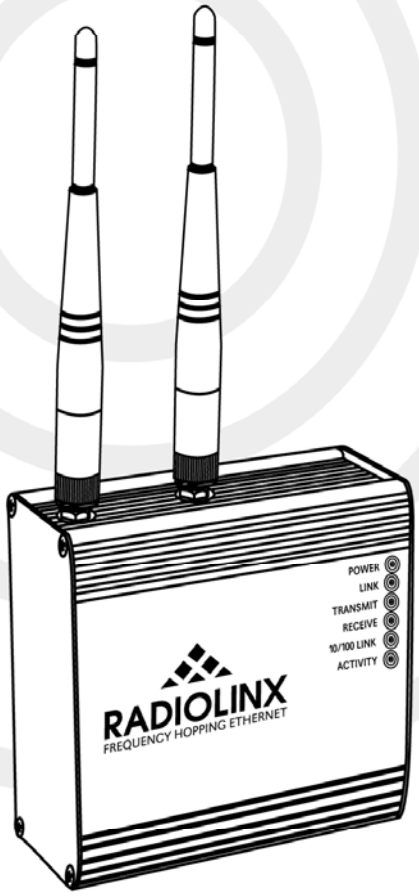
RADIOLINX



RLX-IHW

Industrial Hotspot

802.11a,b,g

Quick Start Guide

9/24/2007

ProSoft TECHNOLOGY

Please Read This Notice

Successful application of this module requires a reasonable working knowledge of the RLX-IHW Module and the application in which it is to be used. For this reason, it is important that those responsible for implementation satisfy themselves that the combination will meet the needs of the application without exposing personnel or equipment to unsafe or inappropriate working conditions.

This manual is provided to assist the user. Every attempt has been made to assure that the information provided is accurate and a true reflection of the product's installation requirements. In order to assure a complete understanding of the operation of the product, the user should read all applicable documentation on the operation of the radio.

Under no conditions will ProSoft Technology be responsible or liable for indirect or consequential damages resulting from the use or application of the product.

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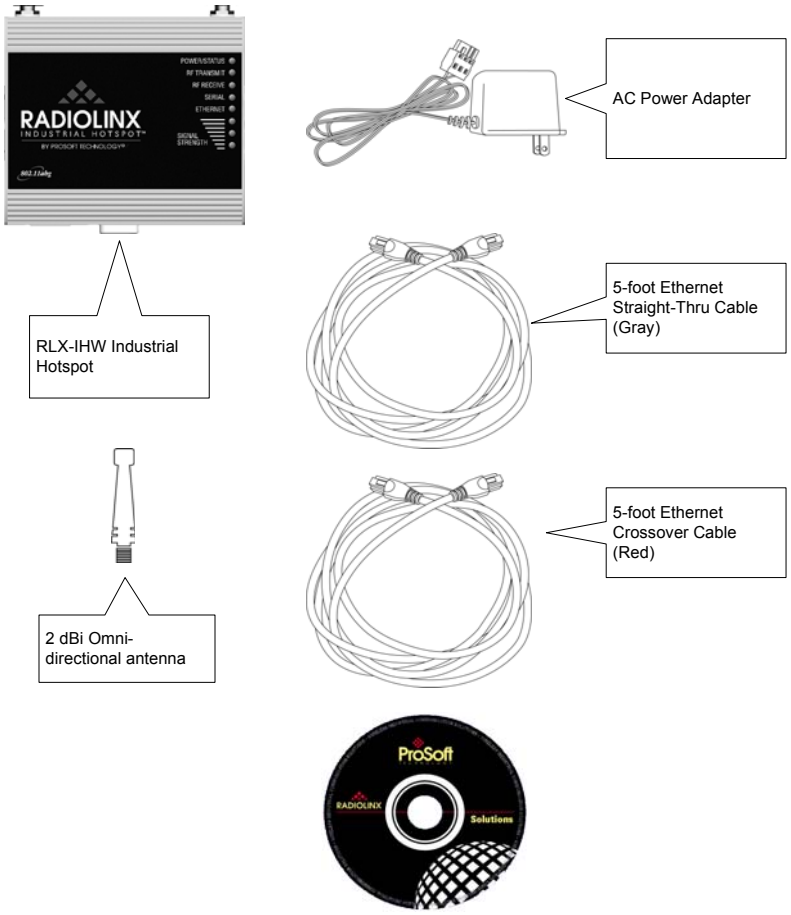
RLX-IHW Quick Start Guide
9/24/2007
PSFT.IHW.RLX.UM.Monday, September 24, 2007

Contents

1 Before You Begin

Your RLX-IHW Industrial Hotspot is shipped with the following:



In addition, you will need:

- A PC or Laptop computer equipped with an Ethernet port
- Static IP address, Subnet Mask and Gateway information for each RLX device you plan to install. You can obtain this information from your system administrator.

Note: This Startup Guide is designed for use with two RLX-IHW radios. One radio will be setup as a Master (AP) while the other radio will be set up as a remote repeater.

2 Installing the IH Browser Configuration Tool

➢ ***To install the IH Browser application:***

1 Insert the ProSoft Solutions CD in your CD-ROM drive. On most computers, a menu screen will open automatically. If you do not see a menu within a few seconds, follow these steps:

a Click the Start button, and then choose Run.
b In the Run dialog box, click the Browse button.
c In the Browse dialog box, click "My Computer". In the list of drives, choose the CD-ROM drive where you inserted the ProSoft Solutions CD.
d Select the file **prosoft.exe**, and then click Open.
e On the Run dialog box, click OK.

2 On the CD-ROM menu, click Setup Software.

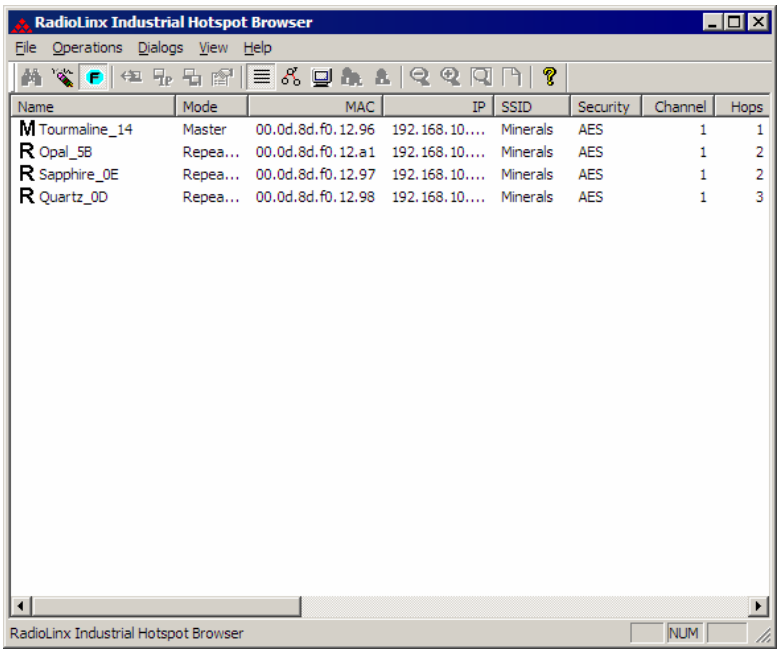
3 Follow the instructions on the installation wizard to install the program with its default location and settings.

When the installation finishes, you may be prompted to restart your computer if certain files were in use during installation. The updated files will be installed during the restart process.

3 Start IH-Browser

➢ ***To start IH Browser***

1. Click the Start button, and then choose Programs.
2. In the Program menu, navigate to ProSoft Technology.
3. In the ProSoft Technology menu, navigate to RadioLinx.
4. Click RadioLinx IH Browser.



4 Plug In the Cables

You can configure the RLX-IHW using the Ethernet port on the radio. On the underside are three ports; Ethernet, Serial and Power (10 to 24 VDC 6 W).

From left to right: Ethernet port, serial port and power connector.

- If you are connecting to the radio through an Ethernet hub or switch, use the gray (straight-through) cable.
- If you are connecting to the radio directly from your PC without going through an Ethernet hub or switch, you must use the red (crossover) cable.

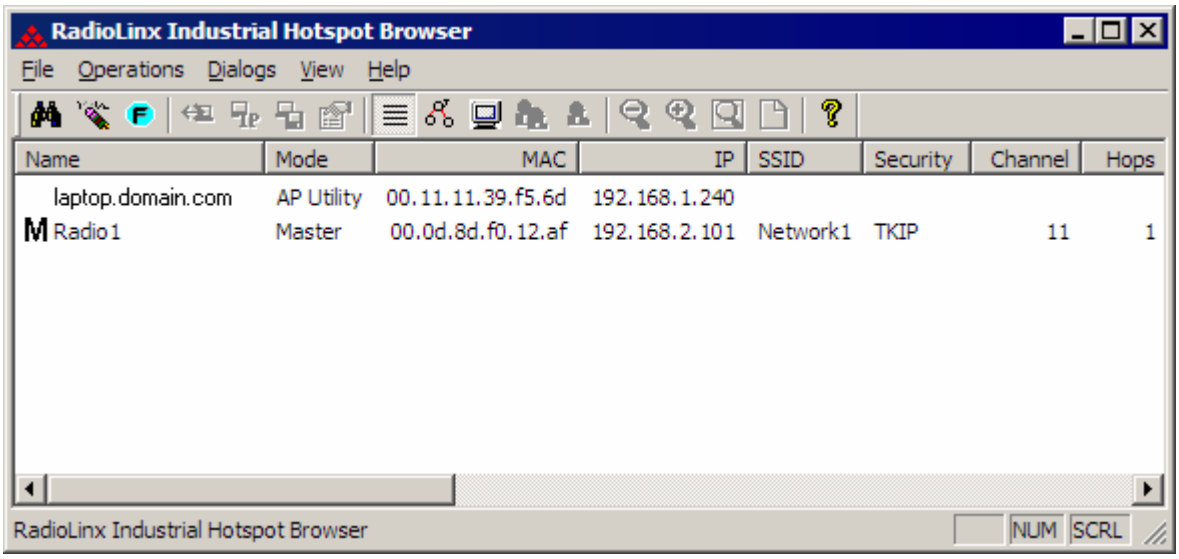
Note: After you plug in the power cable and Ethernet cable, the radio performs a startup procedure that includes a self-test, loading the main program, and initializing the radio. This startup procedure can take up to two minutes.

After the startup procedure has completed successfully, the Power/Status LED should be green, meaning that the radio has power. The Ethernet LED should also be green, meaning that the Ethernet connection is working. The RF Transmit and RF Receive LEDs should blink.

For information on making connections, see Radio power requirements and Cable specifications.

5 Detecting the Radio

After the radio has completed its startup procedure, the radio will appear in the IH Browser window.



The window lists all the radios your computer can access. The MAC ID number is essentially the serial number of the radio; this number is also printed on the side of the radio. If a radio listing does not appear in the window, select Scan from the File menu. If you still do not see a radio listing, see Troubleshooting.

Tip: If a radio listing does not appear in the window, open the File menu and choose Scan. If you still do not see a radio listing, refer to Diagnostics and troubleshooting.

The next step is to assign a temporary IP address to the radio, so that you can configure the radio through its web interface.

6 Assign a Temporary IP Address

You need the IP address to log into the Radio Configuration/Diagnostic Utility and configure the radio settings. If the radio is connected to a network with a DHCP server, the radio may already have an IP address assigned to it.

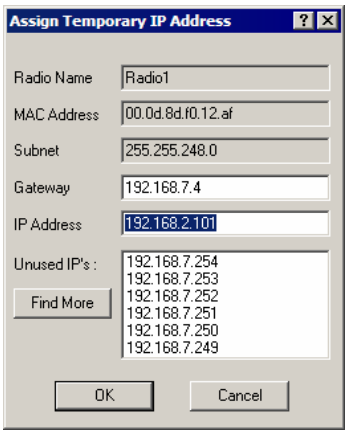
If a DHCP server is not available, or if you prefer to assign a static IP address, you can enter a temporary IP here. You will use the Radio Configuration / Diagnostic Utility to assign a permanent IP address.

➢ ***To assign a temporary IP Address***

1 In IH Browser, click to select the radio.

Tip: If a radio listing does not appear in the window, open the File menu and choose Scan. If you still do not see a radio listing, refer to Diagnostics and troubleshooting.

2 Open the Operations menu, and choose Assign IP. This action opens the Assign Temporary IP Address dialog box.

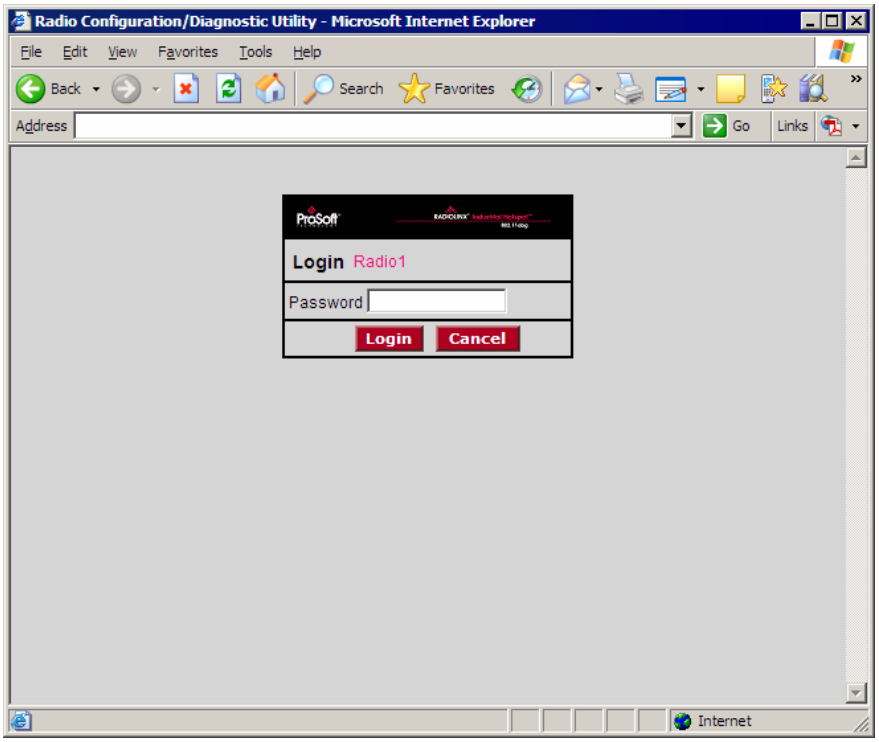


3 Accept the dynamically assigned address, and then click OK.

For information, see Radio Access settings.

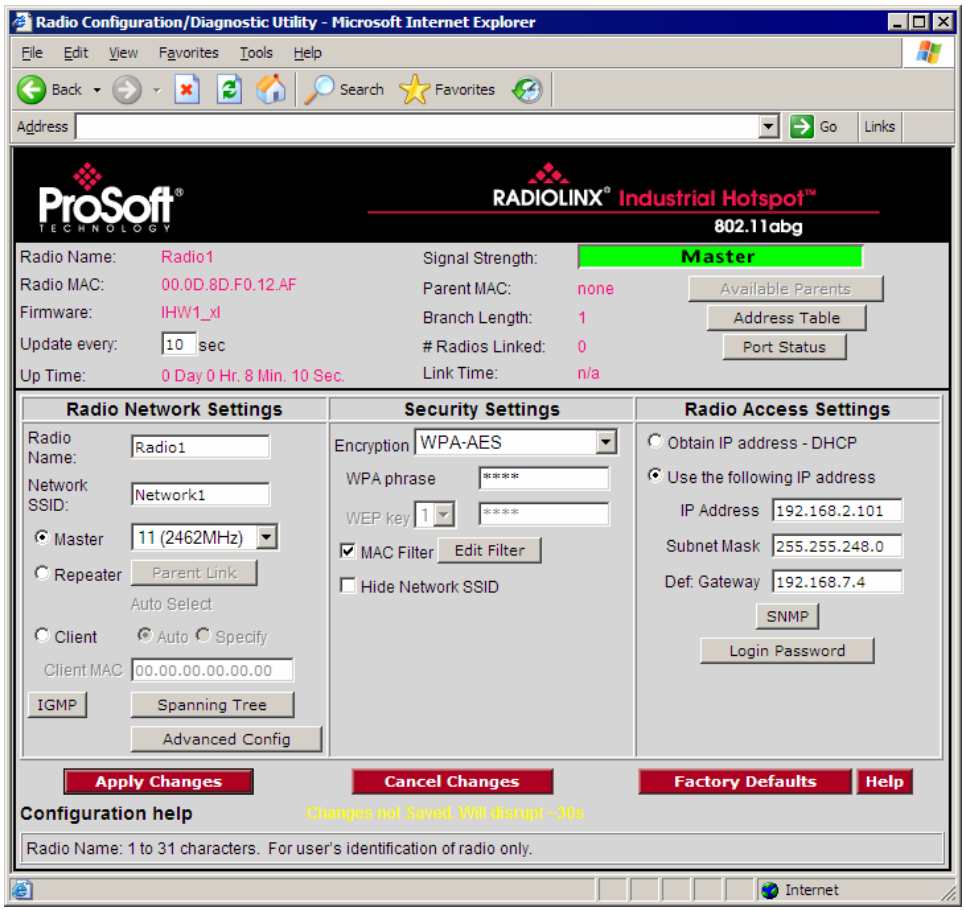
7 Set Up the Master Radio

To configure the radio, double click on the radio (Radio1) in the IH Browser window. This action opens a web browser (for example Microsoft Internet Explorer or Firefox) and loads the IH Radio's web configuration interface.



Important: The radio configuration is protected by a login password. The default password for the radio is "password" (lower case, no quotes). To prevent unauthorized access to the radio configuration, you should change the password when you have finished the initial configuration.

Note: The master is the "root" or top-level radio in a network. You must have at least one master radio per network. For redundancy, you can assign more than one master to a network.



To configure a Master radio, make the following changes to the web configuration form:

➢ *Radio Network Settings*

- **Radio Name:** Enter a unique name for the radio.
- Select **Master** as the radio mode.
- **Network SSID:** Assign a network name (SSID) of up to 32 characters. The radio uses this name in all network references. All radios in a network must have the same SSID.
- **Channel:** Select a channel and frequency range for the network or accept the default value. Network channels allow radios to avoid sharing a frequency with other networks in the same location. The channel list indicates the channel number as well as the frequency (2.4 gHz or 5 gHz).

Important: The RadioLinx IHW radio is supplied with a dual-band antenna that supports both frequency ranges. If you use a different antenna with the IHW radio, you must choose a channel and frequency range supported by the antenna.

➢ ***Security Settings***

- **Encryption Type:** Encryption scrambles data so that only intended viewers can decipher and understand it. Although "none" is an available encryption type, ProSoft Technology strongly recommends encrypting all data sent and received from every radio on your network, to help prevent your data from being intercepted and decoded.
- **WPA phrase:** To use WPA encryption on packets sent between the radios, select WPA in the Encryption Type field. Next, in the WPA phrase field, enter a pass phrase of between eight and 63 normal keyboard characters. This phrase automatically generates an encryption key of 128 hexadecimal characters. The default pass phrase is "passphrase" (lower case, no quotes). For more information on encryption, see Security settings.

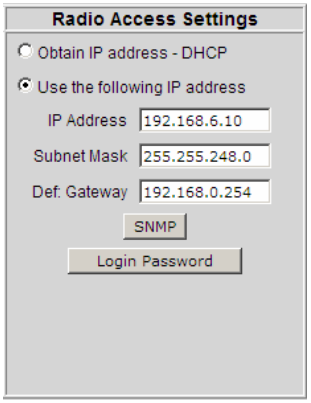
Because you must assign the same Network SSID and WPA phrase to the repeater radios later in this procedure, you should write down the settings.

Note: Network SSID and WPA phrase are both case-sensitive.

Network SSID:_____

WPA phrase:_____

➢ ***Radio Access Settings***



If a DHCP (Dynamic Host Control Protocol) server is configured on your local area network, the DHCP server can assign IP addresses automatically.

If you prefer to assign a Static (Fixed) IP address, select "Use the following IP address", and then enter the IP Address, Subnet Mask and Default Gateway in the Radio Access Settings area of the IH Radio web configuration form.

Important: If you intend to assign IP addresses manually, you must not duplicate an IP address that is already in use on your network. If you are not sure what IP addresses are available, ask your network administrator for assistance.

8 Save the Radio Configuration

Before closing the Radio Configuration window, you must apply your changes. Click Apply Changes to save your configuration and restart the radio.

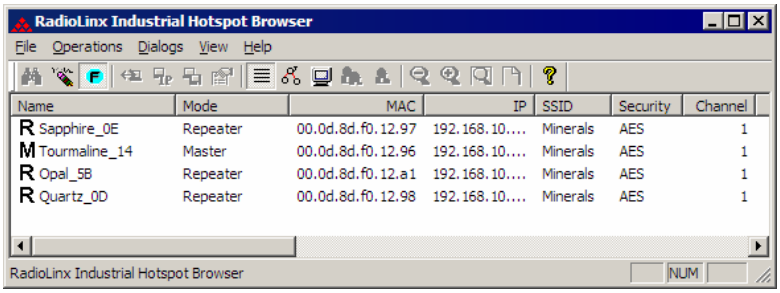
Note: To discard your changes and start over, click Cancel Changes.

9 Adding and Configuring Additional Radios

At this point you should attach and configure any additional IH radios you will be using. Ensure that any new radios use a unique name (Configuration Step2) but the same Network SSID as your master (Configuration step 3). The only difference in procedure will be in configuration step 4. Instead of setting your additional radios as Masters, they should be set as Repeaters or, more rarely, Clients, depending on their intended purpose.

10 Verify Communication

When configured, the name of each radio is preceded by an M (for Master), an R (for Repeater), or a C (for Client) in the IH Browser window.



Look at the LEDs to ensure good link quality, as explained in LED display (page 16). After a repeater is configured, you can unplug the Ethernet cable from it.

11 If You Encounter Problems

In This Chapter

11.1 Check the Ethernet cable

If you connect a radio and the Ethernet LED does not light on the radio, you may have used the wrong cable type. In other words, you may have used a cross-over cable when you should have used a straight-through cable, or vice versa.

Use a straight-through cable when connecting the radio to an Ethernet hub or a 10/100 Base-T Ethernet switch. Straight-through cables are used in most cases.

Use a cross-over cable when connecting the Ethernet radio directly to any device that is NOT a switch or a hub (e.g., a direct connection to a PC, PLC, or printer).

11.2 LED display

The RLX-IHW front panel includes a set of LEDs that indicate the radio's status:

LED	Description
Power/Status	This green LED indicates that the radio has power.
RF Transmit	This yellow LED indicates RF transmission.
RF Receive	This green LED indicates RF reception.
Serial	If this green LED is lit, the serial cable is connected. If this LED is flashing, a serial packet is being transmitted or received. (The serial port is not available in the first release of the radio.)
Ethernet	If this green LED is lit, the Ethernet cable is connected. If this LED is flashing, an Ethernet packet is being transmitted or received.
Signal Strength	If only one of these three LEDs is lit, then the radio is linked. If two LEDs are lit, the radio's signal strength is fair. If all three LEDs are lit, the signal strength is good.

If a radio is configured as a master, the middle light of the three Signal Strength LEDs will always be on, and the bottom Signal Strength LED will always be off. The top LED on the master will flash if any radios are linked to this master.

After you first plug in the power cable and Ethernet cable to the radio, the Power/Status LED should be green, meaning that the radio has power. If the Ethernet LED is green, then the Ethernet connection is working. The RF Transmit and RF Receive LEDs should blink.

All three LEDs will blink just after the radio links to the Master's signal but before it has been fully authenticated. Normally you will see this last only a few seconds. If it lasts longer or never turns solid it usually means the encryption keys are not correct.

11.3 Retrieve the default password

If you forget your password, you will be unable to change the radio settings. You can retrieve the default password to use the software again, but you will lose all the settings you programmed before. To retrieve the default password and return the radio to its factory default settings:

1. Use a serial cable to connect the radio's serial port to an RS-232 serial port on the computer.
2. Run a terminal program such as HyperTerminal.
3. Set up the terminal program to communicate directly to the COM port you are connecting to by entering the following settings:
   - Baud rate: 38,400
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None
4. Hold down the r (lower case R) key on the keyboard and turn on the radio power. Continue holding down the r key for more than 30 seconds until the radio initializes.
5. The radio will be reset to its factory default settings, including the password. You should now be able to log in using the default password, which is "password".

11.3.1 Encryption Keys

The radio ships preset using WPA-AES security. If you need to change the security settings, refer to the IH Browser help file.

The default WPA-AES Phrase when a module ships is 'passphrase'.

11.4 Starting Over

If necessary, you can always restore the default settings that your radio was shipped with by opening the Radio Configuration/Diagnostic Utility, logging into the radio, and clicking on the Factory Defaults button. **This will remove all changes you have made to the radio configuration, including addressing, naming, and security settings.**

12 What's Next?

Congratulations! Your wireless network is up and running. You now need to connect your wireless Hotspots to your network devices. ProSoft Technology provides application connection instructions for numerous applications. Refer to the RadioLinx Application Connection Guide located on the RadioLinx Solutions CD.