



Redial Enhancements

Feature History

Release	Modification
12.2(4)T	This feature was introduced.
12.2(4)T2	Support for the Cisco 7500 series routers was added.

This document describes the Redial Enhancements feature for Cisco IOS Release 12.2(4)T. It includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 2](#)
- [Supported Standards, MIBs, and RFCs, page 3](#)
- [Configuration Tasks, page 3](#)
- [Configuration Examples, page 7](#)
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Feature Overview

The Redial Enhancements feature improves the performance of redial and provides greater control over redial behavior. The dialer will now cycle through all matching dialer strings or dialer maps before applying the redial interval, and may select a different physical dialer on each redial attempt. New dial-out attempts will not be initiated if a redial to the same destination is pending. The dialer can now be configured to apply a disable timer without performing any redial attempts, and a disable time can be applied to a dialer profile interface and to a serial dialer.

By default, the Cisco IOS software considers a call successful if it connects at the physical layer (Layer 1 of the OSI reference model). However, problems such as poor quality telco circuits or peer misconfiguration can cause dial-out failure even though a connection is made at the physical layer. The Redial Enhancements feature introduces a new command that allows the router to be configured to wait a specific amount of time for a line protocol to come up before considering a dial-out attempt successful. If the timer runs out or the call is dropped before the line protocol comes up, the call is considered unsuccessful. Unsuccessful dial-out attempts will trigger redial if the redial options have been configured.

Benefits

The Redial Enhancements feature will reduce dialer congestion by preventing additional dial-out attempts to any locations which have a redial attempt pending. This can reduce your telco bills by limiting unnecessary dial-out attempts. In addition, the router may now be configured to wait for the line protocol to come up before considering a dial-out attempt successful.

Restrictions

The **dialer wait-for-line-protocol** command is supported only with the PPP encapsulation protocol.

Related Documents

- *Cisco IOS Dial Technologies Configuration Guide*, Release 12.2
- *Cisco IOS Dial Technologies Command Reference*, Release 12.2

Supported Platforms

- Cisco 800 series
- Cisco 1000 series
- Cisco 1600 series
- Cisco 2500 series
- Cisco 2600 series
- Cisco 3600 series
- Cisco 7200 series
- Cisco 7500 series

Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, e-mail the Contact Database Administration group at cdbadmin@cisco.com. If you want to establish an account on Cisco.com, go to <http://www.cisco.com/register> and follow the directions to establish an account.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. As of May 2001, Feature Navigator supports M, T, E, S, and ST releases. You can access Feature Navigator at the following URL:

<http://www.cisco.com/go/fn>

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

RFCs

No new or modified RFCs are supported by this feature.

Configuration Tasks

See the following sections for configuration tasks for the Redial Enhancements feature. Each task in the list is identified as either required or optional:

- [Configuring Redial Options](#) (optional)
- [Configuring the Dialer to Wait for a Line Protocol](#) (optional)
- [Verifying Redial Configuration](#) (optional)

Configuring Redial Options

To configure redial options, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# interface dialer	Enters interface configuration mode.
Step 2	Router(config-if)# dialer redial interval time attempts number re-enable disable-time	Configures redial options on the router.

Configuring the Dialer to Wait for a Line Protocol

To configure the router to wait for a line protocol after connecting to the physical layer, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# interface dialer	Enters interface configuration mode.
Step 2	Router(config-if)# dialer wait-for-line-protocol time	Configures the router to wait for a line protocol after connecting to the physical layer.

Verifying Redial Configuration

To verify the configuration of redial options, perform the following steps:

-
- Step 1** Initiate a dial-out attempt to a location that is likely to fail to connect on the first attempt.
 - Step 2** Enter the **debug dialer events** command. The following debug output results from a dial-out attempt that failed to connect on both the initial attempt and two redial attempts:

```
Target IP address:10.0.0.2
Repeat count [5]:1
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 1, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:

*Mar  1 02:26:52.567:BR0/0 DDR:rotor dialout [priority]
*Mar  1 02:26:52.567:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar  1 02:26:52.567:BR0/0 DDR:Attempting to dial 6109
*Mar  1 02:26:52.739:BRI0/0:wait for isdn carrier timeout, call id=0x800B
*Mar  1 02:26:52.739:Di1 DDR:Redial:Created for ip (s=10.0.0.1, d=10.0.0.2).
!This is new debug output specific to redial configuration.
Success rate is 0 percent (0/1)
led#
*Mar  1 02:27:22.739:Di1 DDR:Redial:Timeout
!This is new debug output specific to redial configuration.
*Mar  1 02:27:22.739:BR0/0 DDR:rotor dialout [priority]
*Mar  1 02:27:22.739:Di1 DDR:Redialing on BR0/0 for ip (s=10.0.0.1, d=10.0.0.2) (attempt
1)
!This is new debug output specific to redial configuration.
*Mar  1 02:27:22.739:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar  1 02:27:22.739:BR0/0 DDR:Attempting to dial 6109
*Mar  1 02:27:22.939:BRI0/0:wait for isdn carrier timeout, call id=0x800C
led#
*Mar  1 02:27:52.939:Di1 DDR:Redial:Timeout
!This is new debug output specific to redial configuration.
*Mar  1 02:27:52.939:BR0/0 DDR:rotor dialout [priority]
*Mar  1 02:27:52.939:Di1 DDR:Redialing on BR0/0 for ip (s=10.0.0.1, d=10.0.0.2) (attempt
2)
!This is new debug output specific to redial configuration.
*Mar  1 02:27:52.939:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar  1 02:27:52.939:BR0/0 DDR:Attempting to dial 6109
*Mar  1 02:27:53.135:BRI0/0:wait for isdn carrier timeout, call id=0x800D
*Mar  1 02:27:53.139:Di1 DDR:Redial:Removed for ip (s=10.0.0.1, d=10.0.0.2) (2 attempts
tried)
!This is new debug output specific to redial configuration.
led#
led#
```

The following debug output results from a dial-out attempt that failed to connect initially, but succeeded on the first redial attempt:

```
Router# ping

Protocol [ip]:
Target IP address:10.0.0.2
Repeat count [5]:1
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]:
```

```

Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 1, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:

*Mar 1 02:28:47.095:BR0/0 DDR:rotor dialout [priority]
*Mar 1 02:28:47.099:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar 1 02:28:47.099:BR0/0 DDR:Attempting to dial 6109
*Mar 1 02:28:47.287:BRI0/0:wait for isdn carrier timeout, call id=0x800E
*Mar 1 02:28:47.287:Di1 DDR:Redial:Created for ip (s=10.0.0.1, d=10.0.0.2).
!This is new debug output specific to redial configuration.
Success rate is 0 percent (0/1)
led#
*Mar 1 02:29:17.287:Di1 DDR:Redial:Timeout
!This is new debug output specific to redial configuration.
*Mar 1 02:29:17.287:BR0/0 DDR:rotor dialout [priority]
*Mar 1 02:29:17.287:Di1 DDR:Redialing on BR0/0 for ip (s=10.0.0.1, d=10.0.0.2) (attempt
1)
!This is new debug output specific to redial configuration.
*Mar 1 02:29:17.287:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar 1 02:29:17.287:BR0/0 DDR:Attempting to dial 6109
02:29:77309411327:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to up
*Mar 1 02:29:17.487:Di1 DDR:Redial:Upon call connection
!This is new debug output specific to redial configuration.
*Mar 1 02:29:17.487:Di1 DDR:Redial:Removed for ip (s=10.0.0.1, d=10.0.0.2) (1 attempts
tried)
!This is new debug output specific to redial configuration.
*Mar 1 02:29:17.487:BR0/0:1:interface must be fifo queue, force fifo
02:29:77309411327:%DIALER-6-BIND:Interface BR0/0:1 bound to profile Di1
*Mar 1 02:29:19.455:BR0/0:1 DDR:No callback negotiated
*Mar 1 02:29:19.471:BR0/0:1 DDR:dialer protocol up
02:29:20:%LINEPROTO-5-UPDOWN:Line protocol on Interface BRI0/0:1, changed state to up
led#
led#

```

The following debug output results from a call that failed to connect to a line protocol during either the initial dial-out attempt or the first redial attempt. The connection was successfully made on the second redial attempt. The router was configured with both the **dialer wait-for-line-protocol** and **dialer redial** commands. In this example, the **dialer wait-for-line-protocol** command was configured to wait 10 seconds for the line protocol to come up.

```

Zcape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:

*Mar 1 02:32:08.631:BR0/0 DDR:rotor dialout [priority]
*Mar 1 02:32:08.631:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar 1 02:32:08.631:BR0/0 DDR:Attempting to dial 6109
02:32:35168336435:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to up
*Mar 1 02:32:08.787:BR0/0:1:interface must be fifo queue, force fifo
02:32:38654705663:%DIALER-6-BIND:Interface BR0/0:1 bound to profile Di1....
Success rate is 0 percent (0/5)
led#
*Mar 1 02:32:18.787:BR0/0:1 DDR:wait for line protocol timeout
!This is new debug output specific to waiting for a line protocol to come up.
*Mar 1 02:32:18.787:BR0/0 DDR:has total 0 call(s), dial_out 0, dial_in 0
02:32:18:%DIALER-6-UNBIND:Interface BR0/0:1 unbound from profile Di1
*Mar 1 02:32:18.787:BR0/0:1 DDR:disconnecting call
*Mar 1 02:32:18.787:Di1 DDR:Redial:Created for ip (s=10.0.0.1, d=10.0.0.2)
!This is new debug output specific to redial configuration.
02:32:18:%ISDN-6-CONNECT:Interface BRI0/0:1 is now connected to 6109
02:32:18:%ISDN-6-DISCONNECT:Interface BRI0/0:1 disconnected from 6109 , call lasted 10
seconds
02:32:79471714404:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to down
*Mar 1 02:32:18.879:BR0/0:1 DDR:disconnecting call

```

```

led#
led#
*Mar 1 02:32:48.787:Di1 DDR:Redial:Timeout
!This is new debug output specific to redial configuration.
*Mar 1 02:32:48.787:BR0/0 DDR:rotor dialout [priority]
*Mar 1 02:32:48.787:Di1 DDR:Redialing on BR0/0 for ip (s=10.0.0.1, d=10.0.0.2) (attempt
1)
!This is new debug output specific to redial configuration.
*Mar 1 02:32:48.787:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar 1 02:32:48.787:BR0/0 DDR:Attempting to dial 6109
02:32:208317874112:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to up
*Mar 1 02:32:48.987:BR0/0:1:interface must be fifo queue, force fifo
02:32:210453397503:%DIALER-6-BIND:Interface BR0/0:1 bound to profile Di1
led#
*Mar 1 02:32:58.987:BR0/0:1 DDR:wait for line protocol timeout
!This is new debug output specific to waiting for a line protocol to come up.
*Mar 1 02:32:58.987:BR0/0 DDR:has total 0 call(s), dial_out 0, dial_in 0
02:32:58:%DIALER-6-UNBIND:Interface BR0/0:1 unbound from profile Di1
*Mar 1 02:32:58.987:BR0/0:1 DDR:disconnecting call
02:32:58:%ISDN-6-CONNECT:Interface BRI0/0:1 is now connected to 6109
02:32:58:%ISDN-6-DISCONNECT:Interface BRI0/0:1 disconnected from 6109 , call lasted 10
seconds
02:32:255565373540:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to down
*Mar 1 02:32:59.079:BR0/0:1 DDR:disconnecting call
led#
led#
*Mar 1 02:33:28.987:Di1 DDR:Redial:Timeout
!This is new debug output specific to redial configuration.
*Mar 1 02:33:28.987:BR0/0 DDR:rotor dialout [priority]
*Mar 1 02:33:28.987:Di1 DDR:Redialing on BR0/0 for ip (s=10.0.0.1, d=10.0.0.2) (attempt
2)
!This is new debug output specific to redial configuration.
*Mar 1 02:33:28.987:BR0/0 DDR:Dialing cause ip (s=10.0.0.1, d=10.0.0.2)
*Mar 1 02:33:28.987:BR0/0 DDR:Attempting to dial 6109
02:33:126713495488:%LINK-3-UPDOWN:Interface BRI0/0:1, changed state to up
*Mar 1 02:33:29.187:BR0/0:1:interface must be fifo queue, force fifo
02:33:128849018879:%DIALER-6-BIND:Interface BR0/0:1 bound to profile Di1
*Mar 1 02:33:31.155:BR0/0:1 DDR:No callback negotiated
*Mar 1 02:33:31.171:BR0/0:1 DDR:dialer protocol up
*Mar 1 02:33:31.171:Di1 DDR:Redial:Upon line protocol up
!This is new debug output specific to redial configuration.
*Mar 1 02:33:31.175:Di1 DDR:Redial:Removed for ip (s=10.0.0.1, d=10.0.0.2) (2 attempts
tried)
!This is new debug output specific to redial configuration.
02:33:32:%LINEPROTO-5-UPDOWN:Line protocol on Interface BRI0/0:1, changed state to up
led#

```

Configuration Examples

This section provides the following configuration examples:

- [Dialer Redial Example](#)
- [Dialer Wait-for-Line-Protocol Example](#)

Dialer Redial Example

The following example configures redial options on the dialer:

```
dialer redial interval 10 attempts 5 re-enable 3000
```

Dialer Wait-for-Line-Protocol Example

The following example configures the dialer to wait for a line protocol after making a physical connection:

```
dialer wait-for-line-protocol 10
```

Command Reference

This section documents new and modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

New Command

- [dialer wait-for-line-protocol](#)

Modified Command

- [dialer redial](#)

dialer redial

To configure redial after failed outbound dial attempts, use the **dialer redial** command in interface configuration mode. To disable redial, use the **no** form of this command.

dialer redial interval *time* **attempts** *number* [**re-enable** *disable-time*]

no dialer redial

Syntax Description	Parameter	Description
	interval <i>time</i>	Time, in seconds, between redial attempts. The time can range from 5 to 2147483 seconds.
	attempts <i>number</i>	The maximum number of redial attempts to be performed. The number can range from 0 to 2147483.
	re-enable <i>disable-time</i>	(Optional) Time, in seconds, for which the interface will be disabled if all redial attempts fail. The time can range from 5 to 2147483 seconds.

Defaults Disabled

Command Modes Interface configuration

Command History	Release	Modification
	12.1(2)	This command was introduced.
	12.2(4)T	This command was modified to allow the following: <ul style="list-style-type: none"> • A disable time can be applied to a dialer profile interface and to a serial dialer. • The dialer can be configured to apply a disable timer without performing any redial attempts. • The dialer may select a different physical dialer on each redial attempt. • The dialer will cycle through all dialer strings or matching dialer maps on each redial attempt before applying the redial interval.

Usage Guidelines Use this command to customize the number of redial attempts to be made, the interval between redial attempts, and the amount of time the interface will be disabled if all redial attempts fail. Setting **attempts 0** prevents redial attempts without inactivating the **re-enable** option. The **re-enable** option can be applied to both serial dialers and dialer profile interfaces in Cisco IOS Release 12.2(4)T.

When a logical dialer interface such as a dialer profile or a dialer rotary group is used, redial attempts may occur on a different physical dialer on each attempt. The physical dialer selection algorithm may be customized using the **dialer rotor** interface configuration command.

Examples

The following example configures the dialer to make 5 redial attempts with an interval of 10 seconds between attempts. If all redial attempts fail, the interface will be disabled for 50 minutes.

```
dialer redial interval 10 attempts 5 re-enable 3000
```

Related Commands

Command	Description
debug dialer events	Displays debugging information about the packets received on a dialer interface.
dialer rotor	Specifies the method for identifying the outbound line to be used for ISDN or asynchronous DDR calls.

dialer wait-for-line-protocol

To set a maximum time the dialer will wait for a line protocol after establishing a physical connection before considering the call unsuccessful, use the **dialer wait-for-line-protocol** command in interface configuration mode. To disable this function, use the **no** form of this command.

dialer wait-for-line-protocol *time*

no dialer wait-for-line-protocol

Syntax Description	<i>time</i>	Time, in seconds, that the dialer will wait for the line protocol to come up after the physical layer connection has been established. The time can range from 1 to 2147483 seconds.
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Defaults	Disabled
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Command Modes	Interface configuration
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Command History	Release	Modification
	12.2(4)T	This command was introduced.

Usage Guidelines	<p>This command is supported only with encapsulation PPP.</p> <p>By default the Cisco IOS software considers a dial-out attempt successful if a connection is established to the physical layer (Layer 1 of the OSI reference model). The dialer wait-for-line-protocol command can be used to configure a router to wait a specific amount of time for a line protocol to come up once a physical layer connection has been established. If the call is dropped before the timer has elapsed, the call will be considered a failure. Redial will be triggered if the redial options have been configured with the dialer redial interface configuration command. The dialer failure statistics for the physical interface will be updated, which may influence the selection of a physical dialer for the next dial attempt. The physical dialer selection algorithm may be customized using the dialer rotor interface configuration command.</p>
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Note

This command is not useful in conjunction with Cisco High-Level Data Link Control (HDLC) encapsulation. Cisco HDLC encapsulation is the default line protocol and will always come up regardless of line conditions.

Examples	The following example configures the dialer to wait 10 seconds for a line protocol after making a physical connection:
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```
dialer wait-for-line-protocol 10
```

Related Commands

Command	Description
debug dialer events	Displays debugging information about the packets received on a dialer interface.
dialer redial	Configures redial after failed outbound dial attempts
dialer rotor	Specifies the method for identifying the outbound line to be used for ISDN or asynchronous DDR calls.

