Application Note #5468

Lantronix to FreeWave Wiring Diagrams

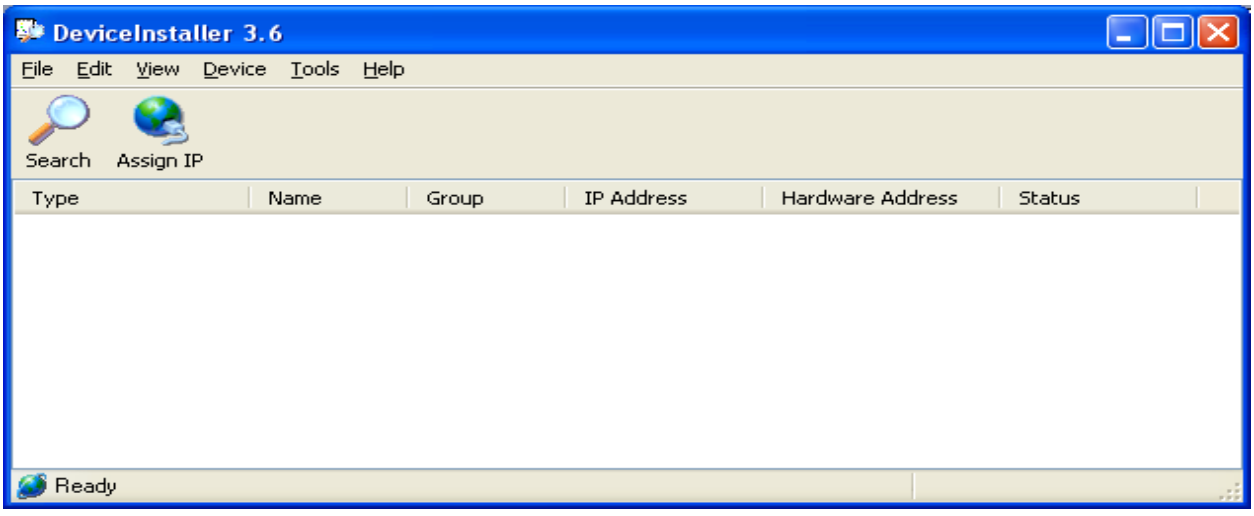
April 25, 2006

Intro: This Application note describes how to connect serial devices to an Ethernet network, or more specifically connecting FreeWave serial radios to a Local Area Network (LAN). This is a step by step procedure to add a Lantronix terminal server to a FreeWave network.

Setting up the Lantronix.

1. Insert the Lantronix setup CD into the PC and double click on DeviceInstaller.exe This will open the installation wizard, follow the installation prompts.
2. Once the DeviceInstaller has been installed click on Start in the lower left corner of your screen select all programs then locate the Lantronix folder. Click on DeviceInstaller to run the program. You will see a new window open on your desktop. (Figure 1)

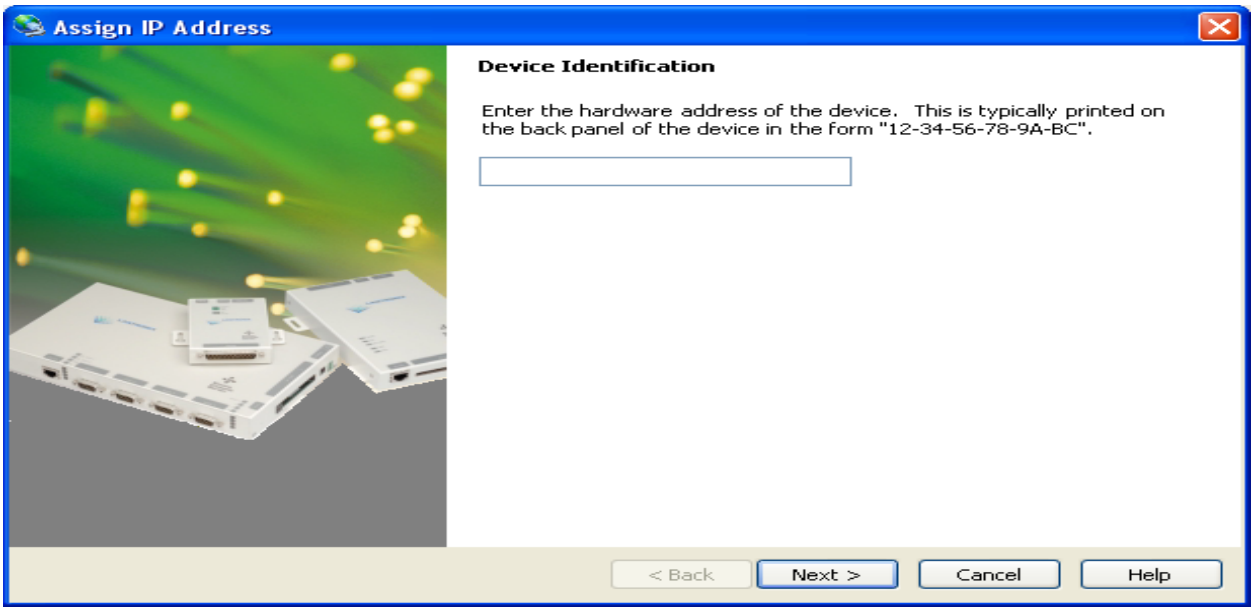
Fig 1



Setting up a Lantronix (cont)

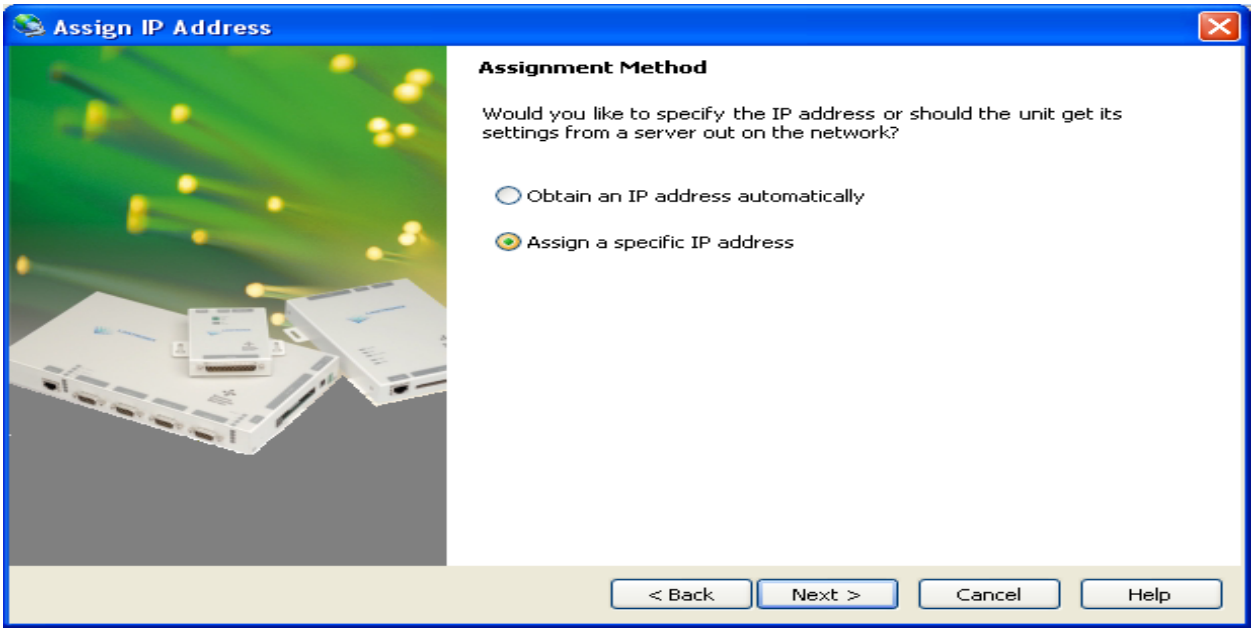
3. Connect the Lantronix to a live network drop with an Ethernet cable. Click on the “Assign IP” icon in the device installer window. In this screen enter the hardware or IP address. (Figure 2), Click next

Fig 2



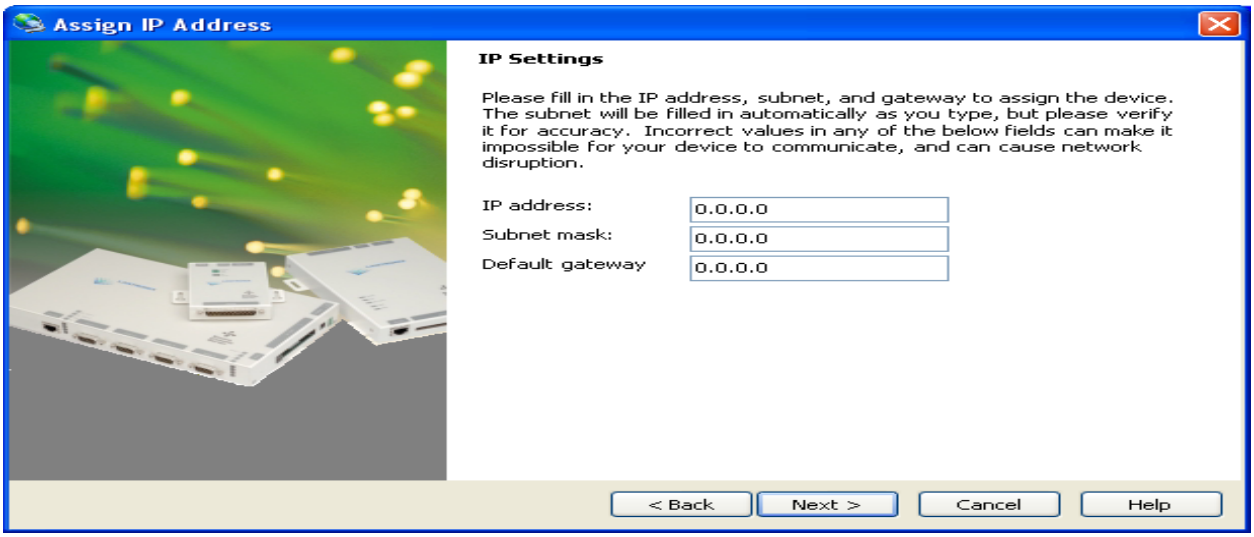
4. Select “Assign a specific IP address” and click next. (Figure 3)

Fig 3



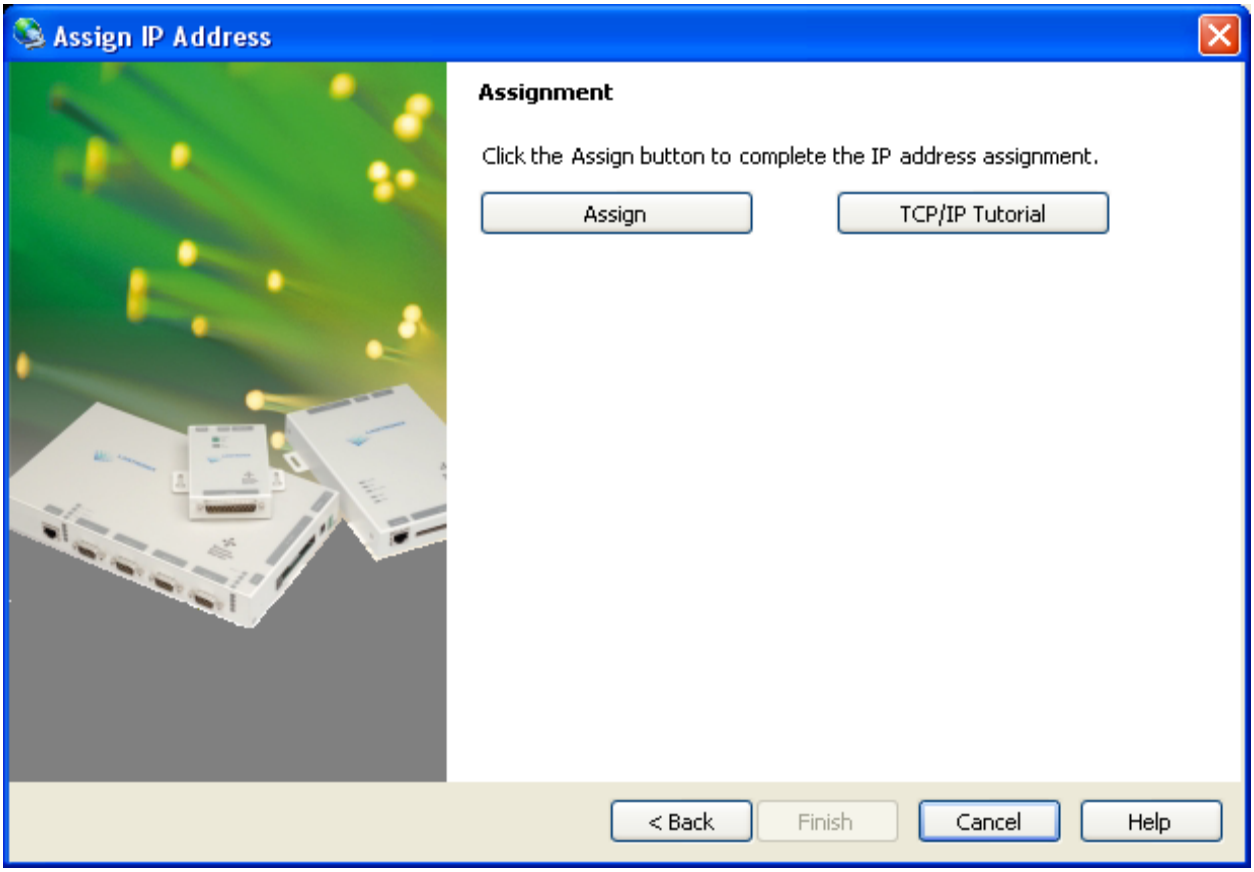
5. In the IP Settings screen, the IP address needs to be unique on the LAN. The Subnet mask must match the subnet mask of the network. The default gateway must also match the network. Contact your LAN administrator for a unique IP address, Subnet mask, and Default gateway information. (Figure 4) Once filled in click next.

Fig 4



6.Click on the Assign button. (Figure 5)

Fig 5



Setting up a Lantronix in an Ethernet network.

1) To find the Lantroinx that you just programmed click on the search icon in the DeviceInstaller window. This will bring up a list of all configured Lantronix devices. To configure the Lantronix highlight the device to be configured and click the configure icon. (Figure 6) The Configure Device window will come up over the DeviceInstaller window. (Figure 7)

Fig 6

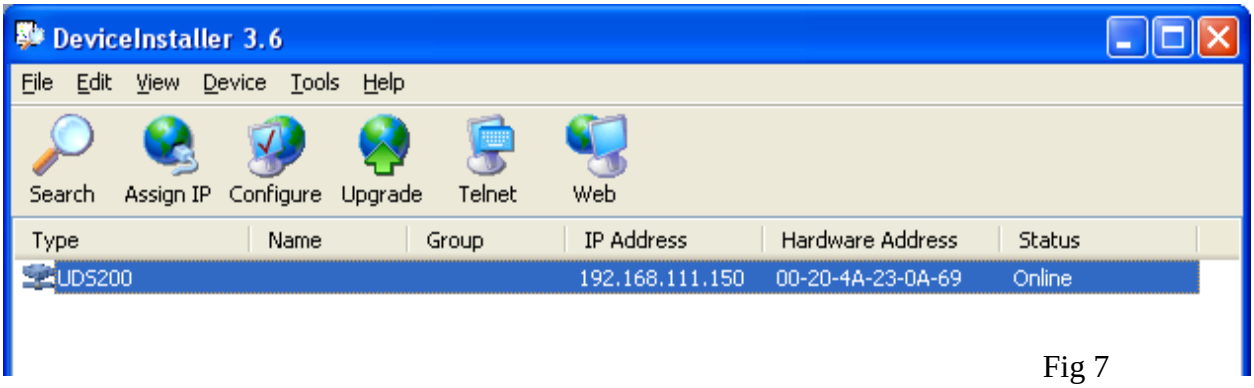
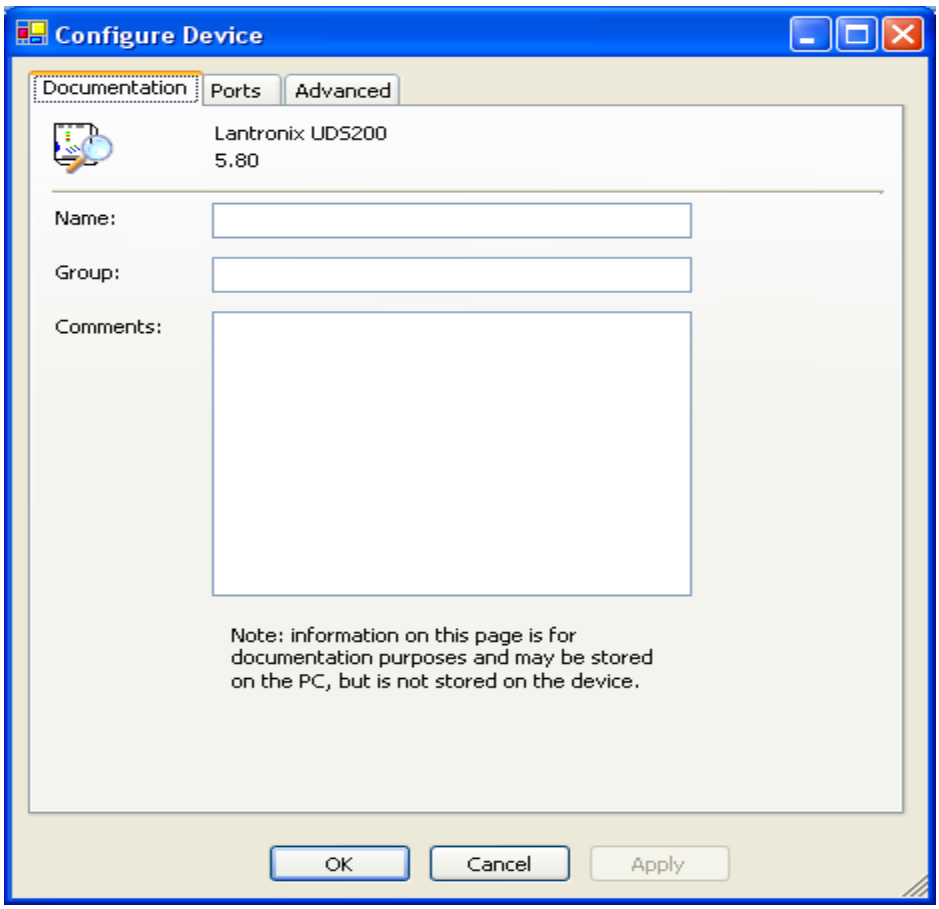


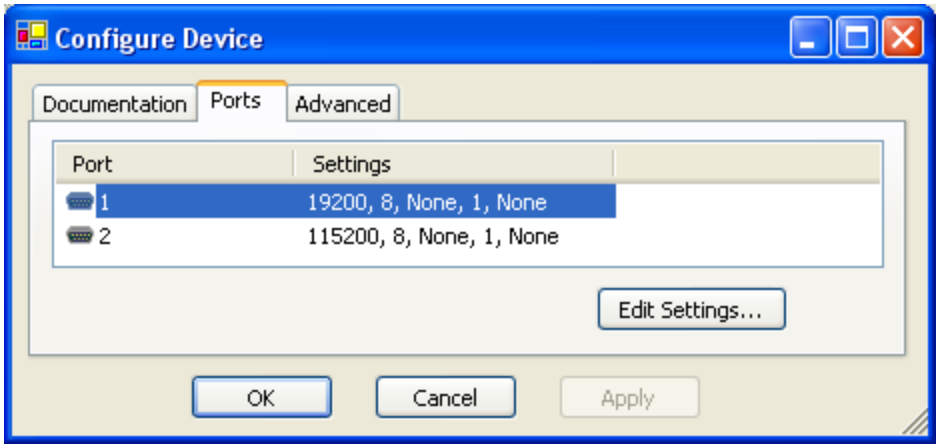
Fig 7



Setting up a Lantronix in an Ethernet network (continued).

2) Click on the ports tab, highlight the desired port by clicking on that icon, and then click the "Edit Settings" icon. (Figure 8)

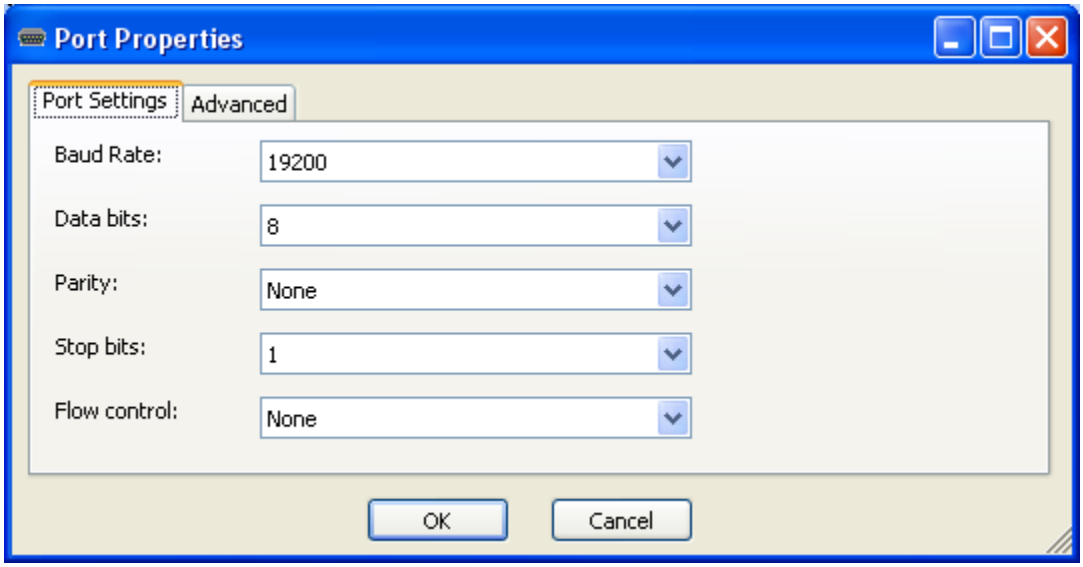
Fig 8



3) The "Port Properties" window will come up. On the "Port Settings" tab set the Baud rate, Data bits, Parity, Stop bits, and Flow control to match the settings of the end device. Example Baud Rate 19200, Data Bits 8, Parity None, Stop bits 1, and Flow control None. (Figure 9)

Note: The port settings of the Lantronix must match the port settings of the end device.

Fig 9



Setting up a Lantronix in an Ethernet network (continued).

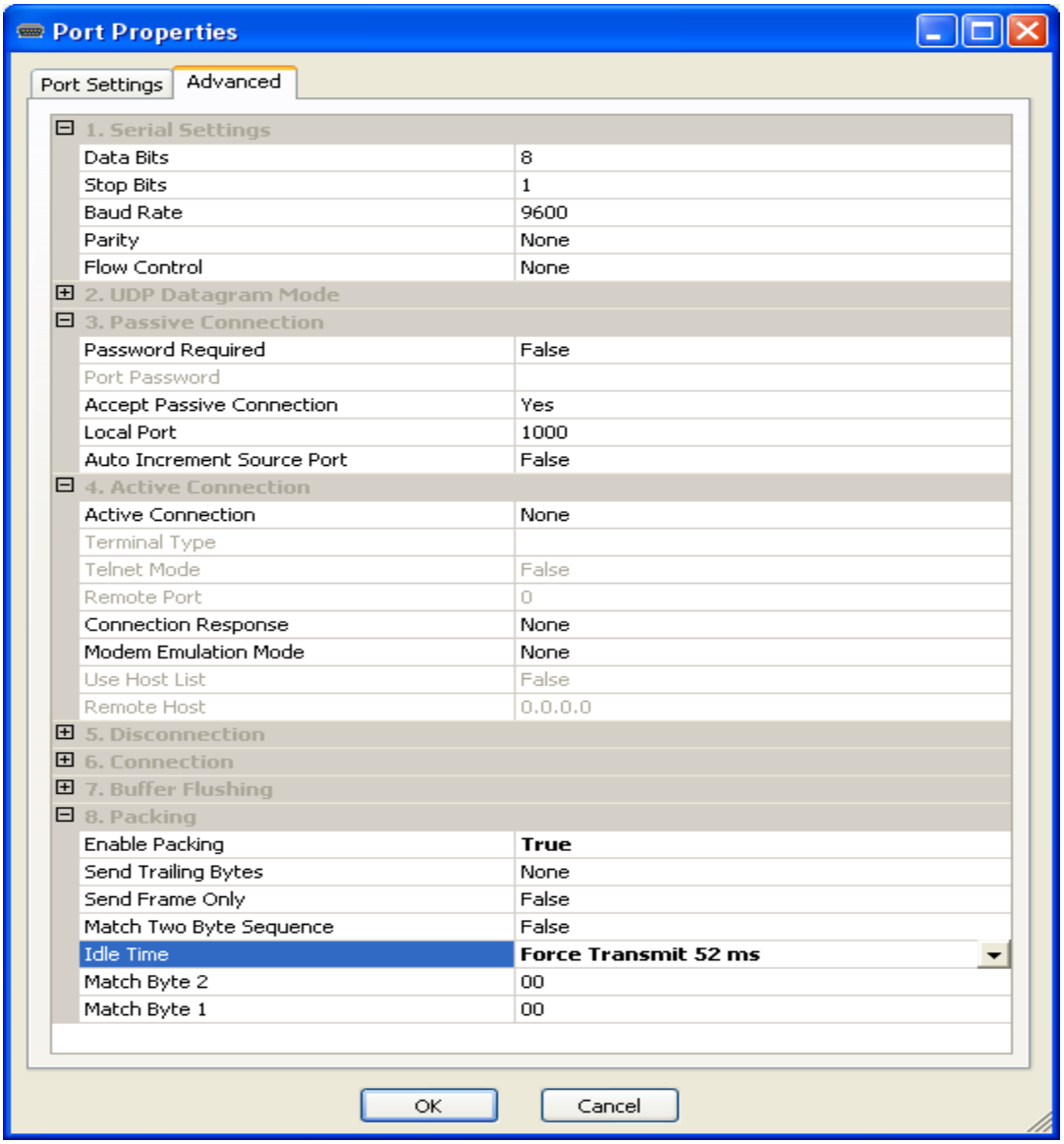
4) Click on the "Advanced" tab. From this tab the port number can be assigned. The port number must be unique for each port on the Lantronix. For more information please see the Lantronix users guide.

5) If the end device is using Modbus, "Enable Packing" must be turned on (set to True). Change the "Idle Time" to "Force Transmit 52 ms" if there are large amounts of data this setting may need to increased to 250 ms. (Figure 10)

Click ok to save the settings, then click ok again on the Configure Device window. The Lantronix is now ready to connect to the end device.

Note: The UDS200 does not support Modbus TCP protocol.

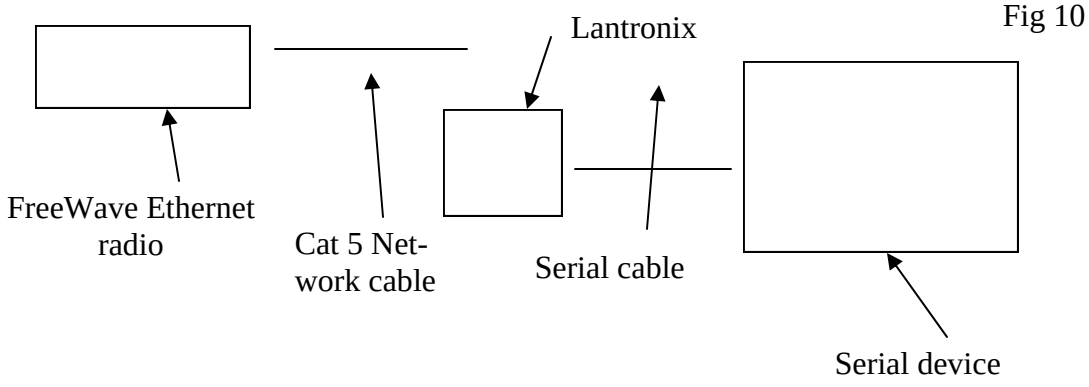
Fig 9



Setting up a Lantronix in an Ethernet network (continued).

6) Please se the Diagram below (Figure 10)

Fig 10

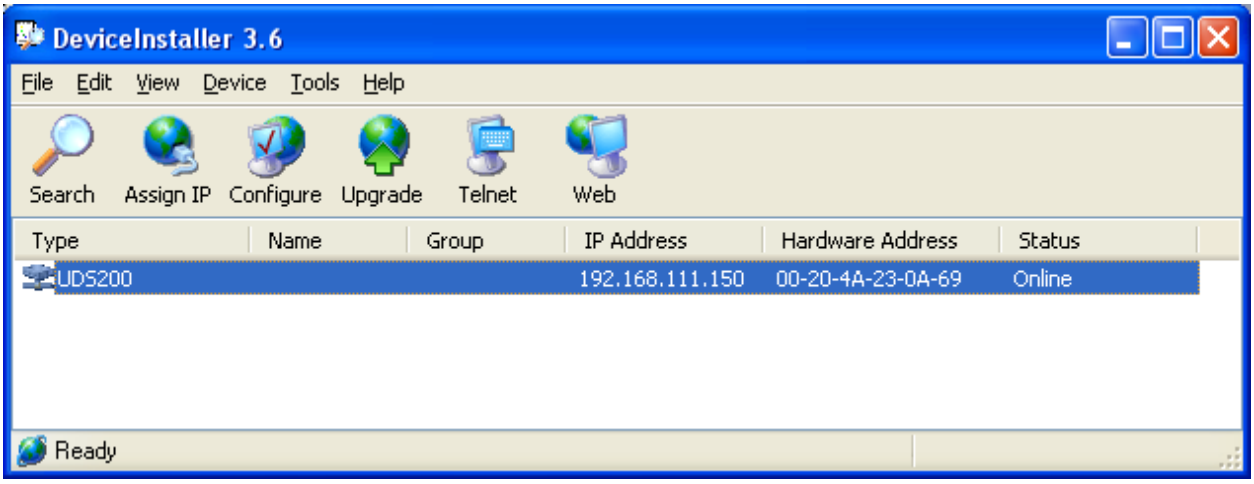


Setting up a Lantronix from a serial network to a LAN.

Please reference setting up the Lantronix starting on Page 1.

1) To configure the port on the Lantronix Click the search Icon in the DeviceInstaller window. One or more devices may show up in the list. Highlight the device that you wish to configure by clicking on it, and click the Configure icon. (Figure 11)

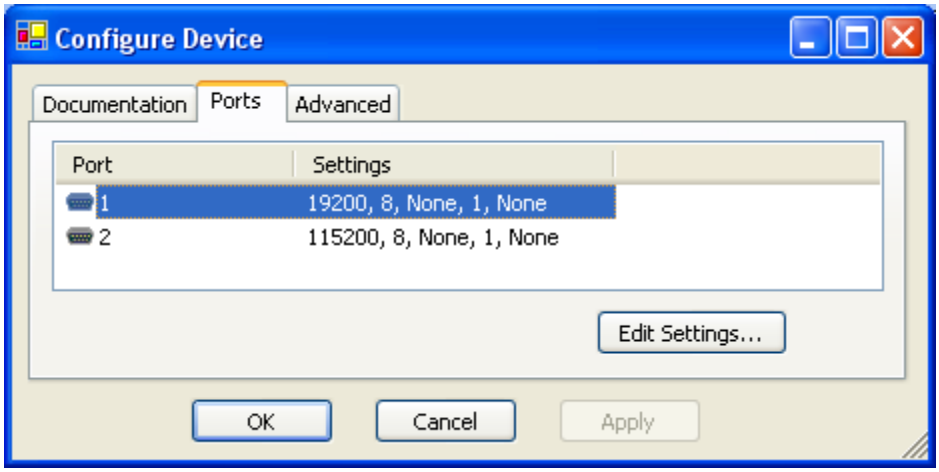
Fig 11



Setting up a Lantronix from a serial network to a LAN (continued).

2) From the Configure Device window click on the Ports tab. If the Lantronix has more than one port select the port that the data cable will be connected to, and click on Edit Settings in the lower Right side. (Figure 12)

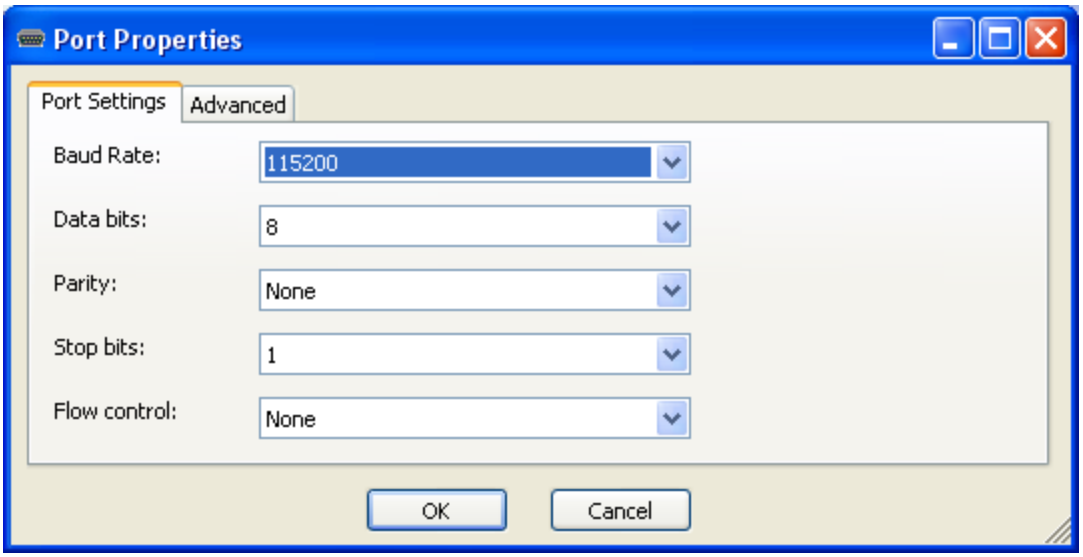
Fig 12



3) The Port Properties window will open. These setting must match the Baud Rate, Data bits, Parity, Stop bits, and Flow control in the FreeWave radio. (Figure 13)

Note: When using a baud rate of 34800 or greater all transmit and receive lines must be connected from the radio to the Lantronix. (Figures 14-15)

Fig 13



Setting up a Lantronix from a serial network to a LAN (continued).

Fig 14

Pin Assignments	FreeWave 10 Pin Connector		DB9 Connector
	Pin Number	**Color**	**9 Pin**
CD (Carrier Detect)	8	Blue	1
TD (Transmit Data)	7	Green	3
RD (Receive Data)	5	Yellow	2
RTS (Request To Send)	9	Purple	7
CTS (Clear To Send)	10	Gray	8
SG (Signal Ground)	6	Black	5
DSR (Data Set Ready)			6
DTR (Data Terminal Ready)	3	Orange	4

Fig 15

Pin Assignments	FreeWave 10 Pin Connector		DB25 Connector
	Pin Number	**Color**	**25 Pin**
CD (Carrier Detect)	8	Blue	8
TD (Transmit Data)	7	Green	2
RD (Receive Data)	5	Yellow	3
RTS (Request To Send)	9	Purple	5
CTS (Clear To Send)	10	Gray	4
SG (Signal Ground)	6	Black	7
DSR (Data Set Ready)			6
DTR (Data Terminal Ready)	3	Orange	20

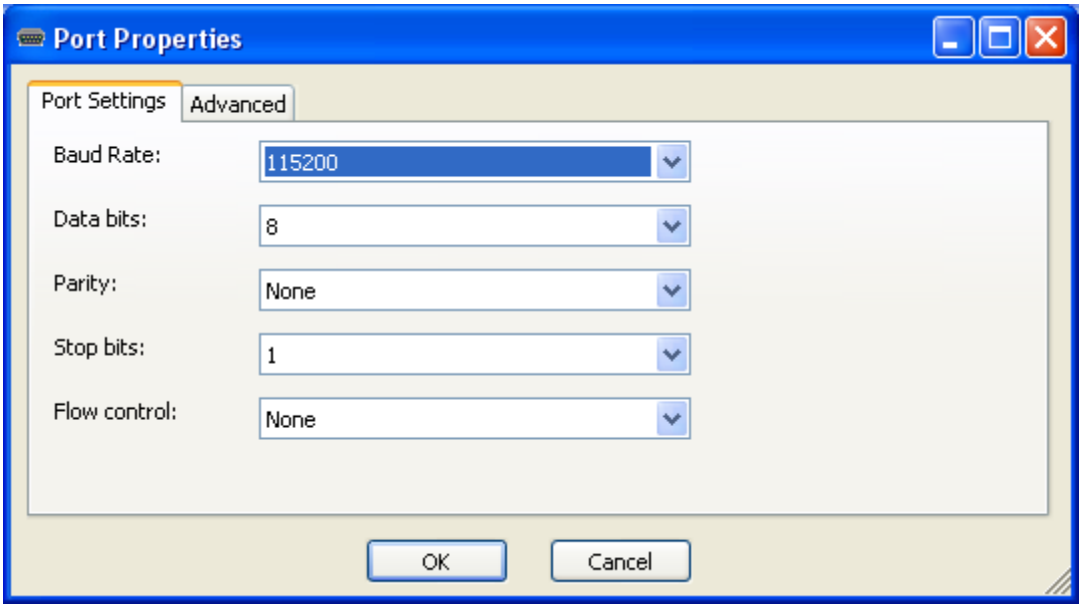
Connecting the Diagnostics cable from the FreeWave Modem to a Lantronix.

1) To run Diagnostics the port on the Lantronix must be set to 115200, Data bits= 8, Parity= None, Stop bits= 1, and Flow control= None. (Figure 16)

Note: For programming through the diagnostics port on the radio the baud rate on the Lantronix port must be set to 19200, Data bits= 8, Parity= None, Stop bits= 1, and Flow control= None.

Connecting the Diagnostics cable from the FreeWave to a Lantronix.

Fig 16

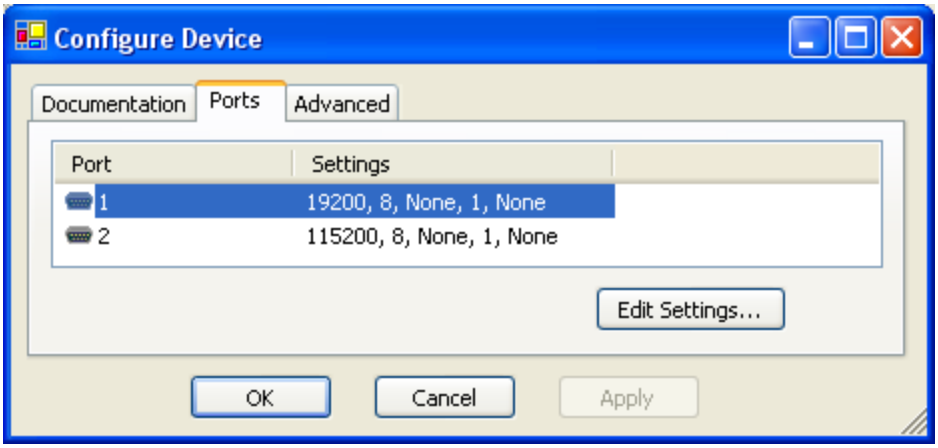


Connecting the Data cable from a FreeWave to a Lantronix.

1). Connect the data cable from the 10 pin header on the FreeWave radio to either the DB25 (UDS100) or DB9 (UDS200). (Figure 14-15)

2) Click on the ports tab, highlight the desired port by clicking on that icon, and then click the "Edit Settings" icon. (Figure 17)

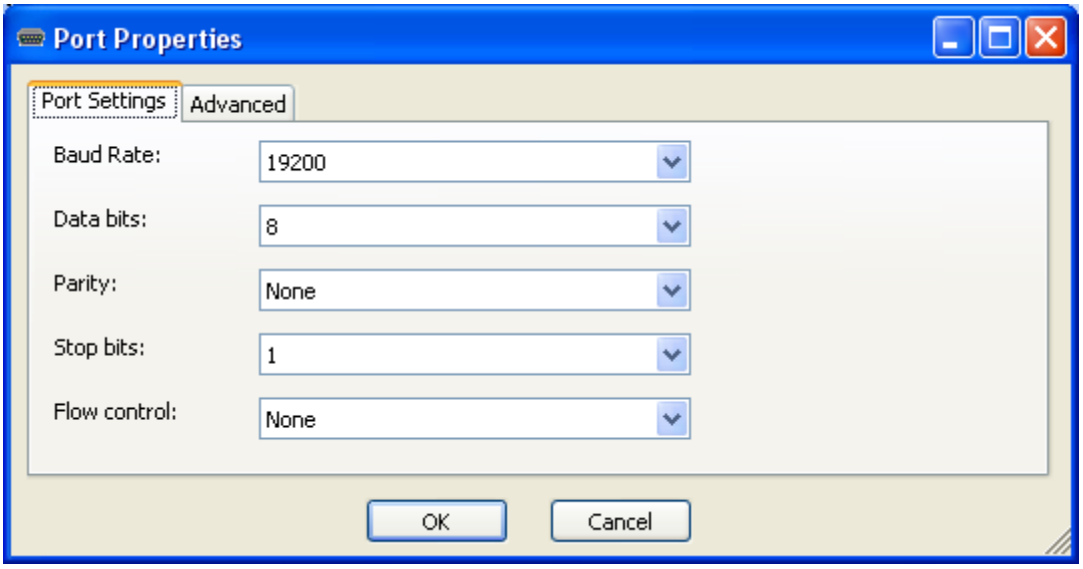
Fig 17



Connecting the Data cable from a FreeWave to a Lantronix.

3) The Port prosperities window will appear. The settings in this window must match the Buad rate, Data bits, Parity, Stop bits, and Flow control of the FreeWave Radio. (Figure 18)

Fig 18



4) If the FreeWave is using Modbus, “Enable Packing” must be turned on (set to True). Change the “Idle Time” to “Force Transmit 52 ms” if there are large amounts of data this setting may need to increased to 250 ms. (Figure 19)

Click ok to save the settings, then click ok again on the Configure Device window. The Lantronix is now ready to connect to the FreeWave radio.

Note: The UDS200 does not support Modbus TCP protocol.

Connecting the Data cable from a FreeWave to a Lantronix (continued).

Fig 19