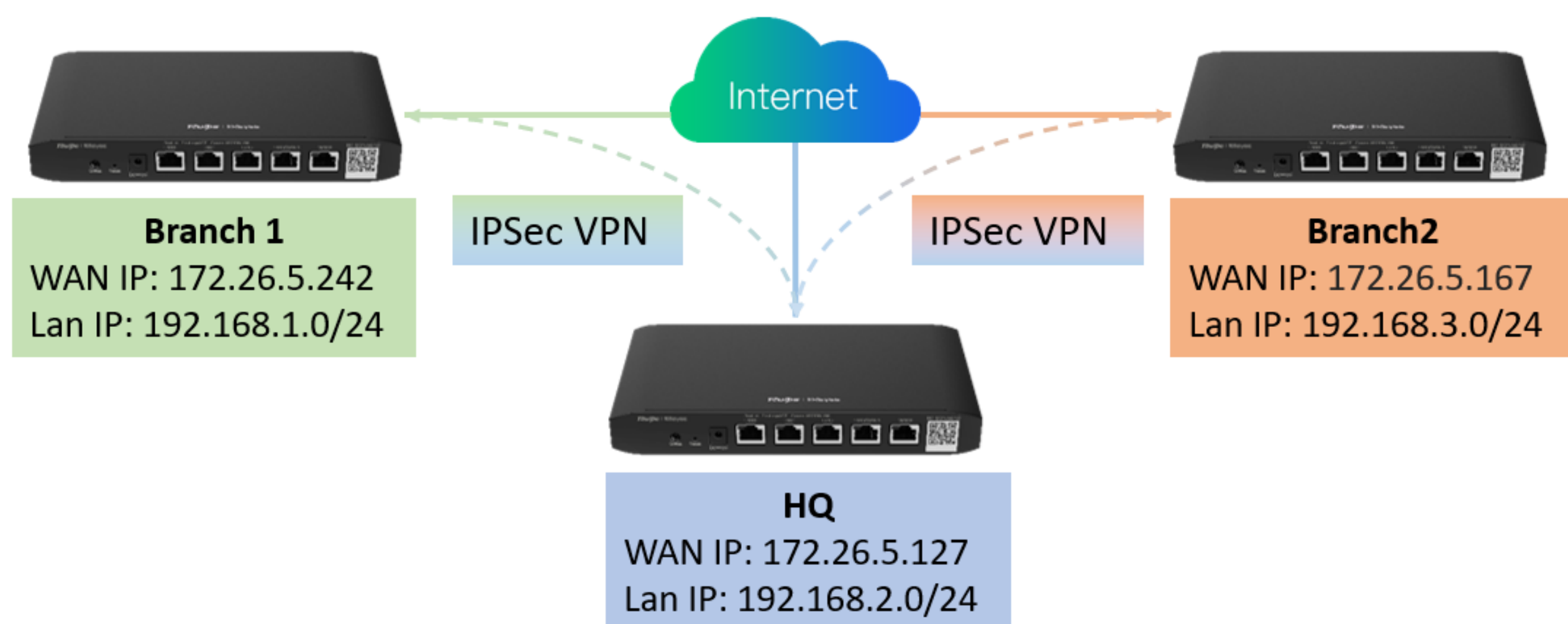


# How to realize the inter-communication among the branches by establishing the IPsec VPN on Reyee EG?

## I. Applicable Scenario

IPSec VPNs are established between the three Reyee EGs so that the two branches can access resources at the headquarters and communicate with each other.

## II. Topology



## III. Key Points

- 1 The Intranet segments between the HQ and two branches can be summarized into a larger network segments. For example, 192.168.1.0–3.0/24 can be grouped into 192.168.0.0/22 (192.168.0.1–192.168.3.254).
- 2 When configuring IPsec VPN on HQ and Branch devices, the configuration related to the HQ segment should be the summarized network segment, for example, 192.168.0.0/22

## IV. Network Planning

- 1 Initial Configuration of Networks
- 2 Configure the intranet segments of three EGs
- 3 Establish the IPsec VPN among the branches and HQ
- 4 Connection Verification

## V. Configuration Steps

### 1 Configure the intranet segments of three EGs.

#### (1) Configure the intranet segments of HQ as 192.168.2.0/24

Navigation: Overview, Network, Devices, Gateway, Clients, System

Router: EG105G-P-V2, Hostname: EG105G-P-V2, SN: [redacted], IP: 172.26.5.127, MAC: 00:D0:F8:15:08:43, Software Ver: ReyeeOS 1.86.1929

Network Settings: LAN Settings, LAN, LAN Set, Up to 8 entries can be added.

IP	Subnet Mask	VLAN ID	Remark	DHCP Server	Start	IP Count	Lease Time(Min)	Action
192.168.2.1	255.255.255.0	Default VLAN	-	Enabled	192.168.2.1	254	30	Edit Delete

#### (2) Configure the intranet segments of Branch 1 as 192.168.1.0/24

Navigation: Overview, Network, Devices, Gateway, Clients, System

Router: EG209GS, Hostname: Ruijie, SN: [redacted], IP: 172.26.5.242, MAC: 00:D0:F8:15:08:89, Software Ver: ReyeeOS 1.97.1828

Network Settings: LAN Settings, LAN, LAN Set, Up to 8 entries can be added.

IP	Subnet Mask	VLAN ID	Remark	DHCP Server	Start	IP Count	Lease Time(Min)	Action
192.168.1.1	255.255.255.0	Default VLAN	-	Enabled	192.168.1.1	254	30	Edit Delete

#### (3) Configure the intranet segments of Branch 2 as 192.168.3.0/24

Navigation: Overview, Network, Devices, Gateway, Clients, System

Router: EG105GW(T), Hostname: EG105GW(T), SN: [redacted], IP: 172.26.5.167, MAC: 00:D0:F8:15:08:48, Software Ver: ReyeeOS 1.99.1820

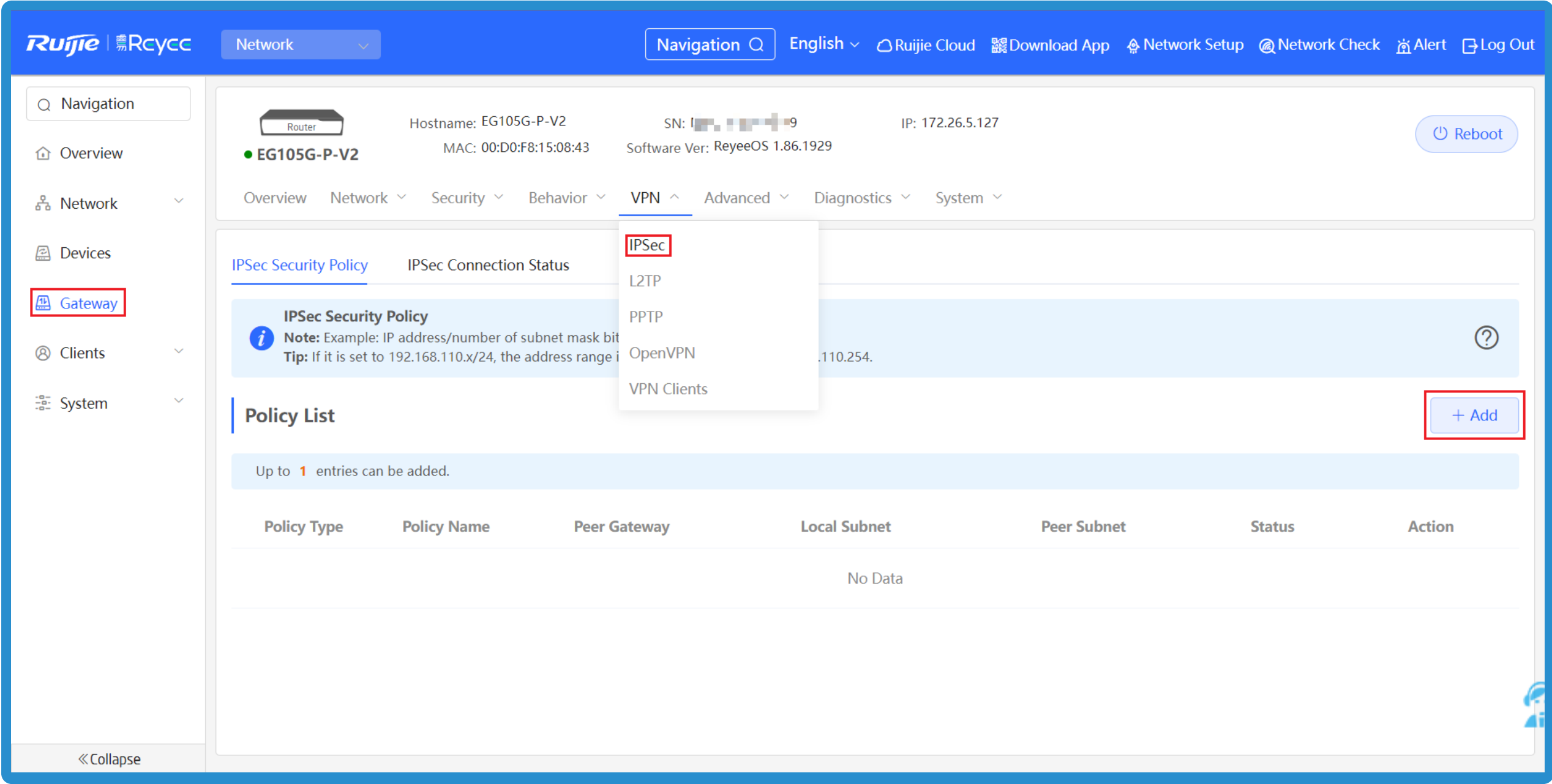
Network Settings: LAN Settings, LAN, LAN Set, Up to 8 entries can be added.

IP	Subnet Mask	VLAN ID	Remark	DHCP Server	Start	IP Count	Lease Time(Min)	Action
192.168.3.1	255.255.255.0	Default VLAN	-	Enabled	192.168.3.1	254	30	Edit Delete

# IV. Configuration Steps

2 Establish the IPsec VPN among the HQ and two Branches.

(1) HQ:



Configure the local subnet of HQ as 192.168.0.0/22

Add

Policy Type

Client

Server

\*

Policy Name

HQ

Interface

Auto

\*

Local Subnet

192.168.0.0/22

\*

Pre-shared Key

ruijie

Status

1. Set IKE Policy

2. Connection Policy

Cancel

OK

# IV. Configuration Steps

IPSec Security Policy

IPSec Connection Status

IPSec Security Policy

Note: Example: IP address/number of subnet mask bits.

Tip: If it is set to 192.168.110.x/24, the address range is from 192.168.110.1 to 192.168.110.254.

Policy List

+ Add

Up to 1 entries can be added.

Policy Type	Policy Name	Peer Gateway	Local Subnet	Peer Subnet	Status	Action
Server	HQ	0.0.0.0	192.168.0.0/22	0.0.0.0/0	Enable	Edit Delete

## (2) Branch 1

Ruijie Rcycc

Network

Navigation

English

Ruijie Cloud

Download App

Network Setup

Network Check

Alert

Log Out

Router

EG209GS

Hostname: Ruijie

MAC: 00:D0:F8:15:08:89

SN:

Software Ver: ReyeeOS 1.97.1828

IP: 172.26.5.242

Reboot

Overview

Basics

Security

Behavior

VPN

Advanced

Diagnostics

System

IPSec Security Policy

IPSec Connection Status

IPSec Security Policy

Note: Example: IP address/number of subnet mask bits.

Tip: If it is set to 192.168.110.x/24, the address range is from 192.168.110.1 to 192.168.110.254.

Policy List

+ Add

Up to 1 entries can be added.

Policy Type	Policy Name	Peer Gateway	Local Subnet	Peer Subnet	Status	Action
No Data						

<

1

>

10/page

Total 0

Configure the local subnet of Branch 1 as 192.168.1.0/24 and the peer subnet as 168.0.0/22

Add

Policy Type

Client

Server

\* Policy Name

Branch1

\* Peer Gateway

172.26.5.127

+

Interface

Auto

\* Local Subnet

192.168.1.0/24

\* Peer Subnet

192.168.0.0/22

+

\* Pre-shared Key

ruijie

Status

1. Set IKE Policy

2. Connection Policy

Cancel

OK



# IV. Configuration Steps

IPSec Security Policy

IPSec Connection Status

IPSec Security Policy

Note: Example: IP address/number of subnet mask bits.

Tip: If it is set to 192.168.110.x/24, the address range is from 192.168.110.1 to 192.168.110.254.

Policy List

+ Add

Up to 1 entries can be added.

Policy Type	Policy Name	Peer Gateway	Local Subnet	Peer Subnet	Status	Action
Client	Branch1	172.26.5.127	192.168.1.0/24	192.168.0.0/22	Enable	Edit Delete

< 1 >

10/page

Total 0

## (3) Branch 2

Ruijie Rcycc

Network

Navigation

English

Ruijie Cloud

Download App

Network Setup

Network Check

Alert

Log Out

Router

EG105GW(T)

Hostname: EG105GW(T)

MAC: 00:D0:F8:15:08:48

SN: MACC942579921

Software Ver: ReyeeOS 1.99.1820

IP: 172.26.5.167

Reboot

Overview

Basics

Security

Behavior

VPN

Advanced

Diagnostics

System

IPSec Security Policy

IPSec Connection Status

IPSec Security Policy

Note: Example: IP address/number of subnet mask bits.

Tip: If it is set to 192.168.110.x/24, the address range is from 192.168.110.1 to 192.168.110.254.

Policy List

+ Add

Up to 1 entries can be added.

Policy Type	Policy Name	Peer Gateway	Local Subnet	Peer Subnet	Status	Action
No Data						

Configure the local Subnet of Branch 1 as 192.168.3.0/24, and the peer subnet as 193.168.0.0/22

Add

Policy Type

Client

Server

\* Policy Name

Branch2

\* Peer Gateway

172.26.5.127

+

Interface

Auto

?

\* Local Subnet

192.168.3.0/24

\* Peer Subnet

192.168.0.0/22

+

\* Pre-shared Key

ruijie

Status

1. Set IKE Policy

2. Connection Policy

Cancel

OK

# IV. Configuration Steps

IPSec Security Policy

IPSec Connection Status

IPSec Security Policy

Note: Example: IP address/number of subnet mask bits.

Tip: If it is set to 192.168.110.x/24, the address range is from 192.168.110.1 to 192.168.110.254.

Policy List

+ Add

Up to 1 entries can be added.

Policy Type	Policy Name	Peer Gateway	Local Subnet	Peer Subnet	Status	Action
<div>Client</div>	Branch2	172.26.5.127	192.168.3.0/24	192.168.0.0/22	Enable	<div>Edit</div> <div>Delete</div>

## Notice

The IKE Policy and Transform of three EGs should be consistent

### IKE Policy:

1. Set IKE Policy

IKE Policy 1

sha1-3des-dh1

IKE Policy 2

sha1-des-dh1

IKE Policy 3

sha1-3des-dh2

IKE Policy 4

md5-des-dh1

IKE Policy 5

md5-3des-dh2

Negotiation

Main Mode

Aggressive Mode

Mode

Local ID Type

IP

NAME

Peer ID Type

IP

NAME

\* Lifetime

86400

DPD

Enable

Disable

\* DPD Interval

10

seconds

IV. Configuration Steps

Transform set:

2. Connection Policy

Transform Set 1

esp-sha1-aes128

Transform Set 2

esp-md5-3des

Perfect Forward Secrecy

none

\* Lifetime

3600

3 Connection Check.

(1) Check the connection status on HQ: IPSec VPNs have been established successfully among two branches and HQ.

IPSec Security PolicyIPSec Connection Status

IPSec Connection Status

Refresh

Name	SPI	Direction	Tunnel Client	Flow	Status	Security Protocol	Algorithm
HQ	3458355183	in	172.26.5.127<--172.26.5.167	192.168.0.0/22 <-- 192.168.3.0/24	OK	ESP	AH Authentication: -- ESP Authentication: SHA1 ESP Security: AES-128
HQ	3330939289	out	172.26.5.127-->172.26.5.167	192.168.0.0/22 --> 192.168.3.0/24	OK	ESP	AH Authentication: -- ESP Authentication: SHA1 ESP Security: AES-128
HQ	3436373755	in	172.26.5.127<--172.26.5.242	192.168.0.0/22 <-- 192.168.1.0/24	OK	ESP	AH Authentication: -- ESP Authentication: SHA1 ESP Security: AES-128
HQ	3317813667	out	172.26.5.127-->172.26.5.242	192.168.0.0/22 --> 192.168.1.0/24	OK	ESP	AH Authentication: -- ESP Authentication: SHA1 ESP Security: AES-128

(2) Connection verification.

Branch 1 Traceroute Branch 2: Data from Branch 2 to branch 1 is transferred through HQ.

Tool ☐ Ping ☒ Traceroute ☐ DNS Lookup

\* IP Address/Domain

192.168.3.1

\* Max TTL

20

Start

Stop

traceroute to 192.168.3.1 (192.168.3.1), 20 hops max, 38 byte packets

1 192.168.2.1 (192.168.2.1) 1.259 ms 1.063 ms 0.917 ms

2 192.168.3.1 (192.168.3.1) 2.235 ms 2.061 ms 1.811 ms

# IV. Configuration Steps

Branch 2 Traceroute Branch 1: Data from Branch 1 to branch 2 is transferred through HQ.

Tool ☐ Ping ☒ Traceroute ☐ DNS Lookup

\* IP Address/Domain

192.168.1.1

\* Max TTL

20

Start

Stop

traceroute to 192.168.1.1 (192.168.1.1), 20 hops max, 38 byte packets

1 192.168.2.1 (192.168.2.1) 1.440 ms 1.020 ms 1.140 ms

2 192.168.1.1 (192.168.1.1) 2.340 ms 1.940 ms 1.740 ms

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Official Website



Community



Facebook



YouTube