



CEF Support for Dialer Profiles on Cisco 7500 Routers

The CEF Support for Dialer Profiles on Cisco 7500 Routers feature adds support for Cisco Express Forwarding (CEF) switching on dialer profile interfaces, on Cisco 7500 routers with the Route Switch Processor (RSP).

Feature History for the CEF Support for Dialer Profiles on Cisco 7500 Routers Feature

Release	Modification
12.2(4)T	This feature was introduced.
12.3(4)T	Support for this feature was added for dialer profile interfaces on Cisco 7500 routers with an RSP.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Contents

- [Restrictions for Asynchronous Line Monitoring feature, page 2](#)
- [Information About Asynchronous Line Monitoring feature, page 2](#)
- [How to Implement Dialer CEF Support on Cisco 7500 Routers with RSP, page 2](#)
- [Configuration Examples for Asynchronous Line Monitoring feature, page 4](#)
- [Additional References, page 5](#)
- [Command Reference, page 6](#)



Restrictions for Asynchronous Line Monitoring feature

The Asynchronous Line Monitoring feature does not support distributed CEF (dCEF) switching on dialer profile interfaces.

Information About Asynchronous Line Monitoring feature

To use the Asynchronous Line Monitoring feature, you need to understand the following concept:

- [CEF Switching Across Dialer Interfaces, page 2](#)

CEF Switching Across Dialer Interfaces

The Asynchronous Line Monitoring feature introduced in Cisco IOS Release 12.3(4)T adds support for CEF switching across dialer interfaces on Cisco 7500 routers with an RSP.

CEF switching on dialer profile interfaces allows packets to be CEF switched across the interface, rather than fast switched or process switched. CEF switching avoids the overhead of continuous cache cycles by using a Forwarding Information Base (FIB) to make the destination switching decision. The FIB mirrors the contents of the IP routing table, that is, there is a one-to-one correspondence between FIB table entries and routing table prefixes and, therefore, no need to maintain a separate route cache.

This FIB provides significant benefits in terms of performance, scalability, network resilience, and functionality, particularly in large complex networks with dynamic traffic patterns. CEF switching is less CPU-intensive than fast switched route caching. More CPU processing power can be dedicated to Layer 3 services such as quality of service (QoS) and encryption.

CEF switching also offers an unprecedented level of switching consistency and stability in large dynamic networks. In dynamic networks, fast-switched cache entries are frequently invalidated due to routing changes. These changes can cause traffic to be process switched using the FIB routing table, rather than fast switched using the route cache. Because the FIB lookup table contains all known routes that exist in the routing table, it eliminates route cache maintenance and the fast-switch or process-switch forwarding scenario. CEF can switch traffic more efficiently than typical demand caching schemes.

How to Implement Dialer CEF Support on Cisco 7500 Routers with RSP

You need perform no configuration tasks to use the CEF support for dialer interfaces configured on a Cisco 7500 with the RSP; the dialer CEF switching functionality is inherent in the Cisco IOS Release 12.3(4)T software.

The Asynchronous Line Monitoring feature has been tested successfully with dialer interface functionality including dialer profiles, legacy dial-on-demand routing (DDR), and large-scale dial-out Multiprotocol Label Switching Virtual Private Network (MPLS VPN).

The following section provides an optional task to verify that dialer CEF is enabled:

- [Verifying that Asynchronous Line Monitoring feature Feature Is Operational](#)

Verifying that Asynchronous Line Monitoring feature Feature Is Operational

Perform the following task to verify that the Asynchronous Line Monitoring feature feature is operational.

SUMMARY STEPS

1. **enable**
2. **debug ip cef** {**drops** [**rpf** [*access-list*]] [*access-list*] | **receive** [*access-list*] | **events** [*access-list*] | **interface** | **dialer**}
3. **show adjacency** [*type number*] [**detail**] [**summary**] [**internal**]
4. **show ip interface** [*type number*]
5. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	debug ip cef { drops [rpf [<i>access-list</i>]] [<i>access-list</i>] receive [<i>access-list</i>] events [<i>access-list</i>] interface dialer }	Records various CEF events. <ul style="list-style-type: none"> • dialer—Records IP CEF events for dialer interfaces.
Step 3	show adjacency [<i>type number</i>] [detail] [summary] [internal] Example: Router# show adjacency dialer1 internal	Displays an adjacency, if it exists, for a connected device, and whether the adjacency is valid. <ul style="list-style-type: none"> • internal—Displays CEF adjacency table dialer interface information.
Step 4	show ip interface [<i>type number</i>] Example: Router# show ip interface dialer1	Displays the usability status of IP interfaces, and will display whether CEF is enabled and the CEF switching vector is set.
Step 5	exit Example: Router> exit	Exits privileged EXEC mode.

Configuration Examples for Asynchronous Line Monitoring feature

This section provides the following examples for the Asynchronous Line Monitoring feature feature:

- [Recording CEF Events for Dialer Interface: Example, page 4](#)
- [Displaying CEF Adjacency Table for Dialer Interface: Example, page 4](#)
- [Displaying CEF Switching Status on IP Dialer Interface: Example, page 4](#)

Recording CEF Events for Dialer Interface: Example

The following is a sample record of dialer CEF events on a dialer interface reported by the **debug ip cef dialer** command:

```
Router# debug ip cef dialer

00:31:44:CEF-Dialer (profile dynamic encap (not MLP)):add link to 10.10.10.2 via Dialer1
through Dialer1
00:31:44:CEF-Dialer:adjacency added:0x81164850
00:31:44:CEF-Dialer:adjacency found:0x81164850; fib->count:1
```

Displaying CEF Adjacency Table for Dialer Interface: Example

The following is sample output from the **show adjacency dialer1 internal** command for a dialer profile that indicates where adjacency for the dialer interface is updated:

```
Router# show adjacency dialer1 internal

Protocol Interface                Address
IP         Dialer1                  point2point(9)
                                         22 packets, 2288 bytes
                                         FF030021
                                         CEF   expires:00:01:01
                                         refresh:00:00:13
                                         Fast adjacency disabled
                                         IP redirect enabled
                                         IP mtu 1500 (0x0)
                                         Fixup disabled
                                         Adjacency pointer 0x826B1F10, refCount 9
                                         Connection Id 0x0
                                         Bucket 14
```

Displaying CEF Switching Status on IP Dialer Interface: Example

The following is sample output from the **show ip interface dialer1** command. Reports about CEF switching on the dialer interface are shown in **bold text**, for purpose of example.

```
Router# show ip interface dialer1

Dialer1 is up, line protocol is up
  Internet address is 10.10.10.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
```

```

Helper address is not set
Directed broadcast forwarding is disabled
Outgoing access list is not set
Inbound access list is not set
Proxy ARP is enabled
Security level is default
Split horizon is enabled
ICMP redirects are always sent
ICMP unreachable are always sent
ICMP mask replies are never sent
IP fast switching is enabled
IP fast switching on the same interface is enabled
IP Flow switching is disabled
IP CEF switching is enabled
IP CEF Fast switching turbo vector
IP multicast fast switching is enabled
IP multicast distributed fast switching is disabled
IP route-cache flags are Fast, CEF

```

Additional References

The following sections provide references related to the Asynchronous Line Monitoring feature feature.

Related Documents

Related Topic	Document Title
Cisco Express Forwarding	<ul style="list-style-type: none"> • Cisco IOS IP Switching Configuration Guide; refer to the Cisco Express Forwarding chapters in “Part 1: Cisco IOS Switching Paths” • Cisco IOS IP Switching Command Reference
Dialer interfaces and profiles; Dialer CEF	<ul style="list-style-type: none"> • Cisco IOS Dial Technologies Configuration Guide; refer to the chapters “Configuring Peer-to-Peer DDR with Dialer Profiles” and “Dialer CEF”. • Cisco IOS Dial Technologies 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
None	—

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 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 feature uses no new or modified commands. For information about commands used with this feature, see the *Cisco IOS Dial Technologies Command Reference* at http://www.cisco.com/en/US/docs/ios/dial/command/reference/dia_book.html. For information about all Cisco IOS commands, go to the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or to the *Cisco IOS Master Commands List*.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only.

Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2001-2009 Cisco Systems, Inc. All rights reserved.

