ATM OAM Loopback Mode Detection

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The ATM OAM Loopback Mode Detection feature allows the router to automatically detect when a peer ATM interface is in loopback mode. The impacted permanent virtual circuit (PVC) is moved to a DOWN state, and traffic is suspended, when loopback is detected on an interface where end-to-end F5 Operation, Administration, and Maintenance (OAM) is enabled. The PVC is moved back to an UP state when the loopback condition in the peer ATM interface is removed.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "Feature Information for ATM OAM Loopback Mode Detection" section on page 6.

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

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Prerequisites for ATM OAM Loopback Mode Detection

To use this feature, you should know how to configure and use OAM.

Restrictions for ATM OAM Loopback Mode Detection

- The ATM OAM Loopback Mode Detection feature applies only to ATM PVCs.
- The ATM OAM Loopback Mode Detection feature is supported only on the Cisco 10000 series routers, Cisco 7200 series routers, and ASR 1000 series routers.

Information About ATM OAM Loopback Mode Detection

To enable ATM OAM Loopback Mode Detection, you should understand the following concepts:

- How ATM OAM Loopback Mode Detection Works, page 2
- Benefits of ATM OAM Loopback Mode Detection, page 2

How ATM OAM Loopback Mode Detection Works

When a PVC traverses an ATM cloud and OAM is enabled, the router sends a loopback cell to the other end and waits for a response to determine whether the circuit is up. However, if an intervening router within the ATM cloud is in loopback mode, the router considers the circuit to be up, when in fact the other end is not reachable.

When enabled, the ATM OAM Loopback Mode Detection feature detects an intervening router that is in loopback mode and sets the OAM state to NOT_VERIFIED. This is applicable even for an end router that is in loopback mode.

Benefits of ATM OAM Loopback Mode Detection

ATM OAM Loopback Mode Detection prevents traffic from being routed on the PVC for as long as any intermediary router is detected as being in loopback mode.

How to Enable ATM OAM Loopback Mode Detection

This section contains the following task:

- Enabling ATM OAM Loopback Mode Detection, page 3

Enabling ATM OAM Loopback Mode Detection

To enable loopback mode detection on an ATM interface, use the following steps.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface atm** *interface-number*
4. **pvc** *vpi*/*vci*
5. **oam-pvc manage** [*frequency*] **loop-detection**
6. **end**
7. **enable**
8. **show atm pvc** *vpi*/*vci*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enters privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**interface atm** *interface-number* **Example:** `Router(config)# interface ATM1/0`	Specifies the ATM interface type and enters interface configuration mode. To determine the correct form of the **interface atm** command, see your ATM network module, port adapter, or router documentation.

	Command or Action	Purpose
Step 4	**pvc** *vpi*/*vci* **Example:** `Router(config-if)# pvc 4/100`	Creates an ATM PVC and enters ATM permanent virtual circuit configuration mode. • The *vpi* argument specifies the ATM network virtual path identifier (VPI) for this PVC. The absence of the slash (/) and a VPI value causes the VPI value to default to 0. The value range is 0 to 255. • The *vci* argument specifies the ATM network virtual channel identifier (VCI) for this PVC. This value ranges from 0 to 1 less than the maximum value set for this interface by the **atm vc-per-vp** command. Typically, lower values from 0 to 31 are reserved for specific traffic (for example, F4 OAM, switched virtual circuit (SVC) signaling, and Interim Local Management Interface (ILMI)) and should not be used. The VCI is a 16-bit field in the header of the ATM cell. The VCI value is unique only on a single link, not throughout the ATM network, because it has only local significance. • The *vpi* and *vci* arguments cannot both be set to 0; if one is 0, the other cannot be 0.
Step 5	**oam-pvc manage** [*frequency*] **loop-detection** **Example:** `Router(config-if-atm-vc)# oam-pvc manage loop-detection`	Enables automatic loop detection on the specified interface. • The *frequency* argument specifies the time delay between transmissions of OAM loopback cells. The range of values is from 0 to 600 seconds. The default is 10 seconds.
Step 6	**end** **Example:** `Router(config-if-atm-vc)# end`	Ends the configuration session and returns to privileged EXEC mode.
Step 7	**enable** **Example:** `Router> enable`	To verify that loopback mode detection on an ATM interface is enabled, you can optionally use step 7 and 8. Enters privileged EXEC mode. Enter your password if prompted.
Step 8	**show atm pvc** *vpi*/*vci* **Example:** `Router# show atm pvc 4/100`	Displays ATM PVC status. When the ATM OAM Loopback Mode Detection feature is enabled, the OAM Loopback status field reads “Enabled.”

Configuration Examples for ATM OAM Loopback Mode Detection

This section provides the following configuration example:

• Enabling ATM OAM Loopback Mode Detection: Example, page 5

Enabling ATM OAM Loopback Mode Detection: Example

The following example shows how to create an ATM PVC and enable ATM OAM loopback mode detection:

```
interface ATM1/0
 pvc 4/100
 oam-pvc manage loop-detection
 end
```

Additional References

The following sections provide references related to ATM OAM loopback mode detection.

Related Documents

Related Topic	Document Title
Configuring ATM, PVCs, and VC management through OAM	*Cisco IOS Configuring ATM Guide*
OAM and PVC commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS Asynchronous Transfer Mode Command Reference*

Standards

Standards	Title
None	—

MIBs

MIBs	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for ATM OAM Loopback Mode Detection

Table 1 lists the release history for this feature.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command reference documentation.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS and Catalyst OS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Note Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 1 Feature Information for ATM OAM Loopback Mode Detection

Feature Name	Releases	Feature Information
ATM OAM Loopback Mode Detection	12.0(30)S 12.2(31)SB10 15.0(1)M	The ATM OAM Loopback Mode Detection feature allows the router to automatically detect when a peer ATM interface is in loopback mode. The impacted PVC is moved to a DOWN state, and traffic is suspended, when loopback is detected on an interface where end-to-end F5 OAM is enabled. The PVC is moved back to an UP state when the loopback condition in the peer ATM interface is removed. The following command was modified: **oam-pvc manage loop-detection**

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