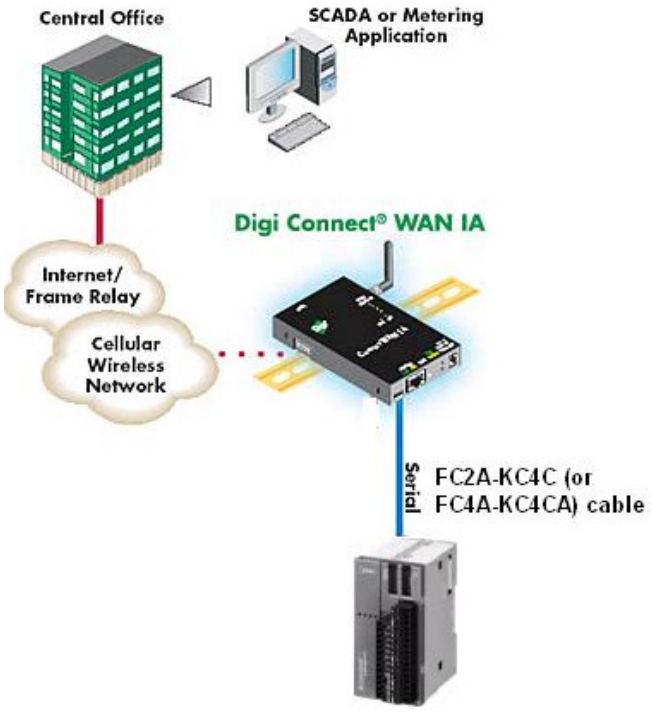
Application Notes

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

Overview



Basic system setup

DIGI ConnectWAN modem

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 PLC and use WindLDR to remotely connect to the modem through cellular connections.

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Benefits

- Remote monitor, upload and download PLC programs
- IDEC Web Server Module is not required
- 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

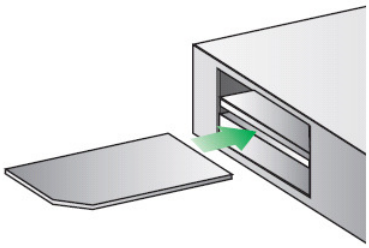
1 – FC5A MicroSmart Pentra CPU
1 – DIGI CONNECTWAN GPRS cellular modem (in this application notes, we're using GPRS cellular modem part number DC-WAN-A101-A)
1 – FC2A-KC4C cable

Step 1: Provisioning the DIGI modem

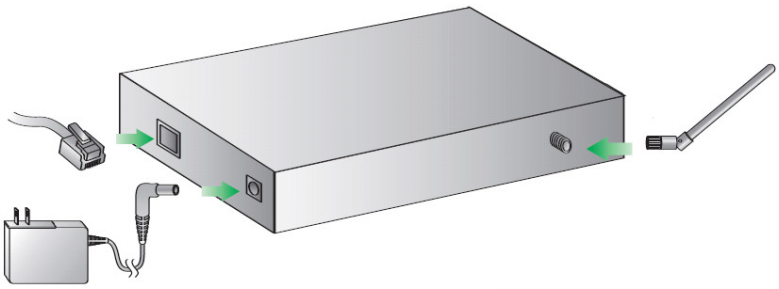
NOTE: The DIGI cellular modem does NOT come provisioned and will require a cellular data plan from a cellular carrier such as AT&T, Verizon or Sprint. Please make sure a data plan is already established with the service provider before proceed with the instructions below.

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 cross-over cable to a PC



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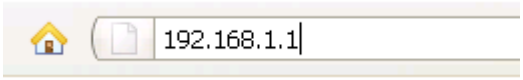
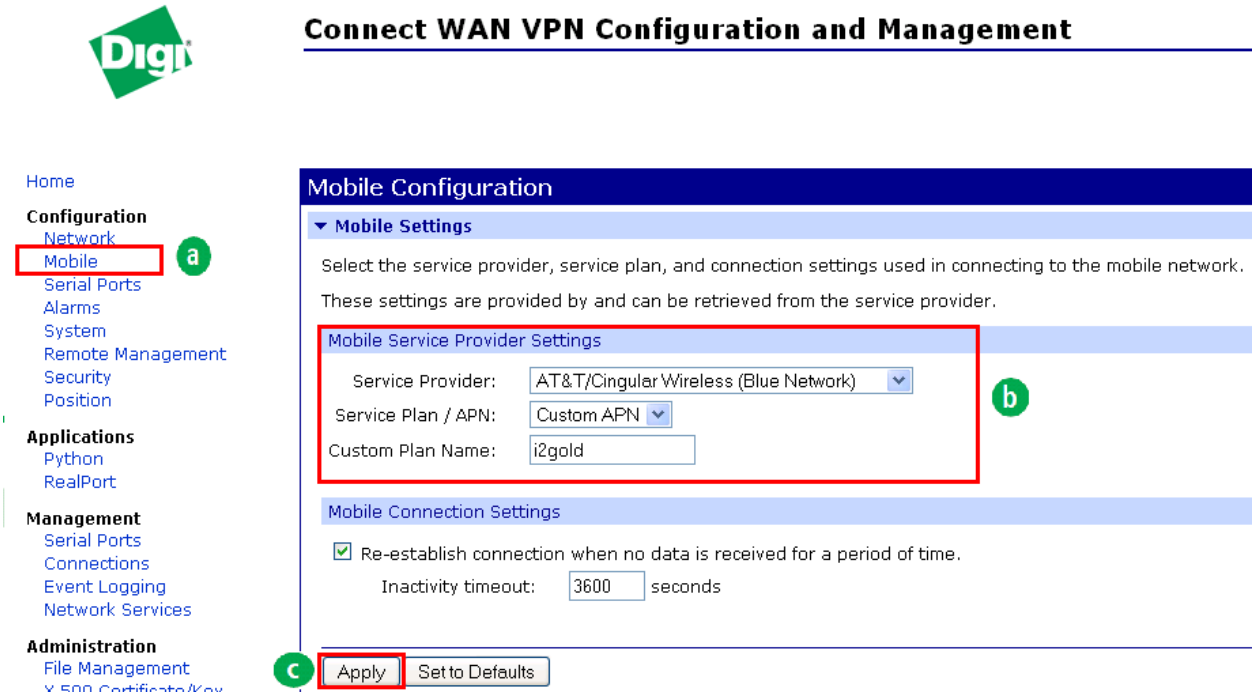
3. Open your web browser and enter the IP address 192.168.1.1 in the URL address bar



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

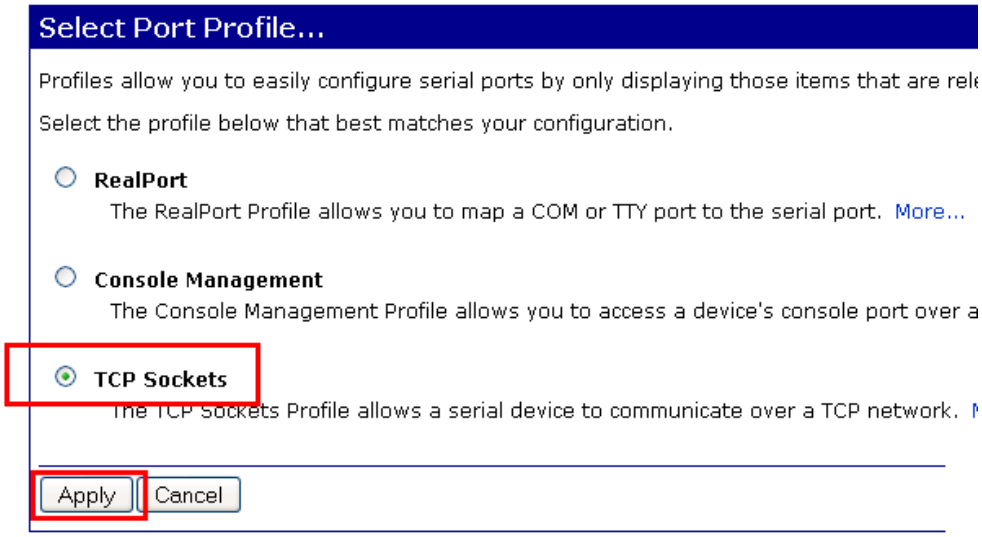
4. From the web interface, under Configuration, click (a) "Mobile" (b) enter your service provider name and connection parameters and (c) click "Apply"

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

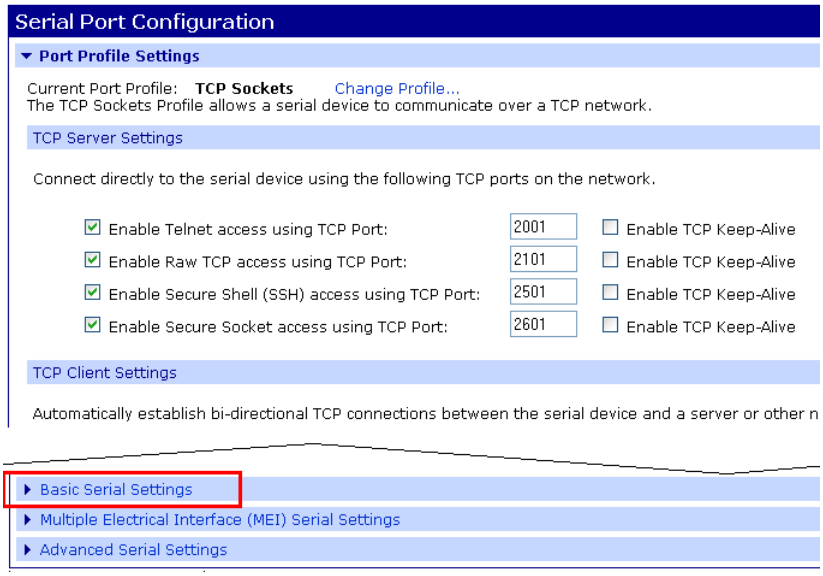


5. Under Configuration, click "Serial Ports" and select "Port 1"

6. Under Select Port Profile, select “TCP Sockets” and click “Apply”



7. Under Serial Port Configuration, select “Basic Serial Settings”



8. Make sure the serial settings match the MicroSmart Pentra port settings in WindLDR. Since the MicroSmart Pentra default settings is 9600, 7, Even, 1, None, we’ll use these parameters for the DIGI modem.

   Baud Rate = 9600
   Data Bits = 7
   Parity = Even
   Stops Bits = 1
   Flow Control = None

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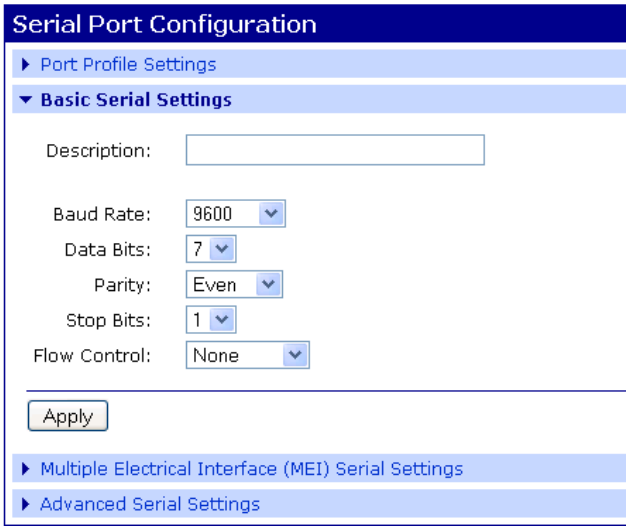
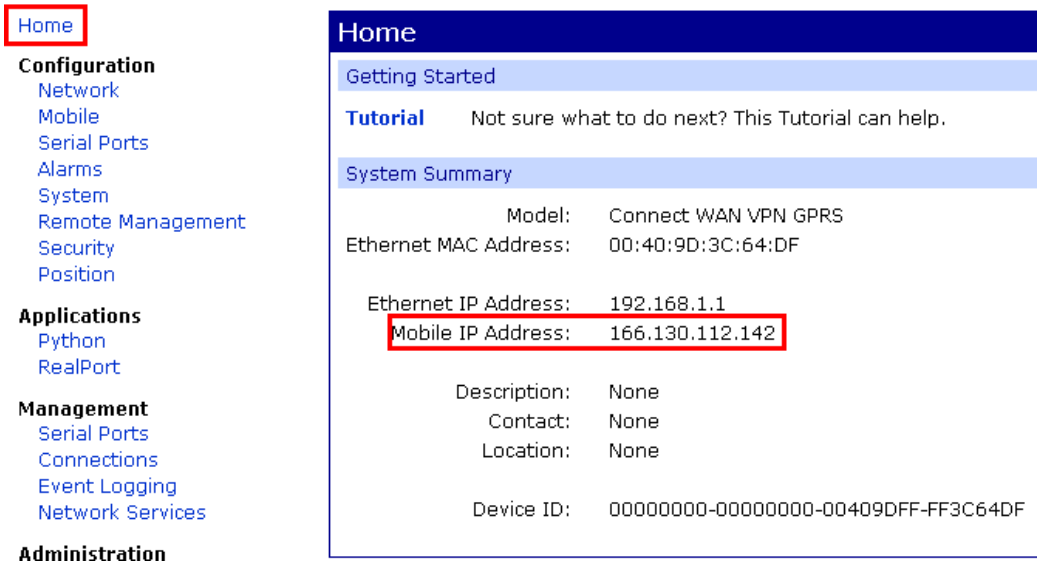
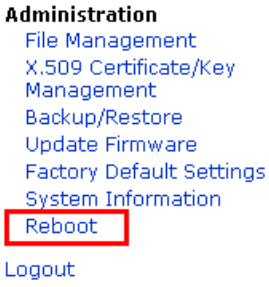
Click “Apply”



9. From the web interface, click “Home” and observe the Mobile IP Address. This is the IP address of the DIGI cellular modem. In this application notes, the Mobile IP address is 166.130.112.142.



10. Under the Administration menu, Click “Reboot”.



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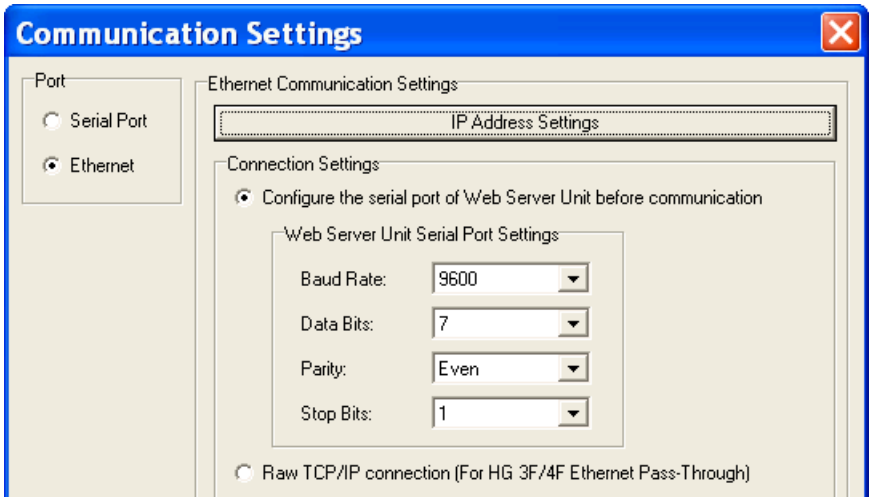
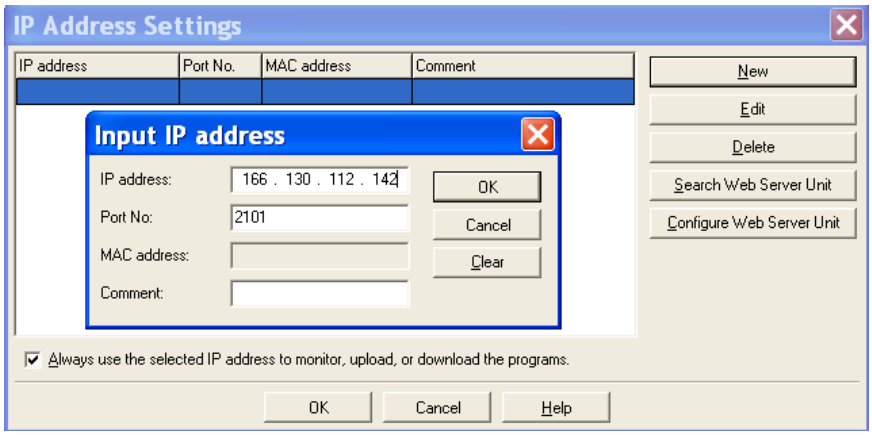
Step 2: WindLDR software

1. Leave the Ethernet cross-over cable connected to the PC and DIGI cellular modem
2. Connect interface cable FC2A-KC4C (or FC4A-KC4CA with toggle switch in A mode) to the modem DB9 port and Port 1 of the MicroSmart Pentra PLC
3. Launch WindLDR software
4. In WindLDR, under Configure, select Communication Settings.
5. Under Port, select Ethernet and click on “IP Address Settings”



6. Under IP Address Settings dialog box, select “New” and enter the IP address of the Mobile IP Address of the DIGI cellular modem. Make sure Port No. **2101** is left at default**.**



7. You can now monitor, upload and download program to the MicroSmart Pentra PLC using WindLDR software through the Ethernet cross-over cable.
8. Unplug the Ethernet cross-over cable from the PC and DIGI cellular modem. Make sure your PC is connected to the internet. You can now remotely monitor, upload, and download program to the MicroSmart Pentra PLC using WindLDR software through cellular connections.