



*ConnectPort™ Display
User's Guide*

Making
DEVICE NETWORKING
easy™

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About this Guide

Purpose

This guide describes and shows how to configure, monitor, and administer ConnectPort™ Display.

Audience

This guide is intended for those responsible for setting up ConnectPort Display. It assumes that you are somewhat familiar with networking.

Scope

This guide focuses on configuration, monitoring, and administration of ConnectPort Display. It does not cover hardware details beyond a certain level or application development.

Where to Find More Information

In addition to this guide, you can find more information in the following documents:

- Online help and tutorials
- Context-sensitive assistance available in the Web-based interface to ConnectPort Display.
- ConnectPort Display Quick Start Guide
- RealPort[®] Installation Guide
- Release Notes
- Cabling Guides

Additional Product Information on www.digi.com

In addition to the previous documents, product information is available on the digi.com web site, including:

- Support Forums
- Knowledge Base
- Data sheets/product briefs
- Application/solution guides

Digi Contact Information

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Introduction

C H A P T E R 1

This chapter introduces ConnectPort™ Display, typical configuration scenarios in which ConnectPort Display is used, and the features available in ConnectPort Display.

ConnectPort Display

ConnectPort Display is a network-enabled video display hub. ConnectPort Display uses Display Over IP technology, making it easy to connect video displays anywhere on a wired or wireless LAN, while eliminating the need for locally-attached host PCs or thin clients. It provides one VGA or SVGA video port and multiple serial and USB ports for human interface devices such as a keyboard, mouse or touch panel. The ConnectPort software enables remote displays to communicate with the host PC, without changing existing application software. Remote displays can be centrally managed and monitored from a remote server or PC via an IP address.

ConnectPort Display allows for creating a “PC-free” retail environment, since you no longer need a dedicated PC, workstation, or thin client for each POS station. You can run your application on a back room server or PC and connect all of your peripheral devices at each service point. A ConnectPort Display retail solution can increase flexibility and security, lower total cost of ownership and improve your solution's security. For an example of using ConnectPort Display in such an environment, see "ConnectPort Display in Point-of-Sale Stations" on page 13.

The ConnectPort Display VNC client software communicates with a variety of free open source VNC server applications. This enables remote displays to communicate with the host PC without changing existing application software. Airport status displays or stadium scoreboards, for example, can be centrally managed and monitored from a remote server or PC via an IP address.

ConnectPort Display also supports standard terminal emulation, resulting in straightforward migration from legacy terminal-based systems. This gives you the flexibility to deploy ConnectPort Display today in a terminal oriented configuration and migrate to newer graphic displays whenever desired. ConnectPort Display is compatible with standard VGA or SVGA displays and can also be used with an AnywhereUSB™ network-enabled USB hub to add additional USB devices at the point of display.

ConnectPort Display currently supports connections to Human Interface Devices (HID); that is, devices that do not need additional drivers, such as a keyboard, mouse, and some scanners. Future releases of ConnectPort Display will support connections to a wider range of devices.

Configuring your ConnectPort Display for terminal emulation or remote access is easily performed through a setup wizard. To further fine-tune the configuration settings, monitor performance, and perform administration tasks, a Web user interface, command-line interface, and Simple Network Management Protocol (SNMP) interface are available.

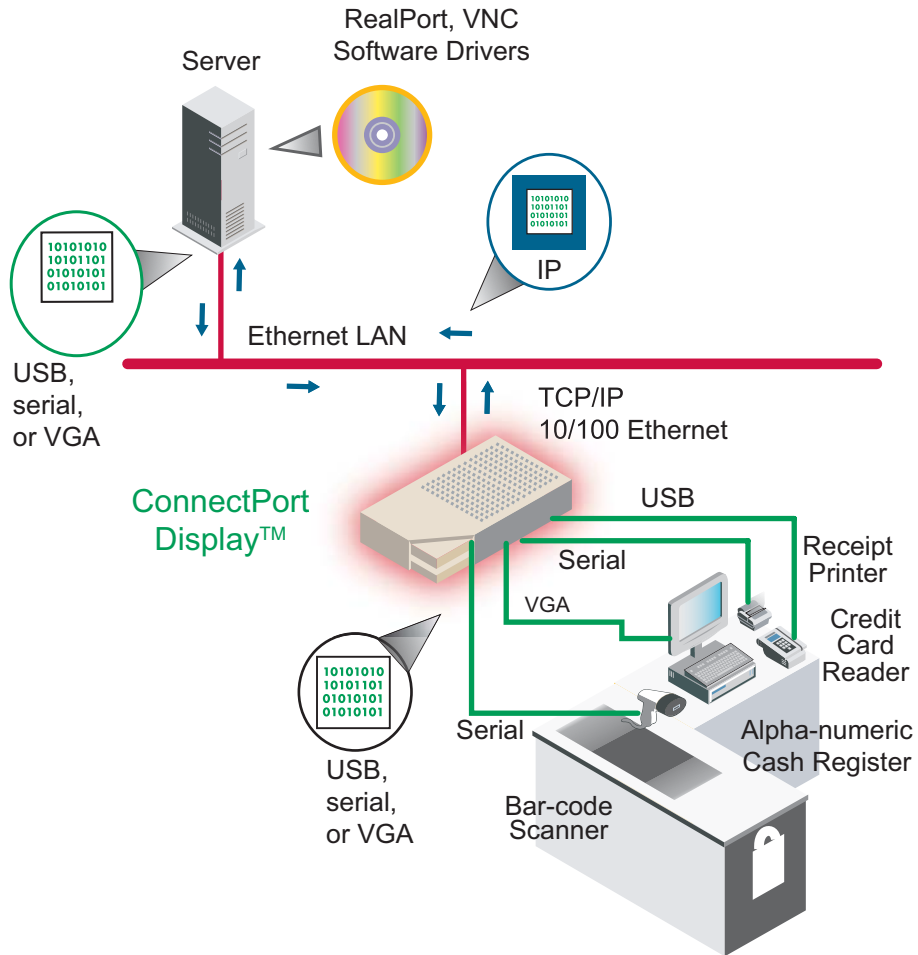
ConnectPort Display Configuration Examples

For a variety of display applications, relocating the host PC to a back office or other remote location translates to smaller deployment stations, centralized management and reduced IT support. By integrating ConnectPort Display into their configurations, information kiosk, elevator display, or outdoor display, manufacturers can eliminate the PC inside the enclosure, reducing concerns of extreme changes in temperature and humidity. ConnectPort Display is also an ideal solution for restaurant kitchens, access control systems, industrial automation, or any environment that is volatile, not secure or where having an on-site PC is impractical.

Following are several examples of ConnectPort Display in several display applications.

ConnectPort Display in Point-of-Sale Stations

This example shows ConnectPort Display in use in a point-of-sale station in a department store. The ConnectPort Display allows the business to remove PCs from the point-of-sale stations, and have them in the back-office operations instead.



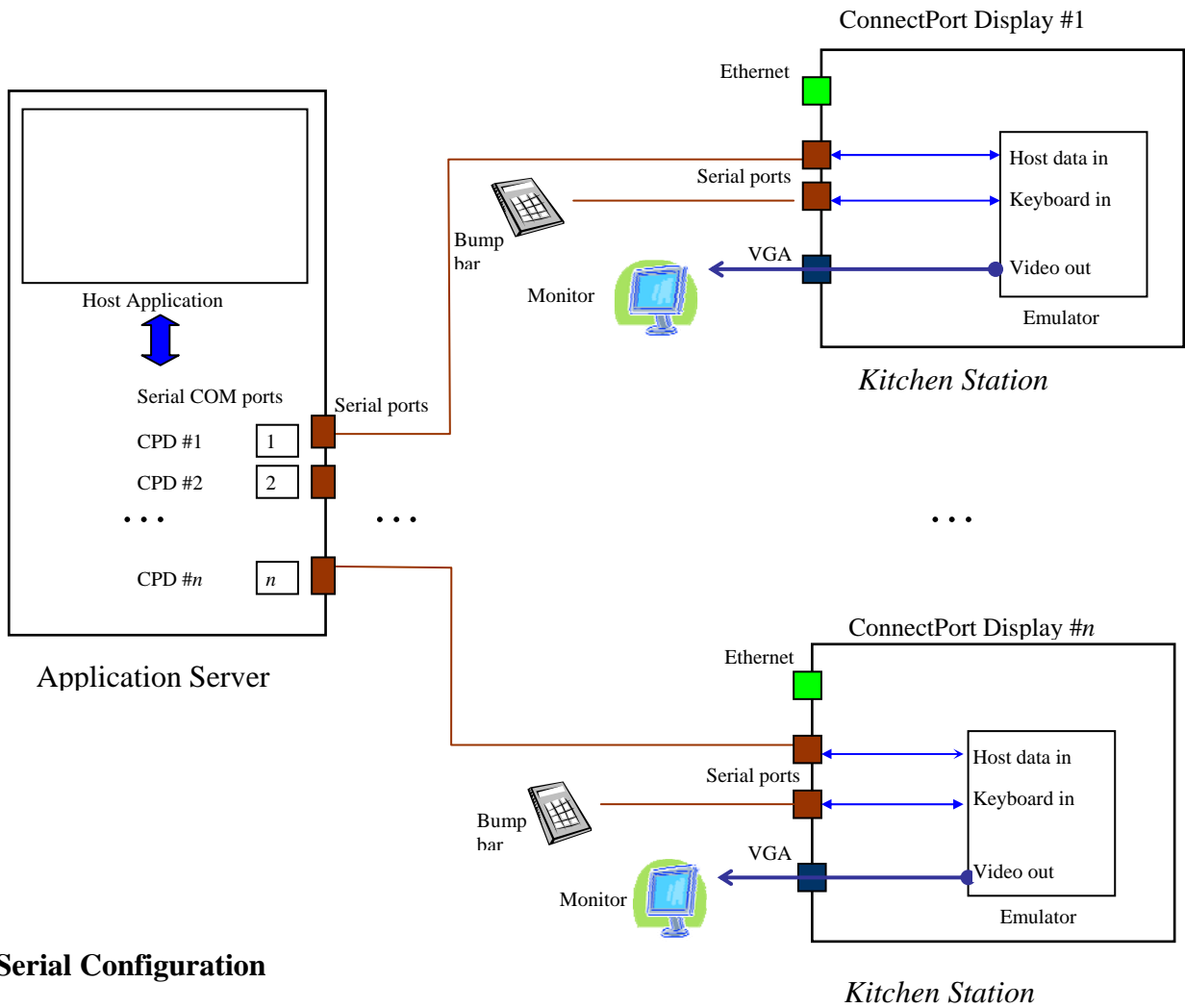
With the RealPort and VNC drivers being on the server, the ConnectPort Display allows for USB, serial, or VGA data and control to be transmitted over the network. The USB, serial, and VGA protocols are encapsulated in IP packets that are transmitted. The ConnectPort Display is compatible with standard VGA or SVGA displays and can also be used with an AnywhereUSB™ network-enabled USB hub to add additional USB HID devices such as a keyboard and a mouse at the point of display. (Future releases of ConnectPort Display will support USB connections to a wider range of devices.)

Restaurant Ordering Stations Example

Following are two configuration scenarios that show ConnectPort Display's terminal emulation capabilities in a restaurant ordering stations.

Serial Configuration

The following figure shows ConnectPort Display in a serial configuration. In this example, ConnectPort Display serves as a drop-in replacement for an existing kitchen display terminal. This configuration consists of the application server driving the remote displays through a serial connection. The display data is sent in the VT 200 data stream format. ConnectPort Display receives the display data, interprets the protocol, and renders the output to the attached display. A serial bump bar or other keyboard device may be connected to the ConnectPort Display. Data received from this bump bar will be relayed back to the server application over the host connection serial line. The ConnectPort Display can be configured to perform simple remapping of the bump bar key data.

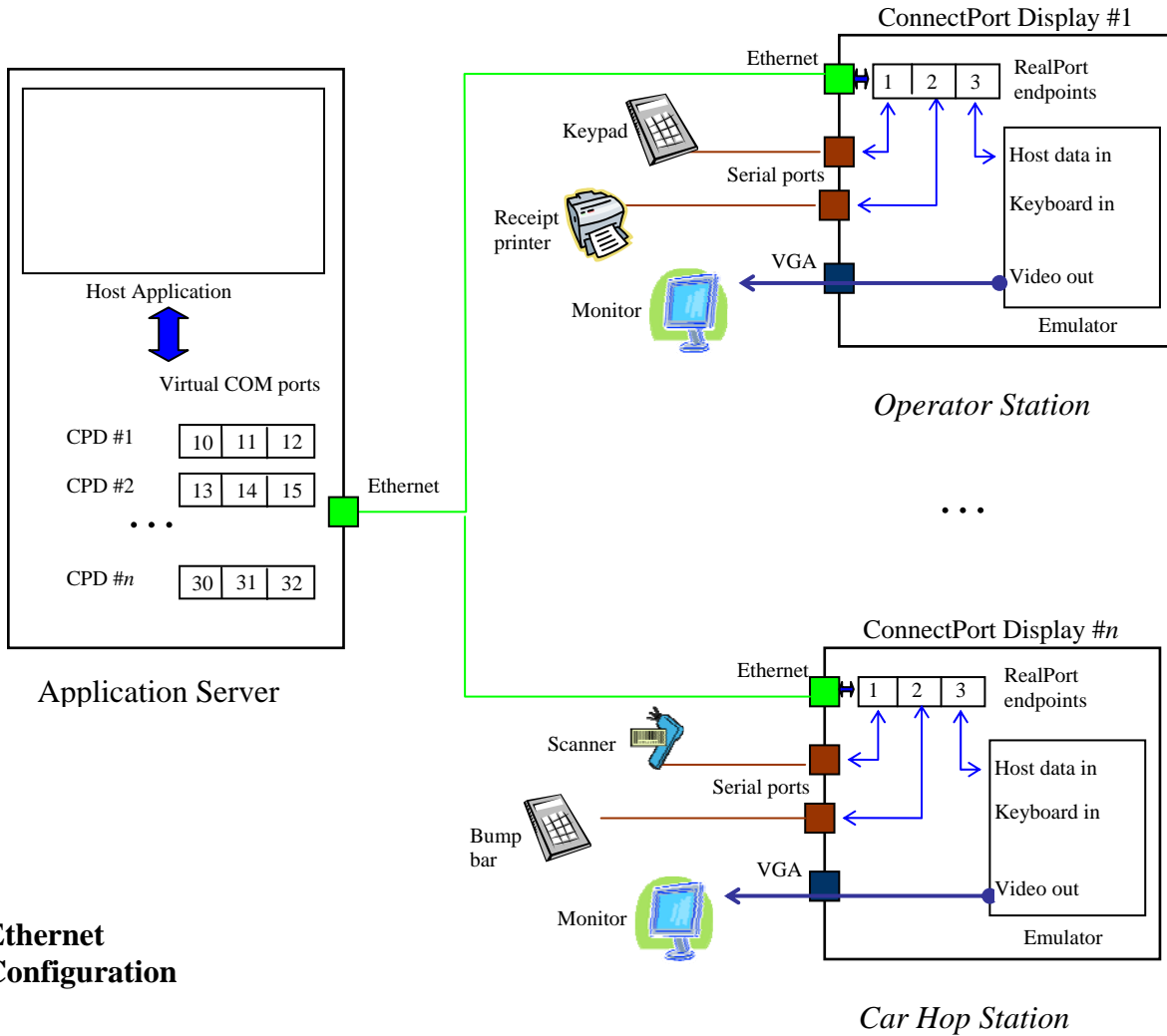


Serial Configuration

Ethernet Configuration

The second figure shows ConnectPort Display in an Ethernet configuration.

In this environment, the server application drives the remote displays through an Ethernet connection. The display data is sent in the VT200 data stream format. Instead of communicating with a serial communications port, the server application now communicates with a virtual communications port – both of these ports appear identical to the server application so no modifications are required to the server application. The virtual COM port transports the display data over the Ethernet to the destination ConnectPort Display where it is received, interpreted, and rendered to the attached VGA display. As in the first configuration, a local bump bar or other keyboard device may be attached to the ConnectPort Display if desired. In this configuration, one or both of the serial ports on the ConnectPort Display are now available for use as RealPort serial ports. In this fashion, those serial ports may be mapped back to additional virtual communications ports on the server for use by the application. The ConnectPort Display appears to have three serial ports. Actually, there are two native serial ports (serial port 1 and serial port 2), and one VGA/video port.



Ethernet Configuration

Other Industry Applications for ConnectPort Display

Other industries in which ConnectPort Display can be used to centralize or reduce PCs in their operations include:

- **Banking:** ConnectPort Display allows for teller display stations in the bank's customer area, and the server driving the teller stations to be secured in a back office.
- **Elevators:** Elevator stations that display advertising, building information, and include a touch panel are an emerging feature in luxury condominiums, hotels, and office buildings have. These stations have been set up by having a PC in each elevator car. By using ConnectPort Display in the elevator cars, building owners can have the PC controlling the elevator displays in a central site rather than on each elevator car. The ConnectPort Display units are linked to the PC by Ethernet cables in the elevator car's wiring system.
- **Industrial Automation:** ConnectPort Display provides a solution for areas which are not suited to having a PC in them but need a display and data-entry solution, such as clean-room environments, heavy-equipment environments, or environments with chemicals in the atmosphere.
- **Automobile dealerships:** ConnectPort Display provides a solution for the service department of an automobile dealership. The service department can have rugged display stations suited to the environment, while the PC is in an office elsewhere in the dealership.
- **Airports/airlines:** ConnectPort Display provides a solution for flight-status display stations. Rather than having a PC for every display station, the PC that gathers and displays flight data can be in a central site. The display stations instead have ConnectPort Display units that handle receiving and displaying the flight data from the central PC.

Features

Following is an overview of configurable features of the ConnectPort Display. More details on these features are in Chapter 2, "Configuring Devices."

Terminal Emulation Features

ConnectPort Display can emulate a terminal connected to a host PC or server. Data sent from the host application is processed and displayed on the terminal screen. A keyboard can also be used. If a keyboard is connected to the terminal, the keyboard data is sent to the host application for it to process.

The basic terminal emulation configuration involves defining the ports used for the host and keyboard connections, the height and width of the terminal, and how a cursor is displayed on the screen. Advanced terminal emulation settings are available, including handling of line-feed and backspace characters, the character set of data received from the host, and any key mappings used.

Remote Access Features

Your ConnectPort Display can provide remote access to a computer on the network or Internet, using the VNC (Virtual Network Computing) protocol. VNC server or VNC client software must be installed on the remote computer. A VNC server is provided on your ConnectPort Display Software and Documentation CD. You can interact with the remote computer using a keyboard and mouse connected to the USB ports on your ConnectPort Display. Besides enabling and configuring the VNC server, configurable options include whether the VNC server's desktop can be shared with other clients, use of a local (fast) mouse cursor, and use of TCP keep-alives. For more details, see "Configure Remote Access Settings" on page 57.

Video Features

Configurable options for the video screen connected to your ConnectPort Display include the resolution, refresh rate, and color depth of the display screen, and the amount of time, in seconds, to show the splash screen. For more details, see "Configure Video Settings" on page 59.

Hardware and Network Interface Features

A detailed list of hardware and network interface features in ConnectPort Display is in Chapter 5, "Specifications, Feature Details, and Certifications".

User Interfaces

There are several user interfaces for configuring and monitoring ConnectPort Display, including:

- The Digi Device Setup Wizard, a wizard-based tool for assigning an IP address to a ConnectPort Display, minimally configuring it, and installing RealPort software on your PC or server.
- A Web-based interface for configuring, monitoring, and administering ConnectPort Display.
- A Telnet Command-Line Interface.
- Simple Network Management Protocol (SNMP).

IP Address Assignment

There are several ways to assign an IP address to a ConnectPort Display:

- **Static IP:** Assign a specific IP address to a device, through the Digi Device Setup Wizard, the Web user interface, or the Command-Line Interface.
- **Using Dynamic Host Configuration Protocol (DHCP).** The ConnectPort Display device's default configuration is as a DHCP client. Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and to provide other configuration information.
- **Auto Private IP Addressing (APIPA), also known as Auto-IP:** A standard protocol that will automatically assign an IP address from a reserved pool of standard Auto-IP addresses to the computer on which it is installed. The device is set to obtain its IP address automatically from a DHCP server. But if the DHCP server is unavailable or nonexistent, Auto-IP will assign the device an

IP. If DHCP is enabled or responds later or you use ADDP, both will override the Auto-IP address previously assigned.

For more details, see "Assign an IP Address to the Device" on page 27.

RealPort Software

ConnectPort Display uses the patented RealPort COM/TTY port redirection for Microsoft Windows, UNIX, and Linux environments. RealPort software provides a virtual connection to serial devices, no matter where they reside on the network. The software is installed directly on the host PC and allows applications to talk to devices across a network as though the devices were directly attached to the host. Actually, the devices are connected to a Digi device somewhere on the network.

RealPort is unique among COM port re-directors because it is the only implementation that allows multiple connections to multiple ports over a single TCP/IP connection. Other implementations require a separate TCP/IP connection for each serial port. Unique features also include full hardware and software flow control, as well as tunable latency and throughput.

Access to RealPort services can be enabled or disabled.

Encrypted RealPort

ConnectPort Display supports the patent-pending RealPort software with encryption. Encrypted RealPort offers a secure Ethernet connection between the COM or TTY port and a device server or terminal server. Encryption prevents internal and external snooping of data across the network by encapsulating the TCP/IP packets in a Secure Sockets Layer (SSL) connection and encrypting the data using Advanced Encryption Standard (AES), one of the latest, most efficient security algorithms.

Digi's RealPort with encryption driver has earned Microsoft's Windows Hardware Quality Lab (WHQL) certification.

Drivers are available for a wide range of operating systems, including Microsoft Windows Server 2003, Windows XP, Windows 2000, Windows NT, Windows 98, Windows ME; SCO Open Server; Linux; AIX; Sun Solaris SPARC; Intel; and HP-UX. It is ideal for financial, retail/point-of-sale, government or any application requiring enhanced security to protect sensitive information.

Access to Encrypted RealPort services can be enabled or disabled.

Security Features

Security-related features in ConnectPort Display include:

- Secure access and authentication:
 - One password, one permission level.
 - Can selectively enable and disable network services such as ADDP, RealPort, Encrypted RealPort, HTTP/HTTPS, Remote Login, Remote Shell, SNMP, and Telnet.
 - Can control access to inbound ports.
 - Secure sites for configuration: HTML pages for configuration have appropriate security.
- Encryption:
 - Encrypted RealPort offers encryption for the Ethernet connection between the COM/TTY port and the ConnectPort Display.
- SNMP security:
 - Authorization: Changing public and private community names is recommended to prevent unauthorized access to the device.
 - You can disable SNMP set commands to make use of SNMP read-only.

Configuration Management

Once a ConnectPort Display is configured and running, configuration-management tasks need to be periodically performed, such as:

- Upgrading firmware
- Copying configurations to and from a remote host
- Software and factory resets
- Rebooting the device
- File management

For more information on these configuration-management tasks, see Chapter 4, "Administering Devices".

Configuring Devices

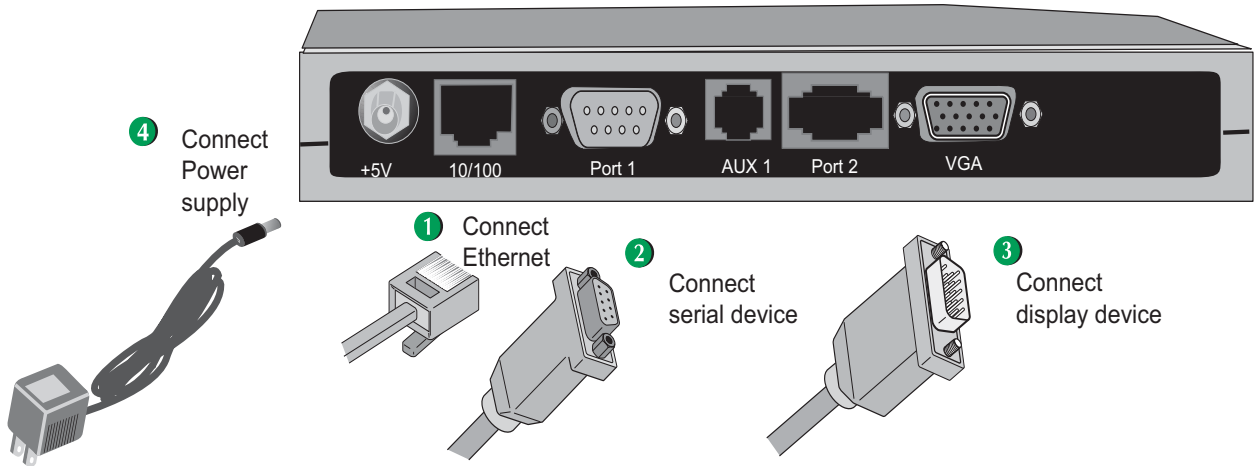
C H A P T E R 2

This chapter describes how to configure your ConnectPort Display. It covers the following topics:

- Hardware installation instructions
- Assign an IP address to the device, using one of the several alternative methods
- Configuration through the Digi Device Setup Wizard
- Configuration through the Web user interface
- Configuration through the Command-Line Interface
- Batch capabilities for configuring multiple devices

Hardware Installation

If you have not already unpacked and connected your ConnectPort Display, the following diagram shows how to connect it to a power supply, Ethernet, a serial device, and a display device. For more details on the cables used for connections, see the *ConnectPort Display Quick Start Guide*.



Assign an IP Address to the Device

There are several ways to assign an IP address to a device:

- Using the Digi Device Setup Wizard.
- Using Dynamic Host Configuration Protocol (DHCP) from the Web user interface.
- Using Automatic Private IP Addressing (APIPA), also known as Auto-IP.

Configuring the IP Address Using the Digi Device Setup Wizard

Using the Digi Device Setup Wizard is the preferred method of assigning an IP address and initially configuring your ConnectPort Display. The Digi Device Setup Wizard is supplied on the CD that accompanies your ConnectPort Display.

The Digi Device Setup Wizard “discovers” the device, and then provides a method for assigning an IP address as well as configuring your device for your needs. It can be used in conjunction with the web interface to ‘tweak’ the specific environment. Setup is specially designed for the Windows environments, and is quick, automated, and complete.

Prerequisites

This procedure assumes the following:

- The ConnectPort Display is connected to the network and powered up.
- The CD will be used on a system running Microsoft Windows operating system or a Unix operating system.
- That you have located the MAC address for the ConnectPort Display, located on the label on the bottom of the product, and recorded it for later use in assigning an IP address.

Procedure

- 1 Insert the Digi CD in the CD drive.
If the CD does not start automatically, double-click **My Computer > CD ROM Drive > setup.exe**.
- 2 The Digi Device Setup Wizard will automatically pop up. Select your platform and click **Next**.
The Digi device discovery utility finds and lists all of the Digi devices on your network.
- 3 Locate your ConnectPort Display by its MAC address.
- 4 Select the ConnectPort Display and then click **Next**.

Follow the instructions in the wizard to configure your ConnectPort Display. Use the online help supplied with the wizard if you need more information about values the wizard prompts you to supply and select.

Configuring the IP Address Using DHCP

You can also configure an IP address using Using DHCP.

Prerequisite

This procedure assumes the following:

- That the ConnectPort Display is configured as a DHCP client. Since this is the default configuration, this will be the case unless the configuration has been changed.
- That the ConnectPort Display is not powered on.

Procedure

- 1 Set up a permanent entry for the ConnectPort Display on a DHCP server.
- 2 Connect the ConnectPort Display to the network and power it on. The IP address configured in step 1 is assigned automatically.

Configuring the IP Address using Auto-IP

The standard protocol Automatic Private IP Addressing (APIPA or Auto-IP) assigns the IP address from the reserved IP addresses in Auto-IP. Use ADDP or DHCP to find the device and assign it a new IP address that is compatible with your network. Once the unit is plugged in, Auto-IP automatically assigns the IP address.

Testing the IP Address Configuration

Once the IP address is assigned, you should test the IP address configuration to be sure it works as configured.

Prerequisite

This procedure assumes that you have configured the ConnectPort Display with an IP address.

Procedure

- 1 Access the command line of a PC or other networked device.
- 2 Issue the following command:

```
ping ip-address
```

where *ip-address* is the address you assigned to the ConnectPort Display.

Example

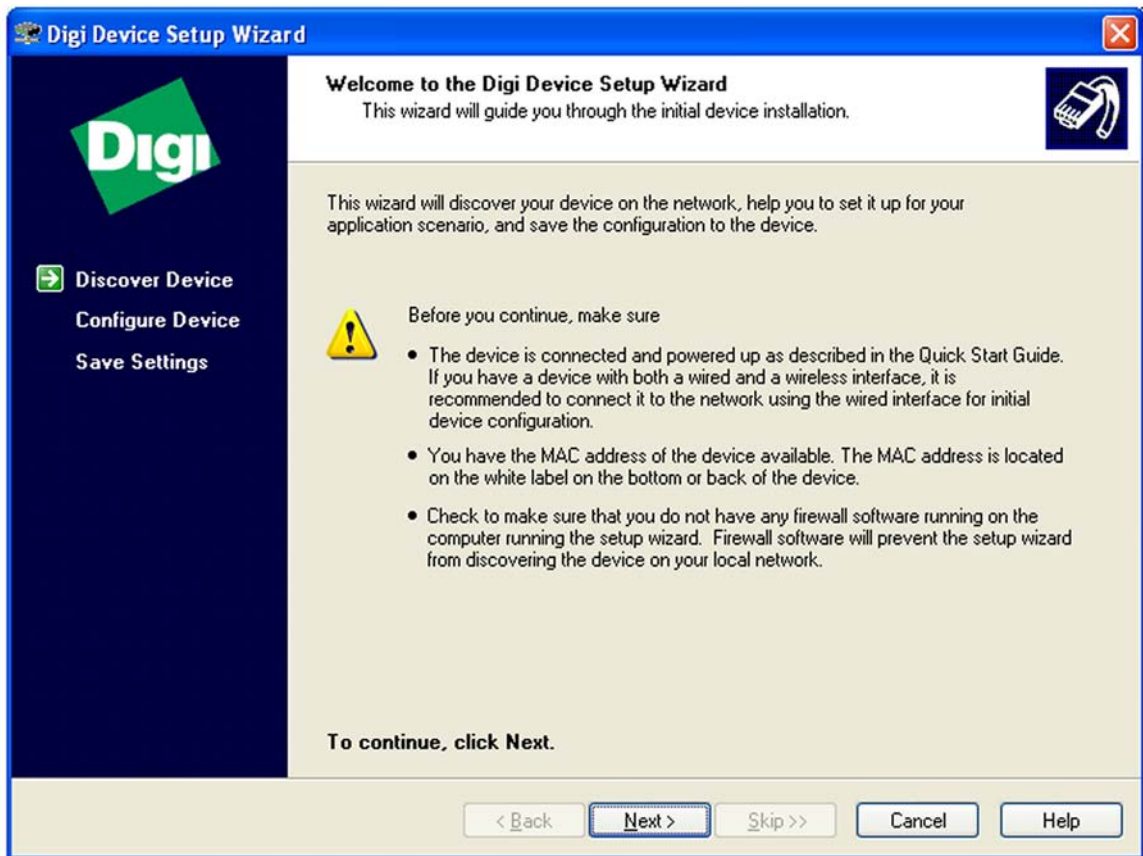
```
ping 192.168.2.2
```

A reply should be returned. The IP address will be displayed on the screen briefly while the ConnectPort Display is powering/booting up.

Configuration through the Digi Device Setup Wizard

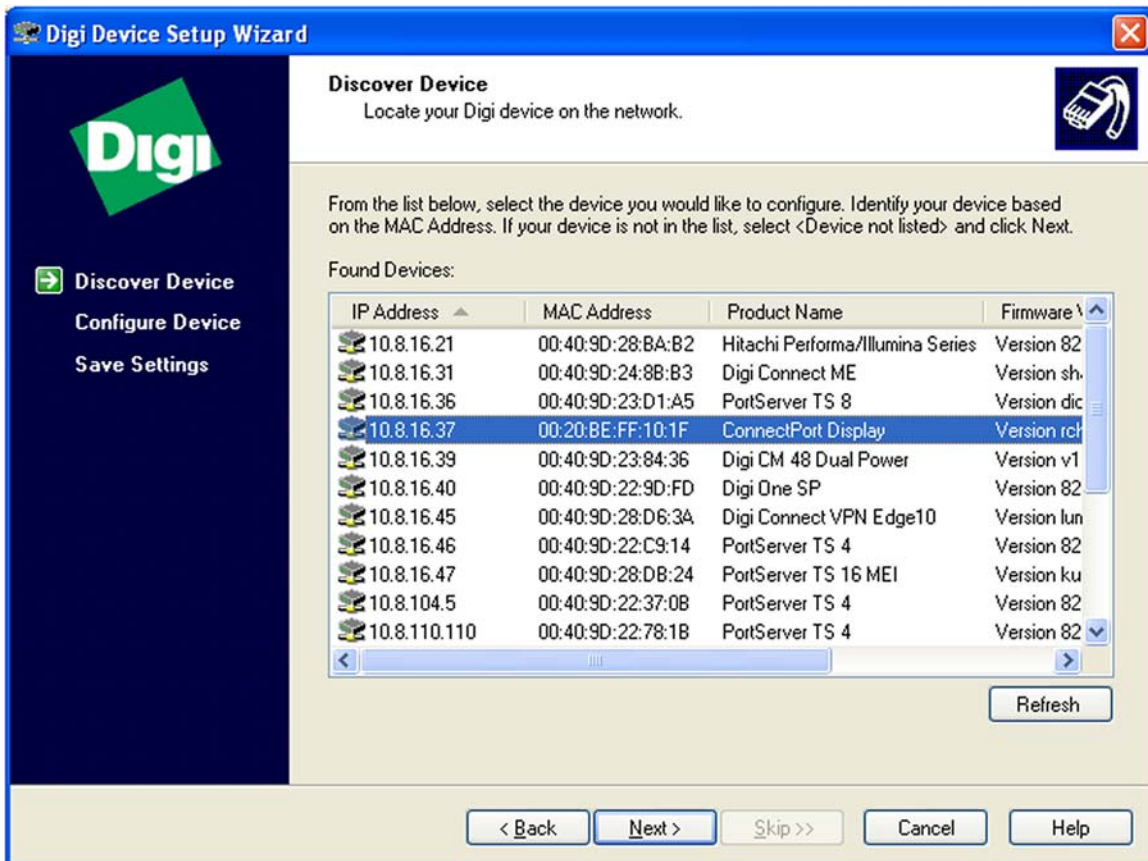
The Digi Device Setup Wizard discovers your ConnectPort Display on the network, configures basic network settings, configures the ConnectPort Display for use as a terminal emulator or for remote access, and, as needed, installs RealPort and VNC server software on your PC or server.

To run the Digi Device Setup Wizard, insert the Software & Documentation CD packaged with your ConnectPort Display. The first screen of the wizard is displayed. Click **Next**.



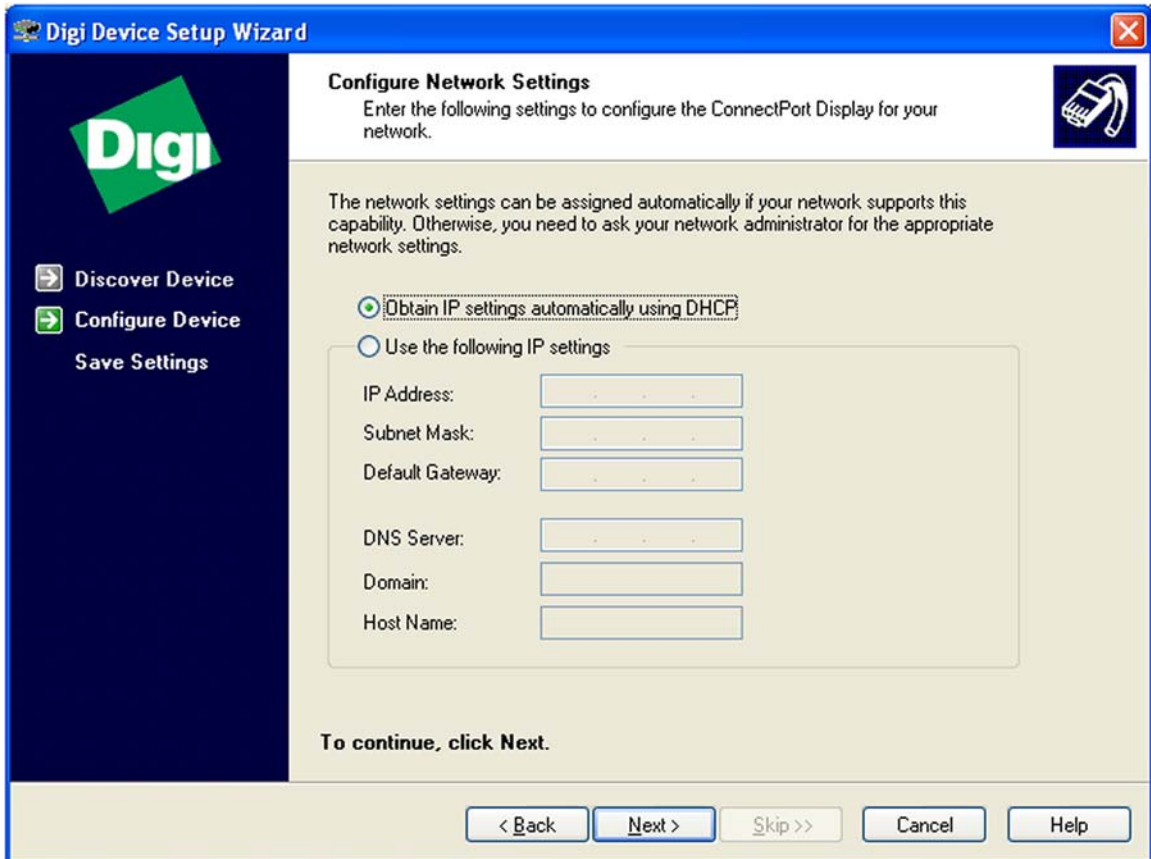
Discover the Device

The Discover Device screen of the Digi Device Setup Wizard displays a list of Digi devices that have been discovered on the network. Locate the ConnectPort Display you want to configure, and double-click it.



Configure Network Settings

On the Configure Network Settings screen, you specify how the IP address settings are established for your ConnectPort Display. You can either choose to obtain the IP settings automatically using DHCP, or manually enter the IP settings.



Configure ConnectPort Display Settings

On the Configure ConnectPort Display Settings screen, choose whether your ConnectPort Display will be used as a terminal emulator or for remote access.



Configure ConnectPort Display for Terminal Emulation

To configure your ConnectPort Display for terminal emulation, use the default value for the Device Setup option, Terminal Emulator.

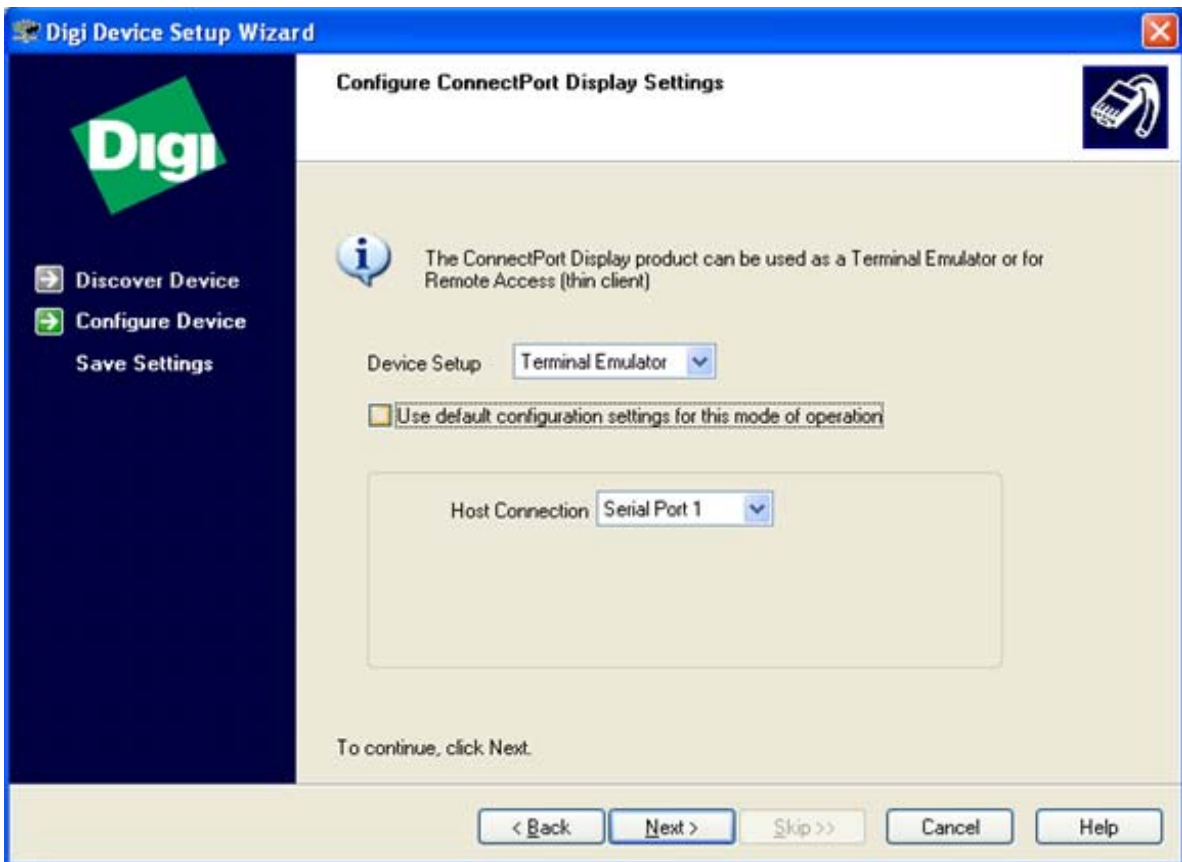


You can use the default configuration settings for terminal emulation, or specify your own settings.

To use the default settings for terminal emulation, keep the checkbox **Use default configuration settings for this mode of operation** selected, and click **Next**.

The default settings are: 9600 8N1, which means that the device is using a baud rate of 9600 bits per second, 8 data bits, no parity, and 1 stop bit, with software flow control.

To use different settings from these defaults, deselect **Use default configuration settings for this mode of operation**.

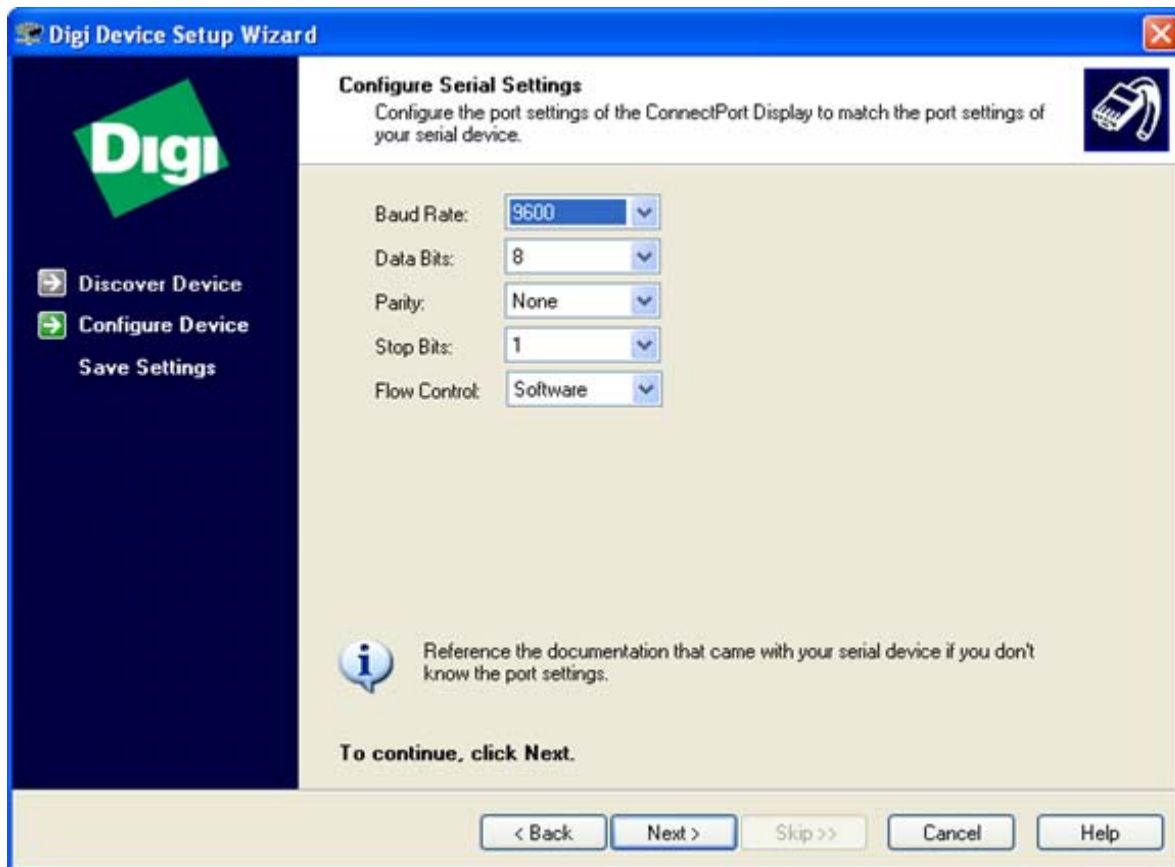


The **Host Connection** setting is displayed. This setting specifies how the terminal emulator connects to a host application, and how it reads input from the host. The terminal emulator reads input from a host application and displays it on the screen. Input can be read over one of the two serial ports on the ConnectPort Display, or over the network using Realport.

When using a network connection, you must install the RealPort driver software on the host PC or server. This will create a virtual COM port for each serial port on your ConnectPort Display (these are the traditional RealPort COM ports) as well as one additional virtual COM port that can be used for the terminal emulator connection. The host application must be configured to use this additional virtual COM port.

Configure Serial Settings

The Configure Serial Settings screen is displayed. On this screen, you specify the communications parameters for the Host Connection.



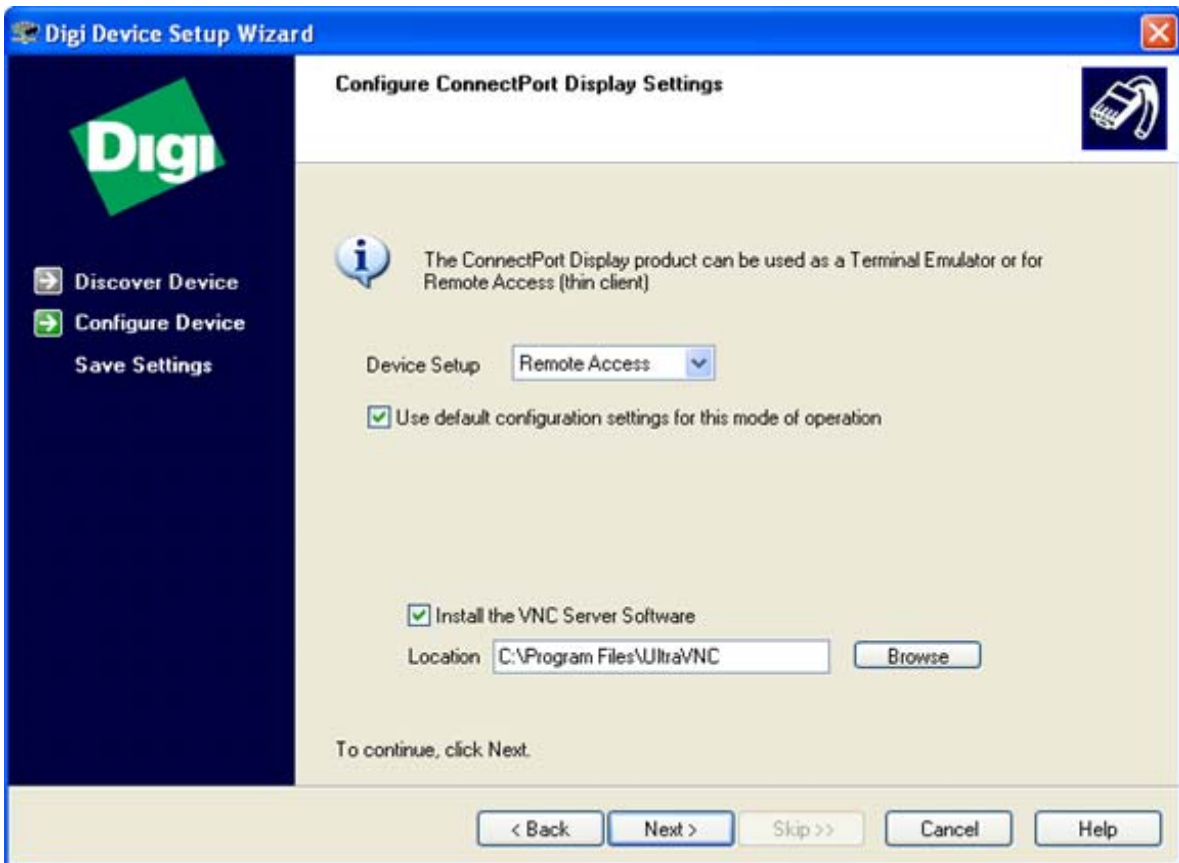
Fine-Tune Configuration As Needed Later

To further configure terminal emulation settings after the wizard completes, use the Terminal Emulation page of the Web user interface as described on page 50. Or use the “set putty” and “set video” commands in the command-line interface, as described in the *Digi Connect Family Command Reference*.

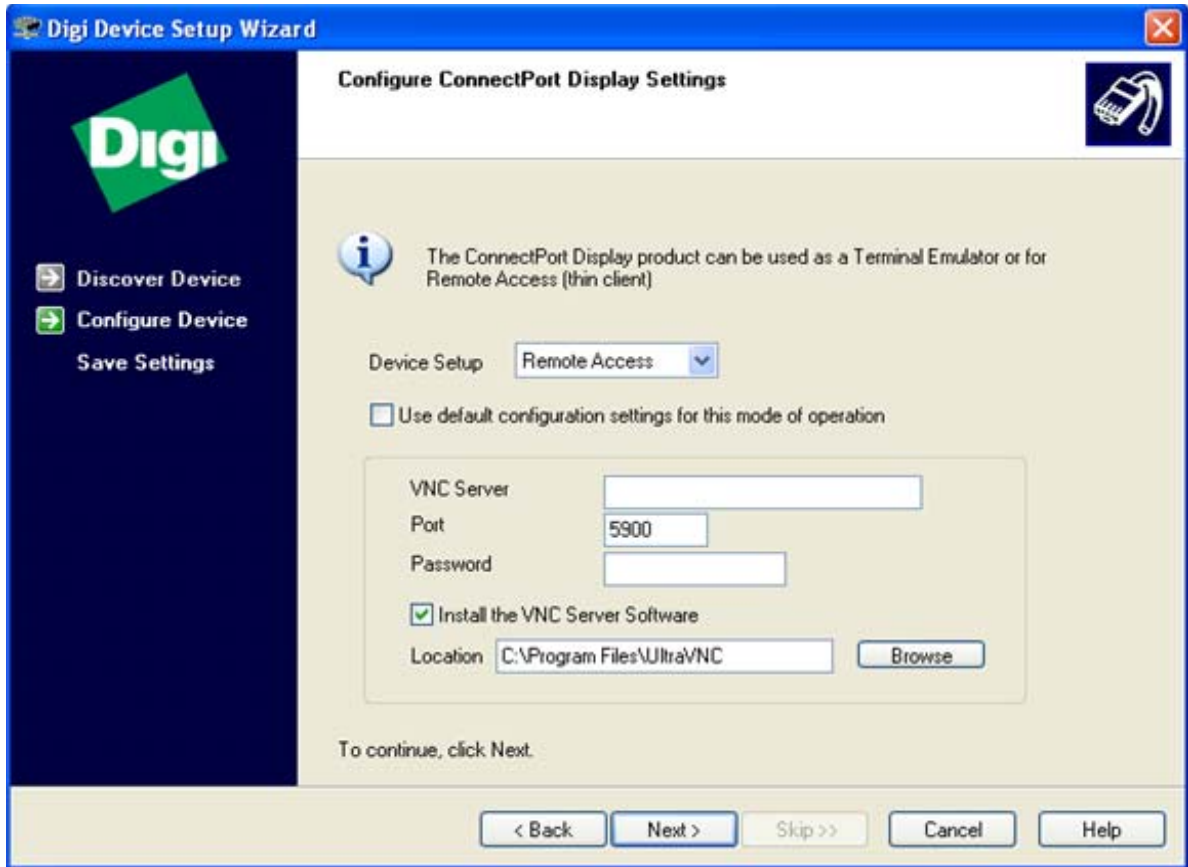
Configure ConnectPort Display for Remote Access

Your ConnectPort Display can provide remote access to a computer on the network or Internet, using the VNC (Virtual Network Computing) protocol. You can interact with the remote computer using a keyboard and mouse connected to the USB ports on your ConnectPort Display.

To configure your ConnectPort Display for remote access, also known as a thin client configuration, choose **Remote Access** for the Device Setup option.



You can choose to use default configuration settings or specify your own. Deselecting **Use default configuration settings for this mode of operation** displays several remote access settings:



Fill in these settings as follows:

- **VNC Server:** Specify the IP address of the VNC server to connect to.
- **Port:** The network port number to connect to on the VNC server. The default network port number for VNC servers is 5900.
- **Password:** The password for logging on to the VNC server.
- **Install the VNC Server Software:** Specifies whether VNC server software should be installed on the host computer, and where it should be installed.

About the VNC Server Software

The software and documentation CD that accompanies your ConnectPort Display includes a VNC server that you can install. This VNC server is for Windows. If you want to connect to a Linux system, read the documentation that accompanies your Linux distribution.

The VNC server provided with your ConnectPort Display is called UltraVNC. This VNC server installs a special video driver; (mirror” driver) on your system that provides superior performance on Windows 2000 and XP systems.

If you already have another version of UltraVNC on your system, you need to uninstall it first, and then reboot. The reboot is critical to the server’s operation and performance. After rebooting, you can then install the UltraVNC from the software and documentation CD, and then reboot again. Failure to follow this sequence correctly can result in the driver not being installed properly, and will affect performance. While the VNC server will work, it will be slower.

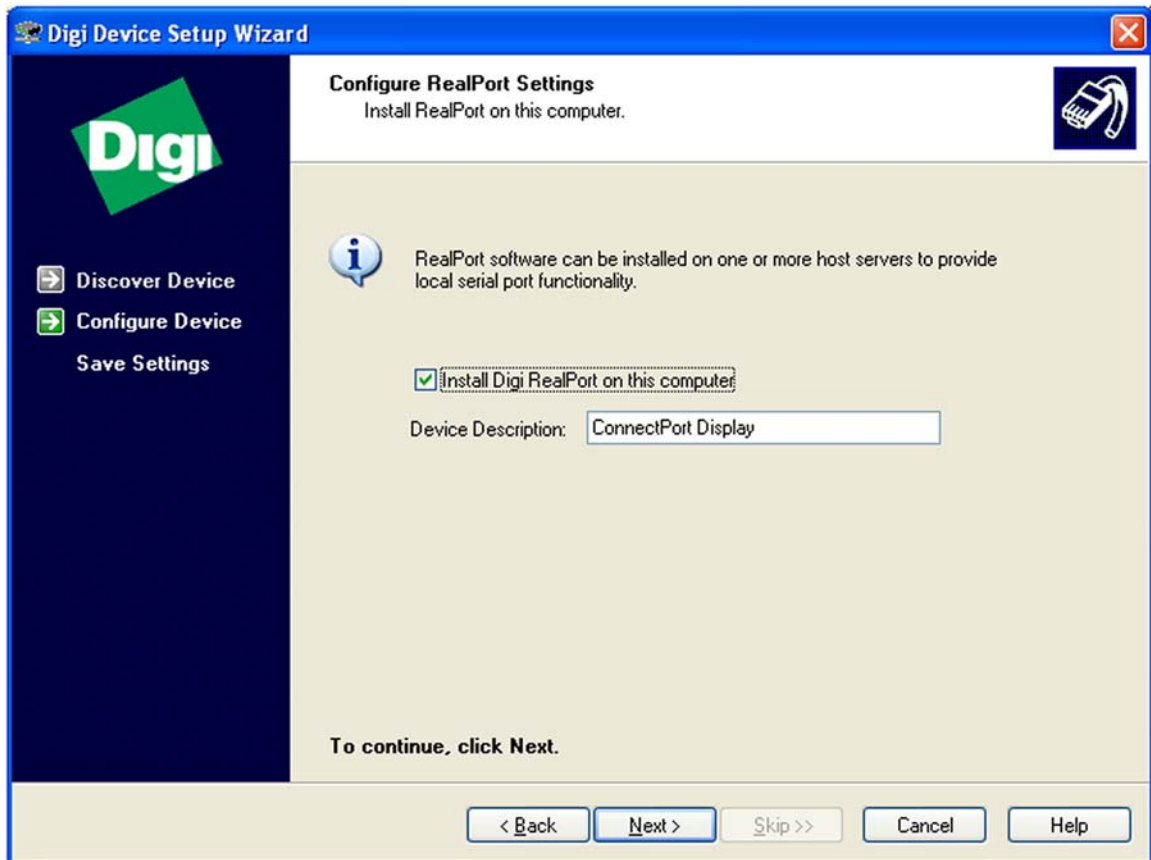
After installation, The VNC server is enabled or disabled on the **Network Settings > Network Services Settings** page of the Web user interface.

Fine-Tune Configuration As Needed Later

To further configure remote access settings after the wizard completes, use the Remote Access Configuration page of the Web user interface, as described on page 57. You can also adjust the video settings on the Video Configuration page, as described on page 59. Or use the “set vncclient,” “set service,” and “set video” commands in the command-line interface, as described in the *Digi Connect Family Command Reference*.

Install RealPort and Specify a Device Description

From the Digi Device Setup Wizard, you can install RealPort software on the computer you are using to configure the ConnectPort Display, and specify a device description, or useful name for the ConnectPort Display.



Install RealPort Software

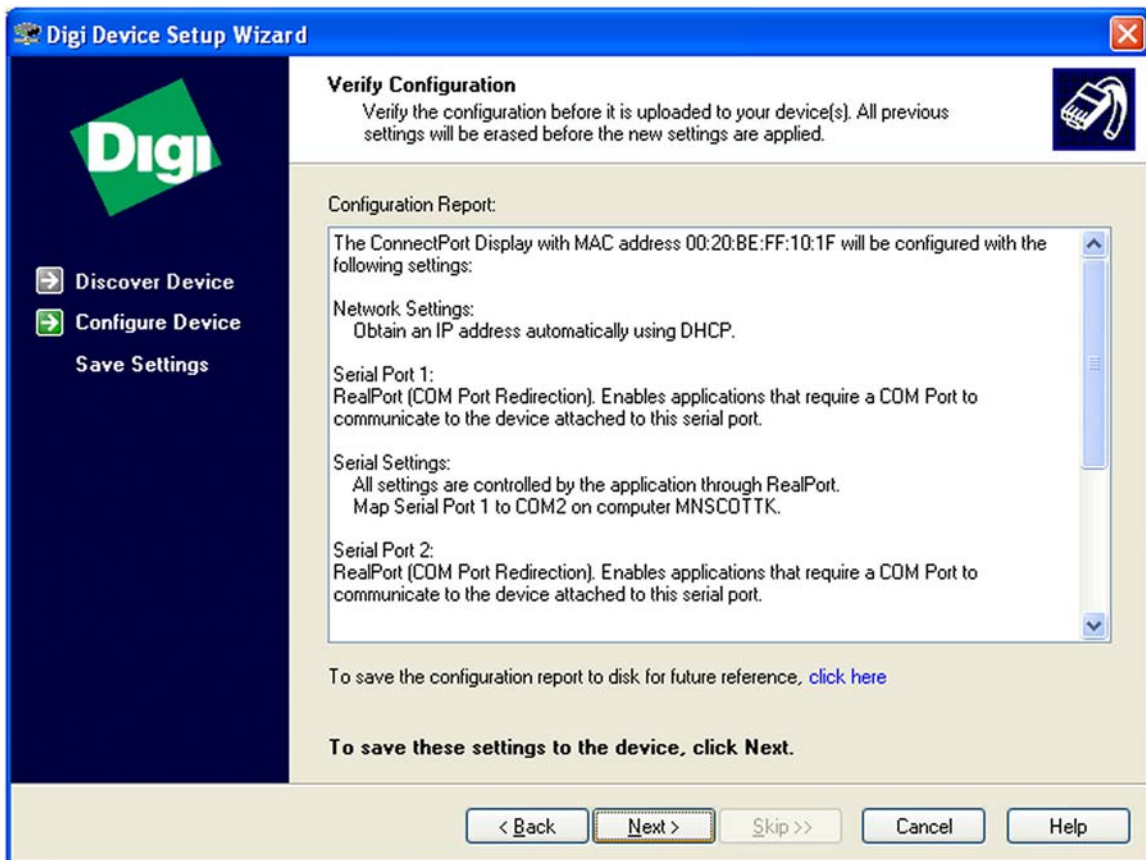
RealPort software must be installed and configured on each PC that will use the RealPort ports on the ConnectPort Display. This RealPort software is available on the Software and Documentation CD and can be loaded from the Digi Device Setup Wizard. To install RealPort, make sure the **Install Digi RealPort on this computer** checkbox is selected.

Specify a Device Description

In the Device Description field, you can specify a name by which this ConnectPort Display will be known and referred to. This Device Description can be particularly useful in installations where ConnectPort Display devices are being used for multiple stations. For example, you could use the names “Operator 1,” “Operator 2,” etc. or “Station 1,” “Station 2,” etc.

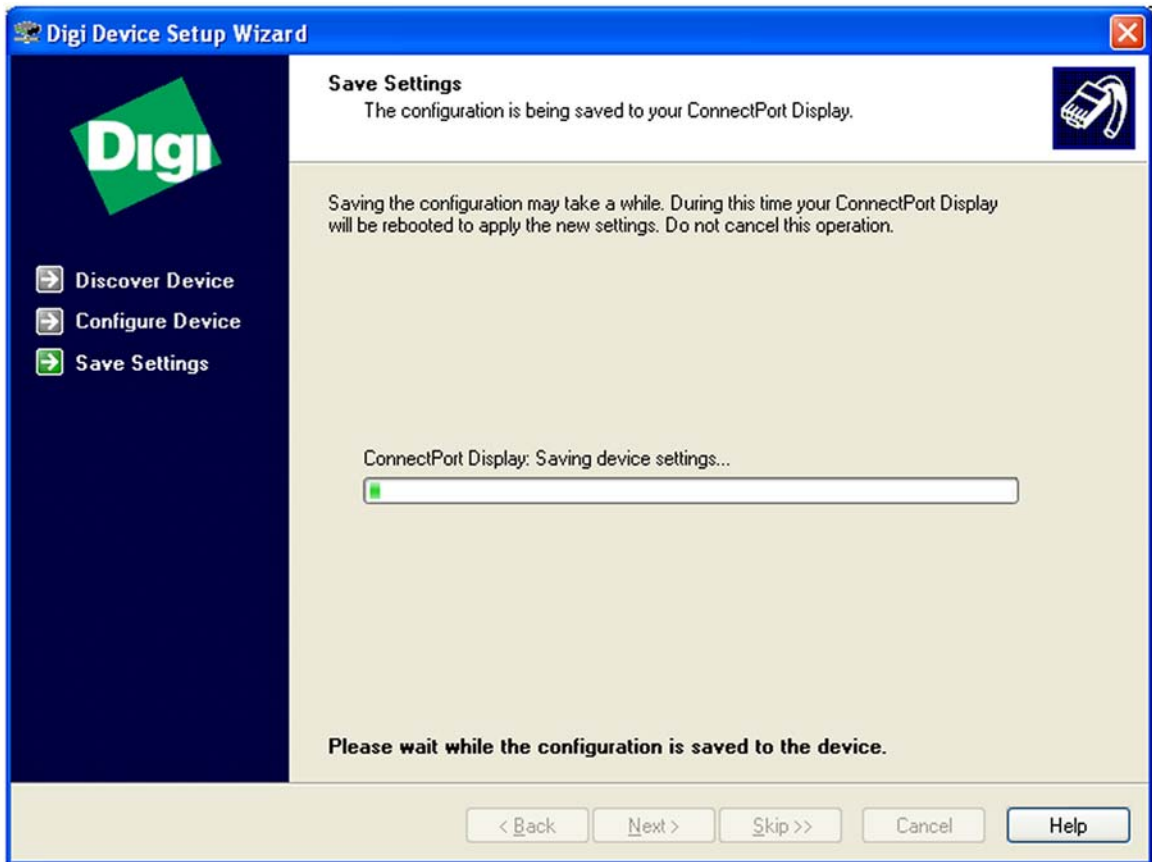
Verify Configuration Settings

The Verify Configuration screen shows the configuration settings that will be uploaded to your ConnectPort Display when you click **Next**.



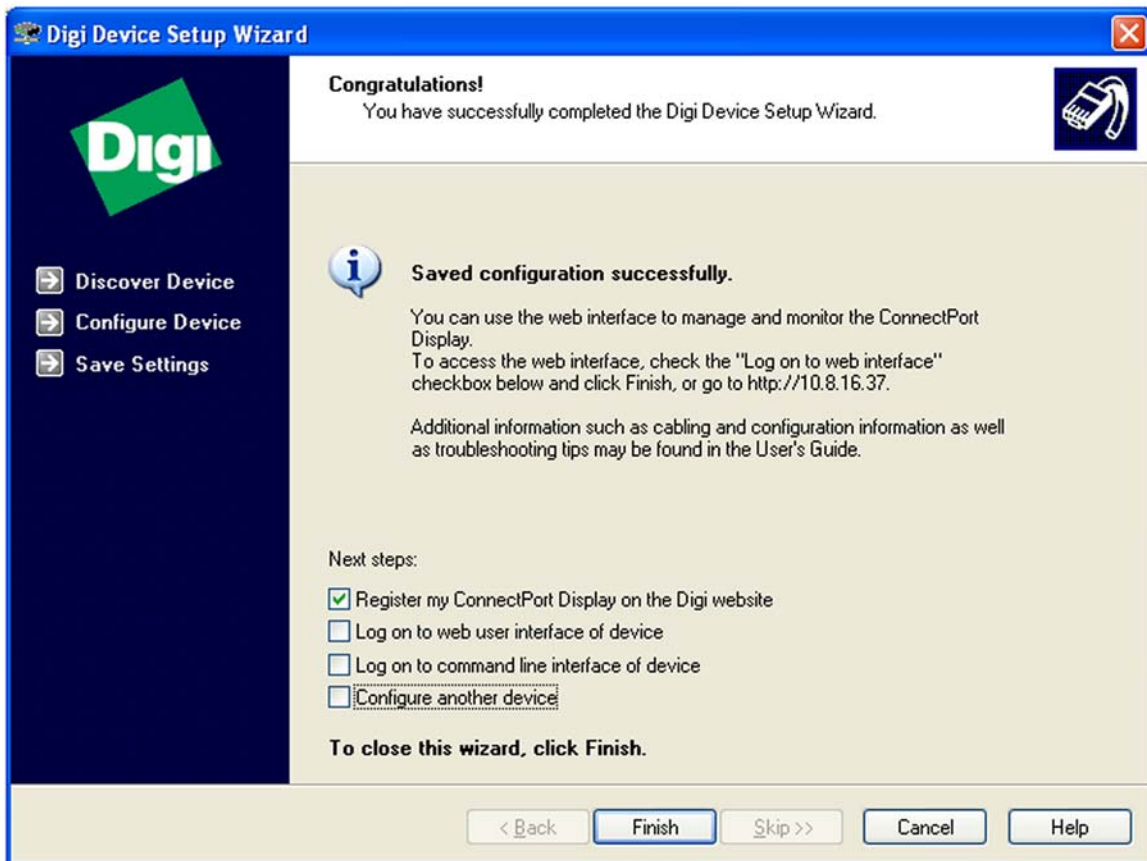
Save Settings

When you click **Next**, the Save Settings page is displayed while the configuration settings are uploaded to the ConnectPort Display. Other messages and wizards may be displayed during this step. Click **OK** on the message boxes and **Next** on the wizard screens to continue the installation process.



Completing the Wizard

When the configuration settings have been uploaded to the ConnectPort Display, a finish screen is displayed. There are several options for what to do next, including registering the ConnectPort Display and opening other device interfaces to further configure the ConnectPort Display, such as the Web user interface described later in this chapter or the command line interface. You can also choose to configure another ConnectPort Display using the Digi Device Setup Wizard. Click **Finish** to close the wizard.



To Further Configure the ConnectPort Display

Once a ConnectPort DisplayDigi Connect device is configured through the Digi Device Setup Wizard, if any configuration values need to be viewed or changed, you can use one of the other device interfaces to view and change the configuration, such as the Web user interface, or Command-Line Interface. See "Configuration through the Web User Interface" on page 44, and "Configuration through the Command Line" on page 69 for more information.

Configuration through the Web User Interface

This section describes using the Web user interface to configure your ConnectPort Display. The interface is recommended for use if the Digi Device Setup Wizard is unavailable, if your application requires specific alterations not accessible on the Wizard, or if you wish to modify the device configuration from the values that were setup through the Digi Device Setup Wizard. Configuring ConnectPort Display through the Web user interface involves these tasks:

- Change the IP address, as needed. See page 50.
- Configure terminal settings. See page 50.
- Configure remote access (VNC) settings. See page 57.
- Configure video settings. See page 59.
- Configure network communications. See page 60.
- Configure the serial ports. See page 63.
- Configure security features. See page 68.
- Configure system settings. See page 69.
- Configure remote management. See "Configuration through the Command Line" on page 69

If you need to restore the device configuration to factory defaults at any point in the configuration process, see "Restore Device Configuration to Factory Defaults" on page 93.

Open the Web Interface

To open the Web user interface, you can either enter the ConnectPort Display URL in a Web browser and log on to the device, if required, or use the Digi Device Discovery utility to locate the Digi device and open its Web interface.

By Entering the Device's URL in a Web Browser

- 1 In the URL address bar of a Web browser, enter the IP address of the device.
- 2 If security has not been enabled for the Digi device, the Home page of the Web user interface is displayed. If security has been enabled for the device, a login dialog will be displayed. Enter the user name and password for the device. If you do not know the user name and password for the device, contact the system administrator who initially set up the device. The default username is "root" and the default password is "dbps." Then the Home page of the Web user interface is displayed. See "Organization of the Web Interface" on page 47 for an overview of using the Home page and other linked pages.

By Using the Digi Device Discovery Utility

Alternatively, you can use the Digi Device Discovery Utility to locate your ConnectPort Display and open the Web user interface.

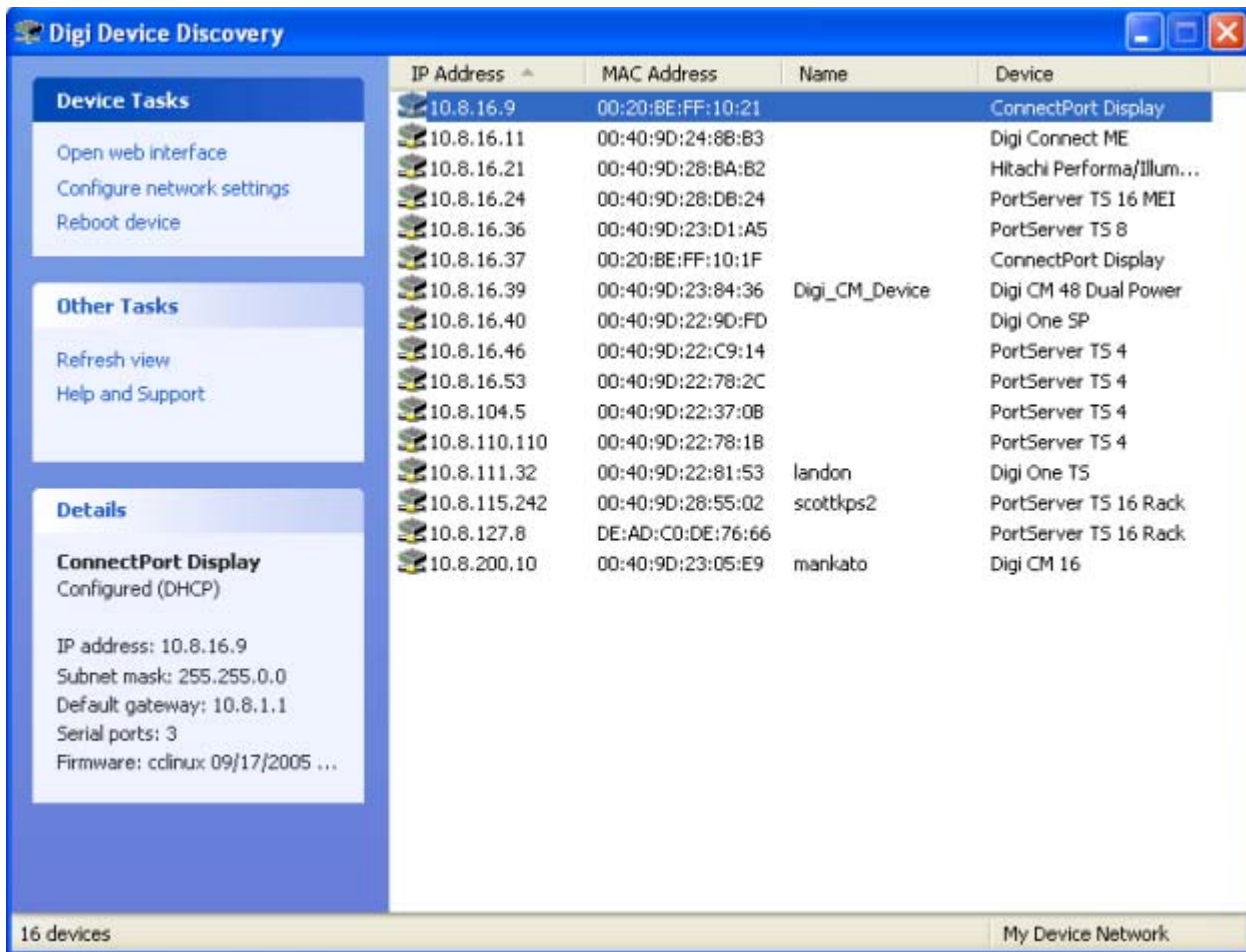
Installing the Digi Device Discovery Utility

The Digi Device Discovery Utility is available on the Software and Documentation CD for your Digi product. If this utility is not already available on your computer, follow these steps.

- 1 On the main page Software and Documentation CD, click **software - install optional software**.
- 2 Select **Device Discovery Utility** and click **Install**.
- 3 Follow the prompts of the Setup Wizard to install the Digi Device Discovery Utility software.

Discovering a Device

- 1 From the start menu, select **Start > Programs > Digi Connect > Digi Device Discovery**. The Digi Device Discovery application is displayed.
- 2 Locate the device in the list of devices, and double-click it, or select the device from the list and select Open web interface in the Device Tasks list.



- By default, there is no password authentication enabled for ConnectPort Display. There is a single user, named “root” with no password defined. The Web user interface is opened and you can configure the device, as described on the following pages.

Organization of the Web Interface

When you open the Web user interface, the Home page is displayed.



Digi
Connectware™

ConnectPort Display Configuration and Management

[? Help](#)

Home

Configuration

- Terminal
- Remote Access
- Video
- Network
- Serial Ports
- System
- Security

Administration

- File Management
- Backup/Restore
- Update Firmware
- Factory Default Settings
- System Information
- Reboot

Logout

Home

Getting Started

Tutorial Not sure what to do next? This Tutorial can help.

Terminal Summary [Edit]

Terminal Emulator:	DISABLED
Host Connection:	Network (RealPort)
Keyboard Connection:	No Keyboard
Display Size:	30 rows, 80 columns

Remote Access (VNC) Summary [Edit]

VNC Connection:	ENABLED
Connect to VNC Server:	10.20.1.77:5900

System Summary

Model:	ConnectPort Display
IP Address:	10.20.1.23
MAC Address:	00:34:55:63:30:91
Screen Resolution:	800 x 600 (60 Hertz, 16 bit color)
Description:	Operator Station
Contact:	None
Location:	None

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The Home Page

The left side of the Home page has a menu of choices that display pages for configuration, management, and administration tasks, and to log out of the Web user interface. This chapter focuses on the choices under **Configuration**. For details on the choices under **Administration**, see Chapter 3, "Monitoring Devices" and Chapter 4, "Administering Devices".

Clicking **Logout** logs you out of a configuration and management session with a ConnectPort Display. It does not close the browser window, but takes you to a logout window. To finish logging out of the Web user interface and prevent access by other users, you must close the browser window. Or, you can log back on to the device by clicking the link on the screen. After 5 minutes of inactivity, the idle timeout will also automatically log you out.

The **Getting Started** section provides a link to a tutorial on configuration and management of your ConnectPort Display device.

The **Terminal Summary** section displays the current terminal emulator settings for the ConnectPort Display. These settings are described on page 50.

The **Remote Access (VNC) Summary** displays the current remote-access settings for the ConnectPort Display, using the Virtual Network Computing (VNC) protocol. These settings are described on page 57.

The **System Summary** section notes all available device-description information.

Configuration Pages

The choices under **Configuration** in the menu display pages for configuring various features, including:

- **Terminal:** For configuring terminal emulator settings. See "Configure Terminal Emulator Settings" on page 50.
- **Remote Access:** For configuring remote-access settings. Your ConnectPort Display can provide remote access to a computer on the network or Internet, using the VNC (Virtual Network Computing) protocol. See "Configure Remote Access Settings" on page 57.
- **Video:** For configuring the video settings for your ConnectPort Display. See "Configure Video Settings" on page 59.

- **Network:** For configuring network communications. See "Configure Network Communications" on page 60.
- **Serial Ports:** For configuring serial ports. See "Configure Serial Ports" on page 63.
- **System:** For configuring system-identifying information and the settings for Simple Network Management Protocol (SNMP). See "Configure System Settings" on page 67.
- **Security:** For configuring security features. See "Configure Security Features" on page 68.

Some of the configuration pages organize the configuration settings on different sets of linked screens. For example, the Network Configuration screen initially displays the IP Settings, and provides links to the Network Services Settings and Advanced Settings.

Applying and Saving Changes

The Web user interface runs locally on the device, which means that the interface always maintains and displays the latest settings in the ConnectPort Display.

On each screen, the **Apply** button is used to save any changes to the configuration settings to the ConnectPort Display.

Canceling Changes

To cancel changes you have made on a configuration change, click the **Refresh** or **Reload** button on the Web browser. This will cause the browser to reload the page. Any changes made since the last time you clicked the **Apply** button are reset.

Online Help

Online help is available for all screens of the Web user interface, and for common configuration and administration tasks. If you are new to device configuration, you might also want to review the tutorial that is available on the Home page.

Change the IP Address, As Needed

Normally, IP addresses are assigned to Digi devices either through DHCP or the Digi Device Setup Wizard. If you are unable to assign IP addresses through either of these methods, you must assign an IP address to the ConnectPort Display using one of the alternative methods.

Changing an IP Address from a Web Browser

Prerequisite

This procedure assumes that the Digi device already has an IP address and you simply want to change it.

Procedure

- 1 Open a web browser and enter the ConnectPort Display current IP address in the URL address bar.
- 2 If security is enabled for the ConnectPort Display, a login prompt is displayed. Enter the user name and password for the device. If you do not know the user name and password, contact the system administrator who initially set up the device.
- 3 Click **Network** to access the Network Configuration page.
- 4 On the IP Settings page, select “Use the following IP address.”
- 5 Enter an IP address (and other network-related parameters) and then click **Apply** to save the configuration.

Configure Terminal Emulator Settings

ConnectPort Display can emulate a terminal connected to a host PC or server over a serial line or the network. When connected over the network, RealPort software must be installed on the server. RealPort ports appear to applications on the server as serial ports, but the data is redirected over the network to the terminal. For more information on RealPort, see the *RealPort Installation Guide*.

Terminal emulation settings are configured on two pages: Terminal Settings, for basic settings, and Advanced Terminal Settings.

Terminal Settings

The Terminal Settings page is for configuring basic terminal-emulation settings, including how the terminal emulator connects to and reads data from the host application, whether and how a keyboard is connected to the terminal emulator, the height and width of the terminal screen, and handling of the cursor and blinking text.

Terminal Configuration

▼ Terminal Settings

- Enable Terminal Emulator
 - Host Connection: Network (RealPort) ▼
 - Keyboard Connection: No Keyboard ▼
 - Terminal Height: 30 rows (10 - 60)
 - Terminal Width: 80 ▼ columns
 - Cursor Style: No Cursor ▼
- Enable blinking cursor
- Enable blinking text

** Reboot required for changes to take effect.*

Apply

▶ Advanced Terminal Settings

Basic terminal emulation settings include:

Enable Terminal Emulation

Enables or disables the terminal emulator. This setting is enabled by default.

Host Connection

Specifies how the terminal emulator connects to a host application, and how it reads input from the host. The terminal emulator reads input from a host application and displays it on the screen. Input can be read over one of the two serial ports on the ConnectPort Display, or over the network using Realport.

Note When using a network connection, you must install the RealPort driver software on the host PC or server. This will create a virtual COM port for each serial port on your ConnectPort Display (these are the traditional RealPort COM ports) as well as one additional virtual COM port that can be used for the terminal emulator connection. The host application must be configured to use this additional virtual COM port.

Keyboard Connection

The terminal emulator can read keyboard input from one of the serial ports. Keyboard data is then passed back up to the host application over the host connection.

This field specifies how the keyboard is connected to the terminal emulator. Select the serial port to which the keyboard is connected. The default setting is “Serial Port 2.”

Note In some environments, the keyboard data should not be passed back up to the host application over the host connection. In this case, you can still connect a keyboard to a serial port, and simply treat it like any other serially connected device. To do so, you would configure the terminal emulator to use “No Keyboard” for the Keyboard Connection, and then configure the serial port for the keyboard to use the RealPort port profile. Keyboard data would then be sent to the host system over the standard RealPort COM port. In this case, the host application reads keyboard data from one COM port and writes host data to a different COM port.

Terminal Height and Width

The height and width determine the number of rows and columns of text to display on the terminal emulator.

Cursor Style

Specifies how the cursor appears on the terminal emulator display: as a block, an underline, a vertical line, or no cursor.

Enable blinking cursor

Enables or disables blinking of the cursor on the terminal emulator display.

Enable blinking text

The terminal emulator can display text that blinks on and off. This setting allows you to turn off blinking text. When blinking text is disabled and the terminal emulator attempts to make some text blink, the text will instead be displayed with a bold background color.

Advanced Terminal Settings

The Advanced Terminal Settings page is for setting detailed handling of characters and text for the terminal emulator, including carriage returns, the backspace character, the character set of data received from the host, and whether any key mappings are used.

Terminal Configuration

- ▶ Terminal Settings
- ▼ **Advanced Terminal Settings**

Implicit Carriage Return (CR) for every Line Feed (LF)
 Backspace is delete

Character Set: ISO-8859-1:1998 (Latin-1, West Europe) ▼
Character set of data received from the host

Key Mappings:

Input Sequence	Output Sequence
No key mappings currently configured. Enter mapping below and click Add.	
In: <input style="width: 80px;" type="text"/>	Out: <input style="width: 80px;" type="text"/> <input style="margin-left: 10px;" type="button" value="Add"/>

* *Reboot required for changes to take effect.*

Advanced Terminal Emulation settings include:

Implicit Carriage Return (CR) for every Line Feed (LF)

Most servers send two control characters, CR and LF, to start a new line of the screen. The CR character makes the cursor return to the beginning of the current line of text. The LF character makes the cursor move one line down. Some servers only send LF, and expect the terminal to move the cursor over to the left automatically. If your server does this, you will see a stepped effect on the screen. If this happens, try enabling this setting.

Backspace is delete

This option allows you to choose which code is generated when the Backspace key is pressed. Some terminals send ASCII code 8 (Control-H) to the server for Backspace. Other terminals send ASCII code 127 (usually known as Control-? or delete) so that it can be distinguished from Control-H.

Character Set

During a session, the terminal emulator receives a stream of 8-bit bytes from the server, and in order to display them on the screen it needs to know the character set in which to interpret these streams of bytes.

There are several character sets from which to choose. A few notable character sets are:

- The ISO-8859 series are all standard character sets that include various accented characters appropriate for different sets of languages.
- The Win125x series are defined by Microsoft for similar purposes. Win1252 is almost equivalent to ISO-8859-1, but contains a few extra characters such as matched quotes and the Euro symbol.
- CP437 contains the old IBM PC character set with block graphics and line-drawing characters. This is also used on MS-DOS systems.
- UTF-8 contains unicode data interpreted as being in the UTF-8 encoding. Not all server applications will support UTF-8.

Key Mappings

Character codes received from a keyboard can be converted to different character codes before they are sent to the host. This can be useful when you have different types of keyboards that need to be mapped to the same set of character codes.

A key mapping consists of an input sequence of character codes and the output sequence of codes to which they will be converted. Generally, you would specify both the input and output sequences as single character codes, although you can define up to 5 character codes for each. A character code is entered as two hexadecimal digits. For example:

- To convert the ASCII character A to B, you would define the input and output sequences as '41' and '42' respectively, which are the hexadecimal representations of the ASCII characters.
- To convert a code of decimal 10 to 0, you would define the input and output sequences as '0A' and '00', respectively. Notice the character codes are *always* 2 hexadecimal digits, so leading zeros must be provided.

Configure Remote Access Settings

Your ConnectPort Display can provide remote access to a computer on the network or Internet, using the VNC (Virtual Network Computing) protocol. You can interact with the remote computer using a keyboard and mouse connected to the USB ports on your ConnectPort Display.

VNC server or VNC client software can be installed on the remote computer. A VNC server is provided on your ConnectPort Display Software and Documentation CD. For more details, see "About the VNC Server Software" on page 39.

The Remote Access Configuration page has settings for configuring the VNC client and VNC server.

Remote Access Configuration

Provide remote access to a computer on the network or internet using the VNC (Virtual Network Computing) protocol. This enables thin client functionality with full keyboard and mouse support.

Connect to a VNC server*

VNC Server:

Port: (usually 5900)

Password:

Reconnect Time: seconds

Share the VNC server desktop with other clients

Local (fast) mouse cursor

Enable TCP Keep-Alive

** Reboot required for change to take effect.*

Configuration settings on this page include:

Connect to a VNC server

Enables or disables the connection to a remote computer's VNC server.

VNC Server

The IP address of the VNC server to connect to. The VNC server is enabled or disabled on the **Network Settings > Network Services Settings** page.

Port

The network port number to connect to on the VNC server. The default port number for VNC servers is 5900.

Password

The password for logging on to the VNC server.

Reconnect Time

The maximum amount of time to wait before attempting to reconnect to the VNC server if the connection cannot be established or is lost.

Share the VNC server desktop with other clients

Specifies whether the VNC server desktop can be shared with other clients. If this setting is enabled, other VNC clients can connect to the VNC server while your ConnectPort Display is connected.

Local (fast) mouse cursor

Enables or disables local mouse cursor handling. Tracking the mouse cursor locally can improve mouse performance, especially with a slow VNC server or slow network.

Enable TCP Keep-Alive

Indicates whether or not TCP keep-alives will be sent while connected to the VNC server. Keep-alives help to detect when a connection has been lost. TCP keep-alive parameters (such as how often to send them) are configured globally.

Configure Video Settings

The Video page is used to configure the video settings for your ConnectPort Display.

Video Configuration

Screen: ▼

Show Splash: seconds

** Reboot required for changes to take effect.*

Configuration settings on the Video page include:

Screen

The resolution, refresh rate, and color depth of the display screen.

Show Splash

The amount of time, in seconds, to show the splash screen. Valid values are 0 through 30. A value of 0 disables the splash screen.

A custom splash screen can be uploaded to your ConnectPort Display. For details, see "Uploading a Custom Splash Screen to Your ConnectPort Display" on page 90.

Configure Network Communications

The Network configuration pages include the following:

- IP Settings: Allow you to change the IP address.
- Network Services: Allow you to enable and disable access to various network services, such as ADDP, RealPort and Encrypted RealPort, Telnet, HTTP/HTTPS, VNC Client Listen Daemon, VNC Server, and other services.
- Advanced Network Settings allow you alter the Ethernet Interface speed and mode, TCP/IP settings, TCP keepalive settings, or DHCP settings.

Alternatives for Configuring Network Communications

There are three ways a ConnectPort Display can be configured on the network.

- Using dynamic settings: All network settings will be assigned automatically by the network, using a protocol called DHCP. Contact your network administrator to find out if a DHCP server is available.
- Using static settings: All network settings are set manually and will not change. The IP address and Subnet Mask are mandatory. The rest are not mandatory, but may be needed for some functions. Contact your network administrator for the values you need.
- Using Auto-IP: Auto-IP will assign your device an IP address immediately after it is plugged in. If you are running DHCP or ADDP, the Auto-IP address will be overridden and a network compatible IP address will be assigned or you can assign the device a static IP address.

Additional Considerations

Even if a DHCP server is available, your configuration may work better with static settings. Once set, static settings will not change, so you and other network devices can always find the ConnectPort Display by the IP address. With dynamic settings, the DHCP server can change the IP address. This can happen frequently or infrequently depending on how it has been configured by your network administrator.

When the IP address does change, you and other network devices configured to talk to it will no longer be able to. You will then need to find the ConnectPort Display again using the Digi Device Setup Wizard on your CD. You must also reconfigure other network devices that wish to talk to this ConnectPort Display.

View and Change IP Settings, as Needed

The IP Settings page shows how the IP address of the ConnectPort Display is obtained, either by DHCP or by using a static IP address, subnet mask, and default gateway. If you do not know what these settings mean, or when you may be asked to supply these values, contact your network administrator. See also the online help for the page for descriptions of these settings.

Enable or Disable Network Services

The Network Services page shows a set of common network services that are available for devices, and the port on which the service is running.

You can enable or disable several common network services and configure the TCP port they listen on. Disabling services may be done for security purposes. That is, you can disable certain services so that a device is running only those services specifically needed by the device. As needed, and to improve device security, you can also disable any non-secure services, such as Telnet.

Network Services that Can Be Enabled or Disabled

Network services that can be enabled or disabled include:

- **ADDP:** This service controls use of Advanced Digi Device Discovery Protocol. If it is disabled, you can no longer use the Digi Device Setup Wizard, or Digi Device Discovery utility to locate the device.
- **RealPort or Encrypted RealPort:** These services control use of COM port redirection. If disabled, COM port redirection cannot be used for the device.
- **Remote Login (Rlogin):** Enables or disables the remote login (rlogin) service. If disabled, users cannot perform a remote login to the device.
- **Remote Shell (Rsh):** Enables or disables the remote shell (rsh) service.
- **Web Server or Secure Web Server (HTTP & HTTPS):** These services control the use of the Web interface. If you disable them, device users cannot use the Web user interface or Java applet to configure, monitor, and administer the device.
- **Telnet:** Enables or disables the Telnet service. If disabled, users cannot Telnet to the device.
- **SNMP:** Enables or disables the use of SNMP. If disabled, SNMP services such as traps and device information are not used.

- VNC Client Listen Daemon: Remote access to a computer on the network or internet using the VNC (Virtual Network Computing) protocol. VNC server software must be installed on the remote computer. The default port number for VNC Client Listen Daemon is 5500.
- VNC Server: Allows users to remotely view what is currently displayed on the screen using a standard VNC client (viewer). The default port number for VNC servers is 5900.

Port Numbers for Network Services

For each network service, the Port field shows the port on which the service is running. It is usually best to use the default TCP port numbers for these services because they are well known by most applications.

Configure Advanced Network Settings

The Advanced Network Settings are used to further define the network interface, including:

- Whether Auto-IP address assignment is enabled or disabled.
- The Ethernet Interface speed and duplex mode (Auto, Half-Duplex, or Full Duplex).
- TCP keep-alive settings. These settings are set by the DHCP server that assigns your network settings, unless you choose to manually set them. To manually set and override these settings, select **Ignore TCP Keep-Alive settings from DHCP** and specify the values for Idle Timeout, Probe Interval, and whether an extra byte should be stored in TCP keep-alive packets.

Configure Serial Ports

Use the Serial Port Configuration page to establish a port profile for the serial port of the ConnectPort Display. The Serial Port Configuration page includes the following information:

- The currently selected port profile for the serial port.
- Detailed configuration settings for the serial port, dependent on the port profile selected.
- Links to Basic Serial Settings and Advanced Serial Settings.

Port Profiles

Port profiles allow you to easily configure serial ports by displaying only those items that are relevant to the currently selected profile. The port profiles you can select include the following.

- **RealPort Profile:** Allows you to map a COM or TTY port to the serial port.
- **Custom:** An advanced option to allow full configuration of the serial port. This profile allows you to view all settings associated with the serial port. When using serial ports for the terminal emulator's host or keyboard connections, those ports must be configured for the Custom port profile.

Everything on the Serial Port Configuration screen between the Port Profile Settings and the links to the Basic and Advanced Serial Settings is dependent on the port profile selected. Selecting a port profile displays the relevant information for your profile.

Selecting and Configuring a Port Profile

- 1 To configure any profile select **Serial Ports**.
- 2 Click the port to be configured.
- 3 Click **Change Profile**.
- 4 Select the appropriate profile and Click **Apply**.
- 5 Enter the appropriate parameters for each profile. Refer to the online help for the configuration screens for more details about settings and values. Click **Apply** to save the settings.

Configure Basic Serial Settings

After you select your port profile, the profile settings are displayed. Choose the appropriate features for your environment. The following information is a brief description of the fields within the Basic Serial Settings. See the online help for detailed information about each setting.

- The **Description** field specifies an optional character string for the port which can be used to identify the device connected to the port.
- Basic Serial Settings include Baud Rate, Data Bits, Parity, Stop Bits, and Flow Control. The basic serial port settings must match the serial settings of the connected device. If you do not know these settings, consult the documentation that came with your serial device. These serial settings may be documented as 9600 8N1, which means that the device is using a baud rate of 9600 bits per second, 8 data bits, no parity, and 1 stop bit.

When using RealPort (COM port redirection) or RFC 2217, these settings are supplied by applications running on the PC or server, and the default values on your ConnectPort Display device do not need to be changed.

Configure Advanced Serial Settings

The advanced serial settings allow you to further define the serial interface. You can also define how specific aspects of TCP and UDP serial communications should operate, including timeouts and whether a socket ID is sent.

TCP Settings

The TCP Settings are displayed only when the current port is configured with the Custom Profile. The settings are as follows:

- **Send Socket ID:** Include an optional identifier string with the data sent over the network. The Socket ID can be 1 to 256 ASCII characters. Non-printable characters can be entered as follows:

Character	Key Sequence
backspace	\b
formfeed	\f
tab	\t
new line	\n
return	\r
backslash	\\
hexadecimal values	\xhh

- **Send data only under any of the following conditions:** Enable if you need to specify the conditions when the ConnectPort Display device will send the data read from the serial port to the TCP destination.
 - **Send when data is present on the serial line:** Send the data to the network destinations when a specific string of characters is detected in the serial data. Enter the string 1 to 4 characters in the Match String field. Non-printable characters can be entered as follows:

Character	Key Sequence
hexadecimal values	\xhh
tab	\t
line feed	\n
backslash	\\

- **Strip match string before sending:** Match string before sending to strip the string from the data before it is sent to the destination.
- **Send after the following number of idle:** Send the data after the specified number of milliseconds has passed with no additional data received on the serial port. This can be 1 to 65,535 milliseconds.
- **Send after the following number of bytes:** Send the data after the specified number of bytes has been received on the serial port. This can be 1 to 65,535 bytes.
- **Close connection after the following number of idle seconds:** Enable to close an idle connection. Use the Timeout field to enter the number of seconds that the connection will be idle before it is closed. This can be 1 to 65000 seconds.
- **Close connection when DCD goes low:** When selected, the connection will be closed when the DCD (Data Carrier Detected) signal goes low.
- **Close connection when DSR goes low:** When selected, the connection will be closed when the DSR (Data Set Ready) signal goes low.

Configure System Settings

Configuring system settings is done on the System Configuration page. On this page, you can:

- Configure device description information, including the device name, contact, and location.
- Configure SNMP, including whether SNMP is enabled or disabled, and the types of SNMP traps to be enabled.

Configure Device Description Information

A device description is a system description of the ConnectPort Displayname, contact, and location. This device description can be useful for identifying a specific ConnectPort Displaywhen you are working with a large number of devices in multiple locations.

Configure SNMP

Simple Network Management Protocol (SNMP) is a protocol that can be used to manage and monitor network devices. You can configure your Digi Connect device to use SNMP features, or disable its use entirely for security reasons. To configure SNMP settings, click the Simple Network Management Protocol link at the bottom of the System Configuration page. SNMP settings include:

- **Enable Simple Network Management Protocol (SNMP):** This checkbox enables or disables use of SNMP.
- The **Public community** and **Private community** fields specify passwords required to get or set SNMP-managed objects. Changing public and private community names from their defaults is recommended to prevent unauthorized access to the device.
 - **Public community:** The password required to get SNMP-managed objects. The default is “public.”
 - **Private community:** The password required to set SNMP-managed objects. The default is “private.”
- **Allow SNMP clients to set device settings through SNMP:** This checkbox enables or disables the capability for users to issue SNMP set commands uses use of SNMP read-only for the Digi Connect device.
- **Enable Simple Network Management Protocol (SNMP) traps:** Enables or disables the generation of SNMP traps.

- **Destination IP:** The IP address of the system to which traps are sent. In order to enable any of the traps, a non-zero value must be specified.
- At the bottom of the page are checkboxes for the SNMP traps that can be used: authentication failure, login, cold start, and link up traps.

Configure Security Features

On the security page, you can specify the authentication information required for logging on to the Digi device.

For the ConnectPort Display, by default there is no password authentication. If you are accessing the ConnectPort Display by opening the Web user interface or issuing a “telnet” command, no login prompt is displayed. If desired, you can enable password authentication. After changing the user name or password, you will immediately be asked to log back in to the web interface using the new values.

To further secure your ConnectPort Display, you might want to disable those network services not necessary to the device, or turn off any non-secure network services, such as Telnet. See "Enable or Disable Network Services" on page 61.

Configuration through the Command Line

Configuring ConnectPort Displays through the Command-Line Interface consists of entering a series of commands to set values in the device. The *Digi Connect Family Command Reference* describes the commands used to configure, monitor, administer, and operate Digi Connect devices.

Accessing the Command Line

To configure devices using commands, you must first access the command line. You can either launch the Command-Line Interface from the last page of the Digi Device Setup Wizard or using the “telnet” command. Enter the “telnet” command from a command prompt on another networked device, such as a server, as follows:

```
telnet ip-address
```

where *ip-address* is the IP address of the ConnectPort Display. For example:

```
telnet 192.3.23.5
```

If security is enabled for the ConnectPort Display, (that is, a username and password have been set up for logging on to it), a login prompt is displayed. If you do not know the user name and password for the device, contact the system administrator who originally configured the device.

Verifying Which Commands Are Supported

To verify whether a ConnectPort Display supports a particular command, online help is available. For example:

- “help” displays all supported commands for a device.
- “?” displays all supported commands for a device
- “set ?” displays the syntax and options for the “set” command. You can use this command to determine whether the device includes a particular “set” command variant.
- “help set” displays syntax and options for the “set” command.
- “set serial ?” displays the syntax and options for the “set serial” command.
- “help set serial” displays the syntax and options for the “set serial” command.

Some examples of commands used to configure Digi Connect devices include:

To Configure:	Use This Command:
system-identifying information	set system
general serial port options	set serial
serial TCP	set tcpserial
a port profile for a serial port	set profiles
RealPort configuration options	set realport
host name	set host
SNMP	set snmp
network options	set network
network services	set service
user and passwords	set user newpass
terminal emulation settings	set putty
video settings	set video
VNC client settings	set vncclient

Batch Capabilities for Configuring Multiple Devices

If you are configuring many ConnectPort Display products at once, batch configuration capabilities for uploading configuration files are available through the Digi Connect Programmer. For details and command descriptions, see the *Digi Connect Family Customization and Integration Guide*.

What's Next?

Now that your ConnectPort Display is configured, it is ready for use.

For more information on using your ConnectPort Display, see these chapters:

- Chapter 3, "Monitoring Devices" provides details on monitoring ConnectPort Display, including viewing system information and device statistics.
- Chapter 4, "Administering Devices" describes common administrative tasks such as file management, updating firmware, and restoring configuration settings to factory defaults.



Monitoring Devices

C H A P T E R 3

This chapter discusses the monitoring capabilities in ConnectPort Display and monitoring tasks that can be performed from various interfaces. It covers these topics:

- About monitoring
- Monitoring capabilities from the Web-based interfaces
- Monitoring capabilities from SNMP
- Monitoring devices from the command line

About Monitoring

You can monitor port, device, system, and network activities for ConnectPort Display. Changes in data flow may indicate problems or activities that may require immediate attention.

See also Chapter 6, "Troubleshooting" for information on interpreting LED information and troubleshooting ConnectPort Display.

Monitoring Capabilities from the Web User Interface

Following is an overview of the monitoring capabilities from the Web user interface.

System Information Page

The System Information page, organized under Administration on the Web user interface home page, displays information about your ConnectPort Display. It is typically used by technical support to troubleshoot problems. The System Information page includes general system information, serial port information, and network statistics

General System Information

The General page displays the following general system information about your ConnectPort Display, which can be useful in device monitoring and troubleshooting.

The screenshot shows a web interface titled "System Information". Under the "General" section, the following information is displayed:

Model:	ConnectPort Display
MAC Address:	00:34:55:63:30:91
Firmware Version:	2.1.0.0 (Version rchserv2 11/03/2005 11:03:11 CST)
Boot Version:	1.1.3 (release_82001060_1P)
POST Version:	1.1.3 (release_82001061_1P)
CPU Utilization:	2%
Up Time:	10 days 8 hours 20 minutes 56 seconds
Total Memory:	16384 KB
Used Memory:	7108 KB
Free Memory:	9276 KB

Below the table is a "Refresh" button. At the bottom of the page, there are two expandable sections: "Serial" and "Network".

Information on this page includes:

Model

The model of the ConnectPort Display.

MAC Address

A unique network identifier. All network devices are required to have their own unique MAC address. The MAC address is on a sticker on your ConnectPort Display. The number is displayed as 12 hexadecimal digits, usually starting with 00:40:9D.

Firmware Version

The current firmware version running in the ConnectPort Display. This information may be used to help locate and download new firmware.

Firmware updates may be downloaded from <http://support.digi.com/support/firmware>.

CPU Utilization

The amount of CPU resources being used by the ConnectPort Display.

Up Time

The amount of time the ConnectPort Display has been running since it was last powered on or rebooted.

Total/Used/Free Memory

The amount of memory (RAM) available, currently in use, and currently not being used.

Serial Port Information

The Serial page of System Information lists the serial ports that are configured for your ConnectPort Display. Click on a port to view more detailed serial port information.

System Information			
▶ General			
▼ Serial			
Port	Description	Profile	Serial Configuration
Port 1	Host	RealPort	N/A
Port 2	Keyboard	RealPort	N/A
▶ Network			

The example shows how serial port information is displayed if the host has RealPort installed and is using the Ethernet connection for sending serial data. For a configuration where serial devices were connected, with one of them being the host, the serial port connections would have to be configured manually. Following is an example of the System Information screen for that type of connection:

System Information			
▶ General			
▼ Serial			
Port	Description	Profile	Serial Configuration
Port 1	None	Custom	9600 8N1
Port 2	None	Custom	9600 8N1
▶ Network			

Serial Port Diagnostics Page

The Serial Port Diagnostics page of system information provides details that may aid in troubleshooting serial communication problems.








Serial Port Diagnostics - Port 1

[Return to System Information](#)
← Previous
Next →

Configuration

Profile: RealPort
 RealPort sets the serial port settings as directed by the PC application.
 Port Type: RS-232

Signals

RTS	CTS	DTR	DSR	DCD	IFC	OFC
						

Serial Statistics

Total Data In: 1 bytes	Total Data Out: 0 bytes	
Overrun Errors: 0	Overflow Errors: 0	
Framing Errors: 0	Parity Errors: 0	
Breaks: 1		

Configuration

The Configuration section of serial port information includes the electrical interface (Port Type) and basic serial settings.

Signals

The serial port signals are green when asserted (on) and gray when not asserted (off). These signals are defined as follows:

- **RTS:** Request To Send
- **CTS:** Clear To Send
- **DTR:** Data Terminal Ready
- **DSR:** Data Set Ready
- **DCD:** Data Carrier Detected
- **OFC:** Output Flow Control. This signal indicates that flow control is enabled on the remote side of the serial-port connection, and that the Digi device should stop sending data.
- **IFC:** Input Flow Control. This signal indicates that the Digi device is operating as if flow control is enabled for incoming data sent from the remote side of the serial-port connection. This signal is more of an indication that flow control is intended or expected rather than true state information. If the remote side has a flow-control mechanism enabled, the Digi device will use it.

Serial Statistics

The Statistics section of serial port information includes data counters and error tracking that will help determine the quality of data that is being sent or received. If the error counters are accumulating, you may have a problem with your Digi device.

Total Data In

Total number of data bytes received.

Total Data Out

Total number of data bytes transmitted.

Overrun Errors

Number of overrun errors - the next data character arrived before the hardware could move the previous character.

Overflow Errors

Number of overflow errors - the receive buffer was full when additional data was received.

Framing Errors

Number of framing errors received - the received data did not have a valid stop bit.

Parity Errors

Number of parity errors - the received data did not have the correct parity setting.

Breaks

Number of break signals received.

Network Statistics

The Network Statistics information is used to view more detailed network statistics that may aid in troubleshooting network communication problems. The statistics displayed are those gathered since the unit was last rebooted.

System Information

▶ General

▶ Serial

▼ Network

The following information and statistics can be used to manage and monitor your network connections and interfaces. This information may also be helpful in troubleshooting problems with the network.

Ethernet Connection

Speed:	100 Mbps	Duplex:	Full
Bytes Received:	80734852	Bytes Sent:	8903157
Unicast Packets Received:	14716	Unicast Packets Sent:	15322
Non-Unicast Packets Received:	1175211	Non-Unicast Packets Sent:	126236
Unknown Protocol Packets Received:	0		

IP Statistics

Datagrams Received:	69455	Datagrams Forwarded:	0
Forwarding:	0	No Routes:	0
Routing Discards:	0	Default Time-To-Live:	64

TCP Statistics

Segments Received:	14704	Segments Sent:	15202
Active Opens:	10519	Passive Opens:	35
Bad Segments Received:	0	Attempt Fails:	10518
Segments Retransmitted:	65	Established Resets:	5
Currently Established:	2	Resets Sent:	5
Bytes Received:	0	Bytes Sent:	0

UDP Statistics

Datagrams Received:	13	Datagrams Sent:	5
Bad Datagrams Received:	0	No Ports:	54153
Bytes Received:	308	Bytes Sent:	750

ICMP Statistics

Messages Received:	0	Bad Messages Received:	0
Dest. Unreachable Messages Received:	0	Messages Sent:	0
Dest. Unreachable Messages Sent:	0		

Refresh

Descriptions of the network statistics follow. If any error counter is accumulating at an unexpected rate for that type of counter, you may have a problem with your ConnectPort Display.

IP Statistics

Datagrams Received

Datagrams Forwarded

Number of datagrams received or forwarded.

Forwarding

Displays whether forwarding is enabled or disabled.

No Routes

Number of outgoing datagrams for which no route to the destination IP could be found.

Routing Discards

Number of outgoing datagrams which have been discarded.

Default Time-To-Live

Number of routers an IP packet can pass through before being discarded.

TCP Statistics

Segments Received

Segments Sent

Number of segments received or sent.

Active Opens

Number of active opens. In an active open, the ConnectPort Display is initiating a connection request with a server.

Passive Opens

Number of passive opens. In a passive open, the ConnectPort Display is listening for a connection request from a client.

Bad Segments Received

Number of segments received with errors.

Attempt Fails

Number of failed connection attempts.

Segments Retransmitted

Number of segments retransmitted. Segments are retransmitted when the server doesn't respond to a packet sent by the client. This is to handle packets that might get lost or discarded somewhere in the network.

Established Resets

Number of established connections that have been reset.

UDP Statistics

Datagrams Received

Datagrams Sent

Number of datagrams received or sent.

Bad Datagrams Received

Number of bad datagrams that were received. This number does not include the value contained by "No Ports."

No Ports

Number of received datagrams that were discarded because the specified port was invalid.

ICMP Statistics

Messages Received

Number of messages received.

Bad Messages Received

Number of received messages with errors.

Destination Unreachable Messages Received

Number of destination unreachable messages received. A destination unreachable message is sent to the originator when a datagram fails to reach its intended destination.

Monitoring Capabilities from SNMP

Device monitoring capabilities from SNMP include, among other things:

- Network statistics, defined in RFC 1213, MIB-II
- Port statistics, defined in RFCs 1316 and 1317
- Device information, defined in Digi enterprise MIB DIGI-DEVICE-INFO.mib

For more information on the statistics available through the standard RFCs listed above, refer to the RFCs available on the IETF web site (www.ietf.org). For enterprise MIBs, refer to the description fields in the MIB text.

Monitoring Devices from the Command Line

There are several commands that can be issued from the command line to monitor devices:

- **display**: The “display” command displays real-time information about a device, including:
 - General product information, including the product name, MAC address, boot, post, and firmware versions, memory usage, utilization, and uptime, or the amount of time since the device was booted.
 - Memory usage information.
 - Serial modem signals.
 - Uptime information.

- info: The “info” command displays statistical information about a device over time. There are several variations of the “info” command. The statistics displayed are those gathered since the tables containing the statistics were last cleared. The “info” command displays the following types of statistics:
 - Device statistics. The “info device” command displays such details as product, MAC address, boot, POST, and firmware versions, memory usage, utilization, and uptime.
 - Ethernet statistics. The “info ethernet” command displays statistics regarding the Ethernet interface, including the number of bytes and packets sent and received, the number of incoming and outgoing bytes that were discarded or that contained errors, the number of Rx overruns, the number of times the transmitter has been reset, and the number of incoming bytes when the protocol was unknown.
 - ICMP statistics. The “info icmp” command displays the number of messages, bad messages, and destination unreachable messages received.
 - Serial statistics. The “info serial” command displays the number of bytes received and transmitted, signal changes, FIFO and buffer overruns, framing and parity errors, and breaks detected.
 - TCP statistics. The “info tcp” command displays the number of segments received or sent, the number of active and passive opens, the number of bad segments received, the number of failed connection attempts, the number of segments retransmitted, and the number of established connections that have been reset.
 - UDP statistics. The “info udp” command displays the number of datagrams received or sent, bad datagrams received, and the number of received datagrams that were discarded because the specified port was invalid.
- set snmp: Configures SNMP, including SNMP traps, such as authentication failure, cold start, link up, and login traps. This command also displays current SNMP settings.
- status: Displays a list of sessions, or outgoing connections made by “connect,” “rlogin,” or “telnet” commands for a device. Typically, the “status” command is used to determine which of the current sessions to close.

- who: The “who” command provides a global list of connections. Currently, this list of connections includes those associated with a serial port or the command-line interface. The “who” command is particularly useful in conjunction with the kill command. It can be used to determine any connections that are no longer needed, which can then be ended by the “kill” command.

For descriptions of these commands, see the *Digi Connect Family Command Reference*.

Administering Devices

C H A P T E R 4

This chapter discusses the administration tasks that need to be performed on ConnectPort Display periodically, such as file management, changing the password used for logging onto the device, backing up and restoring device configurations, updating firmware and Boot/POST code, restoring the device configuration to factory defaults, and rebooting the device. As with device configuration and monitoring, it covers performing administrative tasks through a variety of device interfaces.

It covers these main topics:

- Administration from the Web user interface
- Administration from the Command-Line Interface

Administration from the Web User Interface

The Administration section of the Web user interface main menu provides the following choices:

- **File Management:** For uploading and managing files, such as custom web pages, applet files, and initialization files. See "File Management" on page 89.
- **Backup/Restore:** For backing up or restoring a device's configuration settings. See "Backup/Restore Device Configurations" on page 91.
- **Update Firmware:** For updating firmware, including Boot and POST code. See "Update Firmware and Boot/POST Code" on page 92.
- **Factory Default Settings:** For restoring a device to factory default settings. See "Restore Device Configuration to Factory Defaults" on page 93.
- **System Information:** For displaying general system information for the device and device statistics. See "Display System Information" on page 95.
- **Reboot:** For rebooting the device. See "Reboot the Device" on page 96.

In addition to these choices, you may also need to perform these administrative tasks, which are organized elsewhere in the web interface:

- Enable and disable network services. See "Enable or Disable Network Services" on page 61.
- Enable password authentication for the ConnectPort Display. See "Configure Security Features" on page 68.

File Management

On the File Management page, you can upload files to the ConnectPort Display, such as custom HTML files or a custom JPEG image. For example, if you are customizing the Web user interface for your ConnectPort Display, you can upload a different logo file or splash screen.

File Management

Upload Files

Upload custom web pages and files such as your applet and HTML files. Uploading an *index.htm* or *index.html* file will automatically load that page upon logging into this device.

Upload File:

Manage Files

Action	File Name	Size
<input type="checkbox"/>	splash.jpg	164946 bytes

Uploading Files

To upload files to your ConnectPort Display, enter the file path and name for the file, or click **Browse** to locate and select the file, and click **Upload**.

Uploading a Custom Splash Screen to Your ConnectPort Display

From the File Management page, you can upload a custom splash screen image file to your ConnectPort Display. That image will be displayed when the device boots. For example, you could display a splash screen with your company logo and different screen colors than the ones in the Digi-supplied default.

Some guidelines and characteristics about the custom splash screen image:

- The image will be centered on the screen.
- If the image is too big for your configured resolution, it will be clipped.
- The file must be named “splash.jpg.”
- The JPEG file must use the RGB color model. While JPEG images can be created with other models, such as CMYK, the ConnectPort Display does not support displaying them.
- If the file is not recognized, the default image of the small green Digi logo will be displayed.

Deleting Files

To delete files from your ConnectPort Display, select the file from the list under **Manage Files** and click **Delete**.

Custom Files Are Not Deleted By Device Reset

Any files uploaded to the file system of a ConnectPort Display from the File Management page are not deleted by restoring the device configuration to factory defaults, or by pressing the Reset button on the device (see "Restore Device Configuration to Factory Defaults" on page 93) This deletion is prevented so that customers with custom applets and custom factory defaults can retain them on the device and not have them deleted by a reset. Such files can only be deleted by the Delete operation, as described above.

Backup/Restore Device Configurations

Once you have a ConnectPort Display configured, you should back it up. Backup/Restore will save your configuration settings in case you have problems later if you upgrade your firmware or add hardware. If you have multiple devices to configure, you can backup the first device then download the configuration onto the other devices.

This procedure shows you how to backup or restore the configuration to a server and to download a configuration from a server to a file.

- 1 Open a web browser and enter the IP address of the ConnectPort Display in the URL window.
- 2 If security is enabled for the device, a login prompt is displayed. Enter the user name and password for the device. If you do not know the user name and password, contact the system administrator who initially set up the device.
- 3 Click **Backup/Restore** from the main menu. The Backup/Restore page is displayed.

Backup/Restore

Backup configuration to a file on your PC or server.

You will be prompted for where to save the [backup file](#).

Restore configuration from a file on your PC or server.

Note: If the restored configuration modifies the network settings, your Digi device server will dynamically switch to the new settings. You will need to manually redirect your browser to the new IP address.

Restore From File:

- 4 Choose the appropriate option (Backup or Restore) and select your file.

Update Firmware and Boot/POST Code

The following procedures shows how to update the ConnectPort Display firmware and/or boot/POST code from a file on your PC. The ConnectPort Display will automatically determine what type of image you are uploading. Before uploading the firmware or the boot/POST code, it is very important to read the Release Notes that are supplied with the firmware to check if the boot/POST code must be updated before updating the firmware.

Update Firmware from a File on Your PC

This procedure assumes that you have already downloaded the firmware file from the Digi web site.

- 1 Open a web browser and enter the IP address of the ConnectPort Display in the URL window.
- 2 If security is enabled for the ConnectPort Display, a login prompt is displayed. Enter the user name and password for the device. If you do not know the user name and password, contact the system administrator who initially set up the device.
- 3 Click **Update Firmware** from the main menu to display the Update Firmware page.

Update Firmware

Caution: You have asked to update the firmware on your ConnectPort Display. When updating the firmware, please check the support site and release notes for more information to determine if this device must update the POST before updating the firmware.

Model: ConnectPort Display
 Firmware: 2.1.0.0 (Version rchserv2 11/03/2005 11:03:11 CST)
 POST: 1.1.3 (release_82001061_1P)

Select Firmware

Select Firmware:

- 4 Enter the name of the firmware or POST file in the **Select Firmware** edit box, or click **Browse** to locate and select the firmware or POST file.
- 5 Click **Update**.

⇒⇒⇒ **DO NOT close your browser until the update is complete and you have been prompted to reboot.**

Restore Device Configuration to Factory Defaults

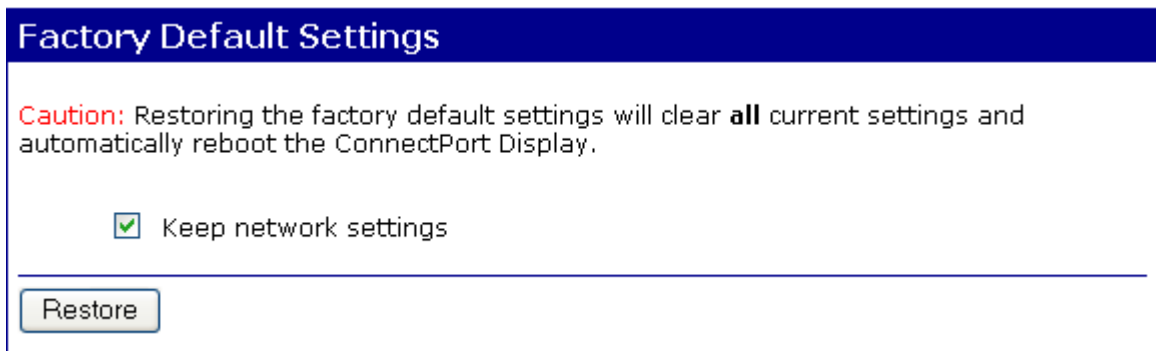
There are two ways to restore the device configuration of a ConnectPort Display to the factory default settings:

- Restore the configuration from a web browser. This action will clear all current settings except the IP address settings, if desired, and the administrator password. This is the best way to reset the configuration because you can also back up the settings (which provides a means for restoring it after you have worked through configuration issues). See "Backup/Restore Device Configurations" on page 91 for more information.
- Restore the configuration using the reset button on the ConnectPort Display. Use this method if you cannot access the device from a web browser.

⇒⇒⇒ **Restoring a ConnectPort Display to its factory default settings will clear all current configuration settings except the IP address settings, if desired, and the administrator password. Any files such as custom-interface files and applet files that were loaded into the device through the File Management page are retained. See "File Management" on page 89 for information on loading and deleting files.**

Restore the Configuration from the Web User Interface

- 1 Open a web browser and enter the IP address of the ConnectPort Display in the URL window.
- 2 If security is enabled for the device, a login prompt is displayed. Enter the user name and password for the device. If you do not know the user name and password, contact the system administrator who initially set up the device.
- 3 Click **Factory Default Settings** from the main menu to display the Factory Default Settings page.



- 4 Choose whether you want to keep the network settings for the device, such as the IP address, and click **Restore**.

Restore the Configuration Using the Reset Button on the ConnectPort Display

- 1 Power off the ConnectPort Display by unplugging the power.
- 2 Press the Reset button on the front of the device.
- 3 While holding the reset button, power up the unit.
- 4 Hold the button for 20 seconds and then release it.

The default configuration is restored. When the restoration is complete, the device flashes a code (1-5-1).

Display System Information

Display system information gives the model, MAC address, firmware version, boot version, and POST version of your ConnectPort Display. You can also check your memory available: total, used, and free. It also tracks CPU percent utilization and the uptime.

Under **Administration**, click **System Information**, and select **General**, **Serial** or **Network** for the appropriate information. For descriptions of the information displayed on these screens, see page 74.

System Information

▼ **General**

Model:	ConnectPort Display
MAC Address:	00:34:55:63:30:91
Firmware Version:	2.1.0.0 (Version rchserv2 11/03/2005 11:03:11 CST)
Boot Version:	1.1.3 (release_82001060_1P)
POST Version:	1.1.3 (release_82001061_1P)
CPU Utilization:	2%
Up Time:	10 days 8 hours 20 minutes 56 seconds
Total Memory:	16384 KB
Used Memory:	7108 KB
Free Memory:	9276 KB

▶ Serial

▶ Network

Reboot the Device

Some changes require you to save the changes and reboot the ConnectPort Display.

- 1 Choose **Reboot** from the main menu.

Reboot

The reboot process will take approximately 1 minute to complete. Click Reboot now to reboot the ConnectPort Display.

- 2 On the Reboot page, click the **Reboot** button. Wait approximately 1 minute for the reboot to complete.

Enable/Disable Access to Services

As needed, you can enable and disable access to various network services, such as ADDP, RealPort, SNMP, and Telnet. For example, you may want to disable those services that are not necessary for running or interfacing with the ConnectPort Display. In the Web user interface, enabling and disabling network services is done on the Network Configuration page for a device. See "Enable or Disable Network Services" on page 61.

Administration from the Command-Line Interface

Administrative tasks for ConnectPort Display can also be performed from the command line. The following table summarizes device-administration tasks and the commands used to perform them.

Administrative Task	Command
Backup/restore a configuration from a TFTP server on the network	backup
Update firmware	boot <ol style="list-style-type: none"> 1 Telnet to the device server's command line interface using a telnet application or hyperterm. 2 If security is enabled for the device, a login prompt is displayed. If you do not know the user name and password, contact the system administrator who initially set up the device. 3 Issue the command: #> boot load=<i>host:filename</i> where <i>host</i> is the IP address of the host that contains the firmware, and <i>filename</i> is the name of the file to upload.

Administrative Task	Command
Reset configuration to factory defaults	revert or boot action=factory
Display system information and statistics	info
Reboot the device	boot
Enable/disable network services	set service

Specifications, Feature Details, and Certifications

C H A P T E R 5

This chapter provides feature details for ConnectPort Display, including:

- Hardware specifications
- Hardware interface features
- Network interface features
- Regulatory statements and certifications

Hardware Specifications

Dimensions

- Length: 4.35 in (11.05 cm)
- Width: 7.20 in (18.29 cm)
- Height: 1.03 in (2.61 cm)
- Weight: 10.00 oz. (311.00 g)

Environmental

- Operating temperature: 32° F to 131° F (0° C to 55° C)
- Relative humidity: 0% to 95% (non-condensing)

Pinouts

Serial Port 1

Pin Number	EIA-232 Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	R1

Serial Port 2

Pin Number	EIA-232 Signal
1	N/C
2	RTS
3	CGND
4	TXD
5	RXD
6	GND
7	N/C

AUX 1

AUX 1 is an auxiliary port to provide power to external devices at 5VDC at 200 mA maximum.

Pin Number	EIA-232 Signal
1	+5V
2	+5V
3	+5V
4	GND
5	+5V
6	GND

Video Port DB15

Pin Number	VGA Signals
1	RED
2	GREEN
3	BLUE
4	ID2
5	DDC_GND
6	RED_GND
7	GREEN_GND
8	BLUE_GND
9	DDC_+5V
10	SYNC_GND
11	ID0
12	DDC_SDA (ID1)
13	HSYNC
14	VSYNC
15	DDC_SCL (ID3)

Power Requirements

ConnectPort Display uses a 120/230VAC 50/60Hz power adapter that supplies 5VDC to the unit.

It is recommended that only the enclosed power supply be used with ConnectPort Display. However, power to the ConnectPort Display may be supplied by a UL Listed Direct Plug-In Power Unit or Information Technology Equipment Rated Power Unit rated 5VDC, at least 2.9 A if used in the U.S. and Canada or a power supply with similar rating and approved by your local safety code if it is used elsewhere. For polarity, see the following diagram:



Hardware Interface Features

- Memory: 16 MB RAM
- Serial Interface:
 - EIA-232 interface (DB-9M).
 - Throughput up to 230,400 bps.
 - 5, 6, 7, 8 data bits.
 - 1, 1.5, 2 stop bits.
 - Mark/space/even/odd parity.
 - Full signal support for TXD, RXD, RTS, CTS, DTR, DSR, and DCD.
 - Hardware and software flow control.

Serial Interface Features and Options

The serial interface for ConnectPort Display includes the following features (except where noted) and configurable options:

- Serial Port 1 has full signal support for TXD, RXD, RTS, CTS, DTR, DSR, and DCD.
- Serial Port 2 has signal support for TXD, RXD, RTS, and CTS only.
- Data bits 5 through 8 are supported.
- Stop bits 1, 1.5, and 2 are supported.
- Hardware and software flow control.
- Serial data over User Datagram Protocol (UDP) also known as udpserial. Supported udpserial includes the following functionality:
 - controlling forwarding characteristics based on size, time, and patterns.
 - incoming datagrams from multiple destinations.
 - outgoing datagrams sent to multiple destinations.
- RealPort software:
 - Support network serial port on many popular operating systems.
 - Support encrypted RealPort over SSL on selected operating systems.

Network Interface Features

Key features of the network interface for ConnectPort Display include:

- Standard: IEEE 802.3af
- Physical layer: 10/100 Mbit Base-T.
- Network data rate: 100 Mbps, with auto-sensing of speed.
- Network utilization below 50% recommended
- Ethernet duplex mode: full-duplex, half-duplex, with auto-sensing of duplex mode
- Ethernet connector: RJ-45

Regulatory Information and Certifications

Federal Communications Commission (FCC) Regulatory Information (USA only)

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 correct the interference by one or more of the following measures:

- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet that is on a circuit different from the receiver.
- Consult the dealer for help.

Warning The connection of a non-shielded interface cable to this equipment will invalidate the FCC Certification for this device.

FCC Regulation - Part 15 Declaration of Conformity (DoC)

This device complies with the requirements of the Code of Federal Regulations listed below:

FCC Title 47 CFR, Part 15 Class B for a digital device.

Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Department of Communication (DOC) Notice (Canada only)

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouiller du Canada.

European Community - CE Mark Declaration of Conformity (DOC)

According to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Digi International
Corporate Headquarters:	11001 Bren Road East Minnetonka MN 55343
Manufacturing Headquarters:	10000 West 76th Street Eden Prairie MN 55344

Digi International declares, that the product:

Product Name:	ConnectPort Display
	50001323-xx
Model Numbers:	50001333-xx
	50001334-xx
	50001335-xx

conforms to the relevant EU Directives listed here:

- EMC Directive 89/336/EEC
- Low Voltage Directive 73/23/EEC
- Amending Directive 93/68 EEC

using the relevant section of the following EU standards and other normative documents:

International EMC Standards

Immunity

- EN55022

Emissions

- EN55024
- CISPR22

Safety

- IEC 950
- EN 60950
- EMC

EN 55022 Class B (1994 w/A1 1995)

Test	Specification EN55024	Requirement
Electrostatic Discharge	EN61000-4-2	+4kV contact +8kV air
Radiated Immunity	EN61000-4-3	3 V/m
Electrical Fast Transient Burst	EN61000-4-4	1kV (A/C), .5kV (I/O)
Surge	EN61000-4-5	2kV common mode 1kV differential mode
Conducted Immunity	EN61000-4-6	3V rms
Magnetic Immunity	EN61000-4-8	1 A/m Not Applicable
Voltage Dips & Interrupts	EN61000-4-11	>95%, 30% & >95%

EN55024 (1998)

Test	Specification EN55022	Requirement
Radiated Emissions		Class B
Conducted Emissions	CISPR 22	Class B

Important Safety Information

This device complies with the requirements of following safety standards below:

- UL 1950, 3rd edition
- CSA No. 950

To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm.
- Never install an Ethernet connection in wet locations unless that connector is specifically designed for wet locations.
- Use caution when installing or modifying Ethernet lines.
- Use a screwdriver and other tools with insulated handles.
- You and those around you should wear safety glasses or goggles.
- Do not place Ethernet wiring or connections in any conduit, outlet or junction box containing electrical wiring.
- Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. You must avoid contact with all such facilities.
- Ethernet wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.
- Do not place an Ethernet connection where it would allow a person to use an Ethernet device while in a bathtub, shower, swimming pool, or similar hazardous location.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.
- Do not touch uninsulated Ethernet wiring if lightning is likely!
- External Wiring: Any *external* communications wiring you may install needs to be constructed to all relevant electrical codes. In the United States this is the National Electrical Code Article 800. Contact a licensed electrician for details.

Troubleshooting

C H A P T E R 6

This chapter provides information on resources and processes available for troubleshooting your ConnectPort Display.

Troubleshooting Resources

There are several resources available to you for support of your Digi product or resolving configuration difficulties. Try these troubleshooting steps to eliminate your problem. After working through these steps and your problem is not solved, try the resources listed below.

- 1 Visit our Support knowledge bases at <http://www.digi.com/support/knowledgebase.jsp> to look for articles related to your situation.
- 2 Visit our Support Forums at <http://www.digi.com/support/forum/> and search for possible posts from other users with similar situations.
- 3 If the knowledge base or support forums do not have the information you need, fill out an Online Support Request via <http://www.digi.com/support/eservice/eservicelogin.jsp>. Creation of a new user account will be required.
- 4 You may also email our support staff at support.wizards@digi.com.

Interpreting the System Status LEDs

ConnectPort Display has several LEDs that indicate system status: three on the front panel and two on the back. Descriptions of the LEDs and the activities they indicate follow.

Front Panel LEDs

Front Panel LED	Color and Light Pattern	Activity Indicated
System Status	Solid red	Hardware is initializing.
	1-1-1 blinking green	Firmware is initializing.
	1-5-1 blinking green	Device configuration has been restored to its factory defaults.
	Other blinking green	Contact Digi Technical Support.
	Solid green	Device is powered on and ready for operation.
USB port 1 status	Solid red	Hardware is initializing.
	Green	Port is powered on and ready for operation.
USB port 2 status	Solid red	Hardware is initializing.
	Green	Port is powered on and ready for operation.

Back Panel LEDs

Back Panel LED	Color and Light Pattern	Activity Indicated
Ethernet Port Link Status	Solid green	Ethernet link is up.
Ethernet Port Activity Status	Blinking yellow	Ethernet traffic is on the link.

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