



# Digi Connect® WAN Application Guide

## Primary Connections via NAT-T, IPsec ESP or GRE

### Scenario

Digi Connect WAN is used for primary remote site connectivity. IPsec VPN or GRE traffic is terminated by routers or VPN appliance at each end. The Digi Connect WAN passes this traffic through.

### Theory of Operation

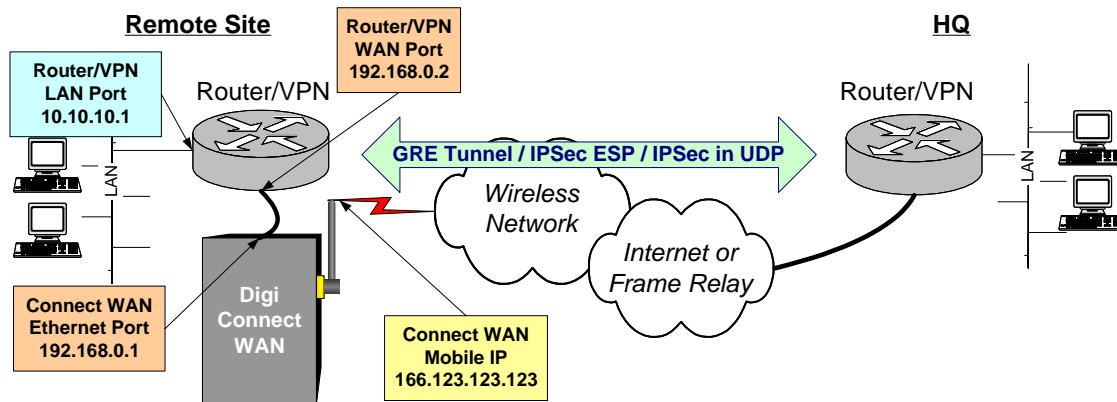
The router's Ethernet WAN port attaches to the Ethernet port of the Digi Connect WAN, typically via an Ethernet crossover cable.

The wireless carrier provides only one IP address to the mobile interface. The Digi Connect WAN uses Network Address Translation (NAT) where only the mobile IP address is visible to the outside. All outgoing traffic uses the mobile IP address of the Digi Connect WAN.

Since NAT changes IPsec headers, devices that support GRE, IPsec ESP or NAT-T (IPsec-in-UDP) "tunneling" at each end of the connection are usually required.

For incoming data, the Digi Connect WAN forwards IP traffic destined for GRE or IPsec ESP protocol, TCP/UDP port or port range from the cellular IP interface to a private IP address on the Digi Connect WAN's Ethernet port.

### Sample Diagram:



**GSM GPRS/EDGE APN Type needed:** Typically a *Custom APN* is required since the VPN end-points must use usually have static (persistent) IP addresses. An Internet APN may work if the main site (HQ) VPN appliance can support Dynamic DNS names.

**Remote Site Router Requirements:** Any router that supports *GRE, IPsec ESP* or *NAT-T* (or uses IPsec-in-UDP) should work.

### Remote Site Router / VPN Appliance Configuration:

- Router default gateway: Digi Connect WAN's Ethernet port IP address
- Policy to use ESP, GRE or NAT-T tunneling; or just GRE if no encryption is required

**HQ Router / VPN Appliance Configuration:** The HQ appliance's tunnel policy peer address will be the Connect WAN's Mobile IP address. For this reason a static mobile IP address is preferred on the Digi Connect WAN.

**IPsec forwarding:** Digi Connect WAN firmware revision D introduced IPsec forwarding where IPsec ESP tunnel-mode traffic can be forwarded to a specific Ethernet IP address. Current firmware is available via <http://www.digi.com/support>.

**Console Port:** As a side benefit, the Digi Connect WAN console port can be configured for "Console Management" to provide SSH or telnet access. It can be cabled to the router or VPN appliance's console port to provide true diverse out-of-band console access.

### Digi Connect Typical WAN Configuration

1. Read and follow the quick-start guide for the Digi Connect WAN and optionally for Digi Connectware® Manager if used.
2. Assign a static IP address to the Ethernet port. Note the default gateway may show or change to an address such as 10.6.6.6. This is normal as it is the GSM provider's network default gateway.
3. Configure Forwarding via Network > IP Forwarding Settings:
  - a. For GRE: Enable GRE protocol forwarding and enter the IP address of the router's WAN Ethernet port (the router attached to the Digi Connect WAN).
  - b. For IPsec ESP forwarding: Enable IPsec ESP forwarding and enter the IP address of the router's WAN Ethernet port (attached to the Digi Connect WAN)
  - c. For NAT-T: Create two UDP port forwarding entries for Ports 500 and 4500\* (both source and destination ports) and enter the IP address of the router's WAN Ethernet port (the router attached to the Digi Connect WAN).
    - \*Some appliances may use ports other than 4500. Check the router documentation for acceptable UDP port numbers. Note also that the Digi Connect WAN can use different ports for source and destination. If the HQ router uses port 10000, but the remote router uses 4500, for example, create a port forwarding entry for source of 10000 and destination of 4500.
  - d. Press APPLY to accept the changes
4. Optionally configure IP filtering and TCP services to block any unwanted incoming connections.

### Example NAT-T (IPsec in UDP) Setup

Refer to the diagram above using these IP addresses:

Remote site router	192.168.0.2
Digi Connect WAN Ethernet port	192.168.0.1
Digi Connect WAN Ethernet link	166.123.123.123

The HQ router will use the mobile IP address of the Digi Connect WAN (in this case 166.123.321.123) as its tunnel peer address.

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For a NAT-T (IPsec in UDP) configuration, create these entries on the Digi Connect WAN via Network > IP Forwarding Settings:

Protocol	Source Port	Destination IP Address	Destination Port
UDP	500	192.168.0.2	500
UDP	4500	192.168.0.2	4500

Press Apply. IPsec-in-UDP traffic should now pass through the Digi Connect WAN.

**GRE or IPsec ESP Forwarding:** Go to Configure > Network > IP Forwarding and select either IPsec or GRE forwarding. Enter the IP address of the router / VPN appliance Ethernet LAN port.

**Client-to-Site VPNs:** Port, GRE or IPsec forwarding may not be required if the VPN is configured for client-to-site where the tunnel(s) is initiated only from the remote site.

### Where to Get More Information

Refer to the Digi Connect WAN user documentation and Digi technical support website at [www.digi.com/support](http://www.digi.com/support) for more information. Technical assistance is available at <http://www.digi.com/support/eservice/eservicelogin.jsp>.

For sales and product information, please contact Digi International at 952-912-3444 or via [www.digi.com](http://www.digi.com).