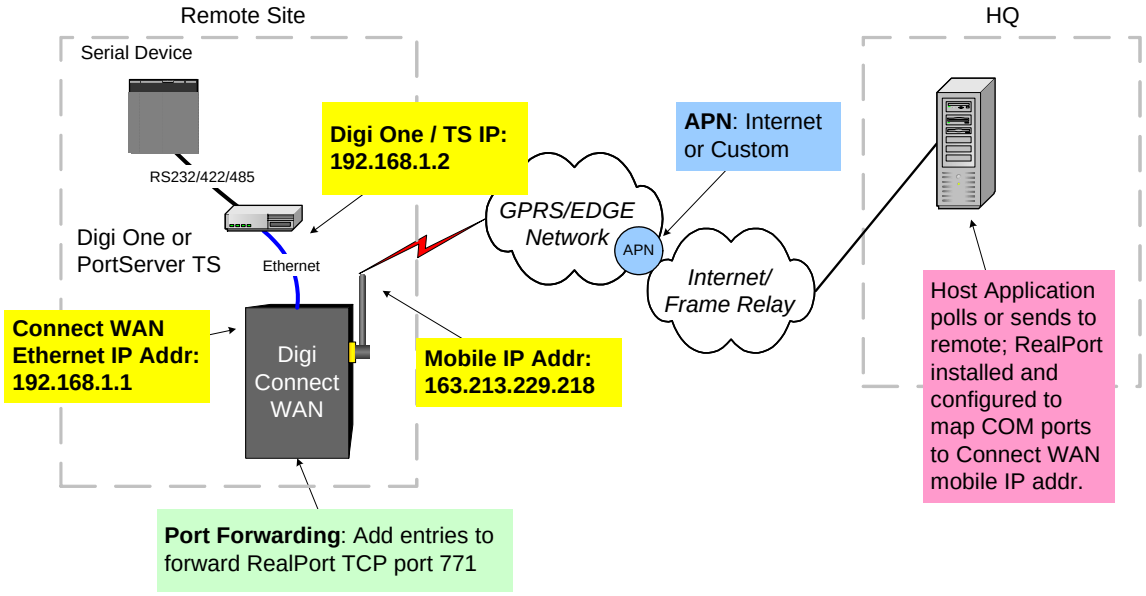
Digi Connect® WAN Application Guide
Connecting Digi Terminal Servers Using RealPort®

Scenario

The Digi Connect WAN connects to a Digi device server or terminal server. Communications is typically initiated from the host system but can also be initiated from the device(s).

Sample Diagram:



Theory of Operation

Communications applications such as SCADA polling, remote printing, or other host-initiated traffic can be sent over the cellular network to the remote device or devices via the Digi Connect WAN. The Digi Connect WAN forwards IP traffic, in this case Digi's patented RealPort protocol destined for a specific port or port range on the cellular interface, to a private IP address on the Ethernet "side" of the Digi Connect WAN.

This process uses Network Address Translation (NAT) where only the mobile IP address is visible to the outside and TCP/UDP port forwarding. Port forwarding entries direct traffic from the mobile IP address of the Digi Connect WAN to the appropriate device.

For example, an application on the host computer communicates via COM ports. The RealPort COM port redirector driver is configured to use the mobile IP address of the remote Digi Connect WAN. A port forwarding entry on the Digi Connect WAN directs the RealPort traffic, which uses TCP Port 771, to the Digi device/terminal server.

GSM GPRS/EDGE APN Type Needed[1]

An Internet APN is typically used for mobile terminated connections. Internet APNs use dynamic public IP addresses and support Dynamic DNS names (meaning a static DNS

[1] *APN types are based on Cingular Blue. Check with your provider for IP addressing options.*

name). A Custom APN may be required if static (persistent) IP addresses are required and/or to provide advanced security. The connection from the cellular provider to the customer host site is typically either via frame relay or Internet as provided by the wireless carrier.

Internet and Custom APNs also allow outgoing (mobile initiated) connections.

Example Digi Connect WAN Configuration

Refer to the drawing above.

1. Configure the Digi Connect WAN local Ethernet port to 192.168.1.1
2. Configure the Digi Connect WAN for the proper APN type.
3. The Digi Connect WAN will get a mobile IP from the provider. This can be verified via the Digi Connect WAN WebUI home page. For this example, its mobile IP address is 163.213.229.218.
4. A Digi One® SP device server is at 192.168.1.2. The default gateway of the Digi One SP should be 192.168.1.1.
   DHCP Note: The Digi Connect WAN can act as a DHCP server and the Digi One SP as a DHCP client. However, a static IP address should be assigned to the Digi One SP to ensure the port forwarding entry always works.
5. Digi Connect WAN port forwarding: In order to forward the RealPort traffic to the device server, create a port forwarding entry as below:

Source TCP Port	Destination IP Address	Destination TCP Port
771	192.168.1.2	771

RealPort Configuration: The RealPort driver on the host application server will be configured to use the mobile IP address of the Digi Connect WAN (*not* the Digi One SP), which is 163.213.229.218.

The Digi Connect WAN will now direct the RealPort traffic to the Digi device server.

Other applications and protocols, such as TCP/UDP Sockets, HTTP, FTP, printing, and others can be handled in similar fashion.

Multi-Port Terminal Servers with RealPort: Digi's RealPort protocol uses a patented technique to encapsulate all serial COM/TTY traffic into one TCP socket connection. In the scenario above, the Digi serial device could have from one to 16 ports and still only use one TCP socket connection.

Multiple Device/Terminal Servers: If more than one Digi device/terminal server is located at the remote site, then RealPort must use a different TCP port for each device. This is necessary so that the Digi Connect WAN port forwarding can direct traffic to the proper Digi serial device. For example, there are two Digi device servers: 192.168.1.2 and 192.168.1.2.3. The RealPort driver configuration for each device will use a different TCP port – say 772 and 773. The port forwarding entries would be:

Source TCP Port	Destination IP Address	Destination TCP Port

772	192.168.1.2	771
773	192.168.1.3	771

Note that the table converts ports so devices can still use TCP Port 771 for RealPort traffic.

Where to Get More Information

Further information and assistance is available at www.digi.com or by calling Digi at 952-912-3444. Refer also to the RealPort feature spec found at http://www.digi.com/pdf/fs_realport.pdf.