Device Installer User Guide for NET232+

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1. Device Installer

This utility provides users a single application, with a graphical interface and utilizing Microsoft's .NET Framework, to access various configuration functions for networking products utilizing various Embedded Device Server modules. This makes it easy to perform initial setup, IP address assignment, and configuration changes.

1.1 Installation Notes

1.1.1 Changes from Device Installer Version 4.3.0.7 to 4.4.0.0

See the release notes in the release.txt file located in C:\Program Files\Lantronix\DeviceInstaller4.4.

Notes:

1. Multiple devices cannot be upgraded at the same time.

2. Location of Custom Web Pages cannot be specified on the devices that support this feature.

3. If a device is set with DHCP enabled and AutoIP disabled and there is no DHCP server on the network, DeviceInstaller will not be able to discover the device.

4. Some devices will not connect correctly via the embedded Web Browser. These devices need a different Java Virtual Machine. Either use an external browser for these cases or perform the tasks described in the release.txt file.

1.1.2 Upgrade

When upgrading to Version 4.4, please note the following changes:

- The software was converted from dependence on .NET Framework 2.0 to .NET Framework 4.0.

1.1.3 Installation

The installation of DeviceInstaller 4.4 will not uninstall DeviceInstaller 2.0, 3.x, 4.1, 4.2, etc.

To uninstall the DeviceInstaller utility manually, follow these steps:

1. Select Settings->Control Panel from the taskbar Start menu.
2. Double click on the Add/Remove Programs icon.
3. Under the Install/Uninstall tab, select DeviceInstaller in the Software list and then click Add/Remove. Follow the prompts. (Note: DeviceInstaller was the default Program Folder specified in the installation process.)

1.1.4 Requirements

The following items are required to run Device Installer:

1. x86: XP/2003 Server/Vista/Windows 7/Windows 8/2008 Server
   x64: Vista/Windows 7/Windows 8/2008 Server
2. Microsoft .NET Framework v4.0
3. Microsoft Internet Explorer 5.1 or later
4. 30MB free hard drive space

Device Installer is distributed in a single image as a self-extracting executable. The application installation directory defaults to C:\Program Files\Lantronix\DeviceInstaller4.4, unless another folder is selected during the installation process. A shortcut to this application is created on the Start/Programs menu.

Note: If Microsoft .NET Framework v4.0 or later is not installed on your system, you will be prompted to install it before Device Installer is installed. It comes installed on Windows 7.

1.1.5 Windows XP and Vista

The "Internet Connection Firewall" must be disabled, or else UDP Port 30718 must be available. Otherwise, you will not be able to detect or communicate with any devices on the network.

To configure, go to the Control Panel, go to Network Settings, select the corresponding network adapter, choose Properties, and go to the Advanced tab.

1.1.6 Microsoft NET Framework

Microsoft .NET is the Microsoft strategy for connecting systems, information, and devices through Web services so people can collaborate and communicate more effectively. .NET technology is integrated throughout Microsoft products, providing the capability to quickly build, deploy, manage, and use connected, security-enhanced solutions through the use of Web services.

Web services are small, reusable applications that help computers from many different operating system platforms work together by exchanging messages. Web services are based on industry protocols that include XML (Extensible Markup Language), SOAP (Simple Object Access Protocol), and WSDL (Web Services Description Language). These protocols help computers work together across platforms and programming languages.

Device Installer uses .NET Framework to adapt embedded servers for Web services. Your system must have .NET Framework installed for Device Installer to work properly. Installation options are included on the software CD.

1.2 Device Installer

Device Installer is a utility for locating and configuring device servers such as the NET232, NET232+, NET485, and Wi232. You can view device parameters, save a device list, run a simple diagnostic and recover or upgrade firmware. See the help file for additional information.

1.2.1 Install Device Installer

5. Insert the product CD into your CD-ROM drive. The CD will automatically start and display the main window.

   If the CD does not launch automatically:

   a) Locate your CD Drive. Example: CD-RW Drive (D:)

   b) Double-click on **autorun.exe** to start the CD browser.

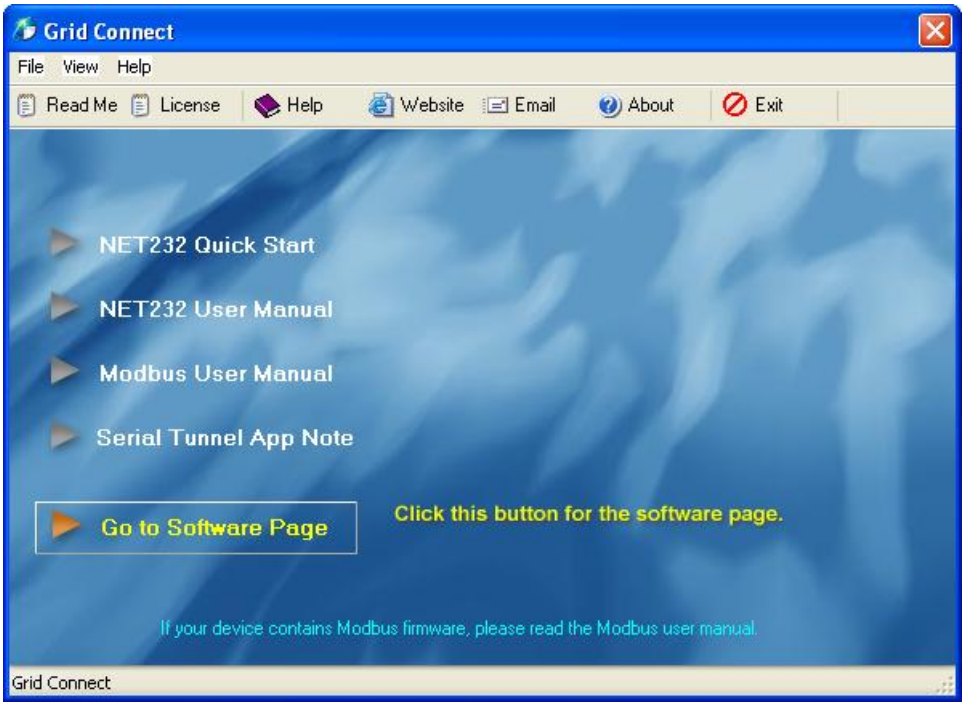


Figure 1 - Software CD Main Window

6. Click the **Go to Software Page** button to go to the software installation page.
7. Click the **Device Installer** button. The installation wizard window displays.
8. Respond to the installation wizard prompts.
9. Restart your system.

1.2.2 RUN Device Installer

Click the Start button on the Task Bar and select Programs\Lantronix\DeviceInstaller 4.4. From the list of options, select DeviceInstaller.

The Device Installer main dialog box appears. The NET232+, which uses an xPico embedded device server, appears in the dialog box as an xPico.

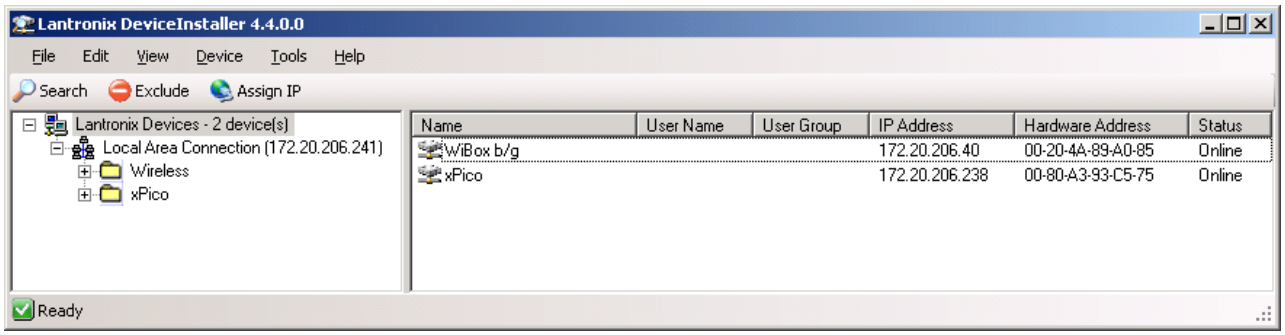
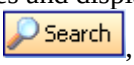


Figure 2 - Device Installer Dialog Box

Device Installer automatically locates and displays devices on the network. To search for devices recently added to the network, click the icon 

, select **Search** from the **Device** menu or press the **F5** key.

1.2.3 Device Found

Figure 2 shows a device (or devices) found on the network, with the IP addresses assigned by the DHCP server. The device IP Address is set to 0.0.0.0 at the factory, which enables the DHCP software. It is important to remember that the DHCP address is temporary.

The Hardware Address is an individual permanent address assigned to a particular device on the network. The Hardware Address can be found on the product label.

To change the IP address, first select the device from the list. (Click on it)

*Note: the **Upgrade** icon appears on the toolbar when you select a device.*

1.2.4 Assign IP

Click the **Assign IP** icon 

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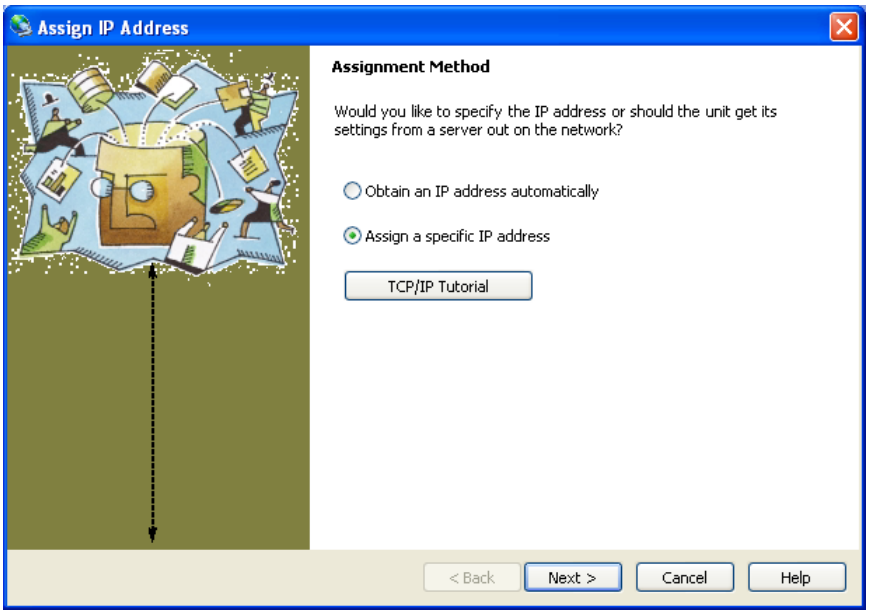
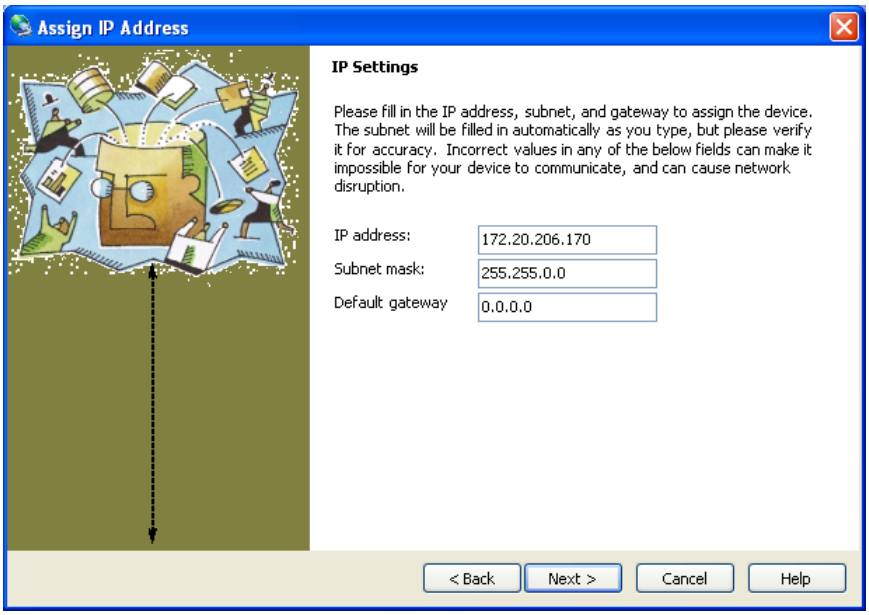
*You can also select **Assign IP Address** from the **Device** menu or press the **F7** key. To use the Web Manager page option, go to Starting Web Manager on page 1-11.*



Select the **Assign a specific IP address** option in the dialog box. Click **Next** to continue.

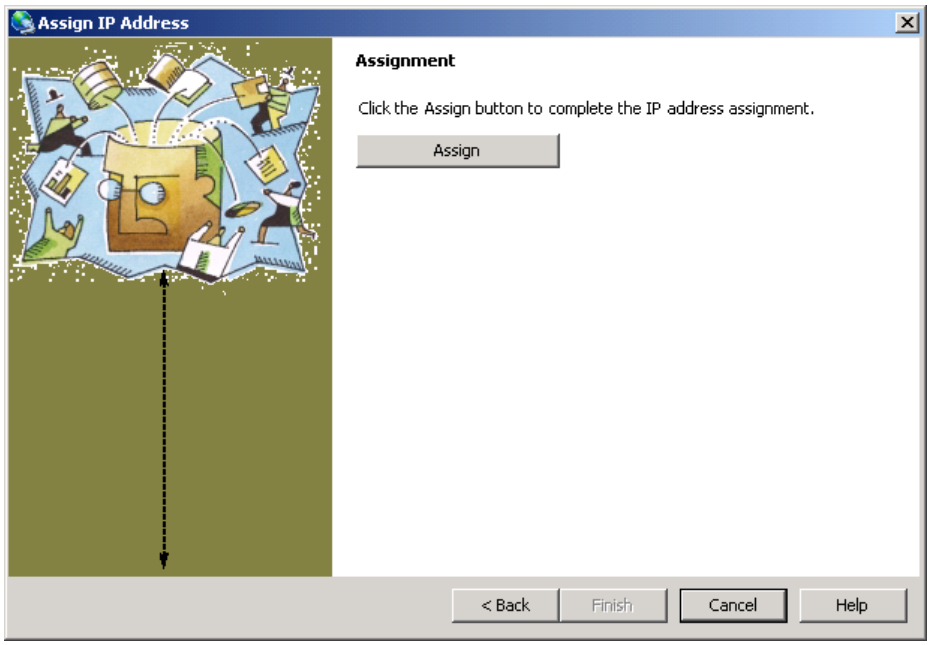
Enter the **IP address**, the **Subnet mask** and the **Default gateway** in the IP Settings dialog box. Click Next to continue.

In the following example, the new IP address is 172.20.206.170. Press the TAB key to advance to the next field. The Subnet mask will be filled in automatically. On a local network, you can leave the Default gateway blank (all zeros). Click the **Next** button to continue.



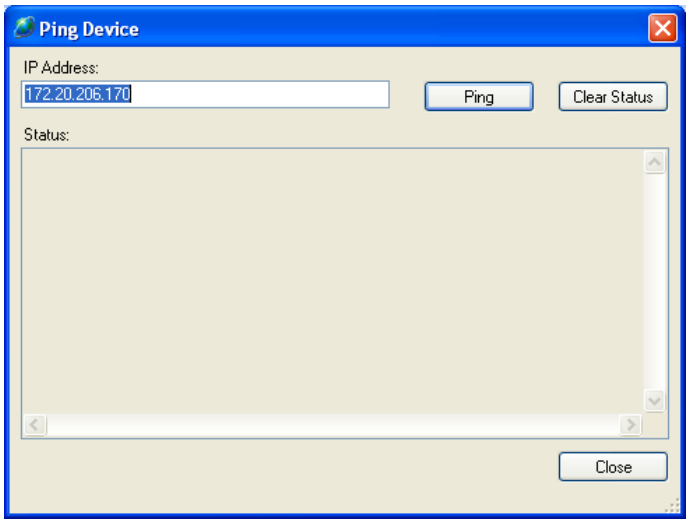
1.2.5 Assignment

Click the **Assign** button and wait until the progress bar shows the task is complete.

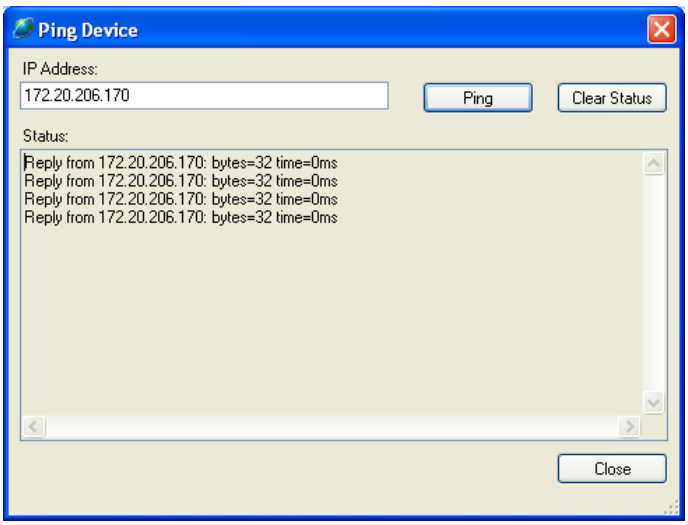


Click the **Finish** button to return to the main Device Installer dialog.

Select the device from the main window list and select **Ping** from the **Tools** menu. The Ping Device dialog box shows the IP address of the selected unit.



Click the **Ping** button. The results display in the Status window. Click the **Clear Status** button to clear the window so you can ping the device again.



Note: *If you do not receive "Reply" messages, make sure the unit is properly attached to the network and that the IP address assigned is valid for the particular network segment you are working with. If you are not sure, check with your systems administrator.*

Click the **Close** button to finish.

1.3 Using Device Installer

Device Installer is used to locate embedded device servers on your network.

Double-click one of the devices listed in the Device Installer window to display the expanded window shown in Figure 3 - Device Installer. The **Device Details** tab is automatically selected and will display information about the selected device.

See Viewing the Current Configuration on page 1-10 for more details.

To configure the unit using a Web browser, click on the **Web Configuration** tab.

See Configuration Using Web Manager on page 1-11.

To configure the unit using a Telnet connection, click on the Telnet Configuration tab. See the hardware product user manual for details.

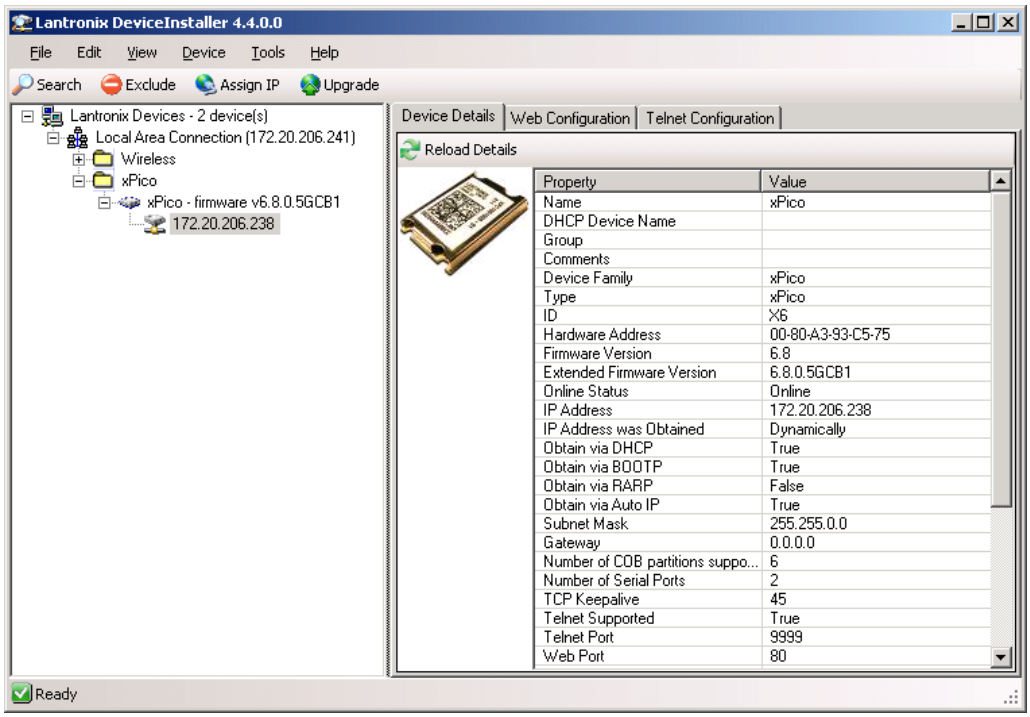


Figure 3 - Device Installer

1.3.1 Viewing the Current Configuration

Device Installer provides a view of the unit's configuration. To view the unit's current settings:

1. Follow the instructions above to locate the device.

2. In the right pane, click the **Device Details** tab. The current device configuration displays:

Name	Configurable field. A name that identifies the Device. Double-click the field, type in the value, and press Enter to complete. This name is not visible on other PCs or laptops using DeviceInstaller.
DHCP Device Name	Non-configurable field. Displays the name associated with the selected device server's current IP address, if the IP address was obtained dynamically. To change the DHCP device name, see Configuration Using Web Manager or Configuration Via Telnet or Serial Port (Setup Mode).
Group	Configurable field. A group name to categorize the Device. Double-click the field, type in the value, and press Enter to complete. This group name is not visible on other PCs or laptops using DeviceInstaller.
Comments	Configurable field. Information about the Device. Double-click the field, type in the value, and press Enter to complete. This description or comment is not visible on other PCs or laptops using DeviceInstaller.
Device Family	Non-configurable field. Displays the device family type. Note: The Device Family name is the name of the embedded device server, not the Grid Connect product name.
Type	Non-configurable field. Displays the device type.
ID	Non-configurable field. Displays the Device ID embedded within the box.
Hardware Address	Non-configurable field. Displays the Device hardware (or MAC) address.
Firmware Version	Non-configurable field. Displays the firmware currently installed on the Device.
Extended Firmware Version	Non-configurable field. Displays the full version nomenclature of the firmware.
Online Status	Non-configurable field. Displays the Device status as online, offline, unreachable (the Device is on a different subnet), or busy (the Device is currently performing a task).
IP Address	Non-configurable field. Displays the Device current IP address.
IP Address was Obtained	Non-configurable field. Indicates whether the current IP address on the Device was set manually or assigned by DHCP.
Obtain via DHCP	
Obtain via BOOTP	
Obtain via RARP	
Obtain via Auto IP	
Subnet Mask	Non-configurable field. Displays the Device current subnet mask.
Gateway	Non-configurable field. Displays the Device current gateway.
Number of COB partitions supported	Non-configurable field. Displays the number of COB partitions supported.
Number of Serial Ports	Non-configurable field. Displays the number of ports on the Device.
TC P Keepalive	Non-configurable field. Displays 1-65s, the Device TCP keepalive value. The default setting is 45.
Telnet Supported	Non-configurable field. Permits Telnet sessions.
Telnet Port	Non-configurable field. Displays the Device port for telnet sessions.
Web Port	Non-configurable field. Displays the Device port for Web Manager configuration.
Maximum Baud Rate Supported	Non-configurable field. Displays the Device maximum baud rate. Note: the Device may not currently be running at this rate.
Firmware Upgradeable	Non-configurable field. Displays True, indicating the Device firmware is upgradeable as newer version become available.
Supports Configurable Pins	Non-configurable field. Displays True, indicating configurable pins are available on the Device.
Supports Email Triggers	Non-configurable field. Displays True, indicating email triggers are available on the Device.
Supports AES Data Stream	Non-configurable field. Displays True if the Device unit supports AES encryption.
Supports 485	Non-configurable field. Displays True if the Device supports the RS-485 protocol.
Supports 921K Baudrate	Non-configurable field. Device supports baud rates up to 920 Kbps.
Supports HTTP Server	Non-configurable field. Device supports HTTP Server
Supports HTTP Setup	Non-configurable field. Device supports HTTP setup.
Supports 230K Baud Rate	Non-configurable field. Device supports a baud rate of 230 Kbps.
Supports GPIO	Non-configurable field. Device supports GPIO

Note: Not all options are implemented in the hardware. Example: the device might have two serial ports but only one is used in the hardware configuration.

1.4 Configuration Using Web Manager

You must configure the unit so that it can communicate on a network with your serial device. For example, you must set the way the unit will respond to serial and network traffic, how it will handle serial packets, and when to start or close a connection.

The unit's configuration is stored in nonvolatile memory and is retained without power. You can change the configuration at any time. The unit performs a reset after you change and store the configuration.

In this chapter, we describe how to configure the device server using Web-Manager, a browser-based configuration tool.

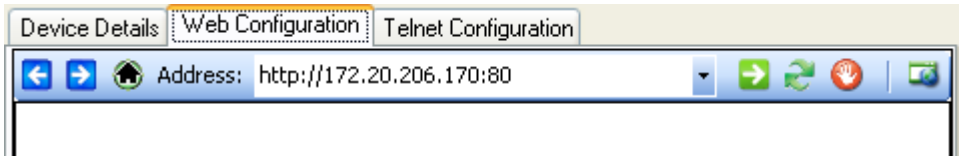
Note: *The examples in this section show a typical device. Your device may have different configuration options. Help button may not appear in later versions.*

1.4.1 Starting Web Manager

Note: *Make note of the hardware (MAC) address on the product label. You will need it to locate the device server using DeviceInstaller.*

Follow the instructions on the product CD to install and run DeviceInstaller.

1. Click Start/Programs/DeviceInstaller 4.4/DeviceInstaller.
2. Click the Search icon. The list of device servers displays.
3. Double-click one of the items in the list. The window will expand to display three tabs.
4. Click the Web Configuration tab.

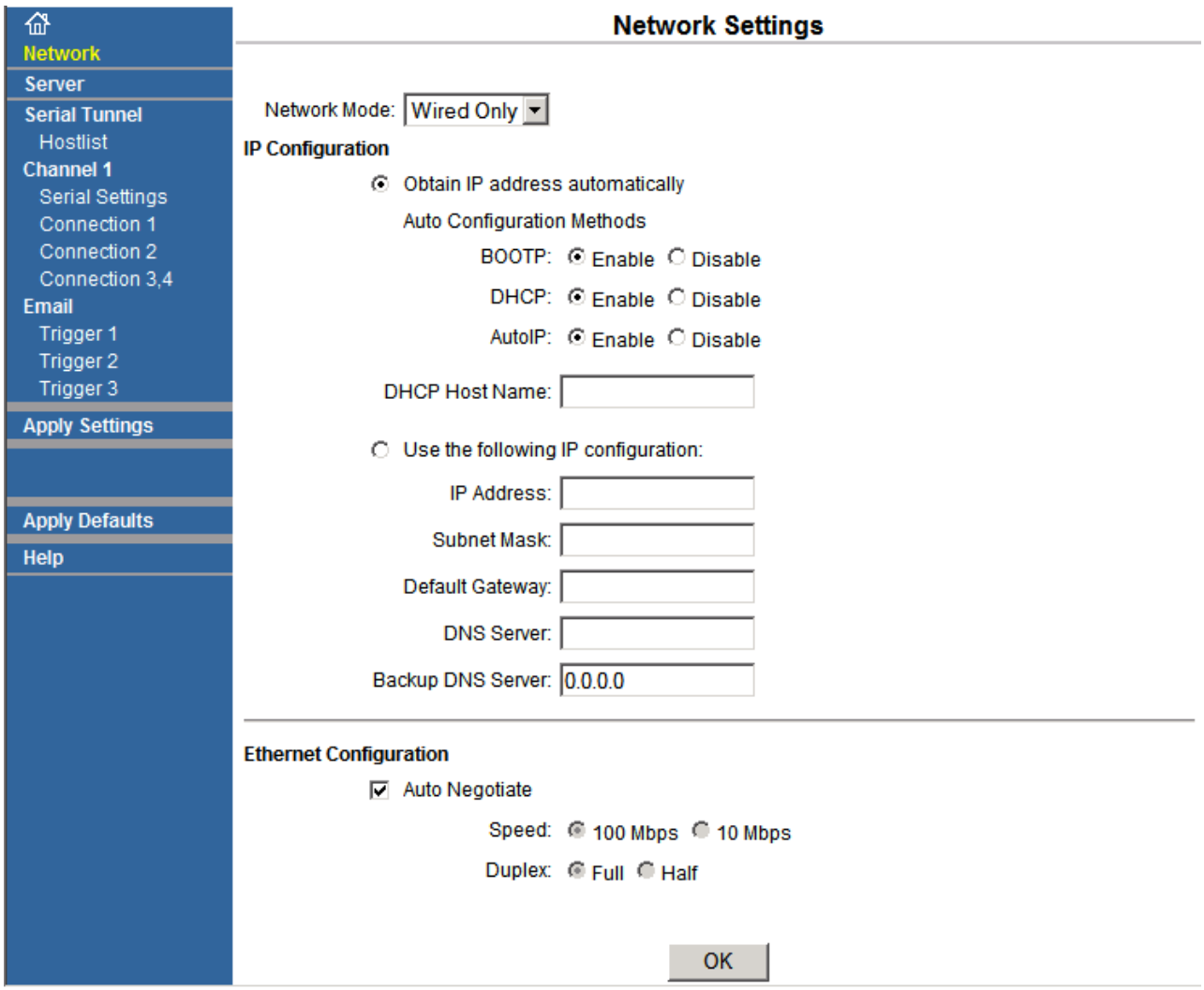


5. To view the Web-Manager in the current DeviceInstaller window, click the **Navigate** icon . To open the Web-Manager in a web browser, click the **External Browser** icon .
6. **If a password window appears, press Enter.**

1.5 Network Configuration

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support. Click on the GridConnect logo for a link to Grid Connect web page.

The unit's network values display when you select **Network** from the main menu. The following sections describe the configurable parameters on the Network Settings page.



1.5.1 Network Mode

Select Wireless Only to enable only the wireless network. Select Wired Only to enable only the Ethernet network connectivity. Select Bridging to enable bridging. For a product that does not support Wifi, Wired Only is the only choice.

1.5.2 Automatic IP Address Configuration

An IP address can be assigned automatically. You then enter related network settings.

To assign an IP address automatically:

1. On the main menu, click **Network**.
2. Select **Obtain IP address automatically**.
3. Enter the following (as necessary):

BOOTP	Select **Enable** to permit the Bootstrap Protocol (BOOTP) server to assign the IP address from a pool of addresses automatically. **Enable** is the default.
DHCP	Select **Enable** to permit the Dynamic Host Configuration Protocol (DHCP) to assign a leased IP address to the unit automatically. **Enable** is the default.

AutoIP	Select **Enable** to permit the unit to generate an IP in the 169.254.x.x address range with a Class B subnet. **Enable** is the default.
DHCP Host Name	Enter the name of the host on the network providing the IP address.

Note: Disabling BOOTP, DHCP, and AutoIP (all three checkboxes) is not advised as the only available IP assignment method will then be ARP or serial port.

4. When you are finished, click the **OK** button.

5. On the main menu, click **Apply Settings.**

1.5.3 Static IP Address Configuration

You manually assign an IP address to the unit and enter related network settings.

To assign an IP address manually:

1. On the main menu, click **Network.**

2. Select **Use the following IP configuration.**

3. Enter the following (as necessary):

IP Address	If DHCP is not used to assign IP addresses, enter it manually in decimal-dot notation. The IP address must be set to a unique value in the network.
Subnet Mask	A subnet mask defines the number of bits taken from the IP address that are assigned for the host part.
Default Gateway	The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. The gateway address must be within the local network.
DNS Server	The DNS server allows the name of a remote machine to be resolved automatically. Enter the IP address of the DNS server. If the device is DHCP enabled, the DHCP server provides the DNS server IP address, which will override this configured value.
Backup DNS Server	The Backup DNS server allows the name of a remote machine to be resolved in cases where the primary DNS server is unavailable. Enter the IP address of the Backup DNS server. If the device is DHCP enabled, the backup DNS server will be used if the primary DNS server supplied by the DHCP server is unavailable or unable to resolve the name.

4. When you are finished, click the **OK** button.

5. On the main menu, click **Apply Settings.**

1.5.4 Ethernet Configuration

You must specify the speed and direction of data transmission.

To specify how data will be transmitted:

1. On the main menu, click **Network**.

2. Enter the following (as necessary):

Auto Negotiate	With this option, the Ethernet port auto-negotiates the speed and duplex with the hardware endpoint to which it is connected. This is the default. If this option is not selected, then complete the fields that become available: **Speed:** The speed of data transmission. The default is **100 Mbps.** **Duplex:** The direction of data transmission. The default is **Full.**

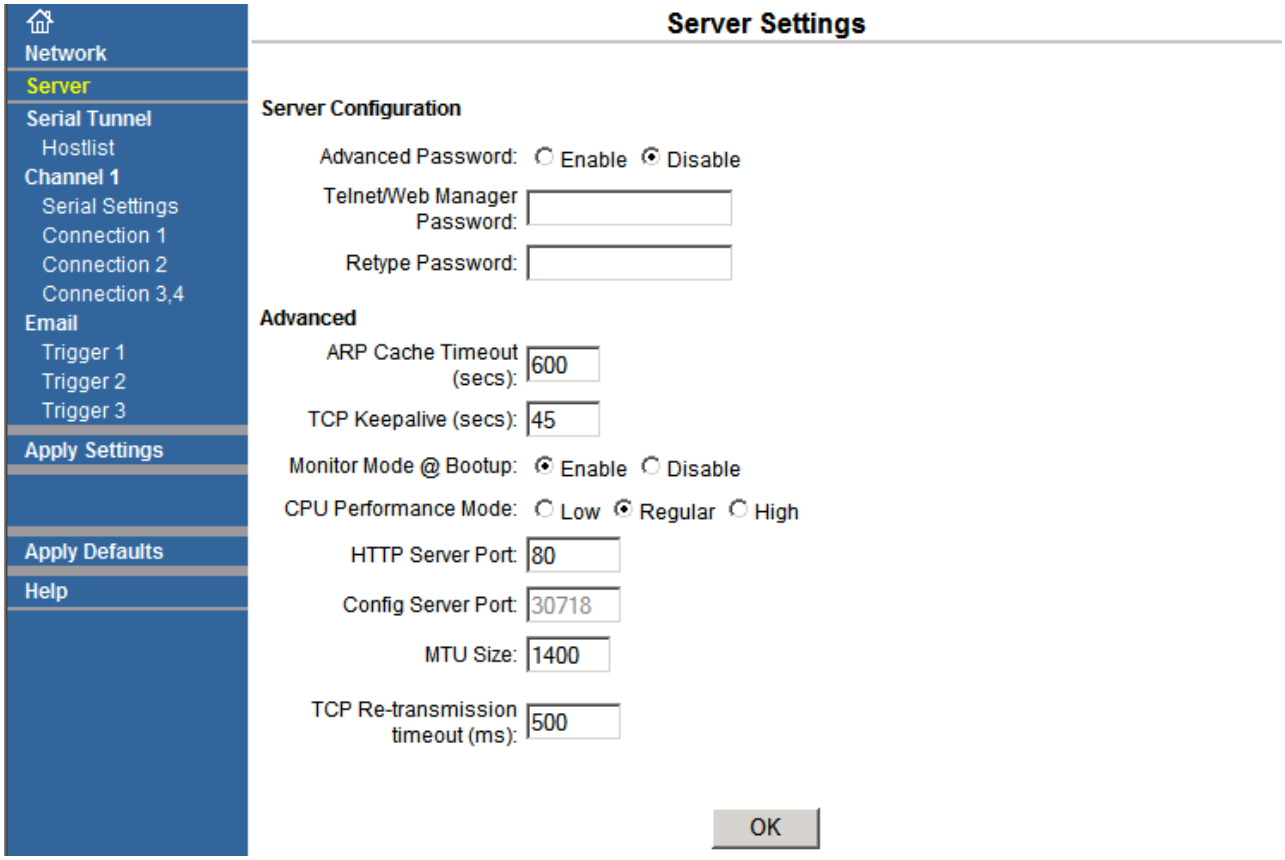
3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings**.

1.6 Server Configuration

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

The unit's server values display when you select **Server** from the main menu. The following sections describe the configurable parameters on the Server Settings page.



To configure the device server settings:

1. On the main menu, click **Server**.

2. Configure or modify the following fields:

Server Configuration

Advanced Password	Select whether to enable advanced password: **Enable:** selecting this option enables advanced password creation, allowing you to create passwords up to 16 bytes in length. **Disable**: selecting this option disables advanced password creation, allowing you to create basic passwords up to 4 bytes in length.
Telnet/Web Manager Password	Enter the password required for Telnet configuration and Web Manager access. No password or entering a "blank" password entry will disable default password protection.
Retype Password	Re-enter the password required for Telnet configuration and Web Manager access.

Advanced

ARP Cache Timeout	When the unit communicates with another device on the network, it adds an entry into its ARP table. ARP Cache timeout defines the number of seconds (1-600) before it refreshes this table.
TCP Keepalive	TCP Keepalive time defines how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it drops that connection. Enter a value between 0 and 60 seconds. **0** disables keepalive. Default setting is **45**.
Monitor Mode @ Bootup	Select Disable to disable entry into the monitor mode using the 'yyy' or 'xx1' key sequence at startup. This field prevents the unit from entering monitor mode by interpreting the stream of characters that are received during the device server's initialization at startup.
CPU Performance Mode	Select the performance mode. Higher performance settings require more energy. **Low** is 26 MHz. **Regular** is 48 Mhz, **High** is 88 Mhz. The default is **Regular.**
HTTP Server Port	This option allows the configuration of the web server port number. The valid range is **1-65535**. The default is **80**.
Config Server Port	(Grayed out for some products) Default setting of 30718.
MTU Size	The Maximum Transmission Unit (MTU) is the largest physical packet size a network can transmit for TCP and UDP. Enter between **512** and **1400** bytes. The default is **1400** bytes.
TCP Re-transmission timeout (ms)	The desired TCP re-transmission timeout value. If the ACK is not received for a packet sent from the EDS device, then the unit will retransmit the data. The valid range is **500-4000** msec. The default is **500.**

3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings.**

1.7 Host List Configuration

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

The NET232+ scrolls through the host list until it connects to a device listed in the host list table. After a successful connection, the unit stops trying to connect to any others. If this connection fails, the unit continues to scroll through the table until the next successful connection.

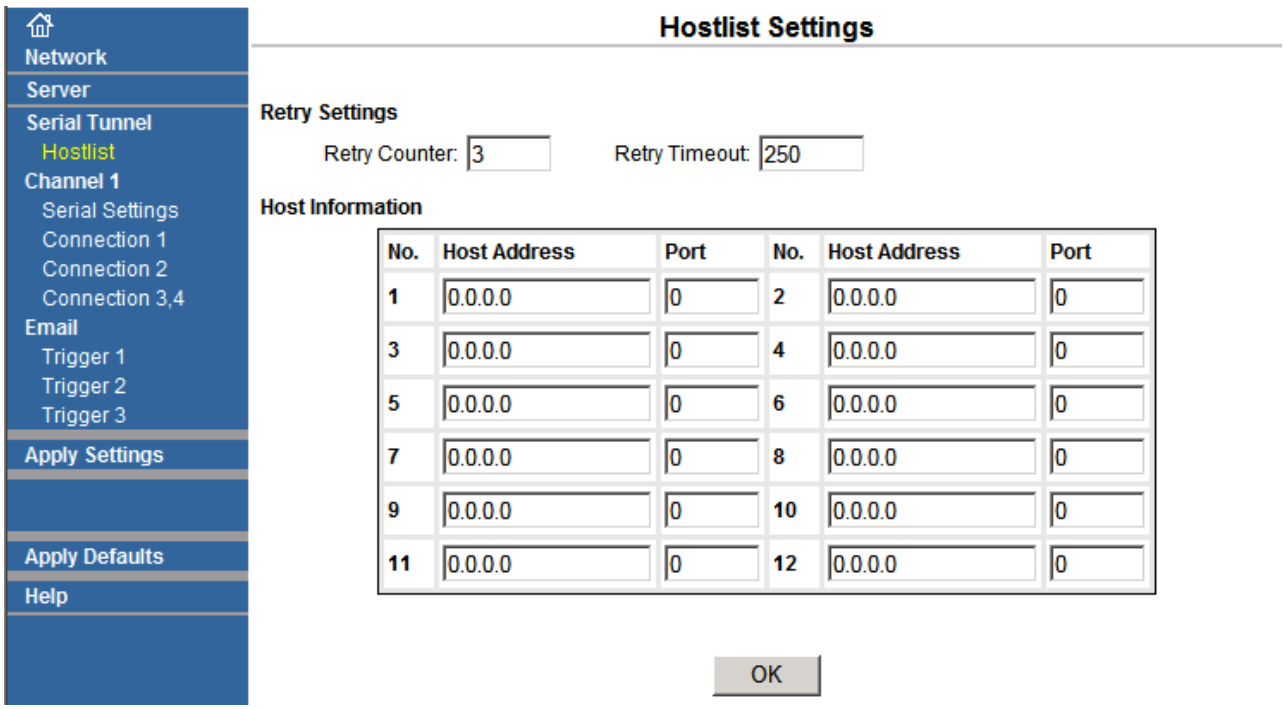
The host list supports a minimum of 1 and a maximum of 12 entries. Each entry contains an IP address and a port number.

Note: *The host list is disabled for Manual and Modem Mode. The unit does not accept a data connection from a remote device when the hostlist option is enabled.*

Note: Do NOT use the Hostlist when trying to setup a Tunnel Mode configuration.

To configure the host list:

1. On the main menu, click **Hostlist.**



2. Enter or modify the following fields:

Retry Settings

Retry Counter	Enter the value for the number of times the unit should attempt to retry connecting to the host list.
Retry Timeout	Enter the duration (in seconds) the unit should abandon attempting a connection to the host list.

Host Information

Host Address	Enter or modify the host's IP address.
Port	Enter the target port number.

3. When you are finished, click the **OK button.**

4. On the main menu, click **Apply Settings.**

1.8 Channel 1 Configuration

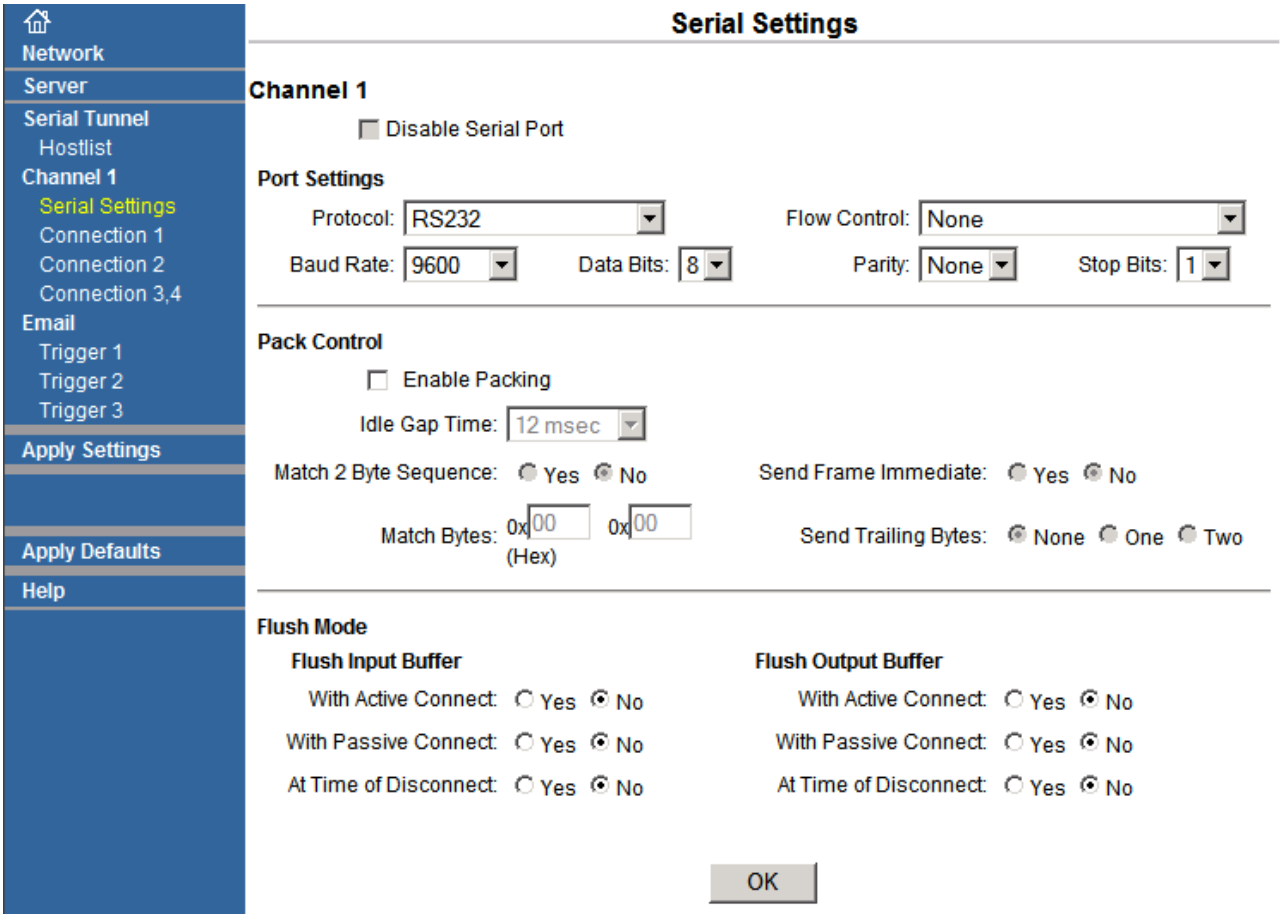
Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

The Channel 1 configuration defines how the serial port responds to network and serial communication.

1.8.1.1 Serial Settings

To configure the channel's serial settings:

1. On the main menu, click **Serial Settings** (under **Channel 1**) to display the Serial Settings window.



2. In the available fields, enter the following information:

Channel 1

Disable Serial Port	When selected, disables communication through the serial port. The serial port is enabled by default. This feature is not available on single port device servers, since it can only be applied to channel 1.

Port Settings

Protocol	From the drop-down menu, select the protocol type for the selected channel. The default setting is **RS232**.
Flow Control	Flow control manages data flow between devices in a network to ensure it is processed efficiently. Too much data arriving before a device is prepared to manage it causes lost or retransmitted data. **None** is the default.
Baud Rate	The unit and attached serial device, such as a modem, must agree on a speed or baud rate to use for the serial connection. Valid baud rates are 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, and 230400 baud. Additionally, 921 600 and 460800 baud rates are available when CPU is set to High. The default setting is **9600.**
Data Bits	Indicates the number of bits in a transmitted data package. The default is **8**.
Parity	Checks for the parity bit. The default is **None**.
Stop Bits	The stop bit follows the data and parity bits in serial communication. It indicates the end of transmission. The default is **1.**

Pack Control

Enable Packing	Select to enable packing. Two firmware-selectable packing algorithms define how and when packets are sent to the network. The standard algorithm is optimized for applications in which the unit is used in a local environment, allowing for very small delays for single characters, while keeping the packet count low. The alternate packing algorithm minimizes the packet count on the network and is especially useful in applications in a routed Wide Area Network (WAN). Adjusting parameters in this mode can economize the network data stream. Disabled by default.
Idle Gap Time	Select the maximum time for inactivity. The default time is **12** milliseconds.
Match 2 Byte Sequence	Use to indicate the end of a series of data to be sent as one group. The sequence must occur sequentially to indicate end of the data collection. The default is **No.**
Match Bytes	Use to indicate the end of a series of data to be sent as one group. Set this value to **00** if specific functions are not needed.
Send Frame Immediate	After the detection of the byte sequence, indicates whether to send the data frame or the entire buffer. Select **Yes** to send only the data frame. The default is **No**.
Send Trailing Bytes	Select the number of bytes to send after the end-of-sequence characters. The default is **None**.

Flush Input Buffer (Serial to Network)

With Active Connect	Select **Yes** to clear the input buffer with a connection that is initiated from the device to the network. The default is **No**.
With Passive Connect	Select **Yes** to clear the input buffer with a connection initiated from the network to the device. The default is **No**.
At Time of Disconnect	Select **Yes** to clear the input buffer when the network connection to or from the device is disconnected. The default is **No.**

Flush Output Buffer (Network to Serial)

With Active Connect	Select Yes to clear the output buffer with a connection that is initiated from the device to the network. The default is **No.**
With Passive Connec	Select Yes to clear the output buffer with a connection initiated from the network to the device. The default is **No**.
At Time of Disconnect	Select Yes to clear the output buffer when the network connection to or from the device is disconnected. The default is **No.**

3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings**.

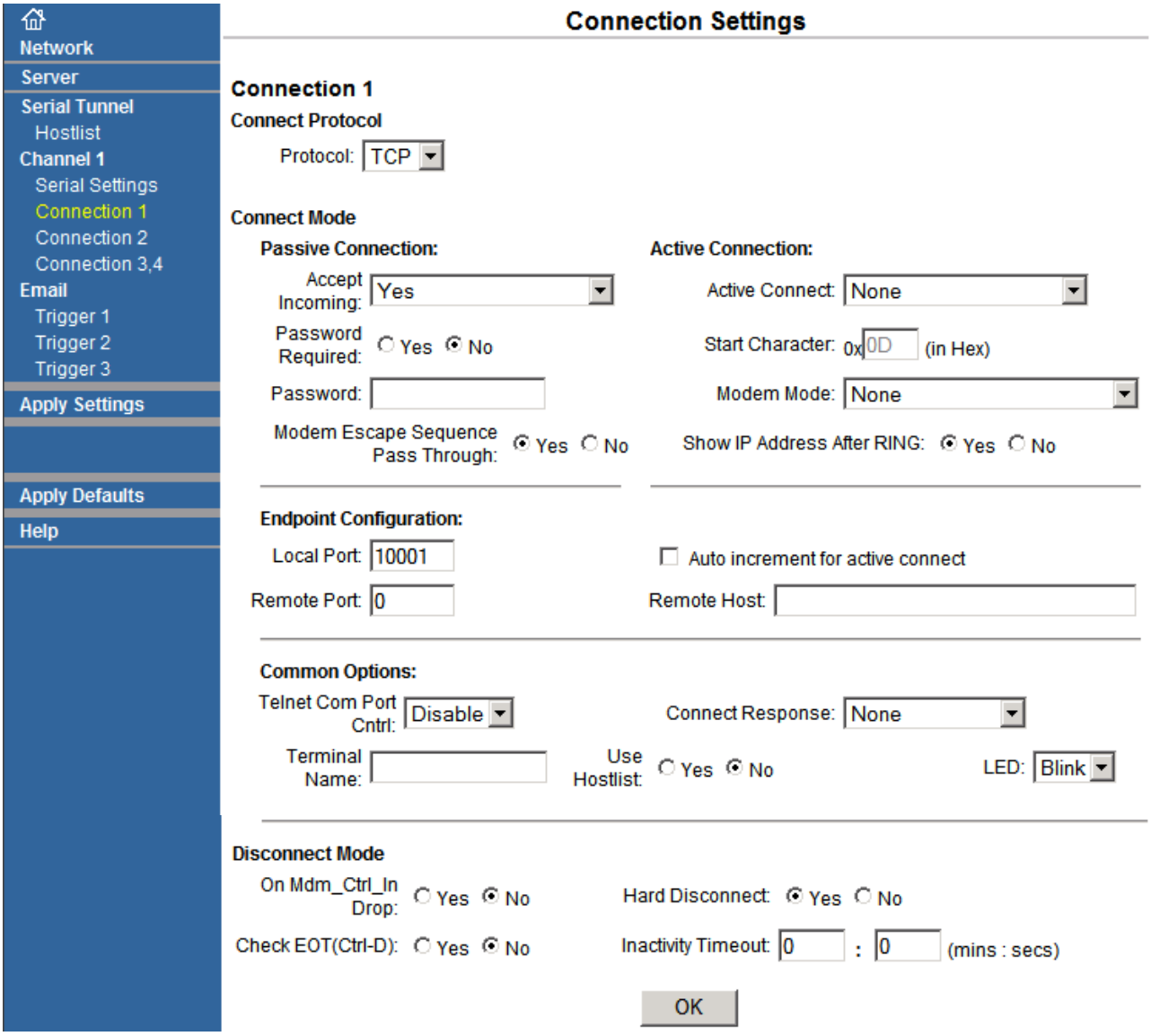
1.8.2 Connection Settings - TCP

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

The NET232+ comes with Enhanced firmware, which supports a maximum of 4 TCP connections. Connection 1 and Connection 2 supply serial data in both directions. Connection 3,4 only provides access to serial receive data and supports a passive TCP connection only.

To configure Channel 1 Connection 1 or Connection 2 TCP settings:

1. On the main menu, click **Connection 1 (or Connection 2)**. The Connection Settings window for the connection displays.



2. In the available fields, enter or modify the following information:

Connect Protocol

Protocol	From the drop-down menu, select **TCP**.

Connect Mode: Passive Connection

Accept Incoming	Select **Yes** to accept incoming connections. The default setting is **Yes.** . Otherwise, indicate the connection type from the drop-down list: **No:** Never accepts external connection requests. **With Active Mdm Ctrl In:** Accepts external connection requests only when the Modem Control In input is asserted.
Password Required	Determines whether a password is required for an incoming passive connection. This field is not available when a password is set for Telnet mode. The default setting is **No**. *Note: Connection 3,4 cannot be protected with a password.*
Password	If **Password Required** was set to **Yes**, enter the password for passive connections.
Modem Escape Sequence Pass Through	Disable or enable the units ability to send the escape sequence. The default is **Yes** (send the escape sequence).

Connect Mode: Active Connection

Active Connect	Select **None** to disable **Active Connect.** Otherwise, indicate the connection type from the drop-down list: - **With Any Character**: Attempts to connect when any character is received from the serial port. - **With Active Mdm Ctrl In**: Accepts external connection requests only when the **Modem_Control_In** input is asserted. - **With Start Character**: Attempts to connect when it receives a specific start character from the serial port. The default start character is carriage return. - **Manual Connection**: Attempts to connect when directed by a command string received from the serial port. - **Auto Start**: Automatically connects to the remote IP address and port after booting up.
Start Character	If Active Connect is set to **With Start Character**, enter the start character in this field. The default setting is **0D**.
Modem Mode	Indicates the on-screen response type when in Modem Mode (if **Modem Mode** is enabled). The default setting is **None**.
Show IP Address After RING	Select Yes or No. Default is **Yes**.

Endpoint Configuration

Local Port	Enter the local port number. Default is 10001 for Connection 1 and 10002 for Connection 2, and 10003 for Connection 3,4. The port numbers can also be set to the same number for all connections especially if they all offer the same services.
Auto increment for active connect	Select to auto-increment the local port number for new outgoing connections. The range of auto-incremented port numbers is **50,000 to 59,999** and loops back to the beginning when the maximum range is reached.
Remote Port	Enter the remote port number.
Remote Host	Enter the IP address of the remote device. Using a domain name requires configuration of a DNS server.

Common Options

Telnet Com Port Cntrl	This field is available for configuration only when **Active Connect** is set to **None**. Select **Enable** to permit Telnet communication to the unit. The **Telnet Com Port Cntrl** feature is used in conjunction with the Com Port Redirector (CPR) utility. (See the CPR online Help for details.)
Terminal Name	This field is available for configuration only when **Telnet Com Port Cntrl** is set to **Enable**. Use the terminal name for the Telnet terminal type. Enter only one name. When this option is enabled, the unit also reacts to the end of record (EOR) and binary options, which can be used for application such as terminal emulation to IBM hosts.
Connect Response	A single character is transmitted to the serial port when there is a change in connection state. Default setting is **None.**
Use Hostlist	If this option is set to **Yes**, the device server scrolls through the host list until it connects to a device listed in the host list able. Once it connects, the unit stops trying to connect to any others. If this connection fails, the unit continues to scroll through the table until it connects to another IP in the host list. The host list is disabled for Manual Mode and for Modem Mode. The unit will not accept a

	data connection from a remote device when the host list option is enabled. Default setting is No.
LED	Select **Blink** for the status LEDs to blink upon connection or **None** for no LED output. The default setting is **Blink**.

Disconnect Mode

On Mdm_Ctrl_In Drop	Set to **Yes** for the network connection to or from the serial port to disconnect (drop) when **Modem_Control_In** transitions from an asserted state to a not asserted state. Default setting is **No**.
Hard Disconnect	When set to **Yes**, the TCP connection closes even if the remote site does not acknowledge the disconnect request. Default setting is **Yes**.
Check EOT (Ctrl-D)	Select **Yes** to drop the connection when **Ctrl-D** or **Hex 04** is detected. Both **Telnet Com Port Cntrl** and **Check EOT (Ctrl+ D)** must be enabled for **Disconnect with EOT** to function properly. **Ctrl+D** is only detected going from the serial port to the network. Default setting is **No**.
Inactivity Timeout	Use this parameter to set an inactivity timeout. The unit drops the connection if there is no activity on the serial line before the set time expires. Enter time in the format mm:ss, where m is the number of minutes and s is the number of seconds. To disable the inactivity timeout, enter **00:00**.

3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings**.

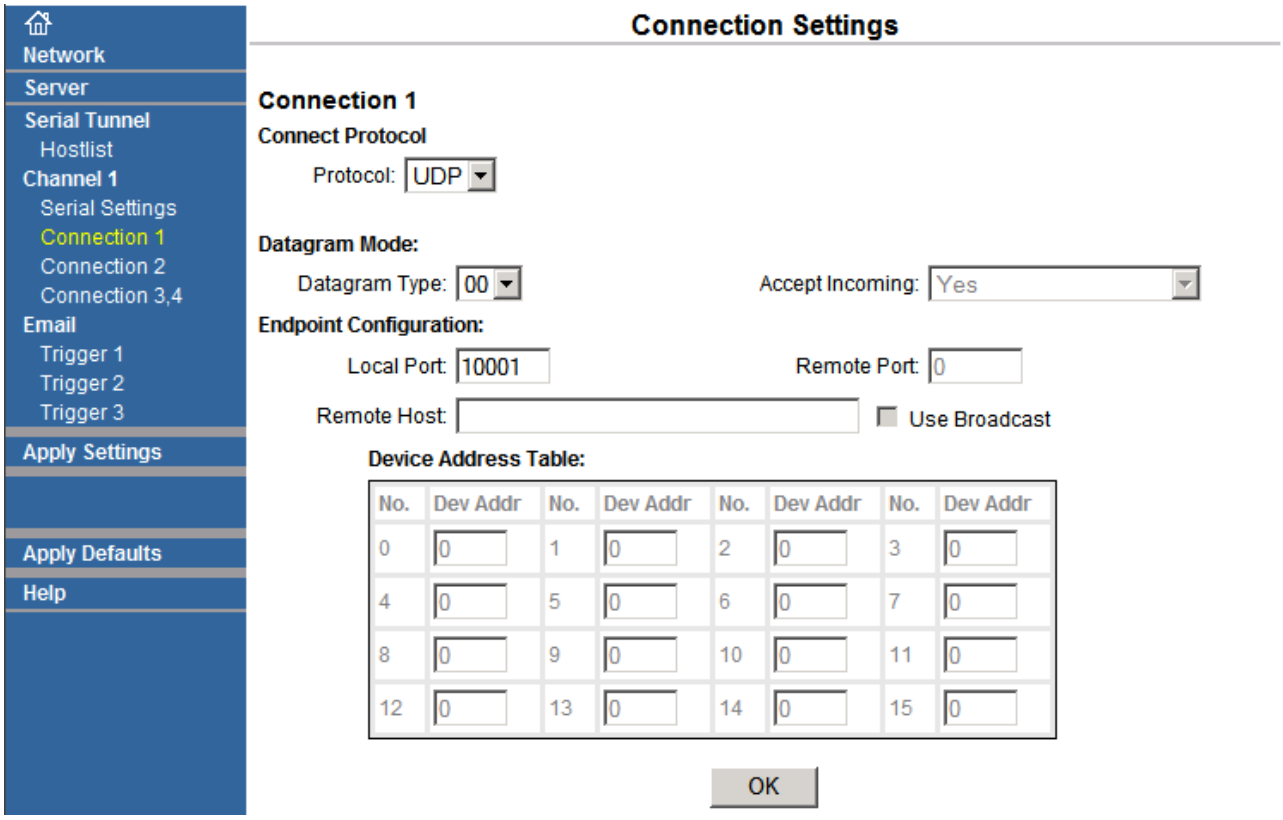
1.8.3 Connection Settings - UDP

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

To configure Channel 1 Connection 1 or Connection 2 UDP settings:

1. On the main menu, click **Connection 1 (or Connection 2)**. The Connection Settings window for the connection displays.

2. In the available fields, enter or modify the following information:



Connect Protocol

Protocol	Select UDP from the drop-down menu. *Note: Selecting UDP for both Connection 1 and Connection 2 will disable TCP Connection 3,4.*

Datagram Mode

Datagram Type	Configures the UDP interface mode with the serial device. Enter **01** for a transparent serial interface using directed or broadcast UDP. The default setting is **00**. See *Error! Reference source not found. Error! Reference source not found.* for a description of the UDP datagram types.
Accept Incoming	Select **Yes** to accept incoming UDP datagrams. The default setting is **Yes**.

Local Port	Enter the local port number.
Remote Port	Enter the port number of the remote device.
Remote Host	Enter the IP address or domain name of the remote device. Using a domain name requires configuration of a DNS server.
Use Broadcast	Select to broadcast the UDP datagram. Datagrams of type 01 can be sent as a broadcast by enabling this option. The default is not to broadcast.

	Note: Datagrams are sent as subnet-directed broadcasts.
Device Address Table	*This table is not enabled or supported by this firmware.*

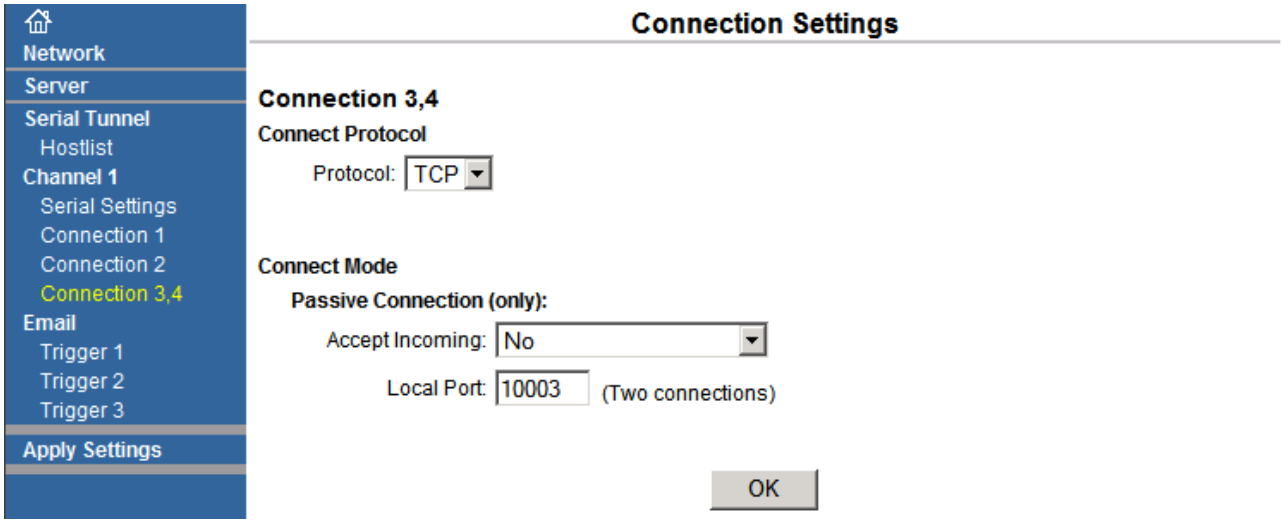
3. When you are finished, click the **OK** button.
4. On the main menu, click **Apply Settings**.

1.8.4 Connection Settings 3,4

To configure Channel 3,4 TCP settings:

1. On the main menu, click **Connection 3/4.** The Connection Settings window for the connection displays.

2. In the available fields, enter or modify the following information:



Connect Mode: Passive Connection

Accept Incoming	Select Yes to accept incoming connections. The default is NO.

Endpoint Configuration

Local Port	Enter the local port number. Default is 10003.

3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings**.

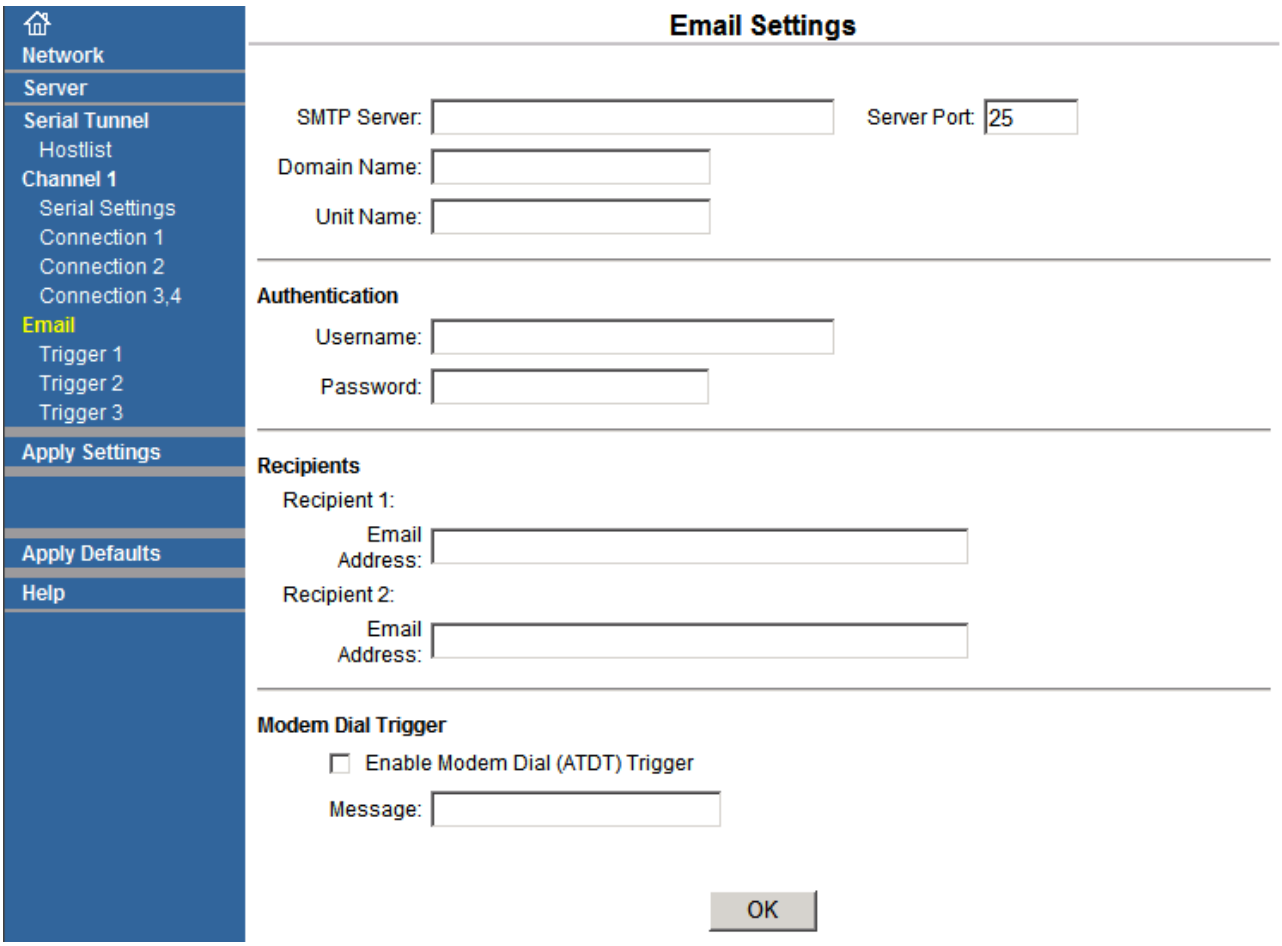
1.9 Email

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

The unit sends an email to multiple recipients when a specific trigger event occurs. There are three separate triggers, based on a multiple-byte serial string to initiate a trigger. Each trigger is independent of the others. Each condition within an individual trigger must be met before the unit will send the email.

To configure the NET232+'s email settings:

1. On the main menu, select **Email**. The Email Settings window opens.



2. Configure the following fields:

SMTP Server	Enter the IP address or domain name of the mail server.
Server Port	Enter the port number of the email server.
Domain Name	Enter the email server's domain name used in the *From* address (UnitName@DomainName).
Unit Name	Enter the user name used by the NET232+ to send email messages. Spaces are not permitted.

Authentication

Username	Enter the Username for the account on the email server.
Password	Enter the password for the account on the email server.

Recipients

Recipient 1: Email Address	Enter the email address designated to receive email notifications
Recipient 2: Email Address	Enter an additional email address designated to receive email notifications.

Modem Dial Trigger

Enable Modem Dial (ATDT) Trigger	Select to enable an email trigger when a modem dial command (ATDT) is received on the serial port. The modem dial command will only be recognized when the Connection 1 TCP connection is not active. The ATDT command can be followed by up to 80 characters that will be placed in the body of the email. The ATDT command is terminated with a carriage return. Example: '**ATDT Temperature is 125 degF<cr>**' *Note: Connection 1 must be set for protocol TCP with Active Connect set to None.*
Message	Message text used as the subject line of the trigger event email to the specified recipient(s). Example: 'Alarm detected'

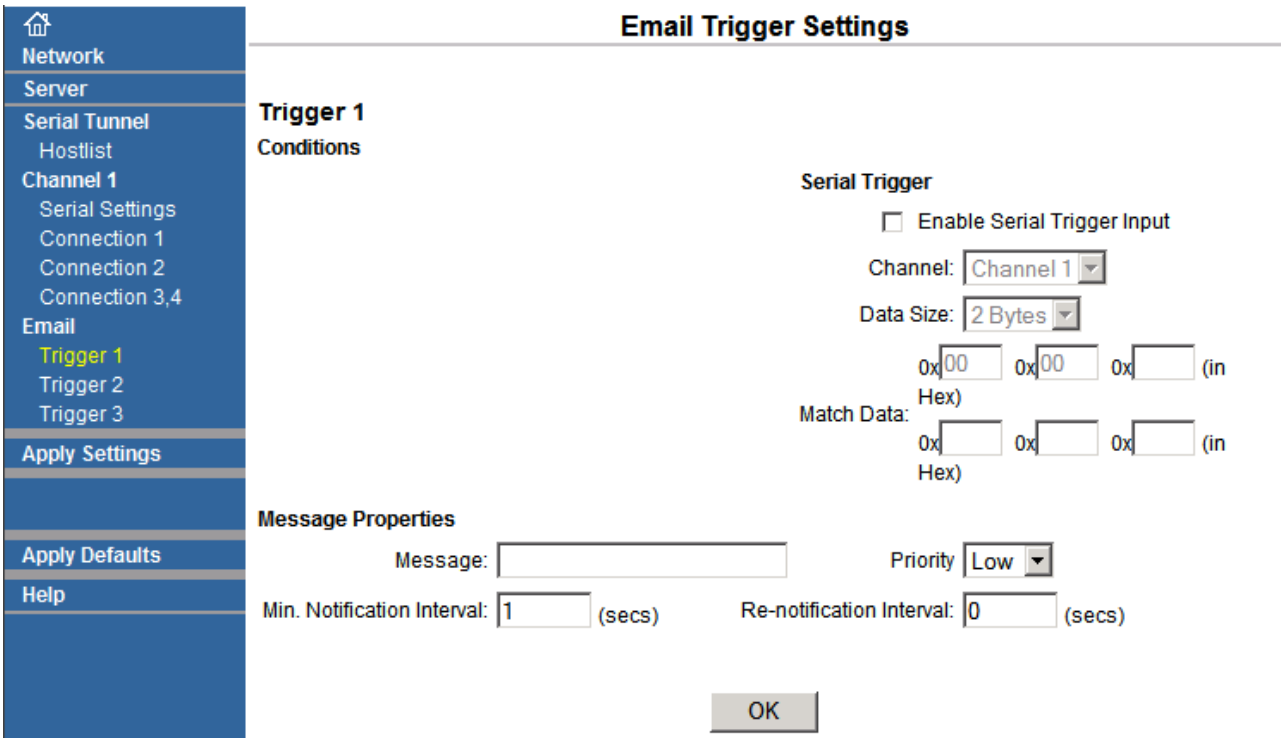
3. When you are finished, click the **OK** button.
4. On the main menu, click **Apply Settings**.

1.9.1 Trigger Configuration

Note: Menu items may be different depending on the firmware installed in your device. Help button is a link to Grid Connect Technical Support.

To configure the email trigger settings:

1. On the main menu, click **Trigger 1, Trigger 2,** or **Trigger 3** to configure the desired trigger settings. The **Email Trigger Settings** page opens.



2. Configure or modify the following fields:

Conditions

Enable Serial Trigger Input	Enabling this option causes specified serial communications to count as a trigger input.
Channel	Select the channel prompting the trigger. For the NET232+, there is only one channel.
Data Size	Select the data size prompting the trigger. (2 to 6)
Match Data	Enter the data, which, when it appears in the communication stream, prompts a trigger.

Note: All of the conditions must match for the NET232+ to send an email notification.

Message Properties

Message	The subject line of the trigger event email to the specified recipient(s).
Priority	The priority level for the email.
Notification Interval	The minimum time allowed between individual triggers. If a trigger event occurs within the minimum interval since the last trigger, it is ignored.
Re-notification Interval	Indicates the time interval in which a new email message is sent to the recipient(s) when a single trigger event remains active.

3. When you are finished, click the **OK** button.

4. On the main menu, click **Apply Settings.**

1.10 Apply Settings

1. To save and apply the configuration changes to the device server, click the **Apply Settings** button.

Note: *Clicking **OK** on each page does not change the configuration on the device. **OK** tells the unit what changes to use; **Apply Settings** makes the changes permanent and reboots the unit.*

2. Click **Yes** to set factory settings or click **No** to cancel.

1.11 Apply Factory Defaults

Click the **Apply Factory Defaults** button to set the device server back to the default settings.

1.12 Telnet through Device Installer

You can also configure a device by text-based configuration over Telnet. Select a device in the List and click the Telnet Configuration tab. A dialog box will prompt for the IP address and port number.

The Port defaults to whatever port the particular device model uses for accessing its configuration interface, though it may be changed to any other port that may be supported on the device. Click **Connect** to proceed.

A Telnet window will appear, using the default telnet program of the operating system. Follow the instructions that appear in the window. You have only a few seconds to respond to the instructions or the window will close.

For detailed information about the menu selections, refer to the hardware user manual. Each hardware product has a specific hardware manual that covers installation, operation, and configuration.

1.12.1 Telnet Connection

To configure the unit over the network, establish a Telnet connection to port 9999.

To establish a Telnet connection:

1. From the Windows **Start** menu, click **Run** and type the following command, where x.x.x.x is the IP address, and 9999 is the unit's fixed network configuration port number:

Windows: `telnet x.x.x.x 9999`
UNIX: `telnet x.x.x.x:9999`

2. Click **OK**. The following information displays.

```
MAC address 0080A366000E
Software version V6.8.0.0RC4 (120327) XPICO
AES library version 1.8.2.1

Press Enter for Setup Mode
```

3. To enter Setup Mode, **press Enter within 5 seconds**. The configuration settings display, followed by the Change Setup menu.

```
Change Setup:
0 Server
1 Channel 1
5 Expert
6 Security
7 Defaults
8 Exit without save
9 Save and exit Your choice ?
```

4. Select an option on the menu by entering the number of the option in the **Your choice ?** field and pressing **Enter**.

5. To enter a value for a parameter, type the value and press **Enter**, or to confirm a current value, just press **Enter**.

6. When you are finished, save the new configuration (option 9). The unit reboots.

1.12.2 Serial Port Connection

To configure the unit through a serial connection:

1. Connect a console terminal or PC running a terminal emulation program to your unit's serial port.

2. Set the terminal emulator serial port settings to 9600 baud, 8 bits, no parity, 1 stop bit, no flow control.

Note: Most embedded device servers always uses these serial port settings on boot-up.

3. Reset the unit by cycling the unit's power (turning the power off and back on). Immediately upon resetting the device, enter three lowercase x characters (xxx).

Note: The easiest way to enter Setup Mode is to hold down the x key at the terminal (or emulation) while resetting the unit. You must do this within three seconds of resetting the unit.

At this point, the screen display is the same as when you use a Telnet connection. To continue, go to step 4, above, in the section, Telnet Connection.

.

1.12.3 Exiting Setup Mode

To exit setup mode:

You have two options:

To save all changes and reboot the device, select option **9 Save and exit** from the Change Setup menu. All values are stored in nonvolatile memory.

To exit the configuration mode without saving any changes or rebooting, select option **8 Exit without save** from the Change Setup menu.

2. File Menu

2.1 Opening the Device List

To open a previously stored list of devices:

From the File menu, click **Open.** The Open window displays.

Find the location of the stored device file list (in text format). Highlight the filename and press **Open.** The list of stored devices displays in the DeviceInstaller window.

To close the list, select **New** from the File menu.

2.2 Saving the Device List

The list of devices may be saved as a text file and restored for later use. The following information is stored:

- Device Name
- Group
- Comments
- IP Address for the device

Note: The configuration of the devices in the list is not stored when saving the device list.

To save the list of devices:

From the File menu, select **Save As.** The Save As screen displays in a new window.

Locate the directory in which the device list text file will be saved.

The default name of the file is Devices1. To rename the file, clear the **File name** field and enter another filename.

Click **Save.**

2.3 Save Setup Records

Setup records contain the setup configuration options selected in the menus displayed in the web manager. You can save the setup records for updating sections of flash memory at a later time. You can install previously saved setup records to upgrade the device.

To Save setup records:

On the device list, select the device.

On the File menu, select Save Setup Records. The Save Setup Records window displays.

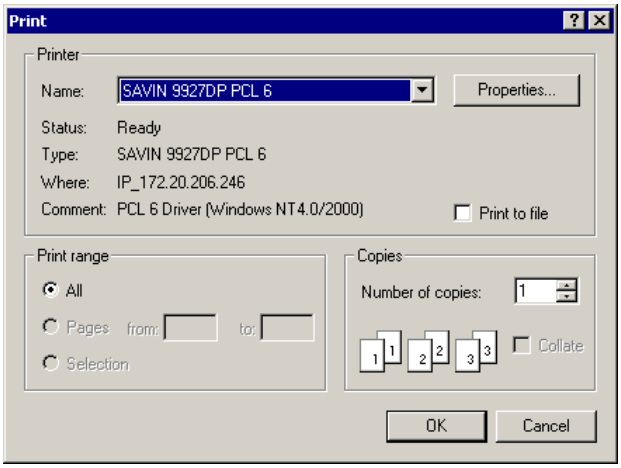
Select as many records as desired and click Save. The Save As window displays. Some setup records are unavailable.

Save the setup record and name it as desired. (You must save the records one at a time.)

To install setup records, see the Upgrade information on page 5-35.

2.4 Printing

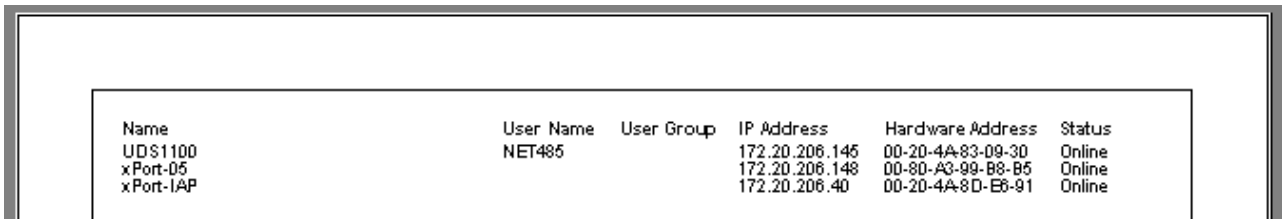
To print out the list of devices, select the Print command from the File menu. A dialog box will appear prompting for selection of a printer.



Click OK to print the list of devices.

2.4.1 Print Preview

A preview of the printed list may be viewed using the Print Preview command. From the File menu, click Print Preview and a window will be displayed.



Name	User Name	User Group	IP Address	Hardware Address	Status
UDS1100	NET485		172.20.206.145	00-20-4A-83-09-30	Online
xPort-05			172.20.206.148	00-80-A3-99-B8-B5	Online
xPort-IAP			172.20.206.40	00-20-4A-8D-E6-91	Online

The scrollbars may be used to scroll through the page to see its entirety. The Toolbar buttons may be used to adjust the size and layout of the preview.

Click the Print button to print the pages.

Click the Zoom button to change the zoom factor.

Click any of the five Page Layout buttons to view multiple pages at the same time.

Click the Close button to close the Print Preview window.

In the event there are multiple pages, you can specify which page to view by adjusting the Page edit box on the right side of the toolbar.

3. Edit Menu

The edit menu allows you to Delete, Select All, or Clear Selection. You can click on an item to select it and click the DEL key to delete it.

4. View Menu

4.1 View

Device Installer can show devices in the form of a table or as icons. To change the view mode, go to the View menu and select either Icons or Details.

When the List is in Details mode, items can be sorted by particular columns, in ascending or descending order. To sort the list, click on the column that is to be sorted. The first time you click on a column, it will sort in ascending order. To sort in descending order, click on the same column again.

Devices within the List may be selected individually or along with other devices. To select a single device, just click on it. To select a consecutive group of devices, click on the first device, then hold down the Shift key and click on the last device of the group. To select or deselect other devices as part of a multiple selection, hold down the Control key and click on a device.

You may also select multiple devices by clicking and dragging on the background of the List to form a fencing rectangle. Once you release the mouse, all devices overlapping the rectangle become selected.

To select all devices in the list, choose the Select All command from the Edit menu.

To deselect all devices, click on the background of the list.

When multiple devices are selected at the same time, some options may be limited.

4.2 Device Node Text

Below each device in the table is an icon of a node. The information for each device node can be shown with the hardware address, the IP address or the Name.

4.3 Expand or Collapse List

All items in the list can be expanded or collapsed by a selection in the View menu.

4.4 Log File

View upgrade log file. Turn logging on from the Tools->Options menu item.

4.5 Setup Record File

Allows you to view setup records previously saved with the File command.

5. Device Menu

5.1 Search

The Search tool finds all devices within the local area network and adds them to the device list. If the devices you are using are within the same local area network as your PC (within the same subnet), use the Search command.

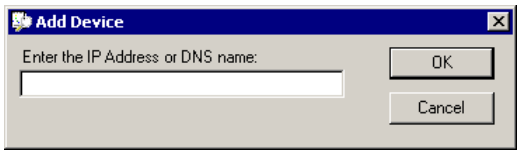
To search for devices, click the **Search** icon 

or select **Search F5** from the Device menu. It may take several seconds to find all of the devices.

5.2 Add Device

As an alternative to the Search tool, you can add devices manually to the list. Device must have an IP address already assigned. This feature works well when you have several devices on a network.

To add a device, select the **Add Device F6** command from the Device menu. A dialog box will prompt for the IP address. Enter the IP address and click OK. If the device was found successfully, it will be added to the list.



5.3 Assign IP Address

See *Assign IP* on page 1-6.

5.4 Upgrade

The firmware of a device (the software running on the device that defines its behavior) may be changed. The files stored on the device (in Flash) may also be changed.

Typical reasons for changing the firmware or files are for using newer functionality that the manufacturer may make available since the device was manufactured. Custom applications may also use specific firmware or files.

The file system is similar in function to that of a PC, but is divided into several partitions to accommodate the layout of the flash memory. The number of partitions varies depending on the device model. Each partition is 64K in size and includes both file content and directory entries.

Files may be transferred to a device in one of two ways: either by copying a directory over from the PC or by copying pre-formed partitions. These pre-formed partitions are commonly stored in a file format with an extension of ".COB". The COB file is a proprietory format, and is similar in concept to a zip file.

To start the Upgrade process, select Upgrade from the Device menu or click the Upgrade button on the toolbar. Follow the wizard instructions to install firmware, applications, web pages, setup records and other configuration settings.

5.4.1 Save Setup Records

You can save setup records for updating regions of flash memory on the unit. This option is not enabled if the device does not support this capability.

To save setup records:

1. On the device list, select the device.

2. On the **File** menu, select **Save Setup Records**. The Save Setup Records window displays.

3. Select as many records as desired and click **Save**. The Save As window displays. Some setup records are unavailable. Some records may be available for saving but may not be used, depending on the device selected.

4. Save the setup record and name it as desired.

5.4.2 View Setup Record

You can view the contents of a setup record.

To view a setup record:

1. From the **View** menu, select **Setup Record File**.

2. Browse and select the desired setup record. The setup record displays. Some records may not be viewable and are dependent on the type of device selected.

5.4.3 Install Setup Records

You can install previously saved setup records to upgrade the device.

To install setup records:

1. Select the device from the device list.

2. Select **Upgrade** from the **Device** menu or click the **Upgrade** icon. The Device Upgrade Wizard window displays.

3. Select the **Create a custom installation by specifying individual files** and click **Next**.

The Device Upgrade Wizard prompts for the type of files to add. (ROM, SYS, SPB, GZ)

Click **Next**.

4. Select **Install setup records from a file**.

5. Click **Browse** to locate the setup record and click **Next**.

6. (Optional) To save the installation as an installation file (.lxi), click **Save Installation**.

7. Click **Next** to continue the installation, or click **Cancel** to exit without the actual device upgrade.

8. If you continue the installation, the Device Upgrade Wizard window displays the status and result of the upgrade.

Note: Green indicates a successful installation; blue indicates that the IP address has changed.

9. Click **Close**.

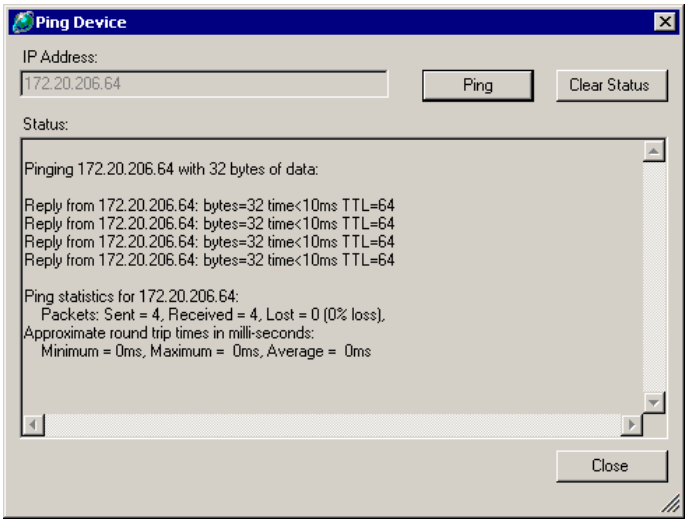
5.5 Exclude Devices

The Product Information Base file contains information about all supported devices. You can limit your search for devices by excluding devices from the search list. There is a toolbar button marked “Exclude” or you can select **Exclude Devices From Search Results** from the Device menu. Use the arrow buttons to move items from the Included Devices panel to the Excluded Devices panel.

6. Tools Menu

6.1 Ping

To detect if a device is online and the network is functional, use the **Ping F4** command in the Tools menu.



Enter the IP address of the device you are trying to reach and click the Ping button.

Within several seconds, the Status area will display the results of the ping.

Click Clear Status to clear the display.

Click Close when you are done, to close the dialog box.

6.2 Recovering Firmware

Note: DO NOT recover firmware if you have custom firmware installed, which includes NET232+ devices. Doing so will destroy the custom firmware and void the warranty.

6.3 Options

6.3.1 Network

By default, the primary adapter used by Windows is the network adapter used for communication with devices on the network. To select a different adapter:

From the Tools menu, click **Options.** The Options window opens, displaying the list of available adapters.

Select the adapter by clicking its checkbox.

Click **OK** to exit.

6.3.2 Logging

You can customize the unit's logging features, including when to activate logging, how to change log file size, and how to view logs.

To customize logging:

1. From the **Tools** menu, select **Options**. The Options window displays.

2. Click the **Customization** tab.

3. In the **Log File** section, specify the following information:

Activate logging (during upgrading)	**If you select this option, logging occurs while you are upgrading the unit.**
Activate logging during searching	**If you select this option, logging occurs while you search for devices.**
Log File	**If you selected to activate logging, enter or browse to a location on your system for naming and saving the log file.**
Max File Size	**The maximum number of bytes (in increments of megabytes). When the file reaches this limit, the first half of the file is removed; the latter half is retained.**
Viewing Program	**Enter or browse to a program such as NotePad for viewing the contents of the log file.**

4. Click **Apply** to save and leave the window open.

5. Click **OK** to save and close the window.

6.3.3 Display a Warning

DeviceInstaller can display a warning when you open a saved search and a device on the list is no longer online.

To display a warning:

1. From the **Tools** menu, select **Options**. The Options window displays.

2. Click the **Customization** tab.

3. In the bottom section of the window, select **Display a warning when devices are not found when importing from a file**.

4. Click **Apply** to save and leave the window open.

5. Click **OK** to save and close the window.

6.3.4 Customize the Category Name

You can include the device version in the name, for example, XPort (R3) - firmware v6.1.0.0.

To include the device version:

1. From the **Tools** menu, select **Options**. The Options window displays.

2. Click the **Customization** tab.

3. In the lower section of the window, select **Use the Device version as part of the device category name.**

4. Click **Apply** to save and leave the window open.

5. Click **OK** to save and close the window.

6.3.5 Customize Reboots

You can specify settings for the reboot process.

The reset option is unavailable by default. Resetting a unit will change many of the custom settings that may determine if your unit operates properly or fails. After a reset, you may have to change some configuration settings for your specific application. It is a good idea to save your configuration settings in setup records. See Save Setup Records. You can load the setup records to restore the configuration settings. See Install Setup Records.

Reset is a dangerous capability and is best used by power users only.

To enable the reset command and display it in the Device menu:

1. From the **Tools** menu, select **Options**. The Options window displays.

2. Click the **Customization** tab.

3. In the lower part of the window, select **Enable reset commands and allow them to be shown as menu items**.

4. Click **Apply** to save and leave the window open.

5. Click **OK** to save and close the window.

To set reboot wait times:

1. From the **Tools** menu, select **Options**. The Options window displays.

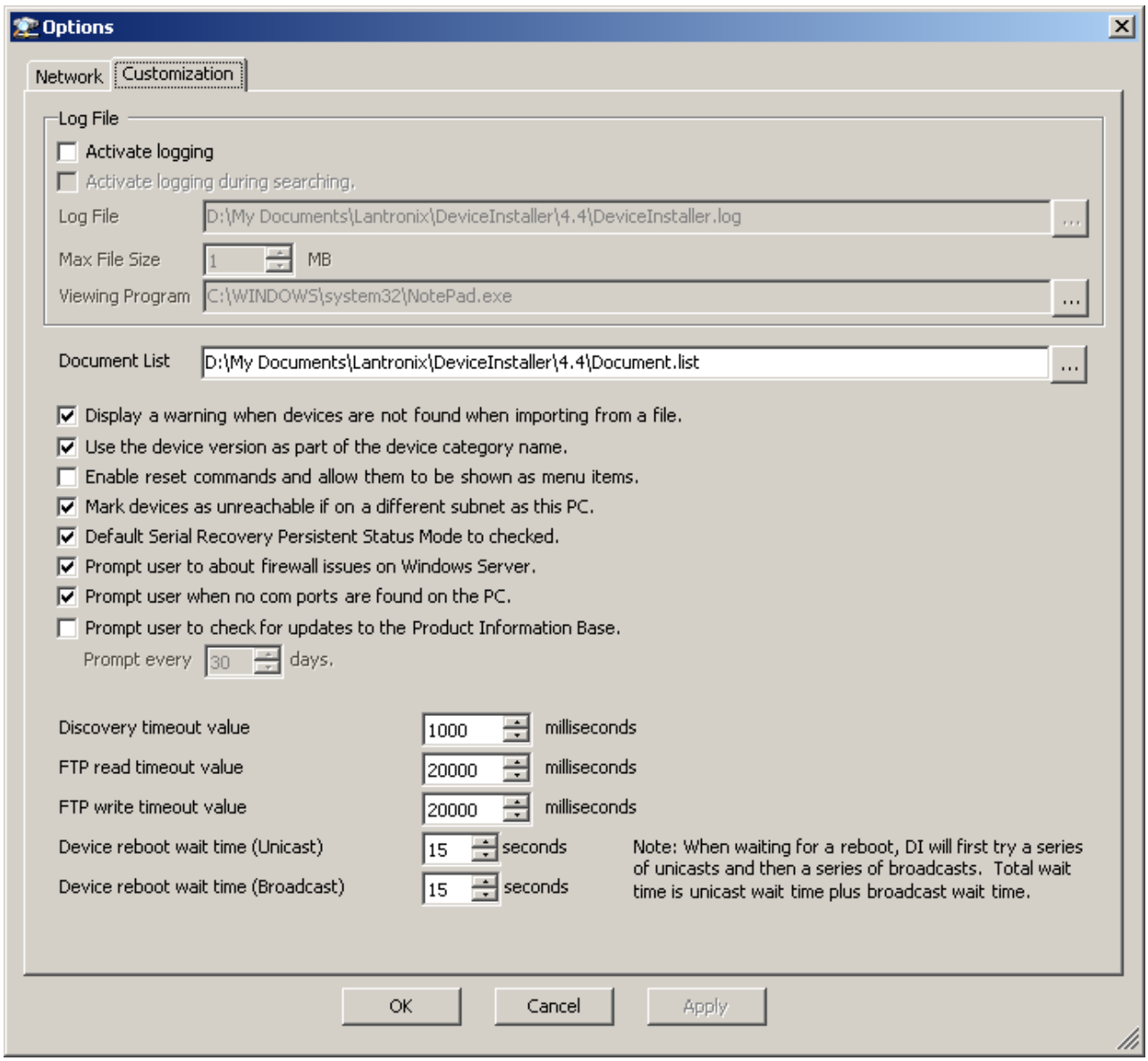
2. Click the **Customization** tab.

3. In the lower part of the window, specify the following:

Device reboot wait time (Unicast)	**Select the number of seconds the unit should unicast messages while waiting for a reboot. The unit attempts a series of unicasts before broadcasting.**
Device reboot wait time (Broadcast)	**Select the number of seconds the unit should broadcast messages while waiting for a reboot. The unit attempts a series of broadcasts after completing unicasts.**

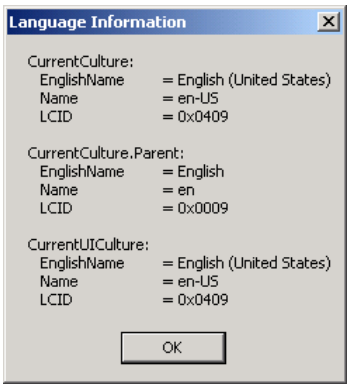
4. Click **Apply** to save and leave the window open.

5. Click **OK** to save and close the window.


Options
Network
Customization
Log File
Activate logging
Activate logging during searching.
Log File
D:\My Documents\Lantronix\DeviceInstaller\4.4\DeviceInstaller.log
Max File Size
1
MB
Viewing Program
C:\WINDOWS\system32\NotePad.exe
Document List
D:\My Documents\Lantronix\DeviceInstaller\4.4\Document.list
Display a warning when devices are not found when importing from a file.
Use the device version as part of the device category name.
Enable reset commands and allow them to be shown as menu items.
Mark devices as unreachable if on a different subnet as this PC.
Default Serial Recovery Persistent Status Mode to checked.
Prompt user to about firewall issues on Windows Server.
Prompt user when no com ports are found on the PC.
Prompt user to check for updates to the Product Information Base.
Prompt every
30
days.
Discovery timeout value
1000
milliseconds
FTP read timeout value
20000
milliseconds
FTP write timeout value
20000
milliseconds
Device reboot wait time (Unicast)
15
seconds
Device reboot wait time (Broadcast)
15
seconds
Note: When waiting for a reboot, DI will first try a series of unicasts and then a series of broadcasts. Total wait time is unicast wait time plus broadcast wait time.
OK
Cancel
Apply

6.4 Language

Each device server is loaded with firmware that is language specific. To view the language settings, select Language from the Tools menu.



6.5 Supported Device Servers

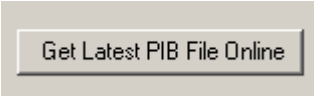
Select this option to display a list of supported device servers. For example, the NET232 uses an XPort-03/05, which uses Firmware type X5, has 1 port and is in the XPort category. The NET232+ uses an xPico, which uses Firmware type X6.

Supported Device Servers

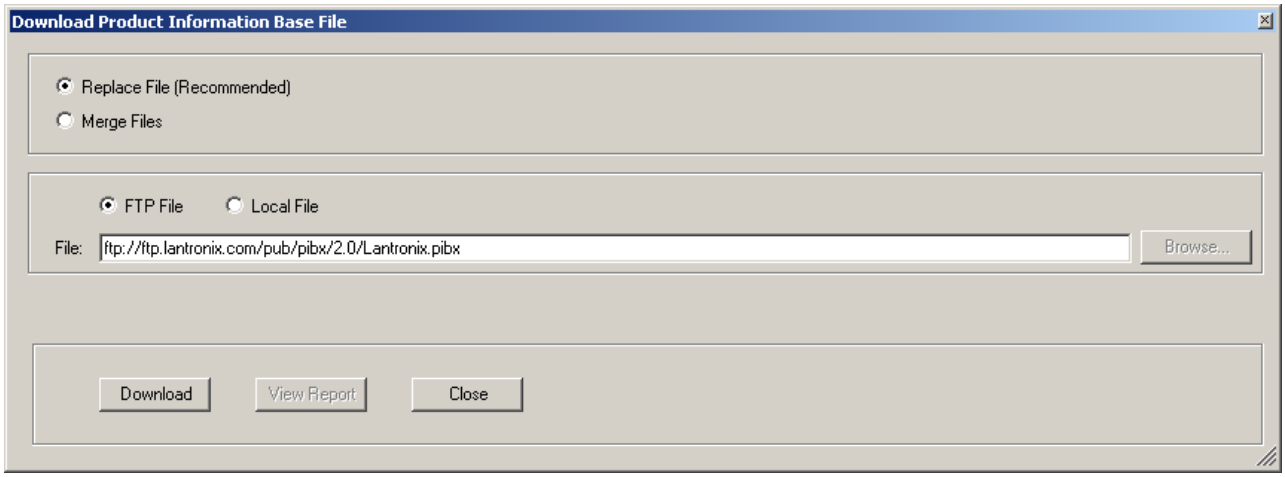
Device Server	Firmware Type	# of Ports	Category
WiPort 485	W3	2	Wireless
WiPort b/g IAP	GA	2	Wireless
WiPort b/g	W6	2	Wireless
WiPort NR	FX	2	Wireless
WiPort NR+ SDK	A6	2	WiPort-NR+
WiPort	W1	2	Wireless
WiPort	W4	2	Wireless
WiPort-IAP	WA	2	Wireless
WiSpan	W9	1	Wireless
xChip Direct	XD	1	xPort
xChip	XC	1	xPort
xDirect	U5	1	xDirect
xDirect-IAP	TA	1	xDirect
xPico	X6	2	xPico
xPico-IAP	PA	2	xPico
xPort AR	A1	2	xPort
xPort Direct	X7	1	xPort
xPort Direct+	X8	1	xPort
xPort Pro Lx6	E8	1	xPort
xPort Pro	E5	1	xPort
xPort-01	X1	1	xPort
xPort-01	X4	1	xPort
xPort-03/04	X2	1	xPort
xPort-03/04	X5	1	xPort
xPort-05	X9	1	xPort
xPort485	X3	1	xPort
xPort-IAP	XA	1	xPort
xPort-IAP	XM	1	xPort
xPort-IAP-05	YM	1	xPort
xPress DR+ Wireless	IA	2	xPress
xPress DR+	rA	2	xPress

6.6 Product Information Base

Select this option to display the Product Information Base Viewer. Information presented is primarily for application developers. You can download the latest Product Information Base file by clicking on the **Get Latest PIB File Online** button on the bottom of the viewer.



Click the Download button to load the new file.



When the file is downloaded, go back to the Product Information Base viewer and click the Save All button to complete the installation of the new file.

7. Help

7.1 Help

Press the F1 key to invoke Help or go to the Help menu and click on **Contents**.

7.2 Release Notes

The latest release notes for Device Installer can be found by going to the Help menu and selecting Release Notes.

7.3 Lantronix Support Website

A direct link to the Lantronix Support Web page.

7.4 About

The About option will display the software information box. Note the Version number of the package for future reference.