

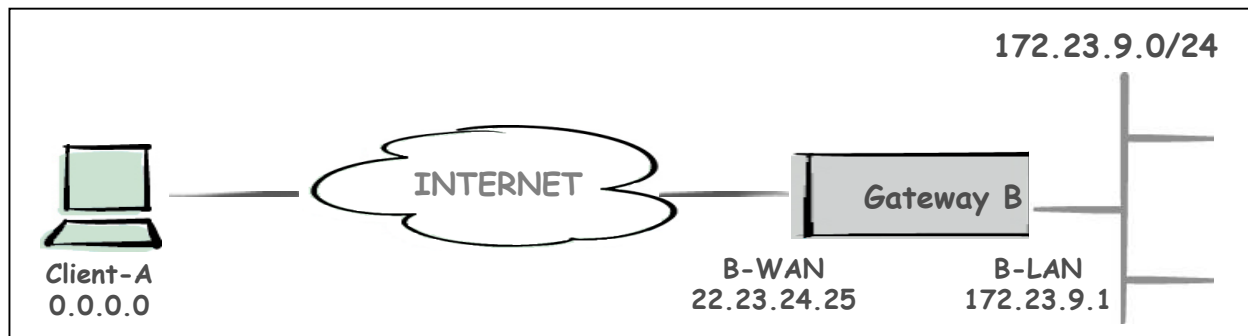


## Interoperability Profile for FortiGate-50 with SSH Sentinel VPN Client

The purpose of this document is to provide you with necessary steps to configure SSH Sentinel with remote Fortigate-50 VPN Gateway. This document is based on VPN Consortium's Profile of Interoperability and should help to understand VPN setup scenario. All these configurations has been installed and verified by myself and is for information only.

### VPN Client-to-Gateway with pre-shared secrets

The following is a typical client-to-gateway VPN that uses a pre-shared secret for authentication.



Client connects to the internal LAN 172.23.9.0/24 via the Internet through Gateway B's WAN Interface 22.23.24.25. Gateway B is configured for RAS clients with dynamic IP addressing. In other configurations static IP addressing could be used, such as LAN, PPPoE and NT RAS connections.

The **IKE Phase 1 parameters** used this Scenario are:

- Main mode
- TripleDES
- SHA-1
- MODP group 2 (1024 bits)
- pre-shared secret of "hr5xb84l6aa9r6"
- SA lifetime of 28800 seconds (eight hours) with no kbytes rekeying



#### DISCLAIMER

*This Technical Tip or TechNote is provided as information only. I cannot make any guarantee, either explicit or implied, as to its accuracy to specific system installations / configurations. Readers should consult each Vendor for further information or support.*

*Although I believe the information provided in this document to be accurate at the time of writing, I reserve the right to modify, update, retract or otherwise change the information contained within for any reason and without notice. This technote has been created after studying the material and / or practical evaluation by myself. All liability for use of the information presented here remains with the user.*

The **IKE Phase 2 parameters** used in this Scenario are:

- TripleDES
- SHA-1
- ESP tunnel mode
- MODP group 2 (1024 bits)
- Perfect forward secrecy for rekeying
- SA lifetime of 3600 seconds (one hour) with no kbytes rekeying
- Selectors for all IP protocols, all ports, between 0.0.0.0 and 172.23.9.0/24, using IPv4 subnets

Assuming, you have VPN Gateway already configured. If you run this setup from scratch, go the section “VPN GATEWAY CONFIGURATION” and complete installation & configuration before configuring Client.

## Products:

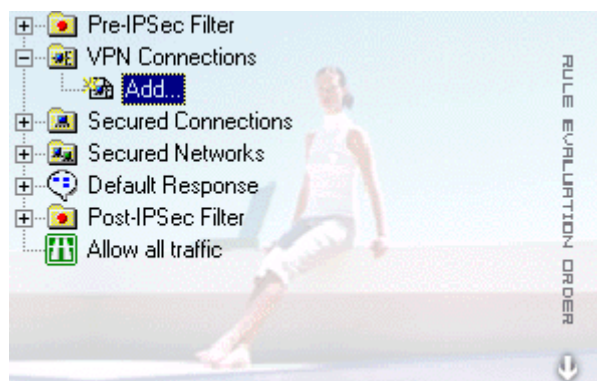
- CLIENT: WIN 2000 Professional & SSH Sentinel 1.4.0.178-30-EVAL
- VPN Gateway: Fortinet FortiGate-50 (Firmware 2.50 Maintenance Release 5)

## SSH Sentinel Configuration

The installation of the SSH Sentinel software is easy and straightforward. Start the SSH Sentinel setup program (Fortinet1.4.0.178-30-EVAL.exe) by double-clicking the icon and follow the instructions on the screen. The installation procedure is also well documented in the SSH Sentinel User Manual (available from SSH Sentinel documentation web page).

### Create a new VPN Connection

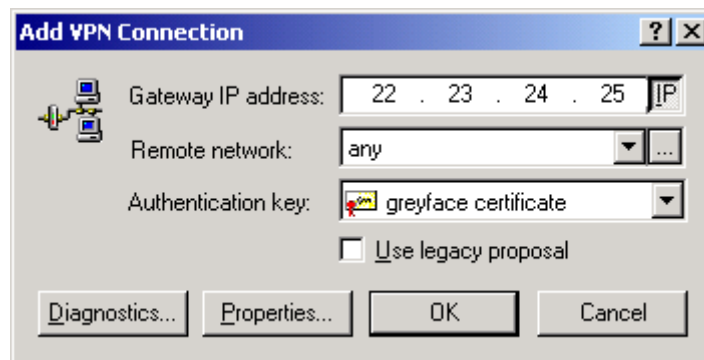
1. Right-click on the SSH icon  and select Run Policy Editor




2. Expand VPN Connections by clicking on + , select Add... and click on **ADD**

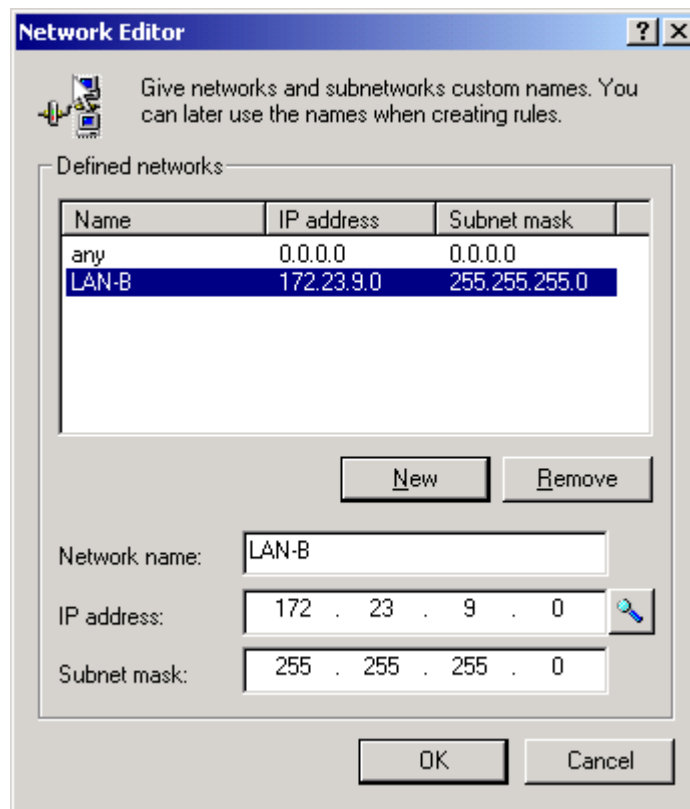


3. In the add VPN Connection dialog box, click on IP. Gateway Name will change to Gateway IP Address



4. In the Gateway IP address, enter 22.23.24.25 (Gateway-B WAN Address)

5. Select  to add a new remote network



Add pre-shared key to be used during Phase-1 negotiations. The client pre-shared key must match the VPN Gateway authentication key. Typos or different key won't be able to complete Phase-1

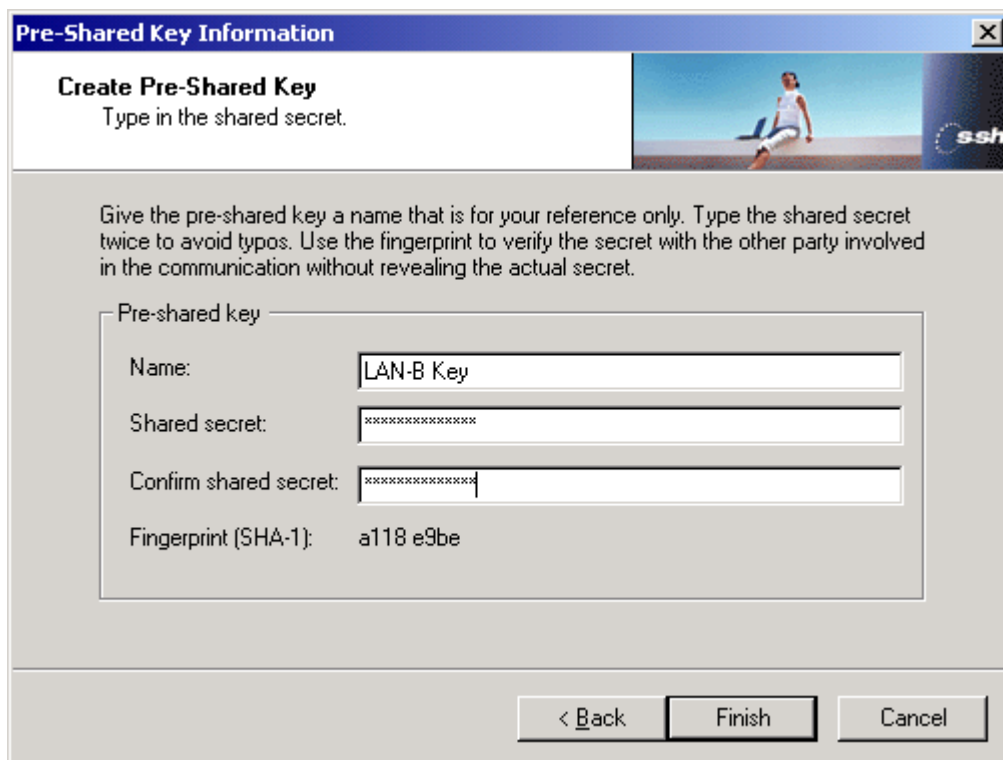
Go to SSH Sentinel Policy Editor -> Key Management -> My Keys



Select **Add**.

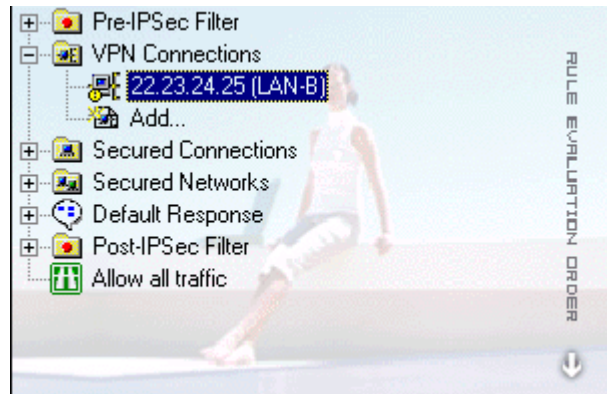


On the New Authentication Key wizard, select Create a pre-shared key. Type a unique name and use the same shared secret, as stated at the first page VPN Consortium's requirement (IKE Phase-1 parameters)

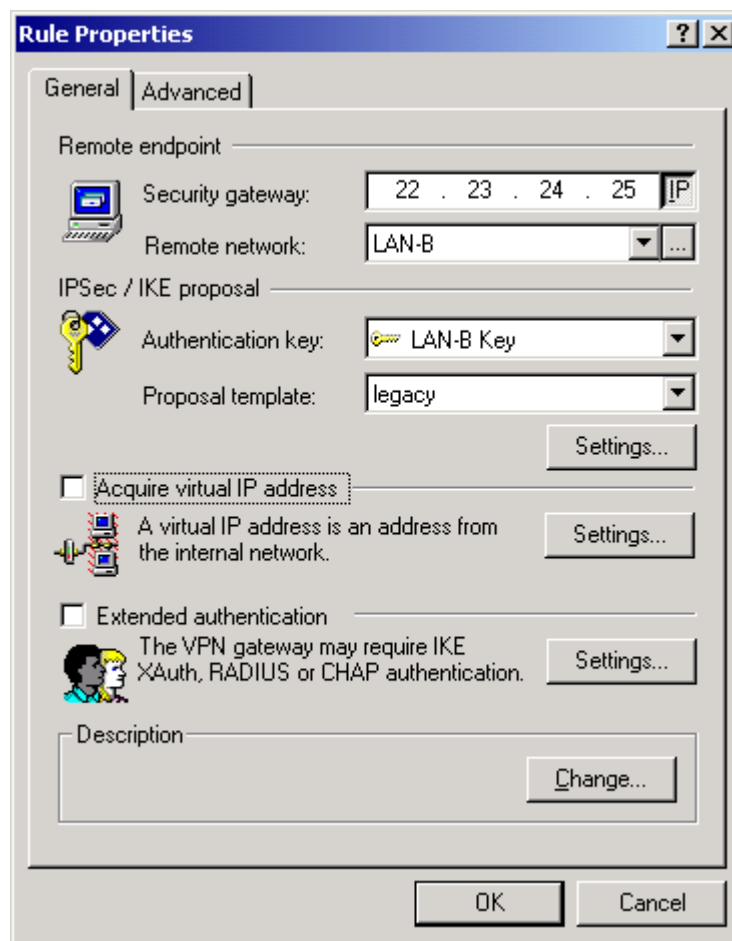


Apply pre-shared key to VPN policy and policy will be updated. Go back to Security Policy and select a newly added VPN Connection (LAN-B)





Click on **Properties**

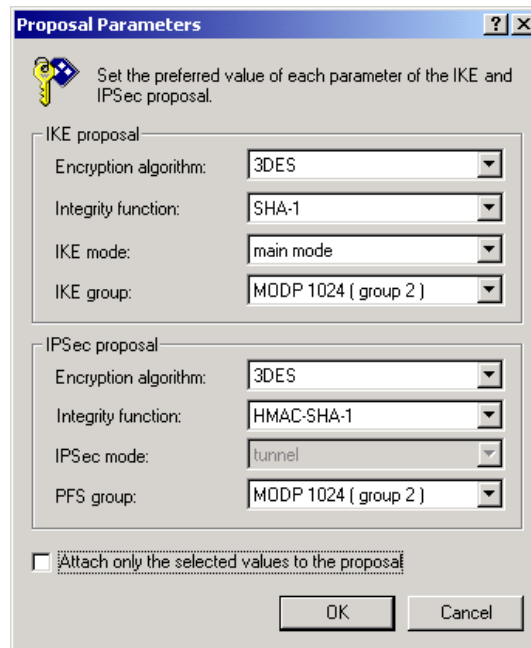


Select the **LAN-B Key** for Authentication Key

Change Proposal Template to **LEGACY**

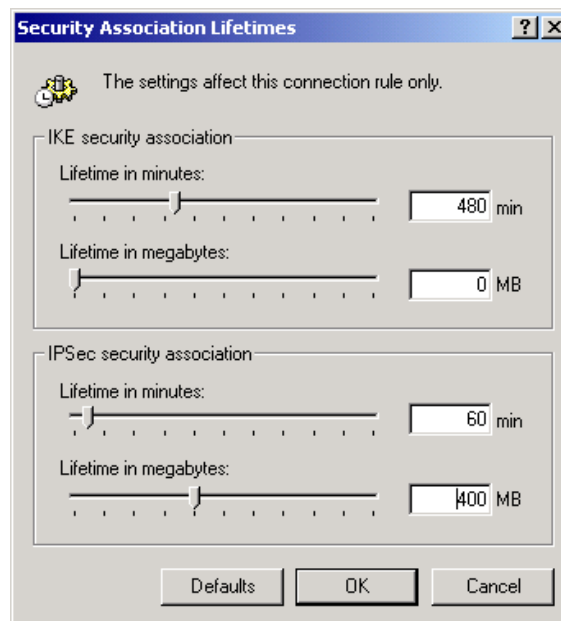


Click on SETTINGS under IPSec/IKE Proposal

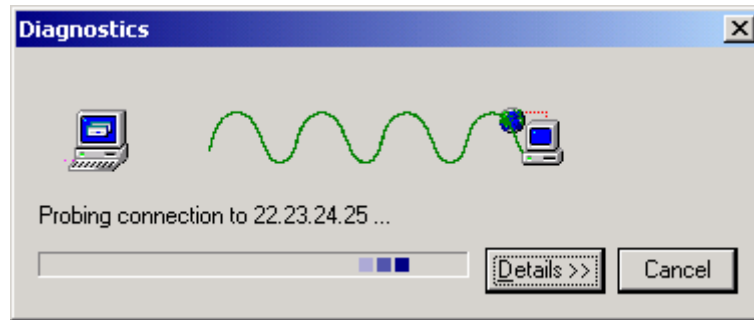


Change the values, based on IKE PHASE-1 requirements.

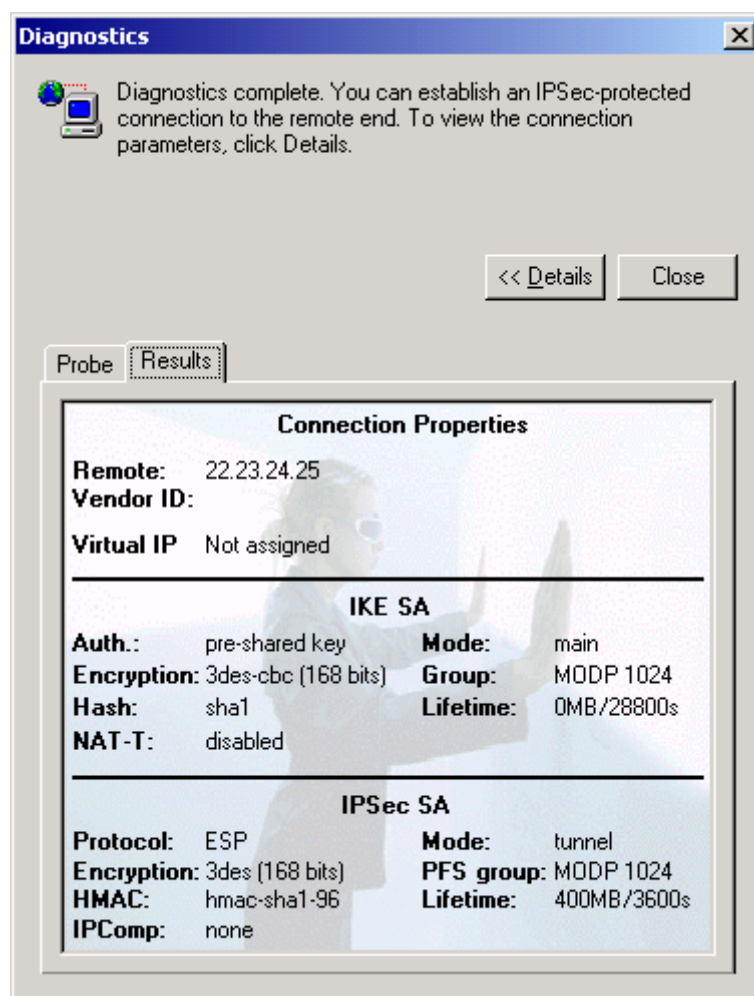
To change the IKE and IPSec re-keying information, select the advanced tab and click on the Settings tab of Security association lifetimes.



Don't forget to Apply, when done. Now you can probe by selecting the VPN Connection and click on Diagnostics.



A successful Diagnostics would look like that

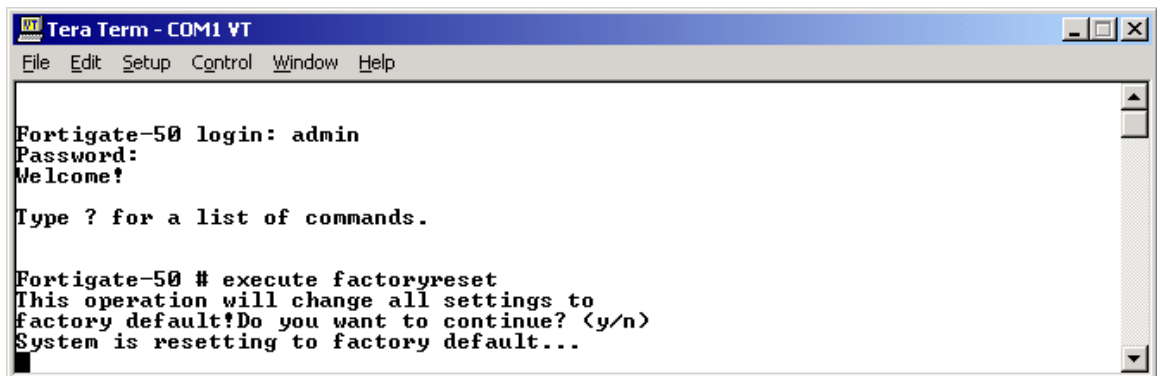


This is a simple setup. You could assign virtual IP and natting as well.



## FortiGate-50 Configuration

Connect FortiGate with Console Cable, start and logon as admin



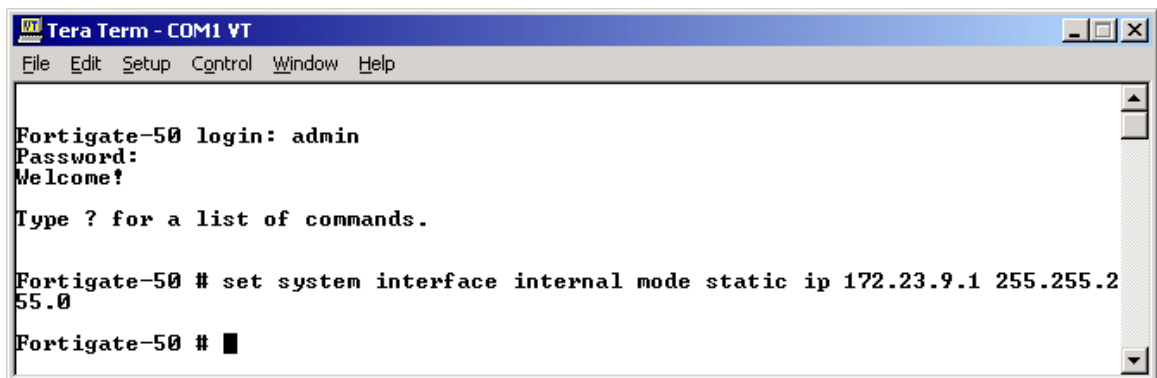
```
Tera Term - COM1 VT
File Edit Setup Control Window Help

Fortigate-50 login: admin
Password:
Welcome!

Type ? for a list of commands.

Fortigate-50 # execute factoryreset
This operation will change all settings to
factory default!Do you want to continue? (y/n)
System is resetting to factory default...
```

When FortiGate has been rebooted, logon and assign internal Interface IP Address (LAN-B)



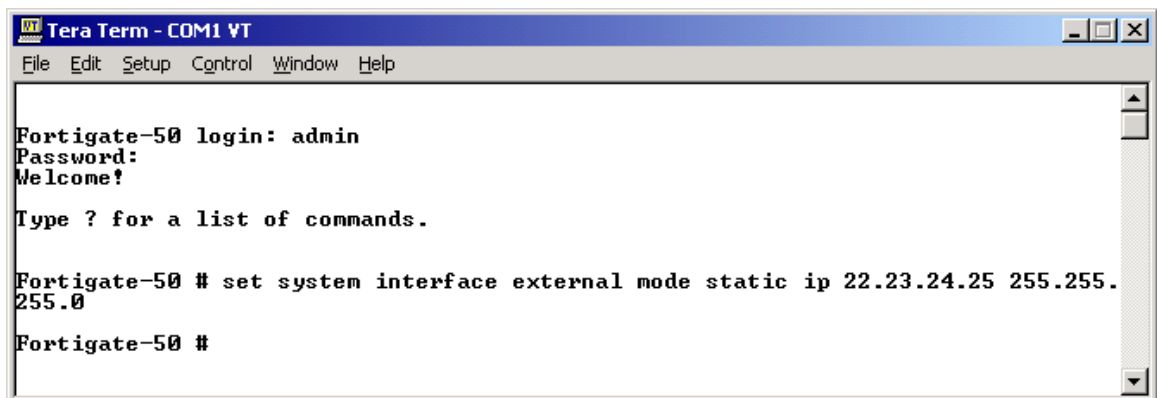
```
Tera Term - COM1 VT
File Edit Setup Control Window Help

Fortigate-50 login: admin
Password:
Welcome!

Type ? for a list of commands.

Fortigate-50 # set system interface internal mode static ip 172.23.9.1 255.255.2
55.0
Fortigate-50 #
```

Assign external Interface IP Address (WAN-B)



```
Tera Term - COM1 VT
File Edit Setup Control Window Help

Fortigate-50 login: admin
Password:
Welcome!

Type ? for a list of commands.

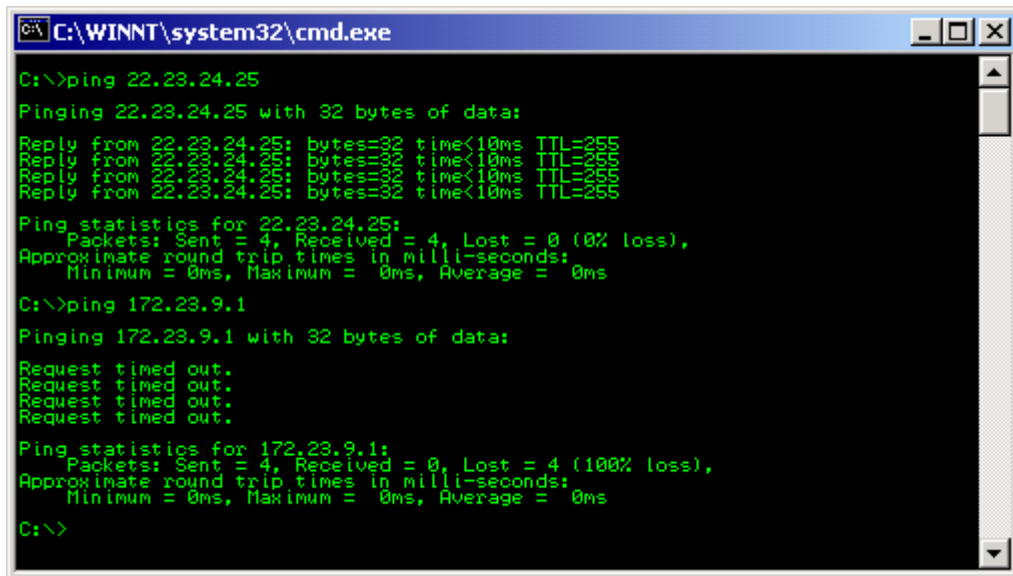
Fortigate-50 # set system interface external mode static ip 22.23.24.25 255.255.
255.0
Fortigate-50 #
```

Verify to ping each device to make sure the IP is working.





I have a client connected at WAN interface to see if external interface can be reached and internal interface has been secured.



```
C:\WINNT\system32\cmd.exe

C:\>ping 22.23.24.25

Pinging 22.23.24.25 with 32 bytes of data:

Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255

Ping statistics for 22.23.24.25:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.9.1

Pinging 172.23.9.1 with 32 bytes of data:

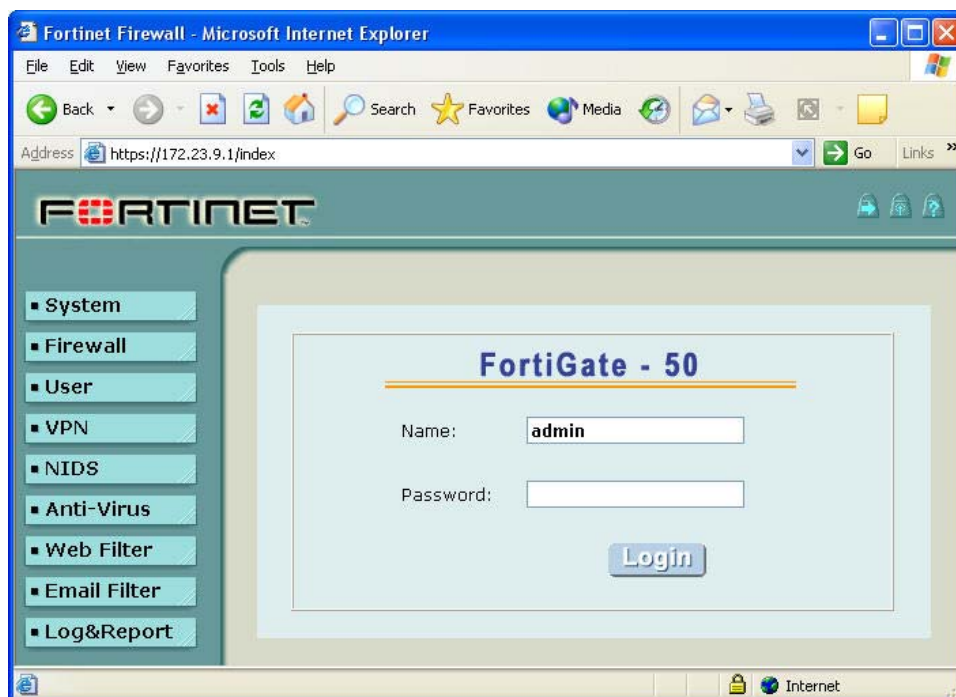
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 172.23.9.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

This is all, you have to do on the console. Everything else can be done via Web Interface.

## Configure FortiGate Unit as Dial-Up Server



Logon to FortiGate-50



## Add a Remote Gateway

1. Go to VPN -> IPSEC -> Phase 1
2. Select New
3. Enter the following information. Everything else can be kept at default

- **Gateway Name:** DialupClient
- **Remote Gateway:** Dialup User
- **Mode:** Main (ID Protection)
- **P1 Proposal:** 1-Encryption 3DES, Authentication SHA1
- **DH Group:** 2
- **Keylife:** 28800
- **Authentication Mode:** Preshared Key
- **Pre-shared Key:** hr5xb84l6aa9r6

The screenshot shows the 'New VPN Gateway' configuration window in FortiGate. The 'Phase 1' tab is active. The configuration is as follows:

Field	Value
Gateway Name	DialupClient
Remote Gateway	Dialup User
Mode	Main (ID protection)
P1 Proposal	1 - Encryption: 3DES, Authentication: SHA1
DH Group	2
Keylife	28800 (120-172800 seconds)
Authentication Method	Preshared Key
Pre-shared Key	[masked]
Local ID	[empty] (optional)
Advanced Options	(Dialup Group, Peer, XAUTH, Nat Traversal, DPD)

4. Click on **OK**



## Add an AutoIKE VPN Tunnel

5. Go to VPN -> IPSEC -> Phase 2

6. Enter the following information. Everything else can be kept at default

- **Tunnel Name:** Get\_into\_LAN\_B
- **Remote Gateway:** ----DIALUP----
- **P2 Proposal:** 1-Encryption 3DES, Authentication SHA1
- **Replay Detection:** Disabled
- **PFS:** Enabled
- **DH Group:** 2
- **Keylife:** 3600
- **Autokey Keep Alive:** Disabled
- **Concentrator:** None
- **Quick Mode Identities:** Use selectors from policy

The screenshot shows the 'New VPN Tunnel' configuration window in the FortiGate GUI. The 'Phase 2' tab is selected. The configuration is as follows:

- Tunnel Name:** Get\_into\_LAN\_B
- Remote Gateway:** ----DIALUP----
- P2 Proposal:** 1- Encryption: 3DES, Authentication: SHA1
- Enable replay detection
- Enable perfect forward secrecy(PFS).
- DH Group:** 2 (selected)
- Keylife:** 1800 (Seconds), 4608000 (KBytes)
- Autokey Keep Alive:**  Enable
- Concentrator:** None
- Quick Mode Identities:**  Use selectors from policy,  Use wildcard selectors

Buttons for 'OK' and 'Cancel' are visible at the bottom.

## Add a source address to specify the address or address range on the FortiGate internal network that is part of the VPN

7. Go to Firewall -> Address -> Internal

8. Select New

9. Enter the following information



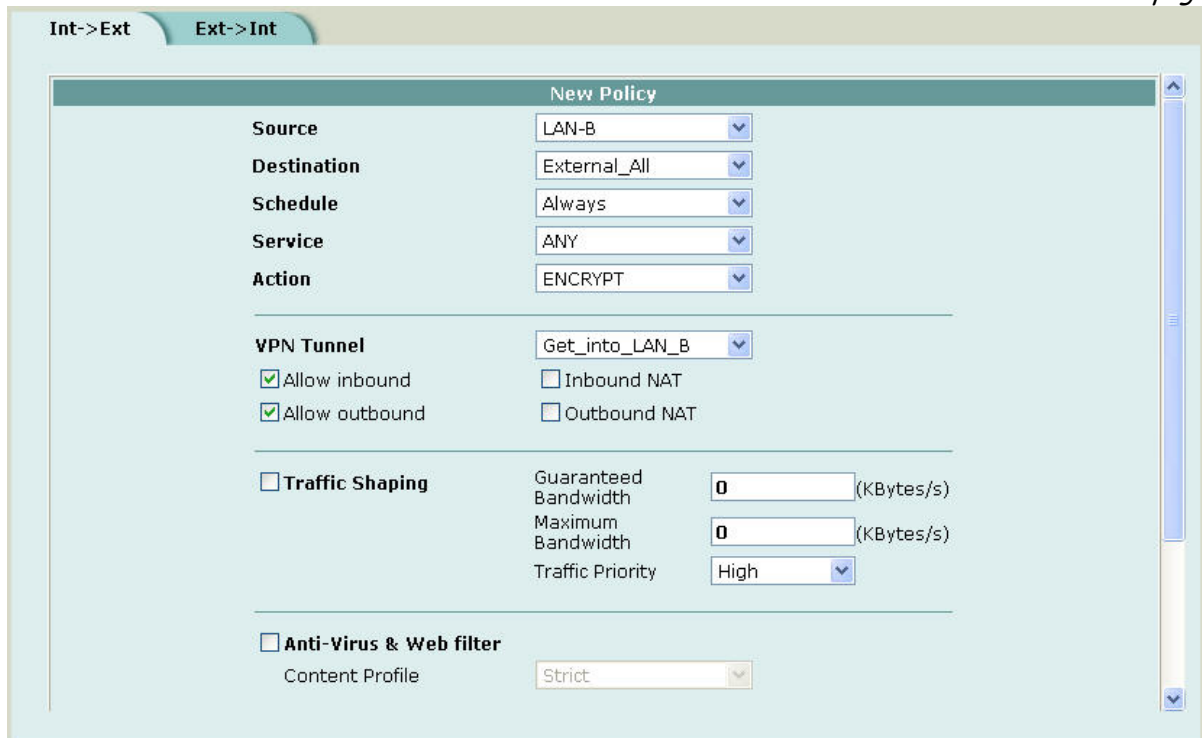
- **Address Name:** LAN-B
- **IP Address:** 172.23.9.0
- **Netmask:** 255.255.255.0

## Add an internal to external encrypt policy that includes the source address, the destination address External\_All, and the Dial-Up VPN Tunnel

10. Click on **OK**
11. Go to Firewall -> Policy -> Int->Ext.
12. Enter the following information

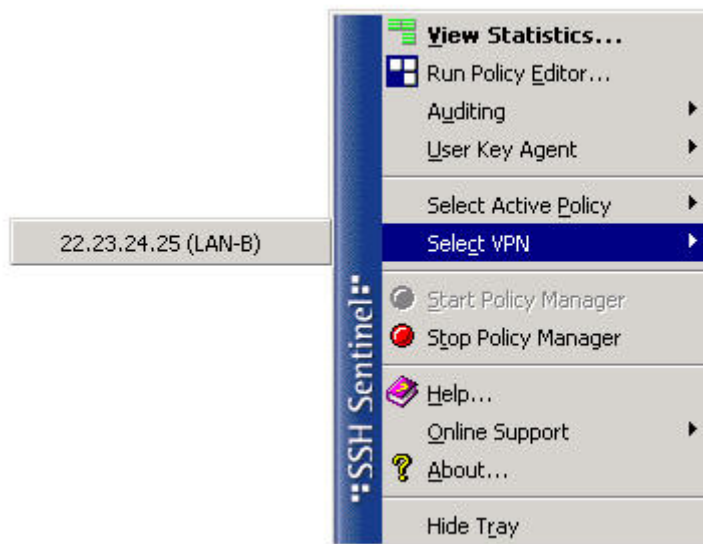
- **Source:** LAN-B
- **Destination:** External\_All
- **Schedule:** Always
- **Service:** Any
- **Action:** Encrypt
- **VPN Tunnel:** Get\_into\_LAN\_B
- **Allow inbound:** Check Allow Inbound to enable inbound users to connect to the source address
- **Allow outbound:** Check Allow Outbound to enable outbound users to connect to the destination address
- **Inbound NAT:** Uncheck Inbound NAT
- **Outbound NAT:** Uncheck Outbound NAT
- **Traffic Shaping:** Disabled
- **Anti-Virus & Web Filter:** Disabled
- **Log Traffic:** Enabled
- **Comments:** (none)





## Establish a VPN Connection

13. Right click on  and select VPN “22.23.24.25 (LAN-B)”

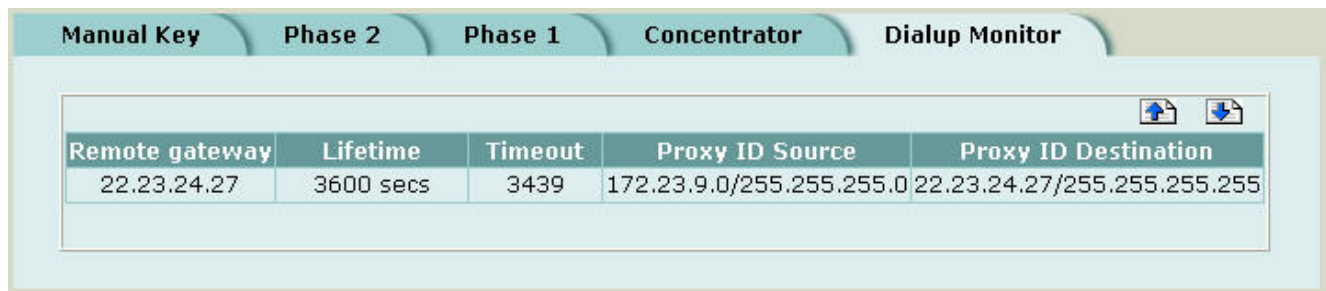


14. Verify again, if ping works. This time, a host located in LAN B should be positively pinged as well.



```
C:\WINNT\system32\cmd.exe
C:\>ping 22.23.24.25
Pinging 22.23.24.25 with 32 bytes of data:
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Reply from 22.23.24.25: bytes=32 time<10ms TTL=255
Ping statistics for 22.23.24.25:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 172.23.9.1
Pinging 172.23.9.1 with 32 bytes of data:
Reply from 172.23.9.1: bytes=32 time=10ms TTL=255
Reply from 172.23.9.1: bytes=32 time<10ms TTL=255
Reply from 172.23.9.1: bytes=32 time<10ms TTL=255
Reply from 172.23.9.1: bytes=32 time=10ms TTL=255
Ping statistics for 172.23.9.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 5ms
C:\>ping 172.23.9.2
Pinging 172.23.9.2 with 32 bytes of data:
Reply from 172.23.9.2: bytes=32 time=10ms TTL=127
Reply from 172.23.9.2: bytes=32 time=10ms TTL=127
Reply from 172.23.9.2: bytes=32 time<10ms TTL=127
Reply from 172.23.9.2: bytes=32 time=10ms TTL=127
Ping statistics for 172.23.9.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 7ms
C:\>
```

On FortiGate's Dialup Monitor, you should see a successful VPN connection



The screenshot shows the FortiGate Dialup Monitor interface with a table of active connections. The table has five columns: Remote gateway, Lifetime, Timeout, Proxy ID Source, and Proxy ID Destination. A single row shows a successful connection to 22.23.24.27 with a lifetime of 3600 seconds and a timeout of 3439. The proxy ID source is 172.23.9.0/255.255.255.0 and the proxy ID destination is 22.23.24.27/255.255.255.255.

Remote gateway	Lifetime	Timeout	Proxy ID Source	Proxy ID Destination
22.23.24.27	3600 secs	3439	172.23.9.0/255.255.255.0	22.23.24.27/255.255.255.255

That's pretty much all to do for a successful Client-Gateway VPN with shared Secret.

