



Frame Relay Conditional Debug Support

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The Frame Relay Conditional Debug Support feature introduces a filter to limit the number of Frame Relay debugging messages on the basis of an interface or a virtual circuit (VC). Multiple filters can be specified to debug more than one interface or PVC at a time.

History for the Frame Relay 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.
12.4(9)T	This feature was integrated into Cisco IOS Release 12.4(9)T.

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Corporate Headquarters:

Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

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Prerequisites for Frame Relay Conditional Debug Support

One or more Frame Relay-encapsulated interfaces must be enabled before the Frame Relay Conditional Debug Support feature can be used.

Restrictions for Frame Relay Conditional Debug Support

Only the following Frame Relay debugging commands can use the Frame Relay Conditional Debug Support feature:

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

Information About Frame Relay Conditional Debug Support

You need to understand the following concept before using the Frame Relay Conditional Debug Support feature.

- [Conditional Debugging Extended to Multiple Frame Relay Virtual Circuits, page 2](#)

Conditional Debugging Extended to Multiple Frame Relay Virtual Circuits

With the earlier conditional debugging model, you could monitor only a single DLCI-interface pair for a router at any given time. The model did not permit simultaneous debugging of more than one interface or VC at a time.

The Frame Relay Conditional Debug Support feature introduced with Cisco IOS Releases 12.0(28)S and 12.2(25)S makes it possible to monitor more than one VC at a time, making it useful in networks that have large numbers of configured VCs (also called data-link connection identifiers or DLCIs). The conditional debugging model provided with the Frame Relay Conditional Debug Support feature also provides a more consistent mechanism for conditional debugging across the Cisco IOS software.

The Cisco IOS software has always had the infrastructure to support conditional debugging based on various filters set at the command-line interface (CLI). The conditional debugging infrastructure could filter out or suppress unwanted messages from the output of any existing **debug** command. The Frame Relay Conditional Debug Support feature extends this infrastructure by adding keywords that address specific DLCI-interface pairs.

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. This feature takes priority over legacy capability; that is, a debug condition set using the older **debug condition interface** command will be discarded as soon as a debug condition is enabled for an interface or DLCI using the new conditional debug feature. Onscreen messages advise the user as to whether the new model or legacy conditional debugging has been enabled.

The **debug condition interface** command can still be used for enabling interface-level debugging. To enable packet debugging for a particular circuit, begin by identifying the circuit using the **debug condition interface** command and then enable the **debug frame-relay packet** command. For conditional debugging to work, only main interfaces and not subinterfaces should be passed as arguments to this command.

How to Configure Frame Relay Conditional Debug Support

See the following sections to configure the Frame Relay PVC and to enable debugging for the Frame Relay interface:

- [Enabling Debugging for the Frame Relay Interface, page 3](#) (required)
- [Verifying Frame Relay Conditional Debug Support, page 4](#) (optional)

Enabling Debugging for the Frame Relay Interface

The task in this section enables conditional debugging on a set of specified interfaces. For information about configuring a Frame Relay interface, see the documents listed in the [“Additional References” section on page 4](#).

Prerequisites

You must turn on Frame Relay debugging and specify the conditions (interface or DLCI) for the Frame Relay Conditional Debug Support feature to work.

SUMMARY STEPS

1. **enable**
2. **debug condition interface** *interface-type interface-number* [**dlci** *dlci*]
3. **debug frame-relay** [*adjacency* | **ipc** | **lmi** | **packet** | **pseudowire**]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. Enter your password if prompted.
	Example: Router> enable	
Step 2	debug condition interface <i>interface-type</i> <i>interface-number</i> [<i>dlci dlci</i>]	Limits output for debugging on the basis of the interface or Frame Relay DLCI number.
	Example: Router# debug condition interface serial 4/3 dlci 105	
Step 3	debug frame-relay [<i>adjacency</i> <i>ipc</i> <i>lmi</i> <i>packet</i> <i>pseudowire</i>]	Displays various Frame Relay events.
	Example: Router# debug frame-relay packet	

Verifying Frame Relay Conditional Debug Support

To verify that the Frame Relay 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	Enables privileged EXEC mode. Enter your password if prompted.
	Example: Router> enable	
Step 2	show debug condition	Displays filtered debug conditions.
	Example: Router# show debug condition	

Configuration Examples for Frame Relay Conditional Debug Support

This section provides the following configuration example:

- [Enabling Debugging for a Specific Frame Relay DLCI: Example, page 5](#)

Enabling Debugging for a Specific Frame Relay DLCI: Example

The following example enables Frame Relay conditional debugging on Frame Relay DLCI 105:

```
Router# debug condition interface serial 4/3 dlci 105
```

```
Router# debug frame-relay packet
```

Additional References

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

Related Documents

Related Topic	Document Title
Conditionally triggered debugging	“Debug Command Reference: Conditionally Triggered Debugging” chapter in the Cisco IOS Debug Command Reference , Release 12.4T
Configuring Frame Relay	“Configuring Frame Relay” part of the Cisco IOS Wide-Area Networking Configuration Guide , Release 12.4

Standards

Standard	Title
None	—

MIBs

MIB	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

RFC	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/techsupport

Command Reference

This section documents modified commands only.

- [debug condition interface](#)
- [show debug condition](#)

debug condition interface

To limit output for some debug commands on the basis of the interface, virtual circuit (VC), or VLAN, 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*}] [**vlan-id** *vlan-id*]

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

Syntax Description

<i>interface-type interface-number</i>	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 <i>dlci</i>	(Optional) If the interface to be debugged is a Frame Relay-encapsulated interface, specifies the data-link connection identifier (DLCI).
vc { <i>vci</i> <i>vpi/vci</i> }	(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.)
vlan-id <i>vlan-id</i>	(Optional) If the interface to be debugged is ATM, Ethernet, Fast Ethernet, or Gigabit Ethernet, specifies the VLAN ID.

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	The ability to filter debug output on the basis of VLAN ID was added.
12.4(9)T	This command was integrated into Cisco IOS Release 12.4(9)T.

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
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
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 integrated into Cisco IOS Release 12.0(28)S and 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	This command was integrated into Cisco IOS Release 12.2(28)SB.
	12.4(9)T	This command was enhanced to include debugging for ATM-enabled and Frame Relay-enabled interfaces.

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 myappl (1 flags triggered)
             Flags: myappl
```

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.

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■ show debug condition