IPsec and IKE MIB Support for Cisco VRF-Aware IPsec

The IPsec and IKE MIB Support for Cisco VRF-Aware IPsec feature provides manageability of Virtual Private Network routing and forwarding- (VRF-) aware IP security (IPsec) using MIBs. The benefit of this feature is that VRF-aware IPsec MIBs provide the granular details of IPsec statistics and performance metrics on a VRF basis.

History for the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec Feature

Release	Modification
12.4(4)T	This feature was introduced.

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.

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Prerequisites for IPsec and IKE MIB Support for Cisco VRF-Aware IPsec

- You should be familiar with configuring Simple Network Management Protocol (SNMP).

Information About IPsec and IKE MIB Support for Cisco VRF-Aware IPsec

To configure IPsec and MIB Support for Cisco VRF-Aware IPsec, you should understand the following concepts:

- MIBs Supported by the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec Feature, page 2

MIBs Supported by the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec Feature

The following MIBs are supported by the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec feature:

- CISCO-IPSEC-FLOW-MONITOR-MIB
- CISCO-IPSEC-MIB
- The CISCO-IPSEC-POLICY-MAP-MIB continues to be supported. However, because this MIB applies to the entire router rather than to a specific VPN VRF instance, it is not VRF aware; therefore, polling of the object identifiers (OIDs) that belong to this MIB is accomplished with respect to the global VRF context.

How to Configure IPsec and IKE MIB Support for Cisco VRF-Aware IPsec

No special configuration is needed for this feature. The SNMP framework can be used to manage VRF-aware IPsec using MIBs. See the section "Configuration Examples for IPsec and IKE MIB Support for Cisco VRF-Aware IPsec" for a reference to configuring SNMP.

The following section provides information about troubleshooting this feature:

- How to Troubleshoot the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec Feature, page 2

How to Troubleshoot the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec Feature

The following **debug crypto mib** command and keywords may be used to display information about the IPsec and Internet Key Exchange (IKE) MIB as it relates to Cisco VRF-aware IPsec.

SUMMARY STEPS

1. **enable**
2. **debug crypto mib detail**
3. **debug crypto mib error**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**debug crypto mib detail** **Example:** `Router# debug crypto mib detail`	Displays different events as they occur in the IPsec MIB subsystem. • Due consideration should be given to enabling **debug crypto mib detail** because the output for the **detail** keyword can be quite long.
Step 3	**debug crypto mib error** **Example:** `Router# debug crypto mib error`	Displays error events in the MIB agent.

Configuration Examples for IPsec and IKE MIB Support for Cisco VRF-Aware IPsec

This section includes the following example:

- Configuration That Has Two VRFs: Examples, page 3

Configuration That Has Two VRFs: Examples

The following output example is for a typical hub configuration that has two VRFs. The output is what you would see if you were to poll for the IPsec security association (SA). Router 3745b is the VRF-aware router.

Two VRFs Configured

The following output shows that two VRFs have been configured (vrf1 and vrf2).

```
Router3745b# show running-config

Building configuration...

Current configuration : 6567 bytes
!
```

```
version 12.4
service timestamps debug datetime msec localtime
service timestamps log uptime
no service password-encryption
!
hostname ipsecf-3745b
!
boot-start-marker
boot-end-marker
!
no logging console
enable password lab
!
no aaa new-model
!
resource policy
!
memory-size iomem 5
clock timezone PST -8
clock summer-time PDT recurring
ip subnet-zero
ip cef
!
!
ip vrf vrf1
 rd 1:101
 context vrf-vrf1-context
 route-target export 1:101
 route-target import 1:101
!
ip vrf vrf2
 rd 2:101
 context vrf-vrf2-context
 route-target export 2:101
 route-target import 2:101
!
no ip domain lookup
!
!
crypto keyring vrf1-1 vrf vrf1
  pre-shared-key address 10.1.1.1 255.255.255.0 key vrf1-1
crypto keyring vrf2-1 vrf vrf2
  pre-shared-key address 10.1.2.1 255.255.255.0 key vrf2-1
!
!
crypto isakmp policy 1
 authentication pre-share
!
crypto isakmp policy 50
 authentication pre-share
crypto isakmp key global1-1 address 10.1.151.1
crypto isakmp key global2-1 address 10.1.152.1
crypto isakmp profile vrf1-1
   keyring vrf1-1
   match identity address 10.1.1.1 255.255.255.255 vrf1
crypto isakmp profile vrf2-1
   keyring vrf2-1
   match identity address 10.1.2.1 255.255.255.255 vrf2
!
crypto ipsec security-association lifetime kilobytes 99000
crypto ipsec security-association lifetime seconds 5000
!
crypto ipsec transform-set tset ah-sha-hmac esp-des esp-sha-hmac
!
```

```
crypto map global1-1 10 ipsec-isakmp
 set peer 10.1.151.1
 set transform-set tset
 match address 151
!
crypto map global2-1 10 ipsec-isakmp
 set peer 10.1.152.1
 set transform-set tset
 match address 152
!
crypto map vrf1-1 10 ipsec-isakmp
 set peer 10.1.1.1
 set transform-set tset
 set isakmp-profile vrf1-1
 match address 101
!
crypto map vrf2-1 10 ipsec-isakmp
 set peer 10.1.2.1
 set transform-set tset
 set isakmp-profile vrf2-1
 match address 102
!
!
interface FastEthernet0/0
 ip address 10.1.38.25 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed auto
!
interface Serial0/0
 no ip address
 shutdown
 clock rate 2000000
!
interface FastEthernet0/1
 no ip address
 no ip mroute-cache
 shutdown
 duplex auto
 speed auto
!
interface Serial0/1
 no ip address
 shutdown
 clock rate 2000000
!
interface Serial1/0
 no ip address
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 no ip mroute-cache
 no keepalive
 serial restart-delay 0
 clock rate 128000
 no frame-relay inverse-arp
!
interface Serial1/0.1 point-to-point
 ip vrf forwarding vrf1
 ip address 10.3.1.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 21
!
interface Serial1/0.2 point-to-point
```

```
 ip vrf forwarding vrf2
 ip address 10.3.2.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 22
!
interface Serial1/0.151 point-to-point
 ip address 10.7.151.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 151
!
interface Serial1/0.152 point-to-point
 ip address 10.7.152.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 152
!
interface Serial1/1
 no ip address
 no ip mroute-cache
 shutdown
 serial restart-delay 0
!
interface Serial1/2
 no ip address
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 no ip mroute-cache
 no keepalive
 serial restart-delay 0
 no frame-relay inverse-arp
!
interface Serial1/2.1 point-to-point
 ip vrf forwarding vrf1
 ip address 10.1.1.2 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 21
 crypto map vrf1-1
!
interface Serial1/2.2 point-to-point
 ip vrf forwarding vrf2
 ip address 10.1.2.2 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 22
 crypto map vrf2-1
!
interface Serial1/2.151 point-to-point
 ip address 10.5.151.2 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 151
 crypto map global1-1
!
interface Serial1/2.152 point-to-point
 ip address 10.5.152.2 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 152
 crypto map global2-1
!
interface Serial1/3
 no ip address
 no ip mroute-cache
 shutdown
 serial restart-delay 0
!
ip default-gateway 10.1.38.1
```

```
ip classless
ip route 10.1.1.6 255.255.255.255 10.1.151.1
ip route 10.2.1.6 255.255.255.255 10.1.152.1
ip route 10.6.2.1 255.255.255.255 10.7.151.2
ip route 10.6.2.2 255.255.255.255 10.7.152.2
ip route 172.19.216.110 255.255.255.255 FastEthernet0/0
ip route vrf vrf1 10.20.1.1 255.255.255.255 10.1.1.1
ip route vrf vrf1 10.22.1.1 255.255.255.255 10.30.1.1
ip route vrf vrf2 10.20.2.1 255.255.255.255 10.1.2.1
ip route vrf vrf2 10.22.2.1 255.255.255.255 10.30.1.2
!
!
ip http server
no ip http secure-server
!
ip access-list standard vrf-vrf1-context
ip access-list standard vrf-vrf2-context
!
access-list 101 permit ip host 10.22.1.1 host 10.20.1.1
access-list 102 permit ip host 10.22.2.1 host 10.20.2.1
access-list 151 permit ip host 10.6.2.1 host 10.1.1.6
access-list 152 permit ip host 10.6.2.2 host 10.2.1.6
snmp-server group abc1 v2c context vrf-vrf1-context read view_vrf1 notify
*tv.FFFFFFFF.FFFFFFFF.FFFFFFFF.F access vrf-vrf1-context
snmp-server group abc2 v2c context vrf-vrf2-context read view_vrf2 notify
*tv.FFFFFFFF.FFFFFFFF.FFFFFFFF.F access vrf-vrf2-context
snmp-server view view_vrf1 iso included
snmp-server view view_vrf2 iso included
snmp-server community abc1 RW
snmp-server community global1 RW
snmp-server community abc2 RW
snmp-server community global2 RW
snmp-server enable traps tty
snmp-server enable traps config
snmp-server host 172.19.216.110 version 2c abc1
snmp-server host 172.19.216.110 vrf vrf1 version 2c abc1 udp-port 2001  ipsec isakmp
snmp-server host 172.19.216.110 version 2c abc2
snmp-server host 172.19.216.110 vrf vrf2 version 2c abc2 udp-port 2002  ipsec isakmp
snmp-server context vrf-vrf1-context
snmp-server context vrf-vrf2-context
!
!
snmp mib community-map  abc1 context vrf-vrf1-context
snmp mib community-map  abc2 context vrf-vrf2-context
!
!
control-plane
!
!
line con 0
 exec-timeout 0 0
line aux 0
line vty 0 4
 login
!
!
webvpn context Default_context
 ssl authenticate verify all
 !
 no inservice
!
!
end
```

Both VRFs Cleared

The following output, for abc1 and abc2, shows that both VRFs have been "cleared" to ensure that all the counters are initialized to a known value.

The following output shows that VRF abc1 has been cleared:

```
orcas:2> setenv SR_MGR_CONF /users/green1
orcas:3> setenv SR_UTIL_SNMP_VERSION v2c
orcas:5> setenv SR_UTIL_COMMUNITY abc1
orcas:6> setenv SR_MGR_CONF_DIR /users/green1

orcas:7> /auto/sw/packages/snmpr/10.14.2.0/solaris2bin/getmany -v2c 10.1.38.25
cipSecMIBObjects

cipSecMibLevel.0 = 1
cikeGlobalActiveTunnels.0 = 0
cikeGlobalPreviousTunnels.0 = 0
cikeGlobalInOctets.0 = 0
cikeGlobalInPkts.0 = 0
cikeGlobalInDropPkts.0 = 0
cikeGlobalInNotifys.0 = 0
cikeGlobalInP2Exchgs.0 = 0
cikeGlobalInP2ExchgInvalids.0 = 0
cikeGlobalInP2ExchgRejects.0 = 0
cikeGlobalInP2SaDelRequests.0 = 0
cikeGlobalOutOctets.0 = 0
cikeGlobalOutPkts.0 = 0
cikeGlobalOutDropPkts.0 = 0
cikeGlobalOutNotifys.0 = 0
cikeGlobalOutP2Exchgs.0 = 0
cikeGlobalOutP2ExchgInvalids.0 = 0
cikeGlobalOutP2ExchgRejects.0 = 0
cikeGlobalOutP2SaDelRequests.0 = 0
cikeGlobalInitTunnels.0 = 0
cikeGlobalInitTunnelFails.0 = 0
cikeGlobalRespTunnelFails.0 = 0
cikeGlobalSysCapFails.0 = 0
cikeGlobalAuthFails.0 = 0
cikeGlobalDecryptFails.0 = 0
cikeGlobalHashValidFails.0 = 0
cikeGlobalNoSaFails.0 = 0
cipSecGlobalActiveTunnels.0 = 0
cipSecGlobalPreviousTunnels.0 = 0
cipSecGlobalInOctets.0 = 0
cipSecGlobalHcInOctets.0 = 0x00
cipSecGlobalInOctWraps.0 = 0
cipSecGlobalInDecompOctets.0 = 0
cipSecGlobalHcInDecompOctets.0 = 0x00
cipSecGlobalInDecompOctWraps.0 = 0
cipSecGlobalInPkts.0 = 0
cipSecGlobalInDrops.0 = 0
cipSecGlobalInReplayDrops.0 = 0
cipSecGlobalInAuths.0 = 0
cipSecGlobalInAuthFails.0 = 0
cipSecGlobalInDecrypts.0 = 0
cipSecGlobalInDecryptFails.0 = 0
cipSecGlobalOutOctets.0 = 0
cipSecGlobalHcOutOctets.0 = 0x00
cipSecGlobalOutOctWraps.0 = 0
cipSecGlobalOutUncompOctets.0 = 0
cipSecGlobalHcOutUncompOctets.0 = 0x00
cipSecGlobalOutUncompOctWraps.0 = 0
cipSecGlobalOutPkts.0 = 0
cipSecGlobalOutDrops.0 = 0
```

```
cipSecGlobalOutAuths.0 = 0
cipSecGlobalOutAuthFails.0 = 0
cipSecGlobalOutEncrypts.0 = 0
cipSecGlobalOutEncryptFails.0 = 0
cipSecGlobalProtocolUseFails.0 = 0
cipSecGlobalNoSaFails.0 = 0
cipSecGlobalSysCapFails.0 = 0
cipSecHistTableSize.0 = 200
cipSecHistCheckPoint.0 = ready(1)
cipSecFailTableSize.0 = 200
cipSecTrapCntlIkeTunnelStart.0 = enabled(1)
cipSecTrapCntlIkeTunnelStop.0 = enabled(1)
cipSecTrapCntlIkeSysFailure.0 = disabled(2)
cipSecTrapCntlIkeCertCrlFailure.0 = disabled(2)
cipSecTrapCntlIkeProtocolFail.0 = disabled(2)
cipSecTrapCntlIkeNoSa.0 = disabled(2)
cipSecTrapCntlIpSecTunnelStart.0 = enabled(1)
cipSecTrapCntlIpSecTunnelStop.0 = enabled(1)
cipSecTrapCntlIpSecSysFailure.0 = disabled(2)
cipSecTrapCntlIpSecSetUpFailure.0 = disabled(2)
cipSecTrapCntlIpSecEarlyTunTerm.0 = disabled(2)
cipSecTrapCntlIpSecProtocolFail.0 = disabled(2)
cipSecTrapCntlIpSecNoSa.0 = disabled(2)
```

The following output shows that VRF abc2 has been cleared:

```
orcas:8> setenv SR_UTIL_COMMUNITY abc2
orcas:9> /auto/sw/packages/snmpr/14.2.0.0/solaris2bin/getmany -v2c 10.1.38.25
cipSecMIBObjects
cipSecMibLevel.0 = 1
cikeGlobalActiveTunnels.0 = 0
cikeGlobalPreviousTunnels.0 = 0
cikeGlobalInOctets.0 = 0
cikeGlobalInPkts.0 = 0
cikeGlobalInDropPkts.0 = 0
cikeGlobalInNotifys.0 = 0
cikeGlobalInP2Exchgs.0 = 0
cikeGlobalInP2ExchgInvalids.0 = 0
cikeGlobalInP2ExchgRejects.0 = 0
cikeGlobalInP2SaDelRequests.0 = 0
cikeGlobalOutOctets.0 = 0
cikeGlobalOutPkts.0 = 0
cikeGlobalOutDropPkts.0 = 0
cikeGlobalOutNotifys.0 = 0
cikeGlobalOutP2Exchgs.0 = 0
cikeGlobalOutP2ExchgInvalids.0 = 0
cikeGlobalOutP2ExchgRejects.0 = 0
cikeGlobalOutP2SaDelRequests.0 = 0
cikeGlobalInitTunnels.0 = 0
cikeGlobalInitTunnelFails.0 = 0
cikeGlobalRespTunnelFails.0 = 0
cikeGlobalSysCapFails.0 = 0
cikeGlobalAuthFails.0 = 0
cikeGlobalDecryptFails.0 = 0
cikeGlobalHashValidFails.0 = 0
cikeGlobalNoSaFails.0 = 0
cipSecGlobalActiveTunnels.0 = 0
cipSecGlobalPreviousTunnels.0 = 0
cipSecGlobalInOctets.0 = 0
cipSecGlobalHcInOctets.0 = 0x00
cipSecGlobalInOctWraps.0 = 0
cipSecGlobalInDecompOctets.0 = 0
cipSecGlobalHcInDecompOctets.0 = 0x00
cipSecGlobalInDecompOctWraps.0 = 0
```

```
cipSecGlobalInPkts.0 = 0
cipSecGlobalInDrops.0 = 0
cipSecGlobalInReplayDrops.0 = 0
cipSecGlobalInAuths.0 = 0
cipSecGlobalInAuthFails.0 = 0
cipSecGlobalInDecrypts.0 = 0
cipSecGlobalInDecryptFails.0 = 0
cipSecGlobalOutOctets.0 = 0
cipSecGlobalHcOutOctets.0 = 0x00
cipSecGlobalOutOctWraps.0 = 0
cipSecGlobalOutUncompOctets.0 = 0
cipSecGlobalHcOutUncompOctets.0 = 0x00
cipSecGlobalOutUncompOctWraps.0 = 0
cipSecGlobalOutPkts.0 = 0
cipSecGlobalOutDrops.0 = 0
cipSecGlobalOutAuths.0 = 0
cipSecGlobalOutAuthFails.0 = 0
cipSecGlobalOutEncrypts.0 = 0
cipSecGlobalOutEncryptFails.0 = 0
cipSecGlobalProtocolUseFails.0 = 0
cipSecGlobalNoSaFails.0 = 0
cipSecGlobalSysCapFails.0 = 0
cipSecHistTableSize.0 = 200
cipSecHistCheckPoint.0 = ready(1)
cipSecFailTableSize.0 = 200
cipSecTrapCntlIkeTunnelStart.0 = enabled(1)
cipSecTrapCntlIkeTunnelStop.0 = enabled(1)
cipSecTrapCntlIkeSysFailure.0 = disabled(2)
cipSecTrapCntlIkeCertCrlFailure.0 = disabled(2)
cipSecTrapCntlIkeProtocolFail.0 = disabled(2)
cipSecTrapCntlIkeNoSa.0 = disabled(2)
cipSecTrapCntlIpSecTunnelStart.0 = enabled(1)
cipSecTrapCntlIpSecTunnelStop.0 = enabled(1)
cipSecTrapCntlIpSecSysFailure.0 = disabled(2)
cipSecTrapCntlIpSecSetUpFailure.0 = disabled(2)
cipSecTrapCntlIpSecEarlyTunTerm.0 = disabled(2)
cipSecTrapCntlIpSecProtocolFail.0 = disabled(2)
cipSecTrapCntlIpSecNoSa.0 = disabled(2)
orcas:10>
orcas:10>
orcas:10>
```

VRF abc1 Pinged

The following output shows that VRF abc1 has been pinged:

```
Router3745a# ping

Protocol [ip]:
Target IP address: 10.22.1.1
Repeat count [5]:
Datagram size [100]:
Timeout in seconds [2]:
Extended commands [n]: y
Source address or interface: 10.20.1.1
Type of service [0]:
Set DF bit in IP header? [no]:
Validate reply data? [no]:
Data pattern [0xABCD]:
Loose, Strict, Record, Timestamp, Verbose[none]:
Sweep range of sizes [n]:
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.22.1.1, timeout is 2 seconds:
Packet sent with a source address of 10.20.1.1
```

VRF abc1 Polled

Polling VRF abc1 results in the following output:

Note After the ping, the counters should show some nonzero values.

```
orcas:10>
orcas:12> setenv SR_UTIL_COMMUNITY abc1
orcas:13> /auto/sw/packages/snmpr/10.14.2.0/solaris2bin/getmany -v2c 10.1.38.25
cipSecMIBObjects
cipSecMibLevel.0 = 1
cikeGlobalActiveTunnels.0 = 1
cikeGlobalPreviousTunnels.0 = 0
cikeGlobalInOctets.0 = 336
cikeGlobalInPkts.0 = 2
cikeGlobalInDropPkts.0 = 0
cikeGlobalInNotifys.0 = 1
cikeGlobalInP2Exchgs.0 = 2
cikeGlobalInP2ExchgInvalids.0 = 0
cikeGlobalInP2ExchgRejects.0 = 0
cikeGlobalInP2SaDelRequests.0 = 0
cikeGlobalOutOctets.0 = 344
cikeGlobalOutPkts.0 = 2
cikeGlobalOutDropPkts.0 = 0
cikeGlobalOutNotifys.0 = 0
cikeGlobalOutP2Exchgs.0 = 1
cikeGlobalOutP2ExchgInvalids.0 = 0
cikeGlobalOutP2ExchgRejects.0 = 0
cikeGlobalOutP2SaDelRequests.0 = 0
cikeGlobalInitTunnels.0 = 0
cikeGlobalInitTunnelFails.0 = 0
cikeGlobalRespTunnelFails.0 = 0
cikeGlobalSysCapFails.0 = 0
cikeGlobalAuthFails.0 = 0
cikeGlobalDecryptFails.0 = 0
cikeGlobalHashValidFails.0 = 0
cikeGlobalNoSaFails.0 = 0
cikePeerLocalAddr.1.15.48.49.48.46.48.48.49.46.48.48.49.46.48.48.50.1.15.48.49.48.46.48.48
.49.46.48.48.49.46.48.48.49.1 = 0a 01  01 02
cikePeerRemoteAddr.1.15.48.49.48.46.48.48.49.46.48.48.49.46.48.48.50.1.15.48.49.48.46.48.4
8.49.46.48.48.49.46.48.48.49.1 = 0a 01  01 01
cikePeerActiveTime.1.15.48.49.48.46.48.48.49.46.48.48.49.46.48.48.50.1.15.48.49.48.46.48.4
8.49.46.48.48.49.46.48.48.49.1 = 13743
cikePeerActiveTunnelIndex.1.15.48.49.48.46.48.48.49.46.48.48.49.46.48.48.50.1.15.48.49.48.
46.48.48.49.46.48.48.49.46.48.48.49.1 = 1
cikeTunLocalType.1 = ipAddrPeer(1)
cikeTunLocalValue.1 = 010.001.001.002
cikeTunLocalAddr.1 = 0a 01  01 02
cikeTunLocalName.1 = ipsecf-3745b
cikeTunRemoteType.1 = ipAddrPeer(1)
cikeTunRemoteValue.1 = 010.001.001.001
cikeTunRemoteAddr.1 = 0a 01  01 01
cikeTunRemoteName.1 =
cikeTunNegoMode.1 = main(1)
cikeTunDiffHellmanGrp.1 = dhGroup1(2)
cikeTunEncryptAlgo.1 = des(2)
cikeTunHashAlgo.1 = sha(3)
cikeTunAuthMethod.1 = preSharedKey(2)
cikeTunLifeTime.1 = 86400
cikeTunActiveTime.1 = 13752
cikeTunSaRefreshThreshold.1 = 0
cikeTunTotalRefreshes.1 = 0
```

```
cikeTunInOctets.1 = 336
cikeTunInPkts.1 = 2
cikeTunInDropPkts.1 = 0
cikeTunInNotifys.1 = 1
cikeTunInP2Exchgs.1 = 2
cikeTunInP2ExchgInvalids.1 = 0
cikeTunInP2ExchgRejects.1 = 0
cikeTunInP2SaDelRequests.1 = 0
cikeTunOutOctets.1 = 344
cikeTunOutPkts.1 = 2
cikeTunOutDropPkts.1 = 0
cikeTunOutNotifys.1 = 0
cikeTunOutP2Exchgs.1 = 1
cikeTunOutP2ExchgInvalids.1 = 0
cikeTunOutP2ExchgRejects.1 = 0
cikeTunOutP2SaDelRequests.1 = 0
cikeTunStatus.1 = active(1)
cikePeerCorrIpSecTunIndex.1.15.48.49.48.46.48.48.49.46.48.48.49.46.48.48.50.1.15.48.49.48.
46.48.48.49.46.48.48.49.46.48.48.49.1.1 = 1
cipSecGlobalActiveTunnels.0 = 1
cipSecGlobalPreviousTunnels.0 = 0
cipSecGlobalInOctets.0 = 400
cipSecGlobalHcInOctets.0 = 0x0190
cipSecGlobalInOctWraps.0 = 0
cipSecGlobalInDecompOctets.0 = 400
cipSecGlobalHcInDecompOctets.0 = 0x0190
cipSecGlobalInDecompOctWraps.0 = 0
cipSecGlobalInPkts.0 = 4
cipSecGlobalInDrops.0 = 0
cipSecGlobalInReplayDrops.0 = 0
cipSecGlobalInAuths.0 = 4
cipSecGlobalInAuthFails.0 = 0
cipSecGlobalInDecrypts.0 = 4
cipSecGlobalInDecryptFails.0 = 0
cipSecGlobalOutOctets.0 = 704
cipSecGlobalHcOutOctets.0 = 0x02c0
cipSecGlobalOutOctWraps.0 = 0
cipSecGlobalOutUncompOctets.0 = 704
cipSecGlobalHcOutUncompOctets.0 = 0x02c0
cipSecGlobalOutUncompOctWraps.0 = 0
cipSecGlobalOutPkts.0 = 4
cipSecGlobalOutDrops.0 = 0
cipSecGlobalOutAuths.0 = 4
cipSecGlobalOutAuthFails.0 = 0
cipSecGlobalOutEncrypts.0 = 4
cipSecGlobalOutEncryptFails.0 = 0
cipSecGlobalProtocolUseFails.0 = 0
cipSecGlobalNoSaFails.0 = 0
cipSecGlobalSysCapFails.0 = 0
cipSecTunIkeTunnelIndex.1 = 1
cipSecTunIkeTunnelAlive.1 = true(1)
cipSecTunLocalAddr.1 = 0a 01  01 02
cipSecTunRemoteAddr.1 = 0a 01  01 01
cipSecTunKeyType.1 = ike(1)
cipSecTunEncapMode.1 = tunnel(1)
cipSecTunLifeSize.1 = 99000
cipSecTunLifeTime.1 = 5000
cipSecTunActiveTime.1 = 13749
cipSecTunSaLifeSizeThreshold.1 = 64
cipSecTunSaLifeTimeThreshold.1 = 10
cipSecTunTotalRefreshes.1 = 0
cipSecTunExpiredSaInstances.1 = 0
cipSecTunCurrentSaInstances.1 = 4
cipSecTunInSaDiffHellmanGrp.1 = dhGroup1(2)
```

```
cipSecTunInSaEncryptAlgo.1 = des(2)
cipSecTunInSaAhAuthAlgo.1 = hmacSha(3)
cipSecTunInSaEspAuthAlgo.1 = hmacSha(3)
cipSecTunInSaDecompAlgo.1 = none(1)
cipSecTunOutSaDiffHellmanGrp.1 = dhGroup1(2)
cipSecTunOutSaEncryptAlgo.1 = des(2)
cipSecTunOutSaAhAuthAlgo.1 = hmacSha(3)
cipSecTunOutSaEspAuthAlgo.1 = hmacSha(3)
cipSecTunOutSaCompAlgo.1 = none(1)
cipSecTunInOctets.1 = 400
cipSecTunHcInOctets.1 = 0x0190
cipSecTunInOctWraps.1 = 0
cipSecTunInDecompOctets.1 = 400
cipSecTunHcInDecompOctets.1 = 0x0190
cipSecTunInDecompOctWraps.1 = 0
cipSecTunInPkts.1 = 4
cipSecTunInDropPkts.1 = 0
cipSecTunInReplayDropPkts.1 = 0
cipSecTunInAuths.1 = 4
cipSecTunInAuthFails.1 = 0
cipSecTunInDecrypts.1 = 4
cipSecTunInDecryptFails.1 = 0
cipSecTunOutOctets.1 = 704
cipSecTunHcOutOctets.1 = 0x02c0
cipSecTunOutOctWraps.1 = 0
cipSecTunOutUncompOctets.1 = 704
cipSecTunHcOutUncompOctets.1 = 0x02c0
cipSecTunOutUncompOctWraps.1 = 0
cipSecTunOutPkts.1 = 4
cipSecTunOutDropPkts.1 = 0
cipSecTunOutAuths.1 = 4
cipSecTunOutAuthFails.1 = 0
cipSecTunOutEncrypts.1 = 4
cipSecTunOutEncryptFails.1 = 0
cipSecTunStatus.1 = active(1)
cipSecEndPtLocalName.1.1 =
cipSecEndPtLocalType.1.1 = singleIpAddr(1)
cipSecEndPtLocalAddr1.1.1 = 16 01  01 01
cipSecEndPtLocalAddr2.1.1 = 16 01  01 01
cipSecEndPtLocalProtocol.1.1 = 0
cipSecEndPtLocalPort.1.1 = 0
cipSecEndPtRemoteName.1.1 =
cipSecEndPtRemoteType.1.1 = singleIpAddr(1)
cipSecEndPtRemoteAddr1.1.1 = 14 01  01 01
cipSecEndPtRemoteAddr2.1.1 = 14 01  01 01
cipSecEndPtRemoteProtocol.1.1 = 0
cipSecEndPtRemotePort.1.1 = 0
cipSecSpiDirection.1.1 = in(1)
cipSecSpiDirection.1.2 = out(2)
cipSecSpiDirection.1.3 = in(1)
cipSecSpiDirection.1.4 = out(2)
cipSecSpiValue.1.1 = 3891970674
cipSecSpiValue.1.2 = 1963217493
cipSecSpiValue.1.3 = 3691920464
cipSecSpiValue.1.4 = 3458912974
cipSecSpiProtocol.1.1 = ah(1)
cipSecSpiProtocol.1.2 = ah(1)
cipSecSpiProtocol.1.3 = esp(2)
cipSecSpiProtocol.1.4 = esp(2)
cipSecSpiStatus.1.1 = active(1)
cipSecSpiStatus.1.2 = active(1)
cipSecSpiStatus.1.3 = active(1)
cipSecSpiStatus.1.4 = active(1)
cipSecHistTableSize.0 = 200
```

```
cipSecHistCheckPoint.0 = ready(1)
cipSecFailTableSize.0 = 200
cipSecTrapCntlIkeTunnelStart.0 = enabled(1)
cipSecTrapCntlIkeTunnelStop.0 = enabled(1)
cipSecTrapCntlIkeSysFailure.0 = disabled(2)
cipSecTrapCntlIkeCertCrlFailure.0 = disabled(2)
cipSecTrapCntlIkeProtocolFail.0 = disabled(2)
cipSecTrapCntlIkeNoSa.0 = disabled(2)
cipSecTrapCntlIpSecTunnelStart.0 = enabled(1)
cipSecTrapCntlIpSecTunnelStop.0 = enabled(1)
cipSecTrapCntlIpSecSysFailure.0 = disabled(2)
cipSecTrapCntlIpSecSetUpFailure.0 = disabled(2)
cipSecTrapCntlIpSecEarlyTunTerm.0 = disabled(2)
cipSecTrapCntlIpSecProtocolFail.0 = disabled(2)
cipSecTrapCntlIpSecNoSa.0 = disabled(2)
orcas:14>
orcas:14>
orcas:14>
```

VRF abc2 Polled

Polling VRF abc2 results in the following output:

Note The ping was completed for VRF abc1 only. Therefore, the counters of VRF abc2 should remain in the initialized state.

```
setenv SR_UTIL_COMMUNITY abc2
orcas:15>
orcas:15> /auto/sw/packages/snmpr/10.14.2.0/solaris2bin/getmany -v2c 10.1.38.25
cipSecMIBObjects
cipSecMibLevel.0 = 1
cikeGlobalActiveTunnels.0 = 0
cikeGlobalPreviousTunnels.0 = 0
cikeGlobalInOctets.0 = 0
cikeGlobalInPkts.0 = 0
cikeGlobalInDropPkts.0 = 0
cikeGlobalInNotifys.0 = 0
cikeGlobalInP2Exchgs.0 = 0
cikeGlobalInP2ExchgInvalids.0 = 0
cikeGlobalInP2ExchgRejects.0 = 0
cikeGlobalInP2SaDelRequests.0 = 0
cikeGlobalOutOctets.0 = 0
cikeGlobalOutPkts.0 = 0
cikeGlobalOutDropPkts.0 = 0
cikeGlobalOutNotifys.0 = 0
cikeGlobalOutP2Exchgs.0 = 0
cikeGlobalOutP2ExchgInvalids.0 = 0
cikeGlobalOutP2ExchgRejects.0 = 0
cikeGlobalOutP2SaDelRequests.0 = 0
cikeGlobalInitTunnels.0 = 0
cikeGlobalInitTunnelFails.0 = 0
cikeGlobalRespTunnelFails.0 = 0
cikeGlobalSysCapFails.0 = 0
cikeGlobalAuthFails.0 = 0
cikeGlobalDecryptFails.0 = 0
cikeGlobalHashValidFails.0 = 0
cikeGlobalNoSaFails.0 = 0
cipSecGlobalActiveTunnels.0 = 0
cipSecGlobalPreviousTunnels.0 = 0
cipSecGlobalInOctets.0 = 0
cipSecGlobalHcInOctets.0 = 0x00
cipSecGlobalInOctWraps.0 = 0
```

```
cipSecGlobalInDecompOctets.0 = 0
cipSecGlobalHcInDecompOctets.0 = 0x00
cipSecGlobalInDecompOctWraps.0 = 0
cipSecGlobalInPkts.0 = 0
cipSecGlobalInDrops.0 = 0
cipSecGlobalInReplayDrops.0 = 0
cipSecGlobalInAuths.0 = 0
cipSecGlobalInAuthFails.0 = 0
cipSecGlobalInDecrypts.0 = 0
cipSecGlobalInDecryptFails.0 = 0
cipSecGlobalOutOctets.0 = 0
cipSecGlobalHcOutOctets.0 = 0x00
cipSecGlobalOutOctWraps.0 = 0
cipSecGlobalOutUncompOctets.0 = 0
cipSecGlobalHcOutUncompOctets.0 = 0x00
cipSecGlobalOutUncompOctWraps.0 = 0
cipSecGlobalOutPkts.0 = 0
cipSecGlobalOutDrops.0 = 0
cipSecGlobalOutAuths.0 = 0
cipSecGlobalOutAuthFails.0 = 0
cipSecGlobalOutEncrypts.0 = 0
cipSecGlobalOutEncryptFails.0 = 0
cipSecGlobalProtocolUseFails.0 = 0
cipSecGlobalNoSaFails.0 = 0
cipSecGlobalSysCapFails.0 = 0
cipSecHistTableSize.0 = 200
cipSecHistCheckPoint.0 = ready(1)
cipSecFailTableSize.0 = 200
cipSecTrapCntlIkeTunnelStart.0 = enabled(1)
cipSecTrapCntlIkeTunnelStop.0 = enabled(1)
cipSecTrapCntlIkeSysFailure.0 = disabled(2)
cipSecTrapCntlIkeCertCrlFailure.0 = disabled(2)
cipSecTrapCntlIkeProtocolFail.0 = disabled(2)
cipSecTrapCntlIkeNoSa.0 = disabled(2)
cipSecTrapCntlIpSecTunnelStart.0 = enabled(1)
cipSecTrapCntlIpSecTunnelStop.0 = enabled(1)
cipSecTrapCntlIpSecSysFailure.0 = disabled(2)
cipSecTrapCntlIpSecSetUpFailure.0 = disabled(2)
cipSecTrapCntlIpSecEarlyTunTerm.0 = disabled(2)
cipSecTrapCntlIpSecProtocolFail.0 = disabled(2)
cipSecTrapCntlIpSecNoSa.0 = disabled(2)
orcas:16>
```

Additional References

The following sections provide references related to the IPsec and IKE MIB Support for Cisco VRF-Aware IPsec feature.

Related Documents

Related Topic	Document Title
Cisco IOS commands by technology	*Cisco IOS Release Command References*, Release 12.4T
Cisco IOS master commands list	*Cisco IOS Master Commands List, Release 12.4*

Related Topic	Document Title
Configuring SNMP	The chapter "Configuring SNMP Support" in the *Cisco IOS Network Management Configuration Guide*.
Configuring VRF-Aware IPsec	*VRF-Aware IPSec* feature module, Release 12.2(15)T

Standards

Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport

Command Reference

This section documents a modified command only.

- **debug crypto mib**

debug crypto mib

To display debug messages for the IP Security (IPsec) MIB subsystem, use the **debug crypto mib** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug crypto mib [detail | error]

no debug crypto mib [detail | error]

Syntax Description

detail	(Optional) Displays different events as they occur in the IPsec MIB subsystem. **Note** Because the output for this keyword can be quite long, due consideration should be given to enabling **debug crypto mib detail**.
error	(Optional) Displays error events in the MIB agent.

Defaults

Message notification debugging is not enabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(4)E	This command was introduced.
12.2(4)T	This command was integrated into Cisco IOS Release 12.2(4)T.
12.4(4)T	The **detail** and **error** keywords were added.

Examples

The following example shows IPsec MIB debug message notification being enabled:

```
Router# debug crypto mib

Crypto IPSec Mgmt Entity debugging is on
```

The following example shows that detailed information about events that are occurring in the subsystem has been requested:

```
Router# debug crypto mib detail
```

The following example shows that information has been requested about error events in the MIB agent:

```
Router# debug crypto mib error
```

Related Commands

Command	Description
show crypto mib ipsec flowmib history failure size	Displays the size of the IPSec failure history table.

Command	Description
show crypto mib ipsec flowmib history tunnel size	Displays the size of the IPSec tunnel history table.
show crypto mib ipsec flowmib version	Displays the IPSec Flow MIB version used by the router.