# Proroute to Draytek VPN LAN-To-LAN Set-up from Non Fixed IP SIM Card
# April 2015

## Introduction

This paper describes how to set-up a VPN between a Proroute 3G or 4G modem and a Draytek Vigor 3200 modem. The Proroute end does not need to have a fixed IP address, but the Draytek end does.

Obviously it is possible to use other modems and routers, but it is outside the scope of this paper, or our support, to be able to help in every instance. If you are not familiar with VPNs we suggest you hire a competent consultant to help you set-up the network.

This paper only set out to show that it is possible to use a non-fixed IP SIM card for communication.
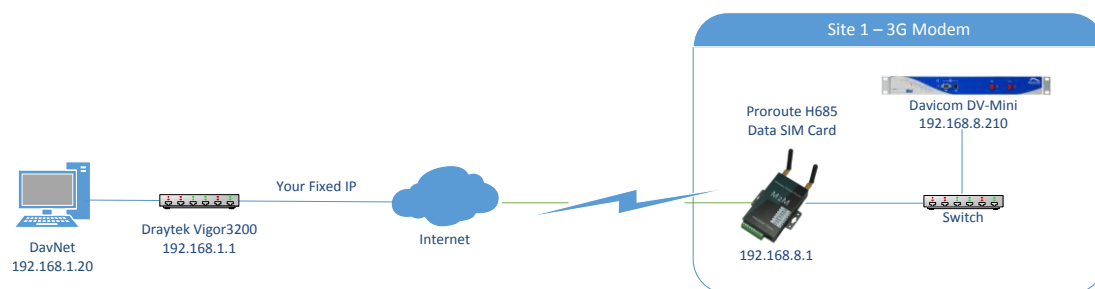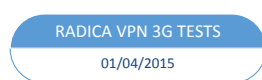
|  | DavNet Draytek | Proroute |
|---|---|---|
| LAN IP | 192.168.1.1 | 192.168.8.1 |
| LAN SubNet | 255.255.255.0 | 255.255.255.0 |
| WAN IP | Your Fixed IP | not fixed |
| VPN Profile | proroute | PPTP Client |
| Call direction | Incoming | Outgoing |
| Protocol | PPTP | PPTP |
| Outgoing username | n/a | proroute |
| Outgoing password | n/a | proroute |
| Incoming username | proroute | n/a |
| Incoming password | proroute | n/a |

Change the subnet highlighted in yellow for each different site.

Change the username and password for each site as highlighted in yellow. I suggest using sitename for username and password.

## Site 1 Set-up

Using Proroute H685 with ordinary EE data SIM card.

Proroute H685 setup as follows:



PROROUTE H685 CELLULAR M2M ROUTER
For support, manuals and downloads visit www.proroute.co.uk

open all | close all

- Router
  - Status
  - Operation Mode
  - Link Backup
  - SMS/Voice
  - VRRP
  - Connect Modem
  - Network Settings
  - VPN
  - WIFI
  - Firewall
  - Administration

- Administration

| System Info | |
| --- | --- |
| Series | H685 |
| SN | 08641406AC76 |
| Software Version | 2.4.24 (Jul 8 2014) |
| Hardware Version | 1.0.0 |
| System Up Time | 2:09 |
| Operation Mode | Gateway Mode |
| **Cell Network Info** | |
| Cell Modem | Ericsson_F5521GW |
| IMEI/ESN | 357103040032667 |
| Sim Status | ***SIM ERROR*** |
| Selected Network | AUTO |
| Registered Network | Registered on Home network: "EE",2 |
| Sub Network Type | |
| Signal | 15 |
| Cell Status | UP |
| **Internet Configurations** | |
| Connected Type | CELL |
| WAN IP Address | 31.104.222.166 |
| Subnet Mask | 255.255.255.255 |
| Default Gateway | 10.64.64.64 |
| Primary Domain Name Server | 109.249.185.224 |
| Secondary Domain Name Server | 109.249.186.32 |
| WAN Speed | download: 0.001 KBps upload: 0.002 KBps |
| MAC Address | 08:66:01:02:A9:62 |
| **Local Network** | |
| Local IP Address | 192.168.8.1 |
| Local Netmask | 255.255.255.0 |
| MAC Address | 08:66:01:02:A9:63 |
| **IPSEC Status** | |
| Name | Status |
| **PPTP Client Status** | |
| PPTP | down |
| PPTP IP | |
| PPTP Remote IP | |
| **L2TP Client Status** | |
| L2TP | down |
| L2TP IP | |
| L2TP Remote IP | |

Setup WAN as necessary for the SIM card used. This example is for EE.



Setup LAN with a different subnet for each site: 192.168.x.0

Setup PPTP client as follows. The PPT IP and PPTP Remote IP will be filled in when it connects – you don't need to do anything.

Make sure the PPTP User and Password are as in the table on page 1 and the same as entered into the Draytek further down.

## PPTP Client

| PPTP VPN Settings | |
| --- | --- |
| PPTP IP | 192.168.1.104 |
| PPTP Remote IP | 192.168.1.1 |
| PPTP VPN Active | ☑ |
| PPTP User | proroute |
| PPTP Password | ●●●●●●●● |
| PPTP Server | Your Fixed IP |
| Remote Lan/Mask | 192.168.1.0 / 255.255.255.0 |
| Local PPTP IP | DHCP IP ▾ |
| MPPE Encryption | ☑ |
| 40 Bit Encryption(Default is 128 Bit) | ☑ |
| 56 Bit Encryption | ☑ |
| Refuse Stateless Encryption | ☑ |
| MPPC | ☑ |

Apply    Refresh

This sets up a ping check to reset the router if the ping fails to the VPN gateway.

## ICMP Check Settings

| ICMP check and Reboot Settings | | | |
|---|---|---|---|
| Active | ☑ | | |
| For Check VPN Tunnel | ☐ | | |
| Check Address | 192.168.1.1 | host/IP check | |
| | 192.168.1.1 | host/IP check | |
| Check Interval Time(Sec) | 300 | (30-86400) | |
| Check Continuous Failure Times | 3 | (3-1000) | |
| Reboot Times Before Sleep | 3 | (2-50) | |
| Sleep Time(min) | 5 | (0-43200) | |
| Comment: It is only used for Cell Keep_Alive and On_Time mode! if you active link_backup you mask set the interval bigger the 3 min | | | |

Apply

**This sets the WAN port to be a second LAN port.**

## Operation Mode Configuration

You may configure the operation mode suitable for you environment.

○ **Bridge:**
   All ethernet and wireless interfaces are bridged into a single bridge interface.

● **Gateway:**
   The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.

○ **AP Client:**
   The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

| | |
|---|---|
| Ethernet wan port as wan in AP Client Mode | ☑ |
| Ethernet wan port as lan in Cell Gateway Mode | ☑ |
| NAT Enabled: | Enable ▾ |
| TCP Timeout | 180 |
| UDP Timeout | 180 |

Apply    Cancel

**DavNet Computer Setup with Draytek Vigor 3200 and Fixed IP Address**

The Draytek is connected directly to the DSL line with fixed IP address of 87.252.44.220. This is the only fixed IP necessary in the system.

The WAN setup is not relevant for this system and should be set according to the line it is connected to.

The DavNet computer must have a fixed IP address from the Draytek router, in this case 192.168.1.20

**Port Forwarding:**

It is only really necessary to forward Port 162 UDP to 192.168.1.20, but for safety you can forward 161 and 162 both UDP and TCP.

**NAT >> Port Redirection**

**Index No. 4**

☑ Enable

| | |
|---|---|
| Mode | Single ▾ |
| Service Name | SNMP Trap |
| Protocol | UDP ▾ |
| WAN Interface | ALL ▾ |
| Public Port | 162 |
| Private IP | 192.168.1.20 |
| Private Port | 162 |

**Note:** In "Range" Mode the End IP will be calculated automatically once the Public Port and Start IP have been entered.

OK   Clear   Cancel

**VPN:**

For each site you need a separate VPN LAN-to-LAN profile:

**VPN and Remote Access >> LAN to LAN**

**LAN-to-LAN Profiles:**                                    | **Set to Factory Default** |

View: ● All    ○ Online    ○ Offline    ○ Trunk          [                    ]  [ Search ]

| Index | Name | Active | Status | Index | Name | Active | Status |
|-------|------|--------|--------|-------|------|--------|--------|
| 1. | Site1 | ☑ | Offline | 17. | ??? | ☐ | --- |
| 2. | proroute | ☑ | Online | 18. | ??? | ☐ | --- |
| 3. | Site2 | ☑ | Online | 19. | ??? | ☐ | --- |
| 4. | ??? | ☐ | --- | 20. | ??? | ☐ | --- |
| 5. | ??? | ☐ | --- | 21. | ??? | ☐ | --- |
| 6. | ??? | ☐ | --- | 22. | ??? | ☐ | --- |
| 7. | ??? | ☐ | --- | 23. | ??? | ☐ | --- |
| 8. | ??? | ☐ | --- | 24. | ??? | ☐ | --- |
| 9. | ??? | ☐ | --- | 25. | ??? | ☐ | --- |
| 10. | ??? | ☐ | --- | 26. | ??? | ☐ | --- |
| 11. | ??? | ☐ | --- | 27. | ??? | ☐ | --- |
| 12. | ??? | ☐ | --- | 28. | ??? | ☐ | --- |
| 13. | ??? | ☐ | --- | 29. | ??? | ☐ | --- |
| 14. | ??? | ☐ | --- | 30. | ??? | ☐ | --- |
| 15. | ??? | ☐ | --- | 31. | ??? | ☐ | --- |
| 16. | ??? | ☐ | --- | 32. | ??? | ☐ | --- |

<< 1-32 | 33-64 >>                                              Next >>

[ OK ]    [ Cancel ]

Draytek Vigor3200:

Set the profile name to the name of the site. This is not the username and is only used for reference.

You don't need dial-out settings, so set to Dial-in only and ignore anything in 2. Dial-Out Settings.

**VPN and Remote Access >> LAN to LAN**

**Profile Index : 2**

**1. Common Settings**

| | |
|---|---|
| Profile Name | proroute |
| ☑ Enable this profile | |

| | |
|---|---|
| Call Direction | ○ Both ○ Dial-Out ⦿ Dial-in |
| ☐ Always on | |
| Idle Timeout | 0 second(s) |

VPN Dial-Out Through
WAN1 First ▼

Netbios Naming Packet    ⦿ Pass  ○ Block
Multicast via VPN        ○ Pass  ⦿ Block
(for some IGMP,IP-Camera,DHCP Relay..etc.)

☐ Enable PING to keep alive
PING to the IP [                    ]

**2. Dial-Out Settings**

**Type of Server I am calling**

○ PPTP
○ IPsec Tunnel
○ L2TP with IPsec Policy [Must ▼]

Server IP/Host Name for VPN.
(such as draytek.com or 123.45.67.89)
[                          ]

Username [???]
Password(Max 15 char) [            ]
PPP Authentication
PAP/CHAP/MS-CHAP/MS-CHAPv2 ▼
VJ Compression        ○ On  ⦿ Off

**IKE Authentication Method**

⦿ Pre-Shared Key
[IKE Pre-Shared Key] [                ]

○ Digital Signature(X.509)
  Peer ID [None ▼]
  Local ID
    ⦿ Alternative Subject Name First
    ○ Subject Name First
  Local Certificate [None ▼]

**IPsec Security Method**

⦿ Medium(AH)
○ High(ESP) [DES without Authentication ▼]

[Advanced]

Index(1-15) in **Schedule** Setup:
[    ] , [    ] , [    ] , [    ]

Set as follows. Notes:

1. Only the PPTP checkbox needs to be ticked
2. The username and password need to be those as entered into the Proroute PPTP Client under PPTP User and PPTP Password.
3. Each site should have a different subnet 192.168.x.0. Note the use of .0 at the end as this is the network ID.

### 3. Dial-In Settings

**Allowed Dial-In Type**

- ☑ PPTP
- ☐ IPsec Tunnel
- ☐ L2TP with IPsec Policy [ Must ▾ ]

☐ Specify Remote VPN Gateway
Peer VPN Server IP
[ _____ ]
or Peer ID [ _____ ]

Username [ proroute ]
Password(Max 11 char) [ ●●●●●●● ]
VJ Compression      ○ On  ● Off

**IKE Authentication Method**
☑ Pre-Shared Key
[ IKE Pre-Shared Key ] [ _____ ]
☑ Digital Signature(X.509)
[ None ▾ ]
   Local ID
   ● Alternative Subject Name First
   ○ Subject Name First

**IPsec Security Method**
☑ Medium(AH)
High(ESP)     ☑ DES ☑ 3DES ☑ AES

### 4. GRE over IPsec Settings

☐ Enable IPsec Dial-Out function GRE over IPsec
☐ Logical Traffic      My GRE IP [ _____ ]     Peer GRE IP [ _____ ]

### 5. TCP/IP Network Settings

| | | |
|---|---|---|
| My WAN IP | 0.0.0.0 | |
| Remote Gateway IP | 0.0.0.0 | |
| Remote Network IP | 192.168.8.0 | |
| Remote Network Mask | 255.255.255.0 | |
| Local Network IP | 192.168.1.0 | |
| Local Network Mask | 255.255.255.0 | |
| | [ More ] | |

RIP Direction [ Disable ▾ ]
From first subnet to remote network, you have to do
[ Route ▾ ]

☐ Change default route to this VPN tunnel ( Only single WAN supports this )

[ OK ]  [ Clear ]  [ Cancel ]

And when connected you should see:



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