CHAPTER 13

N Commands

The commands shown in this chapter apply to the Catalyst 8540 MSR, Catalyst 8510 MSR, and LightStream 1010 ATM switch routers. Where an entire command or certain attributes of a command have values specific to a particular switch or switch router, an exception is indicated by the following callouts:

- Catalyst 8540 MSR
- Catalyst 8510 MSR and LightStream 1010

Note Commands that are identical to those documented in the Cisco IOS software documentation have been removed from this chapter.

Note Commands that no longer function as expected in ATM environments have also been removed from this chapter.

Refer to Appendix D of this command reference for a detailed list of commands that have been removed, changed or replaced.

name

To configure a name for a PNNI node, use the **name** node-level subcommand. To return to the default value, use the **no** form of this command.

name *name*

no name

Syntax Description

name	Specify the ASCII name for the PNNI node.

Defaults

The value assigned by the **hostname** command.

Command Modes

PNNI node command

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The PNNI node name is distributed to all other nodes via PNNI flooding. This allows all PNNI nodes to use this node name in the following PNNI **show** commands:

- **show atm pnni database**
- **show atm pnni identifiers**
- **show atm pnni interface**
- **show atm pnni neighbor**
- **show atm pnni local-node**
- **show atm pnni topology**

This command only applies to PNNI nodes.

For more information, refer to the *ATM Switch Router Software Configuration Guide*.

Examples

The following example configures the node name to be eng_1.

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1
Switch(config-pnni-node)# name eng_1
```

Related Commands

Command	Description
hostname	Cisco IOS command removed from this manual.
show atm pnni local-node	Displays information about a PNNI logical node running on the switch.

name local-seg-id

To specify or replace the ring number of the emulated LAN in the configuration server's configuration database, use the **name local-seg-id** database configuration command. To remove the ring number from the database, use the **no** form of this command.

name *elan-name* **local-seg-id** *seg-num*

no name *elan-name* **local-seg-id** *seg-num*

Syntax Description

elan-name	Name of the emulated LAN. The maximum length of the name is 32 characters.
seg-num	Segment number to be assigned to the emulated LAN. The number ranges from 1 to 4095.

Defaults

No emulated LAN name or segment number is provided.

Command Modes

Database configuration

Command History

Release	Modification
11.1(3a)	New command

Usage Guidelines

This command is used for Token Ring LANE.

Refer to the **lane database** command for instructions on how to enter database configuration mode.

The same LANE ring number cannot be assigned to more than one emulated LAN.

The **no** form of this command deletes the relationships.

Examples

The following example specifies a ring number of 1024 for the emulated LAN red.

```
Switch# configure terminal
Switch(config)# lane database eng_dbase
Switch(lane-config-database)# name red local-seg-id 1024
```

Related Commands

Command	Description
delay	This command or some of its parameters might not function as expected.
lane config-atm-address	Specifies that the fixed-configuration server ATM address assigned by the ATM Forum is used.

name server-atm-address

To specify or replace the ATM address of the LANE server for the emulated LAN in the configuration server's configuration database, use the **name server-atm-address** global database configuration command. To remove it from the database, use the **no** form of this command.

name *elan-name* **server-atm-address** *atm-address* [**restricted** | **un-restricted**] [**index** *n*] [**preempt**]

no name *elan-name* **server-atm-address** *atm-address* [**restricted** | **un-restricted**] [**index** *n*] [**preempt**]

Syntax Description

elan-name	Name of the emulated LAN. Maximum length is 32 characters.
atm-address	LANE server's ATM address.
restricted | **un-restricted**	Membership in the named emulated LAN is restricted to the LANE clients explicitly defined to the emulated LAN in the configuration server's database.
index	Priority number. When specifying multiple LANE servers for fault tolerance, you can specify a priority for each server. The highest priority is 0.
preempt	Turns ON higher priority LES preemption.

Defaults

No emulated LAN name or server ATM address is provided.

Command Modes

Database configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Use the **lane database** command to enter database configuration mode.

Emulated LAN names must be unique within one named LANE configuration database.

Specifying an existing emulated LAN name with a new LANE server ATM address adds the LANE server ATM address for that emulated LAN for redundant server operation or simple LANE service replication. This command can be entered multiple times.

By default, when a higher-priority LES comes online, it does not preempt the current LES on the same emulated LAN. However, a higher-priority LES configured as preemptable does bump the current LES on the same emulated LAN when the LES comes online.

The **no** form of this command deletes the relationships.

Examples

The following example configures the *example3* database with two restricted and one unrestricted emulated LANs. The clients that can be assigned to the eng and mkt emulated LANs are specified using the **client-atm-address** command. All other clients are assigned to the man emulated LAN.

```
Switch# configure terminal
Switch(config)# lane database eng_dbase
Switch(lane-config-database)# lane database example3
name eng server-atm-address 39.000001415555121101020304.0800.200c.1001.02 restricted
name man server-atm-address 39.000001415555121101020304.0800.200c.1001.01
name mkt server-atm-address 39.000001415555121101020304.0800.200c.4001.01 restricted
client-atm-address 39.000001415555121101020304.0800.200c.1000.02 name eng
client-atm-address 39.000001415555121101020304.0800.200c.2000.02 name eng
client-atm-address 39.000001415555121101020304.0800.200c.3000.02 name mkt
client-atm-address 39.000001415555121101020304.0800.200c.4000.01 name mkt
default-name man
```

Related Commands

Command	Description
client-atm-address name	To add a LANE client address entry to the configuration servers configuration database.
delay	This command or some of its parameters might not function as expected. See Appendix D.
lane database	Cisco IOS command removed from this manual. See Appendix D.

national reserve (Catalyst 8510 MSR and LightStream 1010)

To select the national bits for E1 IMA interfaces, use the **national reserve** interface configuration command. To restore the default, use the **no** form of this command.

national reserve *international-bit sa4-bit sa5-bit sa6-bit sa7-bit sa8-bit*

no national reserve

Syntax Description

international-bit	Specifies the national reserve international bit, either 0 or 1.
sa4-bit	Specifies the national reserve sa4 bit, either 0 or1.
sa5-bit	Specifies the national reserve sa5 bit, either 0 or 1.
sa6-bit	Specifies the national reserve sa6 bit, either 0 or 1.
sa7-bit	Specifies the national reserve sa7 bit, either 0 or 1.
sa8-bit	Specifies the national reserve sa8 bit, either 0 or 1.

Defaults

1 1 1 1 1 1

Command Modes

Interface configuration

Command History

Release	Modification
12.0(4a)W5(11a)	New command

Usage Guidelines

To change the national reserve bit used by the controller, select 0 or 1 for each bit.

Note This command applies only to E1 IMA.

Examples

The following example sets the national reserve bits for ATM interface 0/0/0:

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# national reserve 1 1 1 1 1 0
```

Related Commands

Command	Description
show controllers	Displays information about a physical port device.

ncdp (global)

To enable NCDP (Network Clock Distribution Protocol) and configure the network clocking hardware of the switch router, use the **ncdp** command. To exit NCDP mode, use the **no** form of this command.

ncdp [**max-diameter** *hops* | **revertive** | **source** priority {{{**atm | cbr**} *card/subcard/port* | **bits** {**0** | **1**}} *stratum* **| system**} | **timer** {**hello** | **hold**} *time_in_msec*] [*percentage*]

no ncdp [**max-diameter** *hops* | **revertive** | **source** priority {{{**atm** | **cbr**} *card/subcard/port* | **bits** {**0** | **1**}} *stratum* **| system**} | **timer** {**hello** | **hold**} *time_in_msec*] [*percentage*]

Syntax Description

ncdp	Enables NCDP.
max-diameter	Specifies the maximum network diameter for the protocol.
hops	Specifies the maximum distance between any two nodes participating in the protocol, measured in hops. Values are 3 to 255. The default is 20. Each node must be configured with the same **max-diameter** value for the protocol to operate properly.
revertive	Configures clock sources to be revertive. When clock sources are configured as revertive, a clock source that is selected and then fails is selected again once it becomes operational. When clock sources are nonrevertive (the default), a failed clock source is prevented from being selected again. This nonrevertive behavior only applies to locally configured clock sources.
source	Configures a clocking source for the given interface. See Table 13-1 for a list of keywords.
timer	Specifies, in milliseconds, the hello time or hold time for the NCDP protocol.
hello	Rate at which NCDP hello messages (configuration protocol data units) are sent. Specified in milliseconds. The default is 500.
hold	Delay between transmission of hello messages. Specified in milliseconds. The default is 500.
time_in_msec	Hello rate or hold delay time, in milliseconds. The range is 75-60000.
percentage	Specifies percentage **hello** or **hold** timer should be jittered. Range is 0-100.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
12.0(3c)W5(9)	New command

Usage Guidelines

Use the NCDP protocol to configure network clocking hardware to distribute a clock signal through the node (for use by physical interfaces) and to distribute a clock signal between nodes on the network.

When NCDP is enabled, network clock sources are selected by the protocol. When NCDP is disabled, network clock sources are selected according to the definitions entered through the **network-clock-select** command. Table 13-1 describes the key words by source type.

Table 13-1 Source Type Keywords

Keyword	Description
priority	Specifies a network-wide priority for the clock source. The range is 1 to 255.
interface-type	Specifies the interface type as **atm** or **cbr**.
card/subcard/port	Card, subcard, and port number for the ATM interface.
stratum	The level in the Bellcore stratum hierarchy. (See Bellcore GR-436-CORE and Bellcore GR-1244-CORE for more details.)
bits	Displayed and accepted when the platform supports the building integrated timing system (BITS). **bits** is only displayed or accepted if the system is equipped with a telco module.
system	Specifies the system clock as the clock source.

Examples

The following example shows how to set the maximum network diameter (number of hops between nodes) to 11.

```
Switch# configure terminal
Switch(config)# ncdp max-diameter 11
```

The following example shows how to configure clock sources, as follows:

- ATM interface 0/0/0 is configured to priority 1 and stratum 2e
- BITS interface 0 (can be BITS 0 or BITS 1) is configured to priority 2 and stratum 2e
- CBR interface 0/0/0 is configured to priority 3 and stratum 3
- System clock is configured to priority 1

```
Switch(config)# ncdp source 1 atm 0/0/0 2e
Switch(config)# ncdp source 2 BITS 0 2e
Switch(config)# ncdp source 3 cbr 0/0/0 3
Switch(config)# ncdp source 1 system
```

The following example shows how to configure the locally defined clock sources to be revertive.

```
Switch(config)# ncdp revertive
```

The following example shows how to configure the NCDP hello timer to 500 milliseconds.

```
Switch(config)# ncdp timer hello 500
```

Related Commands

Command	Description
debug ncdp	Displays NCDP errors, events, and packet information.
ncdp (interface)	Used to enable NCDP and configure the network clocking hardware at the interface level.
show ncdp path root	Displays the NCDP path from the current node to its root clock source.
show ncdp ports	Displays NCDP information at the port level.
show ncdp sources	Displays all of the NCDP clock sources configured on the node and their attributes.
show ncdp status	Displays NCDP status information.
show ncdp timers	Displays NCDP information for the node-level timers.

ncdp (interface)

To enable NCDP and configure the network clocking hardware at the interface level, use the **ncdp** command. To exit NCDP mode, use the **no** form of this command.

ncdp [**admin-weight** *weight* | **control-vc** *vpi vci*]

no ncdp [**admin-weight** *weight* | **control-vc** *vpi vci*]

Syntax Description

ncdp	Enables NCDP for the interface. For all ATM NNI interfaces, NCDP is enabled by default. For all other interfaces, NCDP is disabled by default.
admin-weight	Specifies the cost metric associated with the given port. The default is 10.
weight	A strictly positive integer in the range 1 to 16777215.
control-vc	Changes the control virtual circuit used to transport protocol messages between adjacent protocol entities on the given interface.
vpi vci	Specifies the virtual path identifier and virtual channel identifier.

Defaults

Enabled for all ATM NNI interfaces.

Disabled for all other interfaces.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(3c)W5(9)	New command

Usage Guidelines

Use the NCDP interface-level commands to enable or disable NCDP on the interface or to change interface-level parameters.

NCDP also allows you to enable or disable NCDP on a given port to specify the cost metric associated with a given port and to change the control virtual circuit used to transport protocol messages between adjacent protocol entities on the given interface.

Examples

The following example shows how to set a link cost of 75 for ATM interface 0/0/0:

```
Switch# configure terminal
switch(config)# interface atm 0/0/0
switch(config-if)# ncdp admin-weight 75
```

The following example shows how to change the control virtual circuit used by the protocol to VPI=0, VCI=75.

```
switch(config)# interface atm 0/0/0
switch(config-if)# ncdp control-vc 0 75
```

Related Commands

Commaned	Description
debug ncdp	Displays NCDP errors, events, and packet information.
national reserve (Catalyst 8510 MSR and LightStream 1010)	Used to select the national bits for E1 IMA interfaces.
show ncdp path root	Displays the NCDP path from the current node to its root clock source.
show ncdp ports	Displays NCDP information at the port level.
show ncdp sources	Displays all of the NCDP clock sources configured on the node and their attributes.
show ncdp status	Displays NCDP status information.
show ncdp timers	Displays NCDP information for the node-level timers.

network-clock-select

To allow the recovered clock to specify a particular port to provide network clocking, use the **network-clock-select** global configuration command. To disable this feature, use the **no** form of this command.

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network-clock-select *priority* {{{**atm** | **cbr**} *card/subcard/port*} | **system** | **BITS** {**E1** | **T1**}}**revertive**

no network-clock-select *priority* {{{**atm** | **cbr**} *card/subcard/port*} | **system** | **BITS** {**E1** | **T1**}}**revertive**

Catalyst 8510 MSR and LightStream 1010

network-clock-select *priority* {{{**atm** | **cbr**} *card/subcard/port*} | **system**} **revertive**

no network-clock-select *priority* {{{**atm** | **cbr**} *card/subcard/port*} | **system**} **revertive**

Syntax Description

priority	Specifies the priority between 1 and 4.
atm	ATM interface.
cbr	Constant bit rate.
card/subcard/port	Specifies the card, subcard, and port number of the ATM interface or CBR.
system	The free running clock provided by the route processor, which is the source for all network derived ports.
BITS	Selects a BITS port as the network clock source. (Catalyst 8540 MSR)
E1	Specifies an E1 interface. (Catalyst 8540 MSR)
T1	Specifies a T1 interface. (Catalyst 8540 MSR)
revertive	Causes the clock to revert to a higher-priority clock if the current clock goes offline.

Defaults

System clock

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command applies to all interfaces except older versions of the DS3 interface. The system clock can be selected at any priority.

Examples

The following example shows how to configure ATM 3/0/1 as a network clock source of priority 2, and configure ATM 0/1/0 to use a network-derived clock source.

```
Switch# configure terminal
Switch(config)# network-clock-select 2 atm 3/0/1
Switch(config)# interface atm 0/1/0
Switch(config)# clock source network-derived
```

The following example shows how to configure ATM 0/0/0 as a network clock source of priority 1, and revert to a higher-priority clock.

```
Switch# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)# network-clock-select 1 atm 0/0/0
Switch(config)# network-clock-select revertive
```

Caution Configure a network clock-source before a port uses it as the clock source. Otherwise, by default, the system clock (route processor resident local oscillator) is used and the transmit clock is configured as network-derived.

Related Commands

Command	Description
clock source (interface) (Catalyst 8510 MSR and LightStream 1010)	Selects a transmit clock source for a physical device such as a port.
show network-clocks	Shows which ports are designated as network clock sources.

next-node

To specify the next adjacent entry in a fully-specified ATM PNNI explicit path, use the **next-node** PNNI explicit-path configuration command.

next-node {*name-string* | *node-id* | *node-id-prefix*} [**port** *hex-port-id* | **agg-token** *hex-agg-token-id*]

Syntax Description

name-string	Name of the PNNI node.
node-id	Full 22-byte node-id for a PNNI node.
node-id-prefix	The first 15 or more bytes of a node ID for a PNNI node.
port *hex-port-id*	Specifies an exit port to exclude for a PNNI node. Should be specified as a hexadecimal port ID rather than as a port name. The default is to allow any valid exit port.
agg-token *hex-agg-token-id*	Optionally specifies the exit aggregation token, which is used in place of the port ID for higher-level PNNI LGNs. The default allows any valid exit port.

Defaults

See "Syntax Description."

Command Modes

PNNI explicit-path configuration

Command History

Release	Modification
12.0(3c)W5(9)	New command

Usage Guidelines

Note See the **atm pnni explicit-path** command for a description of how to edit or delete an existing **next-node** path entry.

Node IDs can be entered with either the full 22-byte length address, or as a node ID prefix with a length of 15 bytes or more. To specify routes that include higher-level nodes (parent LGNs) for other peer groups, we recommend that you enter exactly 15 bytes so that the address remains valid in the event of a PGL update.

Node IDs appear in the following format:

dec: dec: 13-20 hex digits

Note To display the node IDs that correspond to named nodes in a network, use either the **show atm pnni identifier** command or the **show atm pnni topology** command with the **node** keyword.

Node names can be entered instead of node IDs. If names are used to identify higher-level LGNs, the resulting explicit paths are not guaranteed to remain valid if the PGL changes in the neighboring peer group. To prevent invalid paths, configure all parent LGNs (for all potential PGL nodes) with the same node name.

An exit port can be specified for any entry. The port should be specified as a hexadecimal port ID rather than as a port name. For excluded entries, only this port is excluded from the path.

Note To display the corresponding hexadecimal port IDs for a node, use either the **show atm pnni identifier** command with the **port** keyword, or the **show atm pnni topology** command with the **node** and **hex-port-id** keywords.

Since the port ID could change if the following neighbor peer group changes PGL leaders, the **aggregation token** is used in place of the port ID for nodes with higher-level LGNs. The LGN aggregation token can only identify the port uniquely if the following entry is the next-node entry. Aggregation tokens are not allowed for excluded tokens.

Note Normally, the first **next-node** entry should specify an adjacent neighbor node. However, if an exit port needs to be specified for the local node, it can appear as entry index 1.

Examples

The following example shows how to perform the following PNNI explicit path configuration tasks:

- Enter PNNI explicit-path configuration mode
- Add three nodes in a fully specified path
- Specify an exit port for the second node
- Specify the third (LGN) node by its 15-byte node ID prefix
- Exit PNNI explicit-path configuration mode

```
Switch# configure terminal
Switch(config)# atm pnni explicit-path name boston_2.path1
Switch(cfg-pnni-expl-path)# next-node dallas_2
Switch(cfg-pnni-expl-path)# next-node dallas_4 port 80003004
Switch(cfg-pnni-expl-path)# next-node 40:72:47.009181000000106000000000
```

Related Commands

Command	Description
atm pnni explicit-path	Used to enter PNNI explicit path configuration mode to create or modify PNNI explicit paths.
exclude-node	Specifies a node to exclude from all segments of a partially specified ATM PNNI explicit path.
segment-target	Specifies a target entry in a partially specified PNNI explicit-path.
show atm pnni explicit-paths	Displays a summary of explicit paths that have been configured.

node

To create, delete, enable, or disable PNNI nodes running on this switch and to specify or change the level of a node, use the **node** ATM router PNNI configuration command. PNNI node configuration mode is started when this command is entered. To remove a previously set node index, use the **no** form of this command.

node *node_index* **level** *level_indicator* [**lowest**] [**peer-group-identifier**] [*pg_id* | **default**] [**enable** | **disable**]

no node *node_index*

Syntax Description

node_index	Specifies the local node index, in the range of 1 to 8, used to identify a PNNI node.
level_indicator	Specifies the PNNI level (position in the PNNI hierarchy), in the range of 1 to 104.
pg_id	Specifies a non-default peer group identifier for the node's peer group. Enter the **default** keyword in place of an identifier to return from a nondefault value to the default peer group identifier.
lowest	Indicates that the node to be created is a lowest-level node (for example, the node runs over physical links and VPCs). If this is not present when a new *node_index* is specified, the new node becomes a logical group node that represents a PNNI peer group. A logical group node only becomes active when its child node is elected peer group leader.

Defaults

With the ATM switch router autoconfiguration capabilities, a lowest-level PNNI node with the node index 1 is automatically created and runs on all PNNI interfaces by default (including interfaces determined by ILMI to be PNNI interfaces, and on interfaces configured to run PNNI).

The default level is 56, the proper level for lowest-level nodes using autoconfigured Cisco ATM addresses in a single-level hierarchy.

Command Modes

ATM router PNNI configuration

Command History

Release	Modification
12.0(1a)W5(5b)	New command

Usage Guidelines

The level of a node can only be modified when the node is disabled.

The **enable** and **disable** options can be used to reinitialize PNNI. For example, the node ID and peer group ID are recalculated based on the switch router's first ATM address and the node level whenever a node is enabled.

For more information, refer to the *ATM Switch Router Software Configuration Guide*.

Examples

The following example shows how to enter PNNI node configuration mode.

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1
Switch(config-pnni-node)#
```

The following example shows how to create a lowest-level PNNI node with node index 1 at level 96 (assuming no node currently exists on this switch router).

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1 level 96 lowest
Switch(config-pnni-node)#
```

Related Commands

Command	Description
atm address	Used to assign a 20-byte ATM address to the switch router.
atm router pnni	Used to enter the PNNI configuration mode.
show atm pnni local-node	Displays information about a PNNI logical node running on the switch router.

node mobile

To create, delete, enable, or disable nodes running on the mobile switch, and to specify or change the level of a node, use the **node** ATM router PNNI configuration command. Also use this command to designate the highest node in this switch as a mobile logical group node.

node *node_index* **mobile** [**default-peer-group-identifier** *mobile_pgid*] [**highest-join-level** *join_level*] [**disable | enable**]

no node *node_index* **mobile** [**default-peer-group-identifier** *mobile_pgid*] [**highest-join-level** *join_level*]

Syntax Description

node_index	Specifies the local node index, in the range of 1 to 8, used to identify a PNNI node.
mobile	Designates the node as the mobile logical group node.
mobile_pgid	Specifies the default peer group identifier (for the mobile logical group node) to be used for ad-hoc networking.
join_level	The **highest-join-level** specifies the highest level at which the mobile LGN can join. The mobile LGN will not join any host peer group that is at a level higher than that specified by the highest-join-level.

Defaults

The **default-peer-group-identifier** must be specified for a proper functioning ad-hoc network. If a fixed network is not present and two or more mobile networks need to connect to each other to form a single network, the **default-peer-group-identifie**r must be the same on all mobile logical group nodes wanting to connect.

Command Modes

ATM router PNNI configuration

Command History

Release	Modification
12.1(6)	New command

Usage Guidelines

Using the **mobile** variation of the **node** command designates the highest node running in the switching system as a mobile logical group node. All parent nodes of peer group leaders at the highest level of the group hierarchy must be configured as mobile logical group nodes.

In addition, if ad-hoc networking is desired, each mobile logical group node must be configured with a **default-peer-group-identifie**r. In the absence of a fixed network, only mobile networks that share the same **default-peer-group-identifie**r will connect to form a single network.

Note that the mobile logical group node level cannot be user configured. Node level is dynamically chosen by the child peer group leader upon joining a host peer group.

Note Node level can be modified only when the nodes are disabled. **Enable** and **disable** command options will re-initialize PNNI.

Examples

The following example shows how to designate node 3 within the switching system as a mobile logical group node, and also assigna it a **default-peer-group-identifier**.

```
Switch(config)# atm router pnni
Switch(config - atm-router)# node 3 mobile default-peer-group-identifier
48:47:0091.3333.3333.3333.0000.0000
```

The following example shows how to enter PNNI node configuration mode.

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1
Switch(config-pnni-node)#
```

The following example shows how to create a lowest-level PNNI node with node index 1 at level 96 (assuming no node currently exists on this switch router).

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1 level 96 lowest
Switch(config-pnni-node)#
```

Related Commands

Command	Description
atm address	Used to assign a 20-byte ATM address to the switch router.
atm pnni mobile	Used to specify a PNNI interface as mobile.
atm pnni nodal-hierarchy-list highest-level	Specifies highest level of PNNI hierarchy to be advertised to bordering networks.
atm router pnni	Used to enter PNNI configuration mode.
debug atm pnni mobility	Prints an error notification if ATM PNNI mobile problems are detected and the **debug atm pnni mobility** command is enabled.
show atm pnni local-node	Displays information about a PNNI logical node running on a switch router.
show atm pnni mobility-info	Displays lowest node and logical node information associated with PNNI mobility.
show atm pnni node	Shows whether PNNI nodes are enabled and running, and shows node configuration information.

nodal-representation

To specify the type of PNNI LGN representation, use the **nodal-representation** PNNI node configuration command.

nodal-representation {**simple** | **complex** [**threshold** *threshold-value* | **radius-only**]}

Syntax Description

simple	Specifies the simple PNNI node representation, where an entire child peer group is represented as a single node.
complex	Specifies the complex PNNI node representation.
threshold *threshold-value*	Threshold percent for the generation of bypass or spoke exceptions. The threshold value ranges from 0 to 2147483647 percent. The default threshold is 60 percent.
radius-only	Advertises radius metrics only with no bypass or spoke exceptions.

Defaults

simple

Command Modes

PNNI node configuration

Command History

Release	Modification
12.0(1a)W5(5b)	New command

Usage Guidelines

Larger values for the threshold reduce the number of bypass and spoke exceptions advertised by PNNI. If a metric differs from the default metric and the (larger – smaller)/smaller ratio is greater than the threshold percentage, then an exception spoke, or bypass is advertised.

Lowest-level nodes are not allowed to have complex nodal representation.

The **radius-only** option suppresses all exceptions.

Examples

The following example shows how to specify nodal representation for radius only.

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 2
Switch(config-pnni-node)# nodal-representation complex radius-only
```

Related Commands

Command	Description
show atm pnni aggregation link	Shows the aggregated PNNI links on the switch router.
show atm pnni aggregation node	Shows the PNNI nodal aggregation tables for a complex node.
show atm pnni local-node	Displays information about a PNNI logical node running on the switch router.