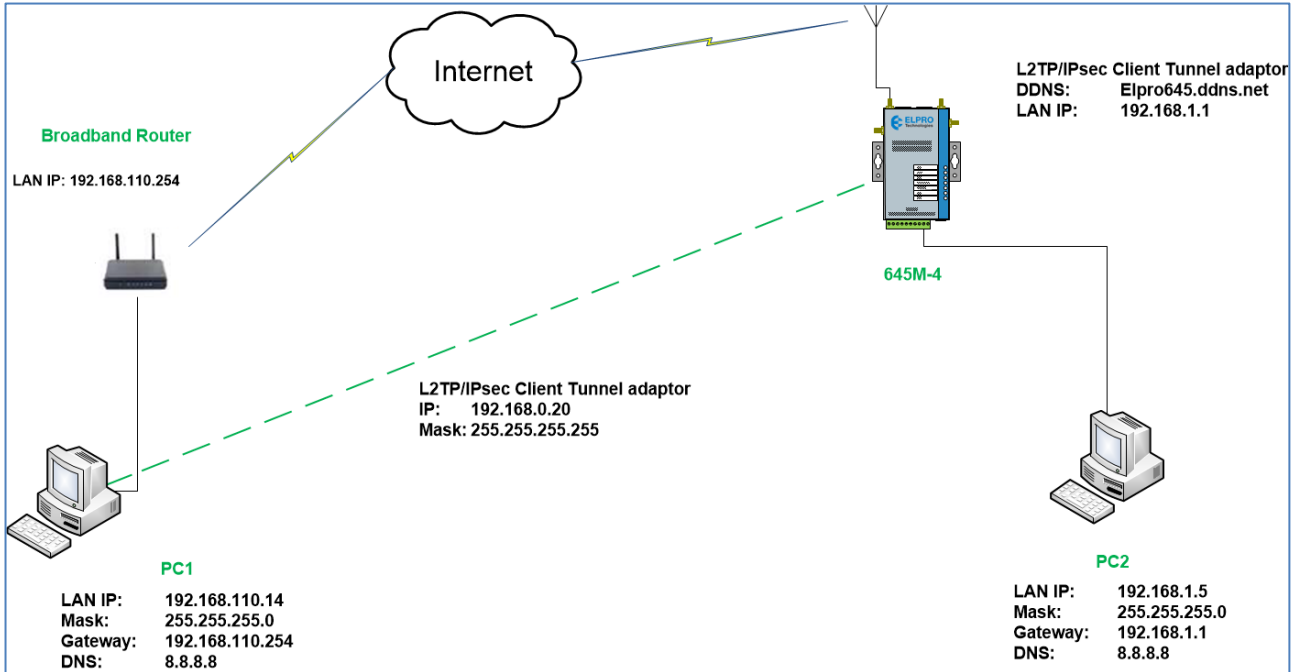


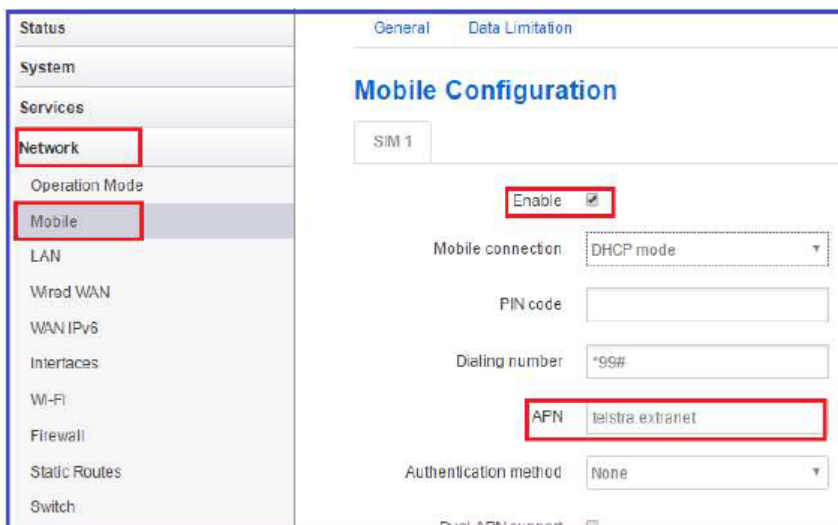
How to configure L2TP over IPsec on the Elpro 645M-4 Router

Network Topology:



To configure VPN L2TP over IPsec on the ELPRO 645M-4 router, please configure the router with the correct APN that will provide you with a Public WAN IP address, such as telstra.extranet for a Telstra Data SIM. You need to ask your carrier to activate your SIM card with a Public WAN IP.

1. Configure APN settings for a Public WAN IP.
For Telstra Data SIM, go to Network-> Mobile -> APN -> telstra.extranet.



2. Go to the Status Page to check the WAN IP address. The WAN IP address in this example is 120.157.59.141. Use this WAN IP address on the L2TP/IPSec client settings.

Mobile 1	
Cellular Status	Up
IP Address	120.157.59.141 255.255.255.252
DNS 1	10.4.149.70
DNS 2	10.4.130.164
Cell Modem	QUECTEL_EC25 (2C7C_0125)
IMEI/ESN	861585043890282
Sim Status	SIM Ready
Strength	 22 / 31, dBm : -71

3. Go to Services -> VPN -> IPSec-> and click on the Edit Button. Configure IPSec settings as shown below.

IPSec Instance: ipsec_base

Switch to advanced configuration [x](#)

Enable

Exchange mode: IKEv1-Main

Operation Level: Main

Authentication method: PSK Server

Remote VPN endpoint: Any

Local endpoint: Any

Local IKE identifier:

Remote IKE identifier:

Connection type: Transport

Preshared Keys:

Perfect Forward Secrecy: Enable

DPD action: None

DPD delay: 30 seconds

DPD timeout: 150 seconds

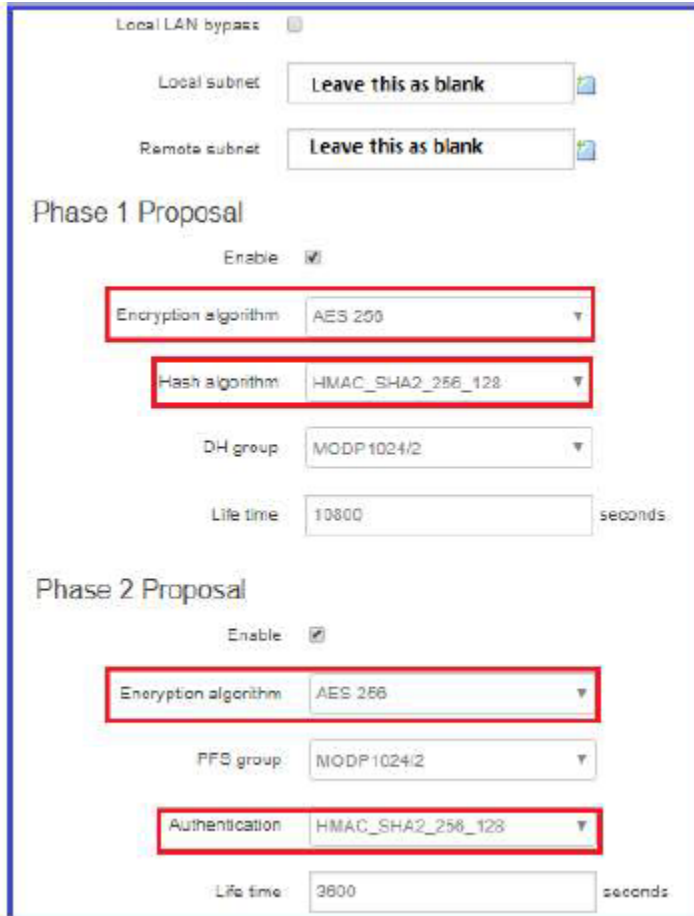
NAT Traversal: Enable

Local source ip:

Remote source ip:

Additional phase1:

Additional phase2:



Local LAN bypass

Local subnet: Leave this as blank

Remote subnet: Leave this as blank

Phase 1 Proposal

Enable:

Encryption algorithm: AES 256

Hash algorithm: HMAC_SHA2_256_128

DH group: MODP1024/2

Life time: 10800 seconds

Phase 2 Proposal

Enable:

Encryption algorithm: AES 256

PF5 group: MODP1024/2

Authentication: HMAC_SHA2_256_128

Life time: 3600 seconds

4. Click on "Save and Apply".
5. Go to Services -> VPN -> L2TP-> and click on "Edit". Configure the L2TP server as shown below.



L2TP Server Instance: L2tpd_server

Main Settings

Enable:

L2TP Local IP: 192.168.0.1

Remote IP range begin: 192.168.0.20

Remote IP range end: 192.168.0.30

DNS: 8.8.8.8

Length bit:

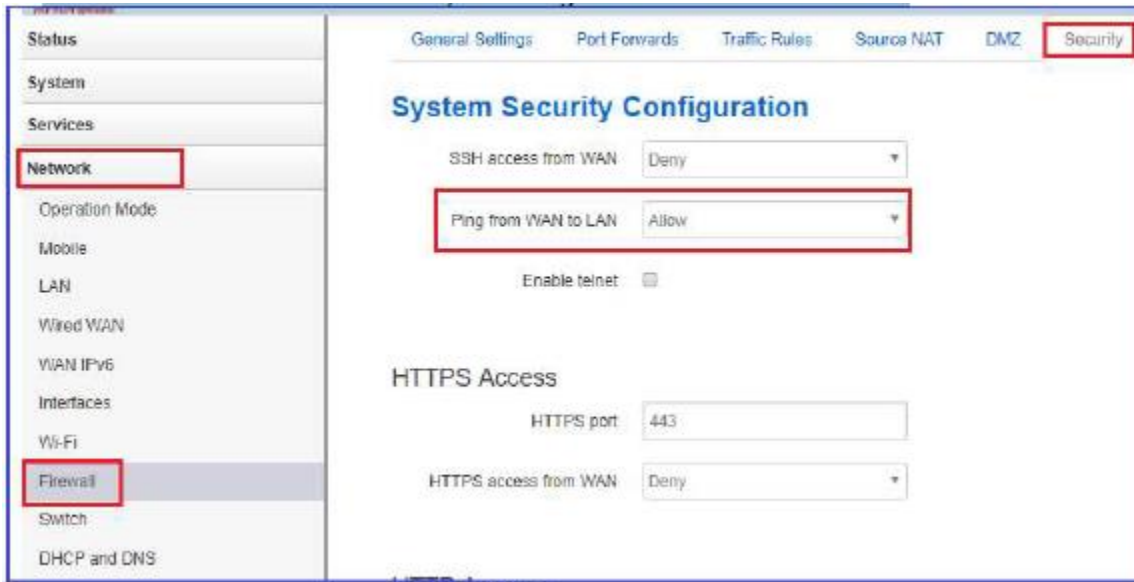
IPSec safef:

ARP Proxy:

Debug:

Username	Password	Address	Subnet
user	----		

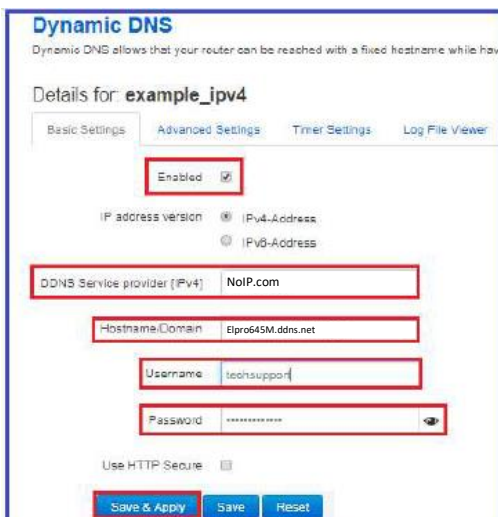
6. Allow “Ping from WAN to LAN” on the Firewall security page.
Go to Network -> Firewall -> Security. Set “Ping from WAN to LAN” to “Allow”.



7. Go to Network-> Firewall-> Traffic Rules. Enable “Allow-ALL-LAN-Ports”.

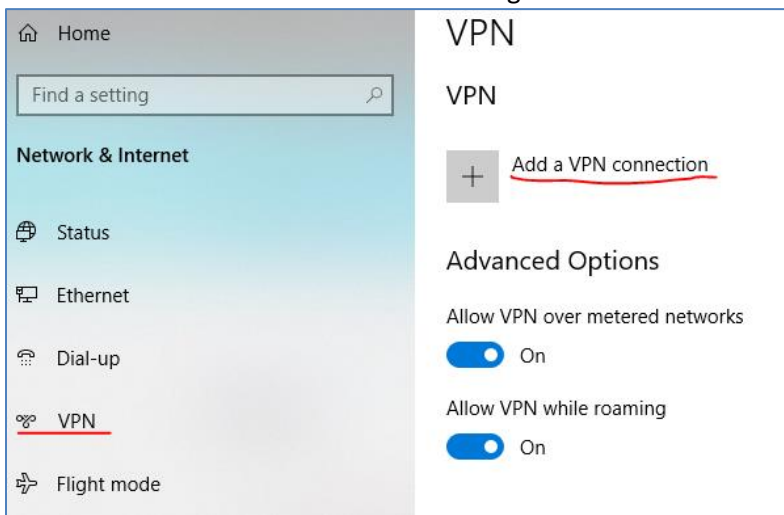


8. Configure DDNS settings on the router.
Go to Services -> DDNS -> click Edit on IPv4.

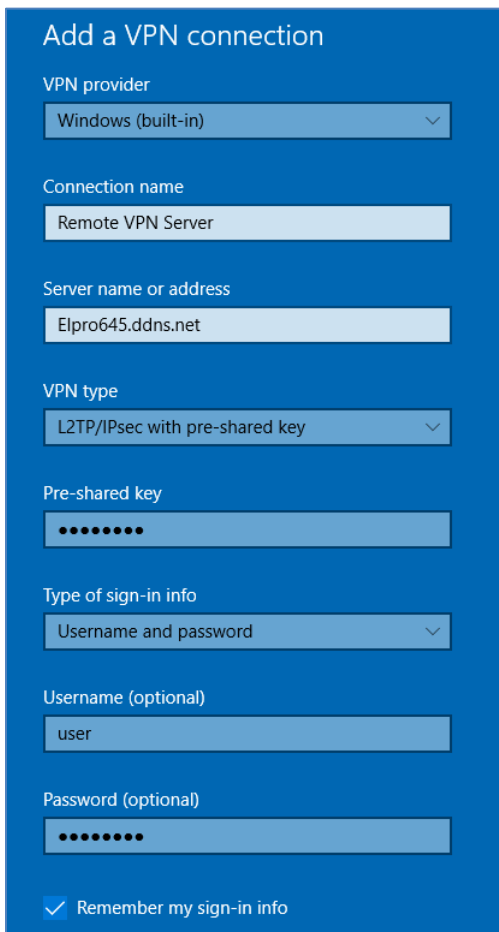


On your Windows PC

1. Go to Network and Internet Settings -> VPN -> Add a VPN connection.



2. Set VPN Settings as below and click on the Save button.



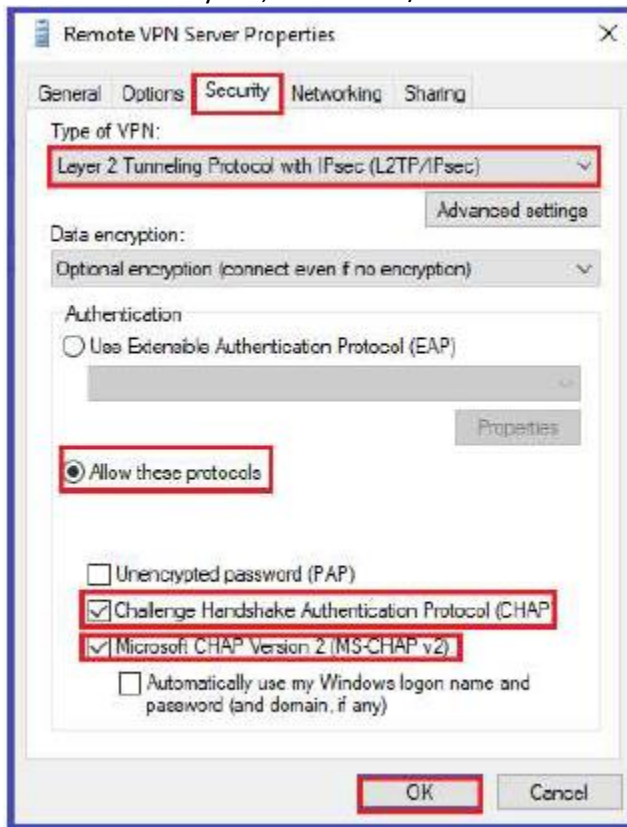
The screenshot shows the 'Add a VPN connection' dialog box. The fields are filled with the following information:

- VPN provider: Windows (built-in)
- Connection name: Remote VPN Server
- Server name or address: Elpro645.ddns.net
- VPN type: L2TP/IPsec with pre-shared key
- Pre-shared key: [Redacted]
- Type of sign-in info: Username and password
- Username (optional): user
- Password (optional): [Redacted]
- Remember my sign-in info

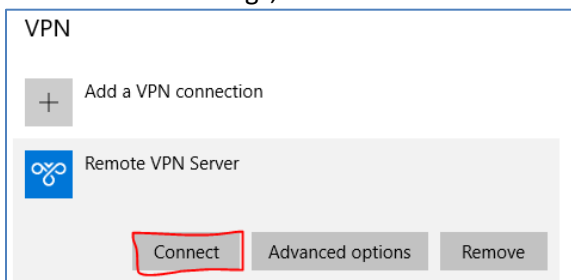
3. Go to control Panel -> Network and internet -> Network connections -> Right click on "Remote VPN Server" and click on Properties.



4. On the Security tab, select L2TP/IPSec. Enable “Allow these protocols (CHAP and MSCHAPv2)”.



5. On the VPN settings, click Connect on “Remote VPN Server”.



6. On the router GUI, go to Status -> VPN -> L2TP Status to check L2TP client.

L2TP Status		
L2TP clients		
Username	Local IP	Remote IP
user	192.168.0.1	192.168.0.20

7. Ping PC2 (192.168.1.5) behind the L2TP/IPSec server from PC1.

```
C:\Users\Ben>ping 192.168.1.5

Pinging 192.168.1.5 with 32 bytes of data:
Reply from 192.168.1.5: bytes=32 time=275ms TTL=127
Reply from 192.168.1.5: bytes=32 time=277ms TTL=127
Reply from 192.168.1.5: bytes=32 time=289ms TTL=127
Reply from 192.168.1.5: bytes=32 time=342ms TTL=127

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
    Approximate round trip times in milli-seconds:
        Minimum = 275ms, Maximum = 342ms, Average = 295ms
```

Amendment Register:

Issue No.	Date	Details of Amendment
1.0	1/7/20	Draft Issue