C H A P T E R **18**

l2tp tunnel hello through log-adj-changes Commands

l2tp tunnel hello

To specify the interval between hello messages on L2TP over IPSec connections, use the **l2tp tunnel hello** command in global configuration mode. To remove the command from the configuration and set the default, use the no form of the command:

> **l2tp tunnel hello** *interval*

> **no l2tp tunnel hello** *interval*

Syntax Description

interval	Interval between hello messages in seconds. The Default is 60 seconds. The range is 10 to 300 seconds.

Defaults   The default is 60 seconds.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	—	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines   The **l2tp tunnel hello** command enables the security appliance to detect problems with the physical layer of the L2TP connection. The default is 60 secs. If you configure it to a lower value, connections that are experiencing problems are disconnected earlier.

Examples   The following example configures the interval between hello messages to 30 seconds:

```
hostname(config)# l2tp tunnel hello 30
```

Related Commands

Command	Description
show vpn-sessiondbdetail remote filter protocol L2TPOverIPSec	Displays the details of L2TP connections.
vpn-tunnel-protocol l2tp-ipsec	Enables L2TP as a tunneling protocol for a specific tunnel group.

ldap-attribute-map (aaa-server host mode)

To bind an existing mapping configuration to an LDAP host, use the **ldap-attribute-map** command in aaa-server host mode.

To remove the binding, use the **no** form of this command.

> **ldap-attribute-map** *map-name*

> **no ldap-attribute-map** *map-name*

Syntax Description

map-name	Specifies an LDAP attribute mapping configuration.

Defaults   No default behavior or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines   If the Cisco-defined LDAP attribute names do not meet your ease-of-use or other requirements, you can create your own attribute names, map them to Cisco attributes, and then bind the resulting attribute configuration to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters ldap-attribute-map mode. Note that there is no hyphen after "ldap" in this command.

2. Use the **map-name** and **map-value** commands in ldap-attribute-map mode to populate the attribute mapping configuration.

3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map configuration to an LDAP server.

Examples   The following example commands, entered in aaa-server host configuration mode, bind an existing attribute map named myldapmap to an LDAP server named ldapsvr1:

```
hostname(config)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-attribute-map myldapmap
hostname(config-aaa-server-host)#
```

Related Commands	Command	Description
	ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
	map-name	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
	map-value	Maps a user-defined attribute value to a Cisco attribute.
	show running-config ldap attribute-map	Displays a specific running ldap attribute mapping configuration or all running attribute mapping configurations.
	clear configure ldap attribute-map	Removes all LDAP attribute maps.

ldap attribute-map (global configuration mode)

To create and name an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names, use the **ldap attribute-map** command in global configuration mode.

To remove the map, use the **no** form of this command.

> **ldap attribute-map** *map-name*

> **no ldap attribute-map** *map-name*

Syntax Description

map-name	Specifies a user-defined name for an LDAP attribute map.

Defaults   No default behavior or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
global configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines   With the **ldap attribute-map** command, you can map your own attribute names and values to Cisco attribute names. You can then bind the resulting attribute map to an LDAP server. Your typical steps would be as follows:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This commands enters ldap-attribute-map mode.

2. Use the **map-name** and **map-value** commands in ldap-attribute-map mode to populate the attribute map.

3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after ldap in this command.

Note   To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

Examples   The following example command, entered in global configuration mode, creates an LDAP attribute map named myldapmap prior to populating it or binding it to an LDAP server:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)#
```

Related Commands

Command	Description
ldap-attribute-map (aaa-server host mode)	Binds an LDAP attribute map to an LDAP server.
map-name	Maps a user-defined LDAP attribute name to a Cisco LDAP attribute name.
map-value	Maps a user-defined attribute value to the Cisco attribute name.
show running-config ldap attribute-map	Displays a specific running LDAP attribute map or all running attribute maps.
clear configure ldap attribute-map	Removes all LDAP attribute maps.

ldap-base-dn

To specify the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request, use the **ldap-base-dn** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, thus resetting the search to start at the top of the list, use the **no** form of this command.

> **ldap-base-dn** *string*

> **no ldap-base-dn**

Syntax Description

string	A case-sensitive string of up to 128 characters that specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request; for example, OU=Cisco. Spaces are not permitted in the string, but other special characters are allowed.

Defaults   Start the search at the top of the list.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Pre-existing command, modified for this release

Usage Guidelines   This command is valid only for LDAP servers.

Examples   The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP base DN as starthere.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-base-dn starthere
hostname(config-aaa-server-host)# exit
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-login-password	Specifies the password for the login DN.

ldap-defaults

To define LDAP default values, use the **ldap-defaults** command in crl configure configuration mode. Crl configure configuration mode is accessible from crypto ca trustpoint configuration mode. These default values are used only when the LDAP server requires them. To specify no LDAP defaults, use the **no** form of this command.

> **ldap-defaults** *server* [*port*]

> **no ldap-defaults**

Syntax Description

port	(Optional) Specifies the LDAP server port. If this parameter is not specified, the security appliance uses the standard LDAP port (389).
server	Specifies the IP address or domain name of the LDAP server. If one exists within the CRL distribution point, it overrides this value.

Defaults   The default setting is not set.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crl configure configuration	•	•	•	•	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples   The following example defines LDAP default values on the default port (389):

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-defaults ldapdomain4 8389
```

Related Commands

Command	Description
crl configure	Enters ca-crl configuration mode.
crypto ca trustpoint	Enters trustpoint configuration mode.
protocol ldap	Specifies LDAP as a retrieval method for CRLs

ldap-dn

To pass a X.500 distinguished name and password to an LDAP server that requires authentication for CRL retrieval, use the **ldap-dn** command in crl configure configuration mode. Crl configure configuration mode is accessible from crypto ca trustpoint configuration mode. These parameters are used only when the LDAP server requires them.

To specify no LDAP DN, use the **no** form of this command.

> **ldap-dn** *x.500-name password*

> **no ldap-dn**

Syntax Description	

password	Defines a password for this distinguished name. The maximum field length is 128 characters.
x.500-name	Defines the directory path to access this CRL database, for example: cn=crl,ou=certs,o=CAName,c=US. The maximum field length is 128 characters.

Defaults   The default setting is not on.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Crl configure configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Examples   The following example specifies an X.500 name CN=admin,OU=devtest,O=engineering and a password xxzzyy for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-dn cn=admin,ou=devtest,o=engineering xxzzyy
```

Related Commands

Command	Description
crl configure	Enters crl configure configuration mode.

Command	Description
crypto ca trustpoint	Enters ca trustpoint configuration mode.
protocol ldap	Specifies LDAP as a retrieval method for CRLs.

ldap-login-dn

To specify the name of the directory object that the system should bind this as, use the **ldap-login-dn** command in aaa-server host mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command.

> **ldap-login-dn** *string*

> **no ldap-login-dn**

Syntax Description	*string* A case-sensitive string of up to 128 characters that specifies the name of the directory object in the LDAP hierarchy. Spaces are not permitted in the string, but other special characters are allowed.

Defaults   No default behaviors or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0	This command was introduced.
(1)	

Usage Guidelines   This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

Some LDAP servers, including the Microsoft Active Directory server, require that the security applianceestablish a handshake via authenticated binding before they will accept requests for any other LDAP operations. The security appliance identifies itself for authenticated binding by attaching a Login DN field to the user authentication request. The Login DN field describes the authentication characteristics of the security appliance. These characteristics should correspond to those of a user with administrator privileges.

For the *string* variable, enter the name of the directory object for VPN Concentrator authenticated binding, for example: cn=Administrator, cn=users, ou=people, dc=XYZ Corporation, dc=com. For anonymous access, leave this field blank.

Examples   The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login DN as myobjectname.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-login-dn myobjectname
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-login-password

To specify the login password for the LDAP server, use the **ldap-login-password** command in aaa-server host mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this password specification, use the **no** form of this command:

   ldap-login-password *string*

   no ldap-login-password

Syntax Description	*string*	A case-sensitive, alphanumeric password, up to 64 characters long. The password cannot contain space characters.

Defaults   No default behavior or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines   This command is valid only for LDAP servers. The maximum password string length is 64 characters.

Examples   The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login password as obscurepassword.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server)# timeout 9
hostname(config-aaa-server)# retry 7
hostname(config-aaa-server)# ldap-login-password obscurepassword
hostname(config-aaa-server)#
```

Related Commands

Command	Description
aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
ldap-login-dn	Specifies the name of the directory object that the system should bind as.
ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-naming-attribute

To specify the Relative Distinguished Name attribute, use the **ldap-naming-attribute** command in aaa-server host mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command:

    ldap-naming-attribute *string*

    no ldap-naming-attribute

Syntax Description	*string*	The case-sensitive, alphanumeric Relative Distinguished Name attribute, consisting of up to 128 characters, that uniquely identifies an entry on the LDAP server. Spaces are not permitted in the string, but other special characters are allowed.

Defaults   No default behaviors or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines   Enter the Relative Distinguished Name attribute that uniquely identifies an entry on the LDAP server. Common naming attributes are Common Name (cn) and User ID (uid).

This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

Examples   The following example configures an LDAP AAA server named srvgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP naming attribute as cn.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-naming-attribute cn
hostname(config-aaa-server-host)#
```

	Command	Description
Related Commands	**aaa-server host**	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
	ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
	ldap-login-dn	Specifies the name of the directory object that the system should bind as.
	ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
	ldap-scope	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

ldap-over-ssl

To establish a secure SSL connection between the security appliance and the LDAP server, use the **ldap-over-ssl** command in aaa-server host configuration mode.

To disable SSL for the connection, use the **no** form of this command.

> **ldap-over-ssl enable**

> **no ldap-over-ssl enable**

Syntax Description	**enable** Specifies that SSL secures a connection to an LDAP server.

Defaults   No default behavior or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
aaa-server host configuration	•	•	•	•	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines   Use this command to specify that SSL secures a connection between the security appliance and an LDAP server.

⬥

Note   We recommend enabling this feature if you are using plain text authentication. See the **sasl-mechanism** command.

Examples   The following commands, entered in aaa-server host configuration mode, enable SSL for a connection between the security appliance and the LDAP server named ldapsvr1 at IP address 10.10.0.1. They also configure the plain SASL authentication mechanism.

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-host)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-over-ssl enable
hostname(config-aaa-server-host)#
```

Related Commands

Command	Description
sasl-mechanism	Specifies SASL authentication between the LDAP client and server.
server-type	Specifies the LDAP server vendor as either Microsoft or Sun.
ldap attribute-map (global configuration mode)	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

ldap-scope

To specify the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request, use the **ldap-scope** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessibile from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command:

> **ldap-scope** *scope*

> **no ldap-scope**

Syntax Description

scope	The number of levels in the LDAP hierarchy for the server to search when it receives an authorization request. Valid values are: • **onelevel**—Search only one level beneath the Base DN • **subtree**—Search all levels beneath the Base DN

Defaults

The default value is **onelevel**.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Aaa-server host	•	•	•	•	—

Command History

Release	Modification
7.0(1)	Pre-existing command, modified for this release

Usage Guidelines

Specifying the scope as **onelevel** results in a faster search, because only one level beneath the Base DN is searched. Specifying **subtree** is slower, because all levels beneath the Base DN are searched.

This command is valid only for LDAP servers.

Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP scope to include the subtree levels.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-scope subtree
hostname(config-aaa-server-host)#
```

Related Commands	Command	Description
	aaa-server host	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
	ldap-base-dn	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
	ldap-login-dn	Specifies the name of the directory object that the system should bind as.
	ldap-login-password	Specifies the password for the login DN. This command is valid only for LDAP servers.
	ldap-naming-attribute	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.

leap-bypass

To enable LEAP Bypass, use the **leap-bypass enable** command in group-policy configuration mode. To disable LEAP Bypass, use the **leap-bypass disable** command. To remove the LEAP Bypass attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for LEAP Bypass from another group policy.

LEAP Bypass lets LEAP packets from wireless devices behind a VPN hardware client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.

leap-bypass {**enable** | **disable**}

no leap-bypass

Syntax Description	disable	Disables LEAP Bypass.
	enable	Enables LEAP Bypass.

Defaults   LEAP Bypass is disabled.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Group-policy configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

Usage Guidelines   This feature does not work as intended if you enable interactive hardware client authentication.

For further information, see the *Cisco Security Appliance Command Line Configuration Guide*.

Note   There may be security risks in allowing any unauthenticated traffic to traverse the tunnel.

Examples   The following example shows how to set LEAP Bypass for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# leap-bypass enable
```

Related Commands

Command	Description
secure-unit-authentication	Requires VPN hardware clients to authenticate with a username and password each time the client initiates a tunnel.
user-authentication	Requires users behind VPN hardware clients to identify themselves to the security appliance before connecting.

lifetime

To specify the lifetime of an IKE security association before it expires, use the **lifetime** command in crypto isakmp policy configuration configuration mode. You can specify an infinite lifetime if the peer does not propose a lifetime. Use the **no** form of this command to reset the security association lifetime to the default value of 86,400 seconds (one day).

lifetime *seconds*

no lifetime

Syntax Description		
priority	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.	
seconds	Specifies how many seconds each security association should exist before expiring. To propose a finite lifetime, use an integer from 120 to 2147483647 seconds. Use 0 seconds for infinite lifetime.	

Defaults   The default value is 86,400 seconds (one day).

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Crypto isakmp policy configuration	•	—	•	—	—

Command History

Release	Modification
7.0(1)(1)	The **isakmp policy lifetime** command was preexisting.
7.2.(1)	The **lifetime** command replaces the **isakmp policy lifetime** command**.**

Usage Guidelines   When IKE begins negotiations, it seeks to agree upon the security parameters for its own session. Then the security association at each peer refers to the agreed-upon parameters. The peers retain the security association until the lifetime expires. Before a security association expires, subsequent IKE negotiations can use it, which can save time when setting up new IPSec security associations. The peers negotiate new security associations before current security associations expire.

With longer lifetimes, the security appliance sets up future IPSec security associations more quickly. Encryption strength is great enough to ensure security without using very fast rekey times, on the order of every few minutes. We recommend that you accept the default.

Note   If the IKE security association is set to an infinite lifetime, but the peer proposes a finite lifetime, then the negotiated finite lifetime from the peer is used.

Examples   The following example, entered in global configuration mode, sets the lifetime of the IKE security association to 50,4000 seconds (14 hours) for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# lifetime 50400
```

The following example, entered in global configuration mode, sets the IKE security association to an infinite lifetime.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# lifetime 0
```

Related Commands

clear configure crypto isakmp	Clears all the ISAKMP configuration.
clear configure crypto isakmp policy	Clears all ISAKMP policy configuration.
clear crypto isakmp sa	Clears the IKE runtime SA database.
show running-config crypto isakmp	Displays all the active configuration.

limit-resource

To specify a resource limit for a class in multiple context mode, use the **limit-resource** command in class configuration mode. To restore the limit to the default, use the **no** form of this command. The security appliance manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

limit-resource {**all 0** | [**rate**] *resource_name number*[**%**]}

no limit-resource {**all** | [**rate**] *resource_name*}

Syntax Description

all 0	Sets the limit for all resources as unlimited.
number[**%**]	Specifies the resource limit as a fixed number greater than or equal to 1, or as a percentage of the system limit between 1 and 100 (when used with the percent sign (%)). Set the limit to **0** to indicate an unlimited resource. For resources that do not have a system limit, you cannot set the percentage (%); you can only set an absolute value.
rate	Specifies that you want to set the rate per second for a resource. See Table 18-1 for resources for which you can set the rate per second.
resource_name	Specifies the resource name for which you want to set a limit. This limit overrides the limit set for **all**.

Defaults

All resources are set to unlimited, except for the following limits, which are by default set to the maximum allowed per context:

- Telnet sessions—5 sessions.
- SSH sessions—5 sessions.
- IPSec sessions—5 sessions.
- MAC addresses—65,535 entries.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Class configuration	•	•	—	—	•

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines   When you limit a resource for a class, the security appliance does not set aside a portion of the resources for each context assigned to the class; rather, the security appliance sets the maximum limit for a context. If you oversubscribe resources, or allow some resources to be unlimited, a few contexts can "use up" those resources, potentially affecting service to other contexts.

Table 18-1 lists the resource types and the limits. See also the **show resource types** command.

Table 18-1   Resource Names and Limits

Resource Name	Rate or Concurrent	Minimum and Maximum Number per Context	System Limit[1]	Description
mac-addresses	Concurrent	N/A	65,535	For transparent firewall mode, the number of MAC addresses allowed in the MAC address table.
conns	Concurrent or Rate	N/A	Concurrent connections: See the *Cisco Security Appliance Command Line Configuration Guide* for the connection limit for your platform. Rate: N/A	TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts.
inspects	Rate	N/A	N/A	Application inspections.
hosts	Concurrent	N/A	N/A	Hosts that can connect through the security appliance.
asdm	Concurrent	1 minimum 5 maximum	32	ASDM management sessions. **Note** ASDM sessions use two HTTPS connections: one for monitoring that is always present, and one for making configuration changes that is present only when you make changes. For example, the system limit of 32 ASDM sessions represents a limit of 64 HTTPS sessions.
ssh	Concurrent	1 minimum 5 maximum	100	SSH sessions.
syslogs	Rate	N/A	N/A	System log messages.
telnet	Concurrent	1 minimum 5 maximum	100	Telnet sessions.
xlates	Concurrent	N/A	N/A	Address translations.

1. If this column value is N/A, then you cannot set a percentage of the resource because there is no hard system limit for the resource.

Examples   The following example sets the default class limit for conns to 10 percent instead of unlimited:

```
hostname(config)# class default
hostname(config-class)# limit-resource conns 10%
```

All other resources remain at unlimited.

To add a class called gold, enter the following commands:

```
hostname(config)# class gold
hostname(config-class)# limit-resource mac-addresses 10000
hostname(config-class)# limit-resource conns 15%
hostname(config-class)# limit-resource rate conns 1000
hostname(config-class)# limit-resource rate inspects 500
hostname(config-class)# limit-resource hosts 9000
hostname(config-class)# limit-resource asdm 5
hostname(config-class)# limit-resource ssh 5
hostname(config-class)# limit-resource rate syslogs 5000
hostname(config-class)# limit-resource telnet 5
hostname(config-class)# limit-resource xlates 36000
```

Related Commands

Command	Description
class	Creates a resource class.
context	Configures a security context.
member	Assigns a context to a resource class.
show resource allocation	Shows how you allocated resources across classes.
show resource types	Shows the resource types for which you can set limits.

lmfactor

To set a revalidation policy for caching objects that have only the last-modified timestamp, and no other server-set expiration values, use the **lmfactor** command in cache mode. To set a new policy for revalidating such objects, use the command again. To reset the attribute to the default value of 20, enter the **no** version of the command.

> **lmfactor** *value*

> **no lmfactor**

Syntax Description

value	An integer in the range of 0 to 100.

Defaults   The default value is 20.

Command Modes   The following table shows the modes in which you enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Cache mode	•	—	•	—	—

Command History

Release	Modification
7.1(1)	This command was introduced.

Usage Guidelines   The security appliance uses the value of the lmfactor to estimate the length of time for which it considers a cached object to be unchanged. This is known as the expiration time. The security appliance estimates th expiration time by the time elapsed since the last modification multiplied by the lmfactor.

Setting the lmfactor to zero is equivalent to forcing an immediate revalidation, while setting it to 100 results in the longest allowable time until revalidation.

Examples   The following example shows how to set an lmfactor of 30:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# lmfactor 30
hostname(config-webvpn-cache)#
```

Related Commands

Command	Description
cache	Enters WebVPN Cache mode.
cache-compressed	Configures WebVPN cache compression.
disable	Disables caching.
expiry-time	Configures the expiration time for caching objects without revalidating them.
max-object-size	Defines the maximum size of an object to cache.
min-object-size	Defines the minimum sizze of an object to cache.

log

When using the Modular Policy Framework, log packets that match a **match** command or class map by using the **log** command in match or class configuration mode. This log action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic. To disable this action, use the **no** form of this command.

> **log**

> **no log**

Syntax Description   This command has no arguments or keywords.

Defaults   No default behaviors or values.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Match and class configuration	•	•	•	•	—

Command History

Release	Modification
7.2(1)	This command was introduced.

Usage Guidelines   An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **log** command to log all packets that match the **match** command or **class** command.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http_policy_map** command where http_policy_map is the name of the inspection policy map.

Examples   The following example sends a log when packets match the http-traffic class map.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# log
```

Related Commands

Commands	Description
class	Identifies a class map name in the policy map.
class-map type inspect	Creates an inspection class map to match traffic specific to an application.
policy-map	Creates a Layer 3/4 policy map.
policy-map type inspect	Defines special actions for application inspection.
show running-config policy-map	Display all current policy map configurations.

log-adj-changes

To configure the router to send a syslog message when an OSPF neighbor goes up or down, use the **log-adj-changes** command in router configuration mode. To turn off this function, use the **no** form of this command.

> **log-adj-changes** [**detail**]

> **no log-adj-changes** [**detail**]

Syntax Description	**detail**	(Optional) Sends a syslog message for each state change, not just when a neighbor goes up or down.

Defaults   This command is enabled by default.

Command Modes   The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Router configuration	•	—	•	—	—

Command History

Release	Modification
Preexisting	This command was preexisting.

Usage Guidelines   The **log-adj-changes** command is enabled by default; it appears in the running configuration unless removed with the **no** form of the command.

Examples   The following example disables the sending of a syslog message when an OSPF neighbor goes up or down:

```
hostname(config)# router ospf 5
hostname(config-router)# no log-adj-changes
```

Related Commands

Command	Description
router ospf	Enters router configuration mode.
show ospf	Displays general information about the OSPF routing processes.