



# IPSec Commands

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This module describes the IPSec commands.



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**Note** The following IPSec commands are available only if the <platform>-k9sec.pie is installed.

IPSec is supported only for Open Shortest Path First version 3 (OSPFv3).

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- [clear crypto ipsec sa, on page 2](#)
- [description \(IPSec profile\), on page 3](#)
- [interface tunnel-ip \(GRE\), on page 4](#)
- [show crypto ipsec sa, on page 5](#)
- [show crypto ipsec summary, on page 9](#)
- [show crypto ipsec transform-set, on page 11](#)

**clear crypto ipsec sa**

# clear crypto ipsec sa

To delete specific security associations (SAs), or all SAs in the IP Security (IPSec) security associations database (SADB), use the **clear crypto ipsec sa** command.

**clear crypto ipsec sa {sa-id | all | counters | {sa-id | all} | interface tunnel-ipsec}**

## Syntax Description

<b>sa-id</b>	Identifier for the SA. IPSec supports from 1 to 64,500 sessions.
<b>all</b>	Deletes all IPSec SAs in the IPSec SADB.
<b>counters</b>	Clears the counters in the IPSec SADB.
<b>interface</b>	Clears the interfaces in the IPSec SADB.
<b>tunnel-ipsec</b>	The range of tunnel-ipsec is <0-4294967295>.

## Command Default

No default behavior or values

## Command Modes

EXEC

## Command History

### Release      Modification

Release 3.7.2 This command was introduced.

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

SAs are established to secure data flows in IPSec. Use the **clear crypto ipsec sa** command to delete active IPSec sessions or force IPSec to reestablish new SAs. Usually, the establishment of SAs is negotiated between peers through Internet Key Exchange (IKE) on behalf of IPSec.

## Task ID

### Task      Operations

#### ID

crypto execute

## Examples

The following example shows how to remove the SA with ID 100 from the SADB:

```
RP/0/RSP0/CPU0:router# clear crypto ipsec sa 100
```

## Related Commands

Command	Description
<a href="#">show crypto ipsec sa, on page 5</a>	Displays the settings used by current SAs.

# description (IPSec profile)

To create a description of an IPSec profile, use the **description** command in profile configuration mode. To delete a profile description, use the **no** form of this command.

**description** *string*  
**no** **description**

<b>Syntax Description</b>	<i>string</i> Character string describing the IPSec profile.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Crypto IPSec profile
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
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Release 3.7.2 This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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Use the **description** command inside the profile configuration submode to create a description for an IPSec profile.

<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
profile configuration	read, write	

<b>Examples</b>	The following example shows the creation of a profile description:
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```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# crypto ipsec profile newprofile
RP/0/RSP0/CPU0:router(config-newprofile)# description this is a sample profile
```

**interface tunnel-ip (GRE)**

# interface tunnel-ip (GRE)

To configure a tunnel interface for generic routing encapsulation (GRE), use the **interface tunnel-ip** command in global configuration mode. To delete the IP tunnel interface, use the **no** form of this command.

**interface tunnel-ip number**  
**no interface tunnel-ip number**

<b>Syntax Description</b>	<i>number</i> Instance number of the interface. The range is from 0 to 65535.				
<b>Command Default</b>	None				
<b>Command Modes</b>	Global configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th><th>Modification</th></tr> </thead> <tbody> <tr> <td>Release 3.9.0</td><td>This command was introduced.</td></tr> </tbody> </table>	Release	Modification	Release 3.9.0	This command was introduced.
Release	Modification				
Release 3.9.0	This command was introduced.				
<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.				
<b>Task ID</b>	<table border="1"> <thead> <tr> <th>Task ID</th><th>Operations</th></tr> </thead> <tbody> <tr> <td></td><td>interface read, write</td></tr> </tbody> </table>	Task ID	Operations		interface read, write
Task ID	Operations				
	interface read, write				

## Examples

The following example shows how to use the **interface tunnel-ip** command:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 50000
RP/0/RSP0/CPU0:router(config-if)#
```

# show crypto ipsec sa

To display security association (SA) information based on the rack/slot/module location, use the **show crypto ipsec sa** command.

```
show crypto ipsec sa [{sa-id} | peer ip-address | profile profile-name | detail | count | fvrf fvrf-name | ivrf ivrf-name | location node-id}]
```

## Syntax Description

<i>sa-id</i>	(Optional) Identifier for the SA. The range is from 1 to 64500.
<b>peer</b> <i>ip-address</i>	(Optional) IP address used on the remote (PC) side. Invalid IP addresses are not accepted.
<b>profile</b> <i>profile-name</i>	(Optional) Specifies the alphanumeric name for a security profile. The character range is from 1 to 64. Profile names cannot be duplicated.
<b>detail</b>	(Optional) Provides additional dynamic SA information.
<b>count</b>	(Optional) Provides SA count.
<b>fvrf</b> <i>fvrf-name</i>	(Optional) Specifies that all existing SAs for front door virtual routing and forwarding (FVRF) is the same as the fvrf-name.
<b>ivrf</b> <i>ivrf-name</i>	(Optional) Specifies that all existing SAs for inside virtual routing and forwarding (IVRF) is the same as the ivrf-name.
<b>location</b> <i>node-id</i>	(Optional) Specifies that the SAs are configured on a specified location.

## Command Modes

EXEC

## Command History

Release	Modification
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Release 3.7.2 This command was introduced.

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If no optional argument or keyword is used, all SAs are displayed within a flow. Within a flow, the SAs are listed by protocol (Encapsulating Security Payload [ESP] or Authentication Header [AH]) and direction (inbound or outbound).

The **detail** keyword provides additional information only for SAs that are configured in a software crypto engine. The SAs are configured by using tunnel-ipsec and transport.

## Task ID

Task ID	Operations
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crypto read

**show crypto ipsec sa**

## Examples

The following sample output is from the **show crypto ipsec sa** command:

```
RP/0/RSP0/CPU0:router# show crypto ipsec sa

SSA id:          510
Node id:         0/1/0
SA Type:        MANUAL
interface:      service-ipsec22
profile :       p7
local ident (addr/mask/prot/port) : (0.0.0.0/0.0.0.255/512/0)
remote ident (addr/mask/prot/port) : (0.0.0.0/0.0.0.0/512/0)
local crypto endpt: 0.0.0.0, remote crypto endpt: 0.0.0.0, vrf default

#pkts tx       :0           #pkts rx       :0
#bytes tx      :0           #bytes rx      :0
#pkts encrypt   :0           #pkts decrypt   :0
#pkts digest    :0           #pkts verify    :0
#pkts encrpt fail:0          #pkts decrpt fail:0
#pkts digest fail:0          #pkts verify fail:0
#pkts replay fail:0
#pkts tx errors :0           #pkts rx errors :0

outbound esp sas:
    spi: 0x322(802)
    transform: esp-3des-md5
    in use settings = Tunnel
    sa agreed lifetime: 3600s, 4194303kb
    sa timing: remaining key lifetime: 3142303931sec/0kb
    sa DPD: disable, mode none, timeout 0s
    sa idle timeout: disable, 0s
    sa anti-replay (HW accel): enable, window 64

inbound esp sas:
    spi: 0x322(802)
    transform: esp-3des-md5
    in use settings = Tunnel
    sa agreed lifetime: 3600s, 4194303kb
    sa timing: remaining key lifetime: 3142303931sec/0kb
    sa DPD: disable, mode none, timeout 0s
    sa idle timeout: disable, 0s
    sa anti-replay (HW accel): enable, window 64
```

This table describes the significant fields shown in the display.

**Table 1: show crypto ipsec sa Field Descriptions**

Field	Description
SA id	Identifier for the SA.
interface	Identifier for the interface.
profile	String of alphanumeric characters that specify the name of a security profile.
local ident	IP address, mask, protocol, and port of the local peer.
remote ident	IP address, mask, protocol and port of the remote peer.
outbound esp sas	Outbound ESP SAs.

Field	Description
inbound esp sas	Inbound ESP SAs.
transform	The transform being used in the SA.
sa lifetime	The lifetime value used in the SA.

The following sample output is from the **show crypto ipsec sa** command for the **profile** keyword for a profile named pn1:

```
RP/0/RSP0/CPU0:router# show crypto ipsec sa profile pn1

SA id: 2
interface: tunnel0
profile: pn1
local ident (addr/mask/prot/port): (172.19.70.92/255.255.255.255/0/0)
remote ident (addr/mask/prot/port): (172.19.72.120/255.255.255.255/0/0)
local crypto endpt: 172.19.70.92, remote crypto endpt: 172.19.72.120
outbound esp sas:
spi: 0x8b0e950f (2332988687)
transform: esp-3des-sha
in use settings = Tunnel
sa lifetime: 3600s, 4194303kb

SA id: 2
interface: tunnel0
profile: pn1
local ident (addr/mask/prot/port): (172.19.72.120/255.255.255.255/0/0)
remote ident (addr/mask/prot/port): (172.19.70.92/255.255.255.255/0/0)
local crypto endpt: 172.19.72.120, remote crypto endpt: 172.19.70.92
inbound esp sas:
spi: 0x2777997c (662149500)
transform: esp-3des-sha
in use settings = Tunnel
sa lifetime: 3600s, 4194303kb
```

The following sample output is from the **show crypto ipsec sa** command for the **peer** keyword:

```
RP/0/RSP0/CPU0:router# show crypto ipsec sa peer 172.19.72.120

SA id: 2
interface: tunnel0
profile: pn1
local ident (addr/mask/prot/port): (172.19.70.92/255.255.255.255/0/0)
remote ident (addr/mask/prot/port): (172.19.72.120/255.255.255.255/0/0)
local crypto endpt: 172.19.70.92, remote crypto endpt: 172.19.72.120
outbound esp sas:
spi: 0x8b0e950f (2332988687)
transform: esp-3des-sha
in use settings = Tunnel
sa lifetime: 3600s, 4194303kb

SA id: 2
interface: tunnel0
profile: pn1
local ident (addr/mask/prot/port): (172.19.72.120/255.255.255.255/0/0)
remote ident (addr/mask/prot/port): (172.19.70.92/255.255.255.255/0/0)
local crypto endpt: 172.19.72.120, remote crypto endpt: 172.19.70.92
inbound esp sas:
spi: 0x2777997c (662149500)
```

```
show crypto ipsec sa
```

```
transform: esp-3des-sha
in use settings = Tunnel
sa lifetime: 3600s, 4194303kb
```

# show crypto ipsec summary

To display IP Security (IPSec) summary information, use the **show crypto ipsec summary** command.

**show crypto ipsec summary**

<b>Syntax Description</b>	This command has no keywords or arguments.
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<b>Command Default</b>	None
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<b>Command Modes</b>	EXEC
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 3.7.2	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	crypto	read

<b>Examples</b>	The following sample output is from the <b>show crypto ipsec summary</b> command:
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```
RP/0/RSP0/CPU0:router# show crypto ipsec summary
# * Attached to a transform indicates a bundle
# Active IPSec Sessions: 1
SA  Interface      Local Peer/Port    Remote Peer/Port   FVRF     Profile  Transform Lifetime
-----
502 tunnel-ipsec100 70.70.70.2/500    60.60.60.2/500   default  ipsec1  esp-3des esp
3600/100000000
```

This table describes the significant fields shown in the display.

**Table 2: show crypto ipsec summary Field Descriptions**

<b>Field</b>	<b>Description</b>
SA	Identifier for the security association.
Node	Identifier for the node.
Local Peer	IP address of the local peer.

```
show crypto ipsec summary
```

Field	Description
Remote Peer	IP address of the remote peer.
FVRF	The front door virtual routing and forwarding (FVRF) of the SA. If the FVRF is global, the output shows f_vrf as an empty field
Mode	Profile mode type.
Profile	Crypto profile in use.
Transform	Transform in use.
Lifetime	Lifetime value, displayed in seconds followed by kilobytes.

# show crypto ipsec transform-set

To display the configured transform sets, use the **show crypto ipsec transform-set** command.

**show crypto ipsec transform-set [transform-set-name]**

<b>Syntax Description</b>	<i>transform-set-name</i> (Optional) IPSec transform set with the specified value for the <i>transform-set-name</i> argument are displayed.				
<b>Command Default</b>	No default values. The default behavior is to print all the available transform-sets.				
<b>Command Modes</b>	EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.7.2</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.7.2	This command was introduced.
Release	Modification				
Release 3.7.2	This command was introduced.				
<b>Usage Guidelines</b>	<p>To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.</p> <p>If no transform is specified, all transforms are displayed.</p>				
<b>Task ID</b>	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>crypto read</td> <td></td> </tr> </tbody> </table>	Task ID	Operations	crypto read	
Task ID	Operations				
crypto read					

**Examples** The following sample output is from the **show crypto ipsec transform-set** command:

```
RP/0/RSP0/CPU0:router# show crypto ipsec transform-set

Transform set combined-des-sha: {esp-des esp-sha-hmac}
Transform set tsfm2: {esp-md5-hmac esp-3des }
    Mode: Transport
Transform set tsfml1: {esp-md5-hmac esp-3des }
    Mode: Tunnel
Transform set ts1: {esp-des }
    Mode: Tunnel
```

```
show crypto ipsec transform-set
```