Configure ISE 3.3 Native IPsec to Secure NAD (IOS-XE) Communication

Contents

Introduction

This document describes how to configure and troubleshoot Native IPsec to secure Cisco Identity Service Engine (ISE) 3.3 - Network Access Device (NAD) communication. Radius traffic can be encrypted with site-to-site (LAN-to-LAN) IPsec Internet Key Exchange Version 2 (IKEv2) tunnel between Switch and ISE. This document does not cover RADIUS configuration part.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- ISE
- Cisco Switch Configuration
- General IPsec concepts
- General RADIUS concepts

Components Used

The information in this document is based on these software and hardware versions:

- Cisco Catalyst Switch C9200L that runs software Version 17.6.5
- Cisco Identity Service Engine version 3.3
- Windows 10

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Background Information

The goal is to secure protocols that use insecure MD5 hash, RADIUS and TACACS with IPsec. Few facts to take into consideration:

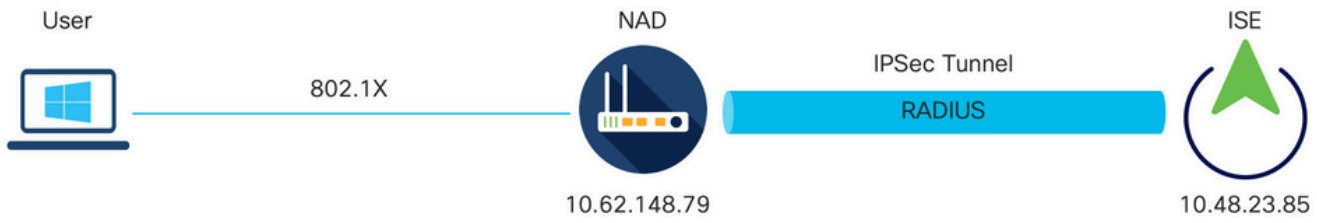
- Cisco ISE Native IPsec solution is built based on StrongSwan
- When you configure IPsec on a Cisco ISE interface, an IPsec tunnel is created between Cisco ISE and the NAD to secure the communication. NAD should be separately configured under Native IPsec Settings.
- You can define a pre-shared key or use X.509 certificates for IPsec authentication.
- IPsec can be enabled on GigabitEthernet1 through GigabitEthernet5 interfaces.

The main focus of the document is to cover X.509 Certificate Authentication. Verify and Troubleshoot section focuses on X.509 Certificate Authentication only, the debugging should be exactly the same for Pre-Shared Key Authentication, with only difference in outputs. The same commands can be used for

verification as well.

Configure IKEv2 IPsec Tunnel with X.509 Certificate Authentication

Network Diagram



Network Diagram

IOS-XE Switch CLI Configuration

Configure the Interfaces

If the IOS-XE Switch interfaces are not yet configured, then at least one interface should be configured. Here is an example:

```
interface Vlan480
 ip address 10.62.148.79 255.255.255.128
 negotiation auto
 no shutdown
!
interface GigabitEthernet1/0/23
 switchport trunk allowed vlan 1,480
 switchport mode trunk
!
```

Ensure that there is connectivity to the remote peer that should be used in order to establish a site-to-site VPN tunnel. You can use a ping in order to verify basic connectivity.

Configure Trustpoint

In order to configure the IKEv2 policies, enter the **crypto pki trustpoint <name>** command in global configuration mode. Here is an example:

Note: There are multiple ways to install certificates on IOS-XE device. In this example, we use import of pkcs12 file, which contains the identity certificate and its chain

---

```
crypto pki trustpoint KrakowCA
 revocation-check none
```

Import Certificates

In order to import IOS-XE identity certificate along with its chain enter the **crypto pki import <trustpoint> pkcs12 <location> password <password>** command in privileged mode. Here is an example:

```
KSEC-9248L-1#crypto pki import KrakowCA pkcs12 ftp://eugene:<ftp-password>@10.48.17.90/ISE/KSEC-9248L-1
% Importing pkcs12...Reading file from ftp://eugene@10.48.17.90/ISE/KSEC-9248L-1.pfx!
[OK - 3474/4096 bytes]

CRYPTO_PKI: Imported PKCS12 file successfully.
KSEC-9248L-1#
```

Note: Even though certificates are outside of the scope of the document, make sure that IOS-XE identity certificate has SAN fields populated with its FQDN / IP address. ISE requires peer certificate to have SAN field.

In order to verify certificates are installed properly:

```
KSEC-9248L-1#sh crypto pki certificates KrakowCA
Certificate
  Status: Available
  Certificate Serial Number (hex): 4B6793F0FE3A6DA5
  Certificate Usage: General Purpose
  Issuer:
    cn=KrakowCA
  Subject:
    Name: KSEC-9248L-1.example.com
    IP Address: 10.62.148.79
    cn=KSEC-9248L-1.example.com
  Validity Date:
    start date: 17:57:00 UTC Apr 20 2023
    end date: 17:57:00 UTC Apr 19 2024
  Associated Trustpoints: KrakowCA
  Storage: nvram:KrakowCA#6DA5.cer

CA Certificate
  Status: Available
  Certificate Serial Number (hex): 01
  Certificate Usage: Signature
  Issuer:
    cn=KrakowCA
  Subject:
    cn=KrakowCA
  Validity Date:
    start date: 10:16:00 UTC Oct 19 2018
    end date: 10:16:00 UTC Oct 19 2028
  Associated Trustpoints: KrakowCA
  Storage: nvram:KrakowCA#1CA.cer

KSEC-9248L-1#
```

Configure the IKEv2 Proposal

In order to configure the IKEv2 policies, enter the **crypto ikev2 proposal <name>** command in global configuration mode. Here is an example:

```
crypto ikev2 proposal PROPOSAL
 encryption aes-cbc-256
 integrity sha512
 group 16
!
```

Configure a Crypto IKEv2 Policy

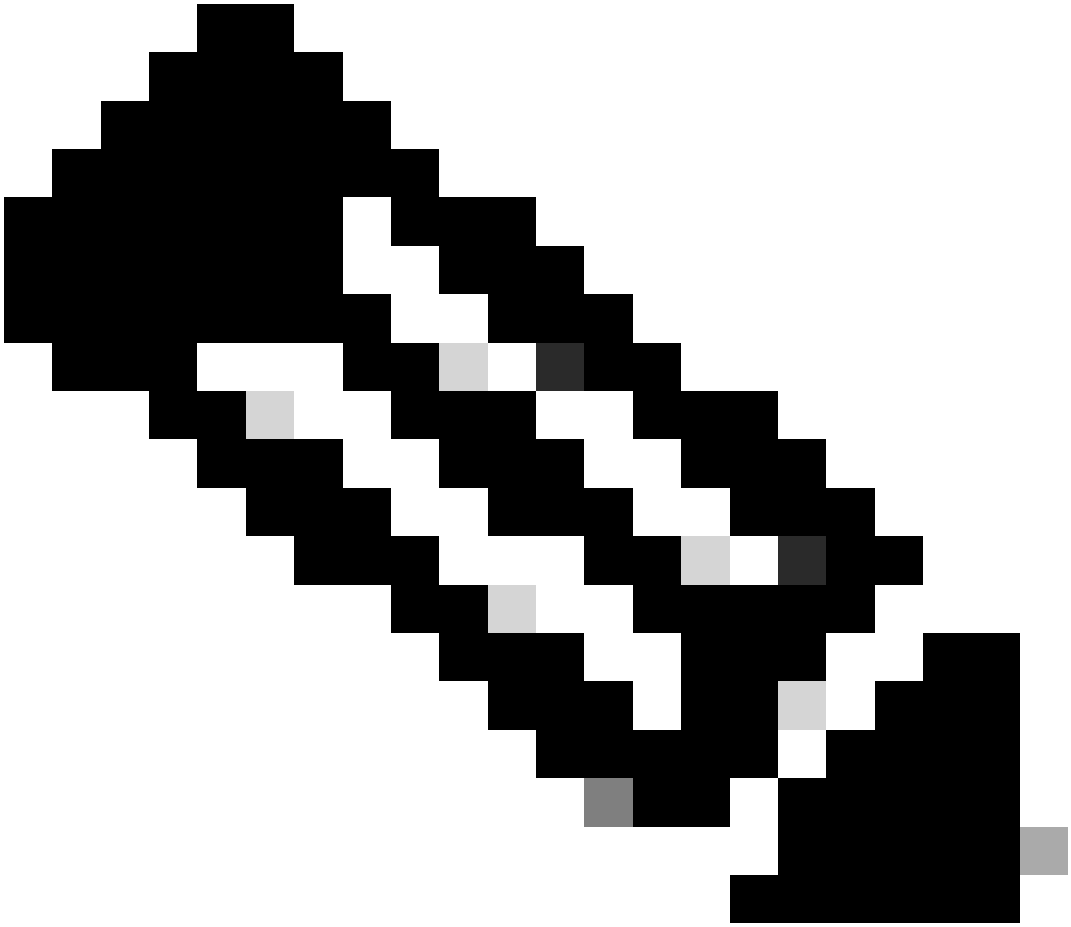
In order to configure the IKEv2 policies, enter the **crypto ikev2 policy <name>** command in global configuration mode:

```
crypto ikev2 policy POLICY
 proposal PROPOSAL
```

Configure a Crypto IKEv2 Profile

In order to configure the IKEv2 profile, enter the **crypto ikev2 profile <name>** command in global configuration mode.

```
crypto ikev2 profile PROFILE
 match address local 10.62.148.79
 match identity remote fqdn domain example.com
 authentication remote rsa-sig
 authentication local rsa-sig
 pki trustpoint KrakowCA
```



Note: By default ISE is using CN field from its own identity certificate as IKE identity in IKEv2 negotiation. That's why in the "match identity remote" section of IKEv2 profile, you need to specify FQDN type and proper value of domain or FQDN of ISE.

Configure an ACL for VPN Traffic of Interest

Use the extended or named access list in order to specify the traffic that should be protected by encryption. Here is an example:

```
ip access-list extended 100
 10 permit ip host 10.62.148.79 host 10.48.23.85
```

Note: An ACL for VPN traffic uses the source and destination IP addresses after NAT.

Configure a Transform Set

In order to define an IPsec transform set (an acceptable combination of security protocols and algorithms), enter the **crypto ipsec transform-set** command in global configuration mode. Here is an example:

```
crypto ipsec transform-set SET esp-aes 256 esp-sha512-hmac
 mode tunnel
```

Configure a Crypto Map and Apply it to an Interface

In order to create or modify a crypto map entry and enter the crypto map configuration mode, enter the **crypto map** global configuration command. In order for the crypto map entry to be complete, there are some aspects that must be defined at a minimum:

- The IPsec peers to which the protected traffic can be forwarded must be defined. These are the peers with which an SA can be established. In order to specify an IPsec peer in a crypto map entry, enter the **set peer** command.
- The transform sets that are acceptable for use with the protected traffic must be defined. In order to specify the transform sets that can be used with the crypto map entry, enter the **set transform-set** command.
- The traffic that should be protected must be defined. In order to specify an extended access list for a crypto map entry, enter the **match address** command.

Here is an example:

```
crypto map MAP-IKEV2 10 ipsec-isakmp
 set peer 10.48.23.85
 set transform-set SET
 set pfs group16
 set ikev2-profile PROFILE
 match address 100
```

The final step is to apply the previously defined crypto map set to an interface. In order to apply this, enter the **crypto map** interface configuration command:

```
interface Vlan480
 crypto map MAP-IKEV2
```

IOS-XE Final Configuration

Here is the final IOS-XE switch CLI configuration:

```
aaa new-model
!
aaa group server radius ISE
 server name ISE33-2
!
```

```
aaa authentication dot1x default group ISE
aaa authorization network ISE group ISE
aaa accounting dot1x default start-stop group ISE
aaa accounting network default start-stop group ISE
!
aaa server radius dynamic-author
 client 10.48.23.85
 server-key cisco
!
crypto pki trustpoint KrakowCA
 enrollment pkcs12
 revocation-check none
!
dot1x system-auth-control
!
crypto ikev2 proposal PROPOSAL
 encryption aes-cbc-256
 integrity sha512
 group 16
!
crypto ikev2 policy POLICY
 proposal PROPOSAL
!
crypto ikev2 profile PROFILE
 match address local 10.62.148.79
 match identity remote fqdn domain example.com
 authentication remote rsa-sig
 authentication local rsa-sig
 pki trustpoint KrakowCA
!
no crypto ikev2 http-url cert
!
crypto ipsec transform-set SET esp-aes 256 esp-sha512-hmac
 mode tunnel
!
crypto map MAP-IKEV2 10 ipsec-isakmp
 set peer 10.48.23.85
 set transform-set SET
 set pfs group16
 set ikev2-profile PROFILE
 match address 100
!
interface GigabitEthernet1/0/23
 switchport trunk allowed vlan 1,480
 switchport mode trunk
!
interface Vlan480
 ip address 10.62.148.79 255.255.255.128
 crypto map MAP-IKEV2
!
ip access-list extended 100
 10 permit ip host 10.62.148.79 host 10.48.23.85
!
radius server ISE33-2
 address ipv4 10.48.23.85 auth-port 1812 acct-port 1813
 key cisco
!
```

ISE Configuration

Configure IP address on ISE

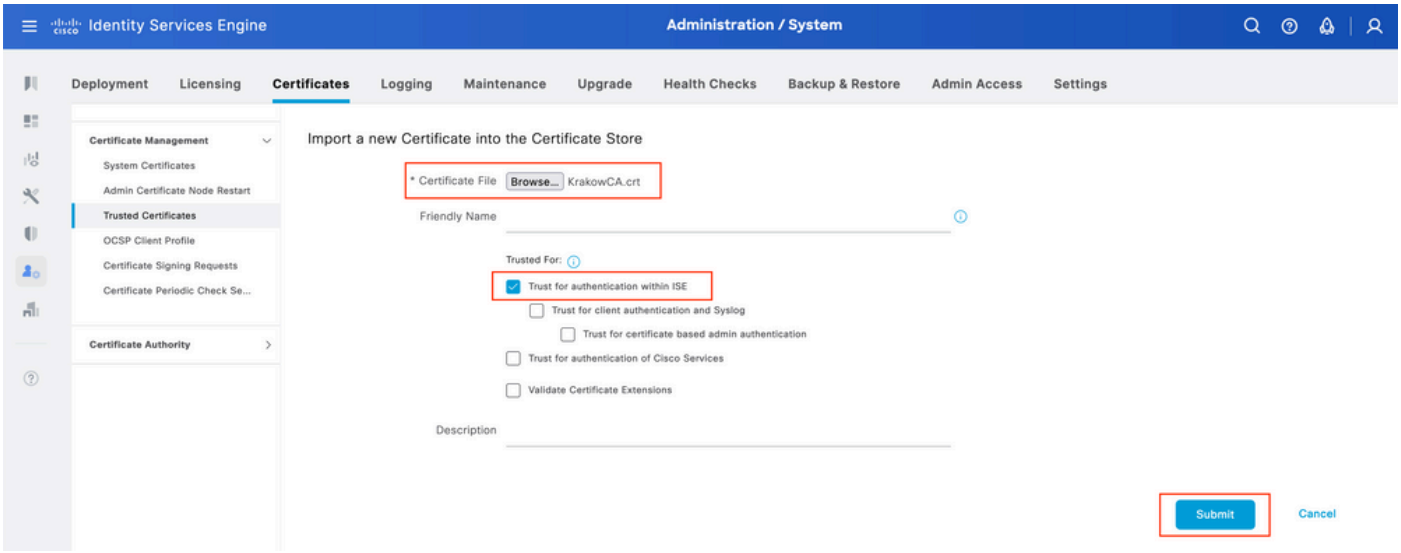
Address should be configured on interface GE1-GE5 from the CLI, GE0 is not supported.

```
interface GigabitEthernet 1
  ip address 10.48.23.85 255.255.255.0
  ipv6 address autoconfig
  ipv6 enable
```

Note: Application restarts after IP address is configured on the interface:
% Changing the IP address might cause ISE services to restart
Continue with IP address change? Y/N [N]: Y

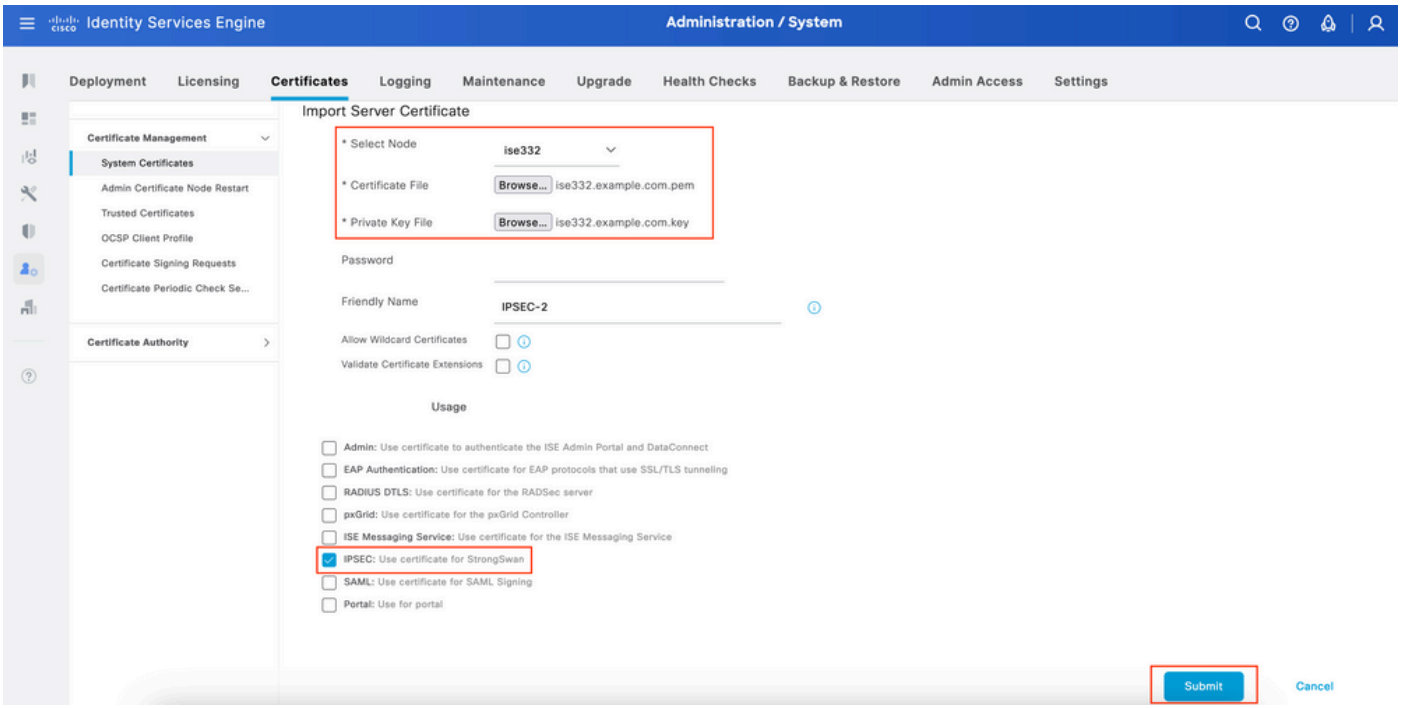
Import Trusted Store Certificate

This step is required to ensure that ISE trusts the certificate of the peer presented at the time tunnel is established. Navigate to **Administration > System > Certificates > Trusted Certificates**. Click **Import**. Click on **Browse** and select CA certificate which signed ISE/IOS-XE identity certificate. Make sure **Trust for authentication within ISE** checkbox is selected. Click **Submit**.



Import System Certificate

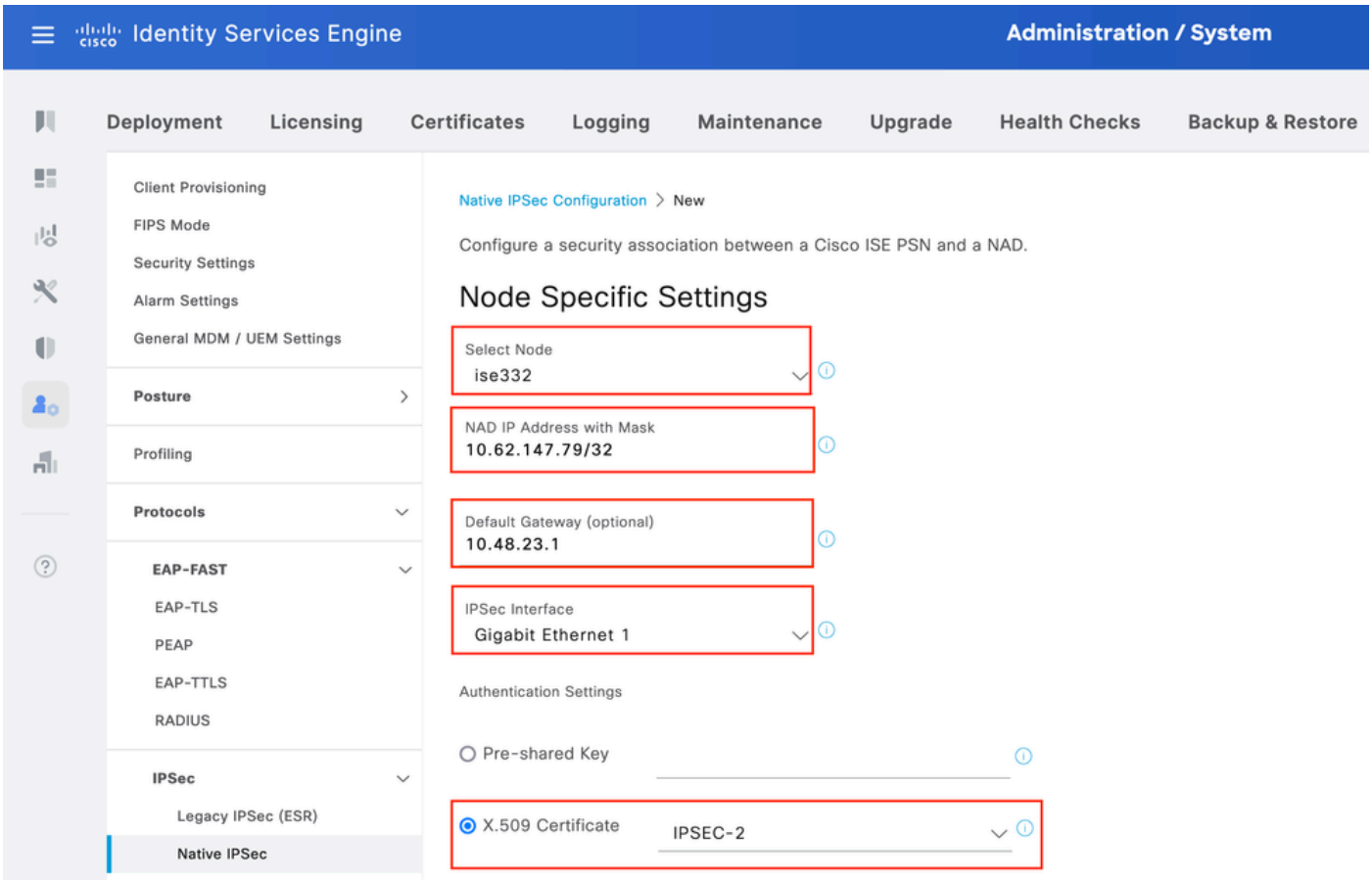
Navigate to **Administration > System > Certificates > System Certificates**. Select **Node**, **Certificate File** and **Private key File Import**. Select the checkbox against **IPsec**. Click **Submit**.



Note: Certificates are getting installed on the StrongSwan ONLY after you Save Network Access Device under Native IPsec Settings.

Configure IPsec Tunnel

Navigate to **Administration > System > Settings > Protocols > IPsec > Native IPsec.** Click on **Add. Select Node**, which terminates IPsec Tunnel, configure **NAD IP Address with Mask, Default Gateway** and **IPsec Interface.** Select Authentication Setting as X.509 Certificate and Choose Certificate System Certificate Installed.



Default Gateway is an optional configuration. In fact, you have two options, you can configure a Default Gateway in Native IPsec UI, which installs a route in the underlying OS. This route is not exposed in show running-config:

```
ise332/admin#show running-config | include route
ise332/admin#
```

<#root>

```
ise332/admin#show ip route

Destination Gateway Iface
----------- ------- -----
10.48.23.0/24 0.0.0.0 eth1
default 10.48.60.1 eth0
10.48.60.0/24 0.0.0.0 eth0
```

10.62.148.79 10.48.23.1 eth1

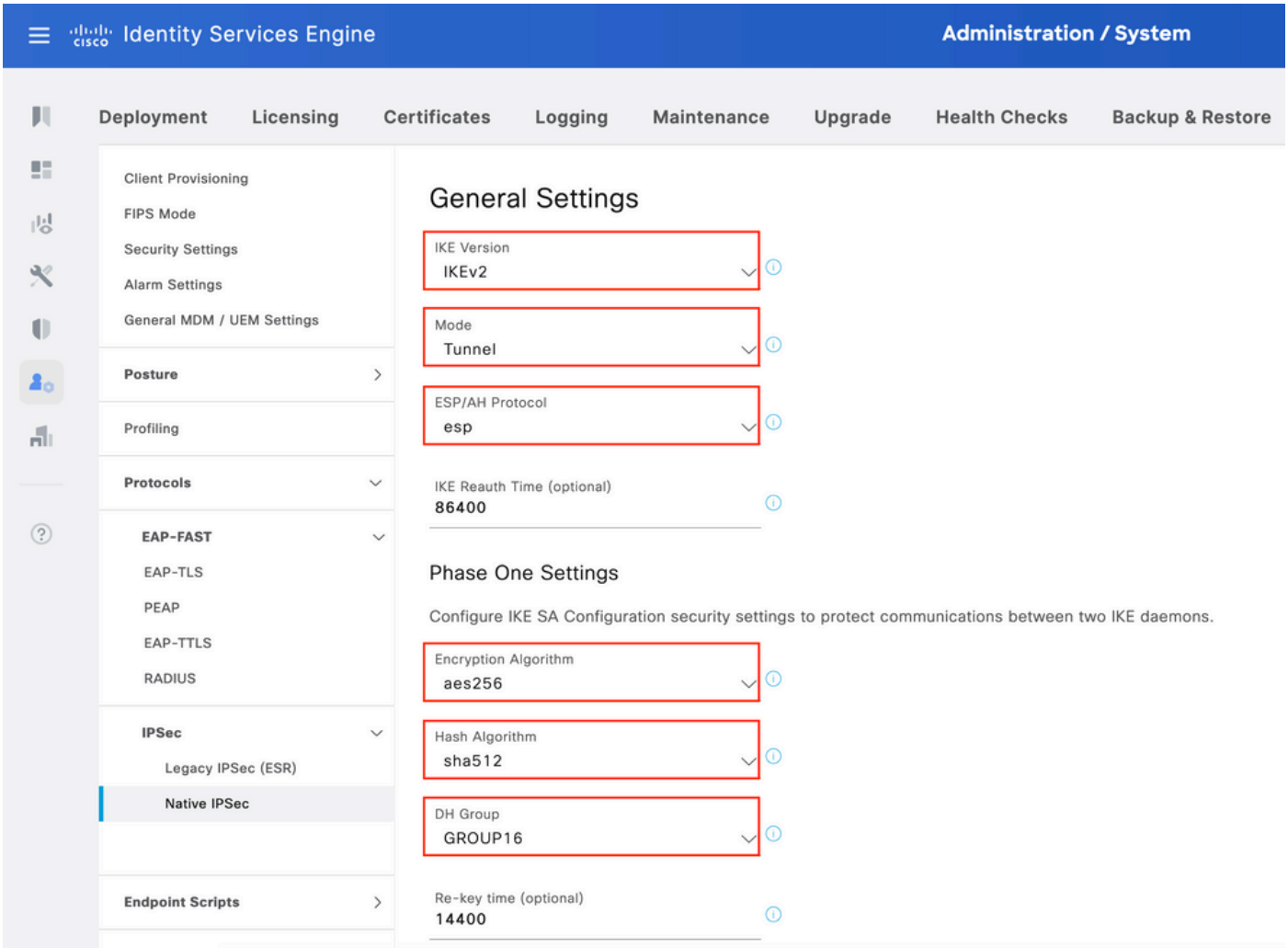
```
169.254.2.0/24 0.0.0.0 cni-podman1
169.254.4.0/24 0.0.0.0 cni-podman2
ise332/admin#
```

Another option is to leave Default Gateway blank and configure the route manually on ISE, this will achieve the same effect:

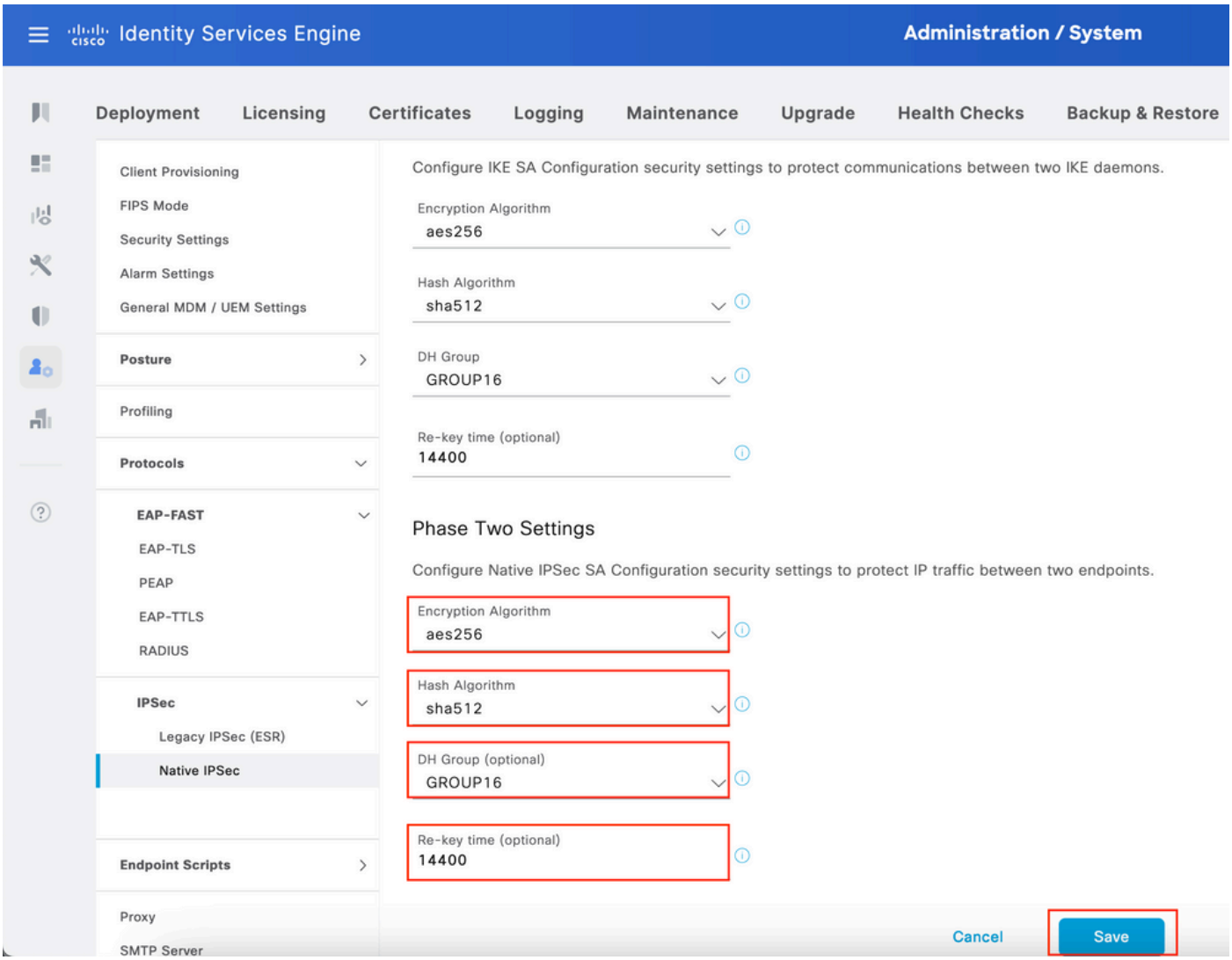
```
ise332/admin(config)#ip route 10.62.148.79 255.255.255.255 gateway 10.48.23.1
ise332/admin(config)#exit
ise332/admin#show ip route

Destination Gateway Iface
----------- ------- -----
10.48.23.0/24 0.0.0.0 eth1
10.62.148.79 10.48.23.1 eth1
default 10.48.60.1 eth0
10.48.60.0/24 0.0.0.0 eth0
169.254.2.0/24 0.0.0.0 cni-podman1
169.254.4.0/24 0.0.0.0 cni-podman2
ise332/admin#
```

Configure **General Settings** for IPsec Tunnel. Configure **Phase One Settings. General Settings**, **Phase One Settings** and **Phase Two Settings** should match the settings configured on the other side of the IPsec Tunnel.

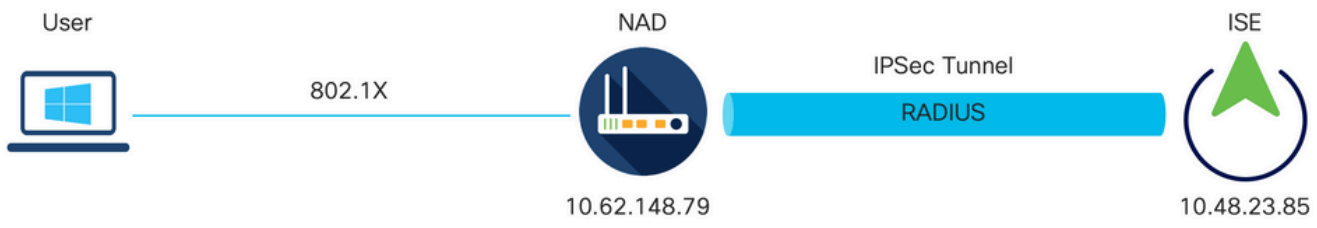


Configure **Phase Two Settings** and click **Save**.



Configure IKEv2 IPsec Tunnel with X.509 Pre-Shared Key Authentication

Network Diagram



Network Diagram

IOS-XE Switch CLI Configuration

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If the IOS-XE Switch interfaces are not yet configured, then at least one interface should be configured.

Here is an example:

```
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 ip address 10.62.148.79 255.255.255.128
 negotiation auto
 no shutdown
!
interface GigabitEthernet1/0/23
 switchport trunk allowed vlan 1,480
 switchport mode trunk
!
```

Ensure that there is connectivity to the remote peer that should be used in order to establish a site-to-site VPN tunnel. You can use a ping in order to verify basic connectivity.

Configure the IKEv2 Proposal

In order to configure the IKEv2 policies, enter the **crypto ikev2 proposal <name>** command in global configuration mode. Here is an example:

```
crypto ikev2 proposal PROPOSAL
 encryption aes-cbc-256
 integrity sha512
 group 16
!
```

Configure a Crypto IKEv2 Policy

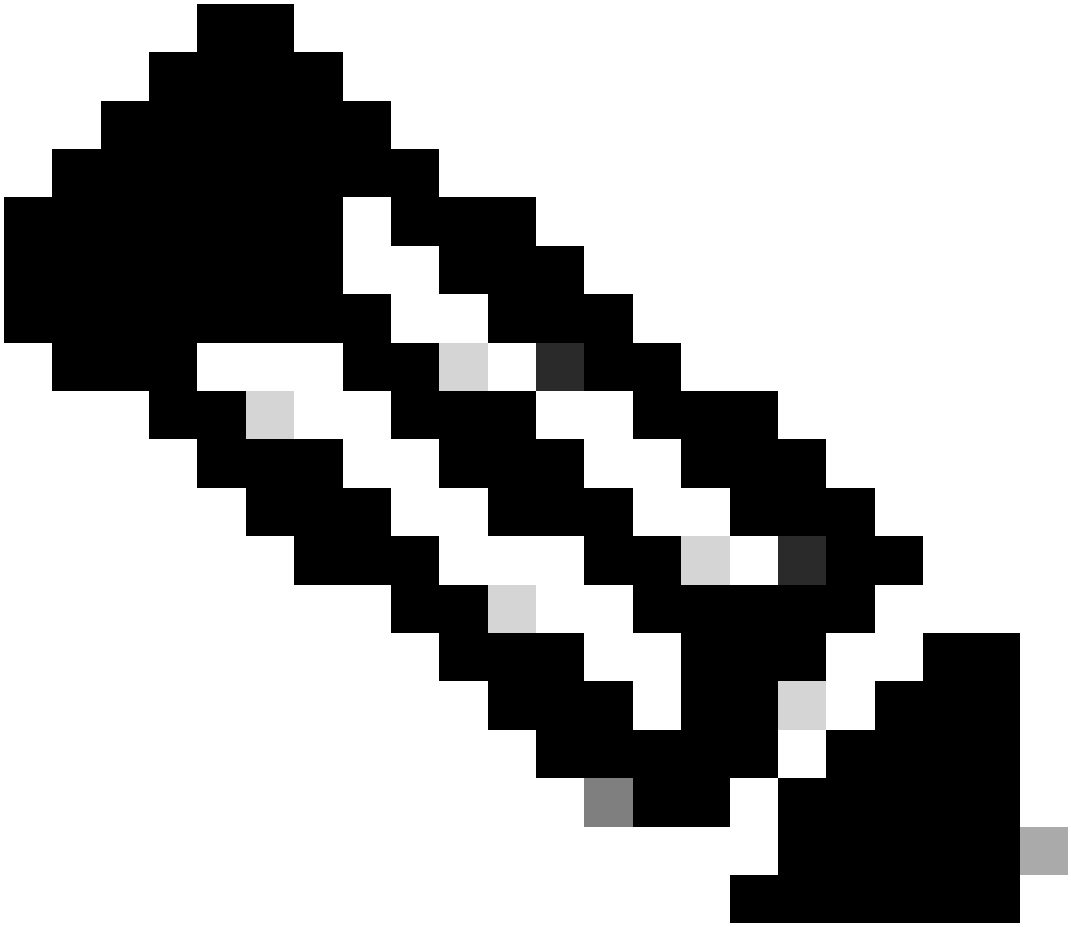
In order to configure the IKEv2 policies, enter the **crypto ikev2 policy <name>** command in global configuration mode:

```
crypto ikev2 policy POLICY
 proposal PROPOSAL
```

Configure a Crypto IKEv2 Profile

In order to configure the IKEv2 profile, enter the **crypto ikev2 profile <name>** command in global configuration mode.

```
crypto ikev2 profile PROFILE
 match address local 10.62.148.79
 match identity remote address 10.48.23.85 255.255.255.255
 authentication remote pre-share key cisco123
 authentication local pre-share key cisco123
```



Note: By default ISE is using CN field from its own identity certificate as IKE identity in IKEv2 negotiation. That's why in the "match identity remote" section of IKEv2 profile, you need to specify FQDN type and proper value of domain or FQDN of ISE.

Configure an ACL for VPN Traffic of Interest

Use the extended or named access list in order to specify the traffic that should be protected by encryption. Here is an example:

```
ip access-list extended 100
 10 permit ip host 10.62.148.79 host 10.48.23.85
```

Note: An ACL for VPN traffic uses the source and destination IP addresses after NAT.

Configure a Transform Set

In order to define an IPsec transform set (an acceptable combination of security protocols and algorithms), enter the **crypto ipsec transform-set** command in global configuration mode. Here is an example:

```
crypto ipsec transform-set SET esp-aes 256 esp-sha512-hmac
 mode tunnel
```

Configure a Crypto Map and Apply it to an Interface

In order to create or modify a crypto map entry and enter the crypto map configuration mode, enter the **crypto map** global configuration command. In order for the crypto map entry to be complete, there are some aspects that must be defined at a minimum:

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- The transform sets that are acceptable for use with the protected traffic must be defined. In order to specify the transform sets that can be used with the crypto map entry, enter the **set transform-set** command.
- The traffic that should be protected must be defined. In order to specify an extended access list for a crypto map entry, enter the **match address** command.

Here is an example:

```
crypto map MAP-IKEV2 10 ipsec-isakmp
 set peer 10.48.23.85
 set transform-set SET
 set pfs group16
 set ikev2-profile PROFILE
 match address 100
```

The final step is to apply the previously defined crypto map set to an interface. In order to apply this, enter the **crypto map** interface configuration command:

```
interface Vlan480
 crypto map MAP-IKEV2
```

IOS-XE Final Configuration

Here is the final IOS-XE switch CLI configuration:

```
aaa new-model
!
```

```
aaa group server radius ISE
 server name ISE33-2
!
aaa authentication dot1x default group ISE
aaa authorization network ISE group ISE
aaa accounting dot1x default start-stop group ISE
aaa accounting network default start-stop group ISE
!
aaa server radius dynamic-author
 client 10.48.23.85
 server-key cisco
!
dot1x system-auth-control
!
crypto ikev2 proposal PROPOSAL
 encryption aes-cbc-256
 integrity sha512
 group 16
!
crypto ikev2 policy POLICY
 proposal PROPOSAL
!
crypto ikev2 profile PROFILE
 match address local 10.62.148.79
 match identity remote address 10.48.23.85 255.255.255.255
 authentication remote pre-share key cisco123
 authentication local pre-share key cisco123
!
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 mode tunnel
!
crypto map MAP-IKEV2 10 ipsec-isakmp
 set peer 10.48.23.85
 set transform-set SET
 set pfs group16
 set ikev2-profile PROFILE
 match address 100
!
interface GigabitEthernet1/0/23
 switchport trunk allowed vlan 1,480
 switchport mode trunk
!
interface Vlan480
 ip address 10.62.148.79 255.255.255.128
 crypto map MAP-IKEV2
!
ip access-list extended 100
 10 permit ip host 10.62.148.79 host 10.48.23.85
!
radius server ISE33-2
 address ipv4 10.48.23.85 auth-port 1812 acct-port 1813
 key cisco
!
```

ISE Configuration

Configure IP address on ISE

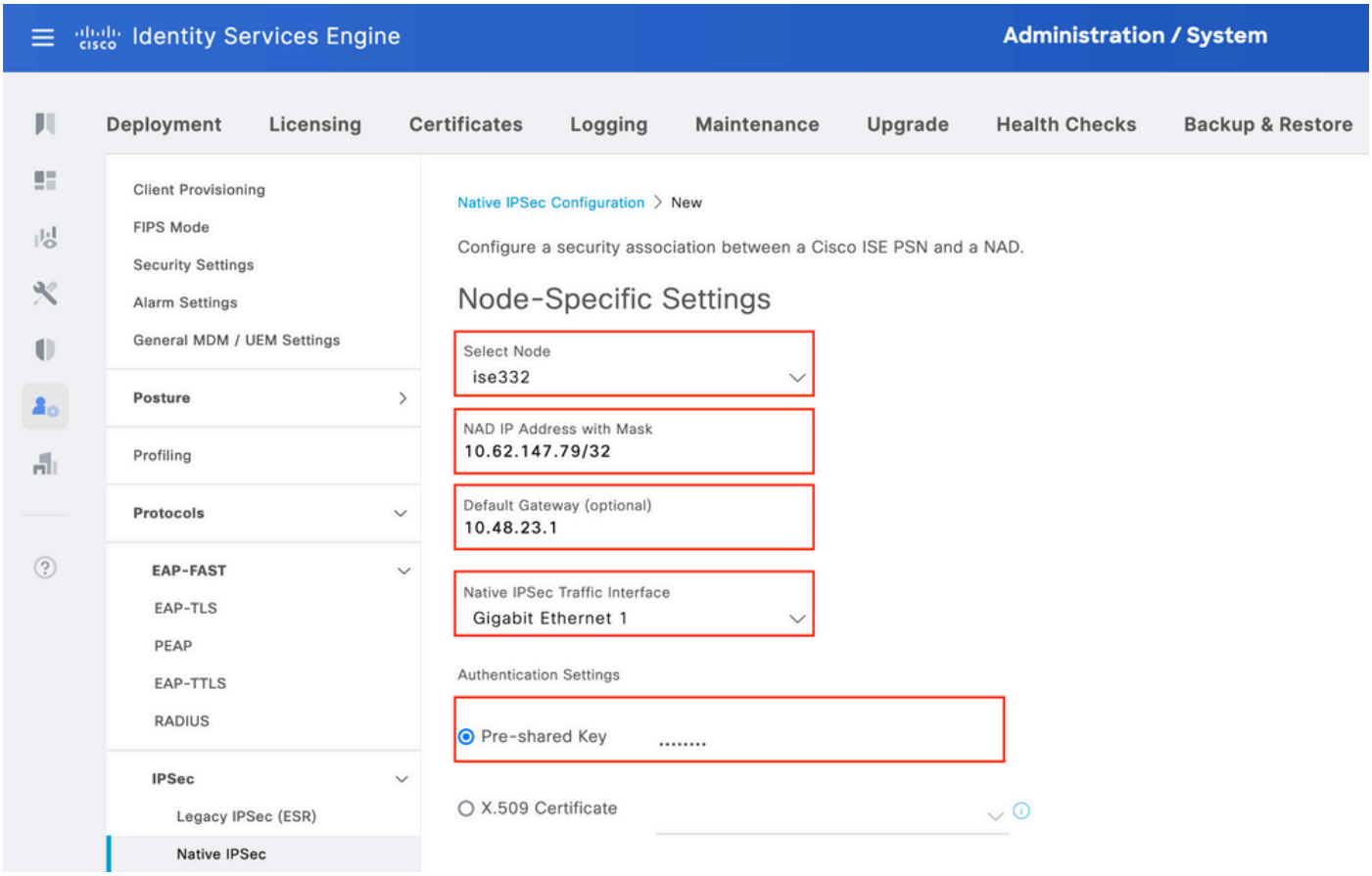
Address should be configured on interface GE1-GE5 from the CLI, GE0 is not supported.

```
interface GigabitEthernet 1
  ip address 10.48.23.85 255.255.255.0
  ipv6 address autoconfig
  ipv6 enable
```

Note: Application restarts after IP address is configured on the interface:
% Changing the IP address might cause ISE services to restart
Continue with IP address change? Y/N [N]: Y

Configure IPsec Tunnel

Navigate to **Administration > System > Settings > Protocols > IPsec > Native IPsec.** Click on **Add. Select Node**, which terminates IPsec Tunnel, configure **NAD IP Address with Mask, Default Gateway** and **IPsec Interface.** Select Authentication Setting as X.509 Certificate and Choose Certificate System Certificate Installed.



Default Gateway is an optional configuration. In fact, you have two options, you can configure a Default Gateway in Native IPsec UI, which installs a route in the underlying OS. This route is not exposed in show running-config:

```
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```

<#root>

```
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Destination Gateway Iface
----------- ------- -----
10.48.23.0/24 0.0.0.0 eth1
default 10.48.60.1 eth0
10.48.60.0/24 0.0.0.0 eth0
```

10.62.148.79 10.48.23.1 eth1

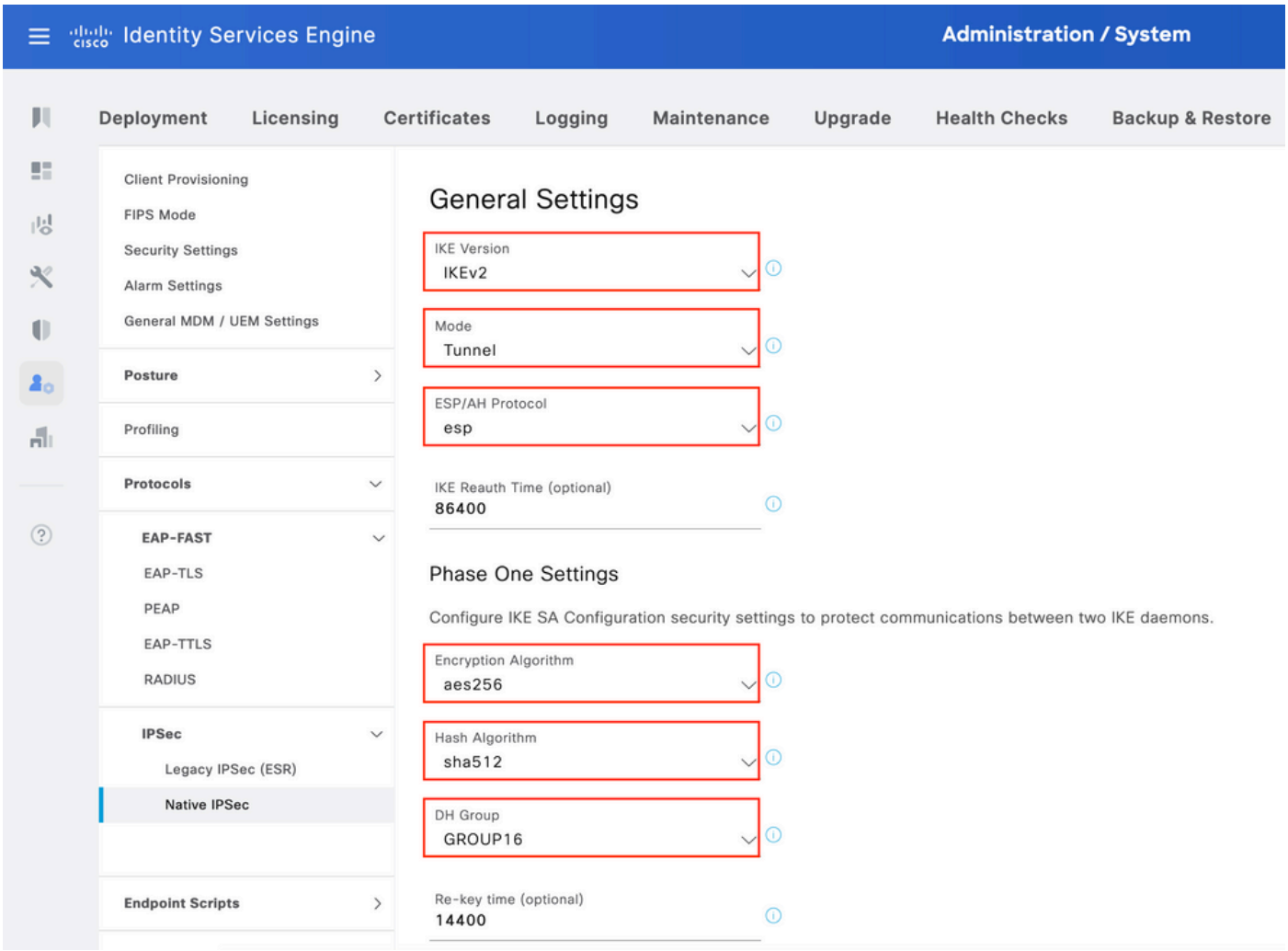
```
169.254.2.0/24 0.0.0.0 cni-podman1
169.254.4.0/24 0.0.0.0 cni-podman2
ise332/admin#
```

Another option is to leave Default Gateway blank and configure the route manually on ISE, this will achieve the same effect:

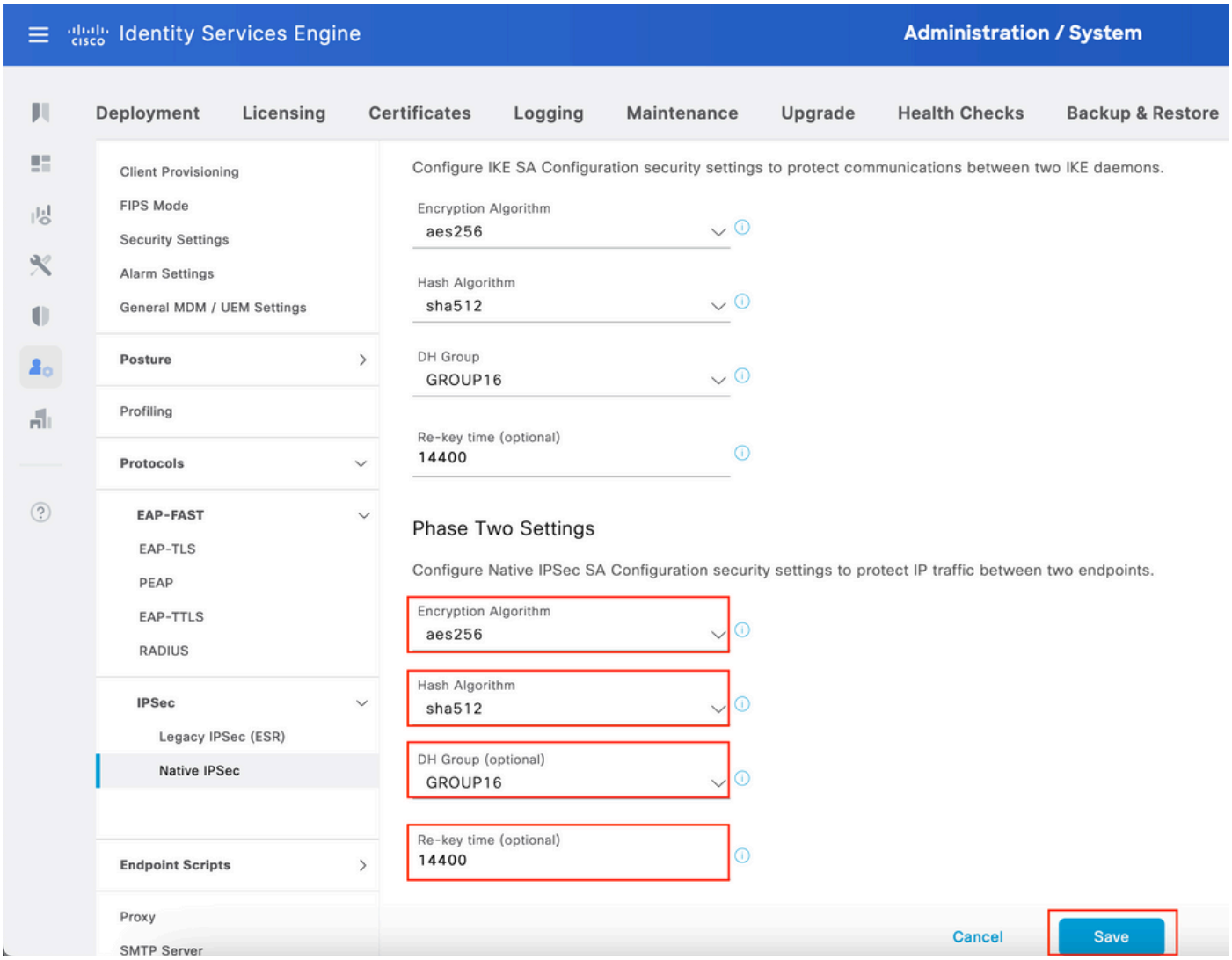
```
ise332/admin(config)#ip route 10.62.148.79 255.255.255.255 gateway 10.48.23.1
ise332/admin(config)#exit
ise332/admin#show ip route

Destination Gateway Iface
----------- ------- -----
10.48.23.0/24 0.0.0.0 eth1
10.62.148.79 10.48.23.1 eth1
default 10.48.60.1 eth0
10.48.60.0/24 0.0.0.0 eth0
169.254.2.0/24 0.0.0.0 cni-podman1
169.254.4.0/24 0.0.0.0 cni-podman2
ise332/admin#
```

Configure **General Settings** for IPsec Tunnel. Configure **Phase One Settings. General Settings**, **Phase One Settings** and **Phase Two Settings** should match the settings configured on the other side of the IPsec Tunnel.



Configure **Phase Two Settings** and click **Save**.



Verify

To make sure RADIUS is working over IPsec Tunnel use the **test aaa** command or perform actual MAB or 802.1X authentication

```
KSEC-9248L-1#test aaa group ISE alice Krakow123 new-code
User successfully authenticated

USER ATTRIBUTES

username 0 "alice"
vn 0 "vn1"
security-group-tag 0 "000f-00"
KSEC-9248L-1#
```

Verify on IOS-XE

<#root>

```
KSEC-9248L-1#
```

show crypto ikev2 sa

```
 IPv4 Crypto IKEv2 SA

Tunnel-id Local                 Remote                fvrf/ivrf            Status
1         10.62.148.79/500      10.48.23.85/500       none/none
```

READY

```
      Encr: AES-CBC, keysize: 256, PRF: SHA512, Hash: SHA512, DH Grp:16, Auth sign: RSA, Auth verify: R
      Life/Active Time: 86400/1439 sec

 IPv6 Crypto IKEv2 SA

KSEC-9248L-1#
```

show crypto ipsec sa

```
interface: Vlan480
    Crypto map tag: MAP-IKEV2, local addr 10.62.148.79

   protected vrf: (none)
   local ident (addr/mask/prot/port): (10.62.148.79/255.255.255.255/0/0)
   remote ident (addr/mask/prot/port): (10.48.23.85/255.255.255.255/0/0)
   current_peer 10.48.23.85 port 500
     PERMIT, flags={origin_is_acl,}
```

#pkts encaps: 1, #pkts encrypt: 1, #pkts digest: 1

#pkts decaps: 1, #pkts decrypt: 1, #pkts verify: 1

```
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts compr. failed: 0
    #pkts not decompressed: 0, #pkts decompress failed: 0
    #send errors 0, #recv errors 0

     local crypto endpt.: 10.62.148.79, remote crypto endpt.: 10.48.23.85
     plaintext mtu 1422, path mtu 1500, ip mtu 1500, ip mtu idb Vlan480
     current outbound spi: 0xC17542E9(3245687529)
     PFS (Y/N): N, DH group: none

     inbound esp sas:
      spi: 0xF7A68F69(4154888041)
        transform: esp-256-aes esp-sha512-hmac ,
        in use settings ={Tunnel, }
        conn id: 72, flow_id: SW:72, sibling_flags 80000040, crypto map: MAP-IKEV2
         sa timing: remaining key lifetime (k/sec): (4173813/84954)
        IV size: 16 bytes
        replay detection support: Y
        Status: ACTIVE(ACTIVE)

     inbound ah sas:

     inbound pcp sas:

     outbound esp sas:
      spi: 0xC17542E9(3245687529)
        transform: esp-256-aes esp-sha512-hmac ,
```

```
        in use settings ={Tunnel, }
        conn id: 71, flow_id: SW:71, sibling_flags 80000040, crypto map: MAP-IKEV2
         sa timing: remaining key lifetime (k/sec): (4173813/84954)
        IV size: 16 bytes
        replay detection support: Y
        Status: ACTIVE(ACTIVE)

     outbound ah sas:

     outbound pcp sas:

KSEC-9248L-1#
KSEC-9248L-1#show crypto session
Crypto session current status

Interface: Vlan480
Profile:
```

PROFILE

```
Session status:
```

UP-ACTIVE

```
Peer: 10.48.23.85 port 500
  Session ID: 5
  IKEv2 SA: local 10.62.148.79/500 remote 10.48.23.85/500
```

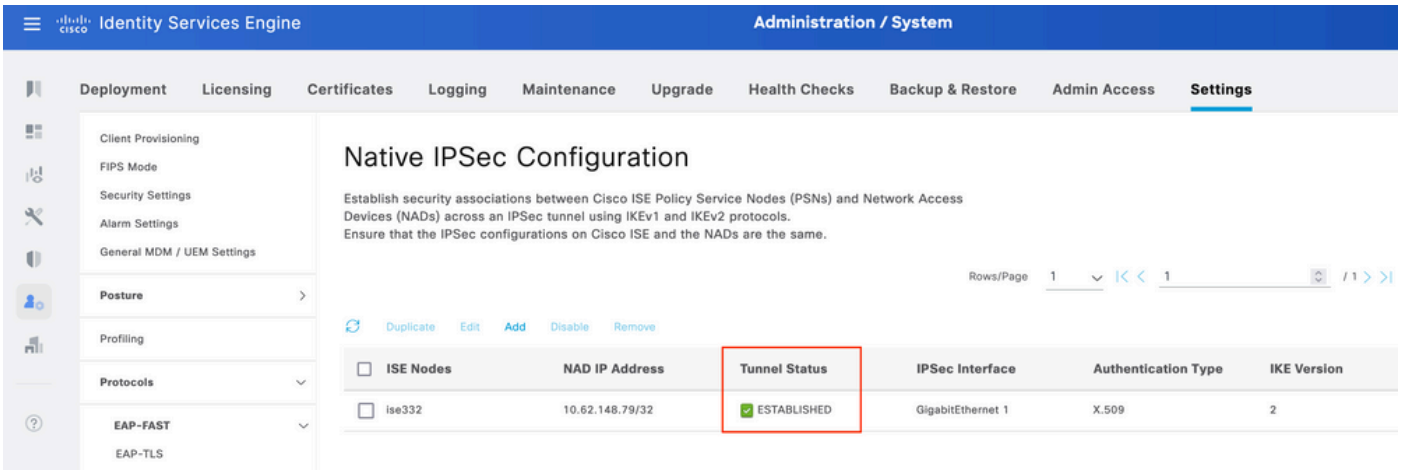
Active

```
  IPSEC FLOW: permit ip host 10.62.148.79 host 10.48.23.85
        Active SAs: 2, origin: crypto map

KSEC-9248L-1#
```

Verify on ISE

The status of the tunnel can be verified from GUI



Use **application configure ise** command to verify the status of the tunnel from CLI

<#root>

```
ise332/admin#application configure ise

Selection configuration option
[1]Reset M&T Session Database
[2]Rebuild M&T Unusable Indexes
[3]Purge M&T Operational Data
[4]Reset M&T Database
[5]Refresh Database Statistics
[6]Display Profiler Statistics
[7]Export Internal CA Store
[8]Import Internal CA Store
[9]Create Missing Config Indexes
[10]Create Missing M&T Indexes
[12]Generate Daily KPM Stats
[13]Generate KPM Stats for last 8 Weeks
[14]Enable/Disable Counter Attribute Collection
[15]View Admin Users
[16]Get all Endpoints
[19]Establish Trust with controller
[20]Reset Context Visibility
[21]Synchronize Context Visibility With Database
[22]Generate Heap Dump
[23]Generate Thread Dump
[24]Force Backup Cancellation
[25]CleanUp ESR 5921 IOS Crash Info Files
[26]Recreate undotablespace
[27]Reset Upgrade Tables
[28]Recreate Temp tablespace
[29]Clear Sysaux tablespace
[30]Fetch SGA/PGA Memory usage
[31]Generate Self-Signed Admin Certificate
[32]View Certificates in NSSDB or CA_NSSDB
[33]Recreate REPLOGNS tablespace
[34]View Native IPSec status
[0]Exit

34
7212b70a-1405-429a-94b8-71a5d4beb1e5: #114,
```

ESTABLISHED

```
, IKEv2, 0ca3c29e36290185_i 08c7fb6db177da84_r*
  local 'CN=ise332.example.com' @ 10.48.23.85[500]
  remote '10.62.148.79' @ 10.62.148.79[500]
  AES_CBC-256/HMAC_SHA2_512_256/PRF_HMAC_SHA2_512/MODP_4096
  established 984s ago, rekeying in 10283s, reauth in 78609s
  net-net-7212b70a-1405-429a-94b8-71a5d4beb1e5: #58, reqid 1, INSTALLED, TUNNEL, ESP:AES_CBC-256/HMAC_S
    installed 984s ago, rekeying in 12296s, expires in 14856s
    in c17542e9, 100 bytes,
```

1 packets

```
, 983s ago
    out f7a68f69, 100 bytes,
```

1 packets

```
, 983s ago
    local 10.48.23.85/32
remote 10.62.148.79/32
```

Troubleshoot

Troubleshoot on IOS-XE

Debugs to Enable

<#root>

```
KSEC-9248L-1#
```

debug crypto ikev2

```
IKEv2 default debugging is on
KSEC-9248L-1#
```

debug crypto ikev2 error

```
IKEv2 error debugging is on
KSEC-9248L-1#
```

debug crypto ipsec

```
Crypto IPSEC debugging is on
KSEC-9248L-1#
```

debug crypto ipsec error

```
Crypto IPSEC Error debugging is on
KSEC-9248L-1#
```

Full Set of Working Debugs on IOS-XE

```
Apr 25 18:57:36.572: IPSEC(sa_request): ,
  (key eng. msg.) OUTBOUND local= 10.62.148.79:500, remote= 10.48.23.85:500,
    local_proxy= 10.62.148.79/255.255.255.255/256/0,
    remote_proxy= 10.48.23.85/255.255.255.255/256/0,
    protocol= ESP, transform= esp-aes 256 esp-sha512-hmac (Tunnel), esn= FALSE,
    lifedur= 86400s and 4608000kb,
    spi= 0x0(0), conn_id= 0, keysize= 256, flags= 0x0
Apr 25 18:57:36.573: IKEv2:(SESSION ID = 0,SA ID = 0):Searching Policy with fvrf 0, local address 10.62
Apr 25 18:57:36.573: IKEv2:(SESSION ID = 0,SA ID = 0):Found Policy 'POLICY'
Apr 25 18:57:36.573: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Start PKI Session
Apr 25 18:57:36.574: IKEv2:(SA ID = 1):[PKI -> IKEv2] Starting of PKI Session PASSED
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):[IKEv2 -> Crypto Engine] Computing DH public key,
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[Crypto Engine -> IKEv2] DH key Compu
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):Request queued for computation of DH key
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):IKEv2 initiator - no config data to send in IKE_S
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):Generating IKE_SA_INIT message
Apr 25 18:57:36.574: IKEv2:(SESSION ID = 5,SA ID = 1):IKE Proposal: 1, SPI size: 0 (initial negotiation
Num. transforms: 4
   AES-CBC SHA512 SHA512 DH_GROUP_4096_MODP/Group 16
```

```
Apr 25 18:57:36.575: IKEv2:(SESSION ID = 5,SA ID = 1):Sending Packet [To 10.48.23.85:500/From 10.62.148
Initiator SPI : 0CA3C29E36290185 - Responder SPI : 0000000000000000 Message id: 0
IKEv2 IKE_SA_INIT Exchange REQUEST
Payload contents:
 SA KE N VID VID VID VID NOTIFY(NAT_DETECTION_SOURCE_IP) NOTIFY(NAT_DETECTION_DESTINATION_IP)

Apr 25 18:57:36.575: IKEv2:(SESSION ID = 5,SA ID = 1):Insert SA

Apr 25 18:57:36.640: IKEv2:(SESSION ID = 5,SA ID = 1):Received Packet [From 10.48.23.85:500/To 10.62.14
Initiator SPI : 0CA3C29E36290185 - Responder SPI : 08C7FB6DB177DA84 Message id: 0
IKEv2 IKE_SA_INIT Exchange RESPONSE
Payload contents:
 SA KE N NOTIFY(NAT_DETECTION_SOURCE_IP) NOTIFY(NAT_DETECTION_DESTINATION_IP) CERTREQ NOTIFY(Unknown -

Apr 25 18:57:36.641: IKEv2:(SESSION ID = 5,SA ID = 1):Processing IKE_SA_INIT message
Apr 25 18:57:36.641: IKEv2:(SESSION ID = 5,SA ID = 1):Verify SA init message
Apr 25 18:57:36.641: IKEv2:(SESSION ID = 5,SA ID = 1):Processing IKE_SA_INIT message
Apr 25 18:57:36.641: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Retrieving trustpoint(s) from received certificat
Apr 25 18:57:36.641: IKEv2:(SA ID = 1):[PKI -> IKEv2] Retrieved trustpoint(s): 'KrakowCA'
Apr 25 18:57:36.641: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Getting cert chain for the trustpoint KrakowCA
Apr 25 18:57:36.643: IKEv2:(SA ID = 1):[PKI -> IKEv2] Getting of cert chain for the trustpoint PASSED
Apr 25 18:57:36.643: IKEv2:(SESSION ID = 5,SA ID = 1):Checking NAT discovery
Apr 25 18:57:36.643: IKEv2:(SESSION ID = 5,SA ID = 1):NAT not found
Apr 25 18:57:36.643: IKEv2:(SESSION ID = 5,SA ID = 1):[IKEv2 -> Crypto Engine] Computing DH secret key,
Apr 25 18:57:36.874: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[Crypto Engine -> IKEv2] DH key Compu
Apr 25 18:57:36.874: IKEv2:(SESSION ID = 5,SA ID = 1):Request queued for computation of DH secret
Apr 25 18:57:36.874: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[IKEv2 -> Crypto Engine] Calculate SK
Apr 25 18:57:36.874: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[Crypto Engine -> IKEv2] SKEYSEED cal
Apr 25 18:57:36.874: IKEv2:(SESSION ID = 5,SA ID = 1):Completed SA init exchange
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):Check for EAP exchange
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):Generate my authentication data
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):[IKEv2 -> Crypto Engine] Generate IKEv2 authentic
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):[Crypto Engine -> IKEv2] IKEv2 authentication dat
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):Get my authentication method
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):My authentication method is 'RSA'
Apr 25 18:57:36.876: IKEv2:(SESSION ID = 5,SA ID = 1):Sign authentication data
Apr 25 18:57:36.877: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Getting private key
Apr 25 18:57:36.877: IKEv2:(SA ID = 1):[PKI -> IKEv2] Getting of private key PASSED
Apr 25 18:57:36.877: IKEv2:(SA ID = 1):[IKEv2 -> Crypto Engine] Sign authentication data
Apr 25 18:57:36.945: IKEv2:(SA ID = 1):[Crypto Engine -> IKEv2] Signing of authentication data PASSED
Apr 25 18:57:36.945: IKEv2:(SESSION ID = 5,SA ID = 1):Authentication material has been sucessfully sign
Apr 25 18:57:36.945: IKEv2:(SESSION ID = 5,SA ID = 1):Check for EAP exchange
Apr 25 18:57:36.945: IKEv2:(SESSION ID = 5,SA ID = 1):Generating IKE_AUTH message
Apr 25 18:57:36.945: IKEv2:(SESSION ID = 5,SA ID = 1):Constructing IDi payload: '10.62.148.79' of type
Apr 25 18:57:36.945: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Retrieve configured trustpoint(s)
Apr 25 18:57:36.945: IKEv2:(SA ID = 1):[PKI -> IKEv2] Retrieved trustpoint(s): 'KrakowCA'
Apr 25 18:57:36.945: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Get Public Key Hashes of trustpoints
Apr 25 18:57:36.946: IKEv2:(SA ID = 1):[PKI -> IKEv2] Getting of Public Key Hashes of trustpoints PASSE
Apr 25 18:57:36.946: IKEv2:(SESSION ID = 5,SA ID = 1):ESP Proposal: 1, SPI size: 4 (IPSec negotiation),
Num. transforms: 3
   AES-CBC SHA512 Don't use ESN
Apr 25 18:57:36.946: IKEv2:(SESSION ID = 5,SA ID = 1):Building packet for encryption.
Payload contents:
 VID IDi CERT CERTREQ AUTH SA TSi TSr NOTIFY(INITIAL_CONTACT) NOTIFY(SET_WINDOW_SIZE) NOTIFY(ESP_TFC_NO

Apr 25 18:57:36.947: IKEv2:(SESSION ID = 5,SA ID = 1):Sending Packet [To 10.48.23.85:500/From 10.62.148
Initiator SPI : 0CA3C29E36290185 - Responder SPI : 08C7FB6DB177DA84 Message id: 1
IKEv2 IKE_AUTH Exchange REQUEST
Payload contents:
 ENCR

Apr 25 18:57:37.027: IKEv2:(SESSION ID = 5,SA ID = 1):Received Packet [From 10.48.23.85:500/To 10.62.14
```

```
Initiator SPI : 0CA3C29E36290185 - Responder SPI : 08C7FB6DB177DA84 Message id: 1
IKEv2 IKE_AUTH Exchange RESPONSE
Payload contents:
 IDr CERT AUTH SA TSi TSr

Apr 25 18:57:37.029: IKEv2:(SESSION ID = 5,SA ID = 1):Process auth response notify
Apr 25 18:57:37.031: IKEv2:(SESSION ID = 5,SA ID = 1):Searching policy based on peer's identity 'cn=ise
Apr 25 18:57:37.031: IKEv2:(SESSION ID = 5,SA ID = 1):Searching Policy with fvrf 0, local address 10.62
Apr 25 18:57:37.031: IKEv2:(SESSION ID = 5,SA ID = 1):Found Policy 'POLICY'
Apr 25 18:57:37.032: IKEv2:(SESSION ID = 5,SA ID = 1):Verify peer's policy
Apr 25 18:57:37.032: IKEv2:(SESSION ID = 5,SA ID = 1):Peer's policy verified
Apr 25 18:57:37.032: IKEv2:(SESSION ID = 5,SA ID = 1):Get peer's authentication method
Apr 25 18:57:37.032: IKEv2:(SESSION ID = 5,SA ID = 1):Peer's authentication method is 'RSA'
Apr 25 18:57:37.033: IKEv2:Validation list created with 1 trustpoints
Apr 25 18:57:37.033: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Validating certificate chain
Apr 25 18:57:37.043: IKEv2:(SA ID = 1):[PKI -> IKEv2] Validation of certificate chain PASSED
Apr 25 18:57:37.043: IKEv2:(SESSION ID = 5,SA ID = 1):Save pubkey
Apr 25 18:57:37.045: IKEv2:(SESSION ID = 5,SA ID = 1):Verify peer's authentication data
Apr 25 18:57:37.045: IKEv2:(SESSION ID = 5,SA ID = 1):[IKEv2 -> Crypto Engine] Generate IKEv2 authentic
Apr 25 18:57:37.045: IKEv2:(SESSION ID = 5,SA ID = 1):[Crypto Engine -> IKEv2] IKEv2 authentication dat
Apr 25 18:57:37.045: IKEv2:(SA ID = 1):[IKEv2 -> Crypto Engine] Verify signed authentication data
Apr 25 18:57:37.047: IKEv2:(SA ID = 1):[Crypto Engine -> IKEv2] Verification of signed authentication d
Apr 25 18:57:37.048: IKEv2:(SESSION ID = 5,SA ID = 1):Check for EAP exchange
Apr 25 18:57:37.048: IKEv2:(SESSION ID = 5,SA ID = 1):Processing IKE_AUTH message
Apr 25 18:57:37.050: IKEv2:(SESSION ID = 5,SA ID = 1):IPSec policy validate request sent for profile PR

Apr 25 18:57:37.051: IPSEC(key_engine): got a queue event with 1 KMI message(s)
Apr 25 18:57:37.051: IPSEC(validate_proposal_request): proposal part #1
Apr 25 18:57:37.051: IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) INBOUND local= 10.62.148.79:0, remote= 10.48.23.85:0,
    local_proxy= 10.62.148.79/255.255.255.255/256/0,
    remote_proxy= 10.48.23.85/255.255.255.255/256/0,
    protocol= ESP, transform= esp-aes 256 esp-sha512-hmac (Tunnel), esn= FALSE,
    lifedur= 0s and 0kb,
    spi= 0x0(0), conn_id= 0, keysize= 256, flags= 0x0
Apr 25 18:57:37.051: Crypto mapdb : proxy_match
        src addr : 10.62.148.79
        dst addr : 10.48.23.85
        protocol : 0
        src port : 0
        dst port : 0
Apr 25 18:57:37.051: (ipsec_process_proposal)Map Accepted: MAP-IKEV2, 10
Apr 25 18:57:37.051: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[IPsec -> IKEv2] Callback received fo

Apr 25 18:57:37.052: IKEv2:(SA ID = 1):[IKEv2 -> PKI] Close PKI Session
Apr 25 18:57:37.052: IKEv2:(SA ID = 1):[PKI -> IKEv2] Closing of PKI Session PASSED
Apr 25 18:57:37.053: IKEv2:(SESSION ID = 5,SA ID = 1):IKEV2 SA created; inserting SA into database. SA
Apr 25 18:57:37.053: IKEv2:(SESSION ID = 5,SA ID = 1):Session with IKE ID PAIR (cn=ise332.example.com,
Apr 25 18:57:37.053: IKEv2:(SESSION ID = 0,SA ID = 0):IKEv2 MIB tunnel started, tunnel index 1
Apr 25 18:57:37.053: IKEv2:(SESSION ID = 5,SA ID = 1):Load IPSEC key material
Apr 25 18:57:37.054: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[IKEv2 -> IPsec] Create IPsec SA into
Apr 25 18:57:37.054: IPSEC(key_engine): got a queue event with 1 KMI message(s)
Apr 25 18:57:37.054: Crypto mapdb : proxy_match
       src addr : 10.62.148.79
       dst addr : 10.48.23.85
       protocol : 256
       src port : 0
       dst port : 0
Apr 25 18:57:37.054: IPSEC:(SESSION ID = 5) (crypto_ipsec_create_ipsec_sas) Map found MAP-IKEV2, 10
Apr 25 18:57:37.054: IPSEC:(SESSION ID = 5) (crypto_ipsec_sa_find_ident_head) reconnecting with the sam
Apr 25 18:57:37.055: IPSEC:(SESSION ID = 5) (get_old_outbound_sa_for_peer) No outbound SA found for pee
Apr 25 18:57:37.055: IPSEC:(SESSION ID = 5) (create_sa) sa created,
```

```
  (sa) sa_dest= 10.62.148.79, sa_proto= 50,
    sa_spi= 0xF7A68F69(4154888041),
    sa_trans= esp-aes 256 esp-sha512-hmac , sa_conn_id= 72
    sa_lifetime(k/sec)= (4608000/86400),
  (identity) local= 10.62.148.79:0, remote= 10.48.23.85:0,
    local_proxy= 10.62.148.79/255.255.255.255/256/0,
    remote_proxy= 10.48.23.85/255.255.255.255/256/0
Apr 25 18:57:37.055: ipsec_out_sa_hash_idx: sa=0x46CFF474, hash_idx=232, port=500/500, addr=0x0A3E944F/
Apr 25 18:57:37.055: crypto_ipsec_hook_out_sa: ipsec_out_sa_hash_array[232]=0x46CFF474
Apr 25 18:57:37.055: IPSEC:(SESSION ID = 5) (create_sa) sa created,
  (sa) sa_dest= 10.48.23.85, sa_proto= 50,
    sa_spi= 0xC17542E9(3245687529),
    sa_trans= esp-aes 256 esp-sha512-hmac , sa_conn_id= 71
    sa_lifetime(k/sec)= (4608000/86400),
  (identity) local= 10.62.148.79:0, remote= 10.48.23.85:0,
    local_proxy= 10.62.148.79/255.255.255.255/256/0,
    remote_proxy= 10.48.23.85/255.255.255.255/256/0
Apr 25 18:57:37.056: IPSEC: Expand action denied, notify RP
Apr 25 18:57:37.056: IKEv2:(SESSION ID = 5,SA ID = 1):(SA ID = 1):[IPsec -> IKEv2] Creation of IPsec SA
Apr 25 18:57:37.056: IKEv2:(SESSION ID = 5,SA ID = 1):Checking for duplicate IKEv2 SA
Apr 25 18:57:37.057: IKEv2:(SESSION ID = 5,SA ID = 1):No duplicate IKEv2 SA found
```

Troubleshoot on ISE

Debugs to Enable

There are no specific debugs to be enabled on ISE, to print the debugs to the console issues the command:

```
ise332/admin#show logging application strongswan/charon.log tail
```

Full Set of Working Debugs on ISE

```
Apr 26 00:57:36 03[NET] received packet: from 10.62.148.79[500] to 10.48.23.85[500]
Apr 26 00:57:36 03[NET] waiting for data on sockets
Apr 26 00:57:36 13[MGR] checkout IKEv2 SA by message with SPIs 0ca3c29e36290185_i 0000000000000000_r
Apr 26 00:57:36 13[MGR] created IKE_SA (unnamed)[114]
Apr 26 00:57:36 13[NET] <114> received packet: from 10.62.148.79[500] to 10.48.23.85[500] (774 bytes)
Apr 26 00:57:36 13[ENC] <114> parsed IKE_SA_INIT request 0 [ SA KE No V V V V N(NATD_S_IP) N(NATD_D_IP)
Apr 26 00:57:36 13[CFG] <114> looking for an IKEv2 config for 10.48.23.85...10.62.148.79
Apr 26 00:57:36 13[CFG] <114> candidate: 10.48.23.85...10.62.148.79, prio 3100
Apr 26 00:57:36 13[CFG] <114> found matching ike config: 10.48.23.85...10.62.148.79 with prio 3100
Apr 26 00:57:36 13[IKE] <114> local endpoint changed from 0.0.0.0[500] to 10.48.23.85[500]
Apr 26 00:57:36 13[IKE] <114> remote endpoint changed from 0.0.0.0 to 10.62.148.79[500]
Apr 26 00:57:36 13[IKE] <114> received Cisco Delete Reason vendor ID
Apr 26 00:57:36 13[ENC] <114> received unknown vendor ID: 43:49:53:43:4f:56:50:4e:2d:52:45:56:2d:30:32
Apr 26 00:57:36 13[ENC] <114> received unknown vendor ID: 43:49:53:43:4f:2d:44:59:4e:41:4d:49:43:2d:52:
Apr 26 00:57:36 13[IKE] <114> received Cisco FlexVPN Supported vendor ID
Apr 26 00:57:36 13[IKE] <114> 10.62.148.79 is initiating an IKE_SA
Apr 26 00:57:36 13[IKE] <114> IKE_SA (unnamed)[114] state change: CREATED => CONNECTING
Apr 26 00:57:36 13[CFG] <114> selecting proposal:
Apr 26 00:57:36 13[CFG] <114> proposal matches
Apr 26 00:57:36 13[CFG] <114> received proposals: IKE:AES_CBC_256/HMAC_SHA2_512_256/PRF_HMAC_SHA2_512/M
```

```
Apr 26 00:57:36 13[CFG] <114> configured proposals: IKE:AES_CBC_256/HMAC_SHA2_512_256/PRF_HMAC_SHA2_512
Apr 26 00:57:36 13[CFG] <114> selected proposal: IKE:AES_CBC_256/HMAC_SHA2_512_256/PRF_HMAC_SHA2_512/MO
Apr 26 00:57:36 13[IKE] <114> sending cert request for "CN=KrakowCA"
Apr 26 00:57:36 13[IKE] <114> sending cert request for "DC=com, DC=example, CN=LAB CA"
Apr 26 00:57:36 13[IKE] <114> sending cert request for "CN=Certificate Services Endpoint Sub CA - ise33
Apr 26 00:57:36 13[IKE] <114> sending cert request for "CN=Certificate Services Node CA - ise332"
Apr 26 00:57:36 13[IKE] <114> sending cert request for "O=Cisco, CN=Cisco Manufacturing CA SHA2"
Apr 26 00:57:36 13[ENC] <114> generating IKE_SA_INIT response 0 [ SA KE No N(NATD_S_IP) N(NATD_D_IP) CE
Apr 26 00:57:36 13[NET] <114> sending packet: from 10.48.23.85[500] to 10.62.148.79[500] (809 bytes)
Apr 26 00:57:36 13[MGR] <114> checkin IKEv2 SA (unnamed)[114] with SPIs 0ca3c29e36290185_i 08c7fb6db177
Apr 26 00:57:36 13[MGR] <114> checkin of IKE_SA successful
Apr 26 00:57:36 04[NET] sending packet: from 10.48.23.85[500] to 10.62.148.79[500]
Apr 26 00:57:36 03[NET] received packet: from 10.62.148.79[500] to 10.48.23.85[500]
Apr 26 00:57:36 03[NET] waiting for data on sockets
Apr 26 00:57:36 09[MGR] checkout IKEv2 SA by message with SPIs 0ca3c29e36290185_i 08c7fb6db177da84_r
Apr 26 00:57:36 09[MGR] IKE_SA (unnamed)[114] successfully checked out
Apr 26 00:57:36 09[NET] <114> received packet: from 10.62.148.79[500] to 10.48.23.85[500] (1488 bytes)
Apr 26 00:57:37 09[ENC] <114> parsed IKE_AUTH request 1 [ V IDi CERT CERTREQ AUTH SA TSi TSr N(INIT_CON
Apr 26 00:57:37 09[IKE] <114> received cert request for "CN=KrakowCA"
Apr 26 00:57:37 09[IKE] <114> received end entity cert "CN=KSEC-9248L-1.example.com"
Apr 26 00:57:37 09[CFG] <114> looking for peer configs matching 10.48.23.85[%any]...10.62.148.79[10.62.
Apr 26 00:57:37 09[CFG] <114> candidate "7212b70a-1405-429a-94b8-71a5d4beb1e5", match: 1/1/3100 (me/oth
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> selected peer config '7212b70a-1405-
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using certificate "CN=KSEC-9248L-1.e
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> certificate "CN=KSEC-9248L-1.example
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using trusted ca certificate "CN=Kra
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> certificate "CN=KrakowCA" key: 2048
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> reached self-signed root ca with a p
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> checking certificate status of "CN=K
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> ocsp check skipped, no ocsp found
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> certificate status is not available
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> authentication of '10.62.148.79' wit
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> received ESP_TFC_PADDING_NOT_SUPPORT
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> authentication of 'CN=ise332.example
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> sending end entity cert "CN=ise332.e
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> IKE_SA 7212b70a-1405-429a-94b8-71a5d
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> IKE_SA 7212b70a-1405-429a-94b8-71a5d
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> scheduling rekeying in 11267s
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> scheduling reauthentication in 79593
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> maximum IKE_SA lifetime 19807s
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> looking for a child config for 10.48
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> proposing traffic selectors for us:
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> 10.48.23.85/32
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> proposing traffic selectors for othe
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> 10.62.148.79/32
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> candidate "net-net-7212b70a-1405-429
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> found matching child config "net-net
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> selecting proposal:
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> proposal matches
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> received proposals: ESP:AES_CBC_256/
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> configured proposals: ESP:AES_CBC_25
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> selected proposal: ESP:AES_CBC_256/H
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> got SPI c17542e9
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> selecting traffic selectors for us:
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> config: 10.48.23.85/32, received: 10
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> config: 10.48.23.85/32, received: 10
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> selecting traffic selectors for othe
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> config: 10.62.148.79/32, received: 1
Apr 26 00:57:37 09[CFG] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> config: 10.62.148.79/32, received: 1
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> CHILD_SA net-net-7212b70a-1405-429a-
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using AES_CBC for encryption
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using HMAC_SHA2_512_256 for integrit
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Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding inbound ESP SA
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> SPI 0xc17542e9, src 10.62.148.79 dst
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding SAD entry with SPI c17542e9 a
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using encryption algorithm AES_CBC w
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using integrity algorithm HMAC_SHA2_
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using replay window of 32 packets
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> HW offload: no
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding outbound ESP SA
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> SPI 0xf7a68f69, src 10.48.23.85 dst
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding SAD entry with SPI f7a68f69 a
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using encryption algorithm AES_CBC w
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using integrity algorithm HMAC_SHA2_
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using replay window of 0 packets
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> HW offload: no
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding policy 10.62.148.79/32 === 10
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding policy 10.62.148.79/32 === 10
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> adding policy 10.48.23.85/32 === 10.
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> getting a local address in traffic s
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using host 10.48.23.85
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> getting iface name for index 22
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> using 10.48.23.1 as nexthop and eth1
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> installing route: 10.62.148.79/32 vi
Apr 26 00:57:37 09[KNL] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> getting iface index for eth1
Apr 26 00:57:37 09[IKE] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> CHILD_SA net-net-7212b70a-1405-429a-
Apr 26 00:57:37 09[CHD] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> CHILD_SA net-net-7212b70a-1405-429a-
Apr 26 00:57:37 09[ENC] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> generating IKE_AUTH response 1 [ IDr
Apr 26 00:57:37 09[NET] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> sending packet: from 10.48.23.85[500
Apr 26 00:57:37 09[MGR] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> checkin IKEv2 SA 7212b70a-1405-429a-
Apr 26 00:57:37 09[MGR] <7212b70a-1405-429a-94b8-71a5d4beb1e5|114> checkin of IKE_SA successful
Apr 26 00:57:37 04[NET] sending packet: from 10.48.23.85[500] to 10.62.148.79[500]
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