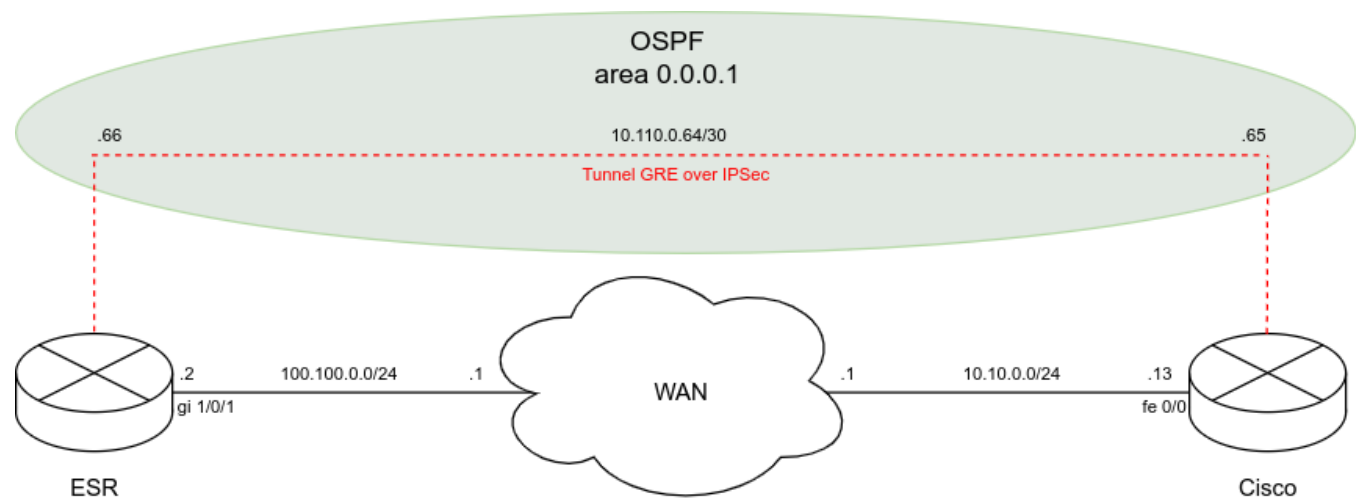


GRE over IPSec ESR Cisco

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GRE over IPSec ESR Cisco. OSPF.

 IPSec ESR ike establish-tunnel route, IPSec . Loopback IPSec () .

ESR:

1) :

```

esr# show running-config
router ospf log-adjacency-changes
router ospf 1
  router-id 10.110.0.66
  area 0.0.0.1
    enable
  exit
  enable
exit

interface gigabitethernet 1/0/1
  ip firewall disable
  ip address 100.100.0.2/24
exit
interface loopback 1
  ip address 2.2.2.2/32
exit
tunnel gre 1
  mtu 1476
  ip firewall disable
  local address 100.100.0.2
  remote address 10.10.0.13
  ip address 10.110.0.66/30
  ip ospf instance 1
  ip ospf area 0.0.0.1
  ip ospf
  enable
exit

security ike proposal IKEPROP
  encryption algorithm aes128
  dh-group 2
exit

security ike policy IKEPOL
  lifetime seconds 86400
  pre-shared-key ascii-text encrypted 8CB5107EA7005AFF
  proposal IKEPROP
exit

security ike gateway IKEGW
  ike-policy IKEPOL
  local address 100.100.0.2
  local network 100.100.0.2/32 protocol gre
  remote address 10.10.0.13
  remote network 10.10.0.13/32 protocol gre
  mode policy-based
exit

security ipsec proposal IPPROP
  encryption algorithm aes128
exit

security ipsec policy IPPOL
  proposal IPPROP
exit

security ipsec vpn IPSEC
  mode ike
  ike establish-tunnel route
  ike gateway IKEGW
  ike ipsec-policy IPPOL
  enable
exit

ip route 0.0.0.0/0 tunnel gre 1
ip route 10.10.0.0/24 100.100.0.1

```

```

esr# show ip ospf neighbors
Router ID      Pri  State      DTime  Interface      Router IP
-----
10.110.0.65    1    Full/BDR   00:36  gre 1          10.110.0.65
esr# show security ipsec vpn status IPSEC
Currently active IKE SA:
  Name:          IPSEC
  State:         Established
  Version:       v1-only
  Unique ID:     1
  Local host:    100.100.0.2
  Remote host:   10.10.0.13
  Role:          Responder
  Initiator spi: 0xc6518822b67d5635
  Responder spi: 0x8f9084d1b93f1ccc
  Encryption algorithm: aes128
  Authentication algorithm: sha1
  Diffie-Hellman group: 2
  Established:   1 minute and 21 seconds ago
  Rekey time:    1 minute and 21 seconds
  Reauthentication time: 23 hours, 43 minutes and 35 seconds
Child IPsec SAs:
  Name:          IPSEC-2
  State:         Installed
  Protocol:      esp
  Mode:          Tunnel
  Encryption algorithm: aes128
  Authentication algorithm: sha1
  Rekey time:    45 minutes and 53 seconds
  Life time:     58 minutes and 39 seconds
  Established:   1 minute and 21 seconds ago
  Traffic statistics:
    Input bytes: 832
    Output bytes: 736
    Input packets: 8
    Output packets: 8
-----

```

Cisco:

1):

```

crypto isakmp policy 2
  encr aes
  authentication pre-share
  group 2
crypto isakmp key password address 100.100.0.2
!
!
crypto ipsec transform-set IPsec esp-aes esp-sha-hmac
!
crypto ipsec profile IPsec_profile
  set transform-set IPsec
!
interface Loopback1
  ip address 1.1.1.1 255.255.255.255
!
interface Tunnel2
  ip address 10.110.0.65 255.255.255.252
  ip ospf network broadcast
  ip ospf 1 area 0.0.0.1
  tunnel source 10.10.0.13
  tunnel destination 100.100.0.2
  tunnel protection ipsec profile IPsec_profile
!
interface FastEthernet0/0
  ip address 10.10.0.13 255.255.255.0
  speed auto
  full-duplex
!
router ospf 1
  router-id 10.110.0.65
  log-adjacency-changes
!
ip route 100.100.0.0 255.255.255.0 10.10.0.1
ip route 0.0.0.0 0.0.0.0 Tunnel2

```

2) OSPF IPSec :

Router#show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
10.110.0.66	128	FULL/DR	00:00:33	10.110.0.66	Tunnel2

Router#show crypto ipsec sa

interface: Tunnel2

Crypto map tag: Tunnel2-head-0, local addr 10.10.0.13

protected vrf: (none)

local ident (addr/mask/prot/port): (10.10.0.13/255.255.255.255/47/0)

remote ident (addr/mask/prot/port): (100.100.0.2/255.255.255.255/47/0)

current_peer 100.100.0.2 port 500

PERMIT, flags={origin_is_acl,}

#pkts encaps: 31, #pkts encrypt: 31, #pkts digest: 31

#pkts decaps: 28, #pkts decrypt: 28, #pkts verify: 28

#pkts compressed: 0, #pkts decompressed: 0

#pkts not compressed: 0, #pkts compr. failed: 0

#pkts not decompressed: 0, #pkts decompress failed: 0

#send errors 7, #recv errors 0

local crypto endpt.: 10.10.0.13, remote crypto endpt.: 100.100.0.2

path mtu 1500, ip mtu 1500, ip mtu idb FastEthernet0/0

current outbound spi: 0xC9AC095C(3383495004)

PFS (Y/N): N, DH group: none

inbound esp sas:

spi: 0x5F736BDD(1601399773)

transform: esp-aes esp-sha-hmac ,

in use settings ={Tunnel, }

conn id: 2007, flow_id: FPGA:7, sibling_flags 80000046, crypto map: Tunnel2-head-0

sa timing: remaining key lifetime (k/sec): (4410255/3460)

IV size: 16 bytes

replay detection support: Y

Status: ACTIVE

inbound ah sas:

inbound pcg sas:

outbound esp sas:

spi: 0xC9AC095C(3383495004)

transform: esp-aes esp-sha-hmac ,

in use settings ={Tunnel, }

conn id: 2008, flow_id: FPGA:8, sibling_flags 80000046, crypto map: Tunnel2-head-0

sa timing: remaining key lifetime (k/sec): (4410255/3460)

IV size: 16 bytes

replay detection support: Y

Status: ACTIVE

outbound ah sas:

outbound pcg sas: