

Operation, Administration, and Maintenance (OAM) Enhancement

Feature Summary

The Operation, Administration, and Maintenance (OAM) feature performs the following functions:

- Limits the number of consecutive OAM AIS cells received before the subinterface is brought up or down
- Limits the number of OAM loopback retries before the subinterface is brought down

OAM is supported on point-to-point subinterfaces with a single permanent virtual circuit (PVC) on the PA-A3 ATM interface.

After the feature is enabled, the F5 OAM AIS with the failure equal to AIS(0x6A) is monitored on the PVC. If the number of consecutive OAM AIS cells received is greater than the configured number, the subinterface is brought down. The subinterface is up when no OAM AIS cell is received during a configured interval.

If the PVC has end-to-end OAM loopback enabled, the subinterface is brought down after a configured number of retries. After the OAM loopback succeeds or the far-end router sends a loopback request, the subinterface is brought up.

Document Conventions

Command descriptions use these conventions:

- **Boldface** indicates commands and keywords that are entered literally as shown.
- *Italics* indicate arguments for which you supply values; in contexts that do not allow italics, arguments are enclosed in angle brackets (>).
- Square brackets ([]) indicate optional elements.
- Braces ({ }) group required choices, and vertical bars (|) separate alternative elements.
- Braces and vertical bars within square brackets ({{ | }}) indicate a required choice within an optional element.

Platforms

This feature is supported on these platforms:

- Cisco 7000 series routers with RSP7000 and RSP7000CI
- Cisco 7200 series routers
- Cisco 7500 series routers

Configuration Tasks

To configure the OAM feature, perform the following tasks beginning in global configuration mode:

Task	Command
1 Specify the interface or subinterface and interface configuration mode.	interface atm <i>number</i>
2 Set the number of consecutive OAM AIS cells received.	atm oam-man ais-down [<i>number</i>]
3 Set the number of seconds with no OAM AIS cells received before the subinterface is brought up.	atm oam-man ais-up [<i>number</i>]
4 Set the number of OAM loopback retries attempted before the subinterface is brought down.	atm oam-man retries [<i>number</i>]
5 Verify the configuration.	show atm interface
6 Verify the number of virtual cells to see if the number of cells is greater than a configurable number.	show atm vc
7 Exit configuration mode.	end

For information on other commands that can be used by the PA-A3 ATM interface, refer to the Cisco IOS Release 11.1 configuration guides.

For ATM configuration information and examples, refer to the ATM chapters in the *Wide-Area Networking Configuration Guide*.

Configuration Example

The following example enables the OAM AIS feature. The following is an example on ATM interface 1 in slot 0.

```
router# configure terminal
router(config)# interface a1/0
router(config-if)# atm oam
router(config-if)# atm oam-man ais-down 5 ais-up 6 retries 20
router(config-if)# end
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 11.1 command references.

- **atm oam-man**
- **show atm interface**

atm oam-man

Use the **atm oam-man** command to specify the number of consecutive OAM AIS cells received before the subinterface is brought down and brought up. This command is also used to specify how many times an OAM loopback is attempted before the subinterface stops functioning. The **no** form of this command halts OAM AIS function from the configuration.

atm oam-man [**ais-down** *number*] | **ais-up** *seconds*] | **retries** *number*]

no atm oam-man

Syntax Description

ais-down <i>number</i>	Number of consecutive OAM AIS cells received. The range is 3 to 60. The default is 3 OAM AIS cells.
ais-up <i>seconds</i>	Number of seconds with no OAM AIS cells received. The range is 3 to 60 seconds. The default is 3 seconds.
retries <i>number</i>	The number of retries range is 1 to 60. The default is 3 retries.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1CC.

Examples

The following example shows five consecutive OAM cells received before the sub-interface is brought down, and 6 seconds with no OAM AIS cells received must elapse before the configuration is brought back up. In addition, 60 OAM loopback attempts occur before the interface is brought down.

```
router(config-if)#atm oam-man ais-down 5 ais-up 6 retries 60
```

show atm interface

Use the **show atm interface** command to specify how many times an OAM loopback is attempted before the subinterface stops functioning.

show atm interface slot/port (Cisco 7200 series with ATM port adapter; Cisco 7500 series with AIP)

show atm interface slot/port-adapter/port (Cisco 7500 series with ATM port adapter)

Syntax Description

<i>slot/port</i>	ATM slot number and port number on the following: <ul style="list-style-type: none"> • Cisco 7200 series and ATM port adapter • Cisco 7500 series with AIP
<i>slot/port-adapter/port</i>	ATM slot, port adapter, and port number on the Cisco 7500 series with ATM port adapter

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1.

Sample Display

The following is sample output from the **show atm interface** command on a Cisco 7500 series router:

```
Router# show atm interface a1/0
ATM interface ATM1/0:
AAL enabled: AAL5 , Maximum VCs: 4096, Current VCCs: 3
Maximum Datagram Size:4528 MIDs/VC: 1024
OAM AIS Down:3, Up:3, Max loopback retries:3
PLIM Type:E3 - 34Mbps, Framing is G.832/G.804, TX clocking: LINE
Scrambling:ON,
566018 input, 568653 output, 0 IN fast, 0 OUT fast,
ATM1/0.60: AAL3/4-SMDS address c148.1234.1111 Multicast e180.9999.9999
Config. is ACTIVE
```

Field	Description
ATM interface ATM1/0	Slot and port number of the interface.
AAL enabled	Type of AAL. If both AAL5 and AAL3/4 are enabled on the interface, the output includes both AAL5 and AAL3/4.
Maximum VCs	Maximum number of virtual circuits this interface can support.
Current VCCs	Number of active virtual circuits.
Maximum Datagram Size	Size of datagram.

Field	Description
MIDs/VC	Maximum configured number of message identifiers allowed per virtual circuit on this interface.
OAM AIS Down	Number of consecutive OAM AIS cells received.
Up	Number of seconds with no OAM AIS cells received.
Max loopback retries	Number of loopback retries, ranging from 1 to 60.
PLIM Type	Type of physical layer interface module.
Framing is	No framing.
TX clocking	Clocking on the router. LINE indicates that the ATM switch provides the clocking.
Scrambling	Indication that scrambling is on or off.
input	Number of packets received and process-switched.
output	Number of packets sent from process switch.
IN fast	Number of input packets fast-switched.
OUT fast	Number of output packets fast-switched.
ATM 1/0.60:	Indication that the subinterface supports ATM adaptation layer AAL 3/4 and displays the SMDS E.164 unicast address and the SMDS E.164 multicast address assigned to the subinterface.
Config. is	ACTIVE or VALID in n SECONDS. ACTIVE indicates that the current AIP or NPM configuration has been loaded into the AIP and is being used. There is a 5-second window when a user changes a configuration and the configuration is sent to the AIP.

Related Commands

Show atm vc