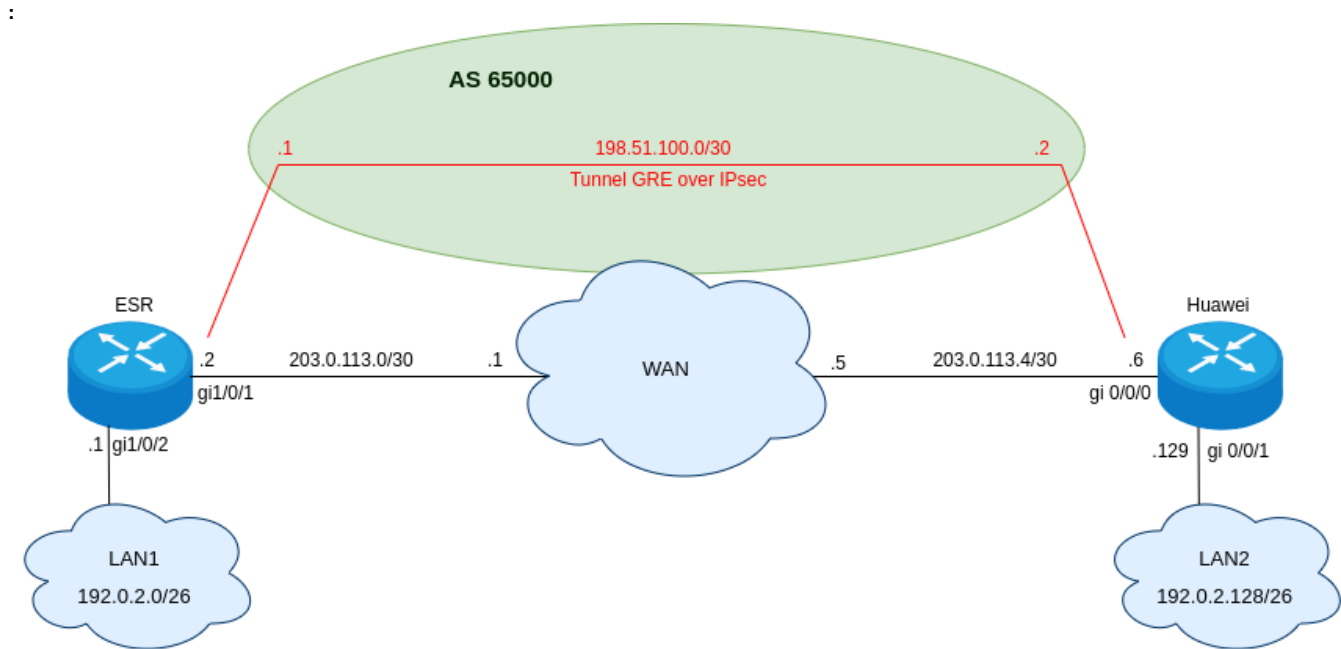


GRE over IPsec ESR Huawei



: GRE over IPsec ESR Huawei. BGP .

1.
ESR:

```
ESR# show running-config
hostname ESR

router bgp log-neighbor-changes
router bgp 65000
  router-id 198.51.100.1
  neighbor 198.51.100.2
    remote-as 65000
    address-family ipv4 unicast
      enable
    exit
  enable
exit
address-family ipv4 unicast
  network 192.0.2.0/26
exit
enable
exit

interface gigabitethernet 1/0/1
  ip firewall disable
  ip address 203.0.113.2/30
exit
interface gigabitethernet 1/0/2
  ip firewall disable
  ip address 192.0.2.1/26
exit
tunnel gre 1
  ttl 255
  mtu 1400
  ip firewall disable
  local address 203.0.113.2
  remote address 203.0.113.6
  ip address 198.51.100.1/30
  enable
exit
```

```
security ike proposal ike_proposal
  authentication algorithm sha1
  encryption algorithm aes128
  dh-group 2
exit

security ike policy ike_policy
  pre-shared-key ascii-text Password_123
  proposal ike_proposal
exit

security ike gateway ike_gateway
  ike-policy ike_policy
  local address 203.0.113.2
  local network 203.0.113.2/32 protocol gre
  remote address 203.0.113.6
  remote network 203.0.113.6/32 protocol gre
  mode policy-based
exit

security ipsec proposal ipsec_proposal
  authentication algorithm sha1
  encryption algorithm aes128
  protocol esp
exit

security ipsec policy ipsec_policy
  proposal ipsec_proposal
exit

security ipsec vpn ipsec_vpn
  mode ike
  type transport
  ike establish-tunnel route
  ike gateway ike_gateway
  ike ipsec-policy ipsec_policy
  enable
exit

ip route 203.0.113.4/30 203.0.113.1
```

Huawei:

```

[Huawei]display current-configuration
...
#
ipsec proposal 1
  encapsulation-mode transport
  esp authentication-algorithm sha1
  esp encryption-algorithm aes-128
#
...
ike proposal 1
  encryption-algorithm aes-128
  dh group2
  authentication-algorithm sha1
  sa duration 10800
  authentication-method pre-share
  integrity-algorithm hmac-sha1-96
  prf hmac-sha1
#
ike peer ike_peer
  pre-shared-key simple Password_123
  ike-proposal 1
  local-address 203.0.113.6
  remote-address authentication-address 203.0.113.2
  ikev1 phase1-phase2 sa dependent
#
ipsec profile ipsec_profile
  ike-peer ike_peer
  proposal 1
  sa duration traffic-based 0
  sa duration time-based 3600
#
...
#
interface GigabitEthernet0/0/0
  ip address 203.0.113.6 255.255.255.252
#
interface GigabitEthernet0/0/1
  ip address 192.0.2.129 255.255.255.192
#
interface Tunnel0/0/0
  mtu 1400
  tcp adjust-mss 1360
  ip address 198.51.100.2 255.255.255.252
  tunnel-protocol gre
  source 203.0.113.6
  destination 203.0.113.2
  ipsec profile ipsec_profile
#
bgp 65000
  router-id 198.51.100.2
  peer 198.51.100.1 as-number 65000
#
  ipv4-family unicast
    undo synchronization
    network 192.0.2.128 255.255.255.192
    peer 198.51.100.1 enable
#
...
#
ip route-static 203.0.113.2 255.255.255.255 203.0.113.5
...

```

2. IPsec-, BGP-, BGP- , IP- .

ESR:

ESR# show security ipsec vpn status ipsec_vpn

Currently active IKE SA:

Name: ipsec_vpn
State: Established
Version: v1-only
Unique ID: 2
Local host: 203.0.113.2
Remote host: 203.0.113.6
Role: Initiator
Initiator spi: 0xa7c8949a175d688c
Responder spi: 0x083da58456a8ae
Encryption algorithm: aes128
Authentication algorithm: sha1
Diffie-Hellman group: 2
Established: 1 minute and 22 seconds ago
Rekey time: 1 minute and 22 seconds
Reauthentication time: 2 hours, 49 minutes and 8 seconds

Child IPsec SAs:

Name: ipsec_vpn-2
State: Installed
Protocol: esp
Mode: Transport
Encryption algorithm: aes128
Authentication algorithm: sha1
Rekey time: 47 minutes and 11 seconds
Life time: 58 minutes and 38 seconds
Established: 1 minute and 22 seconds ago
Traffic statistics:
 Input bytes: 994
 Output bytes: 1127
 Input packets: 13
 Output packets: 16

ESR# show bgp neighbors

BGP neighbor is 198.51.100.2

BGP state: Established
Type: Static neighbor
Neighbor address: 198.51.100.2
Neighbor AS: 65000
Neighbor ID: 198.51.100.2
Neighbor caps: refresh AS4
Session: internal multihop AS4
Source address: 198.51.100.1
Weight: 0
Hold timer: 109/180
Keepalive timer: 15/60
Address family ipv4 unicast:
 Send-label: No
 Default originate: No
 Default information originate: No
Uptime: 87 s

ESR# show ip route bgp

Status codes: u - unicast, b - broadcast, m - multicast, a - anycast

* - valid, > - best

Origin codes: i - IGP, e - EGP, ? - incomplete

Network	Next Hop	Metric	LocPrf	Weight	Path
*> u 192.0.2.128/26	198.51.100.2	0	100	0	i

ESR# ping 192.0.2.129

PING 192.0.2.129 (192.0.2.129) 56 bytes of data.

!!!!

--- 192.0.2.129 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4005ms

rtt min/avg/max/mdev = 0.829/1.387/2.785/0.723 ms

Huawei:

[Huawei]display ipsec sa

ipsec sa information:

```
=====
Interface: Tunnel0/0/0
=====
```

```
-----
IPSec profile name: "ipsec_profile"
Mode                : PROF-ISAKMP
-----
Connection ID       : 65
Encapsulation mode: Transport
Holding time        : 0d 0h 2m 35s
Tunnel local        : 203.0.113.6/500
Tunnel remote       : 203.0.113.2/500
Flow source         : 203.0.113.6/255.255.255.255 47/0-65535
Flow destination    : 203.0.113.2/255.255.255.255 47/0-65535
```

```
[Outbound ESP SAs]
SPI: 3315963714 (0xc5a59742)
Proposal: ESP-ENCRYPT-AES-128 ESP-AUTH-SHA1
SA remaining soft duration (kilobytes/sec): 0/685
SA remaining hard duration (kilobytes/sec): 0/1045
Outpacket count      : 20
Outpacket encap count : 20
Outpacket drop count : 0
Max sent sequence-number: 20
UDP encapsulation used for NAT traversal: N
```

```
[Inbound ESP SAs]
SPI: 5425586 (0x52c9b2)
Proposal: ESP-ENCRYPT-AES-128 ESP-AUTH-SHA1
SA remaining soft duration (kilobytes/sec): 0/685
SA remaining hard duration (kilobytes/sec): 0/1045
Inpacket count       : 22
Inpacket decap count : 22
Inpacket drop count  : 0
Max received sequence-number: 23
UDP encapsulation used for NAT traversal: N
Anti-replay : Enable
Anti-replay window size: 1024
```

[Huawei]display bgp peer

Status codes: * - Dynamic

BGP local router ID : 198.51.100.2
Local AS number : 65000
Total number of peers : 1 Peers in established state : 1
Total number of dynamic peers : 0

Peer	V	AS	MsgRcvd	MsgSent	OutQ	Up/Down	State	PrefRcv
198.51.100.1	4	65000	7	7	0	00:03:10	Established	1

[Huawei]display bgp routing-table

BGP Local router ID is 198.51.100.2
Status codes: * - valid, > - best, d - damped,
 h - history, i - internal, s - suppressed, S - Stale
Origin : i - IGP, e - EGP, ? - incomplete

Total Number of Routes: 2

Network	NextHop	MED	LocPrf	PrefVal	Path/Ogn
*>i 192.0.2.0/26	198.51.100.1		100	0	i
*> 192.0.2.128/26	0.0.0.0	0		0	i

[Huawei]ping 192.0.2.1

PING 192.0.2.1: 56 data bytes, press CTRL_C to break
Reply from 192.0.2.1: bytes=56 Sequence=1 ttl=64 time=1 ms
Reply from 192.0.2.1: bytes=56 Sequence=2 ttl=64 time=1 ms
Reply from 192.0.2.1: bytes=56 Sequence=3 ttl=64 time=1 ms
Reply from 192.0.2.1: bytes=56 Sequence=4 ttl=64 time=1 ms
Reply from 192.0.2.1: bytes=56 Sequence=5 ttl=64 time=1 ms

```
--- 192.0.2.1 ping statistics ---  
 5 packet(s) transmitted  
 5 packet(s) received  
 0.00% packet loss  
 round-trip min/avg/max = 1/1/1 ms
```