

NQG_045: Configuring an IPSec Tunnel Between Two Netopia Routers

This Netopia Quick Guide covers the configuration of an IPSec tunnel between two Netopia R-Series routers.

Assumptions:

This guide assumes that you are running Netopia router firmware version 4.8 or later, and have read the firmware documentation. To update your router firmware, go to our [firmware update page](#).

Note: IPSec tunneling supports IP routing only. IPX, AppleTalk or any protocol other than IP will not be routed across an IPSec tunnel.

Before you start:

- **PLEASE READ** our [Notice on Configuring VPN Tunnels with Netopia Routers](#).
- Establish a serial connection to the Netopia router's console using a communications program such as HyperTerminal or Z-Term. The settings should be 9600 Baud, 8 Data Bits, and 1 Stop Bit. Disable flow control.
- Alternatively, you can use Telnet over your LAN to get to the console screens.
- For detailed instructions on using HyperTerminal, Z-Term, or Telnet, please see Netopia [Quick Guide NQG_21](#)

Tips:

- Do not change any settings other than the ones referred to below.
- Pressing Return takes you into a page; pressing Escape takes you out.
- Press Return after entering each setting to save it.

Router Step-by-step Configuration

The following example configuration is based on two R-Series routers with connections to the Internet using NAT (Network Address Translation). It is not necessary for you to have NAT enabled on your Internet connection profile for this to work. The **Local WAN IP addresses** used in the configuration are only an example.

Note: The **Ethernet IP Addresses** used in this example can be implemented in other similar configurations. However, the **Local WAN IP Addresses** will change per individual configuration. The following router configurations are based on the following example configurations. Please substitute your own IP information when configuring your routers. In any case, both routers must be configured for different Ethernet IP subnets, as the example configuration illustrates.)

Example Configuration:

Router A		Router B	
Ethernet IP Address:	192.168.1.1	Ethernet IP Address:	192.168.2.1
Ethernet Subnet Mask	255.255.255.0	Ethernet Subnet Mask	255.255.255.0
Local WAN IP Address:	163.176.56.1	Local WAN IP Address:	163.176.57.1

Configuration of Router A:

1. From the Main Menu of router console screens, go to **Quick Menus**, and select **Add Connection Profile**.
2. Under **Profile Name**, type **Router B** (or a name of your choice).
3. Change **Data Link Encapsulation** to **IPSec** and select **Data Link Options**.
4. Verify that **Encryption Transform** is set to **DES**.
5. For **Encryption Key** enter a 16-character hexadecimal string, e.g., **1234567890ABCDEF**. This string **MUST** be **EXACTLY** the same as the key entered in configuration step 5 for Router B below.
6. Leave default **Authentication Type** at **ESP**.
7. Leave default **Authentication Transform** at **HMAC-MD5-96**.
8. For **Authentication Key** enter a 32-character hexadecimal string, e.g., **1234567890ABCDEF1234567890ABCDEF**. This string **MUST** be **EXACTLY** the same as the key entered in configuration step 8 for Router B below.
9. Hit ENTER on **COMMIT**, then select **IP Profile Parameters**.
10. For **SPI (Security Parameters Index)** enter a value between **1** and **4294967295**. This value **MUST** be **EXACTLY** the same as the value entered in configuration step 10 for Router B below.
11. **Remote Tunnel Endpoint Address** is the **Local WAN Address** of the *remote* router. E.g., when configuring router A as per the example, this value will be **163.176.57.1**.
12. **Remote Members Network** is the **Ethernet IP Address** of the *remote* router. E.g., when configuring router A as per the example, this value will be **192.168.2.1**.
13. **Remote Members Mask** is the **Ethernet Subnet Mask** of the *remote* router. E.g., when configuring router A as per the example, this value will be **255.255.255.0**.
14. Set **Address Translation Enabled** to **No**. (**Note:** Use the tab key to toggle this option between Yes and No. Hit ENTER to save your changes).
15. Do not select a **Filter Set**. If one is active, hit enter on **Remove Filter Set** to deactivate it. (**Note:** You can filter over an IPSec connection, however, none of the pre-set filters are suitable for this purpose. If you wish to filter traffic on your IPSec tunnel, please read technote [NIR 052: Netopia Router Firewall Features and Configuration](#).)
16. Leave **Advanced IP Profile Options** alone, and hit ENTER on **COMMIT**.
17. You will be moved back one screen in the menu hierarchy. Hit ENTER on **COMMIT** to finish adding the profile. This concludes the setup for **Router A**.

Configuration of Router B:

1. From the Main Menu of router console screens, go to **Quick Menus**, and select **Add Connection Profile**.
2. Under **Profile Name**, type **Router A** (or a name of your choice).
3. Change **Data Link Encapsulation** to **IPSec** and select **Data Link Options**.
4. Verify that **Encryption Transform** is set to **DES**.
5. For **Encryption Key** enter a 16-character hexadecimal string, e.g., **1234567890ABCDEF**. This string **MUST** be **EXACTLY** the same as the key entered in configuration step 5 for Router A above.
6. Leave default **Authentication Type** at **ESP**.
7. Leave default **Authentication Transform** at **HMAC-MD5-96**.

8. For **Authentication Key** enter a 32-character hexadecimal string, e.g., **1234567890ABCDEF1234567890ABCDEF**. This string **MUST** be **EXACTLY** the same as the key entered in configuration step 8 for Router A above.
9. Hit ENTER on **COMMIT**, then select **IP Profile Parameters**.
10. For **SPI (Security Parameters Index)** enter a value between **1** and **4294967295**. This value **MUST** be **EXACTLY** the same as the value entered in configuration step 10 for Router A above.
11. **Remote Tunnel Endpoint Address** is the **Local WAN Address** of the *remote* router. E.g., when configuring router B as per the example, this value will be **163.176.56.1**.
12. **Remote Members Network** is the **Ethernet IP Address** of the *remote* router. E.g., when configuring router B as per the example, this value will be **192.168.1.1**.
13. **Remote Members Mask** is the **Ethernet Subnet Mask** of the *remote* router. E.g., when configuring router B as per the example, this value will be **255.255.255.0**.
14. Set **Address Translation Enabled** to **No**. (**Note:** Use the tab key to toggle this option between Yes and No. Hit ENTER to save your changes).
15. Do **not** select a **Filter Set**. If one is active, hit enter on **Remove Filter Set** to deactivate it. (**Note:** You can filter over an IPSec connection, however, none of the pre-set filters are suitable for this purpose. If you wish to filter traffic on your IPSec tunnel, please read technote [NIR 052: Netopia Router Firewall Features and Configuration](#).)
16. Leave **Advanced IP Profile** Options alone, and hit ENTER on **COMMIT**.
17. You will be moved back one screen in the menu hierarchy. Hit ENTER on **COMMIT** to finish adding the profile. This concludes the setup for **Router B**.

Conclusion:

Once both routers are configured, an IPSec connection can be established to allow IP routing through the tunnel between the two LAN's. If you are using Windows Networking, you may wish to read the following guides on facilitating network browsing between your two LAN's:

[NIR 030: Windows to NT Networking](#)

[NIR_028: Windows Peer-to-Peer Networking](#)