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RLXIC-Sx Serial Cellular Radio Application Setup Guide

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Contents

Setting Up the Modem

In This Chapter

Install Configuration Software and USB Drivers

Install the **AceManager** configuration software and **USB drivers** from the RadioLinx CD. If you don't have access to the CD you can also download the latest version from the ProSoft Technology website at www.prosoft-technology.com

Install SIM card (RLXIC-SG model only)

Once you have been set up with the carrier and have selected a plan they will issue a SIM card (Subscriber Identity Module) which will need to be inserted into each modem. This is done by removing the 2 screws and the end plate opposite the power connection and sliding the module in taking care that it is aligned with the guidelines shown on the PC board.

Apply Power to the Modem

You can power the modem using either the 120VAC adapter or the gray DC power cord with an external 12-24VDC power supply. If using the DC supply connect V+ to the red wire and V- to the black wire.

Connect the Modem to your PC for Configuration

USB Cable (Preferred Method)

Power the modem and connect a USB type A to mini B cable from a USB port or hub on your PC to the USB port on the modem.

1. Launch AceManager and click **Connect.**
2. In the **Connect to Modem** window select UDP from the list on the left.
3. Enter `192.168.13.31` in the **Address** field and leave the **Password** field at the default value (`12345`).
4. Click **OK** and you should see the software display `Accessing modem` and then `xxxx bytes received` which indicates it successfully connected to the modem.

DB9 Serial Cable

If a USB connection is not available, you can connect to the modem using a serial cable.

1. Power the modem and connect a straight through DB9 serial cable from your PC to it.
2. Launch **ACEMANAGER** and click **CONNECT.** In the **CONNECT TO MODEM** window select **PPP** from the list on the left.
3. Select the COM port you are using from the dropdown and leave the Password field at the default value (`12345`).
4. Click "OK" and you should see the software display "`Accessing modem`" and then "`xxxx bytes received`" which indicates it successfully connected to the modem.

Note: If the modem does not respond you can attempt to connect by checking the USE SOS MODE box which will try different baud rates and settings until it finds a combination that allows it to communicate with the modem.

Selecting Service Provider and Data Plan

Before the modems can function they must be set up with a data plan from the carrier. The RLXIC-SV model is for the Verizon/Alltel network and the RLXIC-SG is for the AT&T network. ProSoft has dedicated contacts with both of the providers that can facilitate and expedite your account setup. Contact ProSoft for the name and phone number of a representative to set up your service or if you need more information regarding the type of plan required.

Carrier Network Setup

The modems will be configured to use carrier-assigned static or dynamic public IP addresses. If dynamic public IP addresses are used, the modems must have access to the Internet to access the Sierra Wireless DDNS server for resolving the modem name. If static public IP addresses are used then this is not required.

EVDO (RLXIC-SV model)

No special network setup is required since all Verizon IP addresses are dynamic public IP addresses with access to the Sierra DDNS server. Verizon also offers static public IP addresses for an additional charge.

GPRS (RLXIC-SG model)

Each modem must be registered to an APN or Access Point Name. There are several types of APNs offered, which include public, dedicated, and custom. The type required will be determined by the carrier based on the specific needs of each customer.

1. Once the APN has been set up, go to the **CELLULAR** page, and enter the carrier assigned APN name in the **SET APN** field.
2. If you were issued a username and password go to the **"MISC"** page, and enter them in the "**NETWORK USER ID**" and **NETWORK PASSWORD** fields respectively.
3. Click **WRITE** to load the values into the modem, then click"**CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Provisioning the Modem

Once a plan has been set up and all necessary settings loaded into the modem it is ready to be provisioned by the carrier. Power the modem and note the LEDs. When the Network LED is on solid and the Signal LED is flashing the modem is provisioned on the network and ready to use. Note that sometimes this can take up to 30 minutes.

Loading and Saving Configuration Templates

To simplify configuration, ProSoft has developed templates which can be loaded for your specific application. These templates are available on the RadioLinx CD, which is included with the modem. If you do not have access to the CD, contact ProSoft Technical Support to get the necessary template(s).

Once you have completed the configuration of your modem, it is recommended that you save the settings to a template for future reference.

1. Connect to the modem with **ACEMANAGER.**
2. Click **COPY** and then **SAVE.**
3. Once you have saved the template to the desired location click **CLEAR.**

Accessing the Modem Remotely

You can connect to the modem remotely over the Internet, using the carrier-assigned IP address, or the modem name with DNS.

Static IP Address

1. Go to the **STATUS** page, and note the IP address in the **NETWORK IP** field.
2. Open **ACEMANAGER** and click **CONNECT**.
3. Select **TCP** from the list on the left, enter the IP address in the **ADDRESS** field and click **OK.**

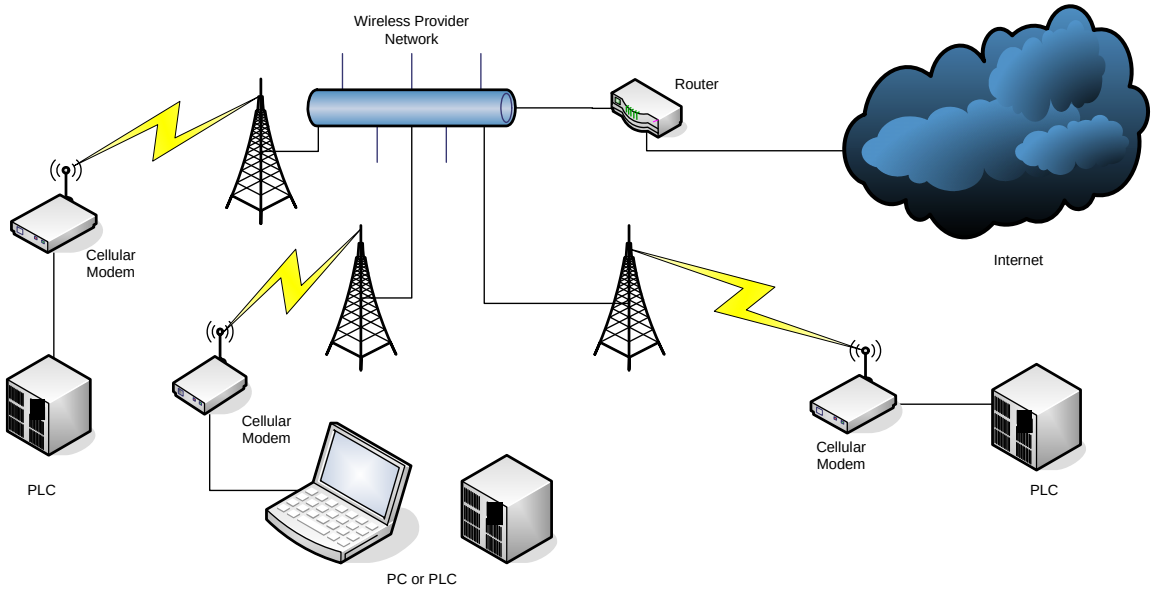
DHCP IP Address

1. Enter a unique name for each modem on the **DYNAMIC IP** page.
2. Open **ACEMANAGER** and click **CONNECT**.
3. Select **TCP** from the list on the left, enter <ModemName>.eairlink.com in the **ADDRESS** field and click **OK.**

Application Setup Details

In This Chapter

Network Diagram



Description

Mobile Originated to Mobile Terminated (Cellular to Cellular)

PC, PLC or other industrial device connected to cellular modem originates communication to other PC(s), PLC(s) or devices connected to cellular modem(s).

Specific Application Configuration

Point-to-point

1. Click **LOAD** and select the template named **RLXIC-SX_PT-PT**.
2. On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP addresses and want to use it for configuration).
3. On the **MISC** page, enter the destination modem's name or IP address in the **S53 - DESTINATION ADDRESS** field.
4. On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

5 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

6 Repeat for the second modem.

Point-to-multipoint

Slave(s)

1 Click **LOAD** and select the template named **RLXIC-SX_SLAVE**.

2 On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).

3 On the **MISC** page, enter the Master modem's name or IP address in the **S53 - DESTINATION ADDRESS** field.

4 On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

5 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Master

1 Click **LOAD** and select the template named **RLXIC-SX_PT-MPT_MASTER**.

2 On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).

3 On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

4 On the **ADDR LIST** page, provide an entry for each slave device starting at 1 for the first modem. The order of the slaves is not critical.

5 Enter the name or IP address (if static) for each slave modem. For example, enter **1=<SLAVE 1 MODEM NAME>** or **1=<SLAVE 1 IP ADDRESS>**.

6 Repeat for each slave incrementing the number by one each time and entering the unique name or IP address for the slave.

7 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

A-B DF1 Radio Modem Protocol

Slave(s)

1 Click **LOAD** and select the template named **RLXIC-SX_SLAVE**.

2 On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).

3 On the **MISC** page, enter the Master modem's name or IP address in the **S53 - DESTINATION ADDRESS** field.

4 On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

5 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Master

1. Click **LOAD** and select the template named **RLXIC-SX_ DF1RADIO _MASTER**.
2. On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).
3. On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROl** field to match the serial port settings of the device being connected to the modem.
4. On the **ADDR LIST** page, provide an entry for each slave device. Each DF1 device must be associated with the slave modem that it is connected to.
5. Enter the DF1 node address and then the name or IP address (if static) for each slave modem. For example, enter **<DF1 NODE #>=< MODEM NAME OR IP>** (that is, .: 4=DF1node4modem).
6. Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.
7. Repeat for each slave.

A-B DF1 Half Duplex Protocol

Slave(s)

1. Click **LOAD** and select the template named **RLXIC-SX_SLAVE**.
2. On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).
3. On the **MISC** page, enter the Master modem's name or IP address in the **S53 - DESTINATION ADDRESS** field.
4. On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.
5. Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Master

1. Click **LOAD** and select the template named **RLXIC-SX_PT-MPT_MASTER**.
2. On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).
3. On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.
4. On the **ADDR LIST** page, provide an entry for each slave device starting at 1 for the first modem. The order of the slaves is not critical. Enter the name or IP address (if static) for each slave modem. For example, enter **1=<SLAVE 1 MODEM NAME>** or **1=<SLAVE 1 IP ADDRESS>**.
5. Repeat for each slave incrementing the number by one each time and entering the unique name or IP address for the slave.
6. Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Modbus RTU Protocol

Slave(s)

1 Click **LOAD** and select the template named **RLXIC-SX_SLAVE**.

2 On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).

3 On the **MISC** page, enter the Master modem's name or IP address in the **S53 - DESTINATION ADDRESS** field.

4 On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

5 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

Master

1 Click **LOAD** and select the template named **RLXIC-SX_ MODBUSRTU_MASTER**.

2 On the **DYNAMIC IP** page, enter a unique name for the modem in the **MODEM NAME** field (this is not necessary if you have a static IP and want to use it for configuration).

3 On the **SERIAL** page, enter baud rate, data bits, parity and stop bits in the **S23-CONFIGURE SERIAL PORT** field and select appropriate flow control in the **\Q-SERIAL PORT FLOW CONTROL** field to match the serial port settings of the device being connected to the modem.

4 On the **ADDR LIST** page, provide an entry for each slave device. Each Modbus slave device must be associated with the slave modem that it is connected to.

5 Enter the Modbus node address and then the name or IP address (if static) for each slave modem. For example, enter **2=<NODE 2 MODEM NAME>** or **2=<NODE 2 IP ADDRESS>**.

6 Click **WRITE** to load the settings, then click **CLEAR** and finally **RESET** to reboot the modem and update the new parameters.

7 Repeat for each slave.

Custom/Other Addressed Protocols

Other addressed and custom protocols can also be accommodated. Most will work by simply using the Point-Multipoint setup shown above. If you are attempting to use an addressed protocol where the destination address is always in the same location within the data packet then you can configure the modem to look for this address and route the packet to a specific modem.

To do this you can first configure the modems per the A-B DF1 Radio Modem Protocol (page 8). Next go to the **TELEMETRY** page and enter the number of bytes preceding the address in the data packet in the **MODBUS VARIABLE OFFSET** field and then length of the address in bytes in the **MODBUS VARIABLE LENGTH** field. For example, if the destination address is located in bytes 4 and 5 of the data packet you would enter 3 for the **MODBUS VARIABLE OFFSET** and 2 for the **MODBUS VARIABLE LENGTH**.