Application Note 74

How to configure a GRE over IPsec Tunnel between two Digi TransPort WR Routers

Septeber 2020

Contents

1 INTRODUCTION

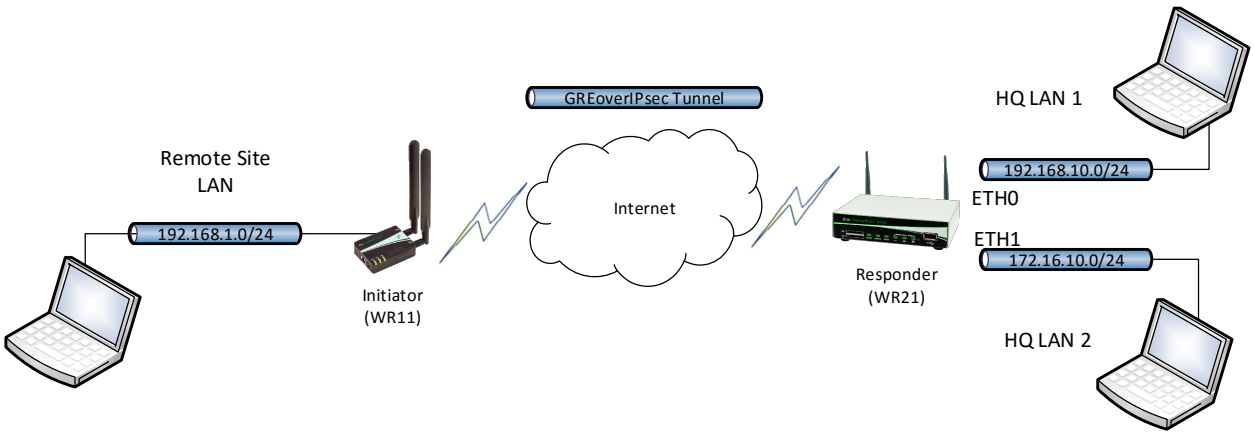
1.1 Outline

Using GRE over IPsec can be useful when there is the need to have diverse traffic on the IP sec tunnel, like IP multicast and dynamic routing protocols (you can find an example of configuring GRE over IPsec using BGP routing protocol here:

http://ftp1.digi.com/support/documentation/qn_020_gre_over_ipsec_with_bgp.pdf).

Another advantage of using GRE over IPsec is that it allows to have multiple non-contiguous subnet in a single tunnel, that would be not possible using only IPsec as in that case multiple tunnels, or a wider subnet including all of them, would be needed.

This document describes how to configure a GRE over IPsec tunnel between two TransPort routers, using static routes and multiple subnets, considering the following scenario:



1.2 Assumptions

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product and of the requirements for their specific application. It also assumes a basic ability to access and navigate a Digi Transport router and configure it with basic routing functions.

This application note applies only to:

Model: Digi Transport WR21 and WR11

Other Compatible Models: All Digi TransPort WR products (SarOS)

Firmware versions: This Application Note assume firmware 5.2.18.3 is used.

Configuration: This Application Note assumes the devices are set to their factory default configurations. Most configuration commands are only shown if they differ from the factory default.

1.3 Corrections

Requests for corrections or amendments to this application note are welcome and should be addressed to: tech.support@digi.com.

Requests for new application notes can be sent to the same address.

1.4 Version

Version Number	Status
1.0	Published (October 2017)
1.1	Added date and minor fix (September 2020)

2 HQ SITE CONFIGURATION (RESPONDER)

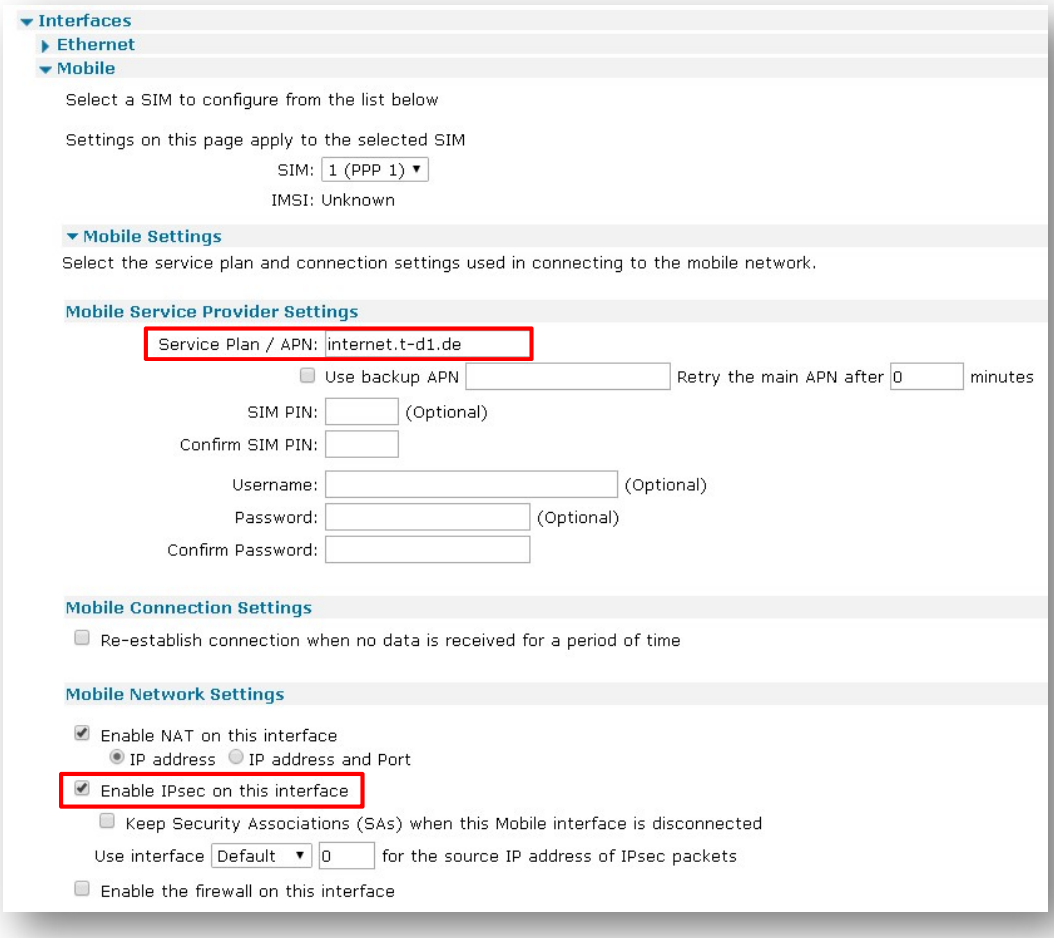
The HQ site router will act as Responder of the GREoverIPsec tunnel, its configuration consists in configuring: the LAN/WAN interfaces (as per the diagram shown above), the IKE/IPsec settings, the GRE tunnel interface and the routing to the remote site LAN.

All these aspects will be explained in the subsections below.

2.1 WAN Interface configuration

In this example the WAN Interface of the responder is the Mobile one, so on the PPP 1 interface the IPsec must be enabled:

CONFIGURATION – NETWORK > INTERFACES > MOBILE



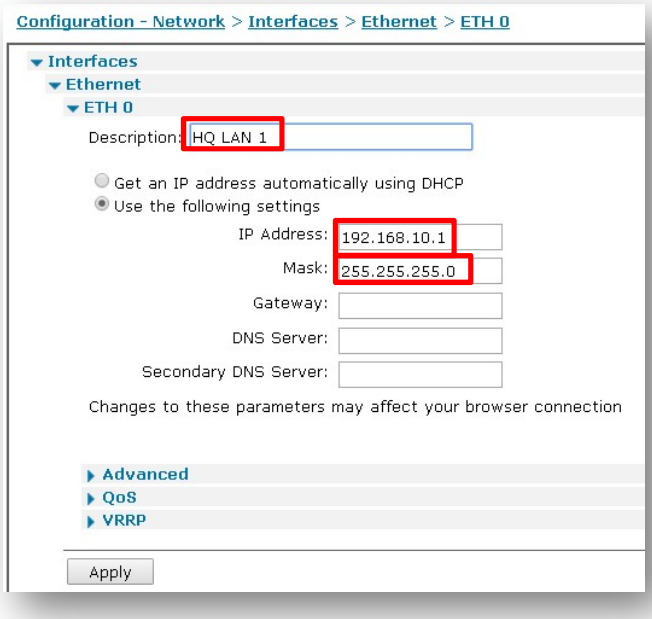
Where:

Parameter	Setting	Description
Service Plan/APN	internet	Enter the APN of your mobile provider
Enable IPSec on this interface	✓	Enable IPSec on PPP 1 interface

2.2 LAN Interfaces configuration

On the LAN side of the HQ two ETH interfaces will be configured, in order to test the tunnel with two non-contiguous subnets:

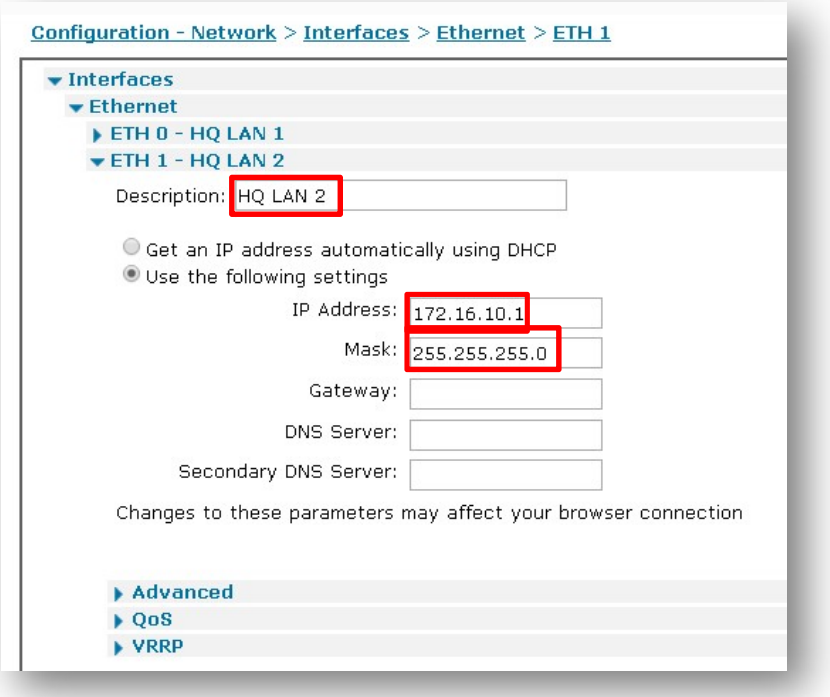
CONFIGURATION – NETWORK > INTERFACES > ETHERNET > ETH 0



Where:

Parameter	Setting	Description
Description	HQ LAN 1	A memorable name for this Ethernet instance, to make it easier to identify. In this case this helps to distinguish between LAN1 and LAN2
Use the following settings	✓	Enables manual configuration of the IP addressing parameters
IP Address	192.168.10.1	This parameter specifies the IP address of this Ethernet port on LAN1
Mask	255.255.255.0	The subnet mask of the IP subnet to which the router is attached via this Ethernet port

CONFIGURATION – NETWORK > INTERFACES > ETHERNET > ETH 1



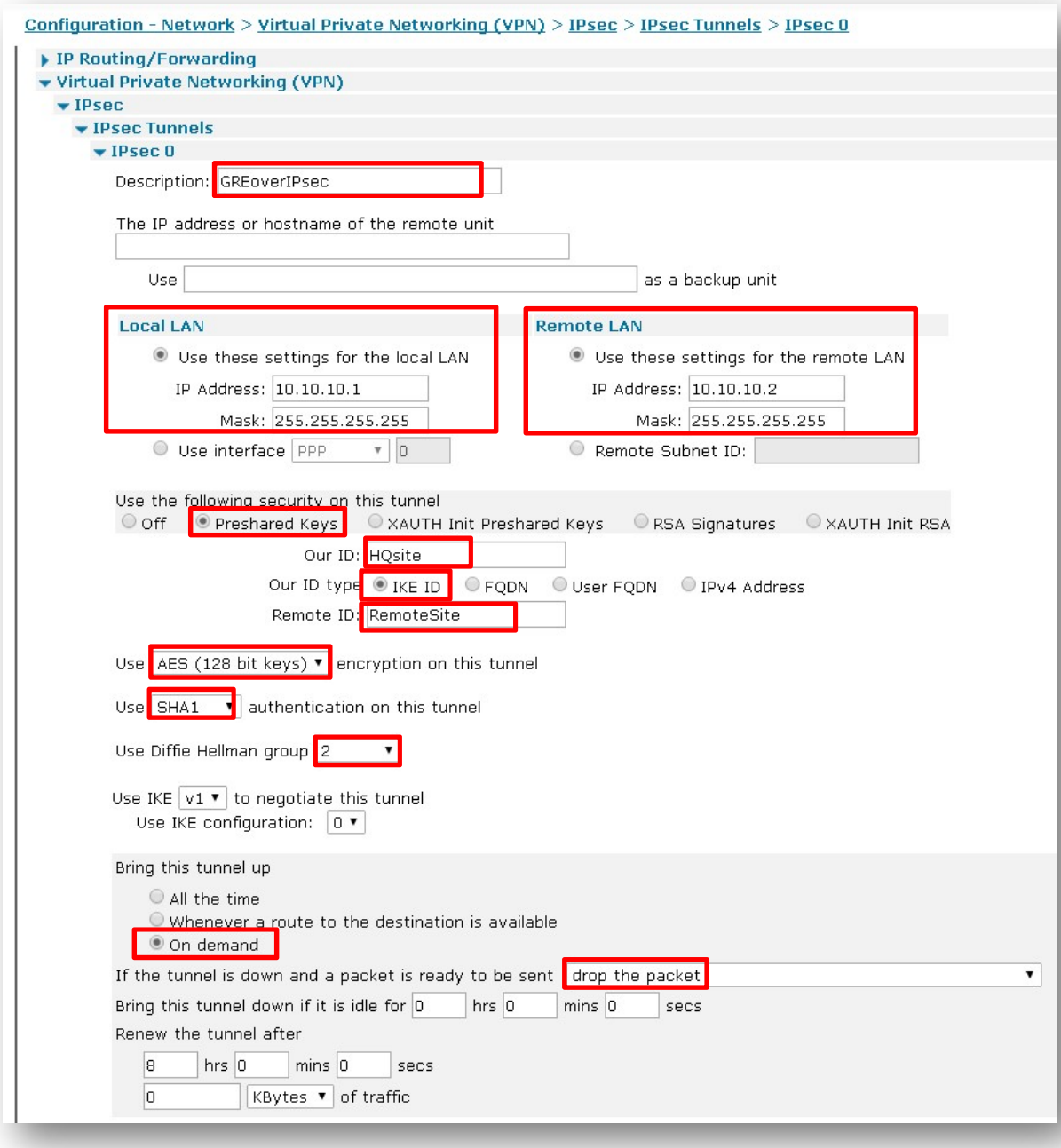
Where:

Parameter	Setting	Description
Description	HQ LAN 2	A memorable name for this Ethernet instance, to make it easier to identify. In this case this helps to distinguish between LAN1 and LAN2
Use the following settings	✓	Enables manual configuration of the IP addressing parameters
IP Address	172.16.10.1	This parameter specifies the IP address of this Ethernet port on LAN2
Mask	255.255.255.0	The subnet mask of the IP subnet to which the router is attached via this Ethernet port

2.3 IKE/IPsec configuration

The IPsec tunnel must be configured with the following settings:

CONFIGURATION – NETWORK > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IPSEC TUNNELS > IPSEC 0-9 > IPSEC 0

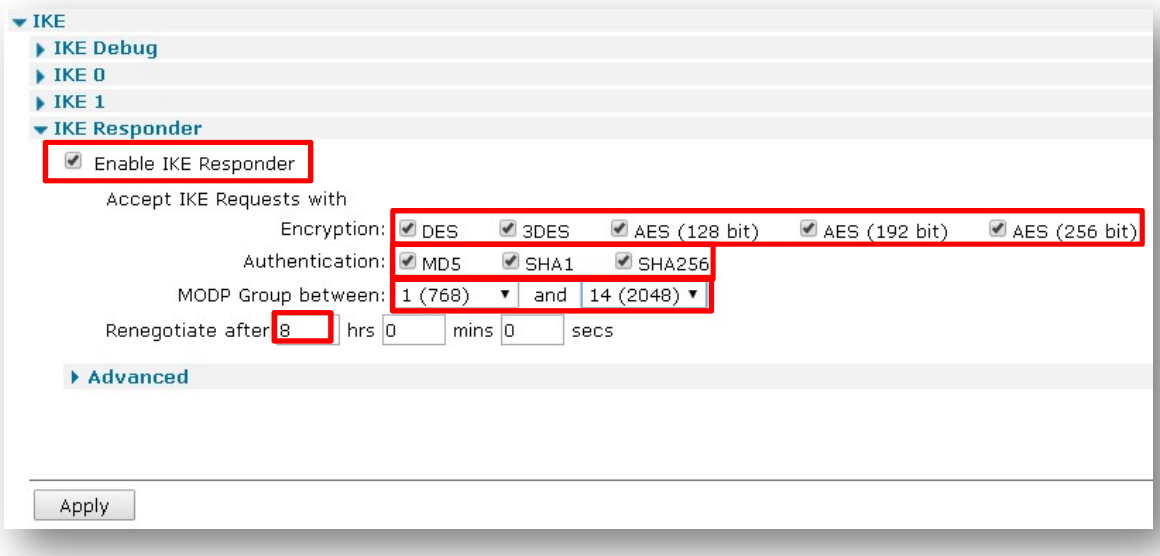


Where:

Parameter	Setting	Description
Description	GREoverIPsec	Friendly name for the IPsec tunnel
Local LAN IP Address	10.10.10.1	Use this IP address for the local LAN subnet. This is usually the IP address of the router's Ethernet interface but in this case is a host IP address that does not actually exist (use an unused IP address from an unused subnet; it doesn't matter what is used). This one of the end points of the IPsec tunnel (so with mask /32 as below)
Local LAN Mask	255.255.255.255	Use this IP mask for the local LAN subnet.
Remote LAN IP Address	10.10.10.2	Use this IP address for the local LAN subnet. This is usually the IP address of the router's Ethernet interface but in this case is a host IP address that does not actually exist (use an unused IP address from an unused subnet; it doesn't matter what is used). This one of the end points of the IPsec tunnel (so with mask /32 as below)
Remote LAN Mask	255.255.255.255	Use this IP mask for the remote LAN subnet. The mask sets the range of IP addresses that will be allowed to use the IPsec tunnel.
Use the following security on this tunnel	Preshared Key	Requires that both IPsec peers share a secret key, or password, that can be matched by and verified by both peers. To configure the PSK, a user will need configuring that matches the inbound ID of the remote peer and the PSK is configured using the password parameter. This is done via Configuration > Security > Users as shown below
Our ID	HQsite	When Aggressive mode is ON (as in this case), this parameter is a string of up to 20 characters. It is sent to the remote peer to identify the router
Our ID type	IKE ID	Defines how the remote peer is to process the Our ID configuration. Set to IKE ID.
Remote ID	RemoteSite	When Aggressive mode is ON (as in this case), this parameter is a string of up to 20 characters that identifies the remote peer. This setting should use the same text as the Our ID parameter in the remote peer's configuration.
Use ( ) encryption on this tunnel	AES (128 bit keys)	The ESP encryption protocol to use with this IPsec tunnel
Use ( ) Authentication on this tunnel	SHA1	The ESP authentication algorithm to use with this IPsec tunnel
Use Diffie Hellman group ( )	2	The Diffie-Hellman (DH) group to use when negotiating new IPsec SAs.
Bring this tunnel up	On Demand	This controls how the IPsec tunnel is brought up, for the responder "On demand" option is chosen
If this tunnel is down and a packet is ready to be sent	Drop the Packet	Defines the action that is performed when the IPsec tunnel is down and a packet needs to be sent. For the responder the "drop the packet" option is chosen

The IKE responder settings are set as follows:

CONFIGURATION - NETWORK > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IKE > IKE RESPONDER



Where:

Parameter	Setting	Description
Enable IKE Responder	✓	Allows the router to respond to incoming IKE requests
Encryption	ALL ✓	The acceptable encryption algorithms
Authentication	ALL ✓	The acceptable authentication algorithms
MODP Group between x and y	1(768) and 14(1536)	The acceptable range for MODP group
Renegotiate after h hrs m mins s secs	8 hrs	How long the initial IKE Security Association will stay in force. When the IKE Security Association expires, any attempt to send packets to the remote system will result in IKE attempting to establish a new SA

Note: IKE settings can be narrowed down depending on the initiators needs.

For the Pre-Shared key, a user needs to be configured with the Username as the ID of the initiator and the password as the Pre-Shared key:

CONFIGURATION – SECURITY > USERS > USER 10-14 > USER 10

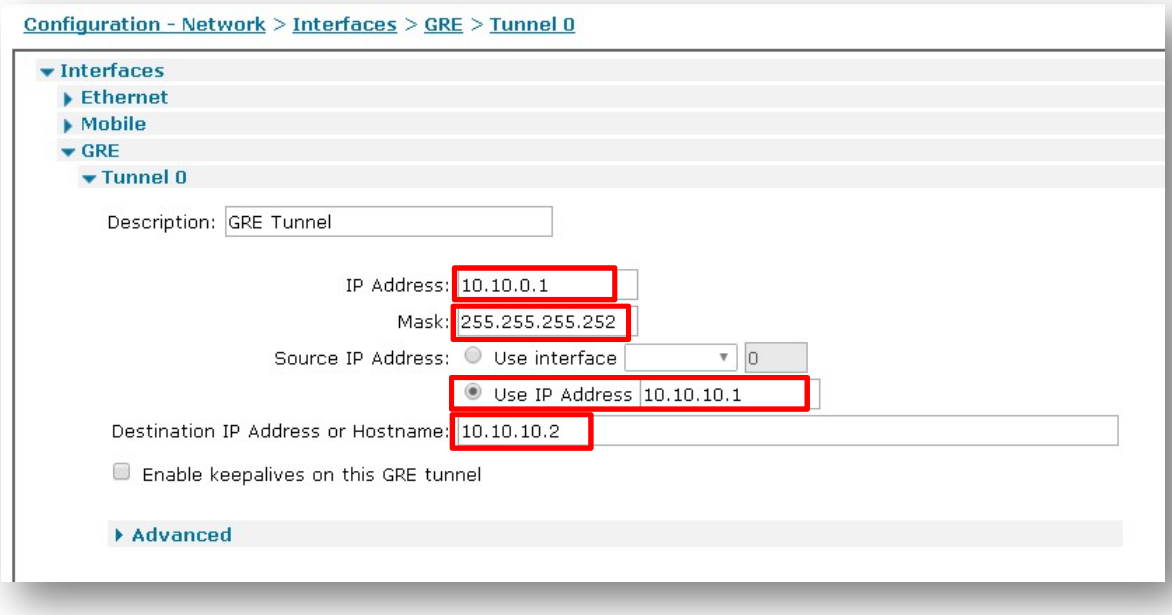
Where:

Parameter	Setting	Description
Username	RemoteSite	Name should match the Remote ID: value from Eroute 0
Password	****	Enter a password
Confirm Password	****	Re-enter the password
Access Level	None	This user will not be granted any admin access as only used as a pre-shared key

2.4 GRE Tunnel configuration

In order to configure the GRE Tunnel Interface, navigate to the following section and configure as explained below:

CONFIGURATION – NETWORK > INTERFACES > GRE > TUNNEL 0



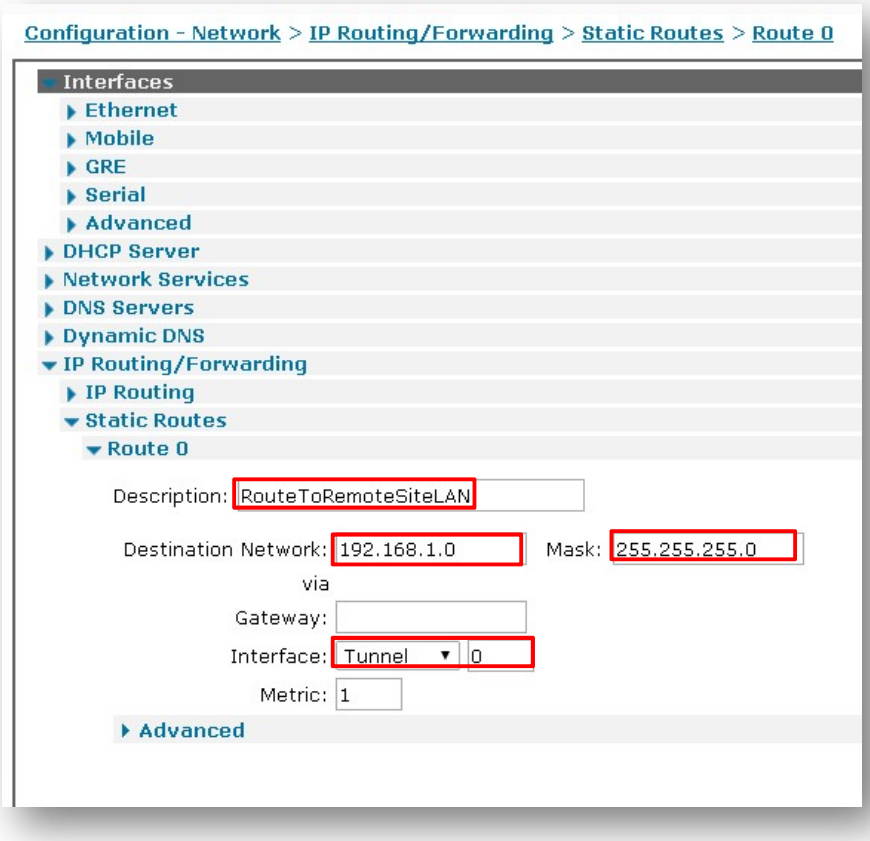
Where:

Parameter	Setting	Description
Description	GRE Tunnel	A memorable name for this GRE instance, to make it easier to identify it.
IP address	10.10.0.1	The IP address of the virtual interface the tunnel uses. Use with the Mask parameter
Mask	255.255.255.252	Use this parameter with the IP address parameter to clarify the subnet in use on the virtual interface. This would normally be a 30-bit mask as this is a point-to-point link (255.255.255.252).
Source IP Address – Use IP Address	10.10.10.1	Specify a source address by manually assigning an address. This will be the same address configured in Eroute 0 Local LAN section
Destination IP Address or Hostname	10.10.10.2	This is IP address of the remote end of the tunnel. This will be the same address configured in Eroute 0 Remote LAN section

2.5 Static Route configuration

The last thing to configure is a static route so that the traffic directed to the Remote Site LAN will be routed into the GRE tunnel:

CONFIGURATION - NETWORK > IP ROUTING/FORWARDING > STATIC ROUTES > ROUTE 0



Where:

Parameter	Setting	Description
Description	RouteToRemote SiteLAN	Friendly name for the static route
Destination Network-Mask	192.168.1.0-255.255.255.0	Remote Site LAN subnet with related mask
Interface	Tunnel 0	In order to route the traffic into the GRE tunnel, the “Tunnel 0” interface must be chosen

3 REMOTE SITE CONFIGURATION (INITIATOR)

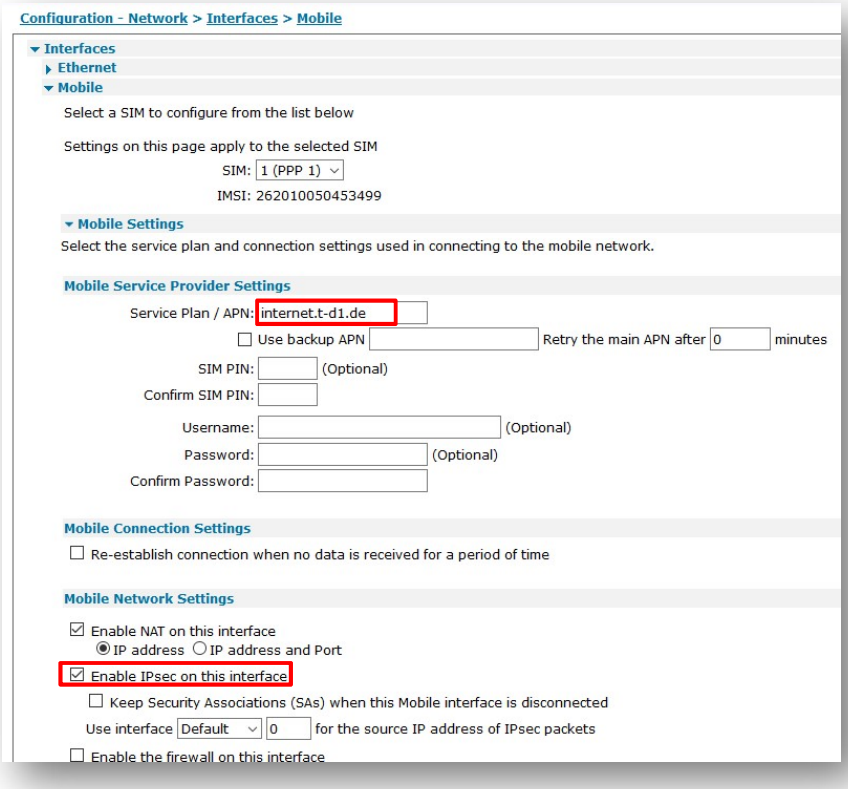
The Remote site router will act as Initiator of the GREoverIPsec tunnel, its configuration consists in configuring: the LAN/WAN interfaces (as per the diagram shown above), the IKE/IPsec settings, the GRE tunnel interface and the routing to the remote site LAN.

All these aspects will be explained in the subsections below.

3.1 WAN Interface configuration

In this example the WAN Interface of the Initiator is the Mobile one, so on the PPP 1 interface the IPsec must be enabled:

CONFIGURATION – NETWORK > INTERFACES > MOBILE



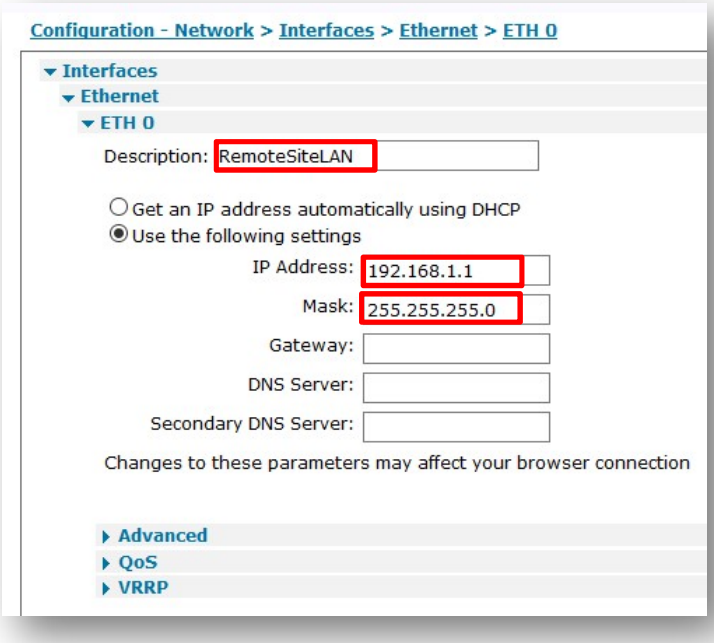
Where:

Parameter	Setting	Description
Service Plan/APN	internet	Enter the APN of your mobile provider
Enable IPSec on this interface	✓	Enable IPSec on PPP 1 interface

3.2 LAN Interfaces configuration

On the LAN side of the Remote site. One ETH interface will be configured:

CONFIGURATION – NETWORK > INTERFACES > ETHERNET > ETH 0



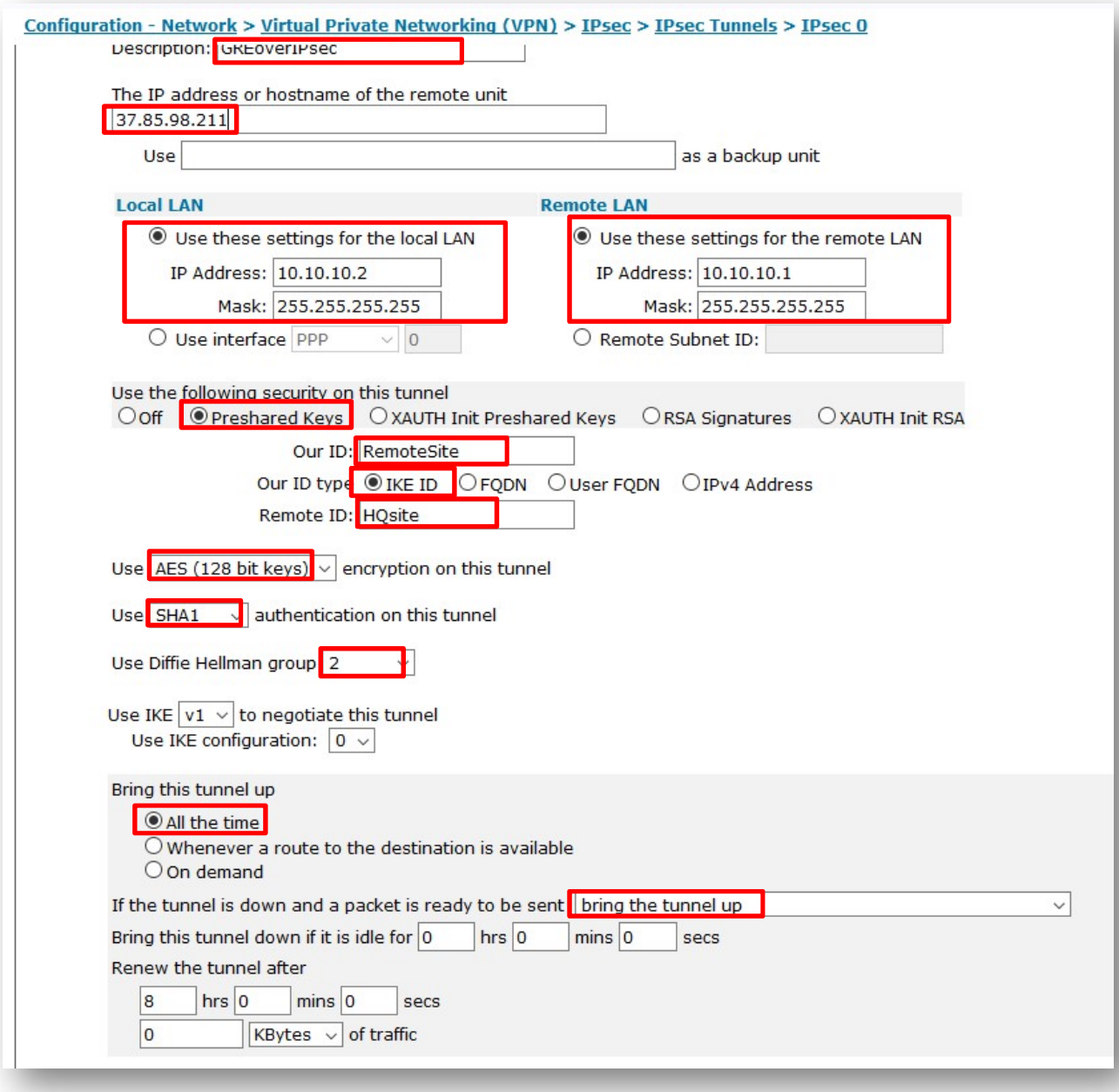
Where:

Parameter	Setting	Description
Description	RemoteSiteLAN	A memorable name for this Ethernet instance, to make it easier to identify.
Use the following settings	✓	Enables manual configuration of the IP addressing parameters
IP Address	192.168.1.1	This parameter specifies the IP address of this Ethernet port on LAN0
Mask	255.255.255.0	The subnet mask of the IP subnet to which the router is attached via this Ethernet port

3.3 IKE/IPsec configuration

The IPsec tunnel must be configured with the following settings:

CONFIGURATION – NETWORK > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IPSEC TUNNELS > IPSEC 0-9 > IPSEC 0

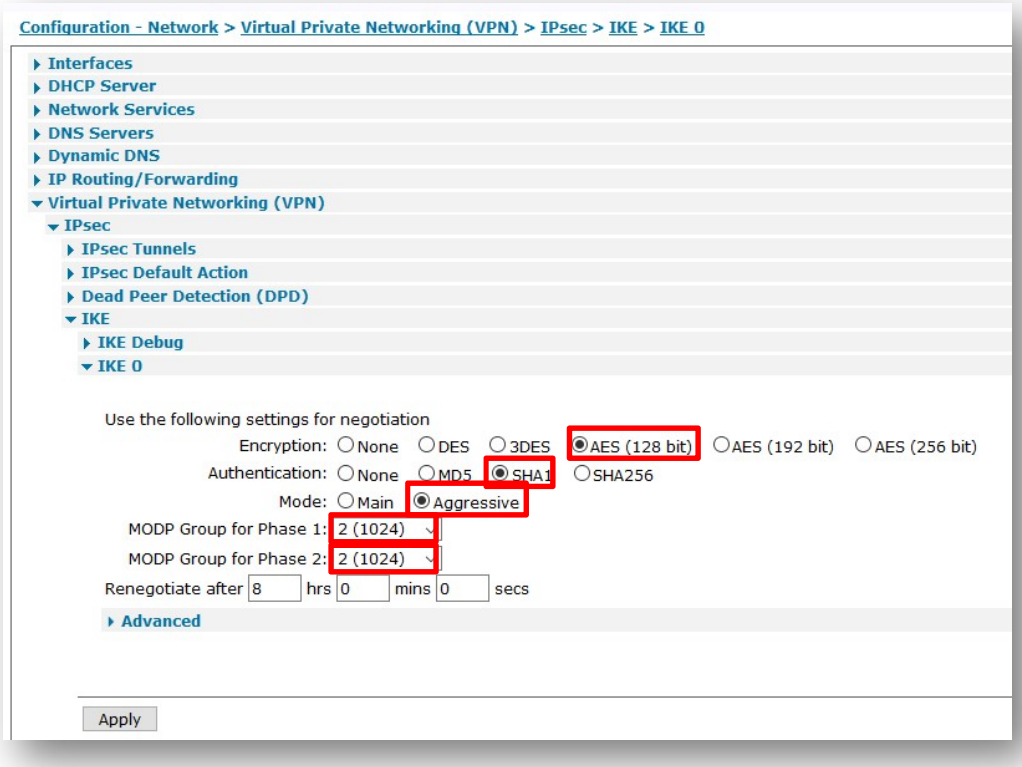


Where:

Parameter	Setting	Description
Description	GREoverIPsec	Friendly name for the IPsec tunnel
The IP address or hostname of the remote unit	37.85.98.211	The IP address or hostname of the remote IPsec peer that a VPN will be initiated to.
Local LAN IP Address	10.10.10.2	Use this IP address for the local LAN subnet. This is usually the IP address of the router's Ethernet interface but in this case is a host IP address that does not actually exist (use an unused IP address from an unused subnet; it doesn't matter what is used). This one of the end points of the IPsec tunnel (so with mask /32 as below)
Local LAN Mask	255.255.255.255	Use this IP mask for the local LAN subnet.
Remote LAN IP Address	10.10.10.1	Use this IP address for the local LAN subnet. This is usually the IP address of the router's Ethernet interface but in this case is a host IP address that does not actually exist (use an unused IP address from an unused subnet; it doesn't matter what is used). This one of the end points of the IPsec tunnel (so with mask /32 as below)
Remote LAN Mask	255.255.255.255	Use this IP mask for the remote LAN subnet. The mask sets the range of IP addresses that will be allowed to use the IPsec tunnel.
Use the following security on this tunnel	Preshared Key	Requires that both IPsec peers share a secret key, or password, that can be matched by and verified by both peers. To configure the PSK, a user will need configuring that matches the inbound ID of the remote peer and the PSK is configured using the password parameter. This is done via Configuration > Security > Users as shown below
Our ID	RemoteSite	When Aggressive mode is ON (as in this case), this parameter is a string of up to 20 characters. It is sent to the remote peer to identify the router
Our ID type	IKE ID	Defines how the remote peer is to process the Our ID configuration. Set to IKE ID.
Remote ID	HQSite	When Aggressive mode is ON (as in this case), this parameter is a string of up to 20 characters that identifies the remote peer. This setting should use the same text as the Our ID parameter in the remote peer's configuration.
Use ( ) encryption on this tunnel	AES (128 bit keys)	The ESP encryption protocol to use with this IPsec tunnel
Use ( ) Authentication on this tunnel	SHA1	The ESP authentication algorithm to use with this IPsec tunnel
Use Diffie Hellman group()	2	The (DH) group to use when negotiating new IPsec SAs.
Bring this tunnel up	All the Time	This controls how the IPsec tunnel is brought up, for the Initiator "All the time" option is chosen
If this tunnel is down and a packet is ready to be sent	Bring the tunnel Up	Defines the action that is performed when the IPsec tunnel is down and a packet needs to be sent. For the Initiator the "Bring the tunnel up" option is chosen

The IKE responder settings are set as follows:

CONFIGURATION - NETWORK > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IKE > IKE RESPONDER

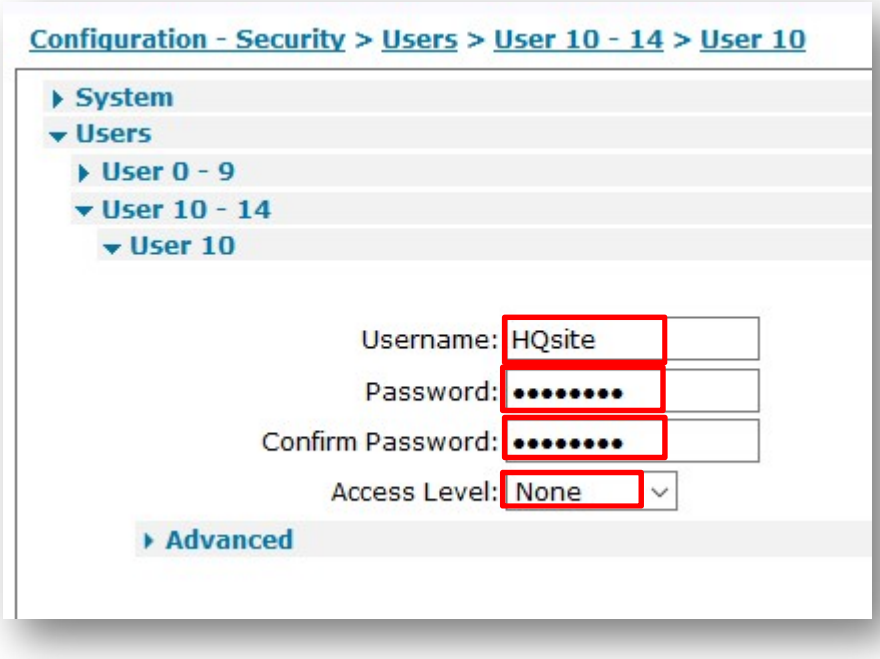


Where:

Parameter	Setting	Description
Encryption	AES (128 bit)	The encryption algorithm to be used for IKE exchanges over the IP connection
Authentication	SHA1	The algorithm used to authenticate the IKE session
Mode	Aggressive	Aggressive mode is used in this example
MODP Group for Phase 1	2 (1024)	The key length used in the IKE Diffie-Hellman exchange
MODP Group for Phase 2	2 (1024)	The minimum width of the numeric field used in the calculations for phase 2 of the security exchange.

For the Pre-Shared key, a user needs to be configured with the Username as the ID of the responder and the password as the Pre-Shared key:

CONFIGURATION – SECURITY > USERS > USER 10-14 > USER 10

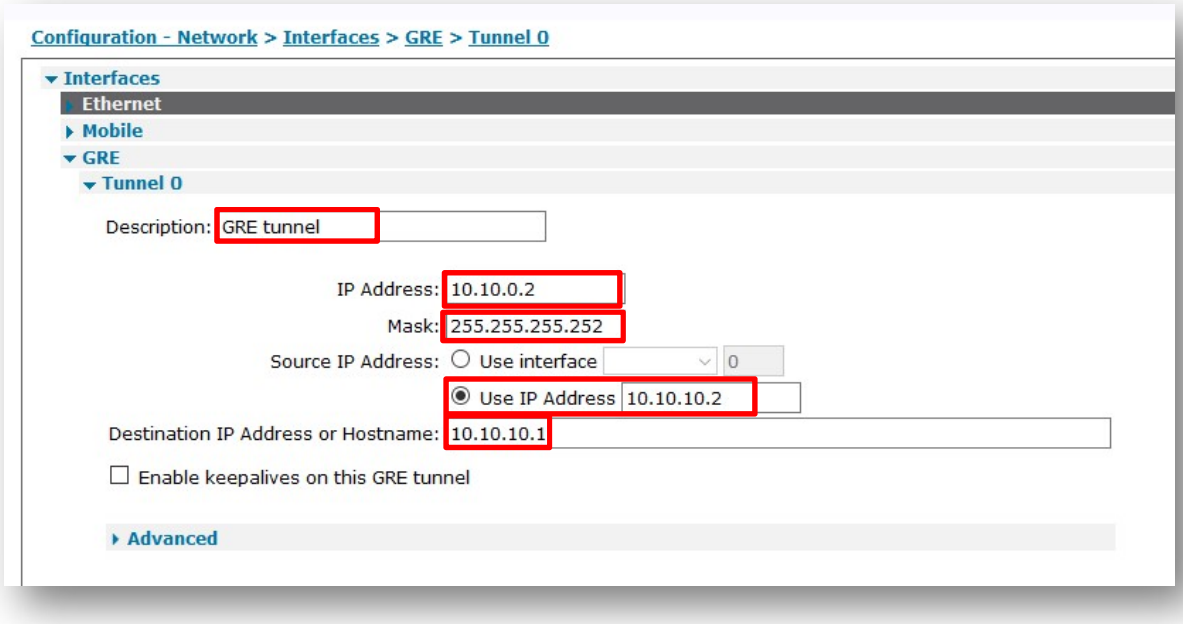


Parameter	Setting	Description
Username	HQsite	Name should match the Remote ID: value from Eroute 0
Password	****	Enter a password
Confirm Password	****	Re-enter the password
Access Level	None	This user will not be granted any admin access as only used as a pre-shared key

3.4 GRE Tunnel configuration

In order to configure the GRE Tunnel Interface, navigate to the following section and configure as explained below:

CONFIGURATION – NETWORK > INTERFACES > GRE > TUNNEL 0



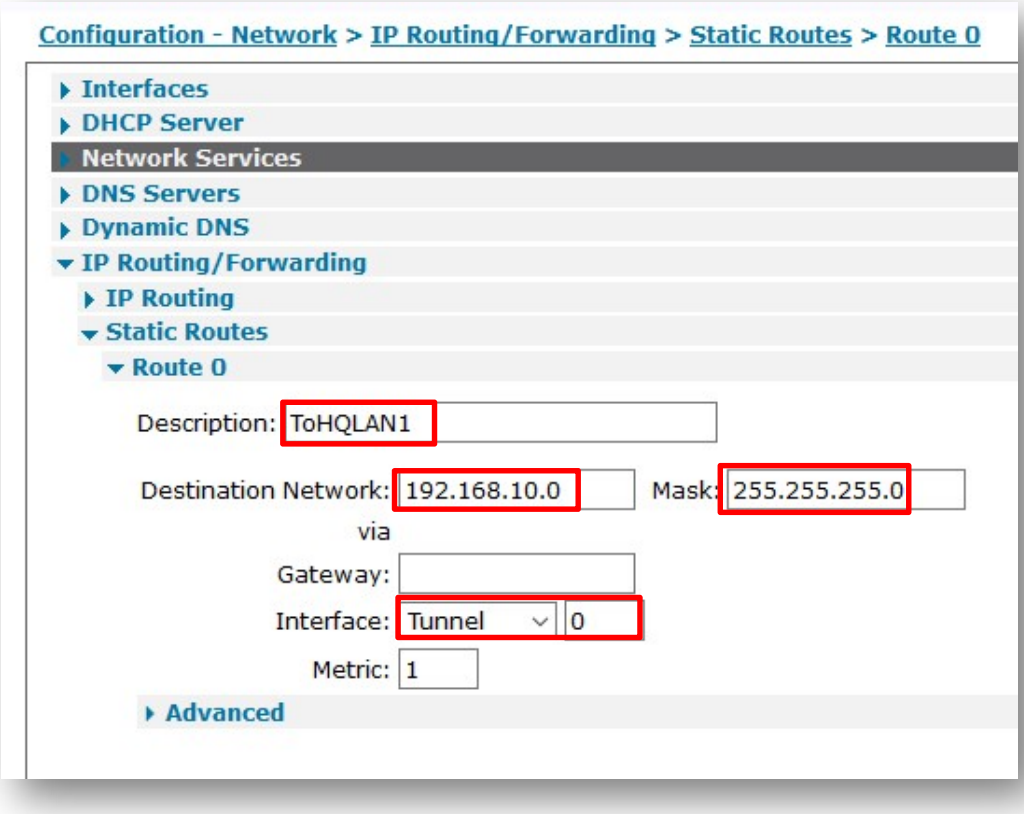
Where:

Parameter	Setting	Description
Description	GRE Tunnel	A memorable name for this GRE instance, to make it easier to identify it.
IP address	10.10.0.2	The IP address of the virtual interface the tunnel uses. Use with the Mask parameter
Mask	255.255.255.252	Use this parameter with the IP address parameter to clarify the subnet in use on the virtual interface. This would normally be a 30-bit mask as this is a point-to-point link (255.255.255.252).
Source IP Address – Use IP Address	10.10.10.2	Specify a source address by manually assigning an address. This will be the same address configured in Eroute 0 Local LAN section
Destination IP Address or Hostname	10.10.10.1	This is IP address of the remote end of the tunnel. This will be the same address configured in Eroute 0 Remote LAN section

3.5 Static Route configuration

The last thing to configure is two static routes so that the traffic directed to both HQ LANs will be routed into the same GREoverIpsec tunnel:

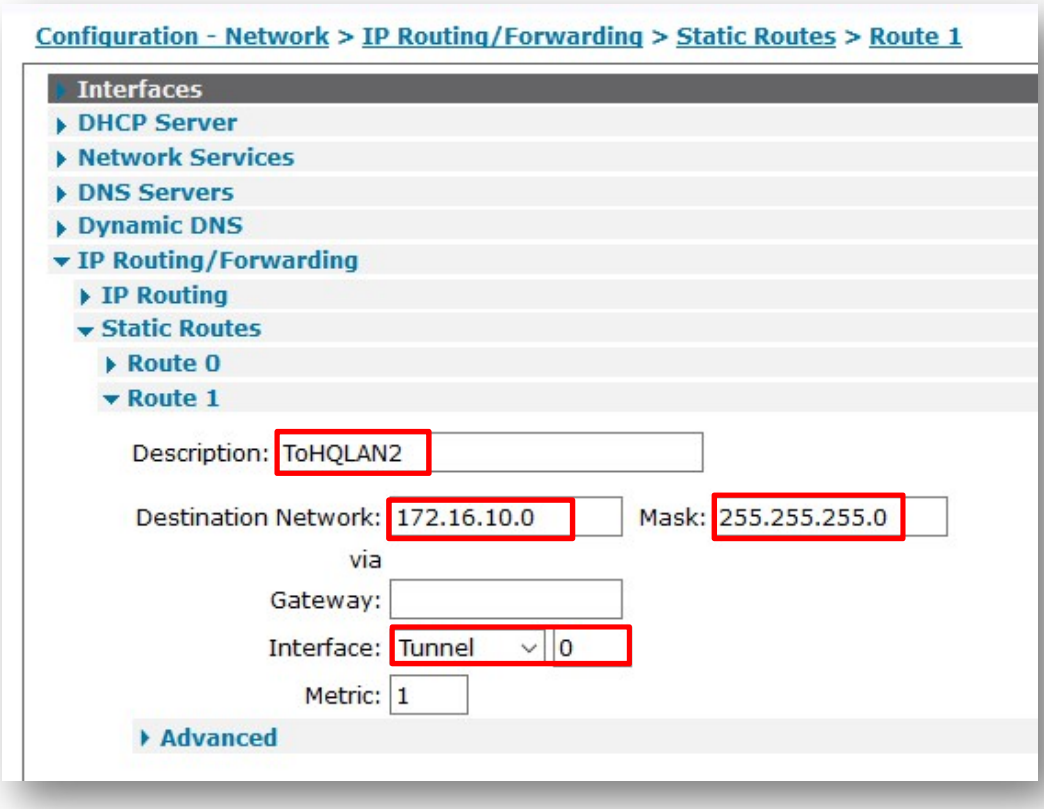
CONFIGURATION - NETWORK > IP ROUTING/FORWARDING > STATIC ROUTES > ROUTE 0



Where:

Parameter	Setting	Description
Description	ToHQLAN1	Friendly name for the static route
Destination Network-Mask	192.168.10.0-255.255.255.0	HQ LAN 1 subnet with related mask
Interface	Tunnel 0	In order to route the traffic into the GRE tunnel, the "Tunnel 0" interface must be chosen

CONFIGURATION - NETWORK > IP ROUTING/FORWARDING > STATIC ROUTES > ROUTE 1



Where:

Parameter	Setting	Description
Description	ToHQLAN2	Friendly name for the static route
Destination Network-Mask	172.16.10.0-255.255.255.0	HQ LAN 2 subnet with related mask
Interface	Tunnel 0	In order to route the traffic into the GRE tunnel, the “Tunnel 0” interface must be chosen

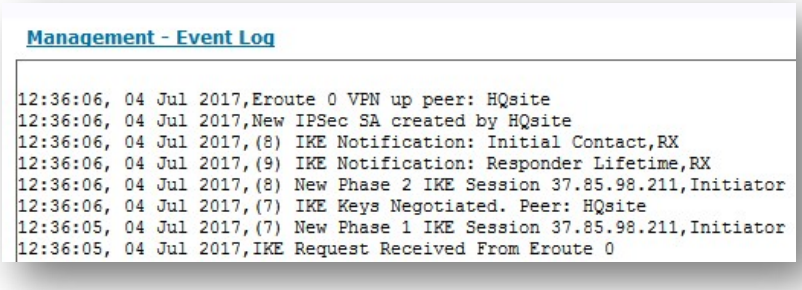
4 TESTING THE GREOVERIPSEC TUNNEL

4.1 Checking the Tunnel status

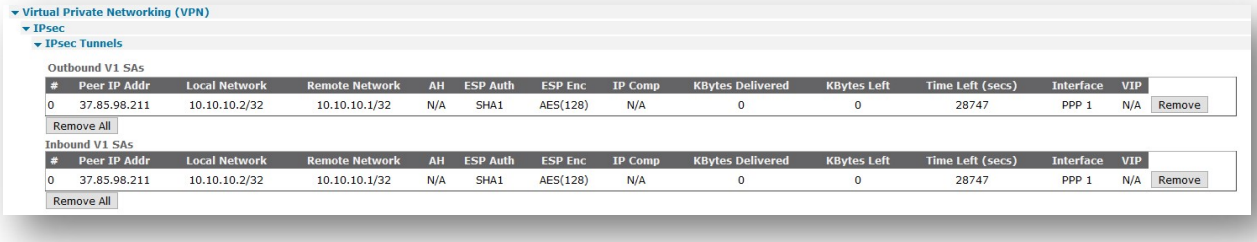
If all is correctly configured on both sides, the tunnel should go UP and that can be checked in the following section of the WEB UI:

Initiator:

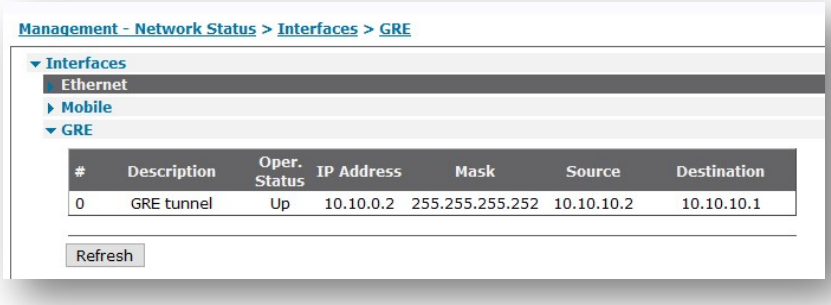
MANAGEMENT - EVENTLOG



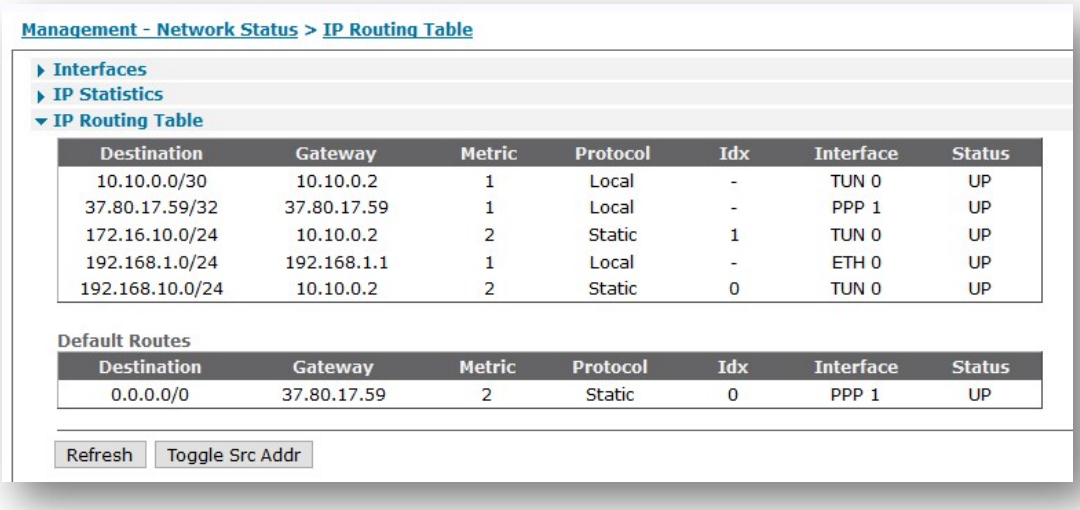
MANAGEMENT - CONNECTIONS > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IPSEC TUNNELS



MANAGEMENT - NETWORK STATUS > INTERFACES > GRE



MANAGEMENT - NETWORK STATUS > IP ROUTING TABLE



Management - Network Status > IP Routing Table

Interfaces
IP Statistics
IP Routing Table

Destination	Gateway	Metric	Protocol	Idx	Interface	Status
10.10.0.0/30	10.10.0.2	1	Local	-	TUN 0	UP
37.80.17.59/32	37.80.17.59	1	Local	-	PPP 1	UP
172.16.10.0/24	10.10.0.2	2	Static	1	TUN 0	UP
192.168.1.0/24	192.168.1.1	1	Local	-	ETH 0	UP
192.168.10.0/24	10.10.0.2	2	Static	0	TUN 0	UP

Default Routes

Destination	Gateway	Metric	Protocol	Idx	Interface	Status
0.0.0.0/0	37.80.17.59	2	Static	0	PPP 1	UP

Refresh | Toggle Src Addr

Responder (HQ):

MANAGEMENT - EVENTLOG

Management - Event Log

```
14:36:03, 04 Jul 2017,(3) IKE SA Removed. Peer: RemoteSite,Successful Negotiation
14:36:01, 04 Jul 2017,Eroute 0 VPN up peer: RemoteSite
14:36:01, 04 Jul 2017,New IPSec SA created by RemoteSite
14:36:01, 04 Jul 2017,(3) IKE Notification: Initial Contact,RX
14:36:01, 04 Jul 2017,(3) New Phase 2 IKE Session 37.80.17.59,Responder
14:36:00, 04 Jul 2017,(1) IKE Keys Negotiated. Peer: RemoteSite
14:36:00, 04 Jul 2017,(1) New Phase 1 IKE Session 37.80.17.59,Responder
```

MANAGEMENT - CONNECTIONS > VIRTUAL PRIVATE NETWORKING (VPN) > IPSEC > IPSEC TUNNELS

Virtual Private Networking (VPN)
IPsec
IPsec Tunnels

Outbound V1 SAs

#	Peer IP Addr	Local Network	Remote Network	AH	ESP Auth	ESP Enc	IP Comp	KBytes Delivered	KBytes Left	Time Left (secs)	Interface	VIP	
0	37.80.17.59	10.10.10.1/32	10.10.10.2/32	N/A	SHA1	AES(128)	N/A	0	0	28703	PPP 1	N/A	Remove

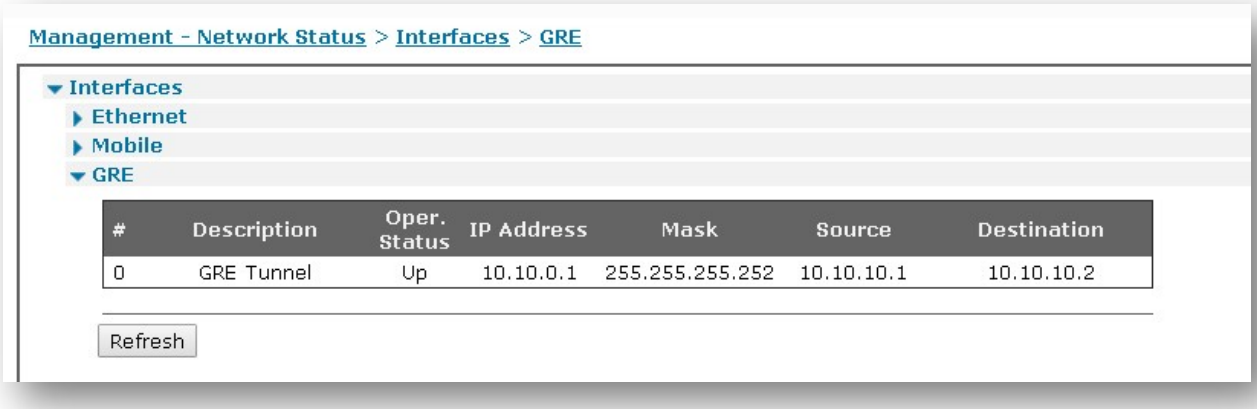
Remove All

Inbound V1 SAs

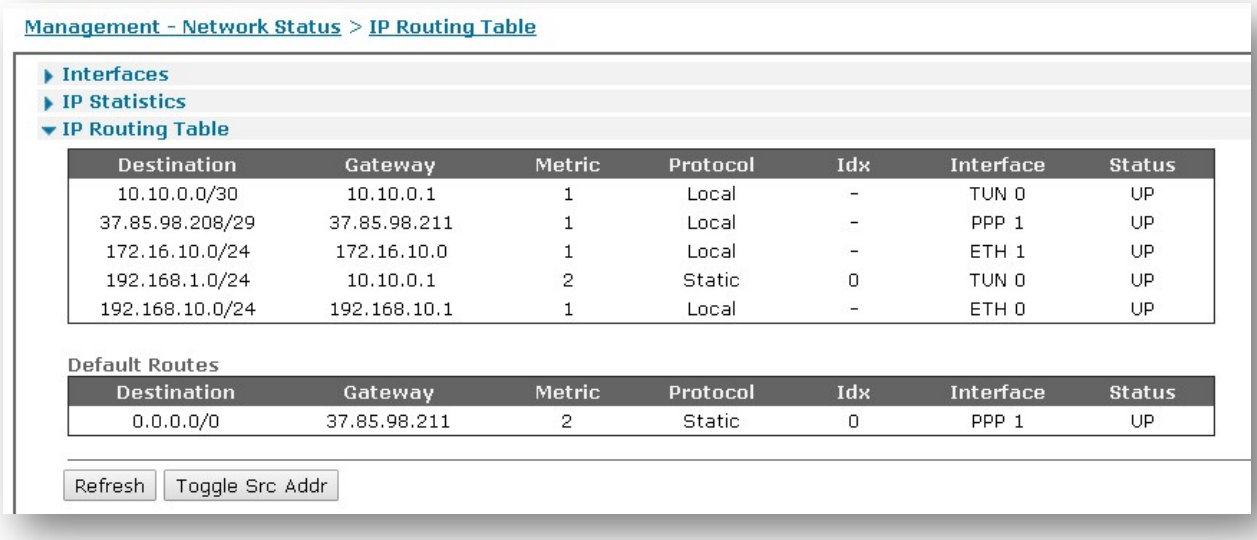
#	Peer IP Addr	Local Network	Remote Network	AH	ESP Auth	ESP Enc	IP Comp	KBytes Delivered	KBytes Left	Time Left (secs)	Interface	VIP	
0	37.80.17.59	10.10.10.1/32	10.10.10.2/32	N/A	SHA1	AES(128)	N/A	0	0	28703	PPP 1	N/A	Remove

Remove All

MANAGEMENT - NETWORK STATUS > INTERFACES > GRE



MANAGEMENT - NETWORK STATUS > IP ROUTING TABLE



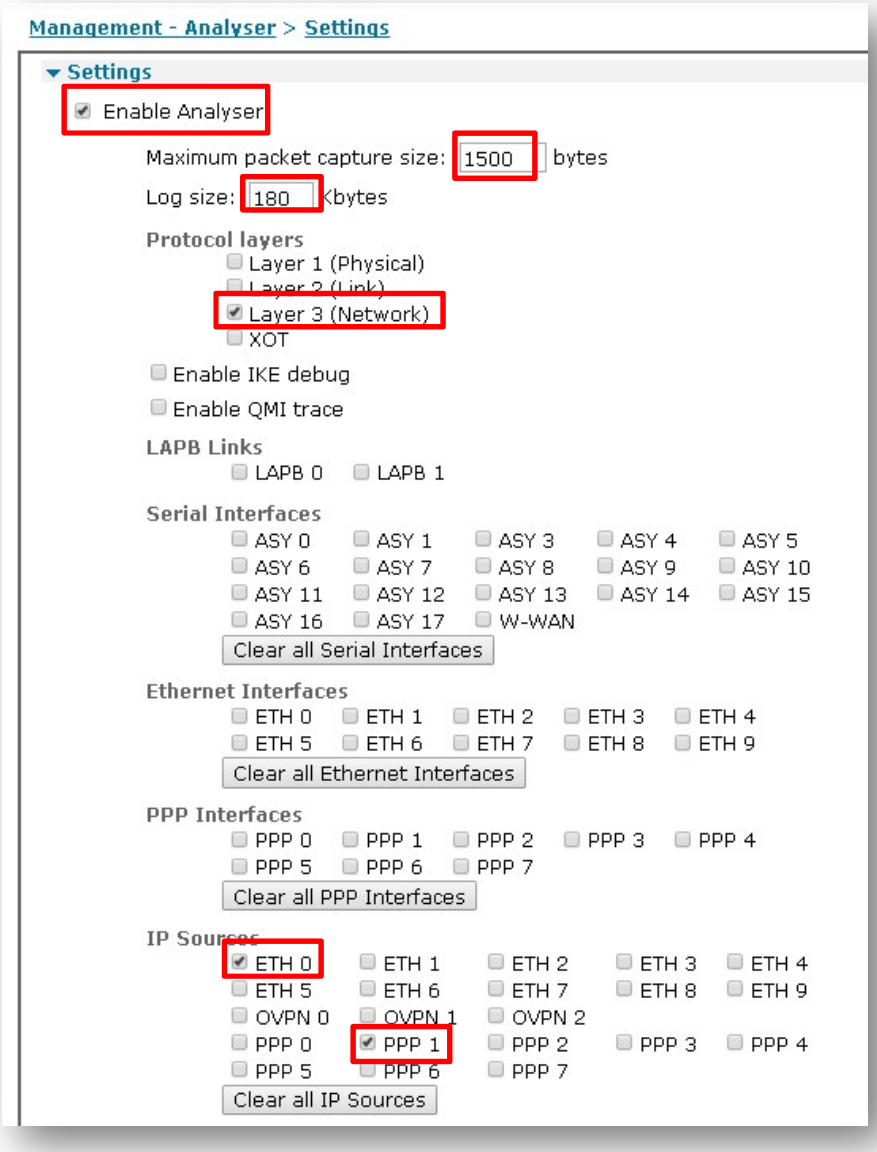
4.2 Testing the Traffic over the Tunnel

In order to test that the traffic between the RemoteSite LAN and both HQ LANs is correctly transported through the GREoverIPsec tunnel, a simple ping test can be done from a Laptop on the Remote Site LAN to two hosts in the two different HQ LANs.

4.2.1 Configuring Analyser

In order to get a packet trace of the test traffic, the analyser on the Remo Site router must be configured as follows:

MANAGEMENT - ANALYSER > SETTINGS

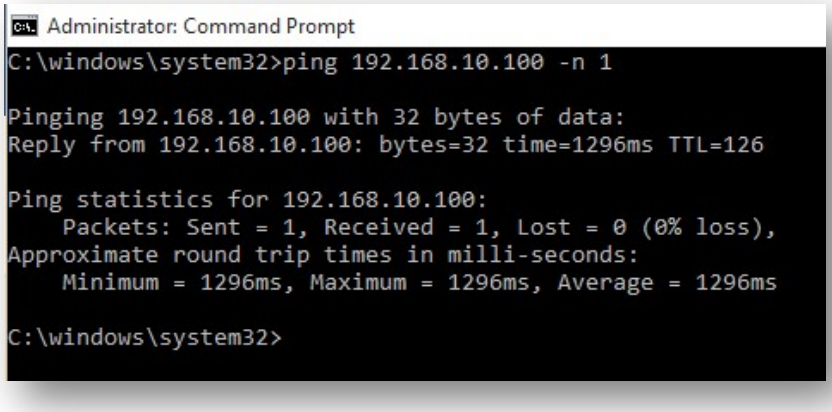


Where:

Parameter	Setting	Description
Enable Analyser	✓	If ticked will reveal all Analyser settings options
Maximum packet capture size	1500	The number of bytes that are captured and stored for each packet. If the packet is bigger than the configured size, the packet is truncated. The usual value used is 1500
Log Size	180	The maximum size of the pseudo file **ana.txt** for storing the captured data packets. Once the maximum size is reached, the oldest captured data packets are overwritten when new packets are captured. Usually the maximum value is chosen: 180Kb (but the data is compressed so more than 180Kb of trace data will be captured)
Protocol layers	Layer 3 (Network)	The check-boxes under this heading specify which protocol layers are captured and included in the Analyser trace. In this case the the Network Layer (Layer 3) is chosen.
IP Sources		Selects the IP sources over which packets are captured and included in the Analyser trace. These sources include IP packet transmitted and received over Ethernet, PPP and OpenVPN (OVPN) interfaces.
ETH 0	✓	LAN Interface , in this example ETH 0 is used
PPP 1	✓	WAN Interface, in this example PPP 1 is used

4.2.2 Ping test to HQ LAN 1

From the command prompt of a laptop in the Remote Site LAN, try a ping to a host in the HQ LAN1:



Checking the trace in the **MANAGEMENT - ANALYSER > TRACE** section, it is shown that the ECHO REQ/REPLY packets are correctly encapsulated in the tunnel (GRE/ESP packets) sent/received via the PPP connection:

```
-----   4-7-2017  12:47:38.770   -------
 45 00 00 3C 25 F3 00 00 80 01 87 B5 C0 A8 01 64     E..<%..........d
 C0 A8 0A 64 08 00 27 17 00 01 26 44 61 62 63 64     ...d..'...&Dabcd
 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74     efghijklmnopqrst
 75 76 77 61 62 63 64 65 66 67 68 69                 uvwabcdefghi

 IP (In) From REM TO LOC        IFACE: ETH 0
 45              IP Ver:        4
                 Hdr Len:       20
 00              TOS:           Routine
                 Delay:         Normal
                 Throughput:    Normal
                 Reliability:   Normal
 00 3C           Length:        60
 25 F3           ID:            9715
 00 00           Frag Offset:   0
                 Congestion:    Normal
                                May Fragment
                                Last Fragment
 80              TTL:           128
 01              Proto:         ICMP
 87 B5           Checksum:      34741
 C0 A8 01 64     Src IP:        192.168.1.100
 C0 A8 0A 64     Dst IP:        192.168.10.100
 ICMP:
 08              Type:          ECHO REQ
 00              Code:          0
 27 17           Checksum:      5927
```

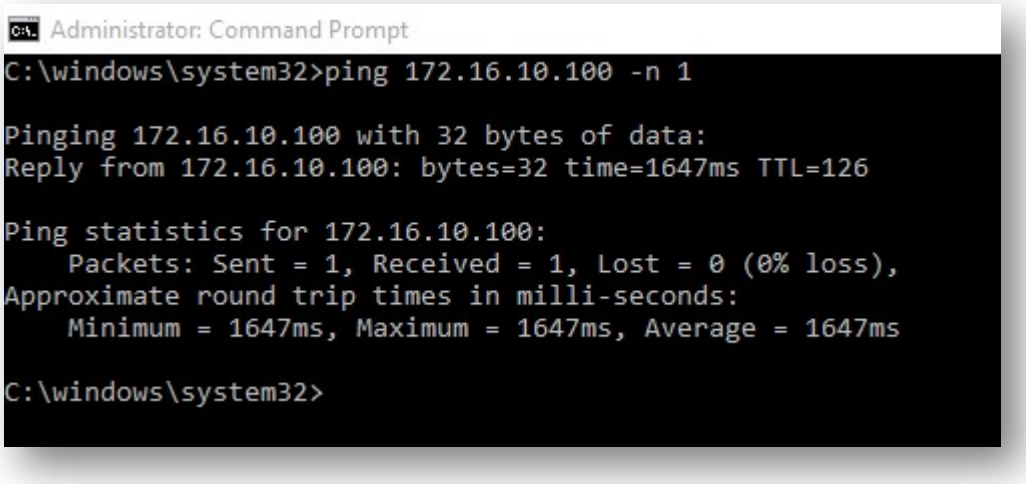
```
   ----------
-----   4-7-2017  12:47:38.770   -------
45 00 00 54 00 16 00 00 F9 2F 99 4E 0A 0A 0A 02     E..T...../.N....
0A 0A 0A 01 00 00 08 00 45 00 00 3C 25 F3 00 00     ........E..<%...
7F 01 88 B5 C0 A8 01 64 C0 A8 0A 64 08 00 27 17     .......d...d..'.
00 01 26 44 61 62 63 64 65 66 67 68 69 6A 6B 6C     ..&Dabcdefghijkl
6D 6E 6F 70 71 72 73 74 75 76 77 61 62 63 64 65     mnopqrstuvwabcde
66 67 68 69                                         fghi

ER 0-HQsite From LOC TO REM   IFACE: PPP 1
45              IP Ver:         4
                Hdr Len:        20
00              TOS:            Routine
                Delay:          Normal
                Throughput:     Normal
                Reliability:    Normal
00 54           Length:         84
00 16           ID:             22
00 00           Frag Offset:    0
                Congestion:     Normal
                                May Fragment
                                Last Fragment
F9              TTL:            249
2F              Proto:          GRE
99 4E           Checksum:       39246
0A 0A 0A 02     Src IP:         10.10.10.2
0A 0A 0A 01     Dst IP:         10.10.10.1
----------
-----   4-7-2017  12:47:38.770   -------
45 00 00 98 00 16 00 00 FA 32 01 6B 25 50 11 3B     E........2.k%P.;
25 55 62 D3 E4 15 10 C3 00 00 00 16 22 AE 55 D4     %Ub.........".U.
70 B8 16 37 1A B5 05 1E AA DC 43 C2 BB 6C 1B 6C     p..7......C..l.l
38 48 6E F2 10 59 12 77 6B 79 62 4C DD 10 BA FB     8Hn..Y.wkybL....
35 1B 6B E6 2C 73 4B 05 00 80 69 F8 CF 5D 75 79     5.k.,sK...i..]uy
AF F5 BA 24 B3 9B 30 02 3B 55 63 43 37 62 3A 17     ...$..0.;UcC7b:.
9A FE C4 D8 5B 37 23 FE AF B6 A0 AC 42 1E 8D 19     ....[7#.....B...
12 11 6D C5 04 90 78 D4 C0 32 98 F3 7E 04 DD 25     ..m...x..2..~..%
17 69 7F 98 F7 E1 45 60 1B A3 8A 26 B5 41 00 34     .i....E`...&.A.4
B8 A9 22 3E AC 83 1E 31                             ..">...1

IP (Final) From LOC TO REM    IFACE: PPP 1
45              IP Ver:         4
                Hdr Len:        20
00              TOS:            Routine
                Delay:          Normal
                Throughput:     Normal
                Reliability:    Normal
00 98           Length:         152
00 16           ID:             22
00 00           Frag Offset:    0
                Congestion:     Normal
                                May Fragment
                                Last Fragment
FA              TTL:            250
32              Proto:          ESP
```

```
01 6B          Checksum:       363
25 50 11 3B    Src IP:         37.80.17.59
25 55 62 D3    Dst IP:         37.85.98.211
----------
   -----   4-7-2017  12:47:40.320   -------
   45 00 00 98 00 15 00 00 F4 32 07 6C 25 55 62 D3     E........2.l%Ub.
   25 50 11 3B 36 44 13 D3 00 00 00 15 7D F5 8D 5D     %P.;6D......}..]
   6E FF 03 A0 35 9C E8 A4 11 C7 BC 4A D0 6D 99 D7     n...5......J.m..
   D7 BE 5A 32 98 F3 E5 90 3C C8 B9 B0 D0 55 85 68     ..Z2....<....U.h
   0E BD 7D 3A C9 EB 4F B9 C5 AF CF 17 E5 32 35 41     ..}:..O......25A
   E3 10 5D 9D 70 D7 1B 49 DA F8 48 85 0C F5 1D B4     ..].p..I..H.....
   AF F9 F6 0A 15 10 6D 5A BD C4 ED 35 12 E4 99 77     ......mZ...5...w
   4E 77 CF 0C 14 E9 41 3D 32 4C 5B BF EE 8A BD 93     Nw....A=2L[.....
   4F 92 C0 9E 18 A3 D0 D3 51 EB BE DF 4C 1D B8 35     O.......Q...L..5
   92 EC 76 C7 FA 12 1C 86                             ..v.....

   IP (In) From REM TO LOC       IFACE: PPP 1
   45             IP Ver:        4
                  Hdr Len:       20
   00             TOS:           Routine
                  Delay:         Normal
                  Throughput:    Normal
                  Reliability:   Normal
   00 98          Length:        152
   00 15          ID:            21
   00 00          Frag Offset:   0
                  Congestion:    Normal
                                 May Fragment
                                 Last Fragment
   F4             TTL:           244
   32             Proto:         ESP
   07 6C          Checksum:      1900
   25 55 62 D3    Src IP:        37.85.98.211
   25 50 11 3B    Dst IP:        37.80.17.59
   ----------
   -----   4-7-2017  12:47:40.320   -------
   45 00 00 54 00 15 00 00 F9 2F 99 4F 0A 0A 0A 01     E..T...../.O....
   0A 0A 0A 02 00 00 08 00 45 00 00 3C 13 B7 00 00     ........E..<....
   7F 01 9A F1 C0 A8 0A 64 C0 A8 01 64 00 00 2F 17     .......d...d../.
   00 01 26 44 61 62 63 64 65 66 67 68 69 6A 6B 6C     ..&Dabcdefghijkl
   6D 6E 6F 70 71 72 73 74 75 76 77 61 62 63 64 65     mnopqrstuvwabcde
   66 67 68 69                                         fghi

   IP (Cont) From REM TO LOC     IFACE: PPP 1
   45             IP Ver:        4
                  Hdr Len:       20
   00             TOS:           Routine
                  Delay:         Normal
                  Throughput:    Normal
                  Reliability:   Normal
   00 54          Length:        84
   00 15          ID:            21
   00 00          Frag Offset:   0
                  Congestion:    Normal
                                 May Fragment
```

```
                                    Last Fragment
   F9              TTL:             249
   2F              Proto:           GRE
   99 4F           Checksum:        39247
   0A 0A 0A 01     Src IP:          10.10.10.1
   0A 0A 0A 02     Dst IP:          10.10.10.2
   ----------
-----   4-7-2017  12:47:40.320   -------
45 00 00 3C 13 B7 00 00 7E 01 9B F1 C0 A8 0A 64     E..<....~......d
C0 A8 01 64 00 00 2F 17 00 01 26 44 61 62 63 64     ...d../...&Dabcd
65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74     efghijklmnopqrst
75 76 77 61 62 63 64 65 66 67 68 69                 uvwabcdefghi

IP (Final) From LOC TO REM    IFACE: ETH 0
45              IP Ver:          4
                Hdr Len:         20
00              TOS:             Routine
                Delay:           Normal
                Throughput:      Normal
                Reliability:     Normal
00 3C           Length:          60
13 B7           ID:              5047
00 00           Frag Offset:     0
                Congestion:      Normal
                                 May Fragment
                                 Last Fragment
7E              TTL:             126
01              Proto:           ICMP
9B F1           Checksum:        39921
C0 A8 0A 64     Src IP:          192.168.10.100
C0 A8 01 64     Dst IP:          192.168.1.100
ICMP:
00              Type:            ECHO REPLY
00              Code:            0
2F 17           Checksum:        5935
----------
```

4.2.3 Ping test to HQ LAN 2

From the command prompt of a laptop in the Remote Site LAN, try a ping to a host in the HQ LAN2:



Checking the trace in the **MANAGEMENT - ANALYSER > TRACE** section, also for the traffic directed to the HQ LAN 2, it is shown that the ECHO REQ/REPLY packets are correctly encapsulated in the tunnel (GRE/ESP packets) sent/received via the PPP connection:

```
-----   4-7-2017  12:57:13.880   -------
   45 00 00 3C 08 3A 00 00 80 01 BA 06 C0 A8 01 64     E..<.:.........d
   AC 10 0A 64 08 00 27 0B 00 01 26 50 61 62 63 64     ...d..'...&Pabcd
   65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74     efghijklmnopqrst
   75 76 77 61 62 63 64 65 66 67 68 69                 uvwabcdefghi

   IP (In) From REM TO LOC       IFACE: ETH 0
   45             IP Ver:        4
                  Hdr Len:       20
   00             TOS:           Routine
                  Delay:         Normal
                  Throughput:    Normal
                  Reliability:   Normal
   00 3C          Length:        60
   08 3A          ID:            2106
   00 00          Frag Offset:   0
                  Congestion:    Normal
                                 May Fragment
                                 Last Fragment
   80             TTL:           128
   01             Proto:         ICMP
   BA 06          Checksum:      47622
   C0 A8 01 64    Src IP:        192.168.1.100
   AC 10 0A 64    Dst IP:        172.16.10.100
   ICMP:
   08             Type:          ECHO REQ
```

```
   00             Code:          0
   27 0B          Checksum:      2855
   ----------
-----   4-7-2017  12:57:13.880   -------
45 00 00 54 00 26 00 00 F9 2F 99 3E 0A 0A 0A 02     E..T.&.../.>....
0A 0A 0A 01 00 00 08 00 45 00 00 3C 08 3A 00 00     ........E..<.:..
7F 01 BB 06 C0 A8 01 64 AC 10 0A 64 08 00 27 0B     .......d...d..'.
00 01 26 50 61 62 63 64 65 66 67 68 69 6A 6B 6C     ..&Pabcdefghijkl
6D 6E 6F 70 71 72 73 74 75 76 77 61 62 63 64 65     mnopqrstuvwabcde
66 67 68 69                                         fghi

ER 0-HQsite From LOC TO REM   IFACE: PPP 1
45             IP Ver:        4
               Hdr Len:       20
00             TOS:           Routine
               Delay:         Normal
               Throughput:    Normal
               Reliability:   Normal
00 54          Length:        84
00 26          ID:            38
00 00          Frag Offset:   0
               Congestion:    Normal
                              May Fragment
                              Last Fragment
F9             TTL:           249
2F             Proto:         GRE
99 3E          Checksum:      39230
0A 0A 0A 02    Src IP:        10.10.10.2
0A 0A 0A 01    Dst IP:        10.10.10.1
----------
-----   4-7-2017  12:57:13.880   -------
45 00 00 98 00 26 00 00 FA 32 01 5B 25 50 11 3B     E....&...2.[%P.;
25 55 62 D3 E4 15 10 C3 00 00 00 26 CB C3 14 15     %Ub........&....
B9 73 A2 39 99 0B BE E7 B6 F5 8A 0C DC 96 38 5C     .s.9..........8\
E4 BE 48 3E 48 6B DF 68 D9 14 D6 AD A9 C9 74 68     ..H>Hk.h......th
F1 A0 DC E5 CB 66 64 67 98 0D 1E 7F 43 72 8B 23     .....fdg....Cr.#
C4 C0 58 23 17 B2 2F 9D 10 52 92 0E 3A 7C 0E F4     ..X#../..R..:|..
A0 C2 92 51 BC CE 7B 87 BD 83 C6 C6 DF 96 EC C7     ...Q..{.........
BA 1F 4C C7 04 2F D6 F6 CB 35 8F F2 5E 86 9F A4     ..L../...5..^...
B1 33 15 7F 7E C4 E6 33 04 BF 78 B5 EA 3C C3 6F     .3..~..3..x..<.o
3A 7D A6 0D 09 0E 50 BF                             :}....P.

IP (Final) From LOC TO REM    IFACE: PPP 1
45             IP Ver:        4
               Hdr Len:       20
00             TOS:           Routine
               Delay:         Normal
               Throughput:    Normal
               Reliability:   Normal
00 98          Length:        152
00 26          ID:            38
00 00          Frag Offset:   0
               Congestion:    Normal
                              May Fragment
                              Last Fragment
```

```
FA              TTL:            250
32              Proto:          ESP
01 5B           Checksum:       347
25 50 11 3B     Src IP:         37.80.17.59
25 55 62 D3     Dst IP:         37.85.98.211
----------
   -----   4-7-2017  12:57:15.530   -------
   45 00 00 98 00 1D 00 00 F4 32 07 64 25 55 62 D3     E........2.d%Ub.
   25 50 11 3B 36 44 13 D3 00 00 00 1D 7F D3 A4 E1     %P.;6D..........
   2D C5 54 25 37 E0 9E 16 47 36 24 5E 57 42 65 AF     -.T%7...G6$^WBe.
   BF 63 9A 23 02 5A 6A 15 89 3A 9E B3 F1 3F 46 A5     .c.#.Zj..:...?F.
   F3 05 AE EB 71 46 15 7E BC 9B 45 CB 95 5D 15 62     ....qF.~..E..].b
   02 E9 80 2B EB 2E 78 48 E4 52 31 A7 89 B4 11 12     ...+..xH.R1.....
   23 4E C1 A3 08 BD FA 95 13 59 5C 81 13 1F BE E6     #N.......Y\.....
   2A 02 AE 27 DB 35 8A F4 81 60 D5 98 32 83 85 24     *..'.5...`..2..$
   58 CB 7D B7 D1 1F EE E7 DF DF C9 86 75 CE F3 CB     X.}.........u...
   89 EE 07 BF 1A 78 6D 0A                             .....xm.

   IP (In) From REM TO LOC       IFACE: PPP 1
   45              IP Ver:         4
                   Hdr Len:        20
   00              TOS:            Routine
                   Delay:          Normal
                   Throughput:     Normal
                   Reliability:    Normal
   00 98           Length:         152
   00 1D           ID:             29
   00 00           Frag Offset:    0
                   Congestion:     Normal
                                   May Fragment
                                   Last Fragment
   F4              TTL:            244
   32              Proto:          ESP
   07 64           Checksum:       1892
   25 55 62 D3     Src IP:         37.85.98.211
   25 50 11 3B     Dst IP:         37.80.17.59
   ----------
   -----   4-7-2017  12:57:15.530   -------
   45 00 00 54 00 1D 00 00 F9 2F 99 47 0A 0A 0A 01     E..T...../.G....
   0A 0A 0A 02 00 00 08 00 45 00 00 3C 00 E8 00 00     ........E..<....
   7F 01 C2 58 AC 10 0A 64 C0 A8 01 64 00 00 2F 0B     ...X...d...d../.
   00 01 26 50 61 62 63 64 65 66 67 68 69 6A 6B 6C     ..&Pabcdefghijkl
   6D 6E 6F 70 71 72 73 74 75 76 77 61 62 63 64 65     mnopqrstuvwabcde
   66 67 68 69                                         fghi

   IP (Cont) From REM TO LOC     IFACE: PPP 1
   45              IP Ver:         4
                   Hdr Len:        20
   00              TOS:            Routine
                   Delay:          Normal
                   Throughput:     Normal
                   Reliability:    Normal
   00 54           Length:         84
   00 1D           ID:             29
   00 00           Frag Offset:    0
```

```
                  Congestion:    Normal
                                 May Fragment
                                 Last Fragment
   F9             TTL:           249
   2F             Proto:         GRE
   99 47          Checksum:      39239
   0A 0A 0A 01    Src IP:        10.10.10.1
   0A 0A 0A 02    Dst IP:        10.10.10.2
   ----------
-----   4-7-2017  12:57:15.530   -------
45 00 00 3C 00 E8 00 00 7E 01 C3 58 AC 10 0A 64     E..<....~..X...d
C0 A8 01 64 00 00 2F 0B 00 01 26 50 61 62 63 64     ...d../...&Pabcd
65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74     efghijklmnopqrst
75 76 77 61 62 63 64 65 66 67 68 69                 uvwabcdefghi

IP (Final) From LOC TO REM    IFACE: ETH 0
45             IP Ver:        4
               Hdr Len:       20
00             TOS:           Routine
               Delay:         Normal
               Throughput:    Normal
               Reliability:   Normal
00 3C          Length:        60
00 E8          ID:            232
00 00          Frag Offset:   0
               Congestion:    Normal
                              May Fragment
                              Last Fragment
7E             TTL:           126
01             Proto:         ICMP
C3 58          Checksum:      50008
AC 10 0A 64    Src IP:        172.16.10.100
C0 A8 01 64    Dst IP:        192.168.1.100
ICMP:
00             Type:          ECHO REPLY
00             Code:          0
2F 0B          Checksum:      2863
----------
```

5 CONFIGURATION FILES

5.1 Responder Configuration (WR21)

The config.da0 file and the hardware/firmware used on the Responder router for the purpose of this Application Note are shown below:

```
Command: config c show
Command result

eth 0 descr "HQ LAN 1"
eth 0 IPaddr "192.168.10.1"
eth 1 descr "HQ LAN 2"
eth 1 IPaddr "172.16.10.1"
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
ip 0 cidr ON
route 0 descr "RouteToRemoteSiteLAN"
route 0 IPaddr "192.168.1.0"
route 0 ll_ent "TUN"
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
eroute 0 descr "GREoverIPsec"
eroute 0 peerid "RemoteSite"
eroute 0 ourid "HQsite"
eroute 0 locip "10.10.10.1"
eroute 0 locmsk "255.255.255.255"
eroute 0 remip "10.10.10.2"
eroute 0 remmsk "255.255.255.255"
eroute 0 ESPauth "SHA1"
eroute 0 ESPenc "AES"
eroute 0 authmeth "PRESHARED"
eroute 0 dhgroup 2
eroute 0 enckeybits 128
dhcp 0 IPmin "192.168.1.100"
dhcp 0 respdelms 500
dhcp 0 mask "255.255.255.0"
dhcp 0 gateway "192.168.1.1"
dhcp 0 DNS "192.168.1.1"
sntp 0 server "time.devicecloud.com"
dyndns 0 ifent "default"
ppp 0 timeout 300
ppp 1 name "W-WAN (LTE)"
ppp 1 phonenum "*98*1#"
ppp 1 IPaddr "0.0.0.0"
ppp 1 timeout 0
ppp 1 ipsec 1
```

```
ppp 1 use_modem 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 r_chap OFF
ppp 3 defpak 16
ppp 4 defpak 16
web 0 prelogin_info ON
web 0 showgswiz ON
modemcc 0 info_asy_add 4
modemcc 0 init_str "+CGQREQ=1"
modemcc 0 init_str1 "+CGQMIN=1"
modemcc 0 apn "internet.t-d1.de"
modemcc 0 link_retries 10
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 init_str_2 "+CGQREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "Your.APN.goes.here"
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
modemcc 0 sms_access_2 1
modemcc 0 sms_concat_2 0
ana 0 l1on ON
ana 0 lapdon 0
ana 0 asyon 1
ana 0 logsize 45
cmd 0 unitid "ss%s>"
cmd 0 cmdnua "99"
cmd 0 hostname "digi.router"
cmd 0 asyled_mode 2
cmd 0 tremto 1200
cmd 0 rcihttp ON
user 0 access 0
user 1 name "username"
user 1 epassword "KD5lSVJDVVg="
user 1 access 0
user 2 access 0
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
user 10 name "RemoteSite"
user 10 epassword "PDZxU0FFQFU="
user 10 access 4
local 0 transaccess 2
sslcli 0 verify 10
sslsvr 0 certfile "cert01.pem"
sslsvr 0 keyfile "privrsa.pem"
ssh 0 hostkey1 "privSSH.pem"
```

```
ssh 0 nb_listen 5
ssh 0 v1 OFF
tun 0 descr "GRE Tunnel"
tun 0 IPaddr "10.10.0.1"
tun 0 mask "255.255.255.252"
tun 0 source "10.10.10.1"
tun 0 dest "10.10.10.2"
cloud 0 ssl ON

Power Up Profile: 0
OK
```

```
'ati5'

Digi TransPort WR21-U22B-DE1-XX Ser#:237416 HW Revision: 2203a
Software Build Ver5.2.17.12.  Mar  8 2017 13:55:28  WW
ARM Bios Ver 7.59u v43 454MHz B987-M995-F80-O8140,0 MAC:00042d039f68
Power Up Profile: 0
Async Driver              Revision: 1.19  Int clk
Ethernet Port Isolate Driver Revision: 1.11
Firewall                  Revision: 1.0
EventEdit                 Revision: 1.0
Timer Module              Revision: 1.1
(B)USBHOST                Revision: 1.0
L2TP                      Revision: 1.10
PPTP                      Revision: 1.00
TACPLUS                   Revision: 1.00
MODBUS                    Revision: 0.00
RealPort                  Revision: 0.00
MultiTX                   Revision: 1.00
LAPB                      Revision: 1.12
X25 Layer                 Revision: 1.19
MACRO                     Revision: 1.0
PAD                       Revision: 1.4
X25 Switch                Revision: 1.7
V120                      Revision: 1.16
TPAD Interface            Revision: 1.12
GPS                       Revision: 1.0
TELITUPD                  Revision: 1.0
SCRIBATSK                 Revision: 1.0
BASTSK                    Revision: 1.0
PYTHON                    Revision: 1.0
CLOUDSMS                  Revision: 1.0
TCP (HASH mode)           Revision: 1.14
TCP Utils                 Revision: 1.13
PPP                       Revision: 5.2
WEB                       Revision: 1.5
SMTP                      Revision: 1.1
FTP Client                Revision: 1.5
FTP                       Revision: 1.4
IKE                       Revision: 1.0
PollANS                   Revision: 1.2
```

```
PPPOE                    Revision: 1.0
BRIDGE                   Revision: 1.1
MODEM CC (Huawei LTE)    Revision: 5.2
FLASH Write              Revision: 1.2
Command Interpreter      Revision: 1.38
SSLCLI                   Revision: 1.0
OSPF                     Revision: 1.0
BGP                      Revision: 1.0
QOS                      Revision: 1.0
PWRCTRL                  Revision: 1.0
RADIUS Client            Revision: 1.0
SSH Server               Revision: 1.0
SCP                      Revision: 1.0
SSH Client               Revision: 1.0
CERT                     Revision: 1.0
LowPrio                  Revision: 1.0
Tunnel                   Revision: 1.2
OVPN                     Revision: 1.2
TEMPLOG                  Revision: 1.0
QDL                      Revision: 1.0
OK
```

5.2 Initiator Configuration (WR11)

The config.da0 file and the hardware/firmware used on the Initiator router for the purpose of this Application Note are shown below:

```
Command: config c show
Command result

eth 0 descr "RemoteSiteLAN"
eth 0 IPaddr "192.168.1.1"
eth 0 ipanon ON
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
ip 0 cidr ON
route 0 descr "ToHQLAN1"
route 0 IPaddr "192.168.10.0"
route 0 ll_ent "TUN"
route 1 descr "ToHQLAN2"
route 1 IPaddr "172.16.10.0"
route 1 ll_ent "TUN"
def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
eroute 0 descr "GREoverIPsec"
eroute 0 peerip "37.85.98.211"
eroute 0 peerid "HQsite"
eroute 0 ourid "RemoteSite"
```

```
eroute 0 locip "10.10.10.2"
eroute 0 locmsk "255.255.255.255"
eroute 0 remip "10.10.10.1"
eroute 0 remmsk "255.255.255.255"
eroute 0 ESPauth "SHA1"
eroute 0 ESPenc "AES"
eroute 0 authmeth "PRESHARED"
eroute 0 nosa "TRY"
eroute 0 autosa 2
eroute 0 dhgroup 2
eroute 0 enckeybits 128
dhcp 0 IPmin "192.168.1.100"
dhcp 0 respdelms 500
dhcp 0 mask "255.255.255.0"
dhcp 0 gateway "192.168.1.1"
dhcp 0 DNS "192.168.1.1"
sntp 0 server "time.devicecloud.com"
dyndns 0 ifent "default"
ppp 0 timeout 300
ppp 1 name "W-WAN (HSPA 3G)"
ppp 1 phonenum "*98*1#"
ppp 1 IPaddr "0.0.0.0"
ppp 1 timeout 0
ppp 1 ipsec 1
ppp 1 use_modem 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 ipanon ON
ppp 1 r_chap OFF
ppp 3 defpak 16
ppp 4 defpak 16
web 0 prelogin_info ON
ftpcli 0 hostname "ftp1.digi.com"
ftpcli 0 username "anonymous"
ftpcli 0 epassword "OTF5VFxBSElB"
ftpcli 0 directory "support/firmware/transport/radio_module_firmware/he910d"
ike 0 encalg "AES"
ike 0 keybits 128
ike 0 authalg "SHA1"
ike 0 aggressive ON
ike 0 ikegroup 2
ike 0 ipsecgroup 2
modemcc 0 info_asy_add 3
modemcc 0 init_str "+CGQREQ=1"
modemcc 0 init_str1 "+CGQMIN=1"
modemcc 0 apn "internet.t-d1.de"
modemcc 0 link_retries 10
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 init_str_2 "+CGQREQ=1"
modemcc 0 init_str1_2 "+CGQMIN=1"
modemcc 0 apn_2 "Your.APN.goes.here"
```

```
modemcc 0 link_retries_2 10
modemcc 0 stat_retries_2 30
modemcc 0 sms_access_2 1
modemcc 0 sms_concat_2 0
ana 0 anon ON
ana 0 l2on OFF
ana 0 xoton OFF
ana 0 lapdon 0
ana 0 lapbon 0
ana 0 maxdata 1500
ana 0 logsize 180
cmd 0 unitid "ss%s>"
cmd 0 cmdnua "99"
cmd 0 hostname "digi.router"
cmd 0 tremto 1200
cmd 0 rcihttp ON
user 0 access 0
user 1 name "username"
user 1 epassword "KD5lSVJDVVg="
user 1 access 0
user 2 access 0
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
user 10 name "HQsite"
user 10 epassword "PDZxU0FFQFU="
user 10 access 4
local 0 transaccess 2
sslcli 0 verify 10
sslsvr 0 certfile "cert01.pem"
sslsvr 0 keyfile "privrsa.pem"
ssh 0 hostkey1 "privSSH.pem"
ssh 0 nb_listen 5
ssh 0 v1 OFF
tun 0 descr "GRE tunnel"
tun 0 IPaddr "10.10.0.2"
tun 0 mask "255.255.255.252"
tun 0 source "10.10.10.2"
tun 0 dest "10.10.10.1"
templog 0 mo_autooff ON
cloud 0 ssl ON

Power Up Profile: 0
OK
```

```
Digi TransPort WR11-U900-DE1-XX Ser#:319120 HW Revision: 3204a
Software Build Ver5.2.18.3.  May 23 2017 09:43:42  1W
ARM Bios Ver 7.61u v46 360MHz B987-M995-F80-O0,0 MAC:00042d04de90
Power Up Profile: 0
Async Driver              Revision: 1.19  Int clk
Ethernet Driver           Revision: 1.11
Firewall                  Revision: 1.0
EventEdit                 Revision: 1.0
Timer Module              Revision: 1.1
(B)USBHOST                Revision: 1.0
L2TP                      Revision: 1.10
PPTP                      Revision: 1.00
TACPLUS                   Revision: 1.00
MultiTX                   Revision: 1.00
LAPB                      Revision: 1.12
X25 Layer                 Revision: 1.19
MACRO                     Revision: 1.0
PAD                       Revision: 1.4
X25 Switch                Revision: 1.7
TPAD Interface            Revision: 1.12
TELITUPD                  Revision: 1.0
SCRIBATSK                 Revision: 1.0
BASTSK                    Revision: 1.0
PYTHON                    Revision: 1.0
CLOUDSMS                  Revision: 1.0
TCP (HASH mode)           Revision: 1.14
TCP Utils                 Revision: 1.13
PPP                       Revision: 5.2
WEB                       Revision: 1.5
SMTP                      Revision: 1.1
FTP Client                Revision: 1.5
FTP                       Revision: 1.4
IKE                       Revision: 1.0
PollANS                   Revision: 1.2
PPPOE                     Revision: 1.0
BRIDGE                    Revision: 1.1
MODEM CC (Telit 3G)       Revision: 5.2
FLASH Write               Revision: 1.2
Command Interpreter       Revision: 1.38
SSLCLI                    Revision: 1.0
OSPF                      Revision: 1.0
BGP                       Revision: 1.0
QOS                       Revision: 1.0
PWRCTRL                   Revision: 1.0
RADIUS Client             Revision: 1.0
SSH Server                Revision: 1.0
SCP                       Revision: 1.0
SSH Client                Revision: 1.0
CERT                      Revision: 1.0
LowPrio                   Revision: 1.0
Tunnel                    Revision: 1.2
OVPN                      Revision: 1.2
TEMPLOG                   Revision: 1.0
QDL                       Revision: 1.0
```