

Crypto IPSec Configuration Mode Commands

The Crypto IPSec Configuration Mode is used to configure anti-replay window size and properties for system transform sets.

The anti-replay window may be increased to allow the IPSec decryptor to keep track of more than 64 packets.

Transform Sets are used to define IPSec security associations (SAs). IPSec SAs specify the IPSec protocols to use to protect packets.

Command Modes

Exec > Global Configuration > Context Configuration > Crypto IPSec Configuration

configure > context *context_name* **> crypto ipsec**

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

- end, on page 1
- exit, on page 2
- replay window-size, on page 2
- transform-set, on page 3

end

Exits the current configuration mode and returns to the Exec mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

`end`

Usage Guidelines

Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

exit

Usage Guidelines

Use this command to return to the parent configuration mode.

replay window-size

Configures the IPSec anti-replay window size in packets (RFC 6479).

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator

Syntax Description

replay window-size*window_size*

window_size

Specifies the size of the anti-replay window in packets. Enter one of the following integers to change the number of packets in the window: 32, 64 (default), 128, 256, 384, 512.

Increasing the anti-replay window size has no impact on throughput and security.

Usage Guidelines

IPSec authentication provides anti-replay protection against an attacker duplicating encrypted packets by assigning a unique sequence number to each encrypted packet. (Security association [SA] anti-replay is a security service in which the receiver can reject old or duplicate packets to protect itself against replay attacks.) The decryptor checks off the sequence numbers that it has seen before. The encryptor assigns sequence numbers in an increasing order. The decryptor remembers the value X of the highest sequence number that it has already seen. N is the window size, and the decryptor also remembers whether it has seen packets having sequence numbers from X-N+1 through X. Any packet with the sequence number X-N is discarded. Currently, N is set at 64, so only 64 packets can be tracked by the decryptor.

At times, however, the 64-packet window size is not sufficient. For example, quality of service (QoS) gives priority to high-priority packets, which could cause some low-priority packets to be discarded even though they could be one of the last 64 packets received by the decryptor. This CLI command allows you to expand the window size, allowing the decryptor to keep track of more than 64 packets.

Example

The following command specifies an IPSec anti-replay window size of 128 packets.

crypto ipsec replay window-size 128

transform-set

Configures a transform set for IPSec policy

Product

ePDG

FA

GGSN

HA

HeNBGW

HNBGW

HSGW

MME

P-GW

PDSN

S-GW

SAEGW

SCM

SecGW

SGSN

Privilege

Security Administrator, Administrator

Syntax Description

transform-set*tran_set_name* **{ ah hmac { md5-96 | sha1-96 } | esp hmac { md5-96 | none | sha1-96 } } { cipher { 3des-cbc | aes-cbc-128 | aes-cbc-256 | des-cbc } }**

tran_set_name

Specifies the name of the transform set as an alphanumeric stgring of 1 through 127 characters.

ah hmac { md5-96 | sha1-96 }

Specifies the use of Authentication Header (AH) with a hash-based message authentication code (HMAC) to guarantee connectionless integrity and data origin authentication of IP packets.

Hash options are MD5 Message-Digest Algorithm (md5-96) or Secure Hash Standard 1 (sha1-96).

esp hmac { md5-96 | none | sha1-96 }

Specifies the use of Encapsulating Secuirty Payload (ESP) with a hash-based message authentication code (HMAC) to guarantee connectionless integrity and data origin authentication of IP packets.

Hash options are MD5 Message-Digest Algorithm (md5-96), no hash, or Secure Hash Standard 1 (sha1-96).

cipher

If ESP is enabled, this option must be used to set the encapsulation cipher protocol to one of the following:

- **3des-cbc**: Triple Data Encryption Standard (3DES) in chain block (CBC) mode.
- **aes-cbc-128**: Advanced Encryption Standard (AES) in CBC mode with a 128-bit key.
- **aes-cbc-256**: Advanced Encryption Standard (AES) in CBC mode with a 256-bit key.
- **des-cbc**: DES in CBC mode.

Usage Guidelines

Use this command to configure a transform set that specifies the type of IPSec protcol to use for securing communications.

Example

The following command specifies the use of IPSec AH with HMAC = MD5.

crypto ipsec transform-set tset013 ah hmac md5-96