cnfabr

Configure ABR—PXM1E

In general, the **cnfabr** command configures the VS/VD-specific parameters for an existing ABR connection. The connection must be of service type ABR (in the **addcon** command, *service type*=10).

Note In the current release, the PXM1E UNI/NNI back card does not support VS/VD. The only ABR parameters that the PXM1E supports are MCR and PCR.

Note With ABR VS/VD, you can specify parameters but leave the VS/VD service disabled. You can later enable the service and thus activate the previously configured parameters. You can enable VS/VD at the PNNI port level by using the **cnfintfvsvd** command on the PXM45 or PXM1E.

Syntax

cnfabr <*ifNum*> <*vpi* <*vci*> **-icr** <*Initial cell rate*>] **-adtf** <*ACR decr. factor*>]
-rdf <*Rate decr. factor*>] **-rif** <*Rate incr. factor*>] **-nrm** <*Cells per fwd RM*>]
-trm <*Time between fwd RMs*>] **-cdf** <*cutoff decrease factor*>] **-frtt** <*fix round trip delay*>]
-tbe <*transient buffer exposure*>] **-intvsvd** <*internal vsvd config*>] **-extvsvd** <*external vsvd config*>]

Syntax Description

ifNum	The port number of the connection.
vpi	The VPI range for a UNI port endpoint is 0–255. The VPI range for an NNI or VNNI port endpoint is 0–4095.
vci	The VCI range for a UNI port endpoint is 1–4095. The VCI range for a NNI port endpoint is 1–65535. For MPLS, the recommended minimum VCI is 35.
-icr	Initial Cell Rate (ICR) in cells per second. This is the rate at which the source should begin transmitting, and is also the rate at which the source should resume transmitting after an idle period. The range is 0–4294967295 cells per second.
-adtf	ACR Decrease Time Factor (ADTF). This is the time permitted to decrease the cell rate from the RM-cell rate to the Allowed Cell Rate (ACR) for normal traffic. The range is 1–1023 milliseconds.
-rdf	Rate Decrease Factor (RDF). This is the factor by which to decrease the Allowed Cell Rate (ACR). *RDF* is a power of 2 in the range 1/32768 to 1.
-rif	Rate Increase Factor (RIF). This is the factor by which to increase the Allowed Cell Rate (ACR). *RIF* is a power of 2 in the range 1/32768 to 1.
-nrm	Maximum number of cells that the source can send for each forward RM-cell. *Nrm* is a power of 2 in the range 2–256.
-trm	The maximum number of milliseconds for one RM-cell to travel from source to endpoint. The range is 100×2^{-7} to 100×2^{0} milliseconds.

-cdf	Cutoff Decrease Factor (CDF). This controls the decrease in Allowed Cell Rate (ACR) associated with Missing RM-cell count (CRM). *CDF* can be either or the following: • Zero • A power of 2 in the range 1/64 to 1 CRM limits the number of forward RM-cells that may be sent in the absence of received backward RM-cells. CRM is an integer. Its size is implementation specific.
-frtt	Fixed Round-Trip Time (FRTT). This is the sum of the fixed delays plus the propagation delays from the source to the destination and back. The range is 0–16.7 seconds.
-tbe	Transient Buffer Exposure (TBE). This is the negotiated number of cells that the network would like to limit the source to sending during startup periods, before the first RM-cell returns. The range is 0–16,777,215 cells.
-intvsvd	Enable or disable for VS/VD on the internal loop. • 1=Off • 2=On • 3=Unspecified (Unspecified means that the connection takes the on or off status of VS/VD from the VS/VD specification in the SCT file.) See description of the **cnfintfvsvd** command to enable VS/VD at the PNNI port level. Default: off
-extvsvd	Enable or disable for VS/VD on the external loop. • 1=Off • 2=On • 3=Unspecified (Unspecified means that the connection takes the on or off status of VS/VD from the VS/VD specification in the SCT file.) See description of the **cnfintfvsvd** command to enable VS/VD at the PNNI port level. Default: off

Related Commands

addcon, **cnfabrtparmdft**, **dspabrtparmdft**, **cnfintfvsvd**

Attributes

Log: yes State: active Privilege: GROUP1

cnfabrtparmdft

Configure ABR Traffic Parameter Defaults—PXM45, PXM1E

The **cnfabrtparmdft** command lets you configure default, ABR-specific parameters for all ABR SPVCs on a PNNI port. These parameters apply to SPVCs only.

Note In the current release, the PXM1E does not support ABR VS/VD.

When you add an ABR connection, the controller provides the default ABR traffic parameters before the connection is committed. The default ABR traffic parameters are used in the SETUP message at the source when an SPVC with ABR service is set up. (Note also that you can change VS/VD-specific parameters for an individual ABR connection by using the **cnfabr** command on the AXSM-E.)

Syntax

cnfabrtparmdft <*portid*> [**-rif** *RIF-value*] [**-rdf** *RDF-value*] [**-tbe** *TBE-value*] [**-nrm** *NRM-value*] [**-trm** *TRM-value*] [**-adtf** *ADTF-value*] [**-cdf** *CDF-value*] [**-fsd** *FSD-value*]

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."
-rif	Keyword that specifies the Rate Increase Factor (RIF). This is the factor by which to increase the Allowed Cell Rate (ACR). *RIF* is a power of 2 in the range 1/32768 to 1. Default: 7
-rdf	Keyword that specifies the Rate Decrease Factor (RDF). This is the factor by which to decrease the Allowed Cell Rate (ACR). *RDF* is a power of 2 in the range 1/32768 to 1. Default: 4
-tbe	Keyword that specifies the Transient Buffer Exposure (TBE). This is the negotiated number of cells that the network would like to limit the source to sending during startup periods, before the first RM-cell returns. The range is 0–16,777,215 cells. Default: 1048320
-nrm	Keyword that specifies the maximum number of cells that the source can send for each forward RM-cell. *Nrm* is a power of 2 in the range 2–256. Default: 5
-trm	Keyword that specifies the maximum number of milliseconds for one RM-cell to travel from source to endpoint. The range is 100 x 2^{-7} to 100 x 2^{0} milliseconds. Default: 8

-adtf	Keyword that specifies the ACR Decrease Time Factor (ADTF). This is the time permitted to decrease the cell rate from the RM-cell rate to the Allowed Cell Rate (ACR) for normal traffic. The range is 1 to 1023 milliseconds. Default: 50
-cdf	Keyword that specifies the Cutoff Decrease Factor (CDF). This controls the decrease in Allowed Cell Rate (ACR) associated with Missing RM-cell count (CRM). *CDF* can be either or the following: • Zero • A power of 2 in the range 1/64 to 1 CRM limits the number of forward RM-cells that may be sent in the absence of received backward RM-cells. CRM is an integer. Its size is implementation-specific. Default: 7
-fsd	Keyword that specifies the Fixed-source-delay. Default: 0

Related Commands

addcon, cnfabr, dspabrtparmdft, cnfintfvsvd

Attributes

Log: no State: active Privilege: GROUP1

cnfaddrreg

Configure Address Registration—PXM45, PXM1E

This command lets you enable or disable ILMI address registration for a port. Before you can run **cnfaddrreg**, the following must have occurred:

1. The applicable port must have been created by executing **addpnport**.
2. The port must be downed by executing **dnpnport**.

The **cnfaddrreg** command can also enable (or disable) the address registration for backward compatibility.

The peer must support address registration table and procedure, so you must confirm that address registration is enabled on all three places.

Syntax

cnfaddrreg <*portid*> [{**yes** | **no**}]

Syntax Description

In addition to typing a port ID, you must also type either “yes” pr “no.”

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.”
yes	Enable ILMI address registration on the port. The default is “yes” (enabled).
no	Disable ILMI address registration on the port.

Related Commands

None

Attributes

Log: yes State: active Privilege: GROUP1

Example

Disable ILMI address registration on port 4:1.1:11.

```
Geneva.7.PXM45.a > cnfaddrreg 4:1.1:11 no
```

cnfainihopcount

Configure AINI Hop Count—PXM45, PXM1E

The **cnfainihopcount** command lets you determine the maximum number of AINI links that a call can traverse. The specification applies to any call originating on the local node, and the area to which the setting applies is the entire network. With **cnfainihopcount,** you can:

- Enable or disable the counter. This counter generates the Hop Counter Information Element (IE).
- Specify the maximum number of AINI hops. The hop counter (IE) is initialized to this value in the setup message. With each AINI link that the setup message traverses, the counter is decremented. This hop count applies to only AINI interfaces (see also the description of **cnfpnportsig**.)

Note To enable AINI hop count, you must also enable it at each port that should have it by using the **cnfpnportsig** command and typing "enable" for the **-hopcntgen** parameter.

Syntax

cnfainihopcount [**-hopcntgen** {**enable** | **disable**}] [**-maxhops** <*value*>]

Syntax Description

-hopcntgen	The enable for counting AINI hops. Type the entire word "enable" or "disable." Enabling hop count generation initializes the counter to the *value* for **maxhops**. Default: enable
-maxhops	The maximum number of AINI hops that a connection can take. The range is 1–31. Default: 31

Related Commands

dspainihopcount

Attributes

Log: yes State: active, standby Privilege: SUPER_GP

Example

Enable AINI hop counting and specify a maximum of 20 hops. No response appears unless an error occurs, so follow up by displaying the configuration.

```
8850_NY.8.PXM.a > cnfainihopcount -hopcntgen enable -maxhops 20

8850_NY.8.PXM.a > dspainihopcount
AINI Hop Counter Generation: enable
Max AINI Hops: 20

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

cnfalm

Configure Alarm—PXM45, PXM1E

Configures statistical alarm thresholds for a line. The configurable items for SONET and PLCP are defined in RFC 2258. The configurable items for DS3 and E3 are defined in RFC 2496. The items that constitute a configuration are:

- Line type: SONET, DS3, E3, or PLCP
- Tested layer: section, line, or path (for example, SONET line)
- Test periods of 15 minutes and 24 hours
- Degrees of error-time: *errored seconds* and *severely errored seconds*
- Types of errors, including framing errors, code violations, and unavailable
- Severity of alarm triggered when a threshold is crossed: minor or major

A keyword identifies the alarm criteria. Each keyword identifies the tested layer (line, and so on), the type of threshold (errored seconds, and so on), and the test period of 15 minutes or 24 hours. For example, **-lnes15** indicates the number of errored seconds on the line layer during any 15 minute period. See the Syntax Description for a list and definitions of all keywords.

Note For information about the **cnfalm** command on the AXSM cards, see the AXSM documentation.

Syntax

Due to the variety of line types and formats for line identifiers, the information is presented as generic syntax information and details for specific line types.

The required parameters are as follows:

- Line type
- Line identifier
- Severity of the alarm (minor or major).

Other parameters are optional and must be preceded by the keyword that identifies the type of parameter.

Generic Syntax Description

The generic syntax is.

cnfalm <*line type*> <*X.line*> <*alarm severity*> <*thresholds*>

The meaning of the generic syntax appears in the following list. Refer to subsequent lists for the descriptions of alarm severities and thresholds for each *line type*.

lineType	The possible line types depend on what *X.line* identifies, as follows: • For X = 2, possible line types for PXM1E back card are as follows: **-sonetsec** – Displays the section alarms for the given sonet line. **-sonetline** – Displays the line alarms for the given sonet line. **-sonetpath** –Displays the path alarms for the given sonet line. **-ds3** – Displays the statistical alarms for the given DS3 line. **-plcp** – Displays alarms for Physical Layer Convergence Procedure (PLCP). • For X = 7, 15, or 31, possible line types for SRMs are as follows: **-sonetsec** – Displays the section alarms for the given SONET line. **-sonetline** – Displays the line alarms for the given SONET line. **-sonetpath** –Displays the path alarms for the given SONET line. **-ds3** – Displays the statistical alarms for the given DS3 line.
X.line	The *X* field identifies either of the following: • The UNI/NNI back card in bay 2 of the PXM1E • The logical slot of the SRM under the control of a PXM1E The value for *X* can be one of the following: • X=2 identifies the UNI/NNI back card attached to a PXM1E. • X=15 or 31 in an MGX 8850 chassis identifies the logical slot number of the active SRM (regardless of physical slot number). • X=7 in an MGX 8830 chassis identifies the logical slot number of the active SRM (regardless of physical slot number). The values for *line* depends on the type of card. Possible values are as follows: • SRME: 1 • SRM-3T3: 1–3 • PXM1E back card: 1–16 (whatever is the highest line number on the card)
alarm severity	A keyword and number to identify the severity of the alarm that is triggered when any of the specified thresholds is crossed: 1 = minor alarm, and 2 = major alarm. Precede the alarm severity with the appropriate keyword. For the alarm severity keyword for each *line type*, see the first item in each of the lists follows. (For example, **-secsev** refers to the severity of the section alarm on a SONET line.)
thresholds	The number of instances of whatever the keyword identifies. The range for each *threshold* is 1 to 2^32-1. The keyword precedes each *threshold*. For example, **-lnsesf15 10** means 10 instances of severely errored framing seconds on a line during a 15-minute period.

Thresholds for SONET Section

-secsev *Severity*	Severity of the alarm (1 = minor, 2 = major) for SONET section.
-seces15 *ES15min*	Errored seconds during a 15-minute period.
-seces24 *ES24Hr*	Errored seconds during a 24-hour period.
-secses15 *SES15min*	Severely errored seconds during a 15-minute period.
-secses24 *SES24Hr*	Severely errored seconds during a 24-hour period.
-secsefs15 *SEFS15min*	Severely errored frame seconds during a 15-minute period.
-secsefs24 *SEFS24Hr*	Severely errored frame seconds during a 24-hour period.
-seccv15 *UAS15min*	Unavailable seconds during a 15-minute period.
-seccv24 *UAS24Hr*	Unavailable seconds during a 24-hour period.

Thresholds for SONET Line

-lnsev *Severity*	Severity of the alarm (1 = minor, 2 = major) for SONET line.
-lnes15 *ES15min*	Errored seconds during a 15-minute period.
-lnes24 *ES24Hr*	Errored seconds during a 24-hour period.
-lnses15 *SES15min*	Severely errored seconds during a 15-minute period.
-lnses24 *SES24Hr*	Severely errored seconds during a 24-hour period.
-lncv15 *CV15min*	Code violations during a 15-minute period.
-lncv24 *CV24Hr*	Code violations seconds during a 24-hour period.
-lnuas15 *UAS15min*	Unavailable seconds during a 15-minute period.
-lnuas24 *UAS24Hr*	Unavailable seconds during a 24-hour period.

Thresholds for SONET Path

-sev	Severity of the alarm (1 = minor, 2 = major) for SONET path.
-es15 *ES15min*	Errored seconds during a 15-minute period.
-es24 *ES24Hr*	Errored seconds during a 24-hour period.
-ses15 *SES15min*	Severely errored seconds during a 15-minute period.
-ses24 *SES24Hr*	Severely errored seconds during a 24-hour period.
-cv15 *CV15min*	Code violations during a 15-minute period.
-cv24 *CV24Hr*	Code violations seconds during a 24-hour period.
-uas15 *UAS15min*	Unavailable seconds during a 15-minute period.
-uas24 *UAS24Hr*	Unavailable seconds during a 24-hour period.

Thresholds for DS3

-dsev *severity*	Severity of the alarm (1 = minor, 2 = major) for DS3.
-lcv15 *LCV15min*	Code violations for a line during a 15-minute period.
-lcv24 *LCV24Hr*	Code violations for a line seconds during a 24-hour period.
-les15 *LES15min*	Line errored seconds during a 15-minute period.
-les24 *LES24Hr*	Line errored seconds during a 24-hour period.
-pcv15 *PCV15min*	P-bit coding violations for a line during a 15-minute period.
-pcv24 *PCV24Hr*	P-bit coding violations for a line during a 24-hour period.
-pes15 *PES15min*	P-bit errored seconds during a 15-minute period.
-pes24 *PES24Hr*	P-bit errored seconds during a 24-hour period.
-pses15 *PSES15min*	P-bit severely errored seconds during a 15-minute period.
-pses24 *PSES24Hr*	P-bit severely errored seconds during a 24-hour period.
-sefs15 *SEFS15min*	Severely errored frame seconds during a 15-minute period.
-sefs24 *SEFS24Hr*	Severely errored frame seconds during a 24-hour period.
-uas15 *UAS15min*	Unavailable seconds during a 15-minute period.
-uas24 *UAS24Hr*	Unavailable seconds during a 24-hour period.

Thresholds for E3

-dsev *severity*	Severity of the alarm (1 = minor, 2 = major) for DS3.
-lcv15 *LCV15min*	Code violations for a line during a 15-minute period.
-lcv24 *LCV24Hr*	Code violations for a line seconds during a 24-hour period.
-les15 *LES15min*	Line errored seconds during a 15-minute period.
-les24 *LES24Hr*	Line errored seconds during a 24-hour period.
-sefs15 *SEFS15min*	Severely errored frame seconds during a 15-minute period.
-efs24 *SEFS24Hr*	Severely errored frame seconds during a 24-hour period.
-duas15 *UAS15min*	Unavailable seconds during a 15-minute period.
-duast24 *UAS24Hr*	Unavailable seconds during a 24-hour period.

Thresholds for PLCP

-psev *severity*	Severity of the alarm (1 = minor, 2 = major) for PLCP.
-bcv15 *CV15min*	Bipolar violation code violations during a 15-minute period.
-bcv24 *CV24Hr*	Bipolar violation code violations during a 24-hour period.
-bes15 *ES15min*	Bipolar violation errored seconds during a 15-minute period.
-bes24 *ES24Hr*	Bipolar violation errored seconds during a 24-hour period.
-bses15 *SES15min*	Bipolar violation severely errored seconds during a 15-minute period.
-bses24 *SES24Hr*	Bipolar violation severely errored seconds during a 24-hour period.
-psefs15 *SEFS15min*	PLCP severely errored frame seconds during a 15-minute period.
-psefs24 *SEFS24Hr*	PLCP severely errored frame seconds during a 24-hour period.

-puas15 *UAS15min*	PLCP unavailable seconds during a 15-minute period.
-puas24 *UAS24Hr*	PLCP unavailable seconds during a 24-hour period.

Related Commands

dspalmcnf

Attributes

Log: yes State: active Privilege: GROUP1

Example

Configure the following thresholds for triggering a major line-level alarm on line 9 in bay 2:

- The *line type* is SONET line.
- The bay is 2, and the line number is 9.
- The severity of the triggered alarm is major.
- The errored seconds for a 15-minutes period and a 24-hour period are 60 and 600, respectively.
- The severely errored seconds for a 15-minutes period and a 24-hour period are 3 and 7, respectively.
- The code violations for a 15-minutes period and a 24-hour period are 75 and 750, respectively.
- The unavailable seconds for a 15-minutes period and a 24-hour period are 10 and 10, respectively

```
node4.7.PXM1E.a > cnfalm -sonetline 2.9 -lnsev 2 -lnes15 60 -lnes24 600 -lnses15 3
-lnses24 7 -lncv15 75 -lncv24 750 -lnuas15 10 -lnuas24 10
```

Check the configuration by running **dspalmcnf** for the line number and line type in this example.

```
node4.7.PXM1E.a > dspalmcnf -sonetline 2.9
  LineNum: 2.9
  Line Stat Alarm Severity: No Alarm
               15min Threshold    24hr Threshold
  Line  ESs :  60                 600
  Line  SESs:  3                  7
  Line  CVs :  75                 750
  Line  UASs:  10                 10
```

cnfapsln

Configure APS Line—PXM1E

Configures the APS parameters for a line (*working line*). Use the **cnfapsln** command after you add the line. See the description for the **addapsln** command for a detailed explanation of adding Automatic Protection Switching (APS).

Syntax

Note 1+1 Annex B operational mode is bi-directional, non-revertive, ITU protocol only.

Note On an AXSM, if the ArchMode configured by the **addapsln** command is 1+1 Annex B, only WTR (**-wtr**), SF BER (-sf), and SD BER (-sd) are configurable with the **cnfapsln** command.

cnfapsln -w <*working line*> **-sf** <*SignalFaultBER*> **-sd** <*SignalDegradeBER*> **-wtr** <*Wait To Restore*> **-dr** <*direction*> **-rv** <*revertive*> **-proto** <*protocol*>

Syntax Description

workingLine	Slot number, bay number, and line number of the active line to configure, in the format: *slot.bay.line* Example: -w 1.1.1
SignalFaultBER	A number between 3 and 5 indicating the Signal Fault Bit Error Rate (BER), in negative powers of ten: • $3 = 10^{-3}$ • $4 = 10^{-4}$ • $5 = 10^{-5}$ Example: -sf 3
SignalDegradeBER	A negative power of 10 in the range 5–9 that indicates the Signal Degrade Bit Error Rate (BER): • $5 = 10^{-5}$ • $6 = 10^{-6}$ • $7 = 10^{-7}$ • $8 = 10^{-8}$ • $9 = 10^{-9}$ Example: -sd 5
Wait To Restore	The number of minutes to wait after the working line has become functional again, before switching back to the working line from the protection line. The range is 5–12. Example: -wtr 5

direction	Specifies the direction: 1: unidirectional, 2: bidirectional Example: **-dr 2** Bidirectional means that both the receiving and transmitting paths are switched. Unidirectional means that only the affected path, receiving or transmitting, is switched.
revertive	Enables revertive behavior. 1: non-revertive, 2: revertive Example: **-rv 1**
-proto	You can specify either Bellcore or ITU protocol by following **-proto** with either a "1" or a "2" to signify the following standard: • 1: Bellcore • 2: ITU

Related Commands

addapsln, delapsln, dspapsln, dspapslns, switchapsln, dspapsbkplane, dspbecnt

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

```
cnfapsln -w 1.1.1 -sf 3 -sd 5 -wtr 5 -dr 2 -rv 1
```

cnfatmimagrp

Configure ATM IMA Group—PXM1E

The **cnfatmimagrp** command lets you enable or disable payload scrambling for an IMA group. The default is enabled.

Syntax

cnfatmimagrp -grp <*group*> **-sps** <*PayloadScramble*>

Syntax Description

-grp *group*	The group has the format *bay.group* and the following possible values: • bay: always 2 on the PXM1E • group: 1–16
-sps	Enable of disable payload scrambling. Enter a 1 or a 2. • 1 = enable • 2 = disable Default: enabled

Related Commands

dspatmimagrp

Attributes

Log: yes State: active Privilege: GROUP1

Example

Disable payload scrambling in IMA group 2.

```
PXM1E.7.PXM.a > cnfatmimagrp 2.2
```

cnfatmln

Configure ATM Line—PXM1E

The **cnfatmln** command lets you configure the ATM layer cell header for a line.

You must configure the ATM layer cell header for a line before you activate the line using **upln** or before you add a logical port to the line using **addport**.

Syntax

cnfatmln **-ln** <*bay.line*> **-sps** <*PayloadScramble*> **-nch** <*cellhdr*> **-ncp** <*NullCell payload*> **-hcs** <*hcs*>

Syntax Description

-ln	This parameter specifies the bay and line number. The *format* for this value slightly differs on the PXM1E and AXSMs. • On the PXM1E, the format *X.line* applies to an SRM or the UNI/NNI back card. – For the UNI/NNI back card, X is always 2. – For an SRM in an MGX 8850 chassis, X can be 15 or 31. – For an SRM in an MGX 8830 chassis, X is always 7. • On any AXSM model, the format is *bay.line*. On an AXSM, *bay* is 1 or 2. In all cases, *line* can be from 1 to the highest numbered line on the back card.
-hcs	Specifies the number to disable (1) or enable (2) HCS coset. The default is enabled.
-sps	Specifies the number that enables (1) or disables (2) payload scrambling. The default value for *PayloadScramble* is enabled. The setting must be the same at both ends of the line and throughout the path.
-nch	Specifies the four-byte hexadecimal number to serve as the null cell header (*cellhdr*). The range for *cellhdr* is all 0s through ffffffff.
-ncp	Specifies a 8-bit hexadecimal byte to serve as the null cell header. The range for *cellpayload* is 1–ff. The default is 6a.

Related Commands

dspatmln

Attributes

Log: yes State: active Privilege: GROUP1

Example

For line 1 disable payload scrambling and specify a null cell header.

```
MGX8850.7.PXM1E.a > cnfatmln -ln 2.1 -sps 2 -nch ab12abab
```

For line 1, enable payload scrambling and specify null cell headers.

```
MGX8850.1.PXM1E.a > cnfatmln -ln 2.1 -sps 1 -nch 1a1a1a1a -ncp aa
```

For line 1, disable payload scrambling and specify a null cell header.

```
MGX8850.1.9.PXM1E.a > cnfatmln -ln 2.1 -sps 2 -nch ab12abab
```

cnfautocnf

Configure Auto Configuration—PXM45, PXM1E

The **cnfautocnf** command enables or disables ILMI auto configuration for a port. To use this command, the port must be added but administratively down (via **dnpnnport**).

With auto-configuration enabled, the ILMI slave side starts ILMI auto configuration to negotiate the ATM layer parameters with its peer while ports come up. With auto-configuration disabled, the ILMI slave does not start ATM layer parameter-negotiation while ports come up. Instead, the ILMI slave uses the local configuration parameters. The default state for auto-configuration is enabled.

Syntax

cnfautocnf <*portid*> [**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."
yes | no	Enable of disable ILMI automatic configuration on the port by typing "yes" or "no." Default: yes

Attributes

Log: yes State: active Privilege: GROUP1

Examples

Enable ILMI auto-configuration on port 7:2.1:11.

```
Geneva.7.PXM1E.a > cnfautocnf 7:2.1:1 yes
```

cnfbert

Configure Bit Error Rate Testing—PXM45, PXM1E

The **cnfbert** command lets you configure, start, or stop a bit error rate test (BERT) on a legacy service module. This BERT requires a Service Resource Module (SRM-3T3/C or SRME). The SRME does not support all patterns or all loopbacks on all service module lines, so use the **dspbertcap** command to see the capability for a specific service module.

Note The current release does not support DDS patterns, nor does it support BERT on a PXM45.

One BERT session at a time can run in a bay. If you attempt to configure a session while one is running, the controller blocks the second test.

Note Configure error bit injection with a second iteration of the **cnfbert** command—after you complete the initial BERT or loopback configuration.

Syntax

cnfbert -cbif <*LSMNum*> **-pat** <*bertPattern*> **-lpbk** <*loopback*> **-sbe** <*singleBitErr*> **-cir** <*dropIteration*> **-en** <*enable*>

Syntax Description

The mandatory parameters are **-cbif** <*LSMNum*> **-pat** <*bertPattern*> **-lpbk** <*loopback*> **-en** <*enable*>. Also, you can terminate the BERT session by either using the **delbert** command or using the **cnfbert** mandatory parameters and specifying the enable as **-en 6**.

-cbif	This parameter identifies the line or port to receive BERT or a loopback. The format is: *LSMslot.Line.Port* • *LSMslot* has one of the following ranges: 1–6, 9–14, 17–22, or 25–30 • *Line* as a range of 1 through the maximum number of lines on the service module. • *Port* has a range of 1 through the maximum number of ports on the service module or 0 to select no port and have only a line test.

-pat	Type a number in the range 1–32 to select a pattern (see also **dspbertcap**): 1 = all-zeros: All 0s (Continuous spaces). 2 = all-ones: All 1s (Continuous Marks). 3 = alt-One-Zero: Alternate 1/0 pattern (..1010..). 4 = doubleAltOnesZeros: Double alternate 1/0 (..1100..). 5 = oneIn4: Standard loop up remote code. 6 = oneIn8: An eight-bit pattern which contains single 1. 7 = oneIn16: N repetitive pattern, 1 in 16. 8 = threeIn24: A 24-bit pattern that contains three 1s. 9 = inbandLoopup: D4/SF Loopback activate. 10 = inbandLoopdown: D4/SF Loopback deactivate. 11 = twoE3MinusOne: This is a 2^3-1 pattern (7 bits in length). 12 = twoE4MinusOne: This is a 2^4-1 pattern (15 bits in length). 13 = twoE5MinusOne: This is a 2^5-1 pattern (31 bits in length). 14 = twoE6MinusOne: This is a 2^6-1 pattern (63 bits in length). 15 = twoE7MinusOne: This is a 2^7-1 pattern (127 bits in length). 16 = twoE7MinusOneFT1Loopup: 2^7-1 Fractional T1 Loop Back Activate. 18 = twoE9MinusOne: 2^9-1 (511 bits in length). It has the maximum of 8 (non-inverted) sequential 0s and 9 sequential 1s. 19 = twoE10MinusOne: 2^{10}-1 (1023 bits in length). 20 = twoE11MinusOne: 2^{11}-1 (2047 bits). Maximum of 15 (inverted) sequential 0s. 21 = twoE15MinusOne: 2^{15}-1 (32767 bits long). Max. of 15 (inverted) sequential 0s. 22 = twoE17MinusOne: 2^{17}-1 (131071 bits in length). 23 = twoE18MinusOne:2^{18}-1 (262144 bits in length). 24 = twoE20MinusOne: 2^{20}-1 (1048575 bits long). Max. 19 (non-inverted), sequential 0s. 25 = twoE20MinusOneQRSS: 2^{20}-1 (1048575 bits). This pattern has zero-suppression (Quasi-random Signal Source). 26 = twoE21MinusOne: 2^{21}-1 (2097151-bit length). 27 = twoE22MinusOne: 2^{22}-1 (4194303-bit length). 28 = twoE23MinusOne: 2^{23}-1 (8388607-bit length). Highest stress, pseudo-random pattern, with a maximum of 23 (inverted) sequential 0s and 23 sequential 1s. 29 = twoE25MinusOne: 2^{21}-1 (33554431 bits long). 30 = twoE28MinusOne: 2^{28}-1 (268435455 bits long). 31 = twoE29MinusOne: Highest stress pseudo-random pattern, with a maximum of 29 (inverted) sequential 0s. 32 = twoE31MinusOne: Maximum 31 sequential 0s.
-lpbk	Type a number to select a loopback (use **dspbertcap** as needed for supported loopbacks):

-sbe	The single-bit error insertion should be selected after initial configuration with the **cnfbert** command. Enter one of the following numbers: • 1: No error • 2: Insert a single-bit error
-cir	The drop iteration applies only if the loopback is 5:latchDS0Drop. Range for drop iteration is: 1–32
-en	To start or stop a BERT session, type one of the following: • 4: Create (start) BERT • 6: Destroy (stop) BERT You can start a BERT session when you configure all the parameters. To stop a session, you need to enter only **cnfbert -cbif** <*LSMNum*> and the string **-en 6.**

Related Commands

dspbert, delbert, **dspbertcap**

Attributes

Log: yes State: active Privilege: GROUP1

Example

Configure a BERT session, as follows (after using the **dspbertcap** command, as needed), then display the test after about a half hour by using the **dspbert** command:

- Card: FRSM
- Slot: 25 (lower bay, so an SRM must reside in the lower bay)
- Line: 1
- Pattern: all zeroes
- Loopback: local
- Enable: (start the test)

```
JANUS1.7.PXM.a > dspbertcap 25.1 1

Pattern List:
-------------
         1: allZeros,           2: allOnes,            3: altOneZero,
         4: doubleAltOnesZeros  6: oneIn8,             8: threeIn24,
        18: twoE9MinusOne,     20: twoE11MinusOne     21: twoE15MinusOne,
        24: twoE20MinusOne,    25: twoE20MinusOneQRSS 28: twoE23MinusOne

Device to loop options supported:
---------------------------------

         FarEnd Loopback: All listed patterns supported
                 12: lineInband,     13: lineLoopbackESF
                 18: smartJackInband  -Supported only on SRME

         Local Loopback: All listed patterns supported
                 14: localLoopback
```

```
          No Loopback: All listed patterns supported
                 15: noLoopbackCode

Use cnfbert and delbert cli to configure and delete bert

JANUS1.7.PXM.a > cnfbert -cbif 25.1.0 -pat 1 -lpbk 14 -en 4

        Successfully configured.

JANUS1.7.PXM.a > dspbert 1

        Start Date                      : 05/07/2002
        Current Date                    : 05/07/2002
        Start Time                      : 15:41:11
        Current Time                    : 16:15:00
        Physical Slot Number            : 25
        Logical Slot Number             : 25
        Line Number                     : 1 (Line test)
        Device To Loop                  : Local Loopback
        BERT Pattern                    : All Zeroes Pattern
        Error Inject Count              : 0
        Bit Count                       : 3107466159
        Bit Count Received              : 3107466159
        Bit Error Count                 : 0
        Bit Error Rate (BER)            : 0

                BERT is in sync.
```

cnfcbclk

Configure Cellbus Clock—PXM45, PXM1E

The **cnfcbclk** command lets you specify whether a Cellbus runs at the default of 21 MHz or the double-speed rate of 42 MHz. Not every Cellbus (and the card slots it supports) can receive the double-speed clock, so use the **dspcbclk** to see whether a particular Cellbus can run at 42 MHz. The application of **dspcbclk** and **cnfcbclk** is the clocking for the Route Processor Module (RPM). The RPM runs much more efficiently at 42 Mhz.

The backplane has 8 Cellbuses: 6 Cellbuses support 2 card slots and can support 21 MHz or 42 MHz clocking. Two of the Cellbuses (CB4 and CB8) support 6 cards slots and can receive only the 21 MHz clock. See the **dspcbclk** output in the Example section.

Note If you use the **cnfndparms** command to enable automatic setting of the Cellbus clock rate, the switch blocks you from setting it with the **cnfcbclk** command.

Syntax

cnfcbclk <*cellBus*> <*clockRate*>

Syntax Description

cellBus	Specifies the Cellbus. Enter a string in the range CB1–CB8. The string is not case-sensitive.
clockRate	Specifies a clock rate of 21 MHz or 42 MHz. Enter either “21” or “42.”

Related Commands

dspcbclk

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

To determine which slots can run at a higher rate, display the current Cellbus clock configuration. The display shows that all Cellbuses currently have the default speed of 21 Mhz.

```
pop20two.8.PXM.a > dspcbclk

     CellBus    Rate (MHz)    Slots     Allowable Rates (MHz)
    ------------------------------------------------------------
       CB1         21        1, 2            21, 42
       CB2         21        3, 4            21, 42
       CB3         21        5, 6            21, 42
       CB4         21        17 - 22         21
       CB5         21        9, 10           21, 42
       CB6         21        11, 12          21, 42
       CB7         21        13, 14          21, 42
       CB8         21        25 - 30         21
```

Configure a double-speed clock for Cellbus 5, then check the configuration.

```
pop20two.8.PXM.a > cnfcbclk cb5 42

pop20two.8.PXM.a > dspcbclk

     CellBus    Rate (MHz)    Slots     Allowable Rates (MHz)
    ----------------------------------------------------------
       CB1         21        1, 2            21, 42
       CB2         21        3, 4            21, 42
       CB3         21        5, 6            21, 42
       CB4         21        17 - 22         21
       CB5         42        9, 10           21, 42
       CB6         21        11, 12          21, 42
       CB7         21        13, 14          21, 42
       CB8         21        25 - 30         21
```

cnfcdmode

Configure Card Mode—PXM1E

The **cnfcdmode** command lets you specify the mode of the lower-speed lines on the PXM1E UNI/NNI back card. (It does not apply to the OC3c/SDH or higher speed lines.)

Note Use this command only *before* the applicable card is provisioned.

On the combination back card (FRU-8T3E3-4OC3), you can specify whether *all* lower-bandwidth lines operate as one of the following:

- T3
- E3

On the T1/E1 back card (RBBN-16-T1E1), you can specify whether *all* lower-bandwidth lines operate as one of the following:

- T1 (the default)
- E1

Note To see the back card type, use the **dspcd** or **dspcds** command. To see the current line type, use the **dsplns** command.

Syntax

cnfcdmode <*mode*>

Syntax Description

mode	The *mode* is a number in the range 1–4. • 1 for T1 • 2 for E1 • 3 for T3 (PXM-1E only) • 4 for E3 (PXM-1E only)

Related Commands

dsplns, **dspcd**, **dspcds**

Attributes

Log: yes State: active, standby Privilege: GROUP1

cnfcdstat

Configure Card Statistics—PXM1E

The **cnfcdstat** command lets you configure the TFTP bucket statistics for the entire UNI/NNI back card. Parts of the configuration control the *bucket interval* and the *collection interval*. These parameters affect the generation of the files that contain statistics and that are transferred to the Cisco WAN Manager (CWM) via FTP.

The card statistics level (*stats level*) cannot be set if a configuration exists on the lines, such as logical ports. You must set the *stats level* before you can add any logical ports. However, you can set the *bucket interval* and the *collection interval* after you have added logical ports.

Enabling statistics effects performance. Statistical counters use up bandwidth, which reduces the amount of bandwidth available for connections. The PXM1E provides statistical alarms to help control the amount of bandwidth used for statistics.

Statistical alarms are different than integrated alarms. An integrated alarm indicates a persistent traffic loss at either the local end, such as the LOS and LOF alarms, or at the remote end, such as the RDI alarm.

A statistical alarm indicates that a statistical counter has exceeded the threshold for alarm indication. For instance, the Severely Errored Seconds (SES) counter might exceed the corresponding 15-minute threshold. For this condition, a statistical alarm is raised, which indicates a degraded performance that is not due to persistent traffic loss.

Statistical alarms are based on fixed statistics collection intervals. There are two types of fixed statistics collection intervals:

- 15-minute
- 24-hour

The start of an interval is aligned to the time of day. For instance, 11:15, 11:30, 11:45, etc. At the end of the interval, the corresponding statistical alarms are cleared. An alarm is raised again if a counter exceeds the threshold during the new interval.

Types of Card Statistics

The types of card statistics that are reported, and at which levels, are shown in the following tables.

Table 2-7 Statistics Port To Backplane Ingress Per Connection

Statistic	Level 2	Level 3
All Cells from the port (before policer)	yes	yes
CLP0 cells from port (before policer)	yes	yes
CLP1 cells from port (before policer)	yes	yes
CLP0 non compliant cells	yes	yes
CLP1 non compliant cells	yes	yes
Total non compliant cells	yes	yes
VC queue depth (scheduled conns only)	yes	yes
VS/VD ACR (scheduled conns only)	yes	yes
EFCI=1 cells from the port	yes	yes
EOF=1 cells from the port	yes	yes

Table 2-7 Statistics Port To Backplane Ingress Per Connection (continued)

Statistic	Level 2	Level 3
Rm cells from the port (RM cells after the policer stats level3, RM cells queued for stats level2)	yes	yes
OAM cells from port	no	yes
All cells to the backplane	yes	yes
CLP0 cells to the backplane	yes	yes
CLP1 cells to the backplane	yes	yes
EFCI=1 cells to the backplane	yes	yes
Rm cells to the backplane	no	yes
OAM cells to the backplane	no	yes
All cells discarded due to queue overflow	yes	yes
CLP0 cells discarded due to queue overflow	yes	yes
CLP1 cells discarded due to queue overflow	yes	yes
EOF=1 cells discarded due to queue overflow	yes	yes
EFCI=1 cells discarded due to queue overflow	yes	yes
RM cells discarded due to queue overflow	no	yes
OAM cells discarded due to queue overflow	no	yes

Table 2-8 Statistics Backplane To Port Egress Per Connection

Statistic	Level 2	Level 3
All cells to the port	yes	yes
CLP0 Cells to Port	yes	yes
CLP1 Cells to Port	yes	yes
VC queue depth (scheduled conns only)	yes	yes
VS/VD ACR (scheduled conns only)	yes	yes
EFCI=1 cells to the port	yes	yes
EOF=1 cells to the port	yes	yes
Rm cells to the port	yes	yes
OAM cells to the port	no	yes
All cells from the bus	yes	yes
CLP0 cells from the bus	yes	yes
CLP1 cells from the bus	yes	yes
EFCI=1 cells from the bus	yes	yes
Rm cells from the bus	no	yes
OAM cells from the bus	no	yes
All cells discarded due to queue overflow	yes	yes
CLP0 cells discarded due to queue overflow	yes	yes

Table 2-8 Statistics Backplane To Port Egress Per Connection (continued)

Statistic	Level 2	Level 3
CLP1 cells discarded due to queue overflow	yes	yes
EOF=1 cells discarded due to queue overflow	no	no
EFCI=1 cells discarded due to queue overflow	yes	yes
RM cells discarded due to queue overflow	no	yes
OAM cells discarded due to queue overflow	no	yes

Syntax

cnfcdstat -i <*bucket interval*> **-ci** <*collection interval*> **-sl** <*stats level*> **-ed** <**1** | **2**>

Syntax Description

-i	For the *bucket interval*, type the whole word “five,” “ten,” and so on to select the number of minutes to wait before starting the next bucket. • **five**: 5 minutes • **ten**:10 minutes • **fifteen**: 15 minutes • **twenty**: 20 minutes • **thirty**: 30 minutes • **sixty**: 60 minutes
-ci	For the *collection interval*, type the entire word “one” or “five.” • **one**: 1 minute • **five**: 5 minutes Default: 0
-sl	For card *stats level*, type a “1,” “2,” or “3.”
enable/disable	Type the entire word “enable” or “disable.” Default: disable

Related Commands

dspcdstatcnf

Attributes

Log: yes State: active Privilege: GROUP1

Example

```
PXM1E_SJ.7.PXM.a > cnfcdstat -i ten -ci one -sl 1 -ed enable
```

cnfcdvtdft

Configure Cell Delay Variation Tolerance Default—PXM45, PXM1E

For all connections of a particular service type on a PNNI logical port, **cnfcdvtdft** configures the default number of microseconds for the cell delay variation tolerance (CDVT). The direction is ingress. The new configuration applies to new incoming calls but not existing calls. You can execute **cnfcdvtdft** whether the port is in the provisioning state (prior to **addport** on the service module) or administratively up.

Syntax

cnfcdvtdft <*portid*> <*service_category*> [*microseconds*]

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."
service_category	Service type: **cbr**, **rtvbr**, **nrtvbr**, **ubr**, or **abr**.
micro seconds	The number of microseconds for CDVT. Range: 0–2147483647 Default: 250,000

Related Commands

dspcdvtdft

Attributes

Log: yes State: active Privilege: GROUP1

Examples

Specify a CDVT of 125000 microseconds for ABR connections on port 4:1.1:11. Check the results by executing **dspcdvtdft** for the port.

```
Geneva.7.PXM.a >   cnfcdvtdft 4:1.1:11 abr 125000

Geneva.7.PXM.a > dspcdvtdft 4:1.1:11

              cbr:     rt-vbr:    nrt-vbr:        ubr:        abr:
CDVT:       250000      250000      250000      250000     125000

Geneva.7.PXM.a >
```

cnfcli

Configure CLI—PXM45. PXM1E

The **cnfcli** command is the CLI portion of a feature that lets you modify the user privilege (or access) level of one or more commands. The other portions of the feature involve text file creation on a workstation and transferring that file to the switch. For a significant number of commands, you cannot modify the privilege. A list of these commands appears in the section, "Restrictions."

The **cnfcli** command converts an ASCII text file containing privilege changes to a binary file and applies it to the commands whose privilege you have changed. The ASCII file is created on a workstation by using "vi" or any other text editor. Subsequently, you FTP the file to a TEMP directory on the node.

On the active PXM, the **cnfcli** command can do one of the following tasks according to the parameters:

- It can convert the ASCII file to a binary file then install the new access levels on that PXM.
- It can cause all changed privilege levels to revert to the default privilege levels.
- It can uninstall modified privileges from all slots in the switch.

Note Although the **cnfcli** command runs on the AXSM, it does so for debugging purposes only. Therefore, only its operation on the PXM is documented.

Feature Details

The following list describes details for this feature.

- The feature supports one ASCII file per switch. This file contains commands for the whole node and all card types and any changed privileges. Use FTP to copy this file to the switch.
- When you modify a command privilege, commands of the same name across all card types receive the same access level.
- For all standby cards redundant pairs, the privilege changes apply.
- The binary file is protected by an authentication signature generated from the binary file through a 64-bit key DES authentication encryption algorithm.
- The installed changes are persistent. The binary file is saved on the active PXM hard disk and replicated on the standby hard disk during installation.
- If you cause privileges to revert to the original, default privileges, this change is not persistent.
- If you add a PXM or service module after modifying command privileges, the installed card automatically takes the privileges from the binary file on disk when the card comes up.
- For privilege changes to become effective when a card comes up, the binary modification file must reside on disk. If the file does not exist on the disk or the computed authentication signature does not match that of the file when you run **cnfcli**, the switch uses the default command access levels.
- The **dspcli** command shows privilege changes for commands on the card where you run **dspcli**. For example, using the **dspcli** command on a PXM shows only the affected commands that are available on the PXM. To see affected commands on an AXSM, use **dspcli** on that AXSM.
- The following commands are also relevant to this feature:
  - The **saveallcnf** command saves the binary file.
  - The **restoreallcnf** command restores the saved binary file.
  - The **clrallcnf** command deletes the binary file.

Restrictions

This section lists the restrictions on the use of the **cnfcli** command.

- You cannot change a command's privilege level to CISCO_GP.
- Only the switch software can generate the binary file. Any manual changes invalidate the file.
- If the binary file becomes corrupt, the command access levels revert back to the defaults during card bring-up. To recover, repeat the installation process.
- The switch verifies command names in the ASCII file against the unchangeable commands listed in this section, but an invalid command name you enter in the ASCII file could be parsed and added to the binary file. The switch would ignore this invalid name.
- If replication to the hard drive on the standby PXM fails, the whole installation process fails.

The following list shows the commands whose privilege you cannot change.

?	**clrdisk**	**cnfuser**	**dbgswover**	**dsplmilink**	**loadrev**
abortoffline-diag	**clrlmitrace**	**commitrev**	**dbxclierrcode**	**dsplmitrace**	**logout**
abortrev	**clrlncnt**	**copychans**	**delallcon**	**dspmempart**	**memShow**
addtrapmgr	**clrsmcnf**	**copycons**	**delallusers**	**dspmsgq**	**offdiagcstat**
adduser	**clrsmcnf**	**core**	**delcons**	**dspmsgqs**	**offdiagstat**
bootChange	**cnfatlasln-diagstat**	**dbgaddilmi-addr**	**delsigdiag**	**dspportdbgcnf**	**ondiagcstat**
burnboot	**cnfcli**	**dbgcon**	**deltrapmgr**	**dspportdbgcnt**	**ondiagstat**
bye	**cnfcmdabbr**	**dbgdelilmi-addr**	**deluser**	**dspsem**	**resetcsrsem**
cc	**cnfcosbdbg**	**dbgfailspvc**	**diagdebug**	**dspsems**	**resetevtlogsem**
ccc	**cnfdiag**	**dbgfa**	**downloadflash**	**dspsnmp**	**restoreallcnf**
clidbxlevel	**cnfdiagall**	**dbgifm**	**dspatlasdiag-cnfcstat**	**dsptask**	**runrev**
clrallcnf	**cnflmitrace**	**dbgilmi**	**dspatlasdiag-statcnf**	**dsptasks**	**saveallcnf**
clrbucketcstat	**cnfpasswd**	**dbgpncli**	**dspchandbgcnf**	**dspudpdiag-cstat**	**setipconn-debug**
clrchandbgcnt	**cnfportdbg**	**dbgpnni**	**dspchandbgcnt**	**dspudpdiag-stat**	**setrev**
clrcnf	**cnfpswdreset**	**dbgpnsnmp**	**dspcosbdbg**	**exit**	**verifydiskdb**
clrcosbdbgcnt	**cnfsigdiag**	**dbgredman**	**dspcosbdbgcnf**	**help**	
clrdiagerr	**cnfsnmp**	**dbgsig**	**dspcosbdbgcnt**	**lkAddr**	
clrdiagstat	**cnftrapip**	**dbgsscop**	**dspdiagcnf**	**lkup**	

ASCII File Format

You can use any text editor to create the ASCII file. The format is one command followed by the group access level name on a line, as the following indicates:

<*command name*><space(s)><*group access level name*><carriage return>

<*command name*><space(s)><*group access level name*><carriage return>

...

<*command name*><space(s)><*group access level name*><carriage return>

The requirements and characteristics of the ASCII file are as follows:

- A line *must* be less than 80 characters long. otherwise that command is ignored.
- The access level for a command in the list of unchangeable commands does not change.
- Command names and group access level names are case sensitive.
- The valid access level names are SERVICE_GP, SUPER_GP, GROUP1, and ANYUSER. Commands with invalid group names are rejected.
- Lines that contain a pound (#) character are processed as comments and are ignored.
- The number of comments configured is logged.
- The maximum number of commands in a file is 1000.

The lines in an example file could appear as follows (all except **cnfln** were changed):

arpShow SERVICE_GP

cnfln GROUP1

cnfilmi SUPER_GP

cnfcon ANYUSER

Activating This Feature

The steps for using this feature are as follows:

1. Create an ASCII text file on a workstation.
2. FTP the ASCII file (*filename*.txt) to the node to a temporary directory (for example, C:/TMP).
3. On the CLI of the active PXM, enter the following:

   cnfcli accesslevel install C:/TMP/*filename*.**txt**

   The following events occur:

   - The system parses and converts file *filename*.txt to binary file F:/CLI/CNF/clicnf.bin, for example. (The location and name of the binary file is subject to change.)
   - The binary file is replicated on the standby PXM, if it exists. If no standby PXM initially exists in the switch, the file is synchronized from the active PXM when a new standby is installed.
   - The command access level changes go into effect on the active PXM.
   - The command access level changes go into effect on the standby PXM.
   - The command access level changes go into effect on the active and standby service modules.
4. Verify that the installation process was successful by doing the following:
   - The binary file exists on the active PXM disk and is replicated on the standby PXM disk.

- Display the changes on each slot by entering the following at the CLI prompt:

  cnfcli accesslevel display
- The event log shows the number of command access levels changed for a slot.

File Locations

The binary file resides in a directory named F:/CLI/CNF/ after the installation finishes. If you do not create a binary file through the **cnfcli** command, no file resides in this directory.

Errors and Failure Conditions

This section lists possible errors, failures, and solutions.

- If a card is unable to read the file from the disk while the card comes up, it uses the default access levels. Use the sequence **cnfcli accesslevel install** on the PXM to recover.
- If a file has a command name that is not recognized by the run-time image, the command is ignored, and the installation continues.
- If a service module does not respond back to the active PXM within a certain amount of time during the installation, the PXM logs it as a failure or time-out. In the latter case, use the sequence **dspcli accesslevel** to check the installation outcome and **cnfcli accesslevel install** to recover.
- An event of minor severity is logged if installation fails during card bring-up.
- CLI is a low-priority application. Thus, during the installation process initiated by the active PXM, some service modules may fail the installation. An example is when the standby PXM is coming up, where much of the CPU is used for synchronization between the active and standby PXMs.
- If the binary file becomes corrupt, the command access levels revert back to the defaults during card bring-up. To recover, repeat the installation process.

Syntax

With a single iteration of the **cnfcli** command, you can either install the file with modified privilege levels or direct the switch to revert to the default privilege levels. The possible sequences of this command and its parameters are as follows:

cnfcli <**accesslevel**> <**install**> [*full path file name*]

cnfcli <**accesslevel**> <**default**>

Syntax Description

accesslevel	The string "**accesslevel**" is a subcommand,
install	The keyword **install** is followed by the full path to the ASCII file.
uninstall	To uninstall the ASCII file, type the keyword **uninstall**.
full path file name	The *full path file name* follows the keyword.
default	The string "**default**" is a keyword that causes the system to revert to the default access levels. Do not enter **default** with the **install** keyword or the path name.

Related Commands

ftp, **dspcli**

Attributes

Log: yes State: active Privilege: CISCO_GP

Example

This example consists of the following tasks:

1. Create an ASCII file named “clicnf.txt” with the privilege changes shown in the example, below. Note that some commands have associated garbage characters or no privilege, and some commands cannot take a change of privilege. The system flags these problems during **cnfcli** operation.
2. FTP the file to C:/TMP on the switch.
3. Apply the changed privileges by using the **cnfcli** command.
4. On the PXM, use the **dspcli** command to see the commands with modified privileges.
5. On the AXSM, use the **dspcli** command to see the commands with modified privileges.
6. Return to the PXM CLI and uninstall the modified privileges.
7. Go to the AXSM and run **dspcli accesslevel**.

```
clicnf.txt
**********************
cnfsct SERVICE_GP adfjafkd
cnfserialif SERVICE_GP
cnfsig SERVICE_GP
cnfsigdiag SERVICE_GP
 cnfsnmp SERVICE_GP
 cnfsntp
 cnfsntprmtsvr SERVICE_GP
cnfspvcprfx SERVICE_GP
cnfspvcres i
cnfsrmclksrc ;
cnfsscop SERVICE_GP



cnfstatsmgr SERVICE_GP
cnfsvcoverride SERVICE_GP
cnftmzn SERVICE_GP
  addapsln SERVICE_GP
    addchanloop SERVICE_GP
    addcon SERVICE_GP
    addfdr SERVICE_GP
    addlmi SERVICE_GP
    addlnloop SERVICE_GP
    addpart SERVICE_GP
    addport SERVICE_GP
    addrscprtn SERVICE_GP
    arpFlush SERVICE_GP
    arpShow SERVICE_GP
    bootChange SERVICE_GP
    bye SERVICE_GP
    cc SERVICE_GP
**************************
```

FTP the file to C:/TMP, for example, then use that whole path name with the **cnfcli** command.

```
jeff.8.PXM.a > cnfcli accesslevel install C:/TMP/clicnf.txt
Reading input file C:/TMP/clicnf.txt...
```

```
Total of 35 lines in file:
 - 24 commands accepted
 - 5 commands found not allowed
 - 6 commands with invalid access level name
 - 0 comment lines

Converting input file to binary file...done
Writing binary file to disk...done
Updating command access levels for this slot...done
Send request to slot 7 to install...done
Send request to slot 2 to install...done
Send request to slot 6 to install...done
Send request to slot 9 to install...done
Send request to slot 10 to install...done


jeff.8.PXM.a > dspcli accesslevel
Command Name                          Current      Default
-------------------------------------------------------------
addapsln                              SERVICE_GP   GROUP1
addlnloop                             SERVICE_GP   GROUP1
arpFlush                              SERVICE_GP   SUPER_GP
arpShow                               SERVICE_GP   ANYUSER
cnfsct                                SERVICE_GP   GROUP1
cnfserialif                           SERVICE_GP   SUPER_GP
cnfsig                                SERVICE_GP   GROUP1
cnfsntprmtsvr                         SERVICE_GP   GROUP1
cnfspvcprfx                           SERVICE_GP   SUPER_GP
cnfsscop                              SERVICE_GP   GROUP1
cnfsvcoverride                        SERVICE_GP   SUPER_GP
cnftmzn                               SERVICE_GP   SUPER_GP

12 command access levels changed.

jeff.8.PXM.a > cc 2

(session redirected)

jeff.2.AXSM.a > dspcli accesslevel
Command Name                          Current      Default
-------------------------------------------------------------
addapsln                              SERVICE_GP   GROUP1
addcon                                SERVICE_GP   GROUP1
addfdr                                SERVICE_GP   GROUP1
addlmi                                SERVICE_GP   GROUP1
addlnloop                             SERVICE_GP   GROUP1
addpart                               SERVICE_GP   GROUP1
addport                               SERVICE_GP   GROUP1
addrscprtn                            SERVICE_GP   GROUP1
arpFlush                              SERVICE_GP   SUPER_GP
arpShow                               SERVICE_GP   ANYUSER

10 command access levels changed.

jeff.2.AXSM.a > cc 8

(session redirected)

jeff.8.PXM.a > cnfcli accesslevel uninstall
Uninstall command access levels for this slot...done
Send request to slot 7 to uninstall...done
Send request to slot 2 to uninstall...done
Send request to slot 6 to uninstall...done
Send request to slot 9 to uninstall...done
```

```
Send request to slot 10 to uninstall...done

jeff.8.PXM.a > cc 2

(session redirected)


jeff.2.AXSM.a > dspcli accesslevel
Command Name                          Current      Default
-------------------------------------------------------------

0 command access levels changed.
```

cnfclkparms

Configure Clock Parameters—PXM45, PXM1E

The **cnfclkparms** command lets you configure the *signal type* and *cable type* for E1 BITS sources. The configuration applies to both (upper and lower) lines. This command applies to manual clock distribution but not Network Clock Distribution Protocol (NCDP—see **cnfncdp** description).

Note In the current release, you can specify only the cable type.

Syntax

cnfclkparms <*signal type*> <*cable type*>

Syntax Description

signal type	Specifies whether the signal type for the clock is data or a synchronization signal. Enter a 1 for data or a 2 for synchronization. **Note** In the current release, the synchronization type is not supported.
cable type	Specifies whether the cable is a twisted pair or a coaxial cable. Enter a 1 for twisted pair or 2 for coaxial. Default: 1 (twisted pair)

Related Commands

None

Attributes

Log: no State: active Privilege: ANYUSER

Example

Set the cable type to coaxial then check it.

```
Unknown.8.PXM.a > cnfclkparms 1 2

Unknown.8.PXM.a > dspclkparms
BITS Cable Type:        Coaxial
BITS Signal Type:        Data Mode
```

cnfclksrc

Configure Clock Source—PXM45, PXM1E

The **cnfclksrc** command lets you configure a primary or secondary clock source for the node. This command supports the *manual* clock distribution mode—where the mechanism for propagating a primary clock throughout the network must be configured at each switch. To enable the automatic clock distribution provided by the Network Clock Distribution Protocol (NCDP), use the **cnfncdp** command.

A clock source can be:

- An external device that connects to the PXM-UI S3 card
- An NNI port on the PXM1E UNI/NNI back card
- An NNI port on an active service module

Clock Operation

When a switch first powers up, the internal oscillator on the PXM provides the clock to the node. Thereafter, you can configure the clock sources at each node according to a well-designed plan for network synchronization.

A typical configuration for a network starts with a Building Integrated Timing System (BITS) clock source of stratum 3 or higher on one of the switches. Therefore, the node with the BITS clock becomes the *master clock source* for the network. The active clock drives the clock line on the backplane, and each service module takes its clock from this line. Thereafter, the clock goes out through every line to other switches in the network. At the other switches, you can configure one of the lines to be the primary or secondary clock source for that switch.

(For a description of line-level *looped* timing, refer to the **cnfln** description. With looped timing, a clock arrives on a line and is redirected to become the transmit clock for only that line.)

Prerequisites to Clock Configuration

Whether it uses BITS or an NNI line for a clock source, the node first must have a network controller. See the **addcontroller** description. For an NNI-sourced clock, the additional prerequisites are:

- Activating the applicable line through **upln**
- Creating *logical* ports through **addport**
- Creating resource partitions through **addrscprtn**

Database Updates and Clock Configuration

If the node has a redundant PXM, it automatically receives changes you make to the clock configuration as well as automated clock changes that occur under node management. For example, if you delete a clock source (**delclksrc)**, the standby card automatically implements this configuration change. Also, any switch from primary to secondary source is recorded by the standby PXM.

Syntax

The syntax for **cnfclksrc** depends on the clock source.

For the external BITS clock:

cnfclksrc <*priority*> <*portid*>

portid has the format [*shelf.*]*slot.port* –**bits e1** | **t1** [–**revertive** <**enable** | **disable**>]

For AXSM-sourced clock (note the positions of the periods and colons):

cnfclksrc <*priority*> <*portid*>

portid has the format [*shelf.*]*slot:subslot.port:subport* or *slot.port* on a PXM1E

Syntax Description

priority	The priority of the clock source is either *primary* or *secondary.* The default is primary.
portid for BITS	• *shelf* is always 1 and is purely optional. • *slot* is the logical slot number 7 for a BITS circuit on the PXM UI S3 (regardless of where the active PXM resides). • *port* is a logical number that indicates the upper or lower external clock connector on the UI S3 back card. The logical port number for the upper connector is 35. The lower connector is 36. • **bits** This keyword is required once you specify slot number 7 (or 1 in an MGX 8830 chassis) and a port number of 35 or 36 because you have identified a BITS clock source. Type the string "–bits" followed by a space then either "e1" or "t1." See "Usage Guidelines" for details. • **revertive**—an option that applies to only the BITS clock. Type the string "–**revertive**" followed by the complete word "enable" or "disable." The default is disable. See "Usage Guidelines for cnfclksrc" for important details.
portid on service module or PXM1E UNI or NNI	• *shelf* is always 1 and is purely optional. • *slot* is the slot number of the service module or active PXM1E (if an NNI port on the back card is used). • *subslot* identifies the upper or lower bay of the back card—either a 1 for the upper bay or 2 for the lower bay (default is 1). • *port* is the line number on the AXSM or PXM1E UNI/NNI back card. (The specified line must already be active (see **upln**). • *subport* is the logical port number. This value is the *logical* port (or *ifNum*) that you must have assigned through **addport**. Also, the logical port must be known to PNNI (see **dsppnports**). The ranges depend on the card and model, as follows: • PXM1E: 1–31 • AXSM: 1–60 • AXSM-E: 1–32 • For other service modules, see individual card descriptions

Usage Guidelines for cnfclksrc

The following sections contain relevant information for **cnfclksrc** and details about its parameters.

Specifying Primary and Secondary Clock Sources

Before using the **cnfclksrc** command, note the following:

- The controller must have been specified by using **addcontoller**.
- Line-sourced clocks require that the lines, ports, and resource partitioning have been configured.
- A switch can have one primary source and one secondary source.
- For each execution of **cnfclksrc**, you can specify only one clock source (either but not both primary and secondary). Therefore, you must repeat **cnfclksrc** to specify the other clock source.
- If you do not specify a secondary source, the internal oscillator serves as the secondary source.
- For clock sources on the PXM1E UNI/NNI back card or AXSM, Cisco recommends that primary and secondary sources be on separate cards or at least on separate lines. (On the PXM1E, separate cards are *not* possible, but separate lines *are* possible.)
- Revertive mode applies to only a primary BITS clock. For more details on the revertive option, see the section, "Configuring a BITS Clock."
- The switch constantly monitors the state of the clocks. For information on clock alarms, see the **dspclkalms** description.

Changing the Priority of a Clock Source

To change the priority of a clock source, the command sequence depends on the priority of the sources:

- To change the priority of a clock from primary to secondary or secondary to primary, you must first execute **delclksrc** to de-configure each source.

To change from one primary source to another primary source, you need to execute only **cnfclksrc** To change the priority of a clock source, the command sequence depends on the priority of the sources:

- To change the priority of a clock from primary to secondary or secondary to primary, you must first use the **delclksrc** command to de-configure each source.
- To change from one primary source to another primary source, you need to execute only **cnfclksrc** for the new primary source—the system automatically de-configures the existing primary source.

Responses to Clock Failures

If the current clock is the primary or secondary source and that source fails, the clock circuitry goes into *holdover* mode. Holdover is a standards-based response to a failed clock. In holdover, the UI-S3 card maintains the clock based on the clock signal's parameters as recorded in hardware. Even for a stratum 1 source, the UI-S3 card maintains the frequency and stability of the failed clock source for up to 24 hours. If the source does not return to use in 24 hours, the node switches to the internal oscillator.

Configuring a BITS Clock

You can configure a node to obtain its primary and secondary clocks from a BITS device connected to the PXM-UI S3. The PXM-UI S3 can support stratum levels 1–3 and has two connectors to receive these highly stable clocks from an external device. If the primary and secondary clocks are externally-sourced, they must be the same rate. For example, you cannot specify a T1 for primary and an E1 for secondary.

Note Whenever the internal oscillator becomes the primary or secondary source due to a failure, a minor alarm is triggered on the local node.

You can enable a *revertive* mode for the primary BITS clock. The revertive function on the PXM applies when the primary clock source fails. A failure is a loss of the primary clock source after the node has locked to that clock source. If a primary clock recovers from a failure and revertive mode is enabled, the node automatically reverts to the primary source. The restored primary clock must be available for 12 seconds before it again becomes the active clock source.

If the primary clock source fails and revertive mode is disabled, you must re-configure the primary source after the failure has been corrected.

To change the mode from revertive to non-revertive, use **cnfclksrc**. Follow the portID and priority with "–**revertive** disable."

Note For an E1 BITS clock, the current product is automatically limited to two parameters of an E1 line that is used as a BITS source: twisted pair cabling and date-type signaling.

Related Commands

dspclksrcs, **delclksrc**, **dspclkalms**, **cnfclkparms**

Attributes

Log: yes State: active Privilege: GROUP1

Examples

Configure the E1 clock at the upper connector of the PXM-UI S3 as the primary source. Configure subport (logical port) 10 on the line of the AXSM-1-2488 in slot 3 as the secondary. For the secondary source on the AXSM, note the locations of the periods and colons. Upon successful execution, the system displays a confirmation message.

```
pinnacle.7.PXM.a> cnfclksrc primary 7.35 -bits e1
Clock Manager has been successfully executed.

pinnacle.7.PXM.a> cnfclksrc secondary 3:1.1:10
Clock Manager has been successfully executed.
```

Configure a primary network clock to revert to the highest priority E1 clock source after recuperation from a failure. Upon successful execution, the system displays a confirmation message.

```
pinnacle.7.PXM.a> cnfclksrc primary 7.36 -bits e1 -revertive enable
Clock Manager has been successfully executed.
```

cnfcmdabbr

Configure Command Abbreviation—PXM45, PXM1E

The **cnfcmdabbr** command lets you specify whether the CLI requires the entire name of a command or accepts the first unique string of characters that identifies a command. For example, “loa” is enough to identify **loadrev** if command abbreviation is enabled. (The string “lo” is not enough to identify a particular command because of the **logout** command.)

Syntax

cnfcmdabbr <*flag*>

Syntax Description

flag	A Boolean expression to enable or disable command abbreviation: enter “on” to enable or “off” to disable command abbreviation.

Related Commands

dspcmdabbr

Attributes

Log: yes State: active Privilege: SERVICE_GP

Example

Enable command abbreviation, then check its status by executing **dspcmdabbr**.

```
excel.1.3.PXM.a > cnfcmdabbr on

Command Abbreviation feature being enabled

pop20one.7.PXM.a > dspcmdabbr
Command Abbreviation feature currently enabled
```

Test the functionality of command abbreviation by entering “loa” (for **loadrev**) without parameters.

```
pop20one.7.PXM.a > loa
ERR: Syntax: loadrev <slot> <revision>
           revision - revision number. E.g.,
                      2.0(1)
                      2.0(1.255)
                      2.0(0)I or 2.0(0)A
                      2.0(0)P1 or 2.0(0)P2
```

cnfcon

Configure Connection—PXM1E

The **cnfcon** command lets you modify the bandwidth, policing, and routing parameters of an existing endpoint. On the PXM1E, this command applies to only an SPVC or an SPVP with an endpoint that exists on the UNI/NNI back card.The command parameters consist of:

- A logical port, VPI, and VCI to identify the connection
- Bandwidth parameters for the local (master) end then the remote (slave) end
- Policing parameters for the connection as a whole

After you specify the mandatory connection identifier, all other parameters are optional.

Usage Guidelines for the cnfcon Command

The following sections discuss the application of certain **cnfcon** parameters.

Note On DAX connections, using **cnfcon** at the slave end has no effect. For DAX connections, use **cnfcon** at the master end only, and the parameters will take effect on the controller as well.

Traffic Parameters

Traffic parameters such as PCR, SCR, MBS are entered at both the master and slave endpoints for both the forward and reverse directions. Be sure that the value entered as “local” on one end is equal to the value entered as “remote” on the other end. For example, the *lpcr* on the slave endpoint should be same as the *rpcr* on the master endpoint and vice versa when you provision the connection at the other end. If you modify traffic parameters after creating an SPVC, you just modify them at either the master endpoint or the slave endpoint.

Traffic parameters such as CDV, CTD are entered at both the master and slave endpoints for both the forward and reverse directions. However, the values of these parameters entered at the slave end are ignored during call setup. Therefore, you can specify the *lcdv, rcdv, lctd* and *rctd* options at the master end only.

Routing Parameters

Routing parameter, such as maximum route cost (**-mc** *maxcost*) or the routing priority (**-rtngprio** *routingPriority*) need to be entered at the master endpoint only. The values of the parameters entered at the slave end are ignored during call setup.

You can assign a priority at the master end of an SPVC or SPVP. The PNNI controller routes higher priority connections before lower priority connections. The user-configurable range for a connection is, in descending order of priority, 1–15. The default is 8. See **cnfpri-routing** for a detailed description of the Priority Routing feature. Also, the **cnfpri-routing** command lets you configure groups of bandwidth so that the order of routing also reflects the bandwidth requirements of the connection.

If you use the **cnfcon** command to modify *only* the routing priority of a connection, PNNI does not immediately re-route the connection. Nevertheless, if you run **dspcon** for such a changed connection at the master endpoint, it immediately shows the changed priority even before PNNI re-routes the connection. You can also use the **dsppncon** command to see the priority of the SVC portion that is associated with master and slave endpoints. Note that the **dsppncon** command shows the new priority only after PNNI re-routes the connection.

Frame Discard

The current release supports two types of frame discard for VCCs carrying AAL5 cells. These frame discard mechanisms are *policing-based* and *congestion-based*. Policing-based discard depends on the **-frame** option in the **addcon** or **cnfcon** command (specified only at the master end). Congestion-based policing for all cell streams is governed by settings in the current port SCT. The two types of frame discard are independent of each other and may or may not coexist.

When *policing-based frame discard* is enabled, the policer discards all cells of an AAL5 frame that follow a non-compliant cell. Specific actions for PCR and SCR non-compliance are detailed in the section, "Policer Settings and Consequences."

When *congestion based frame discard* is enabled by the current port-level SCT, if the arriving cells exceed an EPD threshold, the whole frame is discarded.

The table below shows the action applied to a connection according to the frame discard setting. The following information clarifies the table contents:

- *Frame-based policing* is represented by the letter "A." This policing is specified by the **-frame** option in the **addcon** or **cnfcon** command.
  - A value of 0 for "A" means frame-based policing is disabled. It also implies that regular, cell-based policing will be in effect.
  - A value of 1 means frame-based policing is enabled.
- *Frame-based congestion management* is represented by the letter "B." This congestion management is specified by the port SCT in use. (To see the SCT thresholds and SCT ID for a port, use the **dspportsct** command.)
  - A value of 0 for "B" means that the CLP Lo/Hi thresholds take effect during congestion and that discards would occur on a cell-by-cell basis.
  - A value of 1 implies that the EPD0/1 thresholds would take effect during congestion and that discards would occur on an AAL5 frame-basis.

Frame Discard Setting	*Policer Behavior (frame discard in **addcon**)*	*Congestion Thresholds (SCT setting)*
A = 0, B = 0	Cell-based policing	CLP lo/hi thresholds
A = 0, B = 1	Cell-based policing	EPD thresholds
A = 1, B = 0	Frame-based policing	CLP lo/hi thresholds
A = 1, B = 1	Frame-based policing	EPD thresholds

Restrictions

Frame discard applies to connections that use ATM AAL5 adaptation (ITU-T I.363.5). Although enabling frame discard on an AAL5 cell stream is not mandatory, it helps improve the useful throughput on a VC by discarding complete frames during times of congestion on the switch. Without frame discard enabled on an AA5 cell stream, corrupted AAL5 frames (containing dropped cells) can reach upper layers and trigger numerous re-sends. Conversely, enabling frame discard on other (non-AAL5) types of cell streams can bring uncertain results. In a worst case, total discard of end-to-end traffic of a non-AAL5 stream can occur in either direction.

The hardware does not support frame-based discard on VPCs. Only VCCs support frame-based discard.

Note An important caveat exists for VPCs that were added with frame discard enabled prior to version 3.0.23 (the release where the two types of frame discard became available). The switch lets you enable frame discard on a VPC even though hardware does not support it. If such a VPC (with frame discard enabled) already exists on the node when you upgrade to 3.0.23, 4.0.10, or later, you cannot subsequently modify the VPC unless you *delete* it then re-add it with frame discard disabled. To avoid the need to delete a VPC, you must disable frame discard on any such VPCs *before* upgrading to 3.0.23 or later releases.

Policer Settings and Consequences

This section describes two types of conformance tests that occur when you enable frame discard through this frame discard parameter. The tests are PCR and SCR conformance tests.

The PCR conformance test is performed using GCRA1 in exactly the same manner as normal cell policing. For this test, the Action *should* be set to discard. If the PCR conformance test is deemed to be non-compliant, the action will be to discard of the cells in the current frame. In other words, a "partial packet action" can be taken when cells in the current frame fail this conformance test. The PCR conformance test implements a partial packet discard (PPD). The policer does a complete frame discard if the first cell of the packet was discarded as a result of PCR failure

The SCR conformance test is performed using GCRA2, although it differs slightly from the normal cell policing.The SCR conformance test is performed only at the start of a frame. If the first cell of a frame is a conforming CLP=0 cell, then all remaining cells will be as if they are conforming to the SCR conformance test. The SCR conformance test can be programmed to tag non-conforming CLP=0 cells. If the first cell of a frame is a non-conforming CLP=0, then that cell and all other cells in that frame (including the EOM) will be tagged. In other words, the tagged action taken by this conformance test is determined at frame boundaries only. If the SCR conformance test is programmed to discard, the policer can discard at any point in the frame and is not restricted by frame boundaries.

Local-Only Parameters

The parameters CDVT, stats enable, cc enable (specified using **-cdvt**, **-stat**, **-cc**) are significant only at the endpoint where you enter them. Therefore, they can be different at each end of the connection.

Syntax

cnfcon <*ifNum*> <*vpi*> <*vci*>
[**-lpcr** <*local to remote PCR*>] [**-rpcr** <*remote to local PCR*>] [**-lscr** <*local to remote SCR*>]
[**-rscr** <*remote to local SCR*>] [**-lmbs** <*local to remote MBS*>] [**-rmbs** <*remote to local MBS*>]
[**-lcdv** <*local to remote maxCDV*>] [**-rcdv** <*remote to local maxCDV*>]
[**-lctd** <*local to remote maxCTD*>] [**-rctd** <*remote to local maxCTD*>] [**-lmcr** <*local to remote MCR*>]
[**-rmcr** <*remote to local MCR*>] [**-cdvt** <*local CDVT*>] [**-cc** <*OAM CC Cnfg*>] [**-stat** <*Stats Cnfg*>]
[**-frame** <*frame discard*>] [**-mc** <*Max Cost*>] [**-segep** <*OAM segment endpoint*>]
[**-lputil** <local -> remote *PUtil*>] [**-rputil** <remote -> local *PUtil*>] [**-rtngprio** <*routingPriority*>]

Syntax Description

Note Although the help data shows that this command has a parameter for OAM continuity check (OAM CC), the PXM1E does not support this parameter.

ifNum	The logical interface (or port) number. This *ifNum* corresponds to the *ifNum* added through the **addport** command. The range is 1–31. **Note** When you add an endpoint on an NNI, make sure that PNNI signaling is disabled on the PXM (**cnfpnportsig** <*portid*> **-nniver none**).
vpi	Virtual path identifier value in the range 0–255 (UNI) or 0–4095 (NNI or VNNI). For VNNI, specify one VPI per port.
vci	Virtual connection identifier (VCI): • For a VCC on a UNI, the range is 1–4095. On an NNI or VNNI, the VCI range is 1–65535. For MPLS, the recommended minimum VCI is 35. • For a VPC, the *vci* is 0.
service type	Type a number in the range 1–12 to specify one of the following service types: • 1=CBR1 (Constant Bit Rate 1) • 2=VBR1RT (Variable Bit Rate 1, Real Time) • 3=VBR2RT (Variable Bit Rate 2, Real Time) • 4=VBR3RT (Variable Bit Rate 3, Real Time) • 5=VBR1NRT (Variable Bit Rate 1, Non-Real Time) • 6=VBR2NRT (Variable Bit Rate 2, Non-Real Time) • 7=VBR3NRT (Variable Bit Rate 3, Non-Real Time) • 8=UBR1 (Unspecified Bit Rate 1) • 9=UBR2 (Unspecified Bit Rate 2) • 10=ABRSTD (Standard ABR—see **cnfabr**) PXM1E does not support VS/VD • 11=CBR2 (Constant Bit Rate 2) • 12=CBR3 (Constant Bit Rate 3)
mastership	Value to specify the endpoint as master or slave: • 1 or ‘m’ specifies the master end. • 2 or ‘s’ specifies the slave end.
-slave	Keyword for the slave-end identifier, an item you *enter* at the master end. This keyword is mandatory when you are adding a *master* endpoint (*mastership*=m or 1)**.**
-lpcr	Local peak cell rate (PCR). Specifies the PCR from a local endpoint to a remote endpoint (3–5651328 cells per second). PCR is the maximum cell rate for the connection at any time.
-rpcr	Remote peak cell rate (PCR). Specifies the PCR from a remote endpoint to a local endpoint (3–5651328 cells per second). PCR is the maximum cell rate for the connection at any time.
-lscr	Local sustained cell rate (SCR). Specifies the SCR from a local endpoint to a remote endpoint (3–5651328 cells per second). SCR is the maximum cell rate that a connection can sustain for long periods.
-rscr	Remote sustained cell rate (SCR). Specifies the SCR from a remote endpoint to a local endpoint (3–5651328 cells per second). SCR is the maximum cell rate that a connection can sustain for long periods.
-lmbs	Local maximum burst size (MBS). Specifies the MBS from a local endpoint to a remote endpoint (1–5000000 cells). MBS is the maximum number of cells that can burst at the PCR and still be compliant.

-rmbs	Remote maximum burst size (MBS). Specifies the MBS from a remote endpoint to a local endpoint (1–5000000 cells). MBS is the maximum number of cells that can burst at the PCR and still be compliant.
-cdvt	Local cell delay variation tolerance (CDVT). Specifies the CDVT from a local endpoint to a remote endpoint (1–5000000 microseconds). Cell Delay Variation Tolerance controls the time scale over which the PCR is policed. Note that no *remote* CDVT is necessary.
-lcdv	The local cell delay variation (CDV) parameter specifies the peak to peak CDV from the local endpoint to the remote endpoint. The range is 1–16777215 microseconds. To revert to the default value for this parameter, type "–1."
-rcdv	The remote cell delay variation (CDV) parameter specifies the peak to peak CDV from the remote endpoint to the local endpoint. The range is 1–16777215 microseconds. To revert to the default value for this parameter, type "–1."
-lctd	Local cell transfer delay (CTD). This parameter specifies the CTD from a local endpoint to a remote endpoint. The range is 0–65535 microseconds. To revert to the default value for this parameter, type "–1."
-rctd	Remote cell transfer delay (CTD). This parameter specifies the CTD from the remote endpoint to the local endpoint. The range is 0–65535 microseconds. To revert to the default value for this parameter, type "–1."
-cc	Operations, administration, and maintenance continuity check (OAM CC): enter 1 to enable or 0 to disable. To provision continuity checking, enable this function at both ends of the connection, otherwise a connection alarm results. (As you create a connection with this parameter, the connection goes into alarm until both ends of the connection are added.) Default: 0 (disabled)
-stat	Statistics collection: enter 1 to enable or 0 to disable. The default is 0. The Cisco WAN Manager tool collects statistics for a connection if you enable it here. Statistics collection is disabled for all connections by default. Statistics collection has an impact (which may not be significant) on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrants such a feature.
-frame	This option lets you enable or disable frame-based policing and discard for the VCC (no VPCs). See the section, "Frame Discard," for important details on frame discard. **Note** This **-frame** parameter is specified only at the master end. Possible values: • 1 to enable • 0 to disable Default: 0 (disabled)

-mc Maximum cost (*maxcost*): a value that creates a priority for the connection route. The switch can select a route if the cost does not exceed *maxcost*. The range for *maxcost* is 0–4294967295. If you do not specify *maxcost*, the connection has the highest routing priority by default. Therefore, the *maxcost* parameter lets you lower the routing priority of a connection. Note the following effects of values in the maxcost range:

- To assign the highest priority to an SPVC based on cost (any path is acceptable), use the default of 4294967295. If you do not specify maxcost, the cost appears as a –1 in the **dspcon** output. (You cannot enter a –1 for *maxcost* in the **addcon** command, but display commands generally can show unspecified values as –1.).
- Enter a 0 for *optimal* (or least expensive) path.
- For any non-zero *maxcost*, PNNI allows a path if the total cost for all links does not exceed *maxcost*.

Although maxcost applies to an individual connection, routing costs substantially depend on a cost-per-link that you specify at every PNNI logical port in the network. The applicable PNNI command is **cnfpnni-intf**.

The cost of a route is as follows:

routing cost=sum of all costs-per-link

where:

- The cost-per-link has been specified through **cnfpnni-intf** at the egress of each logical port under PNNI control throughout the network. The impact of cost-per-link is cumulative, not just local.
- Each link has two egress points: one going to the far endpoint, and one in the return direction. The cost-per-link can differ in each direction, so the switch adds the cost-per-link in each egress instead multiplying cost by two.

The cost-per-link applies to all connections of a particular service type on a port. For example, the cost-per-link is the same for all VBR.1 connections that PNNI controls on a port, and this cost can differ from all UBR.1 connections on the same port. Alternatively, you can use **cnfpnni-intf** to make the cost-per-link the same for all service types.

To illustrate by examining a four-link route:

1. You specify a *maxcost* of 100000.
2. A route under consideration has four links for a total of eight egress points.
3. The cost-per-link at 6 ports is 5040 (the default) and 10000 at 2 ports.

The route is usable because the cost of 50240 is less than the maxcost of 100000.

Default: 4294967295 The default makes *maxcost* meaningless for the connection, so PNNI does not use it as a routing metric.

Note To return *maxcost* to the default, use the **cnfcon** command with the parameter **-mc 4294967295**.

-lputil Local Percentage Utilization: Range 1-100. The default is 100.

-rputil Remote Percentage Utilization: Range 1-100. The default is 100.

-rtngprio You can modify the priority of this connection. The descending range of priorities is 1–15. The default is 8. See the **cnfpri-routing** description for details on this feature.

Related Commands

addcon, **delcon**, **dspcon**, **dspcons**, **dspconstats**

Attributes

Log: yes State: active Privilege: GROUP1

Example

Enable OAM CC in the connection with a VPI and VCI of 10 40 on interface 1.

```
MGX8850.7.PXM1E.a > cnfcon 1 10 40 -cc 1
Configuration successful
```

Assign a routing priority of 3 to the connection with a VPI and VCI of 102 and 102, respectively, on interface number 1. Check the result by using the **dspcon** command.

```
M8850_LA.7.PXM1E.a > cnfcon 1 102 102 -rtngprio 3
Configuration successful

M8850_LA.7.PXM1E.a > dspcon 3:1.1:1 102 102
Port                    Vpi Vci             Owner      State      Persistency
------------------------------------------------------------------------------
Local  3:1.1:1          102.102             MASTER     FAIL       Persistent
       Address: 47.00918100000100001a531c2a.000001031801.00
       Node name: M8850_LA
Remote Routed           102.102             SLAVE       --        Persistent
       Address: 47.00918100000200036b5e30cd.000001011802.00
       Node name:

-------------------- Provisioning Parameters --------------------
Connection Type: VCC          Cast Type: Point-to-Point
Service Category: CBR         Conformance: CBR.1
Bearer Class: BCOB-X
Last Fail Cause: unallocated (unassigned) number        Attempts: 20055
Continuity Check: Disabled    Frame Discard: Disabled
L-Utils: 100   R-Utils: 100   Max Cost: -1    Routing Cost: 0
OAM Segment Ep: Enabled
Priority: 3
```

cnfconpref

Configure Preferred Route for a Connection—PXM45, PXM1E, PXM1

The **cnfconpref** commands lets you associate a preferred route with an SPVC or SPVP. A connection can have only one preferred route. If a connection already has a preferred route associated with it, you can replace that route with a new one. See the **addpref** description for more details on preferred routes.

The preferred route must already exist for you to associate it with a connection. The steps can be two or possibly all three of the following:

1. Create the preferred route by using the **addpref** command.
2. If not already done, create the SPVC by using the **addcon** command.
3. Associate the preferred route with the SPVC by using the **pref** command.

Note An SPVC can be associated with one preferred route. For the preferred routes feature, you specify only the master endpoint of the connection. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.

Syntax

cnfconpref <*portid*> <*vpi*> <*vci*> <*rteID*> [**-assoc** {**set** | **clr**}] [**-direct** {**set** | **clr**}] [**-onPrefRte** {**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 of the connection. Range: 0–255 on a UNI, 0–4095 on an NNI Default: none
vci	VCI of the connection. If the VCI is 0, the connection is an SPVP. Range: 1–65535 Default: none
rteID	The route identifier. Range: 1–5000 Default: none

-assoc	The **-assoc** option either associates (**-assoc set**) or disassociates (**-assoc clr**) the specified route to the specified connection. If you type **-assoc set** to associate a route, the command entry must include the route ID. If you disassociate the route by typing **-assoc clr**, the route ID is unnecessary. Because **set** is the default, if you type a route ID but do not include **-assoc set**, the protocol interprets the command as an attempt to associate the specified route to the specified connection. Possible entries: **set** or **clr** (for clear) Default: set
-direct	Change the directed route status. A directed route means the preferred route associated with the connection is the only route the connection can take. If the preferred route is not available, the connection is failed. Type **-direct yes** to make the route identified by *rteID* a directed route for the associated connection. The connection is identified by *portid vpi vci*. Possible entries: **yes** or **no** Default: no
-onPrefRte	This parameter lets you inform the node that the connection is routed on its associated, preferred route. The purpose is to prevent rerouting of the connection during grooming. Possible entries: **yes** or **no** Default: no

Usage Guidelines

Before associating a preferred route to an SPVC, consider the following

- Make sure that the route-set is complete, with contiguous hops from h(1) though h(*n*)—without holes. If the route has holes (non-contiguous hop numbers), the controller rejects the association.
- If the preferred route does not contain a destination hop (in the format *persNodeIdx/#* or *persNodeName/#*), the controller rejects the association.
- If you specify the option **-onPrefRte yes**, make sure that the current route is the same as the preferred route to which the connection is being associated. The protocol does not check for errors.

Related Commands

addpref, **modpref**, **delpref**, **dsppref**, **dspprefs**, **dsptopondlist**

Attributes

Log: yes State: active Privilege: GROUP1

cnfconsegep

Configure Connection Segment Endpoint—PXM45, PXM1E

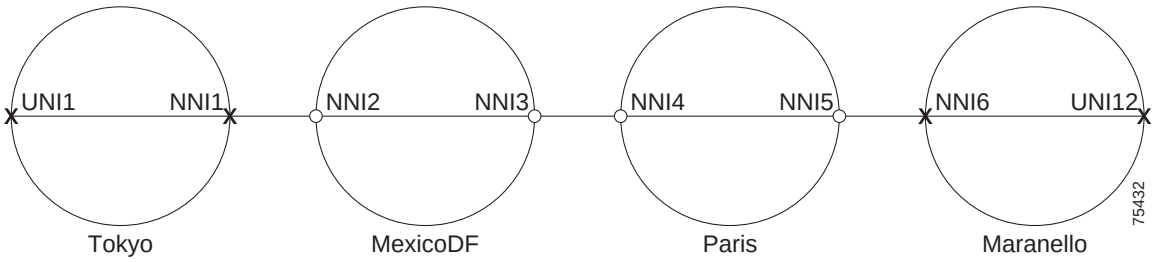
The **cnfconsegep** command lets you configure a segment endpoint for an SVC or SVP on a via node. Its purpose is to support a particular troubleshooting scheme. After you create an endpoint, you can use the **tstdelay** command and specify the endpoint created with the **cnfconsegep** command. The Example section shows how to use **tstdelay** and **conntrace** in conjunction with the **cnfconsegep** command.

You can specify more than one endpoint as long as each one complies with the requirements of the **cnfconsegep** command, as follows:

- Before using the **cnfconsegep** command, be sure continuity checking is de-activated. If you leave checking on, a continuity failure occurs for the connection.
- When both the VPI and the VCI are present, the segment endpoint is an F5 flow endpoint (for VCCs). When the optional VCI is not present, the segment endpoint is an F4 flow endpoint (for VPCs). Use the **cnfconsegep** command only for established calls.
- The endpoints must be part of an SVC or SVP. For an SPVC, you can specify only the SVC endpoints within the SPVC. The controller determines if either side (from its perspective) is an SPVC or SPVP and rejects the command if either endpoint belongs to an SPVC or SPVP. For an SPVC, you can use the **cnfconsegep** command if one or more via nodes exist in the connection path. (See Figure 2-5.)

In Figure 2-5, an SPVC has endpoints at UNI1 and UNI2. You can use **cnfconsegep** to configure segment endpoints at NNI2, NNI3, NNI4, and NNI5. You cannot configure segment endpoints at UNI1, UNI2, NNI1, and NNI6. After you configure any of these endpoints, you could verify the electrical integrity by using the **tstdelay** command from UNI1 or UNI2 to each of NNI2, NNI3, NNI4, or NNI5. After you finish troubleshooting, remove all segment endpoints by using **delconsegep** for each endpoint.

Figure 2-5 Configurable Endpoints for the cnfconsegep Command



Syntax

cnfconsegep <*portid*> <*vpi*> [*vci*]

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 of the connection.
vci	VCI of the connection.

Related Commands

cnfoamsegep, dspoamsegep, delconsegep, dspconsegep

Attributes

Log: yes State: active Privilege: GROUP1

Example

This example shows how the **cnfconsegep**, **conntrace**, and **tstdelay** commands can work to show a point of failure.

- 9:1.1:1 on "tokyo"
- 9:1.1:1 on "fiorano"
- 9:1.2:2 on "tokyo"
- 9:1.2:2 on "auckland"
- 9:1.3:3 on "auckland"
- 9:1.1:3 on "fiorano"

In this network, the following have also been established:

- UNI port 9:1.8:8 on "tokyo"
- UNI port 9:1.8:8 on "auckland"
- A connection between these two ports has a VPI/VCI of 66/66.

Check the connection path by using the **conntrace** command then displaying the trace results with the **dspconntracebuffer** command. Note that the **dspconntracebuffer** command does not use keywords. As expected, it traverses the direct link (PhysPortId=9:1.2:2 as shown in the output display), as follows:

```
tokyo.8.PXM.a > conntrace 9:1.8:8 -vpi 66 -vci 66

tokyo.8.PXM.a > dspconntracebuffer 9:1.8:8 66 66
Result:SUCCESS  Reason: N/
InterfaceId:9:1.8:8
Originating Interface VPI : 66
Originating Interface VCI : 66
Originating Interface Call Ref : 1
    NodeId                                              EgressPort   VPI    VCI  CallRef
  56:160:47.00918100000000107b65f448.00107b65f448.01 17373186        0     35        1
PhysPortId=9:1.2:2
  56:160:47.00918100000000309409f3bb.00309409f3bb.01      0
  Terminating Interface VPI : 66
  Terminating Interface VCI : 66
  Terminating Interface Call Ref : 1
```

To continue this example, the following tasks are performed:

1. To force the connection to take the longer route (using node “fiorano”), use the **dnpnport** command to administratively down PNNI port 9:1.2:2.
2. Repeat the connection trace for 66/66 on UNI port 9:1.8:8 on node “tokyo.” The physical port ID now is 9:1.1:1. Note that 66/66 mapped to 0/36 on 9:1.1:1.
3. Use the **uppnport** command to bring the port back into service.

```
tokyo.8.PXM.a > dnpnport 9:1.2:2

tokyo.8.PXM.a > conntrace 9:1.8:8 -vpi 66 -vci 66

  Result:SUCCESS  Reason: N/A
  InterfaceId:9:1.8:8
  Originating Interface VPI : 66
  Originating Interface VCI : 66
  Originating Interface Call Ref : 2
    NodeId                                              EgressPort   VPI    VCI  CallRef
  56:160:47.00918100000000107b65f448.00107b65f448.01 17373185        0     36        2
PhysPortId=9:1.1:1
  56:160:47.00918100000000309409f3b8.00309409f3b8.01 17373187        0     41        1
PhysPortId=9:1.3:3
  56:160:47.00918100000000309409f3bb.00309409f3bb.01      0
  Terminating Interface VPI : 66
  Terminating Interface VCI : 66
  Terminating Interface Call Ref : 2

tokyo.8.PXM.a > uppnport 9:1.2:2
```

Configure a connection segment endpoint by using the following values on node “fiorano:”

- The PNNI port ID is 9:1.1:1.
- The VPI/VCI is 0/35—the mapped value observed in the last display of the conntrace command.

```
fiorano.7.PXM.a > cnfconsegep 9:1.1:1 0 36
PortId: 0.9:1.1:1      Vpi:      0     Vci:     36
 The connection is configured as a segment end point.
```

On the CLI of the AXSM in slot 9, use the **tstdelay** command to measure the required time for sending OAM cells to the far-end and back. From the PNNI physical port ID 9:1.8:8, you know to cc to slot 9 and specify *ifNum* 8. (Note that Cisco does not recommend using the **tstdelay** command for acquiring an accurate measurement of the round trip delay. Its function is better suited to confirming the existence of the connection path.)

```
tokyo.9.AXSM.a > tstdelay 8 66 66
 tstdelay is in progress ..
 Connection Id    Test Type    Direction    Result     Round Trip Delay
 =============    =========    =========    =======    ================
 08.0066.00066:    OAM Lpbk     ingress     Success          128 microsec
```

Delete the configuration of the segment endpoint then measure the round trip delay.

```
fiorano.7.PXM.a > delconsegep 9:1.1:1 0 36
PortId: 0.9:1.1:1      Vpi:      0     Vci:     36
 The connection is configured as NOT a segment end point.
tokyo.9.AXSM.a > tstdelay 8 66 66
 tstdelay is in progress ..
 Connection Id    Test Type    Direction    Result     Round Trip Delay
 =============    =========    =========    =======    ================
 08.0066.00066:    OAM Lpbk     ingress     Success          194 microsec
```

Note that the round trip delay is significantly longer (194 microseconds compared to 128 microseconds in the first instance). If the OAM cells did not return to the near end, the segment where traffic was being lost would have been identified.

Also note that the configuration of segment endpoints can occur on many via nodes.

cnfdate

Configure Date—PXM45, PXM1E

Configure the system date. The system does not return a message unless an error occurred. To see the date, use the **dspdate** command.

Note The RPM requires local specification of the date on each card. Use the appropriate IOS command.

Syntax

cnfdate <*mm/dd/yyyy*>

Syntax Description

mm/dd/yyyy	• *mm* is the month in the range 01–12. • *dd* is the day in the range 01–31. • *yyyy* is the year in the range 0000–9999.

Related Commands

dspdate

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

Set date to June 26, 2000.

```
excel.7.PXM.a > cnfdate 06/26/2000
```

cnfdiag

Configure Diagnostics—PXM45, PXM1E

Enables the online or offline diagnostics. The **cnfdiag** command also configures the time settings for the start time and coverage for running the offline diagnostics. When you enter **cnfdiag** with no parameters, it displays the current configuration and status of the diagnostics.

The **cnfdiagall** command is the same as **cnfdiag** except that it configures all slots on the card at once.

Note Do not remove the active PXM while the offline diagnostic is running on the redundant PXM. If you remove it, the redundant PXM reboots but will not be able to become active unless its hard disk drive was previously synchronized to the hard disk on the previously active PXM.

The Purpose of the Diagnostics

These diagnostics were implemented to test and validate the communication paths on the PXM and the AXSMs before and during operation. The diagnostics are always scheduled from the PXM controller card whether they run on the PXM or a service module.

For backward compatibility, the current switches have two buses on the backplane:

- A 1.2 Gbps Cellbus
- A 45 Gbps bus

Because of the difference between bus speeds on the backplane, the Reliability Availability Serviceability (RAS) requirements demand that diagnostics periodically run on the communications paths. Therefore, diagnostics should periodically run on both active and standby cards—especially on standby cards. Frequent testing of standby cards through diagnostics helps to ensure that when an active card fails, the standby card is ready to assume the active card state immediately.

Online Diagnostics

Online diagnostics are nondestructive tests (that do not interfere with live traffic) and run on either an active card or a standby card. The MGX 8950, MGX 8850, and MGX 8830 switches support various online diagnostics tests. The sections that follow describe the tests that run on a PXM45, PXM1E, and the AXSMs.

PXM45 Online Diagnostics

Active State

When you enable online diagnostics on an active PXM45, the following test runs:

- Crossbar loopback test on QE1210, Humvee, and crossbar paths

Standby State

When you enable online diagnostics on a standby PXM45, the following tests run:

- Framer loopback test on QE1210, ATLAS, and OC3 framer paths
- Crossbar loopback walk test on QE1210, Humvee, and crossbar paths

PXM1E On-line Diagnostics

For on-line diagnostics, either an active or a standby PXM1E can run a loopback test. Cells originate on the Atlas, loop at the QE1210, then terminate at the Atlas.

AXSM Online Diagnostics

Active State

When you enable online diagnostics for an active AXSM card, the following test runs:

- Crossbar loopback test on QE, Humvee, and Crossbar paths

Standby State

When you enable online diagnostics on a standby AXSM card, the following tests run:

- Framer loopback test on QE48, UDP, ATLAS, and Framer paths (AXSM-E only)
- Crossbar loopback walk test on QE, Humvee, and Crossbar paths
- Back card loopback test on T3/E3 lines

Offline Diagnostics

Offline diagnostics are destructive (interfere with traffic) and therefore run *only* on standby cards.

Offline diagnostics are scheduled by using the offline start (*offStart*) and offline day-of-week (*offDow*) parameters. The coverage (*offCover*) parameter specifies the length of time that the diagnostics run.

Note When an active card fails, the shelf manager must immediately stop the diagnostics on the standby card, reset, and allow normal operation to occur.

The offline diagnostics that can be enabled and scheduled depend on the circuitry. The sections that follow list the offline diagnostic by card.

PXM45 Offline Diagnostics

The PXM45 runs the following off-line diagnostics:

1. Processor Subsystem Test
   - Flash EPROM
   - SDRAM
   - SCC
   - PCI Bridge
2. Component Level Test
   - PIO
   - FPGA
   - LEDs
   - Fan / Power Supply
   - BRAM / RTC
   - SEEPROM / NovRAM Checksum Test

3. ASIC Tests
   - QE1210 Register and DMA RAM Test
   - CBC Register Test
   - Humvee Register Test
   - Switch ASIC Register Test
   - Atlas Register and RAM Test
   - Framer Register and RAM Test
4. UI S3/S4 Back card test
   - NovRAM Checksum Test
5. Cell Path Test
   - CBC Cell Path Test - Backplane Side
   - Framer Cell Path Test - Port Side
   - Humvee / Transceiver / Crossbar Switch Cell Path Test

PXM1E Off-line Diagnostics

The PXM1E runs off-line diagnostics in the following areas:

1. Processor subsystem: NVRAM and BRAM
2. ASIC tests: Atlas (register test, ingress memory, egress memory) and framer (register test)
3. UI S3 back card: UIS3 BC register test

AXSM Offline Diagnostics

1. I/O PLD data bus test
2. Skystone Framer register & RAM test.
3. Humvee ASIC register test
4. CBC register test
5. ATMizer RAM test
6. QE48 register and RAM test
7. NovRAM checksum test
8. Flash EPROM checksum test

Syntax

cnfdiag <*slot*> <*onEnb*> <*offEnb*> [<*offCover*> <*offStart*> <*offDow*>]

Syntax Description

slot	The slot of the card for which to configure the diagnostics.
onEnb	Enable or disable online diagnostics. The default is disable.
offEnb	Enable or disable offline diagnostics. The default is disable.
offCover	Set the offline diagnostics coverage time to light, medium, or full. • light = 5 minutes or less • medium = 30 minutes or less • full = any number of minutes–no limit
offStart	Set the time for the offline diagnostics to begin using 24 hour time. The format is: hh:mm. For example: 03:45 or 22:30.
offDow	Sets the day of the week for the offline diagnostics to run. The format is SMTWTFS. For example: -M-W--- is Mondays and Wednesdays only.

Related Commands

cnfdiagall, dspdiagcnf, **abortofflinediag**

Attributes

Log: no State: active Privilege: SERVICE_GP

Example

```
cnfdiag 7 enable disable light 22:30 -M-W-F-
```

cnfdiagall

Configure Diagnostics All—PXM45, PXM1E

This command enables and configures online or offline diagnostics for all card slots. (This command is the same as **cnfdiag** except that it effects all slots instead of just one.)

When you enter this command with no parameters, it displays the current configuration and status of the diagnostics.

Note See the **cnfdiag** command for a detailed description of MGX 8850 diagnostics.

Note Do not remove the active PXM while the offline diagnostic is running on the redundant PXM. If you remove it, the redundant PXM reboots but will not be able to become active unless its hard disk drive was previously synchronized to the hard disk on the previously active PXM.

Syntax

cnfdiagall <*onEnb*> <*offEnb*> [<offCover> <offStart> <offDow>]

Syntax Description

onEnb	Enables online diagnostics.
offEnb	Enables offline diagnostics.
offCover	Sets the offline diagnostics coverage time to light, medium, or full. • light = 5 minutes or less • medium = 30 minutes or less • full = unlimited
offStart	Sets the time for the offline diagnostics to begin using 24 hour time. The format is: hh:mm
offDow	Sets the day of the week for the offline diagnostics to run. The format is SMTWTFS. Enter a dash (-) for days on which you do not want diagnostics to run.

Related Commands

cnfdiag, dspdiagcnf

Attributes

Log: no State: active, standby Privilege: SERVICE_GP

Example

```
cnfdiagall enable disable light 22:30 -M-W-F-
```

cnfe164justify

Configure E.164 Justification—PXM45, PXM1E

Specifies whether the E.164 AESAs with the E.164 AFI are converted to the left or right-justified encoding format. For PNNI to search the address correctly, all nodes in the PNNI network must use the same justification.

Syntax

cnfe164justify left | **right**

Syntax Description

left or **right**	Justification of E164 addresses. Type the entire word “left” or “right.” Default: left

Related Commands

dspsvcparm

Attributes

Log: yes State: active Privilege: SUPER_GP

Examples

Configure right-hand justification for the E.164 AESAs.

```
Geneva.7.PXM.a > cnfe164justify right
```

cnfenhiisp

Configure Enhanced IISP—PXM45, PXM1E

The **cnfenhiisp** command enables or disables the enhanced IISP feature on the port. This command applies to only IISP ports. When you change the operational state of enhanced IISP, the change does not affect existing calls.

The items that enhanced IISP include are:

- Generic identifier transport (GIT)
- Virtual path service over the IISP
- Added support or nrt-VBR and rt-VBR
- Transport of frame discard specification

Syntax

cnfenhiisp <*portid*> {**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."
yes | **no**	Enter "yes" to enable enhanced IISP or "no" to disable enhanced IISP. Default: no

Related Commands

dspenhiisp

Attributes

Log: yes State: active Privilege: SUPER_GP

Examples

Enable enhanced IISP on port 11:2.1:1.

```
Geneva.7.PXM.a > cnfenhiisp 11:2.1:1 yes
```

cnfetherif

Configure Ethernet Interface—PXM45, PXM1E (init state only)

The **cnfetherif** command lets you configure an Ethernet interface while the PXM is in the init state. The **dspetherif** command displays the configuration. Both of these commands are available only when the PXM is in the init state.

Syntax

cnfetherif <*ip_address*> [*net_mask*]

ip_address	The IP address has the format a.b.c.d. See the Example section.
net_mask	The optional net mask has the format a.b.c.d. See Example for a typical netmask.

Syntax Description

This command has no parameters.

Related Commands

dspetherif

Attributes

Log: no State: init Privilege: ANYUSER

Example

Configure an init-state Ethernet interface to have Ethernet address 177.19.21.66 and a netmask of 255.255.0.0. Display the new Ethernet interface.

```
scott.8.PXM.if > cnfetherif 177.19.21.66 255.255.0.0

scott.8.PXM.if > dspetherif
scott                          System Rev:03.00   Sep. 20, 2002 12:49:26 PST
MGX8850                                              Node Alarm:MINOR
ETHERNET IP INTERFACE CONFIGURATION
------------------------------------------------------------------------
lnPci (unit number 0):
     Flags:(0x63) UP BROADCAST ARP RUNNING
     Type:ETHERNET_CSMACD
     Internet address:177.19.21.66
     Broadcast address:177.19.21.255
     Netmask 0xffff0000 Subnetmask 0xffffff00
     Ethernet address is 00:30:94:09:f3:ab
     Metric is 0
     Maximum Transfer Unit size is 1500
     342500 packets received; 281994 packets sent
     60401 multicast packets received
     282 multicast packets sent
     0 input errors; 0 output errors
     0 collisions; 0 dropped
     DISK IP address:177.19.21.66
```

cnffltset

Configure Filter Set—PXM45, PXM1E

Use **cnffltset** to modify an existing filter set. This command can:

- Add more addresses to the filter set.
- Change the access mode or address field of a filter set entry.

After a filter is modified for a specific port, associate the filter to that port by using **cnf-pnportacc**.

Syntax

cnffltset <*name*> [-**address** *atm-address* -**length** *address-length* [-**plan** {**nsap** | **e164**}] [-**list** {**calling** | **called**}]] [-**index** *number*] [-**accessMode** {**permit** | **deny**}]

Syntax Description

name	A name for the filter set: the maximum is 30 characters.
address	The 1-40 digit NSAP or 1-15 digit E.164 address. You can add the address to a filter set. The default is modifying the **accessMode** field of a filter element using the index only: in this case, the you need not specify the address field.
length	If the address is specified, the length must be specified. • For NSAP, the length is in bits. • For E164, the length is in bytes.
plan	Address Plan: **e.164** or **nsap**. You may specify this field only if you also specify the address field. Default: **nsap**
list	Address List: **calling** or **called**. You may specify this field only if you also specify the address field. Default: **calling**
index	Order in which filters are set. Range: 1–65535 Default: 1
AccessMode	Specify the access mode (**permit** or **deny**) to whether accept or deny the call on the port if the address pattern-matching succeeds. Default: **permit**.

Related Commands

addfltset, delfltset, dspfltset

Attributes

Log: yes State: active Privilege: SUPER_GP

cnfilmi

Configure ILMI—PXM1E

Configures the card-level interim local management interface (ILMI) for the PXM1E UNI/NNI back card (for the VSI slave side). Activating the card-level ILMI through **cnfilmi** requires a pre-existing logical port (see **addport**) and resource partition (see **addrscprtn** or **addpart**). No response appears unless an error occurs.

Note For network-level ILMI in relation to PNNI, run the PNNI-specific ILMI commands on the PXM45. The PNNI-specific ILMI commands also apply to the VSI master on the PXM1E.

Syntax

cnfilmi <*ifNum*> **-id** <*partitionID*> **-ilmi** <*ilmiEnable*> **-vpi** <*vpi*> **-vci** <*vci*> **-trap** <*ilmiTrapEnable*> **-s** <*keepAliveInt*> **-t** <*pollingIntervalT491*> **-k** <*pollInctFact*>

Syntax Description

ifNum	Logical port number in the range is 1–31
-id	Partition ID in the range 1–20. (See description of **addpart** or **addrscprtn** for information regarding resource partition ID.)
-ilmi	Enable or disable ILMI. 1=enable. 2=disable.
-vpi	VPI for the ILMI signaling connection. The range is 0–255.
-vci	VPI for the ILMI signaling connection. The range is 0–65535.
-trap	Enable or disable ILMI trap. 1=enable. 2=disable.
-s	Keep alive interval. The range is 1–65535 seconds.
-t	Polling interval for T491 in the range 0–65535 seconds.
-k	Polling interval K in the range 0–65535 seconds.

Related Commands

dspilmi, **dspilmis**, **dspilmicnt**, **clrilmicnt**, **dnilmi**, **upilmi**

Attributes

Log: yes State: active Privilege: GROUP1

Examples

```
Unknown.7.PXM1E.a > cnfilmi 1 1 -ilmi 1 -vpi 40 -vci 99 -s 10 -t 10 -k
```

cnfilmienable

Configure ILMI Enable—PXM45, PXM1E

Enables ILMI on a PNNI port. Prior to **cnfilmienable**, the port must be administratively down. Use the **dnpnport** command to down the port and **uppnport** to up it.

Syntax

cnfilmienable <*portid*> [**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."
yes or **no**	Type "yes" to enable ILMI or "no" to disable ILMI on the specified PNNI port. Default: disabled

Related Commands

dnpnport, **uppnport**, **dsppnilmi**

Attributes

Log: yes State: active Privilege: GROUP1

Examples

Enable ILMI on a PNNI port 4:1.1:11. First, disable the port by using **dnpnport**.

```
Geneva.1.PXM.a > dspilmi 4:1.1:11
INFO:  No ilmi address registered

Geneva.7.PXM.a > dnpnport 4:1.1:11

Geneva.7.PXM.a > cnfilmienable 4:1.1:1

Geneva.7.PXM.a > uppnport 4:1.1:11

Geneva.7.PXM.a >
```

cnfilmiproto

Configure ILMI Protocol—PXM45, PXM1E

The **cnfilmiproto** command lets you configure how PNNI reacts to ILMI events that occur on the VSI slave (a service module). Use the **dsppnilmi** command to confirm changes to the configuration.

Syntax

cnfilmiproto <*portid*> [**-securelink** {**yes** | **no**}] [**-attachmentpoint** {**yes** | **no**] [**-modlocalattrstd** {**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."
-securelink	Sets the flag **securelink** to make PNNI release the call if it loses connection to the ILMI slave. no: do not enable the ILMI Secure link protocol. yes: disable the ILMI Secure link protocol. Default: yes
-attachmentpoint	Sets the flag **attachmentpoint** to make PNNI release the call if the slave ILMI session sees changes in peer information, such as the system name or system ID. no: do not enable the detection of loss of attachmentpoint protocol. yes: Enable the detection of loss of attachmentpoint. Default: yes
-modlocalattrstd	Sets the flag **modlocalattrstd** to make PNNI release the call if the slave ILMI sees ATM layer (partition resource) changes, such as the VPI or VCI. no: disable the ILMI standard procedure for modification of local ATM param. yes: enable the ILMI standard procedure for modification of local ATM param. Default: yes

Related Commands

dsppnilmi

Attributes

Log: yes State: active Privilege: GROUP1

Example

```
Jose.7.PXM.a > cnfilmiproto 11:2.1.1 -securelink no -attachmentpoint no -modlocalattrstd
yes
```

cnfimagrp

Configure IMA Group—PXM1E

This command modifies one or more attributes of an IMA group. Modifying any IMA attribute causes the IMA group to restart. See the **addimagrp** and **addimaport** descriptions for details on IMA groups.

Syntax

cnfimagrp <**-grp** *group*> [**-ver** <*version*>] [**-txm** <*minLinks*>] **[-txid** <*txImaId*>] **[-txfl** <*txFrameLen*>] **[-dd** <*diffDelayMax*>] **[-uptim** <*groupUpTime*>] [**-dntim** <*groupDownTime*>]

Syntax Description

-grp *group*	The group has the format *bay.group* and the following possible values: • *bay*: always 2 on the PXM1E • *group*: 1–16
-ver *version*	The protocol version of the IMA group. • 1 = IMA version 1.0 • 2 = IMA version 1.1
-txm *minLinks*	The minimum number of links that allows the IMA group to be operational. Range: 1–16 For IMA version 1.0, the *minLinks* value is always 128.
-txid *txImaId*	The IMA ID number transmitted in the IMA ID field of the ICP cell. Range: 0–255
-txfl *txFrameLen*	The length of a transmitted IMA frame is specified in megabytes. • For version 1.0 IMA, *txImaFrameLength* is always 128. • For version 1.1 IMA, *txImaFrameLength* can be 32, 64, 128, or 256.
-dd *diffDelayMax*	The maximum differential delay is specified in milliseconds. The ranges depend on the line type, as follows: • T1: 1–275 • E1: 1–220 Defaults: T1 = 275, E1 = 220
-uptim *groupUpTime*	The group up time has a range of 0–400,000 milliseconds. Default: 10000
-dntim *groupDownTime*	The group down time has a range of 0–100,000 milliseconds. Default: 2500

Related Commands

addimagrp, delimagrp, dspimagrp, dspimagrps, rstimagrp, dspimalnk

Attributes

Log: yes State: active Privilege: GROUP1

Example

For IMA group 16, specify a differential delay of 200 milliseconds.

```
MGX8850.7.PXM1E.a > cnfimagrp -grp 2.16 -dd 200
```

cnfimalnktst

Configure IMA Link Test—PXM1E

The **cnfimalnktst** command lets you specify a pattern test to confirm the integrity of an individual link. To start and end the test, use the **startimalnktst** and **stopimalnktst** commands, respectively.

The test pattern is a number in the range 0–254. A 0 causes the system to select a number for the pattern. If the transmitted number is the same as the number that arrives at the receiving end of the link, the link is valid. If the test pattern is different or does not arrive at all, the link is invalid.

Note Link test works for version 1.0 only.

Syntax

cnfimalnktst <–**grp** *group*> <–**lnk** *link*> <–**pat** *test Pattern*>

Syntax Description

–**grp**	The *group* identifier consists of a bay number as well as a group number in the format *bay.group*, as follows: • *bay*: always 2 on the PXM1E • *group*: 1–16
–**lnk**	The *link* identifier consists of a bay number as well as a link number in the format *bay.link*, as follows: • *bay*: always 2 on the PXM1E • *link*: 1–16
–**pat**	The *test Pattern* is a number in the range 0–254. A 0 causes the system to select a number for the test pattern. Default: 0

Related Commands

startimalnktst, stopimalnktst

Attributes

Log: yes State: active Privilege: GROUP1

Example

For group 1 and link 1, specify a test pattern of 77.

```
MGX8850.7.PXM1E.a> cnfimalnktst -grp 2.1 -lnk 2.1 -pat 77
```

cnfintfcongth

Configure Interface Congestion Threshold—PXM45, PXM1E

The **cnfintfcongth** command lets you configure congestion thresholds for a logical port. The thresholds apply to incoming calls and status enquiries. When the upper congestion limit is reached, the port may block incoming calls and adjust the pace of status enquiries.

You must specify at least one keyword.

Syntax

cnfintfcongth <*portid*> [**-setuphi** {*setuphival* [**-unackedstatenqlo** {*unackedstatenqloval*}]
[**-unackedstatenqhi** {*unackedstatenqloval*}]

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 details, see the section, "PNNI Format," in Chapter 1, "Introduction."
-setuphi	The number of connection set-up messages per second. Above this number, the condition of set-up messages on the interface is congested. Range: 1–260 calls per second Default: 180
-unackedStatEnqLo	The number of status enquires yet to be acknowledged by peer-to-peer interface. Below this value, the congestion condition for status enquiries at the interface level is dropped. Range: 1–500 messages Default: 40
-unackedStatEnqHi	The number of status enquires yet to be acknowledged by peer-to-peer interface. The interface is considered to be congested with status enquiries when this thresholds is reached. Range: 1–500 messages Default: 100

Related Commands

dspintfcongth, dspnodalcongth

Attributes

Log: yes State: active Privilege: GROUP1

Example

Configure a congestion threshold of 200 for set-up messages on 6:1.1:1. Check the results by using the **dspintfcongth** command.

```
M8850_NY.7.PXM.a > cnfintfcongth 6:1.1:1 -setuphi 200

M8850_NY.7.PXM.a > dspintfcongth 6:1.1:1

Congestion Thresholds for port : 6:1.1:1

Parameter            Value        unit
---------            -----        ----
setuphi              100          cps
unackedStatEnqLo     40           messages
unackedStatEnqHi     200          messages

M8850_NY.7.PXM.a >
```

cnfintfvsvd

Configure Interface for VS/VD—PXM45, PXM1E

The **cnfintfvsvd** command lets you enable internal or external virtual source/virtual destination (VS/VD) on a PNNI port. If VS/VD is disabled on a port, you can enable VS/VD for individual ABR connections by using the **cnfabr** command. As described in Syntax Description, the **cnfintfvsvd** command also lets the service class template determine whether VS/VD is enabled.

Note In the current release, the PXM1E does not support VS/VD.

Before using the **cnfintfvsvd** command, note the following.

- The command applies to ports configured for UNI 4.0 or higher.
- The port must be administratively down (see **dnpnport**).
- The port must exist on an AXSM-E because it alone supports ABR VS/VD.

Syntax

cnfintfvsvd <*portid*> [**-internal** {**off** | **on** | **unspecified**}] [**-external** {**off**| **on** | **unspecified**}]L

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."

internal	Indicates the internal loop for VS/VD. The choices are as follows: **off**: at the port level, VS/VD service for ABR connections is disabled. Therefore, for an ABR connection to have VS/VD support, you must use the **cnfabr** command to enable it. **on**: at the port level, VS/VD service for ABR connections is enabled. Therefore, all ABR connections on the port have VS/VD support. If you do not want a particular ABR connection to have VS/VD, use the **cnfabr** command to disable it for that connection. **unspecified**: the port defaults to the VS/VD capability that the port-level SCT specifies. Default: unspecified
external	Indicates the external loop for VS/VD. The choices are as follows: **off**: at the port level, VS/VD service for ABR connections is disabled. Therefore, for an ABR connection to have VS/VD support, you must use the **cnfabr** command to enable it. **on**: at the port level, VS/VD service for ABR connections is enabled. Therefore, all ABR connections on the port have VS/VD support. If you do not want a particular ABR connection to have VS/VD, use the **cnfabr** command to disable it for that connection. **unspecified**: the port defaults to the VS/VD capability that the port-level SCT specifies. Default: unspecified

Related Commands

dsppnport, **cnfabr**

Attributes

Log: yes State: active Privilege: GROUP1

Example

This example starts with the assumption that port 5:1.1:1 is administratively down and is configured for an interface type other than UNI 4.0. Do the following:

Step 1 Specify UNI 4.0 for port 5:1.1:1 by using the **cnfpnportsig** command.

Step 2 Enable internal and external VS/VD.

Step 3 Up the port by using the **uppnport** command.

Step 4 Confirm that internal and external VS/VD is enabled on the port. Note that, for UNI 4.0 or higher, the **dsppnport** shows VS/VD status. For earlier UNI versions, the **dsppnport** display does not show VS/VD.

```
M8850_NY.7.PXM.a > cnfpnportsig 5:1.1:1 -univer uni40
M8850_NY.7.PXM.a > cnfintfvsvd 5:1.1:1 -internal on -external on
M8850_NY.7.PXM.a > uppnport 5:1.1:1
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 >
```

cnflink

Configure Link—PXM45, PXM1E

The **cnflink** command lets you change the framing for a T1 tributary. The command applies to the Service Resource Module-Enhanced (SRME). The **upln** and **cnfln** commands that you use on the PXM result in a line framing for all tributaries. For an individual link, you can configure the framing by using the **cnflink** command.

Note In the current release, only the PXM1E supports the SRM.

Syntax

cnflink <*SrmStartLinkIf*> <*FramingType*>

Syntax Description

SrmStartLinkIf	The format for *SrmStartLinkIf* is *slot.line.link*. The *SrmStartLinkIf* parameter identifies physical and logical elements of the SRM. The *slot* is logical and refers to the standby SRM slots as well as the primary slots. Possible entries are as follows: • The *slot* in an MGX 8850 chassis can be 15 or 31. For an MGX 8830 chassis, *slot* is 7. • The physical *line* (for the SRME) is 1). • The *link* is the targeted T1 tributary and has a range of 1–84.
FramingType	The framing type is either superframe (SF) or extended superframe (ESF). Possible entries are: • 2: SF • 3: ESF

Related Commands

addlink, **dellink**, **dsplink**, **dspslotlink**

Attributes

Log: yes State: active Privilege: GROUP1

Example

cnfln

Configure Line—PXM1E

On a PXM, the **cnfln** command lets you configure a line on the UNI/NNI (network interface) back card of a PXM1E or a Service Resource Module (SRME or SRM-3T3/C). (The UNI/NNI back card is also known as the *uplink card* or *uplink bay.*)

Note In the current release, the PXM45 does not support **cnfln** even though the CLI help shows it.

Note the following before you use the **cnfln** command on a PXM:

- You must first activate the line by using the **upln** command.
- You cannot configure a line that has virtual interfaces (see **addport** description).
- If you do not know the line type (required by **cnfln**), use the **dsplns** or **dspcd** command to check.
- The SRMs have a "no back card" capability. This capability lets the SRM operate without a back card if the SRM in a bay is intended to operate *without bulk mode distribution.* If no back card is present, no need exists to configure lines.

  (If the switch is already powered on and the SRMs installed, you can pull the back card from the primary SRM and, if present, the back card from the secondary SRM. If the cards are out of the backplane and power is off, just install the front cards. An SRM with no back card appears in card displays as "SRM_NO-BC.)

Generic Syntax

This section introduces general information about the syntax. The syntax varies according to the line type, so each line type has its own description.

Your entries for line type and slot number determine the option list for **cnfln** on a PXM. The options for line type depend on whether the line is SONET, SDH, T3, E3, T1, or E1. The slot indicates to the controller whether the card is an SRM or the PXM1E NNI/UNI back card. The generic syntax follows:

cnfln -<*lineType*> *slot.line* <*optionList*>

If you enter only the line type, slot number, and line number, the Help feature displays appropriate syntax with option list. In the sections that follow, the Syntax and Syntax Description heading shows the line type.

To help you enter the correct line type and to locate the SRMs, use some of the high-level commands. To see all cards in the switch, use the **dspcds** command. The display shows where and what type of SRMs are present. To see the type of PXM1E back card, use the **dspcd** command on the PXM1E CLI. To see the types for all lines, use the **dsplns** command.

Syntax for PXM1E SONET or SDH Line

cnfln -sonet <*X.line*> **-slt** <*LineType*> **-clk** <*clockSource*>

Syntax Description for PXM1E SONET or SDH Line

-sonet	The **sonet** keyword identifies the line as a SONET line and enables the choices that follow.
X.line	X is a logical slot number regardless of where the card actually resides. Also, X can refer to ether the UNI/NNI back card or an SRM, as follows: • For the UNI/NNI back card, X is always 2. • For an SRM, X depends on the chassis, as follows: – For MGX 8850 chassis, X can be 15 or 31. – For MGX 8830 chassis, X can be 7. The range for the *line* parameter reflects the combination back card. The combo card has four OC3c/STM1 lines and eight T3 or E3 lines. (The latter group of eight is configurable though the **cnfcdmode** command). The range for *line*: • 1–4 on straight OC-3c card • 9–12 on the combo card
-slt	Type one of the following numbers to specify SONET or SDH: • 1: SONET • 2: SDH
-clk	The clock can come from the backplane (local timing) or the receive line (loop timing). Type “1” or “2,” as needed: • 1: Loop timing • 2: Local timing Default: Local timing

Syntax for PXM1E T3 Line

cnfln -ds3 <*X.line*> **-lt** <*LineType*> **-len** <*LineLength*> **-oof** <*OOFCriteria*> **-cb** <*A*>
-clk <*clockSource*> **-rfeac** <*RcvFEACValidation*>

Syntax Description for PXM1E T3 Line

-ds3	Typing **-ds3** as the first parameter enables the applicable options.
X.line	X is a logical slot number regardless of where the card actually resides. Also, X can refer to ether the UNI/NNI back card or an SRM, as follows: • For the UNI/NNI back card, X is always 2. • For an SRM, X depends on the chassis, as follows: – For MGX 8850 chassis, X can be 15 or 31. – For MGX 8830 chassis, X can be 7. The range for the *line* parameter reflects the combination back card. The combo card has four OC3c/STM1 lines and eight T3 or E3 lines. (The latter group of eight is configurable though the **cnfcdmode** command). Range: 1–8 on the combo card or T3/E3 card

-lt	Enter one of the following numbers for the appropriate DS3 line type: • 1: ds3cbitadm • 2: ds3cbitplcp
-len	The length has a range of 0–64000 meters.
-oof	For the out of frame criteria, type one of the following numbers to select criteria: • 1: 3 out of 8 • 2: 3 out of 16
-cb	For check bit handling, enter one of the following numbers: • 1: Check the C-bit • 2: Ignore the C-bit
-clk	With loop timing, the clock for the transmit direction is generated by redirecting the receive clock to the transmit clock line. With local timing, the clock comes from the backplane. • 1: Loop timing • 2 Local timing Default: Local timing
-rfeac	For receive FEAC validation, enter one of the following numbers: • 1: 4 out of 5 • 2: 8 out of 10 • 3: disable

Syntax for PXM1E E3 Line

cnfln -e3 <*X.line*> **-len** <*LineLength*> **-clk** <*clockSource*>

-e3	Typing **-e3** as the first parameter enables the applicable list of options.
X.line	X is a logical slot number regardless of where the card actually resides. Also, X can refer to ether the UNI/NNI back card or an SRM, as follows: • For the UNI/NNI back card, X is always 2. • For an SRM, X depends on the chassis, as follows: – For MGX 8850 chassis, X can be 15 or 31. – For MGX 8830 chassis, X can be 7. The range for the *line* parameter reflects the combination back card. The combo card has four OC3c/STM1 lines and eight T3 or E3 lines. (The latter group of eight is configurable though the **cnfcdmode** command). Range: 1–8 on the combo card or T3/E3 card

-len	The length has a range of 0–64000 meters.
-clk	With loop timing, the clock for the transmit direction is generated by redirecting the receive clock to the transmit clock line. With local timing, the clock comes from the backplane. • 1: Loop timing • 2 Local timing Default: Local timing

Syntax for PXM1E DS1 Line

-ds1	Typing **-ds1** as the first parameter enables the applicable options.
X.line	X is a logical slot number regardless of where the card actually resides. For the UNI/NNI back card, X is always 2. Range for line: 1–16
-len	The length has a range of 0–64000 meters.
-clk	With loop timing, the clock for the transmit direction is generated by redirecting the receive clock to the transmit clock line. With local timing, the clock comes from the backplane. • 1: Loop timing • 2 Local timing Default: Local timing

Syntax for PXM1E E1 Line

-e1	Typing **-e1** as the first parameter enables the applicable options.
X.line	X is a logical slot number regardless of where the card actually resides. For the UNI/NNI back card, X is always 2. Range for line: 1–16
-clk	With loop timing, the clock for the transmit direction is generated by redirecting the receive clock to the transmit clock line. With local timing, the clock comes from the backplane. • 1: Loop timing • 2 Local timing Default: Local timing

Syntax for SRME Line

cnfln -sonet <*slot.line*> **-slt** <*LineType*> **-clk** <*clockSource*> **-lpb** <*loopback*> **-sfs** <*FrameScramble*> **-rdiv** <*RDI-V Type*> **-rdip** <*RDI-P Type*> **-tt** <*Tributary Type*> **-tm** <*TributaryMappingType*> **-tf** <*TributaryFramingType*> -st <*SignallingTranportMode*> **-tg** <*TributaryGroupingType*>

Syntax Description for SRME Line

If you are planning bulk distribution to T1 lines in Japan, specify a SDH (STM1) line type (see the **-slt** parameter). For bulk distribution to E1 lines, you must also specify the SDH line type.

-sonet	The **sonet** keyword identifies the line as a SONET line and enables the choices that follow.
slot.line	The *slot* is a logical slot number regardless of where the SRME actually resides. For example, if the switch has an SRME in only 16 but not 15—not a likely situation—you would still enter "15." On the SRME, only one line exists on the back card, so *line* is always "1." The slot numbers vary with the chassis model, as follows: • MGX 8850: 15, 31 • MGX 8830: 7
-slt	The line type is either SONET or SDH. Type one of the following choices for *LineType*: • 1: SONET • 2: SDH
-clk	The clock can come from the backplane (local timing) or the receive line (loop timing). Type "1" or "2," as needed: • 1: Loop timing • 2: Local timing Default: Local timing
-lpb	Enables one of two loopback types or disables an active loopback, as follows: • 1: No loopback • 2: Local loopback • 3: Remote loopback Default: no loopback
-sfs	The frame scramble enable • 1 = enable • 2 = disable
-rdiv	Specifies the number of RDI V bits. Follow the keyword with either a "1" for 1 bit or a "3" for 3 bits.
-rdip	Specifies the number of RDI P bits. Follow the keyword with either a "1" for 1 bit or a "3" for 3 bits.
-tt	The *TributaryType* selects a tributary type based on whether the line is SONET or SDH. For SONET, type "1." For SDH, type "2." This choice results in the following standard for virtual tributary (VT) and virtual container (VC). • 1: VT1.5/VC11 • 2: VT2/VC12 **Note** In the current release, only VT1.5 and VC 11 for T1 applications are supported.

-tm	The tributary mapping type is either asynchronous or byte-synchronous. Type a “1” or “2.” • 1: Asynchronous • 2: Byte-synchronous Default: asynchronous **Note** In the current release, tributary mapping applies to only T1 tributaries.
-tf	The tributary framing type is either superframe or extended superframe. This option applies only if the tributary mapping is byte-synchronous (**-tm 2**). Type a “2” or “3.” • 2: Superframe • 3: Extended superframe
-st	The signaling transport mode applies only if you have selected byte-synchronous tributary mapping (**-tm 2**). The transport mode is either *transfer mode* or *clear mode*: • With transfer mode, the framing bit is transferred to the VT header. • With clear mode, the signaling bit is transferred to the VT header. Follow the keyword with either a “2” or a “3.” • 2: Transfer Mode • 3: Clear Mode
-tg	The tributary grouping type applies to SDH. Type a “2” or a “3.” • 2: AU3 • 3: AU4

Syntax for SRM-3T3

cnfln -ds3 <*X.line*> **-lt** <*LineType*> **-len** <*LineLength*> **-oof** <*OOFCriteria*> **-cb** <*A*> **-rfeac** <*RcvFEACValidation*> **-clk** <*clockSource*>

Syntax Description for SRM-3T3/C

-ds3	Typing **-ds3** as the first parameter enables the applicable list of options.
X.line	*X* is a logical slot number regardless of physical slot. *X* also depends on the chassis type: • MGX 8850: 15 or 31 • MGX 8830: 7 Range for *line*: SRM-3T3/C: 1–3
-lt	Enter one of the following numbers according to the DS3 line type: • 1: ds3cbitadm • 2: ds3cbitplcp
-len	The length has a range of 0–64000 meters.
-oof	For the out of frame criteria, type one of the following numbers to select criteria: • 1: 3 out of 8 • 2: 3 out of 16
-cb	For check bit handling, enter one of the following numbers: • 1: Check the C-bit • 2: Ignore the C-bit
-rfeac	For receive FEAC validation, enter one of the following numbers: • 1: 4 out of 5 • 2: 8 out of 10
-clk	With loop timing, the transmit clock is generated by redirecting the receive clock to the transmit clock line. With local timing, the clock comes from the backplane. • 1: Loop timing • 2 Local timing Default: Local timing

Related Commands

upln, **dnln**, **dspln**, **dsplns**, **cnfcdmode**

Attributes

Log: yes State: active Privilege: GROUP1

Example PXM1E T3 Line

Configure T3 line 2.4 to have ds3cbitadm coding, be 10 meters, oof=2, clock local, and rfeac=2.

```
MGX8850.7.PXM1E.a > cnfln -ds3 2.4 -lt 1 -len 10 -oof 2 -cb 1 -clk 2 -rfeac 1
```

Examples for SRME

Check the tributary mapping on the SRME SONET line in slot 15 and change it to byte-synchronous if the current configuration is asynchronous.

```
Unknown.7.PXM.a > dspln -sonet 15.1
  Line Number             : 15.1
  Admin Status            : Up
  Loopback                : NoLoop            APS enabled         : Disable
  Frame Scrambling        : Enable            RDI-V Type          : one bit
  Xmt Clock source        : loopTiming        RDI-P Type          : one bit
  Line Type               : sonetSts3         VT Type             : vt15/vc11
  Medium Type(SONET/SDH)  : SONET             VT Mapping Type     : asynchronous
  Medium Time Elapsed     : 11985             VT Framing Type     : N/A
  Medium Valid Intervals  : 13                VT Signalling Mode  : N/A
  Medium Line Type        : ShortSMF          VT Grouping Type    : N/A
```

The VT Mapping Type field shows asynchronous, so configure the line for byte-synchronous. The command is rejected because of existing links. List the links then delete them.

```
Unknown.7.PXM.a > cnfln -sonet 15.1 -tm 2
ERROR: There are links on the line, remove links first

Unknown.7.PXM.a > dsplink 15.1
Line Num  VtNum  RowStatus  TargetSlot  TargetSlotLine FramingType
========  ====== ========== ==========  ============== ===========
  1        1        Add         11            1         Not Appl
  1        2        Add         11            2         Not Appl

Unknown.7.PXM.a > delslotlink 11 0
```

Proceed with configuring the line for byte-synchronous tributary mapping and check the configuration. Note that Framing Type and Signaling Mode take on the default values now that the tributary mapping has become byte-synchronous.

```
Unknown.7.PXM.a > cnfln -sonet 15.1 -tm 2

Unknown.7.PXM.a > dspln -sonet 15.1
  Line Number             : 15.1
  Admin Status            : Up
  Loopback                : NoLoop            APS enabled         : Disable
  Frame Scrambling        : Enable            RDI-V Type          : one bit
  Xmt Clock source        : loopTiming        RDI-P Type          : one bit
  Line Type               : sonetSts3         VT Type             : vt15/vc11
  Medium Type(SONET/SDH)  : SONET             VT Mapping Type     : byteSynchrons
  Medium Time Elapsed     : 12034             VT Framing Type     : ESF
  Medium Valid Intervals  : 13                VT Signalling Mode  : Transfer Mode
  Medium Line Type        : ShortSMF          VT Grouping Type    : N/A
```

Configure the line on the SRME in slot 15 for a SDH line type. Check the configuration and note the default values for SDH.

```
Unknown.7.PXM.a > cnfln -sonet 15.1 -slt 2
Unknown.7.PXM.a > dspln -sonet 15.1
  Line Number             : 15.1
  Admin Status            : Up
  Loopback                : NoLoop            APS enabled         : Disable
  Frame Scrambling        : Enable            RDI-V Type          : one bit
  Xmt Clock source        : loopTiming        RDI-P Type          : one bit
  Line Type               : sonetStm1         VT Type             : vt15/vc11
  Medium Type(SONET/SDH)  : SDH               VT Mapping Type     : byteSynchrons
  Medium Time Elapsed     : 12099             VT Framing Type     : ESF
  Medium Valid Intervals  : 13                VT Signalling Mode  : Transfer Mode
  Medium Line Type        : ShortSMF          VT Grouping Type    : Au3
```

cnfloginmsg

Configure Login Message—PXM45, PXM1E

The **cnfloginmsg** command lets you create a message that appears when any user logs into the switch.

Syntax

cnfloginmsg

Syntax Description

The interface prompts for a login message. The maximum length is 500 characters. The interface also instructs you to terminate message creation by putting a period on a line with no other characters on that line. See Example.

Related Commands

dsploginmsg, **clrloginmsg**

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

Create a login message that says, “Call system administrator before using this switch.” Complete the message by typing a period on a line. Check the message by using the **dsploginmsg** command.

```
M8950_DC.7.PXM.a > cnfloginmsg
Enter new Login Message (Less than 500 characters)
To complete message enter a line with only a "."
Call system administrator before using this switch
.
Following message will be displayed when user logs in:
Call system administrator before using this switch

Confirm entry of new message Y/N:(N) y
Storing changed Login message

M8950_DC.7.PXM.a > dsploginmsg

Call system administrator before using this switch
```

cnfmbsdft

Configure Maximum Burst Size Default—PXM45, PXM1E

Configures the default maximum burst size (MBS) for SPVCs on a port. The applicable service types are real-time and non real-time variable bit rate (rt-VBR and nrt-VBR).

The most likely connection type for which you would use **cnfmbsdft** is SVC. You can also rely on the value set with this command as a default for SPVCs if you do not specify an MBS through **addcon** for each SPVC of service type VBR.

The new configuration applies to new incoming calls, not existing calls. You can use **cnfmbsdft** whether the port is active or in the provisioning state.

Syntax

cnfmbsdft <*portid*> <*service_category*> [*num-of-cell*]:

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."
service_category	ATM 4.0 service category—either rt-VBR or nrt-VBR.
num-of-cell	The units of measure for MBS are cells. Range: 0–2147483647 cells Default: set by the platform to 1024 cells.

Related Commands

dspmbsdft

Attributes

Log: yes State: active Privilege: GROUP1

Examples

Configure a default MBS of 10000 cells for nrt-VBR.

```
cnfmbsdft 11:2.1:1 nrtvbr 10000
```

cnfname

Configure Name—PXM45, PXM1E

The case-sensitive node name must begin with a letter. It can include:

- Up to 32 letters or numbers
- Two special characters ("_" and "-")
- No spaces

After you enter the name, the system prompts for confirmation. To see the name, use **dspcds** (or many of the other node-level display commands): the node name is the first item in the display.

Note Although 32 characters is the maximum, Cisco recommends that you not exceed 20 characters. A node name greater than 20 characters causes the configuration save and restore features to fail.

Syntax

cnfname <*node name*>

Syntax Description

node name	The node name can contain up to 32 alpha-numeric characters.

Related Commands

None

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

Configure the node name to be "MGX8850." The system requests you to confirm the name. The CLI prompt returns with the new name. In this example, however, the name as it appears in the prompt is truncated to eight characters because of space limitations for information displayed in the prompt.

```
NODENAME.7.PXM.a > cnfname MGX8850
This node name will be changed to MGX8850. Please Confirm
Do you want to proceed (Yes/No)?
MGX8850.7.PXM.a >
```

cnfncdp

Configure NCDP—PXM45, PXM1E

The **cnfncdp** command lets you change the clock distribution mode at the switch level. The choices are manual mode and Network Clock Distribution Protocol (NCDP). At every switch that you plan to use NCDP, you must enable it through the **cnfncdp** command. (See Syntax and Syntax Description for the optional parameters.) A switch can use only one distribution mode, and the default mode is manual. The unused mode is disabled. Normally, if you enter a command that applies to the mode that is *disabled*, the controller rejects the command. Although the two modes are mutually exclusive, the configuration for each mode is saved. If you return a switch to its previous distribution mode, the previous configuration is operational.

Note NCDP does not apply to the transmit clock for the lines on a Service Resource Module (if the SRM if configured with physical lines). Use the **cnfsrmclksrc** command for SRM lines,

For manual clock distribution, use **cnfclksrc** and related commands to modify, view, or delete clock sources. If you upgrade from Release 2.1 to Release 3 or later software, the switch comes up in manual clock distribution mode and has the previous configuration for manual distribution.

Note You can pre-configure NCDP clock sources. You can set up a BITS by using the **cnfncdpclksrc** command before changing from manual mode to NCDP. This pre-configuration helps prevent loss of reliable, network-wide synchronization when you cut over to NCDP.

The manual and NCDP modes require some configuration at each switch. Regardless of the mode, a switch can synchronize to any of the following:

- The free-running oscillator on a PXM
- A Building Integrated Timing Source (BITS) connected to a PXM
- A PNNI port or an interface that supports synchronous clock recovery

If you select NCDP, the optional **cnfncdp** parameters let you configure as needed the following values:

- The greatest number of hops between any two nodes in the clocking domain
- The number of milliseconds between transmission of configuration PDUs
- The number of milliseconds to wait before sending the next configuration PDU
- The interval for which the topology change notification bit is sent in the configuration PDUs

Note An NCDP clocking domain crosses peer group boundaries.

NCDP synchronizes each switch to a single root (or master) clock reference. When you first enable NCDP on more than one switch, it automatically selects the oscillator on one of the switches to be the root of a network clock spanning tree. (On the other hand, if you have pre-configured an external source, NCDP becomes enabled with *that* source.) When you further configure clock source priorities and a possible BITS device, NCDP again identifies the best source according to your parameter entries.

With each change in NCDP clock state—such as node reset or introduction of a BITS device—it uses the values in the following hierarchy to select a root.

1. Clock priority
2. Stratum level
3. ID of external source or internal oscillator (external is ranked higher priority)
4. ATM address serves as a tie-breaker if all others are equal, with lowest address winning (assuming this ATM address is unique—a unique address prevents serious problems)

After NCDP determines the default root clock source, it identifies that root to every node in the network.

NCDP ensures that all nodes have a record of the entire spanning clock tree. Thus, each node has a record of the node with the root (or "best") clock source and gets its root source from that node. The maximum number of hops to that master clock node is configurable.

The default clock source under NCDP—a free-running, internal oscillator—is sufficient for a small network. However, the concept of the "best" clock source actually becomes meaningful when you connect a BITS clock or define clocking domains.

Note If you run the switchcc command, the clock manager momentarily does not have not information about the best clock source. Therefore, the active PXM uses the internal oscillator as a clock source for about one second.

To create clocking domains or to configure a BITS clock, NCDP provides the following commands:

- Use **cnfncdp** to specify the *size* of the clocking domain and set various PNNI-related timers.
- Use **cnfncdpclksrc** to specify a BITS source (or other external clock), a priority for that clock source, and a stratum number for the external source.
- Use **cnfncdpport** to do any of the following:
  - Specify characteristics of an NCDP signaling channel
  - Modify the administrative cost of a port to influence route selection
  - Disable NCDP on an NNI port to form a boundary for the clocking domain

Syntax

cnfncdp [-**distributionMode** {**ncdp** | **manual**] [-**maxNetworkDiameter** *hopcount*] [-**hello** *milliseconds*] [-**holdtime** *milliseconds*] [-**topoChangeTimer** *milliseconds*]

Syntax Description

If the distribution mode is manual, only the -**distributionMode** parameter is meaningful. If you enable NCDP, all other parameters become meaningful.

-distributionMode	Specify the distribution mode as NCDP or manual. If manual, use the **cnfclksrc** command and related commands for network synchronization. When you specify NCDP mode, it is enabled at all nodes and all ports. To disable NCDP at a specific port, use the **cndncdpport** command. Possible entries: • 1 for NCDP or just “ncdp” • 2 for manual clocking or just “manual” Default: manual
-maxNetworkDiameter	The network diameter is the maximum number of hops between any two nodes in a clocking domain. Range: 3–200 Default: 20
-hello	NCDP informs each network node of the clock characteristics of all other nodes through the exchange of Hello packets. The **hello** parameter lets you modify the number of milliseconds between transmission of Hello packets. Range: 75–60000 milliseconds Default: 500 milliseconds
-holdtime	The **holdtime** parameter lets you specify the number of milliseconds the switch waits before it transmits the next configuration PDU. Range: 75–60000 milliseconds Default: 500 milliseconds
-topoChangeTimer	The **holdtime** parameter lets you specify the number of milliseconds the switch waits before it transmits a topology change notification bit in the next configuration PDU. Range: 75–60000 milliseconds Default: 500 milliseconds

Related Commands

cnfncdpclksrc, **cnfncdpport**, **delncdpclksrc**, **dspncdp**, **dspncdpclksrc**, **dspncdpclksrcs**, **dspncdpport**, **dspncdpports**

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

Configure the current switch to be in NCDP mode and set the maximum network diameter to 50.

```
M8850_LA.8.PXM.a > cnfncdp -distributionMode 1 -maxNetworkDiameter 50
```

cnfncdpclksrc

Configure NCDP Clock Source—PXM45, PXM1E

The **cnfncdpclksrc** command lets you configure clock sources so that NCDP selects the clock source you want to serve as the best (or *root* or *master*) source. The primary use of this command is for specifying *external* clock sources. To do so, you indicate a high priority and stratum level for the external source. NCDP uses these values to determine the best clock source in the network and build the spanning clock tree. An external source can be a Building Integrated Timing Source (BITS) device connected to a PXM or—much less commonly—a UNI port somewhere on the switch.

Note If *no external sources exist*, the only reason to use the **cnfncdpclksrc** command is to identify the internal oscillator of a particular node as the best source. You can also identify other back-up nodes.

External Clock Sources

Even with external sources, you do not need to use the **cnfncdpclksrc** command at each node (although you must enable NCDP at each node by using the **cnfncdp** command). You can specify a small number of external sources and, if desired, one or two internal sources as backup for unlikely failure scenarios and leave it to NCDP to utilize the priorities as needed. If every *configured* source were to fail—leaving all internal oscillators in the network with the same priority—NCDP would use the ATM address of each node as a tie-breaker to select and propagate a root clock.

Internal Clock Sources

You can direct NCDP to select the internal oscillator of a *particular* node as the root for the following reasons:

- No BITS devices exist in the network.
- All external sources fail.

NCDP chooses a node as the best source whether or not you assign a priority to an internal clock. NCDP uses its usual hierarchy of values in the following list to pick a node as the root. In the case of an internal source, the pertinent values are priority and nodal ATM address, as the annotations in the list state:

1. Priority, which you can configure through the **cnfncdpclksrc** command
2. Stratum—fixed at 3 for all internal oscillators
3. PRS-ID—the same for all internal sources
4. Nodal ATM address as a tie-breaker

Operational Details of the cnfncdpclksrc Command

The **cnfncdpclksrc** parameters let you specify the following values:

- A PNNI physical port ID that identifies the BITS device, UNI port, or internal oscillator
- A *primary source identifier*, which simply indicates whether the source is external or internal
- The line type for the BITS device, if present
- A priority for the identified clock source (note that the relationship between the priority and the value of the parameter is inverse—the lower the number, the higher the priority)
- A stratum level for the external source—usually a BITS device (whose stratum level should be taken from the specification of the manufacturer)

The only *ports* you can specify with the **cnfncdpclksrc** command are those of an external device or a UNI (see the syntax description for port details). You do not specify an NNI as a source, yet NCDP on each node may determine that its root clock comes through an NNI. If a node receives its root clock source through an NNI based on the protocol's calculations, the **dspncdpclksrcs** output reveals this fact. With NCDP enabled at the node level by the **cnfncdp** command, all NNI ports are enabled to support NCDP. (On a per-port basis, you can disable NCDP by using the **cnfncdpport** command.)

Displaying NCDP Clock Sources

The **dspncdpclksrcs** command identifies where the current node receives its clock. This command applies to only the node where you run it. If the local node is not the source of the best clock according to NCDP, the **dspncdpclksrcs** output shows the NNI port that is the node's timing source. No command searches the whole network and shows where the master clock originates. To find the source if it was not recorded, you would have to telnet to each node and run **dspncdpclksrcs**. Therefore, record the sources you configure with the **cnfncdpclksrc** command. For more details, see the section, "Usage Guidelines for the cnfncdpclksrc Command."

How NCDP Chooses the Root Clock Source

The root clock source is the root of the spanning tree for the clocking domain. Under NCDP control, clock source data in configuration PDUs from each node spread throughout the network. Using the information propagated by the configuration PDUs, NCDP builds a spanning network clock tree. Note that NCDP determines the root clock source *based on information you provide*. A derivative of the spanning tree algorithm and protocols specified in ANSI/IEEE Standard 802.1d are used to construct the network clock spanning tree. If you provide no information, NCDP selects a root based on a sequence of possible tie-breakers.

NCDP can rely on the clock *priority* alone to determine the root clock source. As needed, NCDP uses the following hierarchy of criteria for finding the root clock source. For example, if 1, 2, and 3 in the following list are the same throughout the clocking domain, the ATM address (4) serves as tie-breaker:

1. Priority (should be sufficient to find the root).
2. Stratum level.
3. Clock source reference.
4. Switch ATM address, assuming this address is unique (a unique address prevents serious problems.)

Convergence is reached when all switches using NCDP have received PDUs with the clock configuration values from the total number of switches equal to the maximum-length clocking path. (The maximum clocking path is the largest number of hops between any two switches in the clocking domain. This value is configurable through the **cnfncdp** command.) Upon convergence, NCDP determines the root clock source and builds the spanning tree.

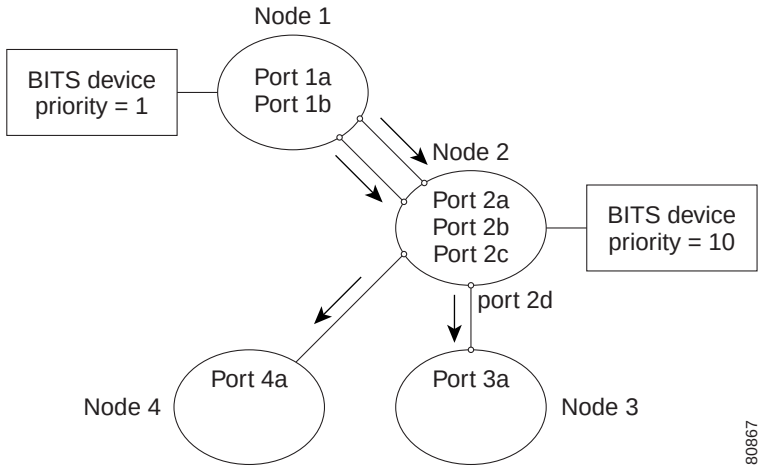
How NCDP Propagates the Root Clock

This sections introduces how NCDP uses NNI ports for propagating the best clock.

In Figure 2-6, Node 1 has a BITS device that has an assigned clock *priority* of 1, so it has the highest priority of all NCDP sources in the network and is therefore the root. Node 1 transmits its clock through two NNI ports (1a and 1b) to Node 2. Node 2 chooses port 2a as its root clock source because port 2a has a lower numerical significance then port 2b. (Node 2 also has a BITS device, but its priority is 10, making it the back-up clock source in case the root clock source becomes unavailable.) In the same way, Node 3 and Node 4 receive and pass on the best clock.

Note No NCDP command explicitly configures a “secondary” source (unlike manual clock commands), and no display command calls this source the “secondary.” The network administrator must know which user-specified parameters can lead NCDP to determine the root and back-up sources.

Figure 2-6 Distribution of a Master Clock



Usage Guidelines for the cnfncdpclksrc Command

Planning for network synchronization should include factors such as:

- The eventual size of the network
- The presence of switches that do not support NCDP
- Whether switches are planned for distant locations

Note For example, a network may initially exist in one city and have one BITS device, but groups of nodes eventually may exist thousands of miles from each other and have one BITS device in each location.Cisco recommends that the primary and backup BITS sources reside in two different switches to prevent a single point of failure.

On a node with redundant PXMs, you can connect the BITS lines through a Y-cable connector.

Syntax

cnfncdpclksrc <*portid*> <*prs-id*> [**e1** | **t1**] [–**priority** *priority*] [–**stratumLevel** *level*]

Syntax Description

portid — The port ID has the format of a PNNI physical port number, as follows:

- For a BITS device in an Cisco MGX 8850 or MGX 8950 chassis, *portid* is 7.35 for the upper connector or 7.36 for the lower connector on the PXM user interface (UI) back card.
- For a BITS source in a Cisco MGX 8830 chassis, the *portid* is either 1.35 for the upper connector or 1.36 for the lower connector on the user interface back card.
- For the internal oscillator, the port ID is 255.255.
- For a UNI, the port has the usual format of a PNNI physical port ID.

prs-id — The primary source ID (*prs-id*) is either 0 for external or 255 for internal. The external source is a BITS device or a UNI. The internal primary source is the free-running oscillator on the PXM back card.

Possible values: 0 or 255

Default: 255

e1 | t1 — The clock type pertains to a BITS only. Specify it only if the port ID is 7.35, 7.36, 1.35, or 1.36.

Type **t1** or **e1**. This parameter refers to the BITS line type and not to line types on a service module.

Default: **e1**

-priority — NCDP uses the priority of the current clock source to determine the network-wide root clock source. The range of 1–255 is sufficient to determine a root source within the maximum domain length of 200 nodes.

Range: 1–255 (the lower the number, the higher the priority)

Default: 128 (the priority of the internal oscillator)

-stratumLevel — Use the stratum level indicated in the manufacturer's documentation. (The manufacturer of the BITS device provides information about the clock.) The internal oscillator on the PXM45 has a stratum level of 3.

The *descending* order of possible entries are as follows: 1, 2E, 2, 3E, 3, 4E

Default: 3

Related Commands

cnfncdp, **cnfncdpport**, **delncdpclksrc**, **dspncdp**, **dspncdpclksrc**, **dspncdpclksrcs**, **dspncdpport**, **dspncdpports**

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

For this example, take the following steps:

1. Display the current clock configuration by using the **dspncdp** command. Note that no NCDP configuration has occurred: the mode is “manual;” the root stratum and priority are “0” and “N/A,” respectively; and the last clock change timestamp and reason are “N/A” and “none,” respectively.
2. Enable NCDP and keep the defaults for the other parameters.
3. Display NCDP configuration. Note that all the fields cited in the first step have changed.
4. Display all the NCDP clock sources by using the **dspncdpclksrcs** command. Only one source exists.
5. Configure the internal oscillator to have a priority of 120 by using the **cnfncdpclksrc** command.
6. Display the local NCDP clock source by using the **dspncdpclksrc** command.
7. Again run **dspncdp** to see that the Root Priority has changed from th default of 128 to 120.

```
p2spvc2.8.PXM.a > dspncdp

Distribution Mode               : manual
Node stratum level              : 3
Max network diameter            : 20
Hello time interval             : 500
Holddown time interval          : 500
Topology change time interval   : 500
Root Clock Source               : 255.255
Root Clock Source Status        : Good
Root Stratum Level              : unknown
Root Priority                   : 0
Last clk src change time        : N/A
Last clk src change reason      : None

PXM1E_SJ.7.PXM.a > cnfncdp -distributionMode 1

PXM1E_SJ.7.PXM.a > dspncdp
Distribution Mode               : ncdp
Node stratum level              : 3
Max network diameter            : 20
Hello time interval             : 500
Holddown time interval          : 500
Topology change time interval   : 500
Root Clock Source               : 255.255
Root Clock Source Status        : Good
Root Stratum Level              : 3
Root Priority                   : 128
Last clk src change time        : Nov 19 2002 13:21:46
Last clk src change reason      : Topology Changed

PXM1E_SJ.7.PXM.a > dspncdpclksrcs

PortId    Best clk src    Priority   Stratum level  Prs id          Health
255.255   Yes             128        3              255(internal)   Good

PXM1E_SJ.7.PXM.a > cnfncdpclksrc 255.255 255 -priority 120

PXM1E_SJ.7.PXM.a > dspncdpclksrc 255.255
Best clock source           : Yes
Priority                    : 120
Stratum level               : 3
Primary reference src id    : 255(internal)
Health                      : Good
```

```
PXM1E_SJ.7.PXM.a > dspncdp
Distribution Mode               : ncdp
Node stratum level              : 3
Max network diameter            : 20
Hello time interval             : 500
Holddown time interval          : 500
Topology change time interval   : 500
Root Clock Source               : 255.255
Root Clock Source Status        : Good
Root Stratum Level              : 3
Root Priority                   : 120
Last clk src change time        : Nov 19 2002 13:21:46
Last clk src change reason      : Topology Changed
```

cnfncdpport

Configure NCDP Port—PXM45, PXM1E

The **cnfncdpport** command lets you modify NCDP-specific parameters on an NNI port.

Note When NCDP is enabled, it automatically runs on NNI, AINI, and IISP links. For VNNIs or EVNNIs, NCDP must also be enabled on a per-interface basis.

After you enable NCDP by using the **cnfncdp** command, it is enabled on all NNI ports on the node. (At the node level, NCDP is disabled by default.) The **cnfncdpport** command lets you do the following:

- Disable NCDP on an NNI port to define the boundary of a clocking domain for reasons such as:
  - The domain has reached a certain size in terms of node count or geographical area.
  - The interface on the far end switch does not support NCDP (for example, a switch from a non-Cisco vendor).
- Modify the VPI, VCI, or bandwidth parameters of the signaling channel. The reserved VPI/VCI for NCDP signaling is 0/34.

  Note The VPI and VCI must be configured to fall within the partition range of the port. In some cases, where the VCI minimum in a partition was set to 35, you may need to reduce the minimum VCI on the port partition to 34.

  Also, for NCDP to work, the VPI and VCI at each end of the channel must be the same.

- Modify the administrative cost of the port to increase or decrease the likelihood that the routing protocol will use the port for the signaling channel.

Syntax

cnfncdpport *portid* [–**ncdp enable** | **disable**] [–**vpi** *vpi*] [–**vci** *vci*] [–**adminCost** *cost*] [–**pcr** *pcr*] [–**scr** *scr*] [–**mbs** *mbs*]

Syntax Description

portid	The *portid* is an NNI. The format of the PNNI physical port ID 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."
-ncdp	Enable or disable NCDP on the port. Type the word "disable" or "enable." Default: enable

-vpi	The reserved VPI of the signaling channel. Normally, no reason exists to change it. Note that the VPI at the local and remote ends of the channel must match. Range: 0–4095 Default: 0 **Note** The default minimum VPI/VCI is 0/34 even if the minimum VPI/VCI on an AXSM partition is 1/35. However, if a protocol such as MPLS, PNNI, or SSCOP has reserved 0/34 in its partition, NCDP cannot use 0/34. Furthermore, VNNIs or EVNNIs should not have VPIs that conflict with the NCDP signaling channel.
-vci	The reserved VCI of the signaling channel. Normally, no reason exists to change it. Note that the VCI at the local and remote ends of the channel must match. Range: 32–65535 Default: 34 **Note** The default minimum VPI/VCI is 0/34 even if the minimum VPI/VCI on an AXSM partition is 1/35. However, if a protocol such as MPLS, PNNI, or SSCOP has reserved 0/34 in its partition, NCDP cannot use 0/34. Furthermore, VNNIs or EVNNIs should not have VPIs that conflict with the NCDP signaling channel.
-adminCost	You can use the option to raise or lower the routing cost of the port. For example, if the equipment were in an area with a large amount of electronic noise, or if the switch carried a particularly large amount of traffic, you might want to raise the cost. Range: 1–(2^24-1) Default: 10
-pcr	Default: 250 cells per second
-scr	Default: 150 cells per second
-mbs	Default: 100 cells

Related Commands

cnfncdp, **cnfncdclksrc**, **delncdpclksrc**, **dspncdp**, **dspncdpclksrc**, **dspncdpclksrcs**, **dspncdpport**, **dspncdpports**

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

cnfndparms

Configure Node Parameters—PXM45, PXM1E

The **cnfndparms** command lets you configure a diverse set of node-level parameters.

Note Variations exist in the available parameters according to controller card and chassis. For the parameters on a PXM1E, see the next description of the **cnfndparms** command.

The parameters consist of an option number and a value or a yes/no choice. The configuration resides in non-volatile RAM and thus survives a system reset or power cycle. Due to the wide range of options and the possible values assigned to these options, the sections that follow describe each option and later describe the values you can assign (a hexadecimal number, a yes or no entry, and so on).

To see the current configuration for these parameters, use the **dspndparms** command. For information on the alarms that may relate to the parameters, see **dspndalms** and **dspenvalms**.

Maximum Card Resets

The first two options are a window (in seconds) for counting resets and a number of resets. The combined purpose of these parameters is to prevent an endless loop of card resets.

- Option 1 lets you select the sliding window of time for counting the resets of the shelf management cards. The characteristics of the time period option are:
  - The units of measure are seconds.
  - The number is a 16-bit decimal number and therefore has the range 0–65355.
  - A 0 means an infinite time period. The impact of an infinite time period is that only a specified count of resets can stop the resets.
  - The default is 3600 seconds (1 hour).
- Option 2 lets you select the maximum number of resets of the shelf management card group per time period. Its characteristics are:
  - The number is an eight-bit decimal number and therefore has the range 0–255. The meaning of a 0 for this parameter is an infinite number of resets—the resets can continue indefinitely.
  - The default is 3 resets per time period.

Shutting Off Alarms for Absent Core Cards

This option lets you specify whether a redundant core card that is removed from the backplane causes an alarm. (The core cards are the PXMs and SRMs.) The purpose of this option is to let you turn off alarms when the node configuration shows core card redundancy but one card stays out of the backplane for an extended period of time. The purpose is to let you turn off alarms until you re-install the card.

Enable Expanded Memory on PXM45/B

This option lets you enable expanded memory on the PXM45. To enable expanded memory, a pair of PXM45/Bs must reside in the system.

Caution Once enabled, this option cannot be disabled even if you use the **clrallcnf** command.

Required Power Supply Module Bitmap

This option lets you specify the locations of *required* power supplies in an AC-powered system. If any one of the required supplies is removed, an alarm results. (See also the descriptions of **dspndalms** and **dspenvalms** regarding alarms.) Additional supplies can also exist in the power supply tray, but removing one of the additional supplies does not cause an alarm.

An AC power supply tray holds six power supply units (PSUs). (Refer to the hardware installation guide for details.) A supply belongs to one of two groups: A1–A3 or B1–B3. An 8-bit hexadecimal number identifies an individual supply. The value is the sum of any combination of hexadecimal numbers. For example, the value for requiring A1 and B1 is:

0x01 + 0x10 = 0x11

Required Fan Trays

This option lets you specify required fan trays for the purpose of alarm generation. You can specify either or both fan trays as required. The value is an 8-bit hexadecimal number.

Note AN MGX 8850 or MGX 8950 chassis requires two fan trays for cooling regardless of the number you specify for alarm purposes with the **cnfndparms** command.

- 0x0 means no fan try requirement. (The enclosure still must have at least one fan tray for cooling.
- 0x01 refers to the bottom fan tray.
- 0x02 refers to the top fan tray.

To require top and bottom fan trays, for example, enter a hexadecimal 3 for the option value:

0x01+0x02=0x03

Trap Manager Aging Timeout

This option lets you specify the number of hours that a trap manager can age before the switch deletes that trap manager's registration. This node-level setting applies to all registered trap managers. The default of 0 means that the registration of trap managers on the switch do not age. The only applicable trap managers for this parameter are Cisco WAN Manager (CWM) workstations.

The application of a non-zero aging parameter is an environment where the IP address of the network management stations are likely to change or where the workstations themselves are likely to be moved. Non-CWM users or managers of a stable network manager environment should leave the setting at zero.

Primary IP Interface for Network Management

This option lets you specify a primary interface type for discovery by CWM. The main purpose is to let you change from the default ATM interface to a LAN interface for use by CWM. The context of the LAN choice is where you want to build an IP connectivity infrastructure for CWM by using LAN interfaces. After specifying a LAN interface, CWM discovers this type while doing an ILMI MIB-walk.

Secondary IP Interface for Network Management

This option automatically enables CWM to learn the secondary IP interface by doing a MIB-walk and reading the PNNI topology state element table. If you do not enable this feature, the PTSEs do not flood the secondary IP address.

Automatic Setting of Cellbus Clock Speed for RPM

This option lets you enable the automatic setting of Cellbus clock speeds for the Route Processor Module-Premium (RPM-PR). If you enable this feature, the switch automatically adjusts the Cellbus clock as needed when you insert or remove an RPM-PR at a particular Cellbus. If this feature is enabled, for example, and two RPM-PRs are plugged into a Cellbus, the clock speed is 42 MHz. If you remove one RPM-PR, the clock drops to 21 MHz.

The Cellbus clock rates must be correct for the RPM-PR to do traffic shaping. If clock-setting is not automatic, you would have to adjust clock speeds by using the **cnfcbclk** command. To see whether automatic or manual clock setting is enabled, use the **dspcbclk** command.

If you turn on this feature and one or more AXSMs is running at 42 MHz, the clock for all such AXSMs immediately becomes 21 MHz regardless of how many AXSMs reside in the switch.

Inband Node-to-Node IP Connectivity

This option lets you enable or disable inband, node-to-node IP connectivity so you can telnet from the CLI of one switch to the CLI of another switch.

After you telnet, an SVC is set up between the local node and the remote node. (The SVC is the transmission medium for *all* IP traffic between two nodes, yet the SVC and telnet are independent of each other: the telnet is just one kind of traffic.) If you disable this feature after the SVC is created then proceed to transfer more IP data between nodes, the transfer of IP data is successful. In fact, it works without disruption until the SVC is torn down. Note that the SVC is torn down when no IP traffic traverses the SVC for 15 minutes.

To exit the CLI of the remote switch—to break the connection and terminate the telnet session—enter the **exit** or **bye** command. See Examples section for this feature.

This parameter is enabled by default after you run the **clrallcnf** command. On the other hand, if you upgrade from a software release that does not have this parameter, the default state is disabled.

Option Values

This command requires various number formats to support its parameters, as follows:

- An 8-bit decimal has the range 0–255.
- A 16-bit decimal number has the range 0–65535.
- A 32-bit decimal number has the range 0–4294962795.
- An 8-bit hexadecimal number has the range 0–0xff.
- A 16-bit hexadecimal number has the range 0–0xffff
- A 32-bit hexadecimal number has the range 0–0xffffffff.

Each option description states the type of number involved and the actual range for that option. Alternatively, the description states if the choice is “yes” to enable of “no” to disable.

Syntax

cnfndparms <*option_number*> <*option_value*>

Syntax Description for PXM45

option number	A number that selects the option. Refer to the description of each option at the beginning of this description for important details and warnings. Range: 1–10
Option 1	Option 1 is the number of seconds to count the resets of the shelf management cards. The range is 0–65355 (a 16-bit decimal number). The default is 3600 seconds (1 hour). A 0 means an infinite time period. The impact of an infinite time period is that only a specified count of resets can stop the resets.
Option 2	Option 2 is the maximum number of resets of the shelf management card group per time period. The number is an 8-bit decimal number and therefore has the range 0–255. The meaning of a 0 for this parameter is an infinite number of resets—the resets can continue regardless of the number. The default is 3 resets per period (see Option 1).
Option 3	This option lets you enable or disable core card redundancy. Enter “yes” to enable or “no” to disable alarms on a missing, redundant core card. The default is enable, which means an alarm appears in the absence of a redundant core card.
Option 4	This option lets you enable or disable expanded memory on the PXM45/B only. Enter “yes” to enable or “no” to disable The default is disable.
Option 5	This option you specify the locations of *required* power supplies in an AC-powered system. The number is 8-bit hexadecimal: • 0x0 (the default) means no specified power supply requirement related to this particular form of alarm generation (although the configuration must still meet the power requirements of the switch). • 0x01: PSU A1 is required. • 0x02: PSU A2 is required. • 0x04: PSU A3 is required. • 0x10: PSU B1 is required. • 0x20: PSU B2 is required. • 0x40: PSU B3 is required.
Option 6	This option lets you specify the location of one or more required fan trays. The number is 8-bit hexadecimal: • 0 for no specific fan try requirement • 0x01 for bottom fan tray required • 0x02 for top fan tray required
Option 7	This option lets you specify the number of hours that a trap manager can age before the switch deletes that trap manager’s registration. This node-level setting applies to all registered trap managers. For important details, see the section, “Trap Manager Aging Timeout.”

Option 8	This option automatically enables Cisco WAN Manager (CWM) to learn the *primary* IP interface by doing a MIB-walk and reading the PNNI topology state element table. The range of entries for this option is 0–2, with the following significance: • 0: The atm0 interface is the primary. • 1: No interface is used. This choice prevents ILMI node discovery. • 2: The lnPci0 interface is the primary.
Option 9	This option automatically enables Cisco WAN Manager (CWM) to learn the *secondary* IP interface by doing a MIB-walk and reading the PNNI topology state element table. The range of entries for this option is 0–2, with the following significance: • 0: The atm0 interface is the secondary. • 1: No interface is used as the secondary. • 2: The lnPci0 interface is the secondary.
Option 10	This option lets you enable the automatic setting of Cellbus clock speed. In the current release, it applies to RPM-PR only. The choices are “yes” and “no.” Default: yes
Option 11	This option lets you enable inband, node-to-node IP connectivity so you can telnet between this CLI and other switches where this feature is enabled. Type “yes” to enable or “no” to disable. Default: enabled
option value	The *option value* can be a decimal or hexadecimal number or a “yes” or “no” entry. The following shows the possible ranges or values for each type of numeric option. 8-bit decimal: 0–255 16-bit decimal: 0–65535 32-bit decimal: 0–4294962795 8-bit hexadecimal: 0–0xff 16-bit hexadecimal: 0–0xffff 32-bit hexadecimal: 0–0xffffffff

Syntax Description for PXM1E

option number	A number that selects the option. Refer to the description of each option at the beginning of this description for important details and warnings. Range: 1–9
Option 1	Option 1 is the number of seconds to count the resets of the shelf management cards. The range is 0–65355 (a 16-bit decimal number). The default is 3600 seconds (1 hour). A 0 means an infinite time period. The impact of an infinite time period is that only a specified count of resets can stop the resets.
Option 2	Option 2 is the maximum number of resets of the shelf management card group per time period. The number is an 8-bit decimal number and therefore has the range 0–255. The meaning of a 0 for this parameter is an infinite number of resets—the resets can continue regardless of the number. The default is 3 resets per period (see Option 1).

Option 3	This option lets you enable or disable core card redundancy. Enter "yes" to enable or "no" to disable alarms on a missing, redundant core card. The default is enable, which means an alarm appears in the absence of a redundant core card.
Option 4	This option you specify the locations of *required* power supplies in an AC-powered system. The number is 8-bit hexadecimal: • 0x0 (the default) means no specified power supply requirement related to this particular form of alarm generation (although the configuration must still meet the power requirements of the switch). • 0x01: PSU A1 is required. • 0x02: PSU A2 is required. • 0x04: PSU A3 is required. • 0x10: PSU B1 is required. • 0x20: PSU B2 is required. • 0x40: PSU B3 is required.
Option 5	This option lets you specify the location of one or more required fan trays. The number is 8-bit hexadecimal: • 0 for no specific fan try requirement • 0x01 for bottom fan tray required • 0x02 for top fan tray required
Option 6	This option lets you specify the number of hours that a trap manager can age before the switch deletes that trap manager's registration. This node-level setting applies to all registered trap managers. For important details, see the section, "Trap Manager Aging Timeout."
Option 7	This option automatically enables Cisco WAN Manager (CWM) to learn the *primary* IP interface by doing a MIB-walk and reading the PNNI topology state element table. The range of entries for this option is 0–2, with the following significance: • 0: The atm0 interface is the primary. • 1: No interface is used. This choice prevents ILMI node discovery. • 2: The lnPci0 interface is the primary.
Option 8	This option automatically enables Cisco WAN Manager (CWM) to learn the *secondary* IP interface by doing a MIB-walk and reading the PNNI topology state element table. The range of entries for this option is 0–2, with the following significance: • 0: The atm0 interface is the secondary. • 1: No interface is used as the secondary. • 2: The lnPci0 interface is the secondary.
Option 9	This option lets you enable the automatic setting of Cellbus clock speed. In the current release, it applies to RPM-PR only. The choices are "yes" and "no." Default: yes

Option 10	This option lets you enable inband, node-to-node IP connectivity so you can telnet between this CLI and other switches where this feature is enabled. Type "yes" to enable or "no" to disable. Default: enabled
option value	The *option value* can be a decimal or hexadecimal number or a "yes" or "no" entry. The following shows the possible ranges or values for each type of numeric option. 8-bit decimal: 0–255 16-bit decimal: 0–65535 32-bit decimal: 0–4294962795 8-bit hexadecimal: 0–0xff 16-bit hexadecimal: 0–0xffff 32-bit hexadecimal: 0–0xffffffff

Related Commands

dspndparms, **dspndalms**, **dspenvalms, cnfcbclk, dspcbclk**

Attributes

Log: no State: active Privilege: SUPER_GP

Examples

Specify 30 minutes (1800 seconds) for Card Reset Sliding Window. You can enter the option *number* and option *value* without prompting. The system subsequently uses the parameters and shows the result.

```
MGX8850.7.PXM.a > cnfndparms 1 1800
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
1     1800        16bit Decimal  SHM Card Reset Sliding Window (secs)
```

On the MGX 8850 switch with the PXM1E, disable inband node-to-node IP connectivity.

```
PXM1E_SJ.7.PXM.a > cnfndparms 10
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
10    Yes         Boolean        Inband Node-to-Node IP Connectivity Enabled
Enable/Disable Inband Node-to-Node IP Connectivity.  If option set to:
    Yes:   Inband Node-to-Node IP Connectivity Enabled.  This
           allows IP access from/to this node to/from other nodes via
           IP and inband ATM SVCs.  Applications such as telnet and
           ping are supported.
    No:    Inband Node-to-Node IP Connectivity Disabled.  This
           prevents IP access from/to this node to/from other nodes via
           IP and inband ATM SVCs.  All incoming requests will be rejected.

Enter value for option 10 (Y/N): n
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
10    No          Boolean        Inband Node-to-Node IP Connectivity Enabled
```

Enable automatic setting of Cellbus clock speed. Type the **cnfndparms** command without parameters to see all options, then enter “10” and “y” at the subsequent prompt. Note that this card is a PXM45. Afterwards, check the status by using the **dspcbclk** command.

```
scott.7.PXM.a > cnfndparm

scott                          System Rev:03.00 Sep. 25, 2002
11:06:04 PST
MGX8850                                                Node Alarm:NONE
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
1     3600        16bit Decimal  SHM Card Reset Sliding Window (secs)
2     3           8bit Decimal   SHM Max Card Resets Per Window (0 = infinite)
3     Yes         Boolean        Core Redundancy Enabled
4     No          Boolean        Expanded Memory on PXM45B Enabled
5     0x0         8bit Hex       Required Power Supply Module Bitmap
6     0x0         8bit Hex       Required Fan Tray Unit Bitmap
7     0           8bit Decimal   Trap Manager Aging timeout value(Hour(s))
8     atm0        8bit Decimal   Primary IP interface for Netmgmt
9     lnPci0      8bit Decimal   Secondary IP interface for Netmgmt
10    Yes         Boolean        Auto Setting of Cellbus Clock Rate Enabled
11    Yes         Boolean        Inband Node-to-Node IP Connectivity Enabled

Enter option number (1-11):10
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
10    Yes         Boolean        Auto Setting of Cellbus Clock Rate Enabled
Enable/Disable Automatic Cellbus Clock Rate Setting. If option set to:
    Yes: Automatic Setting Enabled. This allows for automatic
           determination of cellbus clock rate depending on the
           insertion and removal of cards such as RPM in the shelf.
    No:   Automatic Setting Disabled. This prevents automatic
           determination of cellbus clock rate. Manual manipulation
           must be performed using the cnfcbclk CLI command.

Enter value for option 10 (Y/Nay
NODE CONFIGURATION OPTIONS
Opt#  Value       Type           Description
----  -----       ----           -----------
10    Yes         Boolean        Auto Setting of Cellbus Clock Rate
Enable
```

Determine whether automatic clock setting is enabled by using the **dspcbclk** command.

```
scott.7.PXM.a > dspcbclk

     CellBus    Rate (MHz)    Slots     Allowable Rates (MHz)
    ----------------------------------------------------------
       CB1         21        1, 2            21, 42 (Auto Setting Enabled)
       CB2         42        3, 4            21, 42 (Auto Setting Enabled)
       CB3         21        5, 6            21, 42 (Auto Setting Enabled)
       CB4         21        17 - 22         21
       CB5         21        9, 10           21, 42 (Auto Setting Enabled)
       CB6         21        11, 12          21, 42 (Auto Setting Enabled)
       CB7         21        13, 14          21, 42 (Auto Setting Enabled)
       CB8         21        25 - 30         21

scott.7.PXM.a >
```

cnfnodalcongth

Configure Nodal Congestion Thresholds—PXM45, PXM1E

The **cnfnodalcongth** command lets you configure congestion thresholds at the node level. The thresholds relate to call setup messages, status enquiries, queue levels, and so on. You must specify at least one optional parameter.

Syntax

cnfnodalcongth **-setuphi** {*setupHiThreshold*}] **-statenqlo** {*statusEnqLoThreshold*}] **-statenqhi** {*statusEnqHiThreshold*}]-connpendlo {*connPendingLo*}] **-connpendhi** {*connPendingHi*}] **-incompjour** {*incompleteJournalCallsHi*}] **-vsiqmild** {*mildCongPerc*}] **-vsiqmedium** {*mediumCongPerc*}] **-vsiqsevere** {*severeCongPerc*}]

Syntax Description

-setuphi	The number of connection set-up messages per second above which the node is congested. Range: 1–1000 connection set-up messages per second Default: • 500 on a PXM45/B with R7K processor • 180 in all other cases
-statenqlo	The number of status enquiries per second below which the node is not congested. Range: 1–500 messages per second Default: 100
-statenqhi	The number of status enquiries per second above which the node is congested with status enquiries. Range: 1–500 status enquiries per second Default: 200 status enquiries per second
-connpendlo	The aggregate number of connections in the establishment phase below which the establishment congestion flag is dropped. Range: 1–1000 connections Default: 400 connections
-connpendhi	The aggregate number of connections in the establishment phase above which the establishment congestion state is flagged. Range: 1–1000 connections Default: 500 connections
-incompjour	The number of incomplete journaling cycles that must be exceeded to trigger an increase in the journaling rate. Range: 1–10 cycles Default: 5 cycles

-vsiqmild	The VSI Q depth above which VSI master is mildly congested. The *mildCongPerc* value is a percentage of VSI master-slave communication window size. This threshold applies to all the PNNI logical ports on the node. Range: 1–175 Default: 5
-vsiqmedium	The VSI Q depth above which VSI master is congested at a medium level. The *mediumCongPercis* value is a percent of VSI master-slave communication window size.This threshold applies to all interfaces on the node. Range: 1–175 Default: 10
-vsiqsevere	The VSI Q depth above which VSI master is severely congested. The *severeCongPerc* value is a percent of VSI master-slave communication window size. This threshold applies to all interfaces on the node. Range: 1–175 Default: 20

Related Commands

dspnodalcongth

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

Configure the nodal congestion thresholds, as follows:

```
svcpop1.1.PXM.a > cnfnodalcongth -setuphi 80 -vsiqmild 100 -vsiqmedium 140 -vsiqsevere 175

 svcpop1.1.PXM.a > dspnodalcongth
 Parameter         Value      Unit
 ================================
 setuphi(prov)       80       cps
 setuphi(curr)       80       cps
 statenqlo          100       cps
 statenqhi          200       cps
 connpendinglo      400       messages
 connpendinghi      500       messages
 incompjournalhi      5       cycles
 vsiqdepthmild      100       multiplier
 vsiqdepthmedium    140       multiplier
 vsiqdepthsevere    175       multiplier
```

cnfnodalfd

Configure Nodal Frame Discard—PXM45, PXM1E

The **cnfnodalfd** command lets you enable or disable frame discard for AAL5 cells. The default is enabled. You can display the configuration by using the **dspnodalfd** command.

Note This command formerly had the name **cnffdonaal5**.

Syntax

cnfnodalfd <**enable** | **disable**>

Syntax Description

enable	Enter the word in its entirety to enable or discard frame discard for AAL5 cells.
disable	Default: enable

Related Commands

dspnodalfd

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

Enable frame discard for AAL5 cells, then check the result.

```
SanJose.7.PXM.a > cnfnodalfd enable
SanJose.7.PXM.a > dspnodalfd
Global Signaling Parameters
===========================
Frame Discard on AAL5 IE: yes

SanJose.7.PXM.a >
```

cnfoamsegep

Configure OAM Segment Endpoint—PXM45, PXM1E

Define the port as a segment endpoint for F4 and F5 operations administration and maintenance (OAM) cells. This command does not take effective for existing connections, and only does for newly established calls. This command can be used regardless of the state of the port.

Syntax

cnfoamsegep <*portid*> [{**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."
yes	The port is configured as a segment endpoint and is a segment endpoint for all connections on this port.
no	The port is not a segment endpoint. Default: no

Related Commands

dspoamsegep, cnfconsegep, delconsegep

Attributes

Log: yes State: active Privilege: GROUP1

cnfpart

Configure Resource Partition—PXM1E

The **cnfpart** command lets you modify the bandwidth and other resource partitioning on a logical port. The entity that makes use of the resources in a partition is a network controller. For many partition parameters, you can dynamically make modifications—without administratively downing the port—by using the **cnfpart** or **cnfrscprtn** command. However, before you can modify the minimum or maximum VPI or VCI, the port must be down.

The existing controllers are the Private Network to Network Interface (PNNI) and the Label Switch Controller (LSC). In the current release of the PXM1E, only PNNI is supported. Before you add a resource partition, have a plan for future changes, such as the support of a new controller.

A resource partition consists of:

- A guaranteed percentage of bandwidth.
- VPI and VCI ranges.
- Guaranteed minimum and maximum number of connections. Note that the *maximum* number of connections must be *greater* than 10.

Note The **cnfpart** and **cnfrscprtn** commands are identical and interchangeable. The name "cnfrscprtn" is consistent with the corresponding command in Release 1 of the MGX 8850 node. Use the name that suits you. This interchangeability also applies to all the other partition commands.

Ports, Partitions, Controllers, and Interface Types

This section contains details regarding ports, partitions, and controllers that you should note before adding a partition.

On each port—regardless of the interface type—a controller can have one partition. Therefore, on a port, you can add one partition for PNNI and one for LSC (but keep in mind that the PXM1E currently uses only PNNI). This requirement applies regardless of whether an interface (specified through **addport)** is UNI, NNI, VUNI, or VNNI.

The pairing of partition ID and controller ID must be the same across all interfaces. In this situation, the interface number uniquely identifies the partition. For example, on a PXM1E-4-OC3 with two UNIs and two NNIs, you could specify:

- Logical interface 1 (on line 1), partition ID 1, controller ID 2
- Logical interface 2 (on line 2), partition ID 1, controller ID 2
- Logical interface 3 (on line 3), partition ID 1, controller ID 2
- Logical interface 4 (on line 4), partition ID 1, controller ID 2

The VPIs and VCIs you modify with the **cnfpart** command must be within the range specified when the port was created through the **addport** command,

Syntax

cnfpart -if <*if*> **-id** <*partionID*> **-ctlr** <*controllerID*> **-emin** <*egrMinBw*> **-emax** <*egrMaxBw*> **-imin** <*ingMinBw*> **-imax** <*ingMaxBw*> **-vpmin** <*minVpi*> **-vpmax** <*maxVpi*> **-vcmin** <*minVci*> **-vcmax** <*maxVci*> **-mincon** <*min connections*> **-maxcon** <*max connections*>

Syntax Description

Note On a virtual trunk, the *min_vpi* and *max_vpi* must be the same.

-if	Logical interface (port) number. The range for *if* is 1–31.
-id	The partition ID number. The range for *partionID* is 1–20.
-ctlr	The *controllerID* is a number that identifies a network controller. The PXM1E supports only the PNNI controller—option 2. (The range for *reserved* controller IDs is 1–3.) The reserved controller IDs are as follows: • 1 = PAR (Portable AutoRoute)—currently not used on the PXM1E or PXM45 • 2 = PNNI • 3 = LSC (Label Switch Controller, also known as MPLS for Multiprotocol Label Switching) is not supported on the PXM1E (The absolute range for the PXM1E is 1–254.)
-emin	Specifies the guaranteed percentage of egress bandwidth. Each unit of *egrMinBw* is 0.00001 of the total bandwidth on the port. (An *egrMinBw* of 1000000 = 100%.) This approach provides a high level of granularity.
-emax	Specifies the maximum percentage of the bandwidth. Each unit of *egrMaxBw* is 0.00001 of the total bandwidth available to the port. (An *egrMaxBw* of 1000000 = 100%.) The resulting bandwidth must be at least 50 cps.
-imin	Specifies the guaranteed percentage of the ingress bandwidth. Each unit of *ingMinBw* is 0.00001 of the total bandwidth available to the port. For example, an *ingMinBw* of 1000000 = 100%.
-imax	Specifies the maximum percentage of the ingress bandwidth. Each increment of *ingMaxBw* is 0.00001 of the total bandwidth on the port. For example, an *ingMaxBw* of 1000000 = 100%. Note that the maximum ingress bandwidth must be at least 50 cps.
-vpmin	Specifies the minimum VPI. For NNI, the range is 0–4095. For UNI, the range is 0–255.
-imax	Specifies the maximum VPI in the range 0–4095 for an NNI. For a UNI, the range is 0–255. The *maxvpi* cannot be less than the *minvpi*.
-vcmin	Minimum VCI range on the PXM1E is 32–65535.
-vcmax	Maximum VCI range on the PXM1E is 32–65535.
-mincon	Specifies the guaranteed number of connections. On the PXM1E UNI/NNI, the ranges vary according to the line types, as follows: • For OC3, T3, and E3 lines, the range is 10–27000. • For T1 and E1 lines, the range is 10–13500. (On the AXSM series of cards, the range is 10 through the maximum number of connections in the port group. See **dspcd** for information about port groups. On narrowband service modules, the range varies: see the CLI of individual cards.)
-maxcon	Specifies the guaranteed number of connections. On the PXM1E UNI/NNI, the ranges vary according to the line types, as follows: • For OC3, T3, and E3 lines, the range is 10–27000. • For T1 and E1 lines, the range is 10–13500. *maxConns* cannot be less than *minConns*.

Related Commands

addpart, **delpart**, **dsppart**, **dsppart**

Attributes

Log: yes State: active Privilege: GROUP1

Example

Configure the following:

- The logical port (*ifNum*) is 1.
- The partition number is 1.
- The controller is PNNI (number 2).
- The ingress and egress each have a minimum of 10% and a maximum of 15% of the bandwidth.
- VPI range is 20–100.
- VCI range is 1–32767.
- Minimum guaranteed number of connections is 1000.
- Maximum number of connections is 2000.

```
MGX8850.7.PXM1E.a > cnfrscprtn -if 1 -id 1 -ctlr 2 -emin 100000 -emax 150000 -imin 10000
-imax 15000 -vpmin 20 -vpmax 100 -vcmin 1 -vcmax 32767 -mincon 1000 -maxcon 2000
```

cnfpasswd

Configure Password—PXM45, PXM1E

Change your own password. After you enter the **cnfpasswd** command without parameters, the system prompts you to enter the new password then prompts you to re-enter it.

Note The default password is for a user-account is *newuser.*

Syntax

cnfpasswd <*password*>

Syntax Description

password	Your new password.

Related Commands

adduser, **dspusers**, **cnfuser**

Attributes

Log: no State: active Privilege: ANYUSER

Change your password. After you enter the command, it prompts you once to enter a new password then prompts you to re-enter it.

```
pinnacle.8.PXM.a > cnfpasswd
Enter password:
Re-enter password:
```

cnfpasswdreset

Configure Password Reset—PXM45, PXM1E

The **cnfpasswdreset** command lets you enable or disable the function carried out by the sequence of key-strokes that resets the node to the Cisco default password. This sequence is:

ESC CTRL-Y

Syntax

cnfpasswdreset <*flag*>

Syntax Description

flag	A Boolean expression to enable or disable password reset: enter “on” to enable or “off” to disable the sequence of keys that resets the password.

Related Commands

dsppasswdreset

Attributes

Log: yes State: active Privilege: SERVICE_GP

Example

Enable command reset, then check its status by executing **dsppasswdreset**.

```
pop20one.7.PXM.a > cnfpasswdreset on
Password Reset feature being enabled

pop20one.7.PXM.a > dsppasswdreset
Password Reset feature currently enabled
```