CHAPTER 2

ATM 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.

atm abr-mode (Catalyst 8510 MSR and LightStream 1010)

To select **efci** marking, **relative-rate** marking, or both, use the **atm abr-mode** global configuration command on ABR connections. To assign the default value to ABR mode, use the **no** form of this command.

atm abr-mode {**efci** | **relative-rate** | **all**}

no atm abr-mode

Syntax Description

efci	When cells arrive on ABR connections to a congested (as indicated by the **efci** threshold) output queue on the interface, the **efci** bit in the cell header is set.
relative-rate	When a backward RM cell is received on an ABR connection on an interface (from outside the switch), its congestion bit is set if the forward-direction interface is congested (as indicated by the **abr relative-rate threshold**).
all	Indicates both **efci** and **relative-rate** modes of congestion notification.

Defaults

relative-rate

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command
12.0(3c)W5(9)	Modified: **(Catalyst 8510 MSR and LightStream 1010)** added

Usage Guidelines

This configuration command changes the global type of notification used on ABR connections to send a congestion alert to the end stations. This change can be made if the switch connects to a network or end station that uses the new technique. The use of **all** causes both **efci** and **relative-rate** marking to be used.

Examples

In the following example, the ABR mode of the switch is set to **efci**.

```
Switch(config)# atm abr-mode efci
```

Related Commands

Command	Description
show atm resource	Displays global resource manager configuration and status.

atm access-group

To subscribe an interface or subinterface to an existing ATM address pattern-matching filter expression, use the **atm access-group** interface configuration command. To delete an address access filter subscription on a specified interface of subinterface, use the **no** form of this command.

atm access-group *name* [**in** | **out**]

no atm access-group *name* [**in** | **out**]

Syntax Description

name	The filter expression or filter set.
in	Specifies that the filter should be applied to an incoming SETUP message.
out	Specifies that the filter should be applied to an outgoing SETUP message.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command affects ATM signalling SETUP requests received or transmitted by the switch on an interface.

You should use the **atm filter-set** command prior to using this command. For descriptions of filter sets and expressions, see the **atm filter-expr**, and **atm filter-set** global configuration commands.

Each interface has only one access group. If you create a new access group, it overrides any existing group.

Examples

The following is sample output from the **atm access-group** command.

```
Switch(config-if)# atm access-group atm_filter_expr1 in
Switch(config-if)# atm access-group atm_filter_expr2 out
```

Related Commands

Command	Description
atm filter-expr	Configures an ATM address filter that matches patterns.
atm filter-set	Creates an ATM address filter set.
show atm filter-expr	Displays a specific ATM filter expression or a summary ATM filter expression.
show atm filter-set	Displays a specific ATM filter set or a summary ATM filter set.

atm accounting (interface)

To enable ATM accounting on a specific interface, use the **atm accounting** interface configuration command. To disable ATM accounting on a specific interface, use the **no** form of the command.

atm accounting

no atm accounting

Syntax Description

This command has no keywords or arguments.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

When accounting is disabled for an interface, accounting stops keeping track of the VCs on that interface and treats the interface as if it were shut down. For the VCs that satisfy the selection criteria, accounting writes records to the active file; however, the VCs are not affected.

Use the **show atm accounting** EXEC command to determine which interfaces are using ATM accounting.

Examples

The following example shows how to enable ATM accounting on interface ATM 1/0/0.

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

Related Commands

Command	Description
interface	Configures an interface type and enters interface configuration mode.

atm accounting collection

To control collection of ATM accounting data into a specific file, use the **atm accounting collection** EXEC command.

atm accounting collection {**collect-now** | **swap**} *filename*

Syntax Description

collect-now	Immediately captures ATM accounting information for all connections that meet the **min-age** criteria.
swap	Stops the data collection in the active file and activates the passive file so it collects data. The new passive file is now available for downloading.
filename	Specifies the name for the ATM accounting file.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Use the **collect-now** option to return a message with the number of records that were written.

Use the **swap** option to return a message with the number of records that were written.

Use the **show atm accounting** EXEC command to show the active and ready file sizes and the number of records.

Examples

The following example shows how to perform an on-demand collection to the file *acctng_file1*.

```
Switch# atm accounting collection collect-now acctng_file1
Switch# Collect-now found 12 SVCs with life longer than min-age
```

The following example shows how to perform a swap operation on the file *acctng_file1*.

```
Switch# atm accounting collection swap acctng_file1
Switch# File Swap Done. New Ready File 4999702 bytes (#records 28796); Active File 65
bytes (#records 0)
```

Note The only filename currently allowed is *acctng_file1*.

Related Commands

Command	Description
atm accounting file	Used to enable an ATM accounting file and to enter the accounting file configuration mode.

atm accounting enable

To enable the ATM VC accounting feature globally, use the **atm accounting enable** global configuration command. To disable this feature, use the **no** form of this command.

atm accounting enable

no atm accounting enable

Syntax Description

This command has no keywords or arguments.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command (originally **atm accounting (global)**
11.2(8.0.1)	Modified: **enable** added: **atm accounting enable (global)**
11.3(3a)	Modified: **(global)** taken out

Usage Guidelines

Accounting is enabled globally for the switch on interfaces where accounting is configured. An error message is given if memory is fragmented and ATM accounting cannot get two memory chunks of 5 MB each. The switch needs 32 MB of memory or it returns an error message.

The switch must have this command saved in the NVRAM configuration file. Use the following steps to enable ATM accounting:

Step 1 Enable ATM accounting in global configuration mode.

Step 2 Exit global configuration mode.

Step 3 Use the **copy running-config startup-config** command to save the command in NVRAM.

Step 4 Reboot the switch.

Examples

The following example shows how to enable ATM accounting.

```
Switch(config)# atm accounting enable
```

Related Commands

Command	Description
atm accounting (interface)	Enables ATM accounting on a specific interface.

atm accounting file

To enable an ATM accounting file and enter the accounting file configuration mode, use the **atm accounting file** global configuration command. To disable an ATM accounting file, use the **no** form of this command.

atm accounting file *filename*

no atm accounting file *filename*

Note The **atm accounting file** global configuration command changes the configuration mode to ATM accounting, and the new prompt appears: `Switch(config-acct-file)#`

To modify the fields in the ATM accounting file, use the following ATM accounting mode configuration subcommands. To set the fields to their default values, use the **no** form of these subcommands.

collection-modes [**periodic**] [**on-release**]
default {**collection-modes** | **description** | **enable** | **failed-attempts** | **interval** | **min-age**}
description *string*
enable
failed-attempts [**none** | [**regular** | **soft**]]
interval *seconds*
min-age *seconds*
remote-log [**only**] **primary-host** {*hostname* | *ip-address* | *tcp-port#}* [**alternate-host** *{alt-host-name* | *alt-ip-address* | *alt-tcp-port#}*]

no collection-modes [**periodic**] [**on-release**]
no description *string*
no enable
no failed-attempts [**none** | [**regular** | **soft**]]
no interval
no min-age
no remote-log

Syntax Description

filename	Specifies the filename of the accounting file. The only filename currently allowed is *acctng_file1*.

Defaults

See "Syntax Description."

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

The ATM accounting configuration mode subcommands are described in Table 2-1.

Table 2-1 ATM Accounting Configuration Mode Subcommands

Subcommand	Description
collection-modes	Initializes the collection mode and allows you to specify at what time accounting data is recorded in the file: on the release of a connection (**on-release**), or periodically (**periodic**).
default	Sets a parameter to its defaults.
description	Configures a description of the ATM accounting file with a limit of 64 characters.
enable	Activates ATM accounting data collection to a specified file.
failed-attempts	Configures the writing of records for initial connection attempts, as follows: • **regular**—Records regular SVC/SVP numbers that originate or terminate at the switch interface. • **soft**—Records soft PVC/PVP numbers that originate or terminate at the switch interface. • **none**—Does not record failed attempts. Default is **regular** and **soft**.
interval	Sets the period for periodic collection of accounting records. The default is 3600 seconds.
min-age	Configures the value of the minimum age of the VC for on-release or periodic collection of accounting records. The default is 3600 seconds.
remote-log	Establishes a TCP connection from the switch to a PC or workstation, as follows: • **only**—When you specify **only**, no local storage of accounting occurs. • **host-name/ip-address**—Host name or IP address of the accounting records receiving host computer. • **tcp port#**—The server communicates with the TCP port to connect to the accounting agent in the switch. • **alt-host-name/alt-ip-address**—Host name or IP address of a standby accounting records receiving host computer. • **alt-tcp-port#**—Alternate TCP port with which the server communicates to connect to the accounting agent in the switch.

To change the fields, you can either provide new values, or use the **no** form of the command.

Changes made to the list affect the file format. The change takes effect only for the next collection, for example, after using the **atm accounting collection swap** global configuration command. Changes to the connection types take effect immediately.

The ATM selection table is created using the default value of one. You can only modify the following fields in the file:

- **description**
- **failed-attempts**
- **min-age**

Note The only filename currently allowed is *acctng_file1*.

Examples

The following example shows how to enter the ATM accounting file configuration mode.

```
Switch# configure terminal
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)#
```

The following example shows how to enter the ATM accounting file configuration mode and configure a description that is displayed in the header of the file when using the **show atm accounting** command.

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# description Main accounting file for engineering
```

The following example shows how to enter the ATM accounting file configuration mode and configure **failed-attempts** to record failed attempts for SVC/SVP connections in the accounting file.

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# failed-attempts regular
```

The following example shows how to enter the ATM accounting file configuration mode and configure **remote-log**.

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# remote-log 172.20.52.3 6001 alternate-host cisco-lab 7001
```

Related Commands

Command	Description
atm accounting collection	Controls collection of ATM accounting data into a specific file.
atm accounting selection	Enables ATM accounting selection and enters the ATM accounting selection configuration mode.

atm accounting selection

To enable ATM accounting selection and enter the ATM accounting selection configuration mode, use the **atm accounting selection** global configuration command. To disable ATM accounting selection, use the **no** form of this command.

atm accounting selection *index*

no atm accounting selection *index*

Note The **atm accounting selection** global configuration command changes the configuration mode to ATM accounting selection mode, and the following new prompt appears:
`Switch(config-acct-sel)#`

To configure the ATM accounting selection, use the following ATM accounting configuration mode subcommands. To set the selection parameters to their defaults, use the no form of these commands.

connection-types [*type*] **default** {**connection-types** | **list**}**list**

no connection-types [*type*]

no list

Syntax Description

index	Configures the ATM accounting selection index number.

Defaults

No default selection index. See the individual subcommand defaults.

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

This release supports only one ATM selection table entry which cannot be deleted.

Examples

The following example specifies the ATM accounting selection index as 1 and restores the default connection types.

```
Switch# configure terminal
Switch(config)# atm accounting selection 1
Switch(config-acct-sel)# default connection-types
```

Related Commands

Command	Description
atm accounting collection	Controls collection of ATM accounting data into a specific file.
atm accounting file	Enables an ATM accounting file and enters the accounting file configuration mode.
connection-types	Sets types of connections for atm accounting selection.

atm accounting trap threshold

To configure the threshold value which controls the generation of an ATM accounting SNMP trap, use the **atm accounting trap threshold** global configuration command. To restore the default value of the trap threshold, use the **no** form of the command.

atm accounting trap threshold *percent-value*

no atm accounting trap threshold

Syntax Description

percent-value	Specifies the value as a percent of the maximum file size.

Defaults

The default value for the trap threshold is 90.

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command (originally **atm accounting trap**)
11.2(8.0.1)	Modified: Added **threshold**

Usage Guidelines

To see the file size, threshold value, and trap statistics, use the **show atm accounting** EXEC command.

Examples

The following example changes the ATM accounting trap threshold to 80.

```
Switch(config)# atm accounting trap threshold 80
```

Related Commands

Command	Description
connection-types	Sets types of connections for atm accounting selection.

atm address

To assign a 20-byte ATM address to the switch, use the **atm address** global configuration command. To delete a specific ATM address, use the **no** form of this command.

atm address *address-template*

no atm address *address-template*

Syntax Description

address-template	The address template can be a full 20-byte address or a partial 13-byte. When a partial address is assigned, this command automatically sets one of the switch's 6-byte MAC addresses in the ESI part, and puts a 0 in the selector part.

Defaults

When **no atm address** has been configured, an autoconfigured ATM address is assigned. Refer to the *ATM Switch Router Software Configuration Guide* for more information.

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

You can have multiple ATM addresses. The first address in the list is the active ATM address for this switch router. When you delete the current active ATM address, the next address in the list becomes the active ATM address.

In autoconfiguration mode, the switch router establishes an address according to the format specified in the *ATM Switch Router Software Configuration Guide*.

The first 13-byte prefixes of all of the addresses are used by ILMI to assign addresses to end stations connected to the UNI ports (unless there is a prefix assigned per port). PNNI also summarizes all of the address prefixes automatically in reachable address advertisements. Refer to the **auto-summary** command for more information.

The active ATM address determines which address is advertised by PNNI as the ATM address of the PNNI local-nodes. Each local-node uses the active ATM address with the selector byte modified to match the local-node index.

In addition, the active ATM address is used as the source prefix for generating the PNNI peer group IDs and node IDs. However, the peer group IDs and node IDs are only updated after the local-node is disabled and reenabled. Therefore, it is recommended that a change to the active ATM address should be followed by a disable and enable of PNNI local-node 1, which will also update the identifiers for all higher local-nodes.

For two switches to belong to the same PNNI peer group, they need to have the same peer group identifier. Peer group identifiers must be prefixes of private ATM addresses, which means the organization that administers the peer group has assignment authority over that prefix. For more information, refer to the *ATM Switch Router Software Configuration Guide.*

In autoconfiguration mode, all switche routers have the same peer group identifier based on the first seven bytes of the autoconfigured ATM address.

The first 13-byte prefix of the active address is also used to automatically generate ATM addresses for each ATM interface that can be used for soft PVCs and PVPs to identify the destination ATM interface.

Examples

The following example shows how to assign a 20-byte ATM address to the switch.

```
Switch# configure terminal
Switch(config)# atm address 47.009181000000000000000001
```

The following example shows how to change the active ATM address for the switch and to update the PNNI local-node identifiers based on the new active ATM address prefix.

Step 1 Configure the desired new address or prefix to be added to the list of ATM addresses for the switch.

```
Switch# configure terminal
Switch(config)# atm address 47.00918100002
```

Step 2 Determine the current active ATM address by using the **show atm addresses** command. Then remove the current active ATM address, so that the desired new address will be the first in the list. If desired, the removed ATM address(es) can then be readded to appear later in the list.

```
Switch(config)# no atm address 47.009181000000000400B003081.00400B003081.00
```

Step 3 (Optional) Update all PNNI local-node identifiers by disabling and reenabling local-node 1.

```
Switch(config)# atm router pnni
Switch(config-atm-router)# node 1 disable
Switch(config-pnni-node)# node 1 enable
```

Step 4 (Optional) Save the running configuration to be used as the startup configuration in the event of a reboot.

```
Switch# copy running-config startup-config
```

Related Commands

Command	Description
atm prefix	Configures an ILMI address prefix for an ATM interface.
auto-summary	Allows default summary addresses to be generated based on the switch router's ATM address.
show atm addresses	Displays the active ATM addresses on a switch router.

atm address-registration

To enable the switch to engage in address registration on an interface using the ILMI protocol, and to enable the optional per-interface access filters on ILMI address registration, use the **atm address-registration** interface configuration command. To disable ILMI address registration functions on an interface, use the **no** form of this command.

atm address-registration [**permit** {**all** | **matching-prefix** [**wellknown-groups** | **all-groups**]}]

no atm address-registration

Syntax Description

all	Permit all AESAs registered by attached end systems.
matching-prefix	Permit AESAs where the first 13 bytes of the address match an ILMI prefix used on the interface. These ILMI prefixes can be configured using the global **atm address** command or the per-interface **atm prefix** command. The ILMI prefixes used on the interface can be shown using the **show atm ilmi-status** command.
wellknown-groups	Permit well-known group addresses assigned by the ATM Forum and AESAs that match an ILMI prefix used on the interface. The well-known group addresses include the old LECS address (47.0079.0000.0000.0000.0000.0000.00A0.3E00.0001.00) and any address matching the ATM Forum address prefix for well-known addresses. (C5.0079.0000.0000.0000.0000.0000.00A0.3E)
all-groups	Permit all group addresses, including the well-known group addresses, and the AESAs that match an ILMI prefix used on the interface.

Defaults

ILMI address registration is enabled by default. If no optional keywords are configured, the global default access filter for ILMI address registration is used, as specified through the **atm ilmi default-access permit** global configuration command.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The **atm address-registration** command does not apply to the ATM 0 interface.

The **atm address-registration** command enables a switch to participate in ILMI address registration. When the switch is on the network side of a UNI, the switch sets one or more network prefixes on the peer IME and accepts addresses registered by the peer IME. If the interface does not come up as a UNI, then ILMI address registration is not active, even if it was previously configured to be enabled.

The optional keywords allow configuration of per-interface access filters, in order to allow or deny certain ILMI registered addresses. If specified, the per-interface access filter overrides the global default access filter for ILMI address registration.

Note If the Cisco SSRP for LAN Emulation is used in this network, ILMI registration of well-known group addresses should be permitted. The SSRP allows the active LECS to register the well-known LECS address with the switch router. Either the **permit all**, **permit matching-prefix wellknown-groups**, or **permit matching-prefix all-groups** option should be configured.

In order to allow certain addresses to be registered via ILMI, while also restricting them from being advertised through PNNI, the PNNI suppressed summary address feature should be used instead of the access filters for ILMI address registration (see the **summary-address** command for additional information).

The access filters option of this command allows configuration of per-interface access filters for ILMI registration to override the global defaults of the access filters.

Examples

The following example shows how to disable ILMI address registration on ATM interface 1/0/0.

```
Switch(config)# interface atm 1/0/0
Switch(config-if)# no atm address-registration
```

The following example enables ILMI address registration on ATM interface 1/0/0 and configures the per-interface access filter for ILMI address registration to allow well-known group addresses and addresses with matching prefixes.

```
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm address-registration permit matching-prefix wellknown-groups
%ATM-5-ILMIACCFILTER: New access filter setting will be applied to registration of new
addresses on ATM1/0/0.
```

Related Commands

Command	Description
atm address	Assigns a 20-byte ATM address to the switch router.
atm ilmi default-access permit	Sets the global default access filter for ILMI-registered addresses on all interfaces.
atm ilmi-enable	Enables the ILMI on a port.
atm prefix	Configures an ILMI address prefix for an ATM interface.
show atm ilmi-status	Displays the ILMI-related status information.
summary-address	Configures summary address prefixes on a PNNI node.

atm aesa gateway

To configure an AESA gateway address on an ATM switch interface that connects to a service provider maintaining a separate ATM addressing plan, use the **atm aesa gateway** interface configuration command. To restore the default (disabled), use the **no** form of this command.

atm aesa gateway *aesa-address*

no atm aesa gateway

Syntax Description

aesa-address	Specifies a forwarding 20-octet AESA that is used when a call matching the ATM address prefix is forwarded across the specified interface.

Defaults

Disabled

Command Modes

Interface configuration

Command History

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

Usage Guidelines

When outgoing calls are configured to use the forwarding AESA address as the called party address (see the **atm route** command), this AESA is used as the forwarding calling party address.

When incoming calls are received on the interface that specifies the forwarding AESA as the called party address, the called and calling party addresses are removed from the signalling message and replaced by the new called and calling party subaddresses.

This new address is not registered with routing because it is used only as this switch's address for this interface. It is not used as the address of destination from this interface.

The combination of the **atm aesa gateway** command and the **atm-aesa** option of the **atm route** command provides a general mechanism for interconnection of private ATM networks across an ATM service provider. This combination allows one AESA for the interface to the ATM service provider network, with many AESA addresses present in the private network behind the interface.

Examples

The following example shows how to configure the AESA gateway address:

```
Switch(config)# interface atm 0/1/2
Switch(config-if)# atm aesa gateway 91.999999999999999999999999.111111111111.00
```

Related Commands

Command	Description
atm route	Specifies a static route to a reachable address prefix.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm vc	Displays the ATM layer connection information about the virtual connection.
show interfaces	Displays the interface configuration, status, and statistics.

atm arp-server

To identify an ARP server for the IP network, or set TTL values for entries in the ATM ARP table, use the **atm arp-server** interface configuration command. To disable an ARP server process, use the **no** form of this command.

atm arp-server [**self** [**time-out** *minutes*] | **nsap** *nsap-address*]

no atm arp-server [**self** [**time-out** *minutes*] | **nsap** *nsap-address*]

Syntax Description

self	Specifies the current switch as the ATM ARP server.
minutes	Number of minutes a destination entry listed in the ATM ARP server's ARP table is kept before the server takes any action to verify or time out the entry.
nsap-address	NSAP address of an ATM ARP server.

Defaults

The ARP server process is disabled. The default timeout value is 20 minutes.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command applies only to route processor and IP interfaces.

If an NSAP address is specified, the ARP client on this interface uses the specified host as an ARP server.

Multiple ATM ARP servers can be specified by repeating the command. The **no** option is used to remove the definition of an ATM ARP server. If **self** is specified, this interface acts as the ARP server for the logical IP network.

The ATM ARP server takes one of the following actions if a destination listed in the server's ARP table expires:

- If a virtual circuit still exists to that destination, the server sends an Inverse ARP request. If no response arrives, the entry times out.
- If a virtual circuit does not exist to the destination, the entry times out immediately.

This implementation follows RFC 1577, "Classical IP over ATM."

Related Commands

Command	Description
show atm arp-server	Displays the ATM ARP server table.

atm auto-configuration

To enable or disable ILMI autoconfiguration, use the **atm auto-configuration** interface configuration command. To disable this feature, use the **no** form of this command.

atm auto-configuration

no atm auto-configuration

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command enables or disables ILMI autoconfiguration procedures, as specified in Section 8.3.3 of the ATM Forum ILMI 4.0 Specification.

Among the variables covered by ILMI autoconfiguration are the interface protocol and version, interface side (user or network), UNI type (public or private), and the maximum number of VPI bits and VCI bits. Configuration of the **atm auto-configuration** command on an interface overwrites any previous configuration of the **atm iisp**, **atm nni**, **atm maxvci-bits**, and **atm maxvpi-bits** commands.

When autoconfiguration is enabled, ATM signalling and ILMI are restarted automatically on the interface. When ATM signalling is restarted, all switched virtual connections across the interface are cleared; permanent virtual connections are not affected.

When the peer switch has a device type of **node** but responds to *GetRequest* messages for *atmfAtmLayerNniSigVersion* with **noSuchName**, the default NNI protocol depends on the ATM routing mode (see the **atm routing-mode** command). When the ATM routing mode is set to **static**, the default NNI protocol is IISP. Otherwise, the default NNI protocol is PNNI 1.0. These defaults are relevant when the peer switch is a LightStream 1010 ATM with software version 11.1.

Examples

The following example shows how to enable ILMI autoconfiguration on interface ATM 0/1/2.

```
Switch(config)# interface atm 0/1/2
Switch(config-if)# atm auto-configuration
Switch(config-if)#
%ATM-5-ATMSOFTSTART:Restarting ATM signalling and ILMI on ATM0/1/2
```

Related Commands

Command	Description
atm iisp	Configures ATM IISP on the specified physical or logical (VP tunnel) port.
atm ilmi-enable	Enables the ILMI on a port.
atm maxvci-bits	Configures the maximum number of active bits of VCI supported on an ATM interface.
atm maxvpi-bits	Configures the maximum number of active VPI bits supported on an ATM interface.
atm nni	Configures an ATM NNI on the specified physical or logical (VP tunnel) port.
atm routing-mode	Restricts the mode of ATM routing on an ATM switch router.
show atm ilmi-status	Dispays the ILMI-related status information.
show atm interface	Displays ATM-specific information about an ATM interface.

atm backward-max-burst-size-clp0

To change the maximum number of high-priority cells coming from the destination to the source at the burst level on the SVC, use the **atm backward-max-burst-size-clp0** map-class configuration command. To restore the default, use the **no** form of this command.

atm backward-max-burst-size-clp0 *cell-count*

no atm backward-max-burst-size-clp0

Syntax Description

cell-count	Maximum number of high-priority cells coming from the destination switch router at the burst level.

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command. Originally **cellmax-burst**
11.2(8.0.1)	Changed named from **cellmax-burst**

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects only cells with a CLP of 0 (high-priority cells).

Examples

The following example sets the maximum number of high-priority cells coming from the destination switch at the burst level to 800 cells.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-max-burst-size-clp0 800
```

atm backward-max-burst-size-clp1

To change the maximum number of the aggregate of low- and high-priority cells coming from the destination to the source at the burst level on the SVC, use the **atm backward-max-burst-size-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm backward-max-burst-size-clp1 *cell-count*

no atm backward-max-burst-size-clp1

Syntax Description

cell-count	Maximum number of the aggregate of low- and high-priority cells coming from the destination at the burst level.

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command. Originally **cellmax-burst**.
11.2(8.0.1)	Modified: Command changed to **atm backward-max-burst-size-clp1**

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the maximum number of the aggregate of low- and high-priority cells coming from the destination switch at the burst level to 100000.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-max-burst-size-clp1 100000
```

atm backward-peak-cell-rate-clp0

To change the peak rate of high-priority cells coming from the destination to the source on the SVC, use the **atm backward-peak-cell-rate-clp0** map-class configuration command. To restore the default, use the **no** form of this command.

atm backward-peak-cell-rate-clp0 *rate*

no atm backward-peak-cell-rate-clp0

Syntax Description

rate	Maximum rate in kbps that this SVC can receive high-priority cells from the destination switch router. Maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects *only* high-priority cells with a CLP of 0.

Examples

The following example sets the peak rate for high-priority cells from the destination switch router to 8000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-peak-cell-rate-clp0 8000
```

atm backward-peak-cell-rate-clp1

To change the peak rate of the aggregate of low- and high-priority cells coming from the destination to the source on the SVC, use the **atm backward-peak-cell-rate-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm backward-peak-cell-rate-clp1 *rate*

no atm backward-peak-cell-rate-clp1

Syntax Description

rate	Maximum rate in kbps that this SVC can receive of the aggregate of low- and high-priority cells from the destination switch router. Maximum upper range is 7113539 (limited by 0xffffff cells-per-second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the peak rate of the aggregate of low- and high-priority cells from the destination switch router to 7000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-peak-cell-rate-clp1 7000
```

atm backward-sustainable-cell-rate-clp0

To change the sustainable rate of high-priority cells coming from the destination to the source on the SVC, use the **atm backward-sustainable-cell-rate-clp0** map-class configuration command. To restore the default value, use the **no** form of this command.

atm backward-sustainable-cell-rate-clp0 *rate*

no atm backward-sustainable-cell-rate-clp0

Syntax Description

rate	Sustainable rate in kbps that this SVC can receive high-priority cells from the destination switch. Maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects only high-priority cells with a CLP of 0.

Examples

The following example sets the sustainable rate for high-priority cells from the destination switch to 800 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-sustainable-cell-rate-clp0 800
```

atm backward-sustainable-cell-rate-clp1

To change the sustainable rate of the aggregate of low- and high-priority cells coming from the destination to the source on the SVC, use the **atm backward-sustainable-cell-rate-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm backward-sustainable-cell-rate-clp1 *rate*

no atm backward-sustainable-cell-rate-clp1

Syntax Description

rate	Sustainable rate in kbps that this SVC can receive of the aggregate of low- and high-priority cells from the destination. Maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the sustainable rate of the aggregate of low- and high-priority cells from the destination switch to 700 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm backward-sustainable-cell-rate-clp1 700
```

atm cac best-effort-limit

To change or set the interface limit on the number of best-effort connections, use the **atm cac best-effort-limit** interface configuration command. To restore the default, use the **no** form of this command.

atm cac best-effort-limit *conn-value*

no atm cac best-effort-limit

Syntax Description

conn-value	The number of best-effort connections allowed on the interface, in the range of 0 to 327680.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command places a limit on the total number of ABR and UBR connections on the interface.

This command also supports subinterface configuration.

Examples

In the following example, the number of best effort connections allowed on the interface is limited to 200.

```
Switch(config-if)# atm cac best-effort-limit 200
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac framing overhead

To instruct CAC to consider framing overhead, use the **atm cac framing overhead** interface configuration command. To restore the default (disabled), use the **no** form of this command.

atm cac framing overhead [**force**]

no atm cac framing overhead

Syntax Description

force	Including framing overhead while calculating the maximum cell rate of an interface can reduce the maximum equivalent bandwidth that can actually be allocated for guaranteed services on this interface to a value below the currently allocated bandwidth guarantees. If this occurs, this keyword must be used for the change to take effect. This option forces the CAC to account for framing overhead on this interface.

Defaults

Framing overhead is not considered in calculating the MaxCR of an ATM interface.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command directs CAC to consider framing overhead in calculating the MaxCR of an ATM interface. For example, without this configuration, an OC-3 interface has a cell rate of 155,519 kbps. With the **atm cac framing overhead** command in effect, the actual cell rate (subtracting SONET framing overhead) is 149,759 kbps.

Note Once this configuration command is in effect, subsequent SVC establishment and PVC creation can be altered as compared to the default state (less bandwidth is available, and lower traffic parameter values are allowed).

Note Commands that change the framing in effect on an interface (such as those available on a DS-3 interface) can cause corresponding changes in the maximum cell rate of the interface.

Examples

The following example forces CAC to account for framing overhead on this interface.

```
Switch(config-if)# atm cac framing overhead force
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac link-sharing

To change the resource management interface controlled link-sharing parameters, use the **atm cac link-sharing** interface configuration command. To reset the parameter values to the default, use the **no** form of this command.

atm cac link-sharing max-bandwidth {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**} *percent*
atm cac link-sharing max-guaranteed-service-bandwidth {**receive** | **transmit**} *percent*
atm cac link-sharing min-bandwidth {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**} *percent*

no atm cac link-sharing max-bandwidth {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**}
no atm cac link-sharing max-guaranteed-service-bandwidth {**receive** | **transmit**}
no atm cac link-sharing min-bandwidth {**abr** | **cbr** |**ubr** | **vbr**} {**receive** | **transmit**}

Syntax Description

abr	The available bit rate connection.
cbr	The constant bit rate connection.
ubr	The unspecified bit rate connection.
vbr	The variable bit rate connection.
receive	The configured parameter applies to the flow of traffic into the switch on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch on the interface (or to the route processor 0 interface).
percent	The percent of interface bandwidth, from 0 to 95 percent.

Defaults

No limits configured. All minimums are defined as 0 percent, maximums as 95 percent.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

On a 25-Mbps port adapter you can configure the **atm cac link-sharing** parameter only on physical ports 0 or 6. The following rules apply:

- The parameter configured on port 0 applies to ports 0 through 5.
- The parameter configured on port 6 applies to ports 6 through 11.

This command does not support subinterface configuration.

The **atm cac link sharing** command specifies the minimum and maximum bandwidth that can be allocated to guaranteed service (CBR, VBR, ABR, or UBR+) connections. (UBR+ is UBR with MCR specified.)

Maximums can be individually specified for CBR, VBR, ABR, or UBR+, and also the AGG of this bandwidth. Minimums can be individually specified for CBR, VBR, ABR, and UBR+. These parameters, for a direction, are interrelated as follows (assuming these parameters are defined):

- min(CBR) + min(VBR) + min(ABR) + min(UBR) <= 95 percent
- min(CBR) <= max(CBR) <= 95 percent
- min(VBR) <= max(VBR) <= 95 percent
- min(CBR) <= max(AGG) <= 95 percent
- min(VBR) <= max(AGG) <= 95 percent
- max(CBR) <= max(AGG) <= 95 percent
- max(VBR) <= max(AGG) <= 95 percent
- min(ABR) <= max(ABR) <= 95 percent
- min(UBR) <= max(UBR) <= 95 percent
- min(ABR) <= max(AGG) <= 95 percent
- min(UBR) <= max(AGG) <= 95 percent
- max(ABR) <= max(AGG) <= 95 percent
- max(UBR) <= max(AGG) <= 95 percent

Examples

In the following example, the maximum bandwidth that can be allocated to VBR connections in the transmit direction on the interface is limited to 61 percent of the total bandwidth.

```
Switch(config-if)# atm cac link-sharing max-bandwidth vbr transmit 61
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac max-cdvt

To configure the maximum CDVT (per service category and direction) allowed for a connection on an interface by CAC, use the **atm cac max-cdvt** interface configuration command. To remove the configuration setting for **atm cac max-cdvt**, use the **no** form of this command.

atm cac max-cdvt {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**} *cdvtval*

no atm cac max-cdvt {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**}

Syntax Description

abr	The available bit rate connection.
cbr	The constant bit rate connection.
ubr	The unspecified bit rate connection.
vbr	The variable bit rate connection.
receive	The configured parameter applies to the flow of traffic into the switch router on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch router on the interface (or to the route processor 0 interface).
cdvtval	The CDVT value, in the range of 0 to 2147483647, expressed in cell times (2.72 microseconds at 155.2 Mbps).

Defaults

None

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command configures a maximum for the CDVT that is allowed at connection setup. These can be specified independently by service category and traffic direction.

This command also supports subinterface configuration.

Examples

The following example configures the maximum CDVT allowed by CAC in traffic parameters for the incoming direction of an ABR connection on the interface to 21354.

```
Switch(config-if)# atm cac max-cdvt abr receive 21354
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac max-mbs

To change the interface maximum for incoming and outgoing MBS at connection startup, use the **atm cac max-mbs** interface configuration command. To reset the maximum value to the default, use the **no** form of this command.

atm cac max-mbs {**receive** | **transmit**} *mbsval*

no atm cac max-mbs {**receive** | **transmit**}

Syntax Description

receive	The configured parameter applies to the flow of traffic into the switch on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch on the interface (or to the route processor 0 interface).
mbsval	The MBS value, in the range of 0 to 2147483647, expressed as the number of cells.

Defaults

None

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command configures a maximum for the MBS that is allowed at connection setup. These can be specified independently by traffic direction.

This command also supports subinterface configuration.

Examples

The following example configures the MBS allowed by CAC in traffic parameters for the outgoing direction of an VBR connection on the interface to 2345 cells.

```
Switch(config-if)# atm cac max-mbs transmit 2345
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac max-min-cell-rate

To configure the maximum MCR for ABR and UBR service category traffic flowing into and out of the switch router, use the **atm cac max-min-cell-rate** interface configuration command. To remove these values, use the **no** form of this command.

atm cac max-min-cell-rate {**abr** | **ubr**} {**receive** | **transmit**} *rate*

no atm cac max-min-cell-rate {**abr** | **ubr**} {**receive** | **transmit**}

Syntax Description

abr	The available bit rate connection.
ubr	The unspecified bit rate connection.
receive	The configured parameter applies to the flow of traffic into the switch router on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch router on the interface (or to the route processor 0 interface).
rate	A positive integer, measured in kbps, in the range of 0 to 910533065.

Defaults

None

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command configures a maximum for the MCR that is allowed at connection setup. These can be specified independently by service category and traffic direction.

This command also supports subinterface configuration.

Examples

The following example configures the maximum MCR allowed by CAC in traffic parameters for the outgoing direction of an ABR connection on the interface to 1340 kbps.

```
Switch(config-if)# atm cac max-min-cell-rate ubr transmit 1340
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac max-peak-cell-rate

To configure the maximum PCR for specific service categories and traffic directions, use the **atm cac max-peak-cell-rate** interface configuration command. To restore the default value, use the **no** form of this command.

atm cac max-peak-cell-rate {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**} *rate*

no atm cac max-peak-cell-rate {**abr** | **cbr** | **ubr** | **vbr**} {**receive** | **transmit**}

Syntax Description

abr	The available bit rate connection.
cbr	The constant bit rate connection.
ubr	The unspecified bit rate connection.
vbr	The variable bit rate connection.
receive	The configured parameter applies to the flow of traffic into the switch router on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch router on the interface (or to the route processor 0 interface).
rate	A positive integer, measured in kbps, in the range of 0 to 910533065.

Defaults

None

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command configures the maximum PCR that is allowed at connection setup. These can be specified independently by service category and traffic direction.

For UBR connections, cell rate is not checked in CAC. By specifying a **peak-cell-rate** limit, CAC rejects connections that exceed the limit.

This command also supports subinterface configuration.

Examples

The following example configures the maximum PCR allowed by CAC in traffic parameters for the incoming direction of an ABR connection on the interface to 3001 kbps.

```
Switch(config-if)# atm cac max-peak-cell-rate abr receive 3001
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac max-sustained-cell-rate

To configure the maximum SCR for traffic flow in either direction, use the **atm cac max-sustained-cell-rate** interface configuration command. To restore the default value, use the **no** form of this command.

atm cac max-sustained-cell-rate {**receive** | **transmit**} *rate*

no atm cac max-sustained-cell-rate {**receive** | **transmit**}

Syntax Description

receive	The configured parameter applies to the flow of traffic into the switch router on the interface (or from the route processor 0 interface).
transmit	The configured parameter applies to the flow of traffic out of the switch router on the interface (or to the route processor 0 interface).
rate	A positive integer, measured in kbps, in the range of 0 to 910533065.

Defaults

None

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command specifies a maximum for the SCR that is allowed at connection setup. These can be specified independently by traffic direction.

This command also supports subinterface configuration.

Examples

The following example configures the maximum SCR allowed by CAC in traffic parameters for the outgoing direction of a VBR connection on the interface to 2201 kbps.

```
Switch(config-if)# atm cac max-sustained-cell-rate transmit 2201
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac overbooking

To configure overbooking on an ATM or IMA interface, use the **atm cac overbooking** interface configuration command. To restore the default, use the **no** form of this command.

atm cac overbooking *percent*

no atm cac overbooking

Syntax Description

percent	The overbooking percentage of the MaxCR of the interface being configured, from 100 to 10000. 100 percent = disabled.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command determines whether overbooking is enabled on an ATM or IMA interface, and specifies the extent of overbooking if enabled. Overbooking causes CAC to expand its concept of the amount of bandwidth available on an interface (receive and transmit) by the percentage specified. This applies to the aggregate bandwidth available on the interface; individual traffic parameters are still limited by the maximum cell rate of the interface in a given direction. Also, the normal limit of 95 percent of MaxCR for guaranteed cell rates (or the appropriate controlled link sharing percentages) applies to the overbooked MaxCR of the interface. The overbooking is expressed as a percentage of the MaxCR of the interface being configured.

An interface must be shut down before any change in the overbooking configuration can be made. (See "Example.") If the overbooking change results in a maximum guaranteed services bandwidth that is below the currently allocated bandwidth guarantees on this interface, then the configuration will be rejected.

Overbooking cannot be configured on regular VP tunnel interfaces and is configurable only on shaped and hierarchical VP tunnel interfaces.

Enabling overbooking is recommended only for advanced users. Enabling overbooking forfeits the protection for guaranteed cell rates provided by the CAC algorithm and hardware.

Examples

In the following example, ATM overbooking is configured for 159 percent of the MaxCR of the interface.

```
Switch(config-if)# shutdown
Switch(config-if)# atm cac overbooking 159
Switch(config-if)# no shutdown
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cac service-category

To permit or deny a service category on an ATM physical interface, shaped VP tunnel subinterface, or hierarchical VP tunnel subinterface, use the **atm cac service-category** command. To restore the default configuration of the interface with respect to the service category, use the **no** form of this command.

atm cac service-category {**abr** | **cbr** | **ubr** | **vbr-nrt** | **vbr-rt**} {**deny** | **permit**}

no atm cac service-category {**abr** | **cbr** | **ubr** | **vbr-nrt** | **vbr-rt**}

Syntax Description

abr	The available bit rate connection.
cbr	The constant bit rate connection.
ubr	The unspecified bit rate connection.
vbr-nrt	The variable bit rate in non-real time.
vbr-rt	The variable bit rate in real time.
deny	The specified service category on the interface is denied.
permit	The specified service category on the interface is permitted.

Defaults

For physical interfaces and hierarchical VP tunnel subinterfaces, all service categories are enabled by default. For shaped VP tunnel subinterfaces, only CBR service category is enabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally part of **atm cac**.
12.0(4a)W5(11a)	Modified: Broken out into separate command.

Usage Guidelines

This command specifies which service categories to permit or deny on the interface. Changes from the defaults must be done on a separate line for each service category. On a shaped VP tunnel interface, only one service category is permitted at one time.

To deny a service category in a shaped VP tunnel subinterface, you must delete all user VCs of the service category on the interface.

VBR-RT is used for connections where there is a fixed timing relationship between samples. VBR-NRT is used for connections where there is no fixed timing relationship between samples, but where there is still a need for guaranteed QoS.

This command also supports subinterface configuration.

Examples

In the following example, the CBR service category is prohibited on ATM subinterface 0/0/1.51 before service category UBR is allowed.

```
Switch(config)# interface atm 0/0/1.51
Switch(config-subif)# atm cac service-category cbr deny
Switch(config-subif)# atm cac service-category ubr permit
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.
show running-config	Displays the configuration information currently running on the terminal.

atm cdvt-default

To change the default CDVT to request for UPC of cells received on the interface for connections that do not individually request a CDVT value, use the **atm cdvt-default** interface configuration command. To reset the default CDVT for a particular service category to the default value, use the **no** form of this command.

atm cdvt-default {**cbr** | **vbr-rt** | **vbr-nrt** | **abr** | **ubr**} *number*

no atm cdvt-default {**cbr** | **vbr-rt** | **vbr-nrt** | **abr** | **ubr**}

Syntax Description

cbr	The constant bit rate connection.
vbr-rt	The variable bit rate in real time.
vbr-nrt	The variable bit rate in non-real time.
abr	The available bit rate connection.
ubr	The unspecified bit rate connection.
number	A positive integer, in the range 0 to 2147483647. The CDVT is expressed in cell-times (2.72 microseconds at 155.2 Mbps).

Defaults

1024

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

CDVT is a limit parameter used in the GCRA policing algorithm to monitor PCR. CDVT can be specified for PVCs through a connection traffic table row. If no CDVT is specified in the row, then a per-interface, per-service category default CDVT is applied for purposes of UPC on the connection.

For signalled connections, CDVT cannot be signalled. Use defaults specified on the interface.

Examples

The following example shows changing the default CDVT for received cells on VBR-RT connections.

```
Switch(config-if)# atm cdvt-default vbr-rt 4000
```

Related Commands

Command	Description
atm connection-traffic-table-row	Used to create a table entry.

Command	Description
show atm vc	Displays the ATM layer connection information about the virtual connection.
show atm vp	Displays the ATM layer connection information about the virtual path.

atm connection-traffic-table-row

To create a table entry, use the **atm connection-traffic-table-row** global configuration command. To delete an entry, use the **no** form of this command.

atm connection-traffic-table-row [**index** *row-index*] **cbr pcr** *rate* [**cdvt** *cdvt*]
atm connection-traffic-table-row [**index** *row-index*] {**vbr-rt** | **vbr-nrt**} **pcr** *rate* {**scr0** | **scr10**}*scrval* [**mbs** *mbsval*] [**cdvt** *cdvtval*]

atm connection-traffic-table-row [**index** *row-index*] **abr pcr** *rate* [**cdvt** *cdvtval*] [**mcr** *mcrval*]
atm connection-traffic-table-row [**index** *row-index*] **ubr pcr** *rate* [**cdvt** *cdvtval*] [**mcr** *mcrval*]

no atm connection-traffic-table-row index *row-index* **abr pcr** *rate* [**cdvt** *cdvtval*] [**mcr** *mcrval*]
atm connection-traffic-table-row [**index** *row-index*] **ubr pcr** *rate* [**cdvt** *cdvtval*] [**mcr** *mcrval*]

Syntax Description

cdvt *cdvtval*	The value of the cell delay variation tolerance, in the range of 0 to 2147483647, expressed in cell-times (2.72 microseconds at 155.2 Mbps).
mbs *mbsval*	The value of the maximum burst size, in the range of 0 to 2147483647, expressed in the number of cells.
mcr *mcrval*	The minimum cell rate is a positive integer, measured in kbps, in the range of 0 to 910533065.
pcr *rate*	The peak cell rate is a positive integer, measured in kbps, in the range of 0 to 910533065.
row-index	An integer in the range of 1 to 1073741823.
scr0	Sustained cell rate for the CLP 0 flow.
scr10	Sustained cell rate for the CLP 0+1 flow.
scrval	The sustained cell rate is a positive integer, measured in kbps per second, in the range of 0 to 910533065.

Defaults

Rows 1 through 6 in the table are predefined.

Command Modes

Global configuration

Command History

Release	Modifications
11.1(4)	New command

Usage Guidelines

This command sets up the traffic characteristics used in PVC definition. The characteristics are stored as rows of a table. The row index is referenced when a PVC is created using the **atm pvc** interface command.

When the **atm connection-traffic-table-row** command is issued without the index clause, the software uses a free row-index, which is displayed to the user if the command is successful.

When the CDVT or MBS parameter is not specified in the creation of a row, a configurable interface default value is chosen to use in UPC. For systems that are capable of dual leaky bucket UPC (Catalyst 8540 MSR with feature card, and Catalyst 8510 MSR and LightStream 1010 with FC-PFQ), PCR/CDVT is monitored for service categories other than VBR, and for VBR PCR/CDVT and SCR/MBS. For LightStream 1010 with FC-PCQ, a single leaky bucket provides monitoring for PCR/CDVT for service categories other than VBR, and for VBR SCR/MBS.

Six connection traffic table rows are defined by default and are numbered 1 through 6. Row 1 is the default row used by the **atm pvc** command if no rows are explicitly specified. Rows 2 through 6 might be used for well-known **vcs** on a **vp** tunnel subinterface, depending on the service category of the underlying **vp**. Default rows cannot be deleted.

Row 1 PCR represents the maximum cell-rate (the maximum cell-rate that fits in 24 bits) that you can signal.

When an ABR row is configured, if MCR is not specified, MCR is configured as 0 in the CTT row.

When a VBR CTT row is configured using the **scr0** keyword, the switch processor feature card equipped with a dual leaky bucket polices only the CLP-0 flow of cells to the *scrval*. When the **scr10** keyword is used, the CLP-0+1 flow is policed.

Examples

In the following example, a **CBR** CTT row is defined with an index of 200 and a peak cell rate of 7743 kbps.

```
Switch(config)# atm connection-traffic-table-row index 200 cbr pcr 7743
```

Related Commands

Command	Description
atm pvc	Used to create a PVC.
atm pvp	Used to create a PVP.
show atm connection-traffic-table	Displays a table of connection traffic parameters used by network and connection management.

atm e164 address

To configure the native E.164 address of an ATM interface, use the **atm e164 address** interface configuration command. To disable the ATM E.164 address, use the **no** form of this command.

atm e164 address *e164-address*

no atm e164 address

Syntax Description

e164-address	Specifies a native E.164 address, consisting of 7 to 15 decimal digits. Refer to the ITU-T Recommendation E.164 for more information on the syntax and semantics of native E.164 addresses.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Use this command to configure a native E.164 address that is used to connect to public networks.

When outgoing calls are configured to use forwarding E.164 addresses as the called party address (see the **atm route** command), this E.164 address is used as the forwarding calling party address.

When incoming calls are received on the interface that specifies the E.164 address as the called party address, the received called and calling party addresses are removed from the signalling message and replaced by the new received called and calling party subaddresses.

This new address is not registered with routing since it is only used as this switch's address for this interface. It is not used as the address of destinations from this interface.

Note that this address is not used in conjunction with the E.164 translation table feature. The E.164 translation table should only be used when you want a one-to-one correspondence between the NSAP-format ATM end-system address and the native E.164 address, for example, when the public network does not support transport of subaddresses. The combination of the **atm e164 address** command and the **e164 address** option of the **atm route** command provides a general mechanism for interconnection of private networks across a public network. This combination allows one native E.164 address for the interface to the public network, with many NSAP-format ATM end-system addresses present in the private network behind the interface.

Examples

The following example shows setting the native E.164 address of ATM 0/0/1 to 1341457.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm e164 address 1341457
```

Related Commands

Command	Description
atm e164 address	Configure the native E.164 address of an ATM interface.
atm route	Specifies a static route to a reachable address prefix.
show atm addresses	Displays the active ATM addresses on a switchn router.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm vc	Displays the ATM layer connection information about the virtual connection.

atm e164 auto-conversion

To enable autoconversion of E.164 addresses, use the **atm e164 auto-conversion** interface configuration command. To disable E.164 autoconversion, use the **no** form of this command.

atm e164 auto-conversion

no atm e164 auto-conversion

Syntax Description

This command has no keywords or arguments.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

When an interface is configured for E.164 autoconversion, ATM E.164-format addresses are converted to the corresponding native E.164 address for outgoing calls. For incoming calls, native E.164 addresses are converted to the corresponding ATM E.164 format.

Examples

The following example shows how to enable E.164 autoconversion on ATM interface 0/0/1.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm e164 auto-conversion
```

Related Commands

Command	Description
show atm vc	Displays the ATM layer connection information about the virtual connection.

atm e164 translation

To configure an interface to use the ATM E.164 translation table, use the **atm e164 translation** interface configuration command. To disable the ATM E.164 translation, use the **no** form of this command.

atm e164 translation

no atm e164 translation

Syntax Description

This command has no keywords or arguments.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

The ATM E.164 translation table is used when a one-to-one translation between NSAP-format ATM end-system addresses and native E.164 addresses is desired. This method for support of native E.164 addresses might be useful when the ATM interface connects to a public network that does not support transport of subaddresses.

Note that the more general mechanism for interconnection to E.164 public networks involves use of the **atm e164 address** command and the **e164-address** option of the **atm route** command. This other mechanism allows one native E.164 address for the interface to the public network, with many NSAP-format ATM end-system addresses present in the private network behind the interface.

When a signalling message attempts to establish a call from an interface configured for ATM E.164 translation, the called and calling party addresses are initially in NSAP format. Using the ATM E.164 translation table, an attempt is made to find the E.164 addresses corresponding to the NSAP addresses. These E.164 addresses are placed into the called and calling party addresses, and the original NSAP addresses are placed into the called and calling party subaddresses.

When a signalling message is received on an interface configured for ATM E.164 translation, the called and calling party addresses are in E.164 format. If the original NSAP-formatted called and calling addresses have been carried in subaddresses, then those addresses are used to forward the call. If subaddresses are not present, due to the network blocking the subaddresses, or the switch at the entry to the E.164 network does not provide subaddresses, an attempt is made to find a match for the E.164 addresses in the ATM E.164 translation table. If there is a match, the NSAP addresses corresponding to the E.164 addresses are placed into the called and calling party addresses. The call is then forwarded using the NSAP addresses.

Examples

The following example shows setting interface ATM 0/0/1 to use the E.164 translation table.

```
Switch(config)# interface atm0/0/1
Switch(config-if)# atm e164 translation
```

Related Commands

Command	Description
atm e164 auto-conversion	Enables autoconversion of E.164 addresses.
atm e164 translation-table	Enables ATM E.164 translation configuration mode.
atm route	Specifies a static route to a reachable address prefix.
e164 address	Configures an entry in the ATM E.164 translation table.
show atm interface	Displays ATM-specific information about an ATM interface.

atm e164 translation-table

To start ATM E.164 translation configuration mode, use the **atm e164 translation-table** global configuration command. To disable the ATM E.164 translation table, use the **no** form of this command.

atm e164 translation-table

no atm e164 translation-table

Note The **atm e164 translation-table** global configuration command changes the configuration mode to ATM E.164 translation table configuration, and the following new prompt appears: `Switch(config-atm-e164)#`

Syntax Description

This command has no keywords or arguments.

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Use this command to start ATM E.164 translation configuration mode.

The ATM E.164 translation table is used by all interfaces configured with the ATM E.164 translation functionality. Each entry in the table specifies a one-to-one correspondence between a native E.164 address and an NSAP-format ATM end-system address.

Refer to the **atm e164 translation** command for more information and usage guidelines about the ATM E.164 translation feature.

Examples

The following example shows how to start the ATM E.164 translation configuration mode.

```
Switch(config)# atm e164 translation-table
Switch(config-atm-e164)# e164 address 1112222 nsap-address
11.111122223333444455556666.112233445566.11
```

Related Commands

Command	Description
atm e164 translation	Configures an interface to use the ATM E.164 translation table.
e164 address	Configures an entry in the ATM E.164 translation table.

atm esi-address

To enter the end station ID (ESI) and selector byte fields of the ATM NSAP address, use the **atm esi-address** interface configuration command. The NSAP address prefix is filled in by way of the ILMI address registration from the ATM switch router. To remove the end station address, use the **no** form of this command.

atm esi-address *esi.selector*

no atm esi-address *esi.selector*

Syntax Description

esi	End station ID field value in hexadecimal; 6 bytes long.
selector	Selector field value in hexadecimal; 1 byte long.

Defaults

No end station ID is defined for this interface.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

This command only applies to the route processor interface and subinterfaces.

The NSAP-format ATM end-system address of an interface is used by static maps (refer to the section "Configuring an SVC-Based Map List" in the *ATM Switch Router Software Configuration Guide*) and by Classical IP over ATM, as defined in RFC 1577 (refer to the section "Configure Classical IP over ATM in an SVC Environment" in the *ATM Switch Router Software Configuration Guide*).

The NSAP-format ATM end-system address of an interface can be configured using either the **atm esi-address** or the **atm nsap-address** command. Configuring a new address on the interface overwrites the previous address. The **atm esi-address** and **atm nsap-address** commands are mutually exclusive. Configuring the switch with the **atm esi-address** command negates the **atm nsap-address** setting, and vice versa.

The **atm esi-address** command allows you to configure the ATM address by entering the ESI (12 hexadecimal characters) and the selector byte (2 hexadecimal characters). The ATM address prefix (26 hexadecimal characters) is provided by the ATM switch router (refer to the **atm address** and **atm prefix** commands for more information). The resulting ATM address is registered on the ATM switch router using ILMI address registration.

Examples

The following example sets the ESI to 303132333435 and the selector byte to 36 on ATM subinterface 0.1.

```
Switch(config)# interface atm 0.1
Switch(config-subif)# atm esi-address 303132333435.36
```

Related Commands

Command	Description
atm address	Assigns a 20-byte ATM address to the switch router.
atm nsap-address	Configures the NSAP-format ATM end-system address of an ATM interface.
atm prefix	Configures an ILMI address prefix for an ATM interface.

atm filter-expr

To configure an ATM address filter that matches patterns, use one of the forms of the **atm filter-expr** global configuration command. To delete the specified filter, use the **no** form of this command.

atm filter-expr *name term*
atm filter-expr *name* **not** *term*
atm filter-expr *name term* **and** *term*
atm filter-expr *name term* **or** *term*
atm filter-expr *name term* **xor** *term*

no atm filter-expr *name*

Syntax Description

name	The name of the pattern-matching filter expression.
term	Can be any of the following: • A previously defined address pattern-matching expression • A filter set applied to a calling-party address—**source** *filter-set name* • A filter set applied to a called-party address—**destination** *filter-set name*

Defaults

Permit

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The first form (**atm filter-expr** *name term*) defines a simple filter expression that is pattern-matched only if the pattern given by *term* is matched.

The second form (**atm filter-expr** *name* **not** *term*) defines a filter expression that is pattern-matched only if the pattern given by *term* is not matched.

The third form (**atm filter-expr** *name term* **and** *term*) defines a filter expression that is pattern-matched if *either* of the patterns given by the two *terms* are matched.

The fourth form (**atm filter-expr** *name term* **or** *term*) defines a filter expression that is pattern-matched only if *both* of the patterns given by the two *terms* are matched.

The fifth form (**atm filter-expr** *name term* **xor** *term*) defines a filter expression that is pattern-matched only if *one* of the patterns, but *not* both, given by the two *terms* is matched.

For commands with two *term*s—that is, commands using logical operators **or**, **and**, and **xor**—the evaluation sequence is from left to right of the expression. Further, for commands using logical operators **or** and **and**, the evaluation for the second *term* is conducted only when necessary, that is, the evaluation for the second *term* is omitted if the truth or falsehood can already be concluded from the evaluation for the first *term*.

Examples

The following is sample output from the **atm filter-expr** command.

```
Switch(config)# atm filter-expr atm_filter_expr1 not source atm_filter_set1
Switch(config)# atm filter-expr atm_filter_expr2 source atm_filter_set1 and destination
atm_filter_set2
```

Related Commands

Command	Description
atm filter-set	Creates an ATM address filter set.

atm filter-set

To create an ATM address filter set, use the **atm filter-set** global configuration command. To delete the specified filter, use the **no** form of this command.

atm filter-set *name* [**index** [*number*]] [**permit** | **deny**] [*template* |**time-of-day** {**anytime** | *start-time* {*end-time*}}]

no atm filter-set *name* [**index** *number*]

Syntax Description

name	The name of the filter set.
index	Set order in which filters are set. The range is from 1 through 65535. The default is 1.
permit	Permission to accept an incoming call or forward an outgoing call on an interface/subinterface if the address pattern-matching succeeds.
deny	Denial to accept an incoming call or forward an outgoing call on an interface or subinterface if the address pattern-matching succeeds.
template	An ATM address, address template, or ATM address template alias.
time-of-day	Specify the time range in which the filter set takes place. This parameter can be specified as *anytime* or as a specific time. The default is *anytime*.
start-time	Specify the time the filter set starts, in 24-hour format, *hh:mm:ss*.
end-time	Specify the time the filter set ends, in 24-hour format, *hh:mm:ss*.

Defaults

Permit

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

If neither **permit** nor **deny** is specified, **permit** is assumed. If an address does not match any of the filter set entries, an implicit “deny” is returned as the permit/deny action of the filter set.

Filters are set in the same order they were configured. You can change the order (except in a complete NSAP address that has no wildcards) by specifying the optional parameter index.

After you create a filter for a specific interface, associate the filter to that interface by using the **atm access-group** command.

Examples

The following is an example of the **atm filter-set** command.

```
Switch(config)# atm filter-set filter_set1 permit
47.0091.8100.0000.0003.bbe4.aa01.4000.0c80.0000.64
Switch(config)# atm filter-set filter_set3 deny 47.840F...
Switch(config)# no atm filter-set filter_set3
```

Related Commands

Command	Description
atm access-group	Used to subscribe an interface or subinterface to an existing ATM address pattern-matching filter expression.

atm forward-max-burst-size-clp0

To change the maximum number of high-priority cells going from the source to the destination at the burst level on the SVC, use the **atm forward-max-burst-size-clp0** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-max-burst-size-clp0 *cell-count*

no atm forward-max-burst-size-clp0

Syntax Description

cell-count	The burst size in cells, from 1 to 16777215. This is the maximum number of high-priority cells going from the source switch at the burst level.

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects only high-priority cells with a CLP of 0.

Examples

The following example sets the maximum number of high-priority cells going from the source switch at the burst level to 100000.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-max-burst-size-clp0 100000
```

atm forward-max-burst-size-clp1

To change the maximum number of the aggregate of low- and high-priority cells going from the source to the destination at the burst level on the SVC, use the **atm forward-max-burst-size-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-max-burst-size-clp1 *cell-count*

no atm forward-max-burst-size-clp1

Syntax Description

cell-count	The burst size in cells, from 1 to 16777215. This is the maximum number of the aggregate of low- and high-priority cells going from the source switch at the burst level.

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the maximum number of the aggregate of low- and high-priority cells going from the source switch at the burst level to 100000.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-max-burst-size-clp1 100000
```

atm forward-peak-cell-rate-clp0

To change the peak rate of high-priority cells going from the source to the destination on the SVC, use the **atm forward-peak-cell-rate-clp0** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-peak-cell-rate-clp0 *rate*

no atm forward-peak-cell-rate-clp0

Syntax Description

rate	Maximum rate in kbps that this SVC can send high-priority cells from the source switch router. The maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects *only* high-priority cells with a CLP of 0.

Examples

The following example sets the peak of the high-priority cell rate from the source switch to 1000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-peak-cell-rate-clp0 1000
```

atm forward-peak-cell-rate-clp1

To change the peak rate of the aggregate of low- and high-priority cells coming from the source to the destination on the SVC, use the **atm forward-peak-cell-rate-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-peak-cell-rate-clp1 *rate*

no atm forward-peak-cell-rate-clp1

Syntax Description

rate	Maximum rate in kbps that this SVC can send the aggregate of low- and high-priority cells from the source. The maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the peak of the aggregate of low- and high-priority cell rate from the source switch to 100000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-peak-cell-rate-clp1 100000
```

atm forward-sustainable-cell-rate-clp0

To change the sustainable rate of high-priority cells coming from the source to the destination on the SVC, use the **atm forward-sustainable-cell-rate-clp0** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-sustainable-cell-rate-clp0 *rate*

no atm forward-sustainable-cell-rate-clp0

Syntax Description

rate	Sustainable rate in kbps that this SVC can send high-priority cells from the source. The maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp0** indicates this command affects *only* high-priority cells with a CLP of 0.

Examples

The following example sets the sustainable rate of high-priority cells from the source switch to 100000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-sustainable-cell-rate-clp0 100000
```

atm forward-sustainable-cell-rate-clp1

To change the sustainable rate of the aggregate of low- and high-priority cells coming from the source to the destination on the SVC, use the **atm forward-sustainable-cell-rate-clp1** map-class configuration command. To restore the default value, use the **no** form of this command.

atm forward-sustainable-cell-rate-clp1 *rate*

no atm forward-sustainable-cell-rate-clp1

Syntax Description

rate	Sustainable rate in kbps that this SVC can send of the aggregate low- and high-priority cells from the source. The maximum upper range is 7113539 (limited by 0xffffff cells per second).

Defaults

The parameter is not specified in the SVC setup request.

Command Modes

Map-class configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command defines a traffic parameter for the SVC connection.

The keyword **clp1** applies to the cumulative flow of CLP 0 and CLP 1 cells (high-priority and low-priority cells).

Examples

The following example sets the sustainable rate of high-priority cells from the source switch to 100000 kbps.

```
Switch(config)# map-class atm high-rate
Switch(config-map-class)# atm forward-sustainable-cell-rate-clp1 100000
```

atm idle-timeout

To change the idle timer for SVCs on an interface that causes the SVCs to disconnect when inactive for a specified interval, use the **atm idle-timeou**t interface configuration command. To restore the default setting, use the **no** form of this command.

atm idle-timeout *seconds*

no atm idle-timeout

Syntax Description

seconds	Number of seconds the SVC can be inactive before disconnecting.

Defaults

300 seconds

Command Modes

Interface configuration.

Note This command applies only to the route processor interface (ATM 0).

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

To disable idle timeouts, set the value of *seconds* to 0.

Examples

The following example shows setting the timeout to 250.

```
switch(config)# atm idle-timeout 250
```

Related Commands

None

atm iisp

To configure ATM IISP on the specified physical or logical (VP tunnel) port, use the **atm iisp** interface configuration command.

atm iisp [**side** *side* [**version** *ver*]] | [**version** *ver* [**side** *side*]]

Syntax Description

side	Interface side, specified as **user** or **network**. The default is **network**.
version	IISP version, specified as **3.0**, **3.1**, or **4.0**. The default is **3.0**.

Defaults

See "Syntax Description."

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Note Before using this command, ILMI autoconfiguration must be disabled. (Refer to the **atm auto-configuration** command).

When this command is configured and it causes a change in the interface protocol, version, or side, ATM signalling and ILMI are restarted automatically on the interface. When ATM signalling is restarted, all switch virtual connections across the interface are cleared; permanent virtual connections are not affected. Refer to the *ATM Switch Router Software Configuration Guide* for more information about this command.

The **atm auto-configuration**, **atm iisp**, and **atm nni** commands are mutually exclusive. Configuring the **atm iisp** command overwrites any previous configuration of the **atm nni** or **atm uni** commands for this interface. Future configuration of the **atm auto-configuration**, **atm nni**, or **atm uni** command on this interface overwrites the **atm iisp** command.

For calls to be routed from this interface, one or more static routes must be configured. Refer to the **atm route** command.

Examples

The following example configures ATM interface 3/1/2 as an IISP interface, running version 3.0 as the user side.

```
Switch(config)# interface atm 3/1/2
Switch(config-if)# no atm auto-configuration
Switch(config-if)#
%ATM-6-ILMINOAUTOCFG: ILMI(ATM3/1/2): Auto-configuration is disabled, current interface
parameters will be used at next interface restart.
Switch(config-if)# atm iisp side user version 3.0
Switch(config-if)#
%ATM-5-ATMSOFTSTART: Restarting ATM signalling and ILMI on ATM3/1/2.
Switch(config-if)# atm maxvci-bits 12
Switch(config-if)#
%ATM-5-ATMSOFTSTART:# Restarting ATM signalling and ILMI on ATM3/1/2.
Switch(config-if)# end
```

The following example configures subinterface ATM 3/1/3.100 as an IISP interface, and uses the defaults for this command.

```
Switch(config)# interface atm 3/1/3.100
Switch(config-subif)# no atm auto-configuration
Switch(config-subif)#
%ATM-6-ILMINOAUTOCFG: ILMI(ATM3/1/3.100): Auto-configuration is disabled, current
interface parameters will be used at next interface restart.
Switch(config-subif)# atm iisp
Switch(config-subif)#
%ATM-5-ATMSOFTSTART: Restarting ATM signalling and ILMI on ATM3/1/3.100.
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm nni	Configures an ATM NNI on the specified physical or logical (VP tunnel) port.
atm route	Specifies a static route to a reachable address prefix.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm route	Displays all local or network-wide reachable address prefixes in the switch router's ATM routing table.

atm ilmi default-access permit

To set the global default access filter for ILMI-registered addresses on all interfaces, use the **atm ilmi default-access permit** global configuration command. To disable the global default access filter, use the **no** form of this command.

atm ilmi default-access permit {**all** | **matching-prefix** [**wellknown-groups** | **all-groups**]}

no atm ilmi default-access permit

Syntax Description

all	Permit all AESAs registered by attached end systems.
matching-prefix	Permit AESAs where the first 13 bytes of the address match an ILMI prefix used on the interface. These ILMI prefixes can be configured using the global **atm address** command or the per-interface **atm prefix** command. The ILMI prefixes used on the interfaces can be shown using the **show atm ilmi-status** command.
wellknown-groups	Permit well-known group addresses assigned by the ATM Forum and AESAs that match an ILMI prefix used on the interface. The well-known group addresses include the old LECS address (47.0079.0000.0000.0000.0000.0000.00A0.3E00.0001.00) and any address matching the ATM Forum address prefix for well known addresses. (C5.0079.0000.0000.0000.0000.0000.00A0.3E)
all-groups	Permit all group addresses, including the well-known group addresses, and AESAs that match an ILMI prefix used on the interface.

Defaults

permit all

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command
11.3(3a)	Added: **permit**

Usage Guidelines

This command allows specification of a global default access filter for ILMI address registration. The access filter feature allows you to permit or deny certain ILMI registered addresses. The global default access filter takes effect when address registration is enabled on an interface, but no per-interface access filter is specified. For additional information, refer to the **atm address-registration** command.

Note If the Cisco SSRP for LAN Emulation is used in this network, ILMI registration of well-known group addresses should be permitted. This allows the active LECS to register the well-known LECS address with the switch. Either the **permit all**, **permit matching-prefix wellknown groups**, or **permit matching-prefix all-groups** option should be configured.

The global default-access filter for ILMI registration can be overridden by a per-interface access filter. (See the **atm address-registration** command.)

You should allow certain addresses to be registered through ILMI; however, to restrict them from being advertised through PNNI, the PNNI suppressed summary address feature should be used instead of the access filters for ILMI address registration. (See the **summary-address** command.)

Examples

The following example shows how to permit all ILMI-registered addresses.

```
Switch(config)# atm ilmi default-access permit all
Switch(config)#
%ATM-5-ILMIDEFACCFILTER: New global default access filter setting will be applied to
registration of new addresses on interfaces using global default access filter.
```

Related Commands

Command	Description
atm address	Assigns a 20-byte ATM address to the switch router.
atm address-registration	Enables the switch router to engage in address registration on an interface using the ILMI protocol.
atm prefix	Configures an ILMI address prefix for an ATM interface.
summary-address	Configures summary address prefixes on a PNNI node.

atm ilmi-enable

To enable the ILMI on a port, use the **atm ilmi-enable** interface configuration command. To disable the ILMI on a port, use the **no** form of this command.

atm ilmi-enable

no atm ilmi-enable

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command does not apply to the ATM 0 interface.

ILMI is enabled by default; however, if the peer does not support ILMI, you should turn off ILMI using this command.

Several components of ILMI can be disabled independently without completely disabling ILMI. Refer to the **atm address-registration**, **atm auto-configuration**, and **atm ilmi-keepalive** commands for more information.

Examples

The following example shows how to disable ILMI on interface ATM 1/0/0.

```
Switch(config)# interface atm 1/0/0
Switch(config-if)# no atm ilmi-enable
```

Related Commands

Command	Description
atm address-registration	Enables the switch to engage in address registration on an interface using the ILMI protocol.
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm ilmi-keepalive	Used to enable or disable ILMI connectivity procedures and to change the ILMI keepalive poll interval.
show atm ilmi-status	Displays the ILMI-related status information.

atm ilmi-keepalive

To enable or disable ILMI connectivity procedures and to change the ILMI keepalive poll interval, use the **atm ilmi-keepalive** interface configuration command. To disable ILMI connectivity procedures, use the **no** form of this command.

atm ilmi-keepalive [*seconds [***retry** *number*]]

no atm ilmi-keepalive

Syntax Description

seconds	Period in seconds, from 1 to 65,535, when the IME is polled. The default is 5 seconds.
number	Number of retries from 2 to 5. The default is 5 retries.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command does not apply to the ATM 0 interface.

This command enables ILMI connectivity procedures, as described in Section 8.3.1 of the ATM Forum ILMI 4.0 Specification.

Examples

The following example enables ILMI keepalives on ATM interface 1/0/0, with a poll interval set to 4 seconds and the number of retries to 3.

```
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm ilmi-keepalive 4 retry 3
```

Related Commands

Command	Description
atm ilmi-enable	Enables the ILMI on a port.
show atm ilmi-status	Displays the ILMI-related status information.

atm interface-group

To allow more than one interface to have the same ATM address, use the **atm interface-group** command. To remove the interface from an interface group, use the **no** form of this command.

atm interface-group *group_number*

no atm interface-group *group_number*

Syntax Description

group_number	Assigns a group number to this interface. Valid range is 1 to 1000.

Defaults

None.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(6)	New command

Usage Guidelines

ATM address groups allow more than one interface to have the same ATM address. These multiple connections provide load balancing for traffic from an end station.

Examples

The following example shows how to configure ATM interface 1/1/0 and ATM interface 3/0/1 in ATM address group 5:

```
Switch(config)# interface atm 1/1/0
Switch(config-if)# atm interface-group 5
Switch(config-if)# exit
Switch(config)# interface atm 3/0/1
Switch(config-if)# atm interface-group 5
```

Related CommandsS

Command	Description
show running-config	Shows the ILMI configuration on a per-port basis.

atm lecs-address

To configure the LECS address advertised by the switch to the end system, use the **atm lecs-address** interface configuration command.

atm lecs-address *lecsaddress* [*sequence#*]

Syntax Description

lecsaddress	Address of the LAN Emulation configuration server.
sequence#	Sequence number of the LECS.

Defaults

If the LECS address is not configured on an interface, the LECS address that was configured using the **atm lecs-address-default** global configuration command is used by default.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The LECS address is provided by the switch to directly connect LANE clients over the ILMI. LECS addresses can be configured on both interface and global levels. The globally configured address is sent to a port only if there is no LECS address configured on that port. The sequence number provides the position of this address in the ordered LECS address table.

Related Commands

Command	Description
atm lecs-address-default	Configures the LECS address advertised by the switch to the end system.
show atm ilmi-configuration	Displays the switch configuration.

atm lecs-address-default

To configure the LECS address advertised by the switch to the end system, use the **atm lecs-address-default** global configuration command.

atm lecs-address-default *lecsaddress* [*sequence #*]

Syntax Description

lecsaddress	Address of the LECS.
sequence #	Sequence number of the LECS.

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The LECS address is provided by the switch to directly connected LANE clients over the ILMI. LECS addresses can be configured on both interface and global levels. The globally configured address is sent to a port only if there is no LECS address configured on that port. The sequence number provides the position of this address in the ordered LECS address table.

Related Commands

Command	Description
atm lecs-address	Used to configure the LECS address advertised by the switch to the end system.
show atm ilmi-configuration	Used to display the switch configuration.

atm link-distance

To alter the propagation delay component of the cell-transfer delay offered by an interface, use the **atm link-distance** command. To reset the propagation delay to the default value, use the **no** form of this command.

atm link-distance *p-value*

no atm link-distance

Syntax Description

p-value	Specified in units of kilometers, which is then divided by the speed of light in kbps to derive a propagation delay in microseconds (0 to 65535).

Defaults

0

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The cell-transfer delay is used for the resource connection admission control of a CBR or VBR-RT connection.

This resource management command is supported for interface and subinterface configurations, and when interface metrics are provided to PNNI routing.

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.

atm manual-well-known-vc

To create and delete well-known (reserved) PVCs with non-default connection identifiers, or other nondefault parameters, use the **atm manual-well-known-vc** interface configuration command. To reenable the automatic default well-known VC mode, use the **no** form of this command.

atm manual-well-known-vc [**delete** | **keep**]

no atm manual-well-known-vc

Syntax Description

delete	When specified, the existing automatically created VCs are deleted. If well-known VCs exist, you are prompted to confirm that the VC can be automatically deleted. If you reply with **no**, the command stops abruptly.
keep	When specified, the existing automatically created well-known VCs remain in place and appear in the running configuration.

Defaults

The **keep** option becomes the default on existing automatically created VCs when manual mode is entered.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

This command does not apply to the route processor interface (ATM 0).

All interfaces default to the **no** form of this command during initial startup. When this command is in effect, well-known VCs are not automatically created at startup. When this mode is enabled on an interface, the allowed range for VCI values is 5 through 16383, instead of 32 through 16383.

The three additional reserved channel encapsulation types added for the CPU PVCs are QSAAL, PNNI, and ILMI. These specify that the interface is a signalling, PNNI, or ILMI reserved channel.

You must enter the **copy running-config** command using the **startup-config** option to disable the automatic creation of default well-known VCs at system startup.

Although the OAM channels for tunnels are well-known channels (VCI 3 and VCI 4), they are not affected by the **atm manual-well-known-vc** status.

Note You should not change the well-known channels to use a VC where the remote end is sending AAL5 messages not intended for this well-known VC. This means you should not swap VC values between two types of well-known VCs.

When using the **no** form of this command, if there are existing non-default reserved channel VCs for this interface, you are prompted to confirm that the VC can be automatically deleted. (If you enter **no**, the command stops abruptly.) Well-known VCs with default configurations are then automatically created for the interface. The default well-known PVCs are no longer shown as part of the running configuration.

Examples

The following example puts an interface into the manual-well-known-vc mode, deletes the existing default signalling PVC, and then creates a signalling PVC using a VCI value of 7.

```
Switch(config-if)# atm manual-well-known-vc keep
Switch(config-if)# no atm pvc 0 5
Switch(config-if)# atm pvc 0 7 interface atm 0 0 any-vci encap qsaal
```

Related Commands

Command	Description
atm pvc	Used to create a PVC.
copy running-config startup-config	Copies the switch's running configuration file to another destination, and further specifies the configuration used for initialization as the destination of the copy operation.

atm maxvc-number

To configure the maximum number of ATM VCs supported on the ATM interface, use the **atm maxvc-number** interface configuration command. To restore the default value, use the **no** form of this command.

atm maxvc-number *max-vc-num*

no atm maxvc-number

Syntax Description

max-vc-num	Maximum number of supported virtual channels. Configures the maximum number of virtual channels supports (0 to 32768).

Defaults

32768 virtual channels

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Before using this command, the interface must be administratively shut down.

Examples

The following example sets the maximum number of ATM virtual channels supported on interface ATM 0/0/0 to 8000.

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# shutdown
Switch(config-if)# atm maxvc-number 8000
```

Related Commands

Command	Description
atm maxvci-bits	Configures the maximum number of active bits of VCI supported on an ATM interface.
atm pvc	Used to create a PVC
show atm interface	Displays ATM-specific information about an ATM interface.
shutdown (interface)	Cisco IOS command removed from this manual.

atm maxvci-bits

To configure the maximum number of active bits of VCI supported on an ATM interface, use the **atm maxvci-bits** interface configuration command. To restore the default value, use the **no** form of this command.

atm maxvci-bits *max-vci-bits*

no atm maxvci-bits

Syntax Description

max-vci-bits	Maximum number of active bits supported on an ATM interface. Configures the maximum number of VCI bits (0 to 14).

Defaults

14 bits

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Before using the **atm maxvci-bits** command, disable the **atm auto-configuration** command. Refer to "Examples" below.

When the **atm auto-configuration** command is configured, it causes a change in the maximum number of active VCI bits, and ATM signalling and ILMI are restarted automatically on the interface. When ATM signalling is restarted, all switched virtual connections across the interface are cleared; permanent virtual connections are not affected.

Examples

The following example sets the maximum number of active VCI bits to 10 for interface ATM 0/0/0.

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# no atm auto-configuration
Switch(config-if)#
%ATM-6-ILMINOAUTOCFG: ILMI(ATM0/0/0): Auto-configuration is disabled, current interface
parameters will be used at next interface restart.
Switch(config-if)# atm maxvci-bits 10
Switch(config-if)#
%ATM-5-ATMSOFTSTART: Restarting ATM signalling and ILMI on ATM0/0/0.
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm connection-traffic-table-row	Creates a table entry.

Command	Description
atm maxvc-number	Configures the maximum number of ATM VCs supported on the ATM interface.
atm pvc	Used to create a PVC.
show atm interface	Displays ATM-specific information about an ATM interface.

atm maxvp-number

To configure the maximum number of ATM VPs supported on an ATM interface, use the **atm maxvp-number** interface configuration command. To restore the default value, use the **no** form of this command.

atm maxvp-number *max-vp-number*

no atm maxvp-number

Syntax Description

max-vp-number	Configures the maximum number of virtual paths supported: • For the Catalyst 8540 MSR: 0 to 4095 • For the Catalyst 8510 MSR and LightStream 1010: 0 to 255

Defaults

For the Catalyst 8540 MSR: 4095 virtual paths

For the Catalyst 8510 MSR and LightStream 1010: 255 virtual paths

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Examples

The following example sets the maximum number of ATM virtual paths supported on interface ATM 0/0/1 to 128.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm maxvp-number 128
```

Related Commands

Command	Description
atm maxvpi-bits	Configures the maximum number of active VPI bits supported on an ATM interface.
atm pvp	Used to create a PVP.
show atm interface	Displays ATM-specific information about an ATM interface.
shutdown (interface)	Cisco IOS command removed from this manual.

atm maxvpi-bits

To configure the maximum number of active VPI bits supported on an ATM interface, use the **atm maxvpi-bits** interface configuration command. To restore the default value, use the **no** form of this command.

atm maxvpi-bits *max-vpi-bits*

no atm maxvpi-bits

Syntax Description

max-vpi-bits	Configures the maximum number of active VPI bits supported on an ATM interface: • For the Catalyst 8540 MSR: 0 to 12. • For the Catalyst 8510 MSR and LightStream 1010: 0 to 8.

Defaults

8 bits

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Note Before using this command, ILMI autoconfiguration must be disabled. See the **atm auto-configuration** command.

When this command is configured and it causes a change in the maximum number of active VPI bits, ATM signalling and ILMI automatically restart on the interface. When ATM signalling is restarted, all switched virtual connections across the interface are cleared; permanent virtual connections are not affected.

Note Only 6 interfaces per switch module can have the VPI bits set to more than 8 bits. If an interface with more than 8 bits of VPI is removed (for example, a port adapter is hot-swapped), you can set the VPI bits to more than 8 bits on another interface on the same switch module. If, however, you reinstall the original interface (which had more than 8 bits of VPI), it reconfigures back to 8 bits. If this occurs, the VCs with the VPI set to 255 or higher are sent into a NO HW RESOURCES state. To configure this interface back to a VPI of greater than 8, another interface on the same MSC module must be configured to less than 8 bits. To restore the VC from the NO HW RESOURCES state, toggle the interface using the **shut** or **no shut** command. (Catalyst 8540 MSR)

Examples

The following example sets the maximum number of active VPI bits to 6 for interface ATM 0/0/0.

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# no atm auto-configuration
Switch(config-if)#
%ATM-6-ILMINOAUTOCFG: ILMI(ATM0/0/0): Auto-configuration is disabled, current interface
parameters will be used at next interface restart.
Switch(config-if)# atm maxvpi-bits 6
Switch(config-if)#
%ATM-5-ATMSOFTSTART: Restarting ATM signalling and ILMI on ATM0/0/0.
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm connection-traffic-table-row	Creates a table entry.
atm maxvp-number	Configures the maximum number of ATM VPs supported on an ATM interface.
atm pvp	Used to create a PVP.
show atm interface	Displays ATM-specific information about an ATM interface.
show switch fabric (Catalyst 8540 MSR)	Shows the details of the switch fabric for an ATM switch router.

atm mbs-default

To change the default MBS to request for UPC of cells received on the interface for connections that do not individually request an MBS value, use the **atm mbs-default** interface configuration command. To reset the default MBS for a particular service category to the default value, use the **no** form of this command.

atm mbs-default {**vbr-rt** | **vbr-nrt**} *number*

no atm mbs-default {**vbr-rt** | **vbr-nrt**}

Syntax Description

number	A positive integer, in the range of 0 to 2147483647. The MBS is expressed in cells.

Defaults

1024

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

MBS is used to determine the burst tolerance limit parameter used in the GCRA policing algorithm to police SCR.

MBS can be specified for PVCs through a connection traffic table row. If no MBS is specified in the row, then a per-interface, per-service category default MBS is applied for purposes of UPC on the connection. This command allows for changes to the MBS default.

Examples

The following example shows changing the default MBS for received cells on VBR-RT connections.

```
Switch(config-if)# atm mbs-default vbr-rt 4000
```

Related Commands

Command	Description
atm connection-traffic-table-row	Creates a table entry.
show atm vc	Displays the ATM layer connection information about the virtual connection.
show atm vp	Displays the ATM layer connection information about the virtual path.

atm nni

To configure an ATM NNI on the specified physical or logical (VP tunnel) port, use the **atm nni** interface configuration command.

atm nni

Syntax Description

This command has no keywords or arguments.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Note Before using this command, ILMI autoconfiguration must be disabled. See the **atm auto-configuration** command.

When this command is configured and it causes a change in the interface protocol, ATM signalling and ILMI are restarted automatically on the interface. When ATM signalling is restarted, all switched virtual connections across the interface are cleared; permanent virtual connections are not affected.

The PNNI routing and signalling protocol is run over all NNI interfaces, except those interfaces on which signalling was previously disabled (see the **atm signalling enable** command). To configure an IISP interface, use the **atm iisp** command.

The **atm auto-configuration**, **atm iisp**, and **atm nni** commands are mutually exclusive. Configuring the **atm nni** command overwrites any previous configuration of the **atm iisp** command for this interface. Future configuration of the **atm auto-configuration**, and **atm iisp** command on this interface overwrites the **atm nni** command.

Examples

The following example shows configuring an ATM NNI on logical port card 3, subcard 1, and port 3, VPI 99.

```
Switch(config)# interface atm 3/1/3.99
Switch(config-subif)# atm nni
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm iisp	Configures ATM IISP on the specified physical or logical (VP tunnel) port.

Command	Description
atm signalling enable	Enables the signalling and SSCOP on a port.
show atm interface	Displays ATM-specific information about an ATM interface.

atm nsap-address

To configure the NSAP-format ATM end-system address of an ATM interface, use the **atm nsap-address** interface configuration command. To remove any configured NSAP-format address for the interface, use the **no** form of this command.

atm nsap-address *nsap-address*

no atm nsap-address

Syntax Description

nsap-address	A 20-octet NSAP address. Specifies the 40-digit hexadecimal NSAP address of this interface (the source address).

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

This command only applies to the route processor interface and subinterfaces.

The NSAP-format ATM end-system address of an interface is used by static maps (refer to the section "Configuring an SVC-Based Map List" in the *ATM Switch Router Software Configuration Guide*) and by Classical IP over ATM, as defined in RFC 1577 (see the section "Configure Classical IP over ATM in an SVC Environment" in the *ATM Switch Router Software Configuration Guide*).

The NSAP-format ATM end-system address of an interface can be configured using either the **atm esi-address** or the **atm nsap-address** command. Configuring a new address on the interface overwrites the previous address. The **atm esi-address** and **atm nsap-address** commands are mutually exclusive. Configuring the switch with the **atm esi-address** command negates the **atm nsap-address** setting, and vice versa.

NSAP-format ATM end-system addresses have a fixed length of 40 hexadecimal digits. Configure the address using the following dotted format:

```
xx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xx
```

The dots can be omitted.

Note ATM addresses configured using the **atm nsap-address** command are not automatically registered with ATM routing on the switch. In addition to configuring these addresses using the **atm nsap-address** command, the addresses must be configured as static routes on the route processor interface of the ATM switch router.

Examples

The following example shows how to configure the NSAP-format ATM end-system address for interface ATM 0.1.

```
Switch(config)# interface atm 0.1
Switch(config-subif)# atm nsap-address 47.0091.8100.0000.1111.1111.1111.1111.1111.1111.00
Switch(config-subif)# exit
Switch(config)# atm route 47.0091.8100.0000.1111.1111.1111.1111.1111.1111.00 atm0
internal
```

Related Commands

Command	Description
atm esi-address	Enters the end station ID (ESI) and selector byte fields of the ATM NSAP address.
atm nsap-address	Configures the NSAP-format ATM end-system address of an ATM interface.

atm nsap (map-list)

To define an ATM map statement for an SVC, use the **atm-nsap** map-list configuration subcommand in conjunction with the **map-list** global configuration subcommand. To remove the address, use the **no** form of this command.

protocol protocol-address atm-nsap *atm-nsap-address* [**class** *class-name*] [**broadcast**] [**aal5mux**]

no protocol protocol-address atm-nsap *atm-nsap-address* [**class** *class-name*] [**broadcast**] [**aal5mux**]

Syntax Description

protocol	Specified as the keyword **ip**.
protocol-address	Destination address that is being mapped to this SVC.
atm-nsap-address	Destination ATM NSAP address. Must be exactly 40 hexadecimal digits long and in the correct dotted format.
class-name	Name of a table that contains encapsulation-specific parameters. Such a table can be shared between maps that have the same encapsulation.
broadcast	Indicates this map entry is to be used when the corresponding protocol sends broadcast packets to the interface.
aal5mux	Uses **aal5mux** encapsulation. The default is **nsap**.

Defaults

No map statements are defined.

Command Modes

Map-list configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command is required with the **map-list** command when you are configuring an SVC.

Examples

In the following example, a map list named *atmsvc* includes one map statement for a destination address being mapped.

```
Switch(config)# map-list atm 1/0/0
Switch(config-map-list)# map-list atmsvc
ip 172.21.97.17 atm-nsap AB.CDEF.01.234567.890A.BCDE.F012.3456.7890.1234.12 class qos
```

Related Commands

Command	Description
map-list	Defines an ATM map statement for either a PVC or SVC.

atm oam (global)

To configure the OAM, AIS, RDI, and loopback operations and to set the maximum number of OAM connections, use the **atm oam** global configuration command. To disable these operations, use the **no** form of this command.

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atm oam [**ais**] [**end-loopback**] [**max-limit** *number*] [**rdi**] [**seg-loopback**]

no atm oam [**ais**] [**end-loopback**] [**max-limit** *number*] [**rdi**] [**seg-loopback**]

Catalyst 8510 MSR and LightStream 1010

atm oam [**ais**] [**end-loopback**] [**intercept end-to-end**] [**max-limit** *number*] [**rdi**] [**seg-loopback**]

no atm oam [**ais**] [**end-loopback**] [**intercept end-to-end**] [**max-limit** *number*] [**rdi**] [**seg-loopback**]

Syntax Description

ais	AIS operation.
end-loopback	End-to-end OAM loopback.
intercept end-to-end	End-to-end OAM flow intercept. (Catalyst 8510 MSR and LightStream 1010)
max-limit	Maximum number of OAMs supported.
number	Number of maximum OAM-configured connections allowed per switch. The range is 1 to 3200.
rdi	RDI operation.
seg-loopback	Segment loopback.

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command. Originally **atm oam (global)**

Usage Guidelines

To set the maximum number of OAM connections that can be configured per switch, use the **atm oam max-limit** global configuration command.

Examples

The following example globally enables AIS, RDI, and segment loopback operators for all interfaces.

```
Switch(config)# atm oam seg-loopback ais rdi
```

Related Commands

Command	Description
atm oam (interface)	Configures the OAM, AIS, RDI, and loopback modules at the interface level.

atm oam (interface)

To configure the OAM, AIS, RDI, and loopback modules at the interface level, use the **atm oam** interface configuration command. To disable these modules, use the **no** form of this command.

atm oam [**interface atm** *card/subcard/port*[**.***vpt#*]] [*vpi* [*vci*]] [**ais**] [**end-loopback**] [**loopback-timer**] [**max-limit**] [**rdi**] [**seg-loopback**] [**intercept end-to-end**]

no atm oam [**interface atm** *card/subcard/port*[**.***vpt#*]] [*vpi* [*vci*]] [**ais**] [**end-loopback**] [**loopback-timer**] [**max-limit**] [**rdi**] [**seg-loopback**] [**intercept end-to-end**]

Syntax Description

card/subcard/port	Specifies the card, subcard, and port number for the ATM interface.
.*vpt#*	Specifies the virtual path tunnel number for the ATM interface.
vpi	Specifies the virtual path identifier.
vci	Specifies the virtual channel identifier.
ais	AIS operation.
end-loopback	End-to-end OAM loopback.
loopback-timer	OAM loopback transmit timer.
max-limit	Maximum number of OAMs supported.
rdi	RDI operation.
seg-loopback	Segment loopback.
intercept end-to-end	Intercept OAM cells and forward to the ATM switch processor.

Defaults

Default for the **loopback-timer** interval is 5 seconds.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally **atm oam (interface)**

Usage Guidelines

To enable or disable OAM operations on a VP connection, only specify the *vpi* value. To enable or disable VC connections, you must specify both *vpi* and *vci* values.

In interface and subinterface command modes, *vpt* configuration is supported.

Note For the Catalyst 8510 MSR and the LightStream 1010, use the **atm oam loopback-timer** command only with the **seg-loopback** and **end-loopback** keywords.

Examples

The following example enables end-to-end OAM loopback on VPI 50 VCI 100 on ATM 3/0/0.

```
Switch(config)# interface atm 3/0/0
Switch(config-if)# atm oam 50 100 end-loopback
```

The following example enables or disables the OAM, AIS, RDI, and loopback operation to a specified connection.

```
Switch(config-if)# no atm oam 12 100
Switch(config-if)# atm oam 19 rdi
Switch(config-if)# atm oam 100 200 ais rdi
Switch(config-if)# atm oam 34 89 seg-loopback end-to
```

The following example shows changing the loopback timer interval to 10 seconds.

```
Switch(config-if)# atm oam 50 100
Switch(config-if)# atm loopback-timer 10
```

Related Commands

Command	Description
atm oam (global)	Configures the OAM, AIS, RDI, and loopback operations and sets the maximum number of OAM connections.

atm output-queue (Catalyst 8510 MSR and LightStream 1010)

To change the maximum queue size of the output queue, use the **atm output-queue** interface configuration command. To reset the maximum queue size to the default value, use the **no** form of this command.

atm output-queue [**force**] {**cbr** | **vbr-rt** | **vbr-nrt** | **abr-ubr**} **max-size** *number*

no atm output-queue [**force**] {**cbr** | **vbr-rt** | **vbr-nrt** | **abr-ubr**} **max-size**

Syntax Description

force	Forces the change to be made regardless of lost data on the interface queue.
cbr	Specifies the constant bit rate service category parameter.
vbr-rt	Specifies the variable bit rate real-time parameter.
vbr-nrt	Specifies the variable bit rate when the parameter is not real-time.
abr-ubr	Specifies the available to unspecifed bit rate parameters.
max-size	Maximum output queue size per service category.
number	Queue size in cells, from 256 to 65280. For installation in hardware, the number provided is rounded up to the next value available in the hardware. The configured and installed values are both displayed using the **show atm interface** command.

Defaults

Varies by physical interface type, queue, and either **abr-ubr** or **vbr-nrt** queues, and by the OSF value.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally **atm output-queue**
12.0(4a)W5(11a)	Added: (**Catalyst 8510 MSR and LightStream 1010**)

Usage Guidelines

The **force** argument indicates that the change should be made even if it results in losing data on the interface queue (the queue must be momentarily disabled to change the threshold). This command without the **force** argument only changes the threshold if the interface is down. An error message is displayed and the command does not take effect if the interface is up and the **force** argument has not been specified.

Note This command is not supported on systems equipped with the FC-PCQ.

This command does not support subinterface configuration and does not apply to the route processor interface (ATM 0).

On a 25-Mbps port adapter, you can configure the parameters only on physical ports 0 or 6. The following rules apply:

- The parameters configured on port 0 apply to ports 0 through 5.
- The parameters configured on port 6 apply to ports 6 through 11.

Examples

In the following example, the maximum size of the **vbr-nrt** output queue is set to a minimum of 512 cells. This can be set even if the interface is up.

```
Switch(config-if)# atm output-queue force vbr-nrt max-size 512
```

Related Commands

Command	Description
atm pacing	Enables or changes the artificial limitation on interface output rate.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm interface resource	Displays resource management interface configuration status and statistics.

atm output-threshold (Catalyst 8510 MSR and LightStream 1010)

To change the output queue thresholds, use the **atm output-threshold** interface configuration command. To reset the threshold to the default value, use the **no** form of this command.

atm output-threshold {**cbr** | **vbr-rt** | **vbr-nrt** | **abr** | **ubr**} **discard** *disc-thresh-num*
atm output-threshold {**cbr** | **vbr-rt** | **vbr-nrt | abr** | **ubr**} **efci** *efci-thresh-num*
atm output-threshold abr relative-rate *abr-thresh-num*

no atm output-threshold discard *disc-thresh-num*
no atm output-threshold efci *efci-thresh-num*
no atm output-threshold abr relative-rate *abr-thresh-num*

Syntax Description

cbr	Specifies the constant bit rate parameter.
vbr-rt	Specifies the variable bit rate real-time parameter.
vbr-nrt	Specifies the variable bit rate when the parameter is not real-time.
abr	Specifies the available bit rate parameter.
ubr	Specifies the unspecified bit rate parameter.
discard	When a cell arrives at a congested output queue (as indicated by discard-threshold), it is eligible for CLP discard (or EPD if EPD is enabled on the connection).
disc-thresh-num	A number (12, 25, 37, 50, 62, 75, 87, or 100) that indicates the percentage of queue-full. Using 100 disables the threshold.
efci	When cells arrive on connections to a congested (as indicated by **efci** threshold) output queue on the interface, the **efci** bit in the cell header is set.
efci-thresh-num	A number (12, 25, 50, or 100) that indicates the percentage of queue-full. Using 100 disables the threshold.
relative-rate	When a backward RM cell is received on an ABR connection on the interface (from outside the switch), its congestion bit is set if the ABR-UBR interface output queue is congested (as indicated by *abr-thresh-num*).
abr-thresh-num	A number (12, 25, 37, 50, 62, 75, 87, or 100) that indicates the percentage of queue-full. Using 100 disables the threshold.

Defaults

For all service categories, **discard** is 87 percent and **efci** is 25 percent.
The **abr relative-rate** is 25 percent.

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command. Originally **atm output-threshold**
12.0(4a)W5(11a)	Added: (**Catalyst 8510 MSR and LightStream 1010**)

Usage Guidelines

This command does not support subinterface configuration. This command does not apply to the route processor interface (ATM 0).

Note This command is not supported on systems equipped with FC-PCQ.

You can configure the **abr relative-rate** parameter only on physical ports 0 or 6 on a 25-Mbps port adapter. The following rules apply:

- The parameter configured on port 0 applies to ports 0 to 5.
- The parameter configured on port 6 applies to ports 6 to 11.

Examples

In the following example, the discard threshold of the VBR-NRT queue is set to 87 percent of the maximum queue size.

```
Switch(config-if)# atm output-threshold vbr-nrt discard 87
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.

atm over-subscription-factor (Catalyst 8510 MSR and LightStream 1010)

To set the over-subscription factor, use the **atm over-subscription-factor** global configuration command. To restore the default value to the over-subscription factor, use the **no** form of this command.

atm over-subscription-factor *number*

no atm over-subscription-factor

Syntax Description

number	A positive integer from 1 to 32, representing the over-subscription factor.

Defaults

8

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command. Originally **atm over-subscription-factor**
12.0(4a)W5(11a)	Added: (**Catalyst 8510 MSR and LightStream 1010**)

Usage Guidelines

The over-subscription factor number is a positive integer from 1 through 32. Use this command to determine the initial port queue size. The over-subscription factor is used to size the VBR-NRT and ABR/UBR queues.

The resizing of queues can be overridden using the **atm output-queue (Catalyst 8510 MSR and LightStream 1010)** command. Changes to the **atm over-subscription-factor** command only take place during startup.

The sizing of VBR-NRT and ABR UBR queues is determined by the following equations.

```
size (vbr-nrt) = .25 * ((osf * 2048) - DefaultSize (cbr) - DefaultSize (vbr-rt))
size (abr-ubr) = .75 * ((osf * 2048) - DefaultSize (cbr) - DefaultSize (vbr-rt))
```

The default size of the CBR and VBR queues varies by interface type, as defined in Table 2-2.

Table 2-2 Default Maximum Queue Size by Interface Type

Interface Type	Default Max Size CBR Queue	Default Max Size VBR-RT Queue
SONET	256	256
DS3/E3	256	512

Note This command is not supported on systems equipped with FC-PFQ.

Examples

In the following example, the over-subscription factor of the switch is set to 15. To effect this change and resize the UBR and VBR-RT queues, the configuration must be written to NVRAM and the switch must be restarted.

```
Switch(config)# atm over-subscription-factor 15
```

Related Commands

Command	Description
atm output-queue (Catalyst 8510 MSR and LightStream 1010)	Used to change the maximum queue size of the output queue.
show atm resource	Displays global resource manager configuration and status.

atm pacing

To enable or change the artificial limitation on interface output rate, use the **atm pacing** interface configuration command. To disable output pacing, use the **no** form of this command.

atm pacing *r-value* [**force**]

no atm pacing

Syntax Description

r-value	Bit rate expressed in kbps.
force	Forces a change to be made regardless of the results. See "Usage Guidelines."

Defaults

No pacing

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command is only available on systems equipped with the switch processor feature card or on LightStream 1010 not equipped with FC-FCQ.

Note For the Catalyst 8540, this command applies only to port adapters in the carrier module.

This command is not supported for subinterface configuration and does not apply to the route processor interface (ATM 0). You cannot configure this parameter on OC-12 and 25-Mbps ports.

On systems equipped with the switch processor feature card, the pacing value installed cannot be less than the guaranteed bandwidth allocated on the interface, regardless of the value of the **force** argument. The **force** argument indicates that the change should be made even if it results in an output cell-rate that does not provide sufficient bandwidth for guaranteed service on the transmit flow of the interface. An error message is displayed and the command does not take effect if the change impacts guaranteed bandwidth, and the **force** argument is not present.

Note The granularity of the pacing rate provided by the hardware varies with the size of the bit rate requested. The value entered by the user is rounded up to the closest value available for installation in the hardware. Both the configured and installed values are displayed with the **show ima interface** command.

Examples

In the following example, the transmit cell rate of the interface is limited to the closest value possible in hardware, greater than 30,000 kbps. If the amount of bandwidth allocated to CBR and VBR connections in the transmit direction on the interface is greater than 30,000 kbps, the command fails.

```
Switch(config)# interface atm 3/0/0
Switch(config-if)# atm pacing 30000
```

Related Commands

Command	Description
show ima interface	Displays the IMA interface, IMA group, and ATM layer hardware configuration.

atm pnni admin-weight

To specify the administrative weight of the ATM PNNI interface, use the **atm pnni admin-weight** interface configuration command. To return to the default values, use the **no** form of this command.

atm pnni admin-weight *number traffic-class*

no atm pnni admin-weight *traffic-class*

Syntax Description

number	The administrative weight value assigned to the interface (1 to 1000000). Refer to the **administrative-weight** command for default values.
traffic-class	The service-category keywords for traffic class are **cbr**, **vbr-rt**, **vbr-nrt**, **abr**, **ubr**, or **all**.

Defaults

Determined by the mode set by the **administrative-weight** command.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

This command does not apply to the ATM 0 interface and applies only to the NNI interface.

Use this command to manually set the administrative weight of an interface. Changing the administrative weight of an interface to a larger value might cause calls to be routed away from the interface.

Related Commands

Command	Description
administrative-weight	Configures the mode of default administrative weight assignment for PNNI interfaces.
show atm pnni interface	Displays specific information about an interface and lists the interfaces running on a PNNI node.

atm pnni aggregation-token

To specify the aggregation token for a PNNI interface, use the **atm pnni aggregation-token** PNNI interface configuration command.

atm pnni aggregation-token *value*

Syntax Description

value	The aggregation token on this interface, in the range of 0 to 4294967295.

Defaults

0

Command Modes

PNNI interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Aggregation tokens are used to determine the grouping of links that are summarized to higher levels of the PNNI hierarchy. All lower-level links with the same aggregation token between a pair of peer groups will be treated as a single aggregated link at the parent node level.

In the default case, all parallel links between two peer groups are aggregated with aggregation token 0.

Examples

The following example shows how to set the aggregation token on ATM interface 1/0/0.

```
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm pnni aggregation-token 100
```

Related Commands

Command	Description
aggregation-mode	Specifies the mode that is used to calculate the combined metrics from multiple lower-level PNNI links into individual aggregated links to be advertised by this node.
show atm pnni aggregation link	Displays the aggregated PNNI links on the switch.
show atm pnni aggregation node	Displays the PNNI nodal aggregation tables for a complex node.

atm pnni explicit-path

To enter PNNI explicit path configuration mode to create or modify PNNI explicit paths, use the **atm pnni explicit-path** command from global configuration mode. Use the **no** form of this command to delete the explicit path and all associated explicit path segments.

atm pnni explicit-path {**identifier** *path-id-number* [**name** *path-name*] | **name** *path-name*} [**enable** | **disable**]

no atm pnni explicit-path {**identifier** *path-id-number* [**name** *path-name*] | **name** *path-name*}

Syntax Description

identifier *path-id-number*	Path ID number of the explicit path.
name *path-name*	Path name of the path for the explicit path. If you specify the **identifier** first, you can assign or modify its path name.
enable	Enables the explicit path to be used for routing any soft connections that reference it.
disable	Prevents the explicit path from being used for routing any soft connections that reference it.

Defaults

Enabled

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use this command to manually configure either a fully-specified or a partially-constrained path for routing a standard soft VC or soft VP connection or a Frame Relay soft VC.

Creating Explicit Path Entries

Once you are in PNNI explicit path configuration mode, there are several commands that you can use to create and edit an ordered list of path entries. Refer to the following commands for more information on creating the individual path entries:

- **exclude-node**
- **next-node**
- **segment-target**

Editing and Deleting Explicit Path Entries

Each explicit path has entries with indexes that give it a relative position within the list. Use these indexes to edit an explicit path. After each entry is added, the entire current list is displayed.

Use the following keywords to edit, add an entry to, or delete an entry from an explicit path:

- Use the **index** keyword to specify the index of the entry to be edited. If no index is specified for a new entry, it always defaults to one higher than the last path entry. If the index specified matches the index of an existing entry, the index is overwritten with new information.
- Use the **append-after** keyword to insert a path entry after the specified index. The path entries that follow are renumbered to make room for the new entry.
- Use the **no** form of the command to delete an existing index or entry for a specific explicit path.
- Use the **list** keyword to display the entire current list.

Use the following syntax to edit, add an entry to, or delete an entry from any explicit path:

atm pnni explicit-path {**identifier** *path-id-number* [**name** *path-name*] | **name** *path-name*}

[**no**] [**index** ***index-number*** | **append-after** ***index-number***] **list**

Examples

The following example shows how to enter PNNI explicit path configuration mode from global configuration mode, for a path named *boston_2.path1*.

```
Switch(config)# atm pnni explicit-path name boston_2.path1
Switch(cfg-pnni-expl-path)#
```

Once in PNNI explicit path configuration mode, the following example shows how to configure the explicit path boston_2.path1 with four entries and then exit explicit path configuration mode:

- The first entry configures the dallas_2 node.
- The second entry configures the dallas_4 node, which is adjacent to dallas_2. For the dallas_4 node, an exit port is specified.
- The third entry configures a partially specified segment to the node chicago_2 (which is several hops away).
- The fourth entry configures a higher-level LGN node adjacent to chicago_2, which is specified by its 15-byte node-ID prefix.

```
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)# segment-target chicago_2
Switch(cfg-pnni-expl-path)# next-node 40:72:47.009181000000106000000000
Switch(cfg-pnni-expl-path)# end
Switch#
```

The following example shows how to reenter PNNI explicit path configuration mode for a path named *new_york.path1* and list the current path.

```
Switch(config)# atm pnni explicit-path name new_york.path1
Switch(cfg-pnni-expl-path)# list
Explicit_path name new_york.path1 (id 5) from node dallas_1:
1 next-node dallas_2
2 next-node dallas_4 port 80003004
3 segment   chicago_2
4 next-node new_york
```

Examples

The following example shows how to modify the first entry to add an exit port, using the **index** keyword to specify the index of the entry to be modified.

```
Switch(cfg-pnni-expl-path)# index 1 next-node dallas_2 port 80000000
Explicit_path name new_york.path1 (id 5) from node dallas_1:
1 next-node dallas_2 port 80000000
2 next-node dallas_4 port 80003004
3 segment   chicago_2
4 next-node 40:72:47.009181000000106000000000.
```

The following example shows how to use the **append-after** keyword to add a new entry into an explicit path list.

If the explicit path has four **next-node** entries labelled as index 1 through 4, use the **append-after** keyword to add a new entry after index 2, which results in index 3. The remaining two entries are automatically renumbered to index 4 and 5 to accommodate the newly added index 3.

```
Switch(cfg-pnni-expl-path)# append 2 next-node st_louis
Explicit_path name new_york.path1 (id 5) from node dallas_1:
1 next-node dallas_2 port 80000000
2 next-node dallas_4 port 80003004
3 next-node st_louis
4 segment   chicago_2
5 next-node 40:72:47.009181000000106000000000.
```

Related Commands

Command	Description
atm soft-vc	Used to create a soft PVC on the switch.
atm soft-vp	Used to create a soft PVP on the switch.
exclude-node	Specifies a node to exclude from all segments of a partially specified ATM PNNI explicit path.
frame-relay soft-vc	Creates Frame Relay soft PVCs on the switch.
next-node	Specifies the next adjacent entry in a fully-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.

atm pnni link-selection

To configure a method for selecting a link out of multiple links to the same neighbor, use the **atm pnni link-selection** interface configuration command. To return to the default value, use the **no** form of this command.

atm pnni link-selection {**cbr | vbr-rt | vbr-nrt | abr | ubr | all**}{**admin-weight-minimize** | **blocking-minimize** | **transmit-speed-maximize | load-balance** | alternate}

no atm pnni link-selection {**cbr | vbr-rt | vbr-nrt | abr | ubr | all**}

Syntax Description

cbr	Constant bit rate service category.
vbr-rt	Variable bit rate real-time service category.
vbr-nrt	Variable bit rate non-real-time service category.
abr	Available bit rate service category.
ubr	Unspecified bit rate service category.
all	All service categories.
admin-weight-minimize	Transmits a call on the interface with the lowest administrative weight.
blocking-minimize	Minimizes subsequent call blocking.
transmit-speed-maximize	Transmits calls on the highest-speed parallel link.
load-balance	Balances calls across parallel links.
alternate	Selects an alternate link that is used only when all other, nonalternate, links are either down or full.

Defaults

blocking-minimize is the default link selection for **cbr, vbr-rt,** and **vbr-nrt** service categories.

load-balance is the default link selection for **abr** and **ubr** service categories.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

This command does not apply to the ATM 0 interface.

Link selection applies whenever the port specified in the DTL is zero and there are multiple interfaces to the next node.

When multiple parallel “alternate” links are considered during call setup, the load-balance link selection is applied to these parallel links. The alternate configuration on some links does not modify the link selection for non-alternate parallel links.

When multiple parallel links are configured inconsistently, the order of precedence of configured values is **admin-weight-minimize**, **blocking-minimize**, **transmit-speed-maximize**, and **load-balance**. For example, if any link is configured as **admin-weight-minimize**, that becomes the link selection criteria for the entire group.

Examples

The following example shows how to configure link selection on ATM interface 0/0/0 with a VPR-NRT service category and in transmit speed maximize mode:

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# atm pnni link-selection vbr-nrt transmit-speed-maximize
```

The following example shows how to configure link selection on ATM interface 0/0/0 with a CBR service category, and then designate the link as an alternate:

```
Switch(config)# interface atm 0/0/0
Switch(config-if)# atm pnni link-selection cbr alternate
```

Related Commands

Command	Description
show atm pnni neighbor	Displays the PNNI neighboring peers for a switch.

atm pnni mobile

Use the **atm pnni mobile** command to specify a PNNI interface node as mobile in a mobile network.

atm pnni mobile

no atm pnni mobile

Syntax Description

None

Defaults

Interface is not mobile.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(6)	New command

Usage Guidelines

Applies to interfaces on mobile switches (border nodes in a mobile network). A mobile interface (or link) is a wireless (physical or virtual path) connection between two switches, at least one of which is mobile.

Use the **atm pnni mobile** command to enable a mobile border switch to advertise an outside nodal hierarchy list to its peer group. Without advertising, a mobile network cannot join a host peer group.

Examples

The following example shows how to specify an interface as mobile.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm pnni mobile
```

Related Commands

Command	Description
atm address	Used to assign a 20-byte ATM address to the switch router.
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	Sends an error notification if mobile PNNI problems are detected and the **debug atm pnni mobility** command is enabled.
node	Creates, enables or disables switch nodes as well as specifies or changes node level.

Command	Description
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.

atm pnni node

To specify which PNNI node in the switch router runs on an interface when the interface runs PNNI, use the **atm pnni node** interface configuration command. To return to the default value, use the **no** form of this command.

atm pnni node *node-index*

no atm pnni node

Syntax Description

node-index	An integer, from 1 through 255, identifying a PNNI node running on this switch. Currently only a single lowest-level node with node index 1 is supported.

Defaults

Node index 1

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

This command does not apply to the ATM 0 interface.

Currently node index 1 is the only valid value. Refer to the **node** command for more information.

By default, PNNI node 1 automatically runs on all PNNI interfaces.

This command does not turn PNNI on or off for this interface. See the **atm auto-configuration** command and the **atm nni** commands for more information on the interface type.

Examples

The following example shows how to configure a PNNI node index on ATM interface 1/0/0.

```
Switch# configure terminal
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm pnni node 1
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
atm nni	Configures an ATM NNI on the specified physical or logical (VP tunnel) port.

Command	Description
node	Used to create, delete, enable, or disable PNNI nodes running on this switch and to specify or change the level of a node.
show atm pnni interface	Displays specific information about an interface and lists the interfaces running on a PNNI node.

atm pnni nodal-hierarchy-list highest-level

Specifies the highest level of PNNI hierarchy to be advertised in the outside nodal hierarchy list.

atm pnni nodal-hierarchy-list highest-level *level*

no atm pnni nodal-hierarchy-list highest-level *level*

Syntax Description

level	An integer from 0 to 104, identifying where an outside nodal hierarchy list is truncated.

Defaults

Default is zero, the highest PNNIlevel possible. Using the default, the outside nodal hierarchy list will not be truncated, allowing attached mobile networks to see all network levels of a fixed network.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(6)	New command

Usage Guidelines

An access point switch is a border switch in a fixed network that has the capacity to establish a wireless connection with a mobile network.

Use the **atm pnni nodal-hierarchy-list highest-level** command in conjunction with an access point switch interface connected to a mobile network. This command sets the highest level advertised in the outside nodal hierarchy list by the access point switch. A mobile network cannot access any hierarchy level higher than the advertised level because it cannot see it. Using this command prevents mobile networks from connecting at higher than wanted levels to a fixed network and/or offers protection against badly configured networks.

Examples

The following example shows how to specify the highest outside nodal hierarchy level for an interface.

```
Switch(config)# interface atm 0/0/1
Switch(config - if)# atm pnni nodal-hierarchy-list highest-level 48
```

Related Commandsi

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 router pnni	Used to enter PNNI configuration mode.
debug atm pnni mobility	Prints an error notification if mobile PNNI problems are detected and the **debug atm pnni mobility** command is enabled.

Command	Description
node	Creates, enables, or disables switch nodes as well as specifies or changes node level.
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.

atm prefix

To configure an ILMI address prefix for an ATM interface, use the **atm prefix** interface configuration command. To delete a configured ILMI address prefix, use the **no** form of this command.

atm prefix *13-byte-prefix*

no atm prefix

Syntax Description

13-byte-prefix	A 13-byte ATM address prefix, specified as 26 hexadecimal digits.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

This command is used to assign one or more address prefixes to a specific interface that is different from any prefixes based on the switch addresses (see the **atm address** command). ILMI assigns the prefix to end systems attached to this interface. These prefixes are used as network prefixes during ILMI address registration.

Whenever one or more ILMI address prefix is assigned on an interface, no network prefixes derived from the switch address are used for address registration on that interface.

Examples

The following example shows how to configure an ILMI address prefix on interface ATM 3/1/0.

```
Switch(config)# interface atm 3/1/0
Switch(config-if)# atm prefix 47123456789012345678112233
```

Related Commands

Command	Description
atm address	Assigns a 20-byte ATM address to the switch.
show atm addresses	Displays the active ATM addresses on a switch.
show atm ilmi-status	Displays the ILMI-related status information.

atm pvc

To create a PVC, use the **atm pvc** interface configuration command. To create a PVCC, use the long form of the **atm pvc** command. To create a PVCL, use the short form of the **atm pvc** command. To remove the specified PVC, use the **no** form of this command.

atm pvc *vpi-A* [*vci-A* | **any-vci**] [**cast-type** *type-A*] [**upc** *upc-A*] [**pd** *pd*] [**rx-cttr** *index*] [**tx-cttr** *index*] [**wrr-weight** *weight*] **interface atm** *card-B*/*subcard-B*/*port-B*[**.***vpt #*] *vpi-B* [*vci-B* | **any-vci**] [**cast-type** *type-B*] [**upc** *upc-B*] [**encap** *aal-encap*] [**inarp** *minutes*] [**wrr-weight** *weight*]

atm pvc *vpi vci* [**cast-type** *type*] [**upc** *upc*] [**pd** *pd*] [**rx-cttr** *index*] [**tx-cttr** *index*] [**wrr-weight** *weight*]

no atm pvc *vpi vci*

Syntax Description

any-vci	Selects any available VCI. This feature only applies to the route processor interface (ATM 0).
vpi	VPI of this PVC, from 0 to 4095 for the Catalyst 8540 MSR, or 0 to 255 for the Catalyst 8510 MSR and LightStream 1010. The VPI is a 12-bit field in the Catalyst 8540 MSR, or an 8-bit field in the Catalyst 8510 MSR and LightStream 1010 in the header of the ATM cell. The VPI value is unique only on an interface, not throughout the ATM network (it has local significance only).
vci	VCI of this PVC. The range is normally 32 to 16383, but can be expanded from 5 to 16383 in manual-well-known-vc mode. The VCI is a 16-bit field in the header of the ATM cell. The VCI value is unique only on a single interface, not throughout the ATM network (it has local significance only).
type	The type of PVC, specified as **p2p**, **p2mp-root**, or **p2mp-leaf**. The default is **p2p**.
pd	Specifies the intelligent packet discard option as **on** or **off**. The default is **off**.
vpt #	Specifies the virtual path tunnel number.
encap	AAL and encapsulation type and applies only to terminating connections. When **aal5mux** is specified, a protocol is required. Possible values are as follows: • **aal5lane**—A LANE-type virtual connection. • **aal5mux decnet**—A MUX-type virtual connection. • **aal5snap**—LLC/SNAP precedes the protocol datagram. This is the only encapsulation supported for Inverse ARP. • **ilmi**—Specifies the ILMI control VC when in manual-well-known-vc mode only. • **pnni**—Specifies the PNNI control VC when in manual-well-known-vc mode only. • **qsaal**—Specifies the signalling control VC when in manual-well-known-vc mode only.

upc	Usage parameter control, specified as **pass**, **tag**, or **drop**; the default is **pass**. The *upc* parameter can be set to **tag** or **drop** only under the following conditions: • The ATM interface is not the route processor port (ATM 0) or a logical port (VP tunnel). • The connection is not the leaf of a point-to-multipoint connection.
rx-cttr	Connection traffic table row index in the received direction. The connection traffic table row should be configured before using the **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **rx-cttr** parameter. The default is 1.
tx-cttr	Connection traffic table row index in the transmitted direction. The connection traffic table row should be configured before using the **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **tx-cttr** parameter. The default is 1.
card/subcard/port	Card, subcard, and port number for the ATM interface.
inarp *minutes*	Specifies how often Inverse ARP datagrams are sent on this virtual connection and applies only to terminating connections. The default value is 15 minutes.
weight	Specifies the weight assigned to the output VC for weighted round robin scheduling. This value is an integer in the range of 1 to 15. **Note** This parameter is valid only on systems equipped with the switch processor feature card. (Catalyst 8540 MSR and Catalyst 8510 MSR and LightStream 1010 with FC-PFQ)

Defaults

See "Syntax Description."

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

The commands are used to create or delete the following types of ATM connections on a switch.

- Transit point-to-point PVCC
- Transit point-to-multipoint PVCC
- Point-to-point PVCL
- Point-to-multipoint PVCL
- Point-to-point PVC connection terminated at route processor (terminating VC)
- Point-to-multipoint PVC connection terminated at route processor (terminating VC)

When setting UBR connections the **tx-cttr** and **rx-cttr** fields are not needed, but these fields are required when setting up a CBR, VBR, or ABR connection. Refer to the **atm connection-traffic-table-row** command for information on configuring in the connection traffic table specified by index.

Examples

Catalyst 8540 MSR

The following example shows how to configure a terminating PVC between interface ATM 3/1/1 and the route processor port.

```
Switch(config)# interface atm 0
Switch(config-if)# atm pvc 0 any-vci interface atm 3/1/1 0 100
```

The following example shows how to set up a UBR PVC connection between interface ATM 3/0/0 and 3/0/1 with a VPI of 0 and a VCI of 40.

```
Switch(config)# interface atm 3/0/0
Switch(config-if)# atm pvc 0 40 interface atm 3/0/1 0 40
```

The following example shows a display using the **encap** variable.

```
Switch(config-if)# atm pvc 100 200 interface atm 0 0 344 encap ?
aal5lane AAL5+LANE Encapsulation
aal5mux   AAL5+MUX Encapsulation
aal5snap AAL5+LLC/SNAP Encapsulation
```

The following example shows how to establish a PVC between a logical interface (VP tunnel) on ATM 3/1/1.99 and ATM 3/0/0.

```
Switch(config)# interface atm 3/1/1.99
Switch(config-subif)# atm pvc 99 100 interface atm 3/0/0 0 89
```

The following example shows how to use the **show atm vc** command to display all VCs on an interface. The `Encap` column is displayed only on systems equipped with the switch processor feature card.

```
Switch# show atm vc interface atm 0/0/1.51
Interface    VPI   VCI   Type    X-Interface  X-VPI X-VCI  Encap Status
ATM0/0/1.51  51    3      PVC     ATM2/0/0     0     75    SNAP   DOWN
ATM0/0/1.51  51    4      PVC     ATM2/0/0     0     76    SNAP   DOWN
ATM0/0/1.51  51    5      PVC     ATM2/0/0     0     74    QSAAL  DOWN
ATM0/0/1.51  51    16     PVC     ATM2/0/0     0     73    ILMI   DOWN
```

The following example shows how to use the **show atm vc** command to display detailed information about a specific connection on a system equipped with the switch processor feature card.

```
Switch# show atm vc interface atm 0/0/1.51 51 16
Interface: ATM0/0/1.51, Type: oc3suni
VPI = 51  VCI = 16
Status: DOWN
Time-since-last-status-change: 2w0d
Connection-type: PVC
Cast-type: point-to-point
Packet-discard-option: enabled
Usage-Parameter-Control (UPC): pass
Wrr weight: 32
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states:  Not-applicable
Cross-connect-interface: ATM2/0/0, Type: ATM Swi/Proc
Cross-connect-VPI = 0
Cross-connect-VCI = 73
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state:  Not-applicable
Encapsulation: AAL5ILMI
Threshold Group: 6, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0,  Tx Clp1: 0
Rx Clp0:0,  Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0
Rx pkts:0, Rx pkt drops:0
Rx connection-traffic-table-index: 6
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 424
Rx scr-clp01: none
Rx mcr-clp01: none
Rx      cdvt: 1024 (from default for interface)
Rx       mbs: none
Tx connection-traffic-table-index: 6
Tx service-category: UBR (Unspecified Bit Rate)
Tx pcr-clp01: 424
Tx scr-clp01: none
Tx mcr-clp01: none
Tx      cdvt: none
Tx       mbs: none
No AAL5 connection registered
```

The following example shows how to delete the previously configured ATM transit point-to-point PVC.

```
Switch(config-if)# interface atm 1/1/1
Switch(config-if)# no atm pvc 50 100
```

Examples

Catalyst 8510 MSR and LightStream 1010

The following example shows how to use the **show atm vc** command to display detailed information about a specific connection on a system equipped with the FC-PCQ.

```
Switch# show atm vc interface atm 0/1/0 1 10

Interface: ATM0/1/0, Type: oc3suni
VPI = 1  VCI = 100
Status: UP
Time-since-last-status-change: 00:00:08
Connection-type: PVC
Cast-type: point-to-point
Packet-discard-option: disabled
Usage-Parameter-Control (UPC): pass
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states:  Not-applicable
Cross-connect-interface: ATM0/1/3, Type: oc3suni
Cross-connect-VPI = 1
Cross-connect-VCI = 100
Cross-connect-UPC: pass
Cross-connect OAM-configuration: disabled
Cross-connect OAM-state:  Not-applicable
Rx cells: 0, Tx cells: 0
Rx connection-traffic-table-index: 1
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 7113539
Rx scr-clp01: none
Rx tolerance: 0 (from default for interface)
Tx connection-traffic-table-index: 1
Tx service-category: UBR (Unspecified Bit Rate)
Tx pcr-clp01: 7113539
Tx scr-clp01: none
Tx tolerance: none
```

Related Commands

Command	Description
atm connection-traffic-table-row	Used to create a table entry.
atm pvp	Used to create a PVP.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm vc	Displays the ATM layer connection information about the virtual connection.

atm pvp

To create a PVP, use the **atm pvp** interface configuration command. To create a PVPC, use the long form of the **atm pvp** command. To create a PVPL, use the short form of the **atm pvp** command. To remove the specified PVP, use the **no** form of this command.

atm pvp *vpi-A* [**cast-type** *type-A*] [**upc** *upc-A*] [**rx-cttr** *index*] [**tx-cttr** *index*] [**wrr-weight** *weight*] **interface atm** *card-B/subcard-B/port-B vpi-B* [**cast-type** *type-B*] [**upc** *upc-B*] [**wrr-weight** *weight*]

atm pvp *vpi* [**cast-type** *type*] [**hierarchical** | **shaped**] [**upc** *upc*] [**rx-cttr** *index*] [**tx-cttr** *index*] [**wrr-weight** *weight*]

no atm pvp *vpi*

Syntax Description

vpi	• Catalyst 8540 MSR: VPI of this PVP, from 1 to 4095. The VPI is a 12-bit field in the header of the ATM cell. • Catalyst 8510 MSR and LightStream 1010: VPI of this PVP from 1 to 255. The VPI is an 8-bit field in the header of the ATM cell. The VPI value is unique only on a single interface, not throughout the ATM network. It has local significance only.
type	Specified as **p2p**, **p2mp-root**, or **p2mp-leaf**. The default is **p2p**.
upc	Usage parameter control, specified as **pass**, **tag**, or **drop**. The default is **pass**. The *upc* variable can be set to **tag** or **drop** only under the following conditions: • The ATM interface is not the route processor port (ATM 0) or a logical port (VP tunnel). • The connection is not the leaf of a point-to-multipoint connection.
hierarchical	Defines a hierarchical VP tunnel. See "Usage Guidelines" for limitations. The PVP is a VP tunnel that should use hardware shaping of the aggregate transmit flow of cells. Only CBR PVPs can be hierarchical VP tunnels. Hierarchical VP tunnels can support transit VCs of all service categories at the same time.
rx-cttr	Connection traffic table row index in the received direction. The connection traffic table row should be configured before using the **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **rx-cttr** parameter. The default is 1.
shaped	The PVP is a VP tunnel that should use hardware shaping of the aggregate transmit flow of cells. Only CBR PVPs can be shaped VP tunnels.
tx-cttr	Connection traffic table row index in the transmitted direction. The connection traffic table row should be configured before using **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **tx-cttr** parameter. The default is 1.
card/subcard/port	Card, subcard, and port number for the ATM interface.
weight	Specifies the weight assigned to the output VP for weighted round-robin scheduling. This value is an integer in the range of 1 to 15. This parameter is valid only on systems equipped with the switch processor feature card.

Defaults See "Syntax Description."

Command Modes Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

Catalyst 8540 MSR

When the PVP is specified as shaped or hierarchical, it must subsequently be used as a VP tunnel (via the **interface** command). Only CBR VPs can be used for shaped or hierarchical tunnels. A shaped or hierarchical PVP cannot be cross-connected.

Note Shaped and hierarchical tunnels are only supported on systems with FC-PFQ installed. The **atm pvp** command does not apply to the route processor port or logical port (VP tunnel).

The commands are used to create or delete the following types of ATM connections on a switch:

- Transit point-to-point PVPC
- Transit point-to-multipoint PVPC
- Point-to-point PVPL
- Point-to-multipoint PVPL

Hierarchical VP tunnels can only be defined on slots 0, 2, 8, and 11.

The maximum number of hierarchical VP tunnels that can be supported on the ATM switch router varies from 120 to 240, depending on the port adapter type installed.

If the ATM switch router is entirely populated with LightStream 1010 port adapters installed in carrier modules, hierarchical VP-tunnels can be defined on the following ports, for a total of 120 defined hierarchical VP-tunnels.

- 0/*subcard*/*port* (30 maximum)
- 2/*subcard*/*port* (30 maximum)
- 8/*subcard*/*port* (30 maximum)
- 11/*subcard*/*port* (30 maximum)

If the ATM switch router is entirely populated with OC-12 SuperPAMs, hierarchical VP tunnels can be defined on the following ports, for a total of 240 defined hierarchical VP-tunnels.

- 0/0/0 and 1 (30 maximum)
- 0/0/2 and 3 (30 maximum)
- 2/0/0 and 1 (30 maximum)
- 2/0/2 and 3 (30 maximum)
- 8/0/0 and 1 (30 maximum)
- 8/0/2 and 3 (30 maximum)

- 11/0/0 and 1 (30 maximum)
- 11/0/2 and 3 (30 maximum)

For a total of 240 defined hierarchical VP-tunnels.

Any physical port with one or more hierarchical VP tunnels defined cannot have any other VCs or VPs (signalled or permanent) defined on that port (except well-known VCs).

Conversely, to define a hierarchical VP tunnel on a port, all existing VCs or VPs on that port must be removed.

Tag switching must not be configured on a port that has hierarchical VP tunnels defined.

Note You must enable the hierarchical VP tunnel feature on the ATM switch router before configuring hierarchical VP tunnels on an interface. See the **atm idle-timeout** command for configuration information.

Before physically removing a port adapter from the chassis with hierarchical VP tunnels defined, all defined hierarchical VP tunnels must be deleted, unless an identical port adapter is plugged back in. If you do not do this, the hardware schedulers allocated for these hierarchical tunnels remain allocated and cannot be used by any other port.

Usage Guidelines

Catalyst 8510 MSR and LightStream 1010

When the PVP is specified as shaped or hierarchical, it must subsequently be used as a VP tunnel (via the **interface** command). Only CBR VPs can be used for shaped or hierarchical tunnels. A shaped or hierarchical PVP cannot be cross-connected.

Note Shaped and hierarchical tunnels are only supported on systems with FC-PFQ installed. The **atm pvp** command does not apply to the route processor port or logical port (VP tunnel).

The commands are used to create or delete the following types of ATM connections on a switch:

- Transit point-to-point PVPC
- Transit point-to-multipoint PVPC
- Point-to-point PVPL
- Point-to-multipoint PVPL

ATM switch routers equipped with ASP-B and feature card version FC-PFQ can have hierarchical VP tunnels defined on the following ports:

0/0/*port* and 3/0/*port* (30 maximum)

0/1/*port* and 3/1/*port* (32 maximum)

ATM switch routers equipped with ASP-C and feature card version FC-PFQ can have hierarchical VP-tunnels defined on the following ports:

- 0/*subcard*/*port* (30 maximum)
- 3/*subcard*/*port* (32 maximum)

Any physical port with one or more hierarchical VP tunnels defined cannot have any other VCs or VPs (signalled or permanent) defined on that port (except well-known VCs).

Conversely, to define a hierarchical VP tunnel on a port, all existing VCs or VPs on that port must be removed.

Tag switching must not be configured on a port that has hierarchical VP tunnels defined.

Note You must enable the hierarchical VP tunnel feature on the ATM switch router before configuring hierarchical VP tunnels on an interface. See the **atm idle-timeout** command for configuration information.

Before you physically remove a port adapter from the chassis with hierarchical VP tunnels defined, we strongly recommended that all defined hierarchical VP tunnels be deleted, unless an identical port adapter is plugged back in. If you do not do this, the hardware schedulers allocated for these hierarchical tunnels remain allocated and cannot be used by any other port.

Examples

The following example shows how to configure an ATM PVP from ATM 3/1/1 to ATM 3/1/2.

```
Switch(config)# interface atm 3/1/1
Switch(config-if)# atm pvp 99 upc drop rx-cttr 37 tx-cttr 37 interface atm 3/1/1 88 upc
tag
```

The following example shows how to use the **show atm vp** command to display details about the ATM interface 3/1/1 for VPI 99 using the switch processor feature card.

```
Switch# show atm vp interface atm 3/1/1 99
Interface: ATM3/1/1, Type: ds3suni_Quad
VPI = 99
Status: TUNNEL
Time-since-last-status-change: 03:22:05
Connection-type: PVP
Cast-type: point-to-point
Usage-Parameter-Control (UPC): pass
Wrr weight: 32
Number of OAM-configured connections: 0
OAM-configuration: disabled
OAM-states:  Not-applicable
Threshold Group: 5, Cells queued: 0
Rx cells: 0, Tx cells: 0
Tx Clp0:0,  Tx Clp1: 0
Rx Clp0:0,  Rx Clp1: 0
Rx Upc Violations:0, Rx cell drops:0
Rx Clp0 q full drops:0, Rx Clp1 qthresh drops:0
Rx connection-traffic-table-index: 1
Rx service-category: UBR (Unspecified Bit Rate)
Rx pcr-clp01: 7113539
Rx scr-clp01: none
Rx mcr-clp01: none
Rx tolerance: 1024 (from default for interface)
Tx connection-traffic-table-index: 1
Tx service-category: UBR (Unspecified Bit Rate)
Tx pcr-clp01: 7113539
Tx scr-clp01: none
Tx mcr-clp01: none
Tx tolerance: none
```

To create a VP tunnel on a physical interface, enter the interface configuration mode for the switch, then specify the PVP and create the tunnel. The following example shows the commands used to create a tunnel on ATM 0/0/1.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm pvp 51
Switch(config-if)# interface atm 0/0/1.51
```

The following example shows how to use the **show atm interface** command to display the interface information about ATM 0/0/1.51 using the switch processor feature card.

```
Switch# show atm interface atm 0/0/1.51
Interface:      ATM0/0/1.51     Port-type:      vp tunnel
IF Status:      DOWN            Admin Status:   down
Auto-config:    enabled         AutoCfgState:   waiting for response from peer
IF-Side:        Network         IF-type:        UNI
Uni-type:       Private         Uni-version:    V3.0
Max-VPI-bits:   0               Max-VCI-bits:   14
Max-VP:         0               Max-VC:         16383
ConfMaxSvpcVpi: 0               CurrMaxSvpcVpi: 0
ConfMaxSvccVpi: 0               CurrMaxSvccVpi: 0
ConfMinSvccVci: 33              CurrMinSvccVci: 33
Signalling:     Enabled
ATM Address for Soft VC: 47.0091.8100.0000.0040.0b0a.2a81.4000.0c80.0010.33
Configured virtual links:
  PVCLs SoftVCLs   SVCLs   TVCLs Total-Cfgd Inst-Conns
      4        0       0       0          4          0
```

To create a hierarchical VP tunnel on a physical interface, enter the interface configuration mode for the switch, then specify the PVP and create the tunnel. The following example shows the commands used to create a hierarchical VP tunnel on ATM 0/0/0.10.

```
Switch(config-if)# atm pvp 10 hierarchical rx-cttr 2 tx-cttr 2
Switch(config-if)# interface atm 0/0/0.10
```

Related Commands

Command	Description
atm connection-traffic-table-row	Used to create a table entry.
atm pvc	Used to create a PVC.
show atm interface	Displays ATM-specific information about an ATM interface.
show atm vp	Displays the ATM layer connection information about the virtual path.

atm qos default

To change individual QoS objectives assigned to SVC setup messages entering the switch through UNI interfaces, use the **atm qos default** global configuration command. To return all objective values for a service category to the default, use the **no** form of this command.

atm qos default {**cbr** | **vbr-rt**} **max-cell-transfer-delay** {*microseconds* | **any**}

atm qos default {**cbr** | **vbr-rt**} **peak-to-peak-cell-delay-variation** {*microseconds* | **any**}

atm qos default {**cbr** | **vbr-rt** | **vbr-nrt**} **max-cell-loss-ratio** [**clp0** | **clp1plus0**] {*loss-ratio exponent* | **any**}

no atm qos default {**cbr** | **vbr-rt** | **vbr-nrt**}

Syntax Description

microseconds	Integer number, which represents time in microseconds, in the range of 0 through 16777214.
loss-ratio exponent	Positive integer in the range of 1 through 15. This represents $10^{-(\text{loss-ratio})}$.
any	Indicates that the QoS value is not considered in the setup of the connection.

Defaults

any

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command. Originally **uni3 default**
11.2(5)	Changed to present name.

Usage Guidelines

This command changes the individual QoS objectives used in establishing CBR or VBR SVCs. The QoS objectives are as follows:

- Maximum cell-transfer-delay (MaxCTD)
- Peak-to-Peak cell-delay-variation (PPCDV)
- Cell-loss-ratio for CLP = 0 traffic (CLR0)
- Cell-loss-ratio for CLP=0 and CLP=1 traffic (CLR01)

These objectives can be set differently for each of the three service categories: CBR, VBR-RT, and VBR-NRT (VBR-NRT only uses CLR0 and CLR01). All UNI SVC requests received for a particular service category use the configured values. These objectives are signalled across a continuous sequence of PNNI hops, starting at the source switch.

When **max-cell-loss-ratio** is specified, and the **clp0** or **clp1plus0** value is not configured, the default is CLP=0.

Examples

In the following example, the **cbr** MaxCTD objective is set to 1000 microseconds.

```
Switch(config)# atm qos default cbr max-cell-transfer-delay 1000
```

Related Commands

Command	Description
show atm resource	Displays the ATM layer connection information about the virtual path.

atm rmon collect

To add a port to an ATM-RMON MIB port select group, use the **atm rmon collect** interface configuration command. To disable ATM-RMON collection, use the **no** form of this command.

atm rmon collect *number*

no atm rmon collect

Syntax Description

number	Specifies the port select group number, from 1 to 2147483647.

Defaults

Disabled

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

This command allows references to a nonexistent port select group. You cannot reference an active port select group. However, you can access the group if RMON collection is disabled using the **no** form of the **atm rmon collect** command.

Note Collection must be disabled with the **no atm rmon enable** command before using the **no** form of this command.

Currently, this command is not allowed on logical ports (VP tunnel).

Examples

The following example shows setting the port select group number to 1000.

```
Switch(config)# atm rmon enable
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm rmon collect 1000
```

Related Commands

Command	Description
atm rmon enable	Enables ATM-RMON MIB data collection.
interface	Configures an interface type and enters interface configuration mode.
show atm rmon	Shows the status of the ATM RMON MIB.

atm rmon enable

To enable ATM-RMON MIB data collection, use the **atm rmon enable** global configuration command. To stop data collection for all fully configured port select groups, use the **no** form of this command.

atm rmon enable

no atm rmon enable

Syntax Description

This command has no keywords or arguments.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Using this command causes dynamic data pools to be allocated and data collection to begin in the background. This command also propagates signalling information to the RMON agent.

When using the **no** form of this command, all control tables are preserved; however, the drop, insert, and delete counters are cleared, and all data tables are removed.

Related Commands

Command	Description
show atm rmon	Shows the status of the ATM RMON MIB.

atm rmon portselgrp

To configure statics, host, and matrix collection parameters for ATM-RMON MIB, use the **atm rmon portselgrp** global configuration command. To remove data to a configured port select group, use the **no** form of this command.

atm rmon portselgrp *number* [**descr** *string* | **host-prio** *number* | **host-scope** *number* | **matrix-prio** *number* | **matrix-scope** *number* | **maxhost** *number* | **maxmatrix** | **nostats** | **owner** *string*]

no atm rmon portselgrp *number*

Syntax Description

number	Specifies the number of the port select group, from 1 to 2147483647.
descr	Specifies the descriptive label for the ATM-RMON collection.
host-prio	Specifies the host collection resource priority from 1 to 3. Use 1 for low, 2 for normal, and 3 for high. The default is 2.
host-scope	Specifies the host collection address collection scope from 1 to 3. Use 1 for prefix, 2 for prefix and esi, and 3 for the entire address. The default is 2.
matrix-prio	Specifies the matrix collection resource priority from 1 to 3. Use 1 for low, 2 for normal, and 3 for high. The default is 2.
matrix-scope	Specifies the matrix collection address collection scope from 1 to 3. Use 1 for prefix, 2 for prefix and esi, and 3 for the entire address. The default is 2.
maxhost	Specifies the maximum desired host entries, from 0 to 4294967295. Use 0 to disable, or omit the number to indicate no configuration limit.
maxmatrix	Specifies the maximum desired matrix entries from 0 to 4294967295. Use 0 to disable, or omit the number to indicate no configuration limit.
nostats	Suppresses the collection of the atmStatsTable for this group.
owner	Specifies the owner for all the control tables used by the ATM-RMON collection (portSelGrpOwner, atmHostControlOwner, or atmMatrixControlOwner). The default is an empty string.

Defaults

See "Syntax Description."

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

To use this command, configure the ports into port select groups using the **atm rmon collect** interface configuration command.

Examples

The following example shows configuring the port select group, and sets the **maxhost** to 1000 and the **matrix-scope** to 3.

```
Switch(config-if)# atm rmon collect 3
Switch(config-if)# exit
Switch(config)# atm rmon portselgrp 3 maxhost 1000 matrix-scope 3
```

Related Commands

Command	Description
atm rmon collect	Adds a port to an ATM-RMON MIB port select group.
show atm rmon	Shows the status of the ATM RMON MIB.

atm route

To specify a static route to a reachable address prefix, use the **atm route** global configuration command. To delete a static route, use the **no** form of this command.

atm route *addr-prefix type card/subcard/port*[**.***vpt#*] [**internal**] [**scope** *org-scope*] [**e164-address** *address-string* [**number type** *numtype*]] [**aesa-gateway** *aesa-address*]

no atm route *addr-prefix type card/subcard/port*[**.***vpt#*] [**internal**] [**scope** *org-scope*] [**e164-address** *address-string* [**number type** *numtype*]] [**aesa-gateway** *aesa-address*]

Syntax Description

addr-prefix	Specifies the address prefix. The address prefix has a maximum length of 19 bytes. By default, each character in the prefix is 4 bits long. To specify a part of a prefix in bits, use parentheses () to enclose binary numbers. The asterisk (*) wildcard character means "neutral." Wildcard character ellipses (...) after a prefix match any destination address that starts with the prefix.
type	Specifies the interface type as **atm**, **atm-p**, **cbr**, **ethernet**, **loopback**, **null**, **serial** or **tunnel**.
card/subcard/port	Identifies the card, subcard, and port number for the interface.
.*vpt#*	Specifies an interface that represents a virtual path tunnel.
internal	Specifies an internal static route to an internal reachable address prefix. By default, an exterior static route to an exterior reachable address prefix is created.
org-scope	Specifies the organizational **scope** (for example, UNI scope) value for the route. The valid range of organizational scope values is from local (1) to global (15). The default organizational scope is global (15) for individual addresses and local (1) for group addresses.
e164-address	Associates a forwarding E.164 address with the static route.
address-string	Specifies a forwarding native E.164 address, used when a call matching the ATM address prefix is forwarded across the specified interface. The E.164 address consists of 7 to 15 decimal characters.
numtype	Specifies a number from the following four options: **international**, **national**, **subscriber**, and **local**.
aesa-gateway	Associates a forwarding AESA with the static route.
aesa-address	Specifies a forwarding AESA; used when a call matching the ATM address prefix is forwarded across the specified interface.

Defaults

See "Syntax Description."

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The internal keyword should be used when a static route is configured to an address prefix representing an attached end system (for example, in place of an ILMI address registration).

The type of static route should be exterior, and the **internal** keyword should not be present when a static route is configured to an address prefix representing end systems attached to a different switch or network.

The **scope** keyword value translates to a PNNI level according to the PNNI scope map. Refer to the **scope map** and **scope mode** commands for more information.

When the **e164-address** option is included, the specified *address-string* is passed on as the called party address. The received called party address is passed on as the called party subaddress, the E.164 address of this interface (configured using the **atm e164 address** command) is passed on as the calling party address, and the received calling party address (if any) is passed on as the calling party subaddress.

If no **e164-address** is specified, the received called party address and calling party address are passed on unchanged.

When the **aesa-gateway** option is included, the specified AESA address is passed on as the called party address. The received called party address is passed on as the called party subaddress. The AESA gateway address of this interface (configured using the **atm aesa gateway** command) is passed on as the calling party address. The received calling party address (if any) is passed on as the calling party subaddress.

Examples

The following example shows how to configure a static route on interface ATM 1/2/1 to the address prefix 47.8 of 12 bits in length.

```
Switch(config)# atm route 47.8... atm 1/2/1
```

The following example shows how to configure a static route on interface ATM 1/2/1 to the address prefix 47.88 of 14 bits in length.

```
Switch(config)# atm route 47.8(10*)... atm 1/2/1
```

The following example shows how to configure a static route on ATM 0/0/0 with a forwarding E.164 address.

```
Switch(config)# atm route 1234 atm 0/0/0 e164-address 1234567
```

The following example shows how to configure a static route with a forwarding AESA gateway address.

```
Switch(config)# atm route 1234 atm 0/0/0 aesa-gateway
92.999999999999999999999999.222222222222.00
```

Related Commands

Command	Description
atm aesa gateway	Configures an AESA gateway address on an ATM switch interface that connects to a service provider maintaining a separate ATM addressing plan.
atm e164 address	Configures the native E.164 address of an ATM interface.
redistribute	Instructs the PNNI to redistribute static routes throughout the PNNI routing domain.
scope map	Specifies the mapping from a range of organizational scope values.
scope mode	Specifies the configuration mode of the mapping from organizational scope values (used at UNI interfaces) to PNNI scope (such as in terms of PNNI routing-level indicators).

Command	Description
show atm pnni aesa embedded-number	Shows the E.164 AESAs with the E.164 AFI to the left-justified encoding format.
show atm route	Displays all local or network-wide reachable address prefixes in this switch router's ATM routing table.

atm route-optimization (EXEC)

To initiate route optimization immediately for a specific interface or specific soft VC, use the **atm route-optimization** EXEC command.

atm route-optimization soft-connection interface {**atm** *card/subcard/port* [*vpi* [*vci*]] | **serial** *card*/*subcard*/*port***:***cgn* [*dlci*]}

Syntax Description

card/subcard/port	Specifies the card, subcard, and port number of a specific ATM interface.
vpi	Specifies the virtual path identifier.
vci	Specifies the virtual channel identifier.
*card/subcard/port**:**cgn*	Specifies the card, subcard, port and channel-group number for the Frame Relay interface.
dlci	For a Frame Relay interface, if a DLCI is not specified, this command sets optimization for the specified Frame Relay interface. If a DLCI is specified, this command sets optimization for a specific Frame Relay interworking soft VC.

Command Modes

EXEC

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

If you do not specify the VPI and VCI, this command sets optimization for a specific interface. If you specify the VPI and VCI, this command sets optimization for a specific soft VC.

Note The **atm route-optimization (EXEC)** command must be entered on the same interface where the soft PVCs or PVPs are configured. Route optimization only works for the source end of a soft PVC or PVP, and is ignored if entered on the destination interface.

Examples

The following example shows how to initiate ATM route optimization on a soft VC at ATM interface 1/0/0 100 250.

```
Switch# atm route-optimization soft-connection interface atm 1/0/0 100 250
```

The following example shows how to initiate ATM route optimization on a soft VC at serial interface 1/0/3:3 DLCI 248.

```
Switch# atm route-optimization soft-connection interface serial 1/0/3:1 248
```

Related Commands

Command	Description
atm route-optimization (interface)	Enables and configures soft PVC route optimization on an ATM interface.
atm route-optimization percentage-threshold	Specifies the percentage reduction in the administrative weight of the existing path required to trigger route optimization.

atm route-optimization (interface)

To enable and configure soft PVC route optimization on an ATM interface, use the **atm route-optimization** interface configuration command. To disable this feature, use the **no** form of this command.

atm route-optimization soft-connection [**interva**l *minutes*] [**time-of-day** {**anytime** | *start-time end-time*}]

no atm route-optimization soft-connection

Syntax Description

interval *minutes*	Specifies the frequency of route optimization in minutes. The range is 10 to 10000. The default is 60 minutes.
time-of-day	Specifies the 24-hour time range when route optimization can occur. The default is **anytime**.
anytime	Route optimization can occur at any time during the day.
start-time	Specifies the start of the time range when route optimization is allowed, in 24-hour format (*hh:mm*).
end-time	Specifies the end of the time range when route optimization is allowed, in 24-hour format (*hh:mm*).

Defaults

For **interval**: 60 minutes
For **time-of-day**: **anytime**

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

Use this command to enable and configure soft PVC route optimization to determine when a better route is found. You can also reconfigure the old route after you perform this configuration.

Note The **atm route-optimization (interface)** command must be entered on the same interface where the soft PVCs or PVPs are configured. Route optimization only works for the source end of a soft PVC or PVP and is ignored if entered on the destination interface.

The **time-of-day** parameter is used as a filter to determine if route optimization is acceptable when the interval timer activates.

To ensure that route optimization takes place at least once a day, set the interval to a smaller value than the time range. After route-optimization starts, it runs until it is finished regardless of the time range. All connections on this interface subject to route optimization are checked to see if better paths exist. When better paths are found, the connections are rerouted.

Note The **atm route-optimization (interface)** command can also be used to configure route optimization for Frame Relay interfaces.

Examples

The following example enables soft PVC route optimization on interface ATM 0/1/2, with the time period of 120 minutes.

```
Switch(config)# interface atm 0/1/2
Switch(config-if)# atm route-optimization soft-connection interval 120
```

The following example configures a soft PVC with route optimization interval configured as every 30 minutes between the hours of 6:00 p.m. and 5:00 a.m.

```
Switch(config)# interface serial 11/0/0:1
Switch(config-if)# atm route-optimization soft-connection interval 30 time-of-day 18:00
5:00
```

Related Commands

Command	Description
atm route-optimization (EXEC)	Initiates route optimization immediately for a specific interface or specific soft VC.
atm route-optimization percentage-threshold	Specifies the percentage reduction in the administrative weight of the existing path required to trigger route optimization.
show atm interface	Displays ATM-specific information about an ATM interface.
show running-config	Displays the configuration information currently running on the terminal.

atm route-optimization percentage-threshold

To specify the percentage reduction in the administrative weight of the existing path required to trigger route optimization, use the **atm route-optimization percentage-threshold** global configuration command. To set the threshold to the default value, use the **no** form of this command.

atm route-optimization percentage-threshold *percent*

no atm route-optimization percentage-threshold

Syntax Description

percent	Specifies the route optimization threshold in percent, from 5 to 100.

Defaults

30

Command Modes

Global configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

When route optimization is enabled and the threshold is exceeded, the existing path is partially torn down and a new path is established. Currently route optimization is only supported for soft PVCs and soft PVPs.

Smaller values lead to greater network efficiency, at the expense of an increased amount of calls subject to rerouting.

Examples

The following example shows setting the route optimization threshold to 20 percent.

```
Switch(config)# atm route-optimization percentage-threshold 20
```

Related Commands

Command	Description
atm route-optimization (EXEC)	Initiates route optimization immediately for a specific interface or specific soft VC.

atm router pnni

To enter the PNNI configuration mode, use the **atm router pnni** global configuration command. To exit from the PNNI configuration mode, use the **no** form of this command.

atm router pnni

no atm router pnni

Syntax Description

This command has no arguments or keywords.

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

Use this command to start global PNNI configuration mode.

Examples

The following example shows using the **atm router pnni** global configuration command to change to ATM router PNNI configuration mode.

```
Switch(config)# atm router pnni
Switch(config-atm-router)#
```

Related Commands

Command	Description
show atm pnni local-node	Displays information about a PNNI logical node running on the switch.

atm routing-mode

To restrict the mode of ATM routing on an ATM switch router, use the **atm routing-mode** global configuration command. To remove all restrictions on ATM routing, use the **no** form of this command.

atm routing-mode static

no atm routing-mode static

Syntax Description

static	Restricts ATM routing to allow only static configuration of ATM routes. In this routing mode, the switch does not run any dynamic ATM routing protocols, such as PNNI routing.

Defaults

Disabled (no restrictions on ATM routing)

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command takes effect on the next reboot.

Switch behavior in static routing mode is analogous to that of the LightStream 1010 default IISP software images of Cisco IOS Release 11.1. Without any restrictions on the routing mode, PNNI functionality is available on all interfaces.

This command differs from deletion of all PNNI nodes (using the **node** command) because it affects ILMI autoconfiguration. When the switch is in static routing mode, for each interface, the ILMI variable *atmfAtmLayerNniSigVersion* for the switch is set to **iisp**. This causes ILMI autoconfiguration on interfaces between two switches to determine an interface type of IISP, unless the switch on the other side indicates that the NNI signalling protocol is not supported.

Examples

The following example shows configuration of a switch to allow only static routing.

```
Switch(config)# atm routing-mode static
```

Related Commands

Command	Description
atm auto-configuration	Used to enable or disable ILMI autoconfiguration.
node	Used to create, delete, enable, or disable PNNI nodes running on this switch and to specify or change the level of a node.

atm service-category-limit (Catalyst 8510 MSR and LightStream 1010)

To set the limits on the number of cells simultaneously allowed in the switch memory by type of output queue, use the **atm service-category-limit** global configuration command. To restore the default value of 64544, use the **no** form of this command.

atm service-category-limit {**cbr** | **vbr-rt** | **vbr-nrt** | **abr-ubr**} *number*

no atm service-category-limit {**cbr** | **vbr-rt** | **vbr-nrt** | **abr-ubr**}

Syntax Description

number	Integer in the range of 0 to 64544, expressed as number of cells.

Defaults

64544

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command
12.0(4a)W5(11a)	Added: (**Catalyst 8510 MSR and LightStream 1010**)

Usage Guidelines

The **no** form of this command applies to all service categories.

Note This command is not supported on systems equipped with the FC-PFQ.

Caution Setting a **service-category-limit** to 0 causes the connection requests for the associated service categories to be rejected.

Examples

In the following example, the maximum number of **abr** and **ubr** cells allowed into the switch fabric at one time is limited to 45000.

```
Switch(config)# atm service-category-limit abr-ubr 45000
```

Related Commands

Command	Description
show atm resource	Displays the ATM layer connection information about the virtual path.

atm service-class

To specify the weighting for each service class for physical interfaces or for a hierarchical VP tunnel, use the **atm service-class** interface configuration command. To return the weight of the specified class to its default (See tables below), use the **no** form of this command.

To specify the weighting for each service class for physical interfaces or for a hierarchical VP tunnel, use the **atm service-class** interface configuration command. To return the weight of the specified class to its default, use the **no** form of the **atm service-class** command. This command supports both the ATM Forum service categories and the TBR service classes on physical interfaces, as shown in Table 2-3.

Table 2-3 ATM Forum Service Classes and Tag Bit Rate Service Classes for Physical Interfaces

ATM Forum Service Classes	ATM Forum Service Categories	Tag Bit Rate	Service Classes
2	VBR-RT	1	TBR class 1
3	VBR-NRT	6	TBR class 2
4	ABR	7	TBR class 3
5	UBR	8	TBR class 4

To specify the weighting of each service class for a physical interface, use the following syntax:

atm service-class {**1** | **2** | **3** | **4** | **5** | **6** | **7** | **8**} **wrr-weight** *weight*

To cancel WRR scheduling or to set weights to their defaults, use the **no** form of the command.

no atm service-class [1 | **2** | **3** | **4** | **5** | **6** | **7** | **8**] **wrr-weight** *weight*

For hierarchical VP tunnels, this command supports either the ATM Forum service categories or the TBR service classes, as shown in Table 2-4.

Table 2-4 ATM Forum Service Classes and Tag Bit Rate Service Classes for Hierarchical VP Tunnels

ATM Forum Service Classes	ATM Forum Service Categories	Tag Bit Rate	Service Classes
1	VBR-RT	1	TBR class 1
2	VBR-NRT	2	TBR class 2
3	ABR	3	TBR class 3
4	UBR	4	TBR class 4

To specify the weighting for each service class for a hierarchical VP tunnel, use the following syntax:

atm service-class {**1 | 2** | **3** | **4**} **wrr-weight** *weight*

To cancel WRR scheduling or to set weights to their defaults, use the **no** form of the command.

no atm service-class {**1 | 2** | **3** | **4**} **wrr-weight** *weight*

Syntax Description

1-8	ATM Forum service classes or tag bit rate service classes. Refer to Table 2-5 for service classes 1 to 8 for physical interfaces. Refer to Table 2-4 for service classes 1 to 4 for hierarchical VP tunnels.
wrr-weight *weight*	Integer in the range of 1 to 15.

Defaults

Table 2-5 lists the service classes and the default class weights for physical interfaces and hierarchical VP tunnels.

Table 2-5 Service Classes and Default Class Weights for Physical Interfaces and Hierarchical VP Tunnels

Physical Interfaces		Hierarchical VP Tunnels		
Service Class	**Default Class Weight**	**Service Class**	**Default Class Weight for ATM Forum Service Classes**	**Default Class Weight for Tag Bit Rate Service Classes**
1	1	1	8	1
2	8	2	1	2
3	1	3	1	3
4	1	4	1	4
5	1	–	–	–
6	2	–	–	–
7	3	–	–	–
8	4	–	–	–

Command Modes

Interface configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

If **wrr-weight** is not specified, the default weight applies. The **no** form of the command returns the weight of the specified class to its default.

Note This command is available only on systems equipped with the FC-PFQ.

Examples

In the following example, ATM interface 2/0/1 is configured for service class 3 with a WRR weight of 8.

```
Switch(config)# interface atm 2/0/1
Switch(config-if)# atm service-class 3 wrr-weight 8
```

Related Commands

Command	Description
show atm interface resource	Displays resource management interface configuration status and statistics.

atm signalling cug access

To restrict access to and from a closed user group, use the **atm signalling cug access** interface configuration command. To disable this feature, use the **no** form of this command.

atm signalling cug access [**permit-unknown-cugs** {**to-user** | **from-user** p**ermanent** | **both-directions permanent**}]

no atm signalling cug access

Syntax Description

permit-unknown-cugs	Permits calls between users attached to this interface and unknown users that are not members of the CUGs on this interface.
to-user	Applies to calls going from the network to the user.
from-user	Applies to calls going from the user to the network.
both-directions	Applies to calls going from the network to the user, and to calls going from the user to the network.
permanent	Indicates that **permit-unknown-cugs** applies to all calls from users to the network, regardless of whether the call setup asked for the permission or not.

Defaults

No incoming or outgoing access allowed. An interface is not considered to be a CUG access interface unless this command is configured. If the keywords **permit-unknown-cugs** are not specified, calls to or from unknown CUGs are denied. When a CUG call goes out, and the destination is not in the same CUG, the call is rejected at the destination switch.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

CUG procedures are invoked on the interface only if the interface is configured as an access interface. No CUG configuration applies until this command is configured.

Transmission and reception of CUG interlock codes is not allowed over access interfaces. All interfaces leading outside of the network should be configured as access interfaces, ensuring that all CUG interlock codes are generated and used only within this network.

Note Interfaces to other networks should be configured as CUG access interfaces, even if no CUGs are configured on the interface. In this case, if you want to exchange SVCs with the neighbor network, **permit-unknown-cugs both-directions permanent** should be configured.

Table 2-6 describes the relationship between the Cisco CUG access terminology and ITU-T CUG access terminology.

Table 2-6 CUG Access Terminology and ITU-T CUG Access Terminology

ITU-T CUG	Cisco CUG
incoming access allowed to-user	**permit-unknown-cugs**
outgoing access allowed from-user	**permit-unknown-cugs**

Examples

The following example shows configuration as a CUG access interface that allows calls from unknown CUGs.

```
Switch(config)# interface atm 2/0/1
Switch(config-if)# atm signalling cug access permit-unknown-cugs to-user
```

Related Commands

Command	Description
atm signalling cug assign	Assigns a CUG to an interface.
show atm signalling cug	Displays all configured CUGs.

atm signalling cug alias

To create a CUG alias, use the **atm signalling cug alias** global configuration command. To delete the alias, use the **no** form of this command.

atm signalling cug alias *alias-name* **interlock-code** *interlock-code*

no atm signalling cug alias *alias-name*

Syntax Description

alias-name	The name of the alias.
interlock-code	The 24-byte interlock code, specified as a string of 48 hexadecimal digits.

Defaults

No alias name is defined.

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

Use this command to configure an alias for the interlock codes. The alias can be used while configuring CUGs on the interface.

An alias can be defined for each CUG interlock code used on the switch. Using an alias simplifies configuration of a CUG on multiple interfaces. When the alias is used, it removes the need to specify the 48-hexadecimal digit CUG interlock code on each interface attached to a CUG member.

Examples

The following example shows how to create the **switch_cug** CUG alias with the 24-bite interlock code.

```
Switch(config)# atm signalling cug alias switch_cug interlock-code
47.009181000000000061705BDA01.0061705BDA01.00.12345678
```

Related Commands

Command	Description
atm signalling cug assign	Assigns a CUG to an interface.

atm signalling cug assign

To assign a CUG to an interface, use the **atm signalling cug assign** interface configuration command. To disable this feature, use the **no** form of this command.

atm signalling cug assign {**alias** *name* | **interlock-code** *string*} [**deny-same-cug** {**to-user** | **from-user**}] [**preferential**]

no atm signalling cug assign {**alias** *name* **|** **interlock-code** *string*}

Syntax Description

alias	The *name* of the alias for the 24-byte CUG interlock code.
interlock-code	The 24-byte interlock code, specified as a *string* of 48 hexadecimal digits.
deny-same-cug	Deny calls to or from other members of the same CUG. Use with the **to-user** or **from-user** keywords.
to-user	Deny calls to the user from members of the same CUG.
from-user	Deny calls from the user to members of the same CUG.
preferential	The preferential CUG is the default CUG associated with calls from the user to the network. If a preferential CUG already exists, this command is rejected.

Defaults

If **deny-same-cugs** is not specified, calls to or from other members of the same CUG are permitted. If **preferential** is not specified, the CUG is assigned as a non-preferential CUG.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

Each access interface can be configured to have one or more CUGs associated with it. Only one CUG can be selected as the preferential CUG. Calls received from users attached to this interface can only be associated with the preferential CUG. Calls directed to users attached to this interface can be accepted, based on membership in any of the CUGs configured on this interface.

CUG service can be configured without any preferential CUG. If no preferential CUG is configured on the interface, and calls are permitted from users attached to this interface to unknown users, the calls proceed as non-CUG calls, without generating any CUG IE.

Note The CUGs assigned to this interface take effect only when the interface is configured as an access interface (see the **atm signalling cug access** command for additional information).

Table 2-7 describes the relationship between the Cisco CUG terminology and the ITU-T CUG terminology.

Table 2-7 ITU-T CUG Terminology and Cisco Terminology

ITU-T CUG Terminology	Cisco Terminology
preferential CUG	**preferential**
incoming calls barred (ICB)	**deny-same-cug to-user**
outgoing calls barred (OCB)	**deny-same-cug from-user**

Examples

The following example shows assignment of the redefined CUG switch router as the preferential CUG on the interface to ATM 2/0/1.

```
Switch(config)# interface atm 2/0/1
Switch(config-if)# atm signalling cug assign alias switch_cug preferential
```

Related Commands

Command	Description
atm signalling cug access	Restricts access to and from a closed user group.
atm signalling cug alias	Used to create a CUG alias.
show atm signalling cug	Displays all configured CUGs.

atm signalling diagnostics

To create a filter table for signalling diagnostics, use the **atm signalling diagnostics** global configuration command. To disable signalling diagnostics, use the **no** form of this command.

atm signalling diagnostics {*index* | **enable**}

no atm signalling diagnostics {*index* | **enable**}

Syntax Description

index	Specifies the diagnostics index number for the filter table, from 1 to 50, and enters the diagnostics configuration mode.
enable	Enables signalling diagnostics globally.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

ATM signalling diagnostics is a tool for troubleshooting call failures in the ATM network, and should not be enabled while the switch is operating.

Note The **atm signalling diagnostics** global configuration command changes the configuration mode to ATM signalling diagnostics, and the new prompt appears:
`Switch(cfg-atmsig-diag)#`

Examples

The following example shows creating filter table 1.

```
Switch(config)# atm signalling diagnostics 1
Switch(cfg-atmsig-diag)#
```

Related Commands

Command	Description
age-timer	Cisco IOS command removed from this manual.
calling-address-mask	Configures the address mask for identifying valid bits of the called NSAP address field.
called-nsap-address	Configures the NSAP-format ATM address for the signalling diagnostics filter entry.
cast-type	Filters ATM signalling call failures by connection type (point-to-point or point-to-multipoint).

Command	Description
clear-cause	Configures the release cause code value in the signalling diagnostics filter table entry.
connection-category	Used to filter ATM signalling call failures by virtual circuit category.
ima active-links-minimum	Configures the minimum active links for an IMA group to function.
max-records	Configures the maximum number of records to be collected for a particular signalling diagnostics filter table entry.
outgoing-port	Filters ATM signalling call failure based on the outgoing interface rejected call.
purge	Cisco IOS command removed from this manual.
scope	Filters ATM signalling call failures that occur within the switch router and on other switch routers.
segment-target	Specifies a target entry in a partially specified PNNI explicit-path.
status	Configures the status of this filter table entry.

atm signalling enable

To enable the signalling and SSCOP on a port, use the **atm signalling enable** interface configuration command. To disable signalling and SSCOP on a port, use the **no** form of this command.

atm signalling enable

no atm signalling enable

Syntax Description

This command has no arguments or keywords.

Defaults

Enabled

Command Modes

Interface configuration

Command History

Release	Modification
11.2(5)	New command

Usage Guidelines

ILMI is automatically restarted whenever signalling is enabled or disabled. This command, when used to disable signalling on a PNNI interface, disables both PNNI routing and PNNI signalling.

Note This command does not apply to the route processor interface.

Examples

The following example shows how to disable signalling on ATM 0/1/2.

```
Switch(config)# interface atm 0/1/2
Switch(config-if)# no atm signalling enable
Switch(config-if)#
%ATM-5-ATMSOFTSTART: Restarting ATM signalling and ILMI on ATM0/1/2.
```

Related Commands

Command	Description
show atm interface	Displays ATM-specific information about an ATM interface.

atm signalling ie aal5 mode

To allow the mode field in AAL5 IEs to be added when using UNI 3.0, use the **atm signalling ie aal5 mode** interface configuration command. To disable this feature, use the **no** form of this command.

atm signalling ie aal5 mode {**stream** | **message**}

no atm signalling ie aal5 mode

Syntax Description

stream	Streaming mode.
message	Message mode.

Defaults

Message mode is passed in UNI 3.0 AAL5 information elements.

Command Modes

Interface configuration

Command History

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

Usage Guidelines

The **atm signalling ie aal5 mode** interface configuration command allows you to fill in the mode field in AAL5 IEs when using UNI 3.0.

The AAL5 IE has a mode field in UNI version 3.0. This mode field was removed in UNI version 3.1. When a setup request arrives from a UNI 3.1 side connection, the AAL5 IE does not have the mode information. Some vendor switches and end systems reject the connection because the mode information is missing. To allow interoperability, this **atm signalling ie aal5 mode** interface configuration command allows, by default, a message mode field to be added statically on UNI 3.0 side connections even if one was not received from the other side, for example, from a UNI 3.1 connection.

Examples

The following example configures, in interface configuration mode, ATM interface 1/0/0 signalling IEs in AAL5 to include a mode field configured as message.

```
Switch(config)# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm signalling ie aal5 mode message
Switch(config-if)# ^Z
Switch#
```

Related Commands

Command	Description
show running-config	Displays the configuration information currently running on the terminal.

atm signalling ie forward

To specify which signalling IEs are forwarded from the calling party to the called party, use the **atm signalling ie forward** interface configuration command. To stop the transfer of information, use the **no** form of this command.

atm signalling ie forward {**all** | **calling-number** | **calling-subaddress** | **called-subaddress** | **higher-layer-info** | **lower-layer-info** | **bli-repeat-ind** | **aal-info** | **unknown-ie**}

no atm signalling ie forward

Syntax Description

all	Forward all signalling information from the calling party to the called party.
calling-number	Forward the calling party's number to the called party.
calling-subaddress	Forward the calling party's subaddress to the called party.
called-subaddress	Forward the called party's subaddress to the calling party.
higher-layer-info	Forward the broadband higher-layer information element from the calling party to the called party.
lower-layer-info	Forward the broadband lower-layer information element from the calling party to the called party.
bli-repeat-ind	Forward the broadband lower-layer repeat indicator information element to the called party.
aal-info	Forward the AAL information element from the calling party to the called party.
unknown-ie	Forward the unknown information element in the absence of a known indicator.

Defaults

Forward all IEs in the signalling message from the calling party to the called party.

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

When the action indicator in the IE is not set to indicate what action should be taken when an **unknown-ie** is received, the appropriate action is taken, depending upon whether the **unknown-ie** is enabled or disabled. If the action indicator is set, then the **unknown-ie** configuration is ignored.

Examples

The following example shows how to forward the calling party's number to the called party.

```
Switch(config)# interface atm 0/1/2
Switch(config-if)# atm signalling ie forward calling-number
```

atm signalling vpci

To specify the value of VPCI to be carried in the signalling messages within a VP tunnel, use the **atm signalling vpci** subinterface configuration command. To use the default configuration, use the **no** form of this command.

atm signalling vpci *vpci_number*

no atm signalling vpci

Syntax Description

vpci_number	VPCI number 0 to 255.

Defaults

Use the value of VPI on which the subinterface is established. By default, the VPCI is the same as the VPI on the ATM switch router.

Command Modes

Subinterface configuration

Command History

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

Usage Guidelines

The **atm signalling vpci** subinterface command allows you to configure the VPCI to be different from VPI when configuring PVP tunnels.

The connection identifier IE is used in signalling messages to identify the corresponding user information flow. The connection identifier IE contains the VPCI and VCI.

For example, if you want to configure a PVP tunnel connection from a LightStream 1010 ATM switch on VPI 2, VCI X, to a router with a virtual path switch in between, the signalling message would contain connection ID VPI 2, VCI X. Since the PVP tunnel at the router end is on VPI 3, VCI X, the connection will be refused. By configuring VPCI to 3, you can configure the signalling message explicitly to contain connection ID VPI 3, VCI X, instead of containing VPI 2, VCI X.

This command could also be used to support virtual UNI connections.

Examples

The following example configures a PVP tunnel on ATM interface 0/0/0, PVP 99, and then configures the connection ID VCPI as 0 in subinterface configuration mode.

```
Switch(config)# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)# interface atm 1/0/0
Switch(config-if)# atm pvp 99
Switch(config-if)# exit
Switch(config)# interface atm 1/0/0.99
Switch(config-subif)# atm signalling vpci 0
Switch(config-subif)# end
Switch#
```

Related Commands

Command	Description
show running-config	Displays the configuration information currently running on the terminal.

atm snoop

To set the current port snooping configuration and actual register values for the highest ATM interface, use the **atm snoop interface atm** interface configuration command.

atm snoop interface atm *card/subcard/port* [**direction** *dir*]

Syntax Description

card/subcard/port	Card, subcard, and port number for the ATM interface to be monitored. The port can be any port except the ATM 0 port or the test port.
dir	Specified as **receive** or **transmit** and determines the direction of the cell traffic to monitor.

Defaults

Receive

Command Modes

Interface configuration on the snoop test port.

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

The **atm snoop interface atm** subcommand applies only if the previously specified port is the highest system port residing on card 4 and subcard 1 (which has been shut down). If so, this enables it as the snoop test port. Cells transmitted from the snoop test port are copies of cells from a single direction of a monitored port.

While in snoop mode, any prior permanent virtual connections to the snoop test port remain in the down state.

The port number of the test port depends on the card type. Table 2-8 defines the snoop test port number for various interfaces.

Table 2-8 atm snoop Port Numbers

Interface	Port Number
OC-3	3/1/3
OC-12	3/1/0
DS3/E3	Not supported

Examples

The following example configures the highest port in the snoop mode to monitor port card 1, subcard 0, and port 2 in the transmit direction, starting from the configuration mode.

```
Switch(config)# interface atm 3/1/3
Switch(config-if)# shutdown
Switch(config-if)# atm snoop interface atm 1/0/2 direction transmit
Switch(config-if)# no shutdown
```

Related Commands

Command	Description
show atm snoop	Displays the current port snooping configuration and actual register values for the highest ATM interface.

atm snoop-vc

To set the current port snooping configuration and actual register values per-VC, use the **atm snoop-vc** interface configuration command. To remove a previous configuration, use the **no** form of this command.

atm snoop-vc [*vpi-A vci-A*] **interface atm** *card/subcard/port vpi-B vci-B* [**direction** {**receive** | **transmit**}]

no atm snoop-vc [*vpi-A vci-A*] **interface atm** *card/subcard/port vpi-B vci-B* [**direction** {**receive** | **transmit**}]

Syntax Description

vpi-A	VPI of the snooping connection.
vci-A	VCI of the snooping connection.
card/subcard/port	Card, subcard, and port number for the ATM interface to be monitored. The port can be any port except the ATM 0 port or the test port.
vpi-B	VPI of the snooped connection.
vci-B	VCI of the snooped connection.
direction	When used with the **receive** or **transmit** keywords, determines which direction of cell traffic to monitor.
receive	Monitors cell traffic in the receive direction.
transmit	Monitors cell traffic in the transmit direction.

Defaults

Receive

Command Modes

Interface configuration. Applies to the snoop test port.

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

There is no restriction on the snoop test port on a switch processor feature card-based system for ATM snoop, snoop-vc, and snoop-vp configurations. The snoop port can be any port and is not limited to the highest port.

The **atm snoop-vc interface atm** option applies only if the previously specified port is the highest system port residing on card 4 and subcard 1 (which has been shut down) on the snoop test port. Cells transmitted from the snoop test port are copies of cells from a single direction of a monitored port. For Catalyst 8510 MSR and LightStream 1010, this restriction is only for FC-PCQ-based systems.

When in snoop mode, any prior permanent virtual connections to the snoop test port remain in the down state.

The port number of the test port depends on the card type. Table 2-9 defines the ATM snoop test port number for various interfaces.

Table 2-9 atm snoop-vc Port Numbers

Interface	Port Number
OC-3	3/1/3
OC-12	3/1/0
DS3/E3	Not supported

Examples

The following example configures the port in the snoop mode to monitor port card 1, subcard 0, and port 2 in the transmit direction, starting from the configuration mode.

```
Switch(config)# interface atm 3/1/3
Switch(config-if)# shutdown
Switch(config-if)# atm snoop-vc interface atm 1/0/2 1 13 direction transmit
Switch(config-if)# no shutdown
```

Related Commands

Command	Description
show atm snoop-vc	Displays the current port snooping configuration and actual register values per-VC.

atm snoop-vp

To set the current port snooping configuration and actual register values per-VP, use the **atm snoop-vp** interface configuration command. To remove a previous configuration, use the **no** form of this command.

atm snoop-vp [*vpi-A vci-A*] **interface atm** *card/subcard/port vpi-B vci-B* [**direction** {**receive** | **transmit**}]

no atm snoop-vc [***vpi-A vci-A***] **interface atm** *card/subcard/port vpi-B vci-B* [**direction** {**receive** | **transmit**}]

Syntax Description

vpi-A	VPI of the snooping connection.
vci-A	VCI of the snooping connection.
card/subcard/port	Card, subcard, and port number for the ATM interface to be monitored. The port can be any port except the ATM 0 port or the test port.
vpi-B	VPI of the snooped connection.
vci-B	VCI of the snooped connection.
direction	When used with the **receive** or **transmit** keywords, determines which direction of cell traffic to monitor.
receive	Monitors cell traffic in the receive direction.
transmit	Monitors cell traffic in the transmit direction.

Defaults

receive

Command Modes

Interface configuration. Applies to the snoop test port.

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

There is no restriction on the snoop test port on a switch processor feature card-based system for ATM snoop, snoop-vc, and snoop-vp configurations. The snoop port can be any port and is not limited to the highest port.

The **atm snoop-vp interface atm** command applies only if the previously specified port is the highest system port residing on card 4 and subcard 1 (which has been shut down) on the snoop test port. Cells transmitted from the snoop test port are copies of cells from a single direction of a monitored port. For Catalyst 8510 MSR and LightStream 1010, this restriction is only for FC-PCQ-based systems.

When in snoop mode, any prior permanent virtual connections to the snoop test port remain in the down state.

The port number of the test port depends on the card type. Table 2-10 defines the ATM snoop test port number for various interfaces.

Table 2-10 atm snoop-vp Port Numbers

Interface	Port Number
OC-3	3/1/3
OC-12	3/1/0
DS3/E3	Not supported

Examples

The following example configures the port in the snoop mode to monitor port card 1, subcard 0, and port 2 in the transmit direction, starting from the configuration mode.

```
Switch(config)# interface atm 3/1/3
Switch(config-if)# shutdown
Switch(config-if)# atm snoop-vp interface atm 1/0/2 1 13 direction transmit
Switch(config-if)# no shutdown
```

Related Commands

Command	Description
show atm snoop-vp	Displays the current port snooping configuration and actual register values per-VP.

atm soft-vc

To create a soft PVC on the switch router, use the **atm soft-vc** interface configuration command.

atm soft-vc *source-vpi source-vci* **dest-address** *atm-address dest-vpi dest-vci* [enable | disable]
[**upc** *upc*] [*pd pd*] [**rx-cttr** *index*] [**tx-cttr** *index*]
[**retry-interval** [**first** *retry-interval*] [**maximum** *retry-interval*]]
[**explicit-path** *precedence* {**name** *path-name* | **identifier** *path-id*}
[**upto** *partial-entry-index*] [*only-explicit*]]

For existing soft PVCs, use the **no** form of the command to delete the soft PVC.

no atm soft-vc *source-vpi source-vci*

To respecify the explicit paths, use the **redo-explicit** form.

atm soft-vc *source-vpi source-vci* [enable | disable] [redo-explicit [explicit-path precedence *{name path-name | identifier path-id} [upto partial-entry index] [only-explicit]]]*

Syntax Description

source-vpi	Source VPI number.
source-vci	Source VCI number.
dest-address *atm-address*	ATM address for the destination port.
dest-vpi	Destination VPI number.
dest-vci	Destination VCI number.
enable	Allows the soft connection to be set up; **enable** is the default for the initial soft connection configuration. **Note** Note: If the soft-connection command is reentered for an existing connection, the default is the current enabled or disabled state.
disable	Prevents an initial soft connection from being set up, or tears down an existing connection.
upc *upc*	Usage parameter control, specified as **pass** | **tag** | **drop**. Default is **pass**. The **upc** option can be set to **tag** or **drop** only when the connection is not the leaf of a point-to-multipoint connection.
pd *pd*	Intelligent packet discard option, specified as **on** | **off**. The default is **off**.
rx-cttr *index*	Connection traffic table row index in the received direction. The **cttr** should be configured before using the **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **rx-cttr**. The default is 1.
tx-cttr *index*	Connection traffic table row index in the transmitted direction. The **cttr** should be configured before using the **atm pvc** command. See the **atm connection-traffic-table-row** command for information on configuring the **tx-cttr**. The default is 1.
retry-interval	Configures the retry interval timers for a soft PVC.

first *retry-interval*	Retry interval for the first retry after the first failed attempt, specified in milliseconds. If the first retry after the first failed attempt also fails, the subsequent attempts is made at intervals computed using the **first** *retry-interval* as follows: (2 ** (*k*-1)) * **first** *retry-interval* Where the value of *k* is 1 for the first retry after the first failed attempt and will be incremented by 1 for every subsequent attempt. Range is from 100 to 3600000 milliseconds; the default is 5000 milliseconds.
maximum *retry-interval*	The maximum retry interval between any two attempts, specified in seconds. Once the retry interval is computed in the **first** *retry-interval* and becomes equal to or greater than the **maximum** *retry-interval* configured, the subsequent retries will be done at regular intervals of **maximum** *retry-interval* seconds until the call is established. Range is from 1 to 65535 seconds; the default is 60.
redo-explicit	Applies only to existing soft connections and allows explicit paths to be respecified without tearing down connections. Existing connections are unaffected unless a reroute takes place, and then they will use the newer **explicit-path** configuration.
explicit-path	The PNNI explicit path that is manually configured for routing a soft PVC, using the **atm pnni explicit-path** command.
precedence	The precedence number by which ATM PNNI explicit paths are assigned, from1 to 3. Up to three explicit paths can be assigned to a soft PVC.
name *path-name*	The name of the ATM PNNI explicit path for routing soft PVCs.
identifier *path-id*	Specifies the path ID for the explicit path being configured to route soft PVCs.
upto *partial-entry-index*	Allows a subset of a longer explicit path to be used, so that all included nodes after the specified entry index will be disregarded. If the destination is reachable at any next node or segment target, the remaining included nodes in the explicit path are disregarded automatically.
only-explicit	If one or more explicit paths have been specified and if the explicit path fails, the soft connection will remain down until it is retried at its next retry interval. If this option is not specified, the system uses the standard on-demand routing instead of waiting for the next retry interval.

Defaults

See “Syntax Description.”

Command Modes

Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

Obtain the destination port address before configuring a soft PVC by using the **show atm interface** or **show atm addresses** command on the destination switch**.**

The following list identifies why the creation of a soft PVC might be unsuccessful:

- There is a VPI or VCI collision at the source or destination switch.
- The source or destination interface is not up (or autoconfiguration is not complete).
- The specified destination address is not correct.

Up to three explicit paths can be assigned to a soft VC, using precedence numbers 1 through 3. The precedence 1 explicit path is considered the primary path and is tried first. If it fails, then the next precedence path is tried. Explicit paths can be specified either by **name** or by **identifier**.

The explicit path options can be changed without tearing down an existing soft PVC. Use the **redo-explicit** form of the command to respecify all of the explicit path options.

After configuring a soft PVC, use the **show atm vc interface** command on the source node (specifying the source VPI and source VCI) to verify that the soft PVC has succeeded and to see the explicit path taken.

Note The show configuration displayed for soft connections with explicit paths is always shown as two separate lines, with the **redo-explicit** keyword on the second line, even if it was originally configured using a single command line.

Examples

The following example shows how a user at the destination switch displays the address of the destination port.

```
Switch# show atm address
Switch Address(es):47.0091810000000003BE59ED00.0003BE59ED00.00 active

Soft VC Address(es):
  47.0091.8100.0000.0003.be59.ed00.4000.0c81.0000.00 ATM2/0/0
  47.0091.8100.0000.0003.be59.ed00.4000.0c81.8000.00 ATM3/0/0
  47.0091.8100.0000.0003.be59.ed00.4000.0c81.8010.00 ATM3/0/1
  47.0091.8100.0000.0003.be59.ed00.4000.0c81.8020.00 ATM3/0/2
  47.0091.8100.0000.0003.be59.ed00.4000.0c81.8030.00 ATM3/0/3
  47.0091.8100.0000.0003.be59.ed00.4000.0c82.1000.00 ATM3/1/0
  47.0091.8100.0000.0003.be59.ed00.4000.0c82.1000.05 ATM3/1/0.5
  47.0091.8100.0000.0003.be59.ed00.4000.0c82.1010.00 ATM3/1/1
  47.0091.8100.0000.0003.be59.ed00.4000.0c82.1020.00 ATM3/1/2
  47.0091.8100.0000.0003.be59.ed00.4000.0c82.1030.00 ATM3/1/3

ILMI Switch Prefix(es):
  47.0091.8100.0000.0003.be59.ed00

ILMI Configured Interface Prefix(es):

LECS Address(es):
```

The following example shows how to configure a soft PVC on interface ATM 0/1/0. At the source switch, create a soft PVC with the following configuration.

```
src vpi = 100,
src vci = 200,
dest port address = 47.0091.8100.0000.0003.be59.ed00.4000.0c82.1000.0,
dest vpi = 100
dest vci = 200

Switch(config-if)# atm soft-vc 100 200 dest-address
47.0091.8100.0000.0003.be59.ed00.4000.0c82.1000.05 100 200
```

The following example shows how to manually configure an explicit path for a soft PVC. For this example, if the explicit path fails, standard routing will be used.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vc 0 40 dest-address
47.0091.8100.0000.0003.be59.ed00.4000.0c82.1000.05 100 200
```

The following example shows how to use the **redo-explicit** keyword to modify an existing explicit-path configuration to add a second alternate explicit path, and to prevent standard routing from being used should both paths fail. Note that the system prompts you to confirm the changes.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vc 0 40 redo-explicit explicit-path 1 name chicago.path1
explicit-path 2 name chicago.path2 only-explicit
Modify with new explicit path options [yes], or abort changes [no]? [yes/no]:y
```

The following example shows how to remove all explicit paths from an existing soft PVC, using the **redo-explicit** keyword with no other options specified. The path is not changed until a soft PVC reroute occurs.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vc 0 40 redo-explicit
Modify with new explicit path options [yes], or abort changes [no]? [yes/no]:y
```

Related Commands

Command	Description
atm pnni explicit-path	Used to enter PNNI explicit path configuration mode to create or modify PNNI explicit path.
show atm addresses	Displays the active ATM addresses on a switch.
show atm pnni explicit-paths	Displays a summary of explicit paths that have been configured.
show atm vc	Displays the ATM layer connection information about the virtual connection.

atm soft-vp

To create a soft PVP on the switch, use the **atm soft-vp** interface configuration command.

atm soft-vp *vpi-s* **dest-address** *address vpi-d* [**upc** *upc*] [**rx-cttr** *index*] [**tx-cttr** *index*] [**retry-interval** [**first** *retry-interval*] [**maximum** *retry-interval*]]

For existing soft PVPs, use the **no** form of the command to delete the soft PVP.

no atm soft-vp *vpi-s*

Use the **redo-explicit** form of the command to respecify explicit paths.

atm soft-vp *vpi-s [enable | disable]*
redo-explicit [explicit-path precedence {name path-name | identifier path-id}
*[upto **partial-entry-index***] [**only-explicit**]]]

Syntax Description

vpi-s	Source VPI number.
dest-address *address*	ATM address for the destination port.
vpi-d	Destination VPI number.
upc *upc*	Usage parameter control, specified as **pass** | **tag** | **drop**; the default is **pass**. The **upc** option can be set to **tag** or **drop** only under the following conditions: • The ATM interface is not the route processor port (ATM 0) or a logical port (VP tunnel). • The connection is not the leaf of a point-to-multipoint connection.
rx-cttr *index*	Connection traffic table row index in the received direction. The **cttr** should be configured before using the **atm soft-vp** command. See the **atm connection-traffic-table-row** command for information on configuring the **rx-cttr**. The default is 1.
tx-cttr *index*	Connection traffic table row index in the transmitted direction. The **cttr** should be configured before using the **atm soft-vp** command. See the **atm connection-traffic-table-row** command for information on configuring the **tx-cttr**. The default is 1.
retry-interval	Configures retry interval timers for a soft VP.
first *retry-interval*	Retry interval after the first failed attempt, specified in milliseconds. If the first retry after the first failed attempt also fails, the subsequent attempts are made at intervals computed using the **first** *retry-interval* as follows: (2 ** (*k*-1)) * **first** *retry-interval* Where the value of *k* is 1 for the first retry after the first failed attempt, and will be incremented by 1 for every subsequent attempt. Range is from 100 to 3600000 milliseconds; the default is 5000 milliseconds.

maximum *retry-interval*	The maximum retry interval between any two attempts, specified in seconds. Once the retry interval is computed in the **first** *retry-interval* and becomes equal to or greater than the **maximum** *retry-interval* configured, the subsequent retries will be done at regular intervals of **maximum** *retry-interval* seconds until the call is established. Range is from 1 to 65535 seconds; the default is 60.
enable	Allows the soft connection to be set up. Enable is the default for the initial soft connection configuration. If the soft connection command is reentered for an existing connection, the default is the current enabled or disabled state.
disable	Prevents an initial soft connection from being set up, or tears down an existing connection.
redo-explicit	Applies only to existing soft connections and allows explicit paths to be respecified without tearing down connections. Existing connections are unaffected unless a reroute takes place, and then they will use the newer explicit path configuration.
explicit-path	The PNNI explicit path that is manually configured for routing a soft PVP, using the **atm pnni explicit-path** command.
precedence	The precedence number by which ATM PNNI explicit paths are assigned, from 1 to 3. Up to three explicit paths can be assigned to a soft PVP.
name *path-name*	The name of the ATM PNNI explicit path for routing soft PVPs.
identifier *path-id*	Specifies the path ID for the explicit path being configured to route soft PVPs.
upto *partial-entry-index*	Allows a subset of a longer explicit path to be used, so that all included nodes after the specified entry index will be disregarded. If the destination is reachable at any **next-node** or **segment-target**, the remaining included nodes in the explicit path are disregarded automatically. For more information, see the **atm pnni explicit-path next-node** and **atm pnni explicit-path segment-target** PNNI explicit path configuration commands.
only-explicit	If one or more explicit paths have been specified and if the explicit path fails, the soft connection remains down until it is retried at its next **retry-interval**. If this option is not specified, the system uses the standard on-demand routing instead of waiting for the next **retry interval**.

Defaults See “Syntax Description.”

Command Modes Interface configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

Obtain the destination port address before configuring a soft PVP by using the **show atm interface** or **show atm addresses** command on the destination switch.

The following list identifies reasons why the creation of a soft PVP is unsuccessful:

- There is a VPI collision at the source or destination switch.
- The source or destination interface is not up (or autoconfiguration is not complete).
- The specified destination address is not correct.

Up to three explicit paths can be assigned to a soft VP, using precedence numbers 1 through 3. The precedence 1 explicit path is considered the primary path and is tried first. If it fails, then the next precedence path is tried. Explicit paths can be specified either by **name** or by **identifier**.

The explicit path options can be changed without tearing down an existing soft PVP. Use the **redo-explicit** form of the command to respecify all of the explicit path options.

After configuring a soft PVP, use the **show atm vp interface** command on the source node (specifying the source VPI) to verify that the soft PVP has succeeded and to see the explicit path taken.

Note The show configuration displayed for soft connections with explicit paths is always shown as two separate lines, with the **redo-explicit** keyword on the second line, even if it was originally configured using a single command line.

Examples

The following example shows how a user at the destination switch displays the address of the destination port.

```
Switch# show atm interface atm 3/0/1

Interface:  ATM3/0/1
Interface Status: DOWN
Auto-configuration: enabled
Auto-configuration status: waiting for response from peer
Port-type: External
Interface-type: UNI, Interface-side: User
Uni-type: Public, Uni-version: V3.0
Max-VPI-bits: 12, Max-VCI-bits: 14
Max-VP: 4095,     Max-VC: 32768
Number of PVP: 0  Number of SVP: 0  Number of SoftVP: 0
Number of PVC: 3  Number of SVC: 0  Number of SoftVC: 0
Number of logical port (VP-tunnel): 0
Total number of connections: 3
Input cells: 0, Output cells: 0
5 minute input rate: 0 bits/sec, 0 cells/sec
5 minute output rate: 0 bits/sec, 0 cells/sec
ATM Address for Soft VC: 47.0091.8100.0000.0003.be59.ed00.4000.0c82.0010.00
```

At the source switch, create a soft PVP with the VP of 150, the destination port address of 47.0091.8100.0000.0003.be59.ed00.4000.0c82.0010.00, and the destination VPI of 160.

```
Switch(config-if)# atm soft-vp 150 dest-address
47.0091.8100.0000.0003.be59.ed00.4000.0c82.0010.00 160
```

The following example shows how to manually configure an explicit path for a soft PVP. In this example, if the explicit path fails, standard routing is used.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vp 3 dest-address
47.0091.8100.0000.1061.705b.d900.4000.0c81.9000.00 3 explicit-path 1 name chicago.path1
```

The following example shows how to use the **redo-explicit** keyword to modify an existing explicit-path configuration to add a second alternate explicit path and to prevent standard routing from being used should both explicit paths fail. Note that the system prompts you to confirm the changes.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vp 3 redo-explicit explicit-path 1 name chicago.path1
explicit-path 2 name chicago.path2 only-explicit
Modify with new explicit path options [yes], or abort changes [no]? [yes/no]:y
```

The following example shows how to remove all explicit paths from an existing soft PVP by using the **redo-explicit** keyword, with no other options specified. The path is not changed until a soft PVP reroute occurs.

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm soft-vp 3 redo-explicit
Modify with new explicit path options [yes], or abort changes [no]? [yes/no]:y
```

Related Commands

Command	Description
atm pnni explicit-path	Used to enter PNNI explicit path configuration mode to create or modify PNNI explicit paths.
show atm addresses	Displays the active ATM addresses on a switch.
show atm pnni explicit-paths	Displays a summary of explicit paths that have been configured.
show atm vp interface	Displays the ATM layer connection information about the virtual path.

atm sustained-cell-rate-margin-factor

To change the SCRMF, use the **atm sustained-cell-rate-margin-factor** global configuration command. SCRMF dictates the weight given to PCR in computing the bandwidth used by VBR connections. To assign the default value to SCRMF, use the **no** form of this command.

atm sustained-cell-rate-margin-factor *percent*

no atm sustained-cell-rate-margin-factor

Syntax Description

percent	Percent value that dictates the weighting of PCR with respect to SCR in computing the bandwidth used in the CAC of VBR connections.

Defaults

1 percent

Command Modes

Global configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

The following equation is used in the CAC of VBR connections to define the bandwidth requested.

```
bandwidth = (SCRMF * (PCR-SCR))/100 + SCR
```

Examples

In the following example, the SCRMF of the switch is set to 35 percent.

```
Switch(config)# atm sustained-cell-rate-margin-factor 35
```

Related Commands

Command	Description
show atm resource	Displays the ATM layer connection information about the virtual path.

atm svcc vci min

To specify the minimum VCI value for the ILMI signalling stack to support for allocation to SVCCs, use the **atm svcc vci min** interface configuration command.

atm svcc vci min *value*

Syntax Description

value	Minimum VCI value, in the range of 32 to 16383.

Defaults

35

Command Modes

Interface configuration

Command History

Release	Modification
11.3(3a)	New command

Usage Guidelines

This command specifies the minimum VCI value used in range negotiation by the ILMI signalling stack for SVCCs. This feature is supported in autoconfiguration and nonautoconfiguration mode.

Examples

The following example illustrates how to set the minimum SVCC VCI value on ATM interface 0/0/1 to 100.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm svcc vci min 100
```

Related Commands

Command	Description
atm svcc vpi max	Specifies the maximum VPI value for the ILMI signalling stack to support for allocation to SVCCs.
show atm interface	Displays ATM-specific information about an ATM interface.

atm svcc vpi max

To specify the maximum VPI value for the ILMI signalling stack to support for allocation to SVCCs, use the **atm svcc vpi max** interface configuration command.

atm svcc vpi max *value*

Syntax Description

value	Maximum VPI value. Allowed values have the following ranges, by interface type: • For 25-MB port adapters: From 0 to 3 • For logical and CPU interfaces: 0 only • For other interfaces: From 0 through 255

Defaults

For CPU interfaces: 0

For other interfaces: 255

Command Modes

Interface configuration

Command History

Release	Modification
11.3(3a)	New command

Usage Guidelines

This command specifies the maximum VPI value used in range negotiation by the ILMI signalling stack for SVCCs. This feature is supported in autoconfiguration and nonautoconfiguration mode.

Note On a bidirectional VCC, the VPI/VCI values used for both directions of the connection are the same at each interface. The same VCI is used for both directions of a connection at an interface.

Examples

The following example illustrates how to set the maximum SVCC VPI value on ATM interface 0/0/1 to 3.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm svcc vpi max 3
```

Related Commands

Command	Description
atm svcc vci min	Specifies the minimum VCI value for the ILMI signalling stack to support for allocation to SVCCs.
show atm interface	Displays ATM-specific information about an ATM interface.

atm svpc vpi max

To specify the maximum VPI value for the ILMI signalling stack to support for allocation to SVPCs, use the **atm svpc vpi max** interface configuration command.

atm svpc vpi max *value*

Syntax Description

value	Maximum VPI value. Allowed values have the following ranges, by interface type: • For 25-MB port adapters: From 0 to 3 • For logical and CPU interfaces: 0 only • For other interfaces: From 0 through 255

Defaults

For CPU interfaces: 0

For other interfaces: 255

Command Modes

Interface configuration

Command History

Release	Modification
11.3(3a)	New command

Usage Guidelines

This command specifies the maximum VPI value used in range negotiation by the ILMI signalling stack for SVPCs. This feature is supported in autoconfiguration and non-autoconfiguration mode.

Note On a bidirectional VCC, the VPI/VCI values used for both directions of the connection are the same at each interface. The same VCI is used for both directions of a connection at an interface.

Examples

The following example shows how to set the maximum SVPC VPI value to 3 on ATM interface 0/0/1.

```
Switch(config)# interface atm 0/0/1
Switch(config-if)# atm svpc vpi max 3
```

Related Commands

Command	Description
atm svcc vci min	Specifies the minimum VCI value for the ILMI signalling stack to support for allocation to SVCCs.
atm svcc vpi max	Specifies the maximum VPI value for the ILMI signalling stack to support for allocation to SVCCs.
show atm interface	Displays ATM-specific information about an ATM interface.

atm threshold-group discard-threshold

To specify the threshold at which the per-connection queue is considered full for CLP discards and EPD, use the **atm threshold-group discard-threshold** global configuration command. To reset the discard threshold percentage for a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **discard-threshold** *percent*

no atm threshold-group *tg-num* **discard-threshold**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **discard-threshold** *percent*

no atm threshold-group *tg-num* **discard-threshold**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 to 6.
percent	The percentage of queue-full in the threshold. To disable the threshold, use 100. The range is 0 to 100.

Defaults

87 percent

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

As the threshold group becomes congested (the cumulative number of cells on the queues of VCs in the threshold group approaches the configured max-cells value), the maximum number of cells per queue shrinks from the threshold group max-queue-limit to the min-queue-limit. As the queue size changes, the discard threshold changes, and the installed threshold is made as close as possible to the percent of queue-full specified.

Note This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to configure threshold group 3 to a discard-threshold of 50 percent.

```
Switch(config)# atm threshold-group 3 discard-threshold 50
```

Related Commands

Command	Description
atm threshold-group max-cells	Specifies the maximum number of cells queued for all connections that are members of a specified threshold group.
atm threshold-group max-queue-limit	Sets the largest per-VC queue limit for a specified threshold group.
atm threshold-group min-queue-limit	Sets the smallest per-VC queue limit for a specified threshold group.
show atm resource	Displays the ATM layer connection information about the virtual path.

atm threshold-group marking-threshold

To specify the threshold at which the per-connection queue is considered full for EFCI marking and ABR relative-rate marking, use the **atm threshold-group marking-threshold** global configuration command. To reset the marking threshold percentage for a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **marking-threshold** *pct*

no atm threshold-group *tg-num* **marking-threshold**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **marking-threshold** *pct*

no atm threshold-group *tg-num* **marking-threshold**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 through 6.
pct	The percentage of queue-full in the threshold. To disable the threshold, use 100. The range is 0 to 100.

Defaults

25 percent

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

As the threshold group becomes congested (the cumulative number of cells on the queues of VCs in the threshold group approaches the configured max-cells value), the maximum number of cells per queue shrinks from the threshold group max-queue-limit to the min-queue-limit. As the queue size changes, the marking threshold changes, and the installed threshold is made as close as possible to the percent of queue-full specified.

Note This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to configure threshold group 3 to to a marking-threshold of 50 percent.

```
Switch(config)# atm threshold-group 3 marking-threshold 50
```

Related Commands

Command	Description
atm threshold-group max-cells	Specifies the maximum number of cells queued for all connections that are members of a specified threshold group.
atm threshold-group max-queue-limit	Sets the largest per-VC queue limit for a specified threshold group.
atm threshold-group min-queue-limit	Sets the smallest per-VC queue limit for a specified threshold group.
show atm resource	Displays the ATM layer connection information about the virtual path.

atm threshold-group max-cells

To specify the maximum number of cells queued for all connections that are members of a specified threshold group, use the **atm threshold-group max-cells** global configuration command. To reset the maximum cell count for a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **max-cells** *cell-num*

no atm threshold-group *tg-num* **max-cells**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **max-cells** *cell-num*

no atm threshold-group *tg-num* **max-cells**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 to 6.
cell-num	Cell number, in the range of 0 to 65535.

Defaults

65535

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

As the threshold group becomes congested (the cumulative number of cells on the queues of VCs in the threshold group approaches the configured max-cells value), the maximum number of cells per queue shrinks from the threshold group max-queue-limit to the min-queue-limit.

The hardware does not provide all possible max-cell values in the range. Rather, the value used is the closest number of cells greater than that specified. The possible values are {(64*i)-1, 1<=i<=1024}. The installed value can be displayed using the **show atm resource** command.

Note This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to set threshold-group 3 to a maximum cell count of 32000.

```
Switch(config)# b tm threshold-group 3 max-cells 32000
```

Related Commands

Command	Description
atm threshold-group discard-threshold	Specifies the threshold at which the per-connection queue is considered full for CLP discards and EPD.
atm threshold-group marking-threshold	Specifies the threshold at which the per-connection queue is considered full for EFCI marking and ABR relative-rate marking.
atm threshold-group max-queue-limit	Sets the largest per-VC queue limit for a specified threshold group.
atm threshold-group min-queue-limit	Sets the smallest per-VC queue limit for a specified threshold group.
show atm rmon	Shows the status of the ATM RMON MIB.

atm threshold-group max-queue-limit

To set the largest per-VC queue limit for a specified threshold group, use the **atm threshold-group max-queue-limit** global configuration command. To reset the maximum queue limit for a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **max-queue-limit** *cells*

no atm threshold-group *tg-num* **max-queue-limit**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **max-queue-limit** *cells*

no atm threshold-group *tg-num* **max-queue-limit**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 to 6.
cells	Number of cells. This value is limited to the lesser of 16383 or the value specified with the **atm threshold-group max-cells** command.

Defaults

Depends on the threshold group.

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

As the threshold group becomes congested (the cumulative number of cells on the queues of the VCs in the threshold group approaches the configured max-cells value), the maximum number of cells per queue shrinks from the threshold group max-queue-limit to the min-queue-limit.

The hardware does not provide all possible max-queue-limit values in the range. Rather, the value used is the closest number of cells greater than that specified. The possible values are {(16 * i) -1, 2 <= i <= 1024}. The installed value can be displayed using the **show atm resource** command.

Note This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to set threshold-group 3 to a maximum queue limit of 16383.

```
Switch(config)# atm threshold-group 3 max-queue-limit 16383
```

Related Commands

Command	Description
atm threshold-group discard-threshold	Specifies the threshold at which the per-connection queue is considered full for CLP discards and EPD.
atm threshold-group marking-threshold	Specifies the threshold at which the per-connection queue is considered full for EFCI marking and ABR relative-rate marking.
atm threshold-group max-cells	Specifies the maximum number of cells queued for all connections that are members of a specified threshold group.
atm threshold-group min-queue-limit	Sets the smallest per-VC queue limit for a specified threshold group.
show atm resource	Displays the ATM layer connection information about the virtual path.

atm threshold-group min-queue-limit

To set the smallest per-VC queue limit for a specified threshold group, use the **atm threshold-group min-queue-limit** global configuration command. To reset the minimum queue limit for a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **min-queue-limit** *cells*

no atm threshold-group *tg-num* **min-queue-limit**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **min-queue-limit** *cells*

no atm threshold-group *tg-num* **min-queue-limit**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 to 6.
cells	Number of cells. This value is limited to the lesser of 1023 or the value specified by the **atm threshold-group max-queue-limit** command.

Defaults

Depends on the threshold group.

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

As the threshold group becomes congested (the cumulative number of cells on the queues of VCs in the threshold group approaches the configured max-cells value), the maximum number of cells per-queue shrinks from the threshold group max-queue-limit to the min-queue-limit.

Note This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to set threshold-group 3 to a minimum queue limit of 31.

```
Switch(config)# atm threshold-group 3 min-queue-limit 31
```

Related Commands

Command	Description
atm threshold-group discard-threshold	Specifies the threshold at which the per-connection queue is considered full for CLP discards and EPD.
atm threshold-group marking-threshold	Specifies the threshold at which the per-connection queue is considered full for EFCI marking and ABR relative-rate marking.
atm threshold-group max-queue-limit	Sets the largest per-VC queue limit for a specified threshold group.
atm threshold-group max-cells	Specifies the maximum number of cells queued for all connections that are members of a specified threshold group.
show atm resource	Displays the ATM layer connection information about the virtual path.

atm threshold-group name

To specify the name associated with a threshold group number, use the **atm threshold-group name** global configuration command. To reset the name of a particular threshold group to the default value, use the **no** form of this command.

Catalyst 8540 MSR

atm threshold-group [**module-id** *id-num*] *tg-num* **name** *tg-name*

no atm threshold-group *tg-num* **name**

Catalyst 8510 MSR and LightStream 1010

atm threshold-group *tg-num* **name** *tg-name*

no atm threshold-group *tg-num* **name**

Syntax Description

id-num	Module identification number. (Catalyst 8540 MSR)
tg-num	Threshold group number, in the range of 1 to 5.
tg-name	Threshold group name, in the range of 1 to 15 characters.

Defaults

1 – cbr-default
2 – vbrrt-default
3 – vbrnrt-default
4 – abr-default
5 – ubr-default

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

You cannot rename the well-known VC threshold group.

Note This command is not available on systems equipped with the FC-PCQ.

Examples

The following example shows how to change the name of threshold group 3 to **bigq**.

```
Switch(config)# atm threshold-group 3 name bigq
```

Related Commands

Command	Description
show atm resource	Displays the ATM layer connection information about the virtual path.

atm threshold-group service

To assign a service category to a threshold group, use the **atm threshold-group service** global configuration command. To reset the association of a particular service category to a threshold group, use the **no** form of this command.

atm threshold-group service {**cbr** | **vbr-rt** | **vbr-nrt** | **abr** | **ubr**} *tg-num*

no atm threshold-group service {**cbr** | **vbr-rt** | **vbr-nrt** | **abr** | **ubr**}

Syntax Description

cbr	The constant bit rate parameter.
vbr-rt	The variable bit rate real-time parameter.
vbr-nrt	The variable bit rate when the parameter is not real-time.
abr	The available bit rate parameter.
ubr	The unspecified bit rate parameter.
tg-num	Threshold group number, in the range of 1 to 5.

Defaults

atm threshold-group service cbr 1
atm threshold-group service vbr-rt 2
atm threshold-group service vbr-nrt 3
atm threshold-group service abr 4
atm threshold-group service ubr 5

Command Modes

Global configuration

Command History

Release	Modification
11.2(8.0.1)	New command

Usage Guidelines

This command is not available on systems equipped with the FC-PCQ. (Catalyst 8510 MSR and LightStream 1010)

Examples

The following example shows how to set the threshold group to use subsequently in connection setup for CBR connections to group 3.

```
Switch(config)# atm threshold-group service cbr 3
```

Related Commands

Command	Description
show atm resource	Displays the ATM layer connection information about the virtual path.

atm-vc

To define an ATM map statement for a PVC, use the **atm-vc** map-list configuration command in conjunction with the **map-list** global configuration command. To remove the address, use the **no** form of this command.

protocol protocol-address **atm-vc** *vci* [**class** *class-name*] [**broadcast**] [**aal5mux**]

no *protocol protocol-address* **atm-vc** *vci* [**class** *class-name*] [**broadcast**] [**aal5mux**]

Syntax Description

protocol	The keyword **ip**.
protocol-address	The destination address being mapped to this PVC.
vci	Is 31 < *vci* < 2**14 - 1 (default max-VCI bits is 14).
class-name	The name of a table that contains encapsulation-specific parameters. Such a table can be shared between maps that have the same encapsulation.
broadcast	This map entry is to be used when the corresponding protocol sends broadcast packets to the interface.
aal5mux	Specifies AAL5 multiplexing encapsulation. The default is **snap**.

Defaults

No map statements are defined.

Command Modes

Map-list configuration

Command History

Release	Modification
11.1(4)	New command

Usage Guidelines

This command is required with the **map-list** command when you are configuring an SVC.

Examples

The following example shows how to create a map-list named *atm*, followed by a map statement for the protocol address being mapped.

```
Switch(config)# map-list atm
Switch(config-map-list)# ip 172.21.168.112 atm-vc 99
```

Related Commands

Command	Description
map-list	Defines an ATM map statement for either a PVC or SVC.