Online CT

485 - P2

IP - P2

AEM

vAEM

BACnet

Tools

Commissioning Tool

Connecting Online with Commissioning Tool to Various ALN Types

by Richard Devathala and Jimmy Gorowski, Field Support

NOTE: When in CT Online mode, ALN will stay connected for a maximum of 10 hours.

This article will cover connecting a job with CT Online to various ALN types. It will discuss in detail connecting a job with the following ALN types:

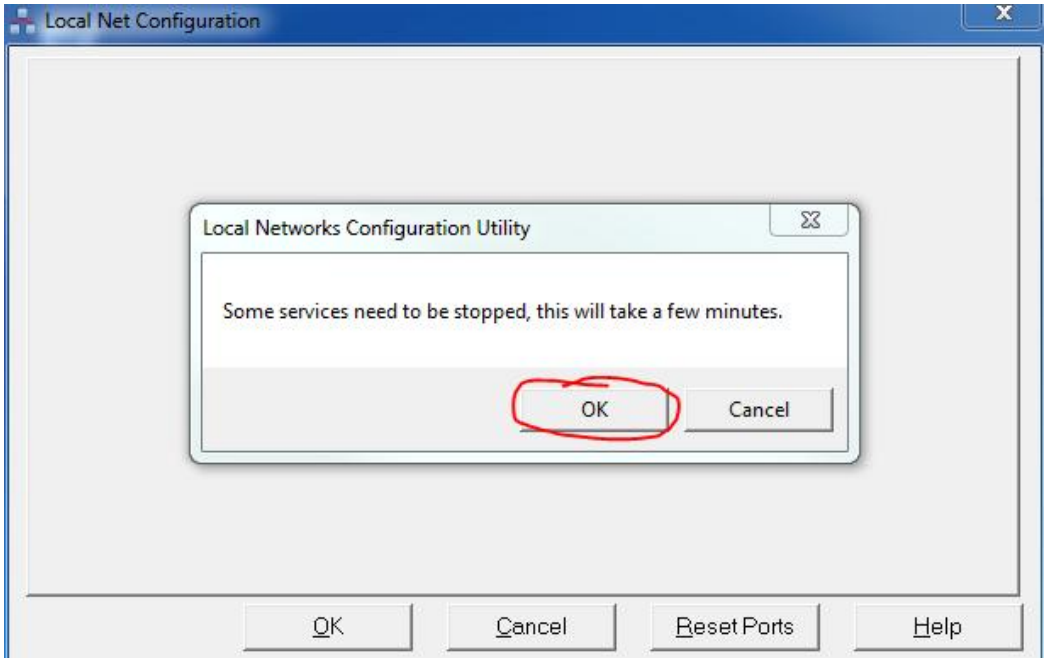
1. RS-485
2. Ethernet
3. Physical AEM (AEM2100)
4. Virtual AEM
5. BACnet

RS-485 ALN

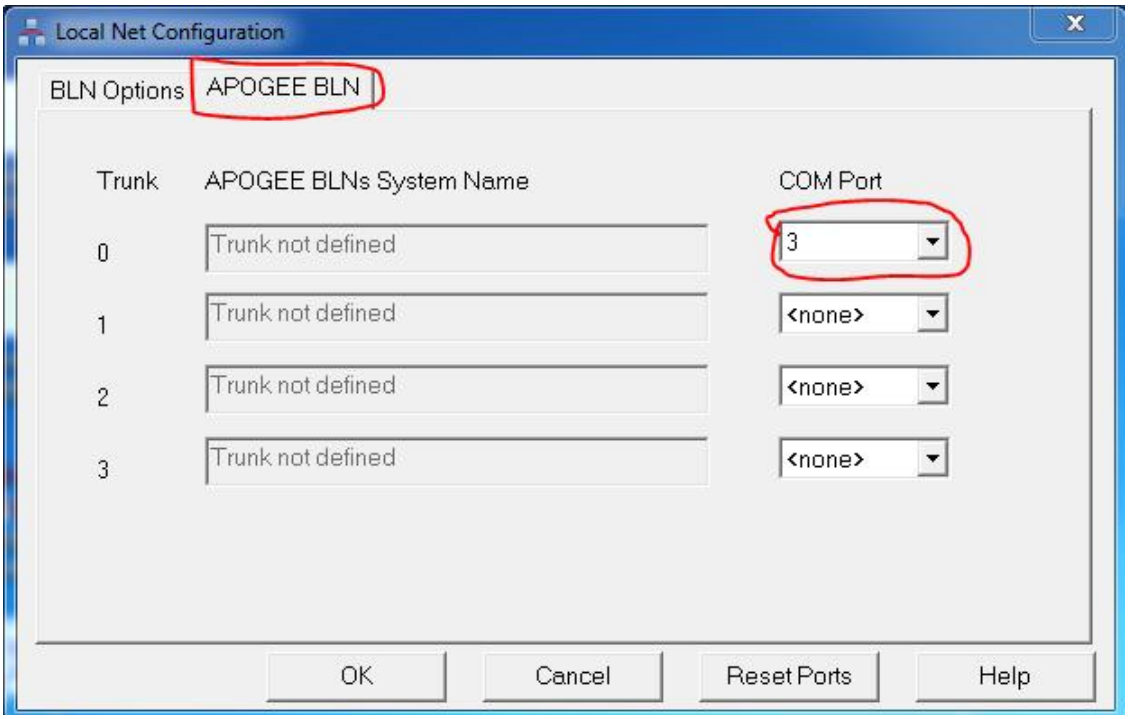
When starting a job in CT Online for a RS-485 ALN, LocalNet Configuration Utility must be run first. Follow the step below for setup.

How to run LocalNet Configuration Utility

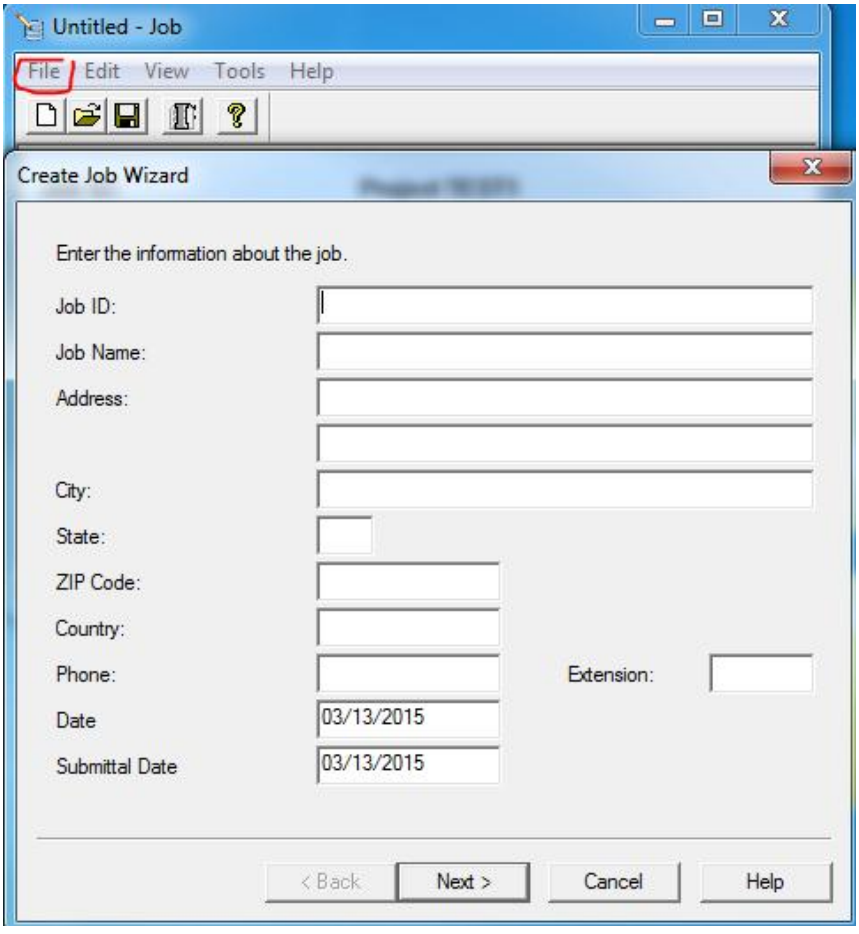
1. Select **Start, All Programs, Commissioning Tools** and **"LocalNet Configuration Utility."** Click "**OK"** (see example below)



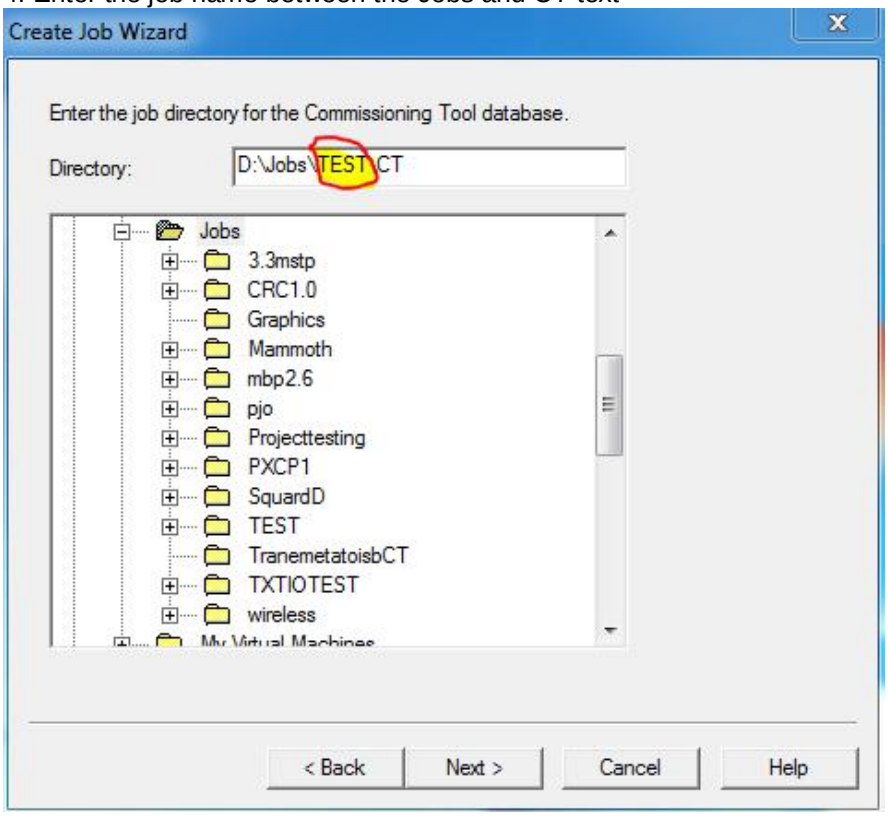
2. Select the correct COM port from the drop down list from **"APOGEE BLN"** (tab two).



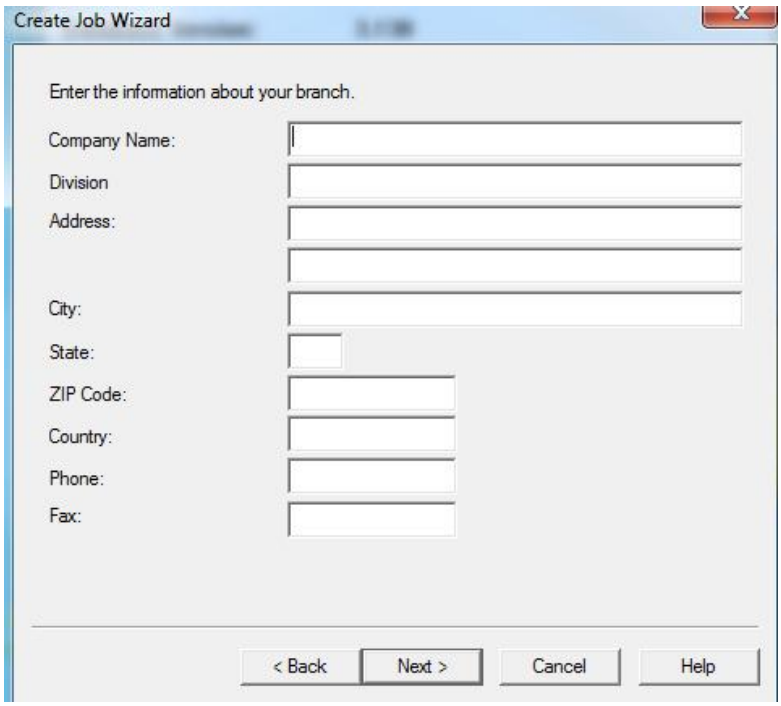
3. Launch JOB EDITOR application and select FILE, NEW. Fill in all appropriate fields and click NEXT.

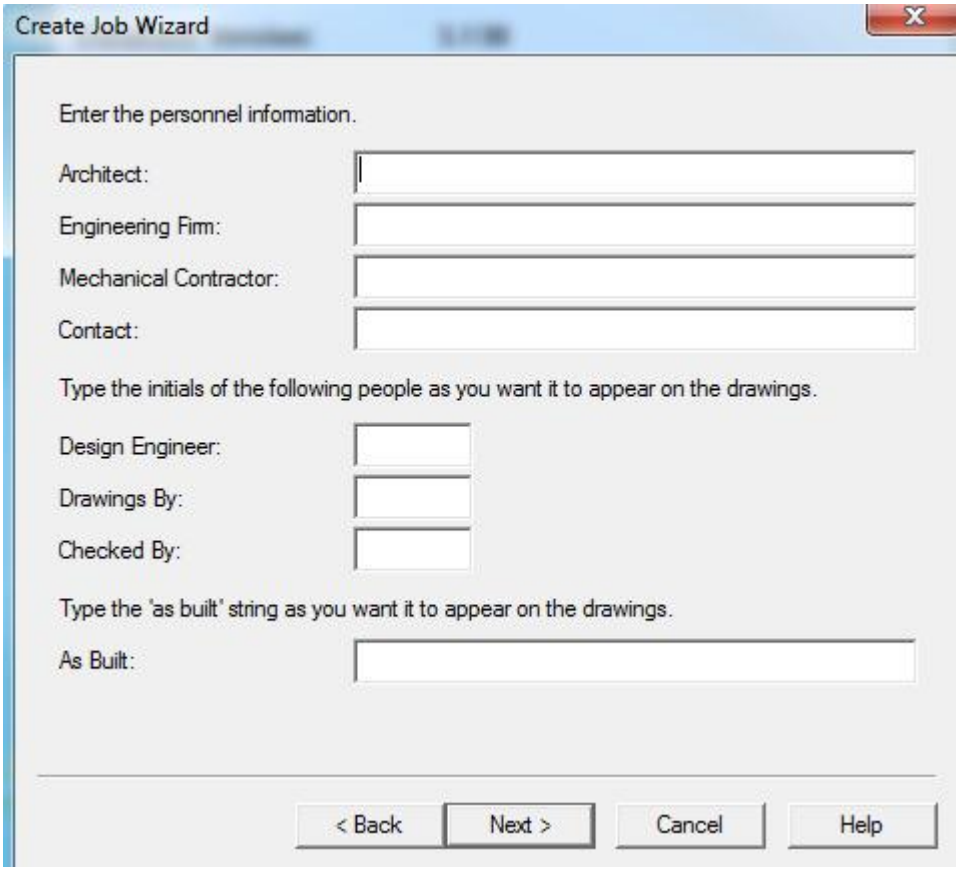


4. Enter the job name between the Jobs and CT text

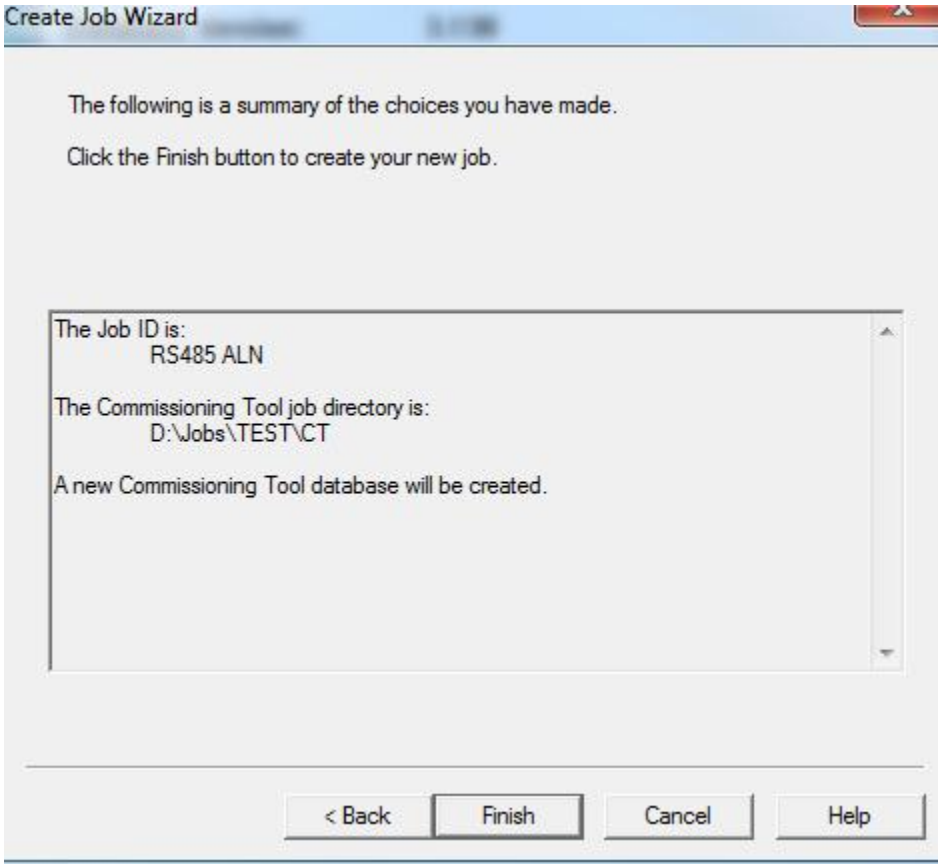


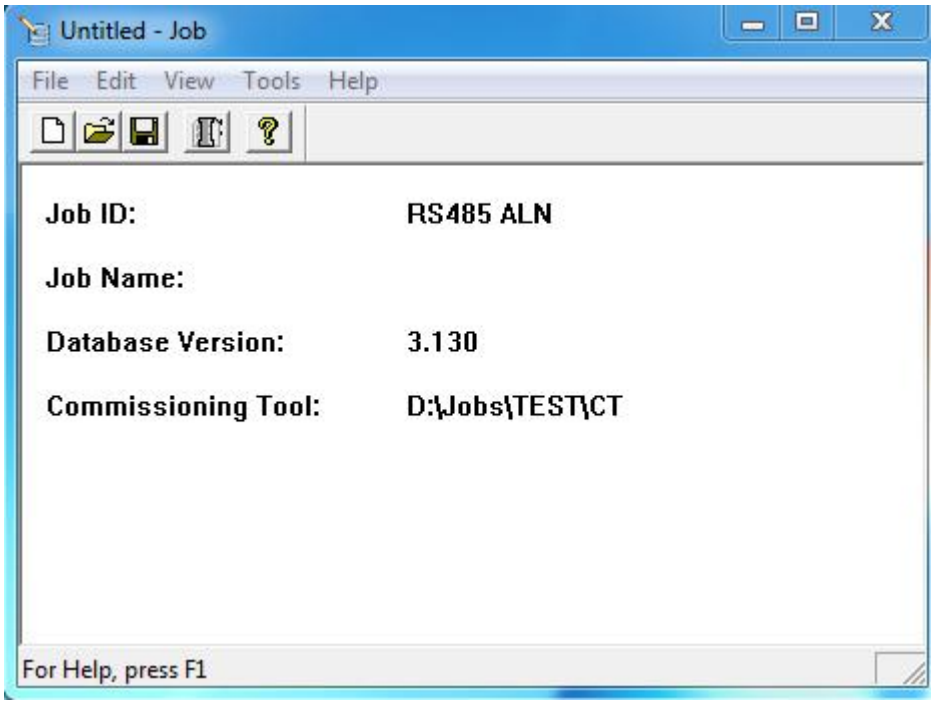
6. Fill in the following branch and personnel info and click **NEXT**




Create Job Wizard
Enter the personnel information.
Architect:
Engineering Firm:
Mechanical Contractor:
Contact:
Type the initials of the following people as you want it to appear on the drawings.
Design Engineer:
Drawings By:
Checked By:
Type the 'as built' string as you want it to appear on the drawings.
As Built:
< Back
Next >
Cancel
Help

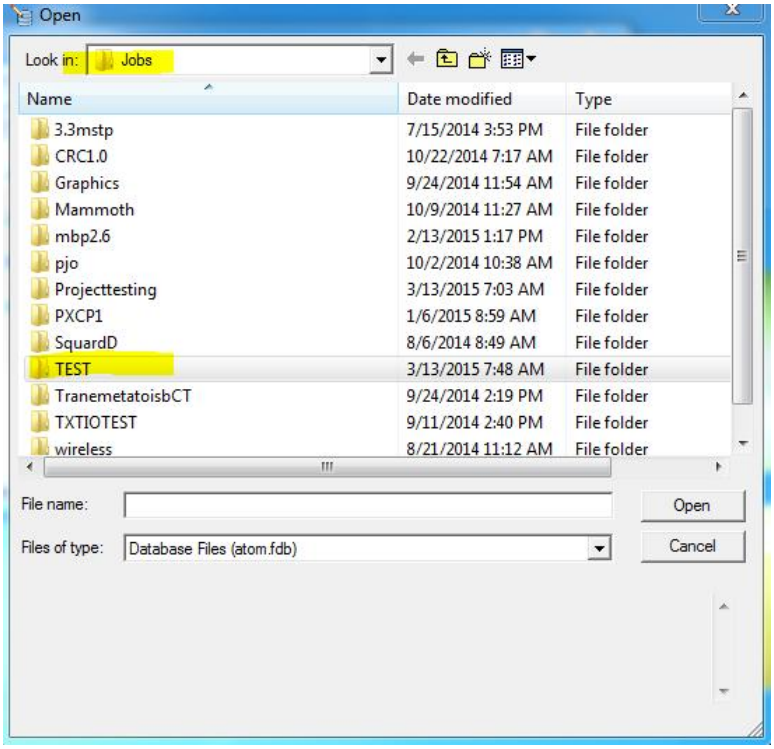
A Job Summary screen will display, verify all info and click **FINISH.** The job is now created.

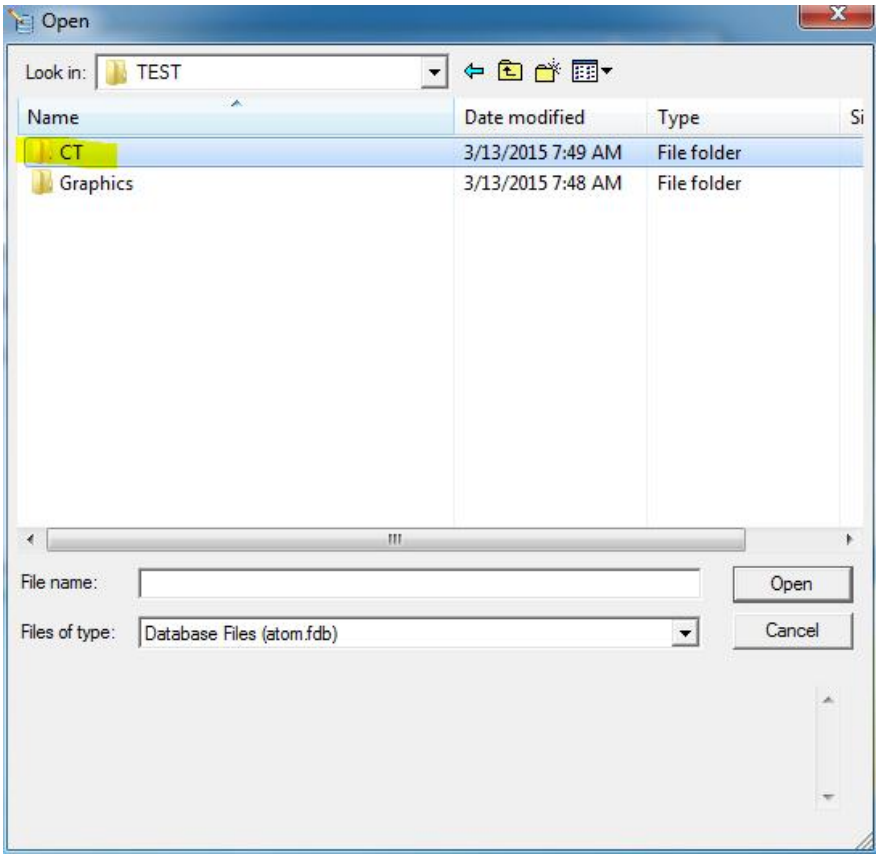




7. **Opening the JOB with on line CT.**

From the newly created job window above, Click **FILE**, **OPEN ONLINE.** Locate the job you have created and click **Open**.





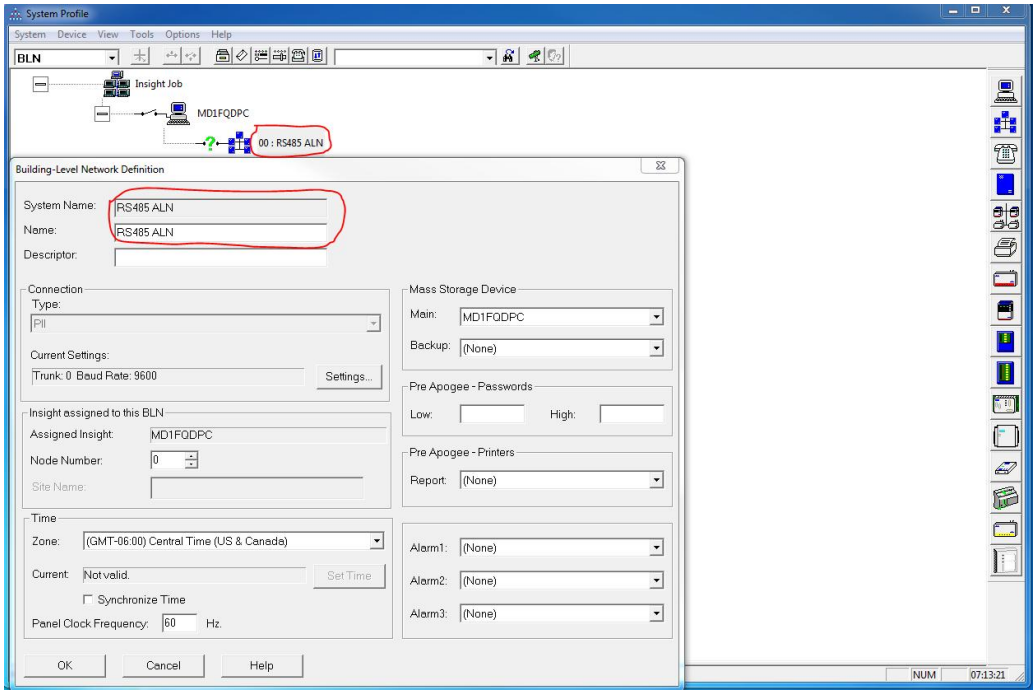
Highlight the **"atom.fdb"** folder and click **OPEN** to start JOB on line.

8.To build the JOB, click on the **System Profile** icon and perform the following steps. See screen shots below for example.

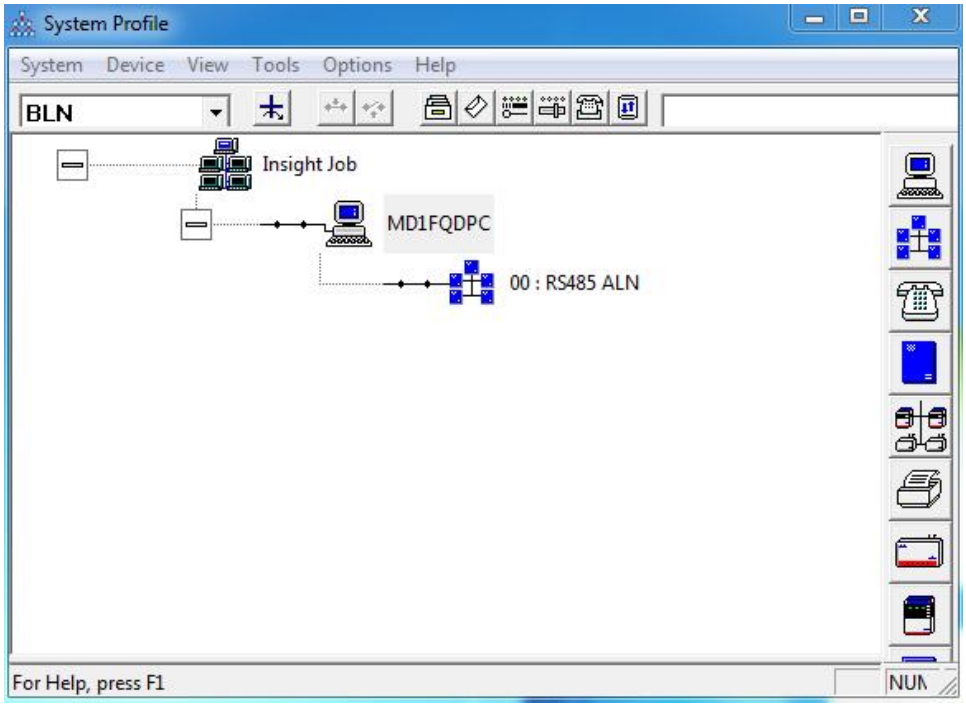
Drag and drop the ALN ICON from icon menu to the PC and fill in the following fields:

- SYSTEM NAME
- DESCRIPTOR FIELD is optional it can be left blank
- CONNECTION TYPE defaults to PII (RS485)
- CURRENT SETTINGS defaults to Trunk:0 and Baud rate:9600 (you can change to you preference)
- NODE NUMBER defaults to 0, but you can change to your preference
- MASS STORAGE DEVICE select your computer name from the drop down list.

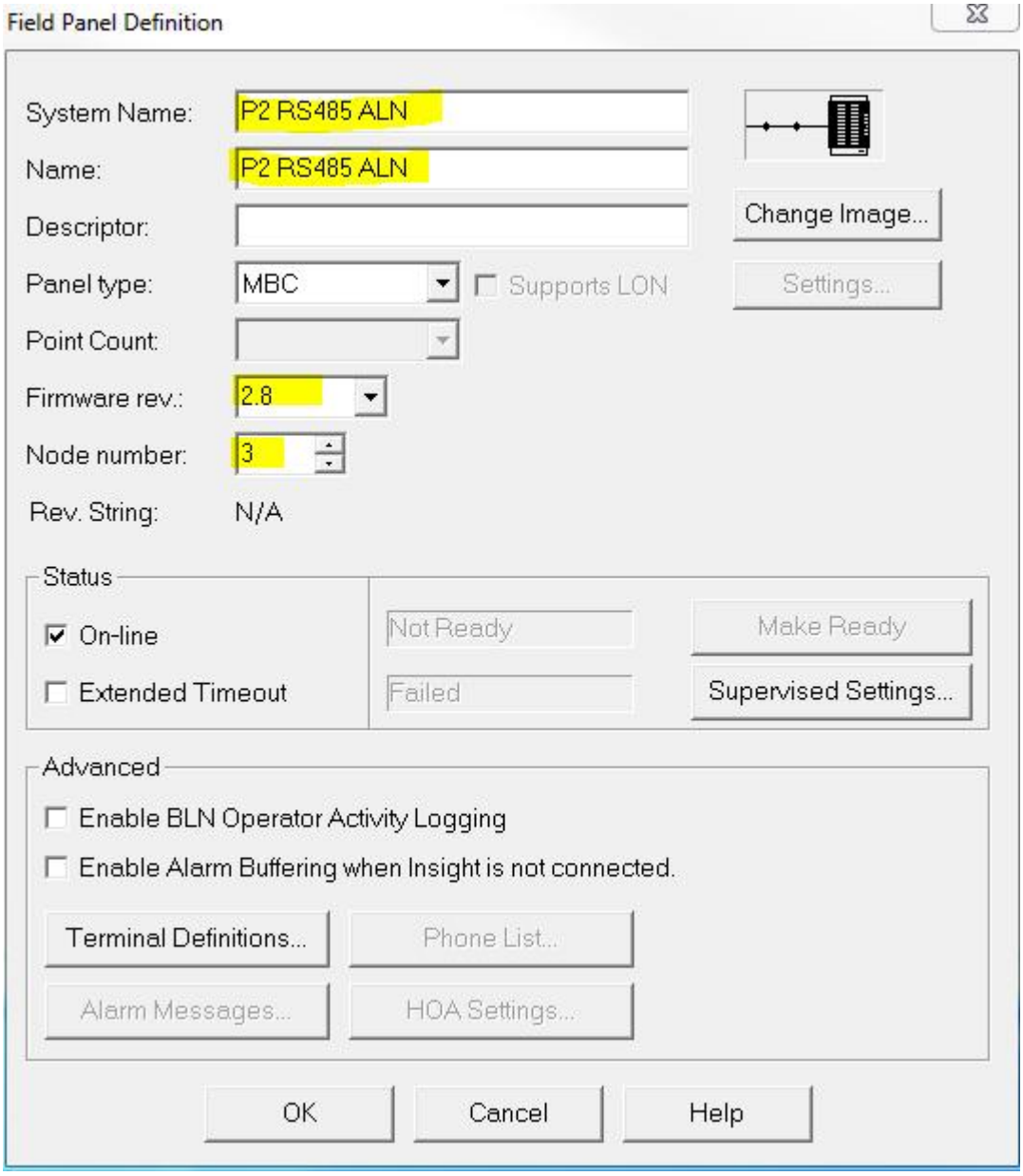
All other fields are optional and may be left blank.



After all the fields are selected, click OK and your RS-485 ALN will be connected.



9. Drag and drop the Field Panel icon from the icon menu to the “RS485 ALN”. This will bring up the Field Panel definition screen as shown below.



Fill in the following fields:

SYSTEM NAME: enter any name.

NAME: this will be the same as the SYSTEM NAME

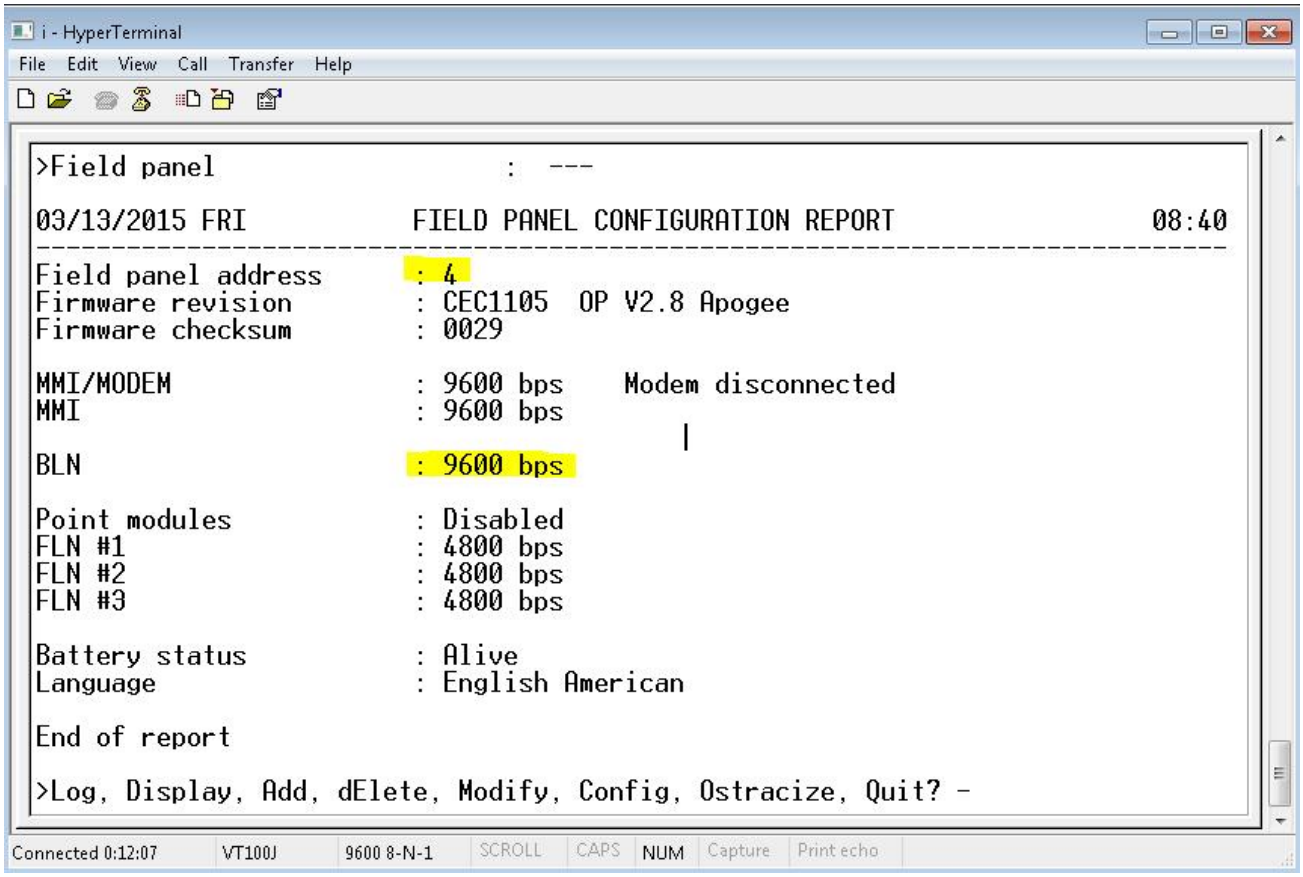
PANEL TYPE: Chose appropriate field panel you are connecting to (defaults to MBC)

FIRMWARE REV: Choose the correct version of firmware for your panel.

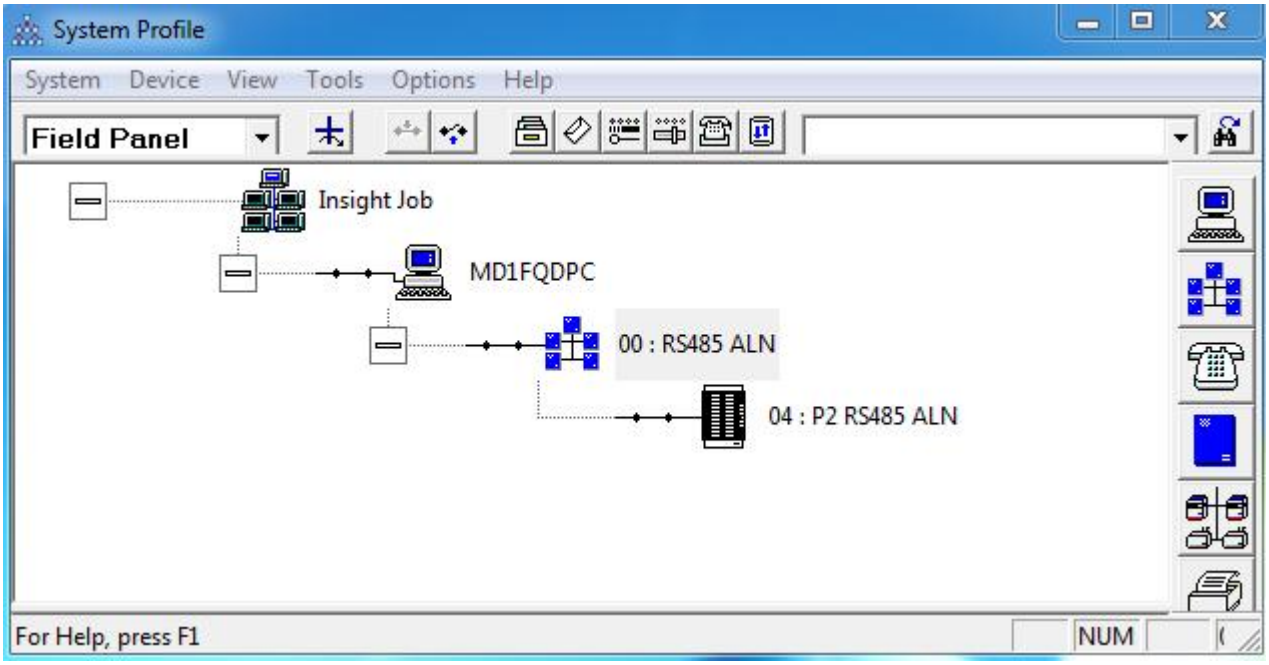
NODE NUMBER**:** must match what is defined in the field panel. The node number can be verified by connecting to the filed panel with HyperTerminal, PuTTY, etc.

Below are the steps to verify node number and baud rate when connected to the field panel, Choose **S**ystem, **H**ardware, **F**ieldpanels, **D**isplay, **H**ere, and hit enter.

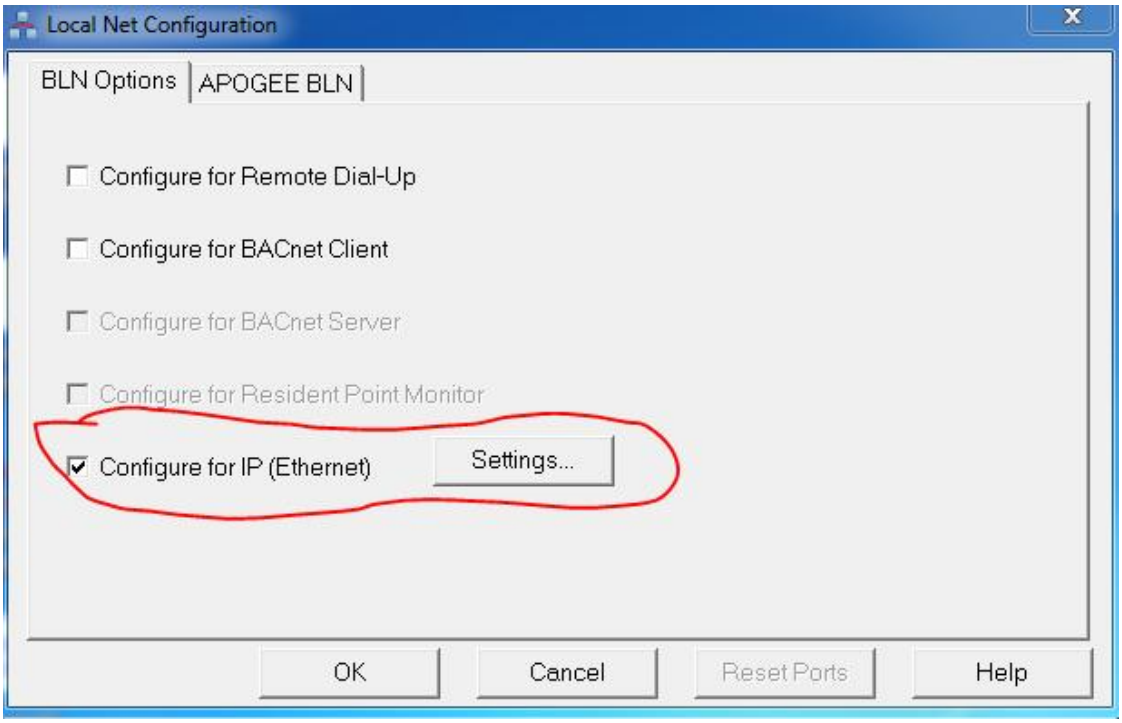
The Field Panel Configuration Report will show the Node Number (Field Panel Address) and the BLN baud rate:



Once all the appropriate fields have been entered in the Field Panel Configuration window in CT, click **OK** and the field panel will be connected to a RS-485 ALN with CT On Line.



Connecting an Ethernet Field Pane To Online CT



This will guide you through connecting and configuring an Ethernet field panel to your Commissioning Tool (CT). For instructions on starting up your Ethernet field panel, see the appropriate PXC-M, PXC-C 36 , 16, 24, MEC, MBC & RBC startup documentation in InfoLink. The intent of this document is to connect CT online to a field panel for startup purposes and not on a live Ethernet network. This article is split into 3 sections:

•Physically connecting CT and the Field Panel together.

•The configuration steps that must be done at the field panel

•The configurations steps that must be done on CT.

SECTION 1: Connecting the Field Panel to CT

1.Connect the Ethernet patch cable to the Ethernet port on the side of the field panel and to the hub. CT should be connected to another open port on the hub. If a crossover cable is used, the cable will be connected directly from the CT computer to the RJ-45 connector on the field panel. The hub would not be used with a crossover cable.

2.Verify that the field panel is on and that the LINK/ACT LED on the front of the panel is green. If the LED is not green, verify that the Ethernet patch cable is securely connected to the Ethernet port on the field panel and to the nearest hub or switch.

During normal operation, the Ethernet LEDs on the Ethernet Field Panel should behave as follows:

•The LINK/ACT LED will flash when the panel is communicating. The LED will remain lit as long as there is a good Ethernet connection between the field panel and the nearest hub, switch, or router.

•The 100TX LED will light when the field panel is communicating at 100 MBps.

•The FULL/COL LED will light when the field panel is communicating in Full Duplex mode, and the light will flash when Ethernet collisions are detected. Collisions are part of the normal operation of an Ethernet network.

SECTION 2: Configuring the field panel

Connecting to an Ethernet Field Panel Using HyperTerminal

Use the following procedure to connect to the MMI port of the field panel using a terminal or laptop:

1.Connect the 9-pin end of the serial cable to the serial port on a laptop or terminal, and plug the RJ-11 connector on the serial cable into the MMI port on the field panel.

2.Do one of the following:

•If you are using a laptop, go to Step 3.

•If you are using a terminal, power up the terminal and press ENTER. Then go to Step 6.

3.Do one of the following:

•If you are running Windows 95, 98, or NT, click Start, Programs, Accessories, HyperTerminal, and the HyperTerminal program icon.

•If you are running Windows 2000, click Start, Programs, Accessories, Communications, and Hyper Terminal.

•If you are running Windows XP, click Start, All Programs, Accessories, Communications, and Hyper Terminal.

•If you are running Windows 7, click Start, You can use Putty.

4.In the Connection Description window, type the name, FP 9600, and then click OK.

5.Select COM 1 in the Connect Using field, and make sure the connection cable is connected to COM 1. Click OK.

6.In the COM 1 Properties window, select the following settings:

Bits per second:9600 (Defaults to 115200 for the following (PXC-M, PXC-C36, 16 and 24).

Data bits:8

Parity:None

Stop bits:1

Flow control:None

7.Click OK.

8.A flashing cursor appears in HyperTerminal. From the File menu, click Save.

Configuring Ethernet Settings

NOTE: If you are replacing an existing field panel with an Ethernet field panel, be sure to record the BLN System Name and Node Name you enter for the new panel. You will need these settings when converting your existing BLN to an Ethernet BLN.

1.Log on to the field panel by typing H for Hello and entering your user initials and password when prompted.

2.At the main menu, type S for System.

3.Type H for Hardware.

4.Type E for Ethernet.

5.Type S for ipSettings.

6.Type M for Modify.

7.Enter the Node Name (not case sensitive) for your Ethernet field panel.

8.Enter the Site Name (not case sensitive) for the physical Ethernet site where the panel is connected. The Site Name must match the name entered for other field panels on the same site. Press ENTER.

9.Type the BLN Name for your Ethernet BLN, and then press ENTER.

10.The field panel will be assigned a fixed IP Address, type N for DHCP (Y/N).

11.Type the IP Address assigned to the field panel, and press ENTER. At this point you may not have the true IP address of the field panel. Use 10.0.0.1 for the IP address of the field panel if you do not have the correct address.

12.Type the Subnet Mask (Netmask) assigned to this field panel, and press ENTER. At this point you may not have the true subnet mask of the field panel. Use 255.255.255.0 for the subnet mask of the field panel if you do not have the correct mask.

13.Type the Gateway Address assigned to this network and press ENTER. At this point, since you are not connected to the real network, use the default address of 0.0.0.0 for the Gateway Address.

14.For DNS 1, press ENTER to accept the default of 0.0.0.0. Leave DNS 2 through DNS 4 at the defaults as well.

15.Leave 5033 as TCP Port 1, and press ENTER. Leave TCP Ports 2-8 blank by pressing ENTER for each port.

16.Leave the Multicast IP Address as 234.5.6.7, and then press ENTER.

17.Leave the Multicast Port as number 0, and then press ENTER.

18.Leave Multicast Addresses and Ports 2-4 blank by pressing ENTER for each port.

19.At the Telnet Enabled prompt, type Y.

20.When prompted to cold-start the panel, type Y.

Configuring the Ethernet Port

1.Log on to the field panel by typing **H** for Hello and entering your user initials and password when prompted.

2.At the main menu, type S for System.

3.Type H for Hardware.

4.Type E for Ethernet.

5.Type I for mIi.

6.Type M for Modify.

7.Unless you definitely want the Ethernet port to communicate only at 100 MBps or 10 MBps, press 1. This configures the port to use the fastest available communication speed.

8.Select Auto for communication speed.

9.Type # to return to the main menu.

Setting Up an Ethernet BLN Node Name Table

NOTE: You need to perform this procedure only if you did not define a DNS server for your Ethernet Field Panel. Ethernet Field Panels do not require a Node Name Table when a DNS server is available.

You need to enter a Node Name Table in only one field panel on your Ethernet BLN. The Node Name Table will be automatically copied to other panels on the BLN.

When this is connected to Insight, if you have more than a few field panels on your BLN, it is strongly recommended that you use a DNS server rather than a Node Name Table. Maintaining a Node Name Table can be cumbersome and time consuming for large networks. For now, use a node name table.

Use the following procedure to create a Node Name Table.

1.Log on to the field panel by typing H for Hello and entering your user initials and password when prompted.

2.At the main menu, type S for System.

3.Type H for Hardware.

4.Type N for nodeNametable.

5.For each Ethernet Field Panel on your BLN, do the following:

a.Type A for Add.

b.Type the Node Name (not case sensitive), and then press ENTER.

c.Type the panel IP Address, and then press ENTER.

6.When you are finished entering your field panels, press D for Display.

7.Verify that all your panels are listed in the Node Table. (Note: The word "Permanent" means that this nodes name and address was manually entered. This is just for your information. No other action needs to be done).

8.Type # to return to the main menu.

Adding a Node for CT

1.If necessary, log on to the field panel by typing H for Hello and entering your user initials and password when prompted.

2.At the main menu, type S for System.

3.Type H for Hardware.

4.Type F for Field panels.

5.Type A for Add.

6.At the Node Name prompt, enter the Node Name (not case sensitive) you will assign to the CT workstation and press ENTER. This is the name that your Ethernet Field Panels will use to contact CT. Use the Computer Name for the CT workstation, unless another name is required.

7.The field panel adds a node for CT. Type # to return to the main menu.

Proceed with Defining CT as the Main Disk.

Defining CT as the Main Disk

1.If necessary, log on to the field panel by typing H for Hello and entering your user initials and password when prompted.

2.At the main menu, type S for System.

3.Type H for Hardware.

4.Type D for Disk.

5.Type R for Replace, and then enter the name for either the main disk or the backup disk, or both.

6.At the Field Panel prompt, type the Node Name (not case sensitive) of the CT workstation and press ENTER. You will receive a message indicating that the command is successful.

7.Type # to return to the main menu.

SECTION 3: Configuring Commissioning Tool

Creating a Hosts File on the CT Workstation

NOTE: You need to perform this procedure since you are connecting an Ethernet BLN to CT workstations and there is no DNS server available. When connected to Insight, if you have more than a few field

panels on your BLN, it is strongly recommended that you use a DNS server rather than a Host File. Maintaining a Host File can be cumbersome and time consuming for large networks.

Configuring IP settings on the CT computer

1.On the CT computer, click on Start, Settings, then Network and Dialup connections.

2.Right click on the Local Area Connection that corresponds to the Network Interface Card (NIC) used to connect to the field panel and then click Properties.

3.Click on the Internet Protocol (TCP/IP) component and then click on the Properties button.

4.In the Internet Protocol (TCP/IP) Properties window, click on the Use the following IP address:

5.If you do not have the true IP address for the field panel yet, then type in 10.0.0.2 in for the IP address of CT (this assumes you entered 10.0.0.1 when the field panel was configured). Otherwise, if you have the correct address of the field pane entered, enter CT's IP address as 1 number higher or lower. For example, if the field panel IP address is 192.173.10.54, then enter CT's IP address as 192.173.10.55.

6.Enter the same subnet mask for CT as was entered for the field panel (typically 255.255.255.0 if the true subnet mask is not known).

7.Click OK on both windows to close them.

To Create a Hosts File on an CT Workstation

The Hosts file contains the IP Address and the Name of each Ethernet Field Panel on the network.

1.Click Start, Programs, Accessories, and Windows Explorer.

2.Assuming Windows was installed in the WINNT directory, use Windows Explorer to change to the \WINNT\SYSTEM32\DRIVERS\ETC directory.

3.Do one of the following:

•If you have a file named Hosts, double-click it. If you are prompted with the Open With dialog box, double-click on Notepad in the scrolling list. You may see an entry for the IP Address of 127.0.0.1. Do not edit this line.

•If the Hosts file does not exist, use Notepad to create a new file named Hosts under the \WINNT\SYSTEM32\DRIVERS\ETC directory.

4.Add at least two more lines at the end of the file (after the 127.0.0.1 entry if it exists). They two lines will contain the IP Address, followed by a tab and the Name of each Ethernet Field Panel and your PC's Americas name. For example:

10.0.0.10BLDG1MEC01

10.0.0.11USBGRW1234

5.Save and close the Hosts file, and then restart the computer. The computer must be rebooted for these changes to take affect.

Running the LocalNet Configuration Utility

To ensure that CT is configured to connect to an Ethernet BLN, use the following steps to run the LocalNet Configuration Utility. The following steps assume that CT is installed in the CT Version 3 folder.

1.From the Windows taskbar, click Start, Programs, CT Version 3, and LocalNet Configuration Utility. Then click OK to temporarily shut down CT Services.

2.In the Select BLN Options section, check the Configure for IP (Ethernet) box.

3.Click Settings.

4.If you set the Transport Server Port (TCP Port) to a number other than 5033 (the default), enter that number here.

5.Check the Enable Multicast box to optimize communication on your Ethernet BLN using Multicast Transmissions. Uncheck this box to disable multicasting.

6.If you set the Multicast Address at the field panel to a number other than 234.5.6.7 (the default), enter that number here.

7.If you set the Multicast Port at the field panel to a number other than 8, enter that number here.

8.Click OK.

9.Click Close.

Defining an Ethernet BLN

1.Log on to the CT workstation using an account with administrator privileges.

2.Open the job editor.

3.Create a new job. It will open offline. Close the job and reopen it online.

4.Once the job is open, open the system profile.

5.Drag and drop the BLN icon to the CT workstation.

6.In the System Name field, type the name of the Logical Ethernet BLN.

NOTE: This BLN System Name can contain a maximum of 30 characters, and must not contain any periods, spaces, or special characters. The BLN System Name must follow these rules and match the BLN System Name entered at the field panel, or CT will not be able to communicate with the field panel. As you type the System Name, it is automatically entered in the Name field. In CT, you cannot change the system name once it is entered unless you delete the BLN and start over. However, you can change the Name (User Name) at any time.

7.If desired, change the Name assigned to the BLN.

8.In the Descriptor field, type the description for the BLN.

9.In the Type field, select IP (Ethernet) from the pull down list.

10.You do not need to change the default Settings.

11.In the Insight Assigned to this BLN section, enter the Node Name (not case sensitive) you want to assign to CT. Use the Computer Name for the CT workstation.

12.Enter the Site Name (not case sensitive) for the CT workstation. This is the name assigned to the Physical Ethernet Site where the CT workstation is connected. This field must match the Ethernet site name entered for Ethernet Field Panels connected to the same site. If you have a BLN that spans multiple sites, enter the site name that corresponds to the site name of the field panel(s) where the CT workstation is located.

13.In the Time section, do the following:

a.In the Time Zone field, select the time zone from the list that represents the time for your city. The time you select synchronizes Daylight Savings Time (DST) schedules for remote field panels in facilities that are in different time zones.

b.If desired, check the Synchronize Time box to automatically synchronize the BLN time with the CT Workstation once per day.

14.In the Mass Storage Device field, select Main and choose the name of the CT workstation assigned to the Ethernet BLN.

15.Click OK. The BLN is displayed in the system tree. You may need to click the + next to your CT workstation to see the new BLN.

Defining an Ethernet Field Panel

Use the following procedure to add each Ethernet Field Panel:

1.Drag and drop the field panel icon to the BLN to which you want to add the field panel.

2.In the Field Panel Definition dialog box, do the following:

a.Enter the System Name, Name, Site Name (not case sensitive), and Descriptor for the field panel. The System Name is the unique name that identifies the field panel in your CT database.

b.In the Panel Type field, select the appropriate Panel Type from the drop-down list.

c.In the Firmware Rev. field, select Firmware Revision 2.5.3 or higher from the drop-down list. Firmware Revision 2.5.3 or higher must be installed on your Ethernet Field Panels.

d.In the Node Name field, enter the name (Host Name, not case sensitive) that will identify the field panel on the Ethernet network. This name can use only letters, numbers, and dashes. The node name should be no longer than 30 characters long, cannot contain any punctuation, and must be unique on the Ethernet network. The node name must match the name entered when configuring the field panel. The node name is the pingable name on the network and replaces the node number on a dedicated (P2) BLN.

e.If the DNS suffix has already been added at the panel, you can leave the DNS Suffix field blank. CT will automatically detect the DNS suffix.

f.Do one of the following:

g.If the field panel will receive an address using DHCP, click DHCP.

h.If the field panel will use a fixed IP Address, click IP Address. Then enter the Fixed IP Address, Subnet Mask, and Gateway Address (if any). For each DNS server, enter the IP Address of the DNS server in the DNS Addresses field, and then click Add. When you are finished, the IP Address of each DNS server should be listed below the DNS Addresses field.

i.Click the Terminal Definitions button.

3.In the Terminal Definitions window:

a.Set the Main port speed as desired. The default speed for the Main port is 115,200.

b.Set the Aux Port to 9600 even if your Ethernet Field Panel does not have an Aux Port.

c.Do not check Alarm Printing or Report Printing if your printer is located remotely. Ethernet field panels cannot dial out to remote printers, but they can print to local printers.

d.Check the Enable Telnet MMI and FTP Sessions box. Telnet enables you to connect to your field panel from any computer on the network. FTP enables you to download firmware.

e.Click OK.

4.In the Field Panel Definition window, click OK.

NOTE: If you are connecting to a live Ethernet BLN where all the panels have been configured and connected to the Ethernet network, CT will automatically detect and upload the settings for the remaining field panels on your Ethernet BLN.

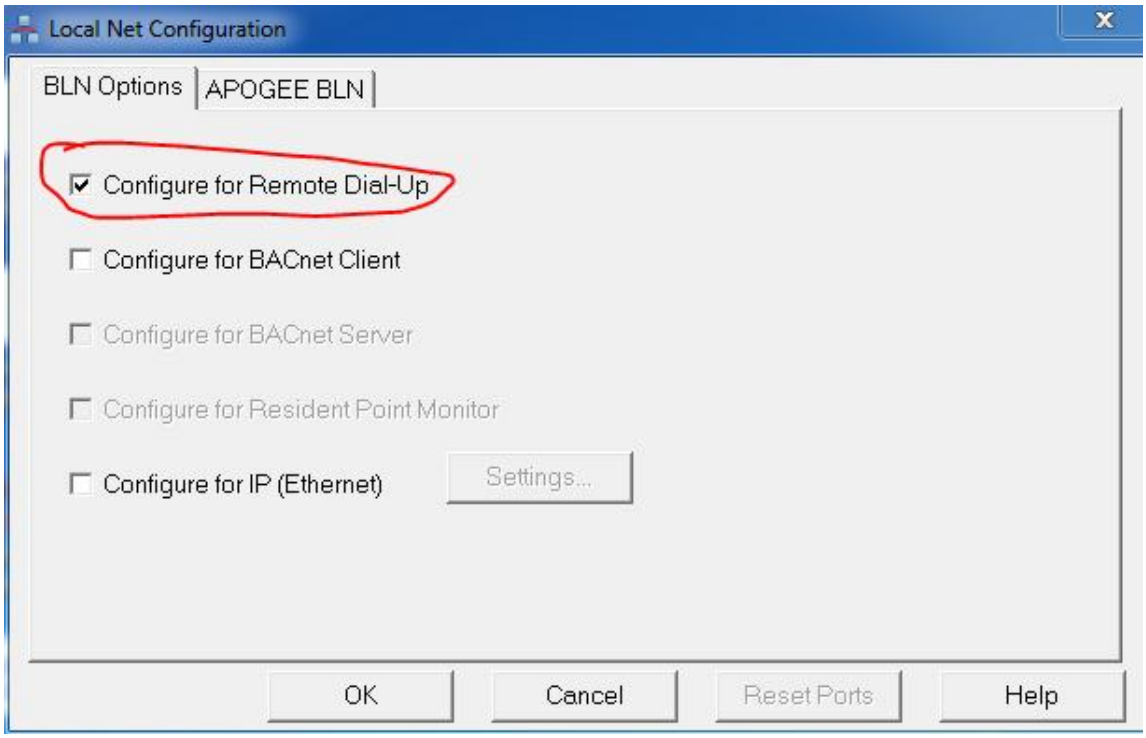
Your Ethernet BLN is connected if the connection in System Profile is latched. If the BLN connection is not latched, click the View menu, and click Refresh. Allow CT a few minutes to connect to the field panel.

If System Profile is unable to connect to the Ethernet BLN, click the View menu and click Refresh again. If System Profile still cannot connect to the Ethernet BLN, follow the procedures in Troubleshooting an Ethernet BLN in online Insight or CT help.

Open system Profile

Connecting CT Online to Physical AEM's (2100)

Select **"configuration for Remote Dial-Up"** (tab one).



This article provides the steps for configuring an AEM2100 where you need to connect to the AEM2100 using a HyperTerminal session at 9600 bps.

Configuring the AEM2100

To enter setup mode, you must perform the following steps:

1. Connect the COM 1 port of the computer or laptop to the AEM2100 Channel 1 port at 9600 bps using the AEM Accessory Kit configuration cable and adapter.

2. Press and hold the x key (lowercase x) and apply power to the AEM2100. A message, similar to the following, should display:

Example:

*** Siemens AEM2100 ***

MAC address 00204AABC8D8

Software version V6.6.21.0RC3 (080919) SIE

Press Enter for Setup Mode

NOTE: If the characters ?!? display instead, the AEM2100 booted before you entered the setup mode. Cycle power to the AEM2100, and perform Steps 1 and 2 again (holding down x (lowercase x), and then pressing ENTER once). There is no password for Channel 1 Setup.

3. Press ENTER once within five seconds. The AEM2100 displays its current configuration. Do not press any keys until the Change Setup menu displays.

Example:

```
Change Setup:    0 Server
                 1 Channel 1
                 2 Channel 2
                 5 Expert
                 6 Security
                 7 Defaults
                 8 Exit without save
                 9 Save and exit
       Your choice ?
```

Configuring the AEM2100 Server

1. At the Change Setup menu, type 0, and then press **ENTER.**

NOTE: View the current configuration and determine if changes are required. If no changes are required, at the Your choice prompt, type 8, and then press **ENTER** to exit Change Setup menu without saving and skip the rest of this procedure; otherwise, continue with next step.

2. Do one of the following:

- If the AEM2100 will use a fixed IP address, type each of the four octet values of the IP address, and then press **ENTER** after each one.
- If the AEM2100 will receive an address using DHCP, press **ENTER** at the IP address prompt four times; each prompt appears as an existing octet value. If it has not been configured, the octet value is (0).(0).(0).(0). If an IP address exists, type 0 (zero), and then press **ENTER** four times until all four octets are set to 0 (zero).

NOTE: Each of the menu prompts display an existing value in parenthesis ( ). If the value will remain the same, press **ENTER**; otherwise, type the new value and press **ENTER**.

3. Do one of the following:

- If the AEM2100 will use a Gateway IP Address, type **Y**. Type each octet value of the Gateway IP Address, and press **ENTER** after entering each value.

• If the AEM2100 does not need a Gateway IP Address, type **N**.

4. At the Netmask prompt, enter the appropriate Netmask for the given subnet mask, and then press **ENTER**. See the following chart for specific Netmask values:

Subnet Mask	Netmask
255.0.0.0	24
255.128.0.0	23
255.192.0.0	22
255.224.0.0	21
255.240.0.0	20
255.248.0.0	19
255.252.0.0	18
255.254.0.0	17
255.255.0.0	16
255.255.128.0	15
255.255.192.0	14
255.255.224.0.	13
255.255.240.0	12
255.255.248.0	11
255.255.252.0	10
255.255.254.0	9
255.255.255.0	8
255.255.255.128	7
255.255.255.192	6
255.255.255.224	5
255.255.255.240	4
255.255.255.248	3

255.255.252.0	10
255.255.254.0	9
255.255.255.0	8
255.255.255.128	7
255.255.255.192	6
255.255.255.224	5
255.255.255.240	4
255.255.255.248	3
255.255.255.252	2

5. If you configured the AEM2100 to use DHCP by entering IP address of 0.0.0.0 in Step 5, you are then prompted to change the DHCP name for the AEM2100. Type Y, and then enter the Computer Name assigned by the network administrator for the AEM2100 and press **ENTER**. The default DHCP name is AEM2100_xxxxxx, AEM2100 underscore the last six digits of the MAC and NOT the second entry on ID label on the bottom of the AEM2100.

6. At the **Change Telnet Password** prompt, type **N**. The main Change Setup menu displays. If you want to change the telnet enhanced password from the default of "system" to another password, see the Configuring AEM2100 Security-Menu Option 6 section of this article.

NOTE: Do not type Y, because a four-digit password is not used.

The Server Configuration portion of the AEM2100 is now complete. Continue to the Configuring the AEM2100 Channel 1 Serial Port section.

Configuring the AEM2100 Channel 1 Serial Port

View the current configuration and determine if changes are required. If changes are required, perform the following procedure or skip to the Configuring AEM2100 Security-Menu Option 6 section of this article.

1. At the **Change Setup** menu, type **1** and then press **ENTER**.
2. At the **Baud Rate** prompt, do one of the following:

NOTE: The condition of BLN network and devices may affect the maximum bps for optimal performance.

- If the field panel is a Power Open Processor or Power MEC 1300, type **115200**. Press **ENTER** to accept the maximum bps.
- If the field panel is an Open Processor, FLNC, SCU V5, or MEC 300/310, type **38400**. Press **ENTER** to accept the default maximum bps.

• If the field panel coexists with pre-APOGEE Firmware Revision 12.5/1.5, type **19200**, and then press **ENTER**.

7. At the **I/F Mode (4C)** prompt, press **ENTER** to accept the default value.

8. At the **Flow (00)** prompt, press **ENTER** to accept the default value.

9. At the **Port No (3001)** prompt, press **ENTER** to accept the default value.

10. At the **Connect Mode (C0)** prompt, press **ENTER** to accept the default value.

11. At the **Send '+++' in Modem Mode** prompt, press **ENTER** to accept the default value.

12. At the **Show IP addr after 'RING'** prompt, press **ENTER** to accept the default value.

13. At the Auto increment source port prompt, press **ENTER** to accept the default value.

14. At the **Remote IP Address: (000)** prompt, press **ENTER** four times to accept the default value.

15. At the **Remote Port (0)** prompt, press **ENTER** to accept the default value.

16. At the **DisConnMode (00)** prompt, press **ENTER** to accept the default value.

17. At the **FlushMode (00)** prompt, press **ENTER** to accept the default value.

18. At the **DisConnTime (00:00)** prompt, press **ENTER** twice to accept the default value.

19. At the **SendChar 1 (00)** prompt, press **ENTER** to accept the default value.

20. At the **SendChar 2 (00)** prompt, press **ENTER** to accept the default value.

NOTE: Make sure that DisConnTime is set to 00:00 as this parameter can be inadvertently changed to 00:02 if AEM2100 was initially programmed by the AEM200 Configuration Tool.

Configuring the AEM2100 Channel 1 Serial Port is complete.

Configuring the AEM2100 Channel 2 Serial Port

Perform the following steps if you are using the AEM2100 Channel 2 Serial Port for a MMI connection to the field panel independent of the Channel 1 AEM BLN; otherwise, skip to the Configuring AEM2100 Security- Menu Option 6 section of this article.

1. At the **Change Setup** menu, type **2**, and then press **ENTER**. You are about to configure the settings for the AEM2100 Channel 2 Serial Port that will be connected to the MMI port on the field panel.

2. At the **Baud Rate (9600)** prompt, enter the baud rate that you want to use when connecting to the MMI port of the field panel. **NOTE:** The A**EM2100** Channel 2 default speed is 9,600, but is capable of speeds from 300 to 115,200.

3. At the **I/F Mode (4C)** prompt, press **ENTER** to accept the default value.

4. At the **Flow (00)** prompt, press ENTER to accept the default value.

5. At the **Port No (3002**) prompt, press **ENTER** to accept the default value.

6. At the **Connect Mode (C0)** prompt, press **ENTER** to accept the default value.

7. At the **Send '+++' in Modem Mode** prompt, press **ENTER** to accept the default value.

8. At the **Show IP addr after 'RING'** prompt, press **ENTER** to accept the default value.

9. At the **Auto increment source port prompt**, press **ENTER** to accept the default value.

10. At the **Remote IP Address: (000)** prompt, press **ENTER** four times to accept the default value.

11. At the **Remote Port (0)** prompt, press **ENTER** to accept the default value.

12. At the **DisConnMode (40)** prompt, press **ENTER** to accept the default.

13. At the **FlushMode (00)** prompt, press **ENTER** to accept the default value.

14. At the **DisConnTime (00:00)** prompt, press **ENTER** twice to accept the default value.

15. At the **SendChar 1 (00)** prompt, press **ENTER** to accept the default value.

16. At the **SendChar 2 (00)** prompt, press **ENTER** to accept the default value.

17. At the **Terminal name ( )** prompt, press **ENTER**. Terminal name is not used.

Configuring the AEM2100 Channel 2 Serial Port is complete.

Configuring the AEM2100 Security-Menu Option 6

View the current configuration and determine if changes are required. If changes are required, perform the following steps; otherwise, skip to the Saving and Exiting the AEM2100-Menu Option 9 section of this article.

WARNING: SECURITY VULNERABLILITY!
Failing to perform the following steps can result in unauthorized access to the AEM2100 configuration. When any security settings are changed in Menu Option (6), the telnet enhanced password is erased and must be re-entered at the final prompt line.

CAUTION:
Carefully consider the following options and discuss requirements with your network administrator when obtaining network addresses or names and enabling firewall ports. Disabling functions within the AEM2100 decreases some of its capabilities while increasing security. It is recommended:

- To disable the Web server and close the firewall for Telnet port 80.
- To use the Telnet session as the remote setup for the RAS connection established with the network administrator and open a firewall for Telnet port 3002 in addition to AEM BLN port 3001.

1. At the **Change Setup** menu, type **6**, and then press **ENTER**.

2. At the **Disable SNMP (N)** prompt, type **Y** to disable SNMP. SNMP is both a security risk and an opportunity to produce the AEM BLN to disconnect. Therefore, enabling this option is not recommended.

3. If SNMP is enabled at the **SNMP Community Name (public)** prompt, press **ENTER**. Otherwise, enter the name assigned by the network administrator. Changing the name does not provide sufficient protection against exposure to network attacks.

4. At the **Disable Telnet Setup (N)** prompt, do one of the following:

• To continue using the current setup, press **ENTER**. Use the enhanced password (as described in Step 9). The network administrator must enable telnet port 9999 in firewall. The AEM2100 does not use port 23.

• To disable the Telnet Setup, type **Y**. Now, the Setup can only be performed at AEM2100 Channel 1.

5. At the **Disable TFTP Firmware Update (N)** prompt, do one of the following:

NOTE: It is recommended that this option remain disabled until it is required. The ability to later enable TFTP remotely was determined by the selection made in Step 4.

•To continue with the current setup, press **ENTER**. The network administrator must enable the firewall for telnet port 69 or establish a RAS connection through the firewall.

•To disable the TFTP Firmware Update, type **Y.**

6. At the **Disable Port 77FEh (N)** prompt, type **Y**. A binary file transfer is not used.

7. At the **Disable Web Server (N)** prompt, type **Y**.

8. At the **Disable Web Setup (N)** prompt, type **Y**.

9. At the **Disable ECHO ports (Y)** prompt, press **ENTER**. Do not enable ECHO, which can be sniffed on the network.

10. At the **Enable Enhanced Password (Y)** prompt, press **ENTER**. Do not disable this option if Step 5 was set to Y. If this option was set to (N) and the Telnet Setup is enabled, type **Y**, and then press **ENTER**.

11. At the **Change the Password (N)** prompt, type **Y**. Always re-enter the Telnet Enhanced Password after changing a security setting, as it is deleted during changes.

12. At the **Enter Password prompt**, type the new password that will be used for logging into the AEM2100. It is suggested that the login password be a maximum of 16 alphanumeric characters. After you enter the new password, press ENTER. After a reset, the default enhanced password is system; you must change it.

Configuring the AEM2100 Security is now complete.

Saving and Exiting the AEM2100-Menu Option 9

After all of the AEM2100 parameters have been set, go the Change Setup menu and type 9 to save all settings previously entered and exit the AEM2100 to allow the new settings to take effect.

The AEM2100 setup is now complete.

Using the Telnet Session to Change the AEM2100 Setup

NOTE: Do not use this procedure for changing password or security settings.

1. Open the Command Prompt application.

2. At the C:\> prompt, type telnet [AEM2100 IP address] **9999**, and then press **ENTER**.

3. After the Telnet session connects to the AEM2100, you are prompted to enter a password.

NOTE: By default, the AEM2100 password is system or the password is changed to the AEM2100 job site password. Within ten seconds, type system or [AEM job site password], and then press ENTER; otherwise, the connection will be lost. (NOTE: If the connection is lost, repeat Steps 2 and 3.)

4. The AEM2100 displays its current configuration. Do not press any keys until the **Change Setup** menu displays.

5. All **Change Setup** menu procedures may be repeated as described in the previous sections.

Using the Telnet session to change the AEM2100 setup is now complete.

Procedure for AEM2100 Factory Reset:

1. At the **Change Setup** menu, type **7** to restore factory defaults, and then press **ENTER**.

NOTE: This factory reset does not reset the AEM2100 IP address and other Server settings **except** for the following:

- The Telnet password, which is restored to the default password of system.
- The DHCP Name, which is restored to the default of "AEM2100_xxxxxx" (last six characters of the Ethernet address).

2. Complete appropriate configuration sections to make and save changes required.

Connecting CT Online to Virtual AEM

This article provides the steps for configuring a Virtual AEM for the PXC Modular. The Virtual APOGEE Ethernet Microserver (AEM) allows a remote Automation Level Network (ALN) to be connected directly to an Ethernet network at all times. The ALN may consist of just the PXC Modular with Virtual AEM license or additional field panels may be connected to the PXC Modular RS-485 ALN port.

The Virtual AEM is supported on PXC Modular controllers with Firmware Revision 2.8.2 or later. It is fully configurable from the **HMI** prompt.

NOTES:

- PXC Modular controllers do not support hardware AEMs.
- The field panel ALN type must be configured for P2, not Ethernet, for the Virtual AEM to communicate.
- BACnet firmware does not support the Virtual AEM function.
- The Insight workstation does not differentiate between Physical AEM versus Virtual AEM. Therefore, the virtual AEM network should be configured with ALN defined as Type Remote in System Profile of the Insight software and an AEM icon added to the PXC Modular with the Virtual AEM license similar to the configuration of the physical AEM ALN.
- All standard APOGEE ALN and pre-APOGEE PMD Trunk rules apply to the PXC Modular RS-485 port. Up to 32 maximum field panels may be directly connected. Additional field panels may be added using High Speed Trunk Interface/Extenders (HSTIEs). Maximum number of Nodes for pre-APOGEE running 9600 bps or greater is 64 or 32 for slower speeds. Maximum number of Nodes for APOGEE running 9600

bps or greater is 100. The recommended optimal maximum number of field panels on an AEM ALN is 40 if supported.

• If all field panels connected to the PXC Modular RS-485 port are PXC Modular or Compact then a 3-wire trunk connection may be used for best noise immunity. Otherwise, if older field panel and network types

are connected a 2-wire trunk connection must be used with signal common disconnected and trunk cable shield tied to enclosure ground at one end only.

• The recommended port speed for an APOGEE ALN hosted by a Virtual AEM is 115200 bps, but speed should be lowered to 38400 if Ethernet is connected over a very slow speed device.

• The recommended port speed for a pre-APOGEE PMD Trunk hosted by a Virtual AEM is 19200 bps, unless SCU V4 or earlier controllers further limit the speed.

• Minimize COVs between field panels on the remote ALN and field panels on other ALNs to ensure that Insight Cross-Trunk is not overloaded.

• Ensure all battery alarms are serviced to prevent cold starts and minimize recovery after a power outage.

Installing the Virtual AEM license

LSM-VAEM is the part number for the license to enable Virtual AEM support for models PXC00-PE96.A and PXC100-PE96.A. A license can be installed through Insight software, CT Offline and CT Online, and through the HMI port.

Installing the VAEM license using Insight Software or Online Commissioning Tool

This following procedure uses the Online Commissioning Tool or Insight Revision 3.8.1 or later to load licenses for the desired features.

1. Open Online Commissioning Tool or Insight software.

2. Open **System Profile**.

3. Expand the System **Tree**.

4. Right-click on the field panel using licensed features.

5. From the **Context** menu, select **Diagnostics**.

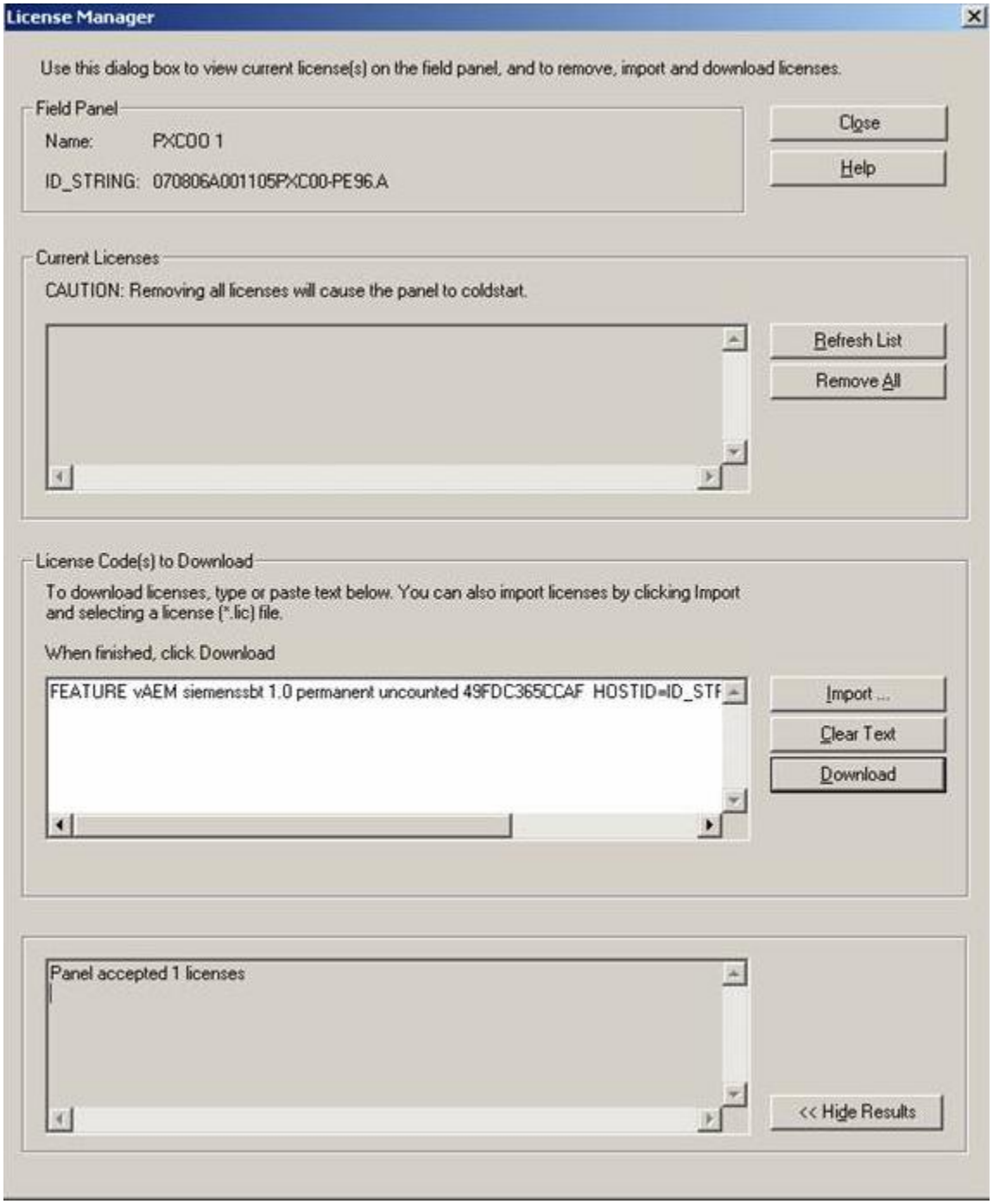
6. Click the **License Manager** button. The **License Manager** dialog box displays.

7. Click the **Import** button. Browse to the directory where you had copied the license file(*.lic) for the VAEM.

8. Double-click the license file (*.lic) or select the file and click **OK**.

9. Click the **Download** button. The license installation begins. Results of the download are displayed at the bottom of the dialog box.

10. When all licenses are correctly installed, close the dialog box. The following License Manager window displays a successfully installed VAEM license:



Installing the VAEM license using Offline Commissioning Tool

This procedure uses Offline Commissioning Tool 3.8.1 or later to load licenses for the desired features.

1. Open MMI Database Transfer and ID the PXC Modular.

2. Once the PXC Modular has been successfully identified, click **File** and **License Manager**. The **License Manager** dialog box opens.

3. Click the **Import** button. Browse to where the VAEM license file is stored.

4. Double-click the license file (*.lic) or select the file and click **OK**.

5. Click the **Download** button. The license installation begins. Results of the download are displayed at the bottom of the dialog box.

6. When all licenses are correctly installed, close the dialog box.

Installing the VAEM license through the HMI port

Installing the VAEM license through the HMI port is not the preferred method; however, it can be accomplished as long as the license is entered exactly as it appears in the license file (.lic).

To enter the VAEM license through the HMI port, follow the below procedure:

1. Plug into the HMI port with Hyperterminal and the type the following commands to enter the VAEM license: **(S)ystem, (H)ardware, (L)icensemanager, (A)dd.**

2. Open the license file(*.lic) with either Notepad or Wordpad and begin typing the license into hyperterminal.

3. When entering the license, there is a 50 character limitation including spaces per line. At the end of the first line, press **ENTER** and continue typing. If there is space in the license, that must be added.

Below you will see a screen capture of a VAEM license that was successfully added at the HMI:

>Log, Display, Add, dElete, Removall, Quit? A
>License : ----------
FEATURE vAEM siemenssbt 1.0 permanent uncounted 54
>License : ----------
2D6CA634F3 \ HOSTID=ID_STRING=070725A001035PXC00-P
>License : ----------
E96.A
>License : ----------

License 1 accepted
Licenses received 1, Licenses accepted 1, Licenses rejected 0

Verifying License for Virtual AEM had been installed properly

The following procedure provides you the steps to verify the license for the Virtual AEM has been installed properly through Commissioning Tool Online, Insight software, or from the HMI Port.

Verifying the VAEM license through Commissioning Tool Online or Insight Software

1. Open System Profile.

2. Expand the System Tree.

3. Right click on the field panel using the licensed features.

4. From the **Context** menu, select **Diagnostics**.

5. Click the **Services Supported** button. The **Services Supported** dialog box will open.

6. Review the **Services Supported** section of the dialog box and verify that the desired **Services** are listed. If the **Service** is listed, it has been installed.

Verifying the VAEM license through the HMI Port

From the HMI port perform the following keystrokes: **(S)ystem, (H)ardware, (L)icensemanager, (D)isplay, (S)inglenode or (A)llnodes, (H)ere.** You should something very similar to the following:

Application Name = vAEM
License Line 1: =
FEATURE vAEM siemenssbt 1.0 permanent uncounted 49FDC365CCAF HOSTID=ID_STRING=0
70806A001105PXC00-PE96.A
Application Limit = None
Expired = NO
Tasks Attached = 1

NOTE: **Task Attached = 1** means feature is installed, while **Task Attached = 0** means feature is not installed.

Verifying the ALNType for the PXC Modular

The following procedure lets you verify if your PXC Modular is configured as a P2 or an Ethernet panel:

1. Plug into the HMI port with HyperTerminal and type the following commands to verify if the PXC Modular is configured as a P2 panel or an Ethernet panel: **(S)ystem, (H)ardware, (F)ieldPanels, (D)isplay, (H)ere,** and then press **ENTER**.

- If the Firmware Revision is PXMP, than the PXC Modular is a P2 Panel.
- If the Firmware Revision is PXME, than the PXC Modular is an Ethernet Panel.

2. The PXC Modular must be configured as a P2 panel. If the Firmware Revision is a PXME, than the panel type must be changed to a PXMP. Proceed to Changing the ALNType of a PXC Modular to P2.

Changing the ALNType of a PXC Modular to P2

NOTE: Changing the field panel from Ethernet to P2 will coldstart the panel.

Plug into the HMI port with HyperTerminal and type the following commands to change the PXC Modular to P2**: (S)ystem, (H)ardware, (F)ieldPanels, (C)onfig, aln(S)ettings, aln(T)ype**, Field Panel # or press **ENTER**, and type **P** for P2. Press **ENTER**.

When prompted whether it is OK to Coldstart, select (Y)es to change the panel type.

Displaying the status of the Virtual AEM

The following procedure lets you verify the status of the Virtual AEM.

From the HMI port, perform the following keystrokes: **(S)ystem, (H)ardware, (V)aem, (D)isplay**.

Enabling the Virtual AEM

The following procedure lets you enable the Virtual AEM.

From the HMI port, perform the following keystrokes:
(S)ystem, (H)ardware, (V)aem, (M)odify, (Y)es.

Setting the Ethernet parameters for the Virtual AEM

NOTE: Setting the Ethernet parameters in the PXC Modular will coldstart the panel.

Even though the PXC Modular is configured as a P2 panel, the Ethernet parameters must be set accordingly in order to establish communication on the Ethernet. The following procedure will guide you through configuring the Ethernet parameters for the Virtual AEM in the PXC Modular:

To set the Ethernet parameters in the PXC Modular, type the following commands:

(S)ystem, (H)ardware, (E)thernet, ip(S)ettings, (M)odify:

- **Node Name** is required. (Limited to 15 characters; cannot contain any periods or punctuation marks, and must be unique on the Ethernet network.)

- **Site Name** is N\A.

- **ALN Name** is required. The ALN name MUST match the System Name defined in the ALN definition in System Profile. (ALN Name is case sensitive)

- **DNS Suffix** may be applicable. This must be determined by the site's IT department.

- **DHCP** is not recommended. A fixed IP is recommended for the Virtual AEM.

- **IP Address** must be configured.

- **NetMask** must be configured.

- **Gateway** may be applicable.

- **DNS** may need to be configured.

- **TCP Port 1** is defaulted to 5033 and MUST NOT BE CHANGED.

- **TCP Port 2 -8** is N\A.

- **Multicast Address 1** default is 234.5.6.7.

- **Multicast Port 1-4** is N\A.

- **Multicast Address 2-4** is N\A.

- **Telnet:** Enable for telnet session to HMI prompt.

- **Ok to Coldstart** needs to be set to (Y)es in order to store the Ethernet settings.

Setting the Remote ALN Name in the PXC Modular

1. From the HMI port, perform the following keystrokes:
(S)ystem, (H)ardware, (F)ieldpanels, (C)onfig, (H)mi, usb(M)odem.

2. And verify the following parameters.

- Alarm printing enabled (Y/N) : N

- Report printing enabled (Y/N) : N

- Modem enabled (Y/N) : N

- BLN descriptor : n/a

- BLN name: : ALN system name

NOTE: The BLN Name is case sensitive. It must match System Profile identically.

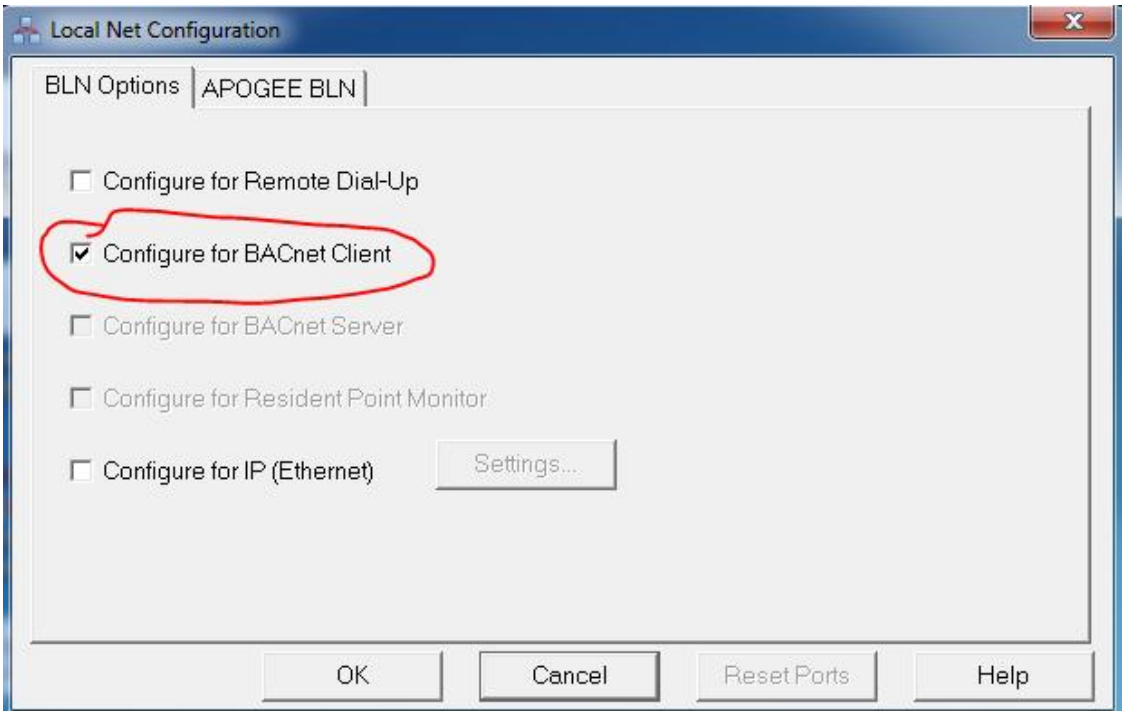
Using Telnet session to remote into the field panel with VAEM

1. Telnet in the field panel must be enabled.

2. Type the following command in Command Prompt.
> TELNET <panel ipaddress>

Select **“configuration for BACnet Client”** (tab one).

Connrcting CT online to Bacnet Nerowrks



This document provides the procedure to open the APOGEE Commissioning Tool in the Online mode on a BACnet network. The primary goals of this document are to:

• Provide the steps to open the project in the Online mode.

• Explain the importance of each step, and why it is important that the user does not skip any steps.

NOTE: To consistently connect online, you must follow each step each time. Skipping any steps will result in not being able to connect online.

Overview

This overview provides the main steps necessary open the project online. You must run these steps in the following order, or you may not be able to connect in online mode.

1. Connect the Ethernet cable to the BACnet network.

2. Configure Ethernet adapter for the static IP address (if a change is required).

3. Run the BACstac configuration program (c:\commtool\BACstac\bacstac.msi to setup BACstac for the correct adapter settings.

4. Run LocalNet Configuration.

5. Start (or restart) BACstac Protocol service.

6. Open the Job online mode

Detailed Steps for Connecting the Tool in Online Mode

Assumptions:

The user is familiar with Ethernet addressing and subnet mask for BACnet networks devices and computers.

Prerequisites:

After installing the Commissioning tool software, the following steps must be performed once on each computer:

1. Add the BACnet port to the Firewall UDP port 47808 (or the other allowable BACnet ports.)

2. BACstac setup is copied to the computer when installing the tool; however, it's not installed. Therefore, after the installation of the tool is complete, install BACstac Protocol (Run c:\commtool\bacstac\bacstac.msi).

3. (Optional) Run c:\program files\cimetrics\bacstacV6.0j\baccfg.bat to configure BACstac. You can remove the virtual port since it is not used..

Procedure

NOTE: The Typical Screen Captures section contains sample screen captures for reference, if needed.

WARNING: Always start at step 1 and complete each step in its entirety! Do not skip any steps.

1. Connect the Ethernet cable between the computer's Ethernet adapter to the BACnet network.

a. KEY POINT: The BACstac service will not start if it does not detect any network activity and the tool cannot go online successfully.

b. The connection may be to a router/hub/switch on the network or directly to the field panels Ethernet port.

c. If you connect directly to the field panel's Ethernet port, you may need to use a cross-over cable depending on your Ethernet adapter.

2. Configure the computer's Ethernet adapter.

a. If the computer's Ethernet adapter has multiple uses (for example, office, home, online tool), set up the adapter for the online tool.

b. Use a static IP address for your adapter that aligns with the projects network and devices on the network.

c. The computer's adapter address must be defined on the same sub-net as the network with which you are trying to communicate.

d. To configure the BACstac protocol, run c:\program files\cimetrics\bacstacV6.0j\baccfg.bat. The Cimetrics BACstac Gateway dialog box displays.

i. Select **Edit** and Set PortID = 1; and Network Number=[network number of job] as defined in the project.

ii. Select the correct Adapter for your computer. Select the IP address you specified in step 2b for your computer's Ethernet adapter.

iii. Set UDP port 47808 (decimal) or whatever port is setup for the job.

iv. Click **OK** to save the settings and exit.

e. If you made any changes in the previous steps AND the BACstac service is already started, you will be given the option to restart the BACStac service when exiting BACstac configuration. Select Yes.

f. If the Async service is running (possibly from a previous attempt to open online, or failure to shut down the tool correctly), the BACstac restart will fail due to the dependency with the Async service. Manually stop all tool services before proceeding.

3. Start/Restart BACStac Protocol

a. Start (or restart) the BACstac service to force the BACstac to use the new adapter settings specified in the previous step.

NOTE: Even though the BACstac Protocol is set to automatic (start on PC boot), the service may not start when the computer is started because the adapter may not have been communicating on an Ethernet network.

b. Start (or restart) the BACstac service manually. If the service does not start, please redo the previous steps until it starts.

4. Run LocalNet Configuration

a. Run LocalNet Configuration. Some tool services are stopped and restarted later on in the proper order when the job is opened in online mode.

NOTE: For BACnet, this utility updates the ASYNC service by adding BACstac as a dependency so that BACstac is started before the Async service (first time only).

b. Click **OK** even though the settings may be correct by default. (That is, do not select Cancel.)

5. Open CT Job Online

a. This starts all the tool services required for the online job to operate.

b. If the BACstac service is not running, some of the tool services will not start and opening the job will fail. Restart the process from step 1.

There may be other issues causing the online tool mode not to work; however, this article provides the necessary steps to make sure online mode is started correctly.

This article is not intended to discuss general field panel configurations and job database configurations required to match in order to get the devices communicating on the network.

Typical Screen Captures (Windows XP)

The following screen captures support the steps listed in Steps 1 through 5.

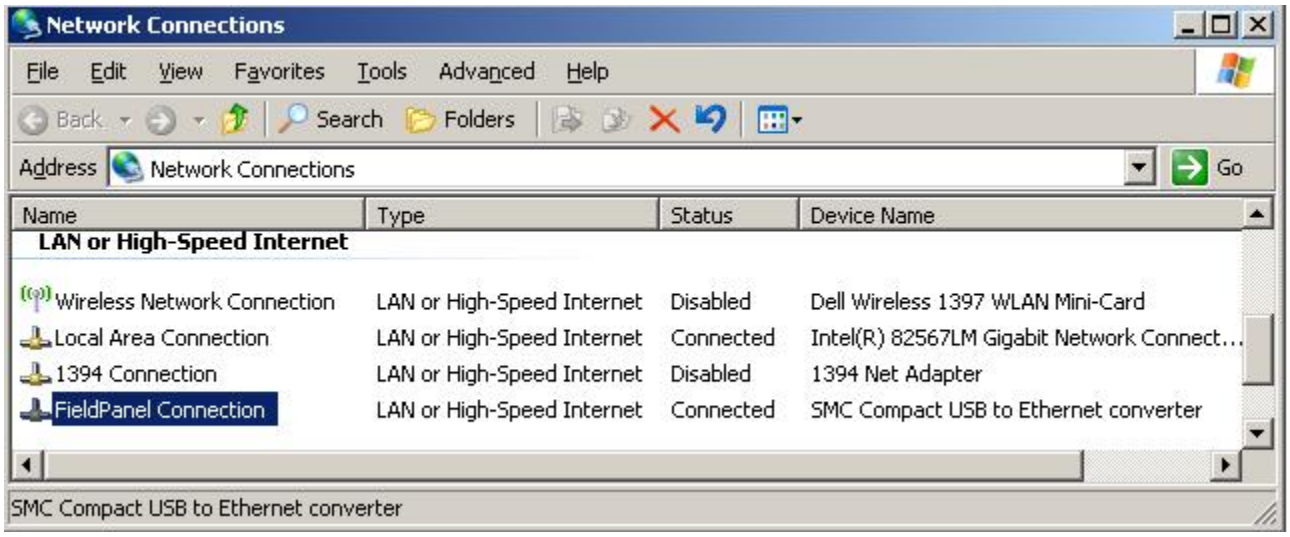


Figure 1. Network Connection Applet with adapter connected.

• If the external adapter is not connected to the computer, the Field Panel Connection does not display in this applet.

• If the Ethernet cable is not connected to an active network, the Status appears as Not connected and the BACstac will not start!

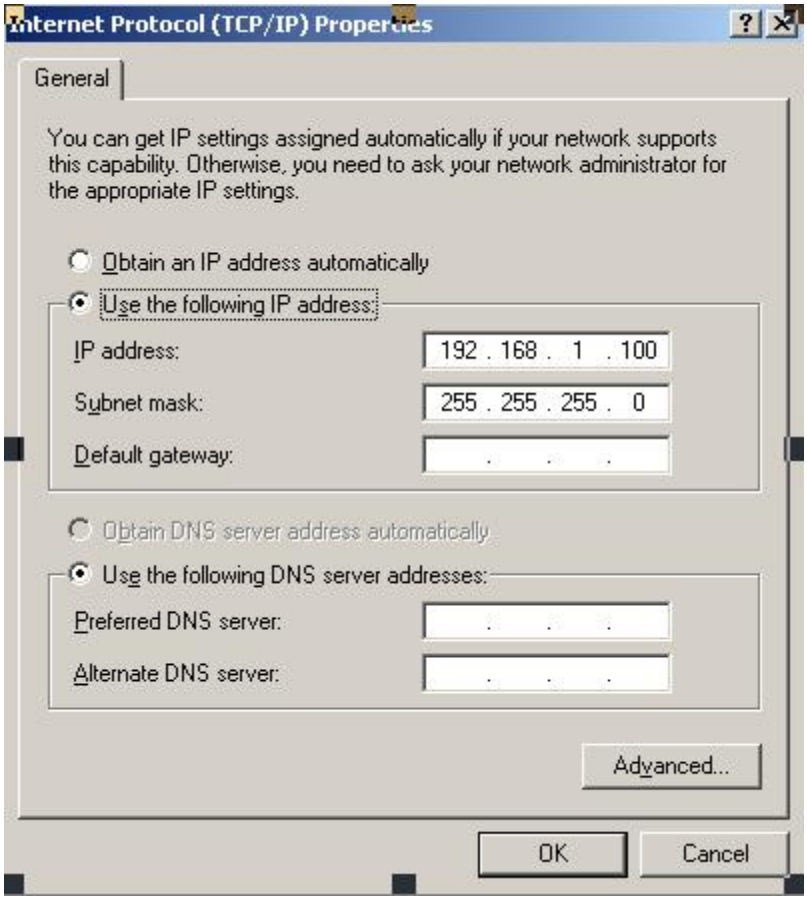


Figure 2. Sample adapter IP Properties.

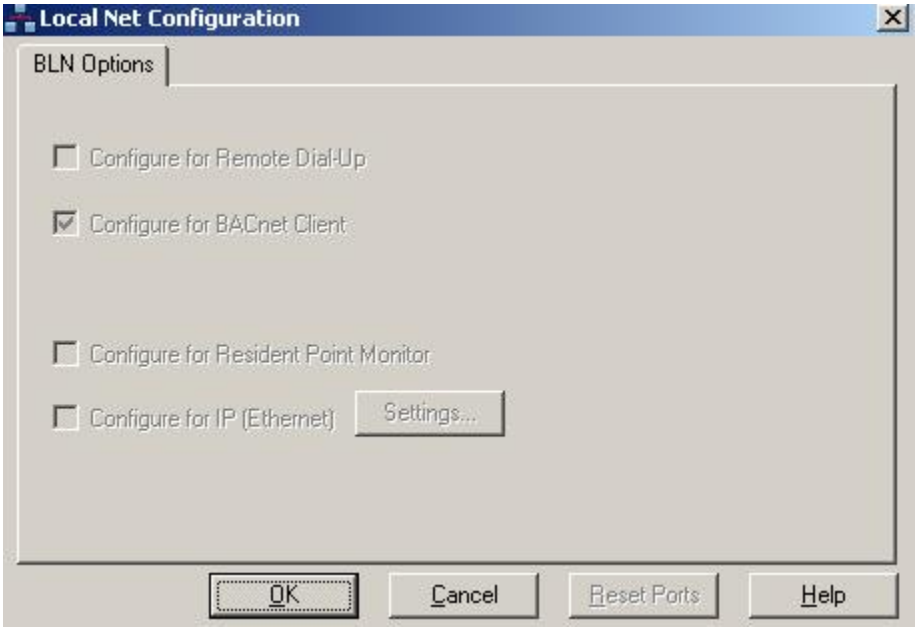


Figure 3. Local Net Configuration dialog box.

NOTE: Ensure that Configure for BACnet Client is checked. Make sure to click OK, even though it looks correct. Clicking **OK** initiates other steps required for setting up online access.

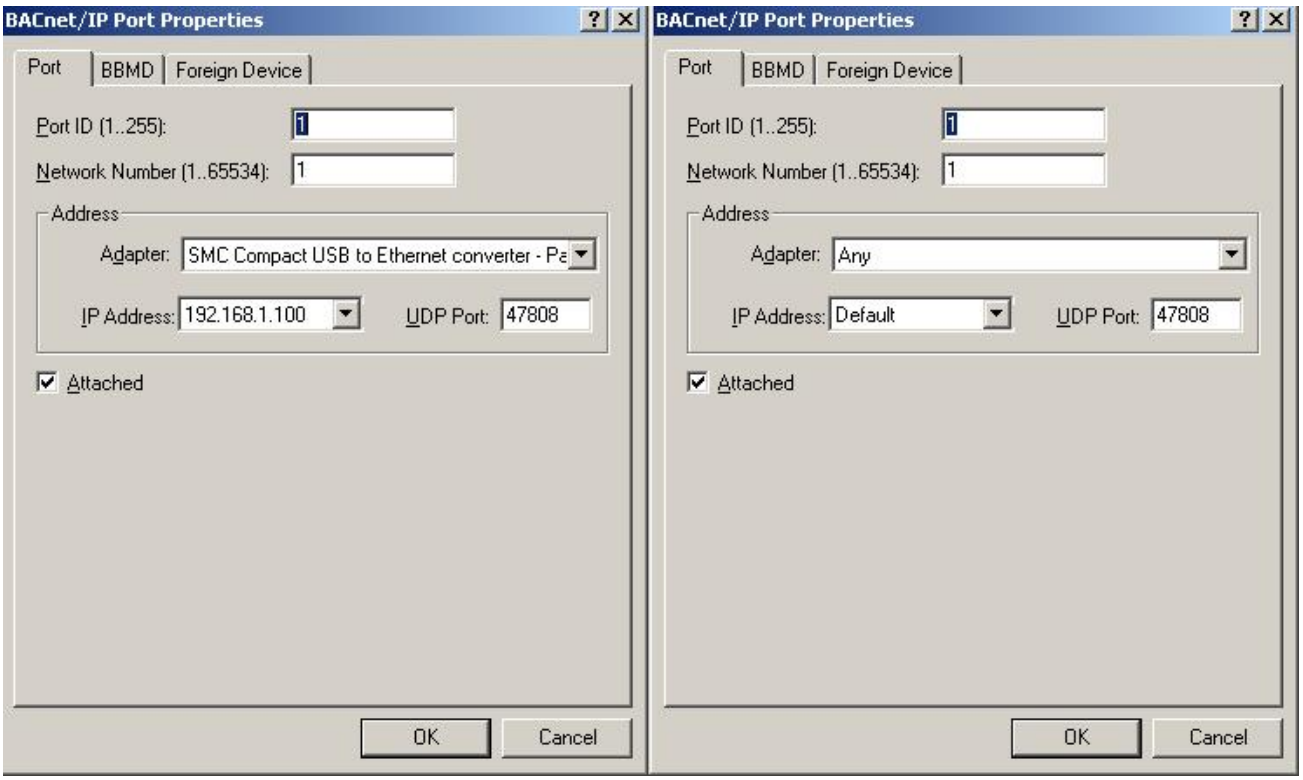
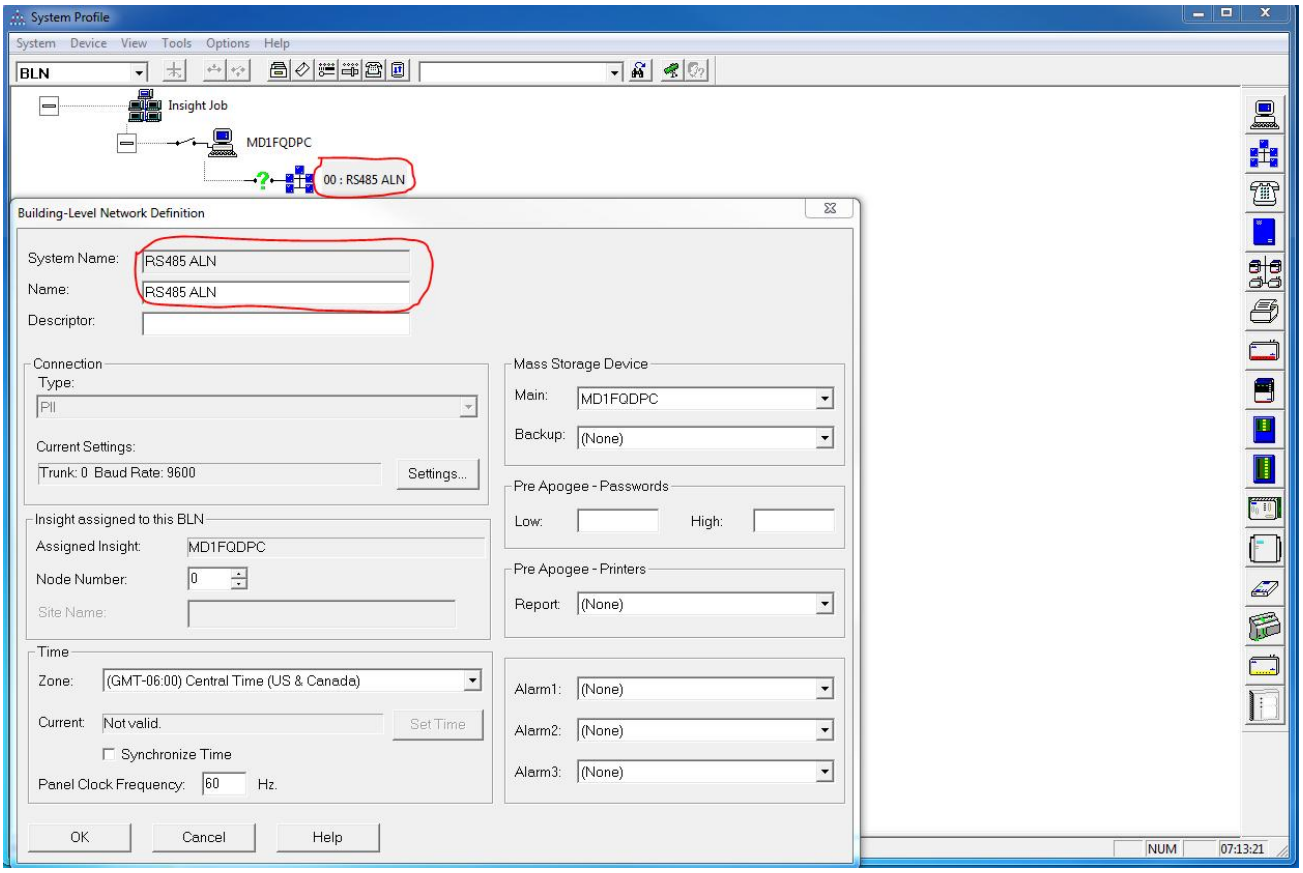


Figure 4 - BACstac configuration with and without Ethernet adapter connected to an active network.

Note that if the Ethernet adapter is not connected (for removable adapters) in the second example, and the Ethernet cable is not connected to a network, the BACstac cannot select the adapter and the BACstac service may not start.

1.Drag ALN to PC and Type in the Name (example: RS485 ALN)



2.

If you have any specific questions regarding this subject, please call Field Support.