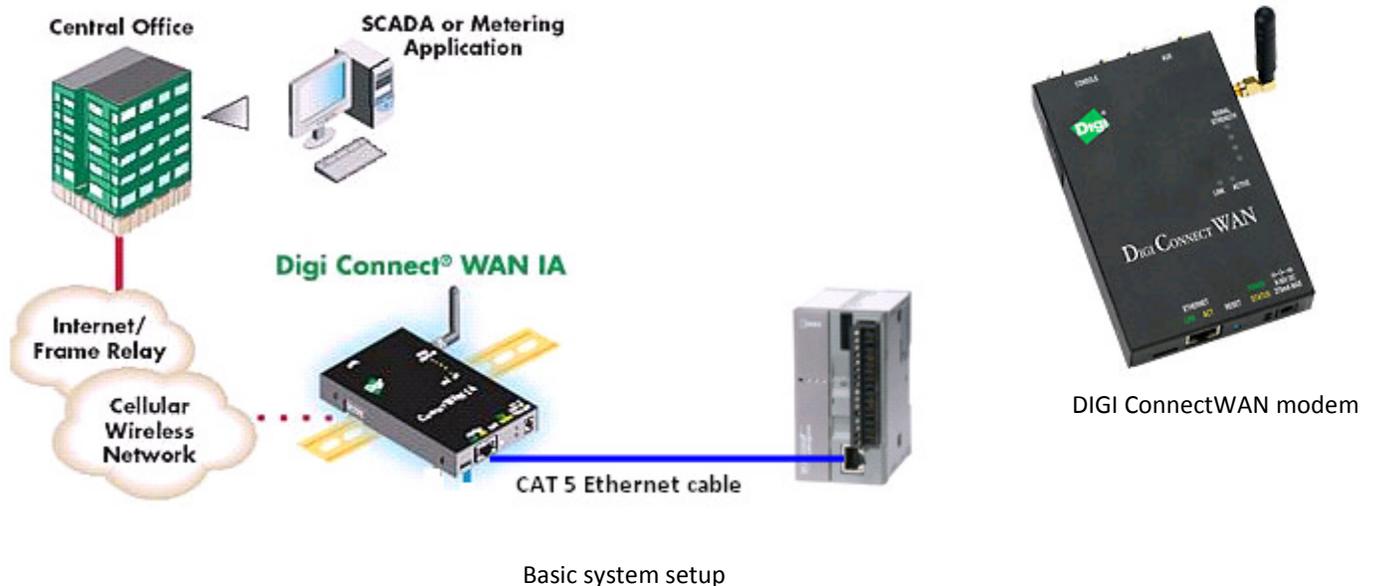


Application Notes

How to configure DIGI CONNECTWAN cellular modems with IDEC PLC for remote cellular connections

Overview



DIGI Connect WAN products provide reliable wireless communications via GSM (GPRS/EDGE/HSDPA) or CDMA networks for connectivity to remote locations. They offer an easy and cost effective means of connecting virtually any remote location into the corporate IP network. They are ideal for use where wired networks are not feasible or where alternative network connections are required.

In this application notes, we'll show users how to configure the DIGI CONNECTWAN cellular modem with IDEC MicroSmart Pentra FC5A-D12% with embedded Ethernet port PLC and use WindLDR to remotely connect to the modem through cellular network.

Application Notes

Benefits

- Remote monitor, upload and download PLC programs
- Remote 24/7 monitoring of PLC data
- Alarms conditions in the PLC can be sent to Email or cell phone through cellular network
- Use WindSRV or write your own application program to centrally monitor PLC status

Parts Used

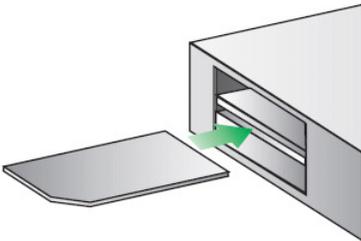
- 1 – FC5A-D12K1E or FC5A-D12S1E MicroSmart Pentra CPU
- 1 – DIGI CONNECTWAN GPRS cellular modem (in this application notes, we're using GPRS cellular modem part number DC-WAN-A101-A)
- 1 – CAT 5 Ethernet cable

Step 1: Provisioning the DIGI modem

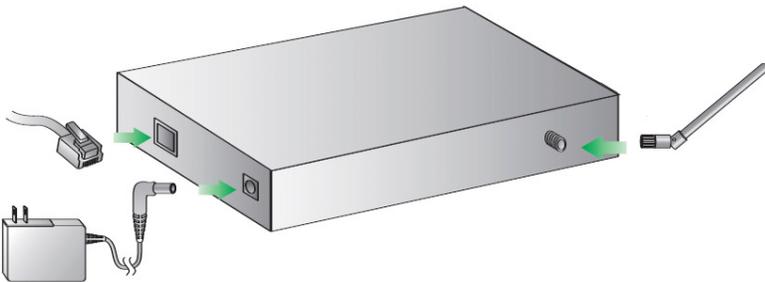
NOTE: The DIGI cellular modem does NOT come provisioned and will require a cellular data plan from a cellular carrier such as AT&T, Verizon, Sprint, etc. Please make sure a data plan is already established with the service provider before proceed with the instructions below.

In this application notes, we are using the GSM GPRS modem and the SIM card with a static Mobile IP address is provided by AT&T.

1. Insert SIM card to the modem SIM slot



2. Connect antenna, power supply and Ethernet cable to your PC/laptop



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3. Open your web browser and enter the IP address 192.168.1.1 in the URL address bar



NOTE: The DIGI ConnectWAN has DHCP server enabled by default. In order to discover the DIGI device, make sure your host computer is set up to obtain IP addresses automatically. Also ensure all firewall software is temporarily disabled

4. From the web interface, under Configuration, click (a) “Mobile” (b) enter your service provider name and connection parameters and (c) click “Apply”

NOTE: Please do NOT use the settings in the illustration below but your own settings provided by your service provider



Connect WAN VPN Configuration and Management

Home

Configuration

Network

Mobile **a**

Serial Ports

Alarms

System

Remote Management

Security

Position

Applications

Python

RealPort

Management

Serial Ports

Connections

Event Logging

Network Services

Administration

File Management

X.509 Certificate/Key

Mobile Configuration

Mobile Settings

Select the service provider, service plan, and connection settings used in connecting to the mobile network.

These settings are provided by and can be retrieved from the service provider.

Mobile Service Provider Settings

Service Provider: AT&T/Cingular Wireless (Blue Network) **b**

Service Plan / APN: Custom APN

Custom Plan Name: i2gold

Mobile Connection Settings

Re-establish connection when no data is received for a period of time.

Inactivity timeout: 3600 seconds

c Apply

Set to Defaults

Application Notes

- From the web interface, under Configuration click Network → Network Service Settings. Under Enable Web Server (HTTP) make sure TCP Port 8080 is used. Click Apply.

The screenshot shows the 'Network Configuration' page. The left sidebar has a 'Configuration' section with 'Network' highlighted. The main area shows 'Network Services Settings' with a list of services and their ports. The 'Enable Web Server (HTTP)' row is highlighted with a red box, showing a TCP Port of 8080. Other services include Telnet (23), SSH (22), and SNMP (161).

- Under Network Configuration, click IP Forwarding Settings.
- Assuming the FC5A-D12% CPU is configured with IP address 192.168.1.22, we'll configure the modem for communications using the following Ports.
 - Port 2101 – WindLDR Maintenance Communications
 - Port 502 – Modbus Communications
 - Port 80 – Web Server

Forward TCP/UDP/FTP connections from external networks to the following internal devices (you may configure up to 64 forwarding rules):

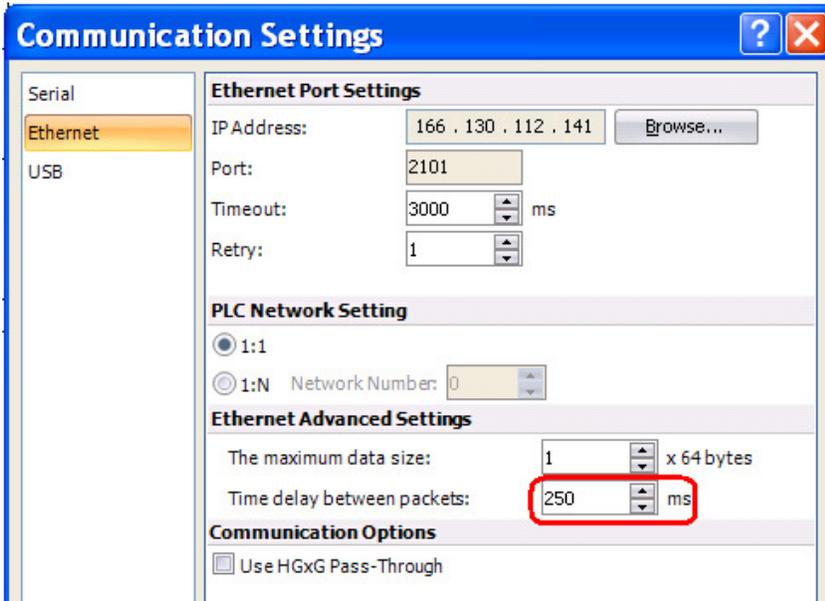
Enable	Protocol	External Port	Forward To Internal IP Address	Forward To Internal Port	Range Port Count	
<input checked="" type="checkbox"/>	TCP	502	192.168.1.22	502	1	Remove
<input checked="" type="checkbox"/>	TCP	80	192.168.1.22	80	1	Remove
<input checked="" type="checkbox"/>	TCP	2101	192.168.1.22	2101	1	Remove
<input type="checkbox"/>	FTP	0	0.0.0.0	0	1	Add

- Click Apply.

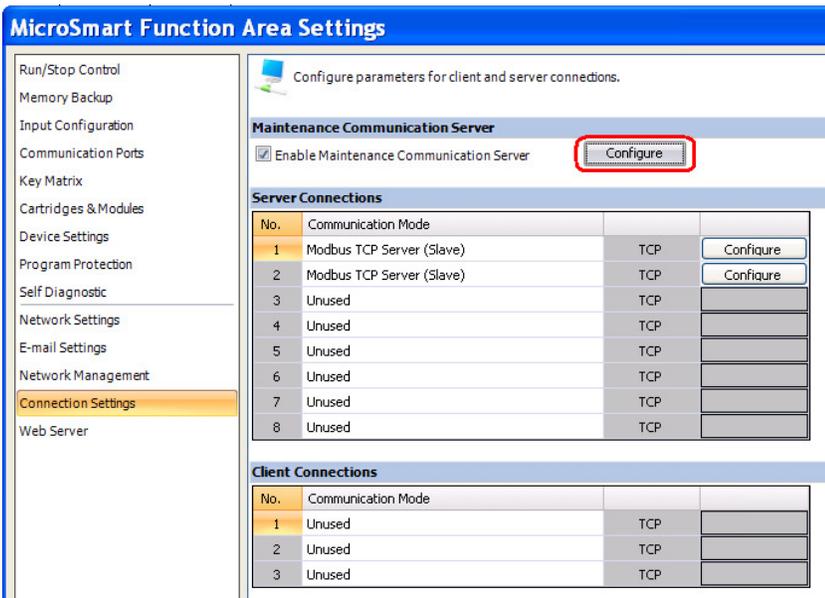
Application Notes

Step 2: WindLDR software

1. Remove Ethernet cable from PC/laptop and connect it to the FC5A-D12% CPU.
2. Launch WindLDR software
3. In WindLDR, under Configuration, click Setup icon. Under Communication Settings, select Ethernet and change the “Time delay between packets” to 250 ms.

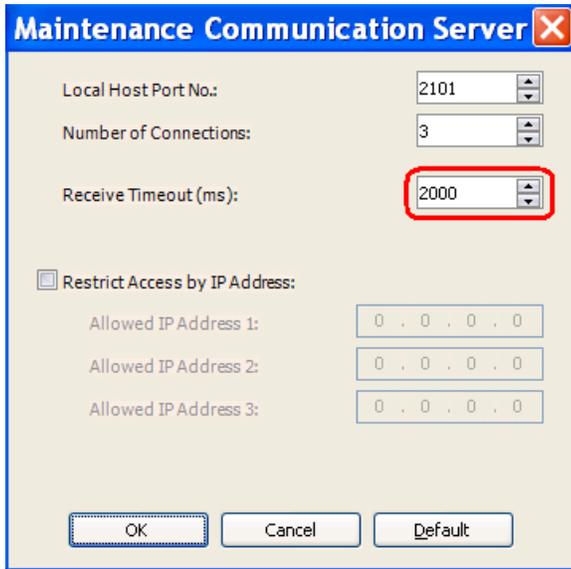


4. Under Configuration, click Connection Settings.



Application Notes

- Under Maintenance Communication Server, click the **Configure** button. Change "Receive Timeout (ms):" to 2000.



- Construct a simple MOV instruction where a value of 500 is MOVE to destination device D8460.

