dsppnallgrpaddr

Display All Group Addresses—PXM45, PXM1E

The **dsppnallgrpaddr** command lists all group addresses on the node. The ATM address is the basis of membership of such a group. See the description of **addaddr** for details.

For an ATM address to be a member of a particular group:

- The first 8-bit byte of the ATM address must be A0 or higher.
- The ATM address must be the same as the other ATM addresses in the group.

You can list all member-addresses by not supplying a port ID, or you can specify that the display show member-addresses for a particular port.

Syntax

dsppnallgrpaddr <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

dsppncon

Display PNNI Connection—PXM45, PXM1E

The **dsppncon** command displays details about a connection from the viewpoint of the PNNI controller. The connection can be an SVC, SVP, SPVC, or SPVP. The information reflects the dynamic state of the connection, so some of the information can change from one iteration of the command to the next. (The **dspcon** command shows the *configuration* of an SPVC or SPVP at its endpoints and therefore presents a static information.)

You can use this command at any node in the route. Refer to the example for the contents of the output.

Syntax

dsppncon <*portid*> <*vpi*> <*vci*> **-party yes** | **no**

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."
vpi	VPI for the call. Default: 0
vci	VCI for the call. If you do not specify a VCI, the connection is a virtual path connection. Default: 0
-party	The party option applies to only point-to-multipoint calls. It lets you display per-calling party information for a point-to-multipoint call. The displayed information is the calling party address and sub-address endpoint reference. After the keyword, type "yes" or "no." Default: **no**

Related Commands

dsppncons

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

This section contains examples of point-to-point and point-to-multipoint connections—one per page.

Note "OE" in the display stands for "other end."

Display VPI/VCI 110 3009 on port 10:1.1:1.

```
2spvc44.8.PXM.a > dsppncon 10:1.1:1 110 3009

 Port :       10:1.1:1 VPI :    110  VCI :   3009 Type:       P2P
 CallRef:     3010  CallRefFlag:   0  CallLeafRef :        0
 Calling-address: 47.00918100000000001a531c77.000001031806.00
 Calling-subaddress #1: N/A
 Calling-subaddress #2: N/A
 Called-address: 47.00918100000000001a531c77.0000010a1801.00
 Called-subaddress #1: N/A
 Called-subaddress #2: N/A
 OE Port :        3:1.6:6 OE VPI :    110  OE VCI :   3009
 OE CallRef:       10  OE CallRefFlag:   0
 OAM-Type : OAM Endpoint
 Routing Priority : 8
 Connection-type : SPVC   Cast-type : point-to-point   Bearer-class :BCOBX
 Service-category :ABR   Call-clipping-susceptibility:no
 Tx conformance :ABR  Rx conformance :ABR
 Tx pcr :        300           Rx pcr :        300
 Tx mcr :        200           Rx mcr :        200
 Tx Per Util :   100           Rx Per Util :   100
 Tx icr :        300           Rx icr :        300
 Tx rif :     0.0020           Rx rif :     0.0020
 Tx rdf :     0.0002           Rx rdf :     0.0002
 Tx tbe :    1048320           Rx tbe :    1048320
 Tx nrm :         32           Rx nrm :         32
 Tx trm :   100.0000           Rx trm :   100.0000
 Tx adtf:         50           Rx adtf:         50
 Tx cdf :     0.5000           Rx cdf :     0.5000
 Tx frame-discard-option :disable  Rx frame-discard-option :disable
 Max ctd :    N/A
 Max Tx cdv :    N/A    Max Rx cdv :    N/A
 Max Tx clr :    N/A    Max Rx clr :    N/A
 NCCI value: 47 00 91 81 00 00 00 00 00 1a 53 1c 77 00 00 1a 53 1c 77 01 01 03 18 06 00 6e 0b c1
```

Display the connection with VPI 0 and VPI 35 on port 3:1.7:7. The “Type” field (top-right in the screen) shows the connection is P2MP. Note the following in this display:

- The Type field indicates the *endpoint* identified by this port ID, VPI, and VCI is the root of a point-to-multipoint call.
- The call reference (see “CallRef” field) is an equivalent representation of the combination of port ID (3:1.7:7), VPI (0), and VCI (37).
- The connection type is SVC.
- The cast type is P2MP rather than P2P.
- The service class (or category) is CBR, and the conformance type in the receive and transmit direction is CBR.2—even though the only meaningful value applies to the transmit direction.
- Two branch points (or leaves) exist on the node for this call. The “Leaf(s) Information” section of the display shows the port IDs, VPIs, and VCIs of where the call is branching towards the network.

```
pswpop3-1.7.PXM.a > dsppncon 3:1.7:7 0 35

 Port :       3:1.7:7 VPI :     0  VCI :    35 Type:P2MP-ROOT
 CallRef:      44  CallRefFlag:  1  CallLeafRef :       0
 OE Port :           N/A OE VPI :   N/A  OE VCI :   N/A
 OE CallRef:     N/A  OE CallRefFlag:N/A
 OAM-Type :Not an OAM Endpoint
 Routing Priority :0
 Connection-type :SVC   Cast-type :point-to-multipoint   Bearer-class :BCOBX
 Service-category :CBR   Call-clipping-susceptibility:no
 Tx conformance :CBR.2  Rx conformance :CBR.2
 Tx pcr :      1000           Rx pcr :         0
 Tx scr :   N/A Rx scr :   N/A
 Tx Per Util :  100           Rx Per Util :  100
 Tx mbs :   N/A Rx mbs :   N/A
 Tx cdvt :250000
 Tx frame-discard-option :disable  Rx frame-discard-option :disable
 Max ctd :   N/A
 Max Tx cdv :   N/A    Max Rx cdv :   N/A
 Max Tx clr :   N/A    Max Rx clr :   N/A
 NCCI value:no record found

 Leaf(s) Information

-------------------
 Number of Active Leaf(s):2

 Leaf#  :1        PhyPortId  :3:1.2:2        VPI:0      VCI:40
 CallRef:3        CallRefFlag:0              NumActParties:1
 Leaf#  :2        PhyPortId  :3:1.1:1        VPI:0      VCI:36
 CallRef:1        CallRefFlag:0              NumActParties:1
```

Display the connection with VPI 0 and VPI 35 on port 3:1.7:7 and show the individual party information by including the optional parameter string -**party yes**. The party information consists of:

- Calling and called party addresses: note that the characters following the colon are not meaningful in this release because pertain to leaf-initiated join (not supported in this release).
- Two possible layers of subaddresses for the calling and called party. The subaddresses are application-specific configurations. No subaddresses exists in this example.

```
pswpop3-1.7.PXM.a > dsppncon 3:1.7:7 0 35 -party yes

 Port :       3:1.7:7 VPI :     0  VCI :    35 Type:P2MP-ROOT
 CallRef:      44  CallRefFlag:  1  CallLeafRef :       0
 OE Port :           N/A OE VPI :   N/A  OE VCI :   N/A
 OE CallRef:     N/A  OE CallRefFlag:N/A
 OAM-Type :Not an OAM Endpoint
 Routing Priority :0
 Connection-type :SVC   Cast-type :point-to-multipoint   Bearer-class
:BCOBX
 Service-category :CBR   Call-clipping-susceptibility:no
 Tx conformance :CBR.2  Rx conformance :CBR.2
 Tx pcr :      1000           Rx pcr :         0
 Tx scr :   N/A Rx scr :   N/A
 Tx Per Util :  100           Rx Per Util :  100
 Tx mbs :   N/A Rx mbs :   N/A
 Tx cdvt :250000
 Tx frame-discard-option :disable  Rx frame-discard-option :disable
 Max ctd :   N/A
 Max Tx cdv :   N/A    Max Rx cdv :   N/A
 Max Tx clr :   N/A    Max Rx clr :   N/A
 NCCI value:no record found

 Leaf(s) Information

-------------------
 Number of Active Leaf(s):2

 Leaf#  :1        PhyPortId  :3:1.2:2        VPI:0      VCI:40
 CallRef:3        CallRefFlag:0              NumActParties:1
 Leaf#  :2        PhyPortId  :3:1.1:1        VPI:0      VCI:36
 CallRef:1        CallRefFlag:0              NumActParties:1

 Party(s) Information
 ------------------------

 Party#:1      Port:3:1.1.1        VPI:0       VCI:36     EpRef:0
 Called-address       :47.22222222222222222222222.222222222222.22
 Called-subaddress #1 :00.00000000000000000000000.000000000000.00
 Called-subaddress #2 :00.00000000000000000000000.000000000000.00
 Calling-address      :47.11111111111111111111111.111111111111.11
 Calling-subaddress #1:00.00000000000000000000000.000000000000.00
 Calling-subaddress #2:00.00000000000000000000000.000000000000.00

 Party#:2      Port:3:1.2:2        VPI:0       VCI:40     EpRef:1
 Called-address       :47.33333333333333333333333.333333333333.33
 Called-subaddress #1 :00.00000000000000000000000.000000000000.00

Called-subaddress #2 :00.00000000000000000000000.000000000000.00
 Calling-address      :47.13131313131313131313131.131313131313.13
 Calling-subaddress #1:bb.bbbbbbbbbbbbbbbbbbbbbbb.bbbbbbbbbbbb.bb
 Calling-subaddress #2:cc.ccccccccccccccccccccccc.cccccccccccc.cc
```

Display the connection on port 3:1.2:2 with VPI/VCI 0/35. In the case, the Type field (top-right) shows that the connection is point-to-point.

```
pswpop3-1.7.PXM.a > dsppncon 3:1.2:2 0 35

 Port :        3:1.2:2 VPI :      0  VCI :     35 Type:       P2P
 CallRef:        1  CallRefFlag:   0  CallLeafRef :        0
 Calling-address: 47.00918100000000036b5e30d4.000001031807.00
 Calling-subaddress #1: N/A
 Calling-subaddress #2: N/A
 Called-address: 47.00918100000000036b5e3180.000001031807.00
 Called-subaddress #1: N/A
 Called-subaddress #2: N/A
 OE Port :        3:1.7:7 OE VPI :      1  OE VCI :    100
 OE CallRef:        1  OE CallRefFlag:   0
 OAM-Type : OAM Endpoint
 Routing Priority : 8
 Connection-type : SPVC   Cast-type : point-to-point   Bearer-class :BCOBX
 Service-category :CBR   Call-clipping-susceptibility:no
 Tx conformance :CBR.1  Rx conformance :CBR.1
 Tx pcr :         50           Rx pcr :         50
 Tx scr :    N/A Rx scr :    N/A
 Tx Per Util :   100           Rx Per Util :   100
 Tx mbs :    N/A Rx mbs :    N/A
 Tx cdvt : 250000
 Tx frame-discard-option :disable  Rx frame-discard-option :disable

Max ctd :    N/A
 Max Tx cdv :    N/A    Max Rx cdv :    N/A
 Max Tx clr :    N/A    Max Rx clr :    N/A
 NCCI value: 47 00 91 81 00 00 00 00 03 6b 5e 30 d4 00 03 6b 5e 30 d4 01 01 03
```

dsppncons

Display PNNI Connections—PXM45, PXM1E

The **dsppncons** command displays all PNNI connections. You can filter the output, as follows:

- You can specify a particular PNNI port.
- You can specify a starting VPI or VCI to begin a range of connections.
- A filter to display a connection *type,* as follows:
  - Point-to-point
  - Point-to-multipoint
  - Control
  - Point-to-multipoint root
  - Point-to-multipoint leaf

Syntax

dsppncons [**-port** *portid*] [**-vpi** *starting-vpi*] [**-vci** *starting-vci*]
[**-type** {**p2p** | **p2mp** | **ctrl** | **p2mproot** | **p2mpleaf**}]

Syntax Description

-port	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."
-vpi	Starting VPI.
-vci	Starting VCI.
-type	Display a specific type of connection. If you include the keyword **type** on the command line, you must enter one of the connection types. • "p2p" for point-to-point • "p2mp" for point-to-multipoint—currently not supported • "ctrl" for control connections (for example: ipconn, aesa-ping, svcc-rcc, and so on • "p2mproot" to display all the point-to-multipoint root records • "p2mpleaf" to display all the point-to-multipoint leaf records

Related Commands

dsppncon

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Display all PNNI connections on the switch. The controller card is a PXM45.

```
p2spvc4.8.PXM.a > dsppncons
           Port   VPI   VCI  CallRef:Flag        X-Port    VPI   VCI  CallRef:Flag  Type OAM-Type  Pri
        3:1.6:6   110  3000        1: 0        10:1.1:1    110  3000     3001: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3001        2: 0        10:1.1:1    110  3001     3002: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3002        3: 0        10:1.1:1    110  3002     3003: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3003        4: 0        10:1.1:1    110  3003     3004: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3004        5: 0        10:1.1:1    110  3004     3005: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3005        6: 0        10:1.1:1    110  3005     3006: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3006        7: 0        10:1.1:1    110  3006     3007: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3007        8: 0        10:1.1:1    110  3007     3008: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3008        9: 0        10:1.1:1    110  3008     3009: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3009       10: 0        10:1.1:1    110  3009     3010: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3010       11: 0        10:1.1:1    110  3010     3011: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3011       12: 0        10:1.1:1    110  3011     3012: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
        3:1.6:6   110  3012       13: 0        10:1.1:1    110  3012     3013: 0  PTP       Yes    8
    Calling-Addr: 47.00918100000000001a531c77.000001031806.00
    Called-Addr: 47.00918100000000001a531c77.0000010a1801.00
```

Display all PNNI connections on a PXM1E. Note the format of the port is that of an NBSM.

```
PXM1E_SJ.7.PXM.a > dsppncons
           Port   VPI   VCI  CallRef:Flag        X-Port    VPI   VCI  CallRef:Flag  Type OAM-Type  Pri
            4.1     4    35        2: 0           4.2      4    36        2: 0     PTP    Yes    8
    Calling-Addr: 47.00918100000000001a533377.000001072302.00
    Called-Addr: 47.00918100000000001a533377.000001072301.00
            4.2     4    36        2: 0           4.1      4    35        2: 0     PTP    Yes    8
    Calling-Addr: 47.00918100000000001a533377.000001072302.00
    Called-Addr: 47.00918100000000001a533377.000001072301.00
```

dsppnconstats

Display PNNI Connection Statistics—PXM45, PXM1E

The **dsppnconstats** command displays connection statistics for a PNNI port. Refer to the section, "Output Description for dsppnconstats," for a description of the items in the display.

Syntax

dsppnconstats <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

clrpnconstats

Attributes

Log: no State: active Privilege: ANYUSER

Example

Display PNNI connection statistics for port 7:2.2:2.

```
PXM1E_SJ.7.PXM.a > dsppnconstats 7:2.2:2

 Call Statistics for 7:2.2:2
 Incoming Call Attempts:     516          Outgoing Call Attempts:       311
 Incoming Call Success:      18           Outgoing Call Success:        516
 Incoming Call Failures:     0            Outgoing Call Failures:       0
 Incoming Filtering Failures:0            Outgoing Filtering Failures : 0
 Incoming Routing Failures:  0            Outgoing Routing Failures :   0
 Incoming CAC Failures:      0            Outgoing CAC Failures :       0
 Incoming Timer Failures:    0            Outgoing Timer Failures :     0
 Incoming Crankback Failures:0            Outgoing Crankback Failures : 0
```

Output Description for dsppnconstats

Incoming Call Attempts	The number of incoming signaling messages—Setup and AddParty—received on this port for call establishment.
Incoming Call Success	The number of incoming signaling messages—Connect and AddPartAck—received on this port, which indicates successful call establishment.
Incoming Call Failures	The number of incoming point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port.
Incoming Call Filtering Failures	The number of incoming point-to-point and point-to-multipoint SVC/SPVC call attempts that failed the address filtering on this port.
Incoming Routing Failures	The number of incoming point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port because there was no route to the destination.
Incoming CAC Failures	The number of incoming point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port because there were not enough resources as requested in the traffic parameters of the call.
Incoming Timer Failures	The number of signaling timers that timed out on incoming point-to-point and point-to-multipoint SVC/SPVC calls received on this port.
Incoming Crankback Failures	The number of crankback IEs received on this port for incoming point-to-point and point-to-multipoint SVC/SPVC call attempts.
Outgoing Call Attempts	The number of outgoing signaling messages—Setup and AddParty—sent from this port for call establishment.
Outgoing Call Success	The number of outgoing signaling messages—Connect and AddPartAck—sent from this port, which indicates successful call establishment.
Outgoing Call Failures	The number of outgoing point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port.
Outgoing Call Filtering Failures	The number of outgoing point-to-point and point-to-multipoint SVC/SPVC call attempts that failed the address filtering on this port.
Outgoing Routing Failures	The number of outgoing point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port because no route existed to the destination.
Outgoing CAC Failures	The number of outgoing point-to-point and point-to-multipoint SVC/SPVC call attempts that failed on this port because not enough resources existed to meet the request in the traffic parameters of the call.
Outgoing Timer Failures	The number of signaling timers that timed out on outgoing point-to-point SVC/SPVC calls sent from this port.
Outgoing Crankback Failures	The number of crankback information elements sent from this port for outgoing signaling release messages.

dsppnctlvc

Display Control VC Parameters—PXM45, PXM1E

The command lets you display the bandwidth parameters for the control VCs on the port. These bandwidth parameters result from the use of the (optional) **cnfpnctlvc** command.

Note To see details about the VCs that support ILMI, use **dsppnilmi**.

Syntax

dsppnctlvc <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnctlvc

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the configuration of control VCs on ports 1:1.1:3 and 3:1.1:1.

```
M8850_LA.8.PXM.a > dsppnctlvc 1:1.1:3


vc type = pnnircc
service category : sig                      PCR :             906
SCR :              453                      MBS :             171


vc type = sscop      Parameter = Provisioned
service category : sig                      PCR : Not Provisioned
SCR :  Not Provisioned                      MBS : Not Provisioned


vc type = sscop      Parameter = Operational
```

```
service category : sig                      PCR :          308000
SCR :             2000                      MBS :            1000

M8850_LA.8.PXM.a > dsppnctlvc 3:1.1:1


vc type = sscop      Parameter = Provisioned
service category : sig                      PCR : Not Provisioned
SCR :  Not Provisioned                      MBS : Not Provisioned


vc type = sscop      Parameter = Operational
service category : sig                      PCR :           48000
SCR :              334                      MBS :            1000

M8850_LA.8.PXM.a >
```

dsppngrpmbrs

Display Group Members—PXM45, PXM1E

The **dsppngrpmbrs** command lists all the members of an address-based group. The ATM address is the basis of membership of such a group. See the description of **addaddr** for details.

For an ATM address to be a member of a particular group:

- The first 8-bit byte of the ATM address must be A0 or higher.
- The ATM address must be the same as the other ATM addresses in the group.

Syntax

dsppngrpmbrs <*group_addr*> <*length*>

Syntax Description

atm-address	The ATM address format depends on whether the type is NSAP or E.164. Note that all group addresses begin with 0xA0 or higher. See **addaddr** description for details.
length	Address length. The units of measure differ for each address plan: • For an NSAP address plan, the units of measure are bits. The range is 0–160. For a 20-byte ATM address: 20 bytes x 8 bits per byte = 160 bits. • For an E.164 address plan, the value is the number of decimal digits. If the ATM address consists of 15 digits, the value for this parameter is also 15.

Related Command

addaddr, **dsppnallgrpaddr**, **dspaddr**, **deladdr**

Attributes

Log: no State: active, standby Privilege: ANYUSER

dsppnilmi

Display PNNI ILMI—PXM45, PXM1E

Displays the ILMI information for a PNNI logical port. The ILMI state can be one of the following.

Disable	Protocol is not enabled on this port.
NotApplicable	This port is not accessible due to hardware-related conditions.
LostConnectivity	Protocol on listening port is not enabled.
EnableNotUp	This port is not accessible due to hardware.
UpAndNormal	This port is physically up, and the protocol is enabled.

Note The VC for ILMI is a control channel, but its bandwidth parameters are fixed, as follows: PCR=1000 cps; SCR=50cps; and MBS=1024 cells.

The bandwidth used by ILMI (when enabled) and other control-type VCs (see **cnfpnctlvc**) adds to the bandwidth load on the port. Use **dspload** to determine the load on port resources.

Syntax

dsppnilmi <*portid*>

Syntax Description

portid The format of the PNNI physical port identifier can vary, as follows:

- On a PXM45: *slot:subslot.port:subport*
- On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows:
  - In an MGX 8850 chassis, *slot* is always the logical slot 7.
  - In an MGX 8830 chassis, *slot* is always the logical slot 1.
- On a PXM1E for a narrowband service module (NBSM): *slot.port*.

For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

dspilmi

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Display the ILMI for port 6:1.1:1. For comparison, run the **dspilmi** command on the card in slot 6, Note that it contains information that corresponds to the **dsppnilmi** output.

```
M8850_NY.7.PXM.a > dsppnilmi 6:1.1:1

Port:  6:1.1:1             Port Type:  ENNI             Side:  network
Autoconfig:  disable      UCSM: disable
Secure Link Protocol:  enable
Change of Attachment Point Procedures:  enable
Modification of Local Attributes Standard Procedure:  enable
Addressreg:  disable
VPI:       0               VCI:       0
Max Prefix:       0      Total Prefix:       0
Max Address:       0     Total Address:      0
Resync State:      0     Node Prefix: no
Peer Port Id:           0   System_Id : 0.0.0.0.0.0
Peer Addressreg:  disable
Peer Ip Address : 0.0.0.0
Peer Interface Name :
ILMI Link State : Disable
ILMI Version : ilmi40

INFO:  No Prefix registered

INFO:  No ilmi address registered

M8850_NY.7.PXM.a > cc 6

(session redirected)

M8850_NY.6.AXSM.a > dspilmi 1 1

    Sig. rsrc  Ilmi  Sig  Sig Ilmi  S:Keepalive T:conPoll K:conPoll
    Port Part State  Vpi  Vci Trap  Interval    Interval  InactiveFactor
    ---- ----  ----- ---- ---- --- ------------  ---------- ----------
    1    1   Off     0    16    On          1          5          4

M8850_NY.6.AXSM.a >
```

dsppnni-bn-path

Display PNNI Border Node Paths—PXM45, PXM1E

This debugging command displays the border node-to-border node paths of the immediate child-peer-group of the logical group nodes (LGN).

Note The command applies to multi-peer groups only.

Syntax

dsppnni-bn-path <*node-index*>

Syntax Description

node-index	The node index indicates the relative level of the logical node within the hierarchy on the switch. The range is 1–10, and the lowest level is 1. Range: 1–10 Default: None

Contents of the dsppnni-bn-path Output

node index	The range is 1–10.
source node IDB index	The node identifier within the internal data base (IDB). Range: 1–2147483648.
source node ID	The node ID of the source.
destination node IDB index	The node identifier of each destination node.
destination node ID	The node ID of each destination.
metrics for the path	For each class of service (CBR, rt-VBR, nrt-VBR, ABR, UBR), the configuration for each of the following routing metrics: • Administrative weight (AW) • Maximum cell rate (MaxCR) • Available cell rate (AvCR) • Cell transfer delay (CTD) • Cell delay variation (CDV) • Cell loss priority, first leaky bucket (CLP0) • Cell loss priority, second leaky bucket (CLP0+1)

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Enter **dsppnni-db-path** and specify node index 2.

```
mpg2.7.PXM.a > dsppnni-bn-path 2

node index:2

source node IDB index   source node id
---------------------   --------------------------------------------------
                    1   56:160:47.00918100000000003071f80e56.003071f80e56.01

destination node IDB index   destination node id
--------------------------   --------------------------------------------------
                          12   56:160:47.00918100000000003071f80e52.003071f80e52.01

            CBR    RTVBR   NRTVBR      ABR      UBR
         ------   ------   ------   ------   ------
AW         5040     5040     5040     5040     5040
MaxCR    250000   250000   250000   250000   250000
AvCR     248759   248759   248759   248759   248759
CTD          17       17       17       17       17
CDV        4167    52954    52954   104912   104912
CLR0          8        8        8        8        8
CLR0+1        8        8        8        8        8
```

dsppnni-dbg

Display PNNI Debug Flags—PXM45, PXM1E

The **dsppnni-dbg** command displays which PNNI debug options are enabled and which are disabled.

Syntax

dsppnni-dbg

Display Contents

This section describes the content of the display for each node. The right column shows the label for each value that appears in the **dsppnni-dbg** command. The left column maps each value to the corresponding keyword in the **dbgpnni** command, and explains the argument function.

Hello	Display the flag that indicates whether the Hello packet debug is enabled. on: the Hello packet debug is enabled. off: the Hello packet debug is disabled.
election	Display the flag that indicates whether the peer group election debug is enabled. on: the peer group election debug is enabled. off: the peer group election debug is disabled.
nbr	Display the flag that indicates whether the neighbor debug is enabled. on: the neighbor debug is enabled. off: the neighbor debug is disabled.
itf	Display the flag that indicates whether the interface debug is enabled. on: the interface debug is enabled. off: the interface debug is disabled.
timer	Display the flag that indicates whether the timer debug is enabled. on: the timer debug is enabled. off: the timer debug is disabled.
lgn	Display the flag that indicates whether the logical node (LGN) debug is enabled. on: the LGN debug is enabled. off: the LGN debug is disabled.
spt	Display the flag that indicates whether the logical node SPT debug is enabled. on: the SPT debug is enabled. off: the SPT debug is disabled.
node reachability	Display the flag that indicates whether the node reachability debug is enabled. on: the node reachability debug is enabled. off: the node reachability debug is disabled.
address	Display the flag that indicates whether the addressing debug is enabled. on: the addressing debug is enabled. off: the addressing debug is disabled.
itdb	Display the flag that indicates whether the internal data base debug is enabled. on: the internal data base debug is enabled. off: the internal data base debug is disabled.

ra	Display the flag that indicates whether the route agent debug is enabled. on: the route agent debug is enabled. off: the route agent debug is disabled.
cp	Display the flag that indicates whether the CP debug is enabled. on: the CP debug is enabled. off: the CP debug is disabled.
link selection	Display the flag that indicates whether the link selection debug is enabled. on: the link selection debug is enabled. off: the link selection debug is disabled.

Related Commands

dbgpnni

Attributes

Log: no State: active Privilege: CISCO_GP

Example

Display the active PNNI debug options.

```
Unknown.1.1.PXM45.a > dsppnni-dbg

pnni debugging option:

hello election nbr itf timer lgn spt   node reachability
----- -------- --- --- ----- --- ---   -----------------
off   off      off off off   off off   off

address   itdb    ra    cp   link selection
-------   ----    ---   ---  --------------
off       off     off   off  off

Geneva.7.PXM.a >
```

dsppnni-election

Display PNNI Election—PXM45, PXM1E

The **dsppnni-election** command displays parameters and current status related to the election of a peer group leader (PGL). This command and related information applies to multi-peer groups (MPGs) only. The **cnfpnni-election** command lets you specify election parameters.

In an MPG environment, each peer group can elect one PGL. Such an election takes place for every level of the hierarchy. For example, if three levels exist, three PGL elections occur.

Syntax

dsppnni-election [*node-index*]

Syntax Description

node-index	The system-generated node index indicates the *relative* level of the logical node within a multi-peer group on the switch. The range is 1–10. The lowest node is 1, and the highest is 10. (Note that *node index* is inversely related to the *node level*, which you specify through such commands as **cnfpnni-node**, for example, and has a range of 1–104. The lowest node level is 104. When you add a logical node to the hierarchy on a switch, the system generates the node index.) Range: 1–10 Default: 1

Objects Displayed

The following parameters are displayed for each node.

Node-index	The node index has a range of 1–10.
PGL state	OperNotPGL, OprPGL, starting, and so on.
Priority	This node's leadership priority in a peer group.
Initialization time	The seconds that this node waits to advertise its choice of preferred PGL.
Override delay	The number of seconds that this node waits for itself to be declared the preferred PGL by unanimous agreement among its peers.
Re-election time	After losing connectivity to the current PGL, the number of seconds that this node waits before re-starting the process of electing a new peer group leader.
Preferred PGL	The ID of the node that should be the PGL according to the current node. This choice weighs information on leadership priorities and node IDs that it receives from the PTSEs.
Pref. PGL node name	The name of the node that should be the PGL according to the current node.
PGL	The ID of the node in the peer group that has been elected PGL
PGL node name	The ID of the node in the peer group that has been elected PGL
Active parent node ID	The node ID of the LGN.
Active parent nodename	The node name of the LGN.

Related Commands

cnfpnni-election, **cnfpnni-node**, **dsppnni-node**, **dsppnni-node-list**, **dsppnni-summary-addr**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the information about peer group leader election for all nodes in the hierarchy.

```
mpgses1.1.PXM.a > dsppnni-election

node index: 1
   PGL state......         OperPgl     Init time(sec).......        15
   Priority.......             150     Override delay(sec)..        30
                                       Re-election time(sec)        15
   Pref PGL.................56:160:47.009181000000003071f80833.003071f80833.01
   Pref PGL node name .....mpgses1
   PGL.....................56:160:47.009181000000003071f80833.003071f80833.01
   PGL node name ..........mpgses1
   Active parent node id...40:56:47.00918100000000000000000.003071f80e4a.00
   Active parent node name mpgses1-02



node index: 2
   PGL state......      OperNotPgl     Init time(sec).......        15
   Priority.......               0     Override delay(sec)..        30
                                       Re-election time(sec)        15
   Pref PGL.................40:56:47.11918100000000000000000.003071f80e55.00
   Pref PGL node name .....mpgses3-02
   PGL.....................40:56:47.11918100000000000000000.003071f80e55.00
   PGL node name ..........mpgses3-02
   Active parent node id...0:0:00.000000000000000000000000.000000000000.00
   Active parent node name
```

dsppnni-idb

Display PNNI Internal Data Base—PXM45, PXM1E

The **dsppnni-idb** command applies solely to debugging. It lets you see all the nodes and links that the current node has discovered. If a node or link should be in the internal database (IDB) but is missing, you can check the PTSEs (**dsppnni-ptse**) to begin tracing the missing topology information.

An IDB stores all the logical nodes known to the local node (its own levels and the network nodes in each logical node's view) and the outgoing links from all of them. The IDBs are the source of all address and routing tables in the peer group. When a node advertises PNNI topology state elements (PTSEs), the updated information goes into the IDB updates. The system address table, local network reachable address table, background routing tables, and PNNI summary address table receive updates from the IDB as appropriate.

The **dsppnni-idb** command can display all the contents or a subset of the IDB. You can specify the granularity of the display by using the optional parameters:

- If you enter **dsppnni-idb** with no parameters, the display shows the internal topology database of all nodes in the peer group.
- If you specify a node index, the display shows the internal topology database of all nodes that are visible to the local, logical node with the specified index.
- If you specify a node number, the display shows the internal topology database for a specific, remote node within the peer group. To see the valid node numbers for nodes in the peer group, first use **dsppnni-node-list**.
- If you specify a port ID after specifying a node number, the display shows the internal topology database of that specific port on that remote node.

Syntax

dsppnni-idb [*node-index*] [**-nodeNumber** *node-number* [**-portId** *port-id*]]

Syntax Description

node-index	The node index is the system-generated number of the *local* logical node. In a multi-peer group hierarchy, the range is 1–10. Range: 1–10
-nodeNumber	A number that uniquely identifies a node in the network. For a list of the remote node numbers that are visible to the local node, use **dsppnni-node-list**. Range: 1–256
-portId	The logical number for a PNNI port. Use this optional parameter if you have specified a node number (**-nodeNumber**) and want to narrow the scope of the display. You can obtain the logical number for the port ID by running **dsppnports** for all PNNI ports or **dsppnport** *a:b.c.d* for a specific port (where a,b,c, and d are the values corresponding to the physical portID. For a description of each portID field, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Display the link-state information for the following:

- Node index: 1
- Node number: 1
- Logical port ID: 16848901

```
Geneva.7.PXM.a > dsppnni-idb 1 -nodeNumber 1 -portId 16848901
node index:1
   Local port id.......  16848901     Remote port id.......  16848901
   Local link index....          1     Remote link index....          1
   Local node number...          1     Remote node number...          2
   PGL node index......          0     LGN node index.......          0
   Transit restricted..        off     Complex node.........        off
   Branching restricted         on     PGL..................      false
   Ancestor............      false     Border node..........      false
   VP capable..........       true     Link type............horizontal
   Non-transit for PGL election..       off
   node id..............56:160:47.00918100000000107be92f46.00107be92f46.01
   node name.............pswmgx2-2

Geneva.7.PXM.a >
```

dsppnni-inducing-uplink

Display PNNI Inducing Uplink—PXM45, PXM1E

The **dsppnni-inducing-uplink** command displays the uplink-inducing database. The only application of **dsppnni-inducing-uplink** is debugging.

Note This command applies to multi-peer groups only.

The display shows:

- Child node index number
- Token (if configured)
- Uplink node ID—the ID of the node
- Uplink ATM address
- Uplink peer group ID
- Routing metrics of the uplink

The child node number is the number of a node at a lower level (as shown by **dsppnni-node-list**) from which the uplink comes. The child port ID is the local port ID of the child node from which the uplink comes. You can see the details of this uplink by executing **dsppnni-idb**. (In the display for **dsppnni-idb**, the child node index is the local node number.)

The uplink node or *upnode* is the node at the upper end of the uplink. It is the neighboring peer of the ancestor of the node from which the uplink originates.

The extent of the **dsppnni-inducing-uplink** display depends on whether you specify an individual logical node in the hierarchy, as follows:

- If you specify a node index, the display shows the PNNI-inducing uplink database of a specific logical node on the switch.
- If you do not specify a node index, the command displays the PNNI-inducing uplink database for each logical node on the switch.

Syntax

dsppnni-inducing-uplink [*node-index*]

Syntax Description

node-index	The *node-index* specifies the logical node on the switch. Range: 1–10 Default: 1

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the inducing uplink for the level whose node index is 2.

```
mpgses3.2.PXM.a > dsppnni-inducing-uplink 2

node index:2
   Token.................          0     Child node portId....     66560
   Child node number....          1
   Upnode id.............32:56:47.009181001100000000000001.003071f80e56.00
   Upnode ATM addr.......47.009181000000003071f80e56.003071f80e56.02
   Upnode PG id..........32:47.00.9181.0000.0000.0000.0000.00

              CBR       RTVBR     NRTVBR    ABR       UBR
              ------    ------    ------    ------    ------
      AW       10000     10000     10000     10000     10000
      MaxCR   348207    348207    348207    348207    348207
      AvCR    347419    347419    347419    347419    347419
      CTD         17        17        17        17        17
      CDV       4167     52954     52954    104912    104912
      CLR0         8         8         8         8         8
      CLR0+1       8         8         8         8         8
```

dsppnni-intf

Display PNNI Interface—PXM45, PXM1E

This command displays the following information for a PNNI port:

- Aggregation token.
- Administrative weight (AW).
- The logical port identifier assigned to the physical port identifier.

Syntax

dsppnni-intf <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction." Default: None

Display Contents

The following parameters are displayed for each node. The right column shows the label for each value that appears in the **dsppnni-intf** command. The left column maps each value to the corresponding keyword in the **cnfpnni-intf** command and explains the argument function.

Physical port Id	Identifies a PNNI physical port. The format is as follows: • On a PXM45: *slot:subslot.port:subport* • On PXM1E for UNI/NNI back card: *slot:subslot.port:subport*, and *slot* and *subslot* always are 2. • On PXM1E for NBSMs: *slot.port*. For a description of each field, see the section, "PNNI Format," in Chapter 1, "Introduction."
Logical port Id	Display the logical PNNI port identifier. The **-portId** parameter displays the logical PNNI port identifier on the interface. Range: 1–2147483648
Aggr token	Display the 32 bit number used for link aggregation purpose.

AW-NRTVBR	Display the AW for non-real-time variable bit rate (nrtvbr) connections on this interface. nrtvbr accounts for the bursty traffic that is caused by some non-real-time applications. This category is characterized in terms of a PCR, SCR, and MBS. Range: 0–4,194,304
AW-CBR	Display the AW for constant bit rate (CBR) connections on this interface. Range: 0–4,194,304
AW-ABR	Display the AW for available bit rate (ABR) connections on this interface. Range: 0–4,194,304
AW-RTVBR	Display the AW for real-time variable bit rate (rt-VBR) connections on this interface. Range: 0–4,194,304
AW-UBR	Display the AW for unspecified bit rate (UBR) connections. This option also applies to SVC ping connections. Range: 0–4,194,304

Display Contents

PNNI includes a topology state routing protocol, which advertises detailed information about the peer groups links and nodes. Links and nodes are assigned metrics and attributes that can be used to diagnose or tune network behavior.

The administrative weight (AW) is the cost to traffic that traverses a port. The AW for a path is the sum, in both directions, of the individual AWs the egress of each port on the path.

The AW can be specified on the interface and by the service class (or QoS class), and it is associated with each port. AW is a defining factor when routes are selected. The AW parameters influence how PNNI selects paths in the peer group and therefore how it distributes each SVC and SPVC. PNNI route selection can also key on AW to exclude certain links from routing. The application of such exclusion can be to defining a backup link for use only when no bandwidth is available on the primary link.

Related Commands

cnfpnni-intf

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Example

Display the interface configuration for port 4:1.1:11.

```
SanJose.7.PXM.a > dsppnni-intf 4:1.1:11

Physical port id: 4: 1.1:11        Logical port id:   17045515
   Aggr token..........          0     AW-NRTVBR...........      5040
   AW-CBR..............       5040     AW-ABR..............      5040
   AW-RTVBR............       5040     AW-UBR..............      5040

SanJose.7.PXM.a >
```

dsppnni-link

Display PNNI Link Table—PXM45, PXM1E

The **dsppnni-link** command displays the parameters of all PNNI links.

- If you specify a node index and a port ID, the command displays information about that specific PNNI link.
- If you specify only a node index, the display shows all PNNI links attached to that node.
- If you specify nothing, the command displays all links attached to all PNNI nodes in the network.

Syntax

dsppnni-link [*node-index* [*port-id*]]

Syntax Description

node-index	A system-generated value that corresponds to a logical node in an MPG hierarchy. For every PNNI node that you add through CWM or the **addpnni-node** command, the system associates the next available integer in the range 1–10. Range: 1–10
portID	The physical PNNI port identifier.

Display Contents

The **dsppnni-link** command displays the address, link, and Hello packet information of each link. In a multi-peer group, it also displays the upnode ATM address and node ID. For an explanation of upnode, see the description of **dsppnni-inducing-uplink**.

Related Commands

dsppnni-link-selection

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Example

Specify node index 1 and port 1:1.2:2.

```
p2spvc5.7.PXM.a > dsppnni-link 1 1:1.2:2

node index :1
Local port id: 16848898          Remote port id: 16848898
Local Phy Port Id:1:1.2:2
   Type. lowestLevelHorizontalLink     Hello state....... twoWayInside
   Derive agg...........          0     Intf index...........  16848898
   SVC RCC index........          0     Hello pkt RX.........          2
                                        Hello pkt TX.........          2
   Remote node name.......p2spvc6
   Remote node
id.........56:160:47.009181000000003094 09f1ef.00309409f1ef.01
   Upnode
id..............0:0:00.000000000000000000000000.000000000000.00
   Upnode ATM addr........00.000000000000000000000000.000000000000.00
   Common peer group id...00:00.00.0000.0000.0000.0000.0000.00
```

dsppnni-link-selection

Display PNNI Link Selection—PXM45, PXM1E

The **dsppnni-link-selection** command displays the link selection and both the physical and logical identifiers for that link. Refer to the description of **cnfpnni-link-selection** for information about the criteria PNNI uses to choose between two parallel links.

Syntax

dsppnni-link-selection <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Display Contents

The display shows the following information for each node.

physical port id	Identifies a PNNI physical port. The format is as follows: • On a PXM45: *slot:subslot.port:subport* • On PXM1E for UNI/NNI back card: *slot:subslot.port:subport*, and *slot* and *subslot* always are 2. • On PXM1E for NBSMs: *slot.port*. For a description of each field, see the section, "PNNI Format," in Chapter 1, "Introduction."
link selection	The ASCII string displaying the link routing policy.
logical port id	The PNNI port identifier in the form of a logical number. Range: 1–2147483648

Related Commands

dsppnni-link

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Displays the link selection for a parallel link on port 4:1.1:11. This link uses the default of minaw. Note that the display also shows the logical port number for the physical port ID.

```
SanJose.7.PXM.a > dsppnni-link-selection 4:1.1:11

physical port id:        4:1.1:11     link selection: minaw
 logical port id:        17045515


SanJose.7.PXM.a >
```

dsppnni-mtu

Display PNNI Maximum Transfer Unit—PXM45, PXM1E

The **dsppnni-mtu** command displays the maximum PNNI packet size in number of bytes. This command is primarily for configuring internetwork compatibility, but you can use it in lab trials to test the affect of various packet sizes on the performance of the peer group.

Use **cnfpnni-mtu** to specify the PNNI packet size configuration.

Syntax

dsppnni-mtu

Display Contents

The following parameters are displayed for each node. The right column shows the label for each value that appears in the **dsppnni-mtu** command. The left column maps each value to the corresponding keyword in the **cnfpnni-mtu** command, and explains the argument function.

max packet size	The value of the max transmit unit *mtu* in number of bytes. Range: 1024–8192

Related Commands

dsppnni-idb, **cnfpnni-mtu**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Displays the maximum packet size.

```
SanJose.7.PXM.a > cnfpnni-mtu 3002

SanJose.7.PXM.a > dsppnni-mtu

max packet size : 3002

SanJose.7.PXM.a >
```

dsppnni-neighbor

Display PNNI Neighbor—PXM45, PXM1E

The **dsppnni-neighbor** command displays all the PNNI nodes that are directly connected to the switch.

- If you specify: both *node-index* and *rmt-node-id*, the command displays information about the *rmt-node-id* neighbors.
- If you specify nothing, the command displays all neighbors attached this switch.

Syntax

dsppnni-neighbor [*node-index* [*rmt-node-id*]]

Syntax Description

Note that the optional parameters are nested.

node-index	The system-generated node index specifies the relative level of the PNNI logical node within the hierarchy on the switch. the node identifier. Range: 1–10
rmt-node-id	The node index for a remote node is the index assigned to a neighboring node.

Display Contents

The following parameters are displayed for each node.

node-index	The system-generated node index in the range 1–10.
node name	The name of the neighboring node (assigned through the **cnfname** command).
Remote node id	The PNNI logical node identifier (node ID). The *node-id* consists of the following logical elements, starting at the most significant byte: • The level of the PNNI node within the hierarchy. (See the description of the *level* parameter.) • The number of bits in the ATM address. The number is 160 for an NSAP address because the ATM address of the node is always 20 bytes. For an E.164 address, this field is decimal 15. • The ATM address portion of the peer group ID (20 8-bit, hexadecimal bytes).
Neighbor state	FULL
Port count	The number of ports.
SVC RCC index	The index for the SVC routing control channel.
RX DS pkts	The number of received signal packets in the receive direction.
TX DS pkts	The number of transmitted signal packets in the transmit direction.
RX PTSP pkts	The number of PNNI topology state packets in the receive direction.
TX PTSP pkts	The number of PNNI topology state packets in the transmit direction.
RX PTSE req pkts	The number of PNNI topology state element (PTSE) request packets in the receive direction.

TX PTSE req pkts	The number of transmitted PTSE request packets in the transmit direction.
RX PTSE ack pkts	The number of received PTSE acknowledgment packets in the receive direction.
TX PTSE ack pkts	The number of transmitted PTSE acknowledgment packets in the transmit direction.

Related Commands

None

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Example

Display information about all neighboring PNNI nodes (with no optional parameters).

```
Geneva.7.PXM.a > dsppnni-neighbor

node index    : 1

node name     : Paris
Remote node id: 56:160:47.00918100000000107b65f27c.00107b65f27c.01
Neighbor state: FULL
   Port count.........          4     SVC RCC index.......          0
   RX DS pkts.........          3     TX DS pkts.........          3
   RX PTSP pkts........      6032     TX PTSP pkts........      2061
   RX PTSE req pkts....         2     TX PTSE req pkts....         1
   RX PTSE ack pkts....       345     TX PTSE ack pkts....      2282

node index    : 2

node name     : SanJose
Remote node id: 56:160:47.00918100000000309409f1f1.00309409f1f1.01
Neighbor state: FULL
   Port count.........          2     SVC RCC index.......          0
   RX DS pkts.........          4     TX DS pkts.........          3
   RX PTSP pkts........     23107     TX PTSP pkts........     32978
   RX PTSE req pkts....         3     TX PTSE req pkts....         0
   RX PTSE ack pkts....     13673     TX PTSE ack pkts....     12532

Geneva.7.PXM.a >
```

dsppnni-node

Display PNNI Node—PXM45, PXM1E

The **dsppnni-node** command displays the PNNI logical node information on the local switch. If you do not provide an index number, the output shows all logical nodes on the switch.

Syntax

dsppnni-node [*node-index*]

Syntax Description

node-index	The *node-index* identifies a logical node in relation to other nodes in the hierarchy. This node index applies locally within the switch. Range: 1–10 Default: 1

Related Commands

addpnni-node, **cnfpnni-node**

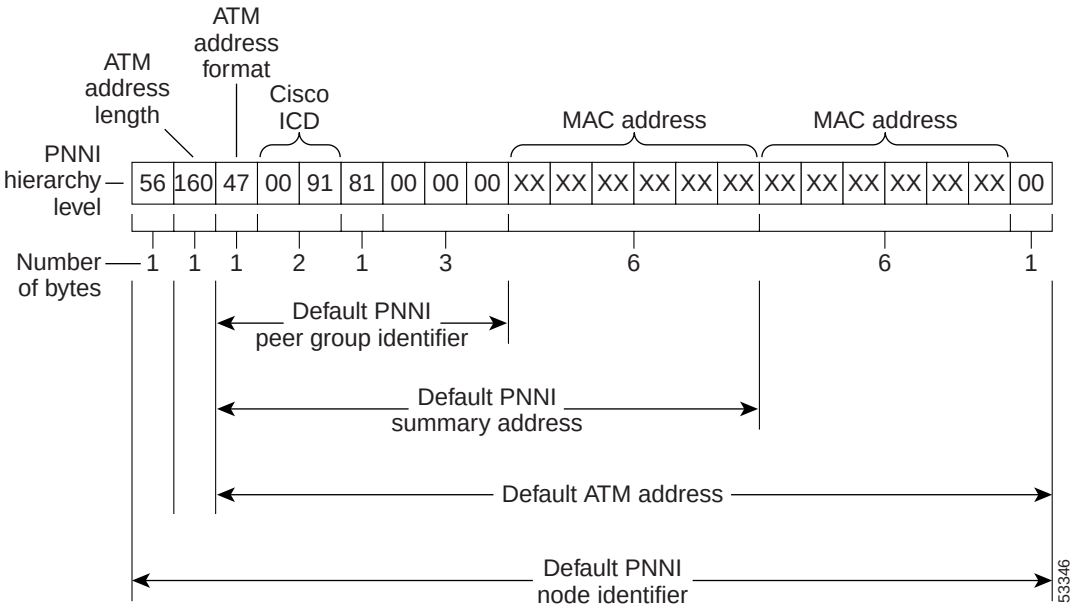
Attributes

Log: yes State: active, standby Privilege: ANYUSER

Display Contents

Cisco factory-set defaults for address prefixes and the peer group ID share field-values with the ATM address. (See Figure 2-13.)

Figure 2-13 Cisco Factory-shipped Defaults for PNNI Peer Group Identifier, PNNI Summary Address, ATM Address, and PNNI Node Identifier



The following parameters are displayed for each node. The right column shows the label for each value that appears in the **dsppnni-node** command. The left column maps each value to the corresponding keyword in the **cnfpnni-node** command, and explains the argument function.

node index	The *node-index* is a numeric node identifier assigned by the software—it is not user-configurable. Range: 1–10
node name	Display the PNNI node name assigned to a PNNI node. Each node name must be unique in the peer group–choose names that all fit into an obviously similar group, for example: names of states, names of universities, and such.
Level	Display the PNNI hierarchical level by defining the length of the *pg-id* value. For example, the default values 56 indicates that the **pgId** value extends 56 bits from the leftmost bit. Therefore, *pg-id* = 47 01 00 8100 0000. If you specify the value of *level* to 40, *pg-id* = 47 01 00 8100.
Lowest	This field indicates whether the node is the lowest logical node on the switch. In a single-peer group, “Lowest” is always true. In a multi-peer group, it can be true or false.
Restricted transit	Display the flag that indicates whether transit is restricted across this node. This value can be set to off to secure the node, or to minimize traffic handled by the node if it is of either low-capacity or high-criticality. on: Calls can transit across this node. off: Only calls terminating on end-systems supported by this node can access this node.

Complex node	Indicates whether this node is a complex node. The lowest level node cannot be a complex node. Therefore, in a single-peer group, this field contains “off.” on: This node is a complex node. off: This node is not a complex node.
Branching restricted	Indicates whether the node supports point-to-multipoint branching. on: This node does not support point-to-multipoint branching. off: This node supports point-to-multipoint branches.
Admin status	Display the administrative status of the node. You can disable or enable a node by executing the **cnfpnni-node** command with appropriate parameters. up: The logical PNNI node is enabled. down: The logical PNNI node is disabled.
Operational status	Display the operational status of the node. The software determines the operational state, so you cannot configure it.
Non-transit for PGL election	Display whether transit is restricted across this node. This value is set by the software and is not user-configurable. on: Only calls that terminate on this node can access this node. off: Calls can transit this node.
Node id	For the constituents of the node ID, see the description of **addpnni-node** or **cnfpnni-node**. Before you change the node ID, disable the nod by executing **cnfpnni-node -enable false**. See description of **cnfpnni-node**.
ATM address	For the constituents of the ATM address, see the description of **addpnni-node** or **cnfpnni-node**. Before you change the ATM address, disable the nod by executing **cnfpnni-node -enable false**. See description of **cnfpnni-node**
Peer group id	Display the **-pgId** of length *level* that is assigned to the PNNI node. The peer group is the PNNI local group.The peer group consists of all PNNI nodes with matching *pg-id* values. The default value of *level* is 56 (7 bytes), which specifies the length of **-pgId** to 7 bytes. However, the maximum length of **-pgId** is 14 bytes, so display commands always display **-pgId** as 14 bytes with trailing zeros filling the undefined fields. If you increase the value of *level*, you change the length, and therefore the value, of **-pgId**, but it will always be displayed as 14 bytes. This is a 14-byte, formatted hexadecimal string. Like all PNNI addresses, identifiers, and prefixes, this value is portrayed as a string of hexadecimal “nibbles.” One or several pairs of nibbles entail each parameter field. (See Figure 2-11.)

Example

Display details about the current node. This example reflects a node in a single-peer group.

```
SanJose.7.PXM.a > dsppnni-node 1

node index: 1                       node name: SanJose
   Level..............        56     Lowest..............      true
   Restricted transit..       off     Complex node........       off
   Branching restricted        on
   Admin status........        up     Operational status..        up
   Non-transit for PGL election..       off
   Node id..............56:160:47.009181000000000309409f1f1.00309409f1f1.01
   ATM address...........47.009181000000000309409f1f1.00309409f1f1.01
   Peer group id.........56:47.00.9181.0000.0000.0000.0000.00

SanJose.7.PXM.a >
```

dsppnni-node-list

Display PNNI Nodes List—PXM45, PXM1E

The **dsppnni-node-list** command lists the PNNI nodes in the network attached to the current switch. For a single-peer group (SPG), the displayed nodes exist at one level. For a multi-peer group (MPG), the list contains all nodes on the current switch and all nodes that are visible to every node on the current switch. The display for an MPG shows an ascending order of nodes based on the node number. From the node list, you can create a graphical representation of the network. The display contains the following information for each node:

- The node number: all nodes in the network that are visible to the local node at a given level are identified by a unique number and stored in a list.
- The node ID is the 22 octet that uniquely identifies the node within the routing domain. See **addpnni-node** or **cnfpnni-node** for components of the node ID.
- The node level, also configured through either the **addpnni-node** or the **cnfpnni-node** command.
- Node name (results from **cnfname**).
- In a multi-peer group (MPG), the index number for nodes above the lowest level are added to the node name.

Note This display may not update frequently enough for you if you are configuring the network. You can change timers to update more frequently, but changing timers can have unexpected effects. Before you change any timers, discuss it with the TAC or your Cisco representative. The **dsppnni-link** command frequently updates a display of the address, link, and Hello packet information of each link.

Syntax

dsppnni-node-list

Syntax Description

This command takes no parameters.

Related Commands

addpnni-node, **cnfpnni-node, cnfname, dsppnni-path, dsppnni-reachable-addr**

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Display Contents for the dsppnni-node-list Command

This section describes the contents of a node list. It also describes how the display changes from one level of a hierarchy to a higher level. The description relates to the example of a multi-peer network diagram in Figure 2-14. Further, this diagram reflects the MPG display in the Example section. Linking the description here with the figure and the example clarifies not only the output of the **dsppnni-node-list** command but also MPGs in general. An example SPG list follows the MPG example.

node #	The node number (node #) is a reference to the nodes in the *network*—not a node in the hierarchy of an MPG on a switch (see the **dsppnni-node** description for details about *node index*). The entity that has this view and compiles this list of node numbers is a local logical node. The node numbers have a range of 1–256. Node # 1 is the logical node that is making its list of network nodes. In an MPG list, multiple instances of node # 1 appear because the logical node at each level sees itself as node # 1. Also, each node in a multi-peer group has information for nodes in its peer group but also for all nodes on the level of its parent, grandparent, and so on. See Figure 2-14 and the Example section. Whether a node belongs to a single-peer group or a multi-peer group, each logical node increments node # by 1 according to the sequence that it discovers other nodes. The paragraphs that follow this list give more details about the node number sequence for a multi-peer group. You can only view a node number in applicable displays or provide it as a command parameter. For example, you can provide a node number to the **dsppnni-path** command.
node id	The *node-id* consists of the level, the *length* of the ATM address, and the ATM address.
node name	The name of the *switch* (not the name of a *logical node*). The root of this node name results from the **cnfname** command. If a dash number follows the node number, that number is the node index that pertains to the hierarchy of nodes on the switch. For this command, a number is appended only for nodes above the lowest level on the switch.
level	The level is set through **addpnni-node** or **cnfpnni-node**. It has a range of 1–104 and a default of 56.

The paragraphs that follow describe the progression in node numbers, levels, and the node index appended to the switch name in an MPG network. Refer to Figure 2-15.

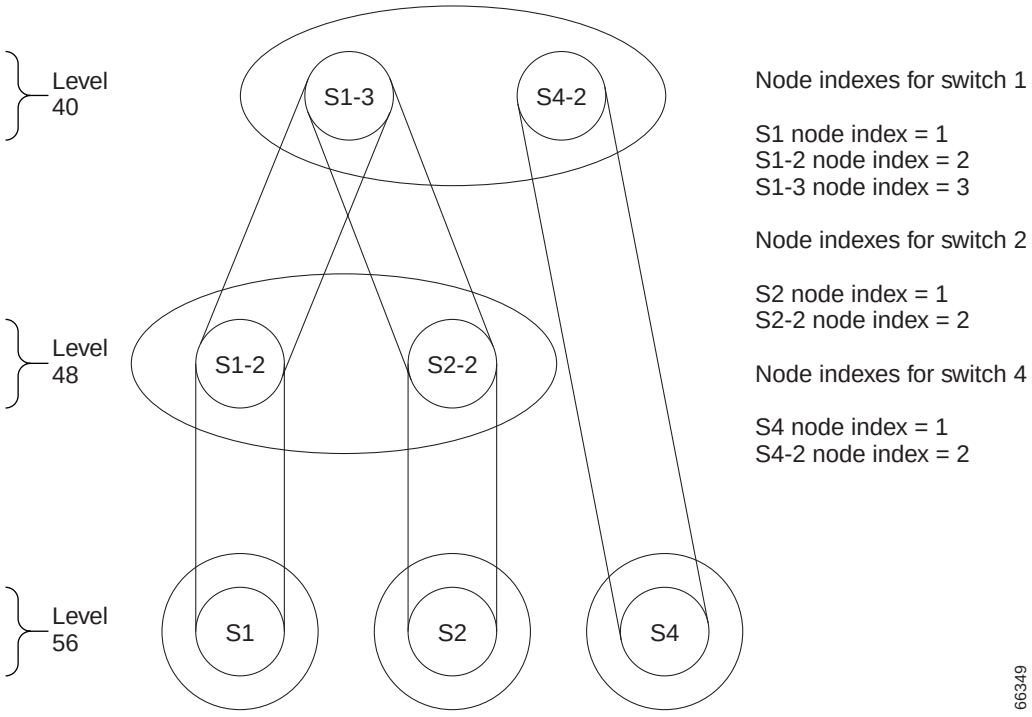
1. The display shows all network nodes that are known to the lowest level. These nodes consist of all nodes in the peer group, all nodes on the level of its parent node, all nodes on the level of its grandparent, and so on. The MPG shown in the Example section illustrates this concept.

   The numbers in the “node #” column begin with 1—which is the local node itself—then continues with the next learned node, and so on. The node# increases by 1 with each discovered node.

2. When the sequence re-starts with node # 1, the display has begun showing the view from the next higher node in the hierarchy. At this next higher level, node # 1 is the current node itself, which has made its own list of nodes. The display continues with peer group members of that level, the members of the parent’s group, the grandparent and members of the grandparent’s group, and so on. The MPG in the Example section illustrates this progression.

3. For levels *above* the lowest, the node index is appended to the name of the switch. See the node name column in the display for a multi-peer group in the Example section. For the definition of a node index, see the description of the **dsppnni-node** command.

Figure 2-14 Multi-Peer Group



Example of MPG

Display all network nodes that are known to the logical nodes on the current switch. This multi-per group is the basis of Figure 2-14. In fact, Figure 2-14 was constructed from this list. Note that node # 2 has been either disabled or deleted from the network.

The first graphical representation in this example is Figure 2-15. It illustrates where the view of a particular level begins and ends. As Figure 2-15 shows, the number of nodes visible at each higher level decreases. After acquiring a visual grasp of the **dsppnni-node-list** display, the screen capture that follows Figure 2-15 provides a more readable list to examine.

The first series of node numbers is node # 1 through node # 6 and is the list complied by the lowest level node. As reflected in Figure 2-14, mpglax1 is the only node in its peer group, so the first series shows only one node at level 56. The remainder of the nodes in the first series are the members at the level of its parent and grandparent, as Figure 2-14 illustrates. At the levels other than the lowest, the node index is appended to the switch name.

For the switch named mpglax4, only levels 56 and 40 were configured. Therefore, the display shows the last node name at level 40 of “mpglax4-02.”

Figure 2-15 A List of Nodes in a Multi-Peer Group

```
mpglax1.1.PXM.a > dsppnni-node-list

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    1   56:160:47.009181000000003071f80e4a.003071f80e4a.01 mpglax1        56

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    3   48:56:47.3391810000000000000000000.003071f80833.00  mpglax1-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    4   40:56:47.2291810000000000000000000.003071f80e52.00  mpglax4-02     40

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    5   40:48:47.5591810001000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    6   48:56:47.1191810000000000000000000.003071f80e56.00  mpglax2-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    1   48:56:47.3391810000000000000000000.003071f80833.00  mpglax1-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    2   40:48:47.5591810001000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    3   48:56:47.1191810000000000000000000.003071f80e56.00  mpglax2-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    4   40:56:47.2291810000000000000000000.003071f80e52.00  mpglax4-02     40

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    1   40:48:47.5591810001000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------- ---------- -------
    3   40:56:47.2291810000000000000000000.003071f80e52.00  mpglax4-02     40
```

View from mpglax level 56

View from mpglax-02 level 48

View from level 40

66348

```
mpglax1.1.PXM.a > dsppnni-node-list

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    1   56:160:47.009181000000003071f80e4a.003071f80e4a.01 mpglax1        56

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    3   48:56:47.33918100000000000000000000.003071f80833.00  mpglax1-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    4   40:56:47.22918100000000000000000000.003071f80e52.00  mpglax4-02     40

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    5   40:48:47.55918100010000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    6   48:56:47.11918100000000000000000000.003071f80e56.00  mpglax2-02     48

node #  node id                                                 node name    level

------- ------------------------------------------------------ ---------- -------
    1   48:56:47.33918100000000000000000000.003071f80833.00  mpglax1-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    2   40:48:47.55918100010000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    3   48:56:47.11918100000000000000000000.003071f80e56.00  mpglax2-02     48

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    4   40:56:47.22918100000000000000000000.003071f80e52.00  mpglax4-02     40

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    1   40:48:47.55918100010000000000000000.003071f80833.00  mpglax1-03     40

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    3   40:56:47.22918100000000000000000000.003071f80e52.00  mpglax4-02     40

mpglax1.1.PXM.a >
```

Example of SPG

Display the node list for a single-peer group. Note that the level for each node is 56.

```
Geneva.7.PXM.a > dsppnni-node-list

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    1   56:160:47.009181000000001029300121.001029300121.01 pswpop6        56

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    2   56:160:47.00918100000000c043002de1.00c043002de1.01 pswpop7        56

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    3 56:160:47.009181000000000000000000.001029300121.00  pswpop6-02     56

node #  node id                                                 node name    level
------- ------------------------------------------------------ ---------- -------
    4   56:160:47.00918100000000500ffde80b.00500ffde80b.01 orses18        56

Geneva.7.PXM.a >
```

dsppnni-path

Display PNNI Path—PXM45, PXM1E

The **dsppnni-path** command displays the pre-computed paths between the source (the current node) and the destination nodes. The system has determined these paths to be the best or optimal paths for various service classes according to one of three metrics. These metrics are the administrative weight (AW), the cell transfer delay (CTD), or the cell delay variation (CDV). The service class that each metric supports for the purpose of routing varies. For a list of metrics and service classes, see Table 2-16. For **dsppnni-path**, you must specify a combinations of routing metric and service class.

Table 2-16 Routing Criteria and Service Classes

Routing Metric	Applicable Service Classes
AW	CBR, ABR, UBR, rt-VBR, nrt-VBR
CTD	CBR, rt-VBR, nrt-VBR
CDV	CBR, rt-VBR

You can also specify a node index. If you specify a *node-index*, the command displays the paths from the source node to the node whose index you specify. To see a list of node indexes, execute **dsppnni-node-list**. (The **dsppnni-node-list** command displays network-level node indexes under the heading “node #.”)

Syntax

dsppnni-path
{**aw** {**cbr | rtvbr | nrtvbr | ubr | abr**} | **ctd** {**cbr | rtvbr | nrtvbr**} | **cdv** {**cbr | rtvbr**}} [*node-index*]

Syntax Description

Note The mandatory keywords in this command do not take the usual dash that many keywords require. If you include a dash in front of the keyword, the system rejects the command.

Note The optional *node-index* lets you select a specific node in the network whose path connectivity you want to see. The local node creates the node indexes (or node numbers) according to the sequence that it discovers its neighbors. You can only provide it as a command parameter or view it in applicable displays. Whether or not you specify *node-index*, the node indexes appear in the “node#” column. (Note that this node index or node# is not the node index that identifies a node within the hierarchy of a multiple-peer group. See **dsppnni-node** for details on the local node index.)

aw	Specify administrative weight as the routing metric. The possible service classes associated with AW are CBR, rt-VBR, nrtVBR, and UBR.
ctd	Specify cell transfer delay as the metric. The possible service classes are CBR, rt-VBR, or nrt-VBR.

cdv	Specify cell delay variation as the metric. The possible service classes are CBR and rt-VBR.
node-index	The node index is a number in the range 1–256 that uniquely identifies a switch within a PNNI network. This option lets you specify one destination switch to show connecting paths, otherwise the paths to all switches appear in the display. Range: 1–256 Default: 1

Display Contents

S or D	The S or D in the first column of the display shows whether the line pertains to the source (S) or begins one or more lines about the destination (D).
node #	The node number (node index) within the network. This node number is a unique identifier of the node within the network and appears as "node-index" in many displays. Range: 1–256
PortId	The PNNI logical port identifier in the form of a 32-bit number. Certain commands require the port ID in this format. To obtain the logical port ID from the physical port ID, use the **dsppnports** command. Range: 1–2147483648
node id	The node identifier (node ID) assigned to a PNNI node. The commands that specify the node ID are **addpnni-node** and **cnfpnni-node**. To see the node ID, use **dsppnni-node**.
node name	The name of the switch assigned by the **cnfname** command. This name appears in the CLI prompt.

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

The routing criteria for both examples is UBR service with routing metric AW. First, display the pre-computed paths between the current source and the node with index number 5. Thereafter, enter **dsppnni-path** but do not include an index number so the display shows all paths.

```
SanJose.7.PXM.a > dsppnni-path aw ubr 5
node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045505 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045506 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045507 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045508 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose
```

The example for all paths in the network with AW as the routing metric and UBR as the service class, the display is very large and so is truncated. Note that this display shows multiple paths to the source.

```
SanJose.7.PXM.a > dsppnni-path aw ubr
node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  2/         0 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  3/         0 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  3/         0 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  4/         0 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  17111041 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- -------------------------------------------------- ----------
D  4/         0 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  16848897 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose
```

```
node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  4/         0 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  16848897 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045505 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045506 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045507 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  5/         0 56:160:47.009181000000000309409f160.00309409f160.01 Chicago
S  1/  17045508 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose


node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  6/         0 56:160:47.009181000000000309409f2a3.00309409f2a3.01 Paris
   4/  17438721 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  17111041 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  6/         0 56:160:47.009181000000000309409f2a3.00309409f2a3.01 Paris
   4/  17438721 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  17111041 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  6/         0 56:160:47.009181000000000309409f2a3.00309409f2a3.01 Paris
   4/  17438721 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  16848897 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  6/         0 56:160:47.009181000000000309409f2a3.00309409f2a3.01 Paris
   4/  17438721 56:160:47.009181000000000309409f23c.00309409f23c.01 London
   3/  16848897 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose
```

```
node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  7/         0 56:160:47.00918100000000001a531c01.00001a531c01.01 LA
  11/  16848918 56:160:47.00918100000000001a531c83.00001a531c83.01 Jup-1
   3/  16848917 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  7/         0 56:160:47.00918100000000001a531c01.00001a531c01.01 LA
  11/  16848918 56:160:47.00918100000000001a531c83.00001a531c83.01 Jup-1
   3/  16848917 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17438721 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose

node #/PortId   node id                                                 node name
--------------- ------------------------------------------------------ ----------
D  8/         0 56:160:47.009181000000000309409f213.00309409f213.01 A4b
   7/  16848897 56:160:47.00918100000000001a531c01.00001a531c01.01 LA
  11/  16848918 56:160:47.00918100000000001a531c83.00001a531c83.01 Jup-1
   3/  16848917 56:160:47.00918100000000301a431c19.00301a431c19.01 Boston
   2/  17176577 56:160:47.009181000000000309409f2aa.00309409f2aa.01 Toroton
S  1/  17504257 56:160:47.009181000000000309409f1f1.00309409f1f1.01 SanJose


SanJose.7.PXM.a >
```

dsppnni-pkttrace

Display PNNI Packet Trace—PXM45, PXM1E

This command applies to debugging only.

The **dsppnni-pkttrace** command displays the packet-trace settings. These settings are configured by the **cnfpnni-pkttrace** command. You can use a packet trace to examine the contents of the PNNI Hello packets that are exchanged between two neighboring peers.

Note This command is very intrusive. If you execute it while the node carries live traffic, Cisco recommends that you specify one direction at a time for the trace.

Syntax

dsppnni-pkttrace <**rx** | **tx**> [*node-index* [-**portId** *port-id* | -**svcIndex** *svc-index*]]

Syntax Description

tx | **rx**	Select a direction for the trace to display. **tx**: transmit **rx**: receive
node-index	The node index indicates the relative level of the logical node within a multi-peer group on the switch. The range is 1–10, and the lowest level is 1.) Range: 1–10 Default: 1
-**portId**	The port ID in this instance has the format of the logical ID number. The format is a 32-bit encoded number in the range 1–2147483648. If you do not have the port ID in this form, use **dsppnport** and provide it with the common portID format of *slot*[:*subslot*].*port*[:*subport*}. The output of **dsppnport** shows the logical number for the port ID. Use this value is for the -**portID** parameter.
-**svcIndex**	An index of the switched virtual connection routing control channel (SVCC-RCC) packet trace. This parameter is meaningful only if you specify *node-index*. Default: None

Related Commands

cnfpnni-pkttrace

Attributes

Log: no State: active Privilege: CISCO_GP

Example

First, configure the following packet trace parameters through **cnfpnni-pkttrace**:

- The direction is transmit.
- The node index is 1.
- The port identifier is 17373186.

Next, check the packet trace you have configure by executing **dsppnni-pkttrace**.

```
Geneva.7.PXM.a > cnfpnni-pkttrace -tx 17373186
PNNI/tx_packet on port 17373186 at level 56
> 01:00010064  01010100  000038a0  47009181  00000000  309409f3  b8003094
> 02:09f3b801  47009181  00000000  309409f3  b8003094  09f3b801  38470091
> 03:81000000  00000000  000038a0  47009181  00000000  001a531c  2a00001a
.
.
.
Geneva.7.PXM.a > dsppnni-pkttrace tx 1 -portId 17373186

Node Index :1   Port id:        17504   Tx Pkt Trace on

Geneva.7.PXM.a >
```

dsppnni-ptse

Display PNNI Topology State Element—PXM45, PXM1E

The **dsppnni-ptse** command displays PNNI topology state elements (PTSEs). The purpose of this command is troubleshooting, and it requires familiarity with the ATM Forum PNNI 1.0 specification. Without knowledge of this specification, the usefulness of **dsppnni-ptse** is minimal.

PTSE Types

A node indicates its characteristics (such as all its ATM addresses) to all other nodes in the peer group by broadcasting numerous PTSEs. A node periodically sends (or *floods* the group with) PTSEs according to a user-specified timer but also floods the group with PTSEs when it triggers a change of topology. A typical topology change is an addition of an ATM address.

Each PTSE carries an indicator of what type of PTSE it is. This PTSE type appears as both a descriptive string and a number set by the ATM Forum. The section, "Display Contents for dsppnni-ptse" lists the contents of each information group identified by the PTSE type. Five basic types exist, and various subtypes exist. The basic types of PTSEs are:

1. Nodal information group
2. Internal reachable addresses
3. External reachable addresses
4. Horizontal links
5. Uplinks (multiple peer groups only)

Granularity of the Output

The optional parameters let you determine the granularity of the target of the command. The granularity ranges from the whole peer group to a specific logical port. Additionally, you can specify a "detailed" display or just the header information for PTSEs.

If you specify:

- Nothing, the display contains header information for all PTSEs for all logical nodes in the network.
- Only the *node-index*, the output contains all PTSEs sent from the node indicated by *node-index*.
- Only *node-index*, *node-id*, and *ptse-id*, the display shows the PTSE uniquely identified by these three parameters.
- A detailed display, the display contains information about the header and the contents of the PTSE and applies to all combinations of the other parameters.

Note The *node-index* is automatically generated. See description of **dsppnni-node-list**.

The *ptse-id* is generated by the node that sends the PTSE.

You can use **dsppnni-ptse** to trouble-shoot a faulty designated transit list (DTL). If a DTL is faulty, you can observe the PTSE of nodes on the designated path to confirm the accuracy of the information used to build the DTL. You can also use **dsppnni-ptse** to determine if nodes are correctly passing both the topology packets and the Hello packets.

Syntax

dsppnni-ptse [*node-index* [*node-id* [*ptse-id*]]]
[**-detail {true | false}**]

Syntax Description

Note The parameters *node-index*, *node-id*, and *ptse-id* are nested. Therefore, you cannot enter *node-id* without *node-index*, nor can you enter *ptse-id* without *node-index* and *node-id*.

node-index	A unique, network-wide node identifier. This system-generated number has a range of 1–256. Range: 1–256. Default: (no default)
node-id	The user-specified node ID. See **addpnni-node** or **cnfpnni-node** for a description. Default: (no specific node ID)
ptse-id	An integer that identifies a PTSE generated by a particular node. Regardless of the number of times a node sends a PTSE, this ID remains the same until a change to the topology occurs. For example, adding a ATM address to a node causes that node to generate a new PTSE and associated ID. The PTSE ID has a theoretical limit of a 32 bit number. However, the PTSE ID is likely to be a relatively small number.
-detail	Selects the amount of detail for the display. true: Display the contents of the PTSE as well as the header information. false: Display only the PTSE header. Default: false

Display Contents for dsppnni-ptse

This section describes basic information for each PTSE type. In addition, each variation of the command output contains the following header information.

node-index	This unique, network-wide node identifier is a switch-generated number in the range 1–256. If the network consists of a multi-peer group, the display shows the sequence of node numbers for the lowest level then starts the sequence at the next level.
originating node ID	The identifier of the node that broadcast the PTSE.
PTSE ID	The unique identifier of the PTSE. *ptse-id* is a 32 bit number index assigned by the PNNI node that created the PTSE.
PTSE type	The type of PTSE is an ASCII designated by the ATM forum PNNI standard. Broad and narrow categories.
Nodal State Parameter Information	
internal reachable ATM addresses	A list of reachable ATM addresses that are inside the peer group or network.
exterior reachable ATM addresses	A list of reachable ATM addresses that are outside the network.

PTSE length	The number of bytes in the PTSE—a 16-bit number.
sequence	The sequence of the PTSE—a 32-bit number.
checksum	The checksum error-checking value. A 16-bit hex number.
remaining lifetime	The length of the remaining lifetime (in seconds). 32-bit number.
details for IG	The flag that determines the level of details for information group (IG) if the **detail** option is enabled ("true").
Nodal Information Group Parameters	
type	The type of nodal information group (IG).
length	The length of the nodal IG PTSE. A 16-bit number.
ATM address	The upnode ATM address is a 20-byte, hexadecimal string. The upnode is the node at the other end of the uplink. It is the neighboring peer of the ancestor of the node from which the uplink originates.
priority	The value of the priority parameter, an 8-bit number.
nodal flags	The 8-bit nodal flags.
preferred PGL	A 22-byte hex string.
next higher level binding information IG type	The next higher level binding information IG type is an ASCII string.
next higher level binding information IG length	A 16-bit number.
parent LGN id	The parent LGN ID is a 22-byte hex string.
parent LGN ATM address	The parent LGN ATM address is a 20-byte, hex string.
parent PG id	The peer group ID (of length *level*) assigned to the parent PG. The peer group is the PNNI local group. The peer group consists of all PNNI nodes with matching **-pgId** values. Default: Figure 5-1 shows the factory-set default.
parent peer group PGL	This PGL identifier is a 22-byte hexadecimal string.
Nodal State IG Parameters	
type	The ASCII string that indicates the type of the IG nodal state parameters.
length	A 16-bit number.
flags	A string of 8-bit flags.
input port id	The logical identifier on the input interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
output port id	The logical PNNI identifier on the output interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
Internal Reachable ATM Address IG Parameters	
type	The ASCII string that indicates the type of the internal reachable ATM address IG parameters.
length	A 16-bit number.
flags	A string of 8-bit flags.

port id	The logical PNNI identifier on the interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
scope	The UNI 4.0 address scope. Range: 1–15, where: 1 = LocalNetwork 2 = LocalNetworkPlusOne 3 = LocalNetworkPlusTwo 4 = SiteMinusOne 5 = IntraSite 6 = SitePlusOne 7 = OrganizationMinusOne 8 = IntraOrganization 9 = OrganizationPlusOne 10 = CommunityMinusOne 11 = IntraCommunity 12 = CommunityPlusOne 13 = Regional 14 = InterRegional 15 = Global
address info length	The length of the address information—an eight-bit number.
address count	The number of reachable addresses—a 16-bit number.
reachable address prefixes	Display any PNNI summary address reachable by the node. The length of addressprefix is set by *prefixlength*.
External Reachable ATM Address IG Parameters	
type	The ASCII string that indicates the type of the exterior reachable ATM address IG parameters.
length	A 16-bit number.
flags	A string of 8-bit flags.
port id	The logical port number of the PNNI port. This format is a 32-bit number. Range: 1–2147483648
scope	An 8-bit number.
address info length	An 8-bit number.
address count	A 16-bit number.
reachable address prefixes	Display any exterior PNNI summary address reachable by the node. The length of addressprefix is set by *prefixlength*.
Horizontal Links IG Parameters	
type	The ASCII string that indicates the type of the horizontal link IG parameters.
length	A 16-bit number.
flags	A string of 8-bit flags.
remote node id	The node ID of the remote node. For a description of the node ID, see the description for **addpnni-node** or **cnfpnni-node**.

remote port id	The logical PNNI identifier on the remote interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
local port id	The logical PNNI identifier on the local interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
aggregation token	See the description of the **cnfpnni-intf** command for a definition of an aggregation token. Range: 1–32
Uplink IG Parameters	
type	The ASCII string that indicates the type of up link IG parameters.
length	A 16-bit number.
flags	A string of 8-bit flags.
remote higher level node id	The PNNI node identifier assigned to a PNNI node.
common pg id	The peer group ID (of length *level*) that assigned to the PNNI common PG. This peer group is the local peer group. Default: Figure 5-1 shows the factory-set default.
local port id	The logical PNNI identifier on the interface. For details, see the section, "PNNI Format," in Chapter 1, "Introduction." Range: 1–2147483648
aggregation token	Range: 1–2147483648.
upnode ATM address	The ATM address of the PNNI uplink node. The upnode ATM address is a 20-byte, hexadecimal string. The upnode is the node at the other end of the uplink. It is the neighboring peer of the ancestor of the node from which the uplink originates. Default: None
Resource Availability IG Parameters	
type	Indication of bi-directional resource availability information group (RAIG)
length	A 16-bit number.
flags	A 16-bit number.
aw	The bandwidth used by AW metric cells in cells per second. Range: 1–2147483648.
ctd	The bandwidth used by CTD metric cells in cells per second. Range: 1–2147483648.
cdv	The bandwidth used by CDV metric cells in cells per second. Range: 1–2147483648.
mcr	The bandwidth used by MCR metric cells in cells per second. Range: 1–2147483648.
acr	The bandwidth used by ACR metric cells in cells per second. Range: 1–2147483648.

clr0	The bandwidth used by CLR0 metric cells in cells per second. Range: 1–2147483648.
clr0+1	The bandwidth used by CLR0+1 metric cells in cells per second. Range: 1–2147483648.
Generic Connection Admission Control (GCAC) IG	
type	The ASCII string that indicates the type of GCAC IG parameters.
length	A 16-bit number.
crm	The cell rate margin (CRM) is a measure of the difference between the effective bandwidth allocation and the allocation for sustainable cell rate. It is a safety margin allocated above the aggregate sustainable cell rate for nrt-VBR and rt-VBR. This feature has little impact on traffic management. The ATM Forum does require support for CRM, and Cisco Systems currently does not support it on the Cisco MGX 8850, MGX 8950, and SES products. Range: 1–2147483648.
vf	The variance factor (VF) is a relative measure of the square of the cell rate margin (CRM) normalized by the variance of the sum of the cell rates of all existing connections. VF applies to nrt-VBR and rt-VBR, but it has little impact on traffic management. The ATM Forum does require support for VF, and Cisco Systems currently does not support it on the Cisco MGX 8850, MGX 8950, and SES products. Range: 1–2147483648.

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Enter the command with no parameters, so all information about every node on the switch appears.

```
Geneva.7.PXM.a > dsppnni-ptse -detail true
node index: 1
originating node name: Krishna
originating node id: 56:160:47.0091810000000000c0326496.0000c0326496.00
Type................ 64 Length.............. 1200
Sequence number..... 1 Checksum............ 94d
PTSE id............. 1 Remaining lifetime.. 2997
PTSE type........... Nodal Info( 97)
Type................ 97 Length.............. 65
Priority............ 0 Flags............... f8
ATM addr.............47.0091810000000000c0326496.0000c0326496.00
Pref PGL id...........0:0:00.000000000000000000000000.000000000000.00
binding info: Type 192, Length 76
next level LGN node id. 48:56:47.009181000000000000000000.0000c0326496.00
next level LGN ATM addr 47.0091810000000000c0326496.0000c0326496.30
next level LGN PG id... 30:47.00.9181.0000.0000.0000.0000.00
next level LGN PGL id.. 30:48:56:47.009181000000000000000000.0000c0326496.00
node index: 1
originating node name: Liz
originating node id: 56:160:47.0091810000000000c0326496.0000c0326496.00
Type................ 64 Length.............. 1200
Sequence number..... 1 Checksum............ 94d
PTSE id............. 2 Remaining lifetime.. 2997
PTSE type........... Nodal State Parameter( 96)
Type................ 96 Length.............. 65
Reserved............ 0 Flags............... 0
Input port id....... 48 Output port id...... 12
```

For the second example, specify the following parameters:

- The *node-index* is 1.
- The *node-id* is 56:160:47.00918100000000107b65f27c.00107b65f27c.01.
- The PTSE ID is 28.

Display the PTSEs for node index 2. After listing the PTSEs, display details for PTSE 19.

Note The presence of the colons in the node ID are required, but the periods are optional.

```
M8850_NY.7.PXM.a > dsppnni-ptse 2

node index: 2
originating node name: M8850_NY-02
originating node id: 48:56:47.009181000002000000000000.00036b5e30cd.00
   Type.................        64     Length..............        96
   Sequence number.....       155     Checksum............      689b
   PTSE id.............         1     Remaining lifetime..      3224
   PTSE type...........  Nodal Info( 97)

node index: 2
originating node name: M8850_NY-02
originating node id: 48:56:47.009181000002000000000000.00036b5e30cd.00
   Type.................        64     Length..............        44
   Sequence number.....       153     Checksum............      d7fd
   PTSE id.............        18     Remaining lifetime..      3224
   PTSE type...........  Int Reach Addr(224)

node index: 2
originating node name: M8850_NY-02
originating node id: 48:56:47.009181000002000000000000.00036b5e30cd.00

Type.................        64     Length..............        52
   Sequence number.....       152     Checksum............       bba
   PTSE id.............        19     Remaining lifetime..      3224
   PTSE type...........  Int Reach Addr(224)
```

As directed at the beginning of this example, display details for PTSE 19.

```
M8850_NY.7.PXM.a > dsppnni-ptse 2 48:56:4700918100000200000000000000036b5e30cd00 19
-detail true

node index: 2
originating node name: M8850_NY-02
originating node id: 48:56:47.009181000002000000000000.00036b5e30cd.00
   Type.................        64     Length..............        52
   Sequence number.....       152     Checksum............       bba
   PTSE id.............        19     Remaining lifetime..      2389
   PTSE type...........  Int Reach Addr(224)

   Type.................       224     Length..............        32
   Reserved............         0     Flags...............      8000
   Port id.............         1     Scope...............         0
   Ail.................        14     Aic.................         1
   prefix..............47.0091.8100.0000.0003.6b5e.30cd./104
```

dsppnni-reachable-addr

Display PNNI Reachable Addresses—PXM45, PXM1E

This command displays all the reachable addresses and address prefixes in the peer group. For a description of the items in the display, refer to the section, "Display Contents for dsppnni-reachable-addr." The display granularity depends on your parameter choice:

- If you enter **local**, the display shows the port ID and the addresses directly attached to the local node.
- If you enter **network**, the display shows the advertising node ID, the addresses advertised by other nodes, and the routing parameters for each reachable node.

Note The display may not update frequently enough if you are configuring the network. You can change timers to update more frequently, but changing timers can have unexpected effects. Before you modify a timer, discuss it with the TAC or your Cisco representative.

Syntax

dsppnni-reachable-addr <local | network>

Syntax Description

local | **network**	Determine whether the display shows the addresses of nodes that directly connect to this switch or all nodes in the peer group. Local: directly connected switches Network: all reachable nodes in the peer group Default: (no default)

Display Contents for dsppnni-reachable-addr

The table contains all reachable addresses within a peer group comes from the internal data base (IDB).

scope	**Note** The UNI 4.0 address scope. Refer to ATM forum documentation for a description of these scopes. Range: 1–15, where: 1 = LocalNetwork 2 = LocalNetworkPlusOne 3 = LocalNetworkPlusTwo 4 = SiteMinusOne 5 = IntraSite 6 = SitePlusOne 7 = OrganizationMinusOne 8 = IntraOrganization 9 = OrganizationPlusOne 10 = CommunityMinusOne 11 = IntraCommunity 12 = CommunityPlusOne 13 = Regional 14 = InterRegional 15 = Global
port id	The logical port identifier.
Exterior	The flag that indicates whether the node is an interior or exterior node. true: the node is an exterior node. false: the node is an interior node.
ATM addr prefix	The PNNI summary address assigned to the node.
node name	The name of the switch results from the **cnfname** command and appears in the CLI prompt.
Advertising node number	The number of the remote node that has advertised information to the current node. This number has a range of 1–256 and appears only if you specified the **network** argument. The local node generates the node numbers in the sequence that it discovers its neighbors. You can only provide it as a command parameter or view it in applicable displays. (Note that this node index or node number is not the node index that identifies a node within the hierarchy of a multiple-peer group. See **dsppnni-node** for details on the local node index.)
Transit Network ID	The transit network ID identifies a network where connections from the current node do not terminate.This number applies to static addresses only. The application of this option depends on the design intent of the user. The ID can have up to four IA5 characters (IA5 is a superset of the ASCII character set).

Related Commands

dsppnni-link

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Display the reachable addresses that directly connect to this node: the parameter is **local**.

```
Geneva.7.PXM.a > dsppnni-reachable-addr local

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010b.180b/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010b.1816/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010b.1820/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010b.1821/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010d.1820/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010d.1821/152

scope..............         0     port id.............4294967295
Exterior............     false
ATM addr prefix.....47.0091.8100.0000.0030.ff0f.ef38.0000.010d.1822/152
```

Display all the addresses and address prefixes that are reachable from this node, and display the routing parameters for each reachable node in each direction.

```
Geneva.7.PXM.a > dsppnni-reachable-addr network

scope..............          0     Advertising node number        13
Exterior.............     false
ATM addr prefix.....47.0091.8100.0000.0010.7b65.f27c/104
Advertising nodeid..56:160:47.009181000000000309409f13f.00309409f13f.01
Node name...........Moscow
                        forward direction
           CBR    RTVBR   NRTVBR      ABR      UBR
         ------   ------   ------   ------   ------
AW         5040     5040     5040     5040     5040
MaxCR    351500   351500   351500   351500   351500
AvCR     290935   290935   290935   290935   290935
CTD          41       41       41      n/a      n/a
CDV          10       10      n/a      n/a      n/a
CLR0         10        8        6      n/a      n/a
CLR0+1        8        8        8      n/a      n/a
CRM         n/a      n/a      n/a      n/a      n/a
VF          n/a      n/a      n/a      n/a      n/a

                        backward direction
           CBR    RTVBR   NRTVBR      ABR      UBR
         ------   ------   ------   ------   ------
AW         5040     5040     5040     5040     5040
MaxCR    351500   351500   351500   351500   351500
AvCR     290935   290935   290935   290935   290935
CTD          41       41       41      n/a      n/a
CDV          10       10      n/a      n/a      n/a
CLR0         10        8        6      n/a      n/a
CLR0+1        8        8        8      n/a      n/a
CRM         n/a      n/a      n/a      n/a      n/a
VF          n/a      n/a      n/a      n/a      n/a

scope..............          0     Advertising node number         8
Exterior.............     false
ATM addr prefix.....47.0091.8100.0000.0010.7b65.f27c/104
Advertising nodeid..56:160:47.00918100000000107b65f27c.00107b65f27c.01
Node name...........Paris


scope..............          0     Advertising node number         8
Exterior.............      true
ATM addr prefix.....47.0091.8100.0000.0030.9409.f13f/104
Advertising nodeid..56:160:47.00918100000000107b65f27c.00107b65f27c.01
Node name...........Paris

                        forward direction
           CBR    RTVBR   NRTVBR      ABR      UBR
         ------   ------   ------   ------   ------
AW         5040     5040     5040     5040     5040
MaxCR    351500   351500   351500   351500   351500
AvCR     290935   290935   290935   290935   290935
CTD          41       41       41      n/a      n/a
CDV          10       10      n/a      n/a      n/a
CLR0         10        8        6      n/a      n/a
CLR0+1        8        8        8      n/a      n/a
CRM         n/a      n/a      n/a      n/a      n/a
VF          n/a      n/a      n/a      n/a      n/a
```

```
                        backward direction
            CBR     RTVBR    NRTVBR       ABR       UBR
          ------   ------   ------   ------   ------
AW         5040     5040     5040     5040     5040
MaxCR    351500   351500   351500   351500   351500
AvCR     290935   290935   290935   290935   290935
CTD          41       41       41      n/a      n/a
CDV          10       10      n/a      n/a      n/a
CLR0         10        8        6      n/a      n/a
CLR0+1        8        8        8      n/a      n/a
CRM         n/a      n/a      n/a      n/a      n/a
VF          n/a      n/a      n/a      n/a      n/a

Geneva.7.PXM.a >
```

dsppnni-routing-policy

Display PNNI Routing Policy—PXM45, PXM1E

The **dsppnni-routing-policy** command displays the parameters associated with the current routing policy for this node. The displayed parameters determine:

- The tolerance of cost-calculations.
- The frequency of routing table generation.
- The type of load balancing that is specified.
- The type of on-demand routing that is specified.
- The type of administration weight table that is enabled.

Caution You can change the routing policies to optimize PNNI routing for your network, but incorrect routing policies can cripple or even crash a network. You should not change routing policies on a live network. Use this command only after careful planning.

Syntax

dsppnni-routing-policy

Syntax Description

This command takes no parameters.

Display Contents

This section lists the displayed information for each node. The display shows the configuration that results from **cnfpnni-routing-policy**.

SPT epsilon	This parameter is meaningful primarily for crankback. The *epsilon* you supply specifies a tolerance in the form of a percent that can influence which paths qualify as equal-cost during route calculation. A higher tolerance results in a broader range of path cost-values that can qualify as equal-cost. If two paths have very similar administrative weights (AWs), a large enough tolerance eliminates equal-cost as a routing factor because the routing algorithm regards the costs as equal. The range of 0–20 for this parameter comes from the ATM Forum PNNI specification. However, the percent of tolerance that the numbers dictate is determined by individual vendors. Cisco Systems currently maps the following percentages on a switch: 0: the total AWs along both directions of the path must be identical. 1-2: the total AWs along both directions of the path must be within 1.06% 3-4: the total AWs along both directions of the path must be within 3.125% 5-9: the total AWs along both directions of the path must be within 6.25% 10-15: the total AWs along both directions of the path must be within 12.5% 16-20: the total AWs along both directions of the path must be within 25.0% Range: 0–20 Default: 0, so only identical path-cost values qualify as equal-cost
Load balance	A load balancing rule applies when alternative, equal-cost routes exist for a given call request. The characteristics of the possible rules (“random” and “maxbw”) are as follows: random: requires the least overhead due to minimal calculation. The random rule is best when the possible paths have similar available bandwidth. maxbw: requires the most overhead due to ongoing comparison of available bandwidth on paths. The maxbw rule is best when the possible paths have dissimilar or fluctuating bandwidth.
SPT holddown time	The minimum time between consecutive generation of routing tables. Range: 1–600 seconds (default is 1 second)
On demand routing	The current rule for on-demand routing is *firstfit* or *bestfit*. The firstfit routing policy selects the first route found that goes to the destination. The time for finding a route is the least possible, but the optimal route may not be selected. The bestfit policy selects a route based on: • The least-cost route, where the sum of all administrative weights in both directions of the route must be less than *maxCost*. • Link verification. • Path constraint checks. • Avoidance of blocked nodes and links. • Checking limits in the designated transit list (DTL).

SPT path holddown time	The minimum number of seconds between consecutive calculations of routing tables for border nodes. Range: 2–600 seconds Default: 2
AW Background Table	The flag that enables or disables administrative weight (AW) for the background routing table. The AW is the cost to traffic that traverses that path. The metric AW can be specified on the interface and by the service class (or QoS class), and it is associated with each link. AW is a defining factor when routes are selected. The AW parameters influence how PNNI selects paths in the peer group, and therefore how it distributes each SVC and SPVC. PNNI route selection can also key on AW to exclude certain links from routing, such as defining a backup link for use only when there is no available bandwidth on the primary link. The AW for a path is the sum of all AWs at each port egress for both directions on the path.
CTD Background Table	The flag that enables or disables cell transfer delay (CTD) for the background routing table. CTD is the time interval between a cell exiting source node and entering the destination node.
CDV Background Table	The flag that enables or disables cell delay variation (CDV) for the background routing table. CDV is a component of cell transfer delay, and is a quality of service (QoS) delay parameter associated with CBR and VBR service. Cell Delay Variation is the variation of delay between cells, measured peak to peak.

Related Commands

cnfpnni-routing-policy

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the parameters associated with the current routing policy for this node.

```
Geneva.7.PXM.a > dsppnni-routing-policy

   SPT epsilon.........          0     Load balance........    random
   SPT holddown time...          1     On demand routing...  best fit
   SPT path holddown time        2     AW Background Table         on
   CTD Background Table         on     CDV Background Table        on

Geneva.7.PXM.a >
```

dsppnni-scope-map

Display Scope Map—PXM45, PXM1E

The **dsppnni-scope-map** command displays the table that maps UNI 4.0 scope to PNNI hierarchy level.

Syntax

dsppnni-scope-map

Objects Displayed:

Displays the entire scope map table.

1 = LocalNetwork
2 = LocalNetworkPlusOne
3 = LocalNetworkPlusTwo
4 = SiteMinusOne
5 = IntraSite
6 = SitePlusOne
7 = OrganizationMinusOne
8 = IntraOrganization
9 = OrganizationPlusOne
10 = CommunityMinusOne
11 = IntraCommunity
12 = CommunityPlusOne
13 = Regional
14 = InterRegional
15 = Global

Related Commands

cnfpnni-scope-map

Attributes

Log: no State: active Privilege: ANYUSER

Example

This example shows the **dsppnni-scope-map** command line that displays the scope map table if UNI 4.0 is supported.

```
Geneva.7.PXM.a > dsppnni-scope-map

UNI  Scope                 Pnni Routing Level
-----------------------    ------------------
LocalNetwork(1)                            56
LocalNetworkPlusOne(2)                     56
LocalNetworkPlusTwo(3)                     56
SiteMinusOne(4)                            40
IntraSite(5)                               40
SitePlusOne(6)                             32
OrganizationMinusOne(7)                    32
IntraOrganization(8)                       24
OrganizationPlusOne(9)                     24
CommunityMinusOne(10)                      24
IntraCommunity(11)                          8
CommunityPlusOne(12)                        8
Regional(13)                                0
InterRegional(14)                           0
Global(15)                                  0

Geneva.7.PXM.a >
```

dsppnni-spoke

Display PNNI Spoke—PXM45, PXM1E

Note This debugging command does not apply to single-peer groups.

The **dsppnni-spoke** command displays how the UNI 4.0 address scope values map to the PNNI hierarchal levels. It displays the PNNI default spoke for a logical group node (LGN) using complex node representation in a given peer group (PG). The spoke is the conceptual "radius" of the peer group. The spoke values are based on averaging the administrate weights (AWs) of all border node paths then dividing that average by 2.

If a logical path is not included in the bypass table, the spoke values can be used to select which peer group a route transits. The PG with the lowest spoke AW is the lowest cost PG and therefore the best path to use (based on AW).

Syntax

dsppnni-spoke <*node-id*>

Syntax Description

node-id	The node identifier of a PNNI logical node can be user-assigned by **addpnni-node** or **cnfpnni-node** but also comes as a factory-assigned default. Default: (the factory-set default)

Display Contents

The following parameters are displayed for each node.

nodal aggregation method	The ASCII string of the active aggregation method. The method is full-meshed or spanning tree.
ptse-id	The unique identifier for the PTSE. *ptse-id* is assigned by the PNNI node that created the PTSE.
node-index	The *node-index* is the local node index and has a range of 1–10. Range: 1–10.
AW-NRTVBR	The administrative weight for nrt-VBR connections on this interface. Range: 0–4,194,304
AW-CBR	The administrative weight for CBR connections on this interface. While a CBR connection is active, this option limits its bit rate to a static value that remains available until the connection is torn down. The bit rate is characterized by the peak cell rate (PCR) value. Range: 0–4,194,304

AW-ABR	The administrative weight for available bit rate (ABR) connections on this interface. Specify the 24 bit number AW for ABR on this interface. Range: 0–4,194,304
AW-RTVBR	The administrative weight for rt-VBR connections on this interface. Range: 0–4,194,304
AW-UBR	The administrative weight used for unspecified bit rate (UBR) connections. This category includes switched virtual connection (SVC) ping connections. Range: 0–4,194,304

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the spoke mapping for LGN 56:160:47.009181000000000309409f1f1.00309409f1f1.0.

```
SanJose.7.PXM.a > dsppnni-spoke 56:160:47.009181000000000309409f1f1.00309409f1f1.0
node index: 1
  Ptse id ............      948      Flags.............. a3
  Nodal aggregation method.. spanning tree

           CBR    RTVBR   NRTVBR      ABR      UBR
        ------   ------   ------   ------   ------
AW        5040     5040     5040     5040     5040
MCR          0        0        0        0        0
AvCR    100000   100000   100000   100000   100000
CTD          0        0        0        0        0
CDV          0        0        0        0        0
CLR          0        0        0        0        0 0
CLR0+1       0        0        0        0        0
CRM         10       10       10       10       10
VF           5        5        5        5        5

SanJose.7.PXM.a >
```

dsppnni-summary-addr

Display PNNI Summary Address—PXM45, PXM1E

The **dsppnni-summary-addr** command displays all summary addresses at the specified degree of granularity.

- If you specify *node-index*, the command displays the PNNI summary addresses of the *node-index* PNNI node.
- If you do not specify *node-index*, the command displays PNNI summary addresses for all local nodes on network.

Use **addpnni-summary-addr** to create a new summary addresses or to configure an existing one.

Syntax

dsppnni-summary-addr [*node-index*]

Syntax Description

node-index	Specify the system-generated identifier of a logical node within a hierarchy. Range: 1–10 Default: 1

Display Contents

node index	The number of the node within the hierarchy on this switch. The range for a multi-peer group is 1–10. For a single-peer group, the only node index is 1.
Type	Display the value of the argument -**type**—whether the kind of PNNI summary address is internal or external. internal: This PNNI summary address includes only addresses that are within the peer group. exterior: This PNNI summary address includes addresses that are outside of the peer group.
Suppress	Display the value of the argument -**suppress—**whether the node PNNI summary address is advertised or suppressed. false: The PNNI summary address is advertised (is not suppressed). true: The PNNI summary address is not advertised (is suppressed).
State	This system-generated ASCII string indicates the advertisement state. Possible states: “advertising,” “notadvertised,” or “inactive”
Summary address	The ATM PNNI summary address assigned to the network. The default is a combination of the peer group id appended with the switch MAC address.
prefixlength	The length of the summary *address-prefix* in number of bits, equal or less than 152 bits. In the current release, the zero-length PNNI summary address is not supported.

Related Commands

addpnni-summary-addr, **delpnni-summary-addr**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the PNNI address prefixes. This command line does not specify *node-index*, so the output contains all PNNI summary addresses in the peer group rather than a specific node. In this case, only a single peer group exists.

```
Geneva.7.PXM.a > dsppnni-summary-addr

node index: 1
   Type.............    internal     Suppress.............   false
   State.............. advertising
   Summary address........47.0091.8100.0000.0030.ff0f.ef38/104

node index: 1
   Type.............    internal     Suppress.............   false
   State.............    inactive
   Summary address........47.0091.8100.0000.0010.7b65.f260/104

Geneva.7.PXM.a >
```

dsppnni-svcc-rcc

Display PNNI Switched Virtual Connection Routing Control Channel—PXM45, PXM1E

The **dsppnni-svcc-rcc** command displays the SVCC-RCC connection and packet values.

If you specify:

- Both *node-index* and *svc-index*, the display shows information about an SVCC-based RCC.
- Only *node-index*, the display shows all SVC-based RCCs attached to the *svc-index* node.
- Nothing, the display shows all SVC-based RCCs attached to all PNNI nodes in the network.

Syntax

dsppnni-svcc-rcc [*node-index* [*svc-index*]]

Syntax Description

node-index	This system-generated indicates the relative position of a logical node within a hierarchy. It has a range of 1–10. For a single-peer group, the only value for *node-index* is 1 Range: 1–10 Default: 1
svc-index	PNNI uses the SVC index as a reference to the horizontal link (H-link) between the levels in a multi-peer group. An SVC serves as the connection for an H-link.

Display Contents

The **dsppnni-svcc-rcc** command displays node, Hello packet, and SVC information for each RCC.

Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display SVC-based RCCs.

```
Geneva.7.PXM.a > dsppnni-svcc-rcc
node index: 1 svc index: 33
Hello pkt RX........ 34 SVCC VPI............ 34
Hello pkt TX........ 34 SVCC VCI............ 128
Hello state........... 2wayOutside
Remote node id.........56:160:39.840f80113744000000400202.00107b0efe01.00
Remote node ATM addr...39:840f.8011.3744.0000.0040.0102.4000.0c80.8030.00
node index: 2 svc index: 33
Hello pkt RX........ 34 SVCC VPI............ 34
Hello pkt TX........ 34 SVCC VCI............ 128
Hello state............2wayOutside
Remote node id.........56:160:39.840f80113744000000400202.00107b0efe01.00
Remote node ATM addr...39:840f.8011.3744.0000.0040.0102.4000.0c80.8030.00

Geneva.7.PXM.a >

mpgses1.2.PXM.a > dsppnni-svcc-rcc

node index: 2                       svc index: 1
   Hello pkt RX........        68     SVCC VPI............         1
   Hello pkt TX........        67     SVCC VCI............        35
   Hello state............twoWayInside
   Remote node id.........48:56:47.009181000000000000000022.003071f80e56.00
   Remote node ATM addr...47.009181000000003071f80e56.003071f80e56.02


node index: 3                       svc index: 2
   Hello pkt RX........        57     SVCC VPI............         1
   Hello pkt TX........        54     SVCC VCI............        36
   Hello state............twoWayInside
   Remote node id.........40:56:47.009181000000000000000033.003071f80e52.00
   Remote node ATM addr...47.009181000000003071f80e52.003071f80e52.02
```

dsppnni-svcc-rcc-timer

Display PNNI Switched Virtual Connection Routing Control Channel Timer Values—PXM45, PXM1E

The **dsppnni-svcc-rcc-timer** command displays the SVCC-RCC timer values that are set by the **cnfpnni-svcc-rcc-timer** command.

Note This command applies to multi-peer groups only.

If you specify *node-index*, the command displays the SVCC-based Routing Control Channel (RCC) timer values of the *node-index* PNNI node.

Syntax

dsppnni-svcc-rcc-timer [*node-index*]

Syntax Description

node-index	Specify the node identifier in the range 1–10. Range: 1–10 Default: 1

Display Contents

The following parameters are displayed for each node.

node-index	The local node identifier within the hierarchy. The range is 1–10. Range: 1–10
Init time	Display the value of -**initTime**—the interval (in sec) that this node delays advertising its choice of a preferred SVCC to a neighbor with a numerically lower ATM address, The interval begins when the SVCC is established. Range: 1–10
Retry time	Displays the interval (in sec) this node will delay after an apparently necessary and viable SVCC-based RCC is unexpectedly torn down, before attempting to re-establish it. Range: 10–60

Calling party integrity time	Display the value of **callingIntegrityTime**, which limits wait times for establishing an SVCC as a called party. After the node has decided to accept an SVCC as the called party, the **calledIntegrityTime** variable specifies the interval (in sec) that this node will wait for an SVCC to become fully established before giving up and tearing down the connection. Range: 5–300
Called party integrity time	Display the value of **calledIntegrityTime**, which limits wait times for establishing an SVCC as a called party. After the node has decided to accept an SVCC as the called party, the **calledIntegrityTime** variable specifies the interval (in sec) that this node will wait for an SVCC to become fully established before giving up and tearing down the connection. Range: 10–300

Related Commands

dsppnni-svcc-rcc-timer

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Show any SVCC-based RCC timer values (enter the command without a specific node index).

```
Geneva.7.PXM.a > dsppnni-svcc-rcc-timer
node index: 1
Init time.............. 4 Retry time.............. 35
Calling party integrity time... 35
Called party integrity time.... 50

Geneva.7.PXM.a >
```

dsppnni-timer

Display PNNI Timer—PXM45, PXM1E

The **dsppnni-timer** command displays the nodal timer values configured through the **cnfpnni-timer** command. If you provide a node index with the command, the output contains information for that particular node rather than all logical nodes on the switch.

Syntax

dsppnni-timer [*node-index*]

Syntax Description

node-index	The node index indicates the relative position of the logical node within a multi-peer group on the switch. The range is 1–10, and the lowest level is 1. If you do not have the node index, use **dsppnni-node** to see a list of all logical nodes and node indexes on the current switch. Range: 1–10 Default: 1

Display Contents

The display contains the following information for each node. Except for the node index, you can configure all values through the **cnfpnni-time**r command.

node index	The relative position of the local node on the switch.
Hello holddown	The initial value for the Hello hold down timer is the time a node waits to send Hello packets. Units: 100 milliseconds (1 = 0.1 seconds)
PTSE holddown	The time the node waits to broadcast PNNI topology statement elements (PTSEs).
Hello int	The initial time in millisecond-increments that the node uses to limit the rate of at which it transmits Hello packets. Units: 100 milliseconds (1 = 0.1 seconds)
PTSE refresh int	The *initial* number of seconds allowed for the PTSE to re-originate.
Hello inactivity factor	The *Hello inactivity factor* figures in the generation of a time period that a neighbor is considered alive after the local receives the last Hello packet from that neighbor. This period is in seconds and is the product of the *hello-inactivity-factor* and the peer-neighbor *hello-interval*.
PTSE lifetime factor	The value for the lifetime multiplier is a percentage. The switch uses it to generate the initial value for the remaining lifetime of a self-created PTSE. This remaining lifetime is the product of the *PTSE lifetime factor* and the *PTSE-refresh-interval*.
Retransmit int	The number of seconds between re-transmissions of unacknowledged DS, PTSE request, and PTSP.
AvCR proportional PM	The proportional multiplier is a percent that used in the algorithms that determine significant change for AvCR parameters.

CDV PM multiplier	The proportional multiplier is a percent that is used in the algorithms that determine significant change for peak-to-peak cell delay variation (CDV).
AvCR minimum threshold	The minimum threshold is a percent that is used in the algorithms that determine significant change for AvCR parameters.
CTD PM multiplier	This proportional multiplier is a percent that is used in the algorithms that determine significant change for cell transfer delay (CTD) parameters.
Peer delayed ack int	The minimum interval between transmissions of delayed PTSE acknowledgment packets appears as 100-millisecond increments. Units: 100 ms.
Logical horizontal link inactivity time	The value of **-horizontalLinkInactivityTime**.

Related Commands

cnfpnni-timer

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display PNNI timer values. Since the value of *node-index* = 1, the command line displays the PNNI timer values for only node 1.

```
SanJose.7.PXM.a > dsppnni-timer 1
node index: 1
Hello holddown(100ms)... 120 PTSE holddown(100ms)... 120
Hello int(sec).......... 15 PTSE refresh int(sec).. 1800
Hello inactivity factor. 5 PTSE lifetime factor... 200
Retransmit int(sec)..... 5
AvCR proportional PM.... 3 CDV PM multiplier...... 25
AvCR minimum threshold.. 50 CTD PM multiplier...... 50
Peer delayed ack int(100ms)................... 10
Logical horizontal link inactivity time(sec).. 10

Geneva.7.PXM.a >
```

dsppnport

Display PNNI Port—PXM45, PXM1E

The **dsppnport** command shows dynamic, operational data rather than just the configuration data you would see by using the **dspport** command on the CLI of a service module.

- Physical and logical port identifiers (some commands require logical port ID for input)
- Interface status and administrative status
- VS/VD internal and external loops—enabled or disabled
- Interface type and interface version
- Passalong capability—enabled or disabled
- Minimum and maximum VPI and VCIs for various connection types
- Total counts for user connections and control VCs (SSCOP, PNNI-RCC, and ILMI)
- Details regarding point-to-point connections (see Example for types)
- Details regarding point-to-multipoint connections, as follows:
  - Number of SVCC and SVPC roots
  - Number of SVCC and SVPC leaves
- Number of SVCC and SVPC parties

Other commands on the CLI of service modules that show connection counts are **dspln**, **dsppart** (or **dsprscprtn)**, **dspcd**, and **dspport**.

Syntax

dsppnport <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

dsppnports, **addpnport**, **delpnport**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

First determine if connections exist on port 3:1.1:1 by running the **dspcons** command. One connection exists, and the display shows the view from each port (3:1.1:1 and 2:2.2:1). Display port 2:2.2:1 then port 3:1.1:1. Note the differences in the display when you specify the master-end port and the slave-end port. Also, note that the interface type is UNI 3.1.

The **dsppnport** display shows a combination of user-configured and dynamic details, as follows:

- Configuration details such as the type and version of the interface (UNI 3.1, for example), minimum and maximum VPIs for SPVCs, and minimum and maximum VPIs and VCIs for SVCs.
- A system-generated logical number that maps to the physical portID. The label these fields is "Logical ID" and "Port," respectively. The values in this example are 16979969 for logical ID and 3:1.1:1 for port. Some PNNI commands require you to provide the logical ID, and **dsppnport** is one command that can provide it.
- Dynamic information such as:
  - Status of the port
  - The number of point-to-point and point-to-multipoint connections
  - The numbers of configured and active of SPVCs and SVCs

```
8850_NY.7.PXM.a > dspcons

Local Port          Vpi.Vci   Remote Port         Vpi.Vci    State   Owner
---------------------------+-----------------------------+-------+------
2:2.2:1             10 100    3:1.1:1             10 100     FAIL        MASTER
Local  Addr: 47.00918100000000036b5e30cd.000001021801.00
Remote Addr: 47.00918100000000036b5e30cd.000001031801.00
3:1.1:1             10 100    2:2.2:1             10 100     FAIL        SLAVE
Local  Addr: 47.00918100000000036b5e30cd.000001031801.00
Remote Addr: 47.00918100000000036b5e30cd.000001021801.00

8850_NY.7.PXM.a > dsppnport 2:2.2:1

Port:               2:2.2:1           Logical ID:       n/a
IF status:          provisioning      Admin Status:     up

8850_NY.7.PXM.a > dsppnport 3:1.1:1

Port:               3:1.1:1           Logical ID:       16979969
IF status:          up                Admin Status:     up
UCSM:               enable
Auto-config:        enable            Addrs-reg:        enable
IF-side:            network           IF-type:          uni
UniType:            private           Version:          uni3.1
PassAlongCapab:     n/a
Input filter:       0                 Output filter:    0
minSvccVpi:         0                 maxSvccVpi:       4095
minSvccVci:         35                maxSvccVci:       65535
minSvpcVpi:         1                 maxSvpcVpi:       4095

       #SpvcCfg:  #SpvcActive:  #SpvpCfg:  #SpvpActive:
p2p :  1          0             0          0
p2mp:  0          0             0          0
       #Svcc:     #Svpc:        Total:
p2p :  0          0             0
p2mp:  0          0             0
                                Total:     0

8850_NY.7.PXM.a >
```

Display port 5:1.1:1. Note that the display shows the state of the internal and external VSVD loops—enabled in this case. This VSVD status indicates the following:

- The type of port is UNI 4.0 because only 4.0 or higher supports VSVD (see description of the **cnfintfvsvd** command). If the UNI version were earlier than 4.0, no fields for VSVD would appear.
- The card in slot 5 is an AXSN-E because only the AXSM-E supports ABR VSVD.

```
M8850_NY.7.PXM.a > dsppnport 5:1.1:1

Port:                5:1.1:1           Logical ID:       17111041
IF status:           down              Admin Status:     up
VSVD Internal Loop: on
VSVD External Loop: on
UCSM:                enable
Auto-config:         enable            Addrs-reg:        enable
IF-side:             network           IF-type:          uni
UniType:             private           Version:          uni4.0
PassAlongCapab:      n/a
Input filter:        0                 Output filter:    0
minSvccVpi:          0                 maxSvccVpi:       255
minSvccVci:          35                maxSvccVci:       65535
minSvpcVpi:          1                 maxSvpcVpi:       255

       #SpvcCfg:  #SpvcActive:  #SpvpCfg:  #SpvpActive:
p2p :  0          0             0          0
p2mp:  0          0             0          0
       #Svcc:     #Svpc:        Total:
p2p :  0          0             0
p2mp:  0          0             0
                                Total:     0

M8850_NY.7.PXM.a >
```

On a PXM1E, display PNNI port 2.1. This port ID format indicates an NBSM. This card is an FRSM.

```
PXM1E_SJ.7.PXM.a > dsppnport 2.1

Port:                2.1               Logical ID:       17240833
IF status:           up                Admin Status:     up
VSVD Internal Loop: unspecified
VSVD External Loop: unspecified
UCSM:                enable            SVC Routing Pri:  8
Auto-config:         enable            Addrs-reg:        enable
IF-side:             network           IF-type:          uni
UniType:             private           Version:          none
PassAlongCapab:      n/a
Input filter:        0                 Output filter:    0
minSvccVpi:          2                 maxSvccVpi:       2
minSvccVci:          35                maxSvccVci:       1042
minSvpcVpi:          2                 maxSvpcVpi:       2

       (P=Configured Persistent Pep, NP=Non-Persistent Pep, Act=Active)
       #Spvc-P:  #Spvc-NP:  #SpvcAct:  #Spvp-P:  #Spvp-NP:  #SpvpAct:
p2p :  0         0          0          0         0          0
p2mp:  0         0          0          0         0          0
       #Svcc:     #Svpc:        #Ctrl:     Total:
p2p :  0          0             0             0
p2mp:  0          0             0             0

                                Total:     0

PXM1E_SJ.7.PXM.a >
```

Display port 1:1.8:8.

```
p2spvc14.8.PXM.a > dsppnport 1:1.8:8

Port:               1:1.8:8           Logical ID:       16848904
IF status:          up                Admin Status:     up
UCSM:               enable            SVC Routing Pri:  8
Auto-config:        enable            Addrs-reg:        enable
IF-side:            network           IF-type:          nni
UniType:            private           Version:          pnni10
PassAlongCapab:     n/a
Input filter:       0                 Output filter:    0
minSvccVpi:         1                 maxSvccVpi:       4095
minSvccVci:         35                maxSvccVci:       65535
minSvpcVpi:         1                 maxSvpcVpi:       4095

P2P Details:
       (P=Configured Persistent Pep, NP=Non-Persistent Pep, Act=Active)
       #Spvc-P:  #Spvc-NP:  #SpvcAct:  #Spvp-P:  #Spvp-NP:  #SpvpAct:
       0         0          0          0         0          0
       #Svcc:     #Svpc:        #Ctrl:     Total:
       0           0             0             0
P2MP Details:
       (P=Persistent, NP=Non-Persistent, Pa = Party, Act=Active)
Type   #Root:    #Leaf:     #Party:

svcc:  0         0          0
svpc:  0         0          0
       #Spvc-P:  #Spvc-NP:  #SpvcAct:  #Spvp-P:  #Spvp-NP:  #SpvpAct:
       0         0          0          0         0          0
       #SpvcPa-P:#SpvcPaAct:#SpvpPa-P: #SpvpPaAct:
       0         0          0          0

p2spvc14.8.PXM.a >
```

dsppnportcac

Display PNNI Port Call Admission Control—PXM45, PXM1E

Displays CAC policy parameters for the port as configured by **cnfpnportcac**. For a list of the displayed items, see the Example section. For a description of these items, see the **cnfpnportcac** description.

Syntax

dsppnportcac <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportcac

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Example

Display the CAC parameters for port 2:1.3:13.

```
swsw-m4.8.PXM.a > dsppnportcac 2:1.3:13

                    cbr:    rt-vbr:  nrt-vbr:      ubr:     abr:       sig:
bookFactor:         100%       100%       100%       100%       100%       100%
maxBw:       100.0000%  100.0000%  100.0000%  100.0000%  100.0000%  100.0000%
minBw:         0.0000%    0.0000%    0.0000%    0.0000%    0.0000%    0.1283%
maxVc:              100%       100%       100%       100%       100%       100%
minVc:                0%         0%         0%         0%         0%         1%
maxVcBw:              0          0          0          0          0          0
```

dsppnportcc

Display PNNI Port Call Control—PXM45, PXM1E

The **dsppnportcc** command displays the call control parameters for a logical port. See **cnfpnportcc** for a description of applicable parameters.

Syntax

dsppnportcc <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportcc

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Examples

Display the call control configuration for port 1:2.1:21.

```
M8830_SF.2.PXM.a > dsppnportcc 1:2.1:21
svc blocking option:        no
spvc blocking option:       no
nonpers blocking option:    no
setup subscription:         no

M8830_SF.2.PXM.a >
```

dsppnportidmaps

Display PNNI Port ID Maps—PXM45, PXM1E

The **dsppnportidmaps** command lets you display the mapping of physical port identifiers (portIDs) to logical port identifiers. The purpose of having logical port IDs is that some command require the logical port ID. The displayed information consists of:

- Physical port ID in the format *slot*[:*subslot*].*port*[:*subport*]
- Logical port ID in decimal format
- Logical port ID in hexadecimal format
- Operational state of the port

Syntax

dsppnportidmaps

Syntax Description

This command takes no parameters.

Related Commands

None

Attributes

Log: no State: active, standby Privilege: SUPER_GP

Example

Display the mapping of physical port IDs to the logical IDs on the switch. Note that the switch has not generated a logical ID for port 2:2.2:1 because the port is still in the provisioning state.

```
8850_NY.7.PXM.a > dsppnportidmaps

Port Id         Logical ID (Dec)  Logical ID (Hex)  OperStatus

7.35            17251107          1073b23           up
7.36            17251108          1073b24           up
7.37            17251109          1073b25           up
7.38            17251110          1073b26           up
1:2.1:1         16848897          1011801           up
2:2.2:1         n/a               n/a               provisioning
3:1.1:1         16979969          1031801           up

8850_NY.7.PXM.a >
```

dsppnportie

Display PNNI Port Information Element—PXM45, PXM1E

The **dsppnportie** command shows the option for processing certain information elements (IEs) on a port. The choice determines whether the priority information services IE (PS IE) and the closed user group IE (CUG IE) are to be blocked or transmitted from the egress of the specified port. See the **cnfpnportie** description for details on the port-level IEs.

Syntax

dsppnportie <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportie

Attributes

log: no State: active, standby Privilege: ANYUSER

Example

Display the enable status of the port IE for 3:1.2:2. Note that PS IE is meaningless in the current release.

```
pswpop3-1.7.PXM.a > dsppnportie 3:1.2:2

IE Options for port : 3:1.2:2

PS IE Option    : auto
CUG IE Option   : auto
```

dsppnportloscallrel

Display PNNI Port Loss of Signal Call Release—PXM45, PXM1E

This command displays the enable status and any deroute delay time for the LOS call release feature. See **cnfpnportloscallrel** for a description of this feature.

Syntax

dsppnportloscallrel <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportloscallrel

Attributes

Log: no State: active, release Privilege: ANYUSER

Example

After enabling this call release feature on port 1:1.2:2 and specifying a deroute delay of 10 seconds, display the configuration.

```
8850_NY.8.PXM.a > cnfpnportloscallrel 1:1.2:2 yes -delay 10

8850_NY.8.PXM.a > dsppnportloscallrel 1:1.2:2
Deroute Delay: 10 seconds
Call release on Los:enabled

8850_NY.8.PXM.a >
```

dsppnportncci

Display PNNI Port NCCI—PXM45, PXM1E

The **dsppnportncci** command displays the configured response to a network call correlation identifier for a port. For details about this identifier, see the description of **cnfpnportncci**.

Syntax

dsppnportncci <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportncci

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display the current response on port 2:2.2:1 to a call correlation identifiers. The output shows the default of "forward."

```
8850_NY.7.PXM.a > dsppnportncci 2:2.2:1

NCCI action: forward
```

dsppnportrange

Display PNNI Port Range—PXM45, PXM1E

The **dsppnportrange** command displays ATM VPI/VCI range only for the port configured by **cnfpnportrange**. **dsppnport** displays the operational values.

Syntax

dsppnportrange <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportrange, dsppnport

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

```
Geneva.7.PXM.a > dsppnportrange
minSvccVpi: 0   maxSvccVpi: 4095
minSvccVci: 32 maxSvccVci: 65535
minSvpcVpi: 1   maxSvpcVpi: 4095

Geneva.7.PXM.a >
```

dsppnportrsrc

Display PNNI Port Resources—PXM45, PXM1E

Displays available bandwidth and channels on the port for all service classes.

Syntax

dsppnportrsrc <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. – In an MGX 8830 chassis, *slot* is always the logical slot 1. • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

dsppnports

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Example

Display the available resources on port 2:1.3:13.

```
swsw-m4.8.PXM.a > dsppnportrsrc 2:1.3:13

                        cbr:  rt-vbr: nrt-vbr:     ubr:     abr:     sig:
Max TxCR CPS:         353207    353207    353207    353207    353207    353207
Max RxCR CPS:         353207    353207    353207    353207    353207    353207
MinGuar TxCR CPS:          0         0         0         0         0       453
MinGuar RxCR CPS:          0         0         0         0         0       453
Min Tx CLR:               10         8         6         6         6         6
Min Rx CLR:               10         8         6         6         6         6
Avl TxCR CPS:         352754    352754    352754    352754    352754    353207
Avl RxCR CPS:         352754    352754    352754    352754    352754    353207
OvSub AvTx CPS:       352754    352754    352754    352754    352754    353207
OvSub AvRx CPS:       352754    352754    352754    352754    352754    353207
# Avl Tx Chans:       10000     10000     10000     10000     10000     10000
# Avl Rx Chans:       10000     10000     10000     10000     10000     10000
Warning:Port Status is down. The resource values may not be valid !!!
```

dsppnports

Display PNNI Ports—PXM45, PXM1E

The **dsppnports** command displays status for all logical ports. If you do not identify a particular type of interface, the display shows all port types. You can also specify PNNI ports by slot number.

In brief, the display consists of:

- A summary of connections, including control VCs (SSCOP, PNNI-RCC, and ILMI—if enabled)
- A summary of ports
- The PNNI logical port number that corresponds to the PNNI port ID (the logical port number is a format that you must provide to certain commands)
- A status summary for each port, including the number of connections on each port (excluding control VCs)

For details on the connection summaries, see "Description of the dsppnports Connection Summaries."

Syntax

dsppnports [**-ifctype** {*interface type*}] [**-sl** {*slot number*}]

Syntax Description

-ifctype	This option lets you specify a particular interface type to display. Type one of the following for *interface type*: • **uni** to show status for only UNI ports. • **nni** to show status for only NNI ports. • **enni** to show status for only ENNI ports.
-sl	You can specify a number to show ports at a particular slot. The range for *slot number* is 1–32. A 0 means all slots. Default: 0

Port States

The **dsppnports** display shows the state of the port from different standpoints, as follows:

- The interface state (configured on the VI slave side)
- The administrative state
- The ILMI (if configured).

The display shows the state that has resulted from configuration on the VSI slave side. It shows the state that PNNI has detected it on the VSI master, as the following list shows:

provisioning	The interface is in the "provisioning" state when the corresponding resource partition on the VSI slave is not active on the service module or PXM1E network interface card (see **addpart**/**addrscprtn**). When a partition for the configured interface is activated on the service module or network interface card, the interface goes into the functional/operational state.
building VC	"Building VC" is a transition state for the interface leading to the "up" state. In this state, the interface manager on the controller is trying to set up the signalling channel (0,5) and routing control channel (0,18). If the interface stays in "building vc" for long, a problem has occurred. The command **dsplog -mod VCM** to get the reason code. Most likely, an incorrect SCT or other mis-configuration exists on the VSI slave.
up	The port is functional.
down	The port is not functional.

ILMI States

The display includes ILMI status, as follows:

Disable	Protocol is not enabled on this port.
NotApplicable	This port is not accessible due to hardware-related conditions.
LostConnectivity	Protocol on listening port is not enabled.
EnableNotUp	This port is not accessible due to a hardware-related issue.
UpAndNormal	This port is physically up, and the protocol is enabled.

Related Commands

dsppnportrsrc, **dsppnport**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Description of the dsppnports Connection Summaries

This section contains the following:

1. A list shows all fields in the connection summary part of the display.
2. A simple network description illustrates how an SPVC in a three-node network would appear in the summary part of the display.
3. A description of the summary for a DAX connection follows the SPVC explanation.

The list of summary fields follows:

- *Total* point-to-point or point-to-multipoint connections
  - SVCC, switched virtual channel connections
  - SVPC, switched virtual path connections
  - SPVCD, semi-permanent virtual channel DAX connections

  - SPVPD, semi-permanent virtual path DAX connections
  - SPVCR, active (routed) semi-permanent virtual circuits
  - SPVPR, active (routed) semi-permanent virtual paths
  - Control connections (SSCOP, PNNI-RCC, and ILMI—if enabled)
  - Total of all the preceding types
- *Configured SPVC endpoints* for either point-to-point and point-to-multipoint connections
  - SPVCD, semi-permanent virtual channel DAX connections
  - SPVPD, semi-permanent virtual path DAX connections
  - SPVCR, active (routed) semi-permanent virtual circuits
  - SPVPR, active (routed) semi-permanent virtual paths
  - Totals for the preceding types
- *Active, intermediate endpoints* for either point-to-point and point-to-multipoint connections
  - SVCC, switched virtual channel connections
  - SVPC, switched virtual path connection
  - SPVCR, active (routed) semi-permanent virtual circuits
  - SPVPR, active (routed) semi-permanent virtual paths
  - Totals for the preceding types

You can also see connection counts on the CLI of the service modules (see **dspln**, **dsppart** or **dsprscprtn**, **dspcd**, and **dspport** commands).

For an example SPVC, refer to Figure 2-14. An SPVC's master endpoint is on a UNI on Node 1. The slave endpoint is on a UNI on Node 3. The SPVC traverses the via node, Node 2. If you run the **dsppnports** command on Node 1, the display gives the following information in the four parts of the summary:

- Number of connections: SpvcR = 1
- Number of configured endpoints: SpvcR = 1
- Number of active intermediate endpoints: SpvcR = 1
- Total of 1 connection, 2 endpoints (1 configured, 1 active intermediate).

If you run the **dsppnports** command on via Node 2, the display gives the following information in the four parts of the summary:

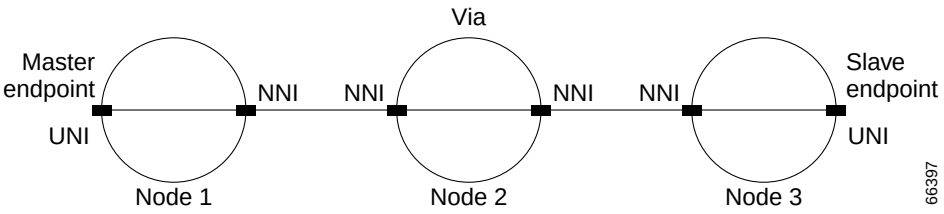
- Number of connections: Svcc = 1
- Number of configured endpoints: 0
- Number of active intermediate endpoints: Svcc = 2
- Total of 1 connection, 2 endpoints (2 active intermediate)

Next, a DAX connection has both endpoints on the same switch (the DAX does not appear in Figure 2-16). The summary information for a DAX connection would appear as follows:

- Number of connections: SpvcD = 1
- Number of configured endpoints: SpvcD = 2
- Number of active intermediate endpoints:0
- Total of 1 connections, 2 endpoints (2 configured)

In summary, each active connection has two endpoints. Configured endpoints translate to the endpoints added through the addcon command. (shown as SPVC on AXSM). Active, intermediate endpoints translate to the NNI sides for and SPVC or both sides for a pure SVC (shown as an SVC on an AXSM).

Figure 2-16 An SPVC With Endpoints and a Via Node



Example

Display all PNNI logical ports on the switch. Although UNI ports 7.35, 7.36, 7.37, and 7.38 are reserved for BITS clock sources on the PXM45 UI card, in reality, only 7.35 and 7.36 are meaningful.

Note If a VISM port is used as a clock source and even if that port's signaling type is "none," the VISM port does not go into the count in the "uniNonSig" category in the "Summary of total ports." Instead, such a VISM clocking port goes in the category of "others".

```
p2spvc16.8.PXM.a > dsppnports
Summary of total connections
(p2p=point to point,SpvcD=DAX spvc,SpvcR=Routed spvc)
Type   #Svcc:  #Svpc:  #SpvcD: #SpvpD: #SpvcR: #SpvpR: #Ctrl #Total:
p2p:  0        0        0        0        0        0        0        0
    Total(User cons) =       0/50000,   Total(Ctrl cons) = 0
            Total=0

Summary of total SPVC endpoints
(P=Persistent, NP=Non-Persistent)
Type   #SpvcR-P  #SpvcR-NP #SpvpR-P  #SpvpR-NP #SpvcD   #SpvpD   Total
p2p:  5         0         0         0         0         0         5
                        Total=5

Summary of total active SVC/SPVC intermediate endpoints
Type   #Svcc    #Svpc     #SpvcR   #SpvpR   Total
p2p:  0         0         0         0         0
                        Total=0

          EndPoint Grand Total =      5/100000

Summary of total Ports
(uniNonSig=none/Self, uniSig=uni30/uni31/uni40/q2931, pnni=pnni10,

Type <CR> to continue, Q<CR> to stop:
DSPPNPORTS others=iisp30/iisp31/enni/aini/unknown)
Type   #uniNonSig  #uniSig  #pnni    #others  Total
       3           0        1        2        6
Summary of point-to-multipoint connections
       (P=Persistent, NP=Non-Persistent, Pa = Party, Act=Active)
Type   #Root    #Leaf     #Party
svcc   0         0         0
svpc   0         0         0
       #Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
       0         0          0          0         0          0
       #SpvcPa-P:#SpvcPaAct:#SpvpPa-P:#SpvpPaAct:
       0         0          0          0

Per-port status summary

(Ppid-Physical Port Id; Lpid-Logical Port Id)

Ppid        Lpid    IF_st    Admin_st ILMI_st       #p2p    #pmpR #pmpL #pmpPty

7.35        17251107 up           up   NotApplicable  0       0     0     0

7.36        17251108 up           up   NotApplicable  0       0     0     0

Type <CR> to continue, Q<CR> to stop:

Ppid        Lpid    IF_st    Admin_st ILMI_st       #p2p    #pmpR #pmpL #pmpPty
```

```
7.37        17251109 up           up   NotApplicable  0       0     0     0

7.38        17251110 up           up   NotApplicable  0       0     0     0

13.1        17263361 up           up   NotApplicable  0       0     0     0

13.2        17263362 provisioning up   NotApplicable  0       0     0     0

14.1        17265409 up           up   NotApplicable  0       0     0     0

14.2        17265410 down         up   NotApplicable  0       0     0     0

14.3        17265411 down         up   NotApplicable  0       0     0     0

14.5        17265413 down         up   NotApplicable  0       0     0     0

5:1.1:1     17111041 down         down NotApplicable  0       0     0     0

5:1.2:2     17111042 up           up   NotApplicable  0       0     0     0

Type <CR> to continue, Q<CR> to stop:

Ppid        Lpid    IF_st    Admin_st ILMI_st       #p2p    #pmpR #pmpL #pmpPty

5:1.3:3     17111043 up           up   NotApplicable  0       0     0     0
```

Display UNI ports at slot 10.

```
p2spvc14.8.PXM.a > dsppnports -ifctype uni -sl 10
Summary of total connections
(p2p=point to point,SpvcD=DAX spvc,SpvcR=Routed spvc)
Type   #Svcc:   #Svpc:   #SpvcD:  #SpvpD:  #SpvcR:  #SpvpR:  #Ctrl #Total:
p2p:   0        0        0        0        50       41       0        91
    Total(User cons) =      91/250000,   Total(Ctrl cons) = 0
            Total=91

Summary of total SPVC endpoints
(P=Persistent, NP=Non-Persistent)
Type   #SpvcR-P  #SpvcR-NP #SpvpR-P  #SpvpR-NP #SpvcD   #SpvpD   Total
p2p:   12        0         12        0         0         0         24
                         Total=24

Summary of total active SVC/SPVC intermediate endpoints
Type   #Svcc    #Svpc     #SpvcR   #SpvpR   Total
p2p:   0         0         50        41        91
                         Total=91

          EndPoint Grand Total =    115/500000

Summary of total Ports
(uniNonSig=none/Self, uniSig=uni30/uni31/uni40/q2931, pnni=pnni10,

Type <CR> to continue, Q<CR> to stop:
DSPPNPORTS otherSig=iisp30/iisp31/enni/aini)
Type   #uniNonSig  #uniSig  #pnni    #otherSig  Total
       1           5        11       2          19
Summary of point-to-multipoint connections
       (P=Persistent, NP=Non-Persistent, Pa = Party, Act=Active)
Type   #Root    #Leaf     #Party
svcc   0         0         0
svpc   0         0         0
       #Spvc-P:  #Spvc-NP:  #SpvcAct:  #Spvp-P:  #Spvp-NP:  #SpvpAct:
       11        0          0          10        0          0
       #SpvcPa-P:#SpvcPaAct:#SpvpPa-P: #SpvpPaAct:
       99        0          30         0

Per-port status summary

(Ppid-Physical Port Id; Lpid-Logical Port Id)

Ppid        Lpid    IF_st    Admin_st ILMI_st       #p2p    #pmpR #pmpL #pmpPty

10:1.1:1    17438721 up           up   Disable        0       0     0     0

10:1.2:2    17438722 up           up   Disable        24      0     0     0

10:1.8:8    17438728 up           up   NotApplicable  0       0     0     0

p2spvc14.8.PXM.a >
```

dsppnportsig

Display PNNI Port Signaling—PXM45, PXM1E

The **dsppnportsig** command displays the ATM signaling parameters as configured by **cnfpnportsig**.

Syntax

dsppnportsig <*portid*>

Syntax Description

portid	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. The *subslot* is always 2. – In an MGX 8830 chassis, *slot* is always the logical slot 1. The *subslot* is always 2 • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnportsig

Attributes

Log: yes State: active, standby Privilege: ANYUSER

Examples

Display signaling for port 1:2.2:2. The interface type is NNI, and the version is PNNI 1.0.

```
M8850_LA.8.PXM.a > dsppnportsig 1:2.2:2

provisioned IF-type: nni   version:     pnni10
sigType:  private          side:        network
addrPlan:  aesa
VpiVciAllocator:  n/a      HopCounterGen:  n/a
PassAlongCapab:  n/a
sigVpi:          0         sigVci:             5
rccVpi:          0         rccVci:            18
svc routing priority: 8
```

Take the following steps on a PXM1E for an initial configuration (assume the line has been upped):

1. Use the **addport** command to create logical port 2.2 on the slave side and make it an NNI.
2. Add a resource partition.
3. Add the PNNI port by using the **addpnport** command. The port ID is 7:2.2:2 because the slot is 7 in an MGX 8850 chassis with a PXM1E, and the subslot is always 2 for the same reason.
4. Display PNNI port. The state is down—the default.
5. Display PNNI port signaling by using the **dsppnportsig** command. At this stage, note the default interface type is UNI with no UNI version. This PNNI side default of UNI conflicts with the slave side configuration of an NNI for port 2, so you need to configure the PNNI port for NNI.
6. Use the **cnfpnportsig** command to specify an NNI port with a version of PNNI 1.0.
7. Display the signaling for the port.

```
PXM1E_SJ.7.PXM.a > addport 2 2.2 10000 10000 0 2

PXM1E_SJ.7.PXM.a > addpart 2 2 5 10000 10000 10000 10000 110 220 2000 4000 100 100

PXM1E_SJ.7.PXM.a > addpnport 7:2.2:2

PXM1E_SJ.7.PXM.a > dsppnport 7:2.2:2

Port:               7:2.2:2          Logical ID:       n/a
IF status:          provisioning     Admin Status:     down
VSVD Internal Loop: unspecified
VSVD External Loop: unspecified

PXM1E_SJ.7.PXM.a > dsppnportsig 7:2.2:2

provisioned IF-type: uni   version:     none
sigType:  private          side:        network
addrPlan:  aesa
VpiVciAllocator:  n/a      HopCounterGen:  n/a
PassAlongCapab:  n/a
sigVpi:          0         sigVci:             5
rccVpi:        n/a         rccVci:           n/a
svc routing priority: 8

PXM1E_SJ.7.PXM.a > cnfpnportsig 7:2.2:2 -nniver pnni10

PXM1E_SJ.7.PXM.a > dsppnportsig 7:2.2:2

provisioned IF-type: nni   version:     pnni10
sigType:  private          side:        network
addrPlan:  aesa
VpiVciAllocator:  n/a      HopCounterGen:  n/a
PassAlongCapab:  n/a
sigVpi:          0         sigVci:             5
rccVpi:          0         rccVci:            18
svc routing priority: 8

PXM1E_SJ.7.PXM.a >
```

dsppnstat

Display PNNI Statistics Configuration—PXM45, PXM1E

The **dsppnstat** command displays the configuration of PNNI statistics. See the **cnfpnstat** description for information on this configuration.

Syntax

dsppnstat [*port_id*]

Syntax Description

port_id	The format of the PNNI physical port identifier can vary, as follows: • On a PXM45: *slot:subslot.port:subport* • On a PXM1E for UNI/NNI back card: *slot:subslot.port:subport*. On the UNI/NNI back card, the subslot is always 2, but the *slot* depends on the chassis, as follows: – In an MGX 8850 chassis, *slot* is always the logical slot 7. The *subslot* is always 2. – In an MGX 8830 chassis, *slot* is always the logical slot 1. The *subslot* is always 2 • On a PXM1E for a narrowband service module (NBSM): *slot.port*. For more details, see the section, "PNNI Format," in Chapter 1, "Introduction."

Related Commands

cnfpnstat

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

Display all of the PNNI statistical status for the node and all ports.

```
M8850_LA.8.PXM.a > dsppnstat
Bulk Stats Support Feature for PNNI Subsystem:              Disabled
Bulk Stats Support Feature for node based PNNI Subsystem:   Disabled
Interface based PNNI Subsystem Stats for all interfaces:    as-per-each-intf-cfg
```

dsppnsysaddr

Display PNNI Port System Addresses—PXM45, PXM1E

The **dsppnsysaddr** command displays addresses in the system address table. The system address table contains only static addresses.

Note This command does not belong to the RA module.

Syntax

dsppnsysaddr [ilmi | uni | static | host | all]

Syntax Description

ilmi	Display all of the ilmi addresses in the peer group.
uni	Display all of the uni addresses in the peer group.
static	Display all of the static addresses in the peer group.
host	Display all of the host addresses in the peer group.
all	Display all of the addresses. This is the default.

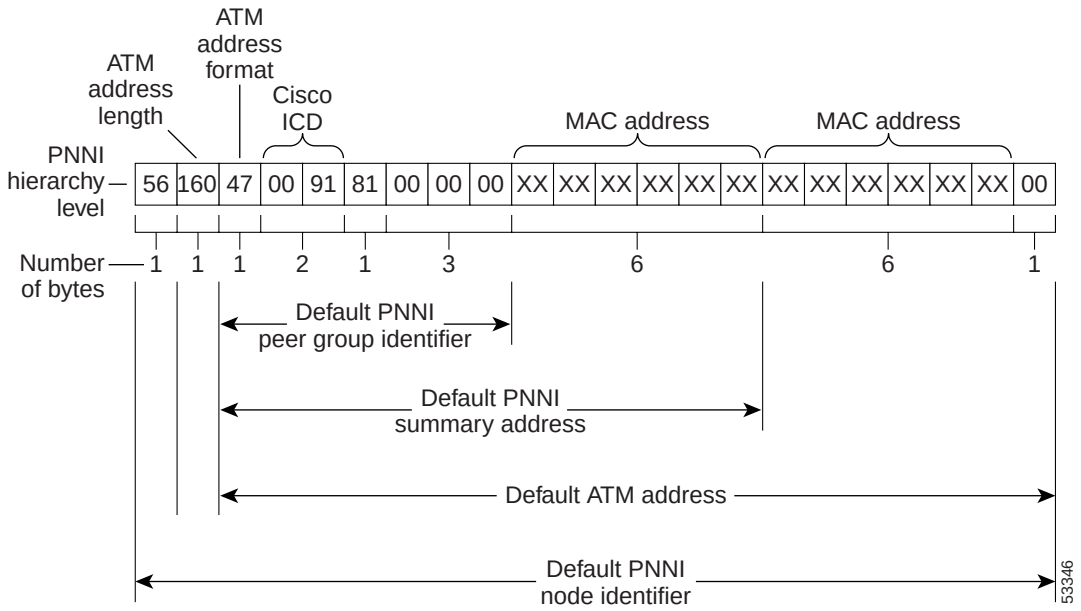
Display Contents

The ATM address, the address prefixes, and the peer group identifier share some default field values, as shown in Figure 2-17.

The following parameters are displayed for each node.

ATM Address (displayed but not labeled)	Display the PNNI node ATM address. This is a 20-byte, formatted hexadecimal string. Like all PNNI addresses, identifiers, and prefixes, this value is portrayed as a string of hexadecimal “nibbles.” One or several pairs of nibbles entail each parameter field. Default: Figure 2-17 shows the factory-set default.
Type	Display the type of address that you specified in the command line. Possible address types: ILMI, UNI, static, host, all
Port id	The PNNI logical port identifier. Range: 1–2147483648

Figure 2-17 Cisco Factory-shipped Defaults for PNNI Peer Group Identifier, PNNI Summary Address, ATM Address, and PNNI Node Identifier



Related Commands

None

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

Display addresses in the System Address Table. The first command entry includes the option **all**, so **dsppnsysaddr** displays all addresses in the peer group.

Note The Physical Desc field shows the PNNI physical port identifier that corresponds to the logical port ID. When the address belongs to the node or host, the Physical Desc field shows "N/A,"

```
p2spvc5.7.PXM.a > dsppnsysaddr all

39.840f.8011.3744.0000.0003.0000.1722.9061.0500/152
Type:      uni     Port id:   16848897   Physical Desc: 1:1.1:1


39.840f.8011.3744.0000.0004.0002.1722.9061.0400/152
Type:      uni     Port id:   16848900   Physical Desc: 1:1.4:4


47.0091.8100.0000.0010.7be9.2f6d.0000.0101.1801.00/160
Type:     host     Port id:   17251106   Physical Desc: NA
```

```
47.0091.8100.0000.0010.7be9.2f6d.0000.0101.1802.00/160
Type:     host     Port id:   17251106   Physical Desc: NA


47.0091.8100.0000.0010.7be9.2f6d.0000.0101.1804.00/160
Type:     host     Port id:   17251106   Physical Desc: NA


47.0091.8100.0000.0010.7be9.2f6d.0010.7be9.2f6d.01/160

Type:     host     Port id:   17251106   Physical Desc: NA


47.0091.8100.0000.0010.7be9.2f6d.0010.7be9.2f6d.99/160
Type:     host     Port id:   17251106   Physical Desc: NA
```