-AIS           : None
===============================================================================
*A:Dut-A#
```

show aps on protect MC-APS node:

```
B:Dut-E# show aps
===============================================================================
APS Group Info
===============================================================================
Interface Admin  Oper    MC-Ctl   Work      Prot       Active     Tx/Rx
                 State   State    State     Circuit    Circuit    Circuit K1 Byte
-------------------------------------------------------------------------------
aps-20    Up     Up      N/A      3/1/1     3/1/2      3/1/1      PC-Tx:  No-Req
===============================================================================
B:Dut-E#


B:Dut-E# show aps aps-30 detail
===============================================================================
APS Group: aps-30
===============================================================================
Description        : APS Group
Group Id           : 30                     Active Circuit       : N/A
Admin Status       : Up                     Oper Status          : Up
Working Circuit    : N/A                    Protection Circuit   : 2/2/2
Switching-mode     : Bi-directional         Switching-arch       : 1+1
Revertive-mode     : Non-revertive          Revert-time (min) :
Rx K1/K2 byte      : 0x00/0x05 (No-Req on Protect)
Tx K1/K2 byte      : 0x00/0x05 (No-Req on Protect)
Current APS Status : OK
Multi-Chassis APS  : Yes
Neighbor           : 13.1.1.1
Control link state : Up
Advertise Interval : 1000 msec              Hold time            : 3000 msec
Mode mismatch Cnt  : 0                      Channel mismatch Cnt : 0
PSB failure Cnt    : 0                      FEPL failure Cnt     : 1
-------------------------------------------------------------------------------
 APS Working Circuit - Neighbor
-------------------------------------------------------------------------------
Admin Status       : N/A                    Oper Status          : N/A
Current APS Status : OK                     No. of Switchovers   : 0
Last Switchover    : None                   Switchover seconds   : 0
Signal Degrade Cnt : 0                      Signal Failure Cnt   : 0
```

```
Last Switch Cmd    : No Cmd                Last Exercise Result : Unknown
Tx L-AIS           : None
-------------------------------------------------------------------------------
 APS Protection Circuit - 2/2/2
-------------------------------------------------------------------------------
Admin Status       : Up                    Oper Status          : Up
Current APS Status : OK                    No. of Switchovers   : 0
Last Switchover    : None                  Switchover seconds   : 0
Signal Degrade Cnt : 0                     Signal Failure Cnt   : 0
Last Switch Cmd    : No Cmd                Last Exercise Result : Unknown
Tx L-AIS           : None
===============================================================================
B:Dut-E#
```

Port Show Commands

port

Syntax **port** *port-id* [**count**] [**detail**]
port *port-id* **description**
port *port-id* **associations**
port *port-id* **atm connections**
port *port-id* **atm cp**
port *port-id* **atm ilmi**
port *port-id* **atm port-connection** [**detail**]
port *port-id* **atm pvc** [*vpi*[/*vci*]] [**detail**]
port *port-id* **atm pvp** [*vpi*] [**detail**]
port *port-id* **atm pvt** [*vpi-range*] [**detail**]
port *port-id* **cisco-hdlc**
port *port-id* **monitor-threshold**
port *port-id* **ppp** [**detail**]
port *port-id* **queue-group** [**ingress|egress**] [**queue-group-name**] [**access|network**] [{**statistics|associations**}]
port *port-id* **queue-group** *qgrp-id* [**instance** *instance-id*] **queue-depth** [**queue** *queue-id*] [**ingress**|**egress**] [**access**|**network**]
port *port-id* mlfr-link [detail]**port** *port-id* **otu** [**detail**]
port *port-id* **frame-relay** [**detail**]
port aps [**detail**]
port cem
port port-id ethernet [[**efm-oam** [*event-logs* {**failure|degraded**} {**active|cleared**}] | **detailed**]
port *port-id* **dot1x** [**detail**]
port *port-id* **vport** [*vport-name*] **associations**
port *port-id* **vport** [*vport-name*] **monitor-threshold**

Context show

Description This command displays port or channel information.

If no command line options are specified, the command port displays summary information for all ports on provisioned MDAs.

Parameters *port-id* — Specifies the physical port ID in the form *slot/mda/port*.

Syntax		
	port-id	*slot*[/*mda*[/*port*]] or *slot*/*mda*/*port*[.*channel*]
	aps-id	aps-*group-id*[.*channel*]
	aps	keyword
	group-id	1 — 64

ccag-id *slot/mda/path-id*[*cc-type*]
path-id a, b
cc-type .sap-net, .net-sap

MDA Values 7750 SR-12, 7750 SR-7: 1, 2
7750 SR-c12: 1, 3, 5, 7, 9, 11
7750 SR-c4: 1, 3

CMA Values 7750 SR-c12: 1 — 12, 7750 SR-c4: 1 — 4

Slot Values 7750 SR-12: 1 — 10
7750 SR-7: 1 — 5
7750 SR-c12/4: 1

Port Values 1 — 60 (depending on the MDA type)

Values (for channelized MDAs):
CHOC12-SFP: slot/mda/port. [1..4] . [1..3] . [1..28] . [..24]
For example, 7/2/1.1.1.28.24
CHOC3-SFP: slot/mda/port. [1..3] . [1..28] . [..24]
For example, 7/2/1.1.28.24
DS3: slot/mda/port. [1..28] . [..24]
For example, 7/1/1.1.1

aps — Displays ports on APS groups.

associations — Displays a list of current router interfaces to which the port is associated.

cisco-hdlc — Dispays Cisco HDLC port information.

count — Displays only port counter summary information.

description — Displays port description strings.

dot1x — Displays information.about 802.1x status and statistics.

down-when-looped — Displays status of port and whether the feature is enabled.

ethernet — Displays ethernet port information.

efm-oam — Displays EFM OAM information.

event-logs — Displays all active and historical event logs.

failure — Displays the active and cleared failure events.

degraded — Displays the active and cleared failure events.

active — Displays only the active events.

cleared — Displays only the cleared events.

detail — Displays detailed information about the Ethernet port.

frame-relay — Displays Frame Relay information.

ppp — Displays PPP protocol information for the port.

mlfr-link — Displays link-based MLFR information for the port.

detail — Provides detailed information.

atm — Displays ATM information.

connections — Displays ATM connection information.

port-connections — Displays ATM port connection information.

pvc — Displays ATM port PVC information.

pvp — Displays ATM port PVP information.

pvt — Displays ATM port PVT information.

vpi-range	vpi:	0 — 4095 (NNI) 0 — 255 (UNI)
	vpi:	0 — 4095 (NNI) 0 — 255 (UNI)
vpi/vci	vpi:	0 — 4095 (NNI) 0 — 255 (UNI)
	vci:	1, 2, 5 — 65534

vport — Displays Vport information.

associations — Displays a list of ports to which the Vport is assigned.

monitor-threshold — Displays the exceed-count for the port-scheduler under Vport (if specified) or for a physical port.

detail — Provides detailed information.

Output

Port Output — The following tables describe port output fields:

- General Port Output Fields on page 373
- Entering port ranges: on page 380
- Specific Port Output Fields on page 382
- Detailed Port Output Fields on page 389
- Ethernet Output on page 398
- Ethernet-Like Medium Statistics Output Fields on page 400
- Port Associations Output Fields on page 407

Label	Description
Port ID	The port ID configured or displayed in the *slot/mda/port* format.
Admin State	Up — The administrative state is up.
	Down — The administrative state is down.
Phy Link	Yes — A physical link is present.
	No — A physical link is not present.

Label	Description (Continued)
Port State	Up — The port is physically present and has physical link present. Down — The port is physically present but does not have a link. Note that this state may also be considered as Link Down. Ghost — A port that is not physically present. None — The port is in its initial creation state or about to be deleted. Link Up — A port that is physically present and has physical link present. Note that when Link Up appears at the lowest level of a SONET/SDH path or a TDM tributary, it means the physical connection is active but the port is waiting on some other state before data traffic can flow. It is a waiting state and indicates that data traffic will not flow until it transitions to the Up state.
Cfg MTU	The configured MTU.
Oper MTU	The negotiated size of the largest packet which can be sent on the port SONET/SDH, channel, specified in octets. For channels that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the channel.
LAG ID	The LAG or multi-link trunk (MLT) that the port is assigned to.
Port Mode	network — The port is configured for transport network use. access — The port is configured for service access. hybrid — The port is configured for both access and network use.
Port Encap	Null — Ingress frames will not use tags or labels to delineate a service. dot1q — Ingress frames carry 802.1Q tags where each tag signifies a different service.
Port Type	The type of port or optics installed.
SFP/MDI MDX	GIGE — Indicates the GigE SFP type. FASTE — Indicates the FastE SFP type. GIGX — Indicates the GigX SFP type. MDI — Indicates that the Ethernet interface is of type MDI (Media Dependent Interface). MDX — Indicates that the Ethernet interface is of type MDX (Media Dependent Interface with crossovers).

Sample Output

```
A:SR12# show port 3/1/1 atm cp
===============================================================
ATM Connection Profiles, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
5          SAP    CP       1       1       -    -           -
9          SAP    CP       1       1       -    -           -
===============================================================
A:SR12#


A:SR12# show port 3/1/1 atm cp detail
===============================================================
ATM Connection Profile, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
5          SAP    CP       1       1       -    -           -

===============================================================================
ATM Connection Profile Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Cells                                                  0                     0
Dropped CLP=0 Cells                                    0                     0
Dropped Cells (CLP=0+1)                                0
Tagged Cells                                           0
===============================================================================
===============================================================
ATM Connection Profile, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
9          SAP    CP       1       1       -    -           -

===============================================================================
ATM Connection Profile Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Cells                                                  0                     0
Dropped CLP=0 Cells                                    0                     0
Dropped Cells (CLP=0+1)                                0
Tagged Cells                                           0
===============================================================================
A:SR12#


A:SR12# show port 3/1/1 atm cp 5
===============================================================================
ATM Connection Profile
===============================================================================
Port Id            : 3/1/1              Connection Profile : 5
Owner              : SAP                Endpoint Type      : CP
Ing. Td Idx        : 1                  Egr. Td Idx        : 1
```

```
===============================================================================
A:SR12#
A:SR12# show port 3/1/1 atm cp 5 detail
===============================================================================
ATM Connection Profile
===============================================================================
Port Id            : 3/1/1               Connection Profile : 5
Owner              : SAP                 Endpoint Type      : CP
Ing. Td Idx        : 1                   Egr. Td Idx        : 1
===============================================================================
===============================================================================
ATM Connection Profile Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Cells                                                  0                     0
Dropped CLP=0 Cells                                    0                     0
Dropped Cells (CLP=0+1)                                0
Tagged Cells                                           0
===============================================================================
A:SR12#


*B:Dut-A# show port 2/1/4 atm pvc 20/21 detail
===============================================================================
ATM PVC
===============================================================================
Port Id            : 2/1/4               VPI/VCI            : 20/21
Admin State        : up                  Oper state         : up
OAM State          : up                  Encap Type         : n/a
Owner              : SAP                 AAL Type           : n/a
Endpoint Type      : PVC                 Cast Type          : P2P
Ing. Td Idx        : 1                   Egr. Td Idx        : 1
Last Changed       : 11/01/2010 13:46:16 ILMI Vpi/Vci Range : n/a
===============================================================================
===============================================================================
ATM Statistics
===============================================================================
                       Input                 Output
-------------------------------------------------------------------------------
Octets                                    855155
Cells                                      16135
CLP=0 Cells                                16135
Dropped CLP=0 Cells                            0
Dropped Cells (CLP=0+1)                        0
Tagged Cells                                   0
===============================================================================
===============================================================================
ATM OAM Statistics
===============================================================================
                                            Input                 Output
-------------------------------------------------------------------------------
AIS                                             0                     28
RDI                                             0                      0
Loopback                                        0                      0
CRC-10 Errors                                   0
Other                                           0
===============================================================================
```

```
*B:Dut-A#

*B:Dut-A# show port 2/1/4 atm cp
===============================================================
ATM Connection Profiles, Port 2/1/4
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
10         SAP    CP       1       1       -    -           -
20         SAP    CP       1       1       -    -           -
===============================================================
*B:Dut-A#


*B:Dut-A# show port 2/1/4 atm cp 10
===============================================================================
ATM Connection Profile
===============================================================================
Port Id            : 2/1/4               Connection Profile : 10
Owner              : SAP                 Endpoint Type      : CP
Ing. Td Idx        : 1                   Egr. Td Idx        : 1
===============================================================================
*B:Dut-A#


*A:HW_Node_A# show port 1/1/1

===============================================================================
Ethernet Oam (802.3ah)
===============================================================================
Admin State        : downOper State         : disabled (protocol state)
Ignore-efm-state   : Enabled/Disabled
===============================================================================


*A:HW_Node_A# show port 6/2/1
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100/Gig Ethernet TX
Interface          : 6/2/1                     Oper Speed       : N/A
Link-level         : Ethernet                  Config Speed     : 1 Gbps
Admin State        : up                        Oper Duplex      : N/A
Oper State         : down                      Config Duplex    : full
Reason Down        : crcError|internalMacTxError
Physical Link      : No                        MTU              : 9212
Single Fiber Mode  : No
IfIndex            : 205553664                 Hold time up     : 0 seconds
Last State Change  : 02/11/2010 07:45:17       Hold time down   : 0 seconds
Last Cleared Time  : N/A                       DDM Events       : Enabled
Phys State Chng Cnt: 3
Configured Mode    : network                   Encap Type       : null
Dot1Q Ethertype    : 0x8100                    QinQ Ethertype   : 0x8100
PBB Ethertype      : 0x88e7
Ing. Pool % Rate   : 100                       Egr. Pool % Rate : 100
Ing. Pool Policy   : n/a
Egr. Pool Policy   : n/a
Net. Egr. Queue Pol: default
Egr. Sched. Pol    : n/a
```

```
Auto-negotiate     : true                       MDI/MDX          : unknown
Accounting Policy  : None                       Collect-stats    : Disabled
Egress Rate        : Default                    Ingress Rate     : Default
Load-balance-algo  : default                    LACP Tunnel      : Disabled

Down-when-looped   : Disabled                   Keep-alive       : 10
Loop Detected      : False                      Retry            : 120
Use Broadcast Addr : False

Sync. Status Msg.  : Disabled                   Rx Quality Level : N/A
Tx DUS/DNU         : Disabled                   Tx Quality Level : N/A
SSM Code Type      : sdh

Down On Int. Error : Enabled

CRC Mon SD Thresh  : 4*10E-5                    CRC Mon Window   : 5 seconds
CRC Mon SF Thresh  : 5*10E-2
CRC Alarms         : sdThresholdExceeded sfThresholdExceeded

*A:ALU-211# show port 1/1/2
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100 Ethernet TX
Interface          : 1/1/2                      Oper Speed       : 100 mbps
Link-level         : Ethernet                   Config Speed     : 100 mbps
Admin State        : up                         Oper Duplex      : full
Oper State         : up - Active in LAG 10      Config Duplex    : full
Physical Link      : Yes                        MTU              : 1514
Single Fiber Mode  : No
IfIndex            : 35717120                   Hold time up     : 0 seconds
Last State Change  : 12/16/2008 19:31:40        Hold time down   : 0 seconds
Last Cleared Time  : 12/16/2008 19:31:48
.....
===============================================================================
*A:ALU-211#


*A:ALU-211# show port 1/1/2
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100 Ethernet TX
Interface          : 1/1/2                      Oper Speed       : 100 mbps
Link-level         : Ethernet                   Config Speed     : 100 mbps
Admin State        : up                         Oper Duplex      : full
Oper State         : down - Standby in LAG 10   Config Duplex    : full
Physical Link      : Yes                        MTU              : 1514
Single Fiber Mode  : No
IfIndex            : 35717120                   Hold time up     : 0 seconds
Last State Change  : 12/16/2008 18:28:52        Hold time down   : 0 seconds
Last Cleared Time  : 12/16/2008 18:28:51
...
===============================================================================
*A:ALU-211#
*A:Dut-C#
 5)
show port slot/mda/2 => offramp port info
show port slot/mda/3 => onramp port info
```

```
*A:Dut-C# show port 2/1/2
===============================================================================
     ISA-TMS Port
===============================================================================
     Description        : TMS
     Port               : 2/1/2                     Admin State      : up
     Last State Change  : 09/14/2011 07:03:49       Oper State       : up

     Configured Mode    : network                   Net. Egr. Queue *: default
===============================================================================
     * indicates that the corresponding row element may have been truncated.
===============================================================================
     Port Statistics
===============================================================================
                                                        Input                Output
     -------------------------------------------------------------------------------
     Unicast Packets                                    35365                   254
     Multicast Packets                                      0                     0
     Broadcast Packets                                      0                     0
     Discards                                               0                     0
     Unknown Proto Discards                                 0
===============================================================================
===============================================================================
     Ethernet-like Medium Statistics
===============================================================================

     Alignment Errors :                   0  Sngl Collisions  :                   0
     FCS Errors       :                   0  Mult Collisions  :                   0
     SQE Test Errors  :                   0  Late Collisions  :                   0
     CSE              :                   0  Excess Collisns  :                   0
     Too long Frames  :                   0  Int MAC Tx Errs  :                   0
     Symbol Errors    :                   0  Int MAC Rx Errs  :                   0
===============================================================================
     *A:Dut-C# show port 2/1/3
===============================================================================
     ISA-TMS Port
===============================================================================
     Description        : TMS
     Port               : 2/1/3                     Admin State      : up
     Last State Change  : 09/14/2011 07:03:49       Oper State       : up

     Configured Mode    : network                   Net. Egr. Queue *: default
===============================================================================
     * indicates that the corresponding row element may have been truncated.
===============================================================================
     Port Statistics
===============================================================================
                                                   Input                 Output
     -------------------------------------------------------------------------------
     Unicast Packets                                   1                  35710
     Multicast Packets                                 0                      0
     Broadcast Packets                                 0                      0
     Discards                                          0                      0
     Unknown Proto Discards                            0
===============================================================================
===============================================================================
     Ethernet-like Medium Statistics
```

```
===============================================================================
     Alignment Errors :                  0  Sngl Collisions  :                 0
     FCS Errors       :                  0  Mult Collisions  :                 0
     SQE Test Errors  :                  0  Late Collisions  :                 0
     CSE              :                  0  Excess Collisns  :                 0
     Too long Frames  :                  0  Int MAC Tx Errs  :                 0
     Symbol Errors    :                  0  Int MAC Rx Errs  :                 0
===============================================================================
```

Entering port ranges:

```
*A:ALU-1# configure port 1/1/[1..3] shut
*A:ALU-1# show port 1/1
===============================================================================
Ports on Slot 1
===============================================================================
Port        Admin Link Port    Cfg  Oper LAG/ Port Port Port   SFP/XFP/
Id          State      State   MTU  MTU  Bndl Mode Encp Type   MDIMDX
-------------------------------------------------------------------------------
1/1/1       Down  No   Down    1518 1518    1 accs dotq gige
1/1/2       Down  No   Down    1578 1578    - netw null gige
1/1/3       Down  No   Down    1578 1578    - netw null gige
1/1/4       Up    No   Down    1514 1514    - accs null gige
1/1/5       Up    No   Down    1578 1578    - netw null gige
===============================================================================
*A:ALU-1#


Transceiver Data

Transceiver Type   : MSA-100GLH
Model Number       : 28-0089-XX
TX Laser Wavelength: 1558.172 nm               Present Channel  : 24
TX Laser Frequency : 192.400 THz               Configured Chann*: 24
Laser Tunability   : fully-tunable             50GHz Ch Min/Max : 115/605
                                               100GHz Ch Min/Max: 12/61
RxDTV Adjust       : Enabled                   DAC Percent      : 50.00 %
Diag Capable       : yes
Number of Lanes    : 1
Connector Code     : LC                        Vendor OUI       : 00:03:fa
Manufacture date   : 2012/07/16                Media            : Ethernet
Serial Number      : 122900645
Part Number        : AC100-201-00E
Optical Compliance : DWDM-TUN
Link Length support: 80km for SMF

===============================================================================
Transceiver Digital Diagnostic Monitoring (DDM)
===============================================================================
                             Value High Alarm  High Warn   Low Warn  Low Alarm
-------------------------------------------------------------------------------
Temperature (C)              +60.9     +80.0      +70.0       +0.0       -5.0
Supply Voltage (V)           12.07     13.00      12.60      11.40      11.00
===============================================================================

===============================================================================
Transceiver Lane Digital Diagnostic Monitoring (DDM)
===============================================================================
                                High Alarm   High Warn    Low Warn   Low Alarm
```

```
-------------------------------------------------------------------------------
Lane Temperature (C)                  +75.0       +70.0       +20.0       +15.0
Lane Tx Bias Current (mA)              10.0         9.0         3.0         2.0
Lane Tx Output Power (dBm)             3.00        2.00        0.00       -1.00
Lane Rx Optical Pwr (avg dBm)          8.16        5.00      -20.00      -23.01

-------------------------------------------------------------------------------
Lane ID Temp(C)/Alm       Tx Bias(mA)/Alm   Tx Pwr(dBm)/Alm   Rx Pwr(dBm)/Alm
-------------------------------------------------------------------------------
    1          +48.4               5.1              0.99            -10.45
===============================================================================

===============================================================================
Coherent Optical Module
===============================================================================
fg Tx Target Power:   1.00 dBm               Present Rx Channel : 24
Cfg Rx LOS Thresh  : -23.00 dBm               Cfg Rx Channel     : 24 (auto)

Disp Control Mode  : automatic                Sweep Start Disp   : -25500 ps/nm
Cfg Dispersion     :      0 ps/nm             Sweep End Disp     :   2000 ps/nm
CPR Window Size    : 4 symbols

Cfg Alarms         : modflt mod netrx nettx hosttx
Alarm Status       :
Defect Points      :

Rx Q Margin        :    10.1 dB               Chromatic Disp     :  1 ps/nm
SNR X Polar        :   19.7 dB               Diff Group Delay   :      0 ps
SNR Y Polar        :   19.8 dB               Pre-FEC BER        : 0.000E+00

Module State       : ready
Tx Turn-Up States  : init laserTurnUp laserReadyOff laserReady
                     modulatorConverge outputPowerAdjust
Rx Turn-Up States  : init laserReady waitForInput adcSignal opticalLock
                     demodLock
===============================================================================

===============================================================================
Wavelength Tracker
===============================================================================
Port Type          : pluggable                SFP VOA Present    : yes

SFP VOA Type       : fast
Serial Number      : ALLU11--JS0100456
Part Number        : 21131722-0101

Power Control      : Enabled                  WaveKey Status     : Disabled
Target Power       : -10.00 dBm               WaveKey 1          : 0
Measured Power     :  -9.99 dBm               WaveKey 2          : 0

Cfg Alarms         : enc-fail enc-degr pwr-fail pwr-degr pwr-high pwr-low
                     missing
Alarm Status       :

Maximum Power      :  -2.60 dBm               Power Upper Margin :   7.39 dB
Minimum Power      : -22.00 dBm               Power Lower Margin :  12.01 dB
===============================================================================
```

```
Show port optical detail:

===============================================================================
Coherent Optical Module
===============================================================================
Cfg Tx Target Power:   1.00 dBm               Present Rx Channel : 24
CPR Window Size    : 4 symbols                Cfg Rx Channel     : 24 (auto)

Disp Control Mode  : automatic                Sweep Start Disp   : -25500 ps/nm
Cfg Dispersion     :      0 ps/nm             Sweep End Disp     :   2000 ps/nm

Cfg Alarms         : modflt mod netrx nettx hosttx
Alarm Status       :
Defect Points      :

Rx Q Margin        :   10.1 dB                Chromatic Disp     :      1 ps/nm
SNR X Polar        :   19.7 dB                Diff Group Delay   :      0 ps
SNR Y Polar        :   19.5 dB                Pre-FEC BER        : 0.000E+00

Module State       : ready
Tx Turn-Up States  : init laserTurnUp laserReadyOff laserReady
                     modulatorConverge outputPowerAdjust
Rx Turn-Up States  : init laserReady waitForInput adcSignal opticalLock
                     demodLock

-------------------------------------------------------------------------------
Coherent Optical Port Statistics (Elapsed Seconds: 80674)
-------------------------------------------------------------------------------
Statistic                          Current      Average      Minimum      Maximum
-------------------------------------------------------------------------------
Rx BER                         0.000E+00    2.323E-05    0.000E+00    4.646E-05
Rx SNR (dB)                         19.6         10.0          0.0         20.1
Rx Chromatic Disp (ps/nm)              1          -18          -37            1
Rx Diff Group Delay (ps)               0            0            0            0
Rx Freq Offset (MHz)                  38          -74         -347          200
Rx Q (dB)                           16.6          8.3          0.0         16.6
Rx Power (dBm)                     -10.44       -13.40       -99.00       -10.39
Tx Power (dBm)                       0.98        -2.00       -99.00         1.01
-------------------------------------------------------------------------------
===============================================================================
```

Specific Port Output — The following table describes port output fields for a specific port.

Label	Description
`Description`	A text description of the port.
`Interface`	The port ID displayed in the *slot/mda/port* format.
`Speed`	The speed of the interface.
`Link-level`	`Ethernet` — The port is configured as Ethernet. `SONET` — The port is configured as SONET-SDH.

Label	Description (Continued)
MTU	The size of the largest packet which can be sent/received on the Ethernet physical interface, specified in octets.
Admin State	Up – The port is administratively up. Down – The port is administratively down.
Oper State	Up – The port is operationally up. Down – The port is operationally down. Additionally, the *lag-id* of the LAG it belongs to in addition to the status of the LAG member (active or standby) is specified.
Duplex	Full – The link is set to full duplex mode. Half – The link is set to half duplex mode.
Hold time up	The link up dampening time in seconds. The port link dampening timer value which reduces the number of link transitions reported to upper layer protocols.
Hold time down	The link down dampening time in seconds. The **down** timer controls the dampening timer for link down transitions.
Reset On Path Down	Whether a SONET/SDH port will reset when the path transitions to an operationally down state. Only SONET/SDH ports on 7750 4-port OC48 SFP "-B" MDAs will reset if Reset On Path Down is enabled.
Physical Link	Yes – A physical link is present. No – A physical link is not present.
IfIndex	Displays the interface's index number which reflects its initialization sequence.
Last State chg	Displays the system time moment that the peer is up.
Last State Change	Displays the system time moment that the MC-LAG group is up.
Phys State Chng Cnt	Increments when a fully qualified (de-bounced) transition occurs at the physical layer of an ethernet port which includes the following transitions of the Port State as shown in the "show port" summary: - from "Down" to either "Link Up" or "Up" - from either "Link Up" or "Up" to "Down" This counter does not increment for changes purely in the link protocol states (e.g. "Link Up" to "Up"). The counter is reset if the container objects for the port are deleted (e.g. MDA deconfigured, or IOM type changes).
Last Cleared Time	Displays the system time moment that the peer is up.

Label	Description (Continued)
DDM Events	Enabled — DDM events are enabled Disabled — DDM events are disabled
Configured Mode	network — The port is configured for transport network use. access — The port is configured for service access.
Dot1Q Ethertype	Indicates the Ethertype expected when the port's encapsulation type is Dot1Q.
QinQ Ethertype	Indicates the Ethertype expected when the port's encapsulation type is QinQ.
Net. Egr. Queue Pol	Specifies the network egress queue policy or that the default policy is used.
Encap Type	Null — Ingress frames will not use any tags or labels to delineate a service. dot1q — Ingress frames carry 802.1Q tags where each tag signifies a different service.
Active Alarms	The number of alarms outstanding on this port.
Auto-negotiate	True — The link attempts to automatically negotiate the link speed and duplex parameters. False — The duplex and speed values are used for the link.
Alarm State	The current alarm state of the port.
Collect Stats	Enabled — The collection of accounting and statistical data for the network Ethernet port is enabled. When applying accounting policies the data by default will be collected in the appropriate records and written to the designated billing file. Disabled — Collection is disabled. Statistics are still accumulated by the IOM cards, however, the CPU will not obtain the results and write them to the billing file.
Egress Rate	The maximum amount of egress bandwidth (in kilobits per second) that this Ethernet interface can generate.
Egress Buf (Acc)	The access-buffer policy for the egress buffer.
Egress Buf (Net)	The network-buffer policy for the egress buffer.
Egress Pool Size	The amount of egress buffer space, expressed as a percentage of the available buffer space that will be allocated to the port or channel for egress buffering.
Ingress Buf (Acc)	The access-buffer policy for the ingress buffer.

Label	Description (Continued)
Ingress Pool Size	The amount of ingress buffer space, expressed as a percentage of the available buffer space that will be allocated to the port or channel for ingress buffering.
OTU	OTU encapsulation status.
Configured Address	The base chassis Ethernet MAC address.
Hardware Address	The interface's hardware or system assigned MAC address at its protocol sub-layer.
Transceiver Type	Type of the transceiver.
Model Number	The model number of the transceiver.
Transceiver Code	The code for the transmission media.
Laser Wavelength	The light wavelength transmitted by the transceiver's laser.
Connector Code	The vendor organizationally unique identifier field (OUI) contains the IEEE company identifier for the vendor.
Diag Capable	Indicates if the transceiver is capable of doing diagnostics.
Vendor OUI	The vendor-specific identifier field (OUI) contains the IEEE company identifier for the vendor.
Manufacture date	The manufacturing date of the hardware component in the mmddyyyy ASCII format.
Media	The media supported for the SFP.
Serial Number	The vendor serial number of the hardware component.
Part Number	The vendor part number contains ASCII characters, defining the vendor part number or product name.
Input/Output	When the collection of accounting and statistical data is enabled, then octet, packet, and error statistics are displayed.
Description	A text description of the port.
Interface	The port ID displayed in the *slot/mda/port* format.
Speed	The speed of the interface
Link-level	Ethernet – The port is configured as Ethernet. SONET – The port is configured as SONET-SDH
MTU	The size of the largest packet which can be sent/received on the Ethernet physical interface, specified in octets.

Label	Description (Continued)
Admin State	Up — The port is administratively up. Down — The port is administratively down.
Oper State	Up — The port is operationally up. Down — The port is operationally down.
Duplex	Full — The link is set to full duplex mode. Half — The link is set to half duplex mode.
Hold time up	The link up dampening time in seconds. The port link dampening timer value which reduces the number of link transitions reported to upper layer protocols.
Hold time down	The link down dampening time in seconds. The **down** timer controls the dampening timer for link down transitions.
IfIndex	Displays the interface's index number which reflects its initialization sequence.
Phy Link	Yes — A physical link is present. No — A physical link is not present.
Configured Mode	network — The port is configured for transport network use. access — The port is configured for service access.
Network Qos Pol	The network QoS policy ID applied to the port.
Encap Type	Null — Ingress frames will not use any tags or labels to delineate a service. dot1q — Ingress frames carry 802.1Q tags where each tag signifies a different service.
Active Alarms	The number of alarms outstanding on this port.
Auto-negotiate	True — The link attempts to automatically negotiate the link speed and duplex parameters. False — The duplex and speed values are used for the link.
Alarm State	The current alarm state of the port.
Collect Stats	Enabled — The collection of accounting and statistical data for the network Ethernet port is enabled. When applying accounting policies the data by default will be collected in the appropriate records and written to the designated billing file.

Label	Description (Continued)
	Disabled – Collection is disabled. Statistics are still accumulated by the IOM cards, however, the CPU will not obtain the results and write them to the billing file.
Down-When-Looped	Shows whether the feature is enabled or disabled.
Egress Buf (Acc)	The access-buffer policy for the egress buffer.
Egress Buf (Net)	The network-buffer policy for the egress buffer.
Ingress Buf (Acc)	The access-buffer policy for the ingress buffer.
Ingress Pool Size	The amount of ingress buffer space, expressed as a percentage of the available buffer space, that will be allocated to the port or channel for ingress buffering.
Configured Address	The base chassis Ethernet MAC address.
Hardware Address	The interface's hardware or system assigned MAC address at its protocol sub-layer.
Errors Input/ Output	For packet-oriented interfaces, the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol. For character-oriented or fixed-length interfaces, the number of inbound transmission units that contained errors preventing them from being deliverable to a higher-layer protocol. For packet-oriented interfaces, the number of outbound packets that could not be transmitted because of errors. For character-oriented or fixed-length interfaces, the number of outbound transmission units that could not be transmitted because of errors.
Unicast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were not addressed to a multicast or broadcast address at this sub-layer. The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent.
Multicast Pack-ets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a multicast address at this sub-layer. For a MAC layer protocol, this includes both group and functional addresses. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.

Label	Description (Continued)
Broadcast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a broadcast address at this sub-layer. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.
Discards Input/Output	The number of inbound packets chosen to be discarded to possibly free up buffer space.
Unknown Proto Discards Input/Output	For packet-oriented interfaces, the number of packets received through the interface which were discarded because of an unknown or unsupported protocol. For character-oriented or fixed-length interfaces that support protocol multiplexing the number of transmission units received via the interface which were discarded because of an unknown or unsupported protocol. For any interface that does not support protocol multiplexing, this counter will always be 0. For ATM, this field displays cells discarded on an invalid vpi/vci. Unknown proto discards do not show up in the packet counts.
Errors	This field displays the number of cells discarded due to uncorrectable HEC errors. Errors do not show up in the raw cell counts.
Sync. Status Msg	Whether synchronization status messages are enabled or disabled.
Tx DUS/DNU	Whether the QL value is forcibly set to QL-DUS/QL-DNU.
Rx Quality Level	Indicates which QL value has been received from the interface.
Tx Quality Level	Indicates which QL value is being transmitted out of the interface.
SSM Code Type	Indicates the SSM code type in use on the port.

Detailed Port Output — The following table describes detailed port output fields.

Label	Description
Description	A text description of the port.
Interface	The port ID displayed in the *slot/mda/port* format.
Speed	The speed of the interface.
Link-level	Ethernet – The port is configured as Ethernet. SONET – The port is configured as SONET/SDH.
MTU	The size of the largest packet which can be sent/received on the Ethernet physical interface, specified in octets.
Admin State	Up – The port is administratively up. Down – The port is administratively down.
Oper State	Up – The port is operationally up. Down – The port is operationally down.
Duplex	Full – The link is set to full duplex mode. Half – The link is set to half duplex mode.
Hold time up	The link up dampening time in seconds. The port link dampening timer value which reduces the number of link transitions reported to upper layer protocols.
Hold time down	The link down dampening time in seconds. The **down** timer controls the dampening timer for link down transitions.
IfIndex	Displays the interface's index number which reflects its initialization sequence.
Phy Link	Yes – A physical link is present. No – A physical link is not present.
Phys State Chng Cnt	Increments when a fully qualified (de-bounced) transition occurs at the physical layer of an ethernet port which includes the following transitions of the Port State as shown in the “show port” summary: - from “Down” to either “Link Up” or “Up” - from either “Link Up” or “Up” to “Down” This counter does not increment for changes purely in the link protocol states (e.g. "Link Up" to "Up"). The counter is reset if the container objects for the port are deleted (e.g. MDA deconfigured, or IOM type changes).
Last Cleared Time	Displays the system time moment that the peer is up.

Label	Description (Continued)
DDM Events	Enabled — DDM events are enabled Disabled — DDM events are disabled
Configured Mode	network — The port is configured for transport network use.
	access — The port is configured for service access.
Network Qos Pol	The QoS policy ID applied to the port.
Access Egr. Qos	Specifies the access egress policy or that the default policy 1 is in use.
Egr. Sched. Pol	Specifies the port scheduler policy or that the default policy default is in use.
Encap Type	Null — Ingress frames will not use any tags or labels to delineate a service.
	dot1q — Ingress frames carry 802.1Q tags where each tag signifies a different service.
Active Alarms	The number of alarms outstanding on this port.
Auto-negotiate	True — The link attempts to automatically negotiate the link speed and duplex parameters.
	False — The duplex and speed values are used for the link.
Alarm State	The current alarm state of the port.
Collect Stats	Enabled — The collection of accounting and statistical data for the network Ethernet port is enabled. When applying accounting policies the data by default will be collected in the appropriate records and written to the designated billing file.
	Disabled — Collection is disabled. Statistics are still accumulated by the IOM cards, however, the CPU will not obtain the results and write them to the billing file.
Down-When-Looped	Shows whether the feature is enabled or disabled.
Egress Rate	The maximum amount of egress bandwidth (in kilobits per second) that this Ethernet interface can generate.
Egress Buf (Acc)	The access-buffer policy for the egress buffer.
Egress Buf (Net)	The network-buffer policy for the egress buffer.
Egress Pool Size	The amount of egress buffer space, expressed as a percentage of the available buffer space that will be allocated to the port or channel for egress buffering.
Ingress Buf (Acc)	The access-buffer policy for the ingress buffer.

Label	Description (Continued)
Ingress Pool Size	The amount of ingress buffer space, expressed as a percentage of the available buffer space, that will be allocated to the port or channel for ingress buffering.
Configured Address	The base chassis Ethernet MAC address.
Hardware Address	The interface's hardware or system assigned MAC address at its protocol sub-layer.
Errors Input/ Output	For packet-oriented interfaces, the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol. For character-oriented or fixed-length interfaces, the number of inbound transmission units that contained errors preventing them from being deliverable to a higher-layer protocol. For packet-oriented interfaces, the number of outbound packets that could not be transmitted because of errors. For character-oriented or fixed-length interfaces, the number of outbound transmission units that could not be transmitted because of errors.
Unicast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were not addressed to a multicast or broadcast address at this sub-layer. The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent.
Multicast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a multicast address at this sub-layer. For a MAC layer protocol, this includes both Group and Functional addresses. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.
Broadcast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a broadcast address at this sub-layer. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.
Discards Input/ Output	The number of inbound packets chosen to be discarded to possibly free up buffer space.

Label	Description (Continued)
Unknown Proto Discards Input/ Output	For packet-oriented interfaces, the number of packets received through the interface which were discarded because of an unknown or unsupported protocol. For character-oriented or fixed-length interfaces that support protocol multiplexing the number of transmission units received via the interface which were discarded because of an unknown or unsupported protocol. For any interface that does not support protocol multiplexing, this counter will always be 0. For ATM, this field displays cells discarded on an invalid vpi/ vci. Unknown proto discards do not show up in the packet counts.
Errors	For ATM, this field displays the number of cells discarded due to uncorrectable HEC errors. Errors do not show up in the raw cell counts.
LLF Admin State	Displays the Link Loss Forwarding administrative state.
LLF Oper State	Displays the Link Loss Forwarding operational state.
Rx S1 Byte	Displays the received S1 byte and its decoded QL value.
Tx S1 Byte	Displays the transmitted S1 byte and its decoded QL value.
Tx DUS/DNU	Displays whether the QL value is forcibly set to QL-DUS/QL-DNU.

Sample Output

```
A:ALA-251# show port 1/2/1 detail
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100 Ethernet TX
Interface          : 1/2/1                       Oper Speed       : 0 mbps
Link-level         : Ethernet                    Config Speed     : 100 mbps
Admin State        : up                          Oper Duplex      : N/A
Oper State         : down                        Config Duplex    : full
Physical Link      : No                          MTU              : 1514
Single Fiber Mode  : No                          Clock Mode       :synchronous
IfIndex            : 37781504                    Hold time up     : 0 seconds
Last State Change  : 01/03/2008 15:17:00         Hold time down   : 0 seconds
Last Cleared Time  : 01/03/2008 15:17:01
Phys State Chng Cnt:  Last Cleared Time  : N/A                        DDM Events       :
Enabled
Phys State Chng Cnt: 3Configured Mode    : network                    Encap Type       : null
Dot1Q Ethertype    : 0x8100                      QinQ Ethertype   : 0x8100
PBB Ethertype      : 0x88e7
Ing. Pool % Rate   : 100                         Egr. Pool % Rate : 100
Net. Egr. Queue Pol: default
Egr. Sched. Pol    : n/a
Auto-negotiate     : false                       MDI/MDX          : unknown
Accounting Policy  : None                        Collect-stats    : Disabled
Egress Rate        : Default                     Ingress Rate     : Default
Load-balance-algo  : default                     LACP Tunnel      : Disabled
```

```
Down-when-looped   : Disabled                  Keep-alive       : 10
Loop Detected      : False                     Retry            : 120

Sync. Status Msg.  : Enabled                   Rx Quality Level : 0xa(eec2)
Tx DUS/DNU         : Disabled                  Tx Quality Level : 0xa(eec2)
SSM Code Type      : sonet

Configured Address : 00:21:05:7e:b1:48

Hardware Address   : 14:30:01:02:00:01
Cfg Alarm          :
Alarm Status
===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Packets                                                0                     0
Errors                                                 0                     0
===============================================================================
Ethernet Statistics
===============================================================================
Broadcast Pckts  :                   0  Drop Events      :                   0
Multicast Pckts  :                   0  CRC/Align Errors :                   0
Undersize Pckts  :                   0  Fragments        :                   0
Oversize Pckts   :                   0  Jabbers          :                   0
Collisions       :                   0

Octets                          :                  0
Packets                         :                  0
Packets of 64 Octets            :                  0
Packets of 65 to 127 Octets     :                  0
Packets of 128 to 255 Octets    :                  0
Packets of 256 to 511 Octets    :                  0
Packets of 512 to 1023 Octets   :                  0
Packets of 1024 to 1518 Octets  :                  0
Packets of 1519 or more Octets  :                  0
===============================================================================
Port Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Unicast Packets                                        0                     0
Multicast Packets                                      0                     0
Broadcast Packets                                      0                     0
Discards                                               0                     0
Unknown Proto Discards                                 0
===============================================================================
Ethernet-like Medium Statistics
===============================================================================
Alignment Errors :                   0  Sngl Collisions  :                   0
FCS Errors       :                   0  Mult Collisions  :                   0
SQE Test Errors  :                   0  Late Collisions  :                   0
CSE              :                   0  Excess Collisns  :                   0
Too long Frames  :                   0  Int MAC Tx Errs  :                   0
Symbol Errors    :                   0  Int MAC Rx Errs  :                   0
===============================================================================
Queue Statistics
```

```
===============================================================================
Ingress Queue  1             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
...
Egress Queue  8              Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
===============================================================================
A:ALA-251#
```

```
B:PE-1# show port 2/1/18 detail
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100/Gig Ethernet SFP
Interface          : 2/1/18                      Oper Speed       : 1 Gbps
Link-level         : Ethernet                    Config Speed     : 1 Gbps
Admin State        : up                          Oper Duplex      : full
Oper State         : up                          Config Duplex    : full
Physical Link      : Yes                         MTU              : 1518
Single Fiber Mode  : No                          Min Frame Length : 64 Bytes
IfIndex            : 69795840                    Hold time up     : 0 seconds
Last State Change  : 08/21/2012 21:47:08         Hold time down   : 0 seconds
Last Cleared Time  : N/A                         DDM Events       : Enabled
Phys State Chng Cnt: 7

Configured Mode    : access                      Encap Type       : 802.1q
Dot1Q Ethertype    : 0x8100                      QinQ Ethertype   : 0x8100
PBB Ethertype      : 0x88e7
Ing. Pool % Rate   : 100                         Egr. Pool % Rate : 100
Ing. Pool Policy   : n/a
Egr. Pool Policy   : n/a
Net. Egr. Queue Pol: default
Egr. Sched. Pol    : n/a
Auto-negotiate     : true                        MDI/MDX          : unknown
Accounting Policy  : None                        Collect-stats    : Disabled
Egress Rate        : Default                     Ingress Rate     : Default
Load-balance-algo  : Default                     LACP Tunnel      : Disabled

Down-when-looped   : Disabled                    Keep-alive       : 10
Loop Detected      : False                       Retry            : 120
Use Broadcast Addr : False

Sync. Status Msg.  : Disabled                    Rx Quality Level : N/A
Tx DUS/DNU         : Disabled                    Tx Quality Level : N/A
SSM Code Type      : sdh

Down On Int. Error : Disabled

CRC Mon SD Thresh  : Disabled                    CRC Mon Window   : 10 seconds
CRC Mon SF Thresh  : Disabled
```

```
Configured Address : 00:03:fa:1b:bb:3f
Hardware Address   : 00:03:fa:1b:bb:3f

Transceiver Data

Transceiver Type   : SFP
Model Number       : 3HE00027AAAA02  ALA  IPUIAELDAB
TX Laser Wavelength: 850 nm                      Diag Capable     : yes
Connector Code     : LC                          Vendor OUI       : 00:90:65
Manufacture date   : 2008/09/25                  Media            : Ethernet
Serial Number      : PED38UH
Part Number        : FTRJ8519P2BNL-A5
Optical Compliance : GIGE-SX
Link Length support: 300m for OM2 50u MMF; 150m for OM1 62.5u MMF
===============================================================================
Transceiver Digital Diagnostic Monitoring (DDM), Internally Calibrated
===============================================================================
                             Value High Alarm  High Warn   Low Warn  Low Alarm
-------------------------------------------------------------------------------
Temperature (C)              +25.9     +95.0      +90.0      -20.0      -25.0
Supply Voltage (V)            3.32      3.90       3.70       2.90       2.70
Tx Bias Current (mA)           8.1      17.0       14.0        2.0        1.0
Tx Output Power (dBm)        -4.49     -2.00      -2.00     -11.02     -11.74
Rx Optical Power (avg dBm)   -5.16      1.00      -1.00     -18.01     -20.00
===============================================================================
===============================================================================
Traffic Statistics
===============================================================================
                                                  Input                 Output
-------------------------------------------------------------------------------
Octets                                               0                      0
Packets                                              0                      0
Errors                                               0                      0
===============================================================================
Ethernet Statistics
===============================================================================
Broadcast Pckts  :                 0  Drop Events      :                   0
Multicast Pckts  :                 0  CRC/Align Errors :                   0
Undersize Pckts  :                 0  Fragments        :                   0
Oversize Pckts   :                 0  Jabbers          :                   0
Collisions       :                 0

Octets                          :                  0
Packets                         :                  0
Packets of 64 Octets            :                  0
Packets of 65 to 127 Octets     :                  0
Packets of 128 to 255 Octets    :                  0
Packets of 256 to 511 Octets    :                  0
Packets of 512 to 1023 Octets   :                  0
Packets of 1024 to 1518 Octets  :                  0
Packets of 1519 or more Octets  :                  0
===============================================================================
===============================================================================
Port Statistics
===============================================================================
                                                  Input                 Output
-------------------------------------------------------------------------------
Unicast Packets                                      0                      0
Multicast Packets                                    0                      0
```

```
Broadcast Packets                                  0                    0
Discards                                           0                    0
Unknown Proto Discards                             0
===============================================================================
===============================================================================
Ethernet-like Medium Statistics
===============================================================================
Alignment Errors :                  0  Sngl Collisions  :                   0
FCS Errors       :                  0  Mult Collisions  :                   0
SQE Test Errors  :                  0  Late Collisions  :                   0
CSE              :                  0  Excess Collisns  :                   0
Too long Frames  :                  0  Int MAC Tx Errs  :                   0
Symbol Errors    :                  0  Int MAC Rx Errs  :                   0
In Pause Frames  :                  0  Out Pause Frames :                   0
===============================================================================
===============================================================================
Per Threshold MDA Discard Statistics
===============================================================================
                                Packets                 Octets
-------------------------------------------------------------------------------
Threshold 0 Dropped :           0                       0
Threshold 1 Dropped :           0                       0
Threshold 2 Dropped :           0                       0
Threshold 3 Dropped :           0                       0
Threshold 4 Dropped :           0                       0
Threshold 5 Dropped :           0                       0
Threshold 6 Dropped :           0                       0
Threshold 7 Dropped :           0                       0
Threshold 8 Dropped :           0                       0
Threshold 9 Dropped :           0                       0
Threshold 10 Dropped :          0                       0
Threshold 11 Dropped :          0                       0
Threshold 12 Dropped :          0                       0
Threshold 13 Dropped :          0                       0
Threshold 14 Dropped :          0                       0
Threshold 15 Dropped :          0                       0
===============================================================================
B:PE-1#
```

Sample Output

```
show port 1/1/1 vport "abc" monitor-thresh-
old===============================================================================
Port 1/1/1 Vport "abc" Monitor Threshold Info
===============================================================================
Attribute                           Exceed Count Config Rate   Threshold Prcnt
-------------------------------------------------------------------------------
Agg-Eps                             0            212           32
Lvl-1                               0            12323         89
Lvl-2                               0            32132         32
Lvl-5                               0            2323          4
Grp-012345678901234587465135133556560            2121          12
-------------------------------------------------------------------------------
```

```
Start Time    : 01/07/2015 16:53:16     End Time      : 01/07/2015 16:53:36
Total Samples :
===============================================================================
```

Note: If the Vport name is omitted, statistics for all Vports would be displayed (bulk read). The statistics are displayed only for the levels, groups and agg-eps for which the monitor-threshold is enabled. The output information filtering per level, group or agg-eps is not embedded in the show commands natively. Instead the output can be filtered with the match extensions for the show command. For example, `show port 1/1/1 vport test monitor-threshold | match Lvl-1`.

```
*A:sne# show port 1/1/4 vport statistics
===============================================================================
Port 1/1/4 Access Egress vport
===============================================================================
VPort Name    : vp1
Description   : (Not Specified)
Sched Policy  : portschedpol1
Rate Limit    : Max
Rate Modify   : disabled
Modify delta  : 0
Vport Queueing Statistics

Last Cleared Time  : N/A
                        Packets                 Octets
Forwarded:              0                       0
Dropped  :              0                       0
-------------------------------------------------------------------------------
Vport per Level Queueing Statistics
                        Packets                 Octets
Level : 8
Forwarded:              0                       0
Dropped  :              0                       0
Level : 7
Forwarded:              0                       0
Dropped  :              0                       0
Level : 6
Forwarded:              0                       0
Dropped  :              0                       0
Level : 5
Forwarded:              0                       0
Dropped  :              0                       0
Level : 4
Forwarded:              0                       0
Dropped  :              0                       0
Level : 3
Forwarded:              0                       0
Dropped  :              0                       0
Level : 2
Forwarded:              0                       0
Dropped  :              0                       0
Level : 1
Forwarded:              0                       0
Dropped  :              0                       0

Host-Matches
-------------------------------------------------------------------------------
```

```
Dest: dslam1
-------------------------------------------------------------------------------
===============================================================================
*A:sne#
```

Ethernet Output — The following table describes the output fields.

Label	Description
Broadcast Pckts	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a broadcast address at this sub-layer. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.
Multicast Pckets	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were addressed to a multicast address at this sub-layer. For a MAC layer protocol, this includes both Group and Functional addresses. The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses.
Undersize Pckets	The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed.
Oversize Pckts	The total number of packets received that were longer than can be accepted by the physical layer of that port (9900 octets excluding framing bits, but including FCS octets for GE ports) and were otherwise well formed.
Collisions	The best estimate of the total number of collisions on this Ethernet segment.
Drop Events	The total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped; it is just the number of times this condition has been detected.
CRC Align Errors	The total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Fragments	The total number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).

Label	Description (Continued)
Jabbers	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Ingress Pool Size	The amount of ingress buffer space, expressed as a percentage of the available buffer space that will be allocated to the port or channel for ingress buffering.
Octets	The total number of octets received.
Packets	The total number of packets received.
Packets to	The number of packets received that were equal to or less than the displayed octet limit.

Sample Output

```
===============================================================================
Ethernet Statistics
===============================================================================
Broadcast Pckts  :               42621  Drop Events      :                   0
Multicast Pckts  :                   0  CRC/Align Errors :                   0
Undersize Pckts  :                   0  Fragments        :                   0
Oversize Pckts   :                   0  Jabbers          :                   0
Collisions       :                   0

Octets                          :             2727744
Packets                         :               42621
Packets of 64 Octets            :               42621
Packets of 65 to 127 Octets     :                   0
Packets of 128 to 255 Octets    :                   0
Packets of 256 to 511 Octets    :                   0
Packets of 512 to 1023 Octets   :                   0
Packets of 1024 to 1518 Octets  :                   0
Packets of 1519 or more Octets  :                   0
===============================================================================
Port Statistics
===============================================================================
                                                 Input                  Output
-------------------------------------------------------------------------------
Unicast Packets                                      0                       0
Multicast Packets                                    0                       0
Broadcast Packets                                42621                       0
Discards                                             0                       0
Unknown Proto Discards                               0
===============================================================================
...
```

Ethernet-like Medium Statistics Output — The following table describes Ethernet-like medium statistics output fields.

Label	Description
Alignment Errors	The total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets.
FCS Errors	The number of frames received on a particular interface that are an integral number of octets in length but do not pass the FCS check.
SQE Errors	The number of times that the SQE TEST ERROR is received on a particular interface.
CSE	The number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame on a particular interface.
Too long Frames	The number of frames received on a particular interface that exceed the maximum permitted frame size.
Symbol Errors	For an interface operating at 100 Mb/s, the number of times there was an invalid data symbol when a valid carrier was present.
Sngl Collisions	The number of frames that are involved in a single collision, and are subsequently transmitted successfully.
Mult Collisions	The number of frames that are involved in more than one collision and are subsequently transmitted successfully.
Late Collisions	The number of times that a collision is detected on a particular interface later than one slotTime into the transmission of a packet.
Excess Collisns	The number of frames for which transmission on a particular interface fails due to excessive collisions.
Int MAC Tx Errs	The number of frames for which transmission on a particular interface fails due to an internal MAC sublayer transmit error,
Int MAC Rx Errs	The number of frames for which reception on a particular interface fails due to an internal MAC sublayer receive error.

Sample Output

```
A:ALA-48# show port 1/3/1 detail
===============================================================================
...
===============================================================================
Ethernet-like Medium Statistics
===============================================================================
```

```
Alignment Errors :                  0  Sngl Collisions  :                  0
FCS Errors       :                  0  Mult Collisions  :                  0
SQE Test Errors  :                  0  Late Collisions  :                  0
CSE              :                  0  Excess Collisns  :                  0
Too long Frames  :                  0  Int MAC Tx Errs  :                  0
Symbol Errors    :                  0  Int MAC Rx Errs  :                  0
Queue Statistics
===============================================================================
Ingress Queue  1             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
Ingress Queue  2             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
Ingress Queue  3             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
Ingress Queue  4             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
Ingress Queue  5             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
Ingress Queue  6             Packets                 Octets
     In Profile  forwarded :    0                       0
     In Profile  dropped   :    0                       0
     Out Profile forwarded :    0                       0
     Out Profile dropped   :    0                       0
===============================================================================
===============================================================================
                  Per Threshold MDA Discard Statistics

===============================================================================
                                                 Packets                 Octets
-------------------------------------------------------------------------------
                  Threshold 0 Dropped :          0                       0
                  Threshold 1 Dropped :          0                       0
                  Threshold 2 Dropped :          0                       0
                  Threshold 3 Dropped :          0                       0
                  Threshold 4 Dropped :          0                       0
                  Threshold 5 Dropped :          0                       0
                  Threshold 6 Dropped :          0                       0
                  Threshold 7 Dropped :          0                       0
                  Threshold 8 Dropped :          0                       0
                  Threshold 9 Dropped :          0                       0
                  Threshold 10 Dropped :         0                       0
                  Threshold 11 Dropped :         0                       0
                  Threshold 12 Dropped :         0                       0
                  Threshold 13 Dropped :         0                       0
```

```
                  Threshold 14 Dropped :          0                       0
                  Threshold 15 Dropped :          0                       0

===============================================================================
A:ALA-48#

A:ALA-48# show port 1/2/1.sts192
===============================================================================
WAN Interface Sublayer Path Info
===============================================================================
Oper Status        : up
Signal Label       : 0x1a                   Rx Signal Label      : 0x1a
Trace String       : Alcatel 7750 SR
Rx Trace Str(Hex)  : 89 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Cfg Alarm          : pais plop prdi pplm prei puneq plcd
Alarm Status       :
===============================================================================
Port Statistics
===============================================================================
                                                    Input
Output
-------------------------------------------------------------------------------
Unicast Packets                                  367218143
5311
Multicast Packets                                       0
0
Broadcast Packets                                       0
0
Discards                                                0
0
Unknown Proto Discards                                  0
===============================================================================
A:ALA-48#


A:ALA-48# show port 1/2/1.sts192 detail
===============================================================================
WAN Interface Sublayer Path Info
===============================================================================
Oper Status        : up
Signal Label       : 0x1a                   Rx Signal Label      : 0x1a
Trace String       : Alcatel 7750 SR
Rx Trace Str(Hex)  : 89 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Cfg Alarm          : pais plop prdi pplm prei puneq plcd
Alarm Status       :
===========================================
Sonet Path
===========================================
                                 Far End
-------------------------------------------
ES-P                    1               0
SES-P                   1               0
UAS-P                   0               0
CV-P                   10               0
===========================================
===========================================
Transmit:
LOP-P                   :               0
Fifo Error              :              96
```

```
Max Packet Error       :               0
Min Packet Error       :               0
LLP Packet Error       :               0
FIFO Underflow Error   :               0

Receive:

LOP-P                  :               0
AIS-P                  :               1
RDI-P                  :               0
PLM-P                  :               0
LCD-P                  :               0
Unequipped             :               0
Remote Error           :               6
Parity Error           :              10
Fifo Error             :               0
Max Pkt Error          :               0
Min Pkt Error          :               0
FCS Error              :               0
Packet Abort Error     :               0
Addr Ctrl Invalid      :               0
===============================================================================
Port Statistics
===============================================================================
Input
Output
-------------------------------------------------------------------------------
Unicast Packets                                 369758853
5312
Multicast Packets                                       0
0
Broadcast Packets                                       0
0
Discards                                                0
0
Unknown Proto Discards                                  0
===============================================================================
A:ALA-48#
```

Channelized Port Output — The following table describes channelized port output fields.

Label	Description
Description	A text description of the port.
Interface	The port ID displayed in the *slot/mda/port* format.
TimeSlots	Specifies the DS0 timeslot used in the T1/E1 channel-group.
Speed	Indicates the speed of the DS0 channels used in the associated channel-group.
CRC	Indicates the precision of the cyclic redundancy check. 16 – A16-bit CRC calculation. 32 – A 32-bit CRC calculation. 32-bit CRC increases the error detection ability, but it also adds some performance overhead.
Admin Status	Up – The port is administratively up. Down – The administratively down.
Oper Status	Up – The port is operationally up. Down – The port is operationally down.
Last State Change	Displays the last time the operational status of the port changed state.
Chan-Grp IfIndex	Displays the channel group's interface index number which reflects its initialization sequence.
Configured Mode	network – The port is configured for transport network use. access – The port is configured for service access. Channelized ports are always access ports.
Encap Type	The type of encapsulation protocol configured on this port's network interface. bcp-null – Indicates that BCP is used as the NCP control protocol. dot1q – Indicates that ingress frames carry 802.1Q tags where each tag signifies a different service.
Oper MTU	The negotiated size of the largest packet which can be sent on the channel, specified in octets. For channels that are used to transmit network datagrams, this is the size of the largest network datagram that can be sent.
Physical Link	Indicates whether or not the port has a physical link.
Unicast Packets Input/Output	The number of packets, delivered by this sub-layer to a higher (sub-) layer, which were not addressed to a multicast or broadcast address at this sub-layer.

Sample Output

```
A:ALA-7# show port 7/1/1.ds0grp-1.1
===============================================================================
TDM DS0 Chan Group
===============================================================================
Description        : DS3
Interface          : 7/1/1.ds0grp-1.1
TimeSlots          : 1
Speed              : 64                      CRC                 : 16
Admin Status       : up                      Oper status         : down
Last State Change  : 2007/04/11 01:14:37     Chan-Grp IfIndex    : 656441433

Configured mode    : access                  Encap Type          : bcp-null
Admin MTU          : 1522                    Oper MTU            : 1522
Physical Link      : No
===============================================================================
Port Statistics
===============================================================================
                                          Input                 Output
-------------------------------------------------------------------------------
Unicast Packets                           0                       0
Multicast Packets                         0                       0
Broadcast Packets                         0                       0
Discards                                  0                       0
Unknown Proto Discards                    0
===============================================================================
A:ALA-7#


A:ALA-7# show port 7/1/1.ds0grp-1.1 detail
===============================================================================
TDM DS0 Chan Group
===============================================================================
Description        : DS3
Interface          : 7/1/1.ds0grp-1.1
TimeSlots          : 1
Speed              : 64                      CRC                 : 16
Admin Status       : up                      Oper status         : down
Last State Change  : 04/11/2007 01:14:37     Chan-Grp IfIndex    : 656441433

Configured mode    : access                  Encap Type          : bcp-null
Admin MTU          : 1522                    Oper MTU            : 1522
Physical Link      : No
===============================================================================
Port Statistics
===============================================================================
                                          Input                 Output
-------------------------------------------------------------------------------
Unicast Packets                           0                       0
Multicast Packets                         0                       0
Broadcast Packets                         0                       0
Discards                                  0                       0
Unknown Proto Discards                    0
===============================================================================
A:ALA-7#
```

```
ALA-12# show port 7/1/1.1.1
===============================================================================
TDM DS0 Chan Group
===============================================================================
Description        : DS0GRP
Interface          : 3/1/1.1.1
TimeSlots          : 1
Speed              : 64                      CRC                 : 16
Admin Status       : up                      Oper status         : down
Last State Change  : 04/11/2007 06:54:28     Chan-Grp IfIndex    : 589332542

Configured mode    : access                  Encap Type          : bcp-null
Admin MTU          : 1518                    Oper MTU            : 1518
Physical Link      : No                      Bundle Number       : none
Idle Cycle Flags   : flags                   Load-balance-algo   : default
===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Packets                                                0                     0
Errors                                                 0                     0
===============================================================================
Port Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Packets                                                0                     0
Discards                                               0                     0
Unknown Proto Discards                                 0
===============================================================================
ALA-12#
A:ALA-48# show port 3/1/3.e3
===============================================================================
TDM Interface
===============================================================================
Description        : E3
Interface          : 3/1/3.e3
Type               : e3                      Framing             : g751
Admin Status       : up                      Oper status         : down
Physical Link      : No                      Clock Source        : loop-timed
Last State Change  : 04/11/2007 06:54:28     Port IfIndex        : 589398019

Configured mode    : access                  Encap Type          : bcp-null
Admin MTU          : 1518                    Oper MTU            : 1518
CRC                : 16                      Channelized         : none
Idle Cycle Flags   : flags                   Loopback            : none
FEAC Loop Respond  : Disabled                In FEAC Loop        : No
BERT Pattern       : none                    BERT Duration       : N/A
Err Insertion Rate : 0                       Last BERT Synched   : 0 Seconds
BERT Status        : idle                    Last BERT Errors    : 0
                                             Last BERT Total Bits : 0
Cfg Alarm          : ais los
Alarm Status       :
Subrate Mode       : none

MDL Transmit       : none
-------------------------------------------------------------------------------
```

```
Local MDL Information
-------------------------------------------------------------------------------
EIC                :                          LIC                :
FIC                :                          Unit               :
PFI                :
Idle Signal Port   :
Test Signal Gen    :
-------------------------------------------------------------------------------
Far End MDL Information
-------------------------------------------------------------------------------
EIC                :                          LIC                :
FIC                :                          Unit               :
PFI                :
Idle Signal Port   :
Test Signal Gen    :
===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Packets                                                0                     0
Errors                                                 0                     0
===============================================================================
Port Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Packets                                                0                     0
Discards                                               0                     0
Unknown Proto Discards                                 0
===============================================================================
A:ALA-48#
```

Port Associations Output — The following table describes port associations output fields.

Label	Description
Svc ID	The service identifier.
Name	The name of the IP interface.
Encap Value	The dot1q or qinq encapsulation value on the port for this IP interface

Sample Output

```
A:ALA-1# show port 1/1/6 associations
===============================================================================
Interface Table
===============================================================================
Router/ServiceId               Name                           Encap Val
-------------------------------------------------------------------------------
Router: Base                   if1000                         1000
Router: Base                   if2000                         2000
-------------------------------------------------------------------------------
Interfaces
===============================================================================
```

```
A;ALA-1#
```

Port Frame Relay Output — The following table describes port Frame Relay output fields.

Label	Description
Mode	Displays the mode of the interface. It can be set as Data terminal equipment (dte) or Data circuit-terminating equipment (DCE).
LMI Type	Displays the LMI type.
FR Interface Status	Displays the status of the Frame Relay interface as determined by the performance of the dlcmi. If no DLCMI is running, the Frame Relay interface will stay in the running state indefinitely.

Sample Output

```
A:ALA-49>config>port# show port 8/1/2 frame-relay
===============================================================================
Frame Relay Info for 8/1/2
===============================================================================
Mode                    : dte           LMI Type                : itu
FR Interface Status     : fault
N391 DTE                : 6             N392 DCE                : 3
N392 DTE                : 3             N393 DCE                : 4
N393 DTE                : 4             T392 DCE                : 15
T391 DTE                : 10
Tx Status Enquiry       : 0             Rx Status Enquiry       : 0
Rx Status Messages      : 0             Tx Status Messages      : 0
Status Message Timeouts : 0             Status Enquiry Timeouts : 0
Discarded Messages      : 0             Inv. RxSeqNum Messages  : 0
===============================================================================
A:ALA-49>config>port#
```

OTU Output — The following table describes the OTU output fields.

Label	Description
OTU Status	Status of the OTU (Optical Transport Unit): enabled or disabled. When OTU is enabled, and additional layer of framing encapsulates an MDA's natively programmed mode of operation, 10-Gigabit Ethernet LAN or WAN, adding SONET-Like Framing with FEC (Forward Error Correction). When OTU is disabled, the MDA operates in a 10-Gigabit Ethernet LAN or WAN as per Ethernet provisioning.

Label	Description (Continued)
FEC Mode	Type of FEC (Forward Error Correction) in effect: g709, enhanced or disabled. When g709 is selected, the standard FEC method is used. When enhanced is selected, a proprietary FEC algorithm is used that extends optical reach in long haul applications. When disabled the bytes that are reserved for FEC in the OTU frame are transmitted as zeros and the FEC decoder is bypassed, but OTU framing is still in effect.
Data Rate	This indicates the data rate at which the port is operating. When OTU is encapsulating 10-Gigabit Ethernet WAN, the data rate is 10.709 Gb/s, the G.709 standard OTU2 data rate. When OTU is encapsulating 10-Gigabit Ethernet LAN, the data rate is either 11.049 Gb/s or 11.096 Gb/s, depending on the otu2-lan-data-rate configuration parameter of the port's OTU parameters. These data rates (11.049 Gb/s and 11.096 Gb/s) are considered OTU2e data rates that are non-standard or over-clocked with respect to G.709, but have become widely used in optical networking to transport un-altered 10-Gigabit Ethernet LAN payloads.
Cfg Alarms and Alarm Status	This indicates the alarms that shall be reported when raised or cleared. Alarms that are not in this list will not be reported when they are raised or cleared but will appear in the Alarm Status.
SF/SD Method	This indicates the selected method for declaring the SF (Signal Fail) or SD (Signal Degrade) alarm. When BIP8 is selected, the error rate of SM-BIP8 errors in the OTU frames is used to declare SF or SD (This is very similar to SONET SF/SD which uses a rate of B2 errors). When FEC is selected, the rate of corrected bits is used to declare SF or SD. This effectively indicates that the link would be degraded (SD) or failed (SF) if FEC was disabled and gives the user an early warning that the link is degrading or is about to fail.
SF Threshold	This is the configured error rate threshold at which the SF (Signal Fail) alarm will be raised.
SD Threshold	This is the configured error rate threshold at which the SD (Signal Degrade) alarm will be raised.
SM-TTI Tx (<mode>)	This is the configured SM-TTI (Section Monitor Trail Trace Identifier) to be transmitted by this port in the OTU overhead bytes. The modes are auto, string, or bytes. In the auto and string modes, a printable character string will be displayed. In bytes mode, up to 64 hex bytes will be displayed
SM-TTI Rx	This is the SM-TTI (Section Monitor Trail Trace Identifier received by this port. When the received TTI is a printable string of characters, it will be displayed as a text string. When the received TTI contains one or more non-printable characters, it will be displayed at a sequence of 64 hex bytes. When the received TTI is all zeros, the string “Not Specified” will be displayed.
FEC Corrected 0s	Displays the number of bits that were received as 0s but corrected to 1s.
FEC Corrected 1s	Number of bits that were received as 1s but corrected to 0s.

Label	Description (Continued)
FEC Uncorrectable Sub-Rows	The number of sub-rows that were not corrected because too many errors were detected.
FEC SES	The number of severely errored seconds were the number of uncorrectable sub-rows was greater than 15% of the maximum.
SM BIP8	The number of detected BIP-8 errors in the section monitor overhead.
SM BEI	The number of backward error indications received from the far end in the section monitor overhead.
SM SES	Section monitor severely errored seconds where the number of SM-BIP8 was greater than 15% of the maximum.
PM BIP8	The number of detected BIP-8 errors in the section monitor overhead.
PM BEI	The number of backward error indications received from the far end in the section monitor overhead.
PM SES	Section monitor severely errored seconds where the number of SM-BIP8 was greater than 15% of the maximum.

Sample Output

```
A:ALA-49>config>port# show port 3/2/1 otu detail
===============================================================================
OTU Interface
===============================================================================
OTU Status         : Enabled                     FEC Mode         : enhanced
                                                 Data Rate        : 11.049 Gb/s
Cfg Alarms         : loc los lof lom otu-ber-sf otu-bdi fec-sf
Alarm Status       :
SF/SD Method       : FEC                         SF Threshold     : 1E-5
                                                 SD Threshold     : 1E-7

SM-TTI Tx (auto)   : ALA-49:3/2/1/C17
SM-TTI Rx          : (Not Specified)
===============================================================================
OTU Statistics
===============================================================================
Statistics                                                  Count
-------------------------------------------------------------------------------
FEC Corrected 0s                                                0
FEC Corrected 1s                                                0
FEC Unrrectable Sub-rows                                        0
FEC SES                                                         0
SM BIP8                                                         0
SM BEI                                                          0
PM SES                                                          0
PM BIP8                                                         0
PM BEI                                                          0
PM SES                                                          0
===============================================================================
```

Port PPP Output — The following table describes port PPP output fields.

Label	Description
Protocol	Displays the applicable protocols for the specified port.
State	Displays the current status of a PPP link. Values include initial, starting, closed, stopped, closing, stopping, requestSent, ackReceived, ackSent, opened.
Last Change	Displays the last time the PPP link state changed.
Restart Count	Displays the number of times that this Control Protocol has reached the 'open' state.
Last Cleared	Displays the date and time the restart count was set to zero.
Local IP address	Displays the IP address assigned the local end of the PPP link.
Remote IP address	Displays the IP address of the remote end of the PPP link.
Local Mac address	Displays the MAC address assigned the local end of the PPP link.
Remote Mac address	The Ethernet MAC address sent by the remote end of the PPP link.
Local Magic Number	Displays the local magic number to be sent to the peer. The magic number provides a method to detect loopbacks. If the value of the local magic number is the same as the value of remote magic number, then it is possible that the link might be looped back. If the two magic numbers do not match, then the link is not looped back.
Remote Magic Number	Displays the magic number sent by the peer. If the value of remote magic number is the same as the value of the local magic number, then it is possible that the link might be looped back. If the two magic numbers do not match, then the link is not looped back.
Line Monitor Method	The type of line monitoring packets being sent and received on this PPP link.
Request Interval	The time interval in seconds at which keepalive requests are issued.
Threshold exceeded	Displays the number of times that the drop count was reached.
Drop Count	Displays the number of keepalive or LQR messages that were missed before the line was brought down.
In Packets	Displays the number of echo-reply packets received.
Time to link drop	Displays the time remaining before the link will be declared dropped if a keepalive echo reply packet is not received.

Label	Description (Continued)
Out packets	Displays the number of echo-request packets sent.
Last cleared time	Displays the time since the last clear.
ACFC	Indicates whether Address and Control Field PPP Header Compression is enabled.
PFC	Indicates whether Protocol Field PPP Header Compression is enabled.

Sample Output

```
A:SR-007# show port 1/1/1.1.1.1.1 ppp
===============================================================================
PPP Protocols for 1/1/1.1.1.1.1
===============================================================================
Protocol  State         Last Change         Restart Count   Last Cleared
-------------------------------------------------------------------------------
lcp       opened        03/28/2007 13:06:28          7      03/28/2007 12:12:11
ipcp      initial       03/28/2007 11:39:45          0      03/28/2007 12:12:11
mplscp    initial       03/28/2007 11:39:45          0      03/28/2007 12:12:11
bcp       initial       03/28/2007 11:39:45          0      03/28/2007 12:12:11
osicp     opened        03/28/2007 13:06:28         12      03/28/2007 12:12:11
ipv6cp    opened        03/28/2007 13:06:28          7      03/28/2007 12:12:11
===============================================================================
PPP Statistics
===============================================================================
Local Mac address  : 00:03:fa:0e:76:e2  Remote Mac address : 00:00:00:00:00:00
Local Magic Number : 0x7e9a9            Remote Magic Number: 0x7e18b
Local IPv4 address : 0.0.0.0            Remote IPv4 address: 0.0.0.0
Local IPv6 address : FE80::203:FAFF:FE81:5888
Remote IPv6 address: FE80::203:FAFF:FE1A:7EE2
Line Monitor Method: keepalive
Keepalive statistics
Request interval   : 10           Threshold exceeded : 0
Drop Count         : 3            In packets         : 332
Time to link drop  : 00h00m30s    Out packets        : 332
Last cleared time  : 03/28/2007 12:12:11
===============================================================================
A:SR-007#


A:SR-007# show port 1/1/3 ppp detail
===============================================================================
PPP Protocols for 1/1/3.sts12
===============================================================================
Protocol  State         Last Change         Restart Count   Last Cleared
-------------------------------------------------------------------------------
lcp       initial       04/11/2007 10:56:11          0      04/11/2007 10:56:11
ipcp      initial       04/11/2007 10:56:11          0      04/11/2007 10:56:11
mplscp    initial       04/11/2007 10:56:11          0      04/11/2007 10:56:11
bcp       initial       04/11/2007 10:56:11          0      04/11/2007 10:56:11
osicp     initial       04/11/2007 10:56:11          0      04/11/2007 10:56:11
```

```
===============================================================================
PPP Statistics
===============================================================================
Local IP address   : 0.0.0.0            Remote IP address  : 0.0.0.0
Local Mac address  : 00:00:00:00:00:00  Remote Mac address : 00:00:00:00:00:00
Local Magic Number : 0x0                Remote Magic Number: 0x0
Line Monitor Method: keepalive
Keepalive statistics
Request interval   : 10           Threshold exceeded : 0
Drop Count         : 3            In packets         : 0
Time to link drop  : 00h00m30s    Out packets        : 0
Last cleared time  : 04/11/2007 10:56:11
===============================================================================
A:SR-007#

*A:Performance# show port 1/1/4 detail
===============================================================================
...
Transceiver Digital Diagnostics Monitoring
===============================================================================
                             Value   HighAlarm  High Warn  Low  Warn  Low Alarm
-------------------------------------------------------------------------------
Temperature (C)               +128   YES   +85  YES   +70  NO     -5  NO    -15
Supply Voltage (V)            6.55   YES  6.00  YES  4.50  NO    3.0  NO    1.0
Tx Bias Current (mA)           100   NO    128  NO    110  YES    50  NO     30
Tx Output Power (dBm)        -40.0   NO   +8.0  NO   +5.0  YES -10.0  YES -30.0
Rx Optical Power (dBm - yyy)   N/A   NO   +8.0  NO   +5.0  NO  -10.0  NO  -30.0
===============================================================================
...
*A:Performance#
```

The following output displays an example of a PPP link inside a multilink-bundle group:

```
*A:top_SR7# show port 3/1/4.1.2.3.1 ppp
===============================================================================
LCP Protocol for 3/1/4.1.2.3.1
===============================================================================
Protocol  State         Last Change         Restart Count   Last Cleared
-------------------------------------------------------------------------------
lcp       opened        05/22/2008 07:46:18          1      05/22/2008 06:28:48
===============================================================================
Keepalive statistics

Request interval   : 4            Threshold exceeded : 0
Drop Count         : 3            In packets         : 46404
Time to link drop  : 00h00m12s    Out packets        : 46404
Last cleared time  : 05/22/2008 06:28:48

PPP Header Compression
 ACFC              : Enabled      PFC                : Enabled
===============================================================================
*A:top_SR7#
```

The following output displays an example of a standalone PPP link:

```
*A:top_SR7# show port 3/1/4.1.2.3.1 ppp
===============================================================================
```

```
PPP Protocols for 3/1/4.1.2.3.1
===============================================================================
Protocol  State         Last Change         Restart Count   Last Cleared
-------------------------------------------------------------------------------
lcp       initial       05/24/2008 11:25:23          1      05/22/2008 06:28:48
ipcp      initial       05/22/2008 06:28:48          0      05/22/2008 06:28:48
mplscp    initial       05/22/2008 06:28:48          0      05/22/2008 06:28:48
bcp       initial       05/22/2008 06:28:48          0      05/22/2008 06:28:48
osicp     initial       05/22/2008 06:28:48          0      05/22/2008 06:28:48
ipv6cp    initial       05/22/2008 06:28:48          0      05/22/2008 06:28:48
===============================================================================
PPP Statistics
===============================================================================
Local Mac address  : 00:16:4d:8f:d3:57  Remote Mac address :
Local Magic Number : 0x0                Remote Magic Number: 0x0
Local IPv4 address : 0.0.0.0            Remote IPv4 address: 0.0.0.0
Local IPv6 address : ::
Remote IPv6 address: ::

Line Monitor Method: keepalive

Keepalive statistics

Request interval   : 4            Threshold exceeded : 0
Drop Count         : 3            In packets         : 46418
Time to link drop  : 00h00m12s    Out packets        : 46418
Last cleared time  : 05/22/2008 06:28:48

PPP Header Compression
 ACFC              : Enabled      PFC                : Enabled
===============================================================================
*A:top_SR7#
```

ATM Output — The following table describes ATM output fields.

Label	Description
Cell Mode	Displays the cell format (UNI or NNI) that is used on the ATM interface.
Configured VCs	Displays the number of configured VCs.
Max Supported VCs	Indicates the maximum number of ATM VPCs that can be configured on this MDA.
Interface Oper Status	Indicates the status of the ATM interface. If the SONET-PATH layer and TC sublayer are operationally up, the ATM Interface is considered up. If the SONET-PATH layer and/or TC SubLayer is down, the ATM Interface is set to lowerLayerDown.
Number OCD Events	Displays the number of times the Out of Cell Delineation (OCD) events occurred

Label	Description (Continued)
TC Alarm State	Displays notifications that are generated when the ATM interface indicates that the TC sublayer is currently in the Loss of Cell Delineation (LCD) defect maintenance state or when the TC sublayer is currently not in the Loss of Cell Delineation (LCD) defect maintenance state.
Last Unknown VPI/VCI	Indicates the last unknown VPI/VCI that was received on this interface.
Ingress CBR	Indicates the total CBR bandwidth consumed on this interface in the ingress direction.
Egress CBR	Indicates the total CBR bandwidth consumed on this interface in the egress direction.
Ingress RT-VBR	Indicates the total real-time variable bit rate (rt-VBR) bandwidth consumed on this interface in the ingress direction.
Egress RT-VBR	Indicates the total real-time variable bit rate (rt-VBR) bandwidth consumed on this interface in the egress direction.
Ingress NRT-VBR	Indicates the total non-real-time variable bit rate (nrt-VBR) bandwidth consumed on this interface in the ingress direction.
Egress NRT-VBR	Indicates the total non-real-time variable bit rate (nrt-VBR) bandwidth consumed on this interface in the egress direction.
Ingress UBR	Indicates the total unspecified bit rate (UBR) bandwidth consumed on this interface in the ingress direction.
Egress UBR	Indicates the total unspecified bit rate (UBR) bandwidth consumed on this interface in the egress direction.
Ingress Total	Indicates the number of valid ATM cells received by the ATM interface including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
ATM Link Bandwidth	Indicates the total ATM link bandwidth accepted on this interface.
Shaped Bandwidth	Indicates the total shaped bandwidth consumed on this interface in the egress direction.
HEC Errors (Dropped)	Indicates the number of cells with uncorrectable HEC errors on this interface.
HEC Errors (Fixed)	Indicates the number of fixed HEC errors on this interface.

Sample Output

```
A:ALA-2934 show mda 7/2 detail (ATM MDA)
===============================================================================
MDA 7/2 detail
===============================================================================
Slot Mda  Provisioned          Equipped             Admin    Operational
          Mda-type             Mda-type             State    State
-------------------------------------------------------------------------------
7    2    m4-atmoc12/3-sfp     m4-atmoc12/3-sfp     up       up
MDA Specific Data
    Maximum port count            : 4
    Number of ports equipped      : 4
    Transmit timing selected      : CPM Card B
    Sync interface timing status  : Qualified
    Network ingress queue policy  : default
    Capabilities                  : Sonet, ATM
    Min channel size              : Sonet STS-12
    Max channel size              : Sonet STS-12
    Max number of channels        : 4
    Channels in use               : 0
Hardware Data
    Part number                   : 3HE00071AAAB01
    CLEI code                     : IPPAAAYBAA
    Serial number                 : NS051310104
    Manufacture date              : 03292005
    Manufacturing string          :
    Manufacturing deviations      :
    Administrative state          : up
    Operational state             : up
    Temperature                   : 32C
    Temperature threshold         : 75C
    Time of last boot             : 2007/08/23 13:46:57
    Current alarm state           : alarm cleared
    Base MAC address              : 00:03:fa:4a:34:90
===============================================================================
A:ALA-2934#
ALA-1# show port 9/1/2 atm
===============================================================================
ATM Info for 9/1/2
===============================================================================
Cell Mode             : UNI
Configured VCs        : 1                 Max Supported VCs  : 2000
Interface Oper Status : lower layer down  Number OCD Events  : 0
TC Alarm State        : LCD Failure
Last Unknown VPI/VCI  : none
===============================================================================
ATM Bandwidth Info
===============================================================================
                     kbps      %                          kbps      %
-------------------------------------------------------------------------------
Ingress CBR        : 0          0%  Egress CBR         : 0          0%
Ingress RT-VBR     : 0          0%  Egress RT-VBR      : 0          0%
Ingress NRT-VBR    : 4000       1%  Egress NRT-VBR     : 0          0%
Ingress UBR        : 0          0%  Egress UBR         : 0          0%
-------------------------------------------------------------------------------
Ingress Total      : 4000       1%  Egress Total       : 0          0%
ATM Link Bandwidth : 599041 kbps
Shaped Bandwidth   : 0 kbps
===============================================================================
ALA-1#
```

```
*A:ALA-48# show port 3/2/1 atm detail
===============================================================================
ATM Info for 3/2/1
===============================================================================
Cell Mode             : UNI               Mapping            : Direct
Configured VCs        : 0                 Configured VPs     : 0
Configured VTs        : 0                 Configured IFCs    : 0
Configured minimum VPI: 0
Last Unknown VPI/VCI  : none
===============================================================================
TC Sublayer Information
===============================================================================
TC Alarm State        : LCD Failure       Number OCD Events  : 0
HEC Errors (Dropped)  : 0                 HEC Errors (Fixed) : 0
===============================================================================
ATM Bandwidth Info
===============================================================================
                     kbps      %                              kbps      %
-------------------------------------------------------------------------------
Ingress CBR        : 0          0%      Egress CBR         : 0          0%
Ingress RT-VBR     : 0          0%      Egress RT-VBR      : 0          0%
Ingress NRT-VBR    : 0          0%      Egress NRT-VBR     : 0          0%
Ingress UBR        : 0          0%      Egress UBR         : 0          0%
-------------------------------------------------------------------------------
Ingress Total      : 0          0%      Egress Total       : 0          0%
ATM Link Bandwidth : 599041 kbps
Shaped Bandwidth   : 0 kbps
===============================================================================
ATM Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Cells                                                  0                     0
Unknown VPI/VCI Cells                                  0
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Packets                                                0                     0
Dropped Packets                                        0                     0
CRC-32 Errors                                          0
===============================================================================
*A:ALA-48#
B:Dut-D# show port 2/2/1.1.1.1 atm
===============================================================================
ATM Info for 2/2/1.1.1.1
===============================================================================
Cell Mode             : UNI               Mapping            : Direct
Configured VCs        : 16                Configured VPs     : 0
Configured VTs        : 0                 Configured IFCs    : 0
Configured minimum VPI: 0
Last Unknown VPI/VCI  : none
===============================================================================
TC Sublayer Information
===============================================================================
```

```
TC Alarm State        : No Alarm          Number OCD Events  : 0
HEC Errors (Dropped)  : 0                 HEC Errors (Fixed) : 0
===============================================================================
ATM Bandwidth Info
===============================================================================
                     kbps      %                               kbps      %
-------------------------------------------------------------------------------
Ingress CBR        : 0           0%      Egress CBR         : 0           0%
Ingress RT-VBR     : 0           0%      Egress RT-VBR      : 0           0%
Ingress NRT-VBR    : 0           0%      Egress NRT-VBR     : 0           0%
Ingress UBR        : 0           0%      Egress UBR         : 0           0%
-------------------------------------------------------------------------------
Ingress Total      : 0           0%      Egress Total       : 0           0%
ATM Link Bandwidth : 1920 kbps
Shaped Bandwidth   : 0 kbps
===============================================================================
B:Dut-D#


B:Dut-D# show port 2/2/1.1.1.1 atm detail
===============================================================================
ATM Info for 2/2/1.1.1.1
===============================================================================
Cell Mode             : UNI               Mapping            : Direct
Configured VCs        : 16                Configured VPs     : 0
Configured VTs        : 0                 Configured IFCs    : 0
Configured minimum VPI: 0
Last Unknown VPI/VCI  : none
===============================================================================
TC Sublayer Information
===============================================================================
TC Alarm State        : No Alarm          Number OCD Events  : 0
HEC Errors (Dropped)  : 0                 HEC Errors (Fixed) : 0
===============================================================================
ATM Bandwidth Info
===============================================================================
                     kbps      %                               kbps      %
-------------------------------------------------------------------------------
Ingress CBR        : 0           0%      Egress CBR         : 0           0%
Ingress RT-VBR     : 0           0%      Egress RT-VBR      : 0           0%
Ingress NRT-VBR    : 0           0%      Egress NRT-VBR     : 0           0%
Ingress UBR        : 0           0%      Egress UBR         : 0           0%
-------------------------------------------------------------------------------
Ingress Total      : 0           0%      Egress Total       : 0           0%
ATM Link Bandwidth : 1920 kbps
Shaped Bandwidth   : 0 kbps
===============================================================================
ATM Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                      228425945553          228453511542
Cells                                         4309923501            4310443614
Unknown VPI/VCI Cells                         4294967295
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
```

```
Packets                                          4302445396             4302705455
Dropped Packets                                           0                      0
CRC-32 Errors                                             0
===============================================================================
A:timetra-sim110#


B:Dut-D# show port 2/1/1 atm connections
===============================================================
ATM Connections, Port 2/1/1
===============================================================
           Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
cp.1       SAP    CP       1       1       up              up
10/10      SAP    PVC      1       1       up   up         up
10/11      SAP    PVC      1       1       up   up         up
20/20      SAP    PVC      1       1       up   up         up
===============================================================
B:Dut-D#



A:SR12# show port 3/1/1 atm cp
===============================================================
ATM CPs, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
5          SAP    CP       1       1
9          SAP    CP       1       1
===============================================================
A:SR12#


A:SR12# show port 3/1/1 atm cp detail
===============================================================
ATM CP, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
5          SAP    CP       1       1
===============================================================
ATM CP Statistics
===============================================================
Input                Output
---------------------------------------------------------------
Octets                                      284958830153          15950085
Cells                                         5376581701            300945
Dropped CLP=0 Cells                                 90               200
Dropped Cells (CLP=0+1)                            290
Tagged Cells                                       780
===============================================================
===============================================================
ATM CP, Port 3/1/1
===============================================================
CP         Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
9          SAP    CP       1       1
===============================================================
```

```
ATM CP Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                      284958830153          15950085
Cells                                         5376581701            300945
Dropped CLP=0 Cells                                 90               200
Dropped Cells (CLP=0+1)                            290
Tagged Cells                                       780
===============================================================================
A:SR12#


A:SR12# show port 3/1/1 atm cp 9
===============================================================================
ATM CP
===============================================================================
Port Id            : 3/1/1              CP                 : 9
Owner              : SAP                Endpoint Type      : CP
Ing. Td Idx        : 1                  Egr. Td Idx        : 1
===============================================================================
A:SR12#


A:SR12# show port 3/1/1 atm cp 9 detail
===============================================================================
ATM CP
===============================================================================
Port Id            : 3/1/1              CP                 : 9
Owner              : SAP                Endpoint Type      : CP
Ing. Td Idx        : 1                  Egr. Td Idx        : 1
===============================================================================
===============================================================================
ATM CP Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                      284958830153          15950085
Cells                                         5376581701            300945
Dropped CLP=0 Cells                                 90               200
Dropped Cells (CLP=0+1)                            290
Tagged Cells                                       780
===============================================================================
A:SR12#


B:Dut-D# show connection-profile
===============================================================================
Connection Profile Summary Information
===============================================================================
CP Index  Number of
          Members
-------------------------------------------------------------------------------
1         3
===============================================================================
B:Dut-D#


B:Dut-D# show connection-profile 1
```

```
===============================================================================
Connection Profile 1 Information
===============================================================================
Description : My Connection Profile
Last Change : 09/11/2010 13:37:32

-------------------------------------------------------------------------------
VPI/VCI
-------------------------------------------------------------------------------
10/10
10/11
20/20
===============================================================================
B:Dut-D#
```

Output **Port ATM PVC VP/VCI Output —** The following table describes port ATM PVC VPI/VCI output fields.

Label	Description
Port Id	The port ID configured or displayed in the *slot/mda/port* format.
VPI/VCI	Displays the VPI/VCI values.
Admin State	Displays the administrative state of the interface connection.
Oper State	Indicates the status of the ATM interface.
OAM State	Indicates the OAM operational status of ATM connections. ETE indicates end-to-end connection. AIS denotes alarm indication signal. RDI denotes for remote defect indication. LOC indicates the alarm was due to loss of continuity.
Encap Type	Indicates the encapsulation type.
Owner	Identifies the system entity that owns a specific ATM connection.
Type	Indicates the connection type.
Ing. TD	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr. TD	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
ILMI Vpi/Vci Range	On links that have ILMI enabled **ok** displays only if the VPI/VCI falls within the ILMI links valid range for a connection. If n/a displays, then ILMI is not available to check.
Adm	Displays the administrative state of the interface connection.
OAM	Indicates the OAM operational status of ATM connections. ETE indicates end-to-end connection. AIS denotes alarm indication signal. RDI denotes for remote defect indication. LOC indicates the alarm was due to loss of continuity.

Sample Output

```
ALA-1# show port 9/1/2 atm pvc
===============================================================
ATM Endpoints, Port 9/1/2
===============================================================
VPI/VCI    Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
0/500      SAP    PVC      5       3       up   ETE-AIS     dn
===============================================================
ALA-1#
```

```
*A:bksim2801# show port 1/1/1 atm pvc 2/102 detail
===============================================================================
ATM PVC
===============================================================================
Port Id       : 1/1/1          VPI/VCI    : 2/102
Admin State   : up             Oper state : down
OAM State     : ETE-AIS        Encap Type : n/a
Owner         : SAP AAL        Type       : n/a
Endpoint Type : PVC Cast       Type       : P2P
Ing. Td Idx   : 1 Egr.         Td Idx     : 1
Last Changed  : 09/09/2010 08:02:44   ILMI Vpi/Vci Range : n/a
===============================================================================
===============================================================================
ATM Statistics
===============================================================================
Input Output
-------------------------------------------------------------------------------
Octets           0 0
Cells            0 0
CLP=0 Cells      0 0
Dropped CLP=0 Cells 0 0
Dropped Cells (CLP=0+1) 0
Tagged Cells     0
===============================================================================
===============================================================================
ATM OAM Statistics
===============================================================================
Input Output
-------------------------------------------------------------------------------
AIS           0 0
RDI           0 0
Loopback      0 0
CRC-10 Errors   0
Other           0
===============================================================================
*A:bksim2801#


A:ALA-228#
===============================================================================
ATM PVC
===============================================================================
Port Id            : 3/1/4.1.1.1         VPI/VCI            : 0/100
Admin State        : up                  Oper state         : down
OAM State          : ETE-AIS             Encap Type         : n/a
Owner              : SAP                 AAL Type           : n/a
Endpoint Type      : PVC                 Cast Type          : P2P
Ing. Td Idx        : 1                   Egr. Td Idx        : 1
Last Changed       : 02/26/2007 14:16:29 ILMI Vpi/Vci Range : n/a
===============================================================================
A:ALA-228#
```

Output **Port ATM PVC Detail Output —** The following table describes port ATM PVC detail output fields.

Label	Description
Port Id	The port ID configured or displayed in the *slot/mda/port* format.
VPI/VCI	Displays the VPI/VCI values.
Admin State	Displays the administrative state of the interface connection.
Oper State	Indicates the status of the ATM interface.
OAM State	Indicates the OAM operational status of ATM connections. ETE indicates end-to-end connection. AIS denotes alarm indication signal. RDI denotes for remote defect indication. LOC indicates the alarm was due to loss of continuity.
Encap Type	Indicates the encapsulation type.
Owner	Identifies the system entity that owns a specific ATM connection.
AAL Type	Displays ATM Adaptation Layer 5 (AAL5) information.
Endpoint Type	Displays the endpoint type.
Cast Type	Indicates the connection topology type.
Type	Indicates the connection type.
Ing. Td Idx	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr. Td Idx	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Last Changed	Indicates the date and time when the interface connection entered its current operational state.
Octets	Displays the number of input and output octets. HEC discarded cells are not included in the input octet numbers
Cells	Displays the number of input and output cells. HEC discarded cells are not included in the input cell numbers
Packets	Displays the number of input and output packets. Packets discarded due to HEC or oversize discards are not counted. CRC errors are also in the packet counts show up on the VC level statistics but not on the port level.
Dropped Packets	Displays the number of packets dropped by the ATM SAR device.
CRC-32 Errors	Displays the number of valid AAL-5 SDUs and AAL-5 SDUs with CRC-32 errors received by the AAL-5 VCC.

Label	Description (Continued)
Reassembly Time-outs	Displays the number of reassembly timeout occurrences.
Over Sized SDUs	Displays the total number of oversized SDU discards.
AIS	Displays the number of AIS cells transmitted and received on this connection for both end to end and segment.
RDI	Displays the number of RDI cells transmitted and received on this connection for both end to end and segment.
Loopback	Displays the number of loopback requests and responses transmitted and received on this connection for both end to end and segment.
CRC-10 Errors	Displays the number of cells discarded on this VPL with CRC 10 errors.
Other	Displays the number of OAM cells that are received but not identified.

Sample Output

```
ALA-1# show port 9/1/2 atm pvc 0/500 detail
===============================================================================
ATM Endpoint
===============================================================================
Port Id            : 9/1/2              VPI/VCI            : 0/500
Admin State        : up                 Oper state         : down
OAM State          : ETE-AIS            Encap Type         : llc
Owner              : SAP                AAL Type           : AAL-5
Endpoint Type      : PVC                Cast Type          : P2P
Ing. Td Idx        : 5                  Egr. Td Idx        : 3
Last Changed       : 02/14/2007 14:15:12
===============================================================================
ATM Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                  0                     0
Cells                                                   0                     0
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Packets                                                 0                     0
Dropped Packets                                         0                     0
CRC-32 Errors                                           0
Reassembly Timeouts                                     0
Over Sized SDUs                                         0
===============================================================================
ATM OAM Statistics
===============================================================================
                                                    Input                Output
```

```
-------------------------------------------------------------------------------
AIS                                                    0                      0
RDI                                                    0                      0
Loopback                                               0                      0
CRC-10 Errors                                          0
Other                                                  0
===============================================================================
A:ALA-1#


A:ALA-228# show port 2/2/1.1.1.1 atm pvc 0/100 detail
===============================================================================
ATM PVC
===============================================================================
Port Id            : 2/2/1.1.1.1         VPI/VCI            : 0/100
Admin State        : up                  Oper state         : up
OAM State          : up                  Encap Type         : llc
Owner              : SAP                 AAL Type           : AAL-5
Endpoint Type      : PVC                 Cast Type          : P2P
Ing. Td Idx        : 101                 Egr. Td Idx        : 201
Last Changed       : 06/15/2007 22:09:11 ILMI Vpi/Vci Range : n/a
===============================================================================
ATM Statistics
===============================================================================
                                                     Input                 Output
-------------------------------------------------------------------------------
Octets                                            57173273               58892699
Cells                                              1078741                1111183
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                                     Input                 Output
-------------------------------------------------------------------------------
Packets                                           539382                 555603
Dropped Packets                                        0                      0
CRC-32 Errors                                          0
Reassembly Timeouts                                    0
Over Sized SDUs                                        0
===============================================================================
ATM OAM Statistics
===============================================================================
                                                     Input                 Output
-------------------------------------------------------------------------------
AIS                                                    0                      0
RDI                                                    0                      1
Loopback                                               0                      0
CRC-10 Errors                                          0
Other                                                  0
===============================================================================
A:ALA-228#
```

Output **Port ATM PVT Detail Output —** The following table describes port ATM PVT detail output fields.

Label	Description
Port Id	The port ID configured or displayed in the *slot/mda/port* format.

Label	Description (Continued)
VPI/VCI	Displays the VPI/VCI values.
Admin State	Displays the administrative state of the interface connection.
Oper State	Indicates the status of the ATM interface.
Encap Type	Indicates the encapsulation type.
Owner	Identifies the system entity that owns a specific ATM connection.
Endpoint Type	Displays the endpoint type.
Cast Type	Indicates the connection topology type.
Ing. Td Idx	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr. Td Idx	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Last Changed	Indicates the date and time when the interface connection entered its current operational state.
Octets	Displays the number of input and output octets. HEC discarded cells are not included in the input octet numbers.
Cells	Displays the number of input and output cells. HEC discarded cells are not included in the input cell numbers.
Dropped CLP	Displays the number of times the CLP1 cells have been dropped. CLP1 cells have lower priority than CLP0 cells and are expected to be discarded first in times of congestion.
Dropped Cells	Displays the number of cells dropped by the ATM SAR device.
Tagged Cells	Displays the number of cells that have been demoted from CLP0 to CLP1.

Sample Output

```
A:SR1_5>config>service# show port 1/2/2 atm pvt 0.0 detail
===============================================================================
ATM PVT
===============================================================================
Port Id           : 1/2/2               VPI Range          : 0.0
Admin State       : up                  Oper state         : up
Owner             : SAP
Endpoint Type     : PVT                 Cast Type          : P2P
Ing. Td Idx       : 1                   Egr. Td Idx        : 1
Last Changed      : 04/02/2007 01:59:21
===============================================================================
ATM Statistics
===============================================================================
```

```
                                                        Input                  Output
-------------------------------------------------------------------------------
Octets                                                      0                       0
Cells                                                       0                       0
CLP=0 Cells                                                 0                       0
Dropped CLP=0 Cells                                         0                       0
Dropped Cells (CLP=0+1)                                     0
Tagged Cells                                                0
===============================================================================
A:SR1_5>config>service#
```

Sample Output

```
*A:PE>config>port>ethernet>dot1x# show port 1/1/5 dot1x
===============================================================================
802.1x Port Status
===============================================================================

Port control            : auto
Port status             : authorized
Authenticator PAE state : authenticated
Backend state           : idle
Reauth enabled          : no           Reauth period         : N/A
Max auth requests       : 2            Transmit period       : 30
Supplicant timeout      : 30           Server timeout        : 30
Quiet period            : 60
Radius-plcy             : test
Tunneling               : false

===============================================================================
802.1x Session Statistics
===============================================================================

authentication method   : remote-radius
last session id         : PAC-02228000-11B0A9BB
last session time       : 00h00m06s
last session username   : user1
last session term cause : N/A
user tx octets          : 0            user tx frames        : 0
user rx octets          : 0            user rx frames        : 0

*A:Dut-C>config>port>ethernet>dot1x# /show port 1/1/5 dot1x detail
===============================================================================
802.1x Port Status
===============================================================================

Port control            : auto
Port status             : authorized
Authenticator PAE state : authenticated
Backend state           : idle
Reauth enabled          : no           Reauth period         : N/A
Max auth requests       : 2            Transmit period       : 30
Supplicant timeout      : 30           Server timeout        : 30
Quiet period            : 60
Radius-plcy             : test
Tunneling               : false
```

```
===============================================================================
802.1x Session Statistics
===============================================================================

authentication method   : remote-radius
last session id         : PAC-02228000-11B0A9BB
last session time       : 00h00m10s
last session username   : user1
last session term cause : N/A
user tx octets          : 0            user tx frames        : 0
user rx octets          : 0            user rx frames        : 0

===============================================================================
802.1x Authentication Statistics
===============================================================================

tx frames               : 22          rx frames             : 14
tx req/id frames        : 6           rx resp/id frames     : 3
tx request frames       : 3           rx response frames    : 3
rx start frames         : 4           rx logoff frames      : 4
rx unknown frame type   : 0           rx bad eap length     : 0
rx last version         : 1           rx last source mac    : 00:01:02:17:23:22

===============================================================================
802.1x Authentication Diagnostics
===============================================================================

Enters Connecting                    : 6
EapLogoffs While Connecting          : 1
Logoffs While Connecting             : 1
Success While Authenticating         : 3
Timeouts While Authenticating        : 0
Failures While Authenticating        : 0
Reauths While Authenticating         : 0
EapStarts While Authenticating       : 0
EapLogoffs While Authenticating      : 0
Reauths While Authenticated          : 0
EapStarts While Authenticated        : 0
EapLogoffs While Authenticated       : 1
Backend Responses                    : 6
Backend Access Challenges            : 3
Backend Requests To Supplicant       : 3
Backend Access Challenges            : 0
Backend Non Nak Responses            : 0
Backend Auth Successes               : 3
Backend Auth Failures                : 0
```

cem

Syntax **cem**

Context show>port

Description This command displays CEM encap ports and channels.

Sample Output

```
*A:NS062480023# show port cem
===============================================================================
Ports on Slot 1
===============================================================================
Port              Admin Link Port    Clock        Master            Clock
Id                State      State   Src          Port Id           State
-------------------------------------------------------------------------------
1/9/1.1.1         Up    No   Down    adaptive     1/9/1.1.2.1       hold-over
1/9/1.1.1.1       Up    No   Down
1/9/1.1.2         Up    No   Down    loop-timed   1/9/1.1.2.1       hold-over
1/9/1.1.2.1       Up    No   Down
1/9/1.1.3         Up    No   Down    node-timed
1/9/1.1.3.1       Up    No   Down
1/9/1.1.4         Up    No   Down    node-timed
...
-------------------------------------------------------------------------------
*A:NS062480023#
```

ethernet efm-oam

Syntax **ethernet efm-oam**

Context show>port

Description This command shows EFM-OAM port state information.

Sample Output

```
# config port 1/1/1 ethernet efm-oam ignore-efm-state
# show port 1/1/1 ethernet efm-oam

===============================================================================
Ethernet Oam (802.3ah)
===============================================================================
Admin State        : down
Oper State         : disabled
Mode               : active
Pdu Size           : 1518
Config Revision    : 0
Function Support   : LB
Transmit Interval  : 1000 ms
Multiplier         : 5
Hold Time          : 0
Tunneling          : false
Loop Detected      : false

No Peer Information Available

Loopback State     : None
Loopback Ignore Rx : Ignore
Ignore Efm State   : true

# config port 1/1/1 ethernet efm-oam noignore-efm-state
# show port 1/1/1 ethernet efm-oam

===============================================================================
Ethernet Oam (802.3ah)
===============================================================================
Admin State        : down
Oper State         : disabled
Mode               : active
Pdu Size           : 1518
Config Revision    : 0
Function Support   : LB
Transmit Interval  : 1000 ms
Multiplier         : 5
Hold Time          : 0
Tunneling          : false
Loop Detected      : false

No Peer Information Available

Loopback State     : None
Loopback Ignore Rx : Ignore
Ignore Efm State   : false
```

```
===============================================================================
Ethernet Oam Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Information                                             0                     0
Loopback Control                                        0                     0
Unsupported Codes                                       0                     0
Frames Lost                                                                   0
===============================================================================
```

When the optional **ignore-efm-state** command is set to default [no] and the port enters a Link Up condition as a result of an 802.3ah fault condition, a reason code is included on the show port to indicate the reason the port entered the link up.

```
# show port
===============================================================================
Ports on Slot 1
===============================================================================
Port        Admin Link Port    Cfg  Oper LAG/ Port Port Port   C/QS/S/XFP/
Id          State      State   MTU  MTU  Bndl Mode Encp Type   MDIMDX
-------------------------------------------------------------------------------
1/1/1       Down  No   Down    1578 1578    - netw null xcme
1/1/2       Up    Yes  Up      9212 9212    5 netw null xcme
1/1/3       Down  No   Down    1578 1578    - netw null xcme
1/1/4       Down  No   Down    1578 1578    - netw null xcme
1/1/5       Up    No   Down    1522 1522    - accs qinq xcme
1/1/6       Down  No   Down    1578 1578    - netw null xcme
1/1/7       Down  No   Down    1578 1578    - netw null xcme
1/1/8       Down  No   Down    1578 1578    - netw null xcme
1/1/9       Down  No   Down    1578 1578    - netw null xcme
1/1/10      Up    Yes  Link Up 1518 1518    - accs dotq xcme □ Sample (remains unchanged)
```

Further examination of the individual port reveals the reason code for the Link Up condition.

```
mep# show port 1/1/10
===============================================================================
Ethernet Interface
===============================================================================
Description        : 10/100/Gig Ethernet SFP
Interface          : 1/1/10                      Oper Speed       : N/A
Link-level         : Ethernet                    Config Speed     : 1 Gbps
Admin State        : up                          Oper Duplex      : N/A
Oper State         : down                        Config Duplex    : full
Reason Down        : efmOamDown
Physical Link      : Yes                         MTU              : 1518
Single Fiber Mode  : No
IfIndex            : 35979264                    Hold time up     : 0 seconds
Last State Change  : 08/08/2011 21:56:20         Hold time down   : 0 seconds
Last Cleared Time  : N/A                         DDM Events       : Enabled

Configured Mode    : access                      Encap Type       : 802.1q
Dot1Q Ethertype    : 0x8100                      QinQ Ethertype   : 0x8100
PBB Ethertype      : 0x88e7
Ing. Pool % Rate   : 100                         Egr. Pool % Rate : 100
Ing. Pool Policy   : n/a
Egr. Pool Policy   : n/a
```

```
Net. Egr. Queue Pol: default
Egr. Sched. Pol    : n/a
Auto-negotiate     : true                       MDI/MDX          : unknown
Accounting Policy  : None                       Collect-stats    : Disabled
Egress Rate        : Default                    Ingress Rate     : Default
Load-balance-algo  : default                    LACP Tunnel      : Disabled

Down-when-looped   : Disabled                   Keep-alive       : 10
Loop Detected      : False                      Retry            : 120
Use Broadcast Addr : False

Sync. Status Msg.  : Disabled                   Rx Quality Level : N/A
Tx DUS/DNU         : Disabled                   Tx Quality Level : N/A
SSM Code Type      : sdh

Configured Address : 90:f4:01:01:00:0a
Hardware Address   : 90:f4:01:01:00:0a
Cfg Alarm          :
Alarm Status       :
===============================================================================
```

dot1x

Syntax **dot1x [detail]**

Context show>port>ethernet

Description This command displays 802.1x information.

Parameters **detail** — Displays detailed information.

Sample Output

```
*A:PE>config>port>ethernet>dot1x# show port 1/1/5 dot1x
===============================================================================
802.1x Port Status
===============================================================================

Port control            : auto
Port status             : authorized
Authenticator PAE state : authenticated
Backend state           : idle
Reauth enabled          : no           Reauth period         : N/A
Max auth requests       : 2            Transmit period       : 30
Supplicant timeout      : 30           Server timeout        : 30
Quiet period            : 60
Radius-plcy             : test
Tunneling               : false

===============================================================================
802.1x Session Statistics
===============================================================================

authentication method   : remote-radius
last session id         : PAC-02228000-11B0A9BB
```

```
last session time       : 00h00m06s
last session username   : user1
last session term cause : N/A
user tx octets          : 0            user tx frames        : 0
user rx octets          : 0            user rx frames        : 0
```

lldp

Syntax **lldp** [**nearest-bridge**|**nearest-non-tpmr**|**nearest-customer**] [**remote-info**] [**detail**]

Context show>port>ethernet

Description This command displays Link Layer Discovery Protocol (LLDP) information for the individual port.

Parameters **nearest-bridge —** Displays nearest bridge information.

nearest-non-tpmr — Displays nearest Two-Port MAC Relay (TPMR) information.

nearest-customer — Displays nearest customer information.

remote-info — Displays remote information on the bridge MAC.

detail — Shows detailed information.

Sample Output

```
show port 1/1/1 ethernet lldp
===============================================================================
Link Layer Discovery Protocol (LLDP) Port Information
===============================================================================

Port 1/1/1 Bridge nearest-bridge
-------------------------------------------------------------------------------
Admin State           : txAndRx        Notifications         : Disabled
Tunnel Nearest Bridge : Disabled
Transmit TLVs         : portDesc sysName sysDesc sysCap
PortID TLV Subtype    : tx-if-name

Management Address Transmit Configuration:
Index 1 (system)      : Enabled        Address               : 1.1.1.31
Index 2 (IPv6 system) : Disabled       Address               : ::


Port 1/1/1 Bridge nearest-non-tpmr
-------------------------------------------------------------------------------
Admin State           : disabled       Notifications         : Disabled
Transmit TLVs         : None
PortID TLV Subtype    : tx-local

Management Address Transmit Configuration:
Index 1 (system)      : Disabled       Address               : 1.1.1.31
Index 2 (IPv6 system) : Disabled       Address               : ::


Port 1/1/1 Bridge nearest-customer
```

```
-------------------------------------------------------------------------------
Admin State           : disabled       Notifications         : Disabled
Transmit TLVs         : None
PortID TLV Subtype    : tx-local

Management Address Transmit Configuration:
Index 1 (system)      : Disabled       Address               : 1.1.1.31
Index 2 (IPv6 system) : Disabled       Address               : ::

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

show port 1/1/1 ethernet lldp remote-info
===============================================================================
Link Layer Discovery Protocol (LLDP) Port Information
===============================================================================
Port 1/1/1 Bridge nearest-bridge Remote Peer Information
-------------------------------------------------------------------------------
Remote Peer Index 9 at timestamp 12/08/2014 21:34:30:
Supported Caps        : bridge router
Enabled Caps          : bridge router
Chassis Id Subtype    : 4 (macAddress)
Chassis Id            : D8:1C:FF:00:00:00
PortId Subtype        : 5 (interfaceName)
Port Id               : 31:2F:32:2F:32
                        "1/2/2"
Port Description      : n/a
System Name           : cses-V28
System Description    : TiMOS-B-0.0.I4269 both/i386 ALCATEL SR 7750 Copyright
                        (c) 2000-2014 Alcatel-Lucent.
                        All rights reserved. All use subject to applicable
                        license agreements.
                        Built on Wed Dec 3 19:14:27 PST 2014 by builder in /
                        rel0.0/I4269/panos/main


Port 1/1/1 Bridge nearest-non-tpmr Remote Peer Information
-------------------------------------------------------------------------------
No remote peers found

Port 1/1/1 Bridge nearest-customer Remote Peer Information
-------------------------------------------------------------------------------
No remote peers found

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


show port 1/1/1 ethernet lldp remote-info detail
===============================================================================
Link Layer Discovery Protocol (LLDP) Port Information
===============================================================================
Port 1/1/1 Bridge nearest-bridge Remote Peer Information
-------------------------------------------------------------------------------
Remote Peer Index 9 at timestamp 12/08/2014 21:34:30:
Supported Caps        : bridge router
Enabled Caps          : bridge router
Chassis Id Subtype    : 4 (macAddress)
Chassis Id            : D8:1C:FF:00:00:00
PortId Subtype        : 5 (interfaceName)
Port Id               : 31:2F:32:2F:32
```

```
                        "1/2/2"
Port Description      : n/a
System Name           : cses-V28
System Description    : TiMOS-B-0.0.I4269 both/i386 ALCATEL SR 7750 Copyright
                        (c) 2000-2014 Alcatel-Lucent.
                        All rights reserved. All use subject to applicable
                        license agreements.
                        Built on Wed Dec 3 19:14:27 PST 2014 by builder in /
                        rel0.0/I4269/panos/main

Remote Peer Index 9 management addresses at time 12/08/2014 21:34:30:
Address SubType       : 1 (IPv4)
Address               : 1.1.1.28
Address If SubType    : 2              Address If Id         : 1
Address OID           : .1.3.6.1.4.1.6527.1.3.3


Port 1/1/1 Bridge nearest-non-tpmr Remote Peer Information
-------------------------------------------------------------------------------
No remote peers found

Port 1/1/1 Bridge nearest-customer Remote Peer Information
-------------------------------------------------------------------------------
No remote peers found

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


show port 1/1/1 ethernet lldp detail
===============================================================================
Link Layer Discovery Protocol (LLDP) Port Information
===============================================================================

Port 1/1/1 Bridge nearest-bridge
-------------------------------------------------------------------------------
Admin State           : txAndRx        Notifications         : Disabled
Tunnel Nearest Bridge : Disabled
Transmit TLVs         : portDesc sysName sysDesc sysCap
PortID TLV Subtype    : tx-if-name

Management Address Transmit Configuration:
Index 1 (system)      : Enabled        Address               : 1.1.1.31
Index 2 (IPv6 system) : Disabled       Address               : ::

Port LLDP Stats:
Tx Frames             : 11749          Tx Length Err Frames  : 0
Rx Frames             : 70399          Rx Frame Discard      : 0
Rx Frame Errors       : 0              Rx TLV Discard        : 0
Rx TLV Unknown        : 0              Rx Ageouts            : 3


Port 1/1/1 Bridge nearest-non-tpmr
-------------------------------------------------------------------------------
Admin State           : disabled       Notifications         : Disabled
Transmit TLVs         : None
PortID TLV Subtype    : tx-local

Management Address Transmit Configuration:
Index 1 (system)      : Disabled       Address               : 1.1.1.31
```

```
Index 2 (IPv6 system) : Disabled       Address              : ::

Port LLDP Stats:
Tx Frames             : 0              Tx Length Err Frames  : 0
Rx Frames             : 0              Rx Frame Discard      : 0
Rx Frame Errors       : 0              Rx TLV Discard        : 0
Rx TLV Unknown        : 0              Rx Ageouts            : 0


Port 1/1/1 Bridge nearest-customer
-------------------------------------------------------------------------------
Admin State           : disabled       Notifications         : Disabled
Transmit TLVs         : None
PortID TLV Subtype    : tx-local

Management Address Transmit Configuration:
Index 1 (system)      : Disabled       Address              : 1.1.1.31
Index 2 (IPv6 system) : Disabled       Address              : ::

Port LLDP Stats:
Tx Frames             : 0              Tx Length Err Frames  : 0
Rx Frames             : 0              Rx Frame Discard      : 0
Rx Frame Errors       : 0              Rx TLV Discard        : 0
Rx TLV Unknown        : 0              Rx Ageouts            : 0

===============================================================================
```

port-tree

Syntax **port-tree** *port-id*

Context show

Description This command displays the tree for SONET/SDH or TDM ports/channels.

Parameters *port-id* — Specifies the physical port ID.

Syntax

port-id	*slot*[/*mda*[/*port*]] or *slot*/*mda*/*port*[.*channel*]
aps-id	aps-*group-id*[.*channel*] aps keyword group-id 1 — 64
ccag-id	*slot/mda/path-id*[*cc-type*] path-id a, b cc-type .sap-net, .net-sap

MDA Values 7750 SR-12, 7750 SR-7: 1, 2
7750 SR-c12: 1, 3, 5, 7, 9, 11
7750 SR-c4: 1— 4

CMA Values 7750 SR-c12: 1 — 12

Slot Values 7750 SR-12: 1 — 10
7750 SR-7: 1 — 5
7750 SR-c12/4: 1

Port Values 1 — 60 (depending on the MDA type)

Output **Show Port Tree Output —** The following table describes show port tree output fields.

Label	Description
IfIndex	Displays the interface's index number which reflects its initialization sequence.
`type`	Specifies the type.
`sonet-sdh-index`	Specifies the sonet-sdh-index.
`*`	When a * is displayed after the sonet-sdh-index, the port/channel is provisioned.

Sample Output

```
A:ALA-48>config# show port-tree 7/1/1
    ifIndex  type, sonet-sdh-index (* = provisioned)
===========  ======================================
  119570432  Port, N/A *
  656441345      DS3, none *
  656441405          DS1, 1 *
  656441430          DS1, 2
  656441455          DS1, 3
  656441480          DS1, 4
  656441505          DS1, 5
  656441530          DS1, 6
  656441555          DS1, 7
  656441580          DS1, 8
  656441605          DS1, 9
  656441630          DS1, 10
  656441655          DS1, 11
  656441680          DS1, 12
  656441705          DS1, 13
  656441730          DS1, 14
  656441755          DS1, 15
  656441780          DS1, 16
  656441805          DS1, 17
  656441830          DS1, 18
  656441855          DS1, 19
  656441880          DS1, 20
  656441905          DS1, 21
  656441930          DS1, 22
  656441980          DS1, 24
  656442005          DS1, 25
  656442030          DS1, 26
  656442055          DS1, 27
  656442080          DS1, 28
```

```
A:ALA-48>config#
```

redundancy

Syntax **redundancy**

Context show

Description This command enables the context to show multi-chassis redundancy information.

multi-chassis

Syntax **multi-chassis all**
mult-chassis mc-lag peer *ip-address* [**lag** *lag-id*]
mult-chassis mc-lag [**peer** *ip-address* [**lag** *lag-id*]] **statistics**
mult-chassis sync [**peer** *ip-address*] [**detail**]
mult-chassis sync [**peer** *ip-address*] **statistics**

Context show>redundancy

Description This command displays multi-chassis redundancy information.

Parameters **all —** Displays all multi-chassis information.

mc-lag — Displays multi-chassis LAG information.

peer *ip-address* **—** Displays the address of the multi-chassis peer.

lag *lag-id* **—** Displays the specified LAG ID on this system that forms an multi-chassis LAG configuration with the indicated peer.

statistics — Displays statistics for the multi-chassis peer.

sync — Displays synchronization information.

detail — Displays detailed information.

Sample Output

```
A:pc1# show redundancy multi-chassis all
===============================================================================
Multi-Chassis Peers
===============================================================================
Peer IP         Src IP          Auth            Peer Admin
  MCS Admin       MCS Oper        MCS State       MC-LAG Admin    MC-LAG Oper
-------------------------------------------------------------------------------
10.10.10.102    10.10.10.101    hash            Enabled
  Enabled         Enabled         inSync          Enabled         Enabled
10.10.20.1      0.0.0.0         None            Disabled
  --              --              --              Disabled        Disabled
===============================================================================
```

```
A:pc1#


*A:Dut-C# show redundancy multi-chassis mc-lag peer 10.10.10.1
===============================================================================
Multi-Chassis MC-Lag Peer 10.10.10.1
===============================================================================
Last State chg: 09/24/2007 07:58:03
Admin State: Up      Oper State   : Up
KeepAlive: 10 deci-seconds     Hold On Ngbr Failure : 3
-------------------------------------------------------------------------------
Lag Id Lacp Key Remote Lag Id System Id  Sys Prio Last State Changed
-------------------------------------------------------------------------------
1      326661      00:00:00:33:33:33  32888  09/24/2007 07:56:35
-------------------------------------------------------------------------------
Number of LAGs : 1
===============================================================================
*A:Dut-C#

A:pc1# show redundancy multi-chassis mc-lag statistics
===============================================================================
Multi-Chassis Statistics
===============================================================================
Packets Rx                        : 129816
Packets Rx Keepalive              : 129798
Packets Rx Config                 : 3
Packets Rx Peer Config            : 5
Packets Rx State                  : 10
Packets Dropped KeepaliveTask     : 0
Packets Dropped Packet Too Short  : 0
Packets Dropped Verify Failed     : 0
Packets Dropped Tlv Invalid Size  : 0
Packets Dropped Out of Seq        : 0
Packets Dropped Unknown Tlv       : 0
Packets Dropped Tlv Invalid LagId : 0
Packets Dropped MD5               : 0
Packets Dropped Unknown Peer      : 0
Packets Tx                        : 77918
Packets Tx Keepalive              : 77879
Packets Tx Config                 : 6
Packets Tx Peer Config            : 26
Packets Tx State                  : 7
Packets Tx Failed                 : 0
===============================================================================
A:pc1#
A:pc1# show redundancy multi-chassis mc-lag peer 10.10.10.102 lag 2 statistics
===============================================================================
Multi-Chassis Statistics, Peer 10.10.10.102 Lag 2
===============================================================================
Packets Rx Config                 : 1
Packets Rx State                  : 4
Packets Tx Config                 : 2
Packets Tx State                  : 3
Packets Tx Failed                 : 0
===============================================================================
A:pc1#


A:pc1#show redundancy multi-chassis mc-lag peer 10.10.10.102 statistics
```

```
===============================================================================
Multi-Chassis Statistics, Peer 10.10.10.102
===============================================================================
Packets Rx                        : 129918
Packets Rx Keepalive              : 129900
Packets Rx Config                 : 3
Packets Rx Peer Config            : 5
Packets Rx State                  : 10
Packets Dropped State Disabled    : 0
Packets Dropped Packets Too Short : 0
Packets Dropped Tlv Invalid Size  : 0
Packets Dropped Tlv Invalid LagId : 0
Packets Dropped Out of Seq        : 0
Packets Dropped Unknown Tlv       : 0
Packets Dropped MD5               : 0
Packets Tx                        : 77979
Packets Tx Keepalive              : 77940
Packets Tx Peer Config            : 26
Packets Tx Failed                 : 0
===============================================================================
A:pc1#


A:pc1# show redundancy multi-chassis sync
===============================================================================
Multi-chassis Peer Table
===============================================================================
Peer
-------------------------------------------------------------------------------
Peer IP Address         : 10.10.10.102
Description             : CO1
Authentication          : Enabled
Source IP Address       : 10.10.10.101
Admin State             : Enabled
-------------------------------------------------------------------------------
Sync-status
-------------------------------------------------------------------------------
Client Applications     :
Sync Admin State        : Up
Sync Oper State         : Up
DB Sync State           : inSync
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
===============================================================================
Peer
-------------------------------------------------------------------------------
Peer IP Address         : 10.10.20.1
Authentication          : Disabled
Source IP Address       : 0.0.0.0
Admin State             : Disabled
===============================================================================
A:pc1#

pc1# show redundancy multi-chassis sync peer 10.10.10.102
===============================================================================
```

```
Multi-chassis Peer Table
===============================================================================
Peer
-------------------------------------------------------------------------------
Peer IP Address         : 10.10.10.102
Description             : CO1
Authentication          : Enabled
Source IP Address       : 10.10.10.101
Admin State             : Enabled
-------------------------------------------------------------------------------
Sync-status
-------------------------------------------------------------------------------
Client Applications     :
Sync Admin State        : Up
Sync Oper State         : Up
DB Sync State           : inSync
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
===============================================================================
MCS Application Stats
===============================================================================
Application             : igmp
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
Application             : igmpSnooping
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
Application             : subMgmt
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
Application             : srrp
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
```

```
Rem Alarm Entries       : 0
===============================================================================
A:pc1#


A:pc1# show redundancy multi-chassis sync peer 10.10.10.102 detail
===============================================================================
Multi-chassis Peer Table
===============================================================================
Peer
-------------------------------------------------------------------------------
Peer IP Address         : 10.10.10.102
Description             : CO1
Authentication          : Enabled
Source IP Address       : 10.10.10.101
Admin State             : Enabled
-------------------------------------------------------------------------------
Sync-status
-------------------------------------------------------------------------------
Client Applications     :
Sync Admin State        : Up
Sync Oper State         : Up
DB Sync State           : inSync
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
===============================================================================
MCS Application Stats
===============================================================================
Application             : igmp
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
Application             : igmpSnooping
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
Application             : subMgmt
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
-------------------------------------------------------------------------------
```

```
Application             : srrp
Num Entries             : 0
Lcl Deleted Entries     : 0
Alarm Entries           : 0
-------------------------------------------------------------------------------
Rem Num Entries         : 0
Rem Lcl Deleted Entries : 0
Rem Alarm Entries       : 0
===============================================================================
Ports synced on peer 10.10.10.102
===============================================================================
Port/Encap                    Tag
-------------------------------------------------------------------------------
1/1/1
  1-2                         r1
===============================================================================
A:pc1#


A:pc1# show redundancy multi-chassis sync statistics
===============================================================================
Multi-chassis Peer Sync Stats
===============================================================================
Peer IP Address         : 10.10.10.102
Packets Tx Total        : 511
Packets Tx Hello        : 510
Packets Tx Data         : 0
Packets Tx Other        : 1
Packets Tx Error        : 0
Packets Rx Total        : 511
Packets Rx Hello        : 510
Packets Rx Data         : 0
Packets Rx Other        : 1
Packets Rx Error        : 0
Packets Rx Header Err   : 0
Packets Rx Body Err     : 0
Packets Rx Seq Num Err  : 0
===============================================================================
Peer IP Address         : 10.10.20.1
Packets Tx Total        : 0
Packets Tx Hello        : 0
Packets Tx Data         : 0
Packets Tx Other        : 0
Packets Tx Error        : 0
Packets Rx Total        : 0
Packets Rx Hello        : 0
Packets Rx Data         : 0
Packets Rx Other        : 0
Packets Rx Error        : 0
Packets Rx Header Err   : 0
Packets Rx Body Err     : 0
Packets Rx Seq Num Err  : 0
===============================================================================
A:pc1#

A:pc1# show redundancy multi-chassis sync peer 10.10.10.102 statistics
===============================================================================
Multi-chassis Peer Sync Stats
===============================================================================
```

```
Peer IP Address         : 10.10.10.102
Packets Tx Total        : 554
Packets Tx Hello        : 553
Packets Tx Data         : 0
Packets Tx Other        : 1
Packets Tx Error        : 0
Packets Rx Total        : 554
Packets Rx Hello        : 553
Packets Rx Data         : 0
Packets Rx Other        : 1
Packets Rx Error        : 0
Packets Rx Header Err   : 0
Packets Rx Body Err     : 0
Packets Rx Seq Num Err  : 0
===============================================================================
A:pc1#
```

mc-lag

Syntax **mac-lag peer** *ip-address* [**lag** *lag-id*]
mac-lag [**peer** *ip-address* [**lag** *lag-id*]] **statistics**

Context show>redundancy>multi-chassis

Description This command displays multi-chassis LAG information.

Sample

```
*A:Dut-B# show redundancy multi-chassis mc-lag peer 10.20.1.2
===============================================================================
Multi-Chassis MC-Lag Peer 10.20.1.2
===============================================================================
Last State chg : 05/17/2009 19:31:58
Admin State : Up Oper State : Up
KeepAlive : 5 deci-seconds Hold On Ngbr Failure : 2
-------------------------------------------------------------------------------
Lag Id Lacp Remote Source Oper System Id Sys Last State Changed
Key Lag Id MacLSB MacLSB Prio
-------------------------------------------------------------------------------
1 40000 1 Lacp 9c:40 00:02:80:01:00:01 100 05/17/2009 19:31:56

*A:Dut-B# /tools dump redundancy src-bmac-lsb
Src-bmac-lsb: 1025 (04-01) User: B-Vpls - 1 service(s)
Services affected:
B-Vpls: 1
B-Vpls: 2
```

mc-ring

Syntax **mc-ring peer** *ip-address* **statistics**
mc-ring peer *ip-address* [**ring** *sync-tag* [**detail**|**statistics**]]
mc-ring peer *ip-address* **ring** *sync-tag* **ring-node** [*ring-node-name* [**detail**|**statistics**]]

mc-ring global-statistics

Context show>redundancy>multi-chassis

Description This command displays multi-chassis ring information.

Parameters *ip-address* — Specifies the address of the multi-chassis peer to display.

ring *sync-tag* **—** Specifies a synchronization tag to be displayed that was used while synchronizing this port with the multi-chassis peer.

node *ring-node-name* **—** Specifies a ring-node name.

global-statistics — Displays global statistics for the multi-chassis ring.

detail — Displays detailed peer information for the multi-chassis ring.

Output **Show mc-ring peer ip-address ring Output —** The following table describes mc-ring peer ip-address ring output fields.

Label	Description
`Sync Tag`	Displays the synchronization tag that was used while synchronizing this port with the multi-chassis peer.
`Oper State`	`noPeer` – The peer has no corresponding ring configured.
	`connected` – The inband control connection with the peer is operational.
	`broken` – The inband control connection with the peer has timed out.
	`conflict` – The inband control connection with the peer has timed out but the physical connection is still OK; the failure of the inband signaling connection is caused by a misconfiguration. For example, a conflict between the configuration of this system and its peer, or a misconfiguration on one of the ring access node systems.
	`testingRing` – The inband control connection with the peer is being set up. Waiting for result.
	`waitingForPeer` – Verifying if this ring is configured on the peer.
	`configErr` – The ring is administratively up, but a configuration error prevents it from operating properly.
	`halfBroken` – The inband control connection indicates that the ring is broken in one direction (towards the peer).
	`localBroken` – The inband control connection with the peer is known to be broken due to local failure or local administrive action.
	`shutdown` – The ring is shutdown.

Label	Description (Continued)
Failure Reason	Displays the failure reason.
Last Debounce	Displays the last time that the debounce mechanism (protecting the router from overload situations in case of a flapping ring) was activated.
Debounce Period	Displays the duration that the debounce mechanism was in action since the "Last Debounce".

Sample Output

```
*A:ALA-48# show redundancy multi-chassis mc-ring peer 10.0.0.2 ring ring11 detail
===============================================================================
Multi-Chassis MC-Ring Detailed Information
===============================================================================
Peer           : 10.0.0.2
Sync Tag       : ring11
Port ID        : 1/1/3
Admin State    : inService
Oper State     : connected
Admin Change   : 01/07/2008 21:40:07
Oper Change    : 01/07/2008 21:40:24
Last Debounce  : 02/15/2008 09:28:42
Debounce Period: 0d 00:00:00
Failure Reason : None
-------------------------------------------------------------------------------
In Band Control Path
-------------------------------------------------------------------------------
Service ID     : 10
Interface Name : to_an1
Oper State     : connected
Dest IP        : 10.10.0.2
Src  IP        : 10.10.0.1
-------------------------------------------------------------------------------
VLAN Map B Path Provisioned
-------------------------------------------------------------------------------
range 13-13
range 17-17
-------------------------------------------------------------------------------
VLAN Map Excluded Path Provisioned
-------------------------------------------------------------------------------
range 18-18
-------------------------------------------------------------------------------
VLAN Map B Path Operational
-------------------------------------------------------------------------------
range 13-13
range 17-17
-------------------------------------------------------------------------------
VLAN Map Excluded Path Operational
-------------------------------------------------------------------------------
range 18-18
===============================================================================
*A:ALA-48#
```

```
*A:ALA-48>show>redundancy>multi-chassis# mc-ring peer 192.251.10.104
===============================================================================
MC Ring entries
===============================================================================
Sync Tag                          Oper State      Failure Reason
-------------------------------------------------------------------------------
No. of MC Ring entries: 0
===============================================================================
*A:ALA-48#

*A:ALA-48# show redundancy multi-chassis mc-ring peer 10.0.0.2
===============================================================================
MC Ring entries
===============================================================================
Sync Tag                          Oper State      Failure Reason
-------------------------------------------------------------------------------
ring11                            connected       None
ring12                            shutdown        None
-------------------------------------------------------------------------------
No. of MC Ring entries: 4
===============================================================================
*A:ALA-48#


*A:ALA-48# show redundancy multi-chassis mc-ring peer 10.0.0.2 ring ring11 ring-node an1
detail
===============================================================================
Multi-Chassis MC-Ring Node Detailed Information
===============================================================================
Peer           : 10.0.0.2
Sync Tag       : ring11
Node Name      : an1
Oper State Loc : connected
Oper State Rem : notTested
In Use         : True
Admin Change   : 01/07/2008 21:40:07
Oper Change    : 01/07/2008 21:40:25
Failure Reason : None
-------------------------------------------------------------------------------
Ring Node Connectivity Verification
-------------------------------------------------------------------------------
Admin State    : inService
Service ID     : 11
VLAN Tag       : 11
Dest IP        : 10.11.3.1
Src  IP        : None
Interval       : 1 minutes
Src MAC        : None
===============================================================================
*A:ALA-48#

*A:ALA-48# show redundancy multi-chassis mc-ring peer 10.0.0.2 ring ring11 ring-node
===============================================================================
MC Ring Node entries
===============================================================================
Name                              Loc Oper St.      Failure Reason
  In Use                            Rem Oper St.
-------------------------------------------------------------------------------
an1                               connected         None
```

```
  Yes                              notTested
an2                              connected         None
  Yes                              notTested
-------------------------------------------------------------------------------
No. of MC Ring Node entries: 2
===============================================================================
*A:ALA-48#
```

Show Redundancy Multi-Chassis Ring Peer Statistics Output — The following table describes multi-chassis ring peer output fields.

Label	Description
Message	Displays the message type.
Received	Indicates the number of valid MC-Ring signalling messages received from the peer.
Transmitted	Indicates the number of valid MC-Ring signalling messages transmitted from the peer.
MCS ID Request	Displays the number of valid MCS ID requests were received from the peer.
MCS ID Response	Displays the number of valid MCS ID responses were received from the peer.
Ring Exists Request	Displays the number of valid 'ring exists' requests were received from the peer.
Ring Exists Response	Displays the number of valid ring exists' responses were received from the peer.
Keepalive	Displays the number of valid MC-Ring control packets of type 'keepalive' were received from the peer.

Sample Output

```
*A:ALA-48>show>redundancy>multi-chassis# mc-ring peer 192.251.10.104 statistics
===============================================================================
MC Ring statistics for peer 192.251.10.104
===============================================================================
Message                                          Received     Transmitted
-------------------------------------------------------------------------------
MCS ID Request                                   0            0
MCS ID Response                                  0            0
Ring Exists Request                              0            0
Ring Exists Response                             0            0
Keepalive                                        0            0
-------------------------------------------------------------------------------
Total                                            0            0
===============================================================================
*A:ALA-48>show>redundancy>multi-chassis#
```

Show MC-Ring Ring-Node Field Output

Label	Description
Oper State	Displays the state of the connection verification (both local and remote). notProvisioned – Connection verification is not provisioned. configErr – Connection verification is provisioned but a configuration error prevents it from operating properly. notTested – Connection verification is administratively disabled or is not possible in the current situation. testing – Connection Verification is active, but no results are yet available. connected – The ring node is reachable. disconnected – Connection verification has timed out.
In Use	Displays “True” if the ring node is referenced on an e-pipe or as an inter-dest-id on a static host or dynamic lease.

Show MC-Ring Global-Statistics Field Output

Label	Description
Rx	Displays the number of MC-ring signalling packets were received by this system.
Rx Too Short	Displays the number of MC-ring signalling packets were received by this system that were too short.
Rx Wrong Authen-tication	Displays the number of MC-ring signalling packets were received by this system with invalid authentication.
Rx Invalid TLV	Displays the number of MC-ring signalling packets were received by this system with invalid TLV.
Rx Incomplete	Displays the number of MC-ring signalling packets were received by this system that were incomplete.
Rx Unknown Type	Displays the number of MC-ring signalling packets were received by this system that were of unknown type.
Rx Unknown Peer	Displays the number of MC-ring signalling packets were received by this system that were related to an unknown peer.

Label	Description (Continued)
Rx Unknown Ring	Displays the number of MC-ring signalling packets were received by this system that were related to an unknown ring.
Rx Unknown Ring Node	Displays the number of MC-ring signalling packets were received by this system that were related to an unknown ring node.
Tx	Displays the number of MC-ring signalling packets were transmitted by this system.
Tx No Buffer	Displays the number of MC-ring signalling packets could not be transmitted by this system due to a lack of packet buffers.
Tx Transmission Failed	Displays the number of MC-ring signalling packets could not be transmitted by this system due to a transmission failure.
Tx Unknown Destination	Displays the number of MC-ring 'unknown destination' signalling packets were transmitted by this system.
Missed Configuration Events	Displays the number of missed configuration events on this system.
Missed BFD Events	Displays the number of missed BFD events on this system.

Sample Output

```
*A:ALA-48>show>redundancy>multi-chassis# mc-ring global-statistics
===============================================================================
Global MC Ring statistics
===============================================================================
Rx                          : 0
Rx Too Short                : 0
Rx Wrong Authentication     : 0
Rx Invalid TLV              : 0
Rx Incomplete               : 0
Rx Unknown Type             : 0
Rx Unknown Peer             : 0
Rx Unknown Ring             : 0
Rx Unknown Ring Node        : 0
Tx                          : 36763
Tx No Buffer                : 0
Tx Transmission Failed      : 0
Tx Unknown Destination      : 0
Missed Configuration Events : 0
Missed BFD Events           : 0
===============================================================================
*A:ALA-48>show>redundancy>multi-chassis#
```

lldp

Syntax **lldp [neighbor]** *neighbor*

Context show>system

Description This command displays local Link Layer Discovery Protocol (LLDP) information at the system level. This includes an option keyword to display summary information for all known peers.

Parameters **neighbor —** Display all peer summary information .

Sample Output

```
show system lldp
===============================================================================
LLDP Configuration
===============================================================================
Transmit Interval      : 30
Hold Multiplier        : 4
Reinit Delay           : 2
Notification Interval  : 5
Tx Credit Max          : 5
Message Fast Tx        : 1
Message Fast Tx Init   : 4
Admin Enabled          : True

-------------------------------------------------------------------------------
LLDP System Information
-------------------------------------------------------------------------------
Chassis Id Subtype     : 4
Chassis Id             : d8:1f:ff:00:00:00
System Name            : cses-V31
System Description     : TiMOS-B-0.0.I4269 both/i386 ALCATEL SR 7750 Copyright
                         (c) 2000-2014 Alcatel-Lucent.
                         All rights reserved. All use subject to applicable
                         license agreements.
                         Built on Wed Dec 3 19:14:27 PST 2014 by builder in /
                         rel0.0/I4269/panos/main
Capabilities Supported : bridge router
Capabilities Enabled   : bridge router

-------------------------------------------------------------------------------
LLDP Destination Addresses
-------------------------------------------------------------------------------
Index 1                : 01:80:c2:00:00:0e
Index 2                : 01:80:c2:00:00:03
Index 3                : 01:80:c2:00:00:00

-------------------------------------------------------------------------------
LLDP Remote Statistics
-------------------------------------------------------------------------------
Last Change Time       : 12/08/2014 21:34:48
Rem Table Inserts      : 10
Rem Table Deletes      : 1
Rem Table Drops        : 0
Rem Table Ageouts      : 3

-------------------------------------------------------------------------------
LLDP System Management Addresses
-------------------------------------------------------------------------------
Address SubType        : 1 (IPv4)
```

```
Address                 : 1.1.1.31
Address If SubType      : 2
Address If Id           : 1
Address OID             : .1.3.6.1.4.1.6527.1.3.3
Address SubType         : 2 (IPv6)
Address                 : 2001:dead:beef::31
Address If SubType      : 2
Address If Id           : 1
Address OID             : .1.3.6.1.4.1.6527.1.3.3



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

show system lldp neighbor

Link Layer Discovery Protocol (LLDP) System Information
===============================================================================
NB = nearest-bridge   NTPMR = nearest-non-tpmr   NC = nearest-customer
===============================================================================
Lcl Port  Scope  Remote Chassis ID   Index  Remote Port     Remote System Name
-------------------------------------------------------------------------------
1/1/2     NB     D8:1D:FF:00:00:00   1      1/2/2           cses-v29
1/1/5     NB     D8:1E:FF:00:00:00   2      1/1/4           cses-v30
1/1/7     NB     D8:1E:FF:00:00:00   3      1/1/6           cses-v30
1/1/4     NB     D8:20:FF:00:00:00   5      1/1/5           cses-v32
1/1/6     NB     D8:20:FF:00:00:00   6      1/1/7           cses-v32
1/1/1     NB     D8:1C:FF:00:00:00   9      1/2/2           cses-V28
===============================================================================
```

switch-fabric

Syntax **switch-fabric**
switch-fabric high-bandwidth-multicast

Context show>system

Description This command displays switch fabric information.

Parameters **high-bandwidth-multicast —** Displays MDA information about switch-fabric plane's high bandwidth multicast traffic tap allocation. **Sample Output**

```
A:SR-12# show system  switch-fabric high-bandwidth-multicast
===============================================================================
Switch Fabric
===============================================================================
Slot/Mda    Min Fwd Cap  Max Fwd Cap  Hi-Bw-Mcast    Mcast Hi  Mcast Low Group
-------------------------------------------------------------------------------
 3/1        100%         100%         Yes            #15#      #1#       1
 4/1        100%         100%         No             3         4         0
 4/2        100%         100%         No             1         2         0
 8/1        100%         100%         Yes            #15#      #1#       2
 A          100%         100%         No             0         0         0
 B          100%         100%         No             0         0         0
===============================================================================
```

Multilink Bundle Show Commands

multilink-bundle

Syntax **multilink-bundle** [*bundle-id* | *slot/mda* | **type** {**mlppp** | **ima-grp | mlfr**}] [**detail**]
multilink-bundle {*bundle-id* | *slot/mda*} [**ppp** | **ima | mlfr**]
multilink-bundle *bundle-id* **relations**
multilink-bundle *bundle-id* **ppp** [**multiclass**]**multilink-bundle** *bundle-id* **mlfr** [**frame-relay** [**detail**]]

Context show

Description This comand displays multilink bundle information. An operator can display:

- All bundles on the system/MDA or all bundles of a given type on the system by specifying the value of type filter to be either mlppp, mlfr or ima-grp.
- Bundle specific information in summary (no detail option) or detailed format (detail option specified) for one or more bundles
- Protocol specific information (example PPP or IMA) for the specified bundle
- ATM interface information for IMA groups see **show port atm** command for more details

Parameters *bundle-id* — Specifies the multilink (PPP, MLFR or IMA) bundle to be associated with this IP interface. The command syntax must be used as follows:

Syntax: bundle-*type-slot/mda.bundle-num*
bpgrp-*type-bpgrp-num*
bundle-ppp-*slot/mda.bundle-num* (Creates a multilink PPP bundle.)
bundle-ima-*slot/mda.bundle-num* (Creates an IMA group bundle.)

bundle-r-slot/mda.bundle-num (Creates an MLFR group bundle.)
bundle: keyword
slot: IOM/MDA slot numbers
bundle-num: 1 — 128

ppp — Displays PPP bundle information.

ima, ima-grp — Displays IMA-type groups.

mlfr — Displays bundle MLFR information, or used to display MLFR-type groups.

mlppp — Display MLPPP-type groups.

detail — Provides detailed information.

relations — Displays the working and protection bundles associated with this bundle-id.

Multilink Bundle Output — The following table describes multilink bundle output fields.

Label	Description
Type	Specifies the type of this multilink bundle. mlppp – Indicates that the bundle is of type MLPPP. ima – Indicates that the bundle is of type IMA group.
Admin State	Up – The bundle is administratively up. Down – The bundle is administratively down.
Oper State	Up – The bundle is operationally up. Down – The bundle is operationally down.
Port State	Displays the state level of the port. none – Indicates that the port is either in its initial creation state or is just about to to be deleted. ghost – No member links are configured as part of this bundle. down – All member links are in “none”, “ghost”, or “down” state. linkUp – At least one member link is in port state “link up” but the bundle protocol is not yet operationally up (due to bundle protocol still coming up. For example, due to insufficient number of member links in “link up” state yet or to bundle being shut down. Up – Indicates that the bundle is ready to pass some kinds of traffic as the bundle protocol has come up (at least “minimum links” member links are in the port state up and the bundle protocol is up.)
Min Links Minimum Links	Displays the minimum number of links that must be active for a bundle to be active. If the number of active links drop below the given minimum then the multilink bundle will transition to an operation down state.
Bundle IfIndex	Displays the bundle’s interface index number which reflects its initialization sequence.
Total Links	Displays the total number of member links configured for this bundle.
Active Links	Displays the total number of active links for the bundle.
Description	Displays configured description for this bundle.
Bundle Id	Displays the **port ID** for this bundle.
Red Diff Delay	Displays the maximum acceptable differential delay for individual circuits within this multilink bundle. If the delay exceeds this threshold, a trap is issued. The differential delay is calculated as the round-trip differential delay for MLPPP bundles, and as uni-directional differential delay for IMA bundles.

Label	Description (Continued)
Fragment Threshold	Displays configured fragment threshold value for this bundle.
Up Time	Displays time elapsed since the last bundle transition to Up when part of bundle information. Displays time elapsed since the last link transition to active when part of member information.
Bandwidth	Displays bandwidth configured for this IMA bundle in Kbytes.
Primary Port Member	Displays the portId of the IMA group member chosen as a Primary Port.
Member Port Id	Displays portId of each member of this bundle.
Admin	Displays administrative port status of a member link.
Oper	Displays operational port status of a member link.
Active	Displays whether a member link is active or not.
Down Reason	Displays the reason for why a member link is not active.
Traffic and Port statistics	The traffic and port statistics information displayed for bundles when detail option is selected is the same as information displayed for physical ports.

Sample Output

```
A:timetra-sim110# show multilink-bundle
===============================================================================
Bundle Summary
===============================================================================
Bundle               Type    Admin     Oper      Port      Min    Total/
Id                           State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-ppp-1/1.1     mlppp   Down      Down      Ghost     1      0/0
bundle-ima-1/1.2     ima     Down      Down      Link Up   1      1/0
-------------------------------------------------------------------------------
Bundles : 2
===============================================================================
A:timetra-sim110#


*A:timetra-44-cpm2# show multilink-bundle detail
===============================================================================
Description        : MultiLink Bundle
Bundle Id          : bundle-ppp-1/1.1   Type               : mlppp
Admin Status       : up                 Oper Status        : down
Minimum Links      : 1                  Bundle IfIndex     : 572522497
Total Links        : 3                  Active Links       : 0
Red Diff Delay     : 0                  Yellow Diff Delay  : 0
Red Diff Delay Act : none               MRRU               : 1524
Short Sequence     : true               Oper MRRU          : 1524
Oper MTU           : 1526               Fragment Threshold : 128 bytes
```

```
Up Time            : N/A                Bandwidth          : 0 KBit
PPP Input Discards : 0                  Primary Member Port: 1/1/1.1.1.1.1.1.1
Mode               : access
Interleave-Frag    : false
-------------------------------------------------------------------------------
Member Port Id              #TS   Admin  Oper  Act  Down Reason       Up Time
-------------------------------------------------------------------------------
1/1/1.1.1.1.1.1.1           12     up     up   no    oper down          N/A
1/1/1.1.1.1.1.1.2           12     up     up   no    oper down          N/A
1/1/1.1.1.1.1.1.3           12     up     up   no    oper down          N/A
===============================================================================
Traffic Statistics
===============================================================================
Input                 Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Packets                                                0                     0
Errors                                                 0                     0

===============================================================================
Port Statistics
===============================================================================
                                                     Input                 Output
-------------------------------------------------------------------------------
Packets                                                0                     0
Discards                                               0                     0
Unknown Proto Discards                                 0
===============================================================================
*A:timetra-44-cpm2#


A:timetra-sim110# show multilink-bundle type ima-grp
===============================================================================
Bundle Summary
===============================================================================
Bundle                Type    Admin     Oper      Port      Min    Total/
Id                            State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-ima-1/1.2      ima     Down      Down      Link Up   1      1/0
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
A:timetra-sim110#


A:timetra-sim110# show multilink-bundle bundle-ppp-1/1.1
===============================================================================
Bundle Summary
===============================================================================
Bundle                Type    Admin     Oper      Port      Min    Total/
Id                            State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-ppp-1/1.1      mlppp   Down      Down      Ghost     1      0/0
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
A:timetra-sim110#
```

```
A:timetra-sim110# show multilink-bundle bundle-ppp-1/1.1 detail
===============================================================================
Bundle bundle-ppp-1/1.1 Detail
===============================================================================
Description        : MultiLink Bundle
Bundle Id          : bundle-ppp-1/1.1   Type               : mlppp
Admin Status       : down               Oper Status        : down
Minimum Links      : 1                  Bundle IfIndex     : 555745281
Total Links        : 0                  Active Links       : 0
Red Diff Delay     : 0                  Yellow Diff Delay  : 0
Red Diff Delay Act : none               MRRU               : 1524
Short Sequence     : false              Oper MRRU          : 1524
Oper MTU           : 1522               Fragment Threshold : 128 bytes
Up Time            : N/A                Bandwidth          : 0 KBit
PPP Input Discards : 0                  Primary Member Port: None
Interleave-Frag    : false
===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                     0
Packets                                                0                     0
Errors                                                 0                     0
===============================================================================
Port Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Unicast Packets                                        0                     0
Multicast Packets                                      0                     0
Broadcast Packets                                      0                     0
Discards                                               0                     0
nown Proto Discards                                  0
===============================================================================
A:timetra-sim110#

*A:Cpm-A>config>port#  show multilink-bundle

===============================================================================
Bundle Summary
===============================================================================
Bundle               Type    Admin     Oper      Port      Min    Total/
Id                           State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-fr-1/1.1      mlfr    Down      Down      Ghost     1      0/0
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
Bundle Summary
===============================================================================
Bundle               Type    Admin     Oper      Port      Min    Total/
Id                           State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-fr-1/1.1      mlfr    Down      Down      Ghost     1      0/0
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
*A:Cpm-A> show multilink-bundle bundle-fr-1/1.1 detail
```

```
===============================================================================
Bundle bundle-fr-1/1.1 Detail
===============================================================================
Description        : MultiLink Bundle
Bundle Id          : bundle-fr-1/1.1    Type               : mlfr
Admin Status       : down               Oper Status        : down
Minimum Links      : 1                  Bundle IfIndex     : 572530689
Total Links        : 0                  Active Links       : 0
Red Diff Delay     : 0                  Yellow Diff Delay  : 0
Red Diff Delay Act : none               MRRU               : N/A
Short Sequence     : N/A                Oper MRRU          : N/A
Oper MTU           : 0                  Fragment Threshold : 128 bytes
Up Time            : N/A                Bandwidth          : 0 KBit
PPP Input Discards : N/A                Primary Member Port: None
Mode               : access
Interleave-Frag    : N/A

===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                  0                     0
Packets                                                 0                     0
Errors                                                  0                     0

===============================================================================
Port Statistics
===============================================================================
Input                Output
-------------------------------------------------------------------------------
Unicast Packets                                         0                     0
Multicast Packets                                       0                     0
Broadcast Packets                                       0                     0
Discards                                                0                     0
Unknown Proto Discards                                  0
===============================================================================
*A:Cpm-A> show multilink-bundle bundle-fr-1/1.1 mlfr frame-relay

===============================================================================
Frame Relay Info for bundle-fr-1/1.1
===============================================================================
Mode                    : dte           LMI Type                : itu
FR Interface Status     : fault
N391 DTE                : 6             N392 DCE                : 3
N392 DTE                : 3             N393 DCE                : 4
N393 DTE                : 4             T392 DCE                : 15
T391 DTE                : 10
Tx Status Enquiry       : 0             Rx Status Enquiry       : 0
Rx Status Messages      : 0             Tx Status Messages      : 0
Status Message Timeouts : 0             Status Enquiry Timeouts : 0
Discarded Messages      : 0             Inv. RxSeqNum Messages  : 0
===============================================================================
Service Access Points(SAP)
===============================================================================
Service Id         : 39
SAP                : 1/1/2.3.5.2.2:18         Encap             : frRel
Description        : Default sap description for service id 39
Admin State        : Up                       Oper State        : Up
```

```
Flags              : None
Multi Svc Site     : None
Last Status Change : 12/02/2008 20:48:17
Last Mgmt Change   : 12/02/2008 20:46:38
Sub Type           : regular
Split Horizon Group: (Not Specified)

Admin MTU          : 4474                    Oper MTU          : 4474
Ingr IP Fltr-Id    : n/a                     Egr IP Fltr-Id    : n/a
Ingr Mac Fltr-Id   : n/a                     Egr Mac Fltr-Id   : n/a
Ingr IPv6 Fltr-Id  : n/a                     Egr IPv6 Fltr-Id  : n/a
tod-suite          : None                    qinq-pbit-marking : both
Ing Agg Rate Limit : max                     Egr Agg Rate Limit: max
Endpoint           : N/A

FRF-12             : Disabled
Acct. Pol          : None                    Collect Stats     : Disabled

------------------------------------------------------------------------

FRF12 on channel where sap resides:

========================================================================
Service Access Points(SAP)
========================================================================
Service Id         : 1
SAP                : 1/1/1.3.7.4.1:16        Encap             : frRel
Description        : sap-1-88.10.131.1
Admin State        : Up                      Oper State        : Up
Flags              : None
Multi Svc Site     : None
Last Status Change : 12/02/2008 20:48:15
Last Mgmt Change   : 12/02/2008 20:46:36
Sub Type           : regular
Split Horizon Group: (Not Specified)
Admin MTU          : 9194                    Oper MTU          : 9194
Ingr IP Fltr-Id    : n/a                     Egr IP Fltr-Id    : n/a
Ingr Mac Fltr-Id   : n/a                     Egr Mac Fltr-Id   : n/a
Ingr IPv6 Fltr-Id  : n/a                     Egr IPv6 Fltr-Id  : n/a
tod-suite          : None                    qinq-pbit-marking : both
Ing Agg Rate Limit : max                     Egr Agg Rate Limit: max

FRF-12 (I/F)       : Enabled
Scheduling Class   : 0
Acct. Pol          : None                    Collect Stats     : Disabled
Anti Spoofing      : None                    Avl Static Hosts  : 0
                                             Tot Static Hosts  : 0
Calling-Station-Id : n/a
Application Profile: None
------------------------------------------------------------------------

FRF12 ETE on sap capable of supporting it:

========================================================================
Service Access Points(SAP)
========================================================================     Service
Id         : 1
SAP                : 1/1/1.1:16              Encap             : frRel
Description        : (Not Specified)
```

```
Admin State        : Up                       Oper State        : Up
Flags              : None
Multi Svc Site     : None
Last Status Change : 12/02/2008 20:48:12
Last Mgmt Change   : 12/02/2008 20:46:36
Sub Type           : regular
Split Horizon Group: (Not Specified)

Admin MTU          : 9194                     Oper MTU          : 9194
Ingr IP Fltr-Id    : n/a                      Egr IP Fltr-Id    : n/a
Ingr Mac Fltr-Id   : n/a                      Egr Mac Fltr-Id   : n/a
Ingr IPv6 Fltr-Id  : n/a                      Egr IPv6 Fltr-Id  : n/a
tod-suite          : None                     qinq-pbit-marking : both
Ing Agg Rate Limit : max                      Egr Agg Rate Limit: max

FRF-12 (ETE)       : Enabled                  Ete-Frag-Threshold: 128
Scheduling Class   : 3
Acct. Pol          : None                     Collect Stats     :
Disabled
Anti Spoofing      : None                     Avl Static Hosts  : 0
                                              Tot Static Hosts  : 0
Calling-Station-Id : n/a
Application Profile: None
 ---------------------------------------------------------------------------
```

relations

Syntax **relations**

Context show>multilink-bundle

Description This command displays the working and protection bundles associated with this bundle-id.

Output **Show Mutlilink-Bundle Relations Output —** The following table describes show multilink-bundle relations output fields.

Label	Description
BundleID	Displays the bundle number.
Admin State	Up — The bundle is administratively up.
	Down — The bundle is administratively down.
Oper State	Up — The bundle is operationally up.
	Down — The bundle is operationally down.
Working BundleID	Displays the bundle that is currently in working mode.

Label	Description
Protect BundleID	Displays the bundle that is currently in protect mode.
Active Bundle	Displays the mode of the active bundle.

Sample Output

```
A:ALA-48>show# show multilink-bundle bundle-ima-1/1.2 relations
===============================================================================
Bundle Relationship
===============================================================================
Bundle         Admin   Oper    Working             Protect             Active
Id             State   State   Bundle Id           Bundle Id           Bundle
-------------------------------------------------------------------------------
bpgrp-ima-1    Down    Down    bundle-ima-1/1.1    bundle-ima-1/1.2    Protect
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
A:ALA-48>show#
```

ima

Syntax **multilink-bundle ima**

Context show>multilink-bundle

Description This command enables the context to display IMA group data.

MDA Values 1, 2

Output **Show Mutlilink-bundle IMA Connections Output —** The following table describes show multilink-bundle IMA output fields.

Label	Description
BundleId	Displays the bundle ID number.
Type	Specifies the type of this multilink bundle. mlppp – Indicates that the bundle is of type MLPPP. ima – Indicates that the bundle is of type IMA group.
Admin State	ima – Indicates that the bundle is of type IMA group. Down – The bundle is administratively down.
Oper State	Up – The bundle is operationally up. Down – The bundle is operationally down.
Port State	Displays the state level of the port.

Label	Description (Continued)
	none – Indicates that the port is either in its initial creation state or is just about to to be deleted. ghost – No member links are configured as part of this bundle. down – All member links are in “none”, “ghost”, or “down” state. linkUp – At least one member link is in port state “link up” but the bundle protocol is not yet operationally up (due to bundle protocol still coming up. For example, due to insufficient number of member links in “link up” state yet or to bundle being shut down. Up – Indicates that the bundle is ready to pass some kinds of traffic as the bundle protocol has come up (at least “minimum links” member links are in the port state up and the bundle protocol is up.)
Min Links Minimum Links	Displays the minimum number of links that must be active for a bundle to be active. If the number of links drop below the given minimum then the multilink bundle will transition to an operation down state.)
Total/Active Links	Displays the total number of active links for the bundle.

Sample Output

```
A:timetra-sim110# show multilink-bundle bundle-ima-1/1.2
===============================================================================
Bundle Summary
===============================================================================
Bundle               Type    Admin     Oper      Port      Min    Total/
Id                           State     State     State     Links  Active Links
-------------------------------------------------------------------------------
bundle-ima-1/1.2     ima     Down      Down      Link Up   1      1/0
-------------------------------------------------------------------------------
Bundles : 1
===============================================================================
A:timetra-sim110#

A:timetra-sim110# show multilink-bundle bundle-ima-1/1.2 detail
===============================================================================
Bundle bundle-ima-1/1.2 Detail
===============================================================================
Description        : MultiLink Bundle
Bundle Id          : bundle-ima-1/1.2   Type               : ima
Admin Status       : down               Oper Status        : down
Minimum Links      : 1                  Bundle IfIndex     : 555749378
Total Links        : 1                  Active Links       : 0
Red Diff Delay     : 25                 Yellow Diff Delay  : N/A
Red Diff Delay Act : down               MRRU               : N/A
Short Sequence     : N/A                Oper MRRU          : N/A
Oper MTU           : 1524               Fragment Threshold : 128 bytes
Up Time            : N/A                Bandwidth          : 0 KBit
PPP Input Discards : N/A                Primary Member Port: 1/1/1.1.1.1
```

```
Interleave-Frag    : N/A
-------------------------------------------------------------------------------
Member Port Id              Admin Oper  Active  Down Reason       Up Time
-------------------------------------------------------------------------------
1/1/1.1.1.1                 up    up    no      oper down         N/A
===============================================================================
Traffic Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Octets                                                 0                    0
Packets                                                0                    0
Errors                                                 0                    0
===============================================================================
Port Statistics
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Packets                                                0                    0
Discards                                               0                    0
Unknown Proto Discards                                 0
===============================================================================
A:timetra-sim110#

A:timetra-sim110# show multilink-bundle bundle-ima-1/1.2 ima
===============================================================================
Bundle bundle-ima-1/1.2 IMA group information
===============================================================================
Version            : 1.1
Current State      : Startup Near-end
Near-end State     : Startup
Far-end State      : Not configured
Group Test State   : Disabled
Max BW Links       : 8
Operational Secs   : N/A                Down Secs          : 2811
Tx IMA Id          : 0                  Rx IMA Id          : 255
Tx Timing Ref Link : N/A                Rx Timing Ref Link : N/A
Tx Oam Label       : 3                  Rx Oam Label       : 0
Test Link          : N/A                Test Pattern       : 0
Near-End Clock-Mode: ctc                Far-End Clock-Mode : itc
Link Deact Timer   : 2000               Link Act Timer     : 10000
Alpha-value        : 2                  Beta-value         : 2
Gamma-value        : 1                  Symmetry Mode      : symmetric
Tx CR Available    : 0 KBit             Rx CR Available    : 0 KBit
Least Delayed Link : N/A                Max Obs Diff Delay : 0
Near-End Fails     : 1                  Far-end Fails      : 0
Tx Icp Cells       : 0                  Rx Icp Cells       : 0
Errored Icp Cells  : 0                  Rx Lost Icp Cells  : 0
===============================================================================
A:timetra-sim110#
```

The following stats display when the bundle type is mlppp-lfi and the The following stats should only be displayed if the bundle type is mlppp-lfi and the detail keyword is issued.

```
LFI Statistics
              Ingress       Egress
              Packet Bytes  Packet    Byte
High          5000 5000000  2000      2000000
Normal        1000010000000 5000      5000000
===============================================================================
```

ppp

Syntax **ppp** [**multiclass**]

Context show>multilink-bundle

Description This command enables the context to display PPP group data.

MDA Values 1, 2

multiclass
Specifies to display multi-class MLPPP information.

Sample Output

```
A:timetra-sim110# show multilink-bundle bundle-ppp-1/1.1 ppp
===============================================================================
PPP Protocols for bundle-ppp-1/1.1
===============================================================================
Protocol  State         Last Change         Restart Count   Last Cleared
-------------------------------------------------------------------------------
ipcp      initial       02/16/2007 06:11:44          0      02/16/2007 06:11:44
mplscp    initial       02/16/2007 06:11:44          0      02/16/2007 06:11:44
bcp       initial       02/16/2007 06:11:44          0      02/16/2007 06:11:44
osicp     initial       02/16/2007 06:11:44          0      02/16/2007 06:11:44
ipv6cp    initial       02/16/2007 06:11:44          0      02/16/2007 06:11:44
===============================================================================
Local Mac address  : 8c:6e:01:01:00:3d  Remote Mac address : 00:00:00:00:00:00
Local IPv4 address : 0.0.0.0            Remote IPv4 address: 0.0.0.0
Local IPv6 address : ::
Remote IPv6 address: ::
===============================================================================
*A:mlppp_top#


*A:mlppp_top# show multilink-bundle bundle-ppp-1/1.1 ppp multiclass
===============================================================================
MLPPP Per Class Traffic Statistics for bundle-ppp-1/1.1
===============================================================================
                                                    Input                Output
-------------------------------------------------------------------------------
Class  0
  Octets                                               0                     0
  Packets                                              0                     0
  Errors                                               0                     0
Class  1
  Octets                                               0                     0
  Packets                                              0                     0
  Errors                                               0                     0
Class  2
  Packets                                              0                     0
  Errors                                               0                     0
Class  3
  Octets                                               0                270400
  Packets                                              0                  2704
  Errors                                               0                     0
===============================================================================
```

```
*A:mlppp_top#
```

atm

Syntax **atm** [**detail**]

Context show>multilink-bundle>ima

Description This command displays multilink bundle IMA ATM information.

Parameters **detail** — Displays detailed information.

Output **Show Mutlilink-bundle IMA ATM Output —** The following table describes show multilink-bundle IMA ATM output fields..

Label	Description
Cell Mode	Displays the cell format (UNI or NNI) used on the ATM interface.
Configured VCs	Displays the number of configured VCs.
Configured VTs	Displays the number of configured VTs.
Configured minimum VPI	Displays the minimum VPI configured for this bundle.
Last Unknown VPI/VCI	Indicates the last unknown VPI/VCI that was received on this interface.
Mapping	Displays ATM cell mapping used on this interface: Direct or PLCP.
Configured VPs	Displays the number of configured VPs.
Configured IFCs	Displays the number of configured IFCs.

Sample Output

```
A:NS052651098# show multilink-bundle bundle-ima-1/1.1 ima atm
===============================================================================
ATM Info for bundle-ima-1/1.1
===============================================================================
Cell Mode             : UNI               Mapping            : Direct
Configured VCs        : 1                 Configured VPs     : 0
Configured VTs        : 0                 Configured IFCs    : 0
Configured minimum VPI: 0
Last Unknown VPI/VCI  : none
===============================================================================
ATM Bandwidth Info
===============================================================================
                     kbps      %                               kbps      %
-------------------------------------------------------------------------------
Ingress CBR        : 15232     100%     Egress CBR         : 15232     100%
Ingress RT-VBR     : 0          0%      Egress RT-VBR      : 0          0%
Ingress NRT-VBR    : 0          0%      Egress NRT-VBR     : 0          0%
Ingress UBR        : 0          0%      Egress UBR         : 0          0%
```

```
-------------------------------------------------------------------------------
Ingress Total      : 15232     100%     Egress Total       : 15232     100%
ATM Link Bandwidth : 15232 kbps
Shaped Bandwidth   : 15232 kbps
===============================================================================
```

connections

Syntax **connections**

Context show>multilink-bundle>ima>atm

Description This command displays connection information.

Parameters **pvc** — Displays ATM port PVC information.

pvp — Displays ATM port PVP information.

pvt — Displays ATM port PVT information.

vpi-range — Displays the VPI range.

Values vpi: 0 — 4095 (NNI)
0 — 255 (UNI)

vpi — Displays the VPI values.

Values vpi: 0 — 4095 (NNI)
0 — 255 (UNI)

vci: — Displays the VCI values.

Values 1, 2, 5 — 65534

detail — Provides detailed information.

MDA Values 1, 2

Output **Show Mutlilink-bundle IMA ATM Connections Output —** The following table describes show multilink-bundle IMA ATM connections output fields.

Label	Description
Owner	Identifies the system entity that owns a specific ATM connection.
Type	Specifies the type of this multilink bundle. mlppp – Indicates that the bundle is of type MLPPP. ima – Indicates that the bundle is of type IMA group.
Ing.TD	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr.TD	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Adm	ima – Indicates that the bundle is of type IMA group.

Label	Description (Continued)
	Down — The bundle is administratively down.
Opr	Up — The bundle is operationally up. Down — The bundle is operationally down.
OAM	Indicates the OAM operational status of ATM connections.

Sample Output

```
A:NS052651098# show multilink-bundle bundle-ima-1/1.1 ima atm connections
===============================================================
ATM Connections, Port bundle-ima-1/1.1
===============================================================
           Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
1/100      SAP    PVC      2       2       up   up          up
===============================================================
A:NS052651098#
```

port-connection

Syntax **port-connection** [**detail**]

Context show>multilink-bundle>ima>atm

Description This command displays port connection information.

Parameters **detail** — Displays detailed information.

Output **Show Mutlilink-Bundle IMA ATM Port-Connection Output —** The following table describes show multilink-bundle IMA ATM port-connection output fields.

Label	Description
Port ID	Displays the port ID for this bundle.
Admin State	ima — Indicates that the bundle is of type IMA group.
	Down — The bundle is administratively down.
Oper State	Up — The bundle is operationally up.
	Down — The bundle is operationally down.
Owner	Identifies the system entity that owns a specific ATM connection.
Endpoint Type	Displays the endpoint type.
Cast Type	Indicates the connection topology type.

Label	Description (Continued)
Ing. Td Idx	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr. Td Idx	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Last Changed	Indicates the date and time when the interface connection entered its current operational state.

Sample Output

```
A:NS052651098# show multilink-bundle bundle-ima-1/1.1 ima atm port-connection
===============================================================================
ATM Port Connection
===============================================================================
Port Id            : bundle-ima-1/1.1
Admin State        : up                  Oper state         : up
Owner              : SAP
Endpoint Type      : Port                Cast Type          : P2P
Ing. Td Idx        : 2                   Egr. Td Idx        : 2
Last Changed       : 01/16/2007 14:24:00
===============================================================================
A:NS052651098#
```

pvc

Syntax **pvc** [*vpi*[/*vci*] [**detail**]

Context show>multilink-bundle>ima>atm

Description This command displays ATM port PVC information.

Parameters **vpi —** Displays the VPI values.

Values vpi: 0 — 4095 (NNI)
0 — 255 (UNI)

vci: — Displays the VCI values.

Values 1, 2, 5 — 65534

detail — Provides detailed information.

MDA Values 1, 2

Output **Show Mutlilink-Bundle IMA ATM PVC Output —** The following table describes show multilink-bundle IMA ATM port-connection output fields.

Label	Description
VPI/VCI	Displays the VPI/VCI value.
Owner	Specifies the type of this multilink bundle. mlppp – Indicates that the bundle is of type MLPPP. ima – Indicates that the bundle is of type IMA group.
Type	Identifies the system entity that owns a specific ATM connection.
Ing.TD	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr.TD	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Adm	ima – Indicates that the bundle is of type IMA group. Down – The bundle is administratively down.
Opr	Up – The bundle is operationally up. Down – The bundle is operationally down.
OAM	Indicates the OAM operational status of ATM connections.

Sample Output

```
A:NS052651098# show multilink-bundle bundle-ima-1/1.1 ima atm pvc
===============================================================
ATM PVCs, Port bundle-ima-1/1.1
===============================================================
VPI/VCI    Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
1/100      SAP    PVC      2       2       up   up          up
===============================================================
A:NS052651098#


A:NS052651098# show multilink-bundle bundle-ima-1/1.1 ima atm pvc detail
===============================================================
ATM PVCs, Port bundle-ima-1/1.1
===============================================================
VPI/VCI    Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
1/100      SAP    PVC      2       2       up   up          up

===============================================================================
ATM Statistics
===============================================================================
                                                  Input                Output
-------------------------------------------------------------------------------
Octets                                               0                     0
```

```
Cells                                                    0                      0
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                                       Input                  Output
-------------------------------------------------------------------------------
Packets                                                  0                      0
Dropped Packets                                          0                      0
CRC-32 Errors                                            0
Reassembly Timeouts                                      0
Over Sized SDUs                                          0
===============================================================================
ATM OAM Statistics
===============================================================================
                                                       Input                  Output
-------------------------------------------------------------------------------
AIS                                                      0                      0
RDI                                                      0                      0
Loopback                                                 0                      0
CRC-10 Errors                                            0
Other                                                    0
===============================================================================
A:NS052651098#
```

pvp

Syntax **pvp** [*vpi*] [**detail**]

Context show>multilink-bundle>ima>atm

Description This command displays ATM port PVP information.

Parameters **vpi —** Displays the VPI values.

Values vpi: 0 — 4095 (NNI)
0 — 255 (UNI)

detail — Displays detailed information.

MDA Values 1, 2

Output **Show Mutlilink-bundle IMA ATM PVP Output —** The following table describes show multilink-bundle IMA ATM port-connection output fields.

Label	Description
VPI	Displays the VPI value.
Owner	Identifies the system entity that owns a specific ATM connection.
Type	Specifies the type of this multilink bundle.
	mlppp – Indicates that the bundle is of type MLPPP.

Label	Description (Continued)
	ima – Indicates that the bundle is of type IMA group.
Ing.TD	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Eng.TD	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Adm	ima – Indicates that the bundle is of type IMA group. Down – The bundle is administratively down.
OAM	Indicates the OAM operational status of ATM connections.
Opr	Up – The bundle is operationally up. Down – The bundle is operationally down.

Sample Output

```
A:ima2# show multilink-bundle bundle-ima-1/1.1 ima atm pvp
===============================================================
ATM PVPs, Port bundle-ima-1/1.1
===============================================================
VPI        Owner  Type     Ing.TD  Egr.TD  Adm  OAM         Opr
---------------------------------------------------------------
2          SAP    PVP      1       1       up   up          up
===============================================================
A:ima2#
```

pvt

Syntax **pvt** [*vpi.vpi*] [**detail**]

Context show>multilink-bundle>ima>atm

Description This command displays ATM port PVT information.

Parameters **vpi —** Displays the VPI values.

Values vpi: 0 — 4095 (NNI)
0 — 255 (UNI)

detail — Provides detailed information.

MDA Values 1, 2

Output **Show Mutlilink-bundle IMA ATM PVT Output —** The following table describes show multilink-bundle IMA ATM port-connection output fields.

Label	Description
VPI Range	Displays the VPI range:
Owner	Identifies the system entity that owns a specific ATM connection.
Type	Specifies the type of this multilink bundle. mlppp – Indicates that the bundle is of type MLPPP. ima – Indicates that the bundle is of type IMA group.
Ing.Td	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr.Td	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Adm	ima – Indicates that the bundle is of type IMA group. Down – The bundle is administratively down.
Opr	Up – The bundle is operationally up. Down – The bundle is operationally down.

Sample Output

```
A:ima2# show multilink-bundle bundle-ima-1/1.1 ima atm pvt
===============================================================
ATM PVTs, Port bundle-ima-1/1.1
===============================================================
VPI Range  Owner  Type     Ing.TD  Egr.TD  Adm              Opr
---------------------------------------------------------------
4.5        SAP    PVT      1       1       up               up
===============================================================
A:ima2#
```

LAG Show Commands

lag

Syntax **lag** [*lag-id*] [**detail**] [**statistics**]
lag [*lag-id*] **description**
lag [*lag-id*] **port**
lag *lag-id* **associations**
lag *lag-id* **bfd**
lag *lag-id* [**detail**] **eth-cfm** [**tunnel** *tunnel-id*]
lag *lag-id* **associations per-link-hash interface** [**class** {**1** | **2** | **3**}]
lag *lag-id* **associations link-map-profile** [*link-map-profile*] **interface**
lag *lag-id* **lacp-partner**
lag *lag-id* **detail lacp-partner**
lag *lag-id* **link-map-profile** *link-map-profile*
lag *lag-id* **associations per-link-hash sap** [**class** {**1** | **2** | **3**}]
lag *lag-id* **associations link-map-profile** [*link-map-profile*] **sap**
lag *lag-id* **per-link-hash** [**class** {**1** | **2** | **3**}]
lag *lag-id* **per-link-hash port** *port-id*

Context show

Description This command displays Link Aggregation Group (LAG) information.

If no command line options are specified, a summary listing of all LAGs is displayed.

Parameters *lag-id* — Displays only information on the specified LAG ID.

Default Display information for all LAG IDs.

Values 1 — 800 (7750 SR-a4/8: 1 — 200; 7750 SR-c12/4: 1 — 64)

detail — Displays detailed LAG information.

Default Displays summary information.

statistics — Displays LAG statistics information.

associations — Displays a list of current router interfaces to which the LAG is assigned.

link-map-profile *link-map-profile* **—** Displays information about a particular LAG link map profile.

eth-cfm — Displays a list of Ethernet tunnels to which the LAG is assigned.

per-link-hash — Displays information about a SAP or interface associated with this LAG will send traffic over a single link of a LAG auto-rebalancing as links are added and removed from this LAG.

lacp-partner — Displays LACP partner information.

link-map-profile *link-map-profile* **—** Displays information about a specified LAG link map profile identifier.

Output **LAG Output —** The following table describes LAG output fields.

Label	Description
LAG ID	The LAG or multi-link bundle ID that the port is assigned to.
Adm	Up — The LAG is administratively up.
	Down — The LAG is administratively down.
Opr	Up — The LAG is operationally up.
	Down — The LAG is operationally down.
Port-Threshold	The number of operational links for the LAG at or below which the configured action will be invoked.
Up-Link-Count	The number of ports that are physically present and have physical links present.
MC Act/Stdby	Member port is selected as active or standby link.

Sample Output

```
A:ALA-48>config# show lag
===============================================================================
Lag Data
===============================================================================
Lag-id         Adm     Opr     Port-Threshold   Up-Link-Count   MC Act/Stdby
-------------------------------------------------------------------------------
1              up      down    0                0               N/A
2              up      up      0                1               active
3              up      down    0                0               standby
4              up      down    0                0               standby
10             up      down    0                0               N/A
-------------------------------------------------------------------------------
Total Lag-ids: 5       Single Chassis: 2        MC Act: 1       MC Stdby: 2
===============================================================================
A:ALA-48>config# show lag


A:sr7- show lag 10 port
===============================================================================
Lag Port States
LACP Status: e - Enabled, d - Disabled
===============================================================================
Lag-id Port-id   Adm   Act/Stdby Opr   Primary  Sub-group     Forced  Priority
-------------------------------------------------------------------------------
10(e)  1/1/8     up    active    up    yes      1             -       32768
       1/1/9     up    standby   down           2             -       32768
===============================================================================
```

Detailed LAG Output — The following table describes detailed LAG output fields. The output is dependent on whether or not the LAG was configurd as a multi-chassis LAG.

Label	Description
LAG ID	The LAG or multi-link trunk (MLT) that the port is assigned to.
Adm	Up — The LAG is administratively up. Down — The LAG is administratively down.
Port Threshold	If the number of available links is equal or below this number, the threshold action is executed.
Thres. Last Cleared	The last time that keepalive stats were cleared.
Dynamic Cost	The OSPF costing of a link aggregation group based on the available aggregated, operational bandwidth.
Configured Address	The base chassis Ethernet MAC address.
Hardware Address	The hardware address.
Hold-Time Down	The timer, in tenths of seconds, which controls the delay between detecting that a LAG is down and reporting it to the higher levels.
LACP	Enabled — LACP is enabled. Down — LACP is disabled.
LACP Transmit Intvl	LACP timeout signalled to peer.
Selection Criteria	Configured subgroup selection criteria.
MUX control	Configured type of multiplexing machine control used in a LAG with LACP in active/passive modes. coupled — TX and RX activate together. independent — RX activates independent of TX.
Number of sub-groups	Total subgroups in LAG.
System ID	System ID used by actor in LACP messages.
Admin Key	Configured LAG key.
Oper Key	Key used by actor in LACP messages.
System Priority	System priority used by actor in LACP messages.
Prtr System ID	System ID used by partner in LACP messages.
Prtr Oper Key	Key used by partner in LACP messages.
Prtr System Priority	System priority used by partner in LACP messages.

Label	Description (Continued)
Mode	LAG in access or network mode.
Opr	Up – The LAG is operationally up. Down – The LAG is operationally down.
Port Threshold	Configured port threshold.
Thres. Exceeded Cnt	The number of times that the drop count was reached.
Threshold Action	Action to take when the number of available links is equal or below the port threshold.
Encap Type	The encapsulation method used to distinguish customer traffic on a LAG.
Lag-IFIndex	A box-wide unique number assigned to this interface.
Adapt QoS	Displays the configured QoS mode.
Port ID	The specific slot/MDA/port ID.
(LACP) Mode	LACP active or passive mode.
LACP xmit standby	LACP transmits on standby links enabled / disabled.
Slave-to-partner	Configured enabled/disabled.
Port-id	Displays the member port ID.
Adm	Displays the member port administrative state.
Active/stdby	Indicates that the member port is selected as the active or standby link.
Opr	Indicates that the member port operational state.
Primary	Indicates that the member port is the primary port of the LAG.
Sub-group	Displays the member subgroup where the member port belongs to.
Priority	Displays the member port priority.

Sample Output

```
A:sr7- show lag 10 detail
===============================================================================
LAG Details
===============================================================================
Description        : N/A
-------------------------------------------------------------------------------
Details
-------------------------------------------------------------------------------
Lag-id             : 10                    Mode                : network
```

```
Adm                 : up                    Opr                 : up
Thres. Exceeded Cnt : 17                    Port Threshold      : 0
Thres. Last Cleared : 01/22/2000 19:41:38   Threshold Action    : down
Dynamic Cost        : false                 Encap Type          : null
Configured Address  : 0c:a4:02:20:69:4b     Lag-IfIndex         : 1342177290
Hardware Address    : 0c:a4:02:20:69:4b
Hold-time Down      : 0.0 sec               Port Type           : standard
Per FP Ing Queuing  : disabled
LACP                : enabled               Mode                : active
LACP Transmit Intvl : fast                  LACP xmit stdby     : enabled
Selection Criteria  : highest-count         Slave-to-partner    : disabled
MUX control         : coupled
Number of sub-groups: 2                     Forced              : -
System Id           : 0c:a4:02:20:68:01     System Priority     : 32768
Admin Key           : 32770                 Oper Key            : 32770
Prtr System Id      : 0c:a4:02:1f:88:01     Prtr System Priority : 32768
Prtr Oper Key       : 32771
Standby Signaling   : lacp

-------------------------------------------------------------------------------
Port-id        Adm     Act/Stdby Opr     Primary   Sub-group     Forced  Prio
-------------------------------------------------------------------------------
1/1/8          up      active    up      yes       1             -       32768
1/1/9          up      standby   down              2             -       32768

-------------------------------------------------------------------------------
Port-id        Role      Exp   Def   Dist  Col   Syn   Aggr  Timeout  Activity
-------------------------------------------------------------------------------
1/1/8          actor     No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/8          partner   No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/9          actor     No    No    No    No    No    Yes   Yes      Yes
1/1/9          partner   No    No    No    No    No    Yes   Yes      Yes
===============================================================================
*A:sr7-
```

LAG Statistics Output — The following table describes detailed LAG statistics output fields.

Label	Description
LAG ID	The LAG or multi-link trunk (MLT) that the port is assigned to.
Port ID	The port ID configured or displayed in the *slot/mda/port* format.
Input Bytes	The number of incoming bytes for the LAG on a per-port basis.
Input Packets	The number of incoming packets for the LAG on a per-port basis.
Output Bytes	The number of outbound bytes for the LAG on a per-port basis.
Output Packets	The number of outbound packets for the LAG on a per-port basis.

Label	Description (Continued)
Input/Output Errors	For packet-oriented interfaces, the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol. For character- oriented or fixed-length interfaces, the number of inbound transmission units that contained errors preventing them from being deliverable to a higher-layer protocol. For packet-oriented interfaces, the number of outbound packets that could not be transmitted because of errors. For character-oriented or fixed-length interfaces, the number of outbound transmission units that could not be transmitted because of errors.
Totals	Displays the column totals for bytes, packets, and errors.

Sample Output

```
ALA-1# show lag statistics
===============================================================================
LAG Statistics
===============================================================================
Description:
Lag-id Port-id   Input     Input      Output    Output     Input     Output
                 Bytes     Packets    Bytes     Packets    Errors    Errors
-------------------------------------------------------------------------------
1      1/1/3     0         1006       0         2494       0         0
       1/1/4     0         435        0         401        0         0
       1/1/5     0         9968       0         9833       0         0
-------------------------------------------------------------------------------
Totals           0         11409      0         12728      0         0
===============================================================================
ALA-1#
```

LAG Associations Output — The following table describes LAG associations output fields.

Label	Description
Service ID	The service associated with the LAG.
Name	The name of the IP interface.
Encap Val	The Dot1q or QinQ values of the port for the IP interface.

Sample Output

```
A:ALA-1# show lag 5 associations
===============================================================================
Interface Table
===============================================================================
Router/ServiceId               Name                            Encap Val
-------------------------------------------------------------------------------
Router: Base                   LAG2West                        0
```

```
-------------------------------------------------------------------------------
Interfaces
===============================================================================
A:ALA-1#
```

LAG Details with MC-LAG Output — The following example displays LAG output with MC LAG:

```
*A:pc5# show lag 2 detail
===============================================================================
LAG Details
===============================================================================
Description:
-------------------------------------------------------------------------------
Details
-------------------------------------------------------------------------------
Lag-id              : 2                     Mode                : access
Adm                 : up                    Opr                 : up
Thres. Exceeded Cnt : 2                     Port Threshold      : 0
Thres. Last Cleared : 04/11/2007 21:50:55   Threshold Action    : down
Dynamic Cost        : false                 Encap Type          : dot1q
Configured Address  : 8e:8b:ff:00:01:42     Lag-IfIndex         :
1342177282
Hardware Address    : 8e:8b:ff:00:01:42     Adapt Qos           :
distribute
Hold-time Down      : 0.0 sec
LACP                : enabled               Mode                : active
LACP Transmit Intvl : fast                  LACP xmit stdby     : enabled
Selection Criteria  : highest-count         Slave-to-partner    : disabled
Number of sub-groups: 2                     Forced              : -
System Id           : 8e:8b:ff:00:00:00     System Priority     : 32768
Admin Key           : 32768                 Oper Key            : 32768
Prtr System Id      : 8e:89:ff:00:00:00     Prtr System Priority : 32768
Prtr Oper Key       : 32768

MC Peer Address     : 10.10.10.101          MC Peer Lag-id      : 2
MC System Id        : 01:01:01:01:01:01     MC System Priority  : 2
MC Admin Key        : 1                     MC Active/Standby   : active
MC Lacp ID in use   : false                 MC extended timeout : false
MC Selection Logic  : waiting for peer info MC Config Mismatch  : no mismatch
-------------------------------------------------------------------------------
Port-id        Adm    Act/Stdby Opr    Primary   Sub-group     Forced
Prio
-------------------------------------------------------------------------------
1/1/1          up     active    up     yes       7             -        99
1/1/2          up     standby   down             8             -        100
-------------------------------------------------------------------------------
Port-id        Role      Exp   Def   Dist  Col   Syn   Aggr  Timeout
Activity
-------------------------------------------------------------------------------
1/1/1          actor     No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/1          partner   No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/2          actor     No    No    No    No    No    Yes   Yes      Yes
1/1/2          partner   No    No    No    No    Yes   Yes   Yes      Yes
===============================================================================
*A:pc5#
```

LAG Details without MC-LAG Output — The following example displays LAG output without MC LAG:

```
*A:pc5# show lag 2 detail
===============================================================================
LAG Details
===============================================================================
Description:
-------------------------------------------------------------------------------
Details
-------------------------------------------------------------------------------
Lag-id              : 2                     Mode                : access
Adm                 : up                    Opr                 : up
Thres. Exceeded Cnt : 4                     Port Threshold      : 0
Thres. Last Cleared : 04/11/2007 02:03:49   Threshold Action    : down
Dynamic Cost        : false                 Encap Type          : dot1q
Configured Address  : 8e:8b:ff:00:01:42     Lag-IfIndex         :
1342177282
Hardware Address    : 8e:8b:ff:00:01:42     Adapt Qos           :
distribute
Hold-time Down      : 0.0 sec
LACP                : enabled               Mode                : active
LACP Transmit Intvl : fast                  LACP xmit stdby     : enabled
Selection Criteria  : highest-count         Slave-to-partner    : disabled
Number of sub-groups: 2                     Forced              : -
System Id           : 8e:8b:ff:00:00:00     System Priority     : 32768
Admin Key           : 32768                 Oper Key            : 32768
Prtr System Id      : 8e:89:ff:00:00:00     Prtr System Priority : 32768
Prtr Oper Key       : 32768
-------------------------------------------------------------------------------
Port-id        Adm    Act/Stdby Opr    Primary   Sub-group     Forced
Prio
-------------------------------------------------------------------------------
1/1/1          up     active    up     yes       7             -        99
1/1/2          up     standby   down             8             -        100
-------------------------------------------------------------------------------
Port-id        Role      Exp   Def   Dist  Col   Syn   Aggr  Timeout
Activity
-------------------------------------------------------------------------------
1/1/1          actor     No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/1          partner   No    No    Yes   Yes   Yes   Yes   Yes      Yes
1/1/2          actor     No    No    No    No    No    Yes   Yes      Yes
1/1/2          partner   No    No    No    No    Yes   Yes   Yes      Yes
===============================================================================
*A:pc5#

*A:Dut-A# show lag 2 associations per-link-hash sap
===============================================================================
SAP Associations
===============================================================================
SvcId      SAP                           Active Link            Oper   Oper
                                                                 Class  Weight
-------------------------------------------------------------------------------
2          lag-2:4                         1/1/1                1      500
2          lag-2:5                         1/1/1                1      100
2          lag-2:6                         1/1/26               1      1000
2          lag-2:7                         1/1/25               1      1000
===============================================================================
Number of SAP associations: 4

A:bksim4001# show lag 1  per-link-hash
===============================================================================
```

```
Per-link-hash Weight
===============================================================================
Port                              Class      Num Users  Agg Weight
-------------------------------------------------------------------------------
1/1/1                             1          0         0
1/1/1                             2          0          0
1/1/1                             3          0          0
===============================================================================
Number of entries: 3
===============================================================================
```

LACP Partner Output — The following output shows LAG LACP partner information.

```
A:ALU-Dut1# show lag 3 lacp-partner
===============================================================================
LAG Partner information
===============================================================================
Partner system ID           : ea:3e:ff:00:00:00
Partner system priority     : 32768
Partner operational key     : 2
===============================================================================
===============================================================================
LAG 3 Ports Partner operational information
===============================================================================
Port                        Actor Port  Prio  Key
                            port
-------------------------------------------------------------------------------
1/1/52                      33908 33909 5     2
1/1/54                      33910 33911 5     2
1/1/56                      33912 33913 7     2
===============================================================================
===============================================================================
LAG 3 Ports Partner operational state information
===============================================================================
Port                        Exp  Def  Dist Col  Syn  Aggr Time Act
                                                        out
-------------------------------------------------------------------------------
1/1/52                      No   No   Yes  Yes  Yes  Yes  Yes  Yes
1/1/54                      No   No   Yes  Yes  Yes  Yes  Yes  Yes
1/1/56                      No   No   No   No   No   Yes  Yes  Yes
===============================================================================
A:ALU-Dut1#


A:Dut-A# show lag 10 lacp-neighbors
===============================================================================
LAG Neighbor information
===============================================================================
Partner system ID           : de:41:ff:00:00:00
Partner system priority     : 32768
Partner operational key     : 32768
===============================================================================
-------------------------------------------------------------------------------
LAG port 1/1/6 partner information
-------------------------------------------------------------------------------
Actor port                  : 33862
Partner admin system prio   : 32768
Partner oper system prio    : 32768
Partner admin system ID     : 00:00:00:00:00:00
Partner oper system ID      : de:41:ff:00:00:00
Partner admin key           : 0
Partner oper key            : 32768
Partner admin port          : (Not Specified)
Partner oper port           : 33863
Partner admin port prio     : 32768
Partner oper port prio      : 32768
Partner admin state         : (Not Specified)
Partner oper state          : lacp-timeout aggregation synchronization
                              collecting distributing
```

```
===============================================================================
A:Dut-A#
*A:bksim4001>config>lag# selection-criteria highest-weight subgroup-hold-time 1show lag 1
detail                                        ght subgroup-hold-time 10
===============================================================
LAG Details
===============================================================
Description        : To Sim4002
-------------------------------------------------------------------------------
Details
-------------------------------------------------------------------------------
Lag-id              : 1                        Mode                 : access
Adm                 : down                   Opr                  : down
Thres. Exceeded Cnt : 0                      Port Threshold       : 0
Thres. Last Cleared : 01/21/2014 09:00:48    Threshold Action     : down
Dynamic Cost        : false                  Encap Type           : null
Configured Address  : 36:95:ff:00:01:41      Lag-IfIndex          : 1342177281
Hardware Address    : 36:95:ff:00:01:41      Adapt Qos (access)   : distribute
Hold-time Down      : 0.0 sec                Port Type            : standard
Per-Link-Hash       : disabled
Include-Egr-Hash-Cfg: enabled
Per FP Ing Queuing  : disabled               Per FP Egr Queuing   : disabled
Per FP SAP Instance : disabled
LACP                        : enabled               Mode                 : passive
LACP Transmit Intvl : fast                   LACP xmit stdby      : enabled
Selection Criteria      : highest-weight        Slave-to-partner     : disabled
Subgrp hold time    : 20.0 sec                Remaining time       : 2.6 sec
Subgrp selected       : 1                      Subgrp candidate     : 2
Subgrp count            : 2                      Forced               : -
System Id                 : 36:95:ff:00:00:00     System Priority      : 32768
Admin Key             : 32768                  Oper Key             : 32768
Prtr System Id          :                        Prtr System Priority : 0
Prtr Oper Key         : 0
Standby Signaling   : lacp
Port weight (gbps)   : (Not Specified)
Weight Threshold    : 0                      Threshold Action     : down
...
===============================================================================



*A:Dut-A# show lag 2 associations per-link-hash sap
===============================================================================
SAP Associations
===============================================================================
SvcId      SAP                           Active Link            Oper   Oper
                                                                           Class  Weight
-------------------------------------------------------------------------------
2          lag-2:4                       1/1/1                   1      500
2          lag-2:5                       1/1/1                   1      100
2          lag-2:6                       1/1/26                  1      1000
2          lag-2:7                       1/1/25                  1      1000
===============================================================================
Number of SAP associations: 4

A:bksim4001# show lag 1  per-link-hash
===============================================================================
Per-link-hash Weight
===============================================================================
```

```
Port                            Class      Num Users  Agg Weight
-------------------------------------------------------------------------------
1/1/1                           1          10                    10
1/1/1                           2          0          0
1/1/1                           3          2          500
===============================================================================
Number of entries: 3
===============================================================================
```

Monitor Commands

card

Syntax **card** *slot-number* **fp** *fp-number* **ingress** {**access**|**network**} **queue-group** *queue-group-name* **instance** *instance-id* [**absolute**] [**interval** *seconds*] [**repeat** *repeat*] **policer** *policer-id*

Context monitor

Description This command monitors card parameters.

port

Syntax **port** *port-id* [*port-id*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**] [**multiclass**]

Context monitor

Description This command enables port traffic monitoring. The specified port(s) statistical information displays at the configured interval until the configured count is reached.

The first screen displays the current statistics related to the specified port(s). The subsequent statistical information listed for each interval is displayed as a delta to the previous display.

When the keyword **rate** is specified, the "rate per second" for each statistic is displayed instead of the delta.

Monitor commands are similar to **show** commands but only statistical information displays. Monitor commands display the selected statistics according to the configured number of times at the interval specified.

Parameters **port** *port-id* — Specify up to 5 port IDs. Port-IDs are only MLPPP bundles or bundle protection groups when the multiclass keyword is specified.

Syntax: *port-id* slot/mda/port[.channel]
aps-id aps-*group-id*[.*channel*]
aps keyword
group-id 1 — 64 (16 for 7750 SR-c12/4)
bundle IDbundle-*type-slot/mda.bundle-num*
bpgrp-*type-bpgrp-num*
bundle keyword
bundle-num 1 — 128 (16 for 7750 SR-c12/4)
type ima, ppp

interval *seconds* — Configures the interval for each display in seconds.

Default 10 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-12>monitor# port 2/1/4 interval 3 repeat 3 absolute
===============================================================================
Monitor statistics for Port 2/1/4
===============================================================================
                                                Input                  Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
===============================================================================
A:ALA-12>monitor#

A:ALA-12>monitor# port 2/1/4 interval 3 repeat 3 rate
===============================================================================
Monitor statistics for Port 2/1/4
===============================================================================
                                                Input                  Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                            39                     175
Errors                                              0                       0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Rate)
-------------------------------------------------------------------------------
```

```
Octets                                          0                       0
Packets                                         0                       0
Errors                                          0                       0
-------------------------------------------------------------------------------
At time t = 6 sec (Mode: Rate)
-------------------------------------------------------------------------------
Octets                                          0                       0
Packets                                         0                       0
Errors                                          0                       0
-------------------------------------------------------------------------------
At time t = 9 sec (Mode: Rate)
-------------------------------------------------------------------------------
Octets                                          0                       0
Packets                                         0                       0
Errors                                          0                       0
===============================================================================
A:ALA-12>monitor#


===============================================================================
*A:Cpm-A> monitor port bundle-fr-1/1.1
===============================================================================
Monitor statistics for Port bundle-fr-1/1.1
===============================================================================
                                                Input                  Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Octets                                              0                       0
Packets                                             0                       0
Errors                                              0                       0
```

queue-group

Syntax **queue-group** *queue-group-name* **egress** *access* **egress-queue** *egress-queue-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute**|**rate**]

Context monitor

Description This command enables queue-group monitoring for the specified parameters.

queue-group

Syntax **queue-group** *queue-group-name* **ingress** *access* **ingress-queue** *ingress-queue-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor

Description This command enables queue-group monitoring for the specified parameters.

queue-group

Syntax **queue-group** *queue-group-name* **egress** *network* **instance** *instance-id* [**policer** *policer-id*] [**egress-queue** *egress-queue-id*] [**interval** seconds] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor

Description This command enables queue-group monitoring for the specified parameters.

port

Syntax **atm** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context monitor>port

Description This command enables ATM port traffic monitoring.

Parameters **interval** *seconds* — Configures the interval for each display in seconds.

Default 5 seconds

Values 3 — 60

repeat *repeat* — Configures how many times the command is repeated.

Default 10

Values 1 — 999

absolute — When the **absolute** keyword is specified, the raw statistics are displayed, without processing. No calculations are performed on the delta or rate statistics.

rate — When the **rate** keyword is specified, the rate-per-second for each statistic is displayed instead of the delta.

Sample Output

```
A:ALA-49# monitor port 9/1/1 atm interval 3 repeat 2 absolute
===============================================================================
Monitor ATM statistics for Port 9/1/1
===============================================================================
                                                    Input                 Output
-------------------------------------------------------------------------------
At time t = 0 sec (Base Statistics)
-------------------------------------------------------------------------------
Octets                                                0                       0
Cells                                                 0                       0
Unknown VPI/VCI Cells                                 0
-------------------------------------------------------------------------------
At time t = 3 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                                0                       0
Cells                                                 0                       0
Unknown VPI/VCI Cells                                 0
-------------------------------------------------------------------------------
```

```
At time t = 6 sec (Mode: Absolute)
-------------------------------------------------------------------------------
Octets                                                 0                     0
Cells                                                  0                     0
Unknown VPI/VCI Cells                                  0
===============================================================================
A:ALA-49#
```

Clear Commands

card

Syntax **card** *slot-number* **soft**
card *slot-number* **soft** [**hard-reset-unsupported-mdas**]
card *slot-number* **fp** [1..2] **ingress mode** {**access**|**network**} **queue-group** *group-name* **instance** *instance* **statistics**
card *slot-number* [**soft**]

Context clear

Description This command re-initializes the card in the specified slot. A clear card command (without the soft keyword) is referred to as a *Hard Reset*. A clear card x soft command (with the soft keyword) is referred to as a *Soft Reset*.

Parameters *slot-number* — Clears information for the specified card slot.

SR-c12/4: no cards can be cleared in this chassis type
SR-7: 1 - 6
SR-12: 1 - 10
soft — Issues a soft reset of the I/O module (IOM).

lag

Syntax **lag** *lag-id* **statistics**

Context clear

Description This command clears statistics for the specified LAG ID.

Parameters *lag-id* — The LAG ID to clear statistics.

Values 1 — 800 (7750 SR-a4/8: 1 — 200; 7750 SR-c12/4: 1 — 64)

statistics — Specifies to clear statistics for the specified LAG ID.

mda

Syntax **mda** *mda-id* [**statistics**]

Context clear

Description This command reinitializes the specified MDA in a particular slot.

Parameters *mda-id* — Clears the specified slot and MDA/CMA.

Values 1, 2

statistics — Clears statistics for the specified MDA.

port

Syntax **port** *port-id* **atm pvc** [*vpi[/vci*]] **statistics**
port *port-id* **atm pvp** [*vpi*] **statistics**
port *port-id* **atm pvt** [*vpi1.vpi2*] **statistics**
port *port-id* **atm ilmi statistics**
port *port-id* **atm port-connection statistics**
port <port-id> phys-state-change-count
port *port-id* **ethernet efm-oam events** *local* **|** *remote*
port *port-id* **queue-group** *qgrp-id* [**instance** *instance-id*] **queue-depth** [**queue** *queue-id*] {**ingress|egress**} [**access|network**]
port *port-id* **queue-group** *queue-group-name* [**access** | **network**] {**ingress** | **egress**} [**access|network**] [{**statistics|associations**}]
port *port-id* **statistics**

Context clear

Description This command clears port statistics for the specified port(s).

Parameters *port-id* — The port identifier.

Values

port-id	slot[/mda[/port]] or slot/mda/port[.channel]	
aps-id	aps-group-id[.channel]	
	aps	keyword
	group-id	1 — 64 (16 for 7750 SR-c12/4)
bundle-type-slot/mda.bundle-num		
	bundle	keyword
	type	ima, ppp
	bundle-num	1 — 336
bpgrp-id	bpgrp-<type>-<bpgrp-num>	
	bpgrp	keyword
	type	ima, ppp
	bpgrp-num	1 — 2000 (256 for 7750 SR-c12/4)

statistics — Specifies that port statistics will be cleared.

atm — Specifies that ATM port statistics will be cleared.

ilmi — Clears ILMI information. This parameter is only applicable for ports/bundles that support ILMI.

vpi — Specifies the ATM network virtual path identifier (VPI) for this PVC.

vci — Specifies the ATM network virtual channel identifier (VCI) for this PVC.

slot — The slot number.

Values 1 - 10

mda — The MDA number.

Default All MDAs.

Values 1, 2

7750 SR-c12: 1, 3, 5, 7, 9, 117750 SR-c12: 1-12**pvc —** Clears PVC statistics.

port-connection — Clears port-connection statistics.

phys-state-change-count — Clears the counter that tracks physical port state transitions for ethernet ports ("Phys State Chng Cnt" in "show port" output, or tmnxPortPhysStateChangeCount in the TIMETRA-PORT-MIB)

queue-group *queue-group-name* **—** Clears the specified port queue group name. It uniquely identifies a port ingress queue group in the managed system.

ingress — Clears ingress queue group information.

egress — Clears egress queue group information

ethernet — Specifies an Ethernet port will have the clear functions executed

efm-oam — Specifies the efm-oam will experience the cleared

events — specifies an efm-oam event will be cleared

local — only local efm-oam events will be cleared

remote — Only remote (received from peer) events will be cleared. Local and remote is not specified.

Default Without specifying an option, both local and remote are cleared.

Sample Output

```
A:SR12# clear port 3/1/1 atm
  - atm

      cp              - Clear Connection Profile statistics
      ilmi            - Clear ILMI statistics
      interface-conn* - Clear interface-connection statistics
      pvc             - Clear PVC statistics
      pvp             - Clear PVP statistics
      pvt             - Clear PVT statistics

A:SR12# clear port 3/1/1 atm cp
  - cp [<cp>] statistics

 <cp>                : [1..8000]
 <statistics>        : keyword
```

queue-group

Syntax **queue-group** *queue-group-name* **egress** *access* **egress-queue** *egress-queue-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute**|**rate**]

Context clear

Description This command clears queue-group monitoring for the specified parameters.

queue-group

Syntax **queue-group** *queue-group-name* **ingress** *access* **ingress-queue** *ingress-queue-id* [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Context clear

Description This command clears queue-group monitoring for the specified parameters.

queue-group

Syntax **queue-group** *queue-group-name* **egress** *network* **instance** *instance-id* [**policer** *policer-id*] [**egress-queue** *egress-queue-id*] [**interval** seconds] [**repeat** *repeat*] [**absolute** | **rate**]

Context clear

Description This command clears queue-group monitoring for the specified parameters.

Tools Commands

aps

Syntax **aps** *aps-id* [**clear**]
aps mc-aps-signaling [**clear**]
aps mc-aps-ppp [**clear**]

Context tools>dump>aps

Description This command displays Automated Protection Switching (APS) information.

Parameters **clear —** Removes all Automated Protection Switching (APS) operational commands.

mc-aps-signaling — Displays multi-chassis APS signaling information.

mc-aps-ppp — Displays multi-chassis APS PPP information.

Sample Output

```
*A:AS_SR7_2# tools dump aps aps-33

GrpId = 33, state = Running, mode:cfg/oper = Bi-directional/Bi-directional
   revert = 0, workPort: N/A, protPort: 2/1/1, activePort: working
   rxK1 = 0x0 (No-Req on Protect), physRxK1 = 0x0, rxK2 = 0x5
   txK1 = 0x0 (No-Req on Protect), physTxK1 = 0x0, txK2 = 0x5
   K1ReqToBeTxed = 0x0, K1ChanToBeTxed = 0x0, lastRxReq = 0xc
   MC-APS Nbr = 100.100.100.1 (Up), advIntvl = 10, hold = 30
   workPort: status = OK, Tx-Lais = None, sdCnt = 1, sfCnt = 1
     numSwitched = 1, switchSecs = 0, lastSwitched = 07/25/2007 08:00:12
     disCntTime = , alarms = , switchCmd = No Cmd
   protPort: status = OK, Tx-Lais = None, sdCnt = 1,  sfCnt = 0
     numSwitched = 1, switchSecs = 0, lastSwitched = 07/25/2007 08:03:39
     disCntTime = , alarms = ,  switchCmd = No Cmd
   GrpStatus: OK, mmCnt = 1, cmCnt = 1, psbfCnt = 1, feplfCnt = 2
   LocalSwitchCmd: priority = No-Req, portNum = 0
   RemoteSwitchCmd: priority = No-Req, portNum = 0
   Running Timers = mcAdvIntvl mcHold
   processFlag =  apsFailures = , sonet = Y
   DebugInfo: dmEv = 0, dmClrEv = 0, amEv = 1, amClrEv = 1
     cmEv = 1, cmClrEv = 1, psbfEv = 1, psbfClrEv = 1
     feplfEv = 2, feplfClrEv = 2, wtrEv = 0, psbfDetectEv = 0
     wSdEv = 1, wSfEv = 2, pSdEv = 1, pSfEv = 1
     portStatusEv = 8, rxK1Ev = 9, txLaisEv = 2, lastEvName = FeplClr
     CtlUpEv = 3, CtlDnEv = 2, wAct = 0, wDeAct = 0
Seq      Event  TxK1/K2 RxK1/K2  Dir    Active         Time
===     ======= ======= ======= =====   ======  ================
000     ProtAdd 0xc005  0x0000  Tx-->     Work  497 02:18:10.590
001     RxKByte 0xc005  0x6dea  Rx<--     Work  497 02:20:14.820
002     RxKByte 0xc005  0xc005  Rx<--     Work  497 02:21:30.970
003     RxKByte 0xc005  0x2005  Rx<--     Work  497 02:21:36.530
004      pSFClr 0x0005  0x2005  Tx-->     Work  497 02:21:40.590
005     RxKByte 0x0005  0x0005  Rx<--     Work  497 02:21:40.600
```

```
006     RxKByte 0x0005  0xc115  Rx<--     Work  497 02:25:22.840
007     RxKByte 0x2115  0xc115  Tx-->     Prot  497 02:25:22.840
008     RxKByte 0x2115  0xa115  Rx<--     Prot  000 00:00:47.070
009     RxKByte 0x2115  0x1115  Rx<--     Prot  000 00:00:47.560
010     RxKByte 0x2115  0xc005  Rx<--     Prot  000 00:00:57.010
011     RxKByte 0x2005  0xc005  Tx-->     Work  000 00:00:57.010
012     RxKByte 0x2005  0x0005  Rx<--     Work  000 00:01:06.170
013     RxKByte 0x0005  0x0005  Tx-->     Work  000 00:01:06.170
```

Sample Output

```
:AS_SR7_1# tools dump aps mc-aps-ppp

 pppmMcsModStarted = Yes
 pppmMcsDbgDoSync = Yes
 pppmMcsApsGrpHaAuditDone = Yes
 pppmMcsPostHaSyncedApsGrpId = 47
 pppmMcsMcApsChanCnt = 1280

 pppmMcsDbgRxPktCnt = 2560
 pppmMcsDbgRxPktNotProcessedCnt = 0
 pppmMcsDbgRxPktInvalidCnt = 0
 pppmMcsDbgInconsistentRxPktDropCnt = 0
 pppmMcsDbgInconsistentTxPktDropCnt = 1176
 pppmMcsDbgTxPktNotSentCnt = 0
 pppmMcsDbgTxPktSentCnt = 25
 pppmMcsDbgEvtDropCnt = 0
 pppmMcsDbgMemAllocErrCnt = 0
 pppmMcsDbgReTxCnt = 0
 pppmMcsDbgReTxExpCnt = 0
 pppmMcsDbgReReqCnt = 0

 pppmMcsStateAckQueueCnt (curr/peek) = 0/130
 pppmMcsStateReqQueueCnt (curr/peek) = 0/1280
 pppmMcsStateReReqQueueCnt (curr/peek) = 0/256
 pppmMcsStateTxQueueCnt (curr/peek) = 0/512
 pppmMcsStateReTxQueueCnt (curr/peek) = 0/130

 MC-APS Peer Info :
 --------------------

   Grp 13 Addr 100.100.100.2 - Up
   Grp 20 Addr 100.100.100.2 - Up
   Grp 35 Addr 100.100.100.2 - Up
   Grp 43 Addr 100.100.100.2 - Up
   Grp 47 Addr 100.100.100.2 - Up

 Number of pppmMcs Evt Msgs dispatched:
   ctl_link_state : 0
   ctl_link_up_tmr : 0
   ctl_link_down_tmr : 0
   ha_audit_done : 0
```

Sample Output

```
*A:eth_aps_sr7# tools dump aps mc-aps-signaling

 MC-APS Control Debug Counters :
 -------------------------------
 Ctl Pkt Rx = 0
 Invalid Rx Ctl Pkt = 0
 Incompatible Rx Ctl Pkt = 0
 Nbr not Rx Ctl Pkt = 0
 Invalid Rx Ctl Pkt Tlv = 0
 Ctl Pkt Rx-ed before HaReady = 0
 Not sent Tx Ctl Pkt = 0

 MC-APS-LAG Debug Counters :
 ---------------------------
 Ctl Pkt Rx from IOM        = 0

 Not processed Rx Ctl Pkt   = 0
 Invalid Rx Ctl Pkt         = 0
 Incompatible Rx Ctl Pkt    = 0
 Rx Ctl Pkt queueing failed = 0

 Ctl Pkt Tx (direct)        = 0
 Ctl Pkt Tx (UDP socket)    = 0
 Not sent Tx Ctl Pkt        = 0

 Route Update               = 0
 Matched Route Update       = 0

 Msg Buf Alloc Failed       = 0

 MC-APS-LAG NbrRoute Entries :
 -----------------------------
 NbrAddr 1.1.1.1 NextHopAddr ::
   EgressIfIndex =  0
   EgressPortId =  Unknown
   app refCnt  =  1
   refCntTotal =  1
```

aps

Syntax **aps**

Context tools>perform

Description This command enables the context to perform Automated Protection Switching (APS) operations.

clear

Syntax **clear** *aps-id* {**protect** | **working**}

Context tools>perform>aps
tools>dump>aps

Description This command removes all Automated Protection Switching (APS) operational commands.

Parameters *aps-id* — This option clears a specific APS on un-bundled SONET/SDH ports.

protect — This command clears a physical port that is acting as the protection circuit for the APS group.

working — This command clears a physical port that is acting as the working circuit for this APS group.

clear

Syntax **clear** *ring-id*

Context tools>perform>eth-ring

Description The Clear command, at the Ethernet Ring Node, is used for the following operations: a) Clearing an active local administrative command (e.g. Forced Switch or Manual Switch). b) Triggering reversion before the WTR or WTB timer expires in case of revertive operation. c) Triggering reversion in case of non-revertive operation.

Parameters *ring-id* — This option clears a specific Ethernet Ring.

exercise

Syntax **exercise** *aps-id* {**protect** | **working**}

Context tools>perform
tools>dump>aps

Description This command performs an exercise request on the protection or working circuit.

Parameters *aps-id* — This option clears a specific APS on un-bundled SONET/SDH ports.

protect — This command performs an exercise request on the port that is acting as the protection circuit for the APS group.

working — This command performs an exercise request on the port that is acting as the working circuit for this APS group.

force

Syntax **force** *aps-id* {**protect** | **working**}

Context tools>perform
tools>dump>aps

Description This command forces a switch to either the protect or working circuit

Parameters *aps-id* — This option clears a specific APS on un-bundled SONET/SDH ports.

protect — This command clears a physical port that is acting as the protection circuit for the APS group.

working — This command clears a physical port that is acting as the working circuit for this APS group. force

Syntax **force** *ring-id* **path** {**1** | **2**}

Context tools>perform>eth-ring

Description This command forces a block on the ring port where the command is issued.

manual

Syntax **manual** *ring-id* **path** {**1** | **2**}

Context tools>perform>eth-ring

Description In the absence of a failure or FS, this command forces a block on the ring port where the command is issued.

lockout

Syntax **lockout** *aps-id*

Context tools>perform
tools>dump>aps

Description This command locks out the protection circuit.

Parameters *aps-id* — Automated Protection Switching ID

Values 1 — 64

request

Syntax **request** *aps-id* {**protect** | **working**}

Context tools>perform
tools>dump>aps

Description This command requests a manual switch to protection or working circuit.

Parameters *aps-id* — This option clears a specific APS on un-bundled SONET/SDH ports.

protect — This command requests a manual switch to a port that is acting as the protection circuit for the APS group.

working — This command requests a manual switch to a port that is acting as the working circuit for this APS group.

eth-tunnel

Syntax **eth-tunnel** *tunnel-index* [**clear**]

Context tools>dump

Description This command displays Ethernet tunnel information.

Sample Output

```
*A:PE-E# tools dump eth-tunnel 1

TunnelId 1 (Up/Up), Port eth-tunnel-1 (Up/Up): type g8031-1to1
 NumMems 2/2, Up/Dn 0/0, active 0x1, present 0x3 baseMemPort 1/1/2
  memId 1 (P), port 1/1/2 (Up), tag 1.0(Up) status (Up/Up)
    ccCnt-sf/ok 1/1 idx 0 tunId 1
  memId 2 (S), port 2/1/2 (Up), tag 1.0(Up) status (Up/Up)
    ccCnt-sf/ok 0/0 idx 1 tunId 1

  TunId = 1, state = Running, Active =  Work, Now = 000 00:16:48.140
   revert = 1, ReqState = NR-NULL, Pdu(Tx/Rx): 0x0f0000/0x0f0000
   Defects =
   Running Timers = PduReTx
    Work MemId = 1 (1/1/2:1.0), state = Ok, cc = 000 00:16:23.510U
      ActiveCnt = 4, ActiveSeconds = 791
    Protect MemId = 2 (2/1/2:1.0), state = Ok, cc = 000 00:09:47.560U
      ActiveCnt = 3, ActiveSeconds = 308
   DbgCnts: swoEv = 2, wMemSts = 2, pMemSts =  0
      rxPdu (valid/Invalid) = 4/0, wSfClr = 1, pSfClr = 0, wtrExp =  1
      cm = 0, cmClr = 0, pm = 0, pmClr = 0, nr = 0, nrClr = 0
  Seq  Event     TxPdu           RxPdu        Dir    Act          Time
  ===  ========  ============  ============  =====  ====  ================
  000   wMemSts  0xbf0101 wSF  0x0f0000  NR  Tx-->  Prot  000 00:16:12.450
  001     RxPdu  0xbf0101 wSF  0x0f0101  NR  Rx<--  Prot  000 00:16:12.450
  002     RxPdu  0xbf0101 wSF  0xbf0101 wSF  Rx<--  Prot  000 00:16:12.480
  003     RxPdu  0xbf0101 wSF  0x0f0101  NR  Rx<--  Prot  000 00:16:24.890
  004    wSFClr  0x5f0101 WTR  0x0f0101  NR  Tx-->  Prot  000 00:16:25.030
```

```
  005       WTR  0x0f0000  NR  0x0f0101  NR  Tx-->  Work  000 00:16:26.630
  006     RxPdu  0x0f0000  NR  0x0f0000  NR  Rx<--  Work  000 00:16:26.630
*A:PE-E#
```

frame-relay

Syntax **frame-relay** *port-id*

Context This command displays frame-relay information.

Parameters *port-id* — Specifies the physical port ID.

Syntax: *slot/mda/port*[.*channel*]

Sample Output

```
tools dump frame-relay bundle-fr-1/1.1

MLFR info for bundle-fr-1/1.1:
    expectedBundleIdStr : "7750-bundle-fr-1/1.1"
    bundleId            : 1
    active/configured   : 4/4
    adminEnabled        : 1
    ddDebDownCnt        : 10
    ddMaxForBundle      : 0
    fwdId               : 0
    linkDebugMask       : 0


-------- Member Information ---------

1/1/1.1.1.1                PortId = 0x22208056
    Internal ID             : bundle 1, link 1
    Link protocol state     : Up
    Diff delay state        : Yellow
    ddRedCnt                : 0
    ddYellowCnt             : 11
    Smoothed diff delay     : 20 ms.
    Historical RTT          : 22788, 22756, 22752 us.
    Rx LinkId               : "1/1/1.1.1.1"
    WARNING                 : dbgDelay=20 ms
    LIP CTL Messages        : Tx: 136         Rx: 135
    Hello Messages          : Tx: 121         Rx: 12
    Hello Ack Messages      : Tx: 12          Rx: 121
    AddLink Messages        : Tx: 2           Rx: 1
    AddLinkAck Messages     : Tx: 1           Rx: 1
    AddLinkRej Messages     : Tx: 0           Rx: 0
1/1/1.1.2.1                PortId = 0x22208077
    Internal ID             : bundle 1, link 2
    Link protocol state     : Up
    Diff delay state        : OK
    Smoothed diff delay     : 0 ms.
    Historical RTT          : 2271, 2304, 2309 us.
    Rx LinkId               : "1/1/1.1.2.1"
    LIP CTL Messages        : Tx: 136         Rx: 135
```

```
    Hello Messages           : Tx: 121         Rx: 12
    Hello Ack Messages       : Tx: 12          Rx: 121
    AddLink Messages         : Tx: 2           Rx: 1
    AddLinkAck Messages      : Tx: 1           Rx: 1
    AddLinkRej Messages      : Tx: 0           Rx: 0
1/1/1.1.3.1                 PortId = 0x22208098
    Internal ID              : bundle 1, link 4
    Link protocol state      : Up
    Diff delay state         : OK
    Smoothed diff delay      : 0 ms.
    Historical RTT           : 2218, 2223, 2359 us.
    Rx LinkId                : "1/1/1.1.3.1"
    LIP CTL Messages         : Tx: 14          Rx: 13
    Hello Messages           : Tx: 8           Rx: 1
    Hello Ack Messages       : Tx: 1           Rx: 8
    AddLink Messages         : Tx: 3           Rx: 1
    AddLinkAck Messages      : Tx: 1           Rx: 2
    AddLinkRej Messages      : Tx: 0           Rx: 0
1/1/1.1.4.1                 PortId = 0x222080b9
    Internal ID              : bundle 1, link 3
    Link protocol state      : Up
    Diff delay state         : OK
    Smoothed diff delay      : 0 ms.
    Historical RTT           : 2248, 2242, 2309 us.
    Rx LinkId                : "1/1/1.1.4.1"
    LIP CTL Messages         : Tx: 14          Rx: 13
    Hello Messages           : Tx: 8           Rx: 1
    Hello Ack Messages       : Tx: 1           Rx: 8
    AddLink Messages         : Tx: 3           Rx: 1
    AddLinkAck Messages      : Tx: 1           Rx: 2
    AddLinkRej Messages      : Tx: 0           Rx: 0
```

lag

Syntax **lag lag-id** *lag-id*

Context tools>dump

Description This command dumps LAG information.

Parameters *lag-id* — Specifies the LAG ID.

Values 1..800

map-to-phy-port

Syntax **map-to-phy-port** {**ccag** *ccag-id* **| lag** *lag-id* **| eth-tunnel** *tunnel-index*} {**isid** *isid* [**end-isid** *isid*] **| service** *service-id* **|** *svc-name* [**end-service** *service-id* | *svc-name*]} [**summary**]

Context tools>dump

Description This command provides the ability to respond to a query to provide the link in a LAG/Ethernet tunnel (loadsharing protection mode)/CCAG that is currently assigned to a given service-id or ISID.

Parameters *lag-id* — Specifies the LAG ID.

Values 1..800

isid — Specifies the ISID.

Values 0..16777215

service-id — Specifies the service ID.

Values 1..2147483648, 64 char max

tunnel-index — Specifies the tunnel index.

Values 1..1024

ccag-id — Specifies the CCAG ID.

Values 1..8

ppp

Syntax **ppp** *port-id*

Context tools>dump

Description This command displays PPP information for a port.

Parameters *port-id* — Specifies the physical port ID.

Syntax: *slot/mda/port*[.*channel*]

Sample Output

```
*A:sr7# tools dump ppp aps-1.1.1.1
===============================================================================
Id              : aps-1.1.1.1        ppp unit       : 40
member of       : bpgrp-ppp-1
===============================================================================
looped back     : no                 dbgMask        : 0x0
-------------------------------------------------------------------------------
LCP
-------------------------------------------------------------------------------
phase           : NETWORK            state          : OPENED
passive         : off                silent         : off
restart         : on

mru             : 1500               mtu            : 1502
ack'd peer mru  : 1500
got local mrru  : 1524
local magic     : 0x0                peer magic     : 0x0

keepalive       : on                 echo num       : 2
echo timer      : on                 echos fail     : 3
echo intv       : 10                 echos pend     : 0

options      mru      asyncMap upap     chap     magic    pfc
```

```
we negotiate Yes       No       No       No       No      Yes
peer ack'd   Yes       No       No       No       No       No
we allow     Yes       No       No       No       No      Yes
we ack'd     Yes       No       No       No       No       No

options      acfc     lqr      mrru     shortSeq endPoint mlhdrfmt
we negotiate Yes       No      Yes       No      Yes       No
peer ack'd    No       No      Yes       No      Yes       No
we allow     Yes       No      Yes      Yes      Yes       No
we ack'd      No       No      Yes       No      Yes       No
===============================================================================
*A:sr7#
```

redundancy

Syntax **redundancy**

Context tools>dump

Description This command enables the context to dump redundancy parameters.

multi-chassis

Syntax **multi-chassis**

Context tools>dump>redundancy

Description This command enables the context to dump multi-chassis parameters.

mc-ring

Syntax **mc-ring**

Context tools>dump>redundancy>multi-chassis

Description This command dumps multi-chassis ring data.

sync-database

Syntax **sync-database** [**peer** *ip-address*] [**port** *port-id* | *lag-id*] [**sync-tag** *sync-tag*] [**application** {**dhcps** | **igmp** | **igmp-snooping** | **srrp** | **sub-mgmt** | **mld-snooping | mc-ring**}] [**detail**] [**type** {**alarm-deleted | local-deleted**}]

Context tools>dump>redundancy>multi-chassis

Description This command dumps multi-chassis sync database information.

Parameters **peer** *ip-address* **—** Dumps the specified address of the multi-chassis peer.

port *port-id* **—** Dumps the specified port ID of the multi-chassis peer.

port *lag-id* **—** Dumps the specified Link Aggregation Group (LAG) on this system.

sync-tag *sync-tag* **—** Dumps the synchronization tag used while synchronizing this port with the multi-chassis peer.

application — Dumps the specified application information that was synchronized with the multi-chassis peer.

Values dhcps, igmp, igmp-snooping, mc-ring, srrp, sub-mgmt, mld-snooping, all

detail — Displays detailed information.

alarm-deleted|*local-deleted* — Filters by entry type.

Sample Output

```
A:Dut-C# tools dump redundancy multi-chassis sync-database application

 <ip-address>          : a.b.c.d
 <port-id|lag-id>      : slot/mda/port or lag-<lag-id>
 <sync-tag>            : [32 chars max]
 <application>         : dhcp-server    - local dhcp server
                         igmp           - internet group management protocol
                         igmp-snooping  - igmp-snooping
                         mc-ring        - multi-chassis ring
                         mld            - multicast listener discovery
                         mld-snooping   - multicast listener discovery-snooping
                         srrp           - simple router redundancy protocol
                         sub-host-trk   - subscriber host tracking
                         sub-mgmt-ipoe  - subscriber management for IPoE
                         sub-mgmt-pppoe - subscriber management for PPPoE
                         mc-ipsec       - multi-chassis IPsec
 <detail>              : keyword - displays detailed information
 <type>                : alarm-deleted|local-deleted|global-deleted|
                         omcr-standby|omcr-alarmed
```

srrp-sync-data

Syntax **srrp-sync-database** [**instance** *instance-id*] [**peer** *ip-address*]

Context tools>dump>redundancy>multi-chassis

Description This command dumps multi-chassis SRRP sync database information.

Parameters *instance-id* — Specifies the instance ID.

Values 1 — 4294967295

ip-address — Dumps the specified address (in the form of a.b.c.d).

ima

Syntax **ima**

Context tools>perform

Description This command allows the use of IMA operations.

reset

Syntax **reset** *bundle-id*

Context tools>perform>ima

Description This command sets an IMA-bundle to the Start Up state.

Parameters *bundle-id* — Specifies an existing bundle ID.

Values **bundle-ima**-*slot/mda.bundle-num*

bundle-num — Specifies the bundle number.

Values 1 — 256

lag

Syntax **lag**

Context tools>perform

Description This command provides tools for controlling LAG.

clear-force

Syntax **clear-force all-mc**
clear-force lag-id *lag-id* [**sub-group** *sub-group-id*]
clear-force peer-mc *ip-address*

Context tools>perform>lag

Description This command clears forced status.

Parameters **all-mc —**

lag-id *lag-id* **—** Specifies the LAG ID.

Values 1 — 800

sub-group *sub-group-id* **—** Specifies the subscriber group ID.

Values 1 — 16

peer-mc *ip-address* — Specfies the peer MC IP address.

force

Syntax **force all-mc** {**active**|**standby**}
force lag-id *lag-id* [**sub-group** *sub-group-id*] {**active**|**standby**}
force peer-mc *peer-ip-address* {**active**|**standby**}

Context tools>perform>lag

Description This commands allow forcing specified LAG, subgroup, all MC-LAGs or remote peer for MC-LAGs to become active or standby when LAG runs in Active/Standby mode. To remove forced condition, an operator must execute tools perform lag clear-force command.

load-balance

Syntax **load-balance lag-id** *lag-id* [**class** {**1**|**2**|**3**}]

Context tools>perform>lag

Description Load balance specified LAG's links when per-link-hash weighted is deployed. Load balancing can be per specified class or on all classes if no class is specified.

Debug Commands

lmi (frame-relay)

Syntax **lmi** [*port-id*]
no lmi

Context debug>frame-relay

Description This debug command enables tracing of all the LMI messages in both receive and transmit directions for one or all of the Frame Relay interfaces. All types of Frame Relay interfaces are supported. If the port ID is not specified, debug is enabled on all Frame Relay interfaces.

The **no** form of the command turns off LMI and Frame-Relay debugging, **debug>frame-relay>no lmi** and **debug>no frame-relay**.

Parameters *port-id* — Specifies the ILMI-supporting port ID.

Syntax: *slot/mda/port*[.*channel*]

Sample Output

```
2959 2007/04/11 23:01:34.63 MINOR: DEBUG #2001 - FR
"FR: TX STATUS Msg on dce Port: 1/1/1 LMI: itu
FR Hdr: 00 01 03 08 00 7D
Rpt IE: 51 01 01 LINK_INT_VERIFY
KA IE: 53 02 31 45 TxSeqNo=49 RxSeqNo=69"

2960 2007/04/11 23:01:44.63 MINOR: DEBUG #2001 - FR
"FR: RX STATUS ENQ Msg on dce Port: 1/1/1 LMI: itu
FR Hdr: 00 01 03 08 00 75
Rpt IE: 51 01 01 LINK_INT_VERIFY
KA IE: 53 02 46 31 TxSeqNo=70 RxSeqNo=49"
```

ilmi (atm)

Syntax [**no**] **ilmi** *port-id*

Context debug>atm

Description This command enables debugging for ATM ILMI.

The **no** form of the command turns off ILMI and debugging,.

Parameters *port-id* — Specifies the ILMI-supporting port ID.

Values *slot/mda/port*[.*channel*]

Sample Output

```
A:CHRISILMI# debug atm no ilmi 1/2/2
A:CHRISILMI# debug atm ilmi 1/2/4

In kernel:
ILMI_DEBUG_LOG {557907970}: 21:32:28
PDU DUMP (RAW):
 30 77 02 01 00 04 04 49 4c 4d 49 a4
 6c 06 07 2b 06 01 04 01 82 61 40 04
 00 00 00 00 02 01 06 02 01 02 43 03
 1b 24 b1 30 50 30 12 06 0d 2b 06 01
 04 01 82 61 02 05 01 01 01 00 02 01
 00 30 12 06 0d 2b 06 01 04 01 82 61
 02 05 01 01 03 00 02 01 21 30 12 06
 0d 2b 06 01 04 01 82 61 02 05 01 01
 02 00 02 01 00 30 12 06 0d 2b 06 01
 04 01 82 61 02 05 01 01 04 00 02 01

 00 00 00
PDU DUMP (DECODED):
  PDU Length: 123
   Community: ILMI
     Version: 1
    Msg Type: SNMP TRAP
    ObjectId: 1.3.6.1.4.1.353.2.5.1.1.1.0
    ObjectId: 1.3.6.1.4.1.353.2.5.1.1.3.0
    ObjectId: 1.3.6.1.4.1.353.2.5.1.1.2.0
    ObjectId: 1.3.6.1.4.1.353.2.5.1.1.4.0
...
```

cisco-hdlc

Syntax **cisco-hdlc** [*port-id*]
no cisco-hdlc

Context debug

Description This command configures debugging for Cisco-HDLC encapsulation.

Parameters *port-id* — Specifies the physical port ID.

Syntax: *slot/mda/port*[.*channel*]

lag

Syntax **lag** [**lag-id** *lag-id* [**port** *port-id*]] [**all**]
lag [**lag-id** *lag-id* [**port** *port-id*]] [**sm**] [**pkt**] [**cfg**] [**red**] [**iom-upd**] [**port-state**] [**timers**] [**sel-logic**] [**mc**] [**mc-pkt**]
no lag [**lag-id** *lag-id*]

Context debug

Description This command enables debugging for LAG.

Parameters *lag-id* — Specifies the link aggregation group ID.

port-id — Specifies the physical port ID.

Syntax: *slot/mda/port*[.*channel*]

sm — Specifies to display trace LACP state machine.

pkt — Specifies to display trace LACP packets.

cfg — Specifies to display trace LAG configuration.

red — Specifies to display trace LAG high availability.

iom-upd — Specifies to display trace LAG IOM updates.

port-state — Specifies to display trace LAG port state transitions.

timers — Specifies to display trace LAG timers.

sel-logic — Specifies to display trace LACP selection logic.

mc — Specifies to display multi-chassis parameters.

mc-packet — Specifies to display the MC-LAG control packets with valid authentication were received on this system.

lmi

Syntax **lmi** [*port-id*]
no lmi

Context debug>frame-relay

Description This debug command enables tracing of all the LMI messages in both receive and transmit directions for one or all of the Frame Relay interfaces. All types of Frame Relay interfaces are supported. If the port ID is not specified, debug is enabled on all Frame Relay interfaces.

The **no** form of the command turns off LMI and Frame-Relay debugging, **debug>frame-relay>no lmi** and **debug>no frame-relay**.

Parameters *port-id* — Specifies the ILMI-supporting port ID.

Syntax: *slot/mda/port*[.*channel*]

Sample Output

```
2959 2007/04/11 23:01:34.63 MINOR: DEBUG #2001 - FR
"FR: TX STATUS Msg on dce Port: 1/1/1 LMI: itu
FR Hdr: 00 01 03 08 00 7D
Rpt IE: 51 01 01 LINK_INT_VERIFY
KA IE: 53 02 31 45 TxSeqNo=49 RxSeqNo=69"

2960 2007/04/11 23:01:44.63 MINOR: DEBUG #2001 - FR
"FR: RX STATUS ENQ Msg on dce Port: 1/1/1 LMI: itu
FR Hdr: 00 01 03 08 00 75
Rpt IE: 51 01 01 LINK_INT_VERIFY
KA IE: 53 02 46 31 TxSeqNo=70 RxSeqNo=49"
```

frf16

Syntax [**no**] **frf16** *port-id*

Context debug>frame-relay

Description This command enables tracing of all FRF16 compliant MLFR link integrity protocol messages in both the receive and transmit directions on a specific member link of an MLFR bundle. The **no** form of the command turns off MLFR debugging.

Parameters *port-id* — Specifies the port ID of the FRF16 bundle member link.

Syntax: *slot/mda/port*[.*channel*]

Sample Output

```
1 2009/02/18 10:39:42.74 UTC MINOR: DEBUG #2001 Base MLFR
"MLFR: [_LIP_ParseRxFrame]
RxMsg <bundle-fr-1/1.1:1/1/1.0x56> <state-0: Up>
<MsgType-5:HelloAck>
     <ie-03:      MagicNum>,<len 06>, <27002>
     <ie-05:     TimeStamp>,<len 06>, <0x4b1c4558>"

2 2009/02/18 10:39:43.73 UTC MINOR: DEBUG #2001 Base MLFR
"MLFR: [_LIP_TxFrame]
TxMsg <bundle-fr-1/1.1:1/1/1.0x56> <state-0: Up>
<MsgType-4:Hello>
     <ie-03:      MagicNum>,<len 06>, <31104>
     <ie-05:     TimeStamp>,<len 06>, <0x5d804569>"

3 2009/02/18 10:39:43.73 UTC MINOR: DEBUG #2001 Base MLFR
"MLFR: [_LIP_ParseRxFrame]
RxMsg <bundle-fr-1/1.1:1/1/1.0x56> <state-0: Up>
<MsgType-5:HelloAck>
     <ie-03:      MagicNum>,<len 06>, <27002>
     <ie-05:     TimeStamp>,<len 06>, <0x5d804569>"
```

ppp

Syntax [**no**] **ppp** *port-id*

Context debug

Description This command enables/disables and configures debugging for PPP.

Parameters *port-id* — Specifies the physical port ID

Syntax: *port-id* slot/mda/port[.channel]
aps-id aps-*group-id*[.*channel*]
aps keyword
group-id 1 — 64
bundle IDbundle-*type-slot/mda.bundle-num*
bpgrp-*type-bpgrp-num*
bundle keyword
bundle-num 1 — 256 (16 for 7750 SR-c12/4)
type ppp