تكوين FTD BGP عبر IPSec VPN

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المقدمة

يصف هذا المستند كيفية تكوين علاقات الجوار لبروتوكول العبارة الحدودية (BGP) عبر نفق VPN من موقع IPsec إلى موقع بين قناتي الدفاع عن تهديد FirePOWER (FTD) من Cisco.

المتطلبات الأساسية

المتطلبات

توصي Cisco بأن تكون لديك معرفة بالمواضيع التالية:

- تكوينات BGP على FTD
- تكوينات نفق VPN من موقع إلى موقع IPsec على FTD

المكونات المستخدمة

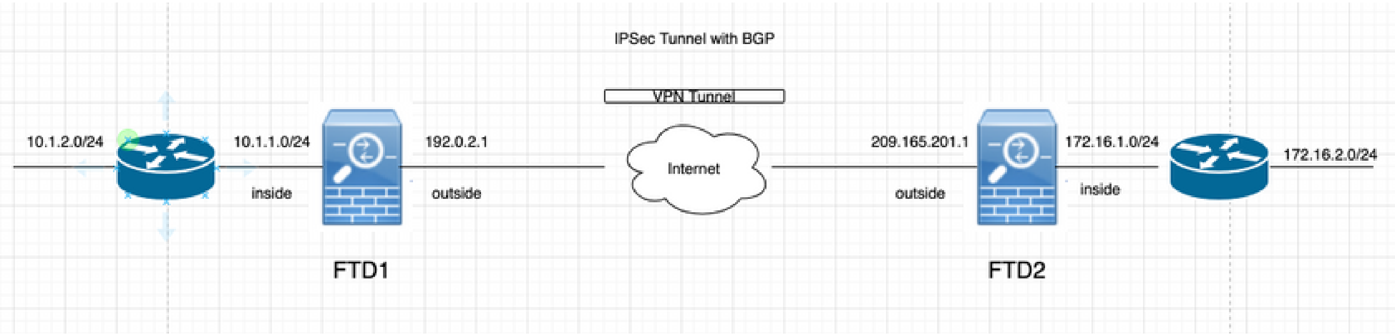
تستند المعلومات الواردة في هذا المستند إلى برنامج FTDv من Cisco الذي يشغل الإصدار 6.4.0.7 و 6.4.0.9.

تم إنشاء المعلومات الواردة في هذا المستند من الأجهزة الموجودة في بيئة معملية خاصة. بدأت جميع الأجهزة المُستخدمة في هذا المستند بتكوين ممسوح (افتراضي). إذا كانت شبكتك مباشرة، فتأكد من فهمك للتأثير المحتمل لأي أمر.

التكوين

يصف هذا القسم التكوين المطلوب على FTDs لعرض جوار BGP من خلال نفق IPSec.

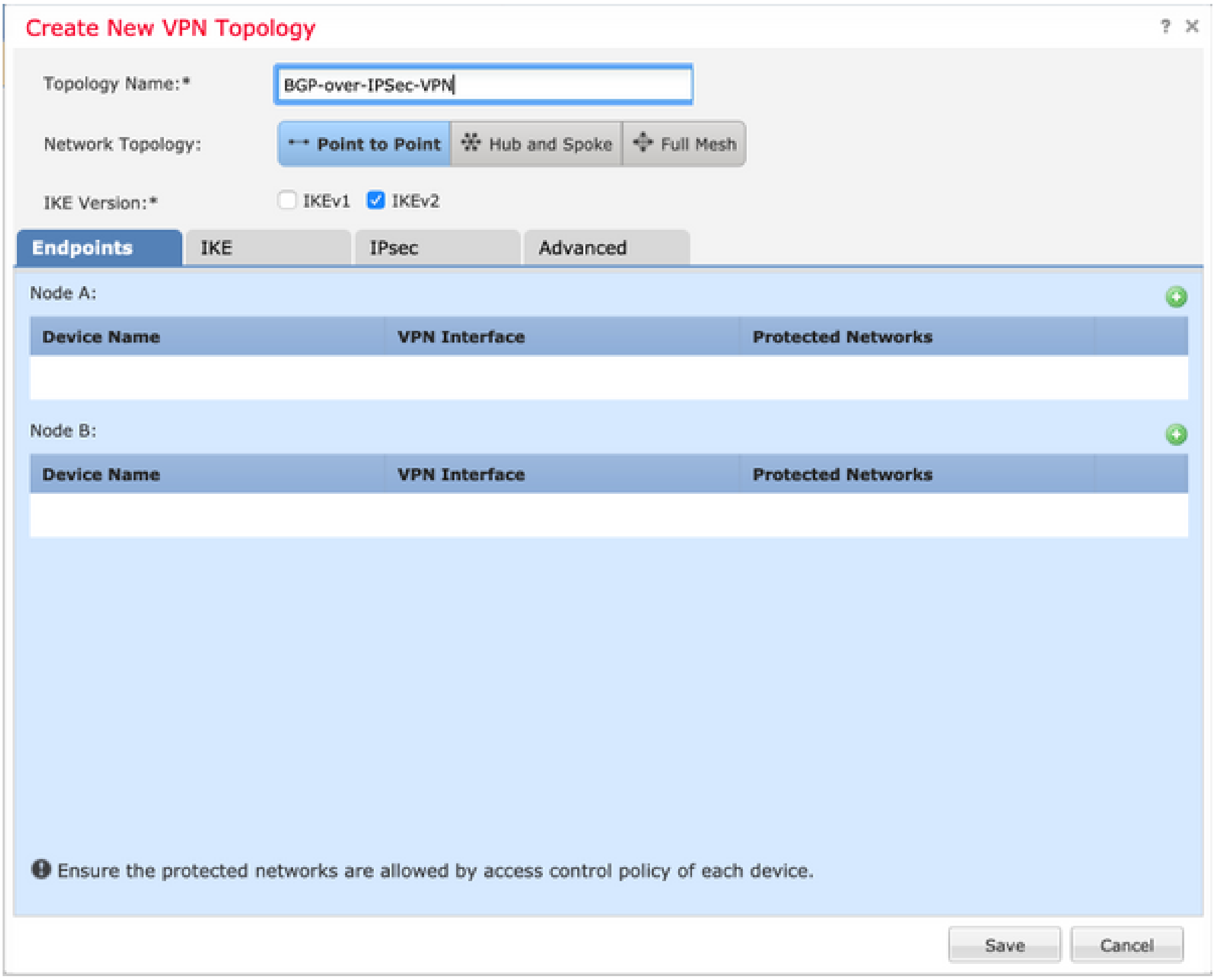
الرسم التخطيطي للشبكة



تكوين IPSec VPN

الخطوة 1. إنشاء مخطط VPN جديد من نقطة إلى نقطة.

انتقل إلى **الأجهزة > VPN > من موقع إلى موقع**، وأضف شبكة VPN جديدة خاصة بجهاز الدفاع ضد تهديد FirePOWER.



Create New VPN Topology

Topology Name:* BGP-over-IPSec-VPN

Network Topology: Point to Point | Hub and Spoke | Full Mesh

IKE Version:* □ IKEv1 ☑ IKEv2

Node A:

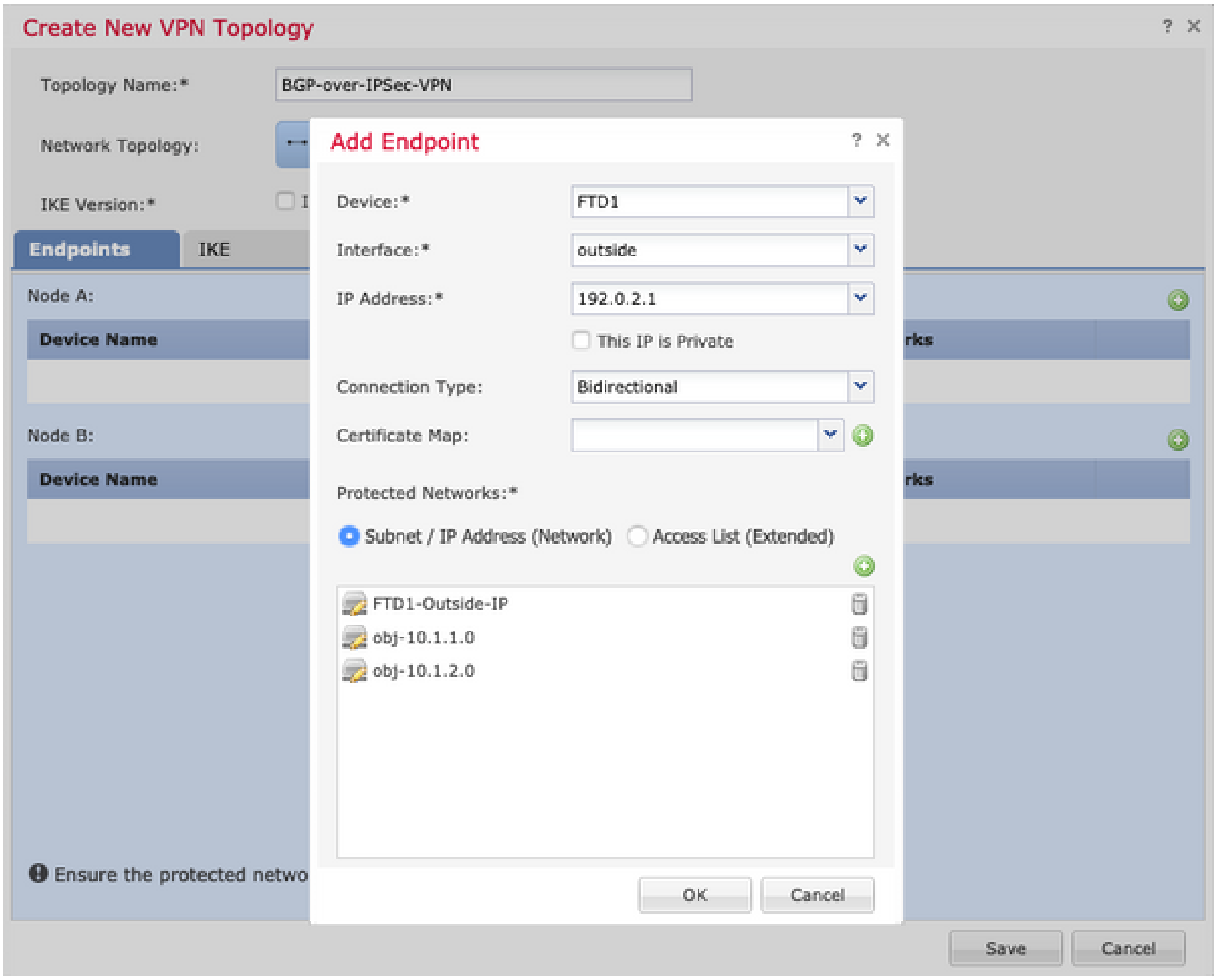
Device Name	VPN Interface	Protected Networks

Node B:

Device Name	VPN Interface	Protected Networks

Ensure the protected networks are allowed by access control policy of each device.

الخطوة 2. قم بتكوين FTD1 كأحد نقاط النهاية.



Create New VPN Topology

Topology Name:* BGP-over-IPSec-VPN

Network Topology:

IKE Version:*

Endpoints | IKE

Node A:

Node B:

Ensure the protected netwo

Add Endpoint

Device:* FTD1

Interface:* outside

IP Address:* 192.0.2.1

□ This IP is Private

Connection Type: Bidirectional

Certificate Map:

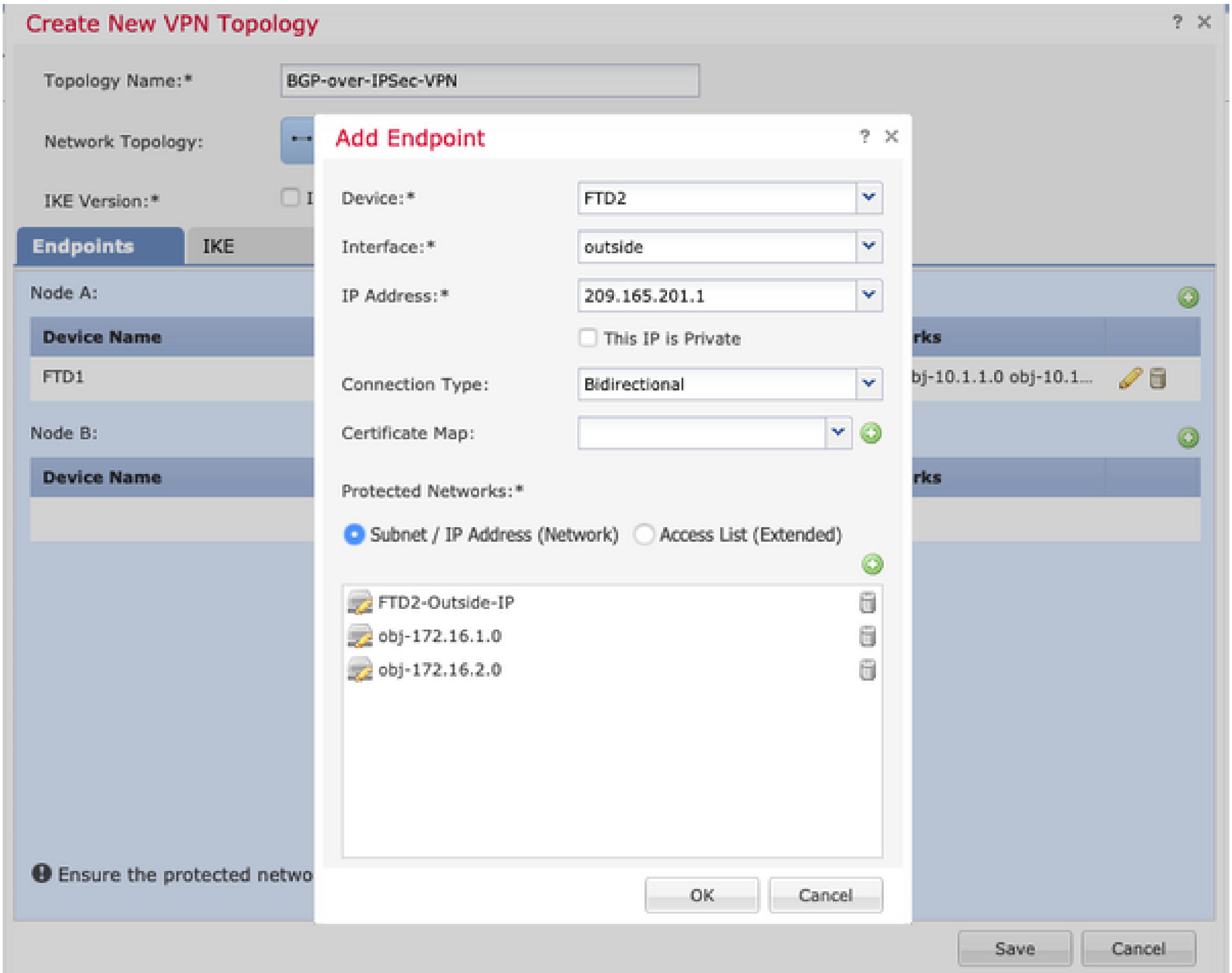
Protected Networks:*

● Subnet / IP Address (Network) ○ Access List (Extended)

FTD1-Outside-IP
obj-10.1.1.0
obj-10.1.2.0

- يحتوي شبكة الكائن FTD1-Outside-IP على عنوان IP للواجهة الخارجية الخاص ب FTD1.
- تحتوي الكائنات OBJ-10.1.1.0 و OBJ-10.1.2.0 على الشبكة الفرعية 10.1.1.0/24 و 10.1.2.0/24 على التوالي. يتم إنشاء حركة مرور بيانات VPN من هذه الشبكات الفرعية. في قسم تكوين BGP هنا، يتم تكوين BGP للإعلان عن هذه الشبكات الفرعية لجيرانها.

الخطوة 3. قم بتكوين FTD2 كنقطة نهاية ثانية.



Create New VPN Topology

Topology Name:* BGP-over-IPSec-VPN

Network Topology:

IKE Version:*

Node A:

Device Name	rks
FTD1	bj-10.1.1.0 obj-10.1...

Node B:

Device Name	rks

Ensure the protected netwo

Add Endpoint

Device:* FTD2

Interface:* outside

IP Address:* 209.165.201.1

☐ This IP is Private

Connection Type: Bidirectional

Certificate Map:

Protected Networks:*

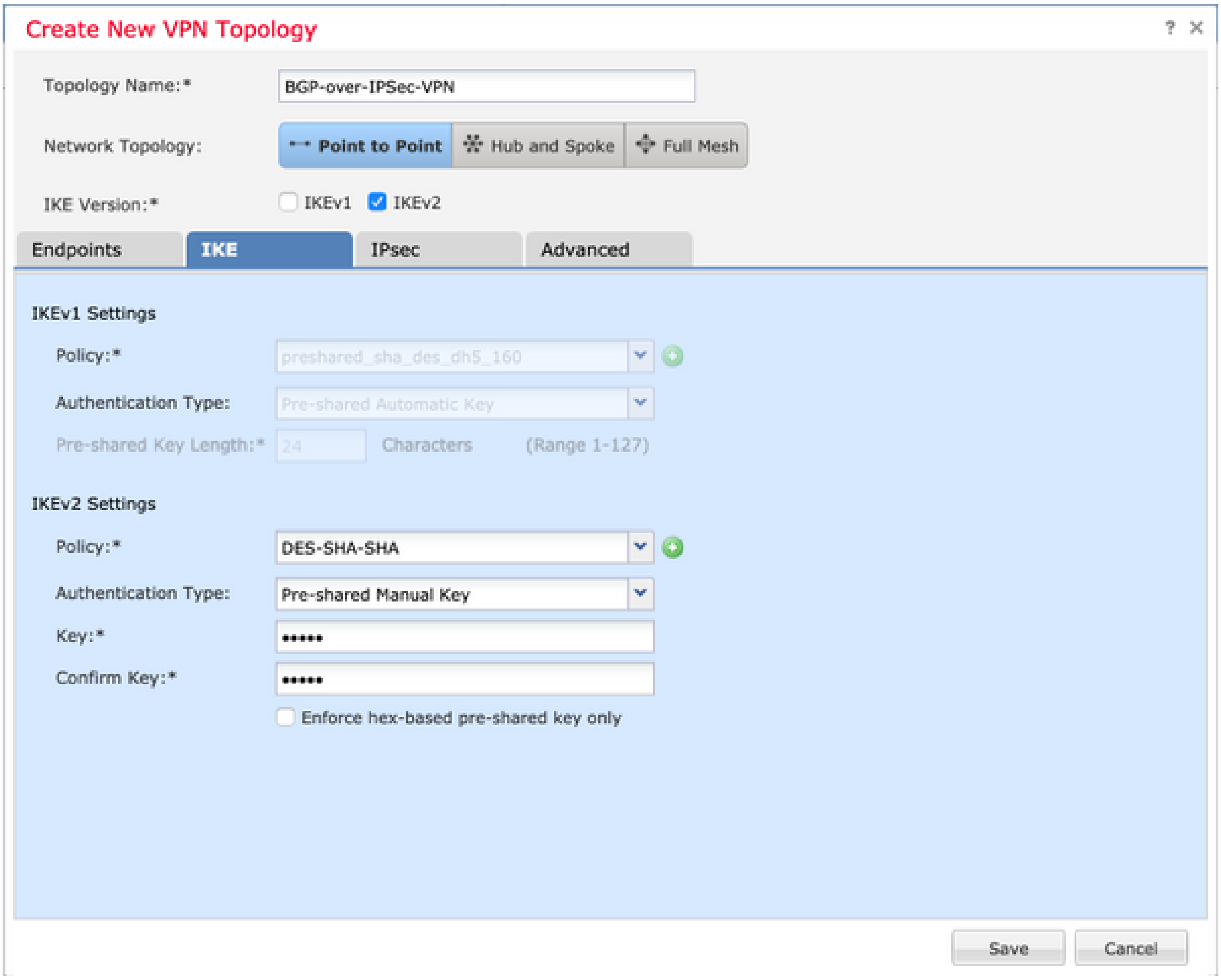
● Subnet / IP Address (Network) ○ Access List (Extended)

- FTD2-Outside-IP
- obj-172.16.1.0
- obj-172.16.2.0

- يحتوي شبكة الكائن FTD2-Outside-IP على عنوان IP للواجهة الخارجية الخاص ب FTD2.
- تحتوي الكائنات OBJ-172.16.1.0 و OBJ-172.16.2.0 على الشبكة الفرعية 172.16.1.0/24 و 172.16.2.0/24 على التوالي. يتم إنشاء حركة مرور بيانات VPN من هذه الشبكات الفرعية. في قسم تكوين BGP هنا، يتم تكوين BGP للإعلان عن هذه الشبكات الفرعية لجيرانه.

الخطوة 4. قم بتكوين معلمات IKE.

1. قم بتكوين نهج IKEv2.
2. تكوين أسلوب المصادقة (PSK/Certificate).



Topology Name:* BGP-over-IPSec-VPN

Network Topology: Point to Point | Hub and Spoke | Full Mesh

IKE Version:* □ IKEv1 ☑ IKEv2

IKEv1 Settings

Policy:* preshared_sha_des_dh5_160

Authentication Type: Pre-shared Automatic Key

Pre-shared Key Length:* 24 Characters (Range 1-127)

IKEv2 Settings

Policy:* DES-SHA-SHA

Authentication Type: Pre-shared Manual Key

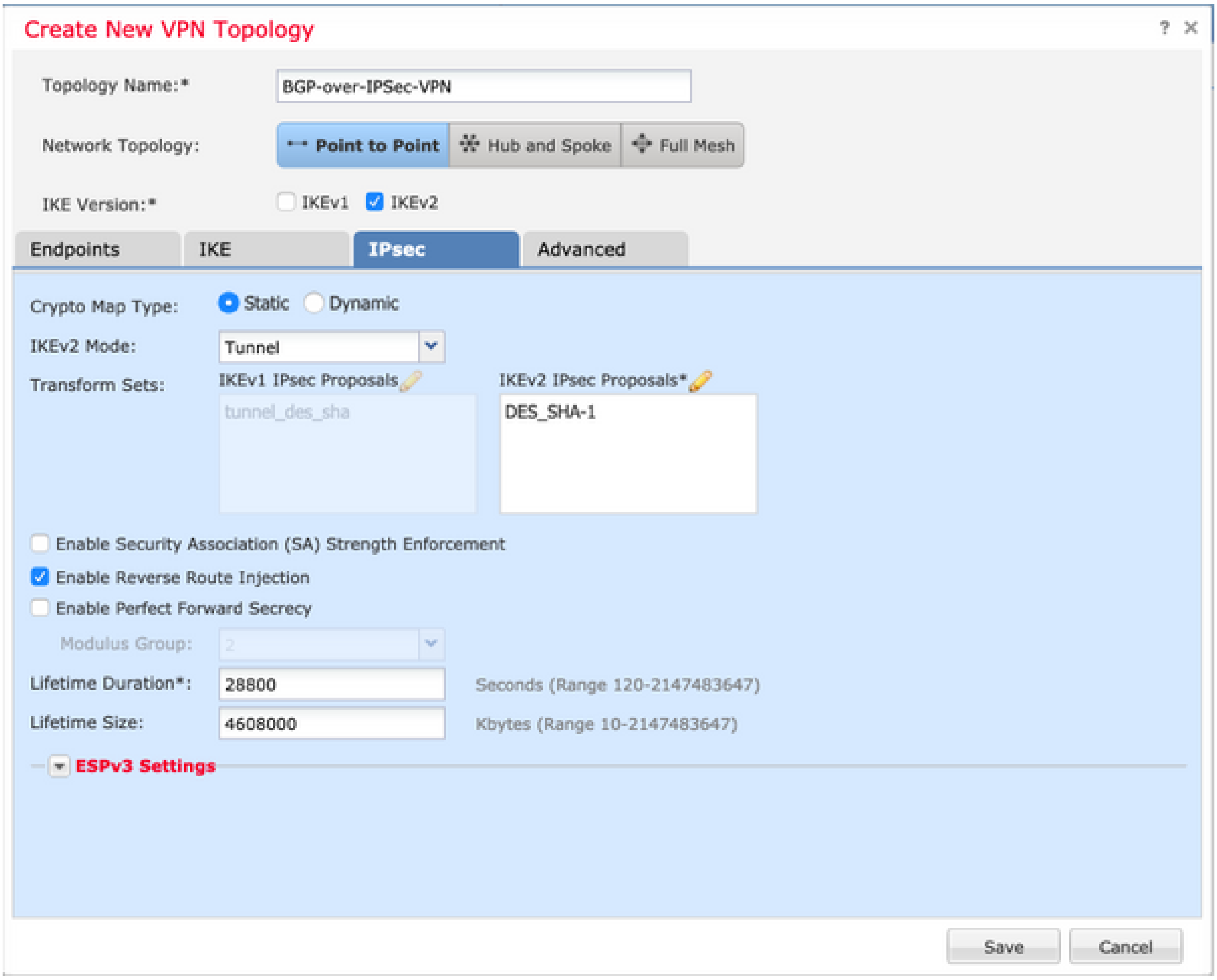
Key:* •••••

Confirm Key:* •••••

□ Enforce hex-based pre-shared key only

الخطوة 5. قم بتكوين معلمات IPSec الضرورية.

1. تكوين نوع خريطة التشفير (ثابت أو ديناميكي)
2. تكوين وضع IKEv2 (النفق أو النقل)
3. تكوين مقترحات IPSec
4. تمكين السرية التامة لإعادة التوجيه (إختياري)
5. تمكين إدخال المسار العكسي (إختياري)



Topology Name:* BGP-over-IPSec-VPN

Network Topology: Point to Point

IKE Version:* □ IKEv1 ☑ IKEv2

Crypto Map Type: ● Static ○ Dynamic

IKEv2 Mode: Tunnel

Transform Sets: IKEv1 IPsec Proposals: tunnel_des_sha — IKEv2 IPsec Proposals*: DES_SHA-1

□ Enable Security Association (SA) Strength Enforcement

☑ Enable Reverse Route Injection

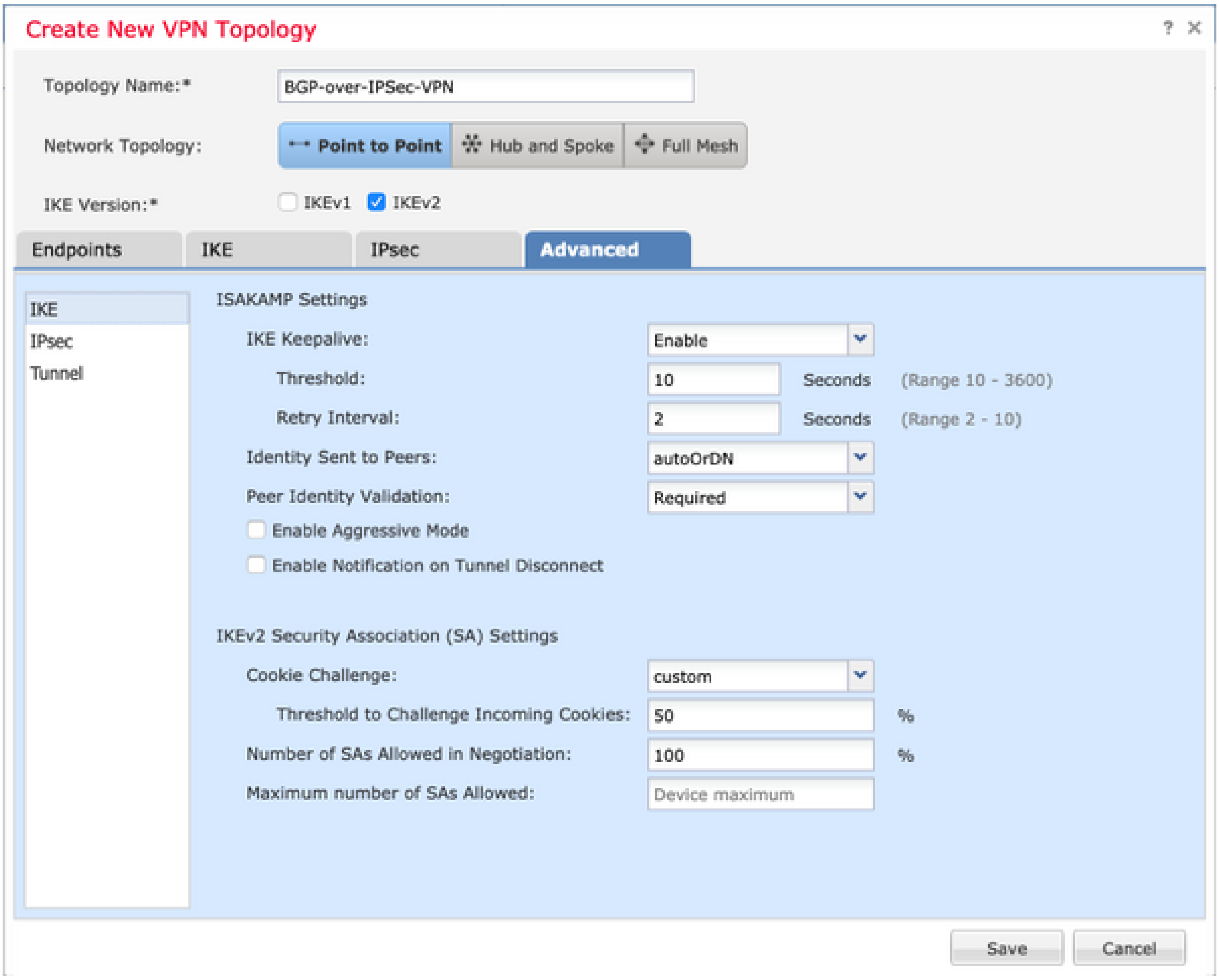
□ Enable Perfect Forward Secrecy

Modulus Group: 2

Lifetime Duration*: 28800 Seconds (Range 120-2147483647)

Lifetime Size: 4608000 Kbytes (Range 10-2147483647)

الخطوة 6. قم بتكوين الإعدادات المتقدمة حسب الحاجة.



Create New VPN Topology

Topology Name:* BGP-over-IPSec-VPN

Network Topology: Point to Point | Hub and Spoke | Full Mesh

IKE Version:* □ IKEv1 ☑ IKEv2

ISAKMP Settings

IKE Keepalive: Enable

Threshold: 10 Seconds (Range 10 - 3600)

Retry Interval: 2 Seconds (Range 2 - 10)

Identity Sent to Peers: autoOrDN

Peer Identity Validation: Required

□ Enable Aggressive Mode

□ Enable Notification on Tunnel Disconnect

IKEv2 Security Association (SA) Settings

Cookie Challenge: custom

Threshold to Challenge Incoming Cookies: 50 %

Number of SAs Allowed in Negotiation: 100 %

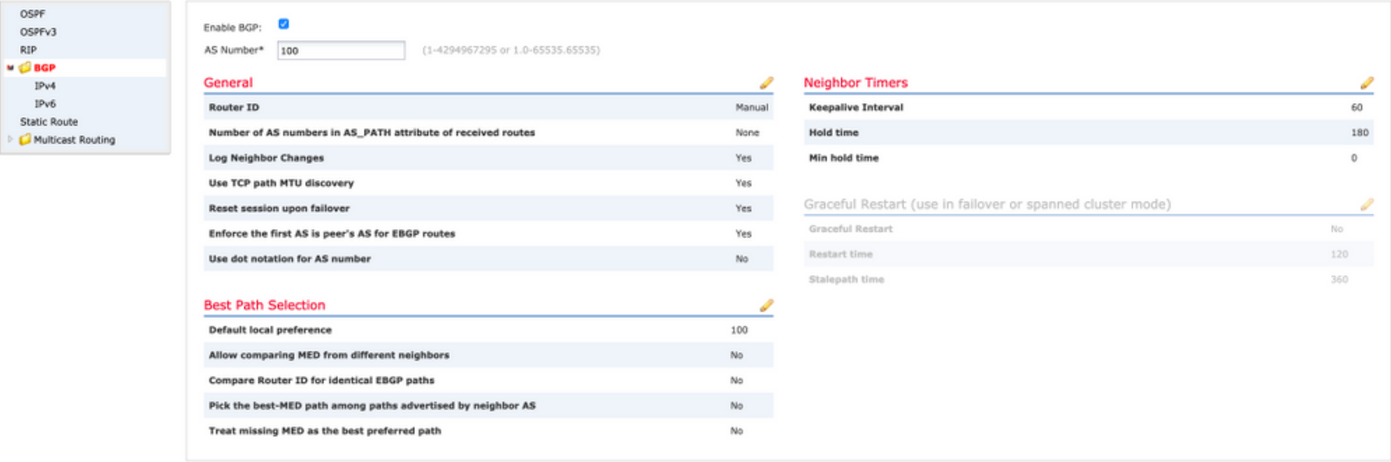
Maximum number of SAs Allowed: Device maximum

تكوين BGP

هذا هو الإجراء لتكوين FTD1 و FTD2.

تحت **إدارة الجهاز** وحدد الجهاز، ثم انتقل إلى **التوجيه > BGP**.

1. قم بتمكين BGP وتكوين رقم النظام الذاتي (AS)، كما هو موضح في هذه الصورة.



Enable BGP: ☑

AS Number* 100 (1-4294967295 or 1.0-65535.65535)

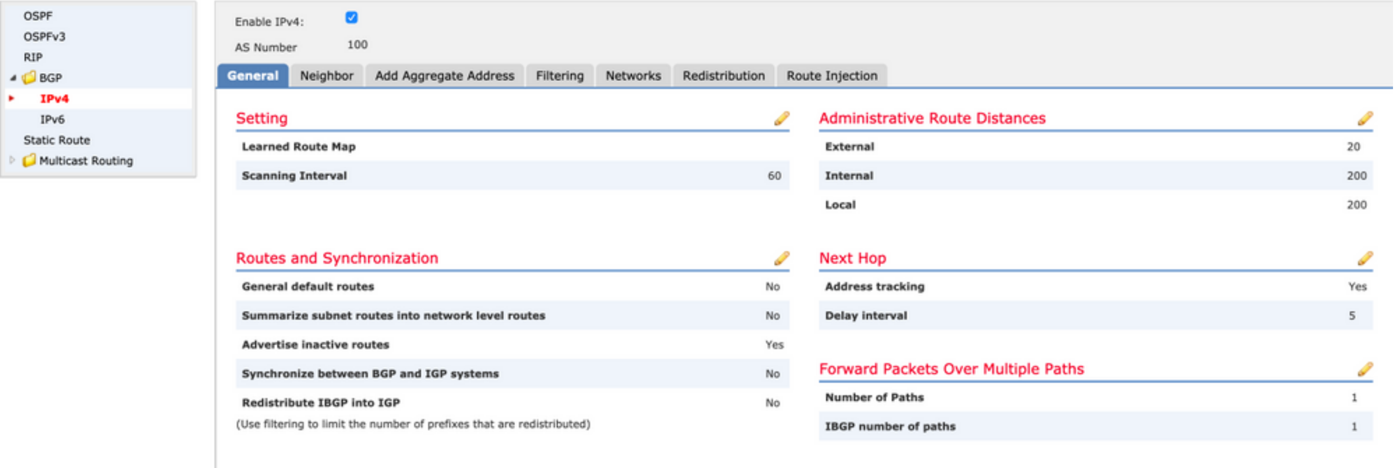
General	
Router ID	Manual
Number of AS numbers in AS_PATH attribute of received routes	None
Log Neighbor Changes	Yes
Use TCP path MTU discovery	Yes
Reset session upon failover	Yes
Enforce the first AS is peer's AS for EBGP routes	Yes
Use dot notation for AS number	No

Best Path Selection	
Default local preference	100
Allow comparing MED from different neighbors	No
Compare Router ID for identical EBGP paths	No
Pick the best-MED path among paths advertised by neighbor AS	No
Treat missing MED as the best preferred path	No

Neighbor Timers	
Keepalive Interval	60
Hold time	180
Min hold time	0

Graceful Restart (use in failover or spanned cluster mode)	
Graceful Restart	No
Restart time	120
Stalepath time	360

2. انتقل إلى **BGP > IPv4** وقم بتمكين BGP IPv4 على FTD، كما هو موضح في هذه الصورة.



Enable IPv4: ☑

AS Number 100

Setting

Learned Route Map	
Scanning Interval	60

Administrative Route Distances

External	20
Internal	200
Local	200

Routes and Synchronization

General default routes	No
Summarize subnet routes into network level routes	No
Advertise inactive routes	Yes
Synchronize between BGP and IGP systems	No
Redistribute IBGP into IGP	No

(Use filtering to limit the number of prefixes that are redistributed)

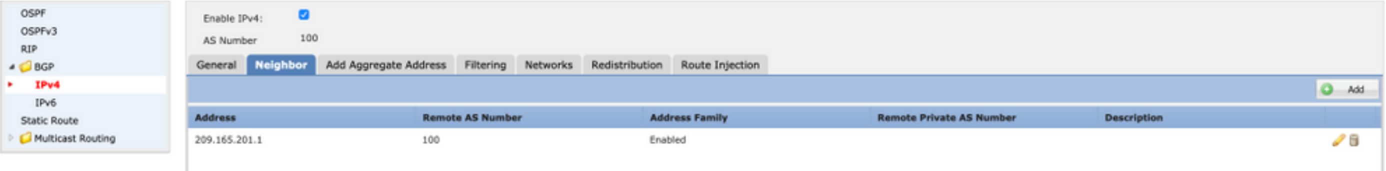
Next Hop

Address tracking	Yes
Delay interval	5

Forward Packets Over Multiple Paths

Number of Paths	1
IBGP number of paths	1

3. تحت علامة التبويب **المجاور**، أضف FTD الآخر كجار وتمكين المجاور، كما هو موضح في هذه الصورة.

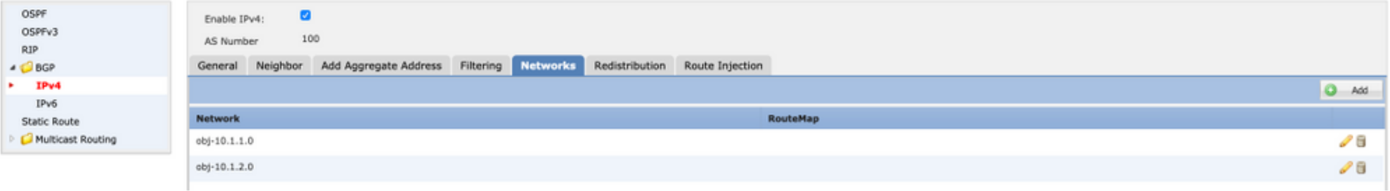


Enable IPv4: ☑

AS Number 100

Address	Remote AS Number	Address Family	Remote Private AS Number	Description
209.165.201.1	100	Enabled		

4. تحت علامة التبويب **الشبكات**، أضف الشبكات التي تريد الإعلان عنها من خلال BGP.



Enable IPv4: ☑

AS Number 100

Network	RouteMap
obj-10.1.1.0	
obj-10.1.2.0	

5. تكون جميع إعدادات BGP الأخرى إختيارية ويمكنك تكوينها وفقا لبيئتك.

التكوين النهائي على كلا الجهازين

FTD1

```
!--- FTD Version ---! ftd1# show version ---------------------[ ftd1 ]---------------------
Model : Cisco Firepower Threat Defense for VMWare (75) Version 6.4.0.7 (Build 53) UUID :
cbd4966c-daf4-11ea-8637-c8977622bc2d Rules update version : 2018-10-10-001-vrt VDB version : 309
---------------------------------------------------- Cisco Adaptive Security Appliance Software
Version 9.12(2)151 !--- Configure the Inside and outside interface ---! interface
GigabitEthernet0/0 nameif outside cts manual propagate sgt preserve-untag policy static sgt
disabled trusted security-level 0 ip address 192.0.2.1 255.255.255.0 ! interface
GigabitEthernet0/1 nameif inside cts manual propagate sgt preserve-untag policy static sgt
disabled trusted security-level 0 ip address 10.1.1.1 255.255.255.0 !--- Configure VPN ---! !---
Configure IPSec Policy ---! crypto ipsec ikev2 ipsec-proposal CSM_IP_1 protocol esp encryption
des protocol esp integrity sha-1 !--- Configure Crypto Map ---! crypto map CSM_outside_map 1
match address CSM_IPSEC_ACL_2 crypto map CSM_outside_map 1 set peer 209.165.201.1 crypto map
CSM_outside_map 1 set ikev2 ipsec-proposal CSM_IP_1 crypto map CSM_outside_map 1 set reverse-
route !--- Apply the Crypto Map to the outside interface ---! crypto map CSM_outside_map
interface outside !--- Configure IKEv2 policy ---! crypto ikev2 policy 80 encryption des
integrity sha group 5 prf sha lifetime seconds 86400 !--- Enable IKEv2 on the outside interface
---! crypto ikev2 enable outside !--- Configure BGP Router Process ---! router bgp 100 bgp log-
neighbor-changes bgp router-id 10.127.248.35 address-family ipv4 unicast neighbor 209.165.201.1
remote-as 100 neighbor 209.165.201.1 transport path-mtu-discovery disable neighbor 209.165.201.1
```

```
activate network 10.1.1.0 mask 255.255.255.0 network 10.1.2.0 mask 255.255.255.0 no auto-summary
no synchronization exit-address-family ! !--- Configure the necessary routes ---! route outside
0.0.0.0 0.0.0.0 192.0.2.100 1 route inside 10.1.2.0 255.255.255.0 10.1.1.100 1
```

FTD2

```
!--- FTD Version ---! ftd2# show version ---------------------[ ftd2 ]---------------------
Model : Cisco Firepower Threat Defense for VMWare (75) Version 6.4.0.9 (Build 62) UUID :
4ebe8e3a-dd8d-11ea-a599-a348a450d5ff Rules update version : 2018-10-10-001-vrt VDB version : 309
---------------------------------------------------- Cisco Adaptive Security Appliance Software
Version 9.12(2)33 !--- Configure the Inside and outside interface ---! interface
GigabitEthernet0/0 nameif outside cts manual propagate sgt preserve-untag policy static sgt
disabled trusted security-level 0 ip address 209.165.201.1 255.255.255.0 ! interface
GigabitEthernet0/1 nameif inside cts manual propagate sgt preserve-untag policy static sgt
disabled trusted security-level 0 ip address 172.16.1.1 255.255.255.0 !--- Configure VPN ---! !-
-- Configure IPSec Policy ---! crypto ipsec ikev2 ipsec-proposal CSM_IP_1 protocol esp
encryption des protocol esp integrity sha-1 !--- Configure Crypto Map ---! crypto map
CSM_outside_map 2 match address CSM_IPSEC_ACL_2 crypto map CSM_outside_map 2 set peer 192.0.2.1
crypto map CSM_outside_map 2 set ikev2 ipsec-proposal CSM_IP_1 crypto map CSM_outside_map 2 set
reverse-route !--- Apply the Crypto Map to the outside interface ---! crypto map CSM_outside_map
interface outside !--- Configure IKEv2 policy ---! crypto ikev2 policy 80 encryption des
integrity sha group 5 prf sha lifetime seconds 86400 !--- Enable IKEv2 on the outside interface
---! crypto ikev2 enable outside !--- Configure BGP Router Process ---! router bgp 100 bgp log-
neighbor-changes bgp router-id 10.127.248.36 address-family ipv4 unicast neighbor 192.0.2.1
remote-as 100 neighbor 192.0.2.1 transport path-mtu-discovery disable neighbor 192.0.2.1
activate network 172.16.1.0 mask 255.255.255.0 network 172.16.2.0 mask 255.255.255.0 no auto-
summary no synchronization exit-address-family !--- Configure the necessary routes ---! route
outside 0.0.0.0 0.0.0.0 209.165.201.100 1 route inside 172.16.2.0 255.255.255.0 172.16.1.100 1
```

التحقق من الصحة

FTD1

```
!--- Check the IKEv2 sa with remote peer ---! ftd1# show crypto ikev2 sa IKEv2 SAs: Session-
id:34, Status:UP-ACTIVE, IKE count:1, CHILD count:1 Tunnel-id Local Remote Status Role 315310279
192.0.2.1/500 209.165.201.1/500 READY INITIATOR Encr: DES, Hash: SHA96, DH Grp:5, Auth sign:
PSK, Auth verify: PSK Life/Active Time: 86400/32514 sec Child sa: local selector 192.0.2.1/0 -
192.0.2.1/65535 remote selector 209.165.201.1/0 - 209.165.201.1/65535 ESP spi in/out:
0xd8ba0545/0x4b6beb6c !--- Check the IPSec sa with remote peer and check the number of encrypts
and decrypts---! ftd1# show crypto ipsec sa interface: outside Crypto map tag: CSM_outside_map,
seq num: 1, local addr: 192.0.2.1 access-list CSM_IPSEC_ACL_2 extended permit ip host 192.0.2.1
host 209.165.201.1 local ident (addr/mask/prot/port): (192.0.2.1/255.255.255.255/0/0) remote
ident (addr/mask/prot/port): (209.165.201.1/255.255.255.255/0/0) current_peer: 209.165.201.1
#pkts encaps: 1110, #pkts encrypt: 1110, #pkts digest: 1110 #pkts decaps: 1111, #pkts decrypt:
1111, #pkts verify: 1111 #pkts compressed: 0, #pkts decompressed: 0 #pkts not compressed: 1110,
#pkts comp failed: 0, #pkts decomp failed: 0 #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0 #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0
#TFC rcvd: 0, #TFC sent: 0 #Valid ICMP Errors rcvd: 0, #Invalid ICMP Errors rcvd: 0 #send
errors: 0, #recv errors: 0 local crypto endpt.: 192.0.2.1/500, remote crypto endpt.:
209.165.201.1/500 path mtu 1500, ipsec overhead 58(36), media mtu 1500 PMTU time remaining
(sec): 0, DF policy: copy-df ICMP error validation: disabled, TFC packets: disabled current
outbound spi: 4B6BEB6C current inbound spi : D8BA0545 inbound esp sas: spi: 0xD8BA0545
(3636069701) SA State: active transform: esp-des esp-sha-hmac no compression in use settings
={L2L, Tunnel, IKEv2, } slot: 0, conn_id: 1515, crypto-map: CSM_outside_map sa timing: remaining
key lifetime (kB/sec): (4101105/21619) IV size: 8 bytes replay detection support: Y Anti replay
bitmap: 0xFFFFFFFF 0xFFFFFFFF outbound esp sas: spi: 0x4B6BEB6C (1265363820) SA State: active
transform: esp-des esp-sha-hmac no compression in use settings ={L2L, Tunnel, IKEv2, } slot: 0,
conn_id: 1515, crypto-map: CSM_outside_map sa timing: remaining key lifetime (kB/sec):
(4239345/21619) IV size: 8 bytes replay detection support: Y Anti replay bitmap: 0x00000000
0x00000001 !--- Check the BGP router summary ---! ftd1# show bgp summary BGP router identifier
```

```
10.127.248.35, local AS number 100 BGP table version is 43, main routing table version 43 4
network entries using 800 bytes of memory 4 path entries using 320 bytes of memory 2/2 BGP
path/bestpath attribute entries using 416 bytes of memory 0 BGP route-map cache entries using 0
bytes of memory 0 BGP filter-list cache entries using 0 bytes of memory BGP using 1536 total
bytes of memory BGP activity 20/16 prefixes, 26/22 paths, scan interval 60 secs Neighbor V AS
MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 209.165.201.1 4 100 494 488 43 0 0 09:01:15
2 !--- Check the BGP neighborship ---! ftd1# show bgp neighbors BGP neighbor is 209.165.201.1,
context single_vf, remote AS 100, internal link BGP version 4, remote router ID 10.127.248.36
BGP state = Established, up for 09:01:18 Last read 00:00:52, last write 00:00:12, hold time is
180, keepalive interval is 60 seconds Neighbor sessions: 1 active, is not multisession capable
(disabled) Neighbor capabilities: Route refresh: advertised and received(new) Four-octets ASN
Capability: advertised and received Address family IPv4 Unicast: advertised and received
Multisession Capability: Message statistics: InQ depth is 0 OutQ depth is 0 Sent Rcvd Opens: 1 1
Notifications: 0 0 Updates: 3 3 Keepalives: 484 490 Route Refresh: 0 0 Total: 488 494 Default
minimum time between advertisement runs is 0 seconds For address family: IPv4 Unicast Session:
209.165.201.1 BGP table version 43, neighbor version 43/0 Output queue size : 0 Index 19 19
update-group member Sent Rcvd Prefix activity: ---- ---- Prefixes Current: 2 2 (Consumes 160
bytes) Prefixes Total: 2 2 Implicit Withdraw: 0 0 Explicit Withdraw: 0 0 Used as bestpath: n/a 2
Used as multipath: n/a 0 Outbound Inbound Local Policy Denied Prefixes: -------- -------
Bestpath from this peer: 2 n/a Invalid Path: 1 n/a Total: 3 0 Number of NLRIs in the update
sent: max 1, min 0 Address tracking is enabled, the RIB does have a route to 209.165.201.1
Connections established 2; dropped 1 Last reset 09:01:34, due to Peer closed the session of
session 1 Transport(tcp) path-mtu-discovery is disabled Graceful-Restart is disabled !--- Check
the routes learned from BGP ---! ftd1# sh route bgp Codes: L - local, C - connected, S - static,
R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 -
OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF
external type 2, V - VPN i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route o - ODR, P - periodic
downloaded static route, + - replicated route Gateway of last resort is 192.0.2.100 to network
0.0.0.0 B 172.16.1.0 255.255.255.0 [200/0] via 209.165.201.1, 00:00:57 B 172.16.2.0
255.255.255.0 [200/0] via 172.16.1.100, 09:01:23
```

FTD2

```
!--- Check the IKEv2 sa with remote peer ---! ftd2# show crypto ikev2 sa IKEv2 SAs: Session-
id:34, Status:UP-ACTIVE, IKE count:1, CHILD count:1 Tunnel-id Local Remote Status Role 862624945
209.165.201.1/500 192.0.2.1/500 READY RESPONDER Encr: DES, Hash: SHA96, DH Grp:5, Auth sign:
PSK, Auth verify: PSK Life/Active Time: 86400/32429 sec Child sa: local selector 209.165.201.1/0
- 209.165.201.1/65535 remote selector 192.0.2.1/0 - 192.0.2.1/65535 ESP spi in/out:
0x4b6beb6c/0xd8ba0545 !--- Check the IPSec sa with remote peer and check the number of encrypts
and decrypts---! ftd2# show crypto ipsec sa interface: outside Crypto map tag: CSM_outside_map,
seq num: 2, local addr: 209.165.201.1 access-list CSM_IPSEC_ACL_2 extended permit ip host
209.165.201.1 host 192.0.2.1 local ident (addr/mask/prot/port):
(209.165.201.1/255.255.255.255/0/0) remote ident (addr/mask/prot/port):
(192.0.2.1/255.255.255.255/0/0) current_peer: 192.0.2.1 #pkts encaps: 1107, #pkts encrypt: 1107,
#pkts digest: 1107 #pkts decaps: 1106, #pkts decrypt: 1106, #pkts verify: 1106 #pkts compressed:
0, #pkts decompressed: 0 #pkts not compressed: 1107, #pkts comp failed: 0, #pkts decomp failed:
0 #pre-frag successes: 0, #pre-frag failures: 0, #fragments created: 0 #PMTUs sent: 0, #PMTUs
rcvd: 0, #decapsulated frgs needing reassembly: 0 #TFC rcvd: 0, #TFC sent: 0 #Valid ICMP Errors
rcvd: 0, #Invalid ICMP Errors rcvd: 0 #send errors: 0, #recv errors: 0 local crypto endpt.:
209.165.201.1/500, remote crypto endpt.: 192.0.2.1/500 path mtu 1500, ipsec overhead 58(36),
media mtu 1500 PMTU time remaining (sec): 0, DF policy: copy-df ICMP error validation: disabled,
TFC packets: disabled current outbound spi: D8BA0545 current inbound spi : 4B6BEB6C inbound esp
sas: spi: 0x4B6BEB6C (1265363820) SA State: active transform: esp-des esp-sha-hmac no
compression in use settings ={L2L, Tunnel, IKEv2, } slot: 0, conn_id: 1516, crypto-map:
CSM_outside_map sa timing: remaining key lifetime (kB/sec): (4008945/21713) IV size: 8 bytes
replay detection support: Y Anti replay bitmap: 0xFFFFFFFF 0xFFFFFFFF outbound esp sas: spi:
0xD8BA0545 (3636069701) SA State: active transform: esp-des esp-sha-hmac no compression in use
settings ={L2L, Tunnel, IKEv2, } slot: 0, conn_id: 1516, crypto-map: CSM_outside_map sa timing:
remaining key lifetime (kB/sec): (4239345/21713) IV size: 8 bytes replay detection support: Y
Anti replay bitmap: 0x00000000 0x00000001 !--- Check the BGP router summary ---! ftd2# show bgp
summary BGP router identifier 10.127.248.36, local AS number 100 BGP table version is 44, main
```

```
routing table version 44 3 network entries using 600 bytes of memory 3 path entries using 240
bytes of memory 2/2 BGP path/bestpath attribute entries using 416 bytes of memory 0 BGP route-
map cache entries using 0 bytes of memory 0 BGP filter-list cache entries using 0 bytes of
memory BGP using 1256 total bytes of memory BGP activity 20/17 prefixes, 26/23 paths, scan
interval 60 secs Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 192.0.2.1 4
100 486 492 44 0 0 08:59:40 2 !--- Check the BGP neighborship ---! ftd2# show bgp neighbors BGP
neighbor is 192.0.2.1, context single_vf, remote AS 100, internal link BGP version 4, remote
router ID 10.127.248.35 BGP state = Established, up for 08:59:42 Last read 00:00:53, last write
00:00:38, hold time is 180, keepalive interval is 60 seconds Neighbor sessions: 1 active, is not
multisession capable (disabled) Neighbor capabilities: Route refresh: advertised and
received(new) Four-octets ASN Capability: advertised and received Address family IPv4 Unicast:
advertised and received Multisession Capability: Message statistics: InQ depth is 0 OutQ depth
is 0 Sent Rcvd Opens: 1 1 Notifications: 0 0 Updates: 2 3 Keepalives: 489 482 Route Refresh: 0 0
Total: 492 486 Default minimum time between advertisement runs is 0 seconds For address family:
IPv4 Unicast Session: 192.0.2.1 BGP table version 44, neighbor version 44/0 Output queue size :
0 Index 19 19 update-group member Sent Rcvd Prefix activity: ---- ---- Prefixes Current: 1 2
(Consumes 160 bytes) Prefixes Total: 1 2 Implicit Withdraw: 0 0 Explicit Withdraw: 0 0 Used as
bestpath: n/a 2 Used as multipath: n/a 0 Outbound Inbound Local Policy Denied Prefixes: --------
------- Bestpath from this peer: 2 n/a Invalid Path: 2 n/a Total: 4 0 Number of NLRIs in the
update sent: max 1, min 0 Address tracking is enabled, the RIB does have a route to 192.0.2.1
Connections established 2; dropped 1 Last reset 08:59:57, due to Peer closed the session of
session 1 Transport(tcp) path-mtu-discovery is disabled Graceful-Restart is disabled !--- Check
the routes learned from BGP ---! ftd2# show route bgp Codes: L - local, C - connected, S -
static, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter
area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1,
E2 - OSPF external type 2, V - VPN i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2 ia - IS-IS inter area, * - candidate default, U - per-user static route o - ODR, P -
periodic downloaded static route, + - replicated route Gateway of last resort is 209.165.201.100
to network 0.0.0.0 B 10.1.1.0 255.255.255.0 [200/0] via 192.0.2.1, 08:59:46 B 10.1.2.0
255.255.255.0 [200/0] via 10.1.1.100, 08:59:46
```

استكشاف الأخطاء وإصلاحها

لا تتوفر حالياً معلومات محددة لاستكشاف الأخطاء وإصلاحها لهذا التكوين.

حول هذه الترجمة

ترجمت Cisco هذا المستند باستخدام مجموعة من التقنيات الآلية
والبشرية لتقديم محتوى دعم للمستخدمين في جميع أنحاء العالم
بلغتهم الخاصة. يُرجى ملاحظة أن أفضل ترجمة آلية لن تكون دقيقة كما
هو الحال مع الترجمة الاحترافية التي يقدمها مترجم محترف. تخلي Cisco
Systems مسئوليتها عن دقة هذه الترجمات وتُوصي بالرجوع دائمًا إلى
المستند الإنجليزي الأصلي (الرابط متوفر).