TheGreenBow IPSec VPN Client
Configuration Guide

Digi ConnectPort WAN VPN
Cellular Gateway

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1 Introduction

1.1 Goal of this document

This configuration guide describes how to configure TheGreenBow IPSec VPN Client software with a Digi ConnectPort VPN Cellular Gateway to establish VPN connections for remote access to corporate network.

1.2 VPN Network topology

In our VPN network example (diagram hereafter), we will connect TheGreenBow IPSec VPN Client software to the LAN behind the Digi ConnectPort Wan VPN Cellular Gateway. The VPN client is connected to the Internet with a DSL connection or through a LAN. All the addresses in this document are given for example purpose.

1.3 Firmware Restrictions

Digi Firmware required for TheGreenBow IPSec VPN Client: Firmware version must be 2.8 or later. To download the latest firmware, go to http://www.digi.com/support.

1.4 Digi ConnectPort Wan VPN Cellular Gateway

Our tests and VPN configuration have been conducted with Digi firmware release 2.8.4.16.

**GSM GPRS/EDGE APN Type needed**: VPN and GRE end-points usually require a static (persistent) IP addresses and must support mobile terminated data connections. If mobile termination is not an option with your current APN, you will need to acquire a new one that supports mobile termination from your cellular provider.

1.5 Digi ConnectPort Wan VPN Cellular Gateway product info

It is critical that users find all necessary information about Digi ConnectPort Wan VPN Cellular Gateway VPN Gateway. All product info, User Guide and knowledge base for the Digi ConnectPort Wan VPN Cellular Gateway VPN Gateway can be found on the Digi ConnectPort Wan VPN Cellular Gateway website http://www.digi.com/products/cellulargateways/connectportwanvpn.jsp#overview.

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<td><a href="http://www.digi.com/support/kbase/?pid=2990&amp;osvid=0">http://www.digi.com/support/kbase/?pid=2990&amp;osvid=0</a></td>
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2 Digi ConnectPort Wan VPN Cellular Gateway VPN configuration

This section describes how to build an IPSec VPN configuration with your Digi ConnectPort Wan VPN Cellular Gateway.

1. Configure the Digi Connect router settings:
   a. **VPN Global Settings**
      i. Navigate to **Configuration > Network > VPN Settings** in the web interface of the unit.
      ii. Click on **VPN Global Settings**.
      iii. Click the check box for **Enable Antireplay**.
      iv. Click **Apply** to save the changes.
b. VPN Policy Settings
   v. Click on **VPN Policy Settings**.
   vi. Click on the **Add** button to setup the individual tunnel.
   vii. Fill in the appropriate information, shown in the following screenshots:
ADDITIONAL NOTES

1. This configuration will work with Dynamic IP addresses, using hostnames established with DynDNS.org, or using the DDNS update feature of Digi Connectware® Manager. When using a Dynamic IP address, you will need to set the VPN tunnel to use **Aggressive Mode** to make the connection work.

2. This configuration will work with other VPN parameters than what is listed in the screenshots. i.e. – DES, 3DES, AES 192-bit, AES 256-bit, etc.

3. This configuration will work with other Digi Cellular products, such as the Connect WAN, Connect WAN 3G, and ConnectPort WAN VPN series of products that support VPN connections.
3 TheGreenBow IPSec VPN Client configuration

This section describes the required configuration to connect to a Digi ConnectPort Wan VPN Cellular Gateway via VPN connections.

To download the latest release of TheGreenBow IPSec VPN Client software, please go to http://www.thegreenbow.com/vpn_down.html for a free trial version.

3.1 VPN Client Phase 1 (IKE) Configuration

1. Create a Phase1:
   a. Right click ‘Configuration’ in the left hand panel, and click New Phase 1.
   b. Fill in the appropriate fields shown in the screenshot below:

   ![Phase 1 configuration](image)

   This configuration is one example of what can be accomplished in term of User Authentication. You may want to refer to either the Digi ConnectPort Wan VPN Cellular Gateway User Guide or TheGreenBow IPSec VPN Client software User Guide for more details on User Authentication options.
c. Click the P1 Advanced button. Fill in the appropriate fields shown in the following screenshot:

![Phase 1 Advanced Screen](image.png)

- Advanced features:
  - Config Mode
  - Aggressive Mode
  - Redundant GW
  - NAT-T

- X-Auth:
  - X-Auth Popup
  - Login
  - Hybrid Mode
  - Password

- Local and Remote ID:
  - Local ID
    - Email: bob@digicom.com
  - Remote ID
    - Email: bill@digicom.com

- Buttons:
  - Ok
  - Cancel

d. Click ‘Save & Apply’ to save the settings.
3.2 VPN Client Phase 2 (IPSec) Configuration

2. Create a Phase2:
   a. Right click the Phase 1 policy that was added in the left hand panel, and click ‘Add Phase 2’.
   b. Fill in the appropriate fields for the Phase 2 settings, shown in the following screenshot:


Phase 2 Configuration

3.3 Open IPSec VPN tunnels

Once both Digi ConnectPort Wan VPN Cellular Gateway and TheGreenBow IPSec VPN Client software have been configured accordingly, you are ready to open VPN tunnels. First make sure you enable your firewall with IPSec traffic.

1. Click on “Save & Apply” to take into account all modifications we’ve made on your VPN Client configuration

2. Click on “Open Tunnel”, or generate traffic that will automatically open a secure IPSec VPN Tunnel (e.g. ping, IE browser)

3. Select “Connections” to see opened VPN Tunnels

4. Select “Console” if you want to access to the IPSec VPN logs and adjust filters to display less IPSec messaging. The following example shows a successful connection between TheGreenBow IPSec VPN Client and a Digi ConnectPort Wan Cellular Gateway.
4 Tools in case of trouble

Configuring an IPSec VPN tunnel can be a hard task. One missing parameter can prevent a VPN connection from being established. Some tools are available to find source of troubles during a VPN establishment.

4.1 A good network analyser: Wireshark

Wireshark is a free software that can be used for packet and traffic analysis. It shows IP or TCP packets received on a network card. This tool is available on website http://www.wireshark.org. It can be used to follow protocol exchange between two devices. For installation and use details, read its specific documentation (http://www.wireshark.org/docs/).
5 VPN IPSec Troubleshooting

5.1 « PAYLOAD MALFORMED » error (wrong Phase 1 [SA])

If you have an « PAYLOAD MALFORMED » error you might have a wrong Phase 1 [SA], check if the encryption algorithms are the same on each side of the VPN tunnel.

5.2 « INVALID COOKIE » error

If you have an « INVALID COOKIE » error, it means that one of the endpoint is using a SA that is no more in use. Reset the VPN connection on each side.

5.3 « no keystate » error

Check if the preshared key is correct or if the local ID is correct (see « Advanced » button). You should have more information in the remote endpoint logs.

5.4 « received remote ID other than expected » error

The « Remote ID » value (see « Advanced » Button) does not match what the remote endpoint is expected.
5.5 « NO PROPOSAL CHOSEN » error

If you have an « NO PROPOSAL CHOSEN » error, check that the « Phase 2 » encryption algorithms are the same on each side of the VPN Tunnel.

Check « Phase 1 » algorithms if you have this:

5.6 « INVALID ID INFORMATION » error

If you have an « INVALID ID INFORMATION » error, check if « Phase 2 » ID (local address and network address) is correct and match what is expected by the remote endpoint.

Check also ID type ("Subnet address" and "Single address"). If network mask is not check, you are using a IPV4_ADDR type (and not a IPV4_SUBNET type).

5.7 I clicked on “Open tunnel”, but nothing happens.

Read logs of each VPN tunnel endpoint. IKE requests can be dropped by firewalls. An IPSec Client uses UDP port 500 and protocol ESP (protocol 50).

5.8 The VPN tunnel is up but I can’t ping !

If the VPN tunnel is up, but you still cannot ping the remote LAN, here are a few guidelines:

- Check Phase 2 settings: VPN Client address and Remote LAN address. Usually, VPN Client IP address should not belong to the remote LAN subnet
- Once VPN tunnel is up, packets are sent with ESP protocol. This protocol can be blocked by firewall. Check that every device between the client and the VPN server does accept ESP
- Check your VPN server logs. Packets can be dropped by one of its firewall rules.
- Check your ISP support ESP
• If you still cannot ping, follow ICMP traffic on VPN server LAN interface and on LAN computer interface (with Wireshark for example). You will have an indication that encryption works.

• Check the “default gateway” value in VPN Server LAN. A target on your remote LAN can receive pings but does not answer because there is a no “Default gateway” setting.

• You cannot access to the computers in the LAN by their name. You must specify their IP address inside the LAN.

• We recommend you to install Wireshark (http://www.wireshark.org) on one of your target computer. You can check that your pings arrive inside the LAN.
6 Contacts

News and updates on TheGreenBow web site: http://www.thegreenbow.com

Technical support by email at support@thegreenbow.com

Sales contacts by email at sales@thegreenbow.com