# Migrating ASA to Firepower Threat Defense—Dynamic Crypto Map Based Site-to-Site Tunnel on FTD

September 3, 2019

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# Introduction

This document describes the procedure to migrate Dynamic Crypto Map based site-to-site VPN tunnels (with IKEv1 or IKEv2) using pre-shared key and certificate as a method of authentication from the existing Cisco Adaptive Security Appliance (ASA) to Firepower Threat Defense (FTD), managed by Cisco Firepower Management Center (FMC).

# Existing ASA Configuration

```
ASA# show running-config
: Saved
:
: Serial Number: JAD202407H5
: Hardware: ASA5516, 8192 MB RAM, CPU Atom C2000 series 2416 MHz, 1 CPU (8 cores)
:
ASA Version 9.12(1)
!
hostname ASA
enable password ***** pbkdf2
no mac-address auto
!
interface GigabitEthernet1/1
 no nameif
 security-level 0
 no ip address
!
interface GigabitEthernet1/2
 nameif inside
 security-level 100
 ip address 192.168.2.1 255.255.255.0
!
interface GigabitEthernet1/3
 nameif outside
 security-level 0
 ip address 10.197.222.163 255.255.255.0
!
interface GigabitEthernet1/4
```

```
 no nameif
 security-level 0
 no ip address
!
---------- Output Omitted ----------
!
boot system disk0:/asa9-12-1-lfbff-k8.SPA
ftp mode passive
dns domain-lookup outside
same-security-traffic permit inter-interface
same-security-traffic permit intra-interface

---------- Output Omitted ----------
object network LOCAL
 subnet 192.168.2.0 255.255.255.0
object network REMOTE
 subnet 192.168.1.0 255.255.255.0

---------- Output Omitted ----------
pager lines 24
logging enable
logging timestamp
logging monitor debugging
logging buffered debugging

---------- Output Omitted ----------
nat (inside,outside) source static LOCAL LOCAL destination static REMOTE REMOTE no-proxy-arp route-lookup
nat (inside,outside) source dynamic any interface
route outside 0.0.0.0 0.0.0.0 10.106.67.1 1

---------- Output Omitted ----------
service sw-reset-button
crypto ipsec ikev1 transform-set ESP-AES-SHA esp-aes esp-sha-hmac
crypto ipsec ikev2 ipsec-proposal AES
```

```
 protocol esp encryption aes-256
 protocol esp integrity sha-1
crypto ipsec security-association pmtu-aging infinite
crypto dynamic-map DMAP 1 set ikev1 transform-set ESP-AES-SHA
crypto dynamic-map DMAP 1 set ikev2 ipsec-proposal AES
crypto dynamic-map DMAP 1 set reverse-route
crypto map CMAP 65535 ipsec-isakmp dynamic DMAP
crypto map CMAP interface outside
crypto ca trustpool policy
crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 5
 prf sha
 lifetime seconds 86400
crypto ikev2 policy 20
 encryption aes
 integrity sha256
 group 2
 prf sha
 lifetime seconds 86400
crypto ikev2 enable outside
crypto ikev1 enable outside
crypto ikev1 policy 1
 authentication pre-share
 encryption aes-256
 hash sha
 group 2
 lifetime 86400
crypto ikev1 policy 2
 authentication pre-share
 encryption 3des
 hash sha
 group 2
```

```
 lifetime 86400


---------- Output Omitted ----------

username cisco password ***** pbkdf2 privilege 15

tunnel-group DefaultL2LGroup ipsec-attributes

 ikev1 pre-shared-key *****

 ikev2 remote-authentication pre-shared-key *****

 ikev2 local-authentication pre-shared-key ******

!

policy-map type inspect dns preset_dns_map


---------- Output Omitted ----------

Cryptochecksum:09917190ba126fe882897e8e7975d441

: end

ASA#
```

To get the clear text form of the pre-shared key used for the VPN tunnel, execute the following command in the ASA CLI:

```
ASA# more system:running-config | begin tunnel-group DefaultL2LGroup
tunnel-group DefaultL2LGroup ipsec-attributes
 ikev1 pre-shared-key cisco123
 ikev2 remote-authentication pre-shared-key cisco123
 ikev2 local-authentication pre-shared-key cisco123
```

# Verification of VPN Tunnel Status on ASA

Use the following command to check the encryption and the hashing algorithms that are used by the tunnel during Phase 1 negotiation.

```
ASA# show crypto isakmp sa detail
There are no IKEv1 SAs
IKEv2 SAs:
Session-id:2, Status:UP-ACTIVE, IKE count:1, CHILD count:1
Tunnel-id Local                 Remote                Status      Role
10514185 10.197.222.163/500     10.106.52.213/500     READY    RESPONDER
    Encr: AES-CBC, keysize: 256, Hash: SHA96, DH Grp:5, Auth sign: PSK, Auth verify: PSK
    Life/Active Time: 86400/18 sec
    Session-id: 2
    Status Description: Negotiation done
    Local spi: 104CBBE0FBBBAFFD      Remote spi: 05DBC67E9F85AEDD
    Local id: 10.197.222.163
    Remote id: 10.106.52.224
    Local req mess id: 1             Remote req mess id: 2
    Local next mess id: 1            Remote next mess id: 2
    Local req queued: 1              Remote req queued: 2
    Local window: 1                  Remote window: 5
    DPD configured for 10 seconds, retry 2
    NAT-T is not detected
    IKEv2 Fragmentation Configured MTU: 576 bytes, Overhead: 28 bytes, Effective MTU: 548 bytes
Child sa: local selector  192.168.2.0/0 - 192.168.2.255/65535
        remote selector 192.168.1.0/0 - 192.168.1.255/65535
        ESP spi in/out: 0xd71be66b/0xcf7bbd1d
        AH spi in/out: 0x0/0x0
```

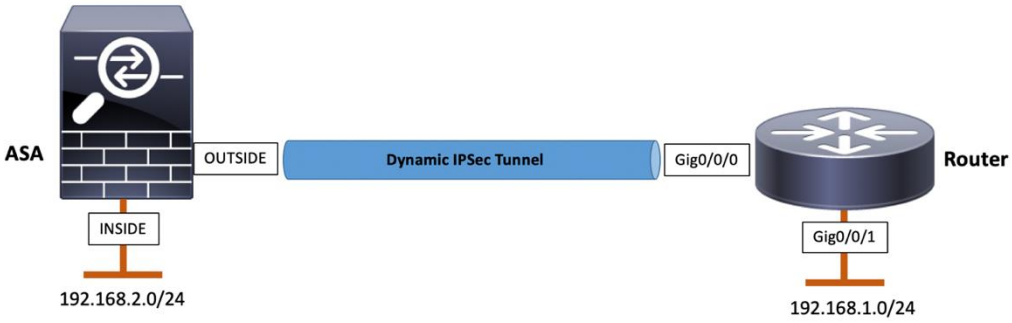
```
        CPI in/out: 0x0/0x0
        Encr: AES-CBC, keysize: 256, esp_hmac: SHA96
        ah_hmac: None, comp: IPCOMP_NONE, mode tunnel
    Parent SA Extended Status:
      Delete in progress: FALSE
      Marked for delete: FALSE
```

The above sample output shows site-to-site VPN configuration elements for ASA.

# Topology

Figure 1 displays the site-to-site VPN configuration when the remote peer is a Router.

**Figure 1 - Topology Diagram with ASA**



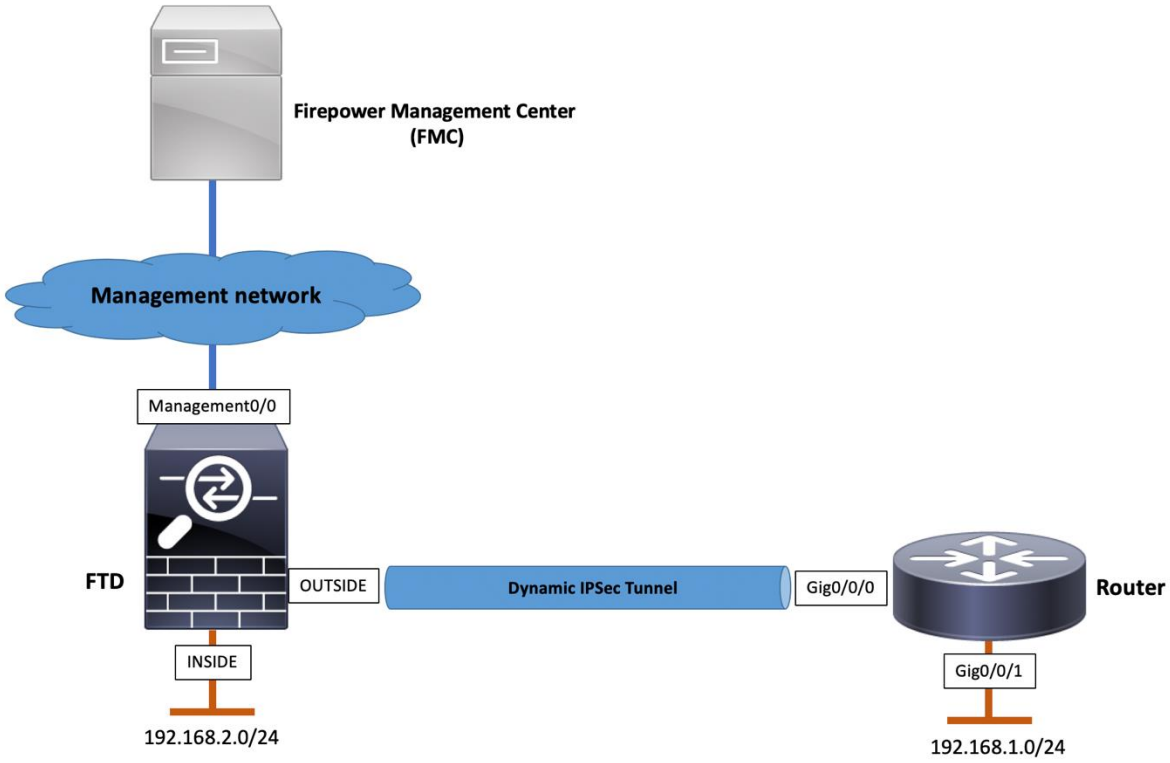

If Figure 1 is similar to the current configuration in ASA, then follow the Configuration Steps to migrate the configuration to FTD.

**Note**: Ensure that the required interfaces (Physical or Port-channel or Subinterface), Routes, NAT, Access Control Policies (ACP) are migrated properly by the Firepower Migration Tool (FMT).

# Configuration on FTD

## Network Diagram

**Figure 2 – Network Diagram with FTD**




## License Verification on FMC

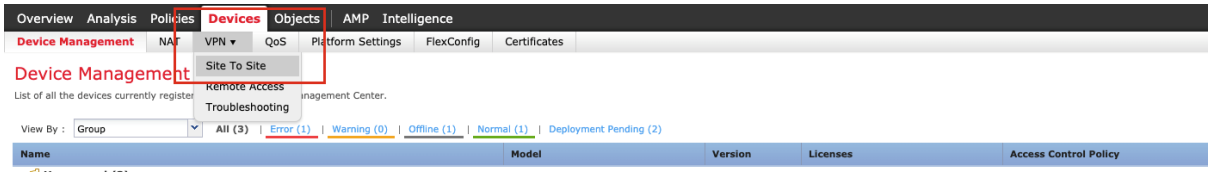
Ensure that the FMC is registered with Smart Licensing Portal. In addition, ensure that Export-Controlled features are enabled.

**Figure 3 – License Verification on FMC**


# Configuration Procedure on FTD

Step 1 Navigate to **Devices** > **VPN** > **Site To Site**.

**Figure 4 – Create New Site To Site VPN Connection**

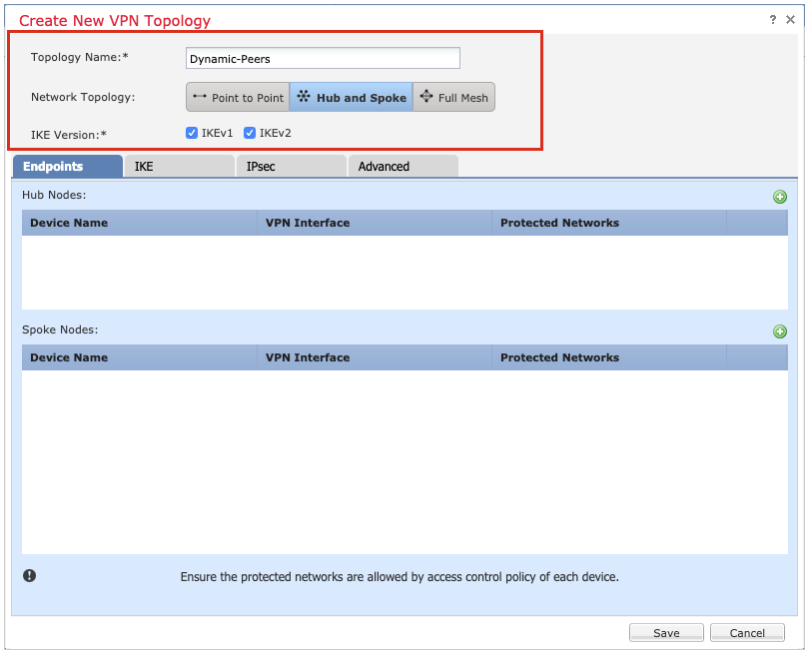



Step 2 Click **Add VPN** > **Firepower Threat Defense Device**.

**Figure 5 – Type of Site to Site VPN**


Step 3 Add the **Topology Name**, **Network Topology (Hub and Spoke)**, the **IKE Version** as **IKEv1** and **IKEv2**. Click the **Plus (+)** icon to add a node for the VPN tunnel.

**Figure 6 – Create New VPN Topology**




The configuration that is displayed in Figure 6 uses the following settings:

| Settings | Values |
|---|---|
| Topology Name | Dynamic-Peers |
| Network Topology | Hub and Spoke |
| IKE Version | IKEv1 and IKEv2 |
| Topology Name | Dynamic-Peers |

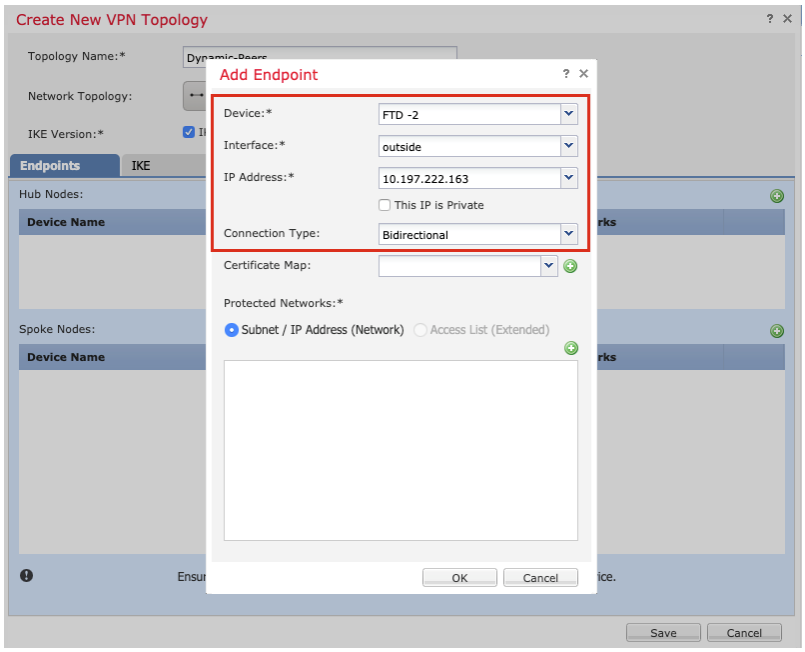
Step 4 For **Node A** representing the local endpoint of the VPN tunnel, click the **Plus (+)** icon to specify the target FTD details and do the following:

a. Choose the **Target FTD** as **Device**.

b. Choose the interface on which the VPN terminates.

c. Select a **Local Network** from **Protected Networks**.

**Figure 7 – Add Local Endpoint**

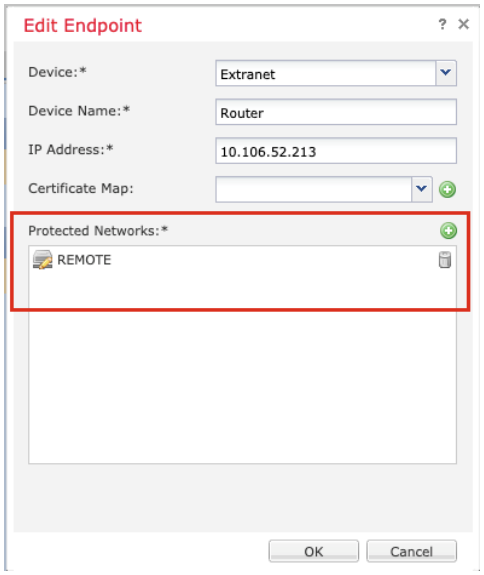



The configuration that is displayed in Figure 7 uses the following settings:

| Settings | Values |
|---|---|
| Device | FTD-2 |
| Interface | outside |
| Connection Type | Bidirectional |
| Type of Protected Network | Subnet / IP Address (Network) |

For FMC version 6.2.3 or earlier, use **Protected Networks** to add the **Local and Remote Network Objects** as displayed in Figure 8.

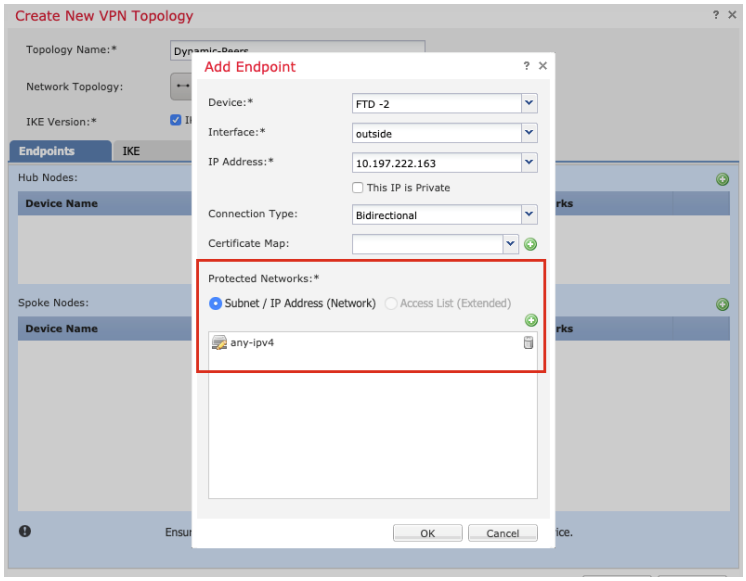
**Figure 8 – Add Local Protected Network (FMC version 6.2.3 or earlier)**




Step 5 Select a **Local Network** from the **Protected Networks**, and click **OK** to save the endpoint configuration.

**Note**: Set the **Local Network** to **any-ipv4** as you have created the dynamic crypto map.

**Figure 9 – Add Local Protected Network (FMC version 6.2.3 or later)**




Step 6 For **Node B** representing the remote endpoint of the VPN tunnel, click the **Plus (+)** icon to specify the remote peer details, and do the following:

a. Choose **Extranet** as **Device**.

b. Enter the **Device Name** and **WAN IP Address** of the remote endpoint.

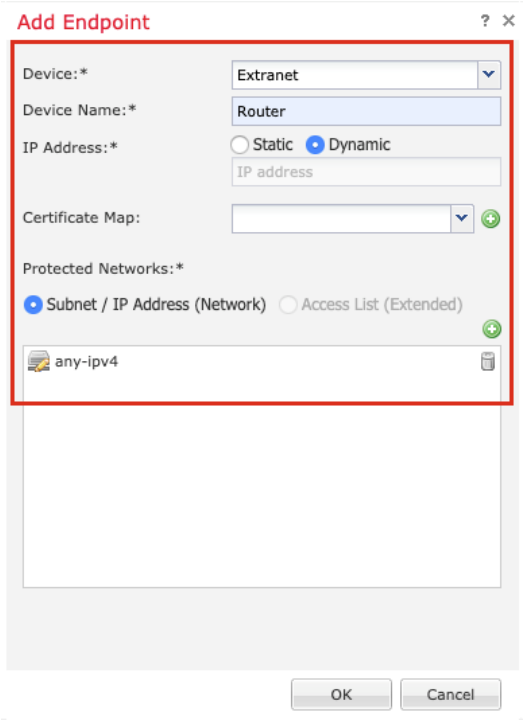
c. Select **Remote Network** from **Protected Networks**.

d. Click **OK** to save the endpoint configuration.

For FMC version 6.4.0 or later:

- You can choose Dynamic peer.
- As the **Remote Network** is unknown in a dynamic site-to-site tunnel, it is selected as **any-ipv4**. For more information, see Figure 10.

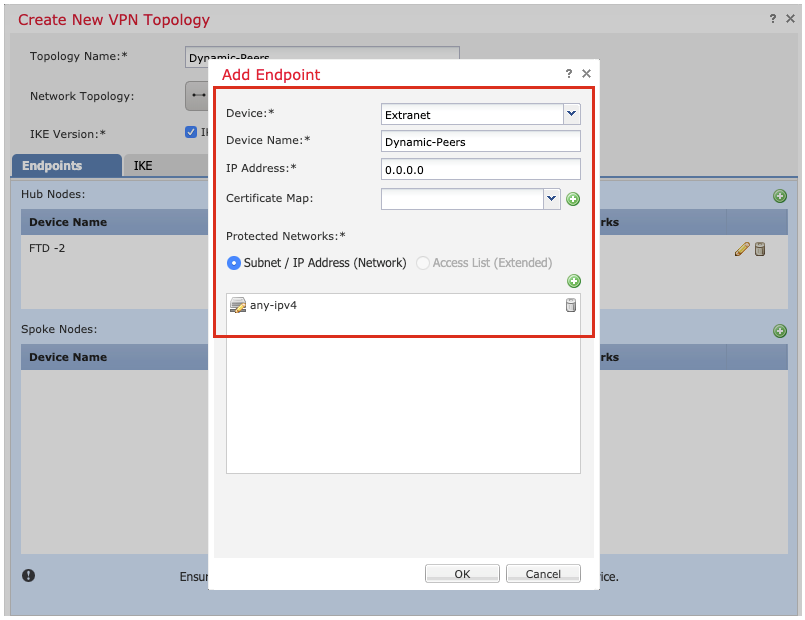
**Figure 10 – Add Remote Endpoint (FMC version 6.4.0 or later)**




For FMC version 6.4.0 or later:

- Use the IP address of the **remote end point as 0.0.0.0** to create a dynamic crypto map on the FTD, as this is a dynamic site-to-site VPN tunnel.
- As the **Remote Network** is not known in a dynamic site-to-site tunnel, it is selected as **any-ipv4**.

**Figure 11 – Add Remote Endpoint (FMC version 6.4.0 or earlier)**




**Note**: There is no option to configure the tunnel-group name. The FMC deploys the name of the tunnel-group as the IP address of the peer device.

The configuration that is displayed in Figure 11 uses the following settings:

| Settings | Values |
|---|---|
| Device | Extranet |
| Device Name | Dynamic-Peers |
| IP Address | 0.0.0.0 |

Step 7 Create a **New IKEv1 and IKEv2 Policy** to match the VPN Phase 1 settings existing on the ASA.

**Note**: To find the IKE policy used by the VPN tunnel, see Verification of VPN Tunnel Status on ASA.

To create a new IKEv1 policy, do the following:

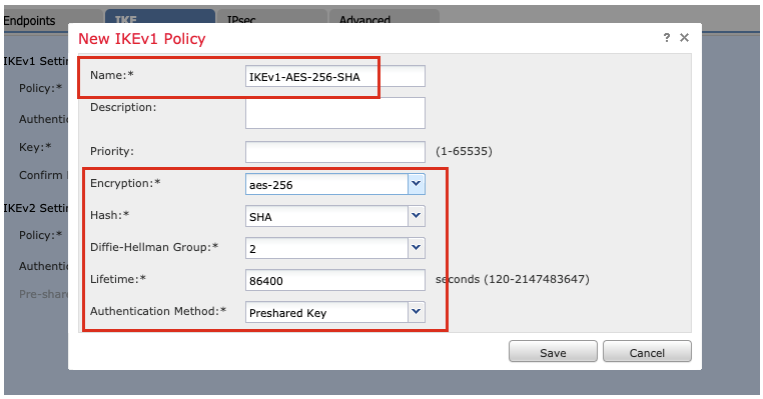
a. Navigate to the **IKE** tab.

b. Click the **Plus (+)** icon to add a new IKEv1 Policy.

c. Specify the IKE parameters.

d. Click **Save**.

**Figure 12 - New IKEv1 Policy**




The configuration that is displayed in Figure 12 uses the following settings:

| Settings | Values |
|---|---|
| Name | IKEv1-AES-256-SHA |
| Encryption | aes-256 |
| Hash | SHA |
| Diffie-Hellman-Group | 2 |
| Lifetime | 86400 |
| Authentication Method | Preshared Key |

To create a new IKEv2 policy, perform the following:

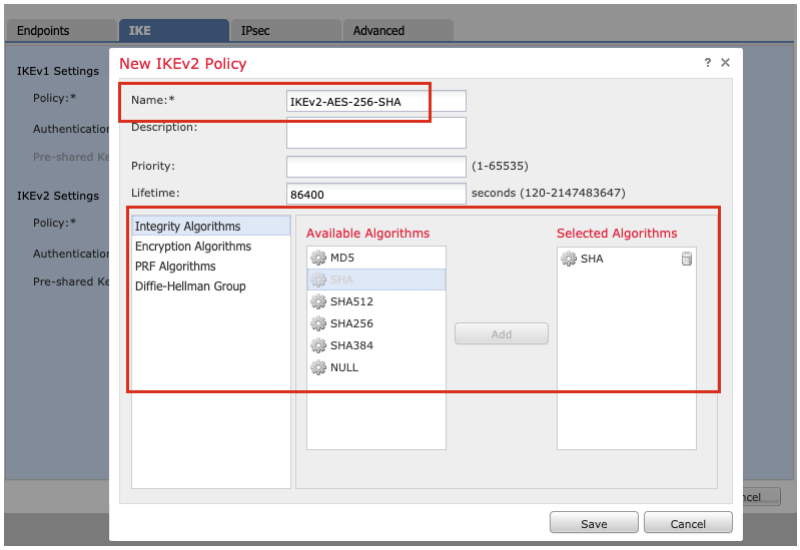
a. Navigate to the **IKE** tab.

b. Click the **Plus (+)** icon to add a new IKEv2 Policy.

c. Specify the IKE parameters.

d. Click **Save**.

**Figure 13 – New IKEv2 Policy**




The configuration that is displayed in Figure 13 uses the following settings:

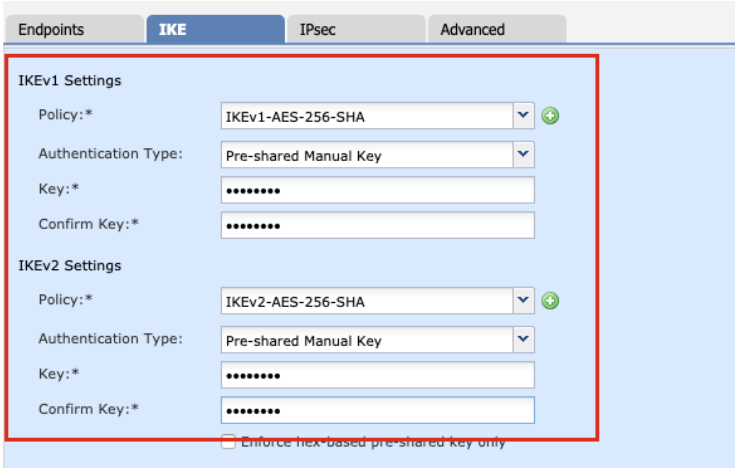
| Settings | Values |
|---|---|
| Name | IKEv2-AES-256-SHA |
| Integrity Algorithm | SHA |
| Encryption Algorithm | AES-256 |
| PRF Algorithm | SHA |
| Diffie-Hellman-Group | 5 |

Step 8 Select the policy to be used for the VPN tunnel from the **Policy** drop-down list, and perform the following:

a. Choose **Pre-shared Manual Key** from the **Authentication Type** drop-down list.

b. Add and confirm the key in the clear text format.

**Figure 14 – IKE Settings**




Step 9 Create a new IKEv1 and IKEv2 IPsec Proposal to match the VPN Phase 2 settings existing on the ASA (you can also edit the default IPsec Proposal to match the parameters).

To create a new IKEv1 IPsec Proposal, perform the following:

a. Navigate to **IPsec** tab.

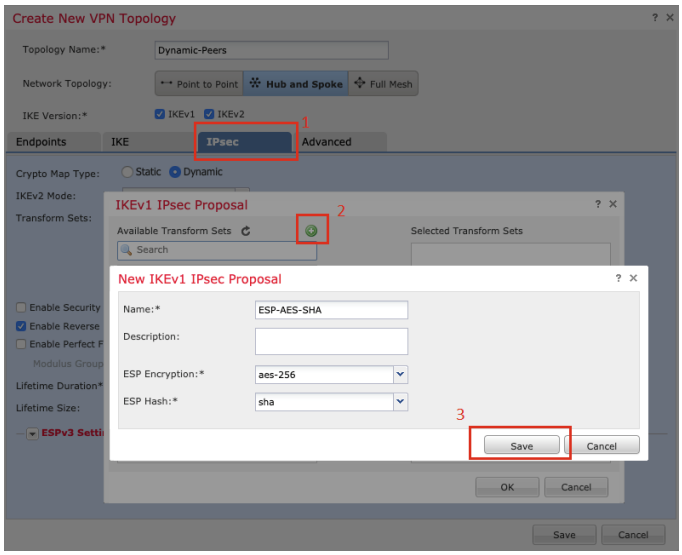
b. Click **Edit** to edit the default IKEv1 IPsec Proposal.

c. Click the **Plus (+)** icon to add a new IKEv1 IPsec Proposal.

d. Specify the IPsec parameters.

e. Click **Save** to save the configuration.

**Figure 15 – Create New IKEv1 IPsec Proposal**




The configuration that is displayed in Figure 15 uses the following settings:

| Settings | Values |
|---|---|
| Name | ESP-AES-SHA |

| Settings | Values |
|---|---|
| ESP Hash | SHA-1 |
| ESP Encryption | AES-256 |

To create a new IKEv2 IPsec Proposal, perform the following:

a. Navigate to **IPsec** tab.

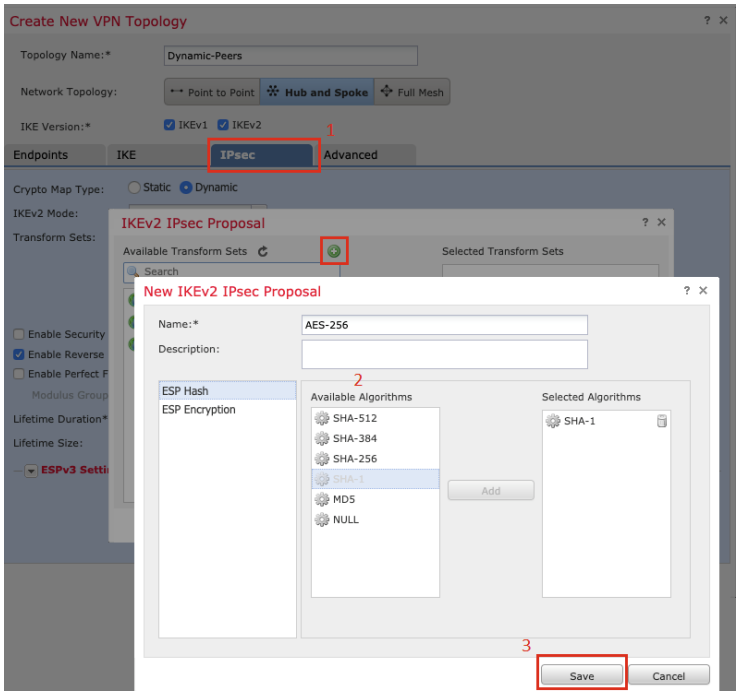
b. Click **Edit** to edit the default IKEv2 IPsec Proposal.

c. Click the **Plus (+)** icon to add a new IKEv2 IPsec Proposal.

d. Specify the IPsec parameters.

e. Click **Save** to save the configuration.

**Figure 16 – Create New IKEv2 IPsec Proposal**



The configuration that is displayed in Figure 16 uses the following settings:

| Settings | Values |
|---|---|
| Name | AES-256 |
| ESP Hash | SHA-1 |
| ESP Encryption | AES-256 |

Step 10 Select the **IPsec Transform Set** from the list of the **Available Transform Sets**.

**Figure 17 – Select IKEv1 IPsec Proposal**

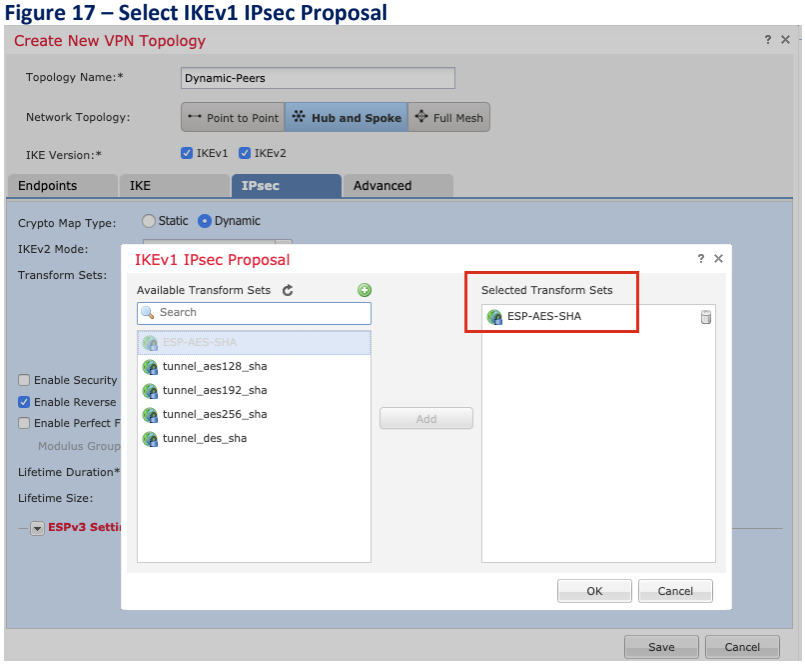
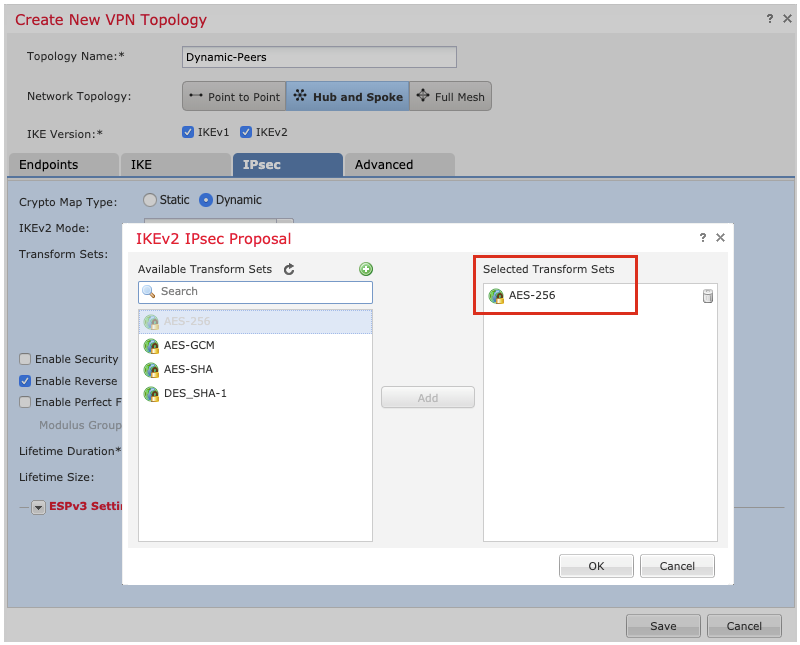


**Figure 18 – Select IKEv2 IPsec Proposal**

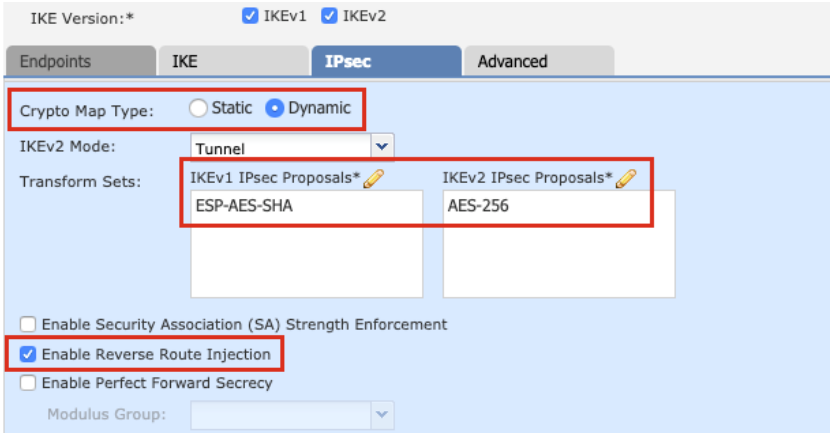



Step 11 Confirm that the selected IKEv1 and IKEv2 IPsec Proposal is displayed in the **Transform Sets**, and configure the IPsec settings by doing the following:

a. Select **Crypto Map Type** as **Dynamic**.

b. Check **Enable Reverse Route Injection** check box**.**

**Figure 19 – IPsec Settings**




Step 12 Navigate to **Advanced** > **Tunnel** > **Access Control for VPN Traffic**.

The traffic that enters the FTD through a VPN tunnel, is subjected to ACL checks by default. To bypass the interface ACL check, select the **sysopt connection permit-vpn** check box. Group-policy and per-user authorization access lists still apply to traffic.

**Note**: By default, this setting is enabled on the ASA and is disabled on the FTD.

To get the **sysopt** settings on the ASA, execute the command on the ASA CLI:

**ASA# show running-config all sysopt**

no sysopt traffic detailed-statistics

no sysopt connection timewait

sysopt connection tcpmss 1380

sysopt connection tcpmss minimum 0

**sysopt connection permit-vpn**

sysopt connection reclassify-vpn

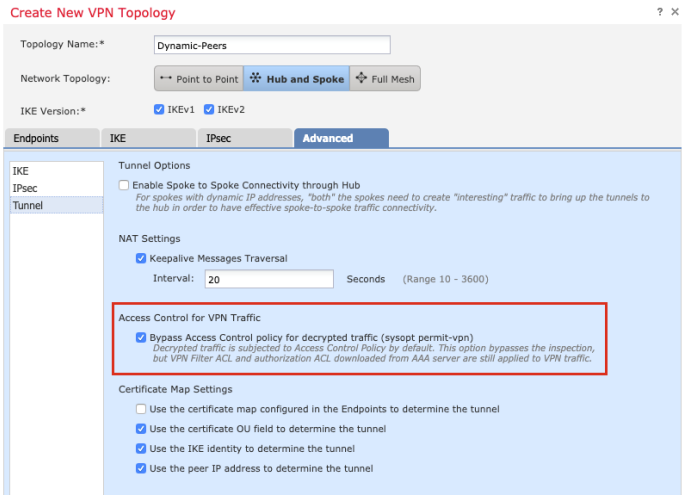
no sysopt connection preserve-vpn-flows

no sysopt radius ignore-secret

no sysopt noproxyarp inside

no sysopt noproxyarp outside

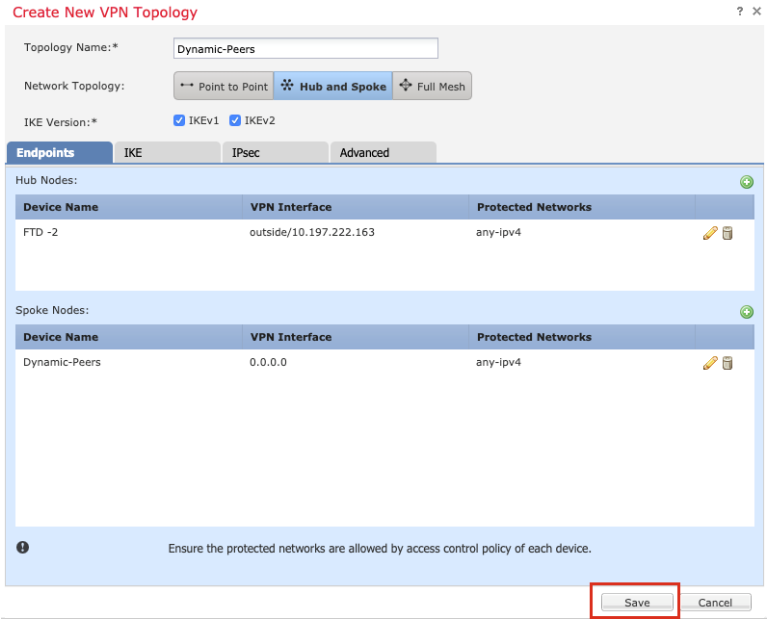
**Figure 20 – Advanced VPN Tunnel Settings**



**Note**: The **Access Control for VPN Traffic** bypasses the check from the WAN to LAN zone. Define access-control policy to allow traffic from the LAN to the WAN zone.

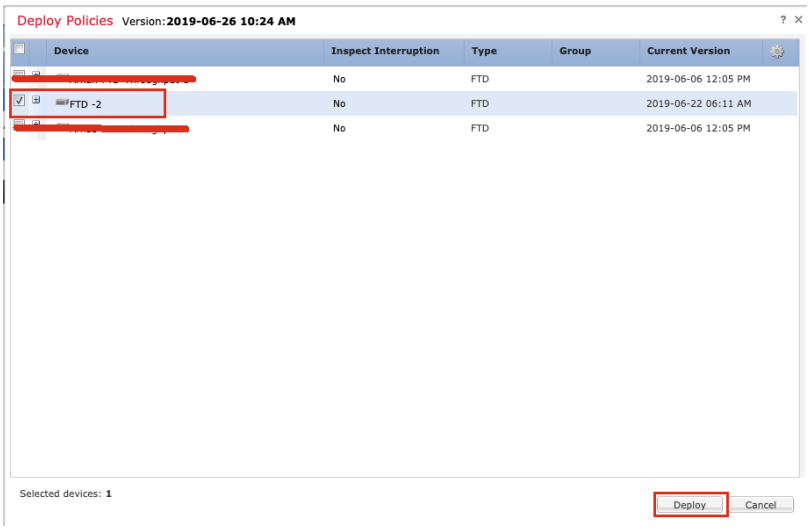
Step 13 Click **Save** to save the VPN tunnel configuration on the FMC.

**Figure 21 – Save VPN Settings**




Step 14 Select the device to deploy the changes, and click **Deploy**.

**Figure 22 – Deploy Policies**




**Note**: Ensure that the required NAT and Access Control Policy configuration is migrated properly by the Firepower Migration Tool (FMT).

## Configuration on FTD Post Deployment

```
firepower# show running-config
: Saved


:
: Serial Number: JAD20140353


: Hardware:   ASA5508, 8192 MB RAM, CPU Atom C2000 series 2000 MHz, 1 CPU (8 cores)
:
NGFW Version 6.2.3.12
!
hostname firepower
enable password $sha512$5000$q+ve+AWwZxPmzkSAh+SvTg==$CIzrqb4ziPzWva0kLUr4iw== pbkdf2
names
!
interface GigabitEthernet1/2
 nameif inside
 cts manual


  propagate sgt preserve-untag
  policy static sgt disabled trusted
 security-level 100
 ip address 192.168.2.1 255.255.254.0
interface GigabitEthernet1/3
 nameif outside
 cts manual
  propagate sgt preserve-untag
  policy static sgt disabled trusted
 security-level 0
 ip address 10.197.222.163 255.255.254.0


---------- Output Omitted ------------
boot system disk0:/os.img
ftp mode passive
ngips conn-match vlan-id
```

**object network LOCAL**

**subnet 192.168.2.0 255.255.255.0**

**object network REMOTE**

**subnet 192.168.1.0 255.255.255.0**

access-list CSM_FW_ACL_ remark rule-id 9998: PREFILTER POLICY: Default Tunnel and Priority Policy

access-list CSM_FW_ACL_ remark rule-id 9998: RULE: DEFAULT TUNNEL ACTION RULE

access-list CSM_FW_ACL_ advanced permit ipinip any any rule-id 9998

access-list CSM_FW_ACL_ advanced permit 41 any any rule-id 9998

access-list CSM_FW_ACL_ advanced permit gre any any rule-id 9998

access-list CSM_FW_ACL_ advanced permit udp any eq 3544 any range 1025 65535 rule-id 9998

access-list CSM_FW_ACL_ advanced permit udp any range 1025 65535 any eq 3544 rule-id 9998

access-list CSM_FW_ACL_ remark rule-id 268435458: ACCESS POLICY: FTD-2-ACP - Mandatory

access-list CSM_FW_ACL_ remark rule-id 268435458: L7 RULE: Inside-Outside-VPN-ACP

access-list CSM_FW_ACL_ advanced permit ip ifc inside object LOCAL ifc outside object REMOTE rule-id 268435458

access-list CSM_FW_ACL_ remark rule-id 268435457: ACCESS POLICY: FTD-2-ACP - Default

access-list CSM_FW_ACL_ remark rule-id 268435457: L4 RULE: DEFAULT ACTION RULE

access-list CSM_FW_ACL_ advanced deny ip any any rule-id 268435457

**access-list CSM_IPSEC_ACL_1 extended permit ip any4 any4**

---------- Output Omitted ----------

**nat (inside,outside) source static LOCAL LOCAL destination static REMOTE REMOTE no-proxy-arp route-lookup**

nat (inside,outside) source dynamic any interface

access-group CSM_FW_ACL_ global

**route outside 0.0.0.0 0.0.0.0 10.197.222.1 1**

---------- Output Omitted ----------

**crypto ipsec ikev1 transform-set CSM_TS_1 esp-aes esp-sha-hmac**

**crypto ipsec ikev2 ipsec-proposal CSM_IP_1**

protocol esp encryption aes-256

protocol esp integrity sha-1

crypto ipsec security-association pmtu-aging infinite

**crypto dynamic-map CSM_Outside_map_dynamic 1 match address CSM_IPSEC_ACL_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev1 transform-set CSM_TS_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev2 ipsec-proposal CSM_IP_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set reverse-route**

```
crypto map CSM_Outside_map 30000 ipsec-isakmp dynamic CSM_Outside_map_dynamic
crypto map CSM_Outside_map interface Outside
crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 5
 prf sha
 lifetime seconds 86400
crypto ikev2 enable Outside
crypto ikev1 enable Outside
crypto ikev1 am-disable
crypto ikev1 policy 1
 authentication pre-share
 encryption aes-256
 hash sha
 group 2
 lifetime 86400


---------- Output Omitted ------------
tunnel-group DefaultL2LGroup type ipsec-l2l
tunnel-group DefaultL2LGroup general-attributes
 default-group-policy .DefaultS2SGroupPolicy
tunnel-group DefaultL2LGroup ipsec-attributes
 ikev1 pre-shared-key *****
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
!
group-policy .DefaultS2SGroupPolicy internal
group-policy .DefaultS2SGroupPolicy attributes
 vpn-idle-timeout 30
 vpn-idle-timeout alert-interval 1
 vpn-session-timeout none
 vpn-session-timeout alert-interval 1
 vpn-filter none
```

```
 vpn-tunnel-protocol ikev1 ikev2
!
dynamic-access-policy-record DfltAccessPolicy
!
class-map inspection_default
 match default-inspection-traffic
!
------------ Output Omitted ------------
Cryptochecksum:b76f6eee4099a9a021b6adb496bee827
: end
firepower#
```

**Note**: You cannot perform the following:

- Modify the name of the dynamic crypto map because it is a system-defined name.
- Change the sequence number of the dynamic crypto map from the FMC.

# Exception Cases for Migrating from ASA to FTD

## VPN Settings Under Group-policy Attributes

- Changing the **vpn-idle-timeout** in the group-policy
- Configuration on ASA

```
group-policy DfltGrpPolicy internal
group-policy DfltGrpPolicy attributes
 vpn-idle-timeout 60
!
tunnel-group DefaultL2LGroup type ipsec-l2l
tunnel-group DefaultL2LGroup ipsec-attributes
 ikev1 pre-shared-key *****
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
```

**Note**:

- Any setting in the **DfltGrpPolicy** affects all the VPN tunnels on the device (unless there is another group-policy that is bound to the tunnel-group overriding this setting).
- Use **FlexConfig** on the FTD to add a configuration similar to the ASA configuration to the FTD, as these options are not currently supported from the FMC GUI.
- Any change made to the **DefaultS2SGroupPolicy** affects all the VPN tunnels on the FTD and to any tunnel created eventually.

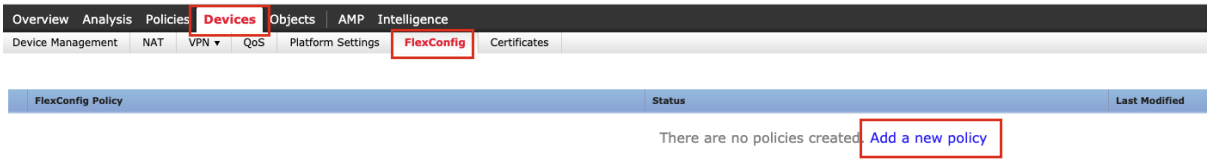
## Configuration on FTD before Deployment

```
tunnel-group DefaultL2LGroup type ipsec-l2l
tunnel-group DefaultL2LGroup general-attributes
 default-group-policy .DefaultS2SGroupPolicy
tunnel-group DefaultL2LGroup ipsec-attributes
 ikev1 pre-shared-key *****
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
group-policy .DefaultS2SGroupPolicy internal
group-policy .DefaultS2SGroupPolicy attributes
 vpn-idle-timeout 30
 vpn-idle-timeout alert-interval 1
 vpn-session-timeout none
 vpn-session-timeout alert-interval 1
 vpn-filter none
 vpn-tunnel-protocol ikev1
```

## FlexConfig Steps

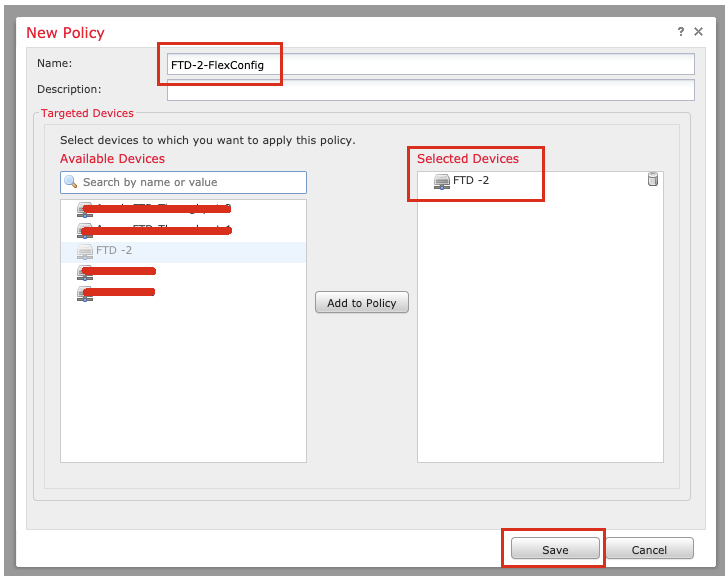
Step 1 Navigate to **Devices** > **FlexConfig**. Click **Add a new policy** or **Edit an existing policy**.

**Figure 23 - Add New FlexConfig Policy**



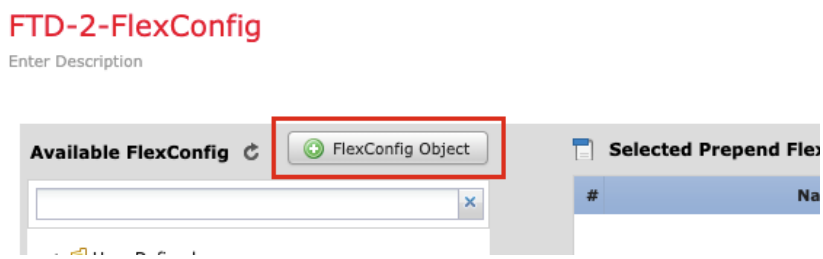

Step 2 Enter a name for the **FlexConfig Policy**. Select the **FTD** to which the **FlexConfig Policy** must be applied.

**Figure 24 – Bind to FTD**




Step 3 Click the **Plus (+)** icon to add a new **FlexConfig Object**.

**Figure 25 – New FlexConfig Object**

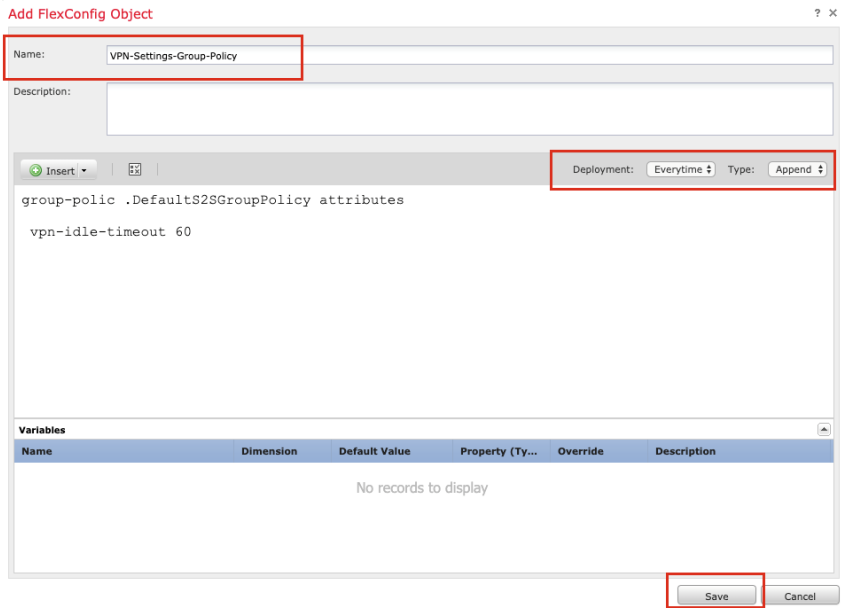



Step 4 Enter a name for the **FlexConfig Object** that refers the changes in the group-policy settings, and then do the following.

a. Set the **Deployment** to **Everytime** and **Type** as **Append**.

b. Click **Save** to create the **FlexConfig Object**.

**Figure 26 – Define FlexConfig Object**

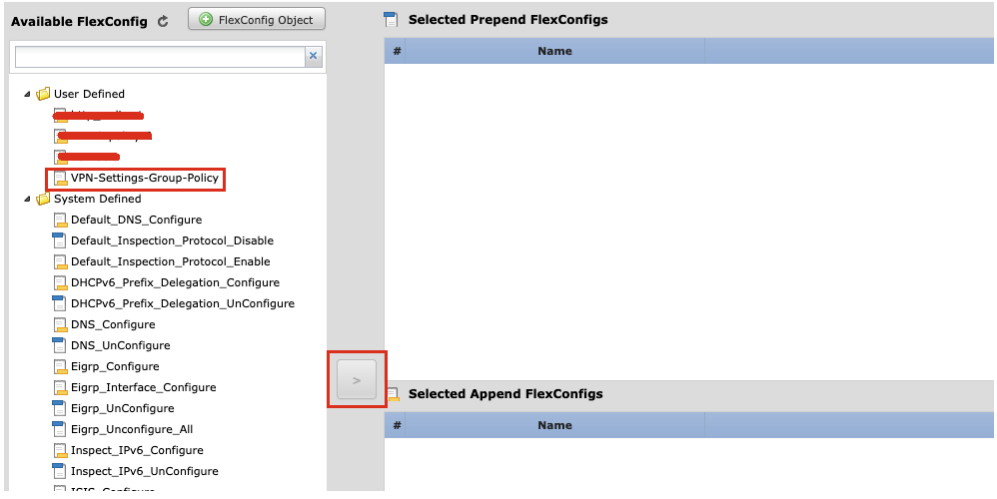



Use the following content for the group-policy for the configuration example shown in Figure 26.

```
group-policy .DefaultS2SGroupPolicy attributes
   vpn-idle-timeout 60
```

Step 5 Select the **FlexConfig Object** from the list of **Available FlexConfig**. Click **>** to add the object to be deployed to the FTD.

**Figure 27 - Add FlexConfig Object to FlexConfig Policy**

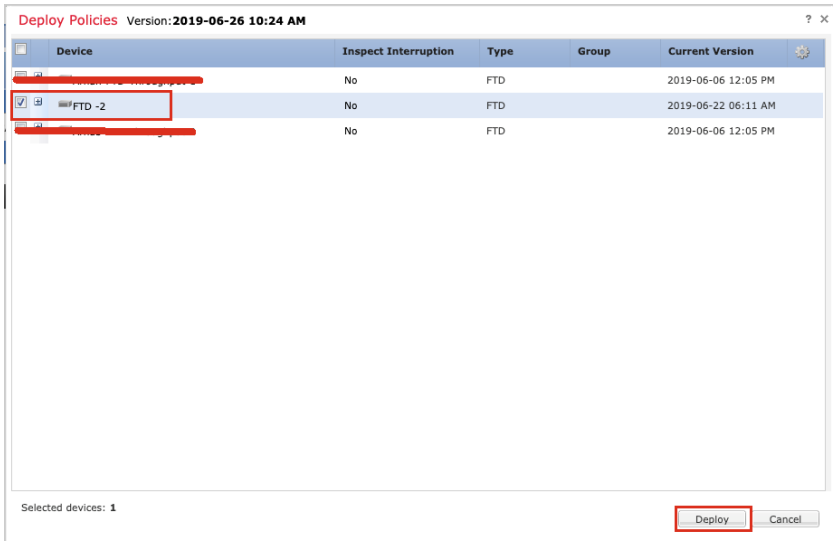



Step 6 Click **Save** to save the **FlexConfig Policy** on the FMC.

**Figure 28 - Save FlexConfig Policy**


Step 7 Select the device to deploy the changes, and click **Deploy**.

**Figure 29 – Deploy Policies**




## Configuration on FTD after Deployment

```
tunnel-group DefaultL2LGroup type ipsec-l2l
tunnel-group DefaultL2LGroup general-attributes
 default-group-policy .DefaultS2SGroupPolicy
tunnel-group DefaultL2LGroup ipsec-attributes
 ikev1 pre-shared-key *****
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
group-policy .DefaultS2SGroupPolicy internal
group-policy .DefaultS2SGroupPolicy attributes
 vpn-idle-timeout 60
 vpn-idle-timeout alert-interval 1
```

```
vpn-session-timeout none


vpn-session-timeout alert-interval 1
vpn-filter none
vpn-tunnel-protocol ikev1
```

## Number of IKE Policies More than the number of Tunnels on the FTD

The following example provides the configuration sample, when there are two IKEv1 and IKEv2 policies, but only one VPN tunnel is available on the ASA.

### Configuration on ASA

```
crypto dynamic-map DMAP 1 set ikev1 transform-set ESP-AES-SHA
crypto dynamic-map DMAP 1 set ikev2 ipsec-proposal AES
crypto dynamic-map DMAP 1 set reverse-route
crypto map CMAP 65535 ipsec-isakmp dynamic DMAP
crypto map CMAP interface outside
crypto ca trustpool policy
crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 5
 prf sha
 lifetime seconds 86400
crypto ikev2 policy 20
 encryption aes
 integrity sha256
 group 2
 prf sha
 lifetime seconds 86400
crypto ikev2 enable outside
crypto ikev1 enable outside
crypto ikev1 policy 1
 authentication pre-share
 encryption aes-256
```

```
 hash sha
 group 2
 lifetime 86400
crypto ikev1 policy 2
authentication pre-share
 encryption 3des
 hash sha
 group 2
 lifetime 86400
```

Due to the default behavior on the FTD, there is only one IKEv1 and IKEv2 policy that is bound to one VPN tunnel.

To check the VPN Phase 1 parameters in use by the VPN tunnel, see Verification of VPN Tunnel Status on ASA.

To configure more number of IKEv1 and IKEv2 policies than the number of VPN tunnels on the FTD, use FlexConfig to deploy the additional IKEv1 and IKEv2 policies to the FTD CLI.

## Configuration on FTD before Deployment

```
crypto dynamic-map CSM_Outside_map_dynamic 1 match address CSM_IPSEC_ACL_1
crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev1 transform-set CSM_TS_1
crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev2 ipsec-proposal CSM_IP_1
crypto dynamic-map CSM_Outside_map_dynamic 1 set reverse-route
crypto map CSM_Outside_map 30000 ipsec-isakmp dynamic CSM_Outside_map_dynamic
crypto map CSM_Outside_map interface Outside
crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 5
 prf sha
 lifetime seconds 86400
crypto ikev2 enable Outside
crypto ikev1 enable Outside
crypto ikev1 am-disable
crypto ikev1 policy 1
 authentication pre-share
 encryption aes-256
 hash sha
```

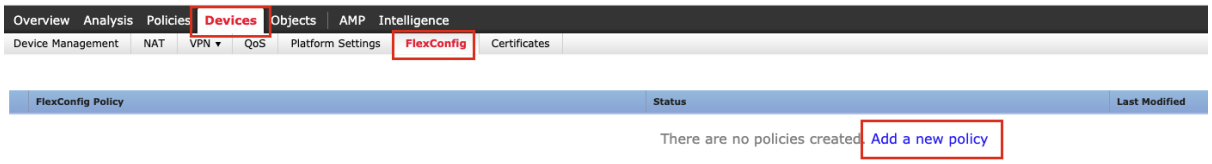
group 2

lifetime 86400

## FlexConfig Steps

Step 1 Navigate to **Devices** > **FlexConfig**. Click **Add a new policy** or **Edit an existing policy**.

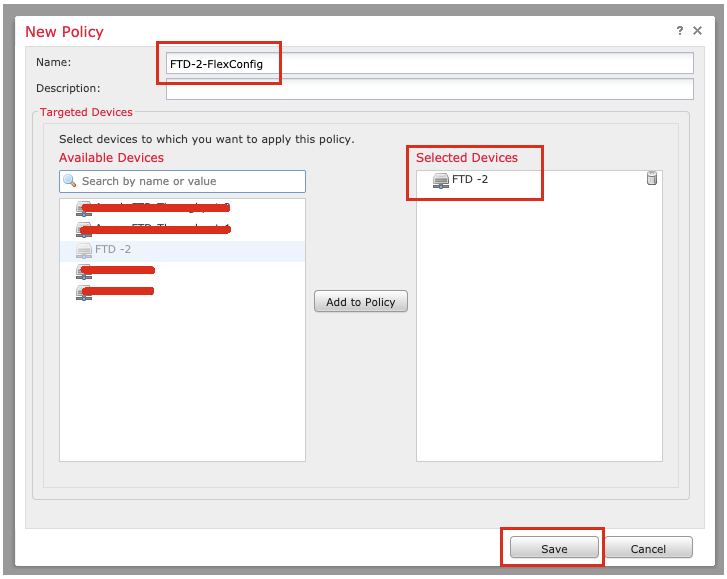
**Figure 30 – Add new FlexConfig Policy**




Step 2 Enter a name for the **FlexConfig Policy**.

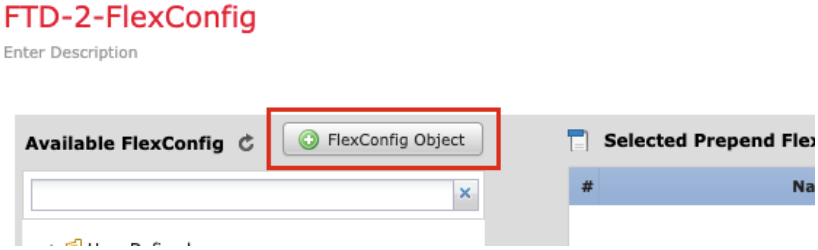
Step 3 Select the **FTD** to which the **FlexConfig Policy** must be applied.

**Figure 31 – Bind to FTD**




Step 4 Click the **Plus (+)** icon to add a new **FlexConfig Object**.

**Figure 32 – New FlexConfig Object**

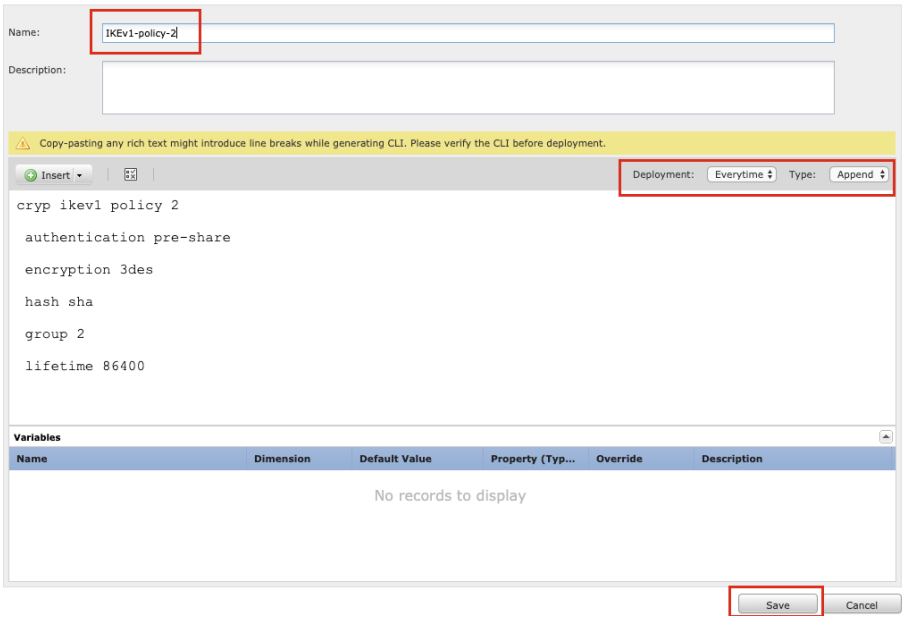


Step 5 Enter a name for the **FlexConfig Object** that refers the additional IKEv1 policies.

a. Set the **Deployment** to **Everytime** and **Type** as **Append**.

b. Click **Save** to create the **FlexConfig Object**.

**Figure 33 - Define FlexConfig Object**




Use the following content for IKEv1 policy for the configuration example shown in Figure 33.

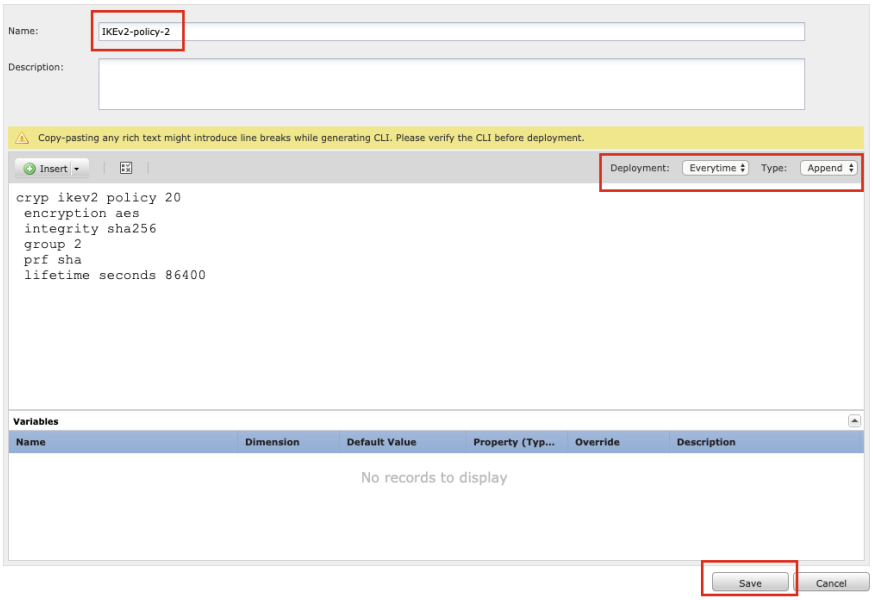
```
cryp ikev1 policy 2
 authentication pre-share
 encryption 3des
 hash sha
 group 2
 lifetime 86400
```

Step 6 Enter a name for the **FlexConfig Object** that refers the additional IKEv2 policies.

a. Set the **Deployment** to **Everytime** and **Type** as **Append**.

b. Click **Save** to create the **FlexConfig Object**.

**Figure 34 – Define FlexConfig Object**




Use the following content for IKEv2 policy for the configuration example shown in Figure 34.

**cryp ikev2 policy 20**

encryption aes

integrity sha256

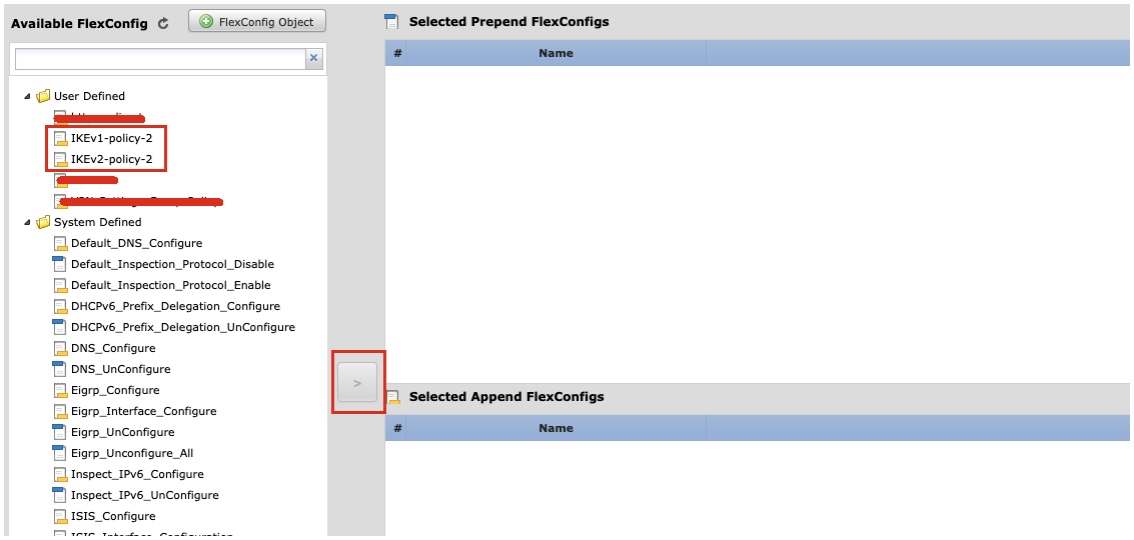
group 2

prf sha

lifetime seconds 86400

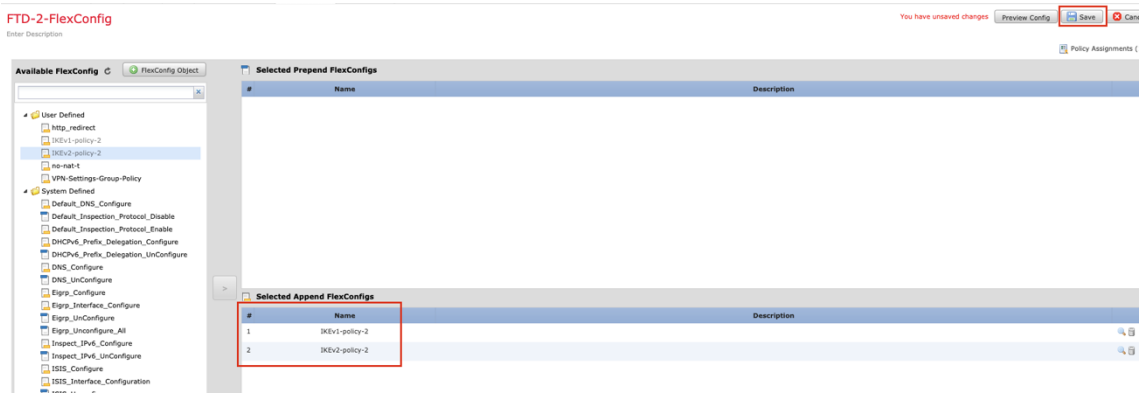
Step 7 Select the **FlexConfig Objects** from the list of **Available FlexConfig**. Click the **>** icon to add the objects to be deployed to the FTD.

**Figure 35 – Add FlexConfig Object to FlexConfig Policy**



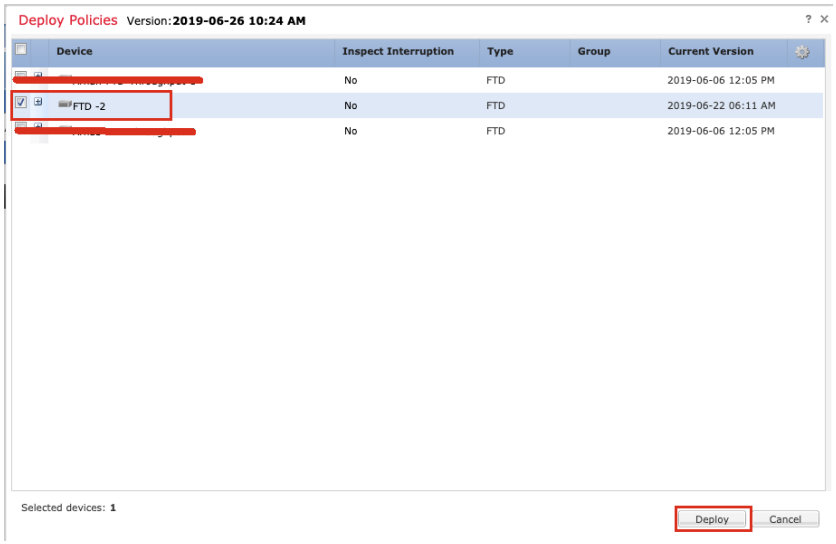

Step 8 Click **Save** to save the **FlexConfig Policy** on the FMC.

**Figure 36 – Save FlexConfig Policy**




**Step 9** Select the device to deploy the changes, and click **Deploy**.

**Figure 37 – Deploy Policies**




## Configuration on FTD after Deployment

**crypto dynamic-map CSM_Outside_map_dynamic 1 match address CSM_IPSEC_ACL_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev1 transform-set CSM_TS_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set ikev2 ipsec-proposal CSM_IP_1**

**crypto dynamic-map CSM_Outside_map_dynamic 1 set reverse-route**

**crypto map CSM_Outside_map 30000 ipsec-isakmp dynamic CSM_Outside_map_dynamic**

**crypto map CSM_Outside_map interface Outside**

**crypto ikev2 policy 1**

encryption aes-256

integrity sha

group 5

prf sha

lifetime seconds 86400

**crypto ikev2 policy 20**

encryption aes

integrity sha256

group 2

prf sha

lifetime seconds 86400

**crypto ikev2 enable Outside**

**crypto ikev1 enable Outside**

```
crypto ikev1 am-disable
crypto ikev1 policy 1
 authentication pre-share
 encryption aes-256
 hash sha
 group 2
 lifetime 86400
crypto ikev1 policy 2
 authentication pre-share
 encryption 3des
 hash sha
 group 2
 lifetime 86400
```