D-Link
Building Networks for People

THEGREENBOW

## D-Link And TheGreenBow Solution

# Netdefend IPS/UTM Firewall Application Notes

Version 1.01
(24 / 10 / 2009)

## Revision History

| Date | Rev. | Description | Editor |
|---|---|---|---|
| 24/04/2009 | 1.0 | **Interoperability Compliance Testing Negotiate mode for Phase1 and Phase2 using TheGreenBow VPN Client and D-Link product's DFL-800.** | John Yoong |
| 24/10/2009 | 1.01 | **Changing DFL-800 firmware from 2.20.00 to 2.26.00.06 and TheGreenBow VPN Client firmware 4.60.00 to 4.61.003 and edit TheGreenBow client picture for "PFS" setting.** | John Yoong |

# 1. Introduction

The objective of this document is to provide a guide describing how to configure the devices to achieve the same environment as show at the network topology.

Users of this document are expected to already possess basic knowledge of D-Link devices and TheGreenBow VPN program, and are familiar with how to perform basic configurations. Only important configurations, such as those pertaining to interfacing and integrating, will be described in this document.

For purpose of reference, configuration files for each device are available for download.

# 2. Audience

This document is intended for project engineers or end users that need to implement DFL series and TheGreenBow software at the sites.

# 3. Objective

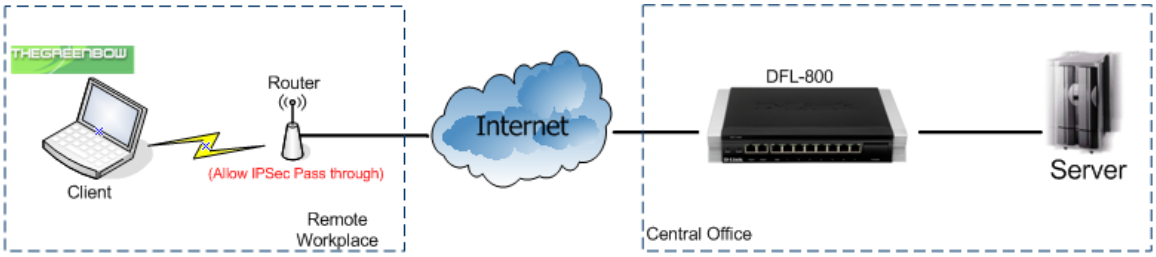
This topology consist the scenarios that integrates using TheGreenBow VPN program and D-Link Firewall and demonstrate integrations and network solutions to OBUs, and in addition, to Partners and Customers from D-Link International.

# 4. List of Equipment and Software

The table below shows the devices information.

| Device No. | Device Name | Device Model | Firmware |
|---|---|---|---|
| 1 | TheGreenBow_VPN_Client | - | 4.61.003 |
| 2 | Netdefend IPS firewall | DFL-800 | 2.26.00.06-12649 |

## 5. Network Diagram

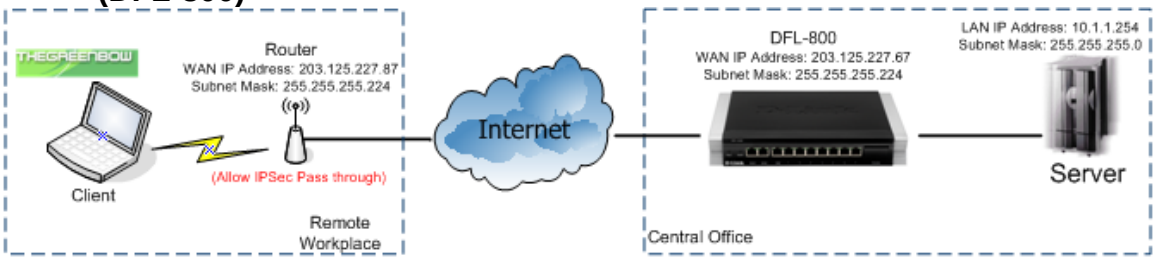



*Note: Router is set to allow IPSec pass through.*

## 6. Configurations

In this document, we will only describe the main configurations for this Scenario. The configurations setting for all the D-Link products will not be described here and for more detail about the product you can download their user guide.

### 6.1 TheGreenBow VPN client and D-Link security solutions (DFL-800)




In this scenario the user can connect back to the headquarter database by using TheGreenBow VPN client tunneling to DFL-800.

All configurations are based on DFL-800 (F/W: **2.26.00.06-12649**) and TheGreenBow VPN Client (F/W: **4.61.003**)

The steps in this configuration are:

- **Setup DFL-800 for VPN tunneling**
  - **Setup Pre-shared Key**
  - **Phase 1 and Phase 2 algorithms setup**
  - **Setting up IPSec-Tunnel**
  - **Setup IP Rules**

- **Setup TheGreenBow VPN client**
  - **Setup Phase 1**
  - **Setup Phase 2**

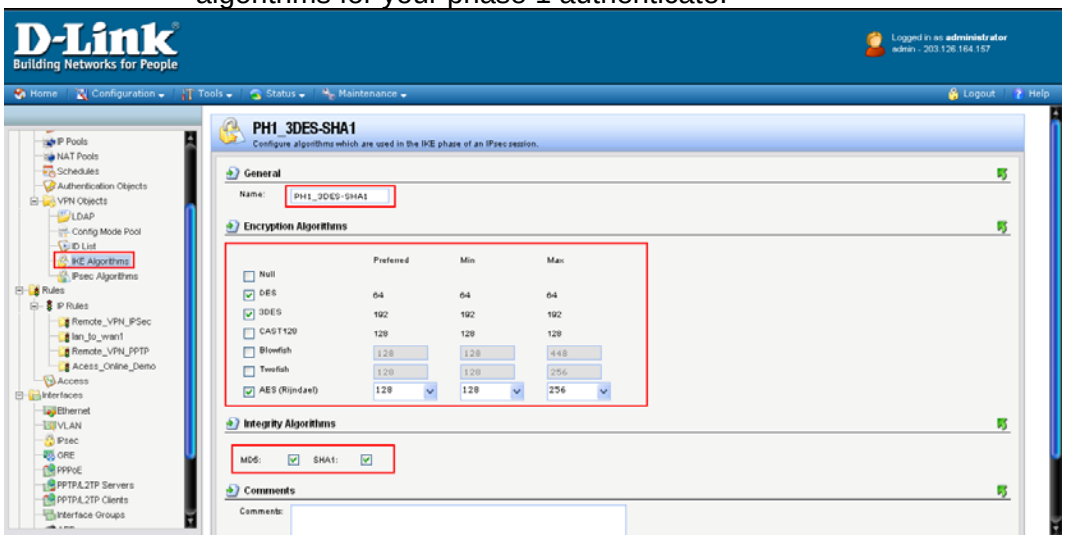
## 6.1.1) Setup DFL-800 for VPN tunneling

### 6.1.1.1) Setup Pre-Shared Key

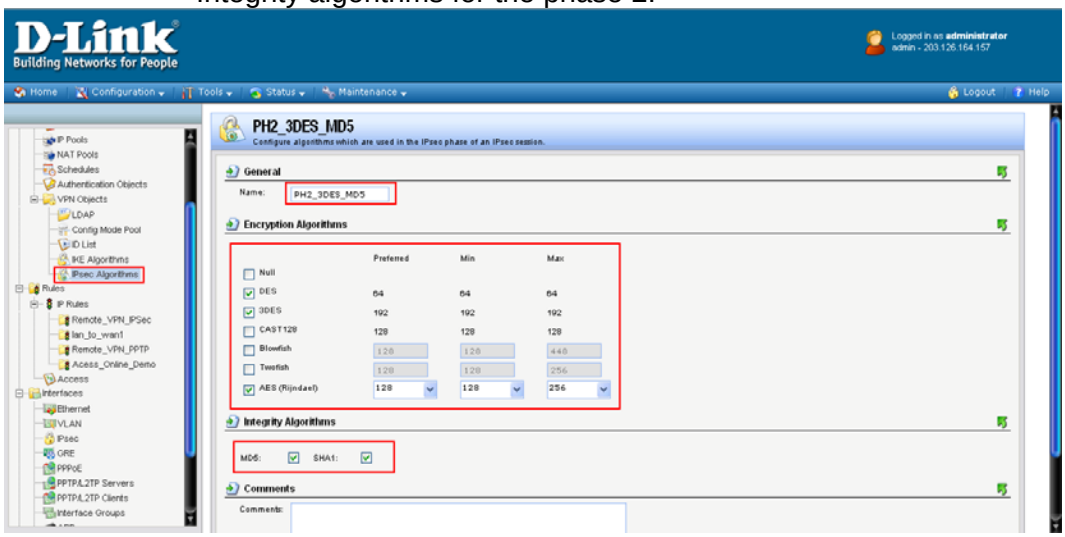
**1)** Login to the DFL-800 and click "**Authenticate Objects**" and add a new "**Pre-shared Key**" and fill in the passphrase and name.


### 6.1.1.2) Phase 1 and Phase 2 algorithms setup

**1)** At the "**IKE Algorithms**", select the Encryption and Integrity algorithms for your phase 1 authenticate.

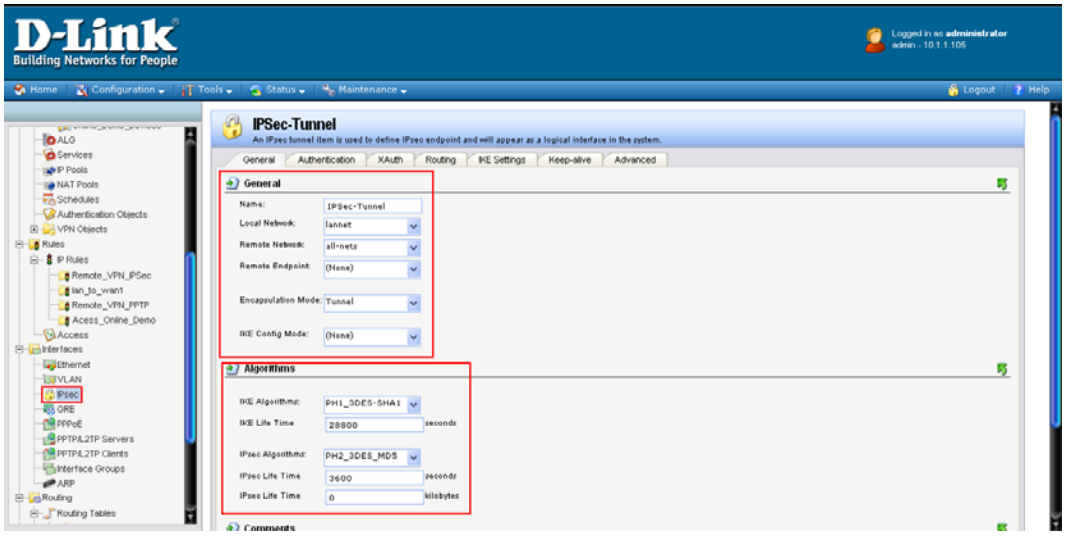


2) Next is the "**IPSec Algorithms**", select the Encryption and Integrity algorithms for the phase 2.

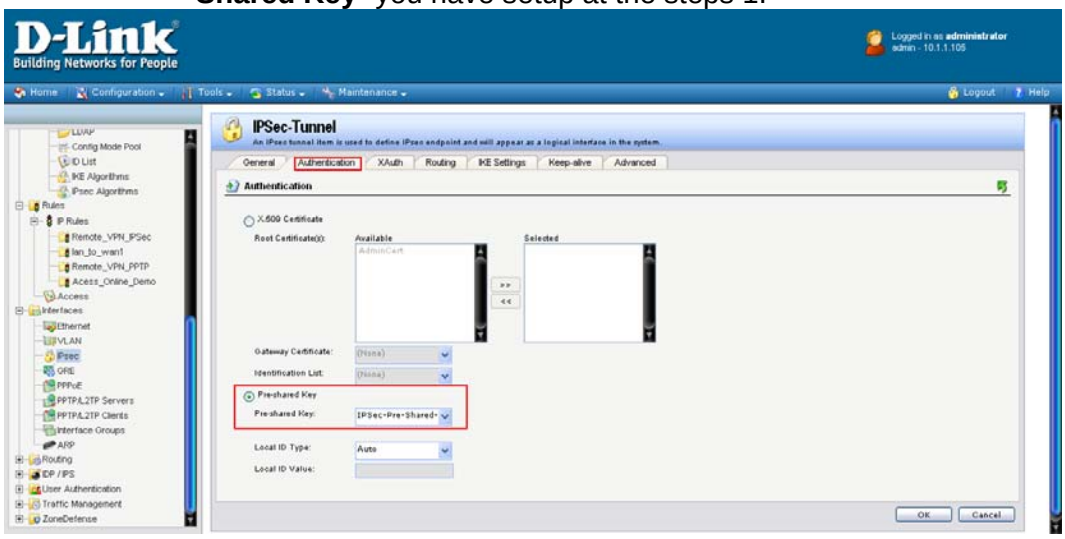



## 6.1.1.3) Setting up IPSec-Tunnel

1) After we finish setting up the algorithms, next we will need to create the "**IPSec-Tunnel**" as show below.

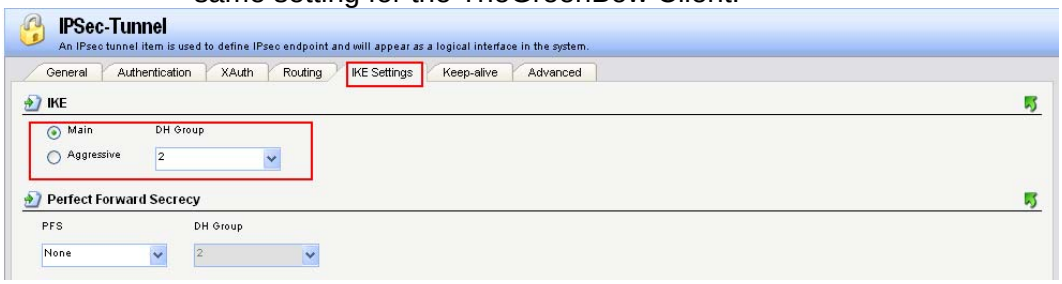


**2)** Next, click on the "**Authentication**" tab and select the "**Pre-Shared Key**" you have setup at the steps 1.




**3)** After selecting the Pre-Shared Key, next is to enable the "**Dynamically add route**" at the routing tab.

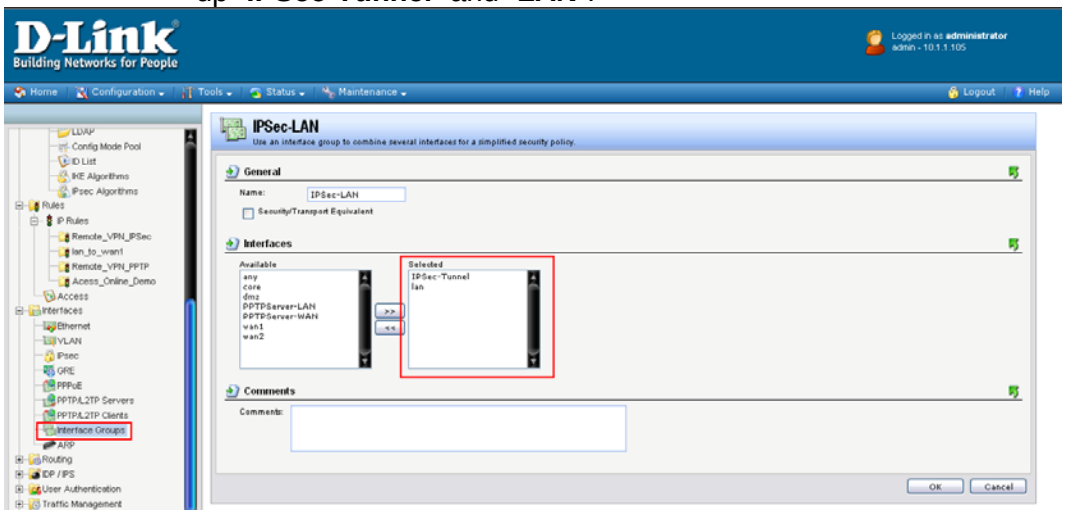

**4)** Last step is to make sure the DH Group at the IKE setting is the same setting for the TheGreenBow Client.



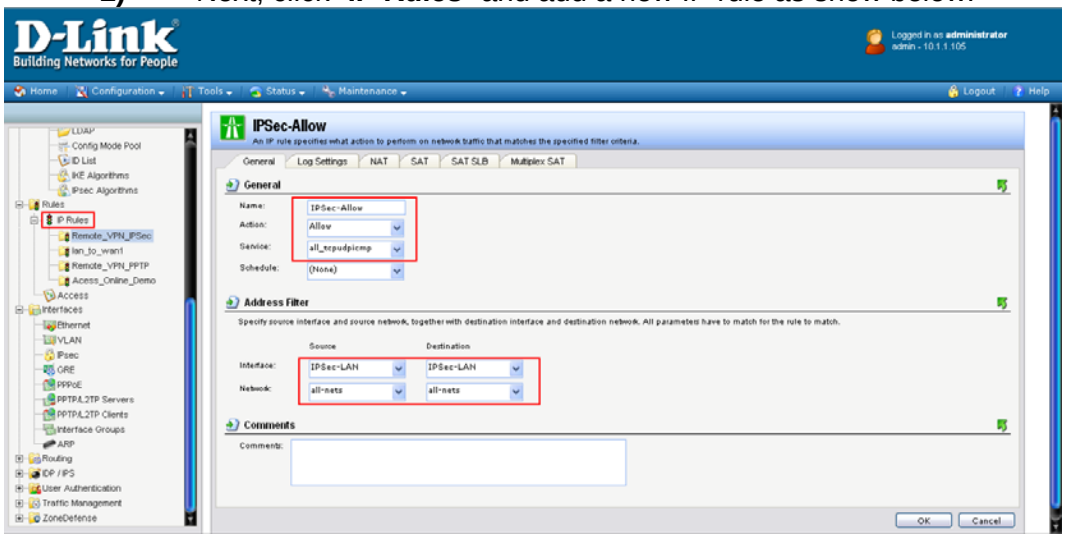
### 6.1.1.4) Setup IP Rules

Now is to setup the IP Rules so there the DFL-800 knows where to direct all the traffic to.

**1)** First add a new interface group name "**IPSec-LAN**" by grouping up "**IPSec-Tunnel**" and "**LAN**".



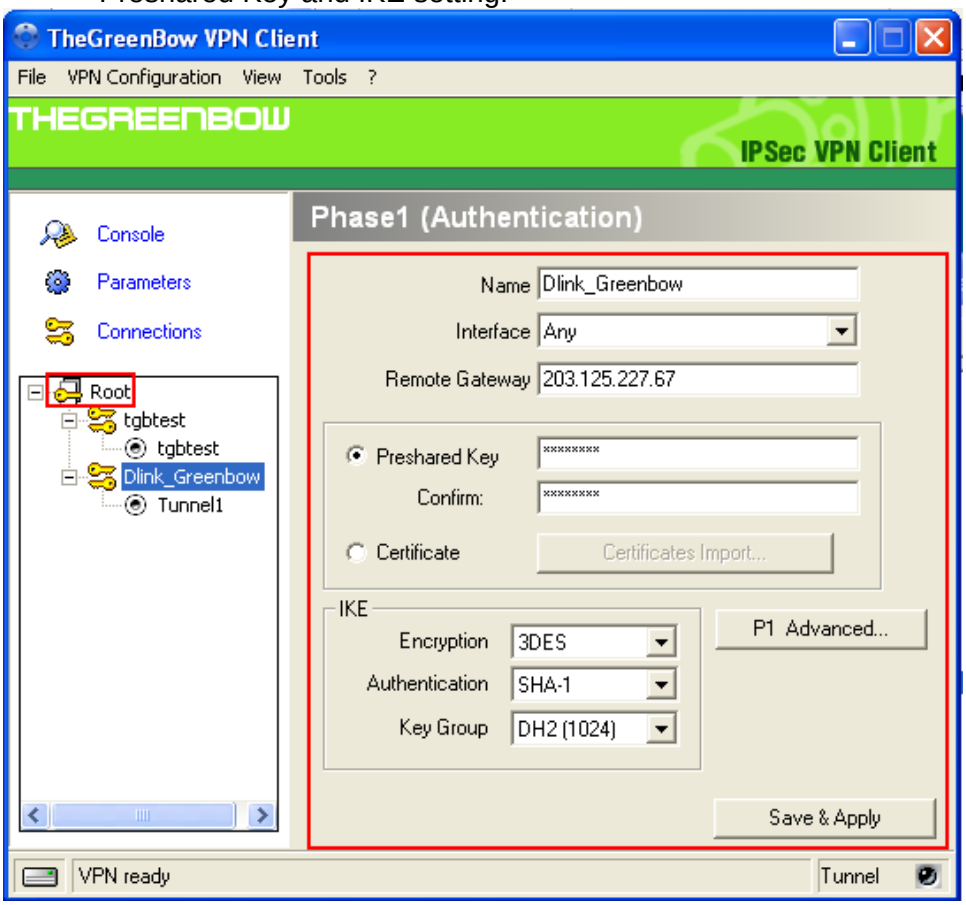

**2)** Next, click "**IP Rules**" and add a new IP rule as show below.



## 6.1.2) Setup TheGreenBow VPN Client

### 6.1.2.1) Setup Phase 1

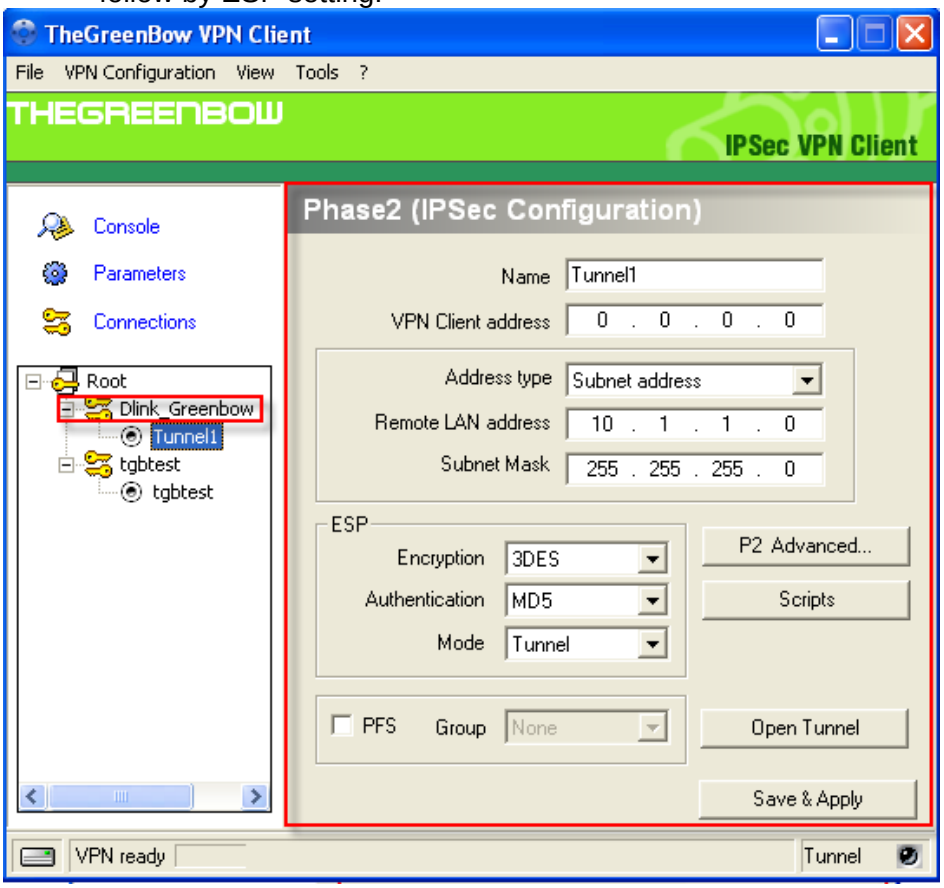
**1)** Right click on the "**Root**" to add a new "**Phase1**", next fill in the IP address for this VPN client and Remote gateway IP follow by Preshared Key and IKE setting.




*Note: the Preshared Key and IKE must be the same setting set in the DFL-800.*

### 6.1.2.2) Setup Phase 2

**1)** Right click on the "**Phase1**" to add a new "**Phase2**", next fill in the VPN Client address for this VPN client and Remote gateway IP follow by ESP setting.




*Note: the ESP Encryption and Authentication setting must be the same in the DFL-800 IPSec-Tunnel.*

# 7. Interoperability Compliance Testing

## 7.1) General Test Approach

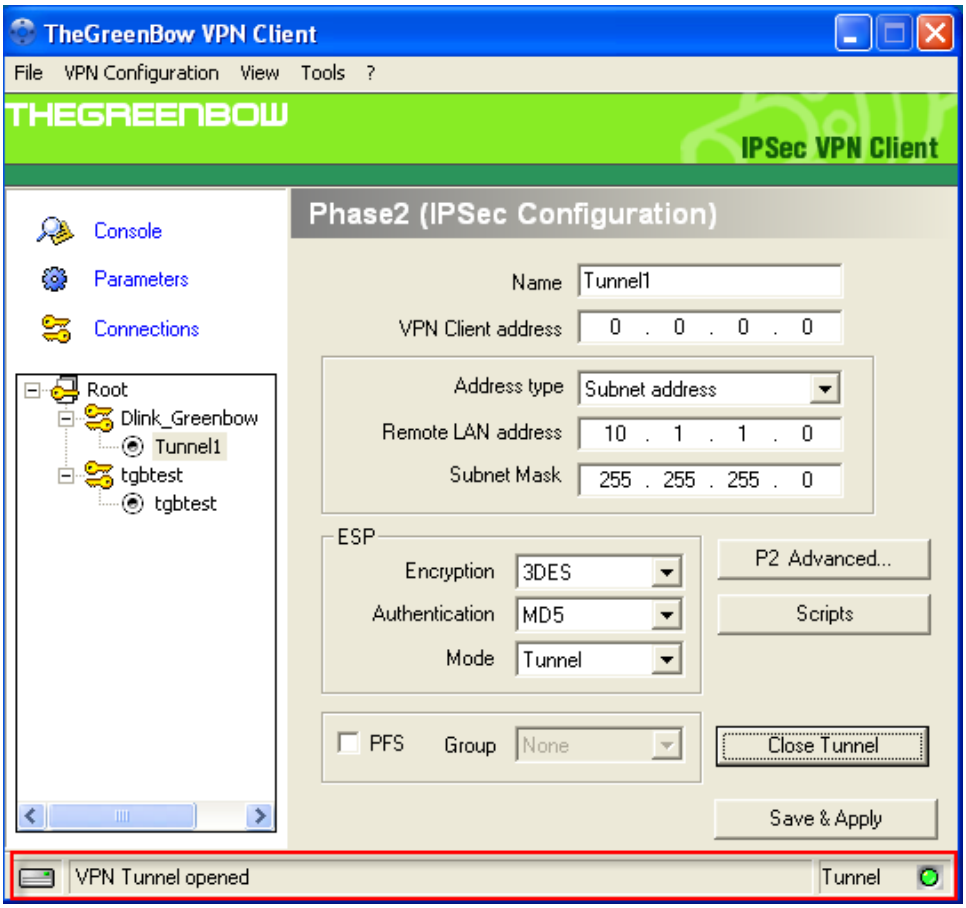
**a.** Open the VPN tunnel using different Negotiate Mode in phase 1 and phase 2:

| Series Negotiate Mode | |
|---|---|
| Phase 1 | Phase 2 |
| AES-SHA | AES-SHA |
| AES-MD5 | AES-SHA |
| 3DES-MD5 | AES-SHA |
| 3DES-SHA | AES-SHA |
| DES-MD5 | AES-SHA |
| DES-SHA | AES-SHA |
| AES-SHA | AES-MD5 |
| AES-MD5 | AES-MD5 |
| 3DES-MD5 | AES-MD5 |
| 3DES-SHA | AES-MD5 |
| DES-MD5 | AES-MD5 |
| DES-SHA | AES-MD5 |
| AES-SHA | 3DES-SHA |
| AES-MD5 | 3DES-SHA |
| 3DES-MD5 | 3DES-SHA |
| 3DES-SHA | 3DES-SHA |
| DES-MD5 | 3DES-SHA |
| DES-SHA | 3DES-SHA |
| AES-SHA | 3DES-MD5 |
| AES-MD5 | 3DES-MD5 |
| 3DES-MD5 | 3DES-MD5 |
| 3DES-SHA | 3DES-MD5 |
| DES-MD5 | 3DES-MD5 |
| DES-SHA | 3DES-MD5 |
| AES-SHA | DES-SHA |
| AES-MD5 | DES-SHA |

| | |
|---|---|
| 3DES-MD5 | DES-SHA |
| 3DES-SHA | DES-SHA |
| DES-MD5 | DES-SHA |
| DES-SHA | DES-SHA |
| AES-SHA | DES-MD5 |
| AES-MD5 | DES-MD5 |
| 3DES-MD5 | DES-MD5 |
| 3DES-SHA | DES-MD5 |
| DES-MD5 | DES-MD5 |
| DES-SHA | DES-MD5 |

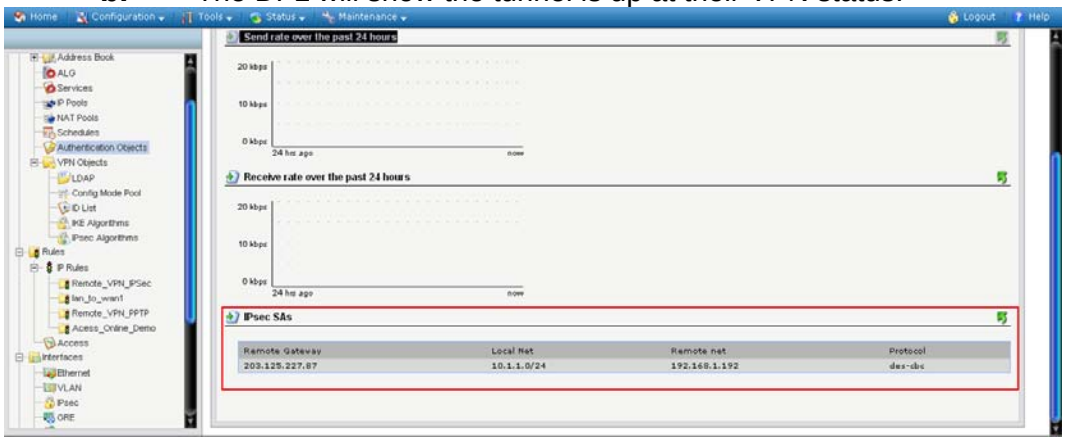
## 7.2) Test Result

**a.** The VPN tunnel will be open at any negotiate mode set in Phase 1 and Phase 2.



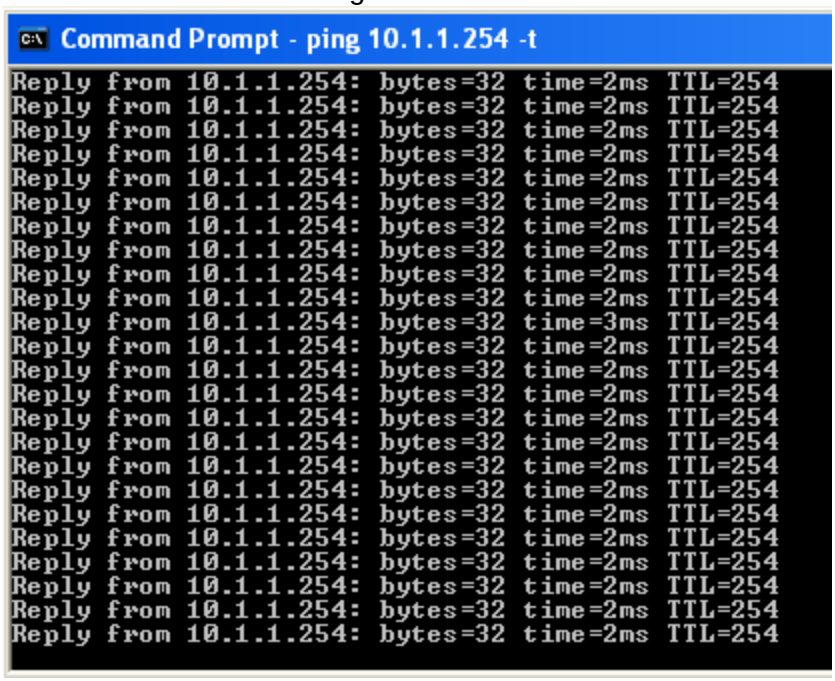
TheGreenBow VPN Client

**b.** The DFL will show the tunnel is up at their VPN status.



**DFL-800 IPSec**

**b.** Client is able to Ping to the remote network.



## 8. Conclusion

The Application Notes demonstrate how D-Link VPN products and TheGreenBow software combined perfectly address the requirements of the small and medium businesses worldwide. The joint VPN solution offer advantages around multiple access control and authorization mechanisms for users and tunneling capabilities to access the entire corporate network; it can also provide different access rights to different users.

D-Link is the worldwide leader and an award-winning designer, developer, and manufacturer of Wi-Fi and Ethernet networking, broadband, multimedia, voice and data communications and digital electronics solutions.