



TheGreenBow IPsec VPN Client

Configuration Guide

McAfee UTM SnapGear SG300 (formerly Secure Computing)

WebSite: <http://www.thegreenbow.com>

Contact: support@thegreenbow.com

Configuration Guide written by:

Writer: TheGreenBow Engineering Team

Company: www.thegreenbow.com

Table of contents

1	Introduction	3
1.1	Goal of this document	3
1.2	VPN Network topology	3
1.3	Secure Computing SnapGear SG300 Restrictions	3
1.4	Secure Computing SnapGear SG300 VPN Gateway	3
1.5	Secure Computing SnapGear SG300 VPN Gateway product info.....	3
2	Secure Computing SnapGear SG300 VPN configuration.....	5
3	TheGreenBow IPSec VPN Client configuration	6
3.1	VPN Client Phase 1 (IKE) Configuration.....	6
3.2	VPN Client Phase 2 (IPSec) Configuration	8
3.3	Open IPSec VPN tunnels.....	8
4	Tools in case of trouble	10
4.1	A good network analyser: Wireshark	10
5	VPN IPSec Troubleshooting	11
5.1	« PAYLOAD MALFORMED » error (wrong Phase 1 [SA])	11
5.2	« INVALID COOKIE » error.....	11
5.3	« no keystate » error	11
5.4	« received remote ID other than expected » error.....	11
5.5	« NO PROPOSAL CHOSEN » error	12
5.6	« INVALID ID INFORMATION » error	12
5.7	I clicked on "Open tunnel", but nothing happens.....	12
5.8	The VPN tunnel is up but I can't ping !.....	12
6	Contacts.....	14

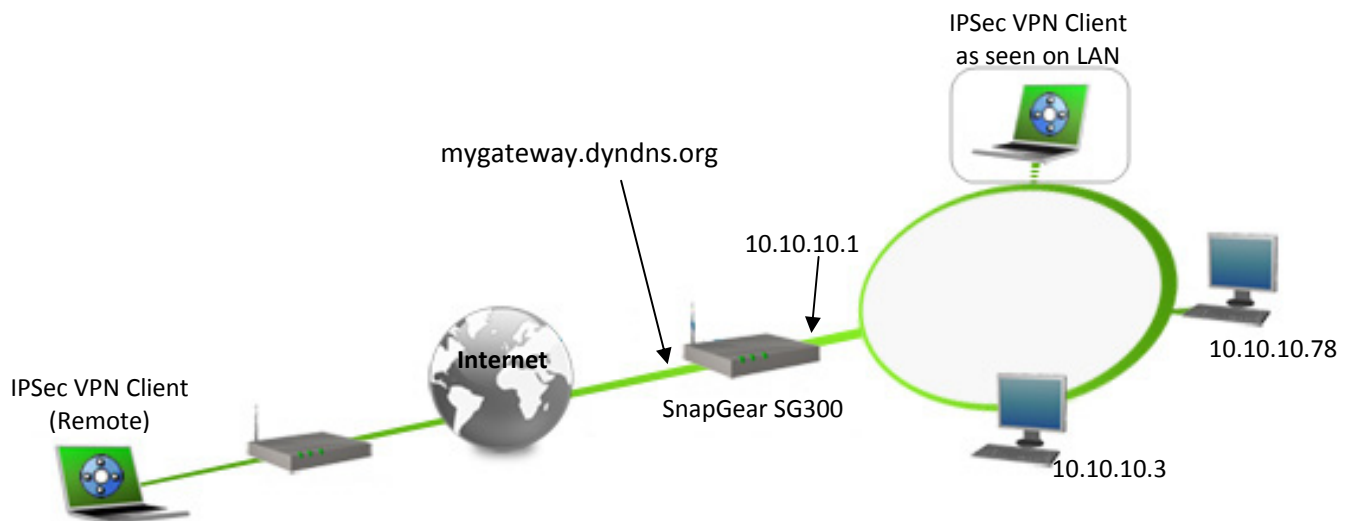
1 Introduction

1.1 Goal of this document

This configuration guide describes how to configure TheGreenBow IPsec VPN Client software with a McAfee UTM (formerly Secure Computing) SnapGear SG300 VPN router 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 Secure Computing SnapGear SG300 router. 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 Secure Computing SnapGear SG300 Restrictions

No known restrictions.

1.4 Secure Computing SnapGear SG300 VPN Gateway

Our tests and VPN configuration have been conducted with Secure Computing SnapGear SG300 firmware release 3.3.3 (Linux version 2..31-uc0).

1.5 Secure Computing SnapGear SG300 VPN Gateway product info

It is critical that users find all necessary information about Secure Computing SnapGear SG300 VPN Gateway. All product info, User Guide and knowledge base for the Secure Computing SnapGear SG300 VPN Gateway can be found on the Secure Computing SnapGear SG300 website: <http://www.snapgear.com> .

Secure Computing SnapGear SG300 Product page	http://www.snapgear.com/index.cfm?skey=1556 http://www.mcafee.com/us/enterprise/products/network_security/utm_firewall.html
Secure Computing SnapGear SG300 User Guide	https://mysupport.mcafee.com/Eservice/Default.aspx
Secure Computing SnapGear SG300 FAQ/Knowledge Base	https://mysupport.mcafee.com/Eservice/Default.aspx

2 Secure Computing SnapGear SG300 VPN configuration

This section describes how to build an IPSec VPN configuration with your Secure Computing SnapGear SG300 VPN router.

Once connected to your Secure Computing SnapGear SG300 VPN gateway, you must select "VPN" and "IPSec" tabs.

SECURE COMPUTING

IPSec VPN Setup

IPSec Certificate Lists

IPSec General Settings

Enable IPSec

IPSec MTU

Submit

Tunnel List

Connection	Remote Party	Status
Refresh Quick Setup Advanced		

Select "Enable IPSec" and click on "Advanced".

SECURE COMPUTING

IPSec VPN Setup

IPSec Certificate Lists

Tunnel Settings

Tunnel name Tunnel1

Enable this tunnel

The remote party's IP address dynamic IP address Custom

Local Network 10.10.10.1/24 Predefined

Remote Network 10.10.20.1/32 Predefined

Authentication Preshared Secret

Local Endpoint ID test@thegreenbow.com

Remote Endpoint ID support@thegreenbow.com

Preshared Secret 0123456789

Finish Cancel

Subnet to be reached by VPN Client computer

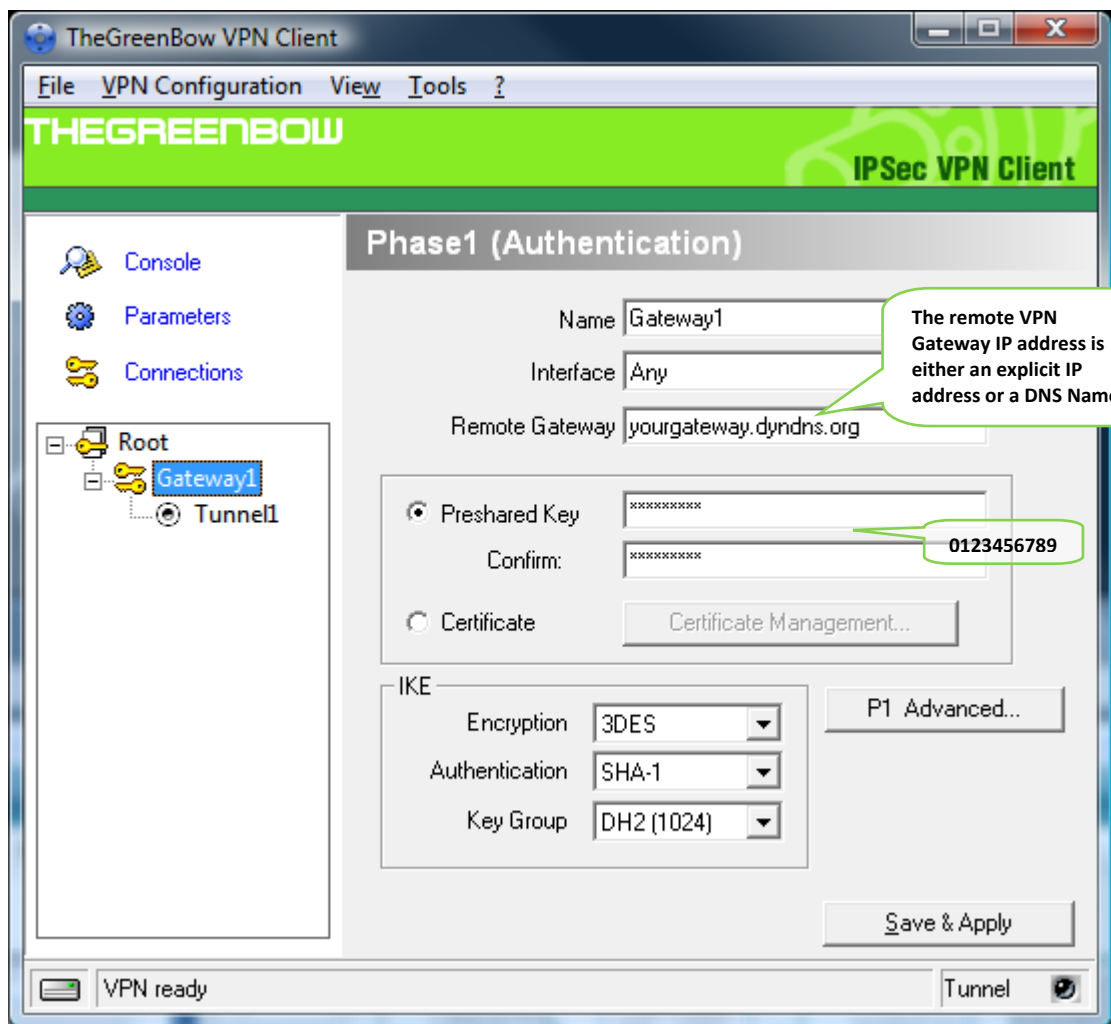
VPN Client Virtual IP Address

3 TheGreenBow IPsec VPN Client configuration

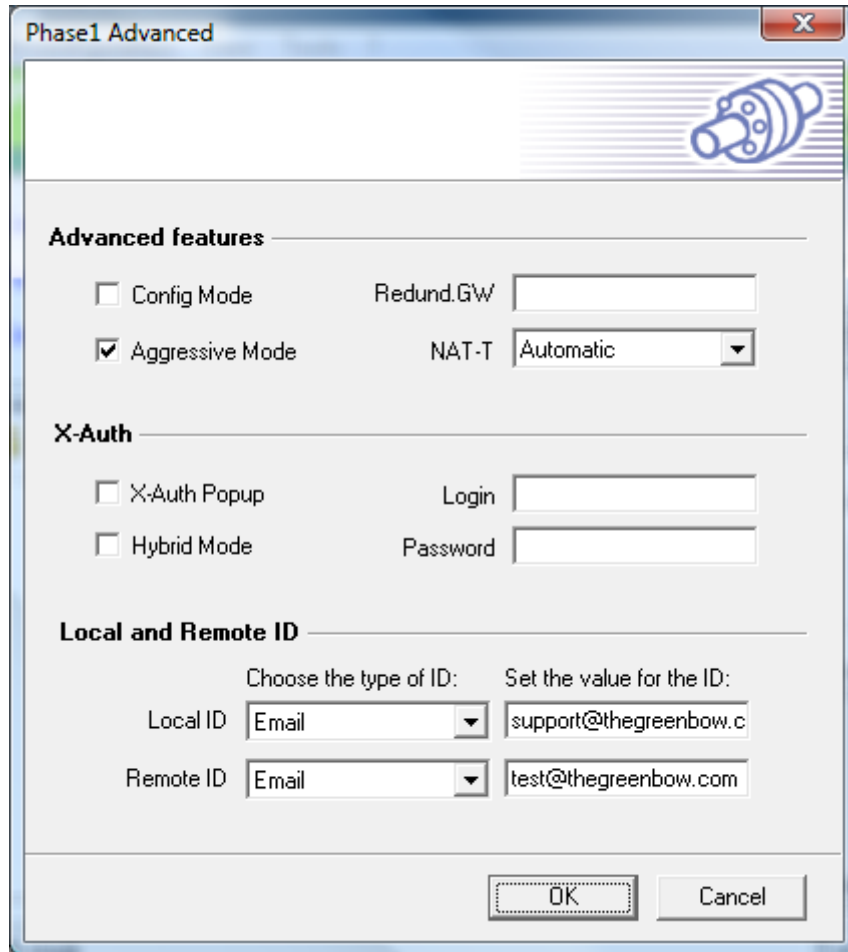
This section describes the required configuration to connect to a Secure Computing SnapGear SG300 VPN router via VPN connections.

To download the latest release of TheGreenBow IPsec VPN Client software, please go to http://www.thegreenbow.com/vpn_down.html.

3.1 VPN Client Phase 1 (IKE) Configuration

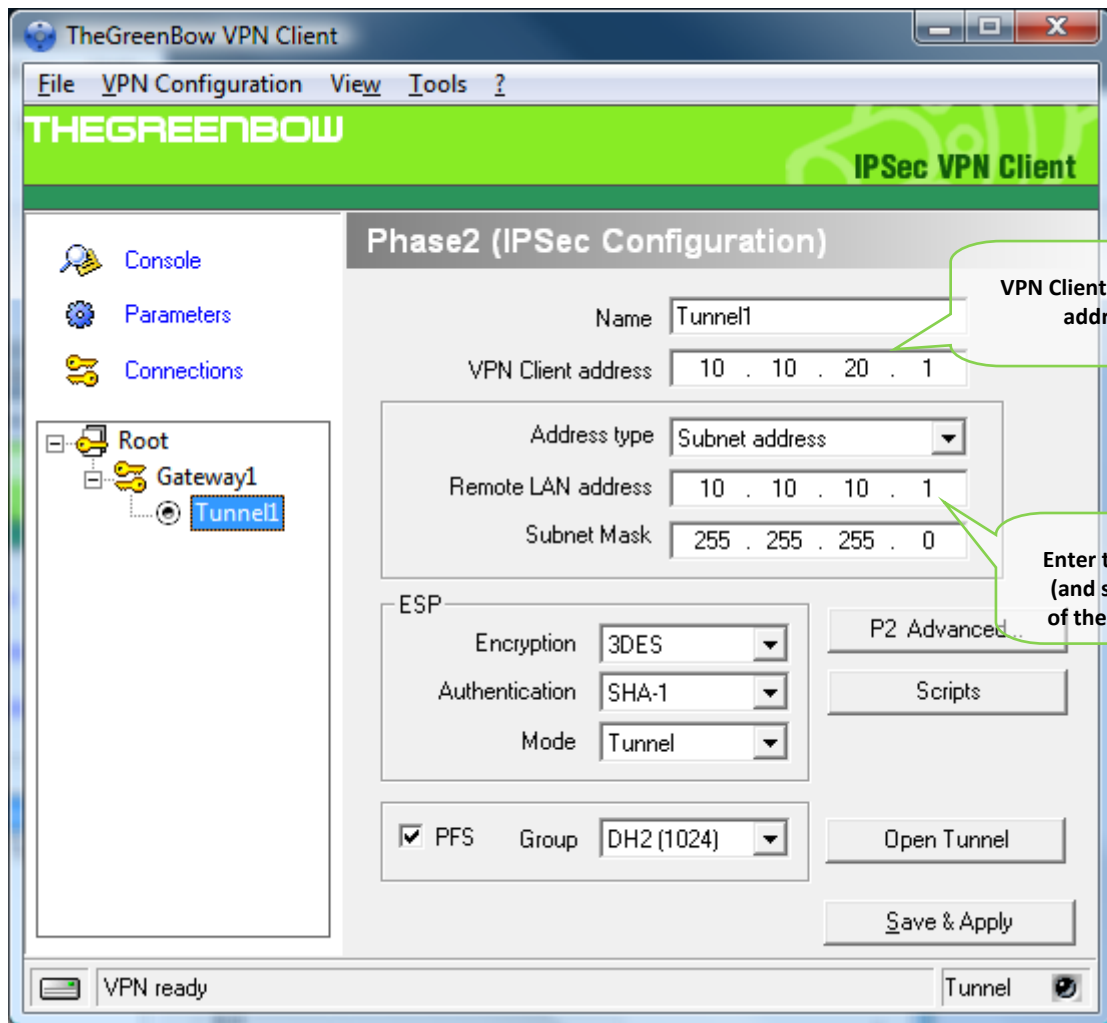


Phase 1 configuration



You may use either Preshared key, Certificates with the Secure Computing SnapGear SG300 router. This configuration is one example of what can be accomplished in term of Preshared Key. You may want to refer to either the Secure Computing SnapGear SG300 router user guide or TheGreenBow IPsec VPN Client software User Guide for more details on User Authentication options.

3.2 VPN Client Phase 2 (IPSec) Configuration



Phase 2 Configuration

3.3 Open IPSec VPN tunnels

Once both Secure Computing SnapGear SG300 router 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 Secure Computing SnapGear SG300 VPN router.

Doc.Ref	tgbvpn_cg-mcafee-snapgear-sg300-en
Doc.version	3.0 – Feb 2010
VPN version	4.x

```

20091223 111939 Default (SA Gateway1-P1) SEND phase 1 Aggressive Mode [SA][KEY_EXCH][NONCE][ID][MD][MD][MD][MD][MD]
20091223 111940 Default (SA Gateway1-P1) RECV phase 1 Aggressive Mode [HASH][SA][KEY_EXCH][NONCE][ID][NAT_D][NAT_D][MD][MD]
20091223 111940 Default (SA Gateway1-P1) SEND phase 1 Aggressive Mode [HASH][NAT_D][NAT_D]
20091223 111940 Default phase 1 done: initiator id support@thegreenbow.com, responder id test@thegreenbow.com
20091223 111940 Default (SA Gateway1-Tunnel1-P2) SEND phase 2 Quick Mode [HASH][SA][KEY_EXCH][NONCE][ID][ID]
20091223 111941 Default (SA Gateway1-Tunnel1-P2) RECV phase 2 Quick Mode [HASH][SA][KEY_EXCH][NONCE][ID][ID]
20091223 111941 Default (SA Gateway1-Tunnel1-P2) SEND phase 2 Quick Mode [HASH]
20091223 112010 Default (SA Gateway1-P1) SEND Informational [HASH][NOTIFY] type DPD_R_U_THERE
20091223 112010 Default (SA Gateway1-P1) RECV Informational [HASH][NOTIFY] type DPD_R_U_THERE_ACK
    
```


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/>).

No. .	Time	Source	Destination	Protocol	Info
1	0.000000	192.168.1.3	192.168.1.2	ISAKMP	Identity Protection (Main Mode)
2	0.153567	192.168.1.2	192.168.1.3	ISAKMP	Identity Protection (Main Mode)
3	0.205363	192.168.1.3	192.168.1.2	ISAKMP	Identity Protection (Main Mode)
4	0.257505	192.168.1.2	192.168.1.3	ISAKMP	Identity Protection (Main Mode)
5	0.300882	192.168.1.3	192.168.1.2	ISAKMP	Identity Protection (Main Mode)
6	0.310186	192.168.1.2	192.168.1.3	ISAKMP	Identity Protection (Main Mode)
7	0.313742	192.168.1.3	192.168.1.2	ISAKMP	Quick Mode
8	0.321913	192.168.1.2	192.168.1.3	ISAKMP	Quick Mode
9	0.323741	192.168.1.3	192.168.1.2	ISAKMP	Quick Mode
10	0.334980	192.168.1.2	192.168.1.3	ISAKMP	Quick Mode
11	0.691160	192.168.1.3	192.168.1.2	ESP	ESP (SPI=0x919bfabc)
12	1.692568	192.168.1.2	192.168.1.3	ESP	ESP (SPI=0x919bfabc)
13	1.693164	192.168.1.3	192.168.1.2	ESP	ESP (SPI=0x53a5925e)
14	2.693600	192.168.1.2	192.168.1.3	ESP	ESP (SPI=0x919bfabc)
15	2.694026	192.168.1.3	192.168.1.2	ESP	ESP (SPI=0x53a5925e)

Frame 1 (142 bytes on wire, 142 bytes captured)
 Ethernet II, Src: 00:50:04:ad:f2:73, Dst: 00:10:b5:07:2f:ff

5 VPN IPsec Troubleshooting

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

```
114920 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
114920 Default (SA Gateway-P1) RECV phase 1 Main Mode [NOTIFY]
114920 Default exchange_run: exchange_validate failed
114920 Default dropped message from 195.100.205.114 port 500 due to notification
type PAYLOAD_MALFORMED
114920 Default SEND Informational [NOTIFY] with PAYLOAD_MALFORMED error
```

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

```
115933 Default message_rcv: invalid cookie(s) 5918ca0c2634288f 7364e3e486e49105
115933 Default dropped message from 195.100.205.114 port 500 due to notification
type INVALID_COOKIE
115933 Default SEND Informational [NOTIFY] with 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

```
115315 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
115317 Default (SA Gateway-P1) RECV phase 1 Main Mode [SA][VID]
115317 Default (SA Gateway-P1) SEND phase 1 Main Mode [KEY][NONCE]
115319 Default (SA Gateway-P1) RECV phase 1 Main Mode [KEY][NONCE]
115319 Default (SA Gateway-P1) SEND phase 1 Main Mode [ID][HASH][NOTIFY]
115319 Default ipsec_get_keystate: no keystate in ISAKMP SA 00B57C50
```

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

```
120348 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
120349 Default (SA Gateway-P1) RECV phase 1 Main Mode [SA][VID]
120349 Default (SA Gateway-P1) SEND phase 1 Main Mode [KEY][NONCE]
120351 Default (SA Gateway-P1) RECV phase 1 Main Mode [KEY][NONCE]
120351 Default (SA Gateway-P1) SEND phase 1 Main Mode [ID][HASH][NOTIFY]
120351 Default (SA Gateway-P1) RECV phase 1 Main Mode [ID][HASH][NOTIFY]
120351 Default ike_phase_1_rcv_ID: received remote ID other than expected
support@thegreenbow.fr
```

The « Remote ID » value (see « Advanced » Button) does not match what the remote endpoint is expected.

5.5 « NO PROPOSAL CHOSEN » error

```

115911 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
115913 Default (SA Gateway-P1) RECV phase 1 Main Mode [SA][VID]
115913 Default (SA Gateway-P1) SEND phase 1 Main Mode [KEY][NONCE]
115915 Default (SA Gateway-P1) RECV phase 1 Main Mode [KEY][NONCE]
115915 Default (SA Gateway-P1) SEND phase 1 Main Mode [ID][HASH][NOTIFY]
115915 Default (SA Gateway-P1) RECV phase 1 Main Mode [ID][HASH][NOTIFY]
115915 Default phase 1 done: initiator id c364cd70: 195.100.205.112, responder id
c364cd72: 195.100.205.114, src: 195.100.205.112 dst: 195.100.205.114
115915 Default (SA Gateway-Tunnel-P2) SEND phase 2 Quick Mode
[SA][KEY][ID][HASH][NONCE]
115915 Default RECV Informational [HASH][NOTIFY] with NO_PROPOSAL_CHOSEN error
115915 Default RECV Informational [HASH][DEL]
115915 Default Gateway-P1 deleted

```

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:

```

115911 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
115911 Default RECV Informational [NOTIFY] with NO_PROPOSAL_CHOSEN error

```

5.6 « INVALID ID INFORMATION » error

```

122623 Default (SA Gateway-P1) SEND phase 1 Main Mode [SA][VID]
122625 Default (SA Gateway-P1) RECV phase 1 Main Mode [SA][VID]
122625 Default (SA Gateway-P1) SEND phase 1 Main Mode [KEY][NONCE]
122626 Default (SA Gateway-P1) RECV phase 1 Main Mode [KEY][NONCE]
122626 Default (SA Gateway-P1) SEND phase 1 Main Mode [ID][HASH][NOTIFY]
122626 Default (SA Gateway-P1) RECV phase 1 Main Mode [ID][HASH][NOTIFY]
122626 Default phase 1 done: initiator id c364cd70: 195.100.205.112, responder id
c364cd72: 195.100.205.114, src: 195.100.205.112 dst: 195.100.205.114
122626 Default (SA Gateway-Tunnel-P2) SEND phase 2 Quick Mode
[SA][KEY][ID][HASH][NONCE]
122626 Default RECV Informational [HASH][NOTIFY] with INVALID_ID_INFORMATION error
122626 Default RECV Informational [HASH][DEL]
122626 Default Gateway-P1 deleted

```

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

Doc.Ref	tgbvpn_cg-mcafee-snapgear-sg300-en
Doc.version	3.0 – Feb 2010
VPN version	4.x

- 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.

	Doc.Ref	tgbvpn_cg-mcafee-snapgear-sg300-en
	Doc.version	3.0 – Feb 2010
	VPN version	4.x

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