



L2TP Extended Failover

The L2TP Extended Failover feature extends Layer 2 Tunneling Protocol (L2TP) failover to occur if during tunnel establishment a router receives a Stop-Control-Connection-Notification (StopCCN) message from its peer or during session establishment a router receives a Call-Disconnect-Notify (CDN) message from its peer. In either case, the router selects an alternate peer to contact. This action is in addition to the existing failover caused by excessive retransmission of Start-Control-Connection-Reply (SCCRQ) messages that indicate there is no response from the peer.

L2TP Extended Failover results in improved load distribution and prevents congestion at a tunnel terminator by allowing the busy tunnel terminator to inform the tunnel initiator that it should try another tunnel terminator.

Feature History for L2TP Extended Failover

Release	Modification
12.2(4)B	This feature was introduced.
12.2(13)T	This feature was integrated into Cisco IOS Release 12.2(13)T.
12.2(27)SBA	This feature was integrated into Cisco IOS Release 12.2(27)SBA.

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

- [Prerequisites for L2TP Extended Failover, page 2](#)
- [Information About L2TP Extended Failover, page 2](#)
- [Additional References, page 3](#)
- [Additional References, page 3](#)
- [Glossary, page 5](#)



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

Copyright © 2002–2005 Cisco Systems, Inc. All rights reserved.

Prerequisites for L2TP Extended Failover

The network must have L2TP configured in order for L2TP Extended Failover to work.

Information About L2TP Extended Failover

- [Benefits of L2TP Extended Failover, page 2](#)
- [How L2TP Extended Failover Works, page 2](#)

Benefits of L2TP Extended Failover

Before Cisco IOS Release 12.2(13)T, “L2TP failover” described only one scenario: During tunnel establishment, if a router sent a Start-Control-Connection-Request (SCCRQ) a number of times and received no response from the peer, the router could then “fail over” to the IP address of another peer (if so configured) and attempt tunnel establishment with that peer.

The L2TP Extended Failover feature extends L2TP failover to include the following two scenarios:

- During tunnel establishment, a router receives a StopCCN from its peer.
- During session establishment, a router receives a CDN from its peer.

In either case, the router marks the peer IP address as busy for a period of time (60 seconds) during which no attempt to establish a session or tunnel will be made to that peer. The router then selects an alternate peer to contact. If a tunnel is already established to this alternate peer, the router uses the existing tunnel to bring up the new session. Otherwise, the router will send an SCCRQ to the alternate peer to initiate tunnel establishment

How L2TP Extended Failover Works

The L2TP Extended Failover feature works in the background without any user CLI configuration.

In both the StopCCN control message and the CDN control message, a Result Code attribute-value pair (AVP) is included, which indicates the reason for tunnel or session termination, respectively. This AVP may also include an optional Error Code, which further describes the nature of the termination. The various Result Code and Error Code values have been standardized in RFC 2661. However, the circumstances under which these values are used is open to interpretation. Ideally, these values may be used to determine whether failover should occur. The L2TP Extended Failover feature allows failover to occur if the combination of Result Code and Error Code values as defined in [Table 1](#) is received from the peer.

Table 1 Defined Result and Error Codes from RFC 2661

Control Message	Result Code	Error Code
StopCCN, CDN	2: General error, see Error Code.	4: Insufficient resources to handle this operation now. 6: A generic vendor-specific error occurred. ¹ 7: Try another. 9: Try another directed.
CDN	4: Temporary lack of resources.	—

1. For failover, this error code would be accompanied by a vendor-specific error AVP in the error message—in this case containing the Cisco vendor code (SMI_CISCO_ENTERPRISE_CODE) and a Cisco error code (L2TP_VENDOR_ERROR_SLIMIT).

Additional References

For additional information related to L2TP Extended Failover, refer to the following references:

- [Related Documents, page 3](#)
- [Standards, page 3](#)
- [MIBs, page 4](#)
- [RFCs, page 4](#)

Related Documents

Related Topic	Document Title
L2TP	<i>Layer 2 Tunnel Protocol Technology Brief</i> http://www.cisco.com/warp/public/cc/pd/iosw/tech/l2pro_tc.htm

Standards

Standards	Title
None	—

MIBs

MIBs ¹	MIBs Link
	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

1. Not all supported MIBs are listed.

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

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

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

<http://www.cisco.com/register>

RFCs

RFCs ¹	Title
RFC#2661	<i>Layer Two Transport Protocol (L2TP)</i>

1. Not all supported RFCs are listed.

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, tools, and lots more. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/public/support/tac/home.shtml

Glossary

AVP—attribute-value pair.

CDN—Call-Disconnect-Notify message.

StopCCN—Stop-Control-Connection-Notification message.

SCCRQ—Start-Control-Connection-Request message.

**Note**

Refer to *Internetworking Terms and Acronyms* for terms not included in this glossary.

CCVP, the Cisco logo, and Welcome to the Human Network are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn is a service mark of Cisco Systems, Inc.; and Access Registrar, Aironet, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, LightStream, Linksys, MeetingPlace, MGX, Networkers, Networking Academy, Network Registrar, PIX, ProConnect, ScriptShare, SMARTnet, StackWise, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website 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. (0711R)

Copyright © 2002–2005 Cisco Systems, Inc. All rights reserved.

