APPLICATION NOTE

*Configuring WiBox WBX2100E*

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# Configuring WiBox WBX2100E

*This application note provides the instructions required to configure Lantronix's WiBox for fixed IP Address communication with Campbell Scientific equipment.*

## Getting Started

Before configuring the WiBox, you need the IP address, subnet address, gateway address and wireless settings.

1. Connect one end of the Lantronix's supplied DB9F Null modem cable to the PC and the other end to the RS232 serial 1 port on the WiBox (see Figure 1).



RS232 Serial1 port

9-30vdc port

*Figure 1. Front view (left) and back view of the WiBox.*

2. Open the Device Configuration utility in LoggerNet and select "Unknown" from the device type list (see Figure 2).

3. Set the baud rate to 9600, ensure that the correct COM port is designated, and click Connect (see Figure 2).
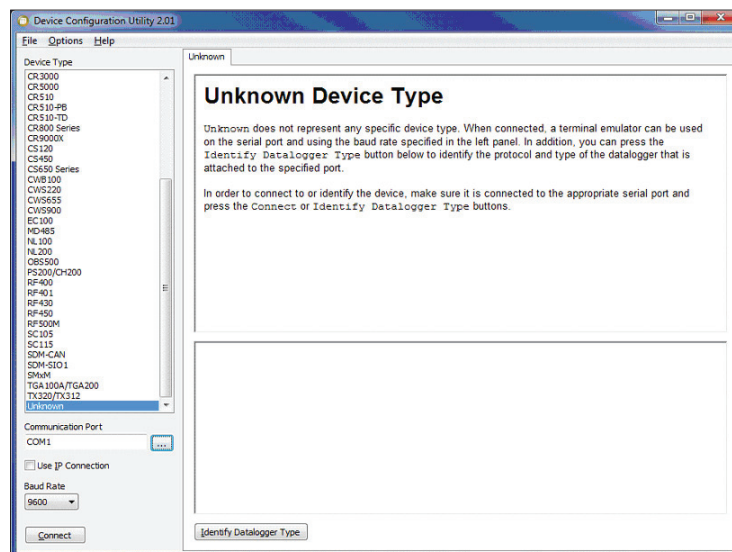


*Figure 2. The Device Configuration screen when Unknown is selected for the Device Type. This screen assumes the WiBox is connected to COM1.*

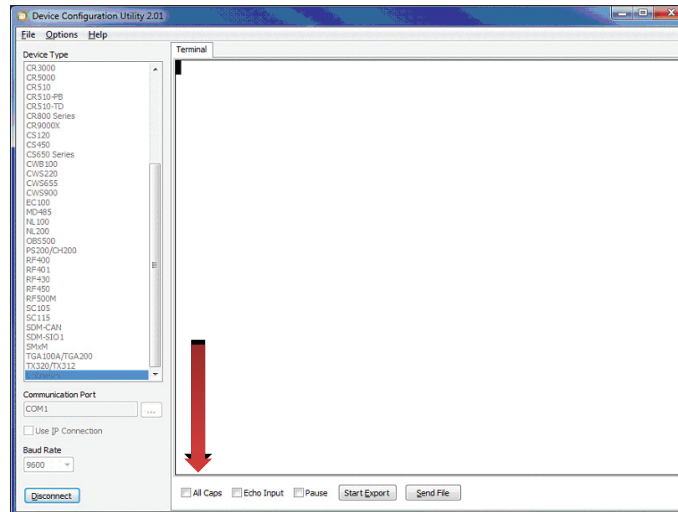4. At bottom of the Terminal window, uncheck "All Caps" (see Figure 3).



*Figure 3. All Caps is unchecked in this Terminal window.*

5. While holding down the x key (use lower case), plug the Lantronix's supplied AC adapter into AC outlet and plug barrel connector into the 6-30vdc plug on the WiBox (see Figure 1). This enters the WiBox's "Serial Mode".

6. Once WiBox is connected in Serial Mode, some basic header information will be displayed in the Terminal window. Press the "Enter" key within 5 seconds to display the current settings and the "Change Setup" menu.

# Setup Server Portion of WiBox

1. Select "0" on the "Change Setup" menu then press "Enter" to configure server settings (see Figure 4).
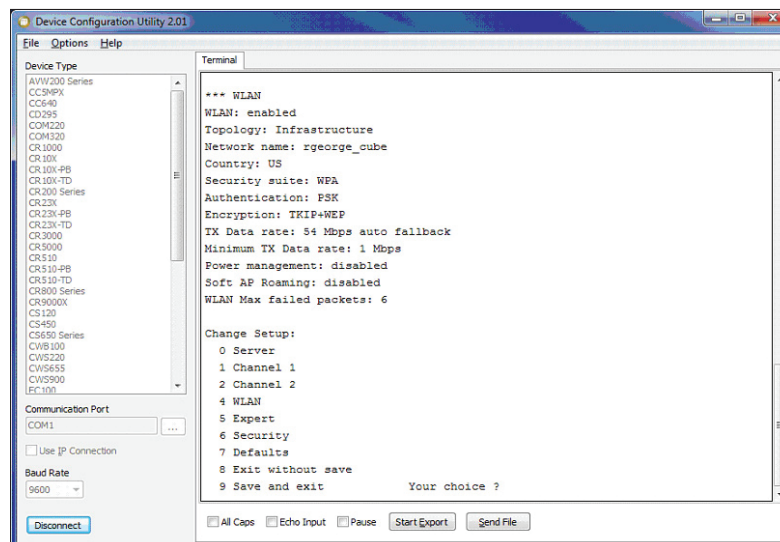


*Figure 4. Terminal window in the serial mode.*

2. Network Mode: select option "1" for wireless only then press "Enter".

3. IP Address:  Enter the predetermined IP address, one octet at a time. (see Figure 5)  Enter numbers only; no punctuation marks.  Press "Enter" after typing each octet.

**NOTE**

*This will be the Internet IP address entered in LoggerNet to access Campbell Scientific datalogger(s) connected to WiBox serial port(s).*
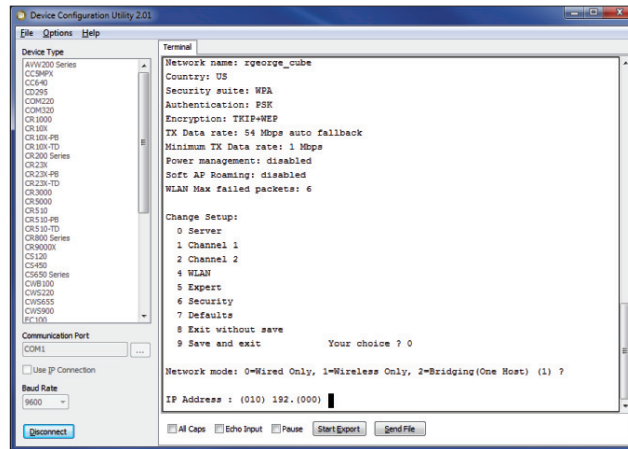


*Figure 5.  IP address (bottom of screen) is entered an octet at a time. Do not type in periods.*

4. Set Gateway Address: Select "Y" then press "Enter" to set the gateway address (IP address of router connected to network).

5. For each octet of the gateway IP address, enter the octet and then press "Enter".

6.  Netmask: Set the Netmask number of bits for host part and then press "Enter" (see Figure 6).  The Netmask must match the WLAN router settings.

Example:          8 bits ⇔ 255.255.255.0
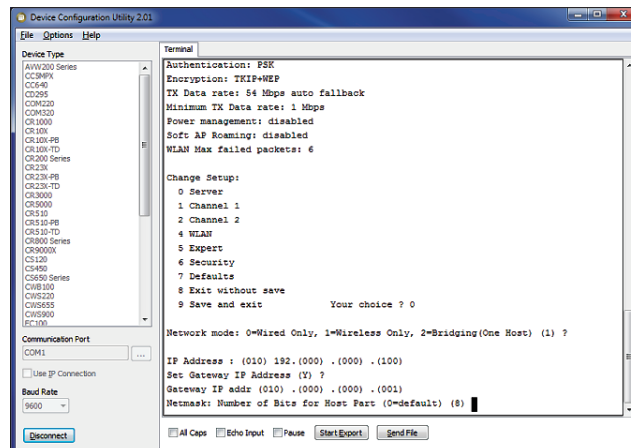                 16 bits ⇔ 255.255.0.0
                 24 bits ⇔ 255.0.0.0



*Figure 6.  A netmask for eight bits is entered above.*

7.  Set DNS Server:  Select default (N) for setting DNS server IP address by pressing the "Enter" key.

8.  Change Telnet: Select default (N) for change telnet config password by pressing "Enter".  The "Change Setup" menu will reappear.

9.  Select option 4 to configure WLAN settings or option "9", and then press "Enter" to save settings and exit setup mode..

# Setup Wi-Fi Portion of WiBox

The WLAN menu selections vary depending on the required security parameters.

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**!** CAUTION    *The security settings MUST match the WLAN router/access point settings exactly.*

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1.  Select option 4 from the "Change Setup" menu to configure WLAN settings.

2.  Topology: Select "0" for Infrastructure mode then press "Enter".

3.  Network Name: Type the name of the WLAN (SSID) then press "Enter".

4.  Security: Choose the Security Setting that matches the WLAN security settings and then press enter "Enter".

    Options are:      0 – none, 1-WEP,  2-WPA, 3-WPA2/IEEE 802.11i

5.  Authentication:  When WEP is enabled, select an authentication scheme.  Select the option that matches your WLAN setting and then press "Enter".

    Authentication:   0 - open, 1- shared

6.  When WEP is enabled, select the encryption type then press "Enter".

    Encryption:      0 – WEP64, 1 – WEP128

7.  Display encryption key: Select "Y" to display current encryption key/passphrase then press enter  "Enter".

8.  If a security key or passphrase is used, enter "Y" to change security key and then press "Enter".

9.  Change Key:  If WEP is used, select "Y" and "Enter" to configure new encryption key/passphrase.

10. Key Type:  Select key type option which matches WLAN settings and press "Enter".

    Key Type:         0 – Hex, 1 – Passphrase (plain type)

11. Enter Key/passphrase that matches the WLAN key/Passphrase then press "Enter".

12. TX Key Index: Use the default key by selecting "1" then press "Enter".

13. TX Data Rate: Use Auto Fallback by selecting "1" then press "Enter".

14. Enable Power Management: Select "Y" and "Enter" to enable power management.

15. Enable Soft AP Roaming: Use default setting of (N) to disable Lantronix's Smart Roam Technology then press "Enter".

16. The "Change Setup" menu will reappear. Select option "9" and "Enter" to save all parameters and exit setup.

# Serial Port Settings

The Factory default serial port settings for the WiBox are 9600 Baud, 8 bits, No Parity, 1 Stop Bit. These settings will work with most Campbell Scientific dataloggers.

**NOTE** *The serial port settings can be changed through the "Change Setup" menu, but requires advanced knowledge of Campbell Scientific dataloggers to ensure compatible settings for specific models of dataloggers.*

Serial Port Number: This number determines which RS-232 Serial port is being accessed. The default settings:

Serial 1 ⇔ 10001
Serial 2 ⇔ 10002

The Serial Port Number is added to the Internet IP Address in LoggerNet to access the Campbell Scientific datalogger connected to the corresponding port.

The example below demonstrates the process of configuring "Setup" to communicate with a CR1000 via WiBox using IP address 10.0.0.100 and WiBox serial port 1 (10001).

In the Setup program, click Add Root and choose IPPort. In the Hardware tab, enter the IP adddress of the WiBox followed by a colon and the desired serial port address of the WiBox.
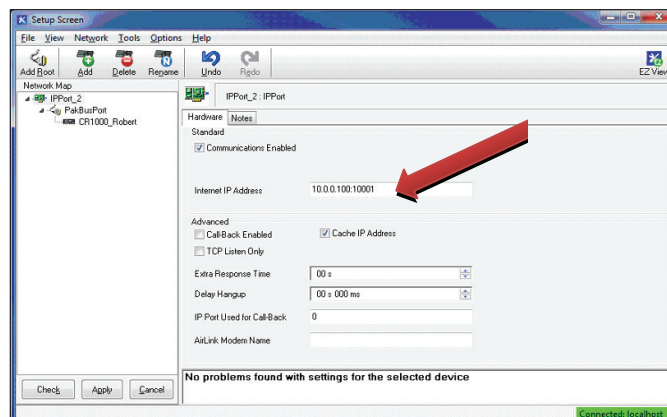
*Figure 7. Arrow indicates where the IP address is entered.*

Next select PakBusPort from the Add Window.

Then Select CR1000 from the Add Window.

This setup uses PakBus Networking so the PakBus Address must match the PakBus address of the CR1000 being accessed (see Figure 8).
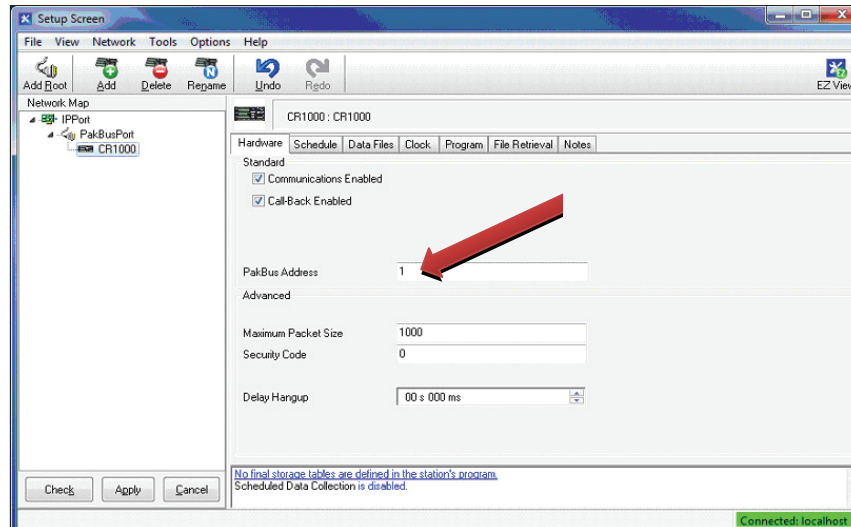


*Figure 8.  The PakBus address must match the PakBus address of the CR1000 being accessed.  The CR1000 in the example has a PakBus address of 1.*

**NOTE**

*Remember to click Apply after entering the IP address and PakBus address.  Changes to settings not applied until the Apply button has been clicked.*

# Datalogger Connection

Option 1:

WiBox Serial 1 ⇔ Null Modem Cable ⇔ datalogger RS-232 port

Option 2:

WiBox Serial 1 ⇔ Null Modem Cable ⇔ SC32B interface ⇔ datalogger CS I/O port

# Network Security

The WiBox has many security settings which are user settable.  These settings are not discussed in this manual and are considered beyond the scope of this basic setup manual.  If network security is an important issue, please consult IT and/or Lantronix for additional help with these settings.