ATM Conditional Debug Support

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Most ATM debugging commands are implemented either at the system level or at the interface level. The ATM Conditional Debug Support feature allows debugging to be limited specifically to an ATM interface, to a virtual channel identifier (VCI), or to a virtual path identifier/virtual channel identifier (VPI/VCI) pair, through use of the debug condition interface command.

History for the ATM Conditional Debug Support Feature

Release	Modification
12.0(28)S	This feature was introduced.
12.2(25)S	This feature was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This feature was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(28)SB	Support for the Cisco 10000 series routers was added.

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Prerequisites for ATM Conditional Debug Support

One or more ATM-encapsulated interfaces must be enabled, and one or more of the following **debug** commands must be enabled, to use the ATM Conditional Debug Support feature:

- **debug atm arp**
- **debug atm counters**
- **debug atm errors**
- **debug atm events**
- **debug atm oam**
- **debug atm packet**
- **debug atm state**

Restrictions for ATM Conditional Debug Support

Only the ATM debugging commands listed in the “Prerequisites for ATM Conditional Debug Support” section on page 2 can use the ATM Conditional Debug Support feature.

Conditional debugging for virtual circuits (VCs) can be enabled only for permanent virtual circuits (PVCs). Switched virtual circuits (SVCs) are not supported.

Information About ATM Conditional Debug Support

You need to understand the following concept before using the ATM Conditional Debug Support feature:

- ATM Debugging Extended to the Virtual Circuit Level

ATM Debugging Extended to the Virtual Circuit Level

The ATM **debug** commands are implemented either at the interface level or at the system level. The **debug** command output at these levels is not very useful when the user is interested in a particular set of VCs.

The Cisco IOS software has the infrastructure to support conditional debugging based on various filters that are set at the command-line interface (CLI). The conditional debugging infrastructure can filter out or suppress unwanted messages from the output of any existing **debug** command. The ATM Conditional Debug Support feature extends this infrastructure to support conditional debugging at the ATM VC level by extending the **debug condition interface** command with keywords that address specific virtual circuits. This feature can be implemented on top of conventional debugging, so that backward compatibility is ensured and at the same time applications can take advantage of conditional debugging where required. However, the extended **debug condition interface** command will have priority over the older version of the command; that is, a debug condition setting using the older **debug condition interface** command will be discarded as soon as a new debug condition is enabled on a virtual circuit.

How to Configure Conditional Debugging on ATM Interfaces

See the following sections to configure an ATM PVC for conditional debugging and to enable debugging for the ATM interface:

- Enabling Debugging for the ATM Interface (required)
- Verifying ATM Conditional Debug Support (optional)

Enabling Debugging for the ATM Interface

The task in this section enables conditional debugging on a set of specified interfaces. For information on configuring an ATM interface, refer to the documents listed in the "Additional References" section on page 5.

Prerequisites

You must turn on ATM debugging and specify the conditions (interface, VCI, or VPI/VCI pair) for the ATM Conditional Debug Support feature to work.

SUMMARY STEPS

1. **enable**
2. **debug atm** [**arp** | **counters** | **errors** | **events** | **oam** | **packet** | **state**]
3. **debug condition interface** *interface-type interface-number* [**vc** {*vci* | *vpi*/*vci*}]

DETAILED STEPS

	Command or Action	Purpose

Step 1	`enable`
	
	Example:
	`Router> enable`
		Enables privileged EXEC mode.
		• Enter your password if prompted.

Step 2	**debug atm** [**arp** | **counters** | **errors** | **events** | **oam** | **packet** | **state**] **Example:** `Router# debug atm state`	Displays various ATM events.
Step 3	**debug condition interface** *interface-type interface-number* [**vc** {*vci* | *vpi*/*vci*}] **Example:** `Router# debug condition interface ATM2/0 vc 255/62610`	Limits output for debugging according to the interface or ATM VC number.

Verifying ATM Conditional Debug Support

To verify that the ATM Conditional Debug Support feature is working correctly, perform this task.

SUMMARY STEPS

1. **enable**
2. **show debug condition**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`enable`
	
	Example:
	`Router> enable`
		Enables privileged EXEC mode.
		• Enter your password if prompted.

Step 2	`show debug condition`
	
	Example:
	`Router# show debug condition`
		Displays filtered debug condition.

Configuration Examples for ATM Conditional Debug Support

This section provides the following configuration example:

- Enabling Debugging for a Specific ATM Interface and VPI/VCI Pair: Example, page 4

Enabling Debugging for a Specific ATM Interface and VPI/VCI Pair: Example

The following example enables an ATM interface, specifies an IP address for the interface, turns on conditional debugging for that interface with a VPI/VCI pair of 255/62610, and verifies that debugging has been enabled:

```
Router> enable

Password:
Router# configure terminal

Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# interface ATM 2/0
Router(config-if)# ip address 10.0.0.5 255.255.255.0
Router(config-if)# pvc 255/62610
Router(config-if-atm-vc)# no shutdown
Router(config-if)# exit
Router(config)# exit
Router#
2w3d: %SYS-5-CONFIG_I: Configured from console by console
Router# debug atm state
ATM VC States debugging is on
Router# debug condition interface ATM2/0 vc 255/62610
Condition 1 set
Router#
```

```
2w3d: ATM VC Debug: Condition 1, atm-vc 255/62610 AT2/0 triggered, count 1
Router# show debug condition
Condition 1: atm-vc 255/62610 AT2/0 (1 flags triggered)
        Flags: ATM VC
```

Additional References

The following sections provide references related to the ATM Conditional Debug Support feature.

Related Documents

Related Topic	Document Title
Conditionally triggered debugging	"Conditionally Triggered Debugging" chapter in the *Debug Command Reference*, Release 12.0
Configuring ATM	"Configuring ATM" part of the Cisco IOS Release 12.0 *Wide-Area Networking Configuration Guide*

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
None	—

Technical Assistance

Description	Link
The Cisco Technical Support & Documentation website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/public/support/tac/home.shtml

Command Reference

This section documents the following modified commands for the ATM Conditional Debug Support feature.

- **debug condition interface**
- **show debug condition**

debug condition interface

To limit output for some debug commands on the basis of the interface or virtual circuit, use the **debug condition interface** command in privileged EXEC mode. To remove the interface condition and reset the interface so that it must be triggered by a condition, use the **no** form of this command.

debug condition interface *interface-type interface-number* [**dlci** *dlci*] [**vc** {*vci* | *vpi*/*vci*}]

no debug condition interface *interface-type interface-number* [**dlci** *dlci*] [**vc** {*vci* | *vpi*/*vci*}]

Syntax Description

interface-type interface-number	Interface type and number. No space is required between the interface type and number. Some interfaces require a slash between the type and number.
dlci *dlci*	(Optional) If the interface to be debugged is a Frame Relay-encapsulated interface, specifies the data-link connection identifier (DLCI).
vc {*vci* | *vpi*/*vci*}	(Optional) If the interface to be debugged is an ATM-encapsulated interface, specifies the virtual channel identifier (VCI) or virtual path identifier/virtual channel identifier (VPI/VCI) pair. (The slash is required.)

Defaults

All debugging messages for enabled **debug** commands are displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(28)S	The **dlci** and **vc** keywords were added for additional Frame Relay and ATM functionality.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(28)SB	Support for the Cisco 10000 series routers was added.

Usage Guidelines

Use this command to restrict the debugging output for some commands on the basis of an interface or virtual circuit. When you enter this command, debugging output is turned off for all interfaces except the specified interface or virtual circuit. In addition, this command enables conditional debugging to limit output for specific debugging events. Messages are displayed as different interfaces meet specific conditions.

The **no** form of the command has two functions:

- It disables the **debug condition interface** command for the specified interface. Output is no longer generated for the interface, assuming that the interface meets no other applicable conditions. If the interface meets other conditions that have been set by another **debug condition** command, debugging output will still be generated for the interface.
- If some other **debug condition** command has been enabled, output is stopped for that interface until the condition is met on the interface. You will be asked for confirmation before the last condition or all conditions are removed.

Not all debugging output is affected by the **debug condition** command. Some commands generate output whenever they are enabled, regardless of whether they meet any conditions. The commands that are affected by the **debug condition** commands are generally related to dial access functions, where a large amount of output is expected. Output from the following commands is controlled by the **debug condition** command:

- **debug aaa**
- **debug atm**
- **debug dialer events**
- **debug frame-relay**
- **debug isdn**
- **debug modem**
- **debug ppp**

One or more ATM-encapsulated interfaces must be enabled, and one or more of the following **debug** commands must be enabled to use conditional debugging with ATM:

- **debug atm arp**
- **debug atm counters**
- **debug atm errors**
- **debug atm events**
- **debug atm oam**
- **debug atm packet**
- **debug atm state**

One or more of the following **debug** commands must be enabled to use conditional debugging with Frame Relay:

- **debug frame-relay adjacency**
- **debug frame-relay ipc**
- **debug frame-relay lmi**
- **debug frame-relay packet**
- **debug frame-relay pseudowire**

Examples

In the following example, only **debug** command output related to serial interface 1 is displayed. The condition identifier for this command is 1.

```
Router# debug condition interface serial 1

Condition 1 set
```

The following example enables an ATM interface, specifies an IP address for the interface, turns on conditional debugging for that interface with a VPI/VCI pair of 255/62610, and verifies that debugging has been enabled:

```
Router> enable

Password:
Router# configure terminal

Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# interface ATM 2/0
Router(config-if)# ip address 10.0.0.5 255.255.255.0
Router(config-if)# pvc 255/62610
Router(config-if-atm-vc)# no shutdown
Router(config-if)# exit
Router(config)# exit
Router#
2w3d: %SYS-5-CONFIG_I: Configured from console by console
Router# debug atm state
ATM VC States debugging is on
Router# debug condition interface ATM2/0 vc 255/62610
Condition 1 set
Router#
2w3d: ATM VC Debug: Condition 1, atm-vc 255/62610 AT2/0 triggered, count 1
Router# show debug condition
Condition 1: atm-vc 255/62610 AT2/0 (1 flags triggered)
        Flags: ATM VC
```

In the following example, Frame Relay conditional debugging is enabled on Frame Relay DLCI 105:

```
Router# debug condition interface serial 4/3 dlci 105
Router# debug frame-relay packet
```

Related Commands

Command	Description
debug condition	Limits output for some debug commands on the basis of specific conditions.

show debug condition

To display the debugging filters that have been enabled for VoiceXML applications, ATM-enabled interfaces, or Frame Relay interfaces, use the **show debug condition** command in privileged EXEC mode.

show debug condition

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(11)T	This command was introduced on the Cisco 3640, Cisco 3660, Cisco AS5300, Cisco AS5350, and Cisco AS5400.
12.0(28)S	This command was enhanced to include debugging for ATM-enabled and Frame Relay-enabled interfaces.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(28)SB	Support for the Cisco 10000 series routers was added.

Usage Guidelines

This command displays the debugging filter conditions that have been set for VoiceXML applications by using the **debug condition application voice** command.

Examples

The following is sample output from this command when it is used with the VoiceXML application:

```
Router# show debug condition

Condition 1: application voice vmail (1 flags triggered)
       Flags: vmail
Condition 2: application voice myapp1 (1 flags triggered)
       Flags: myapp1
```

The following is sample output from this command when an ATM interface is being debugged:

```
Router# show debug condition

Condition 1: atm-vc 0/56784 AT2/0 (0 flags triggered)
Condition 2: atm-vc 255/45546 AT2/0 (0 flags triggered)
Condition 3: atm-vc 0/266 AT6/0 (1 flags triggered)
```

Table 1 describes the significant fields shown in the display.

Table 1 show debug condition Field Descriptions

Field	Description
Condition 1	Sequential number identifying the filter condition that was set for the specified command.
Flags	Name of the voice application for which the condition was set.
at2/0	Interface number of the ATM interface that has the debug condition applied.
atm-vc 0/56784	Virtual channel identifier (VCI). Alternatively, virtual path identifier/virtual channel identifier (VCI/VPI) pair.

Related Commands

Command	Description
debug condition application voice	Filters out debugging messages for all VoiceXML applications except the specified application.
debug http client	Displays debugging messages for the HTTP client.
debug vxml	Displays debugging messages for VoiceXML features.