Keychain Management Commands

This module describes the commands used to configure keychain management.

For detailed information about keychain management concepts, configuration tasks, and examples, see the *Implementing Keychain Management on the Cisco IOS XR Software* configuration module in the *System Security Configuration Guide for Cisco CRS Routers*.

accept-lifetime

To set the time period during which the authentication key on a keychain is received as valid, use the **accept-lifetime** command in key configuration mode. To revert to the default value, use the **no** form of this command.

accept-lifetime *start-time* [{**duration** *duration value* | **infinite***end-time*}]

Syntax Description		
start-time	Start time, in *hh:mm:ss day month year* format, in which the key becomes valid. The range is from 0:0:0 to 23:59:59.
	The range for the number of days of the month is from 1 to 31.
	The range for the years is from 1993 to 2035.
duration *duration value*	(Optional) Determines the lifetime of the key in seconds. The range is from 1-2147483646.
infinite	(Optional) Specifies that the key never expires after it becomes valid.
end-time	(Optional) Time, in *hh:mm:ss day month year* format, after which the key expires. The range is from 0:0:0 to 23:59:59.

Command Default   None

Command Modes   Key configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced.
Release 3.6.0	The range values were added for the *start-time* argument.

Usage Guidelines   No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
system	read, write

Examples   The following example shows how to use the **accept-lifetime** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)# key 8
RP/0/RP0/CPU0:router(config-isis-keys-0x8)# accept-lifetime 1:00:00 June 29 2006 infinite
```

Related Commands

Command	Description
key (key chain), on page 5	Creates or modifies a keychain key.
key chain (key chain), on page 6	Creates or modifies a keychain.
key-string (keychain), on page 9	Specifies the text for the key string.
send-lifetime, on page 11	Sends the valid key.
show key chain, on page 13	Displays the keychain.

accept-tolerance

To specify the tolerance or acceptance limit, in seconds, for an accept key that is used by a peer, use the **accept-tolerance** command in keychain configuration mode. To disable this feature, use the **no** form of this command.

accept-tolerance [{*value* | **infinite**}]

Syntax Description

value	(Optional) Tolerance range, in seconds. The range is from 1 to 8640000.
infinite	(Optional) Specifies that the tolerance specification is infinite. The accept key never expires. The tolerance limit of infinite indicates that an accept key is always acceptable and validated when used by a peer.

Command Default

The default value is 0, which is no tolerance.

Command Modes

Keychain configuration

Command History

Release	Modification
Release 3.4.0	This command was introduced.

Usage Guidelines

If you do not configure the **accept-tolerance** command, the tolerance value is set to zero.

Even though the key is outside the active lifetime, the key is deemed acceptable as long as it is within the tolerance limit (for example, either prior to the start of the lifetime, or after the end of the lifetime).

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to use the **accept-tolerance** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)# accept-tolerance infinite
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
key chain (key chain), on page 6	Creates or modifies a keychain.
show key chain, on page 13	Displays the keychain.

key (key chain)

To create or modify a keychain key, use the **key** command in keychain-key configuration mode. To disable this feature, use the **no** form of this command.

key *key-id*

Syntax Description

key-id	48-bit integer key identifier of from 0 to 281474976710655.

Command Default

No default behavior or values

Command Modes

Keychain-key configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced.

Usage Guidelines

For a Border Gateway Protocol (BGP) keychain configuration, the range for the *key-id* argument must be from 0 to 63. If the range is above the value of 63, the BGP keychain operation is rejected.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to use the **key** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)# key 8
RP/0/RP0/CPU0:router(config-isis-keys-0x8)#
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
key chain (key chain), on page 6	Creates or modifies a keychain.
key-string (keychain), on page 9	Specifies the text for the key string.
send-lifetime, on page 11	Sends the valid key.
show key chain, on page 13	Displays the keychain.

key chain (key chain)

To create or modify a keychain, use the **key chain** command in Global Configuration mode. To disable this feature, use the **no** form of this command.

key chain *key-chain-name*

Syntax Description	*key-chain-name*	Specifies the name of the keychain. The maximum number of characters is 48.

Command Default

No default behavior or values

Command Modes

Global Configuration mode

Command History

Release	Modification
Release 3.3.0	This command was introduced.
Release 3.4.1	The maximum number of characters allowed in the keychain name was changed from 32 to 48.

Usage Guidelines

You can configure a keychain for Border Gateway Protocol (BGP) as a neighbor, session group, or neighbor group. BGP can use the keychain to implement a hitless key rollover for authentication.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows that the name of the keychain isis-keys is for the **key chain** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)#
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
accept-tolerance, on page 4	Configures a tolerance value to accept keys for the keychain.
key (key chain), on page 5	Creates or modifies a keychain key.
key-string (keychain), on page 9	Specifies the text for the key string.
send-lifetime, on page 11	Sends the valid key.

Command	Description
show key chain, on page 13	Displays the keychain.

key config-key password-encryption

To create a primary key for the Type 6 password encryption feature, use the **key config-key password-encryption** command in EXEC mode.

key config-key password-encryption [**delete**]

Syntax Description	delete (Optional) Deletes the primary key for Type 6 password encryption.

Command Default   No primary key exists.

Command Modes   EXEC mode

Command History

Release	Modification
Release 7.0.1	This command was introduced.

Examples

The following example shows how to create a primary key for Type 6 password encryption:

```
Router# key config-key password-encryption

New password Requirements: Min-length 6, Max-length 64
Characters restricted to [A-Z][a-z][0-9]
Enter new key :
Enter confirm key :
Master key operation is started in background
```

The following example shows how to delete a primary key for Type 6 password encryption:

```
Router# key config-key password-encryption delete

WARNING: All type 6 encrypted keys will become unusable
Continue with master key deletion ? [yes/no]: yes
Master key operation is started in background
```

Related Commands

Command	Description
password6 encryption aes	Enables Type 6 password encryption feature.
show type6 server	Displays Type 6 password information.

key-string (keychain)

To specify the text string for the key, use the **key-string** command in keychain-key configuration mode. To disable this feature, use the **no** form of this command.

key-string [{**clear** | **password**}] *key-string-text*

Syntax Description		
clear	Specifies the key string in clear-text form.	
password	Specifies the key in encrypted form.	
key-string-text	Text string for the key, which is encrypted by the parser process before being saved to the configuration. The text string has the following character limitations:	

  • Plain-text key strings—Minimum of 1 character and a maximum of 32.

  • Encrypted key strings—Minimum of 4 characters and no maximum.

Command Default The default value is clear.

Command Modes Keychain-key configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced.

Usage Guidelines For an encrypted password to be valid, the following statements must be true:

  • String must contain an even number of characters, with a minimum of four.

  • The first two characters in the password string must be decimal numbers and the rest must be hexadecimals.

  • The first two digits must not be a number greater than 53.

Either of the following examples would be valid encrypted passwords:

1234abcd

or

50aefd

From Cisco IOS XR Software Release 6.7.2, , and later, if you are using any **HMAC-SHA** algorithm for a session, then you must ensure that the configured *key-string* has a minimum length of 14 characters. Otherwise, the session goes down. This guideline is applicable only for FIPS mode.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to use the **keystring** command:

```
RP/0/RP0/CPU0:router:# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)# key 8
RP/0/RP0/CPU0:router(config-isis-keys-0x8)# key-string password 850aefd
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
key (key chain), on page 5	Creates or modifies a keychain key.
key chain (key chain), on page 6	Creates or modifies a keychain.
send-lifetime, on page 11	Sends the valid key.
show key chain, on page 13	Displays the keychain.

send-lifetime

To send the valid key and to authenticate information from the local host to the peer, use the **send-lifetime** command in keychain-key configuration mode. To disable this feature, use the **no** form of this command.

send-lifetime *start-time* [{**duration** *duration* *value* | **infinite***end-time*}]

Syntax Description

start-time	Start time, in *hh:mm:ss day month year* format, in which the key becomes valid. The range is from 0:0:0 to 23:59:59.
	The range for the number of days of the month to start is from 1 to 31.
	The range for the years is from 1993 to 2035.
duration *duration value*	(Optional) Determines the lifetime of the key in seconds.
infinite	(Optional) Specifies that the key never expires once it becomes valid.
end-time	(Optional) Time, in *hh:mm:ss day month year* format, after which the key expires. The range is from 0:0:0 to 23:59:59

Command Default   No default behavior or values

Command Modes   Keychain-key configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced.
Release 3.6.0	The range values were added for the *start-time* argument.

Usage Guidelines   No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
system	read, write

Examples   The following example shows how to use the **send-lifetime** command:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# key chain isis-keys
RP/0/RP0/CPU0:router(config-isis-keys)# key 8
RP/0/RP0/CPU0:router(config-isis-keys-0x8)# send-lifetime 1:00:00 June 29 2006 infinite
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
key (key chain), on page 5	Creates or modifies a keychain key.
key chain (key chain), on page 6	Creates or modifies a keychain.
key-string (keychain), on page 9	Specifies the text for the key string.

show key chain

To display the keychain, use the **show key chain** command in EXEC mode.

show key chain *key-chain-name*

Syntax Description	*key-chain-name* Names of the keys in the specified keychain. The maximum number of characters is 32.

Command Default If the command is used without any parameters, then it lists out all the key chains.

Command Modes EXEC mode

Command History

Release	Modification
Release 3.3.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
system	read

Examples

When a secure key storage becomes available, it is desirable for keychain management to alternatively prompt you for a primary password and display the key label after decryption. The following example displays only the encrypted key label for the **show key chain** command:

```
RP/0/RP0/CPU0:router# show key chain isis-keys

Key-chain: isis-keys/ -

accept-tolerance -- infinite
Key 8 -- text "8"
  cryptographic-algorithm -- MD5
  Send lifetime:   01:00:00, 29 Jun 2006 - Always valid  [Valid now]
  Accept lifetime: 01:00:00, 29 Jun 2006 - Always valid [Valid now]
```

Related Commands

Command	Description
accept-lifetime, on page 2	Accepts the valid key.
accept-tolerance, on page 4	Configures a tolerance value to accept keys for the keychain.
key (key chain), on page 5	Creates or modifies a keychain key.
key chain (key chain), on page 6	Creates or modifies a keychain.
key-string (keychain), on page 9	Specifies the text for the key string.

Command	Description
send-lifetime, on page 11	Sends the valid key.

show type6

To view Type 6 password encryption information, use the **show type6** command in EXEC mode.

show type6 { **clients** | **server** | **trace server** { **all** | **error** | **info** } [*trace-server-parameter*] }

Syntax Description		
clients	Displays Type 6 client information.	
server	Displays Type 6 server information.	
trace server	Displays Type 6 trace server information.	
all	Displays all Type 6 traces.	
error	Displays Type 6 error traces.	
info	Displays Type 6 information trace entries.	
trace-server-parameter	(Optional) Displays Type 6 trace server information for the specified parameter. Use one from the list of parameters defined in the Usage Guidelines section.	

Command Default None.

Command Modes EXEC mode

Command History

Release	Modification
Release 7.0.1	This command was introduced.

Usage Guidelines In the command form **show type6 trace server info** *trace-server-parameter*, replace *trace-server-parameter* with one of the following parameters:

Trace Server Parameter	Displayed Trace Server Information
file	The specified file.
hexdump	Hexadecimal format.
last	The most recent entries.
location	Line card location.
reverse	From the most recent entry to the first entry.
stats	Statistics information.
tailf	New traces as they are added.
udir	Copies trace information from remote locations to the specifed temporary directory.

Trace Server Parameter	Displayed Trace Server Information
unique	Unique entries with counts.
usec	User security information, with time stamp.
verbose	Internal debugging information.
wide	Removes buffer name, node name, and tid information.
wrapping	Wrapping entries.

Examples

The following command displays Type 6 password encryption feature information:

```
Router# show type6 server

Server detail information:
===========================
AES config State : Enabled
Masterkey config State : Enabled
Type6 feature State : Enabled
Master key Inprogress : No

Router# show type6 trace server all

Client file lib/type6/type6_server_wr
25 wrapping entries (18496 possible, 64 allocated, 0 filtered, 25 total)
Jul 19 09:59:27.168 lib/type6/type6_server_wr 0/RP0/CPU0 t7145 ***** Type6 server process
started Respawn count (1) ****
…
…
Jul 19 12:22:59.908 lib/type6/type6_server_wr 0/RP0/CPU0 t7145 User has started Master key
 operation (CREATE)
Jul 19 12:22:59.908 lib/type6/type6_server_wr 0/RP0/CPU0 t7145 Created Master key in TAM
successfully
Jul 19 12:23:00.265 lib/type6/type6_server_wr 0/RP0/CPU0 t7145 Master key Available set to
 (AVAILABLE)
Jul 19 12:23:00.272 lib/type6/type6_server_wr 0/RP0/CPU0 t7145 Master key inprogress set
to (NOT INPROGRESS)

Router# show type6 clients

Type6 Clients information:

Client Name   MK State
====================
keychain      UNKNOWN
```