



Telkom VPN-Lite router setup
User Manual
Billion 400G

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Introduction

Welcome to the Telkom VPN Lite router setup user manual. In this manual you will receive information on how to setup the Telkom VPN Lite service on your Billion 400G using the setup utility, the router's graphical user interface (GUI) and Telnet commands (advanced user only).



- To ensure that the utility works correctly please temporarily disabled all software firewall applications. These applications may interfere with the processes needed to successfully complete the router setup. Examples of these applications/programs include: Norton, PC-Cillin, Bit Defender, McAfee.

Before you start



- This manual assumes that the Billion 400G is in its factory default state. Thus:
LAN IP = 10.0.0.2
- It is recommended to use the utility to setup VPN-Lite on your Billion 400G. The routers graphical user interface or manual setup method is to be used by experienced users only.
- Please ensure that your pc has DHCP enabled.

Register VPN-Lite service.

To enable you to configure the Telkom VPN-Lite service on your Billion Router you first need to register for the VPN-Lite service on the Telkom website (www.telkom.co.za).

On the VPN-Lite registration site you will be able to configure and manage your VPN-Lite sites as shown in the image below.

VPN Lite Main
The VPN Sites linked to your profile are listed below.

Summary

Customer:	Joe
Package Size:	VPNLite 10GB Plan
Monthly Usage:	34272 MB

What would you like to do?

Options

- :: Manage Sites
- :: View Usage
- :: eServices
- :: Help
- :: Downloads

VPN Sites

#	Site (Username)	Site Description	LAN Subnet	WAN IP
1	site10@evpn.neo.0008		10.0.10.0/24	172.29.1.10
2	site11@evpn.neo.0008		10.0.11.0/24	172.29.1.11
3	site12@evpn.neo.0008		10.0.12.0/24	172.29.1.12
4	site13@evpn.neo.0008		10.0.13.0/24	172.29.1.13
5	site14@evpn.neo.0008		10.0.14.0/24	172.29.1.14
6	site15@evpn.neo.0008		10.0.15.10/32	172.29.1.15
7	site16@evpn.neo.0008		10.0.16.0/24	172.29.1.16
8	site17@evpn.neo.0008		10.0.17.0/24	172.29.1.17
9	site18@evpn.neo.0008		10.0.18.0/24	172.29.1.18
10	site19@evpn.neo.0008		192.168.1.0/24	172.29.1.19
11	site1@evpn.neo.0008		10.0.1.0/24	172.29.1.1
12	site20@evpn.neo.0008		10.0.20.0/24	172.29.1.20

Here you will retrieve vital information like site Usernames and LAN Subnets and Site Password to configure the VPN-Lite sites. In the below setup sections you will be required to enter these values. Please ensure that you have all the correct information for each site before you start any of the setup sections mentioned in this document. Below is an image to show you what information on the VPN-Lite setup site needs to be retrieved to enable you to setup your VPN-Lite. You can find this screen in the Manage site Sites section.

Modify a Site

Site (Username)
site16@evpn.neo.0008

Site Description *
[Empty field]

LAN Subnet - Format: IP Address/Subnet Mask (8 - 32) *
10.0.16.0/24

WAN IP - Format: IP Address *
172.29.1.16

Password
[Empty field]

Confirm Password
[Empty field]

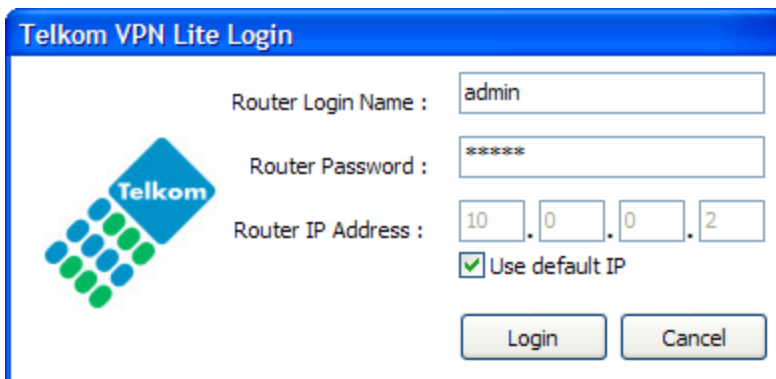
* Indicates mandatory fields

Cancel Modify

VPN-Lite Setup Using Windows Utility

You can download the VPN-Lite utility program from the VPN-Lite website by selecting the Download section. After you successfully downloaded the utility just run the file to start the setup process.

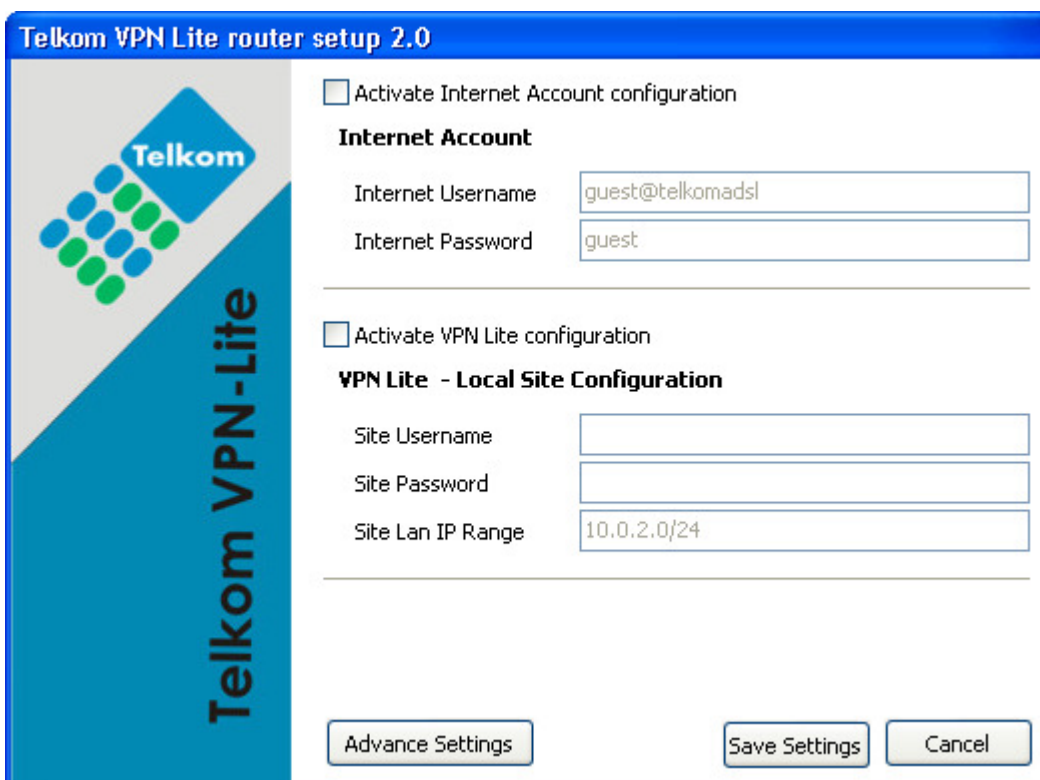
On start up you will be requested to provide login information to connect to the router. By default the router login name will be admin and the login password will be admin. The default IP address for the router is 10.0.0.2 but if this has changed unselect the Use default IP check box and enter the current IP address of your router.



The screenshot shows the 'Telkom VPN Lite Login' window. It features the Telkom logo on the left. The form contains the following fields and controls:

- Router Login Name :** A text box containing 'admin'.
- Router Password :** A text box containing '*****'.
- Router IP Address :** Four separate text boxes containing '10', '0', '0', and '2' respectively, representing the IP address 10.0.0.2.
- Use default IP :** A checked checkbox.
- Login** and **Cancel** buttons at the bottom.

After a successful login the following screen will appear. Here you can setup your Internet Account information, VPN Lite and with the advance settings you can change your DHCP settings.



The screenshot shows the 'Telkom VPN Lite router setup 2.0' window. It features the Telkom logo and the text 'Telkom VPN-Lite' on the left side. The configuration options are as follows:

- Activate Internet Account configuration :** An unchecked checkbox.
- Internet Account :**
 - Internet Username :** A text box containing 'guest@telkomadsl'.
 - Internet Password :** A text box containing 'guest'.
- Activate VPN Lite configuration :** An unchecked checkbox.
- VPN Lite - Local Site Configuration :**
 - Site Username :** An empty text box.
 - Site Password :** An empty text box.
 - Site Lan IP Range :** A text box containing '10.0.2.0/24'.
- Advance Settings**, **Save Settings**, and **Cancel** buttons at the bottom.

Internet Service Provider Account Setup

Select “Activate Internet Account configuration” tick box to set your Internet username and password. You can now enter your ISP username and password to connect to the internet. Your service provider will provide you with this information.

Activate Internet Account configuration

Internet Account

Internet Username	guest@telkomadsl
Internet Password	*****

VPN Lite – Local Site Configuration

Before you start with this section, please make sure you have registered on the VPN-Lite service website and that you have received your VPN-Lite account and IP information for the local site (*this will be one of your branches or offices where you will install the VPN-Lite service*). Please refer to the Before you start section in this document on page 4 for additional information.

To change these settings select “Activate VPN Lite configuration”.

Activate VPN Lite configuration

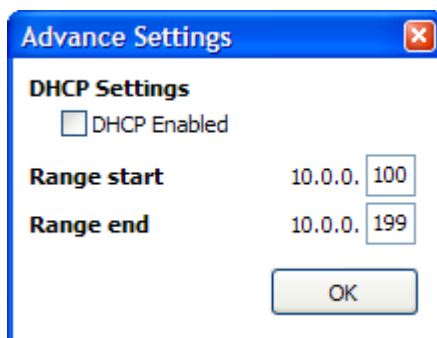
VPN Lite - Local Site Configuration

Site Username	site2@evpn.lite.0005
Site Password	*****
Site Lan IP Range	10.0.2.0/24

By using the information retrieved from the Telkom VPN-Lite setup website (see page 4) enter your site username, site password and site lan ip range using the IP slash notation as it appears on the Telkom VPN-Lite website.

Advance Settings

In the advance settings you can enable or disable the router’s DHCP settings. Please remember that if you disable the DHCP settings you will loose connection to your router after the settings have been updated, as the static IP address would have been changed to another IP range. You can also set your DHCP start and end range.



To save the settings press Save Settings and wait for the application to complete the setup process.

VPN-Lite Setup using your web browser

This section will guide you through the relative steps to setup you VPN-Lite service using the routers graphical user interface browser.

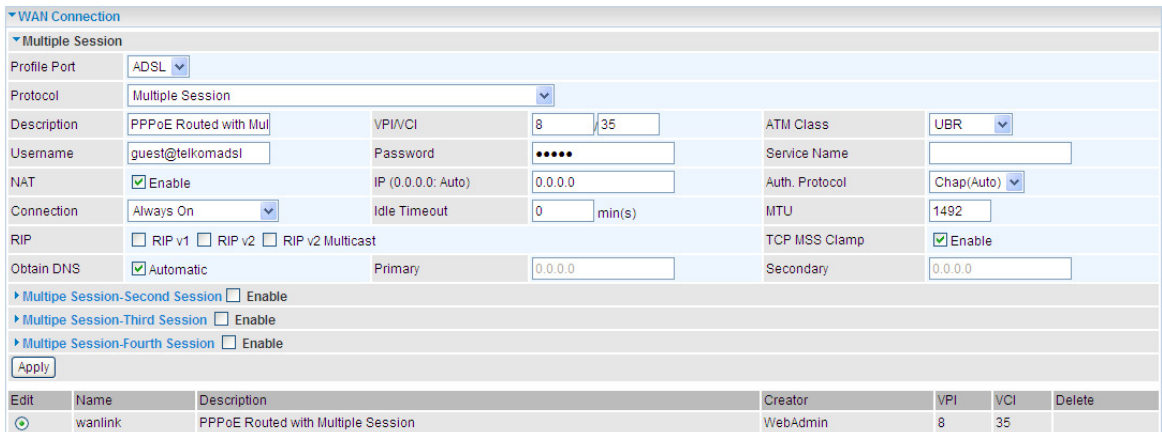
Connection to the router using your web browser

Open a web browser like Internet Explorer or Firefox. In the internet address bar type in http://10.0.0.2 and press enter. You will be prompted to supply a username and password. The user name is **admin** and the password is **admin**.



Setup your VPN-Lite

After the router’s graphical user interface was successfully loaded in your web browser select Advanced – Configuration – WAN – WAN Profile in the menu on the left of the screen. The following screen will appear on the right.



Click on “Multiple Session-Second Session” and check the enable tick next to “Multiple Session-Second Session”. The section will now expand as shown in next image.

Multiple Session-Second Session Enable

Description: Multiple Sessioh-Second Se ATM Class: UBR

Username: Password: Service Name:

NAT: Enable IP (0.0.0.0: Auto): 0.0.0.0 Auth. Protocol: Chap(Auto)

Connection: Always On Idle Timeout: 0 min(s) MTU: 1492

RIP: RIP v1 RIP v2 RIP v2 Multicast TCP MSS Clamp: Enable

Obtain DNS: Automatic Primary: 0.0.0.0 Secondary: 0.0.0.0

You will require you VPN-Lite site username and password that you retrieved from the Telkom VPN-Lite setup site. You can change the Description field to VPNLite, Disable the Nat setting and enter your VPN-Lite site Username and Password. Press Apply to save the settings.

Multiple Session-Second Session Enable

Description: VPN-Lite ATM Class: UBR

Username: site1@evpn.lite.0005 Password: Password Service Name:

NAT: Enable IP (0.0.0.0: Auto): 0.0.0.0 Auth. Protocol: Chap(Auto)

Connection: Always On Idle Timeout: 0 min(s) MTU: 1492

RIP: RIP v1 RIP v2 RIP v2 Multicast TCP MSS Clamp: Enable

Obtain DNS: Automatic Primary: 0.0.0.0 Secondary: 0.0.0.0

Multiple Session-Third Session Enable

Multiple Session-Fourth Session Enable

Apply

The screen will reload with “Multiple Session-Second Session” as enabled.

WAN Connection

Multiple Session

Profile Port: ADSL

Protocol: Multiple Session

Description: PPPoE Routed with Mul VPI/VCI: 8 / 35 ATM Class: UBR

Username: guest@telkomadsl Password: Password Service Name:

NAT: Enable IP (0.0.0.0: Auto): 0.0.0.0 Auth. Protocol: Chap(Auto)

Connection: Always On Idle Timeout: 0 min(s) MTU: 1492

RIP: RIP v1 RIP v2 RIP v2 Multicast TCP MSS Clamp: Enable

Obtain DNS: Automatic Primary: 0.0.0.0 Secondary: 0.0.0.0

Multiple Session-Second Session Enable

Multiple Session-Third Session Enable

Multiple Session-Fourth Session Enable

Apply

Edit	Name	Description	Creator	VPI	VCI	Delete
	wanlink	PPPoE Routed with Multiple Session	WebAdmin	8	35	

In the menu in the left press Configuration – Advanced – Static Route the following screen will appear in the right.

Static Routing

Destination: Netmask: Gateway: Interface: Cost: 1

Add Edit / Delete

Edit	Valid	Destination	Netmask	Gateway/Interface	Delete
------	-------	-------------	---------	-------------------	--------

You need to setup 3 Static Routes for your VPN-Lite service. On the current screen type in 10.0.0.0 in “Destination” 255.0.0.0 in Netmask and select MPPP-0 as a Interface to add the first Static Route as shown below.

Static Routing

Destination: 10.0.0.0 Netmask: 255.0.0.0 Gateway: Interface: MPPP-0 Cost: 1

Add Edit / Delete

Edit	Valid	Destination	Netmask	Gateway/Interface	Delete
------	-------	-------------	---------	-------------------	--------

Now press Add to add the first Static Route. The following screen will appear with the first Static Route in a list.

Static Routing

Static Routing

Destination Netmask Gateway Interface Cost

Edit	Valid	Destination	Netmask	Gateway/Interface	Delete
<input type="radio"/>	<input checked="" type="checkbox"/>	10.0.0.0	255.0.0.0	0.0.0.0/ MPPP-0	<input type="radio"/>

Repeat the process as shown for the next to Static Routes in the following diagram.

Destination	Netmask	Interface
172.16.0.0	255.240.0.0	MPPP-0
192.168.0.0	255.255.0.0	MPPP-0

Configure your router IP address

In the menu on the left select Configuration – LAN – Ethernet. The following screen will appear on the right.

Ethernet

Primary IP Address

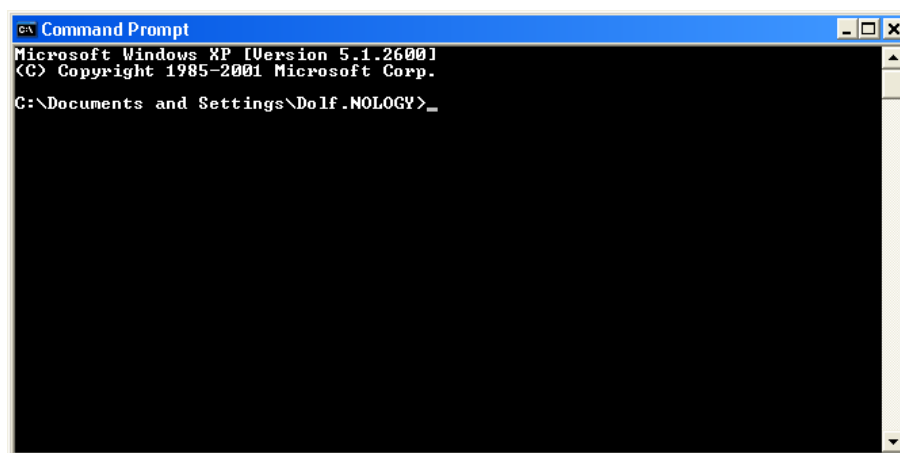
IP Address

Subnet Mask

RIP RIP v1 RIP v2 RIP v2 Multicast

On the Telkom VPN-Lite setup site you would have received a LAN Subnet address that could look like this 10.0.1.0/24. Your router's LAN IP would then be 10.0.1.2 and your Subnet Mask will be 255.255.255.0. Change the IP Address and the Subnet Mask on the screen and press the Apply button.

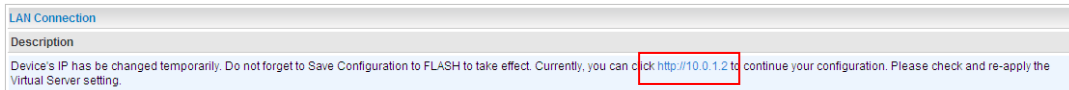
Your routers IP address is now changed to the new IP entered in the previous step. To ensure that your PC can still communicate with your Billion router on it's new LAN IP address, you should release and renew your PC's IP address. In XP or Vista press the Start button. Select All Programs\Accessories\Command Prompt. A DOS prompt screen will appear



Type the following and press enter: ipconfig /release
 You should now wait for your IP to be released.
 Then type: ipconfig /renew.

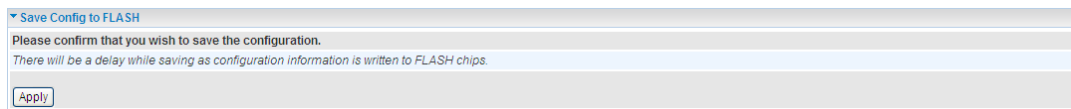
Your PC's IP will now be renewed and within the new range to enable you to connect to your Billion router's new LAN IP address. You can now close the Command Prompt screen.

To reconnect to your router select the link with the new IP address displayed in your Internet Browser.



Your Internet Browser will now reconnect to your Billion router.

Now in the bottom right corner press the SAVE CONFIG button. The following screen will appear.



Press the Apply button. Your settings will now be saved and you can start to use your VPN-Lite service.

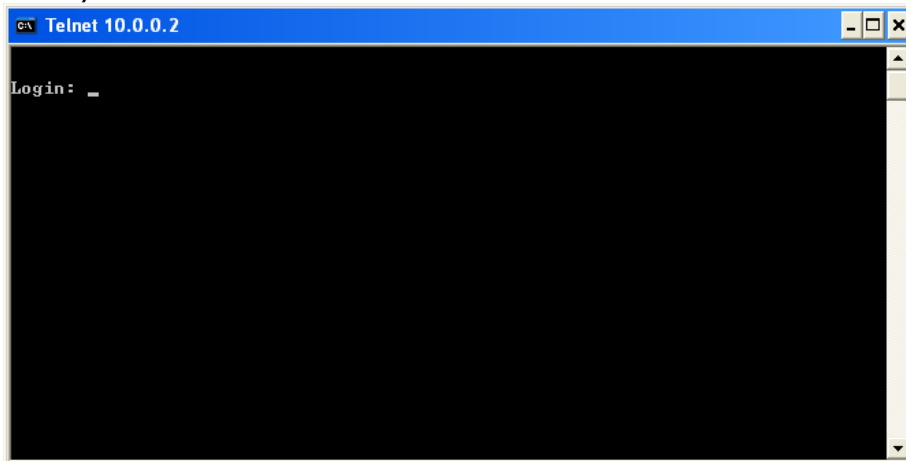
VPN-Lite Manual Setup Using Telnet

The following section will guide you to setup your VPN-Lite service using the Telnet command line interface. Before you start please refer to the Before you start section in this document see page 4.

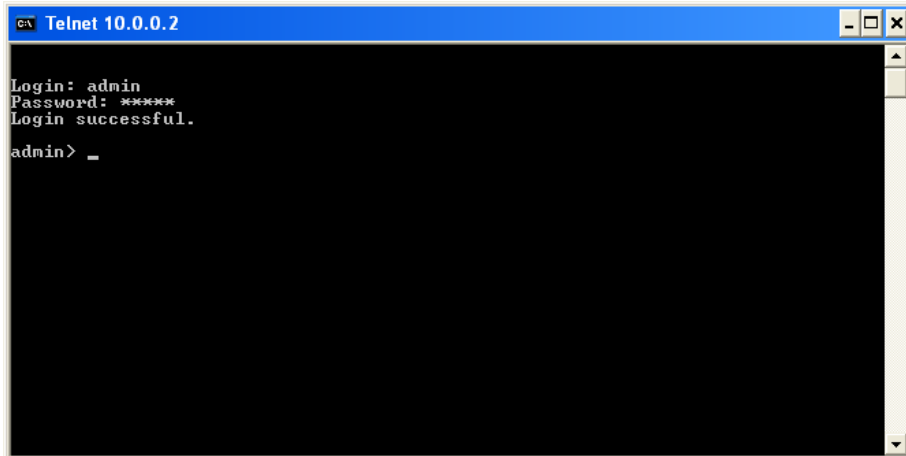
1. IP Management:

- a. **Telnet to the Billion 400G** using the router's LAN IP address (default = 10.0.0.2) using this command: "telnet 10.0.0.2".

This will access the Billion 400G's CLI interface allowing you to send setup commands. On successful connection, you will be prompted for a login and password (defaults: admin & admin). See screenshot below.



Enter your administration login & password. On successful authentication you will arrive at the admin prompt. (See screenshot below.)



- b. **Setting the DHCP Server:** This task is optional. If you want your Billion 400G to act as a DHCP server – distributing IPs to your LAN PCs – please perform this step.

Set the router's DHCP range to the correct target range using this command:

Syntax: `dhcpserver subnet 1 add iprange <Target range network address> <Target range subnet>`

Example: `dhcpserver subnet 1 add iprange 1 10.0.17.0 255.255.255.0`

This router will now distribute IPs to connected PCs from the range 10.0.17.1 -> 10.0.17.254

Note: Alternatively, if you prefer to use static IPs on your network and you wish to disable the router's DHCP server feature, please run this command: `dhcpserver disable`

- c. **Set your router's LAN IP address:** Please run the following command to set your router's LAN IP address to within the correct target IP range. (Note that if using DHCP server, this LAN IP must be in that same IP range).

Note that your telnet session will become unresponsive after you execute the command and will eventually terminate. This is due to the router's altered LAN IP that was originally used to setup the Telnet connection, but has now been changed.

Syntax: `ip set interface iplan ipaddress <LAN IP> <Subnet>`
Example: `ip set interface iplan ipaddress 10.0.17.2 255.255.255.0`

Please see the correct LAN IP target range for your local site indicated on the VPN-Lite web page screen shot below.

The screenshot shows a web form titled "Modify a Site". The form contains several input fields:

- Site (Username):** site17@evpn.neo.0008
- Site Description ***: (empty)
- LAN Subnet - Format: IP Address/Subnet Mask (8 - 32) ***: 10.0.17.0/24 (This field is highlighted with a red border in the original image)
- WAN IP - Format: IP Address ***: 172.29.1.17
- Password**: (empty)
- Confirm Password**: (empty)

 At the bottom, there is a note: "* Indicates mandatory fields" and two buttons: "Cancel" and "Modify".

Note that the router uses the subnet syntax instead of the slash notation (/24) used to display the LAN IP range on the website. Use the table below to translate the slash notation to the subnet mask syntax.

255.128.0.0 (/9)	255.255.240.0 (/20)
255.192.0.0 (/10)	255.255.248.0 (/21)
255.224.0.0 (/11)	255.255.252.0 (/22)
255.240.0.0 (/12)	255.255.254.0 (/23)
255.248.0.0 (/13)	255.255.255.0 (/24)
255.252.0.0 (/14)	255.255.255.128 (/25)
255.254.0.0 (/15)	255.255.255.192 (/26)
255.255.0.0 (/16)	255.255.255.224 (/27)
255.255.128.0 (/17)	255.255.255.240 (/28)
255.255.192.0 (/18)	255.255.255.248 (/29)
255.255.224.0 (/19)	255.255.255.252 (/30)

- d. **Setting your PCs IP address:** Your router's LAN IP has now been altered but your PC's IP is probably still in the old range – thus making a connection impossible. Please make sure that your PCs IP is updated to the new range, either by DHCP or setting it statically.

Once your PC's IP is again within the same range as your router's LAN IP, continue with the following steps.

2. Setting up the VPN-Lite solution:

- e. **Telnet to the Billion 400G:** Please repeat step 1a but this time with the router's new updated LAN IP. Once you received the "admin>" prompt, please continue with the next steps.
- f. **Running the script:** The script below sets up the VPN-Lite service on your Billion 400G. Please re-type or paste each of these commands into the telnet session that has been opened to the router in step 2a above (while substituting the <angle brackets>).



- Actual commands that need to be run on the telnet session are indicated in **blue**.
- Please note that bold words enclosed with <angle brackets> are user parameters and have to be provided by yourself. Make sure that you substitute all <angle brackets> with your own user specific parameters, before you start executing the script below.
- Please make sure that all commands are run successfully. It is not recommended to copy and paste the whole script at once as possible telnet buffer limitations might cause certain commands not to be pasted correctly.
- Words following "Comment:" are comments to the user, and not valid commands.

Comment: Remove current connection:

ip delete interface ipwan

Comment: The above command will generate some warnings/errors – this is normal.
transports delete wanlink

Comment: Setup bridge transport and interface:

rfc1483 add transport @wanlink a1 8 35 llc bridged
bridge add interface ipwan
bridge attach ipwan @wanlink

Comment: Setup Internet Connection:

pppoe add transport wanlink dialout eth 1 pppoe
pppoe set transport wanlink username <ISP account username>
pppoe set transport wanlink password <ISP account password>
pppoe set transport wanlink createroute enabled
pppoe set transport wanlink autoconnect disabled
pppoe set transport wanlink idletimeout 0
ip add interface ipwan
ip attach ipwan wanlink

Comment: Setup VPN-Lite Connection

pppoe add transport wanlink2 dialout eth 2 pppoe
pppoe set transport wanlink2 username <VPN-Lite Local site account username>
pppoe set transport wanlink2 password <VPN-Lite Local site account password>
pppoe set transport wanlink2 createroute disabled
pppoe set transport wanlink2 autoconnect disabled
pppoe set transport wanlink2 idletimeout 0
pppoe set transport wanlink2 discoverdns primary disabled
pppoe set transport wanlink2 discoverdns secondary disabled
ip add interface ipwan2

ip attach ipwan2 wanlink2

Comment: Add NATting for Internet Connection

security add interface ipwan external
nat enable ipwan ipwan internal

Comment: Add static routes to private IP ranges facilitating communication with remote VPN-Lite sites:

ip add route vpnlite1 10.0.0.0 255.0.0.0 interface ipwan2
ip add route vpnlite2 172.16.0.0 255.240.0.0 interface ipwan2
ip add route vpnlite3 192.168.0.0 255.255.0.0 interface ipwan2

Comment: Save configuration and restart device:

system config save
system restart

- g. After your Billion 400G has rebooted, the VPN-Lite solution will be setup and ready for use.**

Firmware Upgrade

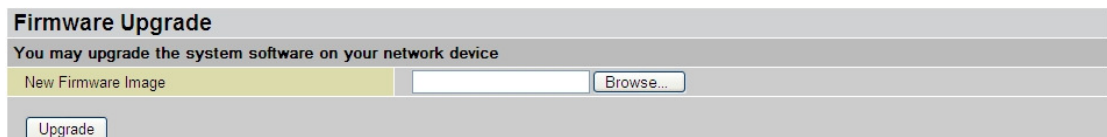
Connect to your router

Open a web browser like Internet Explorer or Firefox. In the address bar type in <http://10.0.0.2> and press enter. You will be prompted to supply a username and password to logon to the router. User name = admin Password = admin.



Firmware Upgrade

In the left menu select Configuration – System – Firmware Upgrade. The following screen will appear on the right.



Press the Browse button to select the firmware file and then press Upgrade to start the firmware upgrade process. A progress screen will give indication on the progress of the upgrade do not switch off the router or disconnect any cables at this stage.

On completion of the upgrade you will be prompted to restart the router as shown below. If you select Current Settings your router will restart with your current settings on the new firmware. If you select Factory Default Settings your router will restart and all your current settings will be lost. Select one of the two options and press the Restart button to apply the new firmware update.

