P 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.

parent

To specify the PNNI local node index of the parent node, use the **parent** PNNI node configuration command.

parent *node-index*

Syntax Description

node-index	Index number of the PNNI local node to which the command applies, in the range of 1 to 8.

Command Modes

PNNI node configuration

Command History

Release	Modification
11.3(3a)	New command

Usage Guidelines

This command specifies the local node index of the parent node to be instantiated in the PNNI hierarchy by this switching system when this node is elected peer group leader.

Examples

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

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

The following example shows how to specify a local node index of 2 for the parent node.

```
Switch(config-pnni-node)# parent 2
```

Related Commands

Command	Description
show atm pnni explicit-paths	Displays a summary of explicit paths that have been configured.

ping atm interface atm

To check connectivity of the switch router, use the **ping atm interface atm** privileged EXEC command.

Catalyst 8540 MSR

ping atm interface atm *card/subcard/port vpi* [*vci*] {[**ip-address** *ip-address*] | [**seg-loopback**] | [**end-loopback**]}

Catalyst 8510 MSR and LightStream 1010

ping atm interface atm *card/subcard/port vpi* [*vci*] {[**ip-address** *ip-address*] | [**seg-loopback**] | [**atm-prefix** *prefix*] | [**end-loopback**]}

Syntax Description

card/subcard/port	Card number, subcard number, and port number of the specified ATM interface.
vpi	Virtual path identifier.
vci	Virtual channel identifier.
ip-address	IP address of the destination node.
seg-loopback	Send OAM segment loopback.
prefix	ATM address prefix of the destination node. (Catalyst 8510 MSR and LightStream 1010)
end-loopback	Send OAM ping to end loopback.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

To check reachability and network connectivity, use the **ping** command. You can use either an IP-address or an ATM-address prefix as a ping destination. You can also ping a neighbor switch by selecting the segment loopback option. Note that the **ip-address**, **atm-prefix** (Catalyst 8510 MSR and LightStream 1010), and **seg-loopback** options are mutually exclusive. In privilege extended command mode, you can select various other parameters, such as repeat count, timeout value, and so on.

Examples

(**Catalyst 8540 MSR**)

The following example shows using the **ping** command in normal mode for an ATM switch router.

```
Switch# ping atm interface atm 1/2/3 100 200 atm-prefix 0000a345454545454545464646
```

The following example shows using the **ping** command in normal mode for an ATM switch router, with the **seg-loopback** option.

```
Switch# ping atm interface atm 0/0/0 100 250 seg-loopback 172.20.52.2
```

The following example shows using the **ping** command in extended command mode.

```
Switch# ping
Protocol [ip]: atm
Interface [card/sub-card/port]: 1/1/3
VPI [0]: 200
VCI [0]: 100
Send OAM-Segment-Loopback ? [no]:
Target IP address:
Target NSAP Prefix:
Repeat count [5]:
Timeout in seconds [5]:
```

Examples

(Catalyst 8510 MSR and LightStream 1010)

The following example shows using the **ping** command in extended command mode.

```
Switch# ping
Protocol [ip]: atm
Interface [card/sub-card/port]: 1/1/3
VPI [0]: 200
VCI [0]: 100
Send OAM-Segment-Loopback ? [no]:
Target IP address:
Target NSAP Prefix:
Repeat count [5]:
Timeout in seconds [5]:
```

Examples

The following example shows using the **ping** command in user EXEC mode.

```
Switch# ping james
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.31.7.27, timeout is 2 seconds:
!!!!!
Success rate is 100 percent, round-trip min/avg/max = 1/3/4 ms
```

The following example shows using the **ping** command in privileged EXEC mode. While the precise dialog varies somewhat from protocol to protocol, all are similar to the ping session using default values shown in the following display.

```
Switch# ping
Protocol [ip]:
Target IP address: 192.31.7.27
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.31.7.27, timeout is 2 seconds:
!!!!!
Success rate is 100 percent, round-trip min/avg/max = 1/2/4 ms
```

Table 15-1 describes the default privileged EXEC **ping** fields shown in the previous display.

Table 15-1 ping Field Descriptions

Field	Description
Protocol [ip]:	Prompts for a supported protocol. Enter **appletalk**, **clns**, **ip**, **novell**, **apollo**, **vines**, **decnet**, or **xns**. Default: **ip**.
Target IP address:	Prompts for the IP address or host name of the destination node you plan to ping. If you have specified a supported protocol other than IP, enter an appropriate address for that protocol here. Default: none.
Repeat count [5]:	Number of ping packets that are sent to the destination address. Default: 5.
Datagram size [100]:	Size of the ping packet (in bytes). Default: 100 bytes.
Timeout in seconds [2]:	Timeout interval. Default: 2 (seconds).
Extended commands [n]:	Specifies whether or not a series of additional commands is displayed.
Sweep range of sizes [n]:	Allows you to vary the sizes of the echo packets being sent. This capability is useful for determining the minimum sizes of the MTUs configured on the nodes along the path to the destination address. Packet fragmentation contributing to performance problems can then be reduced.
!!!!!	Each exclamation point (!) indicates receipt of a reply. A period (.) indicates the network server timed out while waiting for a reply. Other characters might be displayed in the ping output, depending on the protocol type.
Success rate is 100 percent	Percentage of packets successfully echoed back to the switch router. Anything less than 80 percent is usually considered problematic.
round-trip min/avg/max = 1/2/4 ms	Round-trip travel time intervals for the protocol echo packets, including minimum/average/maximum expressed in milliseconds.

precedence

To configure the precedence of different types of reachable addresses, use the **precedence** ATM router PNNI configuration command. To return to the default precedence value for a particular reachable address type, use the **no** form of this command.

precedence [**pnni-remote-exterior** | **pnni-remote-exterior-metrics** | **pnni-remote-internal** | **pnni-remote-internal-metrics** | **static-local-exterior** | **static-local-exterior-metrics** | **static-local-internal-metrics**] *value*

no precedence [**pnni-remote-exterior** | **pnni-remote-exterior-metrics** | **pnni-remote-internal** | **pnni-remote-internal-metrics** | **static-local-exterior** | **static-local-exterior-metrics** | **static-local-internal-metrics**]

Syntax Description

pnni-remote-exterior	Sets the priority for the remote exterior prefixes without metrics. The default is 4.
pnni-remote-exterior-metrics	Sets the priority for the remote exterior prefixes with metrics. The default is 2.
pnni-remote-internal	Sets the priority for the remote internal prefixes without metrics. The default is 2.
pnni-remote-internal-metrics	Sets the priority for the remote internal prefixes with metrics. The default is 2.
static-local-exterior	Sets the priority for the static exterior prefixes without metrics. The default is 3.
static-local-exterior-metrics	Sets the priority for the static exterior prefixes with metrics. The default is 2.
static-local-internal-metrics	Sets the priority for the static internal prefixes with metrics. The default is 2.
value	Specifies the precedence of a reachable address type. Smaller values take precedence over larger values. The range of values is 2, 3, or 4.

Defaults

See “Syntax Descriptions.”

Command Modes

ATM router PNNI configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The following naming convention for the precedence option keywords is used:

- The **pnni** prefix (for example **pnni-remote-exterior**) indicates that the routes are learned through PNNI from other nodes.
- The **static** prefix (for example **static-local-exterior**) indicates locally configured routes.

The route selection algorithm chooses routes to particular destinations using the longest match-reachable address prefix known to the switch router. When multiple reachable address types are associated with the longest match-reachable address prefix, the route selection algorithm first attempts to find routes to reachable address types of greatest precedence. Among multiple routes to the same longest match-reachable address prefix with the same reachable address type, routes with the least total administrative weight are preferred.

Use the **precedence** command to change the default values for the different types of reachable addresses.

Local internal reachable addresses, whether learned through ILMI or as static routes, are given the highest priority (level 1).

Related Commands

Command	Description
show atm pnni precedence	Displays the current PNNI prefix priorities for routing.

privilege level (global)

To set the privilege level for a command, use the **privilege level** global configuration command. To revert to default privileges for a given command, use the **no** form of this command.

privilege *mode* **level** *level command* [*type*]

no privilege *mode* **level** *level command*

Syntax Description

mode	Configuration mode. Refer to the *Router Products Command Reference* publication for more information.
level	Privilege level to be associated with the specified command. You can specify up to 16 privilege levels, using numbers 0 through 15.
command	Command to which privilege level is associated.
type	See Table 15-2 for a list of optional keywords.

Defaults

Level 15 is the level of access permitted by the **enable** password.

Level 1 is normal EXEC-mode user privileges.

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The **alias** command shows the acceptable options for the *mode* argument in the **privilege level** global configuration command.

The password for the privilege level defined using the **privilege level** global configuration mode is configured using the **enable password** command.

Level 0 can be used to specify a more limited subset of commands for specific users or lines. For example, you can allow user “guest” to only use the **show users** and **exit** commands.

If you set a command to a privilege level, all commands that have a syntax that is a subset of the syntax of that command are also set to that level. For example, when you set the **show ip route** command to level 15 and do not set **show** and **show ip** commands to a different level, they are also set to privilege level 15.

Table 15-2 shows the optional keywords you specify to set the privileged level.

Table 15-2 Privilege Level Types

Type	Description
acctng-file	Configure ATM accounting file.
acctng-sel	Configure ATM accounting selection.

Table 15-2 Privilege Level Types (continued)

Type	Description
atm-router	ATM router configuration mode.
atmsig_e164_table_mode	ATMSIG E164 table.
configure	Global configuration mode.
exec	EXEC mode.
interface	Interface configuration mode.
lane	ATM LAN Emulation LECS configuration table.
line	Line configuration mode.
map-class	Map class configuration mode.
map-list	Map list configuration mode.
null-interface	Null interface configuration mode.
pnni-router-node	PNNI router node configuration mode.
route-map	Route map configuration mode.

Examples

In the following example, the **configure** command in global configuration mode is assigned a privilege level of 14. Only users who know the level 14 password are able to use the **configure** command.

```
Switch# privilege exec level 14 configure
Switch# enable password level 14 pswd14
```

Related Commands

Command	Description
configure	Cisco IOS command removed from this manual. Refer to Appendix D.
enable password	Cisco IOS command removed from this manual. Refer to Appendix D.
privilege level (line)	Sets the default privilege level for a specified line.

privilege level (line)

To set the default privilege level for a line, use the **privilege level** line configuration command. To restore the default user privilege level to the line, use the **no** form of this command.

privilege level *level*

no privilege level

Syntax Description

level	Privilege level to be associated with the specified line.

Defaults

Level 15 is the level of access permitted by the enable password.

Level 1 is normal EXEC-mode user privileges.

Command Modes

Line configuration

Command History

Release	Modification
11.1(4)	New command. Originally **privilege**
11.3(3a)	Modified: Changed to **privilege level (line)**

Usage Guidelines

The privilege level that is set using this command can be overridden by a user logging in to the line and enabling a different privilege level. The user can lower the privilege level by using the **disable** command. If the user knows the password to a higher privilege level, the user can use that password to enable the higher privilege level.

Level 0 can be used to specify a more limited subset of commands for specific users or lines. For example, you can allow user "guest" to only use the **show users** and **exit** commands.

You can specify high level privilege for your console line if you are able to restrict who uses that line.

Examples

(Catalyst 8540 MSR)

In the following example, the virtual terminal line is configured for privilege level 5. Anyone using virtual terminal line 0 has privilege level 5 by default.

```
Switch# configure terminal
Switch(config)# line console 0
Switch(config-line)# privilege level 5
```

Examples

(Catalyst 8510 MSR and LightStream 1010)

In the following example, the auxiliary line is configured for privilege level 5. Anyone using the auxiliary line has privilege level 5 by default.

```
Switch(config)# line aux 0
Switch(config-line)# privilege level 5
```

ptse

To set PTSE origination and request parameters (including significant change determination parameters), use the **ptse** PNNI node configuration command. To revert to the default values, use the **no** form of this command.

ptse [**lifetime-factor** *percentage-factor*] [**min-ptse-interval** *tenths-of-seconds*] [**refresh-interval** *seconds*] [**request** *number*] [**significant-change acr-mt** *percent*] [**significant-change acr-pm** *percent*] [**significant-change cdv-pm** *percent*] [**significant-change ctd-pm** *percent*]

no ptse [**lifetime-factor**] [**min-ptse-interval**] [**refresh-interval**] [**request**] [**significant-change acr-mt**] [**significant-change acr-pm**] [**significant-change cdv-pm**] [**significant-change ctd-pm**]

Syntax Description

lifetime-factor	Specifies an initial lifetime of self-originated PTSEs as a percentage of the **refresh-interval**. The default is 200 percent.
percentage-factor	Specifies the percentage factor of the refresh interval, from 101 to 1000. The value 100 represents a quantity equal to the refresh interval.
min-ptse-interval	Specifies the minimum interval between updates of any given PTSE. This means new instances of a PTSE are not issued more often than every **min-ptse-interval** second. The default value is 1 second. The minimum value is 0.1 seconds.
tenths-of-seconds	Specifies the time of the interval in tenths of seconds. Ten *tenths-of-seconds* equals one second.
refresh-interval	Specifies the period the system updates self-originated PTSEs. The default is 1800.
request	Specifies the maximum number of PTSEs requested in one request packet. The default is 32.
number	Specifies the PTSE requests using an integer.
acr-mt	Specifies the available cell rate minimum threshold which is the minimum change of available cell rate considered significant, as a percentage of the maximum cell rate. The default is 3 percent.
acr-pm	Specifies the available cell rate proportional multiplier, which is the percentage of change from the current available cell rate considered significant. The default is 50 percent.
cdv-pm	Specifies the cell delay variation proportional multiplier, which is the percentage of change from the current cell delay variation considered significant.The default is 25 percent.
ctd-pm	Specifies the maximum cell transfer delay proportional multiplier, which is the percentage of change from the current maximum cell transfer delay considered significant. The default is 50 percent.
percent	Specifies the significant change threshold percent, from 1 to 99.

Defaults

See “Syntax Description.”

Command Modes PNNI node configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines Lowering the **refresh-interval** time causes PNNI to reoriginate PTSEs more frequently, allowing insignificant changes to be advertised sooner at the cost of more PNNI traffic. Note that significant changes are advertised immediately.

Decreasing the **lifetime-factor** lowers the initial lifetime of PTSE, which means PTSEs of a PNNI node that has stopped functioning are removed from the database sooner. Lowering **min-ptse-interval** allows PNNI to update PTSEs quickly when changes happen rapidly in the network. This should be adjusted carefully so that you do not overload switch processors. In a normal situation, these parameters are not changed from their default values.

The significant change parameters define the level of changes in metrics that triggers PNNI to update and send its PTSEs. It applies to all PTSE types that include metrics: for example, horizontal link, up link, external reachable address, and nodal state parameters. Any change in administrative weight or cell loss ratio is considered significant.

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

Examples The following script shows how to access the **ptse** node-level subcommand.

```
Switch# configure terminal
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1
Switch(config-pnni-node)# ptse refresh-interval 1900
```

Related Commands

Command	Description
show atm pnni local-node	Displays information about a PNNI logical node running on the switch.
show atm pnni resource-info	Displays information about routing parameters of all PNNI interfaces received from a resource management module.