Digi Connect® WAN Application Guide
Using the Serial Console Port for
Out-of-Band Console Management of Remote Devices

Scenario

A Digi Connect WAN is used for primary or backup remote site WAN connectivity over a cellular wireless network. The Digi Connect WAN features a console port which may be used to interface to a serial port on a remote router, VPN appliance, firewall or other network equipment, providing secure out-of-band console management access.

Administrators who require reliable communications to remote assets can rely on the Digi Connect WAN to provide an alternative to wired landline connections for a truly diverse TCP/IP network connection. Benefits include secure connection; network diversity; network backup to remote site; cost-effective communications (can be less expensive than POTS modem connection); and easy access from anywhere to remote devices.

Theory of Operation

In a typical Digi Connect WAN application, a remote router plugs into an Ethernet port on the Digi Connect WAN via an Ethernet WAN port on the router. This provides a wireless WAN connection over a cellular IP network. For more information on this application, please refer to the Digi Connect WAN application guides for primary or fail-over WAN IP routing.

A side benefit of the Digi Connect WAN is its ability to interface to remote serial devices via its RS-232 console port. The console port by default performs the same function as a router's console port (i.e., to provide direct access to the device's command line) for full administration, configuration, troubleshooting and control of the device. However, with a serial cable and a few clicks of the mouse, the console port on the Digi Connect WAN becomes a secure, persistent out-of-band connection to a router or other appliance's console port using SSH or telnet.

Console Message Logging: Logging of console messages generated from the attached network device's console port is also supported. By default, 32kb of messages are stored in a FIFO queue and can be viewed using the "display buffer's" CLI command or from the WebUI via the Management > Ports function.

TCP Ports: The Digi Connect WAN, like most terminal servers, uses special TCP port numbers (in this case 2001 and 2501 for telnet and SSH respectively) to tell the Digi Connect WAN to pass telnet or SSH traffic through to a serial port.

Direct command line access to the Digi Connect WAN itself is still available by using standard telnet or SSH TCP port numbers (ports 23 and 22 by default).

In all cases, the TCP ports used for both pass-through and direct SSH/telnet access can be changed via the WebUI or CLI.

Sample Application Diagram
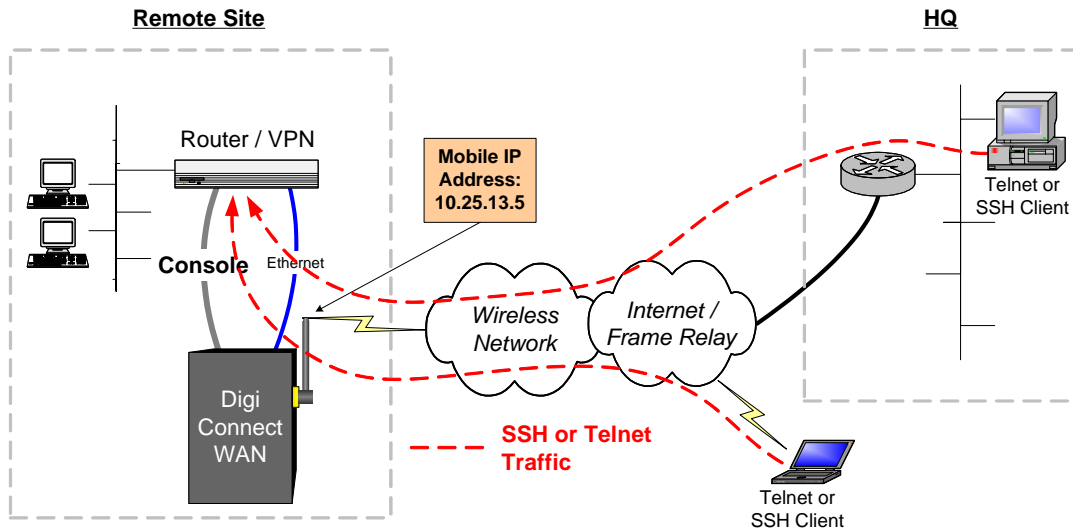
The above diagram shows how multiple telnet or SSH clients can access the remote router/VPN appliance via the Digi Connect WAN using a wireless GSM or CDMA cellular network.

Digi Connect WAN Configuration

1. Read and follow the quick-start guide for the Digi Connect WAN and, optionally, the applicable Digi Connect WAN application guides.
2. Connect a serial console (a.k.a. null modem or crossover – not straight-thru) cable from the DB-9M console port on the Digi Connect WAN to the network device's console port.

3. Configure the serial Port 1 on the Digi Connect WAN for Console Management:
    a. Open a browser and point to the IP address of the Digi Connect WAN.
    b. In the WebUI select Configuration > Serial Port > Port 1
    c. Select "Change Profile", choose "Console Management", press "Apply". A screen similar to the one below will appear:
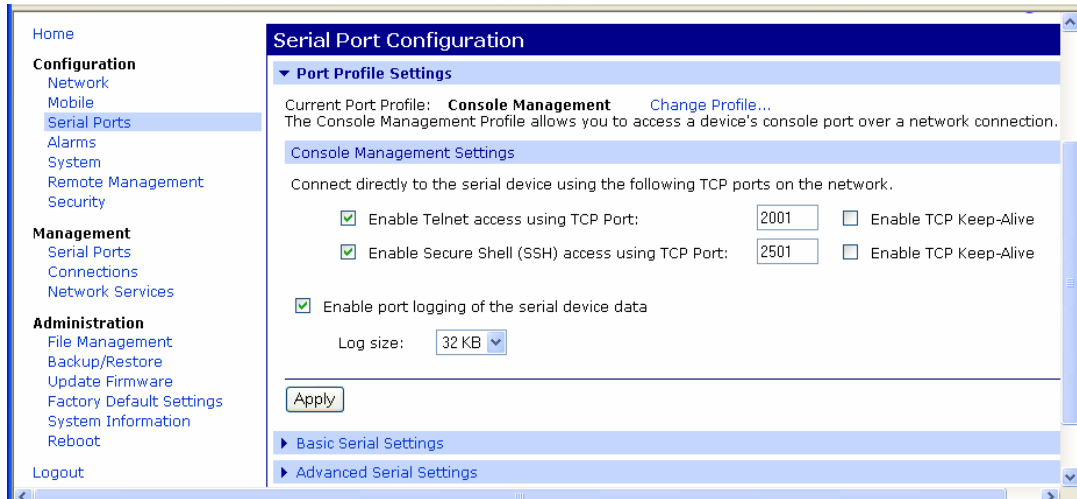
4. Serial port parameters: The default settings are 9600, 8, 1, N, no flow control. To change or verify these settings select "Basic Settings" in the serial port configuration.

5. The TCP ports used by telnet and SSH can be changed: The default TCP ports are

Service	Default TCP Port
Telnet	2001
SSH	2501

These can be changed or disabled as shown above.

6. Port logging stores console messages for later viewing via the Management > Serial Ports screen. This feature can be disabled. The buffer size can be changed.

7. IP filtering and TCP/UDP port service settings provide firewall-like capabilities to the Digi Connect WAN. Improper settings may block telnet or SSH traffic.

Sample Session: Refer to the diagram above using this IP address:
Digi Connect WAN wireless link   10.25.13.5

Access Network Device's Console Port Through the Digi Connect WAN:

- **Telnet** to 10.25.13.5 port 2001 – this will connect directly to the network device's console port (e.g., from Windows command line enter "telnet 10.25.13.5 2001").

- **SSH** to 10.25.13.5 port 2501 – SSH requires login to the Digi Connect WAN first using a user name (root is the default and must be entered even if login is disabled) and optional password and then connect to the device's console port.

More ports and advanced features, such as power management, are available via the Digi CM™ and Digi PortServer® TS products. Port forwarding entries on the Digi Connect WAN are used to pass the incoming telnet/SSH traffic thorough the Digi Connect WAN to the terminal server.

For example, a PortServer TS 4 connected to the Ethernet port of the Digi Connect WAN is assigned IP address 192.168.1.3. To access serial Port 3 of the PortServer TS 4, create a TCP port forwarding entry on the Digi Connect WAN to forward TCP Port 2003 (the default TCP port for Port 3) to IP address 192.168.1.3.

Where to Get More Information

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

For sales information, please contact Digi International at 952-912-3444.