LANTRONIX®

Secure Com Port Redirector
User Guide

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Date	Rev.	Comments
11/03	A	Initial draft.
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Contents

1: Using this Guide

Purpose and Audience

This guide describes the installation and configuration of the Secure Com Port Redirector™ software. It is written for users who will be installing, configuring, and using Secure Com Port Redirector.

Chapter Summary

The remaining chapters in this guide include:

2: Introducing Secure Com Port Redirector	Provides an overview of Secure Com Port Redirector and a Quick Start for getting the application up and running.
3: Installing Secure Com Port Redirector	Provides instructions for installing Secure Com Port Redirector.
4:Configuration	Describes how to configure Secure Com Port Redirector and the serial devices with which it communicates.

## Additional Secure Com Port Redirector Documentation

In addition to this User Guide, the Secure Com Port Redirector provides an online help facility containing information on using the software.

2: Introducing Secure Com Port Redirector

Overview

Secure Com Port Redirector is a software utility for network-enabling legacy software applications without network support. Secure Com Port Redirector installs virtual Windows® communication ports. These virtual communication (or com) ports are redirected over a network to the serial port of a Lantronix device server (see Figure 2-1).

Figure 2-1. Example of a Secure Com Port Redirector Setup
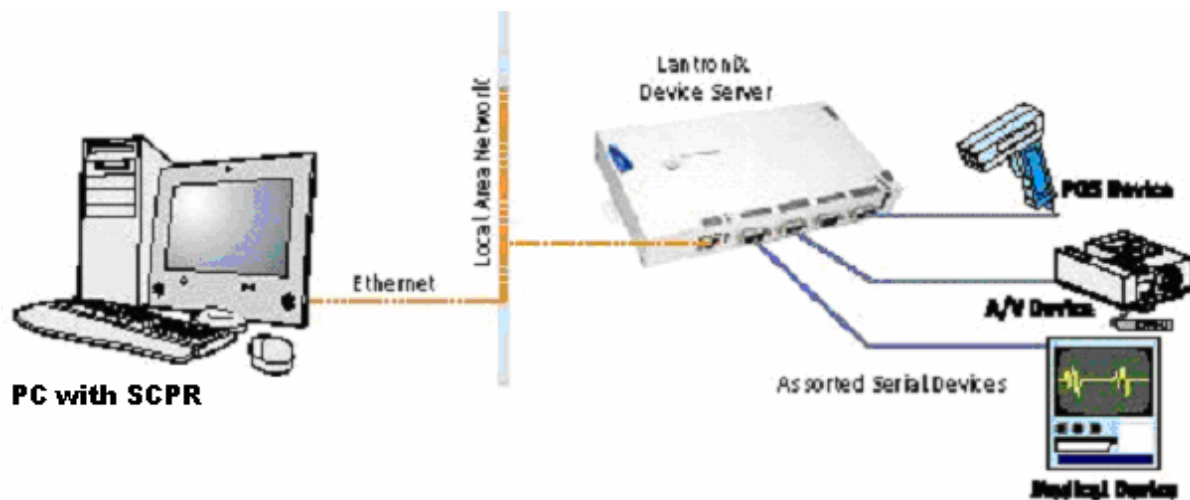
In most cases, legacy software using the virtual com ports created with Secure Com Port Redirector encounters no problems and acts as if it were communicating with a physical com port. However, not all software applications are suited for use with Secure Com Port Redirector.

Serial port software applications are designed for direct communication with the serial device being managed. When device servers are used across a network, latency can occur with the connection from the software to the managed serial device. Some software applications have timing constraints for data transmitted and received on com ports. In some cases, a software application will not wait long enough to receive a response from the managed serial device. As a result, the software assumes the serial device is not responding and times out.

If increased latency becomes an issue for a software application, implement a TCP socket connection in the software. If this is not possible, increase the timeout settings in the software to compensate for the additional latency.

Non-Redirected Connections vs. Redirected Connections

Most software applications requiring Secure Com Port Redirector were designed to connect directly to the serial device being managed. This connection is achieved using a direct cable connection from a com port on the personal computer (PC) running the software utility to the serial port of the serial device being managed. With this configuration, the PC and the managed serial device reside on an isolated serial network. The traffic passed on the physical media between them is intended for either the PC or the serial device. Latency is not an issue in this scenario.

When the same software applications are used with the Secure Com Port Redirector, the applications are no longer directly attached to the serial device being managed. Instead, all traffic between the software application and the serial device is routed as follows:

1. From a virtual com port, the data is stripped out of a serial packet and placed into an IP packet.

2. The serial packet is sent from the virtual com port to a network interface on the PC.

3. Data is transmitted over the network, through switches or routers, to the network interface on a device server.

4. From the network interface on the device server, the data converts from an IP packet back to a serial packet.

5. Once in a serial packet, data is transmitted down the physical media to the serial device.

This process introduces latency. The amount of latency associated with this type of connection is determined by the amount of network latency. The more traffic on the network, the greater the latency between the PC running the software application and the device server.

To address latency, Secure Com Port Redirector provides a **No Net Close** option in the Port Settings dialog box (click **Port Settings** from the Secure Com Port Redirector Configuration window). This option keeps the TCP/IP connection open when the com port is closed, reducing latency.

Quick Start

The following procedure summarizes the steps for using Secure Com Port Redirector.

1. Install Secure Com Port Redirector on each PC that will communicate with the device server. See Installation Instructions on page 3-1.

2. Review the general usage guidelines for the device server (page 4-1) and Secure Com Port Redirector (page 4-1).

3. Configure the device server and Secure Com Port Redirector. See Chapter 4.

4. Verify the connectivity between Secure Com Port Redirector and the device server. See Verifying Connectivity with the Device on page 4-8.

AES Licensing

Secure Com Port Redirector supports 128, 192 and 256-bit AES encryption. The following procedure summarizes the steps for licensing and enabling AES encryption.

1. To obtain a license key for AES encryption, contact the reseller you purchased your Lantronix device from. You will need to have your SCPR serial number ready. You can locate your SCPR serial number in the SCPR configuration screen by clicking on the 🛈 button.

2. Once a key is obtained, click the **Start** button in the Windows Taskbar, point to **Programs**, point to **Lantronix,** point to **Secure Redirector**, and click **Configuration**. The window in figure 2-2 is displayed.

Figure 2-2. SCPR Configuration Window
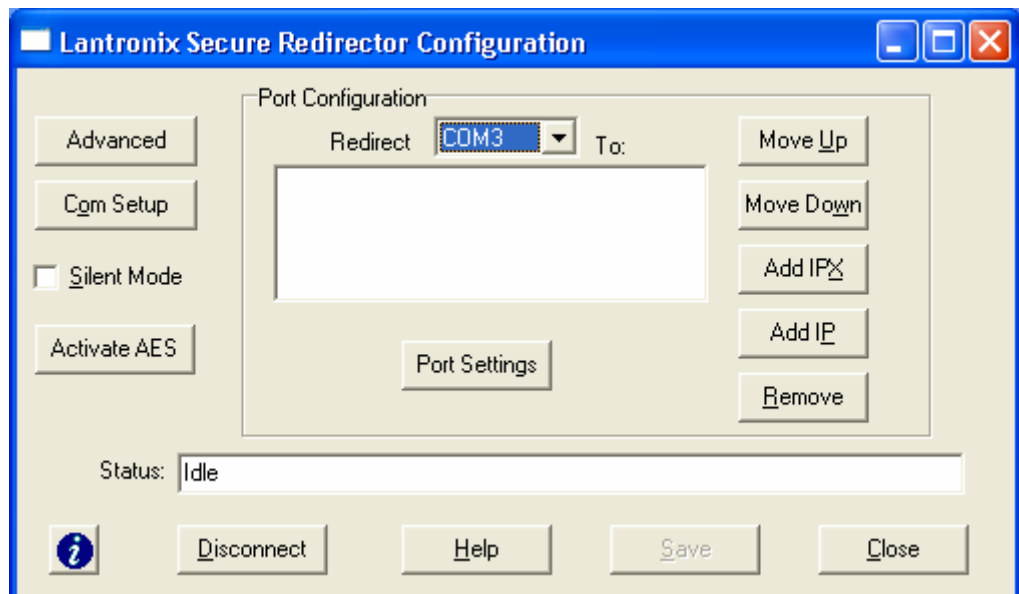
2. Click the **Activate AES** button. The window in figure 2-3 is displayed.

Figure 2-2. Activate AES
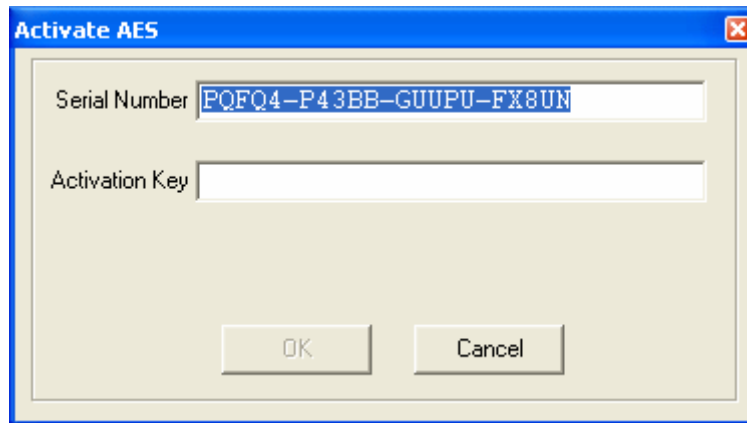
3. Enter the Activation Key in the **Activation Key** field.
4. Click the **OK** button. AES is now activated.

3: Installing Secure Com Port Redirector

This chapter describes how to install Secure Com Port Redirector.

Installation Instructions

To install Secure Com Port Redirector, use the following procedure.

1. Perform the appropriate step to start the installation:

   - If Secure Com Port Redirector is on a CD-ROM, insert the CD-ROM into the computer's CD-ROM drive.
   - If you downloaded Secure Com Port Redirector, double-click the downloaded file.
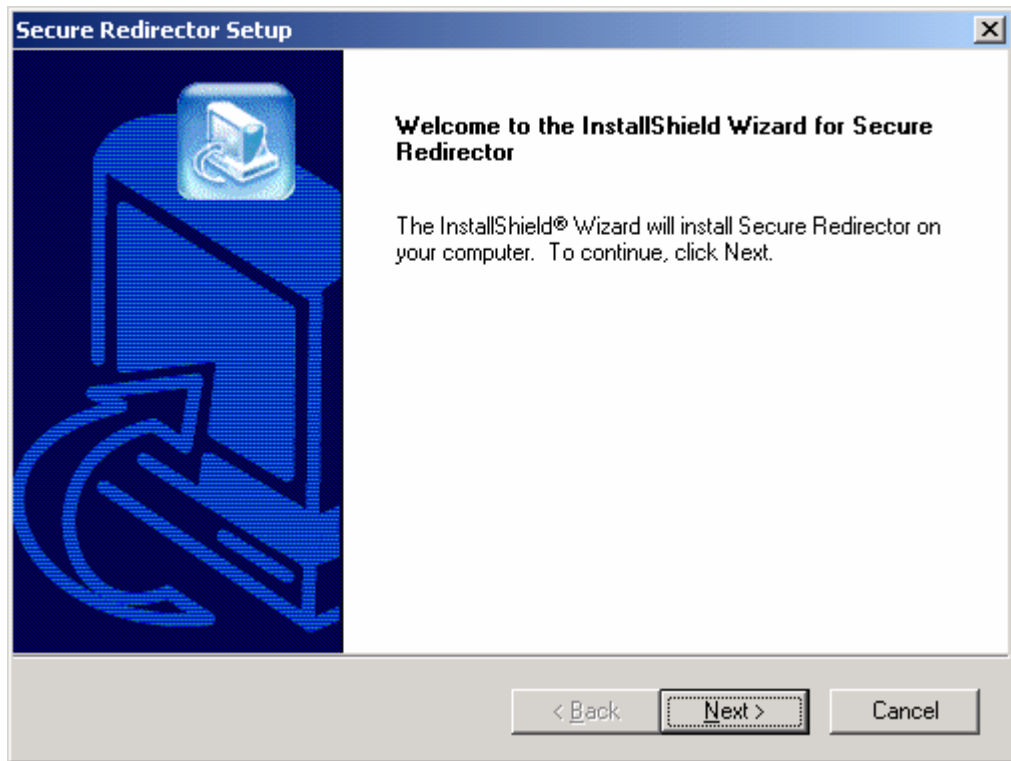
   Either step displays the SCPR − Welcome screen in Figure 3-1.

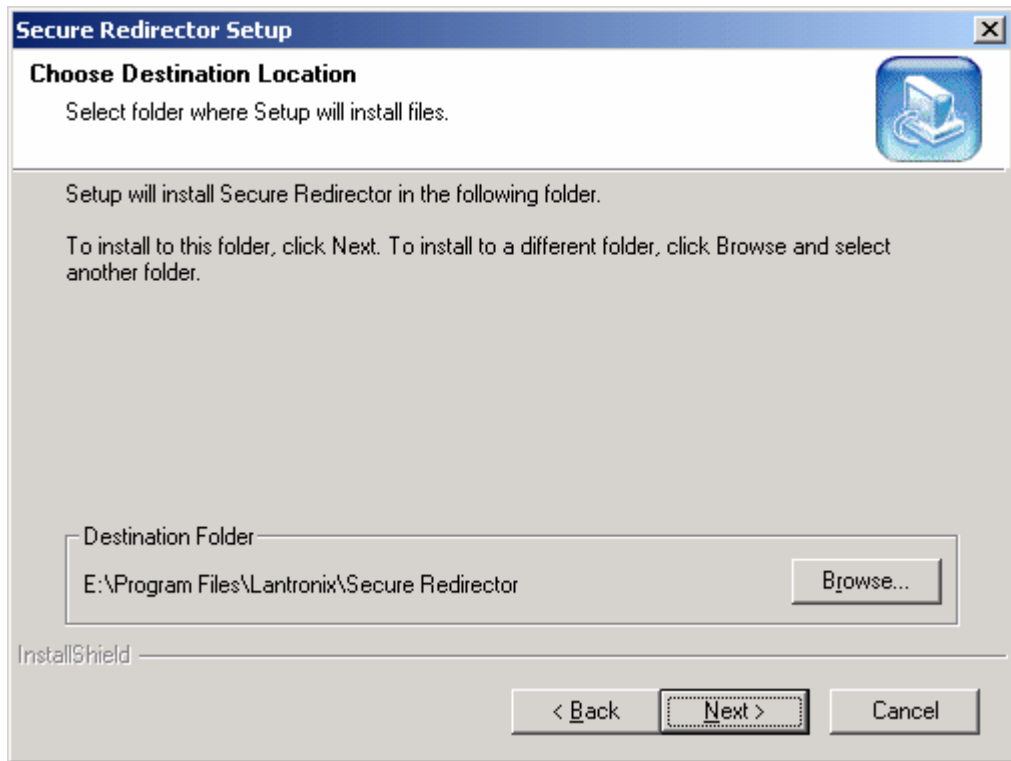**Figure 3-1. Redirector – Welcome Screen**
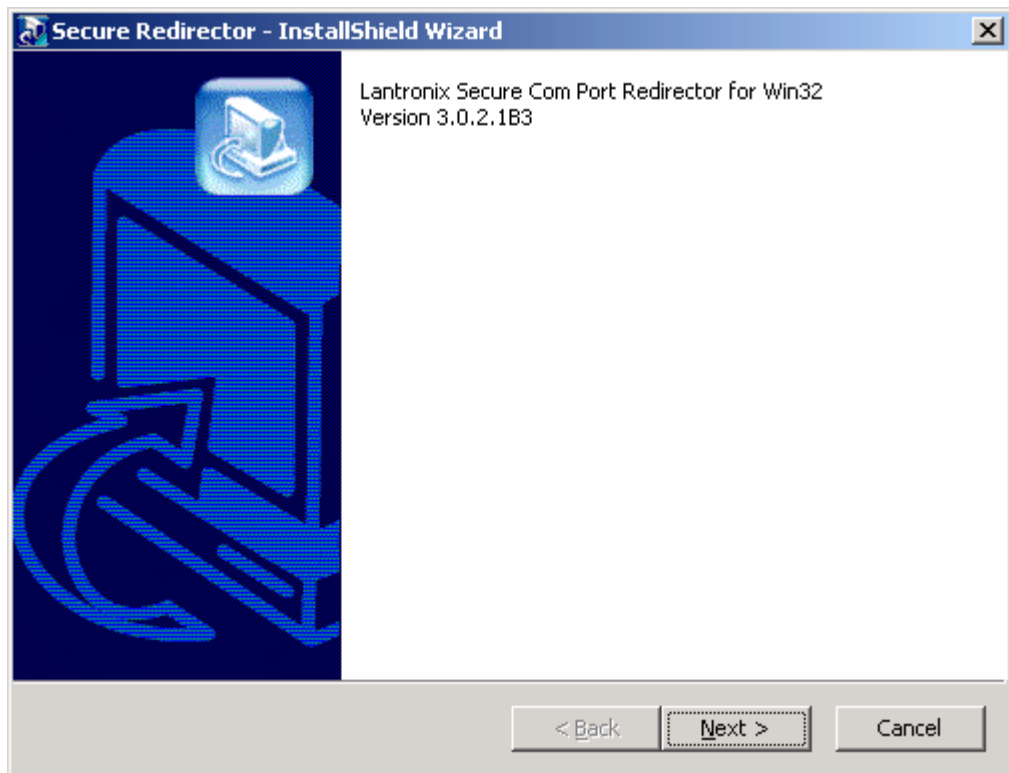
2. Click the **Continue** button. The contents of the file are unpacked and the Welcome screen in Figure 3-2 appears.

Figure 3-2. Welcome Screen

3. Click the **Next** button. The Choose Destination Location dialog box appears (see Figure 3-3).

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Figure 3-3. Choose Destination Location Dialog Box

4.   The path under **Destination Folder** shows where the Secure Com Port
     Redirector software will be installed. We recommend the default location. To
     change this location, click the **Browse** button and select a different location.

*Note: The Choose Destination Location dialog box and the one that
follows it have a **Back** button you can click to return to a previous
screen.*

5.   Click **Next**. The Select Program Folder dialog box appears (see Figure 3-4).

Figure 3-4. Select Program Folder Dialog Box
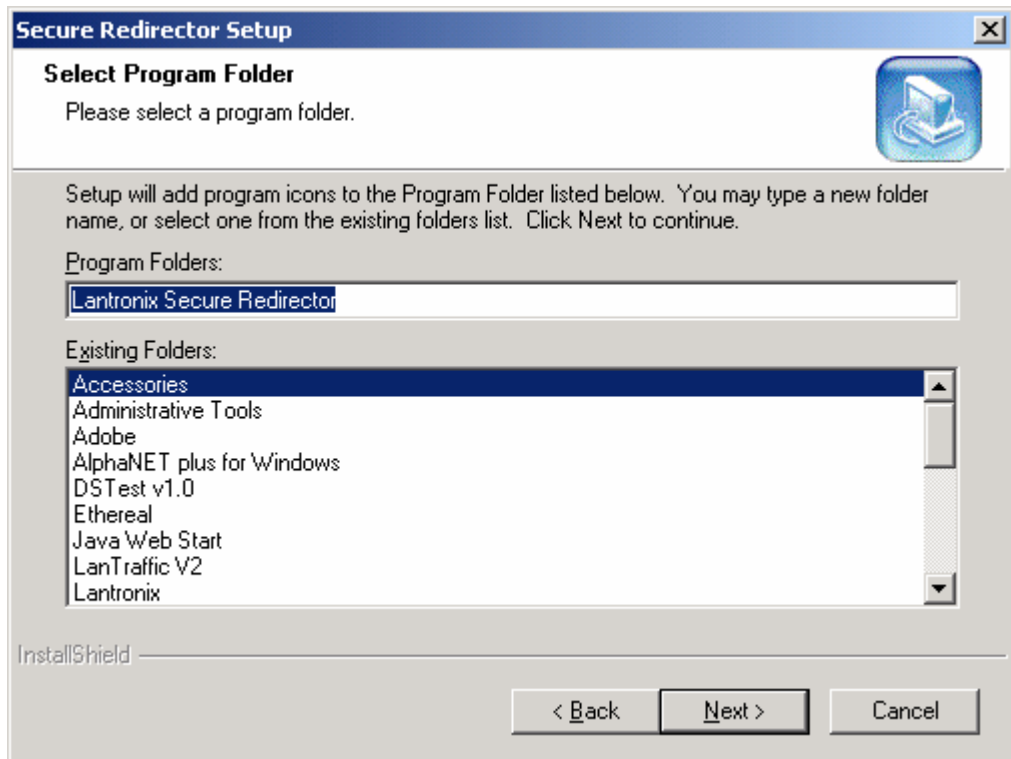
6. The name of the folder that will contain the Secure Com Port Redirector software appears below **Program Folders**. We recommend the default folder name. To change this name, type a new name in the **Program Folders** field.

7. Click **Next**. The program is installed. After the installation, the Setup Complete dialog box appears (see Figure 3-5).

Figure 3-5. Setup Complete Dialog Box

8. Click **Finish** to complete the installation and reboot your computer.

    Note: After you complete the installation, we recommend you read the Read Me file to obtain the latest information about Secure Com Port Redirector.

9. Click the **Start** button in the Windows Taskbar, point to **Programs**, point to **Lantronix Redirector**, and click **Configuration**. The Secure Com Port Redirector Configuration window appears (see Figure 3-6).

Figure 3-6. Secure Com Port Redirector Configuration Window
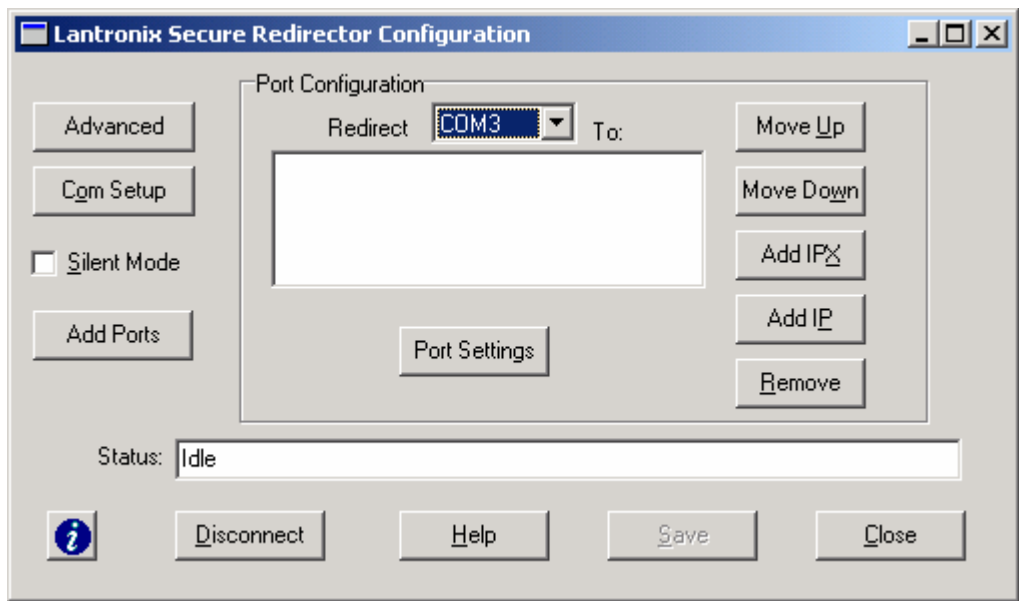
10. Click the **Com Setup** button. A Port Setup dialog box similar to the one in Figure 3-7 appears, with the first logical communications port checked.

    The physical communication ports on the computer where Secure Com Port Redirector is installed are displayed as gray and unavailable. In Figure 3-7, these are Com1 through Com3. Your unavailable communication ports may vary from those in Figure 3-7.

Figure 3-7. Port Setup Dialog Box

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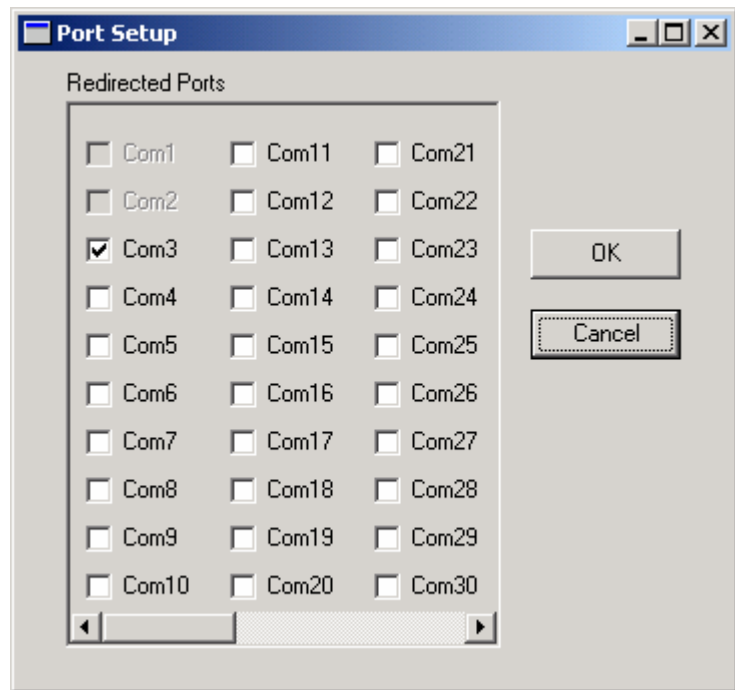
11. Click all the logical ports be redirected. A checkmark appears next to each logical port selected. Each port selected will be available from the **Redirect To** drop-down list in the Secure Com Port Redirector Configuration window (this procedure is described in the next chapter).

12. To deselect a port, click it again to remove the checkmark next to it. Removing the checkmark indicates the port will not be available from the **Redirect To** drop-down list.

13. When finished, click **OK**.

Note: *After you use the Port Setup dialog box to add or remove com ports, reboot your computer.*

4: Configuration

This chapter provides general guidelines for using the device server and Secure Com Port Redirector. It also describes how to set up Secure Com Port Redirector and the device server you will be using with it, and how to verify connectivity between the two.

General Device Server Configuration Guidelines

Observe the following general guidelines when preparing the device server for use with Secure Com Port Redirector:

◆ The device server to which Secure Com Port Redirector will connect must have an IP address.

◆ The PC running Secure Com Port Redirector must have a good network connection to the device server.

◆ If redirecting over a Wide Area Network (WAN), both the PC and the device server must have a correct gateway address configured in their TCP/IP settings.

◆ All serial settings on the device server must match the settings of the serial device. Serial settings include:

– Baud rate

– Parity

– Stop bits

– Flow control

– Interface mode (RS-232 or RS-422/485)

◆ Connect/Disconnect Modes: The way the device server accepts a connection must be configured appropriately to accept a network connection from Secure Com Port Redirector.

– SDS and XPort products: set the connect mode to C0 and the disconnect mode to 00.

◆ Serial cabling between the serial device being managed and the device server must be correct. Consult your documentation for the pinouts of your Lantronix device.

Consult your device server documentation for information about configuring these settings for your device server.

General Secure Com Port Redirector Usage Guidelines

Observe the following general guidelines when using Secure Com Port Redirector:

◆ Do not run Secure Com Port Redirector with other software that installs a virtual com port.

◆ Do not run Secure Com Port Redirector with other Comport Redirection software on the same PC.

Configuring an SDS or XPort

This section describes how to configure Secure Com Port Redirector for use with an SDS.

Note: Configuring encryption keys via telnet sends encryption keys across the network in clear text. To avoid sending encryption keys in clear text over the network, use the SDS or XPort console cable (included with the SDS and XPort development kit) to log into the devices serial port. Consult your devices user guide for instructions on configuration via serial port. Configuration via the devices serial port is the same as configuring via telnet once you are logged into the configuration menu.
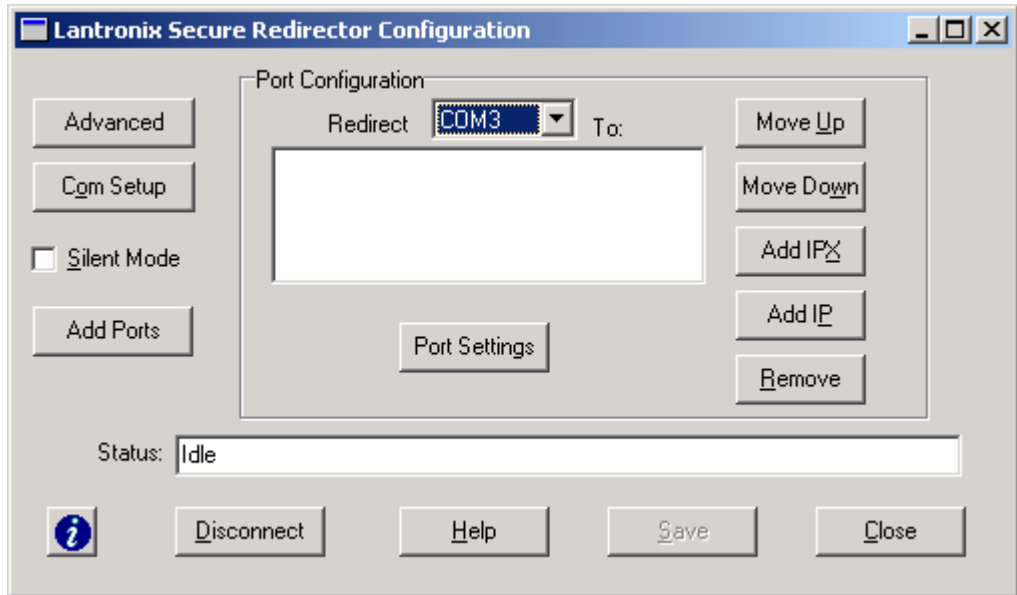
Device Server Configuration

1. Assign an IP address to the device server before using Secure Com Port Redirector.

2. Telnet into the configuration port **9999** on the device server.

3. When prompted, press the Enter key.

4. At the Your Choice prompt, select the channel (serial port) to which the Secure Com Port Redirector will connect.

5. Set the serial settings (baud rate, parity, flow control, data bits) to those of the serial device attached to the Lantronix device server.

6. Set the port number to **10001** if using channel 1. Set the port number to **10002** if using channel 2.

7. Set the connect mode for the channel to **C0**.

8. Press enter through the reaming channel 1 settings until the menu is displayed again.

9. Select option 6 for Security.

10. Press enter until prompted to enable encryption. Enter Y at the Enable Encryption prompt.

11. At the Enter Key Length prompt enter the key length you will use in SCPR. The key length choices are 128, 192 and 256 bits. Press enter.

12. At the Change Keys prompt type Y.

13. At the Enter Keys prompt enter the key that will be used in SCPR.

14. Press enter until the menu is displayed.

15. Leave all other settings at the default settings.

16. Select option 9 to save and exit from the menu.

Redirector Configuration

1. Click the **Start** button in the Windows Taskbar, point to **Programs**, point to **Lantronix Redirector**, and click **Configuration**. The Secure Com Port Redirector Configuration window appears (see Figure 4-1).

Figure 4-1. Secure Com Port Redirector Configuration Window

2. Using the **Redirect To** drop-down list at the top of the Secure Com Port Redirector Configuration window, click a redirected com port.

3. Click the **Add IP** button. The IP Service Setup dialog box appears (see Figure 4-2).

Figure 4-2. IP Service Setup Dialog Box
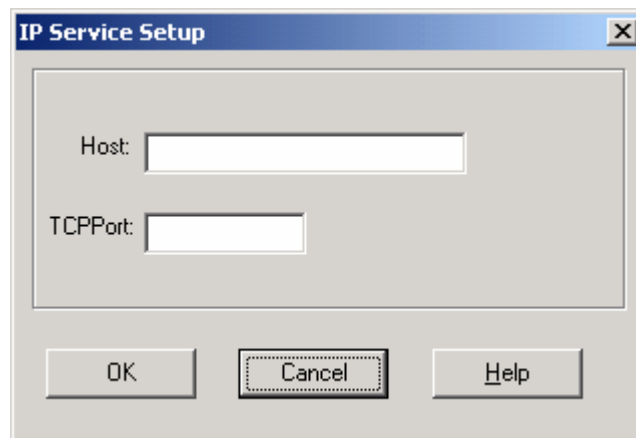
4. In the **Host** field, enter the IP address of the Lantronix device server.

5. In the **TCPPort** field, enter **10001** if using channel 1 or **10002** if using channel 2.

6. Click the **OK** button.

7. Click the **Port Settings** button. The Port Settings dialog box appears.

8. Check **Raw Mode** (see Figure 4-3). For more information about Raw Mode, refer to Table 4-1 on page 4-7.

**Figure 4-3. Port Settings Dialog Box with Raw Mode Enabled**
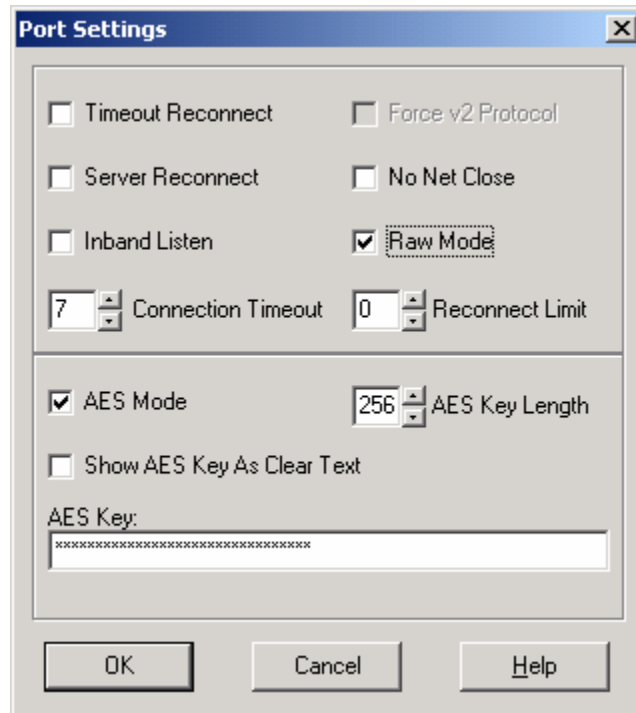
9. Check **AES**.

10. Click the **Save** button.

11. Next to the **AES Key Length field** use the up and down arrows to choose your encryption key length.

12. Enter the AES Encryption key in the **AES Key Field**.

13. Click **OK**.

14. Click **Save**.

15. Click the **Close** button.

16. Proceed to Verifying Connectivity with the Device on page 4-8.

Configuring Port Settings

The Port Settings dialog box lets you define various settings for redirected com ports. The settings selected from the Port Settings dialog box are on a per-port basis. Therefore, to apply port settings to all redirected com ports, repeat the following procedure for each redirected com port.

1. Click the **Start** button in the Windows Taskbar, point to **Programs**, point to **Lantronix Redirector**, and click **Configuration**. The Secure Com Port Redirector Configuration window appears (see Figure 4-4).

Figure 4-4. Secure Com Port Redirector Configuration Window
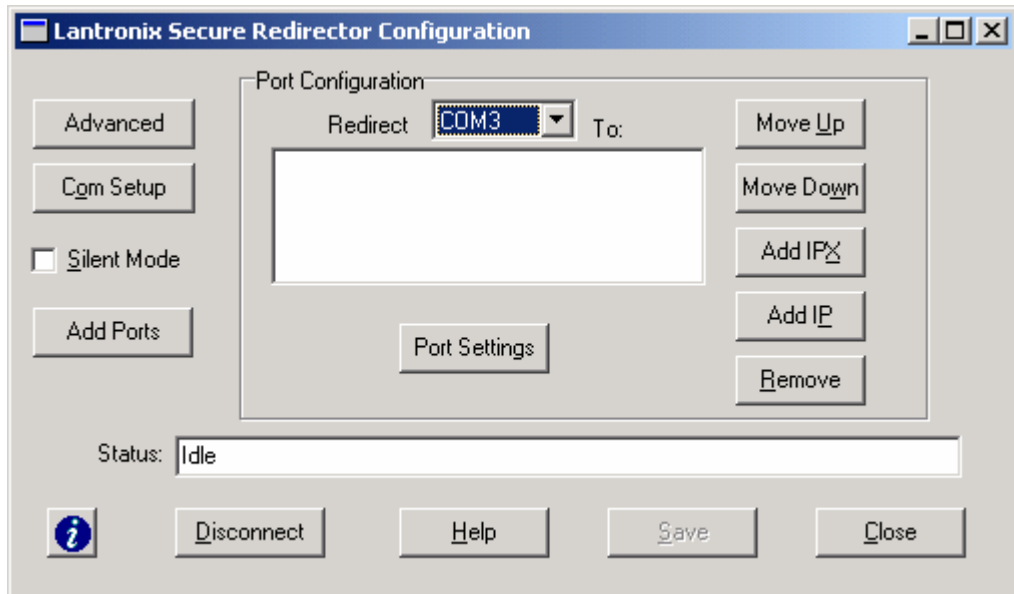
2. Using the **Redirect To** drop-down list at the top of the Secure Com Port Redirector Configuration window, click a redirected com port.

3. Click the **Port Settings** button. The Port Settings dialog box appears (see Figure 4-5).

Figure 4-5. Port Settings Dialog Box
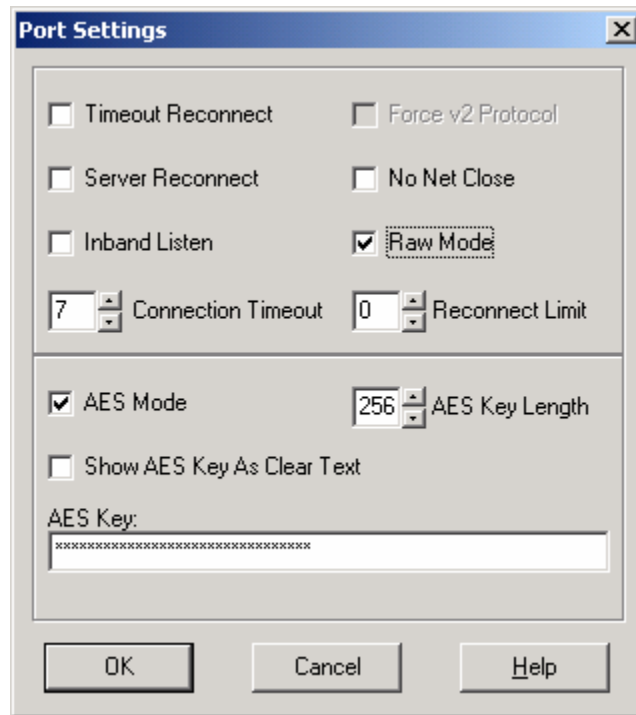
4. Select the appropriate port setting settings (see Table 4-1).

Table 4-1. Port Settings Settings

Setting	Description
Timeout Reconnect	If checked, Secure Com Port Redirector re-establishes the connection if the connection times out (see the TCP Keepalive information in your device server user's guide). When auto-reconnecting, Secure Com Port Redirector tries to reconnect until the connection succeeds or you click the **Cancel** button in the pop-up connection dialog box. If the port was closed by the communications application or by clicking **Disconnect,** Secure Com Port Redirector does not try to auto-reconnect.
Server Reconnect	If checked, Secure Com Port Redirector re-establishes the connection if the server closes it. When auto-reconnecting, Secure Com Port Redirector tries to reconnect until the connection succeeds or you click the **Cancel** button in the pop-up connection dialog box. If the port was closed by the communications application or by clicking **Disconnect,** Secure Com Port Redirector does not try to auto-reconnect.
Inband Listen	If checked, Secure Com Port Redirector uses the inband redirector protocol on inbound connections from a Lantronix server. This protocol allows settings like modem signals, baud rate and parity to be exchanged between Secure Com Port Redirector and the server. To use this setting with MTS and ETS products, the server must run firmware V3.6/3 or higher and the word **OR** must be specified at the end of the server's connection (Define Port) string. See your product reference manual for more information. To use this setting with SCSxx00 products, the server must run firmware V2.0/1 or higher and the word **OR** must be specified at the end of the server's connection (Define Port) string. See your product reference manual for more information.
Connection Timeout	Specifies the maximum number of seconds that the Secure Com Port Redirector waits for a connection to be made before giving up on this attempt. If **Timeout Reconnect** is enabled, each connection attempt lasts this long. If **Timeout Reconnect** is disabled, the connection attempt fails after this interval and no more attempts are made.
Force v2 Protocol	If checked, Secure Com Port Redirector always uses the version 2 protocol. This protocol has a quicker connect time than version 3, but lacks the version 3 feature set. Version 3 lets the communication application set the Data Terminal Ready (DTR) and Request To Send (RTS) states, byte size, stop bits, parity, and the read the state of Clear To Send (CTS), Data Set Ready (DSR), and Carrier Detect (CD). CoBox, UDS, XPort, and XPress products do not support version 2 or 3 Secure Com Port Redirector protocols. Therefore, use **Raw Mode** with CoBox, UDS, XPort, and XPress products.
No Net Close	If checked, prevents the network connection from being dropped when the communications application is closed. To drop the connection, click the **Disconnect** button in the Secure Com Port Redirector Configuration window. This allows applications to close and reopen ports, without waiting for the network connection to be re-established and negotiated.
Raw Mode	If checked, forms a raw TCP connection to the server's serial port, accelerating the connection between the communications application and the server, without sending configuration or status information from the PC to the server. Raw Mode is designed for CoBox, UDS, XPort, and XPress products. When using Raw Mode, configure Secure Com Port Redirector and your Lantronix server to use the same port number.

5.   After selecting the port settings, click **OK**.

Verifying Connectivity with the Device Server

After configuring the Secure Com Port Redirector and the device server, use a terminal-emulation program such as HyperTerminal to verify connectivity from the Secure Com Port Redirector to the device server. To verify connectivity between Secure Com Port Redirector and the device server using HyperTerminal:

1. Click the **Start** button in the Windows Taskbar, point to **Programs**, point to **Accessories**, point to **Communications**, and click **HyperTerminal**.

2. Open a new session to the virtual com port configured to connect to the device server.

3. When the HyperTerminal window opens, a pop-up window displays, *Attempting to connect to service.* If this message is replaced by:

    ◆ *Successfully redirected to service*, the connection from the Secure Com Port Redirector to the device server was successful.

    ◆ *Failed to connect to any service*, the connection failed. Ensure your settings are correct (refer to the appropriate configuration section in this chapter for setup procedures for your device server).

4. To hide the pop-up window, check **Silent Mode** on the Secure Com Port Redirector Configuration window.

Figure 4-6. Enabling Silent Mode

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