LANTRONIX®

SDSTX3110-121S-LRT

Industrial Serial Device Server

User Guide

Part Number 33745
Revision B March 2022

Intellectual Property

Warranty

For details on the Lantronix warranty policy, go to http://www.lantronix.com/support/warranty.

Contacts

Lantronix Corporate Headquarters
7535 Irvine Center Drive
Suite100
Irvine, CA 92618, USA
Toll Free: 800-526-8766
Phone: 949-453-3990
Fax: 949-453-3995

Technical Support
Phone: +1.952.358.3601 or 1.800.260.1312
Email: techsupport@transition.com

Sales Offices
For a current list of our domestic and international sales offices, go to www.lantronix.com/about/contact.

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Revision History

Date	Rev	Comments
9/30/13	A	Initial release for SDSTX3110-121S-LRT, SDS-Manager v1.5c, and FW v 1.1.
3/28/22	B	Change SDS-Manager to 1.6 and FW to v1.2a. Initial Lantronix re-brand. Remove -PA build (EoL).

Table of Contents

1. Introduction

Lantronix hardened serial device server provides the ability to communicate secured serial data across an Ethernet network.

The SDSTX3110-121S-LRT contains two 10/100 Fast Ethernet ports that can be configured to communicate to one or multiple redundant servers. Security of the data transmission is assured through HTTPS, SSH, and SSL data encryption.

The SDSTX3110-121S-LRT comes with COM port redirector software enabling communication of serial data to a virtual COM port on a server or can be used in pairs to provide serial tunneling across the Ethernet network. The SDSTX3110-121S-LRT is a hardened device designed to operate in the harshest environments. It has a slim IP-30 enclosure that can fit into space-constraining cabinets. The device accepts 12-48VDC power input, and it is also certified to operate in temperatures of -40°C to +70°C.

1.1 Ordering Information

The SDS models are described below.

Product #	Description
SDSTX3110-121S-LRT	Slim size Industrial 1 secure serial port to Ethernet device server with one (1) RS232/422/485 DB9 ports and two (2) 10/100Base-TX RJ-45 ports with a reduced footprint. It has (2) 10/100Base-TX ports and 1 RS-232/422/485 port.
Optional Accessories (sold separately)	
25130	Industrial DIN Rail Mounted Power Supply; Input: 85-264 VAC, 120-370 VDC. Output: 48VDC, 0.83A, 39.8 Watts.
25135	Industrial DIN Rail Mounted Power Supply; Input: 85-264 VAC, 120-370 VDC. Output: 24VDC, 0.42A, 10 Watts.

1.2 Features

- Operating Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- Redundant multiple host devices:
  - 5 host devices: Virtual COM, TCP Server, TCP Client mode;
  - 4 IP ranges in UDP mode
- Security: SSL data encryption; secured management by HTTPS and SSH: IP Access: IP White List
- Event Warning via Syslog, Email, SNMP trap
- Configurable by Web interface, Windows utility (SDS-Manager), or SSH Console.
- SDS-Manager-x64 for Windows Server 2003 and 2008, Windows XP, Windows 7, Windows 8
- SDS-Manager 32-bit version for Windows Server 2003 and 2008, Windows XP, Windows 7, Windows 8
- Windows OS support: Windows NT/2000/ XP/ 2003/VISTA (32/64bit)/Windows 7(32/64bit) /Windows 8

1.2.1 Hardware Features

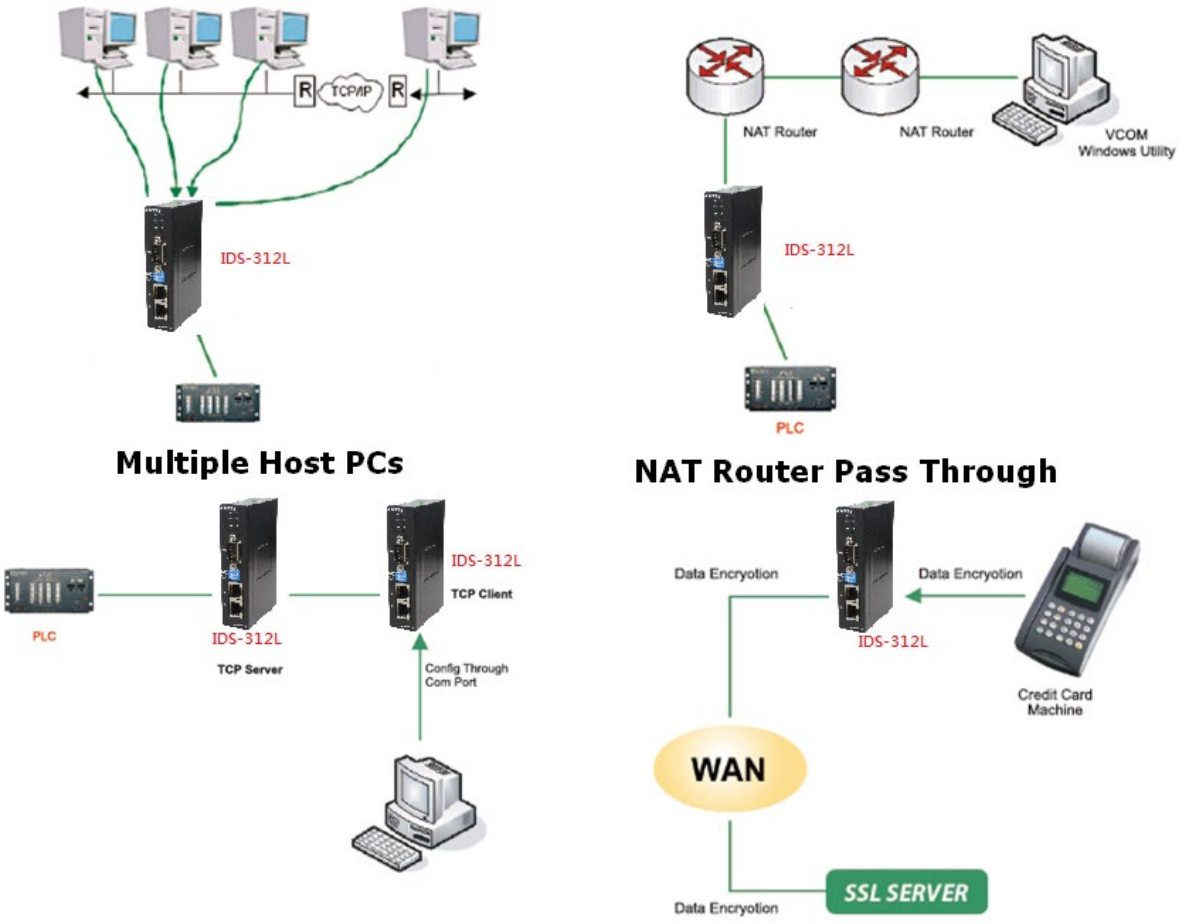
- DIN-rail and wall-mount enabled
- Redundant DC power inputs
- IP Casing: IP-30
- Extended operating temperature (-40°C to 70°C)

1.2.2 Software Features

- Supports five host devices including Virtual COM, TCP Server, TCP Client modes and four IP ranges
- Supports application-based QoS management
- NAT-pass through support for users to manage SDS through NAT router
- Ensure high levels of security with SSL data encryption, HTTPS/SSH, IP access control and IP white list
- Event warning by Syslog, Email, and SNMP trap
- Configurable by Web Interface, SSH console, and Windows utility
- Operating Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- Security: SSL data encryption; secured management by HTTPS and SSH IP Access: IP White List
- Event Warning by SYSLOG, Email, SNMP trap

1.3 Applications

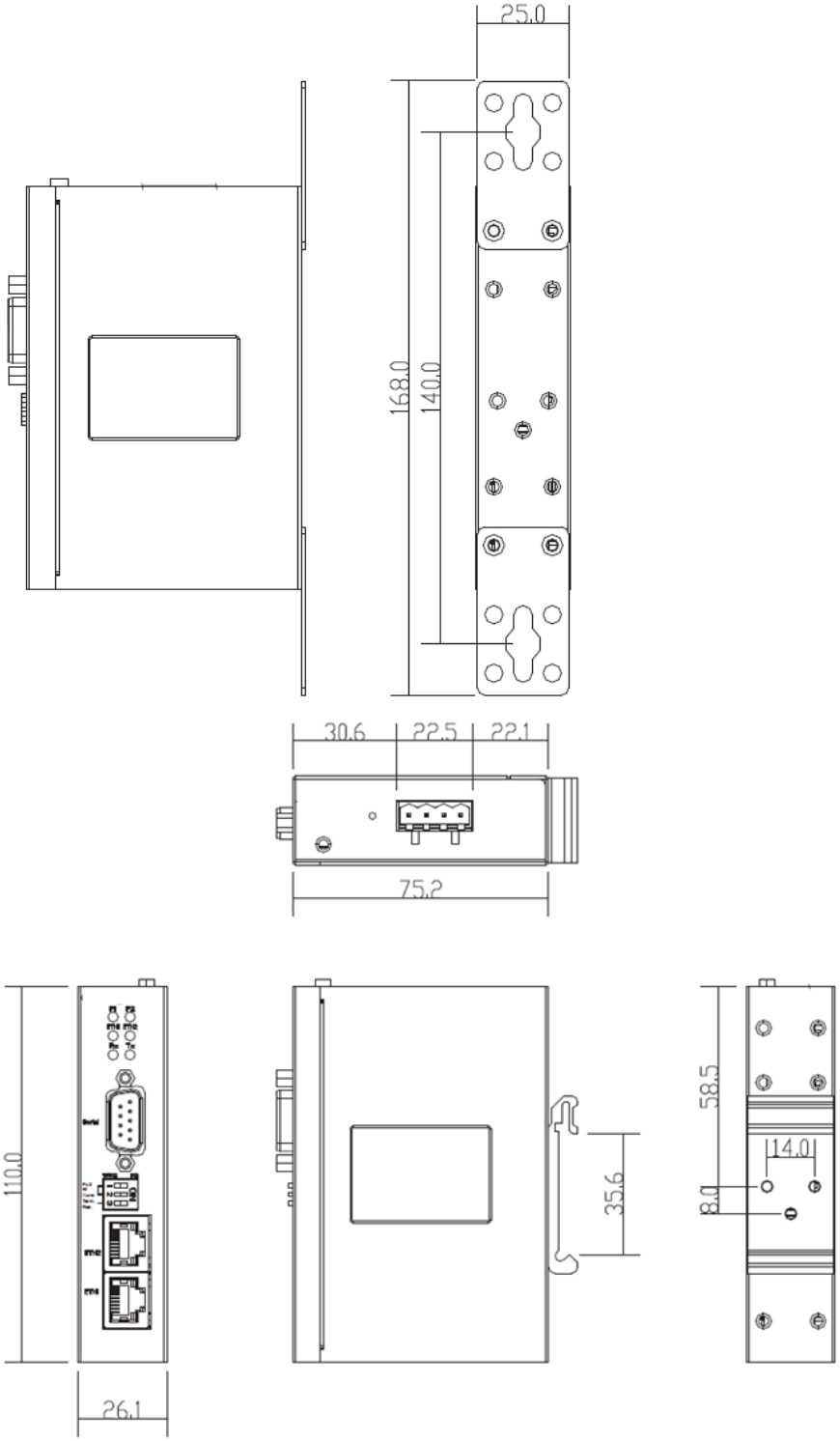
The figure below shows typical SDS configurations (e.g., Multiple Host PCs, SSL Data Encryption, TCP Client/Server Modes, and NAT Router Pass-through).



1.4 Dimensions

1.4.1 SDSTX3110-121S-LRT Dimensions

The SDSTX3110-121S-LRT cabinet dimensions are provided below:

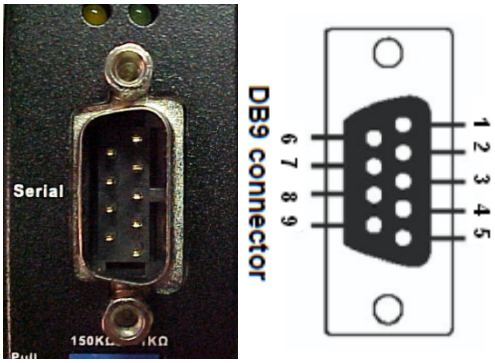


1.5 Pin Definitions

1.5.1 DB9 Connector

The SDSTX3110-121S-LRT serial port can be connected using a DB9 cable. The DB9 connector supports RS232 / RS422 / RS485 operation modes. The table below provides the DB9 connector pin assignments.

Pin #	RS-232	RS-422	RS-485 (4 wire)	RS-485 (2 wire)
1	DCD	TX-	TX-	DATA-
2	RXD	TX+	TX+	DATA+
3	TXD	RX+	RX+	
4	DTR	RX-	RX-	
5	GND	GND	GND	
6	DSR			
7	RTS			
8	CTS			
9	RI			

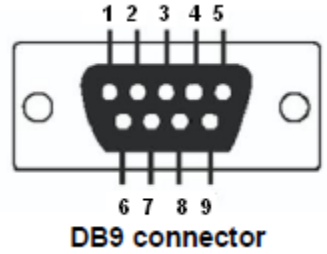


DB-9 Serial Port

1.5.2 DB9 Console Port Wiring

The serial ports can be connected using a DB9 cable. The DB9 connector supports RS232 / RS422 / RS485 operation modes. Please refer to the following table for the pin assignments of the DB9 connector.

Pin #	RS-232	RS-422	RS-485 (4 wire)	RS-485 (2 wire)
1	DCD	TX-	TX-	
2	RXD	TX+	TX+	
3	TXD	RX+	RX+	DATA+
4	DTR	RX-	RX-	DATA-
5	GND	GND	GND	GND
6	DSR			
7	RTS			
8	CTS			



1.5.3 10/100 Base-T(X) MDI/MDI-X Pin Assignments

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used
9		

1.6 Package Contents

Carefully unpack the items near the final location. Save the packing materials for possible future use. Verify that you received the items below. Contact your sales representative if you have not received all of the following items:

- One SDSTX3110-121S-LRT
- Two Wall-Mount Brackets
- One DC Jack to 1 pair Cable, Black, Female, D2C-2001
- One TN Postcard and one printed Quick Start Guide
- One Plastic Bag with a 4-Pin Terminal Block, two I/O Dust Covers, and four Screws.
- One optional power supply

1.7 Optional Accessories

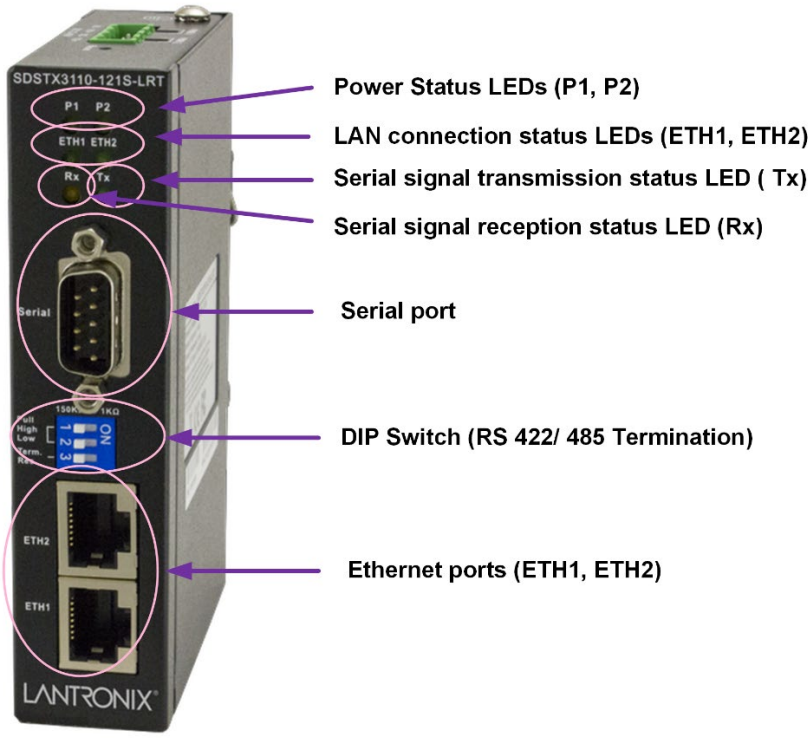
These optional accessories can be ordered separately:

- 25130 Industrial DIN Rail Mount Power Supply
- 25135 Industrial DIN Rail Mount Power Supply

See the Power Supply Specifications on page 85 for power supply details.

2. Hardware Overview

2.1 Front Panel



SDSTX3110-121S-LRT Front Panel

2.1.1 Ports and Connectors

The Ethernet ports on the device use RJ45 connectors.

Port	Description
ETH1 and **ETH2**	Two 10/100 Base-T(X) ports (ETH 10/100M).
Serial Port	One DB9 Serial Port.
Reset button	To restore the device configurations back to the factory defaults, click the front panel Reset button for a few seconds. Once the power LED starts to flash, release the button. The device will then reboot and return to factory defaults.

2.1.4 LED Descriptions

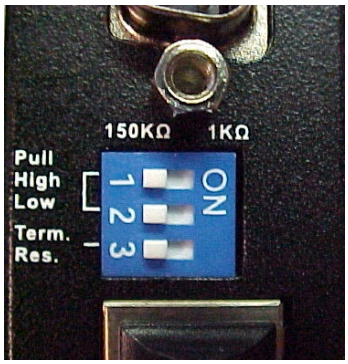
With the device installed and cabled, the green power LED should light. The LEDs are described below.

LED	Color	State	Description
P1 / P2	Green	On	Power is on and functioning normally.
ETH1 / ETH2	Green	On	Port is connected
ETH1 / ETH2	Green	Blinking	Data Transmitted.
Rx	Amber	On	Receiving Serial data.
Tx	Green	On	Transmitting Serial data.

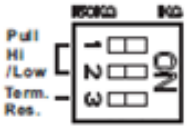
2.1.6 DIP Switch for RS 422/485 Termination

Termination is used to match the impedance of a transmission line to the hardware impedance of the interface it is connected to. There is more than one way to add termination to an RS485/422 serial connection. The most commonly used is DC Termination, accomplished by attaching a resistor between the signal lines on the extreme ends of the transmission line.

Set DIP switch # 3 to ON (enabled) for long distance (>=100m) transmission to improve the quality of data transmission. The default is Off.



Dip Switch



SW No.	Description
#1	150K / 1K Ohm Pull High/Low Resistor
#2	
#3	Enable / Disable Terminal Resistor

SW No.	Description
1	150K / 1K Ohm Pull High/Low Resistor
2	
3	Enable / Disable Terminal Resistor

DIP Switch SW No.	Setting	Description
1	Off	150K / 1K Ohm Pull High/Low Resistor
2	ON	150K / 1K Ohm Pull High/Low Resistor
3	Off ON	Disable Terminal Resistor (default) Enable Terminal Resistor for data transmission distance >=100m to improve the data transmission quality.

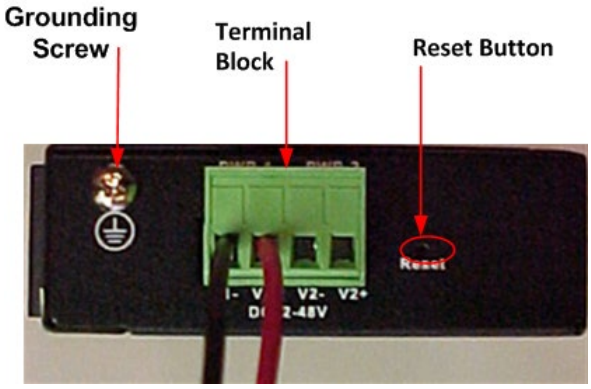
2.2 Top Panel

The top panel components are shown and described below:

1 Terminal block: V1-, V1+, V2- and V2+ for power connections.

2 Grounding screw (see section 3.4.1 Grounding on page 16).

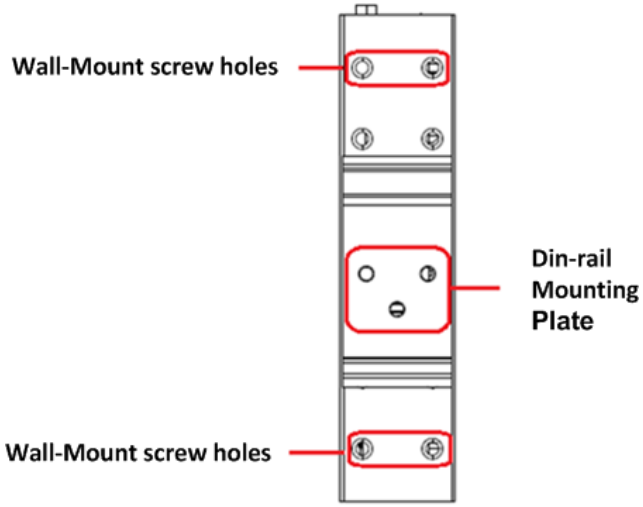
3 Reset button.



SDSTX3110-121S-LRT Top Panel

2.3 Back Panel

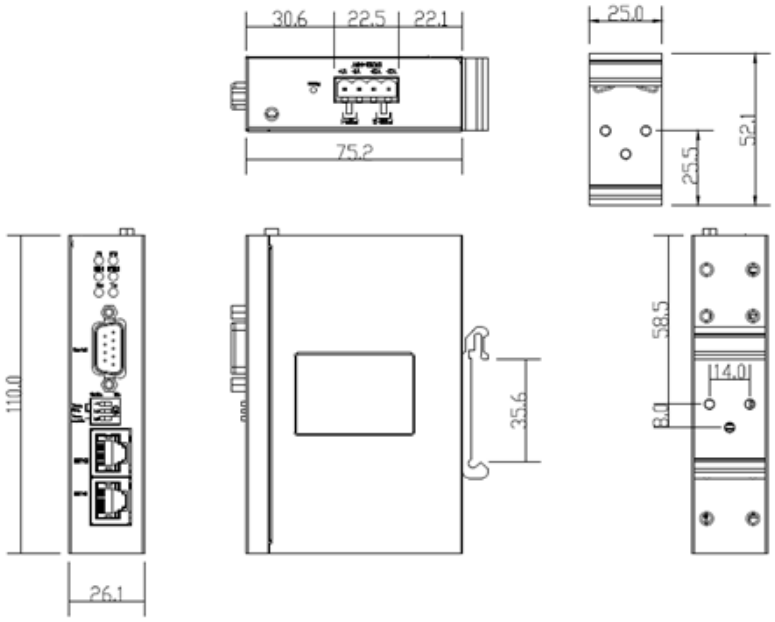
Below are the back panel components with the DIN-rail kit removed and with the DIN-rail kit installed:



3. Hardware Installation

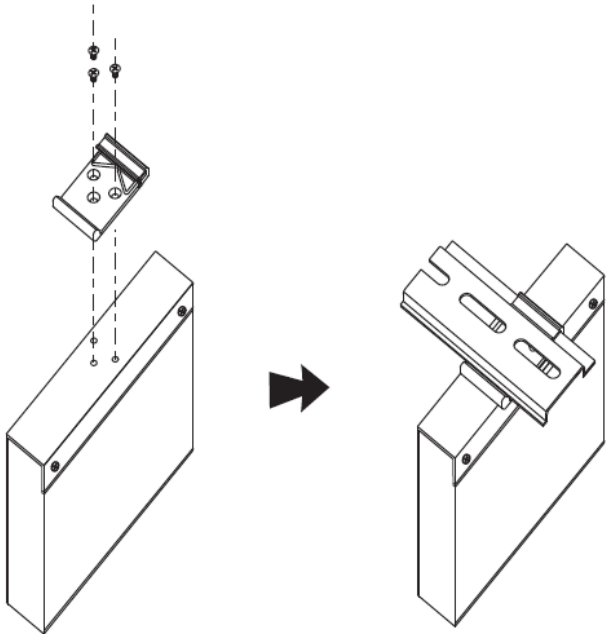
3.1 DIN-Rail Installation

A DIN-Rail kit is pre-installed to let you fasten the device to a DIN rail. The dimensions are provided below.



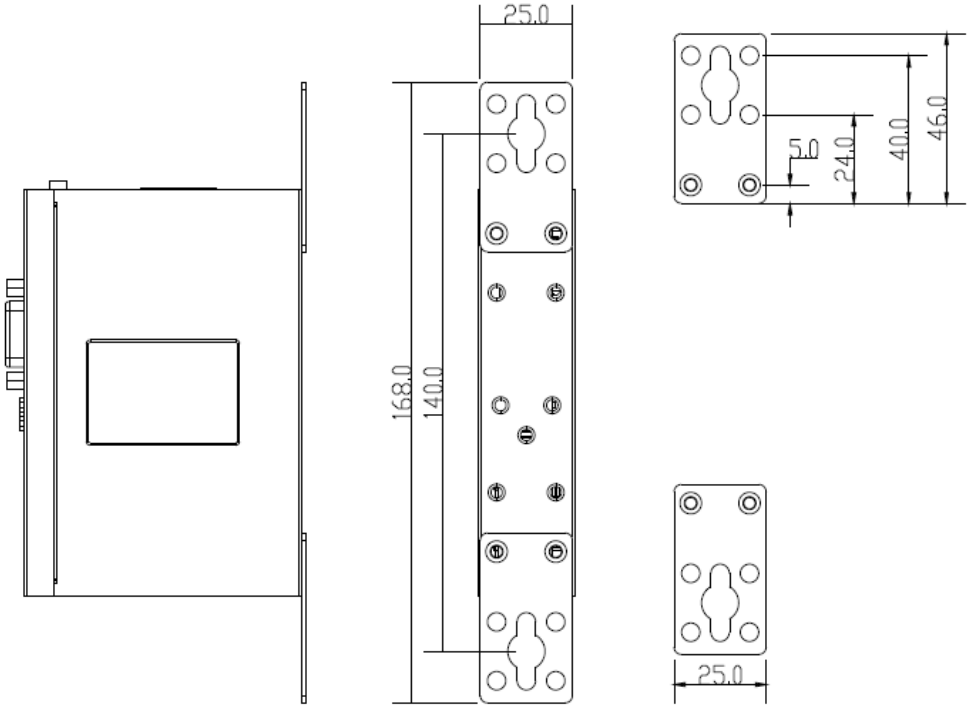
SDSTX3110-121S-LRT Dimensions (in mm)

1. Slant the device and screw the DIN-Rail Kit onto the back of the device, right in the middle of the back panel.
2. Slide the device onto a DIN-rail from the DIN-Rail kit and make sure the device clicks into the rail firmly.



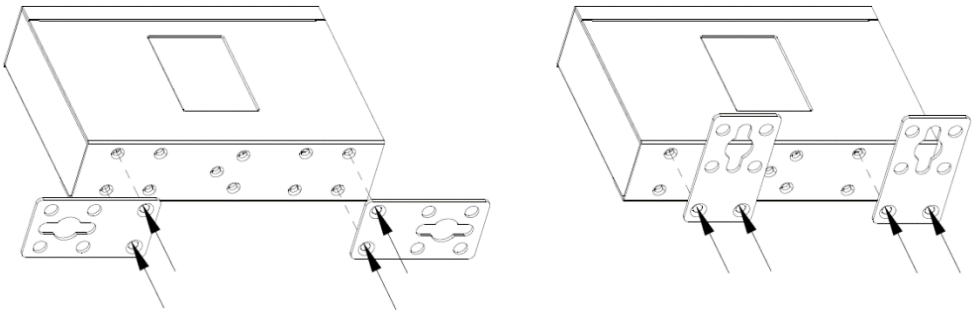
3.2 Wall Mounting

The SDS can be fixed to the wall via the wall mount kit included in the package. The wall mount kit dimensions are provided below.



To install the device on a panel or wall:

1. Remove the Din-Rail clip by removing the three screws.
2. Use the screws included in the package to install the wall mount bracket.

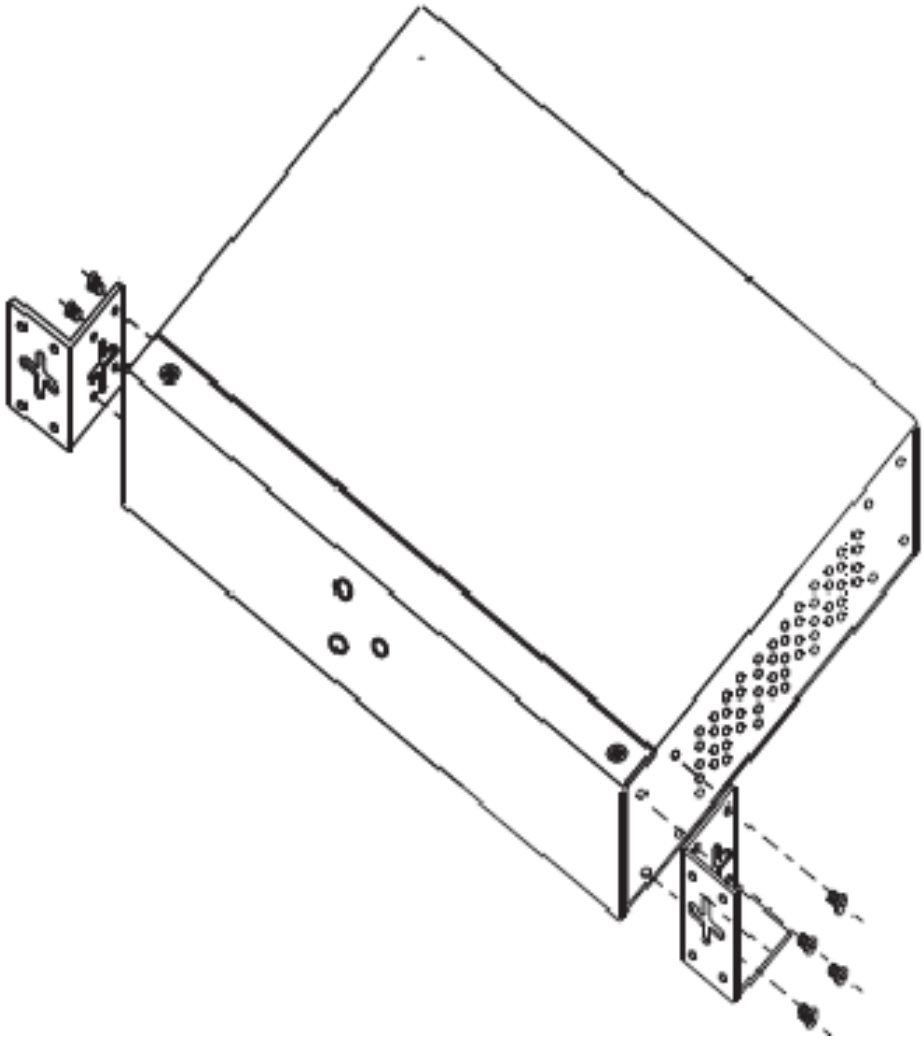


3. Screw the two pieces of wall-mount kits to the top and bottom panels of the device. A total of eight screws are required, as shown below.
4. Use the device, with wall mount plates attached, as a guide to mark the correct locations of the four screws.
5. Insert a screw head through middle of the keyhole-shaped aperture on the plate, and then slide the device downwards. Tighten the screw head for added stability.

3.3 Rack Mounting

The SDS can be rack mounted using the procedure below.

1. Install the provided L-shaped mounting brackets to the left and right sides of the device as shown below.
2. With the front brackets oriented in the front of the rack, mount the device in the rack with the four rack-mounting screws.



3.4 Wiring

Warning: Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate.

Attention:

1. Be sure to disconnect the power cord before installing and/or wiring your devices.
2. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.
3. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.
4. Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
5. Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
6. You can use the type of signal transmitted through the wire to determine which wires should be kept separate. The rule of thumb is that wiring sharing similar electrical characteristics can be bundled together.
7. You should separate input wiring from output wiring.
8. It is advised to label the wiring to all devices in the system.

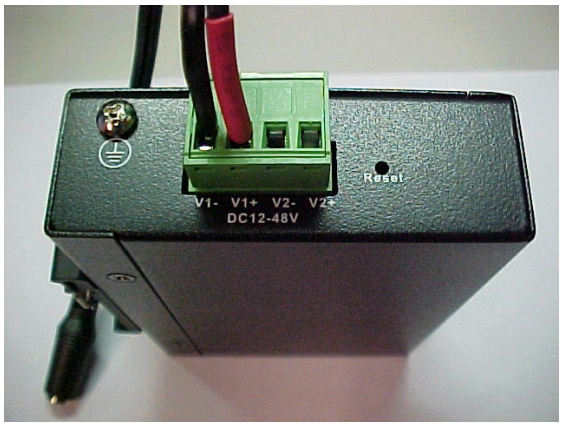
3.4.1 Grounding

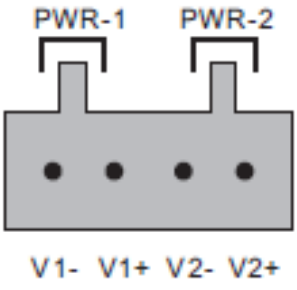
Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground pin on the power module to the grounding surface prior to connecting devices.

3.4.2 Redundant Power Inputs

The device has two sets of DC power inputs on the 4-pin terminal block located on top of the device. Follow the steps below to wire the power input on the terminal block.

1. Insert the Terminal Block connector into the keyed receptacle on the SDS.
2. Insert the negative/positive wires into the **V-** and **V+** terminals, respectively.
3. To keep the wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.





3.5 Connection

3.5.1 10/100BASE-T(X) Pin Assignments

Depending on the link type, the device can use CAT 3, 4, 5, or 5e UTP cables to connect to any other network devices (PCs, servers, switches, routers, or hubs). See the table below for cable specifications.

With 10/100BASE-T(X) cables, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data. Note that the + and - signs represent the polarity of the wires that make up each pair.

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

3.5.2 Cable Types and Specifications

Cable	Type	Max. Length	Connector
10BASE-T	CAT 3, 4, 5 100-ohm	UTP 100 m (328 ft.)	RJ-45
100BASE-TX	CAT 5 100-ohm UTP	UTP 100 m (328 ft.)	RJ-45

4. Management

Management / configuration methods include:

1. Web interface
2. Windows utility (SDS-Manager)
   a) SDS-Manager-x64 for Windows Server 2003 & 2008, Windows XP, Windows 7, Windows 8.
   b) SDS-Manager 32 bit version for Windows Server 2003 & 2008, Windows XP, Windows 7, Windows 8.
3. SSH Console connect to SDS Commander

4.1 SDS-Manager

SDS-Manager is a powerful Windows utility for SDS devices. SDS-Manager supports device discovery, device configuration, group setup, group firmware update, and monitoring. SDS-Manager lets you easily install and configure devices on the network. SDS-Manager requires 8881 Kb of disk space.

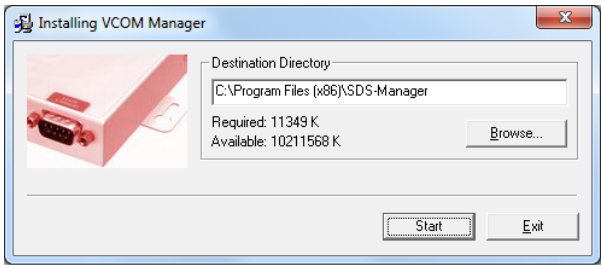
Two versions of SDS Manager are available; one each to support to support 32-bit and 64-bit Windows systems.

1. Determine which version you require.
2. Download it from the Lantronix website: SDS Management Software zip file (e.g., filename *SDS-Manager_x64_v1.6a_20170413.zip*).
3. Unzip the Zip file (e.g., *SDS-Manager_x64_v1.6a_20170413.exe*).
4. Note the name and location of the .EXE file. Firmware file names have the format *SDSTX3110-121S-LRT_2016221_1.2a_uImage*. SDS-Manager file names have the format *SDS-Manager_x64_v1.6a.exe* and *SDS-Manager_v1.6a_201701207.exe*.

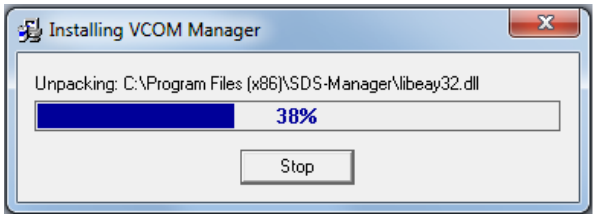
4.1.1 Install the SDS-Manager

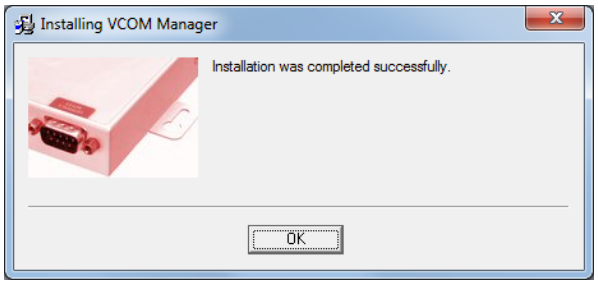
Follow the steps below to install the SDS Manager.

1. Select the folder for the SDS-Manager and click **Start** to run the setup program. The Destination Directory screen displays.



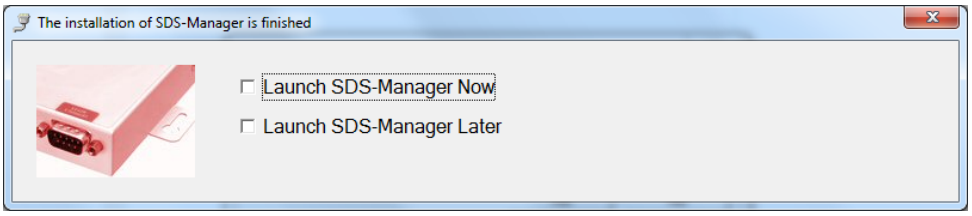
2. Click the **Start** button to install in the default directory (*C:\Program Files (x86)\SDS-Manager*) or browse to and select a different location and then click the **Start** button. When done the message *Installation was completed successfully* displays.



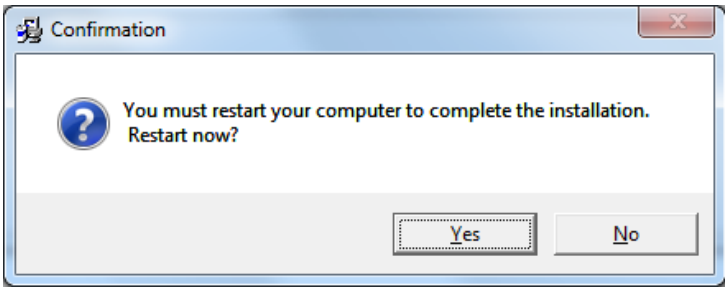


3. Click the **OK** button. A dialog displays indicating *The installation of SDS-Manager is finished*.

4. Check either the **Launch SDS-Manager Now** checkbox or the **Launch SDS-Manager Later** checkbox.

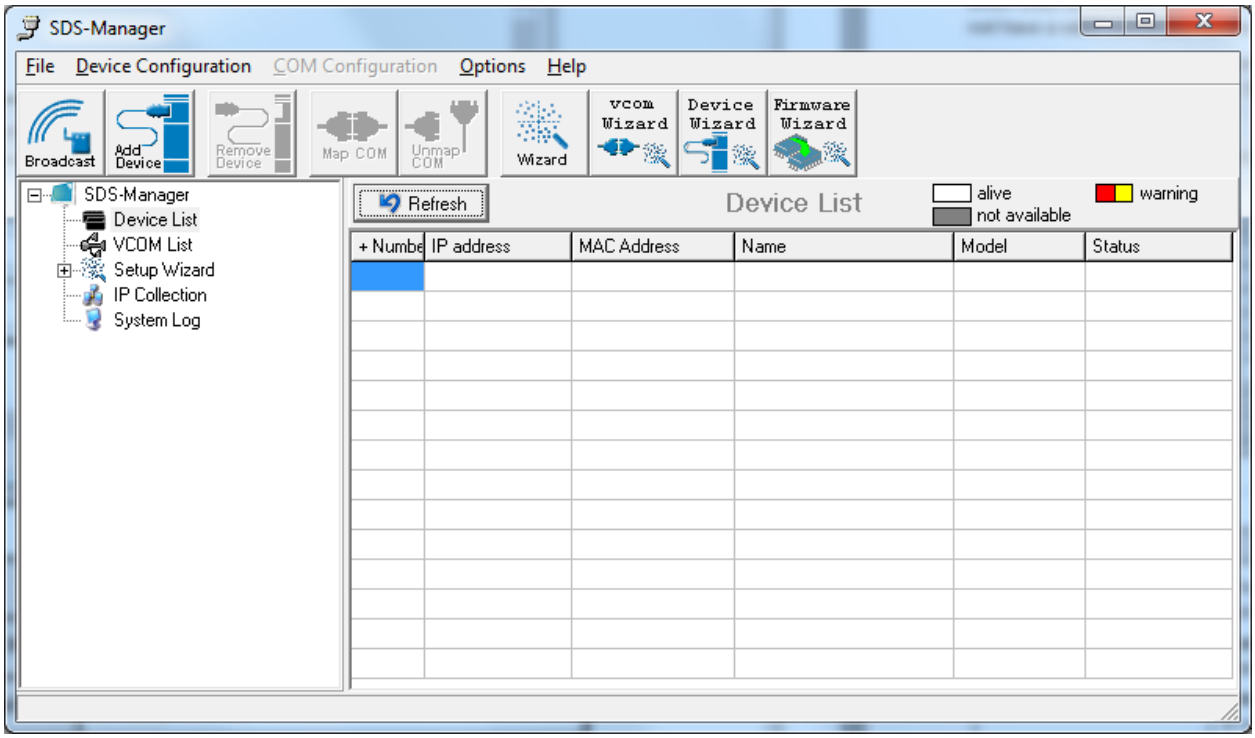


When you launch SDS-Manager, a confirmation message displays.



5. Click **Yes** to restart your computer to complete the installation, or select **No** and restart it later.

The SDS-Manager startup screen (Device List) displays:



4.1.2 SDS-Manager Overview

SDS-Manager is an easy-to-use Windows utility for managing one or many Serial Device Servers. A Serial Device Server provides a transparent serial gateway to Ethernet without modifying existing COM port control programs.

Major SDS Manager functions include **Configuration**: To configure device and serial ports; **Monitor**: To monitor device and port status; **Setup Wizard**: Quick start for general applications; **IP Collection**: Auto collect IP addresses of dynamic device IP setting; and **System Log**: System Log information for troubleshooting.

Configuration:
1. Use Broadcast to search all devices in a subnet or use Add by IP to locate all devices in a specified IP range.
2. Configure the correct IP address as Static IP or DHCP IP.
3. Double-click the device and start configuration:
- General: Configure device name, location, time server, and Auto IP report.
- Security: Configure the accessible IP table and administrator password
- Networking: Configure IP address (Static or DHCP/BootP)
- Notification: Specific events (hardware reset, software reset, login failed, IP changed, password changed, access IP blocked) can be notified by:
  - SNMP trap: up to four trap servers.
  - Email: up to eight email addresses as recipients.
  - System Log: report to log server.
- Management: Configure the management interface:
  - Web enable: enable web console.
  - Telnet enable: enable telnet console.
  - SNMP enable: enable SNMP management. Configure community, location, contact, Trap servers.
- Update Firmware: Update latest firmware to the device.
- Save / Load:
  - Apply and Save: Apply all changes and save to Flash.
  - Load Default: Load factory default settings, except for the IP address.
  - Reboot Device.
  - Import / Export Configuration: Save the configuration of device as a file. Import the pre-saved configuration file to apply to new device.

4. Go to the port menu and configure the port settings:
- Serial Settings:
  - Configure the Port alias, baud rate, parity, data bits, stop bits, flow control, and interface.
  - Data packing: Specify advanced data packing options by delimiter or Force TX interval timeout.
- Service Mode: Choose from Virtual COM, TCP server, TCP client, or UDP service mode for the serial port. You can configure up to five hosts to access the serial port at the same time.
  - Notification: Configure Port events like DCD/RI/DSR/CTS change or port connected/disconnected.

Monitor: Monitor status of device and per port. Configure the monitored items such as VCOM, serial setting, device name, IP address, MAC address, Status, TX, RX.

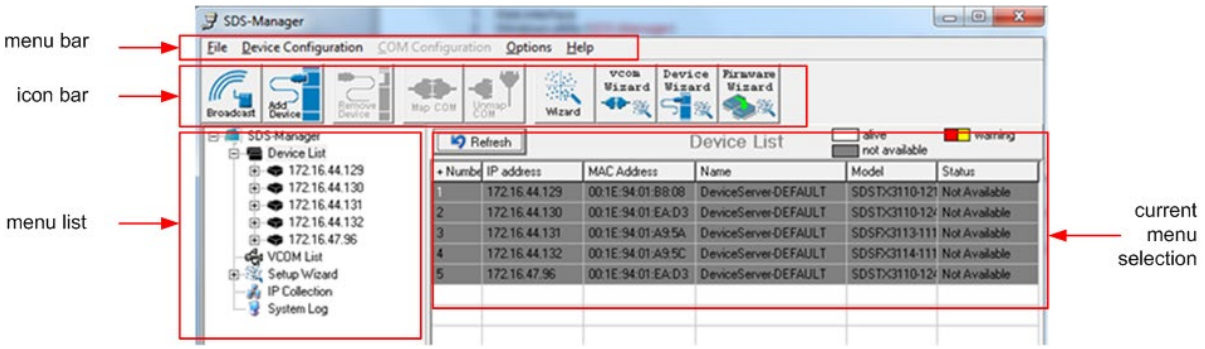
Setup Wizard: Quick start for common applications and group configurations:
- Virtual COM Wizard: This wizard helps you configure the serial port(s) to be the Virtual COM port(s) on your PC.
- Group Setup Wizard: This wizard helps you copy one device settings to the other same models.
- Group Firmware Wizard: This wizard helps you update firmware for a group of devices.
- Serial Tunnel Wizard: This wizard helps you couple two serial devices to directly communicate via Ethernet without the PC
- Group IP Wizard: Group IP Wizard helps you configure the IP addresses of a group of new devices. The devices already in the configuration list will not be included.

IP Collection: Automatically collect IP address/device name/model/last report of the devices by defined time intervals.

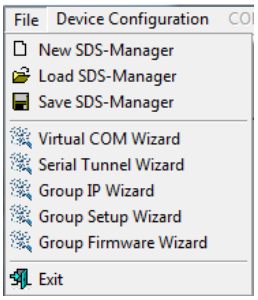
System Log: Show all log messages of the device. View by date.

4.1.3 Using SDS-Manager

Screen Elements



File



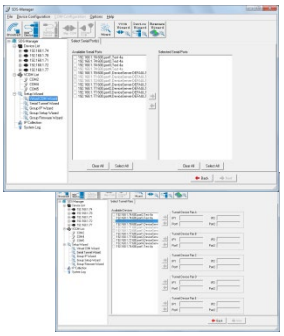
File > **New SDS-Manager**:

File > **Load SDS-Manager**: at the dialog box, select a file to load and click Open.

File > **Save SDS-Manager**: at the dialog box, select a file to load and click Save.

File > **Virtual COM Wizard**: brings you to setup the device serial port(s) and map it to Virtual COM as follows:

STEP 1. Select serial port(s) from available devices.
STEP 2. Setup these serial ports(s), baudrate, data bits...etc.
STEP 3. Select the Virtual COM(s) naming.
STEP 4. Done.

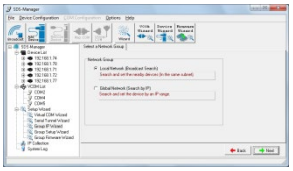


File > **Serial Tunnel Wizard**: helps you couple two serial devices to directly communicate by Ethernet without the PC:

STEP 1. Select two devices that should be tunneled together.
STEP 2. Select serial parameters such as baud rate, data bits.
STEP 3. Finish.

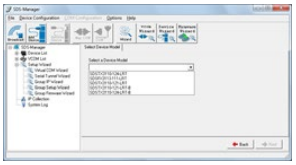
File > **Group IP Wizard**: helps you configure the IP addresses of a group of new devices. The devices already in the configuration list will not be included.

STEP 1. Locate the new devices by broadcast or by IP range.
STEP 2. Configure the IP range or DHCP IP.
STEP 3. Start.



File > **Group Setup Wizard**: helps you copy one device settings to the other same models:

STEP 1. Select the device model.
STEP 2. Select the source device and the destination devices.
STEP 3. Select the device and port settings to copy.
STEP 4. Start copying.



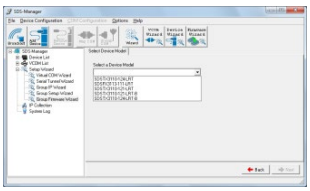
File > **Group Firmware Wizard**: helps you to update firmware for a group of devices.

STEP 1. Select the device model.

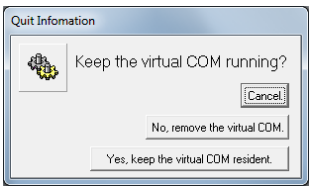
STEP 2. Select the target devices.

STEP 3. Select the new firmware.

STEP 4. Go.

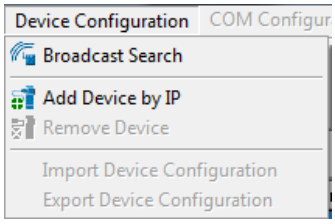


File > **Exit**: gives options to cancel, or exit and remove the virtual COM, or exit and keep the virtual COM resident.



Device Configuration

Device Configuration > **Broadcast Search**: starts an immediate broadcast search for new devices; gives options to cancel, clear all, select all, or add; provides a link to the Group IP Wizard in case you have a lot of IPs that you must re-configure.



Device Configuration > **Add Device by IP**: lets you search by Domain Name, IP Range, and/or Management Port Number; or lets you cancel the search.

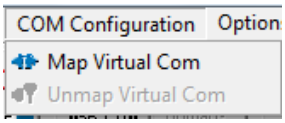
Device Configuration > **Remove Device**: lets you remove a selected device from the configuration.

Device Configuration > **Import Device Configuration**: lets you import a selected device into the configuration.

Device Configuration > **Export Device Configuration**: lets you export a selected device out of the configuration.

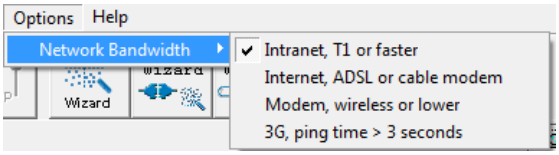
COM Configuration

COM Configuration > lets you map or unmap a selected virtual Com; provides tabs for configuring serial settings, service mode, and Notifications.



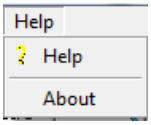
Options

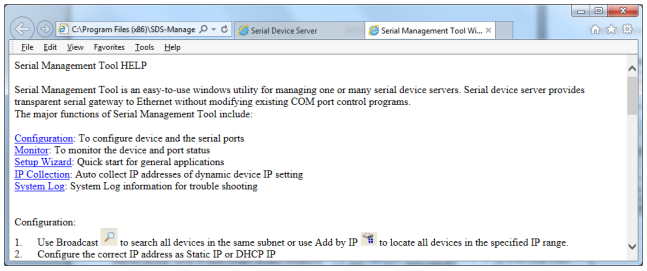
Options > **Network Bandwidth** > (Intranet, T1 or faster, Internet (default) , ADSL or cable modem, Modem, wireless or lower, 3G, ping time > 3 seconds):

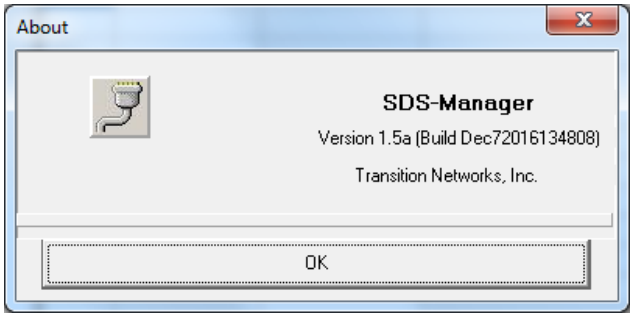


Help

Help > **Help** displays the online help content (shown below left).
Help > **About** displays the program name / version dialog (shown below right).



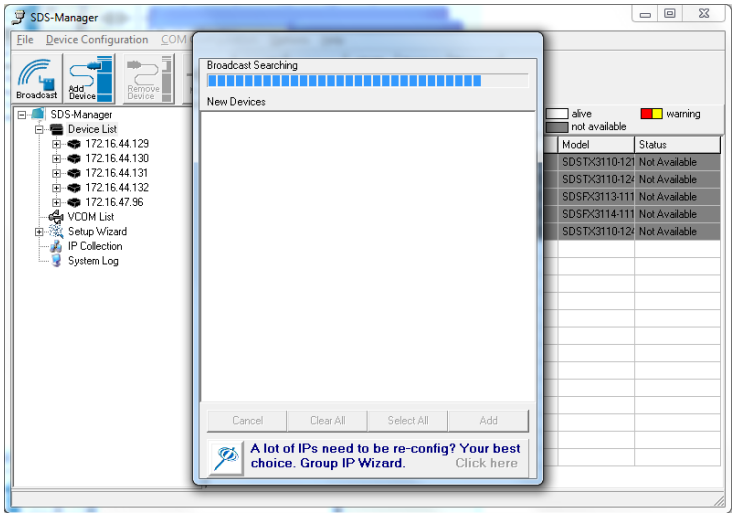




Search for and Discover Serial Device Servers

Click the Broadcast button or navigate to the Device Configuration > Broadcast Search menu path. SDS-Manager will broadcast to the network and search for all available SDS devices on the network automatically. The default IP address of the device is 192.168.1.77. Select the device you want to use and click the **Add** button.

You can set a static IP address or use the DHCP client mode to acquire an IP address automatically. Click **OK** and the device will be added.

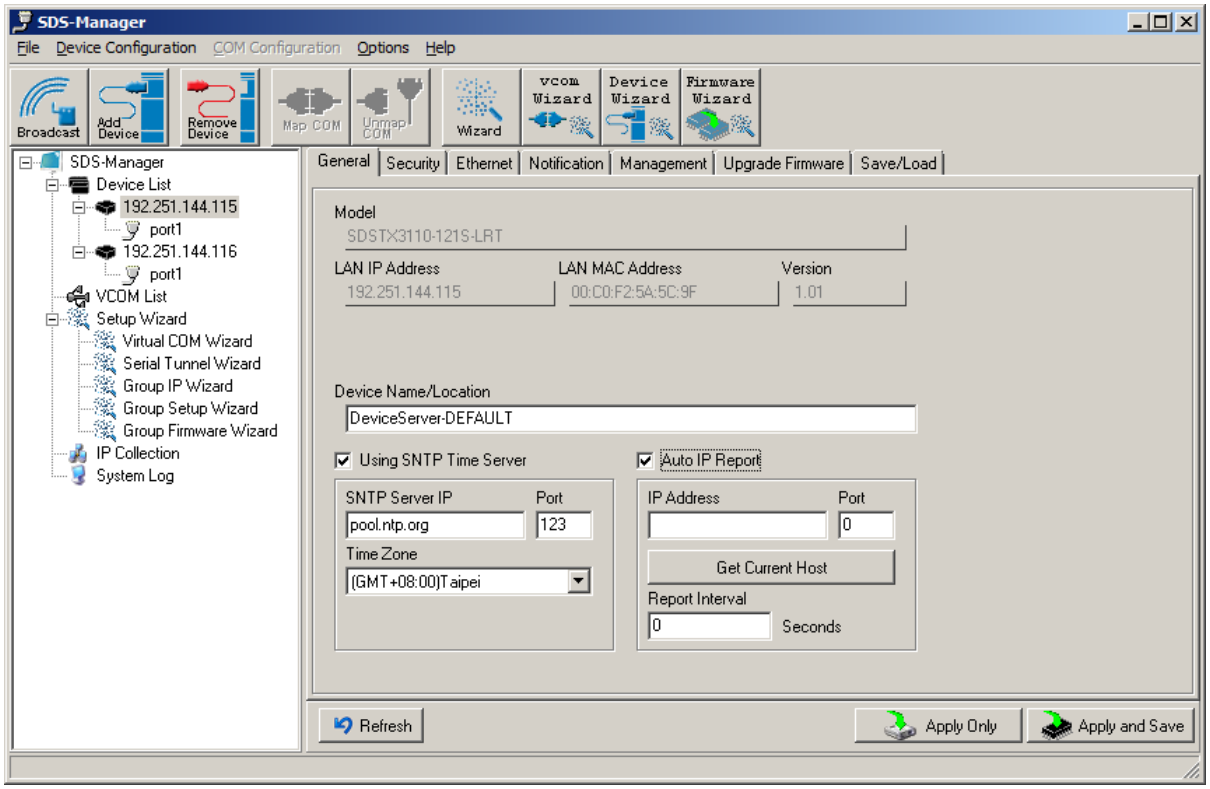


4.1.4 Configure Device Servers

This section shows and describes each of the tabs and related parameters. Navigate to a device (e.g., **SDS Manager** > **Device List** > **192.168.1.74**) to display a page with tabs for configuring General, Security, Ethernet, Notifications, Management, Upgrade Firmware, and Save/Load parameters.

General tab

This page lets you perform general device configuration (Device Name/Location, SNTP Server, and Auto IP Report).

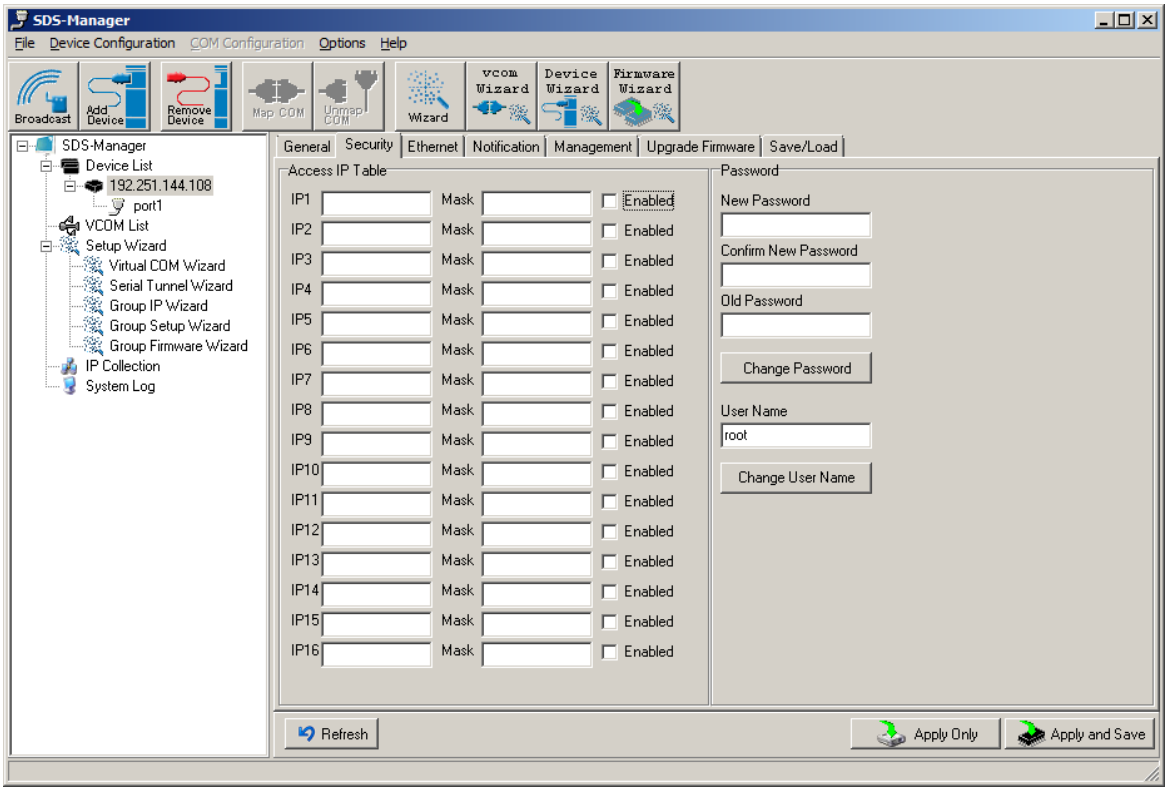


Label	Description
Device Name/Location	You can input the device name or related information in this field.
Using SNTP Time Server	To set the time via an SNTP time server, check the box and input related information such as the SNTP server domain name or IP address and the port number, then select a time zone.
SNTP Server IP	Displays the current SNTP Server IP address.
Port	Displays the currently configured port number (e.g., port *123*).
Time Zone	Displays the currently configured Time Zone (e.g., ADT - Atlantic Daylight = UTC minus 3 hours).
Auto IP Report	Check the checkbox to receive IP reports regularly. By clicking **Get Current Host**, you will get your local IP address. Input a value in the Report Interval time field based on how often you want the device server to report its status.
Apply Only button	Click the "Apply Only" button to immediately apply the settings, but not save applied settings into the flash memory of the device.

Apply and Save button	Click the “Apply and Save” button immediately apply the settings and to save all applied settings into the flash memory of the device.
Refresh button	Click the Refresh button to update the screen content / undo changes made since last Save.

Security tab

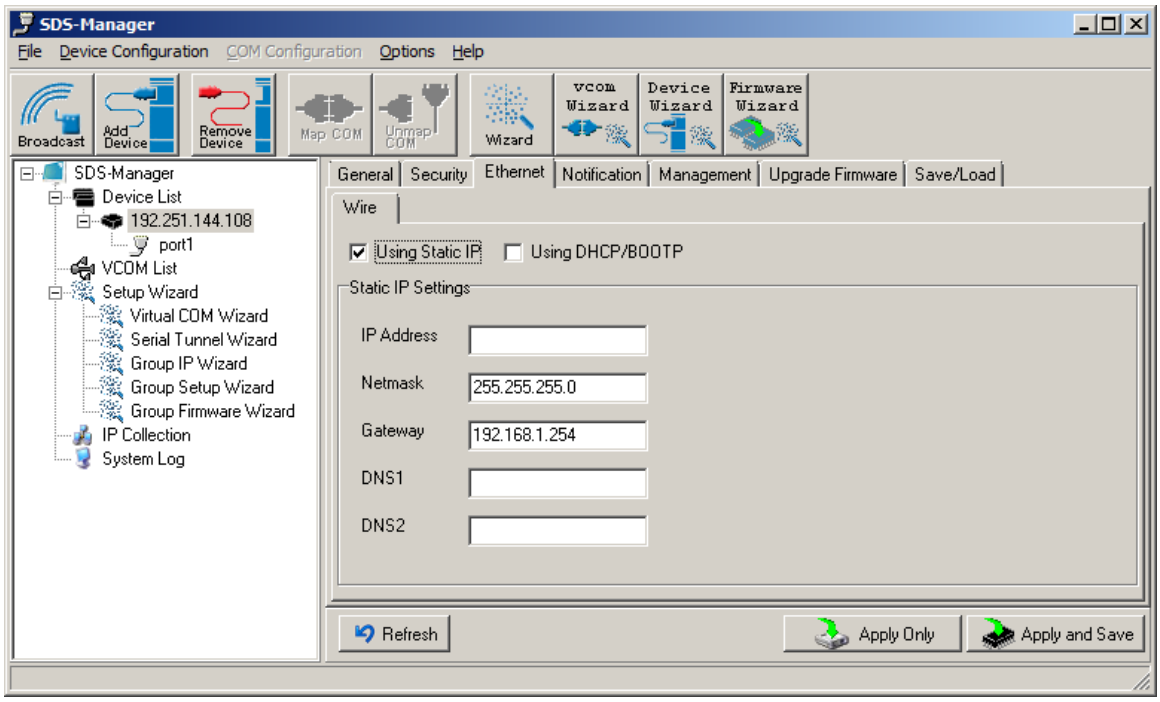
This page lets you set up access IP tables for your device to allow authorized and deny authorized access, thereby ensuring data security and facilitating device management.



Label	Description
Access IP Table	You can enter the host IP addresses and network masks to prevent unauthorized access. Check the Enabled checkbox to enable each IP address for access (IP1 - IP16).
Password	You can set or change the password to prevent unauthorized access from your server. The factory default is no password (empty field).
Change Password button	Click the Change Password button when done.
User Name	Enter the new User Name.
Change User Name button	Click the Change User Name button when done.

Ethernet tab

This page lets you assign the required IP address for the device before it is attached to your network. Your network admin should provide the IP address and related settings. The IP address must be unique within the network (otherwise a valid network connection can't be made). You can choose from two possible IP configuration modes: Static IP or DHCP/BOOTP. The factory default IP address is 192.168.1.77.

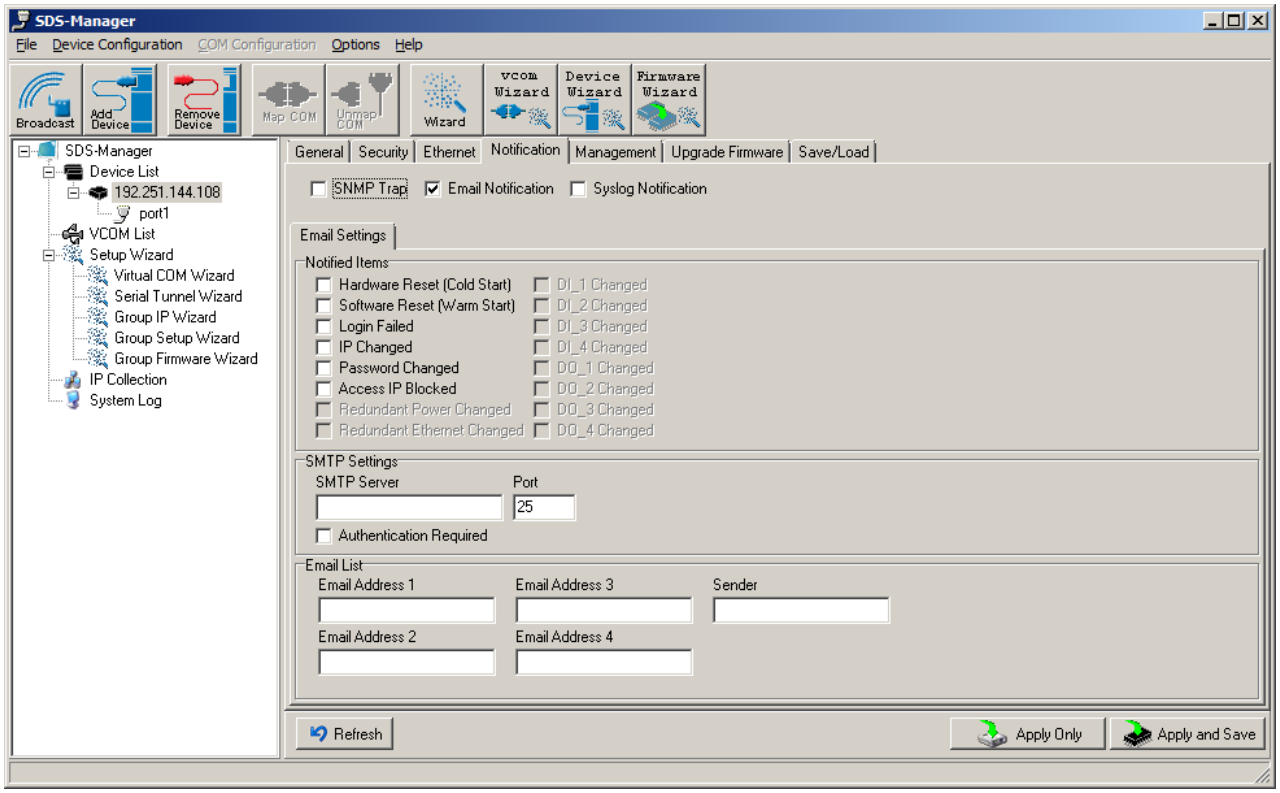


Wire Sub-Tab

Label	Description
Using Static IP	Check the box to manually assign an IP address to the device.
Using DHCP/BOOTP	Check the box to have the IP address automatically assigned by a DHCP server in your network.
IP Address	Enter the IP address of the serial device server.
Netmask	All devices on the network must have the same network mask to communicate on the network.
Gateway	Enter the IP address of the router on your network.
DNS 1 / DNS 2	Enter the IP address of the primary and secondary DNS servers. The DNS server translates domain names into IP addresses.

Notification tab

This page lets you specify the events that should be forwarded to the administrator. The events can be sent by E-mail, SNMP trap, or Syslog. Status information can be sent to the administrator via Email, SNMP trap, or Syslog. This page lets you specify the events to be noticed and the notification methods. Notification methods include SNMP Trap, Email, and/or Syslog notification.



Label	Description
SNMP Trap	Check the box to allow the system to send SNMP traps when an event occurs. SNMP traps are data packages sent from the SNMP client to the server without being explicitly requested. You must set up one or more trap servers that will receive these messages if the box is checked.
Email Notification	Check the box to allow the system to send emails when an event occurs. You must specify the SMTP Server and the email address to use for sending emails if the box is checked.
Syslog Notification	Check the box to allow the system to send a detailed log to an external Syslog server when an event occurs. The syslog will capture all log activity and includes every connection source and destination IP address, IP service, and number of bytes transferred to help troubleshooting. You must enter a Server IP address and the Server Port of the syslog server.
Notified items (Unit Notification)	Select the checkbox to send an event alert to a remote syslog server: **Hardware Reset (Cold Start)**: Rebooting the device from power plug will trigger the event.

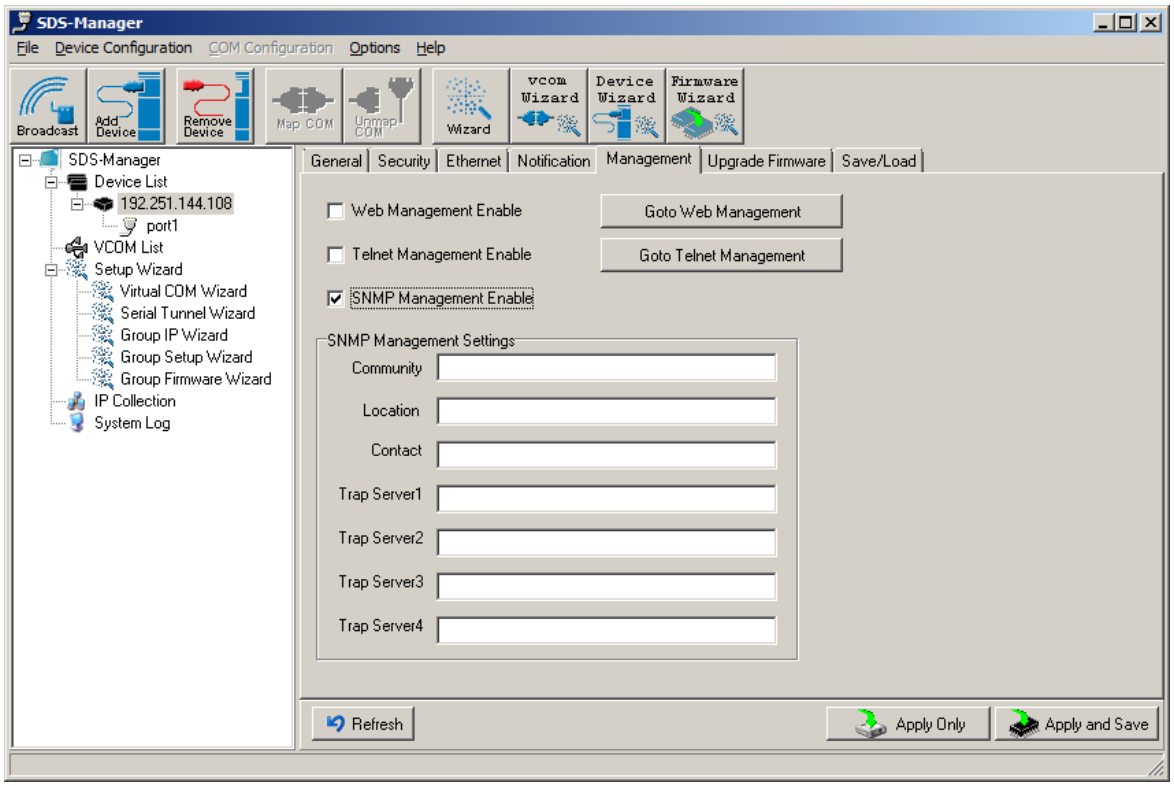
	Software Reset (Warm Start): Re-booting the device from **Reboot Device** function at the **Save/Load** menu will trigger the event. **Login Failed**: Using wrong password in console will trigger the event. **IP Changed**: Changing the network setting will trigger the event. **Password Changed**: Changing the Password will trigger the event. **Access IP Blocked**: Report blocked IP addresses.
System Log settings	You can specify the **Server IP** address and **Port**, or click the **Using Current Host's Log Server** button to specify the current host as the log server.

Notified Items (Port Notification)

Label	Description
DCD Changed	When the DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has changed. A notification will be sent if the box is checked.
DSR Changed	When the DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A notification will be sent if the box is checked.
RI Changed	When the RI (Ring Indicator) signal changes, it indicates the incoming of a call. A notification will be sent if the box is checked.
CTS Changed	When the CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent if the box is checked.
Port Connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be triggered. In TCP Client Mode, when the device has connected to the remote host, this event will be triggered. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent if the box is checked.
Port Disconnected	In TCP Server/Client Mode, when the device loses the TCP link, this event will be triggered. In Virtual COM Mode, when Virtual COM is not available, this event will be triggered. A notification will be sent if the box is checked.

Management tab

This page lets you perform management functions using various interfaces (the Web, Telnet, and SNMP).

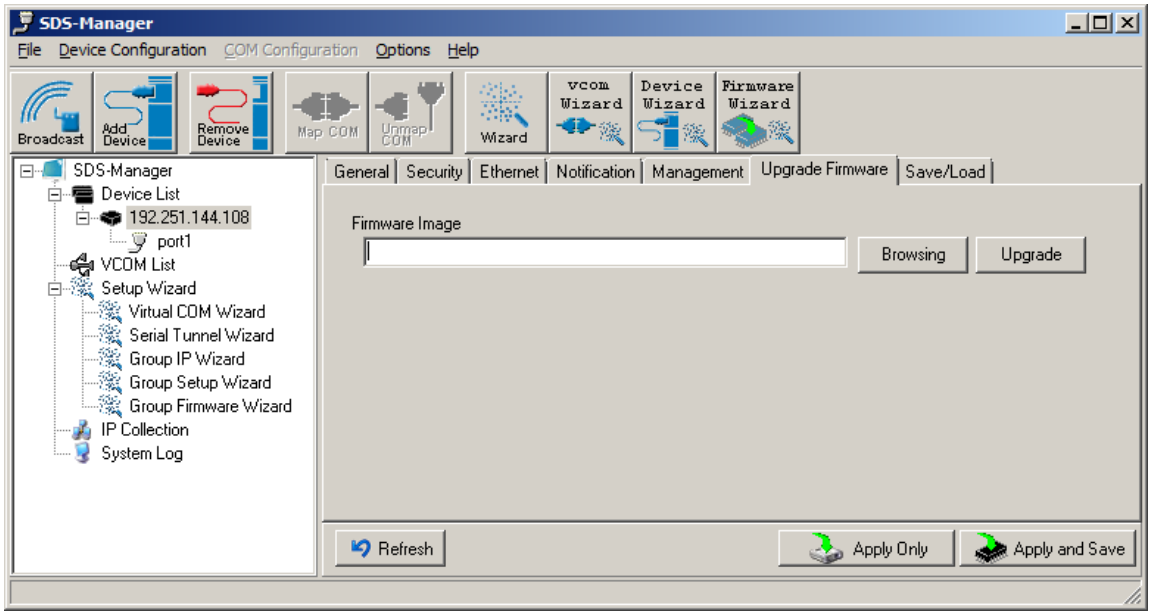


Label	Description
Web Management Enable	Check the box to enable management from the web. Click the **Goto Web Management** button to access the web.
Telnet Management Enable	Check the box to enable management by Telnet. Click the **Goto Telnet Management** button to execute Telnet commands.
SNMP Management Enable	Check the box to enable management by SNMP.
SNMP Management Settings	If SNMP Management Enable is checked, you must fill in the SNMP settings in these fields by assigning the SNMP **Community**, **Location**, **Contact**, and **Trap Server** parameters.

Upgrade Firmware tab

This page lets you upgrade the device firmware from the Lantronix website. To update device firmware, save the file to your host PC, and then specify the file location by clicking the **Browsing** button, specifying the location, and then clicking the **Upgrade** button.

Caution: Do **not** power off this device while upgrading firmware.

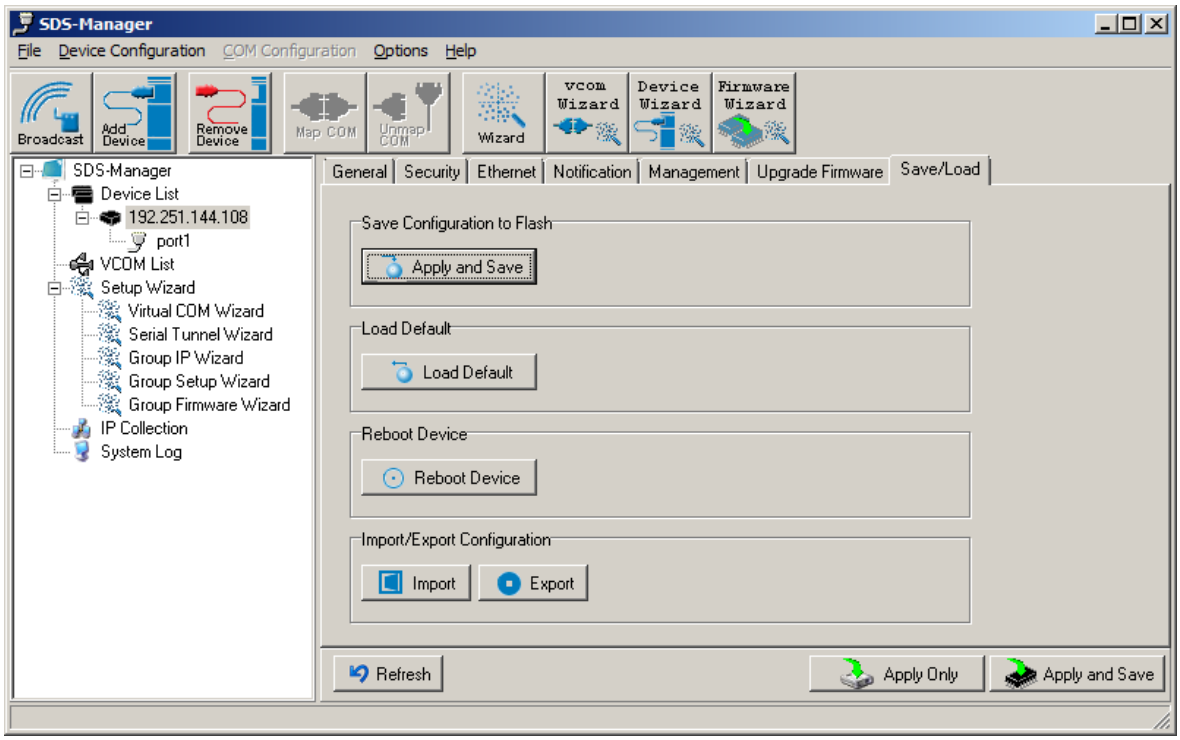


Upgrade to a new firmware by browsing to a specific folder. Click the **Upgrade** button to start the upgrade process.

Label	Description
Firmware Image	Provide the path and filename. The firmware image is typically a .bin file or a .uImage file.
Browsing	Click the button to browse to and select the desired firmware image file.
Upgrade	Click the button to upgrade the SDS device to the selected firmware image file.
Refresh	Click the button to update the screen content / undo changes made since last Save.
Apply Only	Click the button to immediately apply the settings, but not save applied settings into the flash memory of the device.
Apply and Save	Click the button to immediately apply the settings and to save all applied settings into the flash memory of the device.

Save/Load tab

This page lets you save the current config file to a local drive or network location to which your management computer can connect.



Label	Description
Save Configuration to Flash	Click the “Apply and Save” button to save all applied settings into the flash memory of the device.
Load Default	Changes all parameter settings to factory defaults except network settings. If you want to load all factory default settings, click the **Reset** button on the device front panel (Hardware reset).
Reboot Device	Click this button to re-boot the device; you must broadcast again to search for the device (warm start).
Import Configuration	Click this button to retrieve a saved configuration file and apply it to the current device.
Export Configuration	Click this button to save the current parameters to a file and export it to a current host. At the “Save As” dialog, browse to a “Save in” location, enter a file name and file type, then click the **Save** button.

Click the “**Apply Only**” button to immediately apply the settings, but not save applied settings into the flash memory of the device.

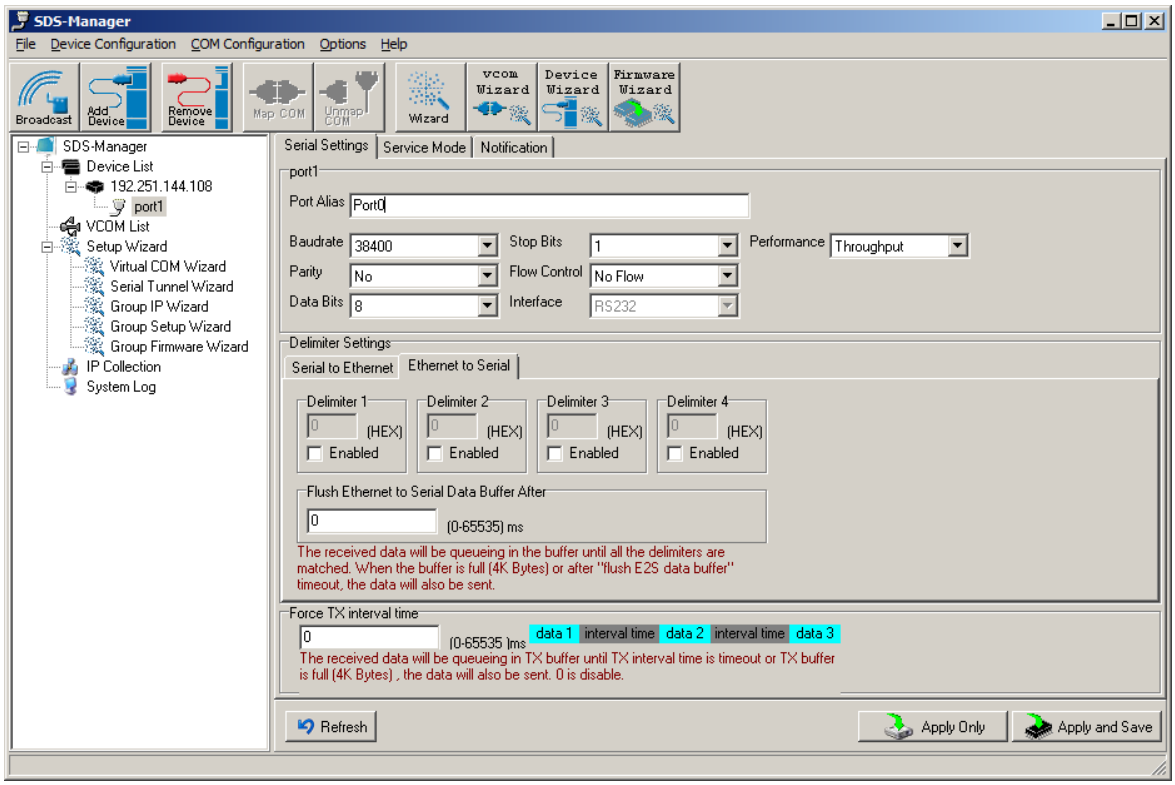
Click the “**Apply and Save**” button to immediately apply the settings and to save all applied settings into the flash memory of the device.

Click the **Refresh** button to update the screen content / undo changes made since last Save.

4.1.5 Configure Serial Port

You can configure the settings for each serial port by clicking on the port number in the left pane of the window.

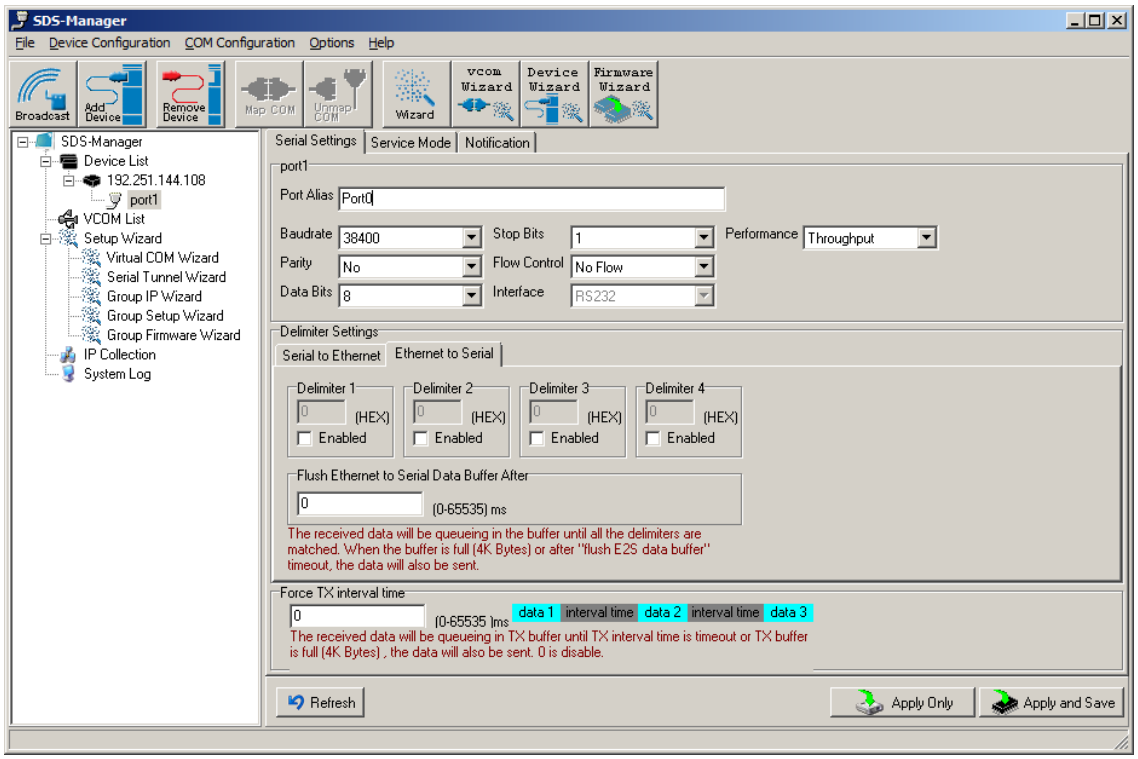
When you click on a port in the left pane, the screen below displays in the right panel.



This page displays the Serial Settings, Service Mode, and Notification tabs as described and shown in the following sections.

Serial Settings

This page lets you configure serial port parameters, serial communications modes, data packing options, and event notifications.



Label	Description
Port Alias	Enables the device to easily identify the serial devices connected to it. Enter an identifying name to be identified by the connected device.
Baudrate	The rate at which data is transferred over the serial link. When setting to 9600bps, the serial port will transfer at a maximum of 9600 bits per second. From the dropdown select a rate of 110 bps to 560800 bps.
Parity	Parity is a simple form of error detection which guards data on the cable between the connected devices and the serial port. The available Parity options include: **None**: no parity checking is performed, and the parity bit is not transmitted. **Odd**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits. **Even**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits. **Mark**: the parity bit is always set to mark signal condition (logical 1) **Space**: the last transmitted data bit will always be a logical 0.
Data Bits	Choose the number of data bits to transmit: 7 or 8. Data is transmitted as a series of seven or eight bits (five and six bit data formats are used rarely for specialized communications equipment).

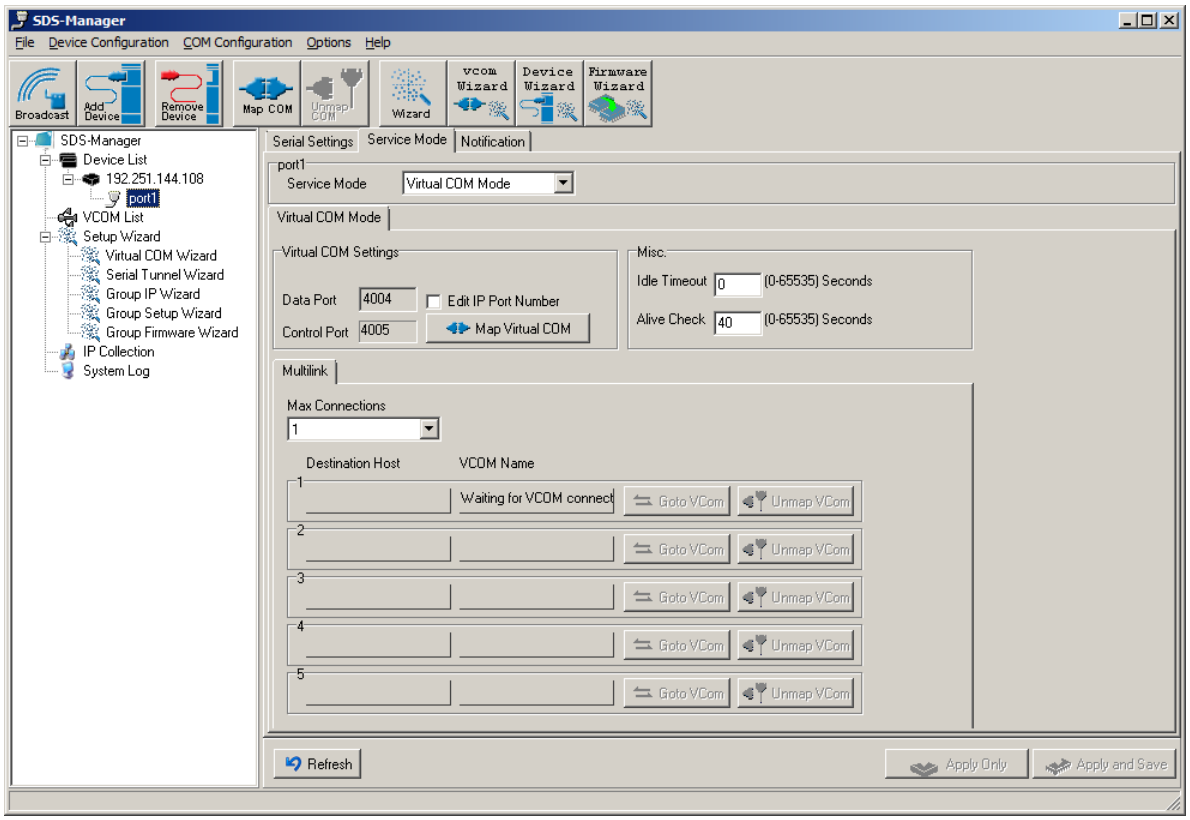
Label	Description
Stop Bits	Choose the number of bits used to indicate the end of a byte. You can configure data bytes to be 1 or 2(1.5). If stop bits is 1.5, the stop bit is transferred for 150% of the normal time used to transfer on bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.
Flow Control	Serial communications consists of hardware flow control and software flow control, so called because the control is handled by software or hardware. XOFF and XON is software flow control, while RTS/CTS or DTR/DSR is hardware flow control. Choose **XOFF** to tell the computer to stop sending data; then the receiving side will send an XOFF character over its Tx line to tell the transmitting side to stop transmitting. Choose **XON** to tell the computer to begin sending data again; then the receiving side will send an XON character over its Tx line to tell the transmitting side to resume transmitting. In hardware flow control mode, when the device is ready to receive data, it sends a CTS (Clear To Send) signal to the device on the other end. When a device has something it wants to send, it will send a RTS (Ready To Send) signal and waits for a CTS signal to come back its way. These signals are sent apart from the data itself on separate wires.
Interface	Choose an interface for your serial device. Available interfaces include RS-232, RS-422, RS-485(2-wires), and RS-485(4-wires). After a Virtual COM has been mapped to a port, changes to the serial settings of that port (e.g., from RS232 to RS422) should not be made.
Performance	**Throughput**: guarantees highest transmission speed. **Latency**: guarantees shortest response time.
Delimiter Settings	**Serial to Ethernet / Ethernet to Serial**: For advanced data packing options, you can specify delimiters for Serial to Ethernet and / or Ethernet to Serial communications. You can define up to four delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option. **Flush Serial to Ethernet data buffer** times out. **0** means disable. Factory default is **0**. **Flush Data Buffer After**: The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "flush S2E data buffer" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.
Flush Ethernet to Serial Data Buffer After	Enter 0 - 65535 milliseconds as the amount of time to wait to “flush E2S”. The received data will be queueing in the buffer until all the delimiters are matched. Ehen the buffer is full (4K bytes) or after “flush E2S data buffer” timeout, the data will be sent.
Force TX Interval time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. **0** means disable.

Label	Description
	The factory default value is **0**. The received data will be queueing in TX buffer until TX interval time is timeout or TX buffer is full (4K bytes), the data will also be sent. The value **0** means disable.

4.2 Service Mode

4.2.1 Virtual COM Mode

In Virtual COM Mode, the driver establishes a transparent connection between a host and the serial device by mapping the port of the serial server serial port to a local COM port on the host computer. Virtual COM Mode supports up to five simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.



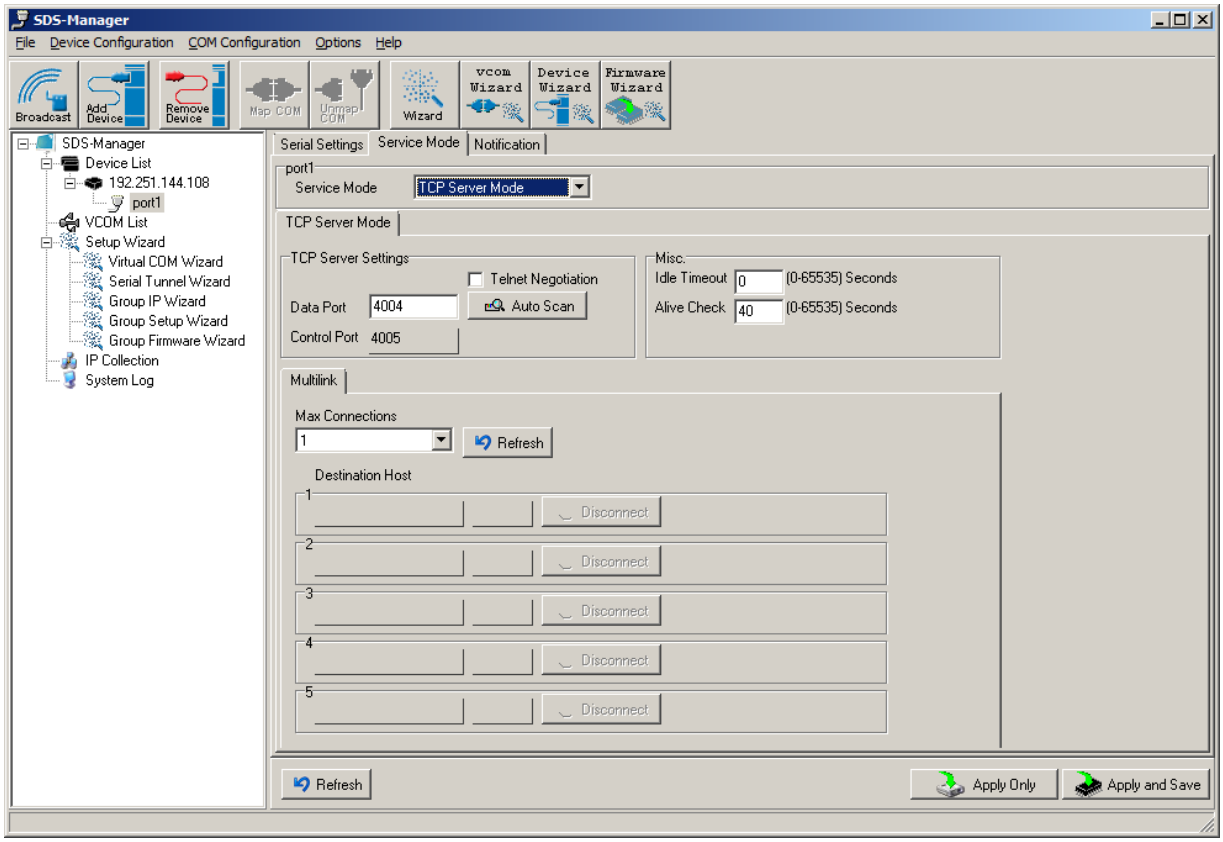
Label	Description
Data Port	Set the port number for data transmission.
Edit IP Port Number	Check the checkbox to allow changing the Data Port number.
Control Port	Displays the control port number (read only).
Map Virtual COM	Click to select a Virtual COM name to map on. Validated characters of virtual COM name is A-Z, a-z and 0-9. Max length of the name is 128 characters. Select at the *Select a Virtual COM Name* dialog and click **OK**.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is also the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a TCP alive-check package in each defined

	time interval (Alive Check) to remote host to check the status of TCP connections. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** means the function is disabled which is also the factory default value.
Max Connections	The number of max connections can be supported simultaneously is **5**; default value is **1**.
Destination Host	Displays one to four connected destination hosts.
VCOM Name	Displays the related VCOM name, or a message like *Waiting for VCOM connect*.
Goto VCOM	Click the button to go to the related VCOM port.
Unmap VCOM	Click the button to un-map the related VCOM port.

4.2.2 TCP Server Mode

In TCP Server Mode, the serial port on the device server is assigned a unique port number.

The host computer initiates contact with the device server, establishes the connection, and receives data from the serial device. Five simultaneous connections are supported in this mode, enabling multiple hosts to collect data from the same serial device at the same time.

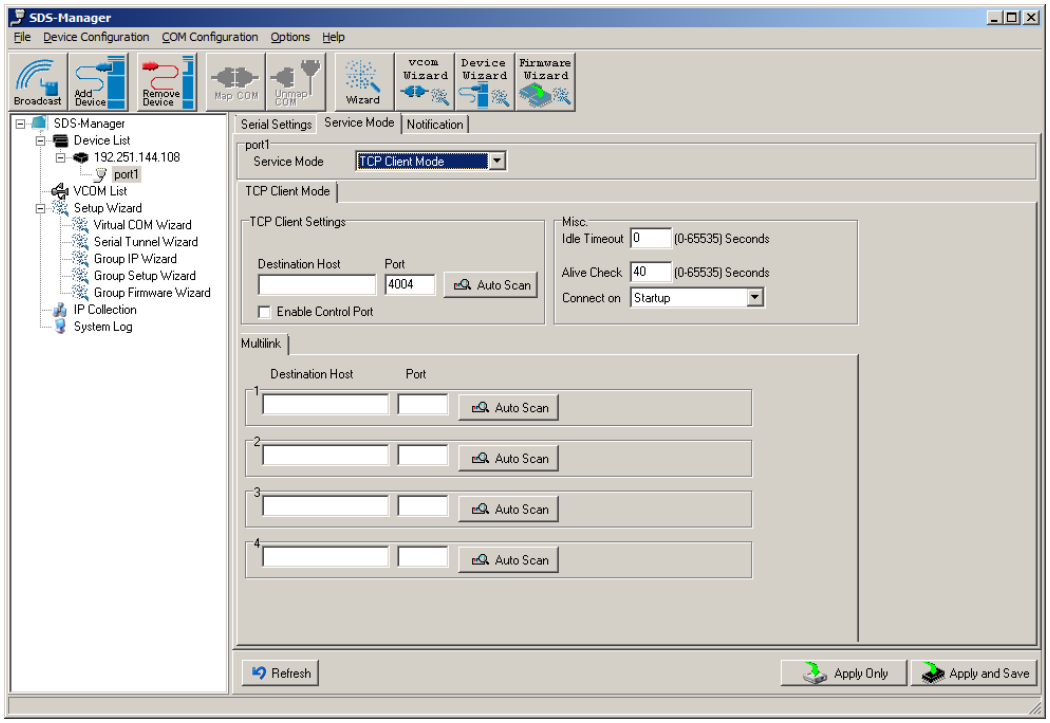


Label	Description
TCP Server Settings	Check the required checkbox: **Encryption with SSL**: Allows encryption via Secure Socket Layer. **Telnet Negotiation**: Allows a client or a server to help provide an enhanced user experience.
Data Port	Set the port number for data transmission.
Auto Scan	Click to scan the data port automatically.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is also the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a TCP alive-check package in each defined time interval (Alive Check) to remote host to check the status of TCP connections.

	If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 means the function is disabled which is also the factory default value.
Max Connections	Up to **5** connections can be supported simultaneously; the default value is **1**.
Destination Host	Input the IP address of one to five destination hosts.
Disconnect	Click to disconnect a connected destination host.

4.2.3 TCP Client Mode

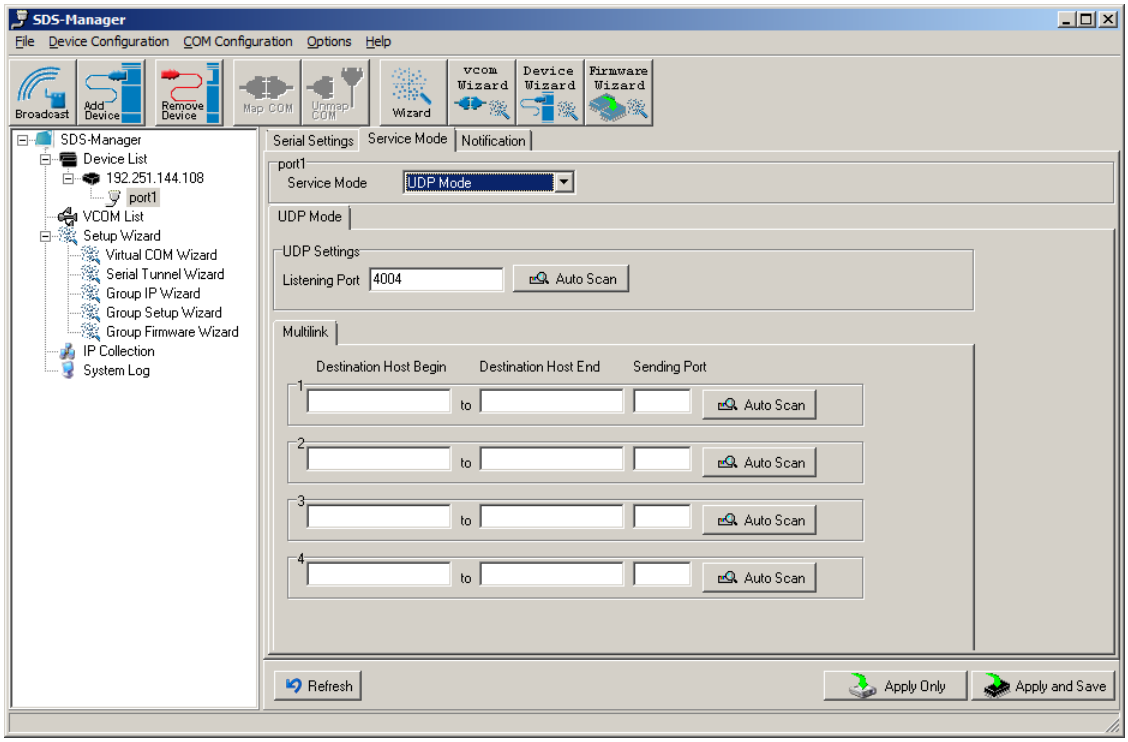
In TCP Client mode, the device can establish a TCP connection with the server by the method you have settled (Startup or any character). After the data has been transferred, the device can disconnect automatically from the server by using the TCP alive check time or idle time settings.



Label	Description
Encryption with SSL	Check to allow encryption via Secure Socket Layer.
Destination Host	Input the IP address of the host.
Port	Set the port number of data port.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** means the function is disabled which is the factory default value.
Connect on Startup	The TCP Client will build a TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build a TCP connection once the connected serial device starts to send data.
Auto Scan	Click the button to scan for the listening port number of the device.
Multilink Destination Host	Enter the Multilink Destination Host IP address.
Multilink Port	Enter the Multilink Port number.

4.2.4 UDP Mode

Compared to TCP communication, UDP is faster and more efficient, as you can unicast or multicast data from the serial device server to host computers; the serial device server can also receive data from one or multiple hosts.



Label	Description
Listening Port	IP port for listening for incoming messages. The default is port 4016.
Auto Scan	Click the button to scan for the listening port number of the device.
Destination Host Begin / End	If there are more than one destination hosts, specify the IP address range by inputting a value in destination host IP begin / end fields. You can also auto scan the sending port number of the device.
Sending Port	IP port for sending outgoing messages.

Messages

Message: *Apply or Discard The settings has been changed. Apply to device or discard?*

Meaning: You made changes and then left the page and are being prompted to either apply those changes or discard the changes.

Recovery: 1. Click the **Cancel** button and stay on the page. 2. Click the **Discard** button and go to another page. 3. Click the **Apply Only** button and go to another page. 4. Click the **Apply and Save** button and go to another page.

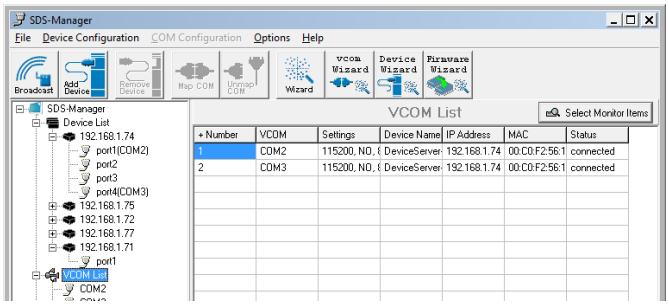
Message: *Warning UDP mode's 'Port' is in used on Device.*

Meaning: You tried to configure the same UDP Listening or UDP Sending port number for two instances.

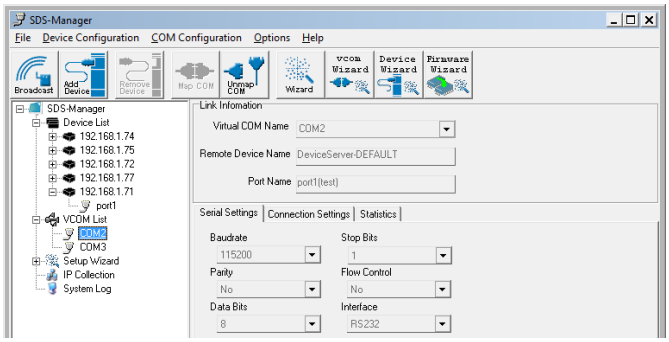
Recovery: 1. Click the **OK** button to clear the Warning dialog. 2. Change a UDP port number.

4.2.5 VCOM List

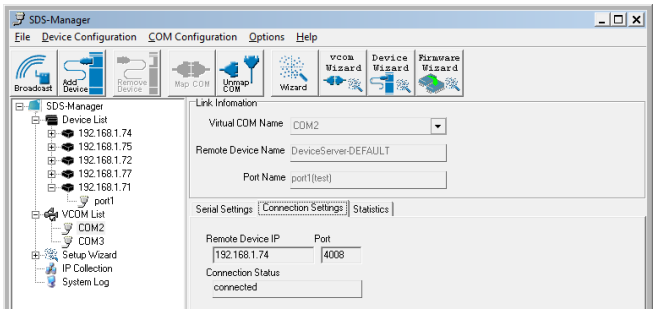
The VCOM List page displays read-only information (Number, VCOM, Settings, Device Name, MAC address, and status), and provides a button to **Select Monitor Items**.



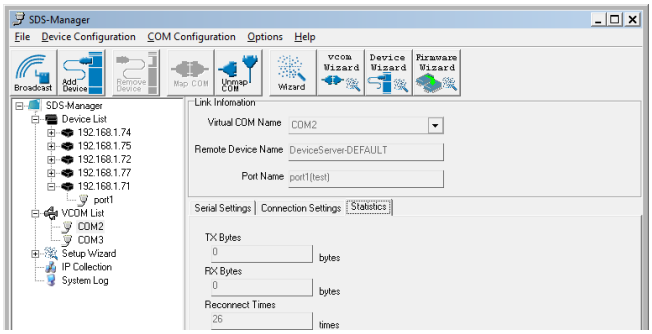
The **VCOM List** > **COMx** > **Serial Settings** tab displays Link Information and current serial device settings (Baudrate, Stop Bits, Parity, Flow Control, Data Bits, and Interface selections).



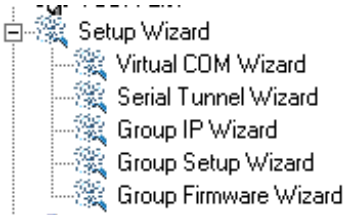
The **VCOM List** > **COMx** > **Connection Settings** tab displays Link Information and current serial settings (Remote Device IP, Port #, and Connection Status).



The **VCOM List** > **COMx** > **Statistics** tab displays Link Information and current Statistics (TX Bytes, RX Bytes, and Reconnect Times).



4.2.6 Setup Wizard



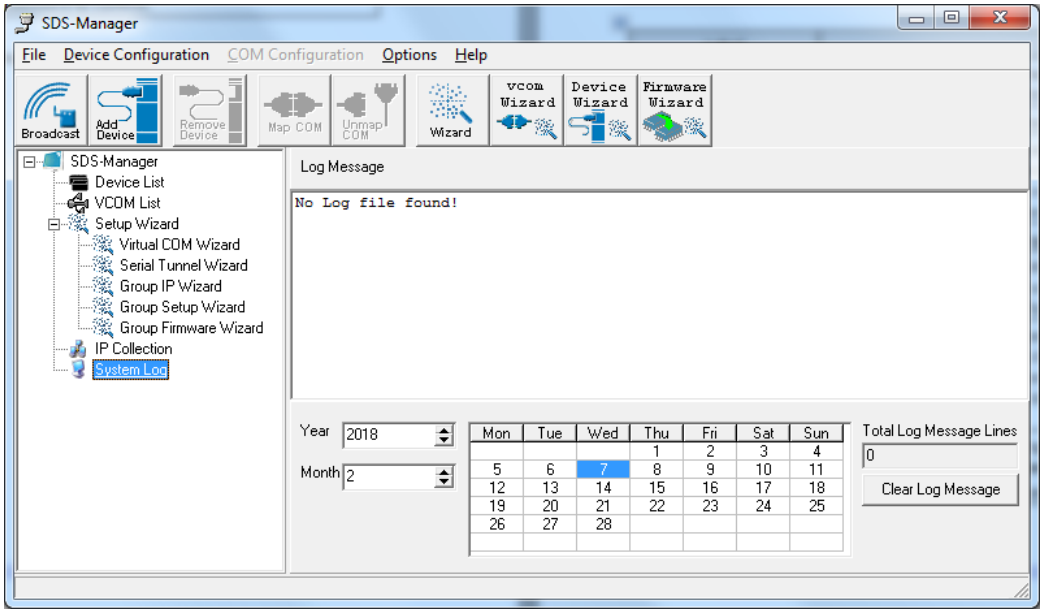
The Setup Wizard page displays the available Wizards: Virtual COM Wizard, Serial Tunnel Wizard, Group IP Wizard, Group Setup Wizard, and Group Firmware Wizard.

4.2.8 IP Collection

The IP Collection page displays automatically collected IP address, device name, model, last report of devices by a defined time interval.

4.2.9 System Log

The System log page displays current log messages of the device, lets you clear the messages, and lets you display messages based on a Year and Month selection.



4.3 Web Management

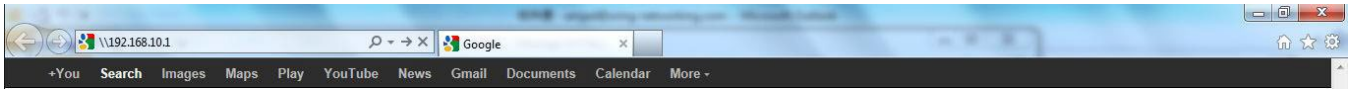
The SDS can be managed via a built-in webserver running Internet Explorer v 5.0 or above or other web browsers such as Chrome. This allows simple, remote device monitoring and configuration, such as firmware upgrades.

4.3.1 Management via Web Browser

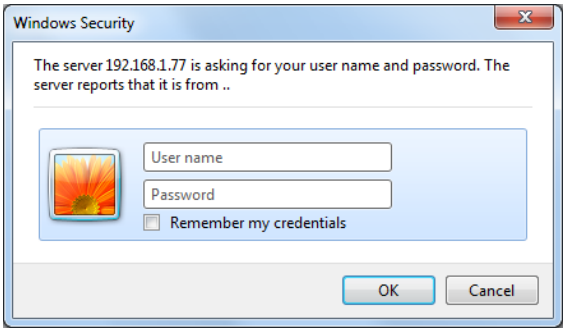
Note: use the following default values: IP address: **192.168.1.77**. Subnet Mask = **255.255.255.0**. Default Gateway = **192.168.1.254**. User Name = **root**. Password = **root**.

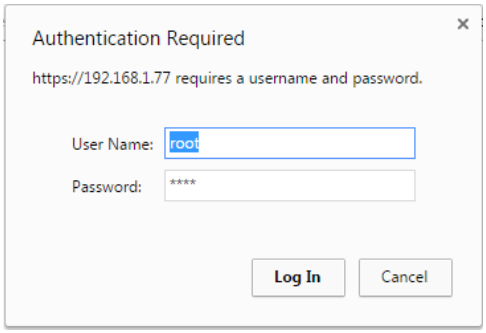
Follow the steps below to log in to and manage your SDS via a Web browser.

1. Launch a Web browser.

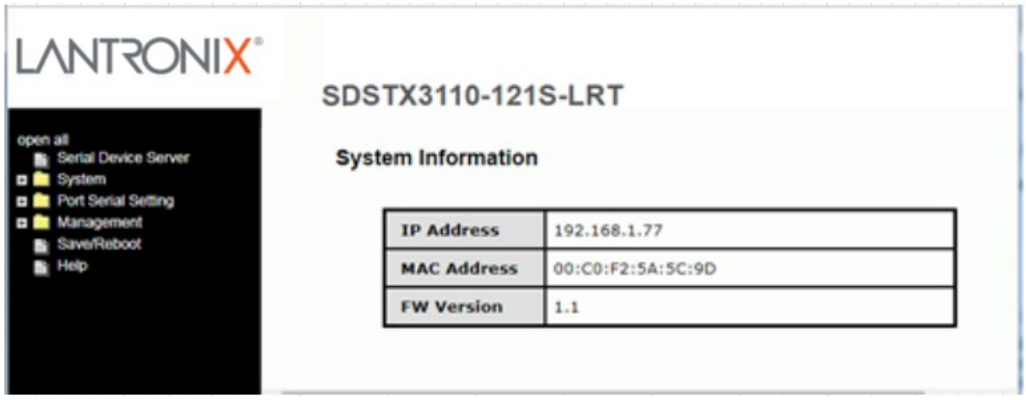


2. At https:// type the default IP (192.168.1.77) and press Enter. A login screen displays:





3. Type the default username **root**. Type the default password **root**. You may set up a different user name and password later on the IP Configuration page.
4. Press **Enter** or click **OK**; the System Information page displays.



The right side of the page displays the IP Address, MAC Address, and FW version.

The left side of the page provides links to various settings. Click on a link to display its configuration page. Click the **open all** link to show all menus/sub-menus; the display toggles to **Close all**. Click the ⊞ icon next to a menu item to display its sub-menus.

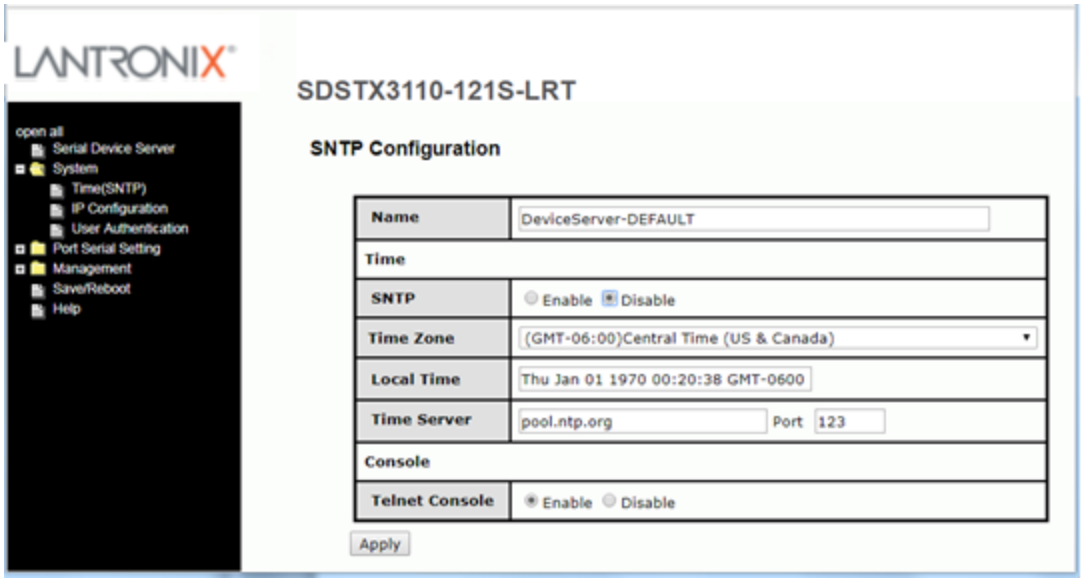
The web UI pages are shown and described in the following sections.

4.3.2 System

4.3.2.1 Time (SNTP)

This page lets you configure SNTP and Telnet console parameters.

SNTP (Simple Network Time Protocol) lets you synchronize the time on your system to the time on the Internet. SNTP will synchronize your computer system time with a server that has already been synchronized by a source such as a radio, satellite receiver, or modem.



Label	Description
Name	Enter the model name of the device.
SNTP	Enable or disable SNTP function.
Time Zone	Choose the time zone according to the location of the device. See the table below for details.
Local Time	Set up the local time.
Time Server	Enter the address of the time server.
Telnet Console	Click to enable or disable Telnet console function.

Click the **Apply** button when done to apply the changes.

The table below lists various location time zones:

Label	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am
CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter	+1 hours	1 pm
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, USSR Zone 7	+8 hours	8 pm
JST - Japan Standard, USSR Zone 8	+9 hours	9 pm
EAST - East Australian	+10 hours	10 pm
Standard GST Guam Standard, USSR Zone 9		
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight

4.3.2.2 IP Configuration

This page lets you configure IP settings for your device. You can assign an IP address manually or leave it to DHCP/BOOTP servers which will reply with an automatically generated IP address and subnet mask for the device when they receive the request. The IP address must be unique and within the network, otherwise the device will not have a valid connection to the network. Select **Static** IP if you are using a fixed IP address.

Click **Apply** after you complete configuration. The default values are IP address: **192.168.1.77**, Subnet Mask: **255.255.255.0**, Default Gateway: **192.168.1.254**, User Name: **root**, Password: **root**.

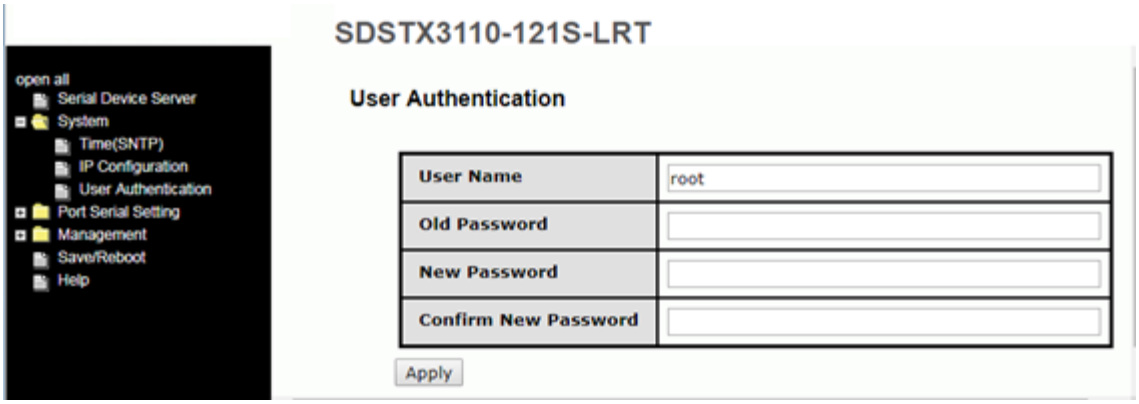
Label	Description
IP Configuration	Choose to use a static or DHCP-assigned IP. If you choose **DHCP**, the following fields will gray out. **Static**: Enter an IP address for the device. Select Static IP if you are using a fixed IP address. **DHCP/BOOTP**: allows the IP address of the device to be automatically assigned by a configuration server.
IP Address	Enter the IP address that identifies the server on the TCP/IP network. The default is **192.168.10.1**.
Netmask	Enter a subnet mask for the device. The default is **255.255.255.0**.
Gateway	Enter the IP address of the router that provides network access outside the server's LAN. The default is **192.168.10.254**.
DNS Server 1/2	Enter the IP address of the primary and secondary domain name server.
Auto Report to IP	Specify an IP address for reports generated by the Auto report function to be automatically sent to.
Auto Report to TCP Port	Specify a TCP Port for reports generated by the Auto report function to be automatically sent to.

Auto Report Interval	Specify a time interval for which reports will be delivered.

Click the **Apply** button when done to apply the changes.

4.3.2.3 User Authentication

This page lets you change your password.



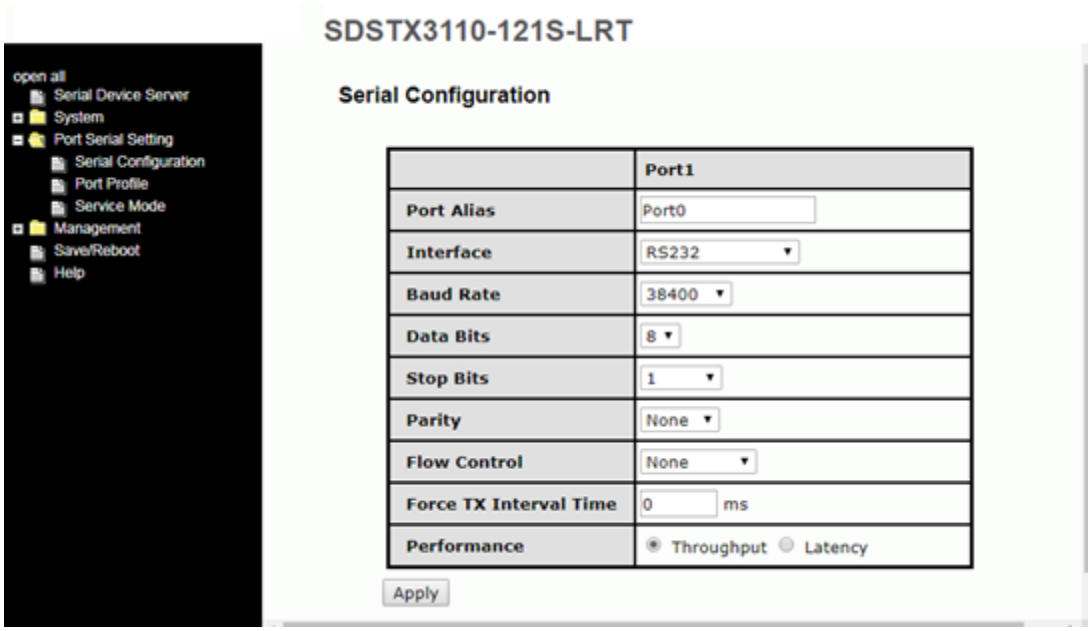
Label	Description
User Name	Enter the default User Name (**root** in lower case).
Old Password	Enter the existing password that is used to log in.
New Password	Enter a new password that will be used to log in.
Confirm New Password	Retype the new password to confirm.

Click the **Apply** button when done to apply the changes.

4.3.3 Port Serial Setting

4.3.3.1 Serial Configuration

This page lets you configure serial port parameters.



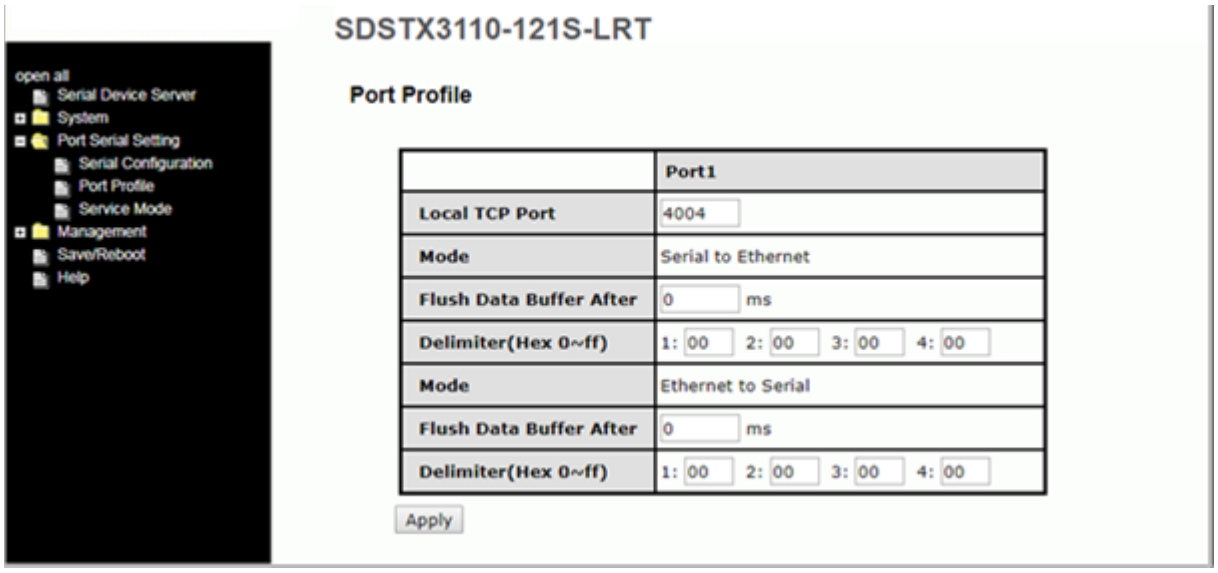
Label	Description
Port Alias	Enter the port number that modem is connected to.
Interface	Choose an interface for your serial device. Available interfaces include RS-232, RS-422, RS-485(2-wires), and RS-485(4-wires), After a Virtual COM has been mapped to a port, changes to the serial settings of that port (e.g., from RS232 to RS422) should not be made.
Baud Rate	Choose a baud rate in the range between 1200 bps and 460800 bps.
Data Bits	Choose the number of data bits to transmit. You can configure data bits to be 7 or 8. Data is transmitted as a series of seven or eight bits (five and six bit data formats are used rarely for specialized communications equipment).
Stop Bits	Choose the number of bits used to indicate the end of a byte. You can configure stop bits to be 1 or 2(1.5). If Stop Bits is 1.5, the stop bit is transferred for 150% of the normal time used to transfer one bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.
Parity	Chose the method of detecting errors in transmission. Parity control bit modes include **None**, **Odd**, **Even**, **Mark**, and **Space**. **None**: parity checking is not performed and the parity bit is not transmitted. **Odd**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits. **Even**: the number of mark bits in the data is counted, and the parity bit is

Label	Description
	asserted or unasserted to obtain an even number of mark bits. **Mark**: the parity bit is always set to the mark signal condition (logical 1). **Space**: the last transmitted data bit will always be a logical 0
Flow Control	Serial communication consists of hardware flow control and software flow control, so called as the control is handled by software or hardware. XOFF and XON is software flow control while RTS/CTS or DTR/DSR is hardware flow control. Choose **XOFF** to tell the computer to stop sending data; then the receiving side will send an XOFF character over its Tx line to tell the transmitting side to stop transmitting. Choose **XON** to tell the computer to begin sending data again; then the receiving side will send an XON character over its Tx line to tell the transmitting side to resume transmitting. In hardware flow control mode, when the device is ready to receive data, it sends a CTS (Clear To Send) signal to the device on the other end. When a device has something it wants to send, it will send a RTS (Ready To Send) signal and waits for a CTS signal to come back its way. These signals are sent apart from the data itself on separate wires.
Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. **0** means disable. Factory default value is **0**.
Performance	**Throughput**: This mode optimized for highest transmission speed. **Latency**: This mode optimized for shortest response time.

Click the **Apply** button when done to apply the changes.

4.3.2.2 Port Profile

This page lets you configure serial port parameters for Serial to Ethernet and Ethernet to Serial modes.



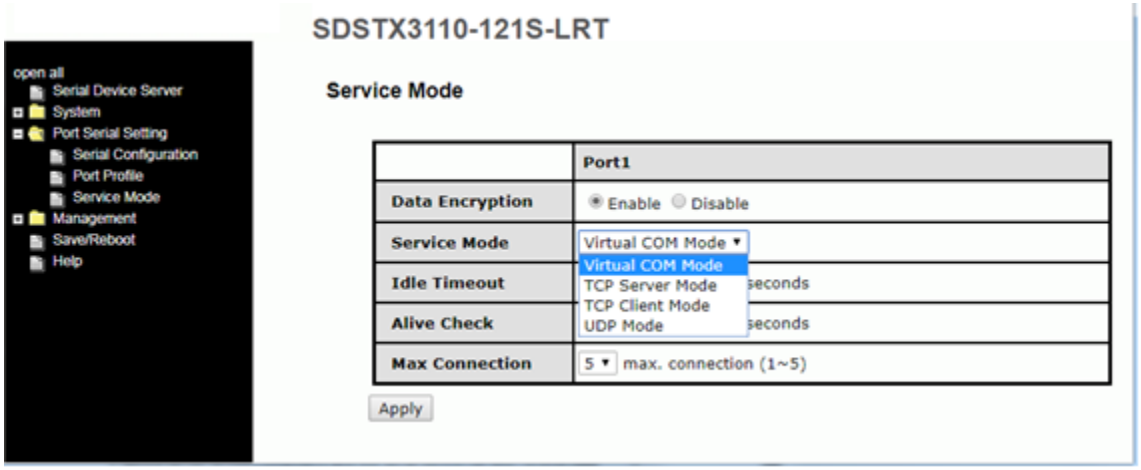
Label	Description
Port	Port number (Port 1).
Local TCP Port	The TCP port the device uses to listen to connections, and that other devices must use to contact the device. To avoid conflicts with well-known TCP ports, the default is set to 4004.
Mode	The existing mode (e.g., *Serial to Ethernet* or *Ethernet to Serial* - read only).
Flush Data Buffer After	The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "flush S2E data buffer" timeout the data will also be sent. You can set the time from 0 to 65535 milliseconds (ms). The factory default is 0 ms.
Delimiter(Hex 00~ff)	For advanced data packing options, you can specify delimiters for Serial to Ethernet and / or Ethernet to Serial communications. You can define up to four delimiters (00~FF, Hex) for each way. The data will be held until the delimiters are received or the option Flush Serial to Ethernet data buffer times out. **00** means disable. The factory default is **00**.

Click the **Apply** button when done to apply the changes.

4.3.2.3 Service Mode

This page lets you select a service mode, enable/disable data encryption, and configure Idle timeout, alive check, and maximum connections.

In Virtual COM Mode, the driver establishes a transparent connection between the host and the serial device by mapping the port of the serial server to a local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.



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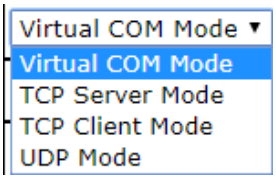
Label	Description
Data Encryption	Click on the radio button to enable or disable SSL data encryption.
Service Mode	Dropdown to select the service mode (e.g., *Virtual COM Mode*). **Virtual COM Mode**: the driver establishes a transparent connection between a host and the serial device by mapping the port of the serial server serial port to a local COM port on the host computer. Virtual COM Mode supports up to five simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time. **TCP Server Mode**: the serial port on the device server is assigned a unique port number. **TCP Client Mode**: the device can establish a TCP connection with the server by the method you set (Startup or any character). After the data has been transferred, the device can disconnect automatically from the server by using the TCP alive check time or idle timeout settings. **UDP Mode**: In UDP mode, you can uni-cast or multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple hosts. Compared to TCP communication, UDP is faster and more efficient.
Idle Timeout	When the serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. **0** indicate disable this function. Factory default value is **0**. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** indicate disable this function. Factory default is **0**.
Max Connection	1 to 5 simultaneous connections are supported; the default is **1** connection.

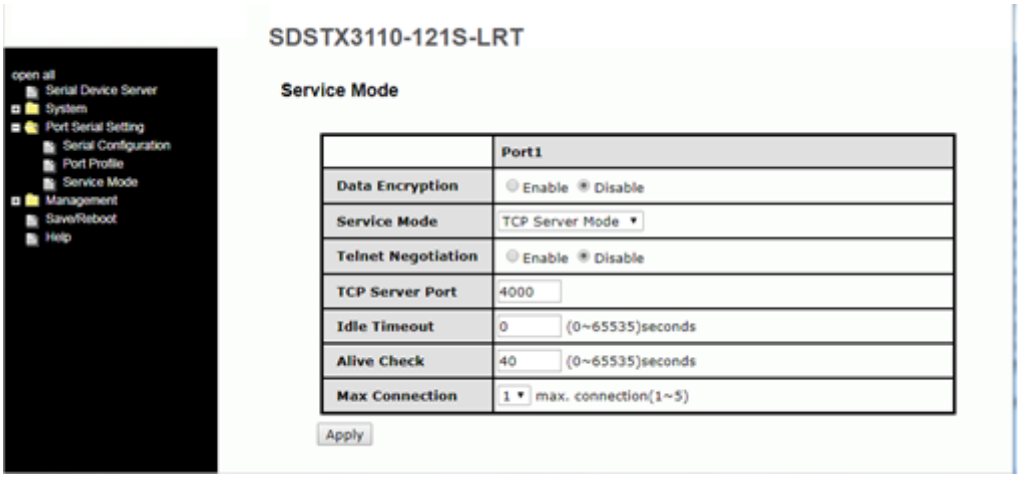
Click the **Apply** button when done to apply the changes.

The Service Mode pages are shown and described in the following sections.



4.4.1 TCP Server Mode

In TCP Server Mode, the SDS Manager is configured with a unique port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After the device establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.

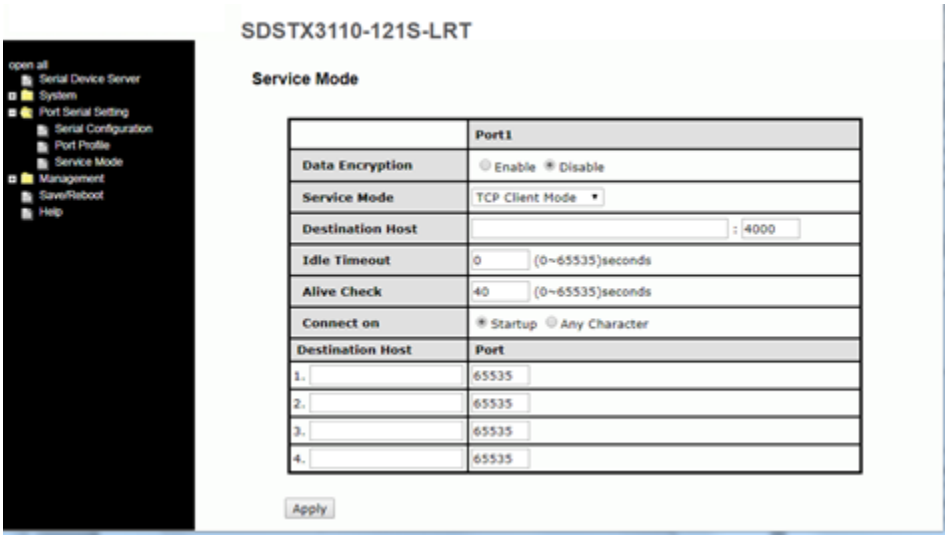


Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption.
Telnet Negotiation	Check the radio button to either Enable or Disable Telnet Negotiation. The default is Disabled. Telnet negotiation allows a client or a server to help provide an enhanced user experience.
TCP Server Port	Enter the TCP server port. The default is port 4000.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. **0** indicate disable this function. The factory default value is **0**. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** indicate disable this function. The factory default is **0**.
Max Connection	The serial device will send TCP alive-check packages in each defined time interval to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** indicate disable this function. The factory default is **0**.

Click the **Apply** button when done to apply the changes.

4.4.2 TCP Client Mode

In TCP Client Mode, the device can establish a TCP connection with the server by the method you set (Startup or Any Character). After the data has been transferred, the device can disconnect automatically from the server by using the TCP alive check time or idle timeout settings.

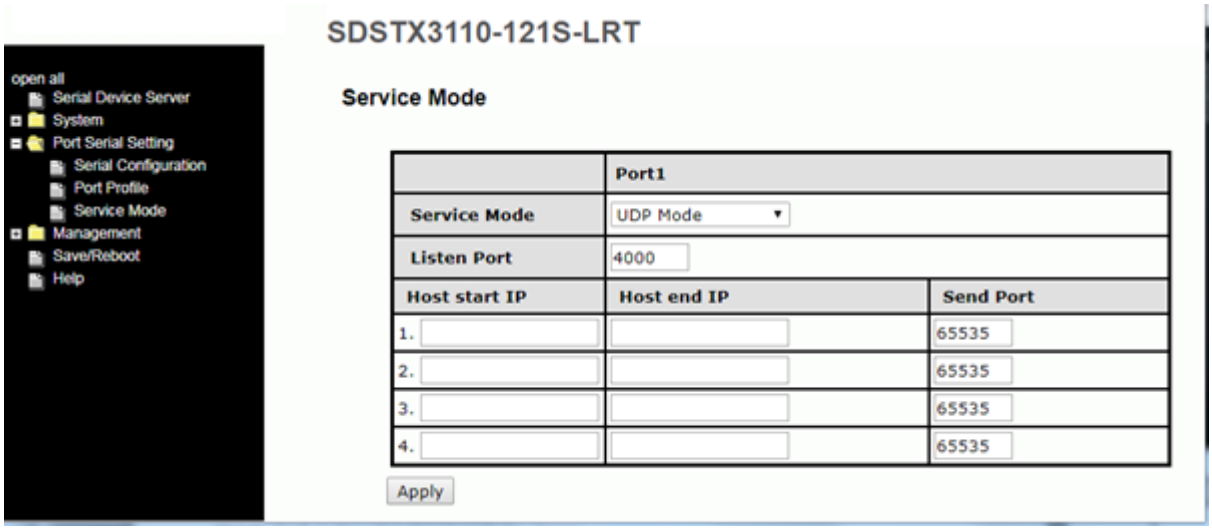


Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption.
Destination Host	Set the IP address of host and the port number of data port.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. **0** indicate disable this function. Factory default value is **0**. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** indicate disable this function. Factory default is **0**.
Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

Click the **Apply** button when done to apply the changes.

4.4.3 UDP Mode

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can uni-cast or multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple hosts.



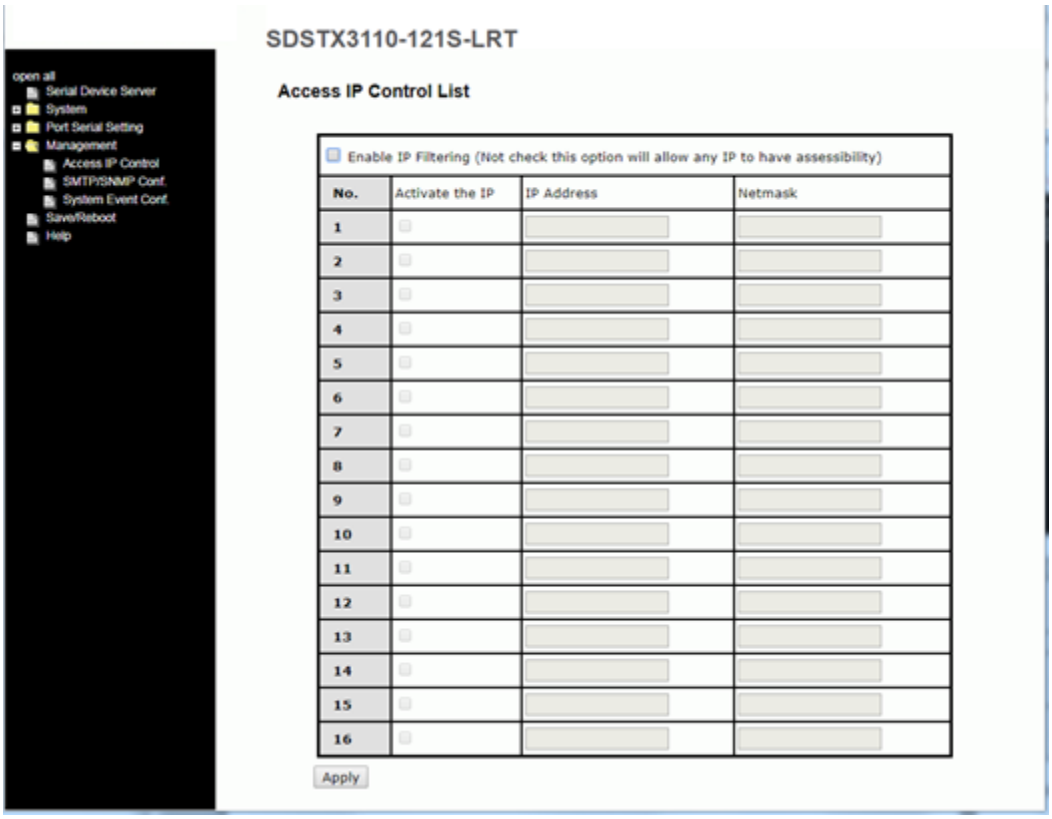
Label	Description
Listen Port	Allows the user to set a new TCP port number to listen on rather than the default value of the device. The default is port 4000.
Host start IP / Host end IP	If there are more than one destination hosts, specify the IP address range by inputting a value in Host start and Host end IP addresses. You can also auto scan the sending port number of the device. The valid range for both is 1.0.0.1 to 254.255.255.254.
Send Port	Set the send port number. The valid range is 1-65,535.

Click the **Apply** button when done to apply the changes.

4.4.4 Management

4.4.4.1 Access IP Control

The Access IP Control List lets you add host IP addresses to prevent unauthorized access. If a host's IP address is in the accessible IP table, the host will be allowed to access the SDS Manager.



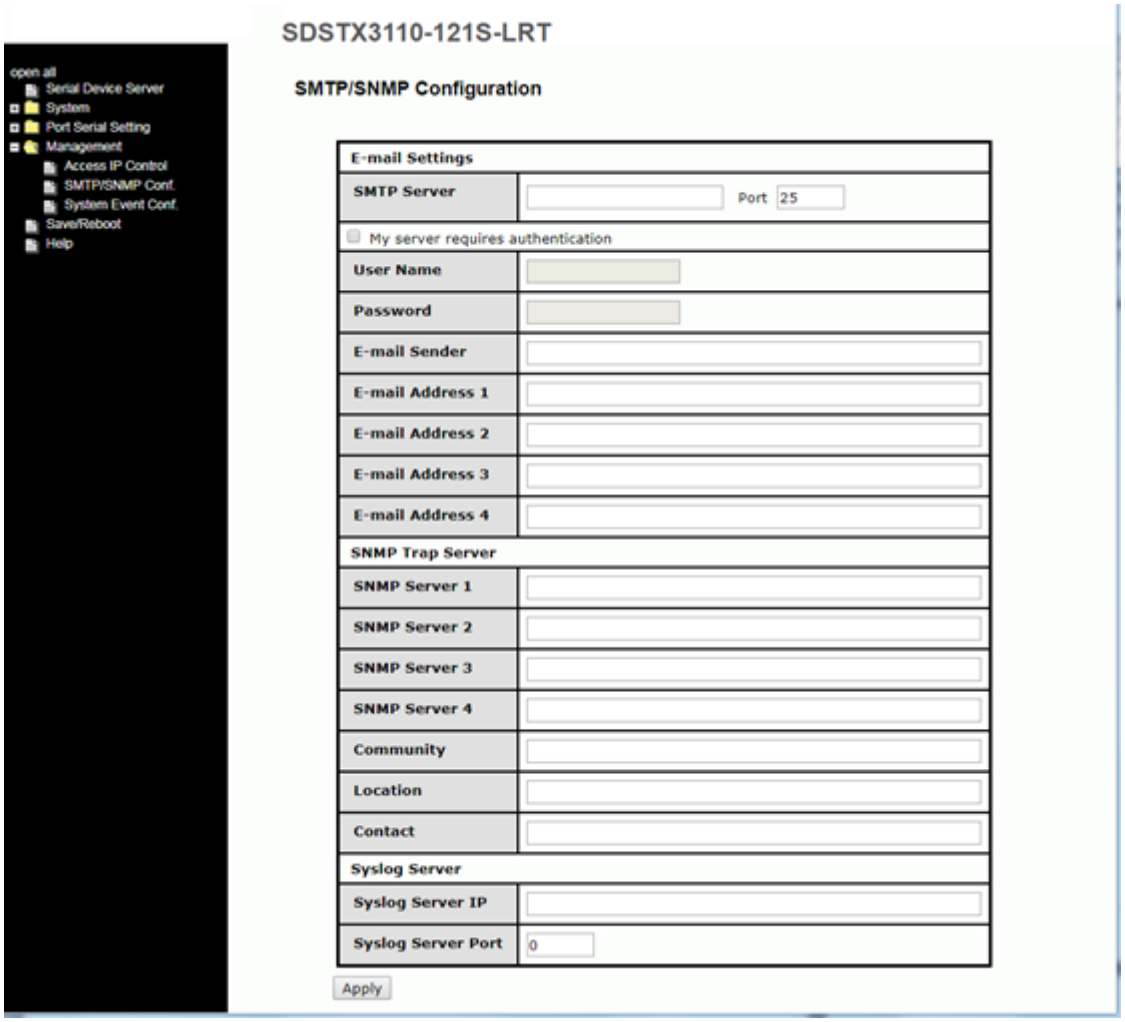
Label	Description
Enable IP Filtering	Leaving the box unchecked means any host can access the device server. The default is unchecked. Check the box to enable IP filtering (whitelist) of the specified IP addresses.
Activate the IP	Check the box to activate the IP address.
IP Address	Only the host with the specified IP address can access the device server. The format should be IP address /255.255.255.255 (e.g., "192.168.0.1/255.255.255.255").
Netmask	Only the host on the specified subnet can access the device server. The format should be IP address /255.255.255.0 (e.g., "192.168.0.1/255.255.255.0").

Click the **Apply** button when done to apply the changes.

4.4.4.2 SMTP/SNMP Configuration

Email Server configurations include the mail server's IP address or domain. If authentication is required, you must specify your username and password. You can set up to four email addresses for receiving notifications.

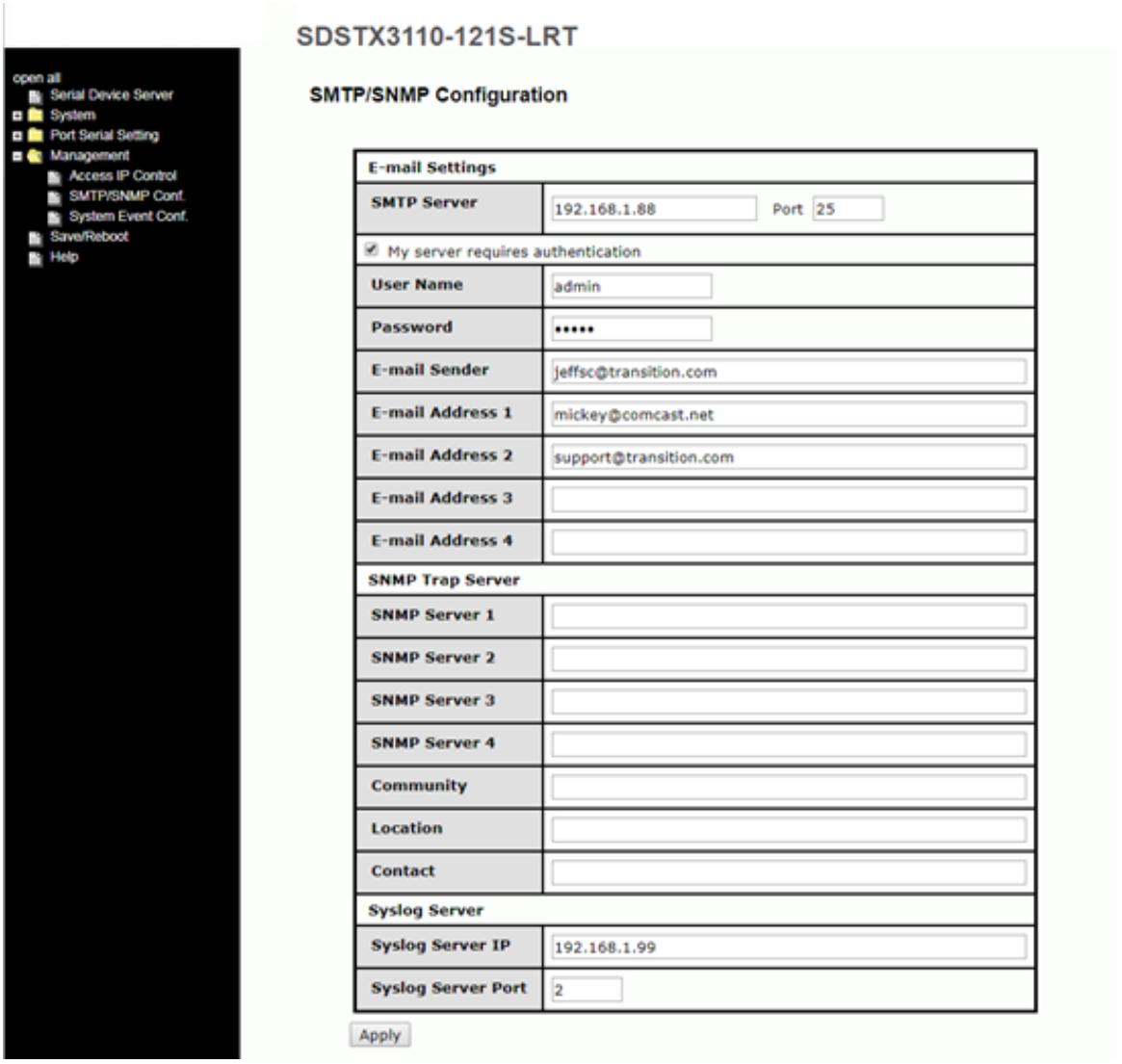
SNMP server configurations include the SNMP trap server IP address, community, location and contact. You can set up to four SNMP addresses you for receiving notifications.



Label	Description
SMTP Server	Specify the SMTP Trap Server IP address to use for sending emails if the box is checked on the Notification tab.
Port	Specify the SMTP Server port number to use for sending emails if the box is checked on the Notification tab. The default is Port 25.
My server requires authentication	Checkbox to check if an authentication is wanted.
User Name	Enter a user name if the *My server requires authentication* checkbox is checked.
Password	Enter a password if the *My server requires authentication* box is checked.

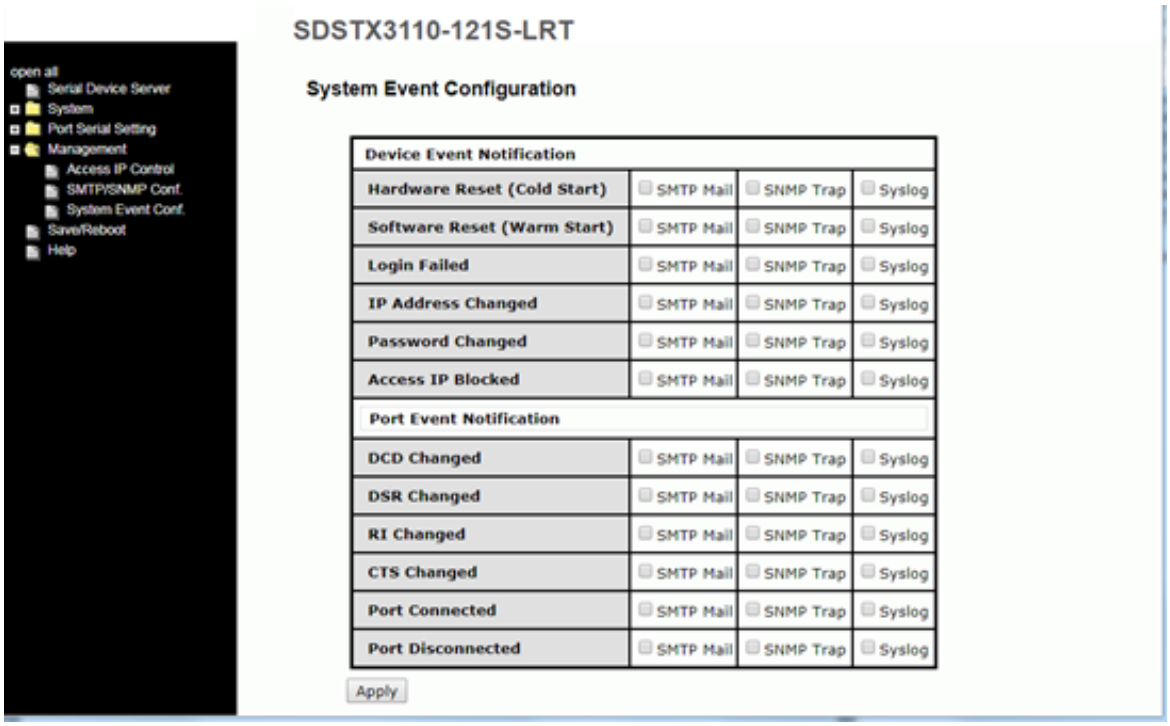
Label	Description
E-mail Sender	The e-mail address of the sender.
E-mail Address 1 - 4	Enter one to four e-mail recipients to receive notifications.
SNMP Server 1 - 4	Enter one to four SNMP Server IP addresses.
Community	The SNMP Community
Location	The SNMP server location.
Contact	The SNMP server contact name.
Syslog Server IP	The Syslog Server IP address.
Syslog Server Port	The Syslog Server Port number.

Click the **Apply** button when done to apply the changes. A sample screen is shown below.



4.4.4.3 System Event Configuration

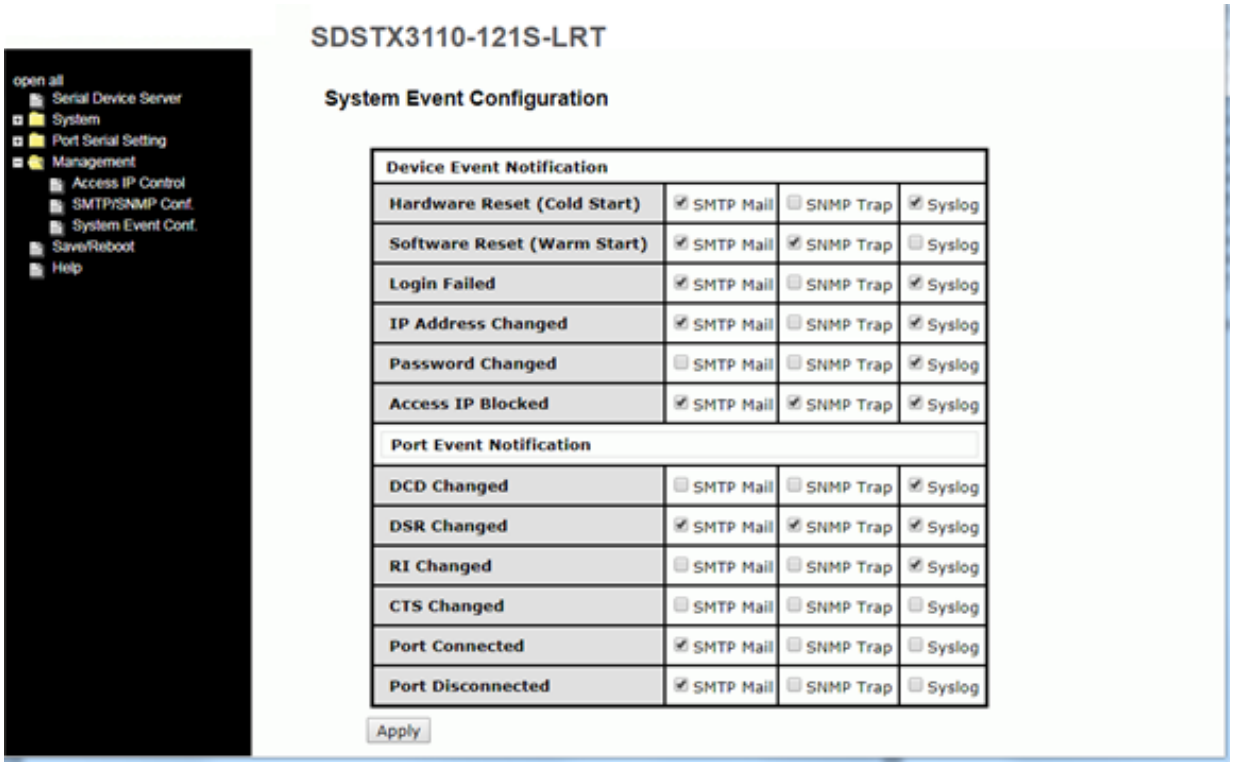
Specify the events that are to be reported to the administrator. The notification of events can be done via e-mail, SNMP trap, and/or system log.



Label	Description
Device Event Notification	
Hardware Reset (Cold Start)	This refers to starting the system from power off (in contrast with warm start). When performing a cold start, SDS will automatically issue an auto warning message via e-mail, logs, or SNMP trap after booting.
Software Reset (Warm Start)	This refers to restarting the computer without turning the power off. When performing a warm start, SDS will automatically send an e-mail, log or SNMP trap after rebooting.
Login Failed	When unauthorized access from the console or Web interface occurs, a notification will be sent.
IP Address Changed	When the IP address of the device is changed, a notification will be sent.
Password Changed	When the password of the device is changed, a notification will be sent.
Access IP Blocked	When the host accesses the device with a blocked IP address, a notification will be sent.

Port Event Notification	
DCD Changed	When a DCD (Data Carrier Detect) signal changes, indicating modem connection status has been changed, a notification is sent.
DSR Changed	When a DSR (Data Set Ready) signal changes, indicating data communication equipment is powered off, a notification will be sent.
RI Changed	When a RI (Ring Indicator) signal changes, indicating there is an incoming call, a notification will be sent.
CTS Changed	When a CTS (Clear To Send) signal changes, indicating transmission between computer and DCE can proceed, a notification will be sent.
Port Connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be triggered. In TCP Client Mode, when the device has connected to the remote host, the event will be triggered. In Virtual COM Mode, when Virtual COM is ready to use, this event will be triggered. A notification will be sent when an event is triggered.
Port Disconnected	In TCP Server/Client Mode, when the device loses the TCP link, this event will be triggered. In Virtual COM Mode, when Virtual COM is not available, this event will be triggered. A notification will be sent when an event is triggered.

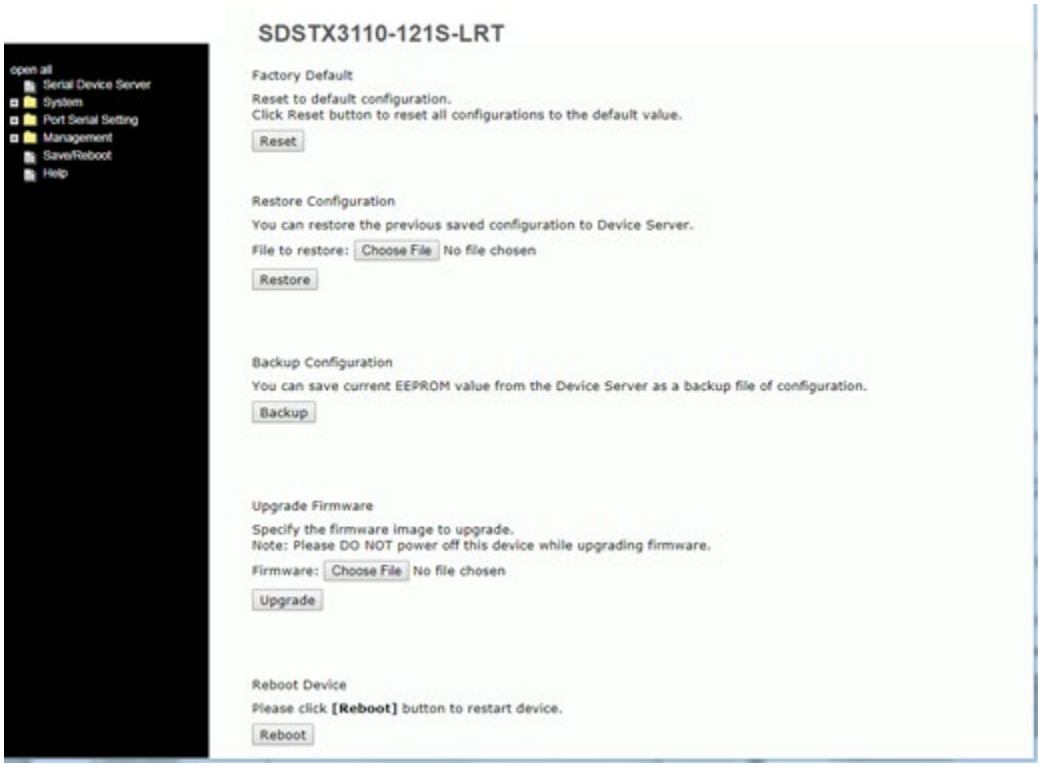
Click the **Apply** button when done to apply the changes. A sample screen is shown below.



4.4.5 Factory Default / Restore Config / Upgrade Firmware / Reboot

The Save/Reboot menu path lets you:

- Reset to the SDS to its Factory default settings,
- Save current values from the device as a backup file,
- Restore the device to previous settings by downloading a configuration file,
- Upgrade SDS device firmware, and
- Reboot (restart) the SDS device.



Button (Function)	**Description**
Reset Reset to Factory Defaults	Click to load default configurations to the system except the network settings (Hardware restore).
Restore Restore Saved Config	Restore to previous settings using previously exported configurations. Browse to the configuration file you want to use and click Restore.
Backup Backup Current Config	Export the current configuration to a file.
Upgrade Upgrade Firmware	Upgrade to a new firmware by browsing to a specific folder. Note: Please DO NOT power off this device while upgrading firmware.
Reboot Reboot Device	Reboot the device server (warm start).

These functions are described in the following sections.

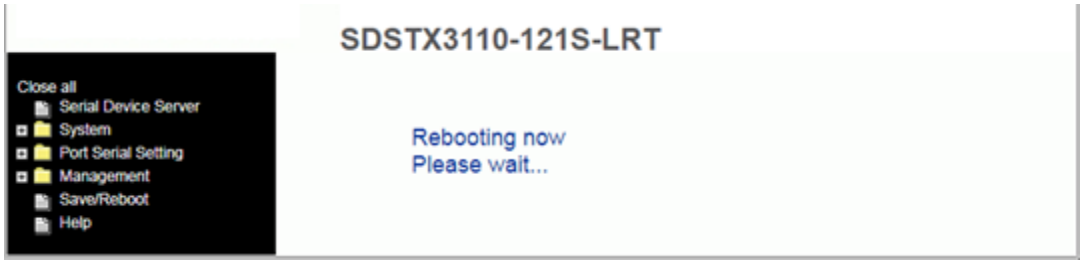
Factory Default

The Save/Reboot page lets you reset the SDS device to the factory default values.

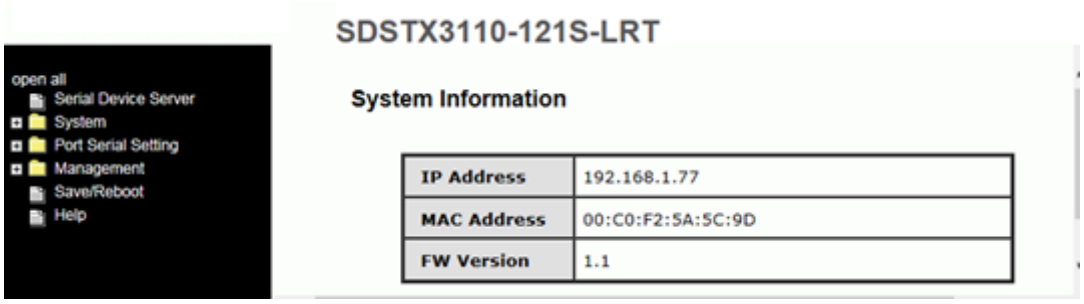
1. Navigate to the Save/Reboot menu path and locate the Factory Default section.

2. Click the **Reset** button to reset all configurations to their default values.

3. At the prompt click the **Reboot** button.



4. After the message (*Rebooting now Please wait ...*) clears, the System Information page displays.

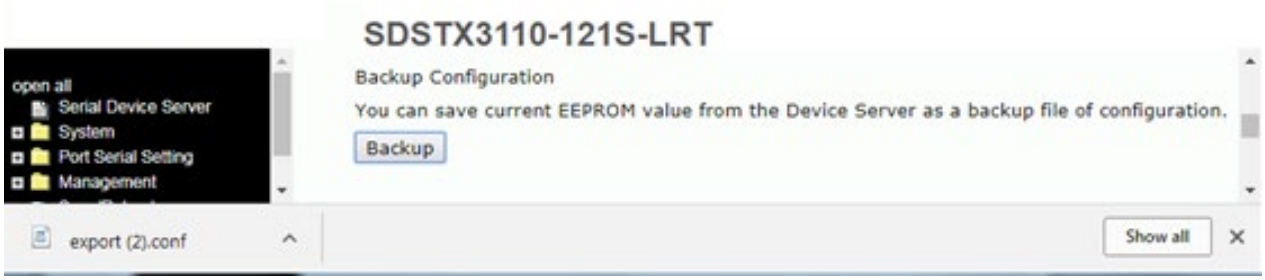


Backup Configuration

Here you can save current EEPROM value from the Device Server as a backup file of the current configuration.

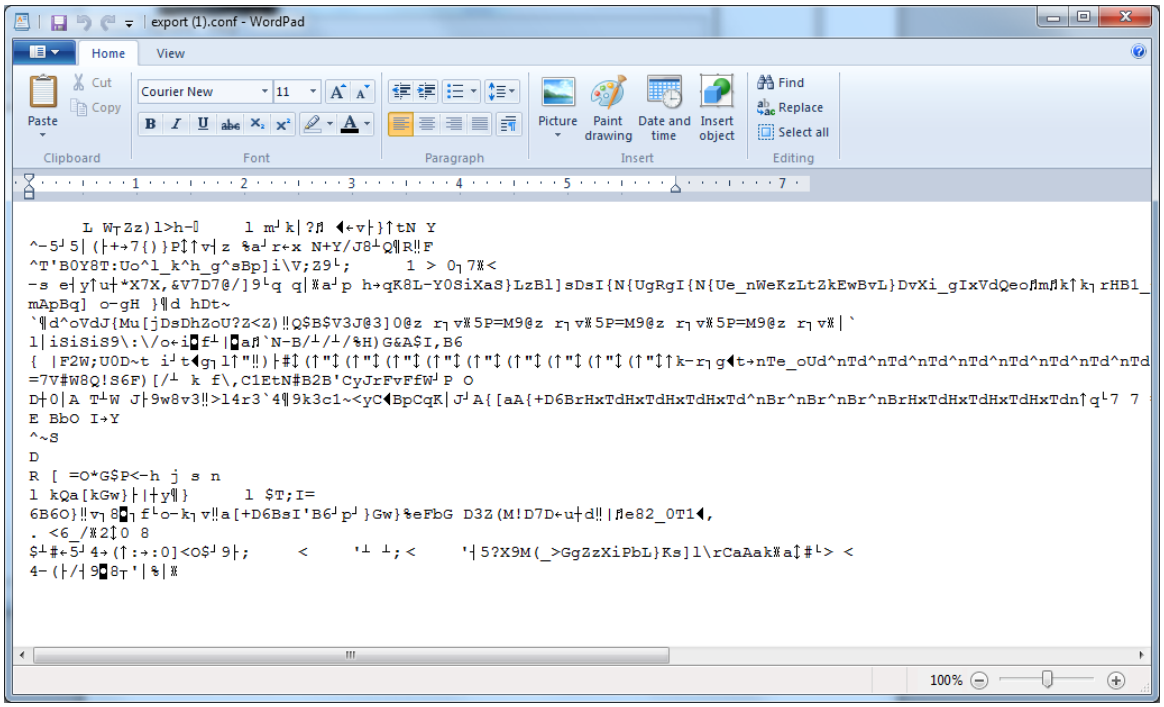
1. Navigate to the Save/Reboot menu path and locate the Backup Configuration section.

2. Click the **Backup** button.



3. Click the export dropdown and select “Open”.

4. The file is opened (e.g., in WordPad, as shown below).

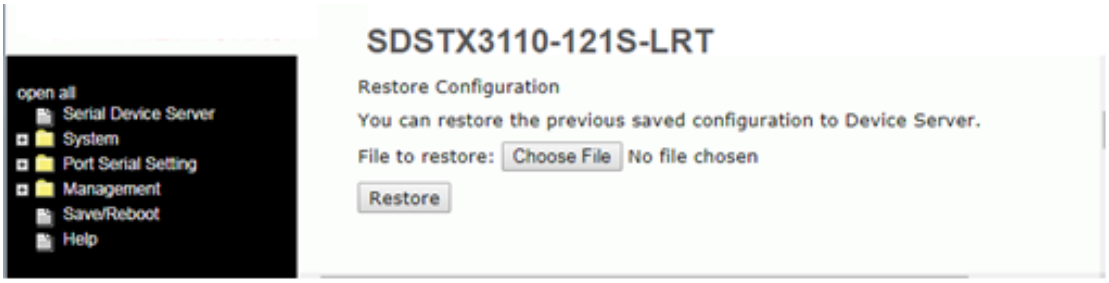


5. Use any available WordPad option (Save, Print, Send in e-mail, etc.).

Restore Configuration

Here you can restore the previous saved configuration to Device Server.

1. Navigate to the Save/Reboot menu path and locate the Restore Configuration section.

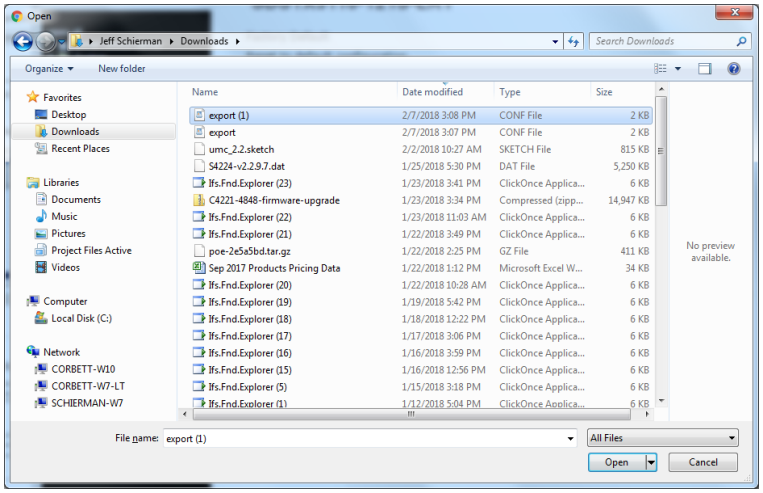


2. Click the **Restore** button.

3. At the webpage message (*Please choose a config file to import!*) click the **OK** button.

4. Browse to and select a saved config file to be restored (e.g., ***export (1).conf*** in the sample screen below).

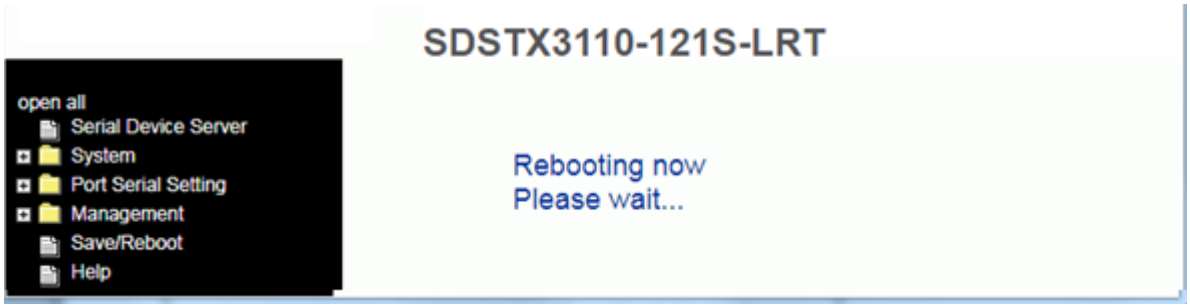
5. Click the **Open** button.



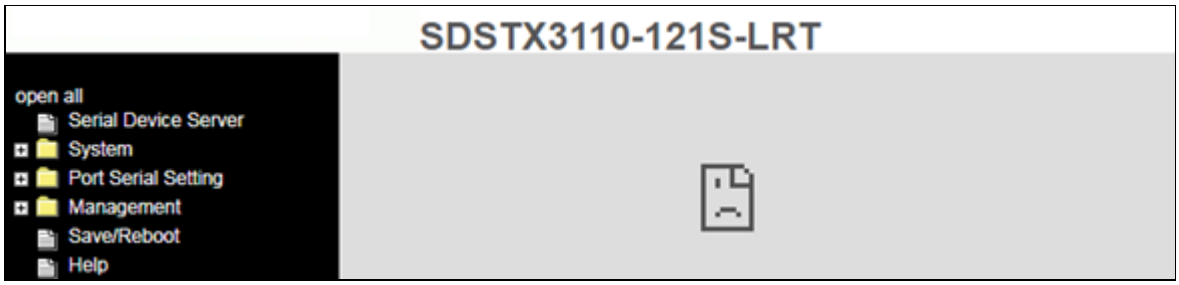
6. The selected file displays. Verify the file displayed is the one you want to restore (***export (1).conf***), and then click the **Restore** button.

7. When the message "*Please click [Restart] button to restart Ser2Net. All Config setting must reboot to make it work*" displays, click the **Restart** button.

8. Wait for the message "*Rebooting now Please wait…*" to clear.



9. If a frown icon () or similar web browser message displays, refresh the web browser.



10. When the SDS System Information page displays, continue operation.

Message:
Importing failed!
Please choose a config file to import!

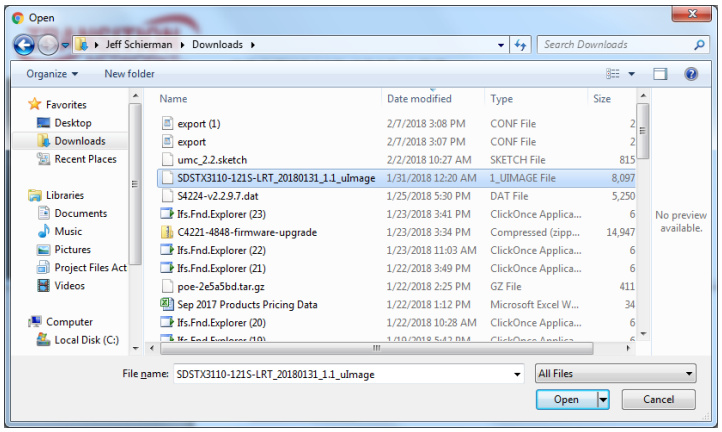
Upgrade Firmware

Here you can specify the firmware image to upgrade. **Note**: Please **DO NOT** power off this device while upgrading firmware.

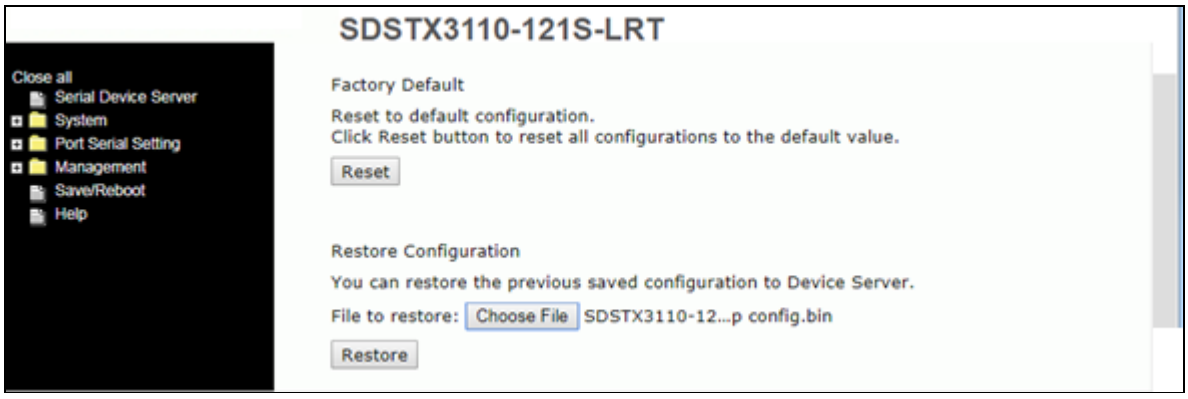
1. Navigate to the Save/Reboot menu path and locate the Upgrade Firmware section.

2. Click the **Upgrade** button.

3. Browse to and select the upgrade file (e.g., *SDSTX3110-121S-LRT_20180131_1.1_uImage*).



4. Click the **Open** button.



5. Verify the file displayed is the one you want to upgrade to, and then click the **Upgrade** button.

6. After the Upgrading process completes, wait while the SDS reboots.

7. When the SDS System Information page displays, continue operation.

Messages:

Upgrading failed!
Firmware upgrade success. Rebooting now, please wait...
192.168.1.77 didn't send any data.

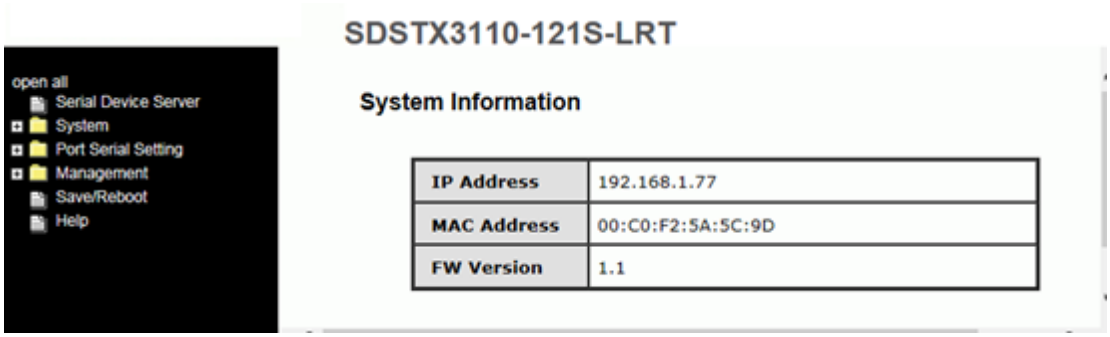
Reboot Device

Here you can restart (reboot) the SDS device.

1. Navigate to the Save/Reboot menu path and locate the Reboot Device section.
2. Click the **Reboot** button to reset all configurations to their default values.

3. At the prompt click the **Reboot** button.

4. After the message (*Rebooting now Please wait …*) clears, the System Information page displays.



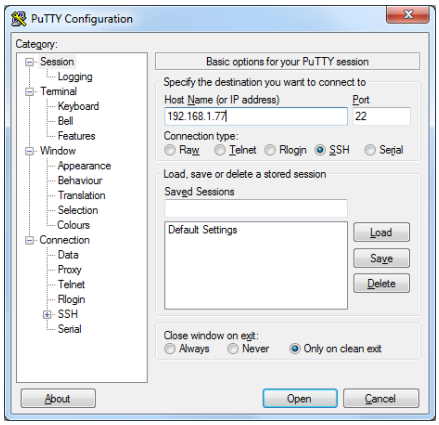
If a frown icon ( ) or similar web browser message displays, refresh the web browser.

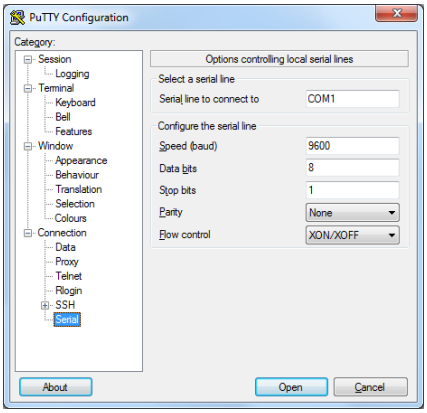
5. When the SDS System Information page displays, continue operation.

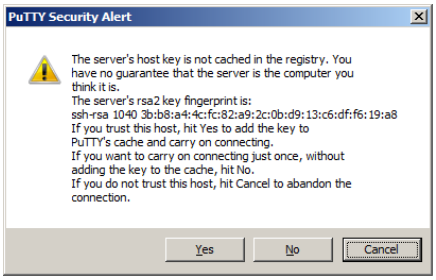
4.5 Configuration by SSH Console

4.5.1 Connect to SSH Console

You can use an SSH tool such as PuTTY to access the SSH console of the device. The PuTTY settings are: Serial line to connect to: COM1, Speed (baud): 9600, Data bits: 8, Stop bits: 1, Parity: None, Flow control: XON/XOFF. Click the **Open** button to start. Note that PuTTY startup may take around 20 seconds.

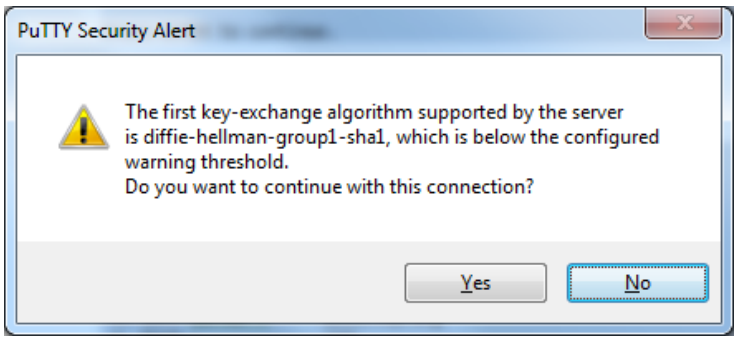






Message: *PuTTY Security Alert*
The Server's host key is not cashed in the registry. You have no guarantee that the server is the computer you think it is.
The server's rsa2 key fingerprint is xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.
If you trust this host hit Yes to add it to PuTTY's cache and carry on connecting.
If you want to carry on connecting just once, without adding the key to the cache, hit No. If you do not trust this host, hit Cancel to abandon the connection.
Meaning: security alert from PuTTY.
Recovery: Click the **Yes** button and continue.

Message: *PuTTY Security Alert*
The first key-exchange algorithm supported by the server is diffie-hellman-group1-sha1, which is below the configured warning threshold. Do you want to continue with this connection?



Meaning: security alert from PuTTY.
Recovery: Click the **Yes** button and continue.

The initial SSH console interface is shown below.

```
login as: root
root@192.168.1.77's password: root

****************************************
*** Lantronix Industrial Serial Device Server Commander ***
****************************************
----------------------------------------
1. Overview
2. General Settings
3. Network Settings
4. Ports settings
5. Security(Accessible IP) Settings
6. Notification(Auto Warning) Settings
C. Change Password
L. Load Factory Default
S. Save configuration
R. Reboot
Q. Exit & Logout

Select one function (0-9,A,C,L,S,R,Q):
```

Each selection is described below.

1. Overview

Enter a **1** and hit the Enter key to display an overview of the device information:

```
Select one function (0-9,A,C,L,S,R,Q):  1

----------------------------------------
[Overview]
  Model Name :        SDSTX3110-121S-LRT
  MAC Address :       00-c0-f2-5a-5c-9d
  Firmware Version :  1.1
  Device name :       DeviceServer-DEFAULT

Press ENTER to continue.
```

2. General Settings

Enter a **2** and hit the Enter key to display additional device information:

```
Select one function (0-9,A,C,L,S,R,Q):  2

----------------------------------------
[General Settings]
<Basic Setting>
 1. Device name :      DeviceServer-DEFAULT
<SNTP Time>
 2. SNTP Enable   Enable
 3. SNTP server :      pool.ntp.org
 4. Port :             123
 5. Time Zone :        Canada/Central
<Management>
 6. Web console :      Enable
<SNMP management>
 7. Community :
 8. Location :
 9. Contact :
Q. Exit

Select one function (1-8,Q):
```

1. Device name: select **1** and enter the new device name.

```
Select one function (1-8,Q):  1
----------------------------------------
[Server name]
Input new server name or (Q)uit: xxxxxczz98
```

2. SNTP Enable: select **2** and select enable or disable.

```
Select one function (1-8,Q):  2
----------------------------------------
[SNTP Enable]
Input 1(Enable) or 2(Disable) : 1
```

3. SNTP server: select **3** and enter the new Time server IP address.

```
Select one function (1-8,Q):  3
----------------------------------------
[Time server]
Input new Time server address or (Q)uit:
```

4. Port: select **4** and enter the new port number.

```
Select one function (1-8,Q):  4
----------------------------------------
[SNTP time Server port]
Input new port number or (Q)uit:
```

5. Time Zone: select **5** and select the desired time zone.

```
Select one function (1-8,Q):  5
----------------------------------------
[Time zone]
Please select one of following choice :
```

```
0. (GMT-12:00)Eniwetok, Kwajalein
1. (GMT-11:00)Midway Island, Samoa
2. (GMT-10:00)Hawaii
3. (GMT-09:00)Alaska
4. (GMT-08:00)Pacific Time (US &amp;amp; Canada); Tijuana
5. (GMT-07:00)Arizona
6. (GMT-07:00)Mountain Time (US &amp;amp; Canada)
7. (GMT-06:00)Central Time (US &amp;amp; Canada)
8. (GMT-06:00)Mexico City, Tegucigalpa
9. (GMT-06:00)Saskatchewan
          Press Q to exit or ENTER to continue...
```

6. Web console: select **6** and select enable or disable.

```
Select one function (1-8,Q):  6
----------------------------------------
[Web console]
Input 1(Enable) or 2(Disable) :
```

7. Community: select **7** and enter the SNMP Community name.

```
Select one function (1-8,Q):  7
----------------------------------------
[SNMP Community]
Input Get/Set Request Community (max 64) or Q(uit):
```

8. Location: select **8** and enter the SNMP Get/Set Request location.

```
Select one function (1-8,Q):  8
----------------------------------------
[SNMP Location]
Input Get/Set Request Location (max 64) or Q(uit):
```

9. Contact: select **9** and enter the SNMP Get/Set Request contact name.

```
Select one function (1-8,Q):  9
----------------------------------------
[SNMP Contact]
Input Get/Set Request Contact (max 64) or Q(uit):
```

3. Network Settings

Enter a **3** and hit the Enter key to display current network settings:

```
Select one function (0-9,A,C,L,S,R,Q):  3

----------------------------------------
<Network Setting>
 1. IP configuration       Static
 2. IP address             192.168.1.77
 3. Netmask                255.255.255.0
 4. Gateway                192.168.1.254
 5. DNS server 1           192.168.1.254
 6. DNS server 2
 A. Apply New Network Settings
 R. Refresh Status
 * Please select (A)"Apply New Network Settings"
   after changed your settings
<IP Address report>
 7. To IP
 8. To TCP port            Set "To IP" first
 9. Period(sec)            Set "To IP" first
Q. Exit

Select one function (1-9,A,R,Q):
```

1. IP configuration:

```
Select one function (1-9,A,R,Q):  1

----------------------------------------

[IP configuration]

Input new IP configuration setting,

(1)static, (2)DHCP/BOOTP or (Q)uit:
```

2. IP address:

```
Select one function (1-9,A,R,Q):  2

----------------------------------------

[IP address]

Input new IP address or (Q)uit:  192.168.1.77
```

3. Netmask:

```
Select one function (1-9,A,R,Q):  3
----------------------------------------
[Netmask address]
Input new Netmask address or (Q)uit:  255.255.255.0
```

4. Gateway:

```
Select one function (1-9,A,R,Q):  5
----------------------------------------
[Gateway address]
Input new Gateway address or (Q)uit:  192.168.1.254
```

5. DNS server 1

```
Select one function (1-9,A,R,Q):  5
----------------------------------------
[DNS server 1]
Input new DNS server 1 address or (Q)uit:  192.168.1.254
```

6. DNS server 2

```
Select one function (1-9,A,R,Q):  6
----------------------------------------
[DNS server 2]
Input new DNS server 2 address or (Q)uit:  192.168.1.254
```

A. Apply New Network Settings:

```
Select one function (1-9,A,R,Q): a
```

R. Refresh Status

* Please select (A)"Apply New Network Settings" after changed your settings.

```
Select one function (1-9,A,R,Q):  r

----------------------------------------

********    W A R N I N G    ********

[Network Status Refresh]

Settings have been changed and haven't been apply to device.

It will LOSE the settings you just changed after refresh

Are your sure to REFRESH (y/n)  :
```

7. IP Address Report to IP:

```
Select one function (1-9,A,R,Q):  7

----------------------------------------

[set Auto report IP]

Input new IP address device auto report to or (Q)uit:  192.168.1.30
```

8. To TCP port Set "To IP" first

```
Select one function (1-9,A,R,Q):  7
----------------------------------------
[set Auto report IP]
Input new IP address device auto report to or (Q)uit:  192.168.1.30
----------------------------------------
<Network Setting>
 1. IP configuration       Static
 2. IP address             192.168.1.77
 3. Netmask                255.255.255.0
 4. Gateway                192.168.1.254
 5. DNS server 1           192.168.1.254
 6. DNS server 2
 A. Apply New Network Settings
 R. Refresh Status
 * Please select (A)"Apply New Network Settings"
   after changed your settings
<IP Address report>
 7. To IP                  192.168.1.30
 8. To TCP port            0
 9. Period(sec)            0(Zero second means Disable)
Q. Exit

Select one function (1-9,A,R,Q):  8
----------------------------------------
[set Auto report IP TCP port]
Input new Auto report to TCP port or (Q)uit:
```

9. Period(sec) Set "To IP" first

```
Select one function (1-9,A,R,Q):  9
----------------------------------------
[set Auto report IP period]
Input new Auto report IP period(in seconds) or (Q)uit:
```

4. Ports settings

Enter a **4** and hit the Enter key to display the set of ports available:

```
Select one function (0-9,A,C,L,S,R,Q):  4

----------------------------------------
[Ports setting]
1. port1 (Port0)
Q. Exit

Select port or (Q)uit:  1
----------------------------------------
[port1(Port0) Setting]
1. Serial Settings
2. Operating Settings
3. Port Notification Settings
A. Apply Settings
R. Refresh Port Status
Q. Exit

* Please select (A)"Apply Settings" after changed your settings
Select one function (1-3,A,R,Q):
```

1. Serial Settings:

```
* Please select (A)"Apply Settings" after changed your settings
Select one function (1-3,A,R,Q):  1
----------------------------------------
[Serial Setting]
<port1>
  1. Port Alias: Port0
  2. Baudrate:   38400        6. Stop Bits:  1STOPBIT
  3. Parity:     No Parity    7. Flow Ctrl:  No Flow
  4. Data Bits:  8            8. Interface:  RS232
  5. performance:  Throughput
<Delimiter Settings>
  <Serial to Ethernet>
  A. Delimiter1:  Disable     B. Delimiter2:  Disable
  C. Delimiter3:  Disable     D. Delimiter4:  Disable
  E. Flush Serial to Ethernet Data Buffer After: 0 ms
  <Ethernet to Serial>
  F. Delimiter1:  Disable     G. Delimiter2:  Disable
  H. Delimiter3:  Disable     I. Delimiter4:  Disable
  J. Flush Ethernet to Serial Data Buffer After: 0 ms
K. Force TX interval time: 0 ms
Q. Exit

Select one function (1-8,A-K,Q):
```

2. Operating Settings:

```
* Please select (A)"Apply Settings" after changed your settings
Select one function (1-3,A,R,Q):  2
----------------------------------------
[port1(Port0) Operating Setting]
1. Operating Mode:   Vircom mode
<Vircom mode>
 2. idle Timeout :  0 sec            3. Alive check : 40 sec
<Multilink>
 A. Max Connections: 1
E  Data Encryption:  Disable
Q. Exit

Select one function :
```

3. Port Notification Settings:

```
* Please select (A)"Apply Settings" after changed your settings
Select one function (1-3,A,R,Q):  3
----------------------------------------
[port1 Notification Settings]
1. SNMP Trap setting
2. Email Notification settings
3. System Log setting
Q. Exit

Select one function (1-3,Q):
```

A. **Apply Settings**: Use "Apply Settings" after changing your settings.

R. **Refresh Port Status**: displays "*Refresh succcess!*" when done.

Q. **Exit**: quits the session and exits the application.

5. Security(Accessible IP) Settings

Enter a **5** and hit the Enter key to display access IP settings:

```
Select one function (0-9,A,C,L,S,R,Q):  5

----------------------------------------
[Access IP Setting]
            IP Address        Netmask
1.  IP-1
2.  IP-2
3.  IP-3
4.  IP-4
5.  IP-5
6.  IP-6
7.  IP-7
8.  IP-8
9.  IP-9
10. IP-10
11. IP-11
12. IP-12
13. IP-13
14. IP-14
15. IP-15
16. IP-16
Q.  Exit

Select one function (1-16,Q):
```

```
Select one function (1-16,Q):  1

----------------------------------------
[Set Access IP-1]
Input new Access IP-1 IP address or (Q)uit:  192.168.1.99
Input new Access IP-1 netmask address:  255.255.255.5
```

6. Notification(Auto Warning) Settings

Enter a **6** and hit the Enter key to display notification settings:

```
Select one function (0-9,A,C,L,S,R,Q):  6

----------------------------------------
[Notification Settings]
1. SNMP Trap setting
2. Email Notification settings
3. System Log setting
Q. Exit

Select one function (1-3, Q):
```

1. SNMP Trap setting

```
Select one function (1-3, Q):  1
----------------------------------------
[SNMP Trap settings]
<SNMP trap server>
 A. SNMP trap server1 address:
 B. SNMP trap server2 address:
 C. SNMP trap server3 address:
 D. SNMP trap server4 address:
<Event Type>
 1. Cold start                      Disable
 2. Warm start                      Disable
 3. Authentication failure          Disable
 4. IP address changed              Disable
 5. Password changed                Disable
 6. Access IP block                 Disable
 Q. Exit

Select one function (A-I,1-9,Q):
```

2. Email Notification settings

```
Select one function (1-3, Q):  2
----------------------------------------
[Email Notification settings]
 <SMTP server>
 A. Server Address : 192.168.1.88
 B. Server Port :    25
 C. Authentication:  ID: admin
                     PW: *****
 <E-mail list>
 S. E-mail list Settings
<Event Type>
 1. Cold start                      Enable
 2. Warm start                      Enable
 3. Authentication failure          Enable
 4. IP address changed              Enable
 5. Password changed                Disable
 6. Access IP block                 Enable
 Q. Exit

Select one function (A-C,E-I,s,1-9,Q):
```

3. System Log setting

```
Select one function (1-3, Q):  3
----------------------------------------
[System Log settings]<System Log server>
 A. Server address:            192.168.1.99
 B. Port:                      2
<Event Type>
 1. Cold start                      Enable
 2. Warm start                      Disable
 3. Authentication failure          Enable
 4. IP address changed              Enable
 5. Password changed                Enable
 6. Access IP block                 Enable
 Q. Exit

Select one function (A-I,1-9,Q):
```

c. Change Password

Enter a **c** and hit the Enter key to display the option to change passwords:

```
Select one function (0-9,A,C,L,S,R,Q):  c


----------------------------------------
[Change Password]
Input old password:
```

l. Load Factory Defaults

Enter a letter **l** and hit the Enter key to display the option to load the factory default settings:

```
Select one function (0-9,A,C,L,S,R,Q):  l


----------------------------------------
[Load Default]
Are you sure? (Y/N)
```

s. Save configuration

Enter an s and hit the Enter key to display the option to save the existing configuration to a file.

```
Select one function (0-9,A,C,L,S,R,Q):  s


----------------------------------------
[Save to file]
Are you sure? (Y/N)  y
Saving to flash memory...
----------------------------------------
```

r. Reboot

Enter an r and hit the Enter key to display the option to reboot the system:

```
Select one function (0-9,A,C,L,S,R,Q):  r

----------------------------------------
[Reboot System]
Are you sure? (Y/N)  n
----------------------------------------
```

If you select **y** to re-boot the system, PuTTY displays a message "*PuTTY Fatal Error Server unexpectedly closed network connection*". Click the **OK** button to end the PuTTY session.

q. Exit & Logout

Enter a **q** and hit the Enter key to quit immediately (logout and exit the session):

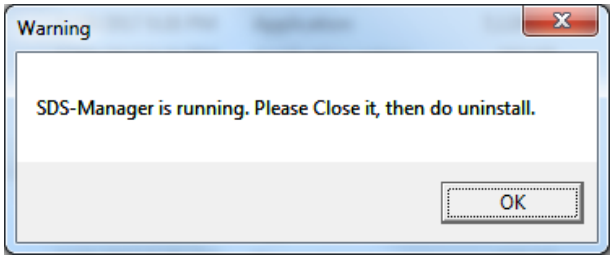
```
Select one function (0-9,A,C,L,S,R,Q):  q
```

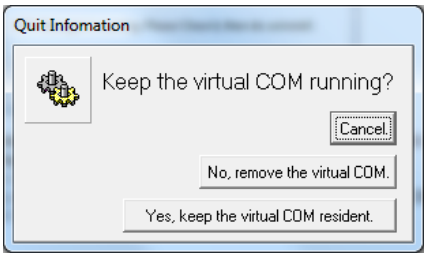
4.6 Uninstall SDS Manager

1. Exit the SDS-Manager if it is currently running.
2. Navigate to the install location (e.g., *C:\Program Files (x86)\SDS-Manager*) and double click the **uninstall.exe** icon.
3. Answer any prompts.

Messages

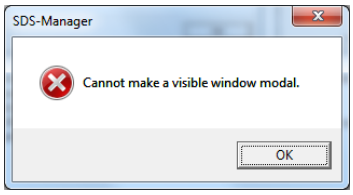
Message: *Warning SDS-Manager is running. Please Close it, then do uninstall.*
Keep the virtual COM running?





Meaning: You tried to uninstall the SDS-Manager with it still running.
Recovery:
1. Click the **OK** button to clear the Warning dialog.
2. At **File** > **Exit** select either exit and remove the virtual COM, or exit and keep the virtual COM resident.
3. Continue with the uninstall procedure above.

Message: *Cannot make a visible window modal.*



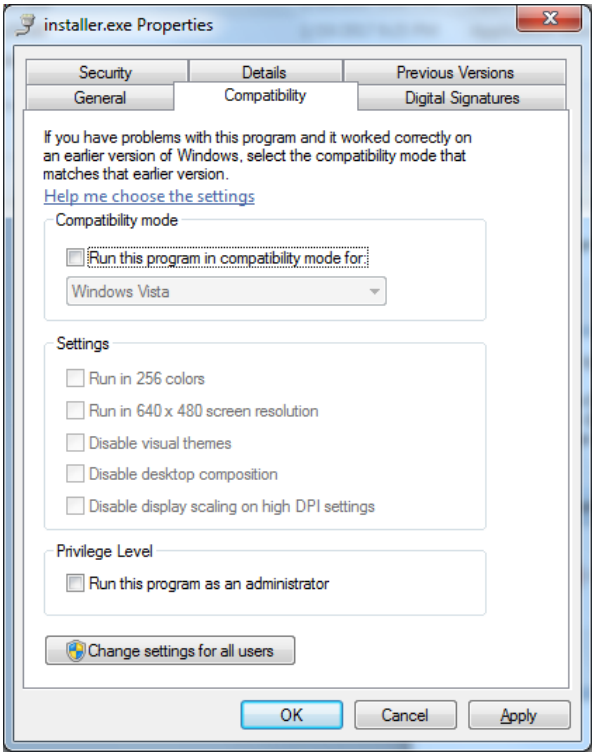
Meaning: You tried to uninstall the SDS-Manager with it still running.
Recovery:
1. Click the **OK** button to clear the Warning dialog.
2. At **File** > **Exit** select either exit and remove the virtual COM, or exit and keep the virtual COM resident.
3. Continue with the uninstall procedure above.

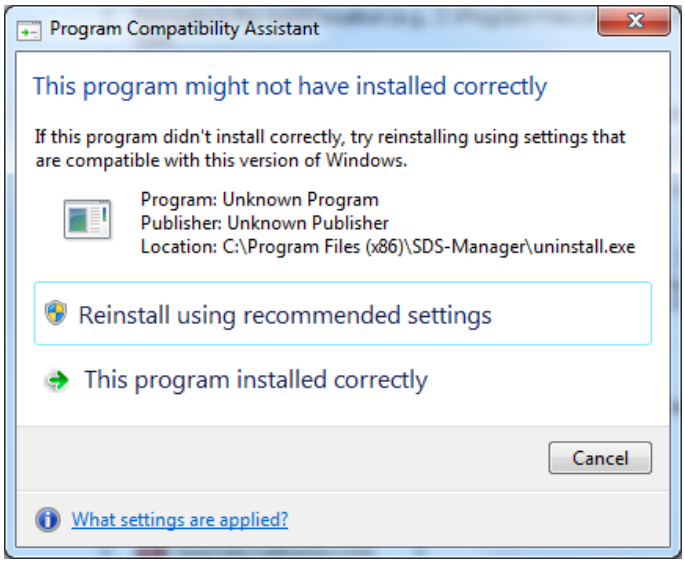
Message: This program might not have installed correctly

Meaning: Windows “Program Compatibility Assistant” message.

Recovery:

1. Try clicking the Reinstall using recommended settings option and follow the online instructions.
2. Click the Cancel button and locate the **installer.exe** icon and right-click on it to display its Properties.
3. At the Compatibility tab, select the mode that matches your Windows version.





5. Technical Specifications

Physical Ports	
10/100Base-T(X) Ports in Auto MDI/MDIX	Two
Serial Ports	
Connector	DB9 x 1
Operation Mode	RS-232/422/485
Serial Baud Rate	110 bps to 921.6 Kbps
Data Bits	7, 8
Parity	odd, even, none, mark, space
Stop Bits	1, 1.5, 2
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx-, Tx+, Rx+, Rx-
RS-485	4 wire: Tx-, Tx+, Rx+, Rx- 2 wire: Data-, Data
Flow Control	XON/XOFF, RTS/CTS, DTR/DSR
Network Protocols	
Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP, V1/V2c, HTTPS, SMTP
Power	
Redundant Input power	Dual DC inputs. 12~48VDC on 4 pin terminal block
Power Consumption(Typ.)	1.44W
Overload current protection	Present
Reverse polarity protection	Present
Physical Characteristics	
Enclosure	IP-30 Ingress Protection
Dimensions	26 (W) x 75 (D) x 110 (H) mm 1.02 (W) x 2.95 (D) x 4.33 (H) inches
Weight	227g (0.5 lb.)
Environmental	
Storage Temperature	-40° to +85° C (-40° to +185° F)
Operating Temperature	-10° to +60° C (-40° to +158° F)
Operating Humidity	5% to 95% Non-condensing
MTBF	1,095,428.6101 hours. Environment: GFC, Ground Fixed Controlled; Oper. Temp. 25 deg. C; Category: Telcordia SR-332 Issue 2.
Warranty	5 Years

Note: All specifications are subject to change without notice.

Regulatory Approvals

Regulatory Approvals	
EMI	FCC Part 15B, CISPR 32 (EN55032 class A)
EMS	EN61000-4-2 (ESD) EN61000-4-3 (RS) EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS) EN61000-4-8 EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1

EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013.
IEC 60950-1:2005 Second Edition) + Am 1:2009 + Am 2:2013.

Summary of compliance with National Differences: EU Group Differences, EU Special National Conditions, AT, AU, BE, CA**, CH, CN*, CZ, DE**, DK, ES, FI**, FR, GB, GR, HU, IL, IT, KR**, NL, NO, PL, SE, SG, SI, SK, US.

Compliance):

FCC Part 15, CISPR (EN55022) class A,
EN61000-4-2 (ESD), EN61000-4-3 (RS),
EN61000-4-4 (EFT),
EN61000-4-5 (Surge),
EN61000-4-6 (CS),
EN61000-4-8, EN61000-4-11, IEC60068-2-32 (Free fall),
IEC60068-2-27 (Shock),
IEC60068-2-6 (Vibration)

Safety: EN60950-1

Power Supply Specifications

Power supply options are TN PN 25130 and TN PN 25135. Specs are provided below (subject to change).

25130 Features and Specifications

Features

- Variable AC input range
- Protected against Overload and Over Voltage
- Convection air cooling
- DIN rail mountable
- UL 508 approved
- Full load burn in test
- RoHS Compliant
- MTBF 301.7Khrs

Specifications

Output:

- Output Voltage: 48VDC
- Current Rating: 0.83A
- Power Rating: 39.8 Watts
- Ripple & Noise Max: 200mVp-p
- Voltage Range: 48~56VDC
- Voltage Tolerance: ±1.0%
- Line Regulation: ±1.0%
- Load Regulation: ±1.0%
- Setup, Rise Time: 500ms, 30ms
- Hold Up Time: 20ms/115VAC

Input:

- Voltage Range Switch Selectable: 88~264VAC,
- 120~370VDC
- Frequency Range: 47~63Hz
- Efficiency: 88%
- AC Current (Typical): 1.1A@115VAC, 0.7A@230VAC
- Inrush Current (Cold): 30A@115VAC, 60A@230VAC
- Leakage Current: <1mA@240VAC
- Protection Overload: 105~150%
- Overvoltage: 57.6~64.8V

Dimensions:

- Width: 1.57” [40 mm]
- Depth: 3.94” [100 mm]
- Height: 3.54” [90 mm]

Environment:

- Operating Temp: -20°C to +70°C
- Storage Temp: -40°C to +85°C
- Humidity: 20% to 90% (non-condensing)
- Weight: 0.66 lbs. [0.3 kg]

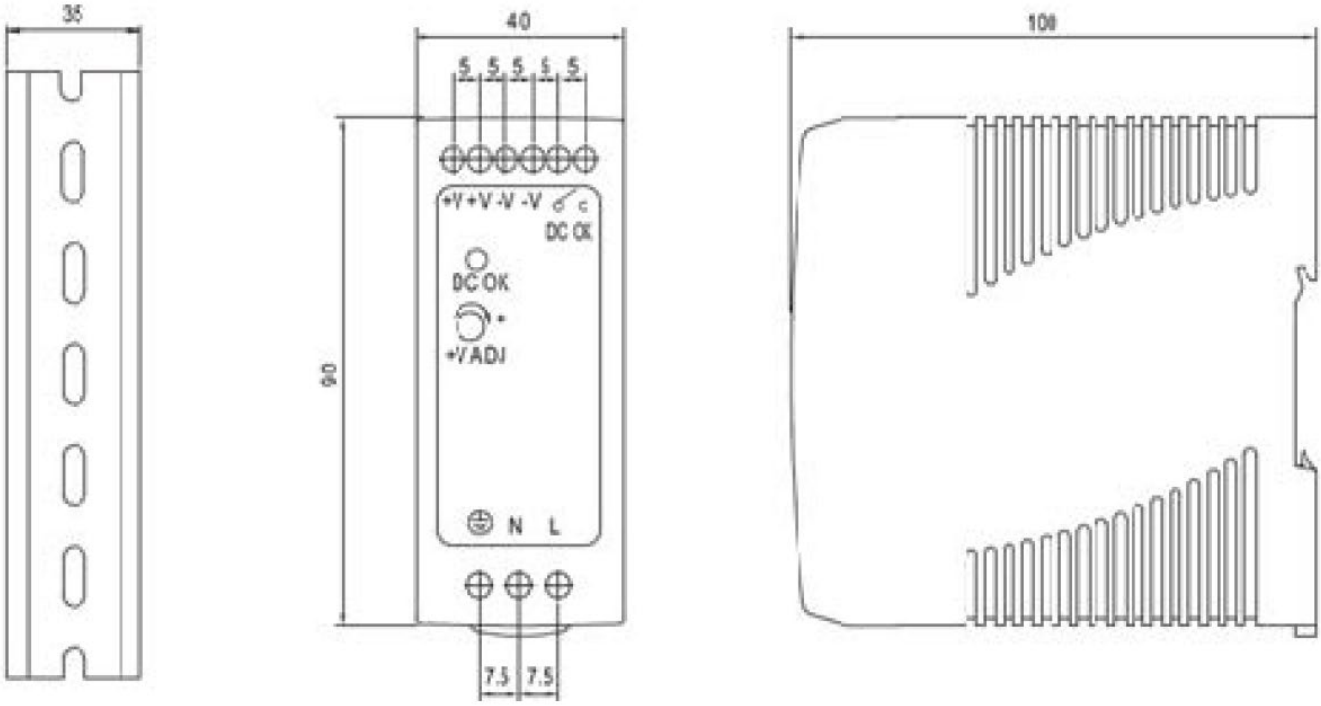
Compliance:

- Safety: UL508, TUV EN60950-1, NEC Class 2, LPS Compliant, UL60950-1, EN55011, EN55022,
- CISPR22, EN61204-3 Class B,
- EN61000-3-2, EN61000-3-3, EN61000-4-2,
- EN61000-4-3, EN61000-4-4, EN61000-4-5,

- EN61000-4-6, EN61000-4-8, EN61000-4-11,
- EN55024, EN61000-6-2, EN50082-2, EN61204-3 A,
- IEC60068-2-6 (Vibration)

Warranty: Lifetime

25130 Dimensions



25135 Features and Specifications

Features

- Universal AC input range
- Protected against Overload and Over Voltage
- Convection air cooling
- DIN Rail mountable
- UL 508 approved
- Full load burn in test
- RoHS compliant
- MTBF 584Khrs
- Lifetime warranty

Output

Voltage: 24VDC
Current Rating: .42A
Power Rating: 10 Watts
Ripple & Noise Max: 150mVp-p
Voltage Tolerance: ±2.0%
Line Regulation: ±1.0%
Load Regulation: ±2.0%
Setup, Rise Time: 1000ms, 30ms
Hold Up Time: 25ms/115VAC

Input

Voltage Range: 85~264VAC, 120~370VDC
Frequency Range: 47~63Hz
Efficiency: 84%
AC Current (Typical): .33A@115VAC
.21A@230VAC
Inrush Current (Cold): 35A@115VAC
70A@230VAC
Leakage Current: <1mA@240VAC

Protection

Overload: 105% Rated Output
Overvoltage: 27.6~32.4V

Dimensions

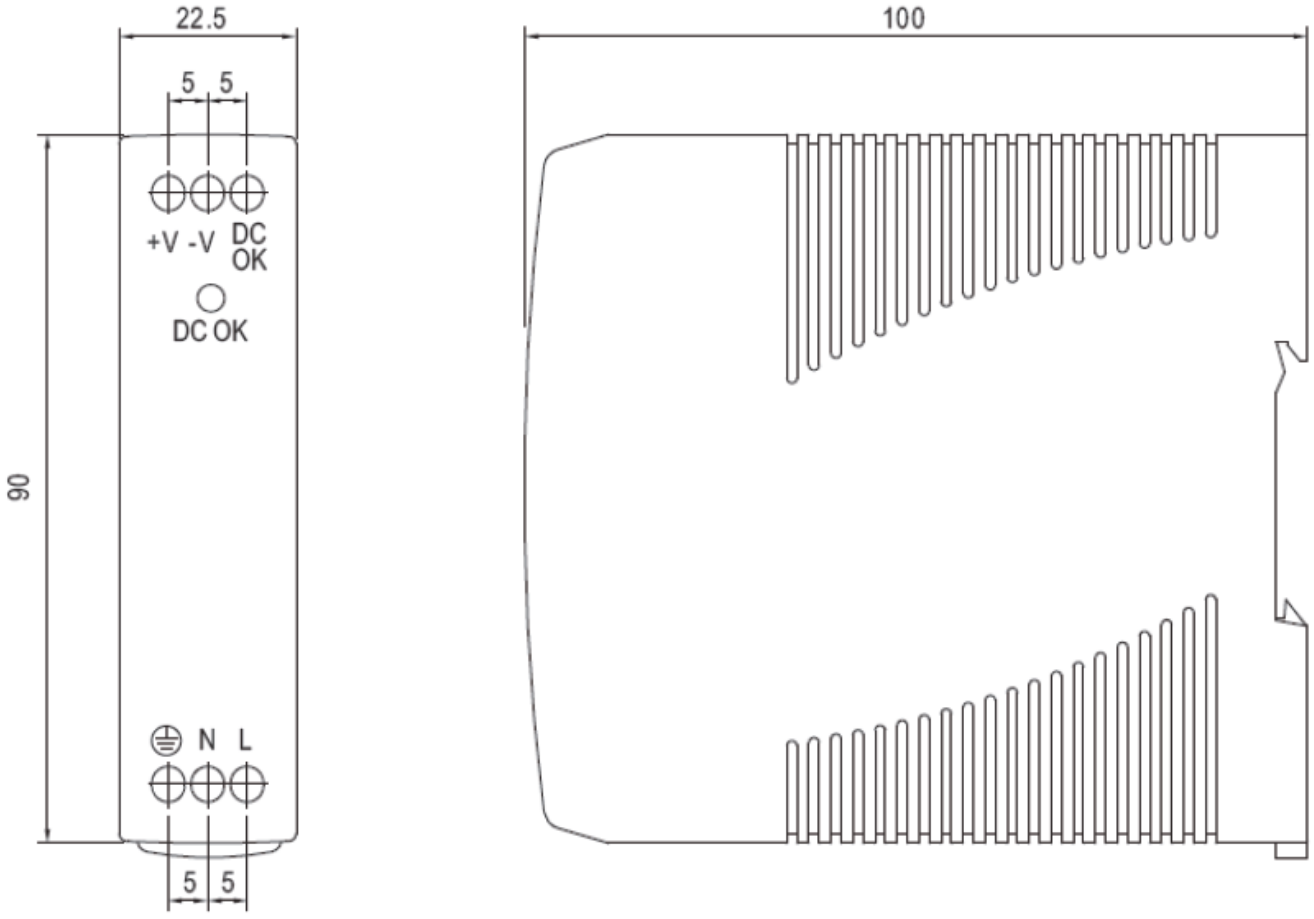
Width: 0.89” [22.5 mm]
Depth: 3.94” [100 mm]
Height: 3.54” [90 mm]

Environment

Operating Temp: -20°C to +70°C
Storage Temp: -40°C to +85°C
Humidity: 20% to 90% (non-condensing)
Weight 0.37 lbs. [0.17 kg]

Compliance
Safety: UL508, TUV EN60950-1,
NEC Class 2/LPS
EMC Emissions: EN55011, EN55022, CISPR22,
EN61204-3 Class B, EN61000-3-2,
EN61000-3-3
EMC Immunity: EN61000-4-2, EN61000-4-3,
EN61000-4-4, EN61000-4-5, EN61000-4-6,
EN61000-4-8, EN61000-4-11, EN55024,
EN61000-6-1, EN61204-3 A
IEC60068-2-6 (Vibration)

25135 Dimensions



6. Troubleshooting

This section lists some common problems, their causes, and potential recovery steps. **Note** that any unauthorized repairs or modifications will void the SDS warranty.

6.1 FAQs

Q1. What is meant by “5 x redundant hosts”? Does it mean 5 x serial port device?
A1. “5 x redundant host” mean the maximum number of connections is 5 redundant host PCs connect via Ethernet to the SDS device, with 5 redundant host PCs (VCOM, TCP server, TCP client; or 4 redundant host PCs in UDP mode.

Q2. Can you explain the "Auto Scan" button?
A2. When you click the “Auto Scan” button, the system will automatically scan ports 4000 to 65535, and check which port is free. For example, if port 4000 is free, the control port number will be set to 4001.

Q3. What is the UDP mode used for?
A3. UDP mode is different from TCP mode; UDP does not need to establish connection for data transmission. A UDP listening port is just for receiving data from the network. If you send data to a UDP listening port, it is used for receiving. If you want to send data to a destination host, you can write data to the serial port, and the data will be sent to the destination host and port.

Q4. What is the "Disconnect" button used for?
A4. The Disconnect button lets you manually disconnect the TCP client connection from the TCP Server.

Q5. On initial install I get an “unsigned driver” message. What does it mean and is it OK to proceed?
A5. When you connect a new hardware device to your computer, Windows tries to find and install a software driver for the device. You may see a notification that a driver is unsigned.
► Windows will alert you with a message if a driver is unsigned, was signed by a publisher that hasn't verified its identity with a certification authority, or has been altered since it was signed and released. For example, the message ***Windows requires a digitally signed driver*** displays if a driver lacks a valid digital signature, or was altered after it was signed, can't be installed on 64-bit Windows.

6.2 Procedure

If the SDS device fails, isolate and correct the failure by performing the following steps.

1. If the SDS does not turn on and no LEDs light, then the SDS or the power source may be damaged, or the SDS does not have power. Make sure that the power source is properly connected to the SDS. Make sure the power adapter is connected to a functioning electrical outlet.

2. Verify the steps in section 3.4 Wiring on page 16. Verify the steps in section 3.5 Connection on page 17. See section 2.1.4 LED Descriptions on page 10 for LED information.

3. If the SDS does not respond even though it is functioning. Verify that the SDS is powered up; the serial cable is correct and undamaged, and that the serial port settings are correct. Verify the cable pinouts, try a different serial cable, and then try a different port on the SDS.

4. Check recent notifications. See Notification tab on page 28 or 4.2.5 on page 43.

5. If the SDS is not discovered, verify that the PWR LED is lit. If the Status LED is not lit, check the firmware version. If the SDS firmware has been upgraded from the factory default, reset the SDS to its factory defaults. Cycle power on the box and wait approximately 30 seconds. Verify that the SDS and the PC are on same subnet.

6. If the Web browser does not display, check the Web connection. Verify that a supported browser being used. If not, install and use a supported browser. Use Ping to verify the connection. If ping fails, verify that the subnet mask, Gateway address, and IP address are OK. Correct the PC setup and then retry. If ping is OK, check if IE is set up to use a proxy server. If so, disable the proxy server and retry.

7. Make sure that the application is set to use the correct COM port number. Verify that the COM port(s) shows up in the PC's Device Manager.

8. If you are having problems with changing the serial interface settings:

With a VCOM set up to a serial port, and a DB9 cable connected to a serial device, changing the interface type (e.g., from RS232 to RS422) will hang the SDS unit. The unit can be pinged but will not connect to the SDS-Manager or the web. The SDS unit must be power reset to restore the connection. This occurs if the change is made from the SDS-Manager or the Web UI.

Once a VCOM connection has been set up, do not make serial port changes.

For reference, once you have a VCOM set up to a serial port, a DB9 cable connected to a serial device and an application running over the VCOM connection, changes to the serial settings are blocked by the software.

After a Virtual COM has been mapped to a port, changes to the serial settings of that port (e.g., from RS232 to RS422) should not be made.

9. Check the TN website for updated firmware; upgrade if available. See Upgrade Firmware tab on page 31.

10. Record model information (see below) and then Contact Tech Support (see below).

7. Compliance and Safety Information

7.3 Compliance Information

FCC Regulations

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numériqué de la classe A est conformé à la norme NMB-003 du Canada.

CE Marking

This is a Class A product. In a domestic environment, this product could cause radio interference; as a result, the customer may be required to take adequate preventative measures.

UL Listed Power Supply

The Power Supply is tested and recognized by the Underwriters Laboratories, Inc.

EU Declaration of Conformity

EU Declaration of Conformity

SDSTX3110-121-LRT-B and SDSTX3110-124-LRT-B
Model/Part Number

Transition Networks, Inc.
10900 Red Circle Drive, Minnetonka, Minnesota 55343 U.S.A.
Manufacture's Name and Address

This declaration of conformity is issued under the sole responsibility of the manufacturer.

SDSTX3110-121-LRT-B Serial Device Server
SDSTX3110-124-LRT-B Serial Device Server
SDSTX3110-121S-LRT Serial Device Server

are in conformity with the relevant Union harmonisation legislation:

Electromagnetic Compatibility (EMC) Directive 2014/30/EU: EN 55022:2010, EN 55024:2010
Low-Voltage Directive (LVD) 2014/35/EU: EN 60950-1:2006

And hereby is declared compliant and carries the CE marking

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s).

Minnetonka, Minnesota — Place
September 22, 2017 — Date
Signature
Stephen Anderson — Full Name
Vice President of Engineering — Position

European Regulations

WARNING: This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate measures.

Achtung ! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fäll ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention ! Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées.

In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Lantronix will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.

CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.*

7.4 Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using this product in such an application without express written consent of an officer of Lantronix does so at their own risk and agrees to fully indemnify Lantronix for any damages that may result from such use or sale.

 **Attention**: this product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.

 **Warning**: Potential for damage to equipment or personal injury.

 **Warning**: Risk of Electrical Shock

 Functional grounding point

 Protective grounding point

 Special considerations

7.5 Electrical Safety Warnings

Electrical Safety

IMPORTANT: This equipment must be installed in accordance with safety precautions.

Elektrische Sicherheit

WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

Elektrisk sikkerhed

VIGTIGT: Dette udstyr skal 97nstallers I overensstemmelse med sikkerhedsadvarslerne.

Elektrische veiligheid

BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

Sécurité électrique

IMPORTANT : Cet équipement doit être utilisé conformément aux instructions de sécurité.

Sähköturvallisuus

TÄRKEÄÄ : Tämä laite on asennettava turvaohjeiden mukaisesti.

Sicurezza elettrica

IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

Elektrisk sikkerhet

VIKTIG: Dette utstyret skal 97nstallers I samsvar med sikkerhetsregler.

Segurança eléctrica

IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

Seguridad eléctrica

IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

Elsäkerhet

OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.

7.6 Encryption Registration Number

ERN # (Encryption Registration Number) R111839

Lantronix Corporate Headquarters

7535 Irvine Center Drive
Suite100
Irvine, CA 92618, USA

Toll Free: 800-526-8766
Phone: 949-453-3990
Fax: 949-453-3995

Technical Support
Online: http://www.transition.com/support.

Sales Offices
For a current list of our domestic and international sales offices, go to the Lantronix web site at www.lantronix.com/about/contact.