NXV-CPI

CONTROL PHONE INTERFACE

AV FOR AN IT WORLD

IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE ONLY with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
18. DO NOT overload wall outlets or extension cords beyond their rated capacity as this can cause electric shock or fire.

The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

ESD Warning: The icon to the left indicates text regarding potential danger associated with the discharge of static electricity from an outside source (such as human hands) into an integrated circuit, often resulting in damage to the circuit.

WARNING: To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.

WARNING: No naked flame sources - such as candles - should be placed on the product.

WARNING: Equipment shall be connected to a MAINS socket outlet with a protective earthing connection.

WARNING: To reduce the risk of electric shock, grounding of the center pin of this plug must be maintained.

COPYRIGHT NOTICE

LIABILITY NOTICE

AMX WARRANTY AND RETURN POLICY

ESD WARNING

	To avoid ESD (Electrostatic Discharge) damage to sensitive components, make sure you are properly grounded before touching any internal materials. When working with any equipment manufactured with electronic devices, proper ESD grounding procedures must be followed to make sure people, products, and tools are as free of static charges as possible. Grounding straps, conductive smocks, and conductive work mats are specifically designed for this purpose. Anyone performing field maintenance on AMX equipment should use an appropriate ESD field service kit complete with at least a dissipative work mat with a ground cord and a UL listed adjustable wrist strap with another ground cord

CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	**WARNING**: Do Not Open! Risk of Electrical Shock. Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. Place the equipment near a main power supply outlet and make sure that you can easily access the power breaker switch.

WARNING: This product is intended to be operated ONLY from the voltages listed on the back panel or the recommended, or included, power supply of the product. Operation from other voltages other than those indicated may cause irreversible damage to the product and void the products warranty. The use of AC Plug Adapters is cautioned because it can allow the product to be plugged into voltages in which the product was not designed to operate. If the product is equipped with a detachable power cord, use only the type provided with your product or by your local distributor and/or retailer. If you are unsure of the correct operational voltage, please contact your local distributor and/or retailer.

FCC AND CANADA EMC COMPLIANCE INFORMATION:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

•Reorient or relocate the receiving antenna.

•Increase the separation between the equipment and receiver.

•Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

•Consult the dealer or an experienced radio/TV technician for help.

Approved under the verification provision of FCC Part 15 as a Class B Digital Device.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

EU COMPLIANCE INFORMATION:

Eligible to bear the CE mark; Conforms to European Union Low Voltage Directive 2006/95/EC; European Union EMC Directive 2004/108/EC; European Union Restriction of Hazardous Substances Recast (RoHS2) Directive 2011/65/EU; European Union WEEE (recast) Directive 2012/19/EU; European Union Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Directive 2006/121/EC .

You may obtain a free copy of the Declaration of Conformity by visiting http://www.amx.com/techcenter/certifications.asp.

WEEE NOTICE:

	This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE). This label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

Table of Contents

NXV-CPI Control Phone Interface

Overview

The NXV-CPI (**FG2263-03**) is a small rack-mountable device which enables users to connect a Cisco IP phone to a NetLinx master to provide room control from the phone. The NXV-CPI is installed to the NetLinx Master, and passes NetLinx control commands to the Master via Ethernet 10/100 cable.

FIG. 1 NXV-CPI Control Phone Interface

Product Specifications

The following table lists the specifications for the NXV-CPI:

NXV-CPI Specifications	
Front Panel Components:	4 LED indicators: • Power LED (green): Solid on indicates power is on. Flashing indicates no network connection. • Status LED (green): Blinks to indicate that the unit is communicating with the NetLinx Master. • Output LED (red): Lights to indicate it is sending an XML file to the IP phone or a button press to the NetLinx master. • Input LED (yellow): Lights to indicate it is receiving a command from the NetLinx master or a button press HTTP message from the IP phone. 1 pushbutton for factory default configuration reset
Rear Panel Connectors:	1 LAN Port - 10/100 Ethernet with PoE. LEDs show communication activity, connection status, speeds, and mode information: • SPD (speed) - Yellow LED lights On when the connection speed is 100 Mbps and turns Off when the speed is 10 Mbps. • L/A (link/activity) - Green LED lights On when the Ethernet cables are connected and terminated correctly, and blinks when receiving Ethernet data packets.
Power Requirements:	PoE powered – no local Power Supply needed
Memory:	• 64 Mbytes of RAM • 256 Mbytes of FLASH
Dimensions (HWD):	With feet: 1.66" x 5.54" x 4.10" (4.216 cm x 14.07 cm x 10.42 cm) Without feet: 1.52" x 5.54" x 4.10" (3.861 cm x 14.07 cm x 10.42 cm)
Weight:	1.45 lbs. (0.65 kg)
Operating Environment:	• Operating Temperature: 32°F - 104°F (0°C - 40°C) • Storage Temperature: 14°F - 158°F (-10°C - 70°C) • Relative Humidity: 5% to 85% non-condensing • Intended for indoor use only
Other AMX Equipment:	• PS-POE-AF PoE Injector (**FG423-80**) • AC-DIN-CS3 DIN Rail Mounting Bracket (**FG532-01**) • AC-RK Accessory Rack Kit (**FG515**)
Certifications:	• FCC Class B • CE • IEC60950 • RoHS

Installation

Overview

CAUTION: *To avoid any damage to the electronic component, installation must be performed in an ESD safe environment.*

The NXV-CPI is installed to the NetLinx Master, and passes NetLinx control commands to the Master via Ethernet 10/100 cable, as indicated in FIG. 2:
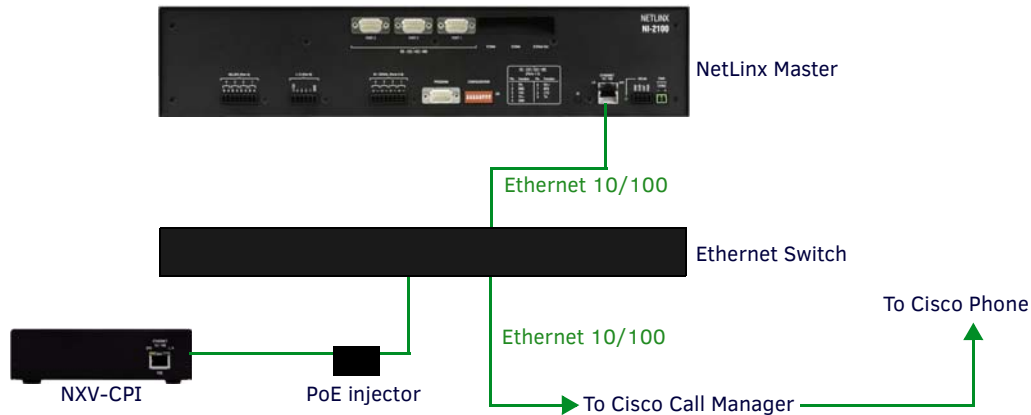
FIG. 2 NXV-CPI installation

FIG. 3 displays the rear panel of the NXV-CPI.
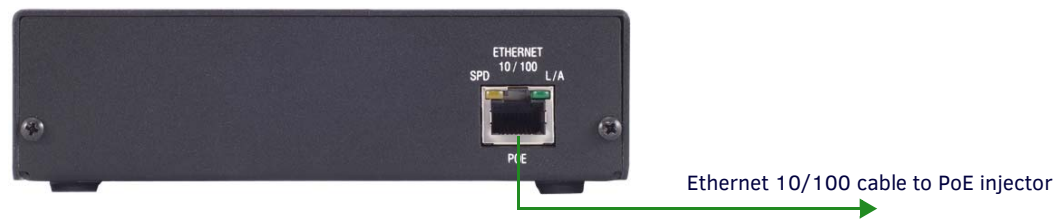
FIG. 3 NXV-CPI (rear panel)

After you have completed the installation, consult the *Configuration* section on page 9.

NOTE: *If you boot the NXV-CPI without a network connection, the Input LED on the front panel flashes several times followed by continuous flashing of the Power LED.*

NOTE: *The NXV-CPI may find a different DHCP address if you reboot the Cisco UC500 Call Manager. If this occurs, you may have to rebuild your web links.*

Ethernet 10/100 Base-T RJ-45 Wiring Configuration

The table below describes the pinouts, signals, and pairing for the Ethernet 10/100 Base-T connector and cable.

Ethernet Pinouts and Signals					
Pin	Signals	Connections	Pairing	Color	
1	TX +	1 --------- 1	1 --------- 2	White-Orange	
2	TX -	2 --------- 2		Orange	
3	RX +	3 --------- 3	3 --------- 6	White-Green	
4	no connection	4 --------- 4		Blue	
5	no connection	5 --------- 5		White-Blue	
6	RX -	6 --------- 6		Green	
7	no connection	7 --------- 7		White-Brown	
8	no connection	8 --------- 8		Brown	

PoE (Power Over Ethernet)

The NXV-CPI uses CAT5/CAT6 wire via the Ethernet port for PoE power. The maximum power draw for the NXV-CPI is 2.2 watts.

Use the PS-POE-AF Power over Ethernet Injector (FG423-80) to simplify wiring and installation by eliminating the need for an AC outlet at each point of installation.

NOTE: *The NXV-CPI can be placed up to approximately 330' (100 meters) from PoE Injector.*

- If used with a non PoE-capable Ethernet switch, then an optional PS-POE-AF Power-over-Ethernet (PoE) power supply is required to provide power to the NXV-CPI.
- If the NXV-CPI is used with a PoE-capable Ethernet switch, then no PoE Injectors are required.

Restoring the Factory Default Settings

You can restore the factory default settings on the NXV-CPI by pressing the pushbutton on the front panel and holding it down for 10 seconds. FIG. 4 displays the location of the Restore Factory Defaults pushbutton.


FIG. 4 NXV-CPI (front panel)

Configuration

Overview

The NXV-CPI provides a web-based configuration interface to set up networking and NetLinx settings as well as phone UI layout. You can make various configuration settings via a web browser on any PC that has access to the NXV-CPI device. Entering the device's IP address in an enabled browser (Microsoft Internet Explorer, Mozilla Firefox, and Apple Safari for PCs, and Firefox and Safari for Macintoshes) allows the device to be accessed in that browser. Once contact is established, and a username and password entered, the Configuration pages may be reached and used to create phone screens (FIG. 5).
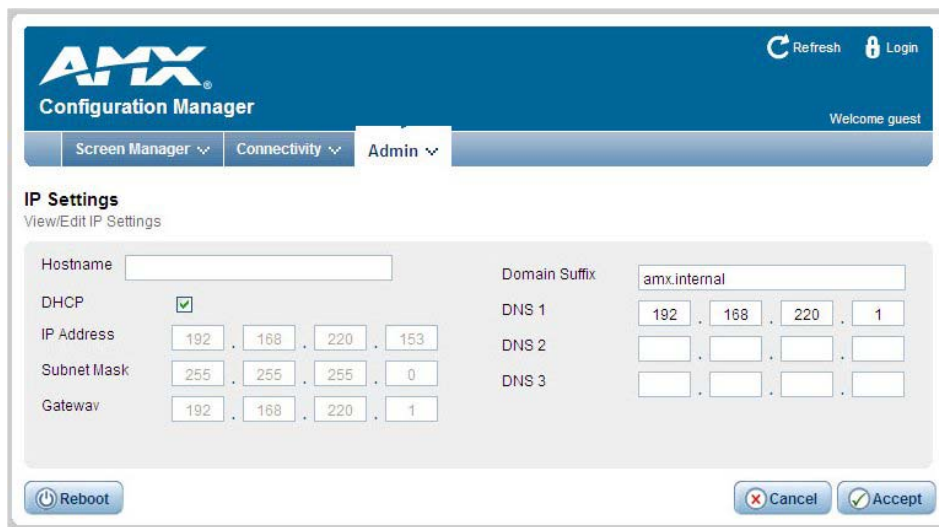
FIG. 5 NXV-CPI Configuration Manager - IP Settings Page (initial view)

The default username and password are as follows:

- username: *administrator*
- password: *password*

Determining the IP Address of the NXV-CPI

NXV-CPI units feature a built-in zero-configuration networking client that allows you to determine the unit's IP address via a client that uses the Zero Configuration Networking Standard. Zero Configuration (or Zeroconf) technology provides a general method to discover services on a local area network. In essence, it allows you to set up a network without any configuration, as described below.

Zero-Configuration Client

You will need a zero-configuration client to determine the IP address of the NXV-CPI. Many zero-configuration clients are currently available. However, for the purposes of this document, we will refer to *Bonjour for Windows*, which is Apple's implementation of the Zero Configuration Networking Standard. It is free and widely available for download. If you don't already have it installed on your PC, download and install *Bonjour for Windows* before you begin. Perform these steps to log on to the NXV-CPI through Bonjour for Windows:

NOTE: *Bonjour and Bonjour for Windows are trademarks of Apple Inc., registered in the U.S. and other countries.*

1. With Bonjour for Windows running on a PC that has access to the LAN on which the NXV-CPI resides, connect the NXV-CPI to the network (see the *Installation* section on page 7.)

2. In Bonjour, you will see the unit join the network at power up (FIG. 6). Double-click the NXV-CPI link to access the NXV-CPI Login page.
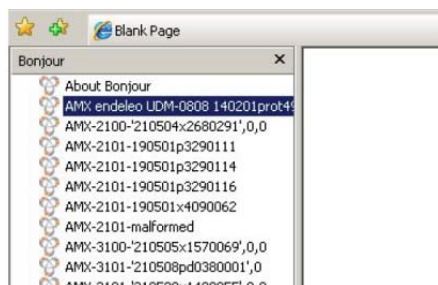

FIG. 6 Bonjour for Windows (Internet Explorer browser)

3. To log on to the system, enter the following user name and password:
    - **Username:** administrator
    - **Password:** password

NOTE: *As shown in FIG. 6, Bonjour for Windows operates as a plug-in to Internet Explorer (version 7 shown), and is displayed in the IE Explorer Bar. If you have installed Bonjour for Windows, but don't see the Bonjour toolbar icon, you may need to "unlock" and expand the toolbars to see it.*

NetLinx Studio v3.0 (featuring Zero-Config functionality)

NetLinx Studio version 3.0 (or higher) features a "Zero-Config" tab in the Workspace Window. This tab provides Zero-Config networking functionality within NetLinx Studio (FIG. 7).
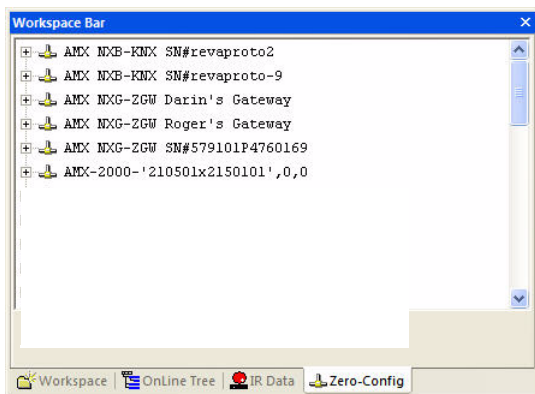
FIG. 7 Workspace Bar - Zero-Config tab

Refer to the NetLinx Studio online help for details on using Zero-Config.

Accessing the NXV-CPI WebConsole via Zero-Config

Assuming that the NXV-CPI resides on the same LAN as the PC running NetLinx Studio, and the NetLinx Master to which the NXV-CPI is connected, you can access the NXV-CPI via the Zero-Config feature in Netlinx Studio, as described below:

1. In NetLinx Studio (version 3.0 or higher), right-click inside the *Zero-Config* tab of the Workspace Bar to access the Zero-Config context menu (FIG. 8).
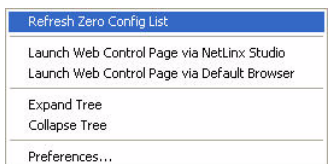
FIG. 8 NetLinx Studio - Zero-Config context menu

2. Select **Refresh List** to generate an initial listing of all Zero-Config devices detected (FIG. 9).

3. Click the plus symbol (+) to expand any device in the Zero-Config list. The device's current IP Address is listed below the device name (FIG. 9):
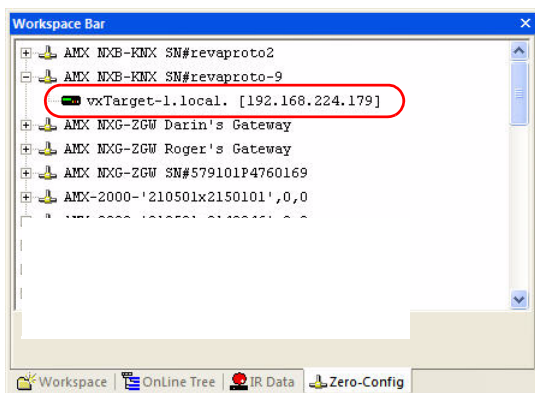
FIG. 9 Workspace Bar - Zero-Config tab

4. You can access any device in the Zero-Config list simply by double-clicking on it's entry. The selected device's WebConsole (HTML) is displayed in a NetLinx Studio window.

5. The unit's IP Address can be edited **IP Settings** page (see the *IP Settings* on page 19).

Accessing the WebConsole via Web Browser

From any PC that has access to the LAN that the NXV-CPI resides on:

1. Open a web browser and type the IP Address of the target NXV-CPI unit in the Address Bar.
2. Press Enter to access the WebConsole for the specified NXV-CPI unit. The initial view is the *IP Settings* page (FIG. 5).

Screen Manager

The NXV-CPI features pages that describe the layout and button ID's for the phone display.

NOTE: *Depending on CPU performance and available memory, navigation between web pages can take between 2 and 10 seconds.*

Screen List

The *Screen List* page displays a listing of all available screen pages. You can add, edit, or delete screen pages from this page (FIG. 10):
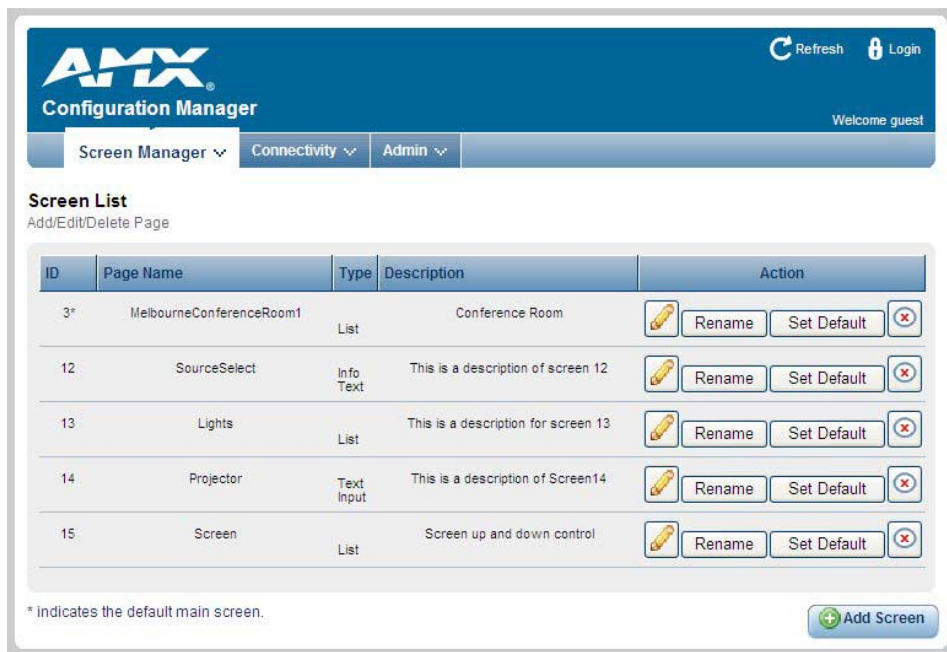

FIG. 10 Screen Manager - Screen List

Screen List Options	
ID	This field lists the screen ID for each screen page.
Page Name	Displays the name of the page. You can change the page name by using the Rename option.
Type	Lists the type of page. The page type can be List, Info Text, or Text Input.
Description	Displays a brief description of the page.
Edit Screen	The Edit Screen button opens a new page in which you can
Rename	Enables you to enter a new name for a page. Clicking this option opens the Rename page.
Set Default	Click to set the page as the default page.
Delete	Click to remove the screen page from the list.
Add Screen	Click to add a new screen page to the list. See the *Adding a New Screen Page* section on page 11 for more information.

Adding a New Screen Page

Perform the following steps to add a new screen page:

1. Select **Screen List** from the Screen Manager menu to open the *Screen List* page (FIG. 10).
2. Click **Add Screen**. The *New Screen Creation* page opens (FIG. 11).

FIG. 11 New Screen Creation page

3. Enter the name you want for the page in the *Page Name* field.

4. Enter a description in the *Description* field.

5. Select the page type from the **Select Page Type** options menu. You can choose from *List*, *Info Text*, and *Text Input*.

6. Click **Accept**. You are returned to the *Screen List* page and the screen you created appears in the list.

NOTE: *The following special characters are not available for use in the Web Configuration Interface: ~, `, !, #, %, ^, %, +, =, |, \, :, <, >, /, [, and]. Any special characters not in this list are available for use.*

Editing Screen Pages

After creating a new screen, you can edit the settings for the screen to establish refresh rates and assign address and channel codes for individual buttons. There are three different types of screen pages you can edit: *List*, *Info Text*, and *Text Input*. FIG. 12 displays the *List Button Page Type* screen.

FIG. 12 List Button Page Type screen

FIG. 13 displays the *Info Text Page Type* screen.

FIG. 13 Info Text Page Type screen

FIG. 14 displays the *Text Input Page Type* screen.

FIG. 14 Text Input Page Type screen

The following options appear on these pages (option names differ between pages):

Edit Screen Options	
Screen ID	Displays the screen ID for the current page. This information is view-only.
Page Name	Displays the name of the page. This information is view-only.
Description	Use this field to enter a brief description of the page.
Auto Refresh Rate	Use this field to set the amount of time, in seconds, for the screen to automatically refresh. *Note: If a user inputs text on a Text Input screen and does not hit Submit before the screen refreshes, the text may be lost.*
Address Code (Label)	Use this field to enter the address code for a button. The NXV-CPI supports address codes from 1-255.
Initial Label	Use this field to enter a text value for a button. (This option is named Initial Value on the List Button Page.)
Local Page Flip	Use this field to tie a page flip to a button. A page flip enables you to move to a specified page.
Channel Code	Use this field to enter the channel code for a button. The NXV-CPI supports channel codes from 1-255.

NOTE: *The following special characters are not available for use in the Web Configuration Interface: ~, `, !, #, %, ^, %, +, =, |, \, :, <, >, /, [, and]. Any special characters not in this list are available for use.*

Import Screens

The *Import Screen Definition File* page enables you to browse for a zipped screen definition file. Click **Browse** to locate a screen definition file from an accessible network location, and click **Accept**.
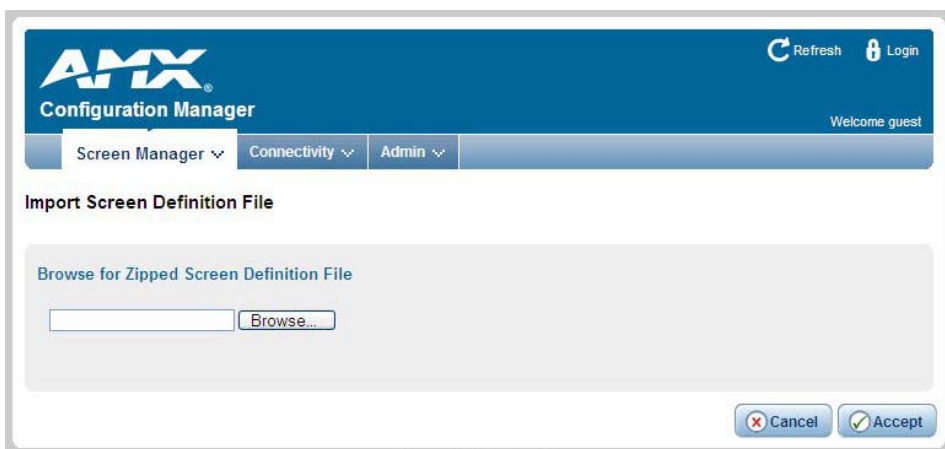
FIG. 15 Import Screen Definition File

Export Screens

The *Export Screens* option enables you to save a zipped screen definition file.

Select **Export Screens** from the Screen Manager menu, and navigate to the location into which you want to save the file.

Connectivity

The Connectivity options enable you to view and edit the connection details of the NetLinx Master and enable or disable zero configuration.

Device Configuration

Select **Device Configuration** from the Connectivity menu to open the *Device Configuration* page. Use the options on the page to specify a Device Number and define connection information for the NetLinx Master. This page contains two tabs: **Device Configuration** and **Master Connection**.

Device Configuration Tab

The initial view of this page is the *Device Configuration* tab (FIG. 16):
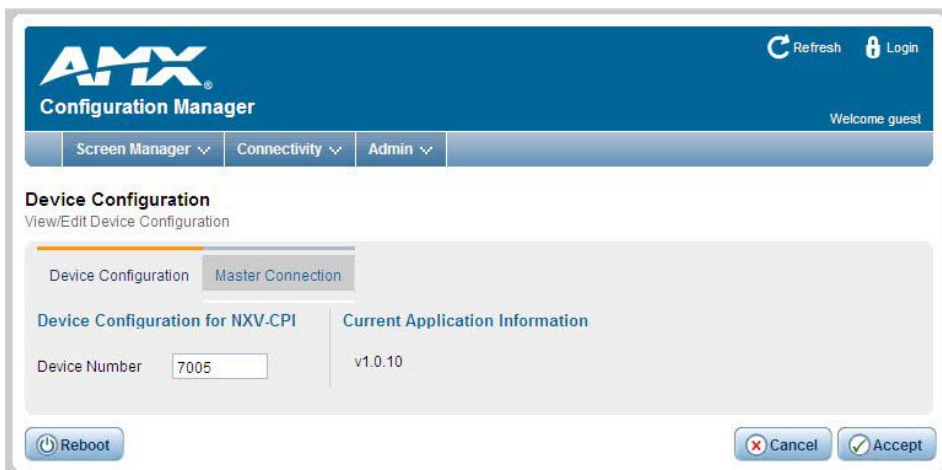
FIG. 16 Device Configuration page - Device Configuration tab

The current device number assigned to this NXV-CPI unit is displayed in the *Device Number* field. The version of the device Application currently loaded on this unit is displayed under *Current Application Information*.

Perform the following steps to change the device number:

1. Enter a *Device Number* for this NXV-CPI unit in the **Device Number** text field.
2. Click **Accept** to save your changes.
3. Press **Reboot** to reboot the NXV-CPI and apply the new Device Number assignment.

Master Connection Tab

The options in the *Master Connection* tab allow you to view and edit connection details for the NetLinx Master to which this NXV-CPI unit will be connected (FIG. 17). Note that the *Master Connection* options can also be accessed directly from the Admin Menu (select **Master Connection**).
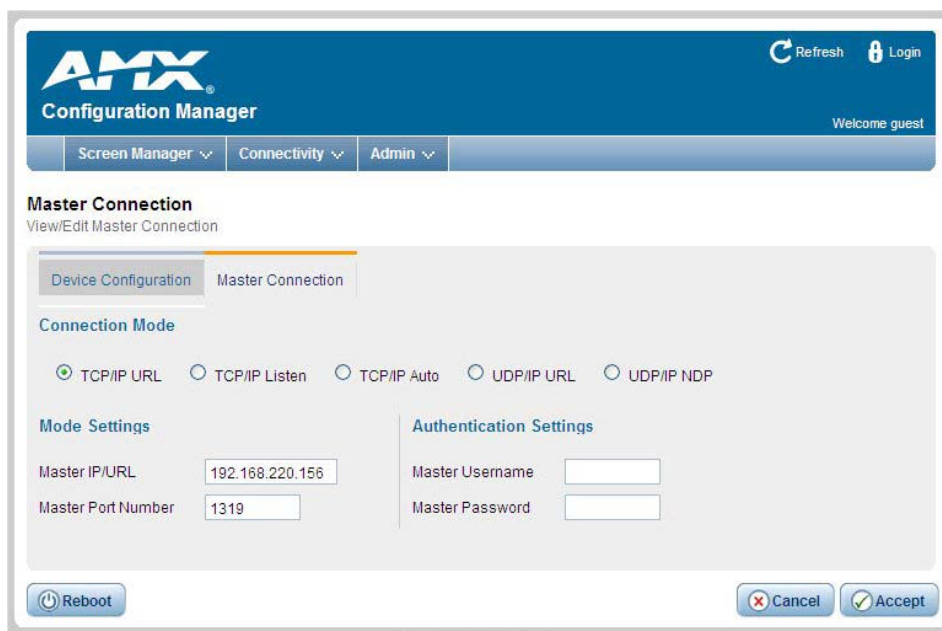
FIG. 17 Device Configuration page - Master Connection tab

Perform the following steps to establish communication between the NXV-CPI and a specific NetLinx Master:

1. Enter the Master's IP/URL in the *Master IP/URL* text field.
2. The default *Master Port Number* assignment is **1319** - do not change this number.
3. Under *Authentication Settings*, enter the NetLinx Master's *Username* and *Password* (only required if the target NetLinx Master has Authentication enabled).
4. Press **Accept** to save changes.
5. Press **Reboot** to reboot the NXV-CPI. Once rebooted, the NXV-CPI should be in communication with the Specified NetLinx Master (indicated by a steady blink on the NXV-CPI Status LED).

Zero Configuration

The zero configuration option enables you to turn on or turn off zero config access to the NXV-CPI. This option is enabled by default.
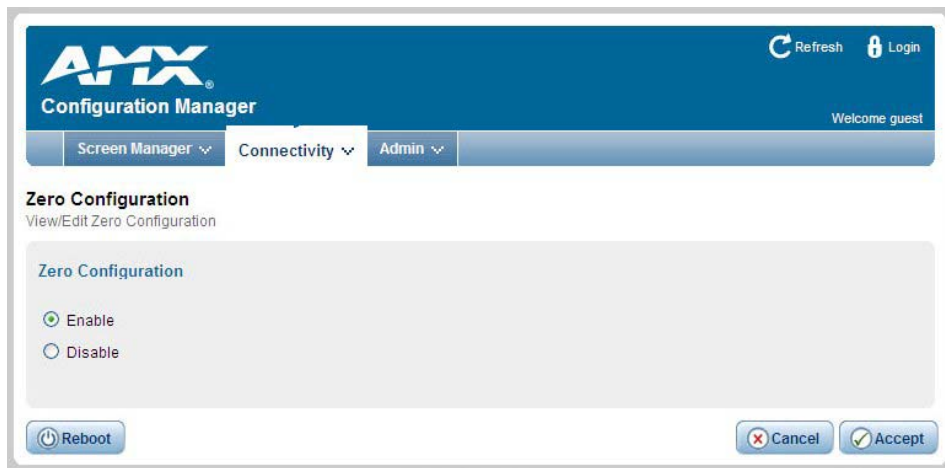
FIG. 18 Zero Configuration

1. Under *Zero Configuration*, select the **Disable** button to turn off zero configuration.
2. Press **Accept** to save changes.

Admin Menu

There are several configuration pages included in the Configuration Manager, all of which are accessed via the *Admin* drop-down menu (FIG. 19):

FIG. 19 NXV-CPI Configuration Manager - Admin menu

Click on an option in this menu to access each of the configuration pages, as described in the following subsections:

Security Settings

Select **Security Settings** from the Admin menu to open the *Security Settings* page (FIG. 20). Use the options on the page to specify security options and log on information for this NXV-CPI unit.
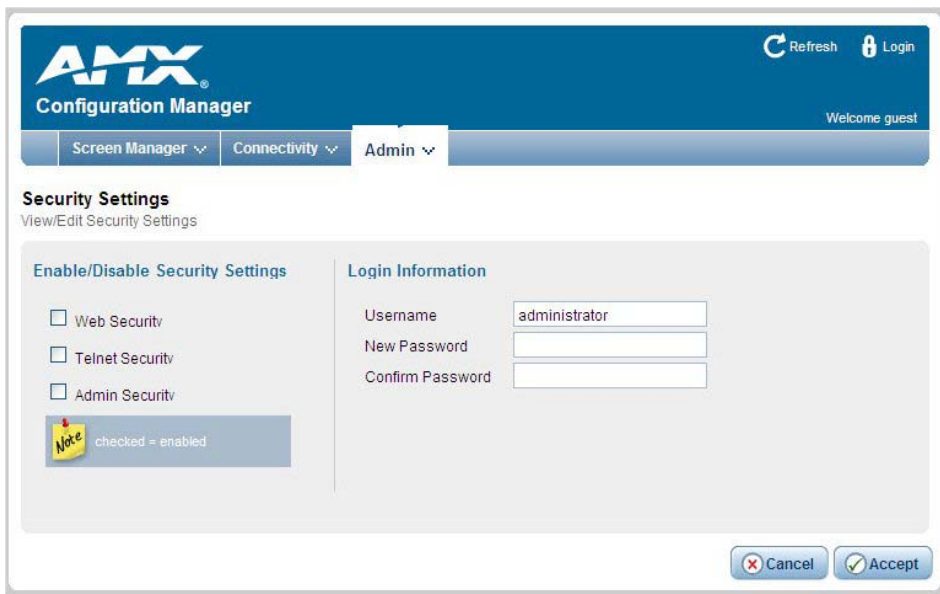
FIG. 20 Security Settings page

Enable/Disable Security Settings

Enable/Disable Security Settings Options	
Web Security:	Click this checkbox to enable Web Security. When Web security is enabled, a username and password are required to access any system Web pages. Default = disabled
Telnet Security:	Click this checkbox to enable Telnet Security. With Telnet Security enabled, a username and password are required to establish a Telnet or SSH connection. Default = disabled
Admin Security:	Click this checkbox to enable Admin Security. With Admin Security enabled, a username and password are required to modify any system configuration item. Default = disabled
Restore Factory Defaults:	Click to restore all security settings to their factory defaults. Default = All Disabled

Login Information

Use this set of options to specify a Username and Password. These will be required only if one or more of the Security Settings are enabled.

Login Information Options	
Username:	Enter the Username that will be required to log on to this unit if security is enabled. The default Username is "administrator".
New Password:	Enter a new password that will be required to log on to this unit if security is enabled. The default Password is "password".
Confirm Password:	Re-enter the new password in this field.
Restore Factory Defaults:	Click to restore the log on information to the factory defaults: • Default Username = **administrator** • Default Password = **password**

- Click **Accept** to save your changes. Note that changes on this page take effect immediately.
- Click **Cancel** to cancel any changes.

Configuration

Logging on to the Configuration Manager (with Security Enabled)

Logging on is only required if the *Web* and/or *Admin* security options have been enabled on the unit.

1. Click the **Login** link in the upper-right corner of the initial page (FIG. 5). This invokes the Login popup page (FIG. 21).

FIG. 21 NXV-CPI Configuration Manager - Login popup page

Enter the default log on information:
*   Username = **administrator**
*   Password = **password**

2. Click the **Login** button.

Once you have successfully logged on to the Configuration Manager, the IP Settings page is displayed, and can be edited as needed.

IP Settings

Select **IP Settings** from the Admin drop-down menu to open the *IP Settings* page (FIG. 22). Use the options on the page to specify network/IP settings for this NXV-CPI unit.
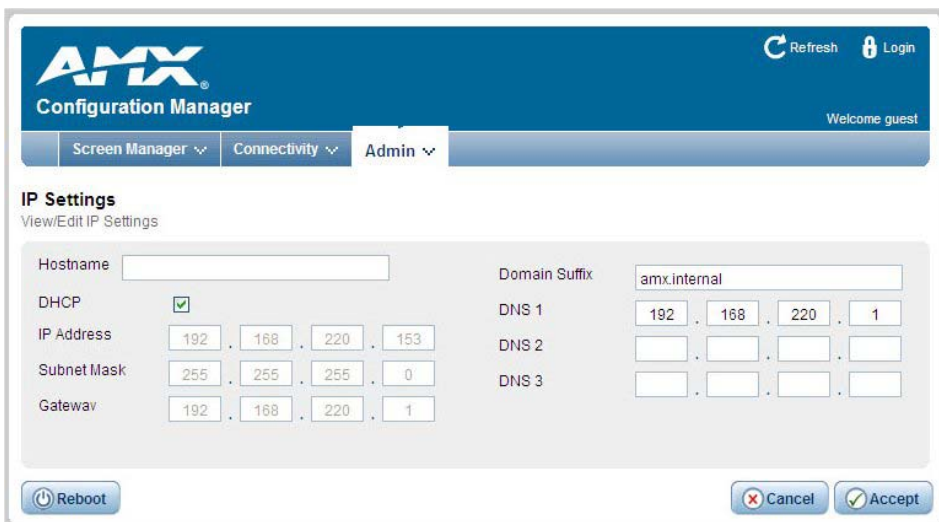
FIG. 22 IP Settings page

The following options appear on this page:

IP Settings Options	
Hostname:	Enter a Hostname for this unit (enabled only if DHCP is disabled).
DHCP:	Click to toggle DHCP on this unit (default = enabled). Note that DHCP must be enabled in order for the zero-configuration client (i.e. Bonjour for Windows) to detect the NXV-CPI on the network. See the *NetLinx Studio v3.0 (featuring Zero-Config functionality)* section on page 10 for details.
IP Address:	Enter an IP Address for this unit (enabled only if DHCP is disabled).
Subnet Mask:	Enter a Subnet Mask for this unit (enabled only if DHCP is disabled).
Gateway:	Enter a Gateway for this unit (enabled only if DHCP is disabled).
Domain Suffix:	Enter the Domain Suffix for this unit.
DNS 1, 2, 3:	Enter up to three DNS addresses for this unit.
Reboot:	Click to initiate a system reboot. IP Settings changes only take effect after a reboot.

Port Settings

Select **Port Settings** from the Admin drop-down menu to open the *Port Settings* page (FIG. 23). Use the options on the page to specify various Port settings for this NXV-CPI unit.
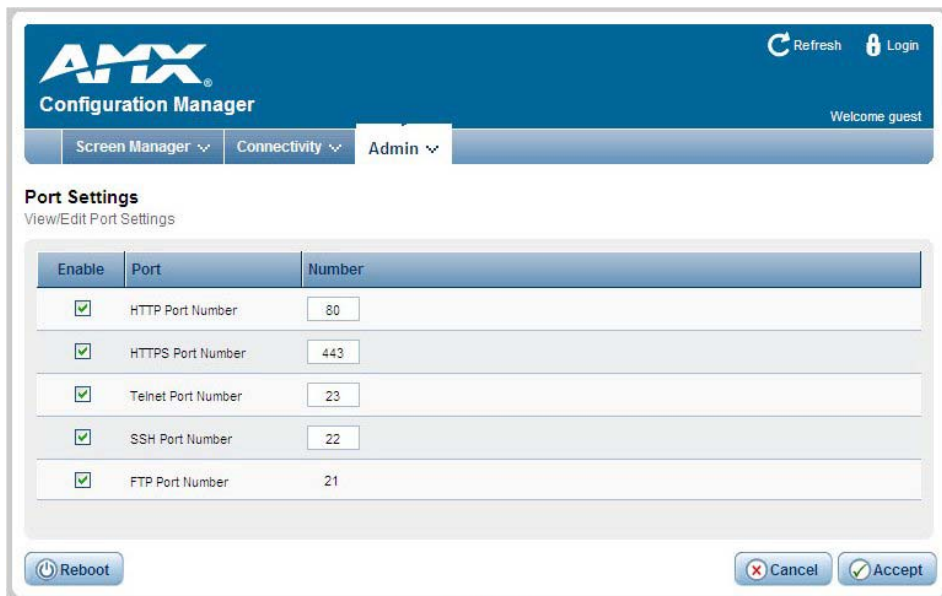
FIG. 23 Port Settings page

The options on this page provide inputs for enabling and disabling of HTTP, HTTPS, Telnet, SSH and FTP ports, and allow you to change each port number from its standard default assignment.

Port Settings Options	
Restore Factory Defaults:	Click to restore all Port settings to the factory defaults.
HTTP Port Number:	• Default = enabled • Default port number = **80**
HTTPS Port Number:	• Default = enabled • Default port number = **443**
Telnet Port Number:	• Default = enabled • Default port number = **23**
SSH Port Number:	• Default = enabled • Default port number = **22**
FTP Port Number:	• Default = enabled • Default port number = **21**
Reboot:	• Click to initiate a system reboot. • Port changes only take effect after a reboot.

Restore Settings

Select **Restore Settings** from the Admin drop-down menu to open the *Restore Settings* page (FIG. 24). Click the Restore Factory Settings button to restore the factory settings for this NXV-CPI unit.
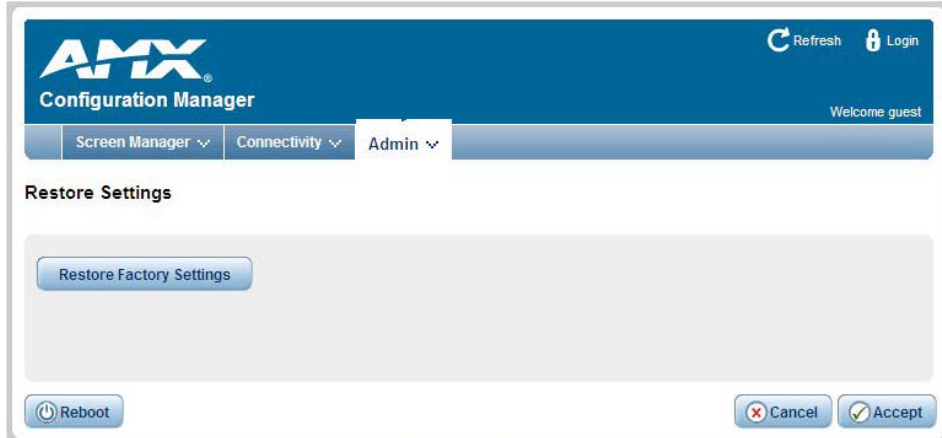
FIG. 24 Restore Settings page

Clock Manager

Hover the cursor over the **Clock Manager** option in the Admin menu to open the Clock Manager sub-menu (FIG. 25).
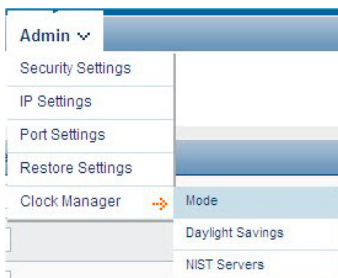
FIG. 25 Clock Manager sub-menu

Each of the options listed in the sub-menu are also accessible via options on the Clock Manager page.

Clock Manager - Mode Manager

Select the main Clock Manager entry in the Admin Menu, or select **Mode** from the Clock Manager sub-menu, and the *Mode Manager* page will be displayed (FIG. 26):
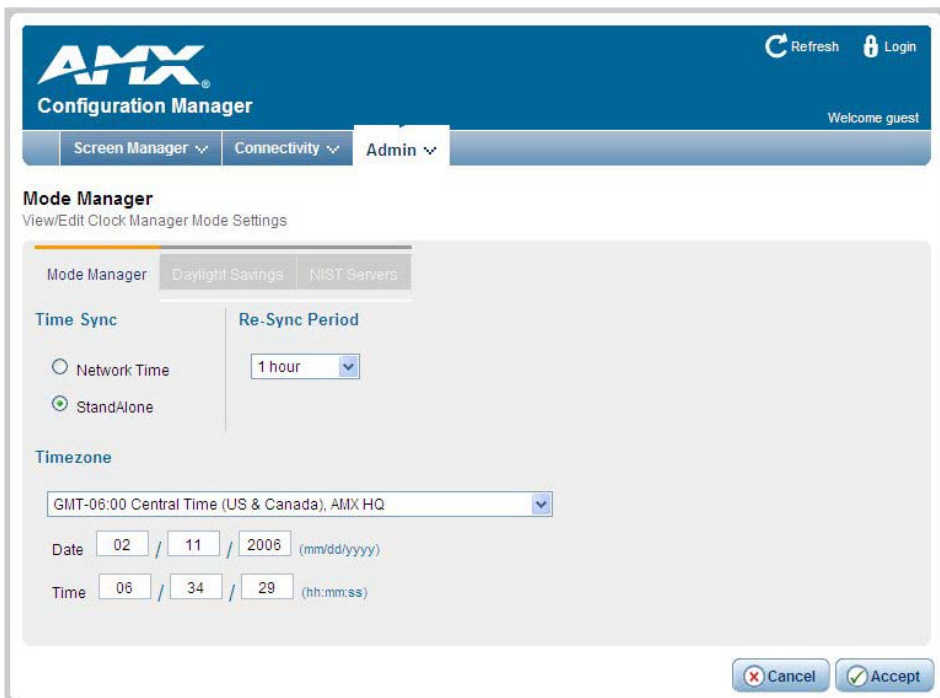
FIG. 26 Clock Manager - Mode Manager page

The options on the Mode Manager page provide inputs for selecting the current mode of the system time:

Mode Manager Options	
Time Sync:	Use the radio buttons to select either *Network Time* or *StandAlone*. • If using StandAlone mode, the time will be valid only until the unit is rebooted. Once the unit is rebooted, the time will be lost, and will have to be reset. • Note that the *Daylight Savings* and *NIST Servers* tabs are enabled only if *Network Time* is selected as the mode.
Re Sync Period:	Select the desired re-synch period for the clock from this drop-down menu. Re-synch period options include 5 minutes, 15 minutes, 1, 2 and 4 hours (default = 1 hour).
Timezone:	Select the appropriate Time Zone from the drop-down menu.
Date:	Use these fields to manually enter today's date (mm/dd/yyyy).
Time:	Manually enter the current time (hh:mm:ss).

- Click **Accept** to save your changes. Note that changes on this page take effect immediately.
- Click **Cancel** to cancel any changes.

Clock Manager - Daylight Savings

Select **Daylight Savings** from the Clock Manager sub-menu (or from the main Clock Manager page), and the *Daylight Savings Manager* page will be displayed (FIG. 27):
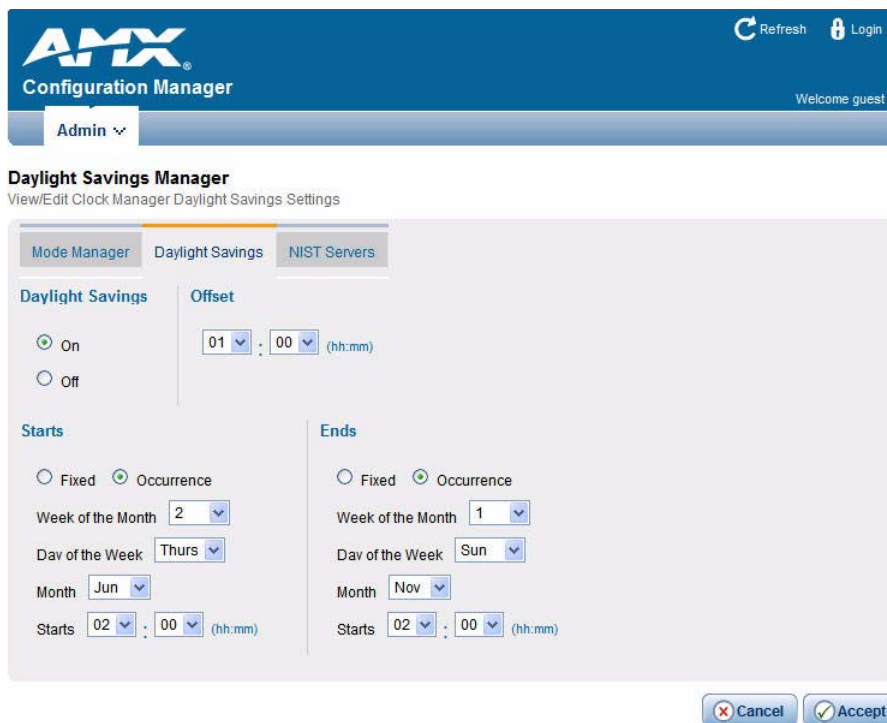
FIG. 27 Clock Manager - Daylight Savings Manager page

Note that this tab is enabled only if *Network Time* is selected (on the Mode Manager page). The options on this page allow you to enable and disable daylight savings, and specify daylight savings start and end times.

Daylight Savings Manager Options	
Daylight Savings:	Use these radio buttons to turn daylight savings time on and off (default = Off).
Offset:	Use these drop-down menus to specify the amount of time to offset the clock for daylight savings.
Starts:	These options allow you to specify when to start using daylight savings time. Select a month and time to start from the drop-down menus. • Select *Fixed* to start daylight savings at a specific Day, Month and Time (an additional field for *Day* is provided when this radio button is selected). • Select *Occurrence* to start daylight savings at a specified occurrence (additional fields for *Week of the Month*, and *Day of the Week* are provided).
Ends:	These options allow you to specify when to stop using daylight savings time. Select a month and time to start from the drop-down menus. • Select *Fixed* to end daylight savings at a specific Day, Month and Time (an additional field for *Day* is provided when this radio button is selected). • Select *Occurrence* to end daylight savings at a specified occurrence (additional fields for *Week of the Month*, and *Day of the Week* are provided).

- Click **Accept** to save your changes. Note that changes on this page take effect immediately.
- Click **Cancel** to cancel any changes.

Clock Manager - NIST Servers

Select **NIST Servers** from the Clock Manager sub-menu (or from the main Clock Manager page), and the *NIST Server Manager* page will be displayed (FIG. 28):

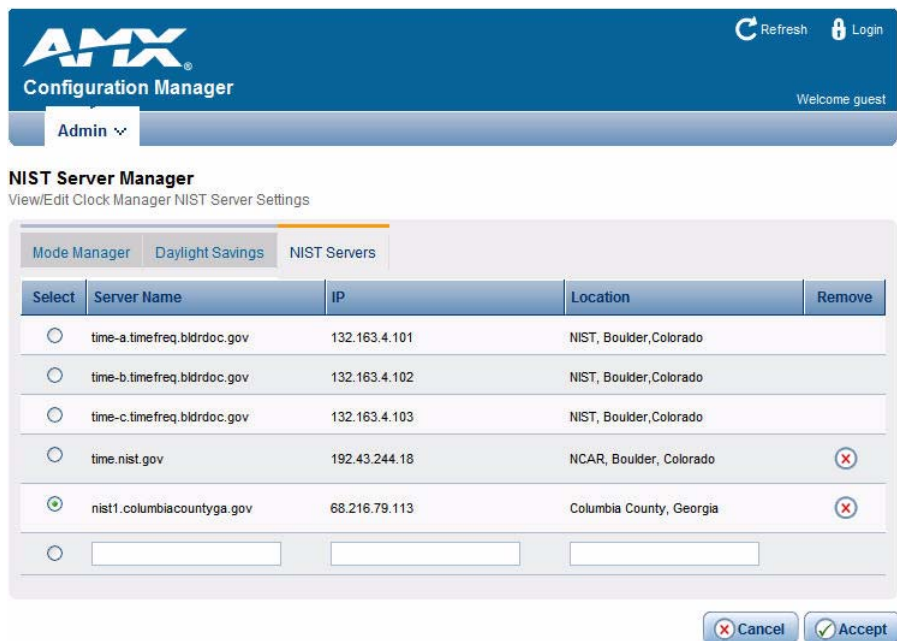**FIG. 28** Clock Manager - NIST Server Manager page

Note that this tab is enabled only if *Network Time* is selected (on the Mode Manager page).

The options on this page allow you to select the NIST server that will be queried at each clock synchronization, and allow you to add more NIST servers to the list.

NOTE: *Only one NIST server is selectable at any given time.*

To add a NIST server, enter the *NIST Server Name*, *IP Address,* and *Location* in the fields provided.

To remove a NIST server from the list, click the *Remove* button.

- Click **Accept** to save your changes. Note that changes on this page take effect immediately.
- Click **Cancel** to cancel any changes.

Cisco Configuration Assistant

In the Cisco Configuration Assistant, you must add the sub-menu */nxv-cpi* to the IP address in the *Services Menu Access* field.

NetLinx Firmware Upgrades

Overview

The NetLinx Studio software application (available for free download from www.amx.com) provides the ability to transfer KIT firmware files to a NetLinx device such as the NXV-CPI. To send firmware files, select **Tools > Firmware Transfers,** then select *Send to NetLinx Device* from the sub-menu.

Before You Start

1. Establish the Firmware and device Application versions currently loaded on your NXV-CPI. From the Connectivity menu, select *Device Configuration* (FIG. 29).
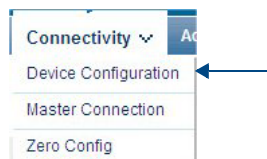
FIG. 29 Connectivity menu

2. Verify the current application version on the Device Configuration page (FIG. 30).
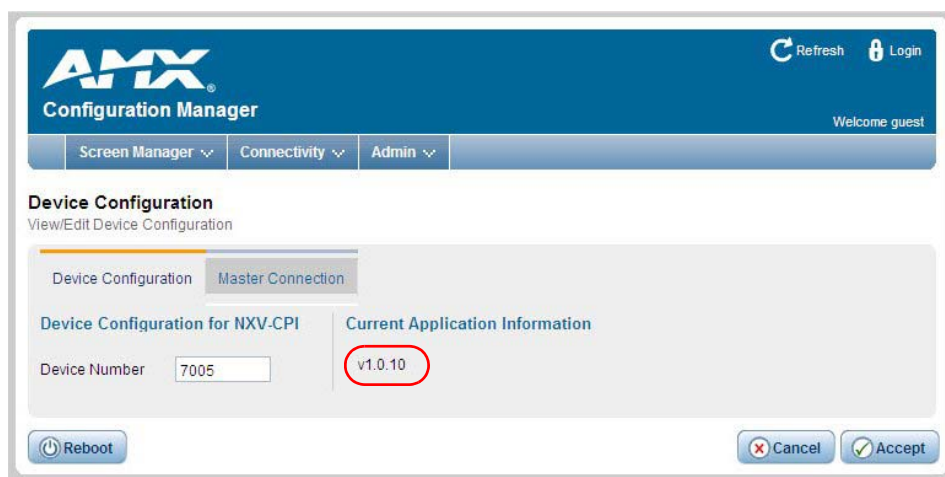
FIG. 30 Device Configuration page - Device Configuration tab

> **NOTE:** *Alternatively, you can identify the current firmware version via telnet (see Establishing a Terminal Connection Via Telnet section on page 29) - the Welcome banner indicates the current firmware version.*

3. Verify you have the latest version of NetLinx Studio on your PC. Use the **Web Update** option in NetLinx Studio's Help menu to obtain the latest version. Alternatively, go to www.amx.com and login as a Dealer to download the latest version.
4. Go to **www.amx.com** and download the latest Firmware file. Firmware files are available to download from www.amx.com - on the product's page in the online catalog.
5. Verify that an Ethernet cable is connected from the NetLinx Master to the Ethernet Hub.
6. Verify that the NetLinx Master is powered On.
7. Determine the Device Number assigned to the target NXV-CPI.
   - By default, the Device Number assigned to the NXV-CPI is **0** (zero).
   - The Device Number can be viewed/edited in the NXV-CPI Configuration Manager - Device Configuration Page (see the *Configuration* section on page 9 for details).
8. Launch NetLinx Studio and open the Online Device Tree.

Sending a Firmware (*.KIT) File To the NXV-CPI

Use the *Firmware Transfers* options in the Tools menu to update the firmware in the NXV-CPI. NetLinx Devices such as the NXV-CPI use KIT files for firmware upgrades.

NOTE: *A Kit file (*.KIT) is a package of several files, all of which are required to upgrade the firmware, and are available online via www.amx.com. Firmware download links are available in the relevant product page.*

   - The Online Device Tree (Online Tree tab of the Workspace Window) displays information about each online device, including the current firmware version.
   - Before attempting to upgrade the firmware, you must have the appropriate Kit file for your NXV-CPI.
   - To avoid system or network latency issues during file transfer, place KIT files in a "local" drive for speedy throughput.

1. Choose **Tools > Firmware Transfers > Send to NetLinx Device** to open the *Send to NetLinx Device* dialog box (FIG. 31).

Click to access the
Browse for Folder dialog
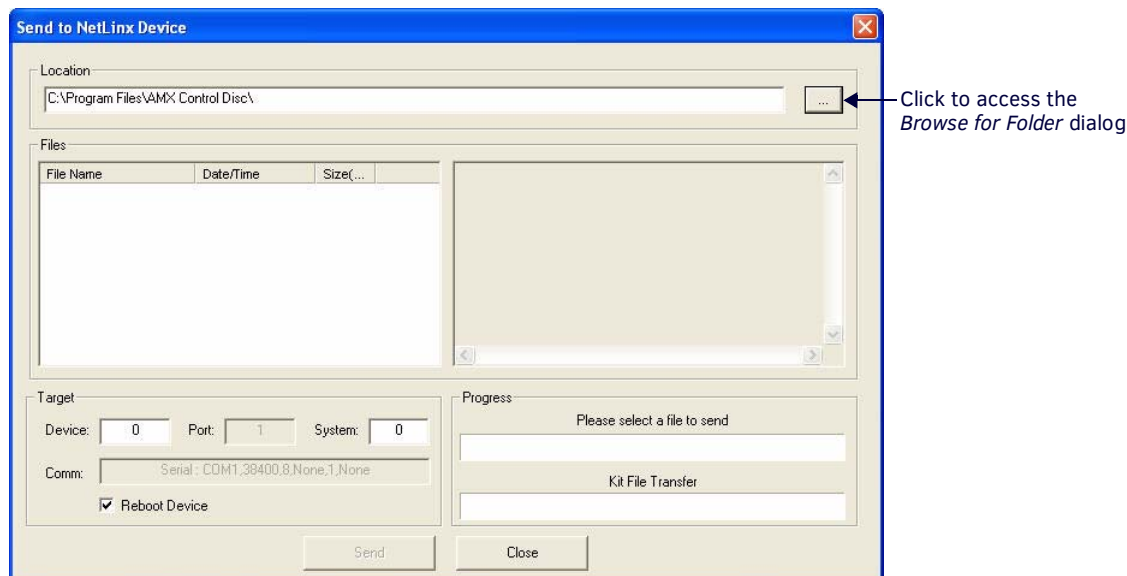
FIG. 31 Send to NetLinx Device dialog box (NetLinx Studio)

2. Click the **Browse (…)** button to navigate to the target directory in the *Browse for Folder* dialog box (FIG. 32).
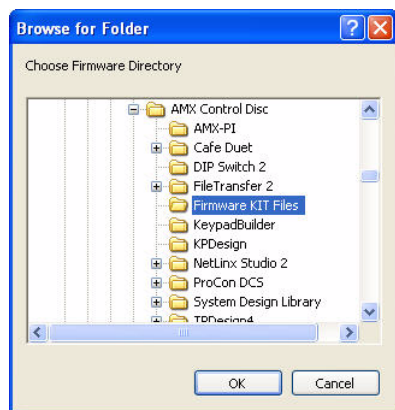
FIG. 32 Browse for Folder dialog box (NetLinx Studio)

The selected directory path is displayed in the *Send to NetLinx Device* dialog box (*Location* text box). Assuming that the specified target directory contains one or more KIT files, the KIT files in the selected directory are displayed in the *Files* list box, with the file's last modified date and time (FIG. 33).
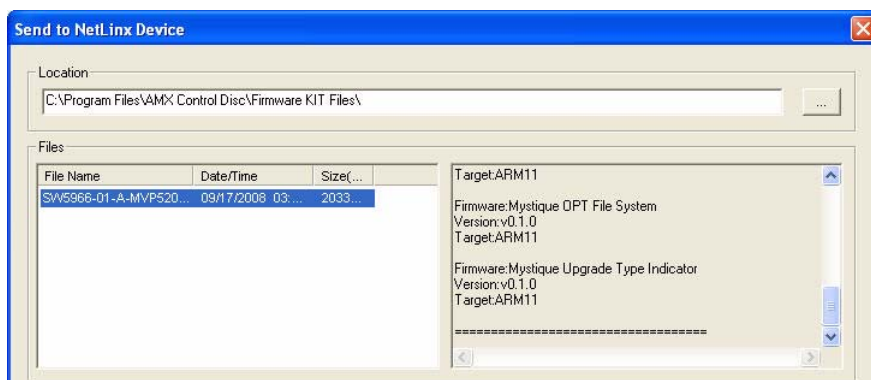
FIG. 33 Send to NetLinx Device dialog box (NetLinx Studio)

3. Select the appropriate *.KIT file from the *Files* list.
4. Enter the Device and System ID numbers for the NXV-CPI in the **Device** and **System** text boxes.
   - By default, the Device Number assigned to the NXV-CPI is **0**.
   - Use the Online Device Tree to determine the device's assigned ID, if it has been changed.
5. Review the File, Connection, Address, and Target Device information before you send.

6. Click the **Send** button. You can watch the progress of the transfer in the *Send to NetLinx Device* dialog box.

   NetLinx Studio transfers the files to the NXV-CPI and then tells it to reboot. After it reboots, the NXV-CPI actually goes through the upgrade process.

   - During the upgrade process, the Status LED blinks, and the NXV-CPI stays offline.
   - Once the upgrade is complete, the LED will stop blinking and the NXV-CPI will come online.

NOTE: *If for any reason your Kit file transfer should fail, continue to retry the transfer until you are successful. DO NOT reboot the NXV-CPI, or change connections until the transfer is complete. Failure to complete this operation successfully may require a factory repair of the NXV-CPI.*

Additional Documentation

For additional information on using NetLinx Studio, refer to the NetLinx Studio online help and Operation/Reference Guide (available at www.amx.com).

NetLinx Programming

Overview

The following sections list the NetLinx commands for the NXV-CPI.

NOTE: *Performance degrades with phone refreshes. It is beneficial to exit the phone application while programming.*

Page Commands

The NXV-CPI supports the following Page commands:

Page Commands	
Command	**Description**

PAGE	Flips to a page with a specified page name. If the page is currently active, it will not redraw the page.
	Syntax:
	`"'PAGE-<page name>'"`
	Variable:
	  page name = 1 - 50 ASCII characters. Name of the page the popup is displayed On.
	Example:
	`SEND_COMMAND Panel,"'PAGE-Page1'"`
	  Flips to page1.

"^" Button Commands

The NXV-CPI supports the following "^" Button commands:

"^" Button Commands	
Command	**Description**

^TXT	Assign a (non-Unicode) text string to a button at a specific address.
	Syntax:
	`"'^TXT-<address>,<text>'"`
	Variable:
	  address = 1 - 255
	  text = 1 - 50 ASCII characters
	Example:
	`SEND_COMMAND Panel,"'^TXT-500,Test Only'"`
	  Sets the text for a button at address 500.

Telnet Commands

Overview

The NXV-CPI supports Telnet communications. This type of terminal communication can be accessed remotely, via TCP/IP.

NOTE: *Telnet is an insecure form of terminal communication, since it does not require a physical connection to the device to connect. Further, the Telnet interface exposes information to the network (which could be intercepted by an unauthorized network client).*

NOTE: *It is recommended that you make initial configurations as well as subsequent changes via the Web Console. Refer to the Configuration section on page 9.*

Refer to the *Terminal Commands* section on page 29 for a listing of all commands available in a terminal session.

Establishing a Terminal Connection Via Telnet

1. In your Windows taskbar, go to **Start > Run** to open the Run dialog.
2. Type **cmd** in the *Open* field and click **OK** to open an instance of the Windows command interpreter (Cmd.exe).
3. In the CMD (command), type "**telnet**" followed by a space and the NXV-CPI's IP Address info.
    Example: `>telnet XXX.XXX.XXX.XXX`
4. Press *Enter*.
    - Unless Telnet security is enabled, a session will begin with a welcome banner:
      ```
      Welcome to AMX v1.0.36 Copyright AMX LLC 2008
      >
      ```
    - If Telnet security is enabled, type in the word **login** to be prompted for a Username and Password before gaining access to the NXV-CPI.
5. Enter your username to be prompted for a password.
    - If the password is correct you will see the welcome banner.
    - If the password is incorrect, the following will be displayed:
      ```
      Login: User1
      Password: *****
      Login not authorized. Please try again.
      ```
      After a delay, another login prompt will be displayed to allow you to try again.

      If after 5 prompts, the login information is not entered correctly, the following message will be displayed and the connection closed:
      ```
      Login not allowed. Goodbye!
      ```

NOTE: *If a connection is opened, but a valid a username / password combination is not entered (i.e. just sitting at a login prompt), the connection will be closed after one minute.*

Terminal Commands

The Terminal commands listed in the following table can be sent directly to the NXV-CPI via Telnet terminal session. In your terminal program, type "**Help**" or a question mark ("**?**") and <**Enter**> to access the Help Menu, and display the Program port commands described below:

Terminal Commands	
Command	Description
`----- Help -----`	(Extended diag messages are OFF)
`? or Help`	Displays this list of commands.

`DATE`	Displays the current date and day of the week.
	Example:
	`>DATE`
	`  10/31/2004 Wed`

`DISK FREE`	Displays the total bytes of free space available.
	Example:
	`>DISK FREE`
	`  The disk has 2441216 bytes of free space.`

`DNS LIST <D:P:S>`	Displays the DNS configuration of a specific device including Domain suffix and configured DNS IP Information.
	Example:
	`>DNS LIST [0:1:0]`
	`  Domain suffix:amx.com`
	`   The following DNS IPs are configured`
	`   Entry 1-192.168.20.5`
	`   Entry 2-12.18.110.8`
	`   Entry 3-12.18.110.7`

Terminal Commands (Cont.)

Command	Description
ECHO ON|OFF	Enables/Disables echo (display) of typed characters.
GET JAVA HEAP	Display the amount of memory allocated for Java pool. This is the current Java memory heap size as measured in megabytes. Example: a value of 5M = 5 MB
GET ETHERNET MODE	Displays the current ethernet configuration setting. Settings are either "auto" in which the ethernet driver will discover it's settings based on the network it is connected to OR <speed> and <duplex> where speed is either 10 or 100 and duplex is either full or half. Example: <code>>GET ETHERNET MODE Ethernet mode is auto.</code> *Note: See SET ETHERNET MODE.*

GET IP	Displays the current IP configuration.
	Example:
	<code>>GET IP
	  IP Settings
	    HostName MLK_INSTRUCTOR
	    Type DHCP
	    IP Address 192.168.21.101
	    Subnet Mask 255.255.255.0
	    Gateway IP 192.168.21.2
	    MAC Address 00:60:9f:90:0d:39</code>

IPSEC ON|OFF|STATUS	Enables/Disables IPSec security or displays current setting.
MEM	Displays the largest free block of the NXV-CPI's memory. Example: <code>>MEM The largest free block of memory is 11442776 bytes.</code>

MSG ON|OFF	Enables/Disables extended diagnostic messages.
	• MSG On sets the terminal program to display all messages generated by the NXV-CPI.
	• MSG OFF disables the display.
	Example:
	<code>> MSG ON
	  Extended diagnostic information messages turned on.
	> MSG OFF
	  Extended diagnostic information messages turned off.</code>

PING [ADDRESS]	Pings an address (IP or URL), to test network connectivity to and confirms the presence of another networked device. The syntax is just like the PING application in Windows or Linux. Example: <code>>ping 192.168.29.209 192.168.29.209 is alive.</code>
PWD	Displays the name of the current directory. Example: <code>pwd The current directory is doc:</code>
REBOOT	Reboots the NXV-CPI. Example: <code>>REBOOT Rebooting...</code>
RELEASE DHCP	Releases the current DHCP lease for the NXV-CPI. *Note: The NXV-CPI must be rebooted to acquire a new DHCP lease.* Example: <code>>RELEASE DHCP</code>
SECURITY SETUP	Modify system security settings.
SET DATE	Prompts you to enter the new date for the NXV-CPI. Example: <code>>SET DATE Enter Date: (mm/dd//yyyy) -></code> *Note: Due to the absence of a battery-backed real-time clock, setting the current date is only valid for the life of the current run. When the unit is rebooted, the date will be lost.*

Terminal Commands (Cont.)

Command	Description

SET DNS	Sets up the DNS configuration.
	This command prompts you to enter a Domain Name, DNS IP #1, DNS IP #2, and DNS IP #3.
	Then, enter Y (yes) to approve/store the information in the NXV-CPI.
	Entering N (no) cancels the operation.
	Note: The device must be rebooted to enable new settings.
	Example:
	<pre>>SET DNS
	-- Enter New Values or just hit Enter to keep current settings --
	
	  Enter Domain Suffix: amx.com
	  Enter DNS Entry 1 : 192.168.20.5
	  Enter DNS Entry 2 : 12.18.110.8
	  Enter DNS Entry 3 : 12.18.110.7
	
	  You have entered: Domain Name: amx.com
	                    DNS Entry 1: 192.168.20.5
	                    DNS Entry 2: 12.18.110.8
	                    DNS Entry 3: 12.18.110.7
	
	  Is this correct? Type Y or N and Enter -> Y
	  Settings written. Device must be rebooted to enable
	  new settings</pre>

SET JAVA HEAP	Set the amount of memory allocated for the Java pool. This is the current Java memory heap size as measured in Megabytes. • Valid values = 5M - 35M • Recommended default = 32M *Note: This setting does not take effect until the next reboot.*
SET ETHERNET MODE <CMD>	This command sets the current ethernet configuration settings - auto OR speed = 10 | 100, duplex = full | half. Example: <pre> set ethernet mode auto set ethernet mode speed=100 duplex=full</pre>*Note: See GET ETHERNET MODE.*

SET FTP PORT	Enables/Disables the NXV-CPI's IP port listened to for FTP connections.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET FTP PORT
	 FTP is enabled
	 Do you want to enable (e) or disable (d) FTP (enter e or d):
	 FTP enabled, reboot the NXV-CPI for the change to take affect.</pre>*Note: The FTP connection may fail to retrieve the directory listing for some clients.*

SET HTTP PORT	Sets the NXV-CPI's IP port listened to for HTTP connections.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET HTTP PORT
	 Current HTTP port number = 80
	 Enter new HTTP port number (Usually 80) (0=disable HTTP):
	 Setting HTTP port number to
	 New HTTP port number set, reboot the NXV-CPI for the change
	 to take affect.</pre>

SET HTTPS PORT	Sets the NXV-CPI's IP port listened to for HTTPS connections.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET HTTPS PORT
	 Current HTTPS port number = 443
	 Enter new HTTPS port number (Usually 443) (0=disable HTTPS):</pre>Once you enter a value and press the ENTER key, you get the following message:
	<pre> Setting HTTPS port number to
	 New HTTPS port number set, reboot the NXV-CPI for the change
	 to take affect.</pre>

Terminal Commands (Cont.)

SET IP	Sets the IP configuration.
	Enter a Host Name, Type (DHCP or Fixed), IP Address, Subnet Mask, and Gateway IP Address.
	Note: For NetLinx Central Controllers, the "Host Name" can only consist of alphanumeric characters.
	• Enter Y (yes) to approve/store the information into the NXV-CPI.
	• Enter N (no) to cancel the operation.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET IP
	--- Enter New Values or just hit Enter to keep current settings ---
	
	Enter Host Name: MLK_INSTRUCTOR
	Enter IP type. Type D for DHCP or S for Static IP and then Enter: DHCP
	Enter Gateway IP: 192.168.21.2
	
	You have entered: Host Name MLK_INSTRUCTOR
	                  Type DHCP
	                  Gateway IP 192.168.21.2
	Is this correct? Type Y or N and Enter -> y
	Settings written. Device must be rebooted to enable new settings.</pre>

SET LOG COUNT	Sets the number of entries allowed in the message log.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET LOG COUNT
	  Current log count = 1000
	  Enter new log count (between 50-10000):</pre>Once you enter a value and press the ENTER key, you get the following message:
	<pre> Setting log count to
	  New log count set, reboot the NXV-CPI for the
	  change to take affect.</pre>

SET SSH PORT	Sets the NXV-CPI's IP port listened to for SSH connections.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET SSH PORT
	  Current SSH port number = 22
	  Enter new SSH port number (Usually 22) (0=disable SSH):</pre>Once you enter a value and press the ENTER key, you get the following message:
	<pre> Setting SSH port number to 22
	  New SSH port number set, reboot the NXV-CPI for
	  the change to take affect.</pre>

SET TELNET PORT	Sets the NXV-CPI's IP port listened to for Telnet connections.
	Note: The NXV-CPI must be rebooted to enable new settings.
	Example:
	<pre>>SET TELNET PORT
	 Current telnet port number = 23
	 Enter new telnet port number (Usually 23)(0=disable Telnet):</pre>Once you enter a value and press the ENTER key, you get the following message:
	<pre> Setting telnet port number to 23
	  New telnet port number set, reboot the NXV-CPI for the
	  change to take affect.</pre>

SET TIME	Sets the current time.
	Example:
	<pre>>SET TIME
	  Enter Date: (hh:mm:ss) -></pre>*Note: Due to the absence of a battery-backed real-time clock, setting the current time is only valid for the life of the current run. When the unit is rebooted, the time will be lost.*

Terminal Commands (Cont.)

SHOW LOG	Displays the log of messages stored in the NXV-CPI's memory.
	The NXV-CPI logs all internal messages and keeps the most recent messages. The log contains:
	• Entries starting with first specified or most recent
	• Date, Day, and Time message was logged
	• Which object originated the message
	• The text of the message:
	```SHOW LOG [start] [end]```
	```SHOW LOG ALL```
	- <start> specifies message to begin the display.
	- If start is not entered, the most recent message will be first.
	- If end is not entered, the last 20 messages will be shown.
	- If <ALL> is entered, all stored messages will be shown, starting with the most recent.
	Example:

	``
	>SHOW LOG
	 Message Log for System 50 Version: v2.10.75
	 Entry Date/Time Object
	      Text
	 -- 	
	  1: 11-01-2001 THU 14:14:49 ConnectionManager
	      Memory Available = 11436804 <26572>
	  2: 11-01-2001 THU 14:12:14 ConnectionManager
	      Memory Available = 11463376 <65544>
	  3: 11-01-2001 THU 14:10:21 ConnectionManager
	      Memory Available = 11528920 <11512>
	  4: 11-01-2001 THU 14:10:21 TelnetSvr
	      Accepted Telnet connection:socket=14 addr=192.168.16.110 port=2979
	  5: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 10002:1:50
	  6: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 128:1:50
	  7: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OffLine 128:1:50
	  8: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 96:1:50
	  9: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OffLine 96:1:50
	 10: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 128:1:50
	 11: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 96:1:50
	 12: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 5001:16:50
	 13: 11-01-2001 THU 14:05:51 Interpreter
	      CIpEvent::OnLine 5001:15:50
	 14: 11-01-2001 THU 14:05:51 Interpreter
	``

SHOW HEAP	Displays heap usage statistics.
SHOW MEM	Displays the memory usage for all memory types.
TIME	Displays the current time on the NXV-CPI.
	Example:
	``` >TIME 13:42:04 ```

Last Revised:
1/29/2016