Documentation: Configuring IPsec VPN on FortiGate Devices

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Overview

This lab guides you through the configuration of site-to-site IPsec VPN tunnels between two FortiGate devices. You'll configure a dial-up VPN and a static VPN to enable secure communication between two networks.

Objectives

- Configure a site-to-site VPN on FortiGate devices.
- Implement both dial-up and static VPN setups.

Estimated Completion Time

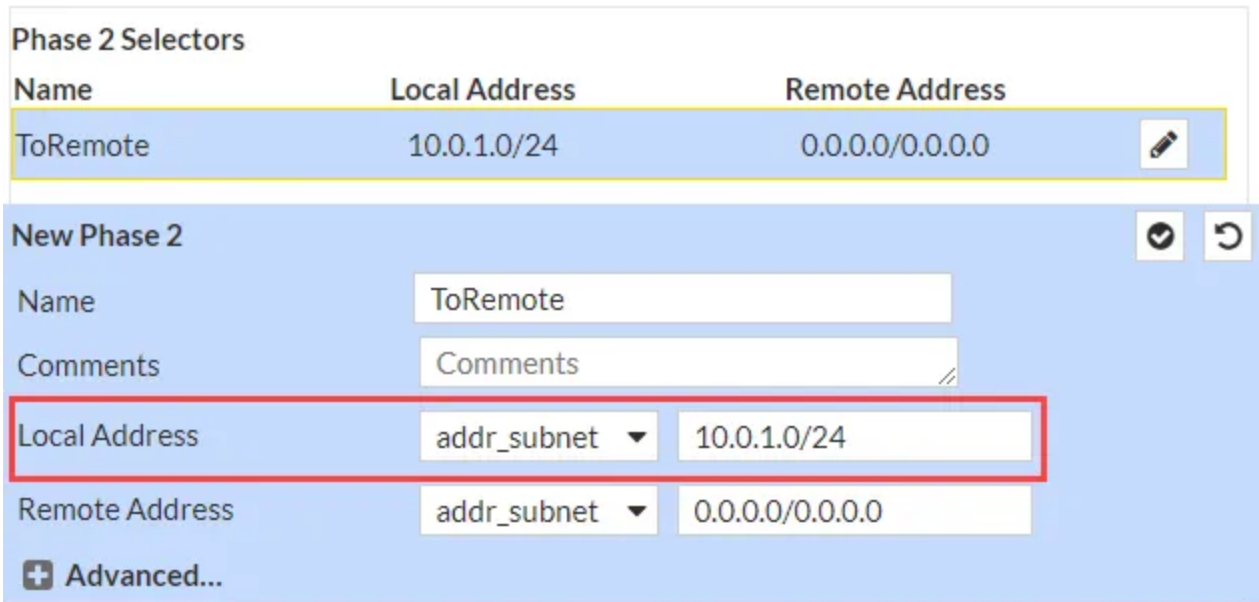
40 minutes

Exercise 1: Configuring a Dial-Up IPsec VPN

In this exercise, you will set up a dial-up VPN where **Local-FortiGate** acts as the VPN server and **Remote-FortiGate** as the client.

Step 1: Create Phase 1 and Phase 2 on Local-FortiGate (Dial-Up Server)

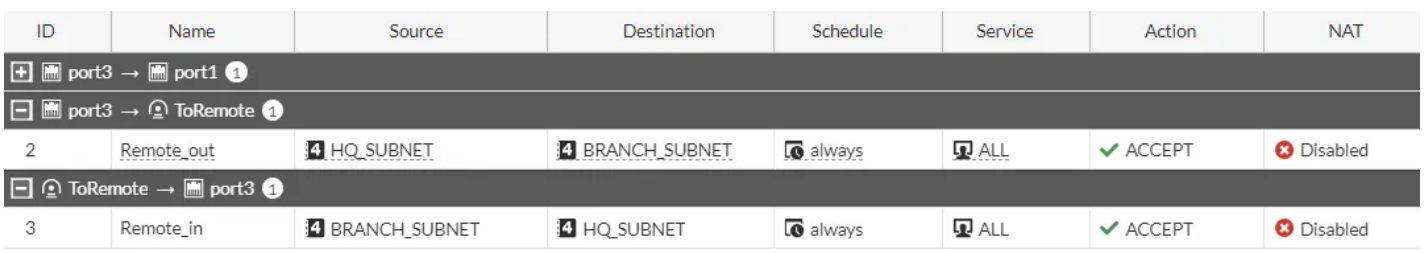
1. Log in to Local-FortiGate.
2. Navigate to **VPN** > **IPsec Tunnels** > **Create New**.
3. Configure the following:
    - **Name**: `ToRemote`
    - **Template Type**: Custom
    - **Remote Gateway**: Dialup User
    - **Interface**: `port1`
    - **Authentication**: Pre-shared Key (`fortinet`)
    - **Accept Types**: Specific Peer ID (`Remote-FortiGate`)
4. Define Phase 2 Selectors:
    - **Local Address**: `10.0.1.0/24`



💡 **Note**: For scalability, set the remote address to `0.0.0.0/0` to accommodate multiple peers.

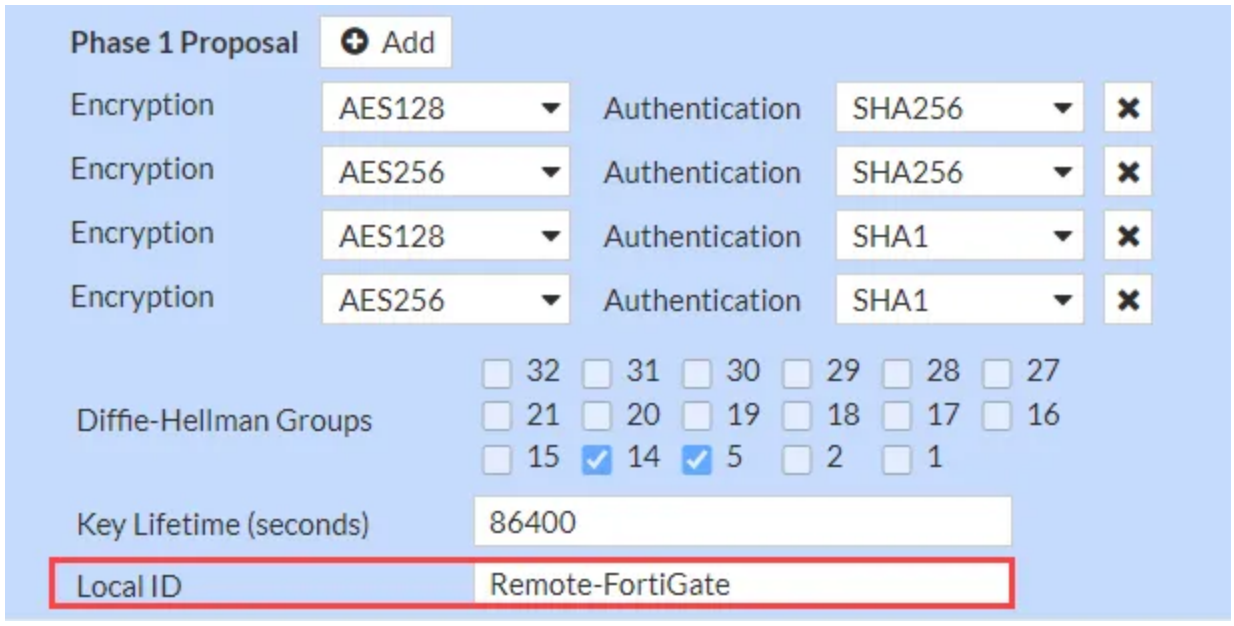
Step 2: Create Firewall Policies on Local-FortiGate

1. Navigate to **Policy & Objects** > **Firewall Policy** > **Create New**.
2. Configure **Remote_out** policy:
   - **Incoming Interface**: `port3`
   - **Outgoing Interface**: `ToRemote`
   - **Source**: HQ_SUBNET
   - **Destination**: BRANCH_SUBNET
   - **NAT**: Disabled
3. Repeat to configure **Remote_in**, reversing the traffic flow.

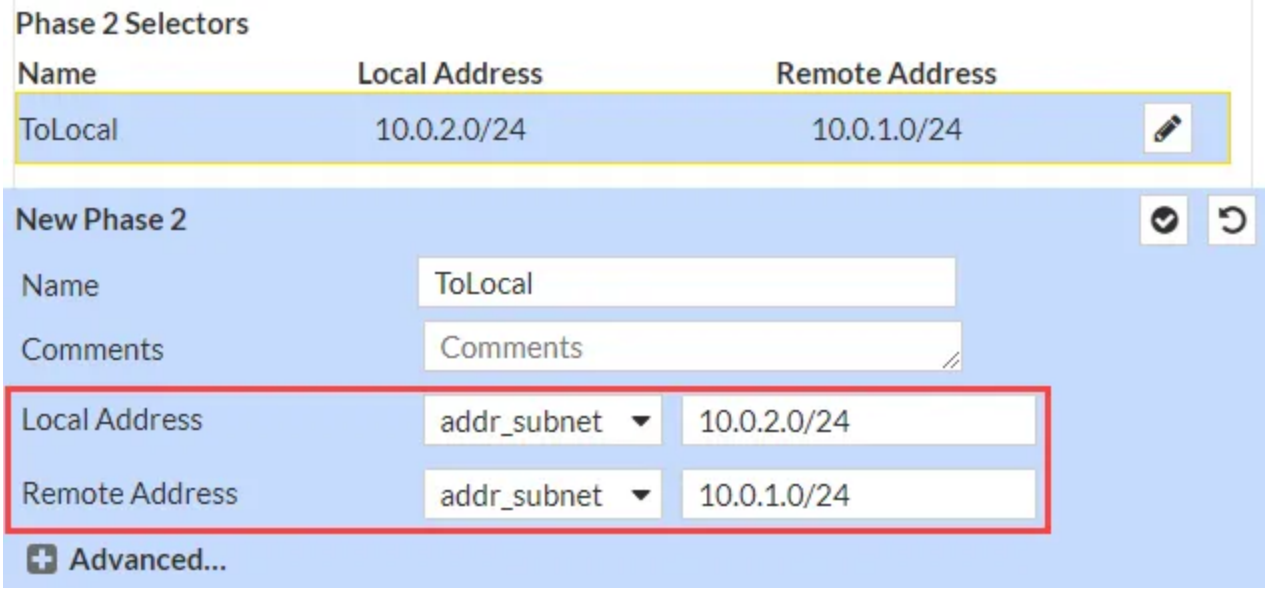


Step 3: Create Phase 1 and Phase 2 on Remote-FortiGate (Dial-Up Client)

1. Log in to Remote-FortiGate.
2. Navigate to **VPN** > **IPsec Tunnels** > **Create New**.
3. Configure the following:
   - **Name**: `ToLocal`
   - **Remote Gateway**: Static IP (`10.200.1.1`)
   - **Authentication**: Pre-shared Key (`fortinet`)
   - **Local ID**: `Remote-FortiGate`
4. Define Phase 1 Proposal**:**

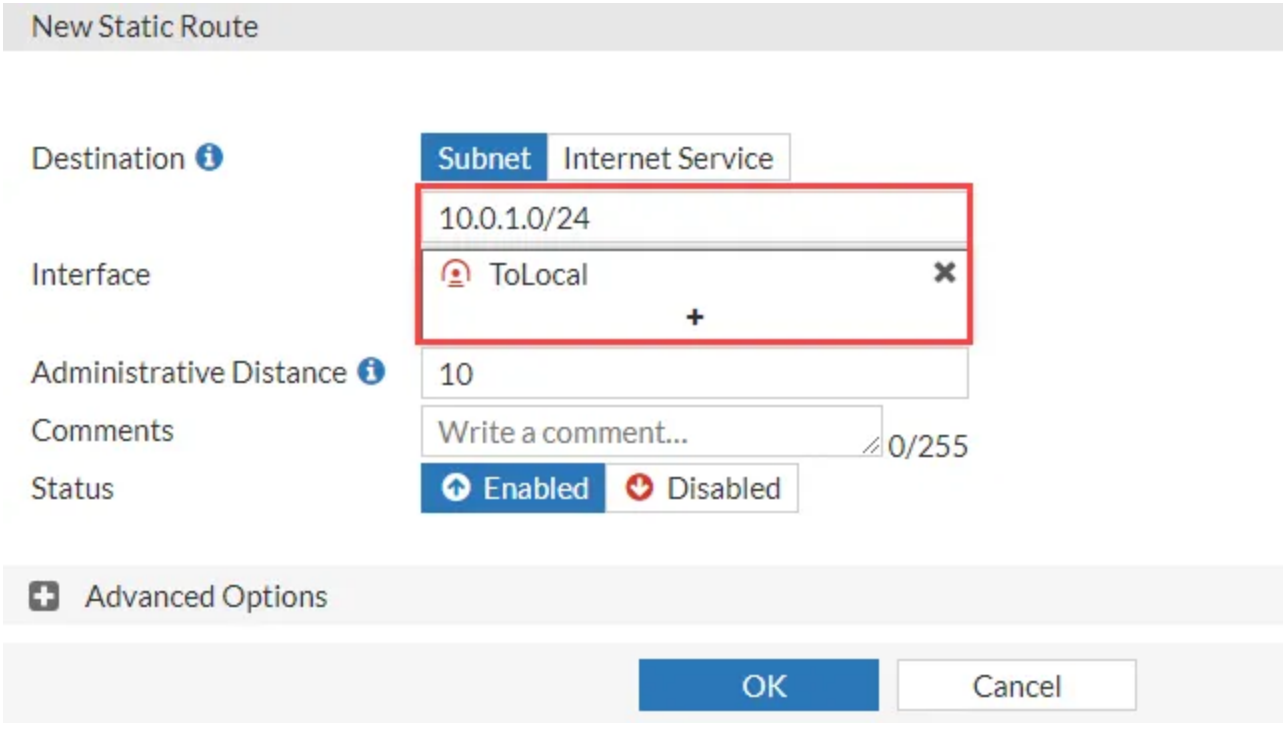


5. Define Phase 2 Selectors:
    - **Local Address**: `10.0.2.0/24`
    - **Remote Address**: `10.0.1.0/24`



Step 4: Create a Static Route on Remote-FortiGate

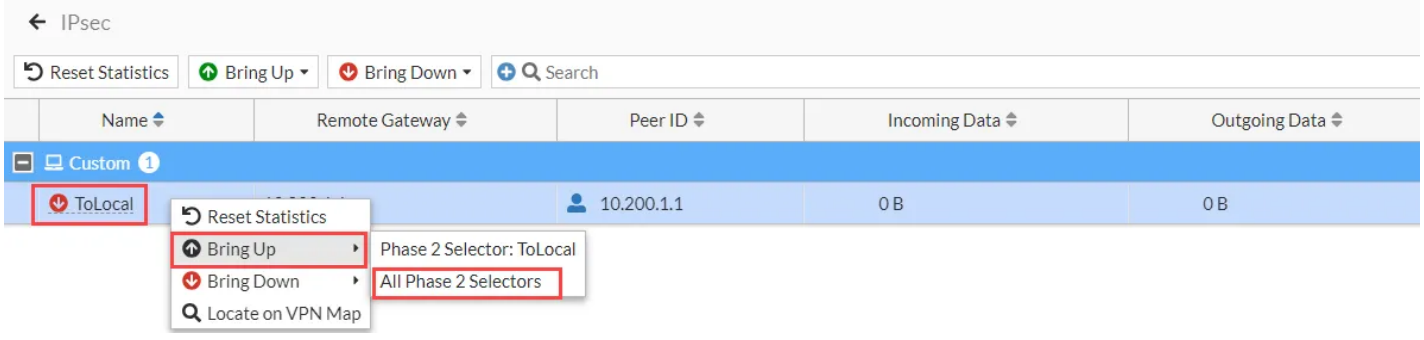
1. Navigate to **Network** > **Static Routes** > **Create New**.
2. Configure:
    - **Destination**: `10.0.1.0/24`
    - **Interface**: `ToLocal`

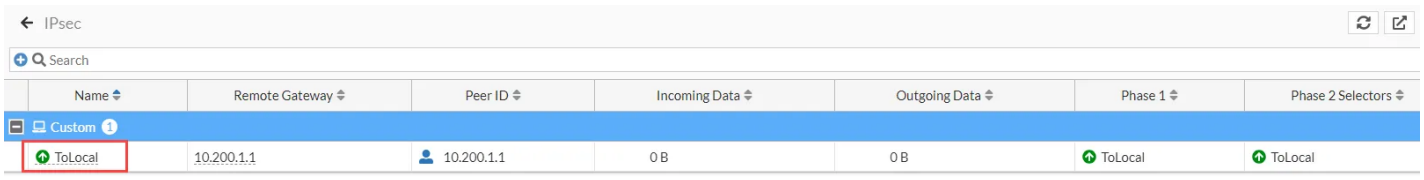


ID	Name	Source	Destination	Schedule	Service	Action	NAT
port6 → port4 1							
port6 → ToLocal 1							
2	Local_out	BRANCH_SUBNET	HQ_SUBNET	always	ALL	ACCEPT	Disabled
ToLocal → port6 1							
3	Local_in	HQ_SUBNET	BRANCH_SUBNET	always	ALL	ACCEPT	Disabled

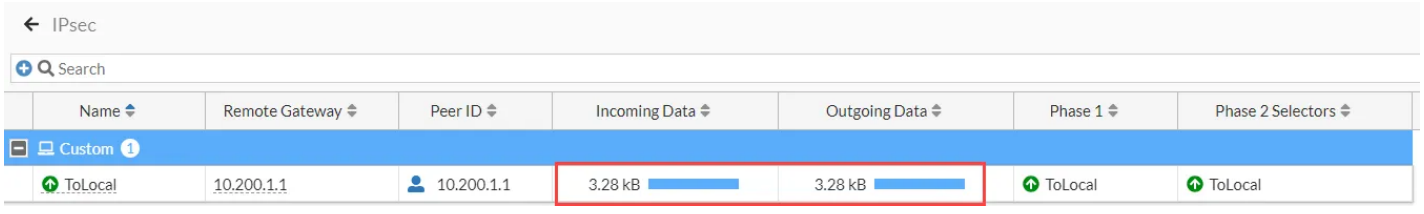
Step 5: Test and Monitor the VPN

1. Bring up the tunnel from Remote-FortiGate.





2. Test connectivity by pinging `10.0.1.10` from `10.0.2.10`.



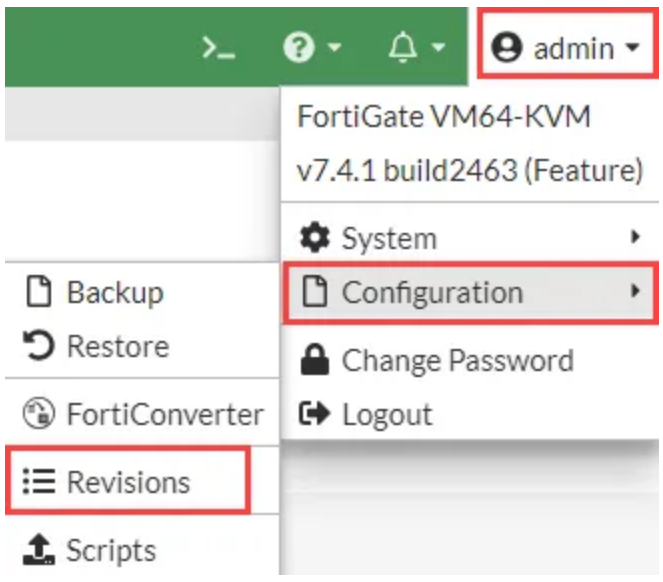
Network	Gateway IP	Interfaces	Distance	Type
0.0.0.0/0	10.200.1.254	port1	10	Static
10.0.1.0/24	0.0.0.0	port3	0	Connected
10.0.2.0/24		ToRemote	15	Static
10.200.1.0/24	0.0.0.0	port1	0	Connected
10.200.2.0/24	0.0.0.0	port2	0	Connected
172.16.100.0/24	0.0.0.0	port8	0	Connected

Exercise 2: Configuring a Static IPsec VPN

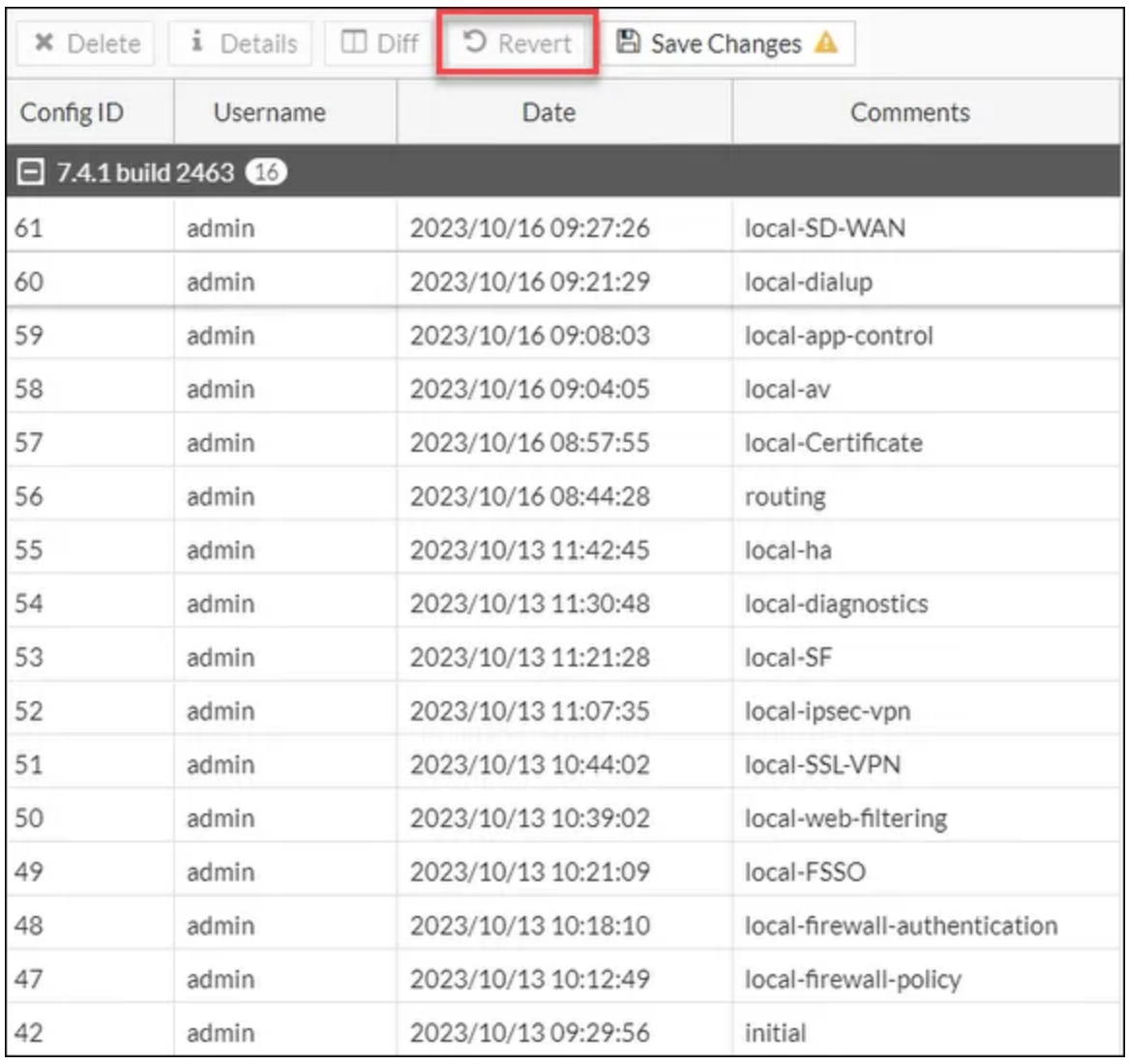
In this exercise, you'll configure a static VPN between Local-FortiGate and Remote-FortiGate.

Step 1: Restore Configuration on Local-FortiGate

1. Navigate to **Configuration** > **Revisions**.



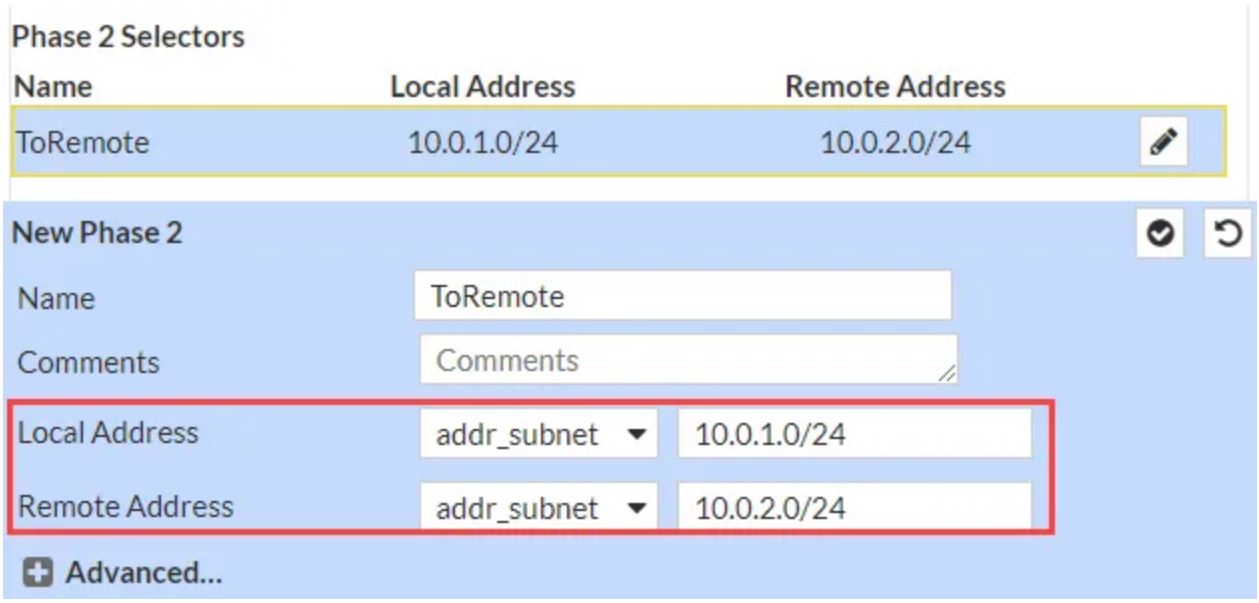
2. Select the revision with the comment `local-ipsec-vpn`, and click **Revert**.



Config ID	Username	Date	Comments
7.4.1 build 2463 16			
61	admin	2023/10/16 09:27:26	local-SD-WAN
60	admin	2023/10/16 09:21:29	local-dialup
59	admin	2023/10/16 09:08:03	local-app-control
58	admin	2023/10/16 09:04:05	local-av
57	admin	2023/10/16 08:57:55	local-Certificate
56	admin	2023/10/16 08:44:28	routing
55	admin	2023/10/13 11:42:45	local-ha
54	admin	2023/10/13 11:30:48	local-diagnostics
53	admin	2023/10/13 11:21:28	local-SF
52	admin	2023/10/13 11:07:35	local-ipsec-vpn
51	admin	2023/10/13 10:44:02	local-SSL-VPN
50	admin	2023/10/13 10:39:02	local-web-filtering
49	admin	2023/10/13 10:21:09	local-FSSO
48	admin	2023/10/13 10:18:10	local-firewall-authentication
47	admin	2023/10/13 10:12:49	local-firewall-policy
42	admin	2023/10/13 09:29:56	initial

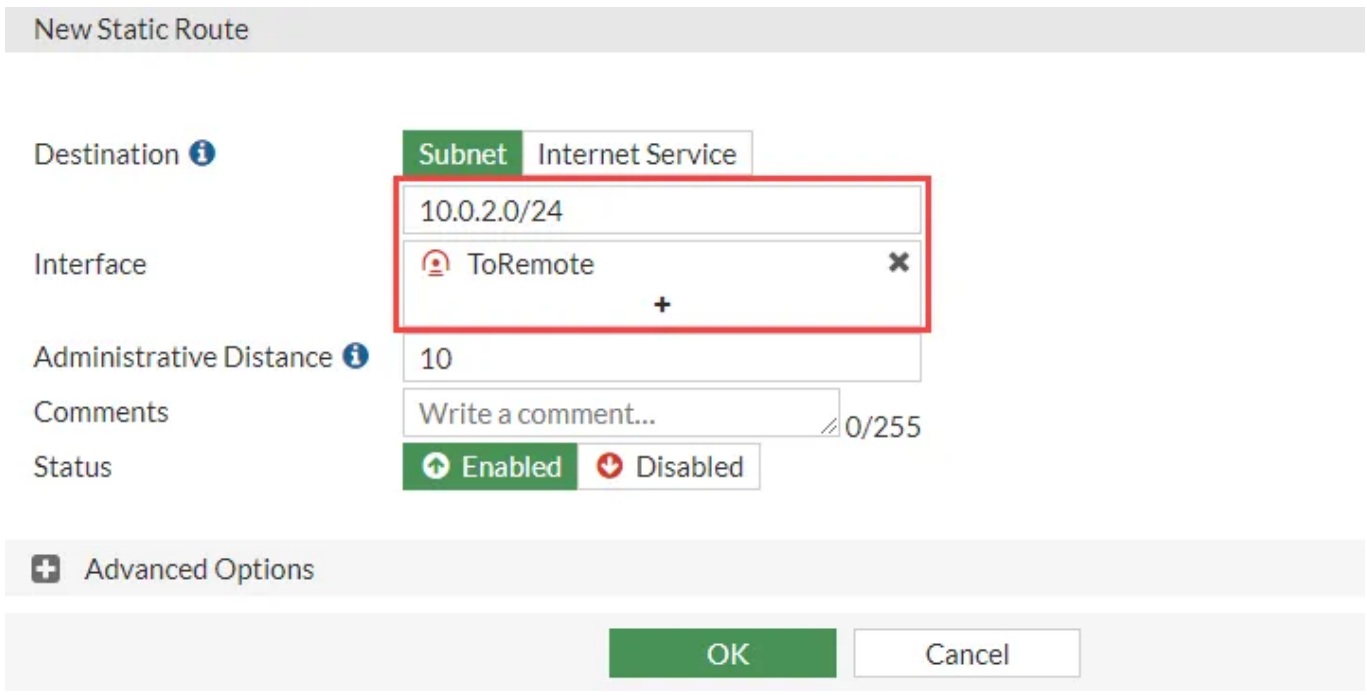
Step 2: Create Phase 1 and Phase 2 on Local-FortiGate

1. Log in to Local-FortiGate.
2. Navigate to **VPN** > **IPsec Tunnels** > **Create New**.
3. Configure:
   - **Name**: `ToRemote`
   - **Remote Gateway**: Static IP (`10.200.3.1`)
   - **Interface**: `port1`
4. Define Phase 2 Selectors:
   - **Local Address**: `10.0.1.0/24`
   - **Remote Address**: `10.0.2.0/24`



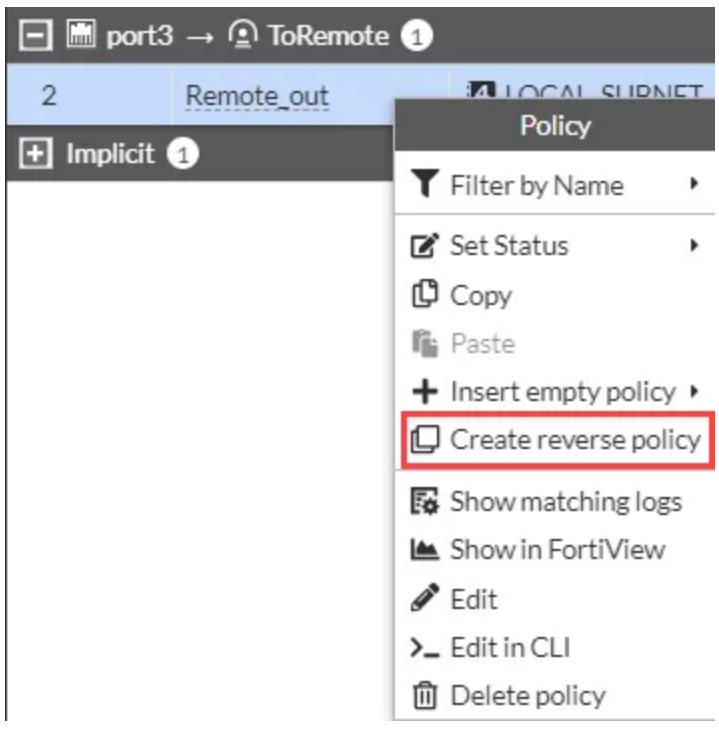
Step 3: Create a Static Route on Local-FortiGate

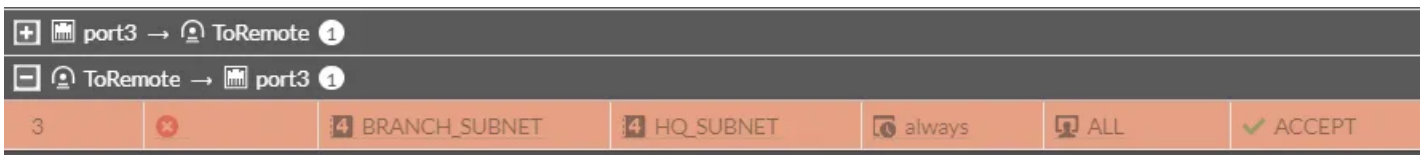
1. Navigate to **Network** > **Static Routes** > **Create New**.
2. Configure:
   - **Destination**: `10.0.2.0/24`
   - **Interface**: `ToRemote`



Step 4: Create Firewall Policies on Local-FortiGate

1. Create a policy (`Remote_out`) for traffic from **port3** to **ToRemote**.
2. Right-click **Remote_out**, and create a reverse policy (`Remote_in`).

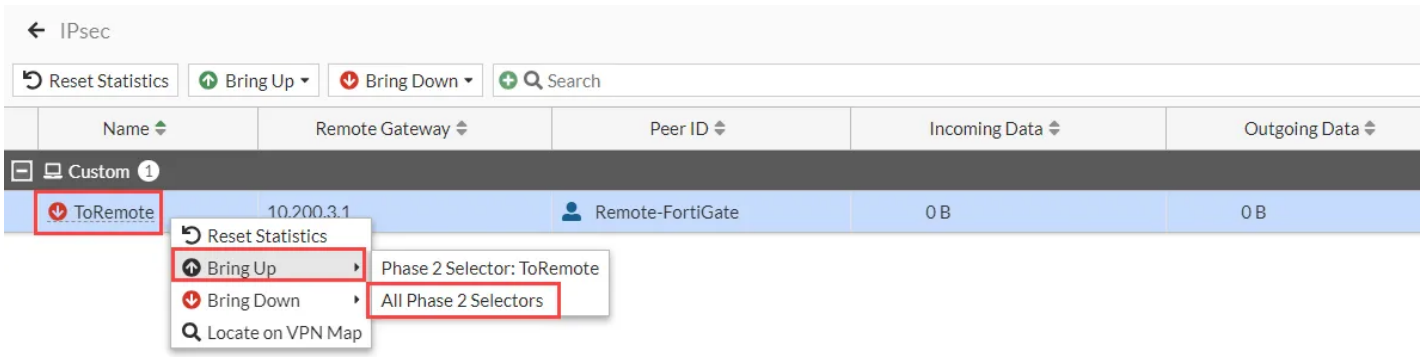


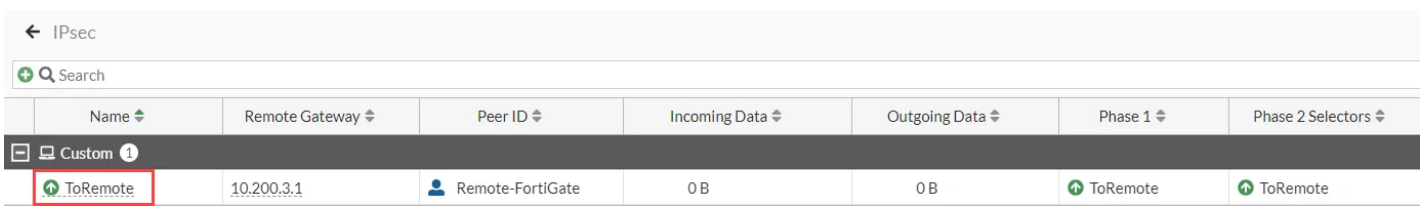


ID	Name	Source	Destination	Schedule	Service	Action	NAT
port3 → port1 1							
port3 → ToRemote 1							
2	Remote_out	HQ_SUBNET	BRANCH_SUBNET	always	ALL	ACCEPT	Disabled
ToRemote → port3 1							
3	Remote_in	BRANCH_SUBNET	HQ_SUBNET	always	ALL	ACCEPT	Disabled

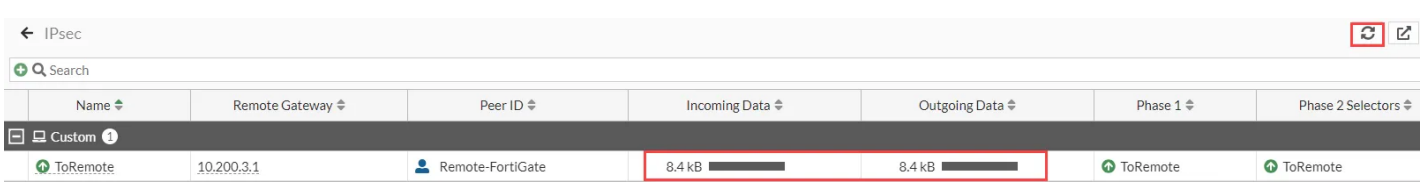
Testing the Static VPN

1. Verify tunnel status on the Dashboard.





2. Generate traffic to confirm encrypted communication between subnets.



This lab provides foundational knowledge for configuring and managing IPsec VPNs using FortiGate devices. Both dial-up and static VPNs allow secure and scalable connectivity between sites.