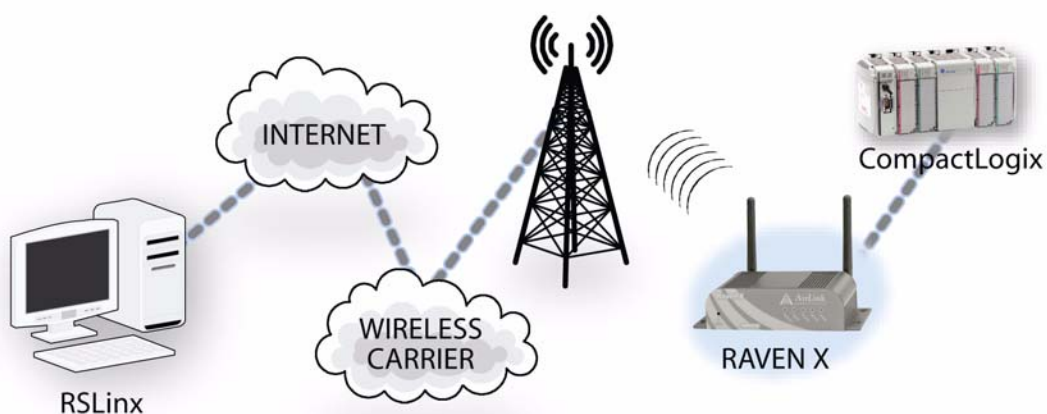# AirLink
COMMUNICATIONS

Adding Cellular Connectivity to RSLinx and CompactLogix with AirLink modems
Application Note

Cellular connectivity for your Rockwell CompactLogix and RSLinx system is made possible with an AirLink Raven X or Raven-E.

This application note covers a basic installation of a Raven X or Raven-E with a CompactLogix and a host server running RSLinx. While any AirLink modem with Ethernet connectivity will work, this application note focuses on the Raven X and Raven-E as the most suitable for the task. The modem configuration would be the same for any.

This application note does not cover the many features of these products in any depth or advanced configurations. For more detailed information on these products, please refer to their respective user guides:

- The user guides for the Raven X or Raven-E are available on the product CD or at the AirLink website: **http://www.airlink.com/support**.
- The RSLinx and CompactLogix user guides can be obtained from Rockwell Automation: **http://www.rockwellautomation.com/**.

Before You Start

Software Required

- **Wireless Ace** - Graphical interface for configuring your AirLink modem. You can download WireLess Ace from the AirLink website: http://www.airlink.com/support/modems/utilities/. A default installation of this utility is assumed later in these directions.
- **RSLinx** (Lite or Professional) - RSLinx is required on the computer you will be using for configuring the CompactLogix. Contact Rockwell Automation for information on how to obtain RSLinx. A default installation is assumed later in these directions.

Software Recommended

- **AceNet** - Multiple modem configuration and monitoring utility for all AirLink modems. With AceNet, you can save a working configuration in Wireless Ace and then load it into several modems concurrently saving time and ensuring all the modems are configured the same. AceNet is available as a separate purchase from your AirLink representative.

Hardware Required

- **PC or Laptop -** To configure a Raven-E, you will need a computer with an available Ethernet port. These directions require a serial port to configure the CompactLogix. A Raven X can be configured using either Ethernet or serial.
- **Ethernet Cable -** A cross-over Ethernet cable.
- **Serial Cable -** A null modem serial cable or a straight through cable with a null-modem adapter for configuring the CompactLogix. The Raven X can also be configured via serial but does not need a null-modem.
- **Power adapter and a power source** - You will need a power adapter and power source for your modem in addition to the CompactLogix or other hardware.

Cellular Account Required

- **Cellular Account -** To use this guide you need to already have an active account with a cellular provider and to have activated your modem with that provider. AirLink is certified to work with a variety of cellular providers.

  If you need to activate your modem, you can use the Setup Wizard for your cellular provider which you can obtain from the AirLink website: http://www.airlink.com/support/.

Configuring the Raven X or Raven-E

This document details configuring a Raven X or Raven-E to work with your CompactLogix and RSLinx; however, any AirLink modem with an Ethernet port can be used with these same directions.

Modem Defaults

- Management Interface IP Address: **192.168.13.31**.
- Telnet and Wireless Ace password: **12345**

1. Connect your Raven X or Raven-E directly to your computer and to power.

2. Start **Wireless Ace** and connect to your modem.

Start > All Programs > AirLink Communications > Wireless Ace 3G > Wireless Ace 3G

A. Click on **Connect**.

B. If the computer is connected to the modem using Ethernet, select **UDP**.

a. Type in the modem's local IP (default is *192.168.13.31*).

b. Type in the modem's password (default *12345*)

c. Click **OK**.

FIGURE 1. **Wireless Ace: Connect via Ethernet**
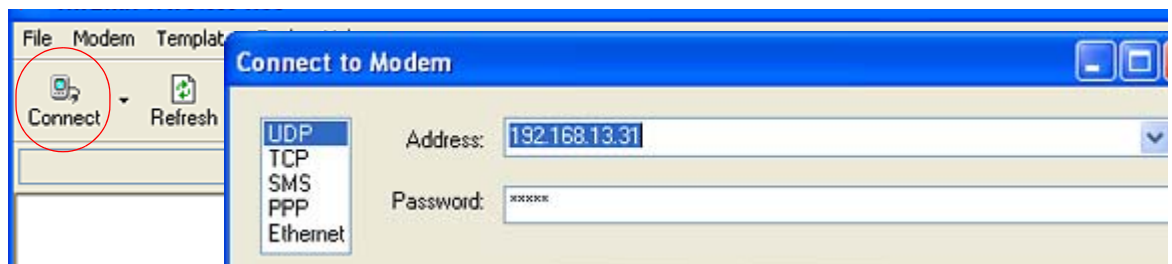
If you don't know the IP of your modem, you can connect to it using the **Ethernet** option for "Connect to Modem". Your modem should be automatically detected.

C. If the computer is connected to the modem using serial, select **PPP** (not available for Raven-E).

a. Change the Port to match the Comport on your computer (default is *COM1*).

b. Type in the modem's password (default *12345*)

c. Click **OK**.

FIGURE 2. **Wireless Ace: Connect via Ethernet**
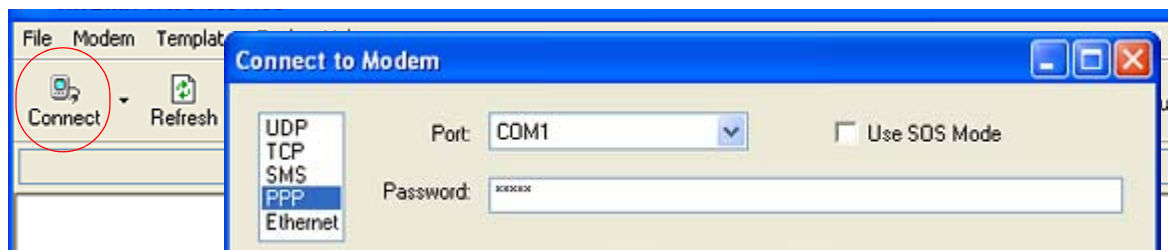
3. Select **Common>PPP/Ethernet** from the menu on the left side of Wireless Ace (under "Groups").

Private Mode

In this mode, the modem uses a static local IP address for the connection to the CompactLogix.

A. Set the ***HOSTPRIVMODE** to **1**.

B. Set the ***HOSTPRIVIP** to **192.168.1.5**. This will be the IP Address for the CompactLogix.

C. Set the ***HOSTPEERIP** to **192.168.1.1**. This will be the modem IP Address for the connection with the CompactLogix.

D. Set the ***HOSTNETMASK** to **255.0.0.0**.

FIGURE 3. Wireless Ace: PPP/Ethernet

GROUPS	MODEM DATA				PRINTABI
Misc Serial TCP UDP DNS Dynamic IP PPP/Ethernet PassThru SMTP Other	**AT**	**Name**	**Value**		**New Value**
	*HOSTPRIVMODE	Use Private IP	0		1 - Use Private IP
	*HOSTPRIVIP	Host Private IP	0.0.0.0		192.168.1.5
	*HOSTPEERIP	Modem Local IP	192.168.13.31		192.168.1.1
	*HOSTNETMASK	Host network mask	0.0.0.0		255.0.0.0

Note: If the CompactLogix and modem are going to be on a LAN with other Ethernet devices you may need to use different IP Addresses for the CompactLogix and modem. Consult your Network Administrator.

OPTIONAL Select **Common>Dynamic IP** from the menu on the left.

IP Manager

Unless you have a static IP address account from your cellular carrier, if your modem resets for any reason, it can obtain a different IP address. Since your RSLinx needs an IP address to connect to modem, the connection between your RSLinx and CompactLogix could be lost. However, AirLink offers a dynamic DNS service, IP Manager, to translate a domain name into an IP address. Since the RSLinx can use a host name (domain name) for its configuration instead of a static IP address, IP Manager can be the solution.

A. Type in a name for the modem for ***MODEMNAME**. See below for restrictions and recommendations for the modem name.

B. Type in **eairlink.com** for ***DOMAIN**.

C. Type in **edns2.eairlink.com** for ***IPMANAGER1**.

D. Type in **eairlink.com** for ***IPMANAGER2**.

FIGURE 4. Wireless Ace: IP Manager

GROUPS	MODEM DATA			
INFO STATUS COMMON Misc Serial TCP UDP DNS Dynamic IP PPP/Ethernet PassThru	**AT**	**Name**	**Value**	**New Value**
	*MODEMNAME	Modem Name		modem_name
	*DOMAIN	Domain	eairlink.com	eairlink.com
	*IPMANAGER1	IP Manager Server 1 (IP Adrs)		edns2.eairlink.com
	*IPMGRUPDATE1	IPMServer1 Update (Minutes)	0	
	*IPMGRKEY1	IPMServer1 Key	********	
	*IPMANAGER2	IP Manager Server 2 (IP Adrs)		eairlink.com

Restrictions and Recommendations for Modem Name

For the Modem Name, you should use something which is unique but also easy to remember. Your company name, the intended function of the modem, or the ESN of the modem are recommended. If you have more than one modem and want to name them the same, you can append a number for each. Since it is an Internet domain name, there are some restrictions for the name.

- Must begin with a letter or number
- Can include a hyphen (-)
- Cannot contain spaces
- Must be no longer than 20 characters total

Options to AirLink's IP Manager Service

IP Manager is available to be run on your own corporate network if you want to use your own domain name, if you want to run it with a private network, or if you don't want to rely on AirLink's IP Manager service. Contact your AirLink representative for information on how you can obtain the IP Manager host.

If you are running IP Manager on your own network, the domain name and the server names (or IP addresses) should be changed from the settings above. In addition, if your IP Manager host is using keys other than the AirLink defaults, you will need enter the keys for each server.

4. When you have finished configuring the modem, click the **Write** button on the tool bar of Wireless Ace and wait for the message "Write Successful" to appear in the status bar.

FIGURE 5. **Wireless Ace: Write**
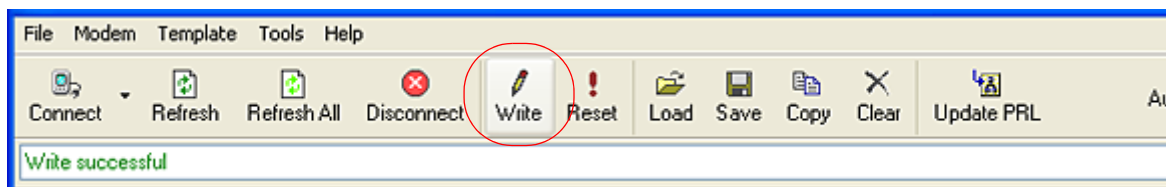
If you have multiple CompactLogix units that will be equipped with the Raven X or Raven-E, you can make a template with Wireless Ace and use AceNet to apply it to all your modems at one time. Refer to the guide "How to Make and Apply Templates" available on the AirLink website.

5. Reset the modem to change the configuration to the one you just set. You can use the Reset button in Wireless Ace or the reset button on the front of the modem.

6. Reconnect to the modem with Wireless Ace. Follow the directions in step 2 to connect to the modem.

7. Select **Status** from the Wireless Ace menu.

FIGURE 6. **Wireless Ace: Status**

If ***NETSTATE** reads "Network Ready" or "Network Dormant", note the IP address listed for ***NETIP**. If *NETSTATE indicates the modem is still connecting to the cellular network, wait a minute and click the **Refresh** button on the tool bar of Wireless Ace. When *NETSTATE indicates a connection with the cellular network, note the IP address.

- If you're using IP Manager, you can use this IP address to confirm your IP Manager settings by attempting to ping **[modem_name].eairlink.com** (or the domain of your IP Manager server). You may not receive a ping response, some carriers block pings on their network, but the domain name should resolve to the IP address.

- If you're not using IP Manager, you will need this IP address to configure RSLinx to connect to the modem. If you do not have a static IP address account, do not disconnect the modem from power. If you do have a static IP address account, verify the IP address is the one you should have. Contact your account representative if it is not.

8. Disconnect the modem from your computer.

CompactLogix

1. Connect CompactLogix to your computer's serial port.

2. Start the RSLinx application: *Start > All Programs > Rockwell Software > RSLinx > RSLinx Classic*.

FIGURE 7. RSLinx
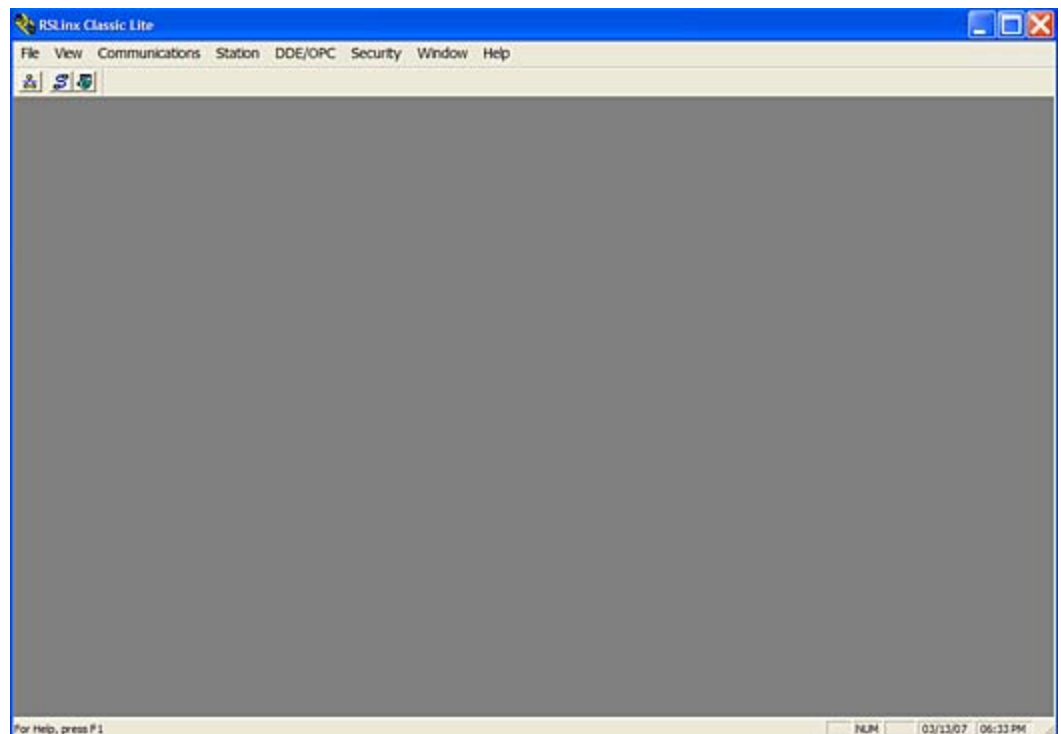
3. Install the serial driver.

To communicate between your computer and the CompactLogix so you can configure the Ethernet port, you will need to install the RSLinx serial driver on your computer first. If you have already done so, skip to step 4.

A. Under **Communications**, select **Configure Drivers**.

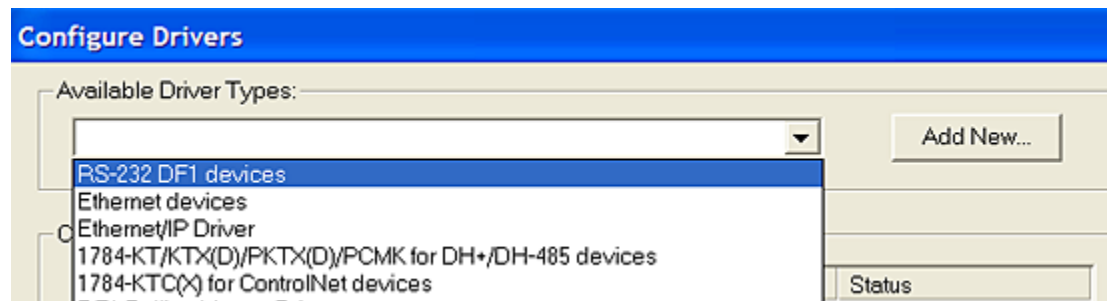**FIGURE 8. RSLinx: Communications > Configure Drivers**
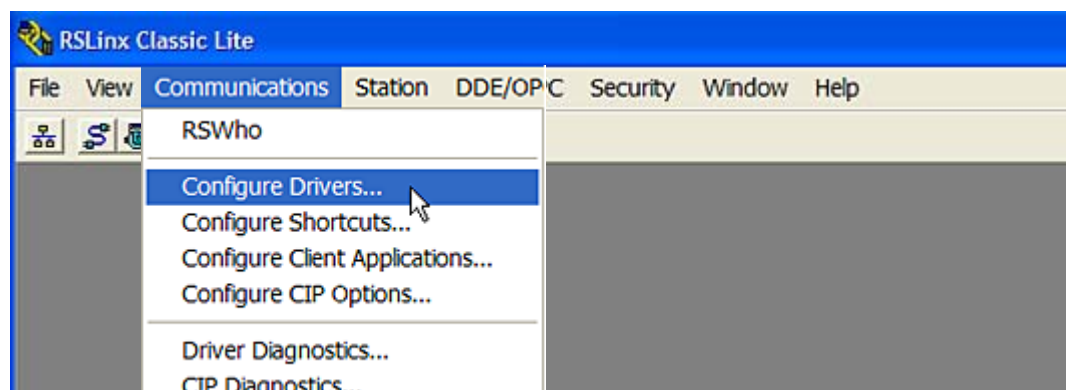

B. Select **RS-232 DF1 devices** and click **Add New**.

FIGURE 9. **RSLinx: Add Driver**

C. If you are prompted to name the driver, click **OK** to accept the default name.

D. Configure the serial settings.

a. Select the Comm Port on your computer to which the CompactLogix is connected.

b. For Device, select **Logix 5550/CompactLogix**.

c. Click **Auto-Configure**.

d. Click **OK**.

FIGURE 10. **RSLinx: Serial Settings**
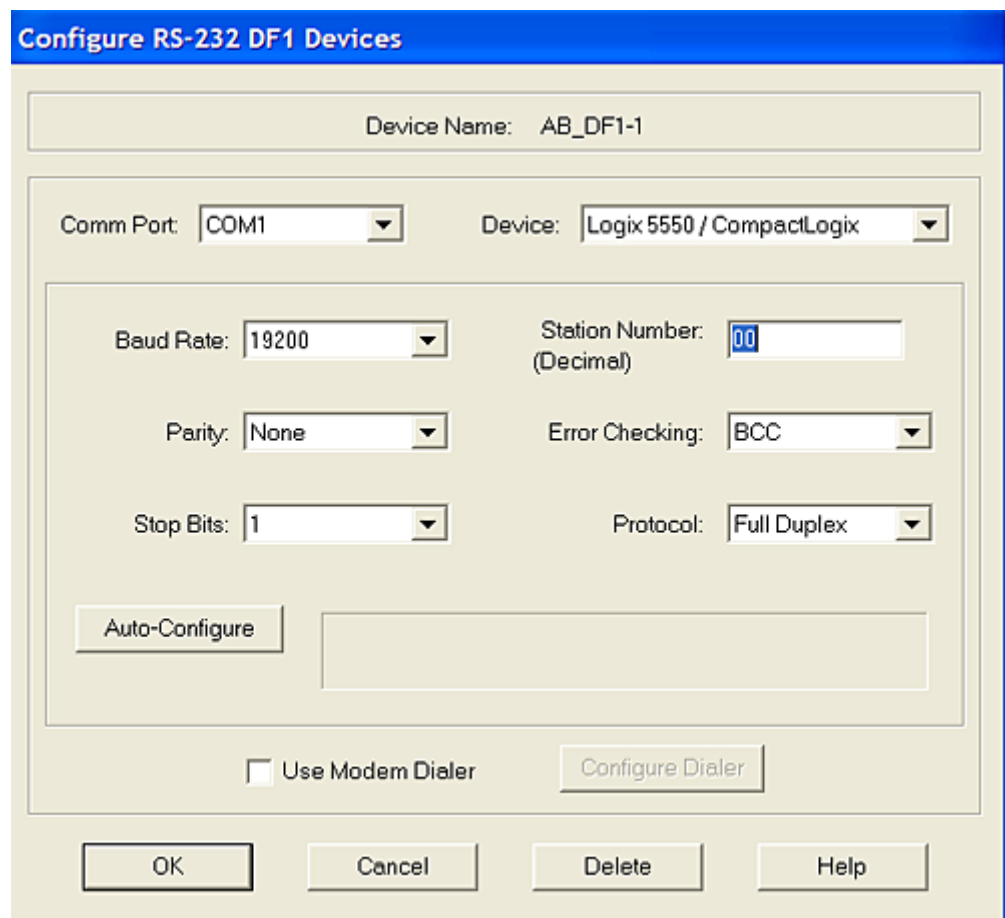
E. The serial driver should be added to the Configured Drivers list.

FIGURE 11. **RSLinx: Configured Drivers**
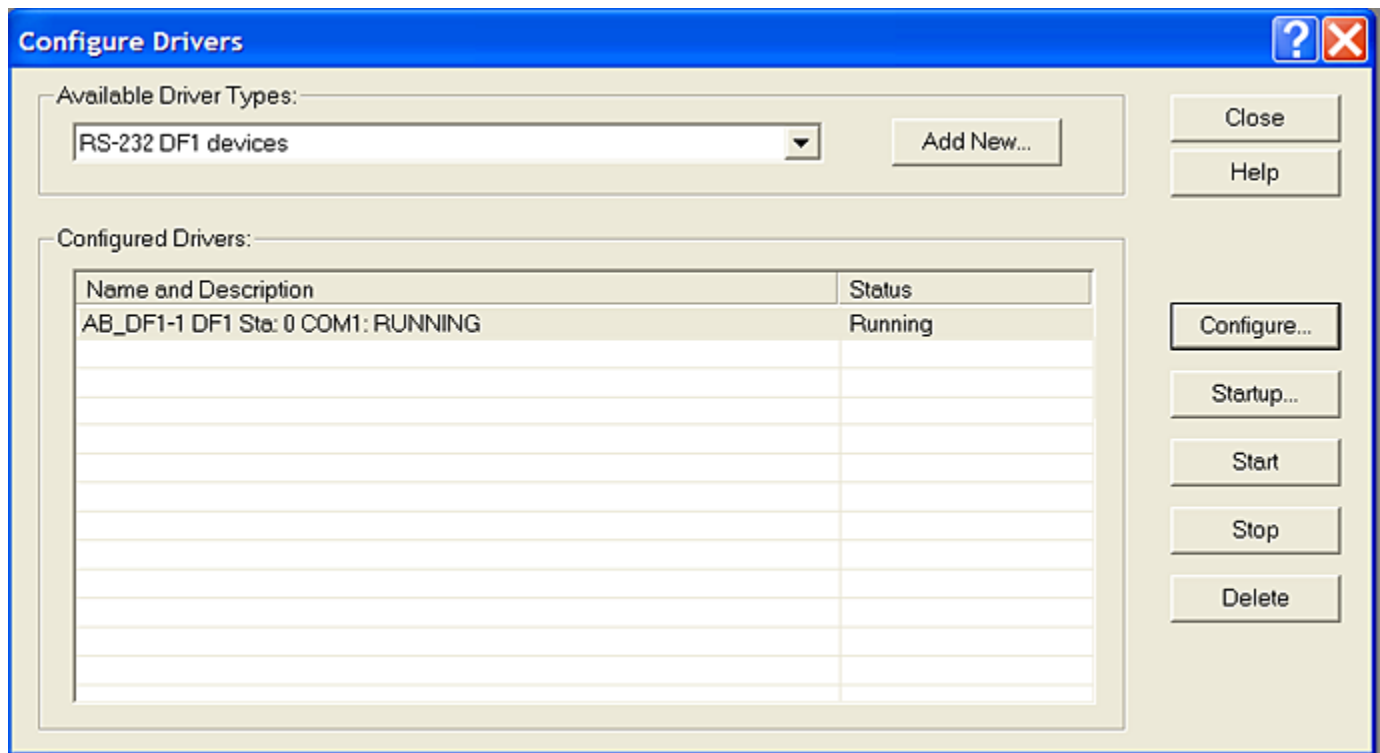
- If the DF1 driver status is not Running (if it is not like the screen shot above), click **Start**.

4. Click on the Whois button.

FIGURE 12. **RSLinx: Whois button**
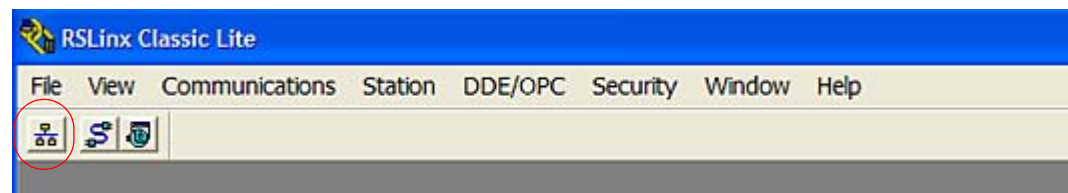
FIGURE 13. **RSLinx: Whois**
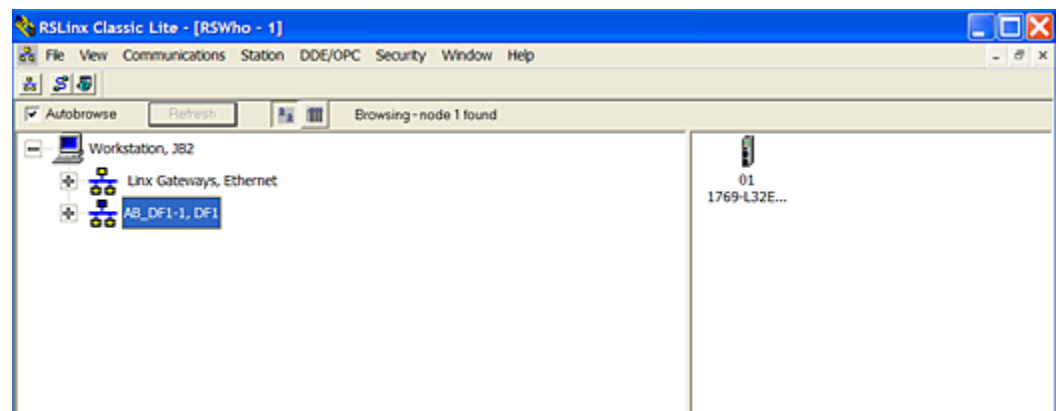
5. Expand the DF-1 connection to access the Ethernet port on the CompactLogix.

A. Expand DF-1 by clicking on the +.

B. Expand the CompactLogix by clicking on the +.

C. Expand the Backplane by clicking on the +.

D. Right-click on the Ethernet Port.

E. Select **Module Configuration**.

FIGURE 14. RSLinx: Whois - CompactLogix
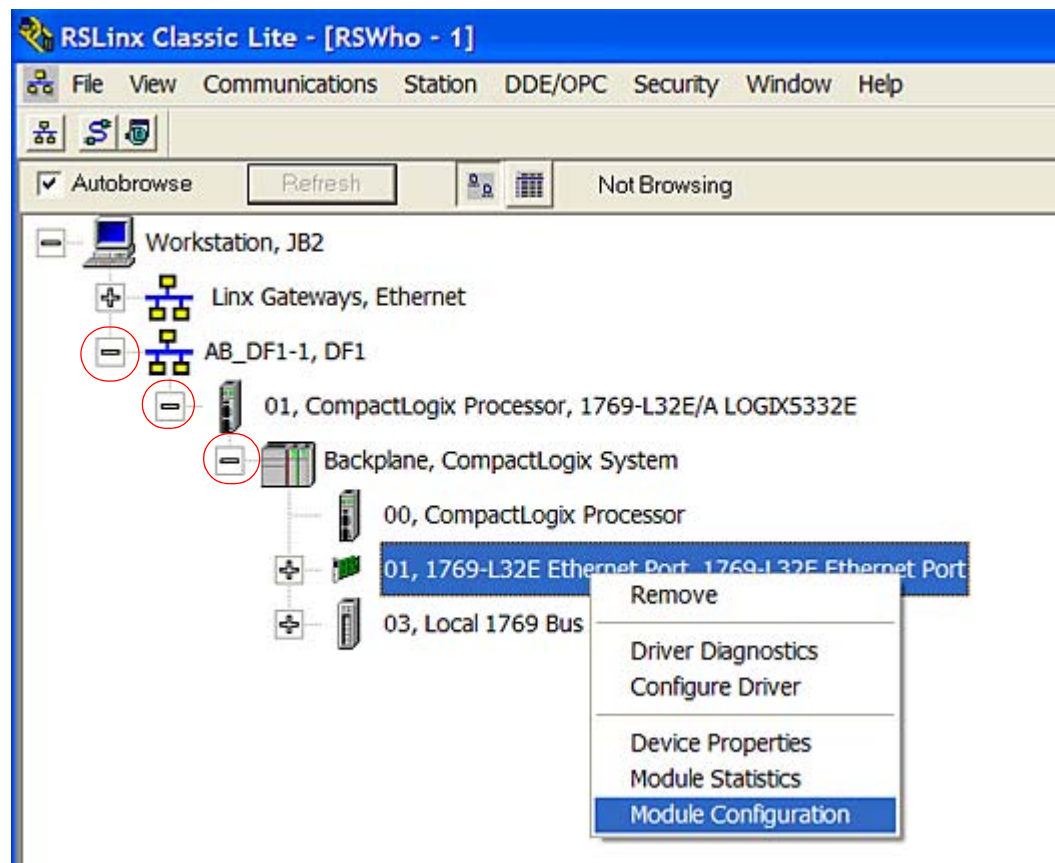
6. Configure the Ethernet port to connect to the modem.

A. Select **Static** for **Network Configuration Type**.

B. Type **192.168.1.5** for the **IP Address**. This should match the ***HOSTPRIVIP** in the modem configuration above.

C. Type **255.0.0.0** for the **Network Mask**. This should match the ***HOSTNETMASK** in the modem configuration.

D. Type **192.168.1.1** for the **Gateway Address**. This should match the ***HOSTPEERIP** in the modem configuration above.

E. Check **Auto-negotiate port speed and duplex**.

F. Click **OK**.

FIGURE 15. RSLinx: Whois - CompactLogix

7. Power cycle the CompactLogix to intialize the configuration.

8. Connect the Raven X or Raven-E to the CompactLogix using the Ethernet cable.

At this time you can also disconnect the CompactLogix from the computer's serial port.
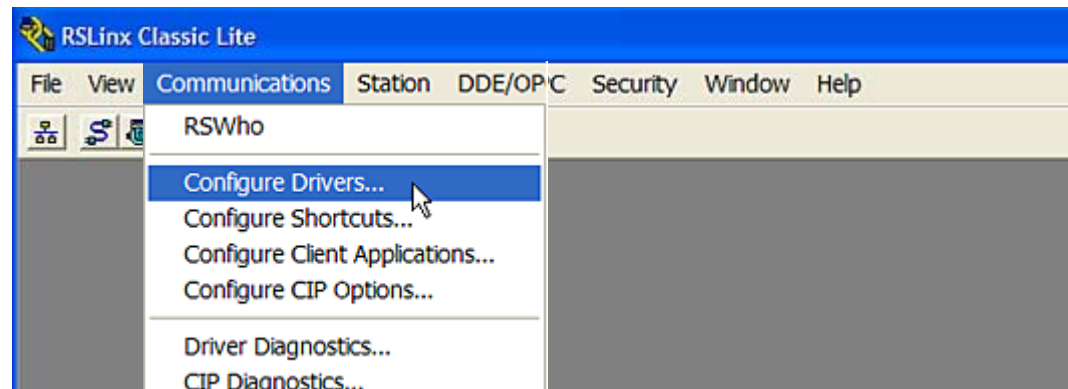
RSLinx Host

1. Unless it is already running, start the RSLinx application: *Start > All Programs > Rockwell Software > RSLinx > RSLinx Classic*
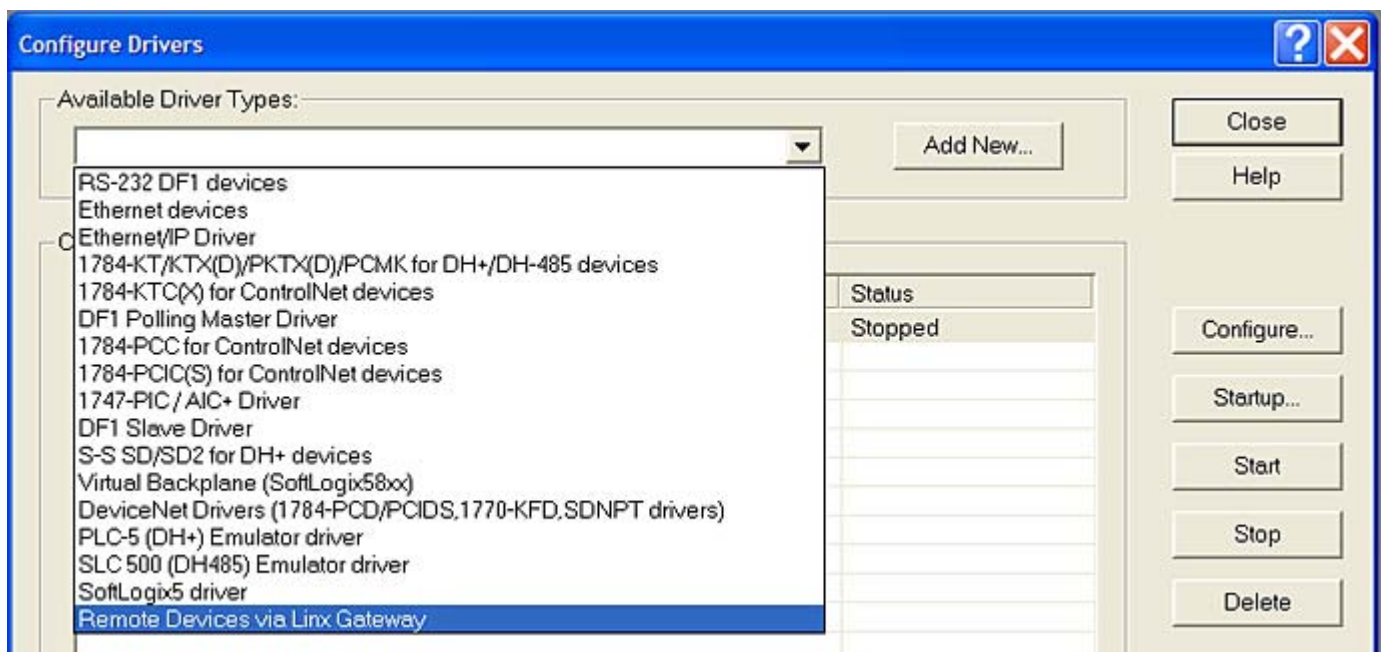
2. Under **Communications**, select **Configure Drivers**.

FIGURE 16. **RSLinx: Communications > Configure Drivers**

3. Select **Remote Devices via Linx Gateway** and click **Add New**.

FIGURE 17. **RSLinx: Configure Drivers**

If you are prompted to name the driver, click **OK** to accept the default name.

4. Configure the Remote Device to connect to the modem.

If you are using IP Manager:

A. For **Server's IP Address or Hostname**, type in the ***MODEMNAME**, a period, and ***DOMAIN** without any spaces, [modem_name].eairlink.com. In the sample, the ESN of the modem has been used for the modem name.

B. Click **OK**.

FIGURE 18. **RSLinx: Remote Device - via Hostname**
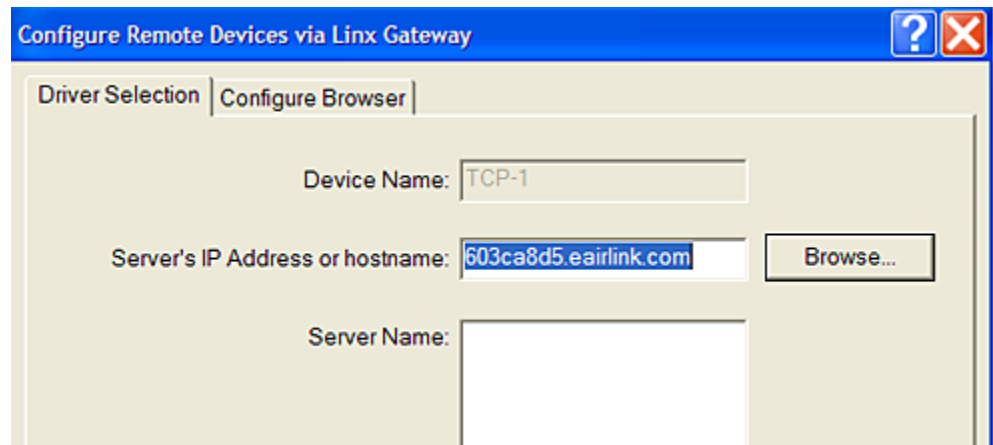
If you're not using IP Manager and you have a static IP account, the IP address of the modem should be the same as in step 7 from the modem configuration.

A. For **Server's IP Address or Hostname**, type in the modem's IP address.

B. Click **OK**.

If you're not using IP Manager and you don't have a static IP address account, you will need to determine what IP address the cellular network gave to the modem.

A. If the modem has not been reset since completing the modem configuration, the IP address should be the same as it was for step 7 in the Raven X or Raven-E configuration section above.

B. If the modem has been powered off, repeat the modem configuration step 7.

C. For **Server's IP Address or Hostname**, type in the modem's IP address.

D. Click **OK**.
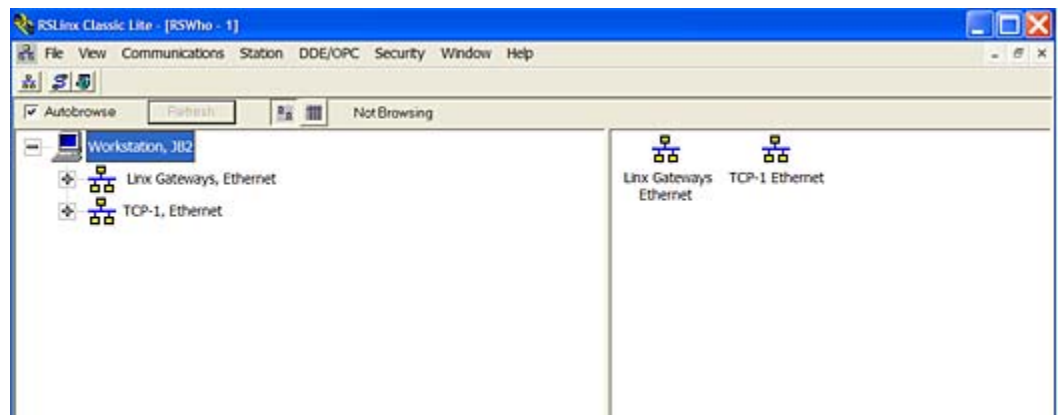
FIGURE 19. **RSLinx: Remote Device - via IP Address**
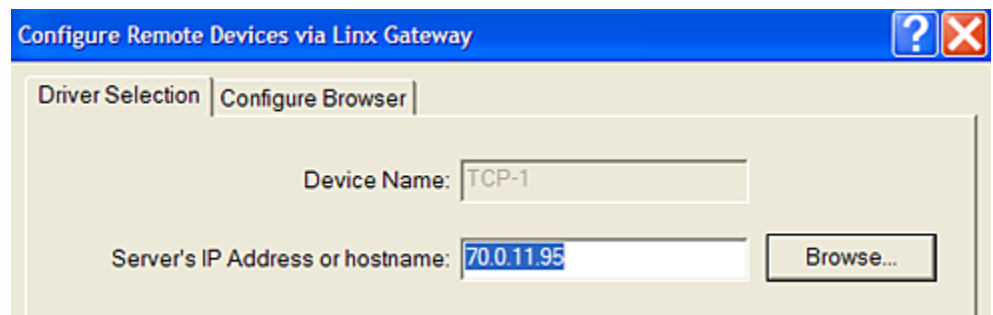
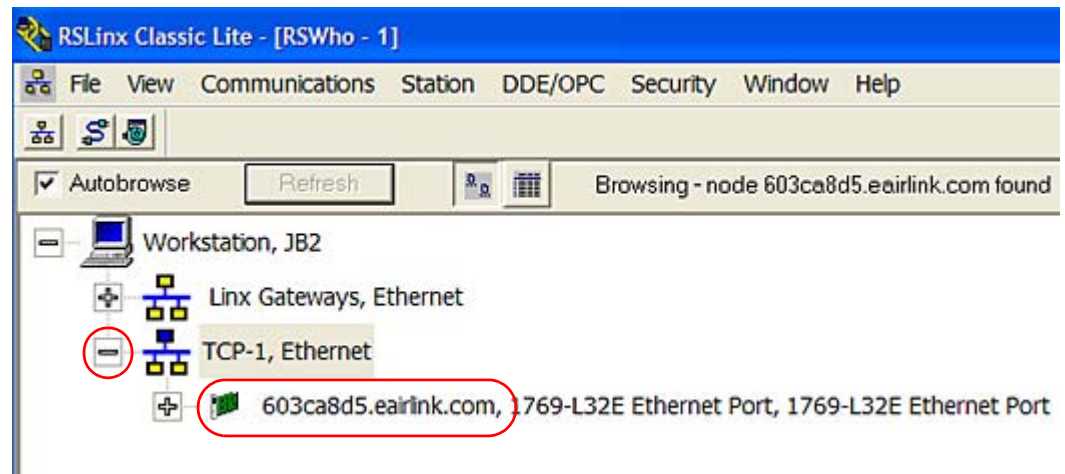**5.** Click on the Whois button.

RSLinx: Whois

6. Expand TCP-1 by clicking on the +.

You should see the remote connection you just configured above:

- If you're using the Hostname, the domain name will be part of the connection name.

FIGURE 21. **RSLinx: Whois - Remote Connection using the Host name**
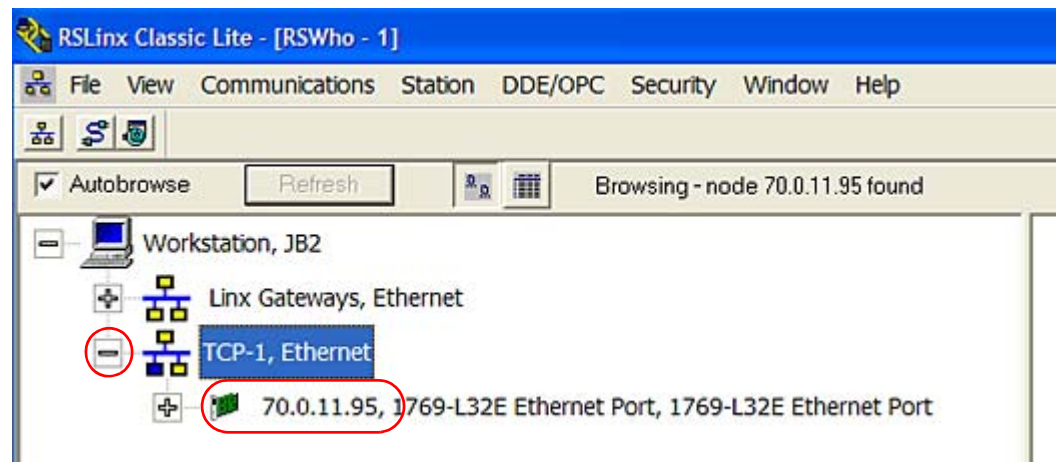

- If you're using the IP address, the IP address will be part of the connection name.
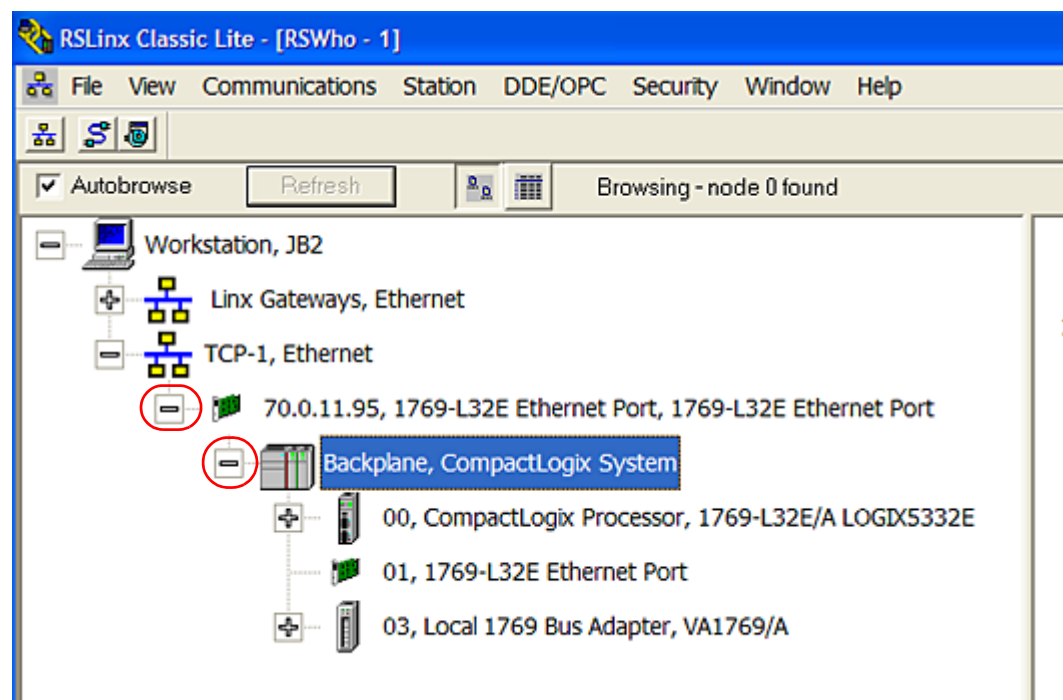
FIGURE 22. RSLinx: Whois - Remote Connection using the IP address

7. Verify the host connection to the CompactLogix.

A. Expand the connection to the modem by clicking on the +.

B. Expand the **Backplane, CompactLogix System** by clicking on the +.

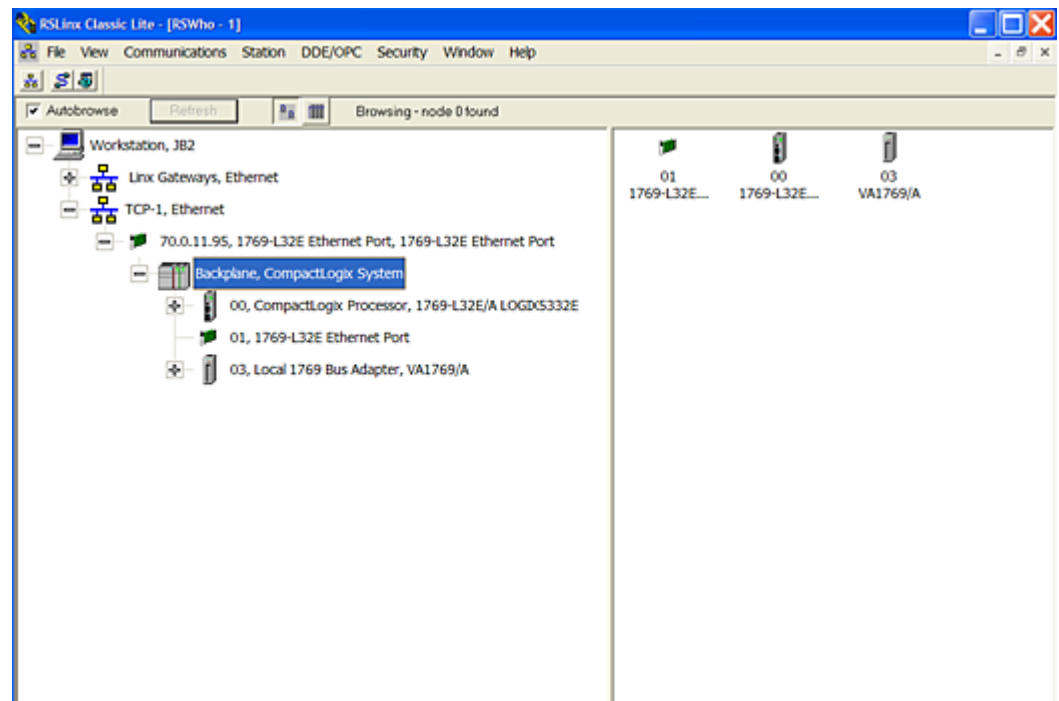**FIGURE 23. RSLinx: Connected remotely to the CompactLogix**

You should see all the devices connected to the CompactLogix.

FIGURE 24. RSLinx: Connected remotely to the CompactLogix

AirLink Technical Support

If you encounter problems with operation of your AirLink product, AirLink's support staff can help.

> **Caution:** The configuration suggestions offered in this guide are not supported nor is any equipment other than AirLink products. Only the operation of the modem or software obtained directly from AirLink is supported.
> Refer to the User Guide for your modem or the AirLink website for AirLink product warranties.

AirLink Support Web Site

The AirLink web site is updated frequently with Setup Wizards, Utilities, How-To Guides, and other documentation: http://www.airlink.com/support.

AirLink Documentation and Guides

- **Modem User Guides** - These guides are specific to your modem type, cellular provider, and cellular technology and contain comprehensive information about the operation of the modem and its features.
- **Modem Quick Start guides** - These guides are also specific to the modem type, cellular provider, and cellular technology and are a step by step guide to activating the modem using the Setup Wizard or other steps as applicable.

- **Utility Guides** - These guides focus on the features of one of the AirLink modem utilities: Wireless Ace, AceView, AceNet, Modem Doctor, etc.
- **Application Notes** and **How-To Guides** - These guides detail configuring the modem to work with a specific feature set or how the modem can be set up to work with a specific 3rd party (non-AirLink) device.
- **Data Sheets** and **White Papers** - These are technology based information documents.

Contacting Technical Support

For support assistance please email support@airlink.com or call 510-781-9760 Monday through Friday 5 AM to 5 PM Pacific Time (8 AM to 8 PM Eastern Time). Support is not available weekends or holidays.