Serial over Ethernet Device Server

User's Manual

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Serial over Ethernet Device Server

User's Manual

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Safety Information

1. Keep this User's Manual for future reference.
2. Always read the safety information carefully.
3. Keep this equipment away from direct sunlight, or in humid or damp places.
4. Do not place this equipment in an unstable position, or on vibrating surface before setting it up.
5. Do not use or place this equipment near magnetic fields, televisions, or radios to avoid electronic interface that affects device performance.
6. Do not attempt to disassemble or repair the equipment or the warranty would be useless.
7. To avoid damaging your system and equipment, please make sure that your computer is off before you install the product.

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1.
Introduction

Thank you for purchasing the Serial over Ethernet Server, which is designed to enable users accessing serial devices anywhere over LAN or the Internet. Serial over Ethernet Server allows users to continue using RS-232, or RS-422/485 serial communications software that was written for pure serial communications applications. It is the best and most economical solution to instantly convert your commercial or industrial serial devices to be internet ready.

The following topics are covered in this chapter:

- **Overview**
- **Package Checklist**
- **Product Features**
- **Product Specifications**

Overview

Serial over Ethernet Servers are designed to easily network your current serial devices. It provides a convenient and economical solution not only to protect your current hardware investment, but also to ensure future network expandability. With Serial over Ethernet Server, users can centralize serial devices and distribute the management hosts at the same time.

Serial over Ethernet Server supports Real COM mode for users to easily use the existing Windows based serial software or API to communicate with serial devices over an Ethernet LAN structure. With this feature, user allows communications with the connected serial device in the same manner as a device connected to the COM port on a PC. This excellent feature preserves your software investment and lets you enjoy the benefits of networking your serial devices instantly.

Serial over Ethernet Server equips with 1, 2 or 4 ports high speed asynchronous RS-232 or RS-422/485 standard serial ports which accessed through DB-9 male or RJ45 female connectors. It has built-in one 10/100 Mbps Ethernet RJ-45 connection with auto-select 10BaseT or 100BaseTX feature. SLAN also provides a reliable and high-speed connection for serial devices to an Ethernet LAN/WAN communication and supports total 1 Mbps bandwidth sharing for all serial ports. It is suitable for connecting different devices for remote data polling, event handling or data transferring via Ethernet in different serial ports.

Serial over Ethernet Server supports automatic IP configuration protocols (DHCP) and manual configuration via SLAN Utility or serial console. With user friendly Windows based SLAN Utility, user can configure the parameters, server monitor, and COM port monitor easily and simultaneously. As well we provide port re-direction driver for use in the Linux based system. In conclusion, Serial over Ethernet Server series equips not only powerful hardware structure, but as well versatile software utility for users to easily operate and satisfy most kind of applications.

Package Checklist

Please check if the following items are present and in good condition upon opening your package. Contact your vendor if any item is damaged or missing.

Standard Accessories:

1. Multi-port (1, 2, or 4) Serial over Ethernet Server × 1
2. CD Driver
3. Quick Installation Guide
4. User's Manual (This document)

Optional Accessories:

1. RS-232 Console Cable
2. Power Adapter 12V / 1A, 2.1mm,
3. Wall Mount Kit
4. DIN-Rail Mount Kit
5. Rubber foot stub / R Screw

Wall Mount Kit

DIN-Rail Mount Kit

R Screw / Rubber foot stub

Product Features

- 1 / 2 / 4 independent RS-232 or RS-422/485 Serial ports.
- Single-chip SUN8989 controller design for high efficiency and reliability.
- Maximum Transmission bandwidth of 1Mbps shared by each serial port.
- One 10/100M auto-detect Ethernet Port with Integrated 10/100 PHY.
- Easy setup and configuration with user-friendly Windows SLAN Utility.
- Ideal networking current serial devices with existing software or API.
- Firmware upgradeable through Ethernet and Windows SLAN Utility.
- Built-in watchdog timer to prevent system lockup.
- Each device could be shared by the different hosts.
- Supports DHCP client to get IP configuration automatically from a LAN.
- Supports Real COM mode and serial console for configuration.
- Protocol supports for ICMP, IP, TCP, and DHCP.
- Automatic RTS Signal Control (ARSC™) technology for RS-485 signal direction control. *(Note)*
- Supports Auto Detect and Switch RS-422 and RS-485. *(Note)*
- RTS/CTS± Handshaking Communication mode for RS-422/485. *(Note)*
- Built-in termination resistors to avoid cross-talking. *(Note)*
- Optical Isolation (2.5K Voltage) provides protection against damage from static electrical charge. *(Optional)*
- Surge protection (600 Watts) provides clamping capability against surge damage from high energy spike. *(Optional)*
- SLAN Utility supports Microsoft Windows 98SE, Me, NT, 2000, XP, and 2003 operation system.
- Port Re-Director driver supports Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora) Kernels.
- Operation temperature: 0 to 60 ℃ & Storage Temperature: -20 to 85℃

***** *(Note)* icon means that this feature only built-in for RS-422/485 or 3-in-1 RS-232/422/485 Serial over Ethernet Server models.

*****(Optional)* icon means that this feature only built-in certain Serial over Ethernet Server SI models with Surge or Isolation protection.

Product Specifications

◆ RS-232

● Serial Communication

Type	Serial over Ethernet RS-232 Device Server
Interface	RS-232
No. of Port	1, 2, or 4 ports *(Depend on product)*
Port Type	DB9 Male or RJ45 Serial ports
Signal	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
Baud rate	300bps ~ 921.6 Kbps 1 Mbps bandwidth shared by each serial port
Data bit	5,6,7,8
Stop bit	1,1.5,2
Parity	even, odd, none, mark, space
Flow Control	None, Xon/Xoff, Hardware
Protection	2KV ESD protection for all signal *(Standard)*
	2.5KV Isoation Protection for all signal *(Optional)*
	600W Surge Protection for all signal *(Optional)* *Maximum clamping voltage 24.4 V *Peak pulse current 24.6 A

● LAN

Ethernet	10/100 Mbps, Auto-select 10BaseT or 100BaseTX
Connector	RJ45
Protection	1.5KV Magnetic Isolation

● Software

Protocols	ICMP, IP, TCP, and DHCP
Utility / Driver	SLAN Utility for Microsoft Windows based O.S. Windows 98SE / ME / 2000/ XP / 2003
	Port Re-Director Driver for Linux based O.S. Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels.
Real COM / TTY	Microsoft Windows 98SE / ME / 2000/ XP / 2003, Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels
Configuration	SLAN Utility, Serial Console

- **Power**

Input Power Voltage	12 VDC External Power, *(Standard)* DC Jack Type
	12~48 VDC External Power, *(Optional)* Terminal Block Type
Protection	Reverse Power Protection *Protects against V+ & V- reverse protection
	2.5KV Isloation protection *(Optional)*
Power Consumption	4 ports Model: 500mA 2 ports Model: 300mA 1 ports Model: 250mA *(at 12V level)*

- **LED Indicate**

Power	Power LED steady on when power in
Serial Status	Serial Port LED blinking when data transmission
LAN	Speed LED steady on when 100M LAN in Full-duplex LED light when full-duplex transmission

- **Dimensions**

Dimensions (W × D × H)	4 ports SLAN : 189 x 106 x 32 mm (with Mounting Kit) 165 x 106 x 32mm 2 / 1 ports SLAN : 144 x 90 x 24 mm (with Mounting Kit) 120 x 90 x 24 mm

- **Regulatory Approvals**

Regulatory Approvals	CE, FCC

- **Operation Environment**

Operation Temperature	0 to 60 ℃
Operation Humidity	5 to 95% RH
Storage Temperature	-20℃ to 85℃

◆ RS-422/485

● Serial Communication

Type	Serial over Ethernet RS-422/485 Device Server
Interface	RS-422 or RS-485
No. of Port	1, 2, or 4 ports *(Depend on product)*
Port Type	DB9 Male or RJ45 Serial ports
RS-422 Signal	TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND
RS-485 Signal	Data+/-, RTS+/-, CTS+/-, GND
Baud rate	300bps ~ 921.6 Kbps 1 Mbps bandwidth shared by each serial port
Data bit	5,6,7,8
Stop bit	1,1.5,2
Parity	even, odd, none, mark, space
Flow Control	None, Xon/Xoff, Hardware
RS-485 Signal Control	ARSC™ technology (Automatic RTS signal control)
Select RS-422/485	Auto Switch RS-422 & RS-485 technology
Protection	15KV ESD protection for all signal *(Standard)*
	2.5KV Isoation Protection for all signal *(Optional)*
	600W Surge Protection for all signal *(Optional)* *Maximum clamping voltage 24.4 V *Peak pulse current 24.6 A

● LAN

Ethernet	10/100 Mbps, Auto-select 10BaseT or 100BaseTX
Connector	RJ45
Protection	1.5KV Magnetic Isolation

● Software

Protocols	ICMP, IP, TCP, and DHCP
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Real COM / TTY	Microsoft Windows 98SE / ME / 2000/ XP / 2003, Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels
Configuration	SLAN Utility, Serial Console

- **Power**

Input Power Voltage	12 VDC External Power, DC Jack Type *(Standard)*
	12~48 VDC External Power, Terminal Block Type *(Optional)*
Protection	Reverse Power Protection *Protects against V+ & V- reverse protection
	2.5KV Isoation protection *(Optional)*
Power Consumption	4 ports Model: 500mA 2 ports Model: 300mA 1 ports Model: 250mA *(at 12V level)*

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- **Regulatory Approvals**

Regulatory Approvals	CE, FCC

- **Operation Environment**

Operation Temperature	0 to 60 ℃
Operation Humidity	5 to 95% RH
Storage Temperature	-20℃ to 85℃

◆ 3-in-1 RS-232/422/485

● Serial Communication

Type	Serial over Ethernet 3-in-1 Device Server
Interface	RS-232, RS-422 or RS-485
No. of Port	1, 2, or 4 ports *(Depend on product)*
Port Type	DB9 Male or RJ45 Serial ports
RS-422 Signal	TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND
RS-485 Signal	Data+/-, RTS+/-, CTS+/-, GND
Baud rate	300bps ~ 921.6 Kbps 1 Mbps bandwidth shared by each serial port
Data bit	5,6,7,8
Stop bit	1,1.5,2
Parity	even, odd, none, mark, space
Flow Control	None, Xon/Xoff, Hardware
RS-485 Signal Control	ARSC™ technology (Automatic RTS signal control)
Select RS-232/422/485	Select RS-232 & RS-422/485 mode by switch
	Auto Switch RS-422 & RS-485 technology
Protection	15KV ESD protection for all signal *(Standard)*
	2.5KV Isoation Protection for all signal *(Optional)*
	600W Surge Protection for all signal *(Optional)* *Maximum clamping voltage 24.4 V *Peak pulse current 24.6 A

● LAN

Ethernet	10/100 Mbps, Auto-select 10BaseT or 100BaseTX
Connector	RJ45
Protection	1.5KV Magnetic Isolation

● Software

Protocols	ICMP, IP, TCP, and DHCP
Utility / Driver	SLAN Utility for Microsoft Windows based O.S. Windows 98SE / ME / 2000/ XP / 2003
	Port Re-Director Driver for Linux based O.S. Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels.
Real COM / TTY	Microsoft Windows 98SE / ME / 2000/ XP / 2003, Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels
Configuration	SLAN Utility, Serial Console

- **Power**

Input Power Voltage	12 VDC External Power, *(Standard)* DC Jack Type
	12~48 VDC External Power, *(Optional)* Terminal Block Type
Protection	Reverse Power Protection *Protects against V+ & V- reverse protection
	2.5KV Isoation protection *(Optional)*
Power Consumption	4 ports Model: 500mA 2 ports Model: 300mA 1 ports Model: 250mA *(at 12V level)*

- **LED Indicate**

Power	Power LED steady on when power in
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- **Regulatory Approvals**

Regulatory Approvals	CE, FCC

- **Operation Environment**

Operation Temperature	0 to 60 ℃
Operation Humidity	5 to 95% RH
Storage Temperature	-20℃ to 85℃

2.

Hardware Installation

This chapter includes information about hardware installation and mechanical drawings for Serial over Ethernet Server. The following topics are covered:

- **Hardware Installation**
- **Mechanical Drawings**
- **Jumper Settings for 3-in-1 Serial over Ethernet Server**
- **Pin Assignments**

Hardware Installation

The hardware installation of Serial over Ethernet Server is easy to carry out. Follow the detailed steps given below to install the Serial over Ethernet Server on your system.

Safety First
To avoid damaging, make sure to discount power connection before wiring or disposing Serial over Ethernet Server.

Step 1: Select which mode you want to use, including “Wall Mount”, “DIN-Rail Mount” or “Rubber foot stub”. Fasten the holding screw and fix Serial over Ethernet Server in place firmly.

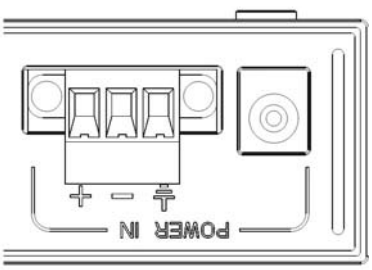
Step 2: Turn your serial device’s power off, and connect serial data cable to Serial over Ethernet Server’s serial port.

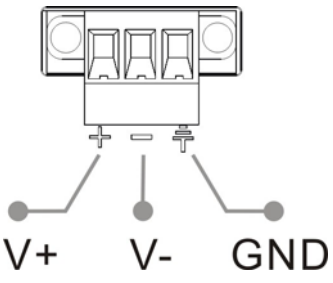
Step 3: Connect Ethernet cable to Serial over Ethernet Server’s LAN port and the other end of the cable to the Ethernet network.

Step 4: Connect the 12-48 VDC power line with terminal block or 12VDC power adapter into DC Jack on Serial over Ethernet Server’s power module.

NOTE:
1. 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. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

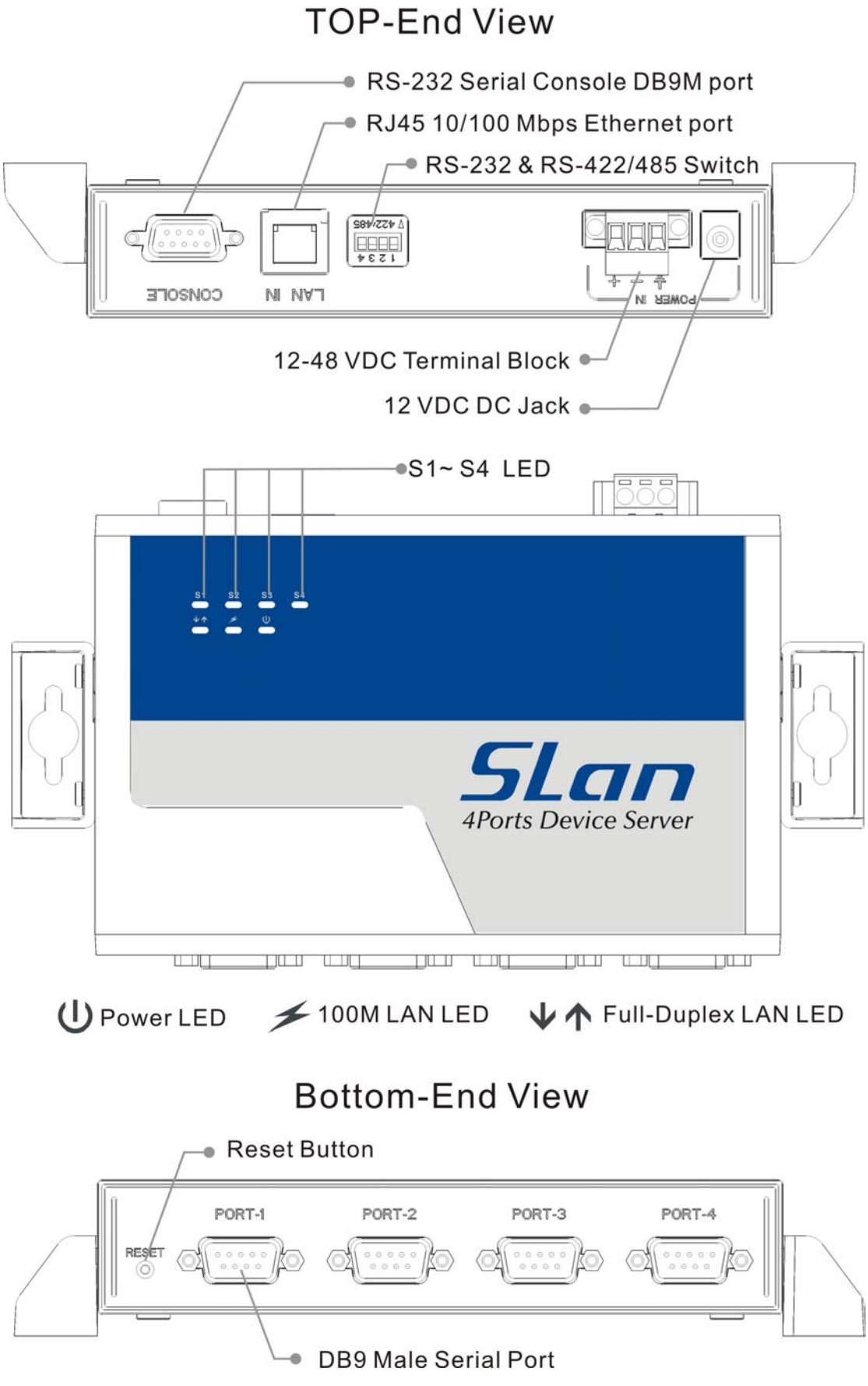
2. To limit the effects of noise for electromagnetic interface (EMI), please connect the shielded ground wire on first pin power terminal block to an appropriate grounded metal surface.



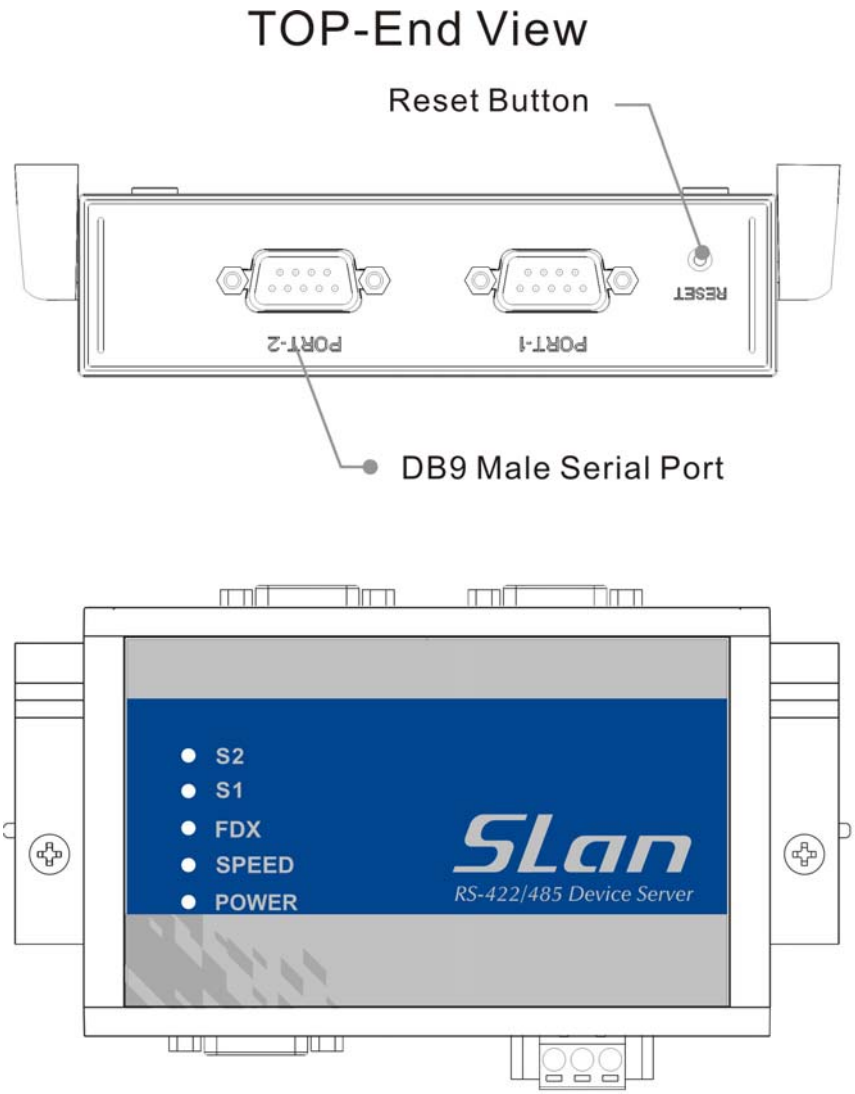


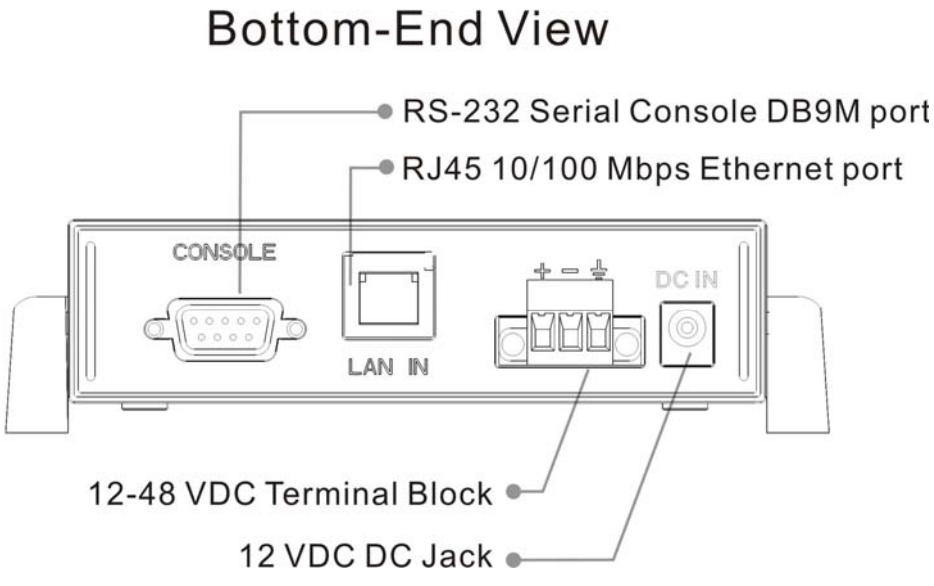
Mechanical Drawings of Serial over Ethernet Server

◆ **4 port Model**

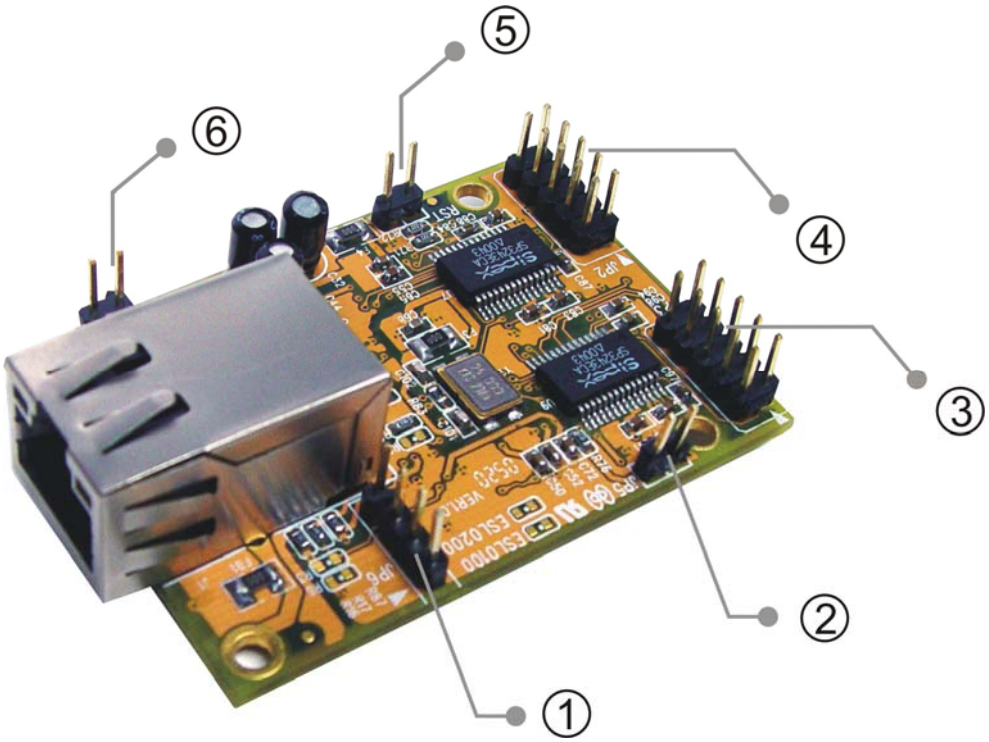


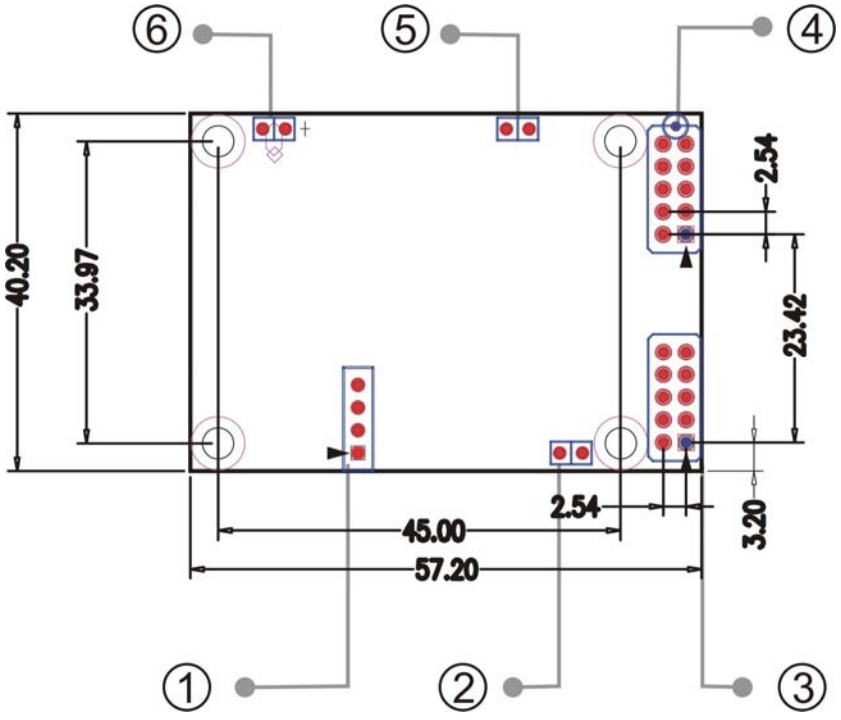
◆ **2 port Model**

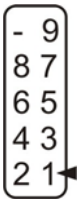

TOP-End View
Reset Button
RESET
PORT-1
PORT-2
DB9 Male Serial Port
S2
S1
FDX
SPEED
POWER
SLan
RS-422/485 Device Server
SPEED: 100M LAN LED FDX: Full-Duplex LAN LED


Bottom-End View
RS-232 Serial Console DB9M port
RJ45 10/100 Mbps Ethernet port
CONSOLE
LAN IN
DC IN
12-48 VDC Terminal Block
12 VDC DC Jack

◆ **Embedded Model**

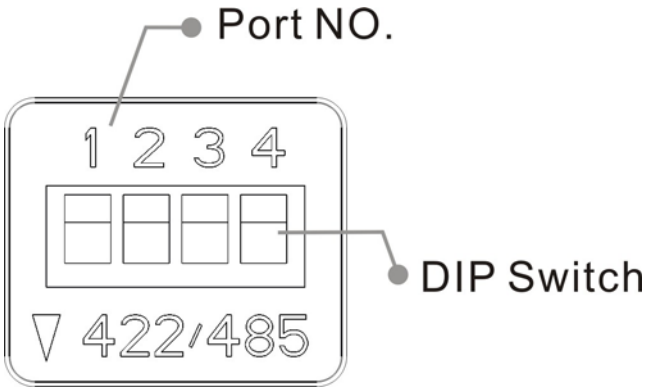




NO.	Function	Pin	Pin Assignment
①	Serial Console		1.RxD 2.TxD 3.NC 4.GND
②	Factory Using Only	_	_
③	Serial Port 2		**RS-232:** 1.DCD 2.RxD 3.TxD 4.DTR 5.GND 6.DSR 7.RTS 8.CTS 9.RI **RS-422:** 1.TxD- 2.TxD+ 3. RxD+ 4.RxD- 5.GND 6.RTS- 7.RTS+ 8.CTS+ 9.CTS- **RS-485:** 1. D+ 2.D- 5. GND 6.RTS- 7.RTS+ 8.CTS+ 9.CTS-
④	Serial Port 1		
⑤	Reset	-	
⑥	Power		5V 1A

Jumper Settings for 3-in-1 Serial over Ethernet Server

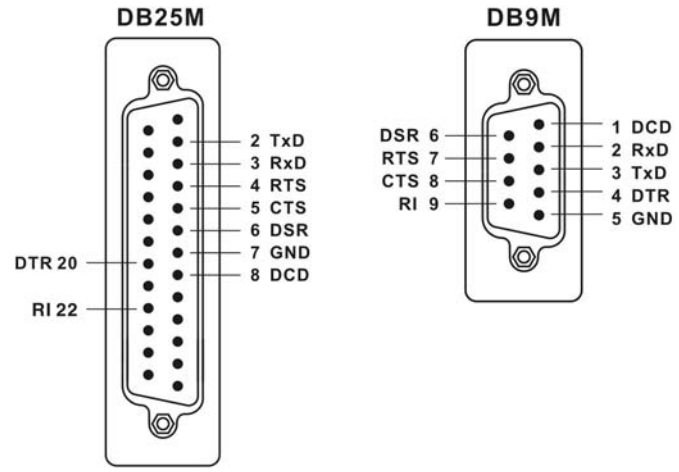
3-in-1 Serial over Ethernet Server equips RS-232 or RS-422/485 mode selection for each serial port by jumper setting. User can pull the DIP switch down for RS-422/485 mode or pull it up for RS-232 mode independently. Please refer to the following illustration.



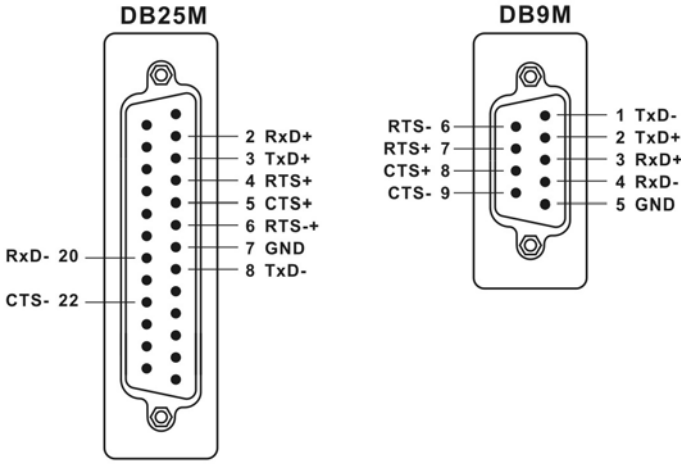
Serial over Ethernet Server has built-in RS-422/485 Auto Identify & Switch technology. It can automatically identify the state of RS-422 full-duplex or RS-485 half-duplex and control the data transceiver and receiver wires at the same port without selecting jumpers or switches anymore. It's more convenient for users to avoid shutting down Serial over Ethernet Server for jumpers or switches setting.

Pin Assignment

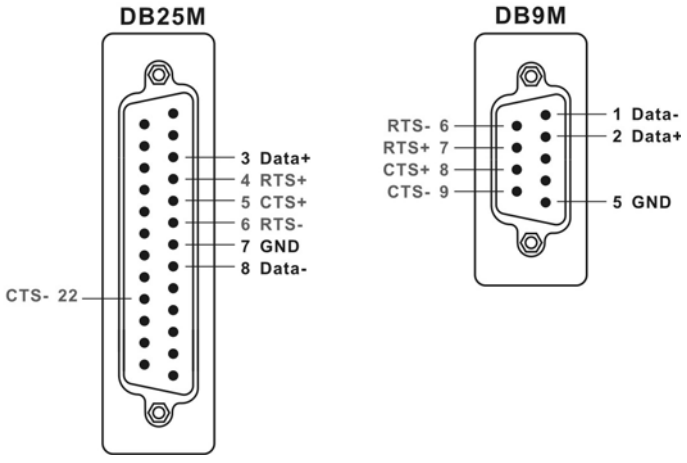
- **RS-232**



- **RS-422**



- **RS-485**



3.

Initial IP Configuration

The first thing you should do is configuring the IP address when using Serial over Ethernet Server at the first time. This chapter introduces the method to configure Serial over Ethernet Server's IP address.

The following topics covered in this chapter:

- **Factory Default Settings**
- **Initializing IP Address Settings**

Factory Default Settings

Serial over Ethernet Server is configured with the following factory default network settings:

Static IP Mode
IP Address: 192.168.1.1
Netmask: 255.255.255.0
Gateway: 192.168.1.254

Initializing IP Address Settings

The first thing you should do is configuring the IP address when using Serial over Ethernet Server at the first time. Please determine whether your Serial over Ethernet Server needs to use a Static IP or Dynamic IP mode, then you can use serial console or Ethernet mode to configure networking settings.

◆ Console Mode

Please using straight through RS-232 DB9F to DB9F cable connect between Serial over Ethernet Server's serial console port and PC's COM port then apply power to Serial over Ethernet Server. Please use the "Hyper Terminal" program to configure Serial over Ethernet Server's network settings. You can refer to chapter 4, serial console configuration for more detail and chapter8, Cable Wiring Diagrams section for more detail.

◆ Ethernet Mode

Please use cross-over Ethernet cable to connect the Serial over Ethernet Server directly to your computer's Ethernet card. Please configure your PC's network settings in the same subnet with Serial over Ethernet Server, such as setting 192.168.1.2 IP address on your computer. Then you can use the "SLAN Utility" program to configure Serial over Ethernet Server's network settings. You can refer to chapter 5, SLAN Utility configuration for more detail. Please refer to chapter8, Cable Wiring Diagrams section for more detail.

4.

Serial Console Configuration

This chapter introduces the configuration of Serial over Ethernet Server from serial console. Please follow the step by step configuration guide to confirm how to set and configure the Serial over Ethernet Server through serial console.

The following topics covered in this chapter:

- **Overview**
- **Default Settings**
- **Command List**
- **Configure Serial over Ethernet Server**
- **Change Network settings**
- **Change COM port Settings**
- **Display Settings**
- **Forget Password**

Overview

Before the Serial over Ethernet Server is installed on a LAN, the serial console mode for users easily configure Network settings and COM ports' setting from the defaults. The serial console port is configured as a DTE (data terminal equipment) device. All PC COM ports are DTE ports. A straight through cable is required to make a connection between the COM port on a PC and the Serial over Ethernet Server serial console port.

Default Settings

There is Serial over Ethernet Server's default settings as below.

Password	1234
Super password	s51gm2z (Load factory Default setting)
Network	Static IP Mode IP Address: 192.168.1.1 Netmask: 255.255.255.0 Gateway: 192.168.1.254
COM Port	Baud Rate: 9600 bps Data bits: 8 Parity bits: None Stop bits: 1 Flow Control: None

Command List

Command	Function
D	Display Configuration
V	Check firmware version and Model number
M	Back to main menu
S 0	Modify Network Settings
S	Modify COM Port Settings
X MAC	Modify MAC Address
O2	Reset Serial over Ethernet Server

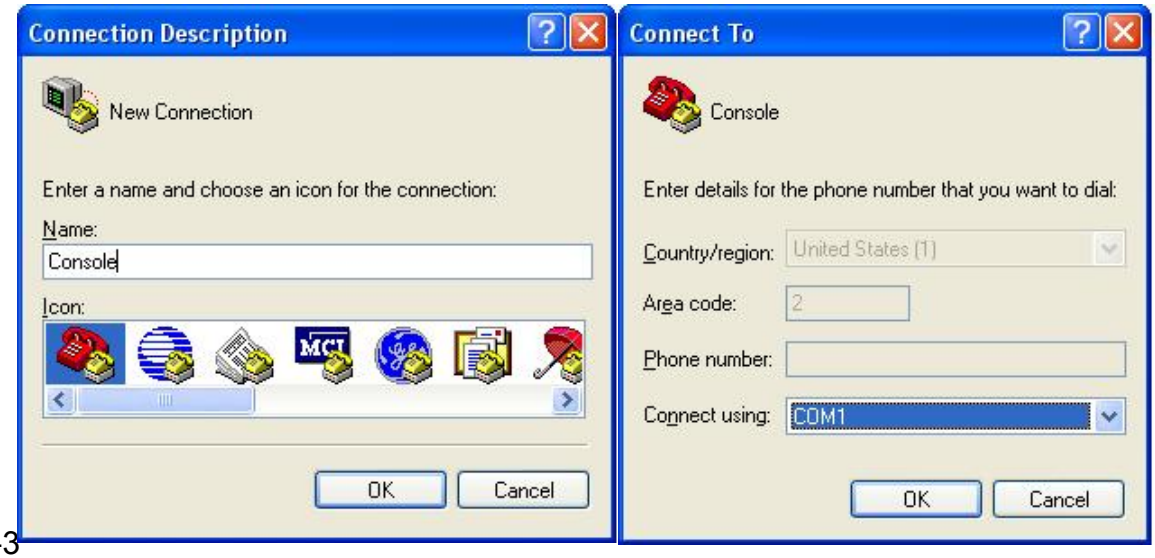
Configure Serial over Ethernet Server

Please using straight through RS-232 DB9F to DB9F cable connect between Serial over Ethernet Server's serial console port and PC's COM port then apply power to Serial over Ethernet Server. You can refer to chapter8, Cable Wiring Diagrams section for more detail.

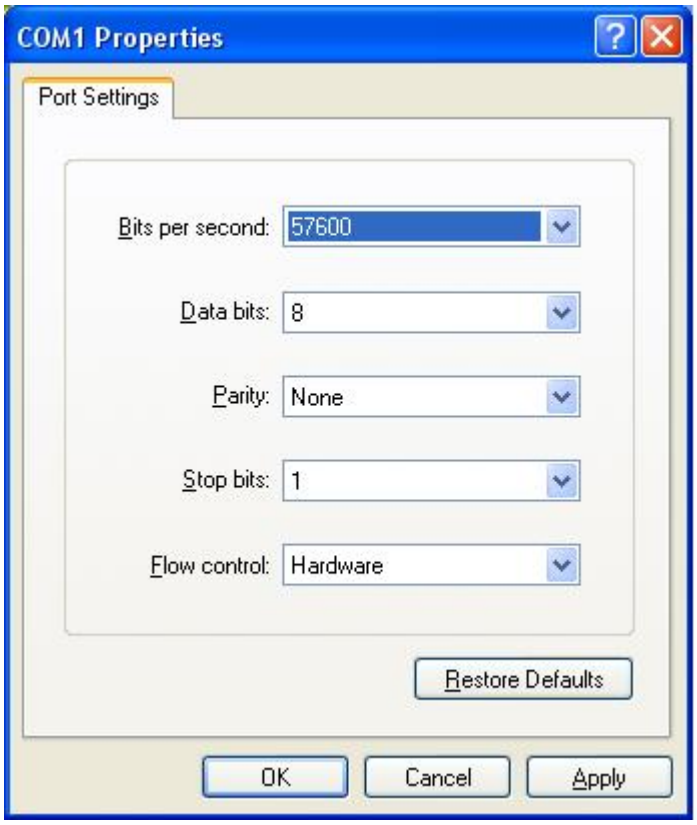
Please execute the "Hyper Terminal" program in your system firstly.

Start > Program > Accessories > Communications > Hyper Terminal

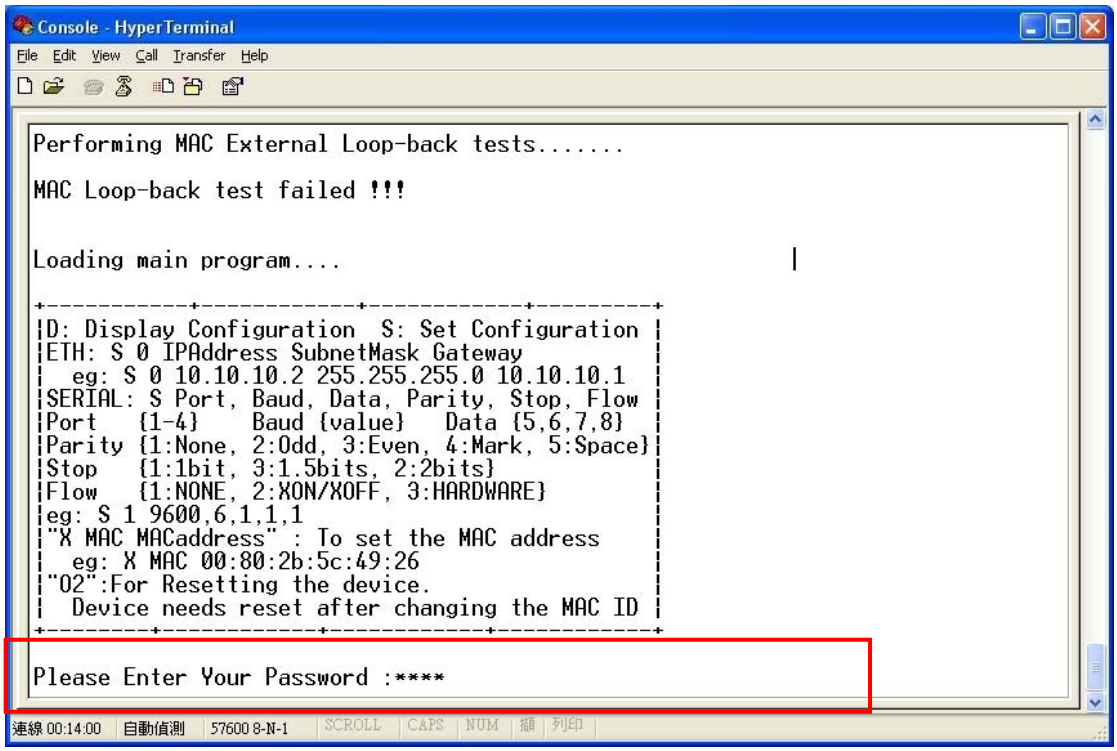
Enter "Console" as the project name. Press OK. Then select COM port number that Serial over Ethernet Server's serial console port connected.



Hyper Terminal open the connected PC COM port at a baud rate of **57600**, Data bits 8, Parity None, Stop bits 1, and Flow control None. Click “OK” to continue.

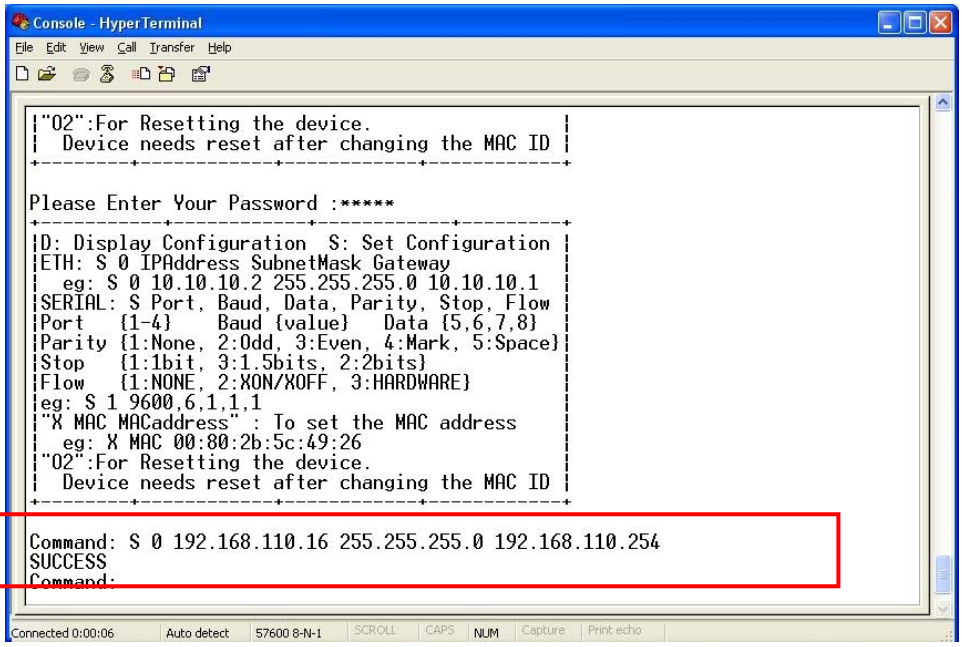
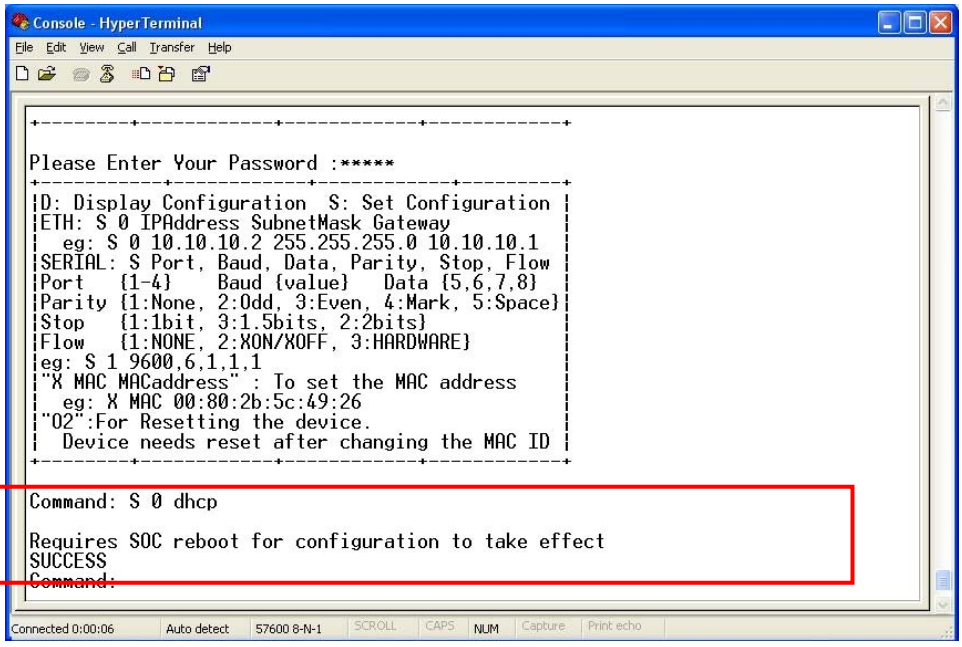


Press “**Enter**” to execute Serial over Ethernet Server console settings
Please enter default password: **1234**



Change Networking Settings

Change network settings to match your networking required firstly.
After entering password, please enter command code **S 0**.

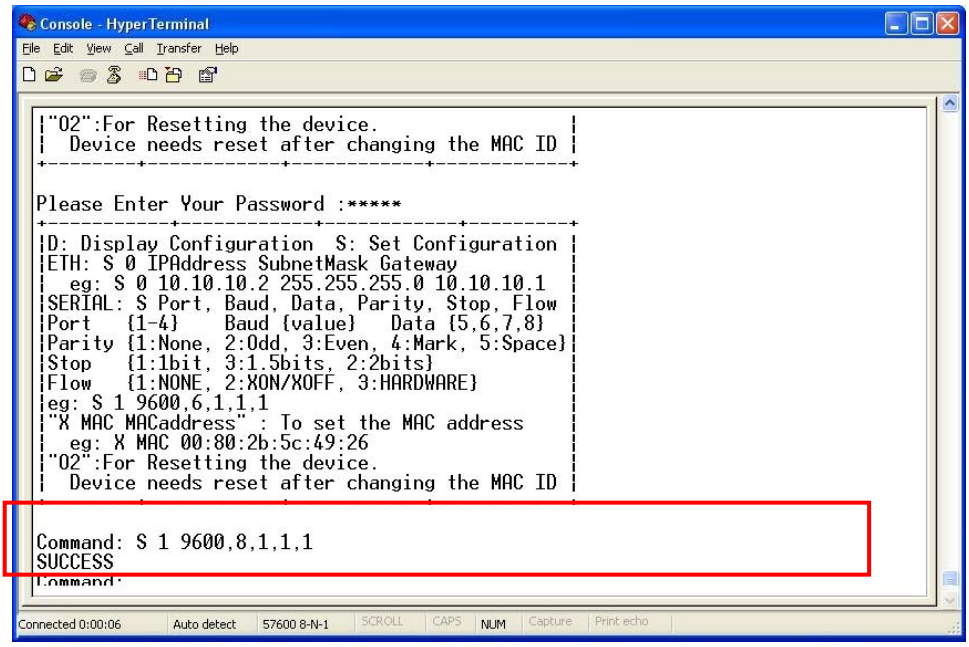
Function	Command
Static IP Address	***S 0 + IP Address + Netmask + Gateway*** ***S 0 192.168.110.16 255.255.255.0 192.168.110.254*** 
DHCP	**S 0 + *DHCP*** ***S 0 dhcp*** 

Enter **o2** for resetting Serial over Ethernet Server to execute configuration.

Change COM Port Settings

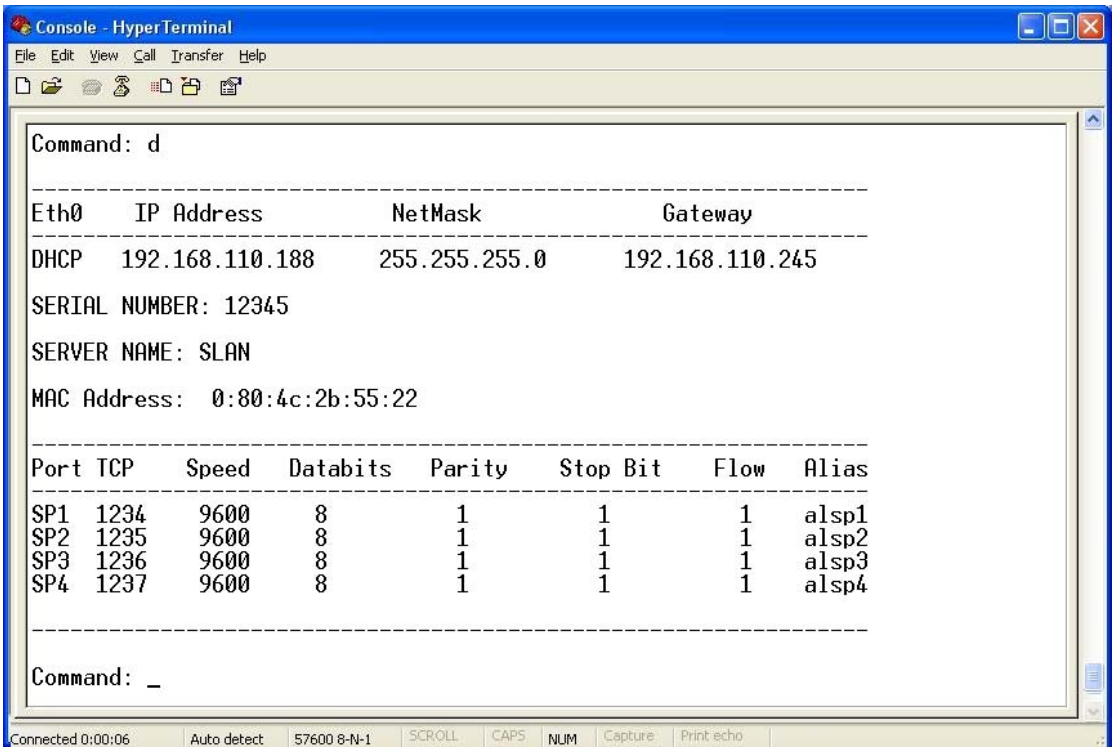
Change COM port settings to match your devices required. After entering password, please enter command code **S**.

Function	Parameters
Port Number	**1, 2, 3, 4**
Baud Rate	**300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600**
Parity	**1**=None, **2**=Odd, **3**=Even, **4**=Mark, **5**=Space
Data bits	**5, 6, 7, 8**
Stop bits	**1**=1, **2**=1.5, **3**=2
Flow Control	**1**=NONE, **2**= XON/OFF, **3**=Hardware

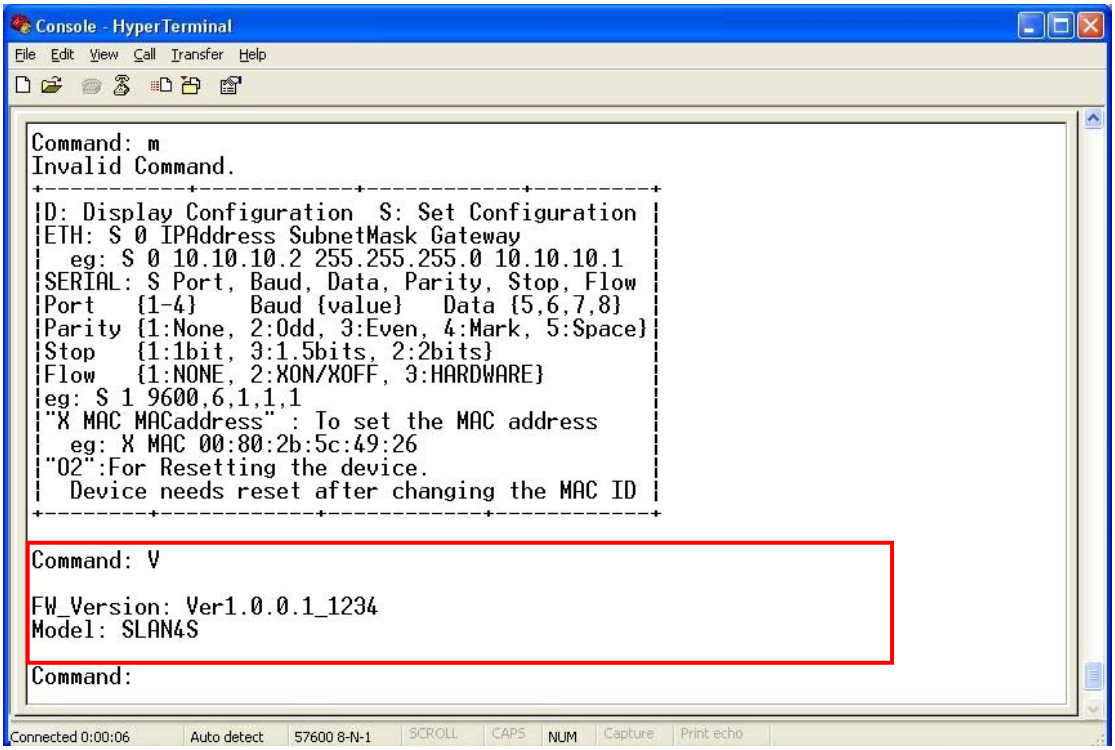
Function	Command
Port Settings	COM port : **1** Baud rate : **9600** Data bits : **8** Parity : None (**=1**), Stop bits : 1 (**=1**), Flow Control : None (**=1**). ***S + Port + Baud Rate , Data bits , Parity , Stop bit , Flow Control*** ***S 1 9600 , 8 , 1 , 1 , 1*** 

Display Settings

To display your Serial over Ethernet Server settings, enter command code **D**.



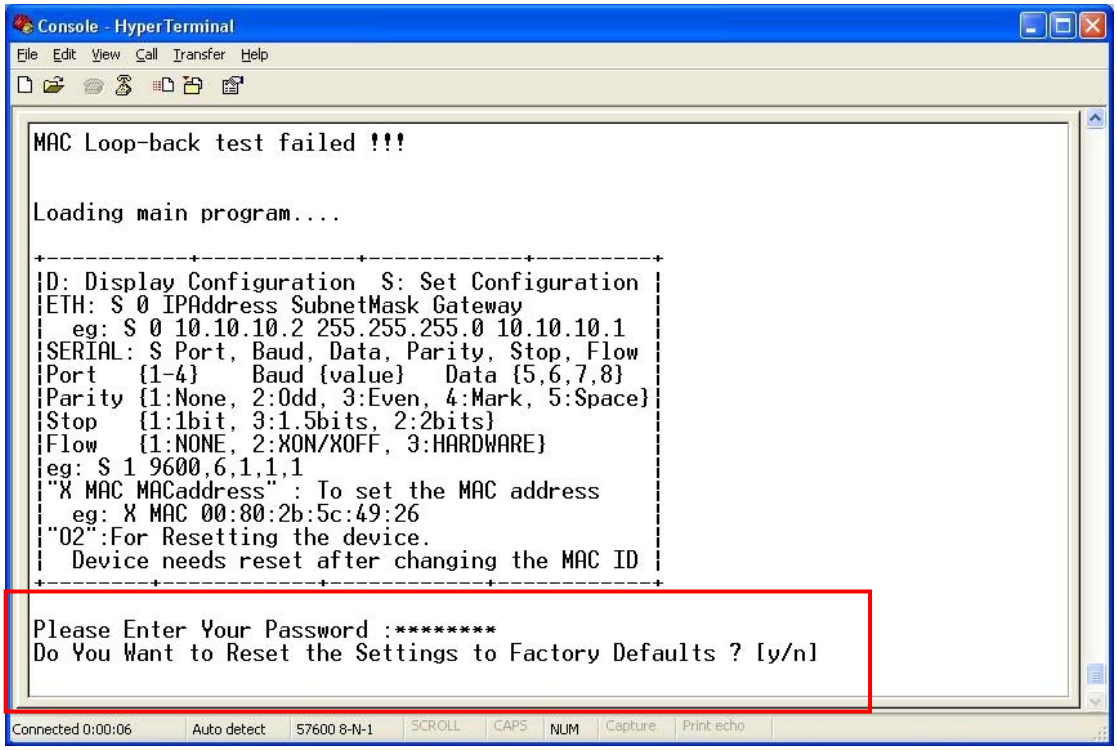
To display your Serial over Ethernet Server's firmware and model, enter command code **V**.



Forget Password

If you forget the password, the ONLY way to configure Serial over Ethernet is by using the serial console mode to load factory default settings.

Entry super password "**s51gm2z**" to restore factory defaults.



Entry "**Y**" to load factory default settings, then system will reboot automatically.

Please refer to Chapter 3 "Default Settings" section to confirm all initial parameters.

Note:

1. Please take care of the characteristic of password letters.
2. After executing load factory default settings, you will lose all configurations that you set before.
3. Super password can NOT use in Windows based SLAN Utility or Linux based Port Re-direction software. It works in serial console only.
4. User can not modify super password.

5.

SLAN Utility Configuration

This chapter introduces the installation and configuration of SLAN Utility software. Please follow the step by step software installation guide to confirm how to install appropriate software and configure the Serial over Ethernet Server through SLAN utility.

The following topics covered in this chapter:

- **Overview**
- **Installing SLAN Utility**
- **Uninstalling SLAN Utility**
- **Server Manager**
- **Server Monitor**
- **Port Mapping**
- **Port Monitor**

Overview

SLAN Utility provides server manager, server Monitor, port monitor and port mapping features for user easily controlling and configuring serial over LAN terminal server. Users can remotely manage, monitor, and modify your Serial over Ethernet server over network operation. SLAN Utility supports various operation systems, including Microsoft® Windows® 98SE, Me, NT, 2000, XP, and server2003.

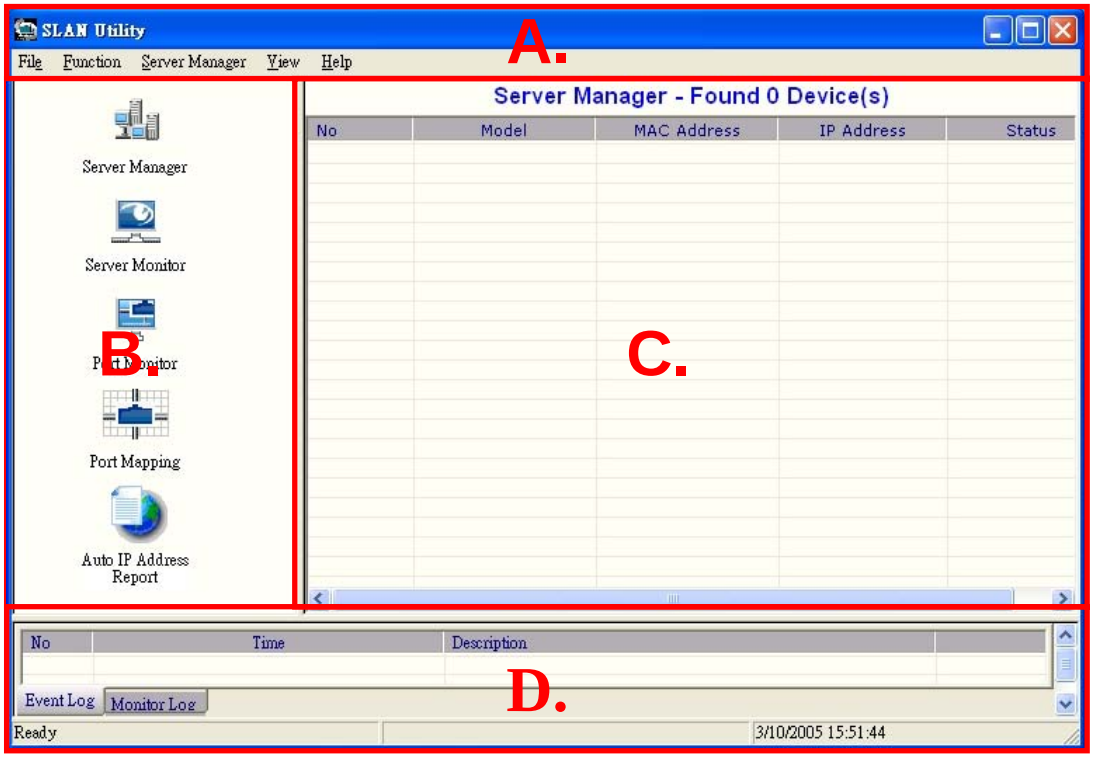
The SLAN Utility software is divided into four parts.

A. The top part is the function list and online help area.
(Windows NT does not support this .chm file format & hence help menu won't be functional under Win NT.)

B. The left part lists the main function groups.

C. The right part provides the SLAN list, which can be selected to process user requirements.

D. The bottom part is the Log area, which shows useful messages that record the user's processing history.

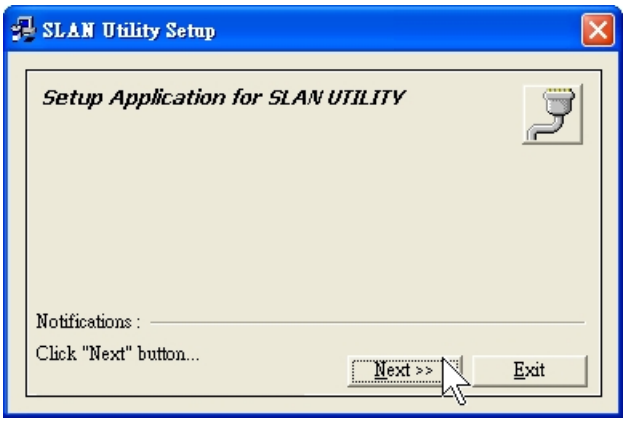


Installing SLAN Utility

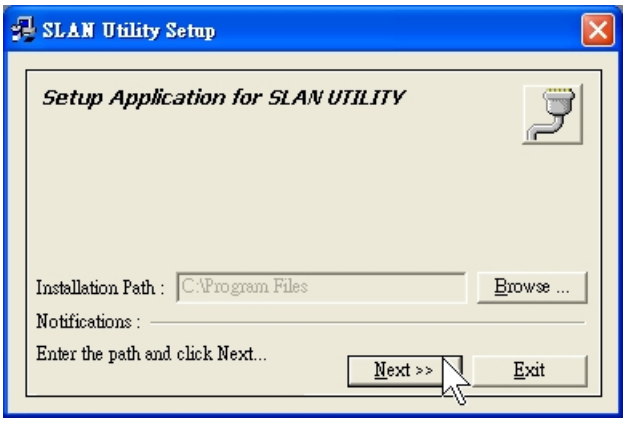
1. Please insert the CD driver as bound with your SLAN product into your CD/DVD ROM, and run the "**PortSetup.exe**" file locate within the CD driver.

: \ SLAN \ Software \ Windows \ PortSetup.exe

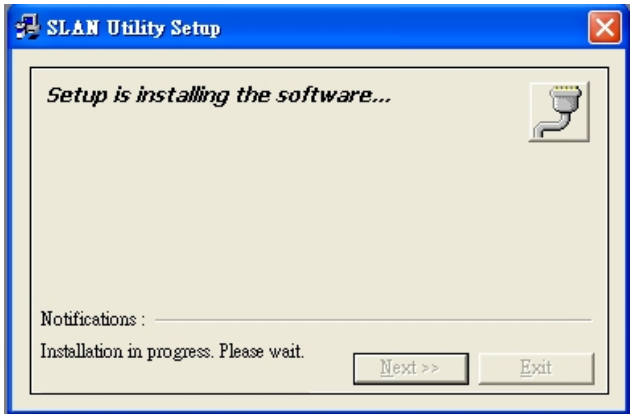
2. SLAN Utility Setup Application will pup-up, and click "**Next**" to continue.



3. Please select SLAN Utility installation path, and click "**Next**" to continue.

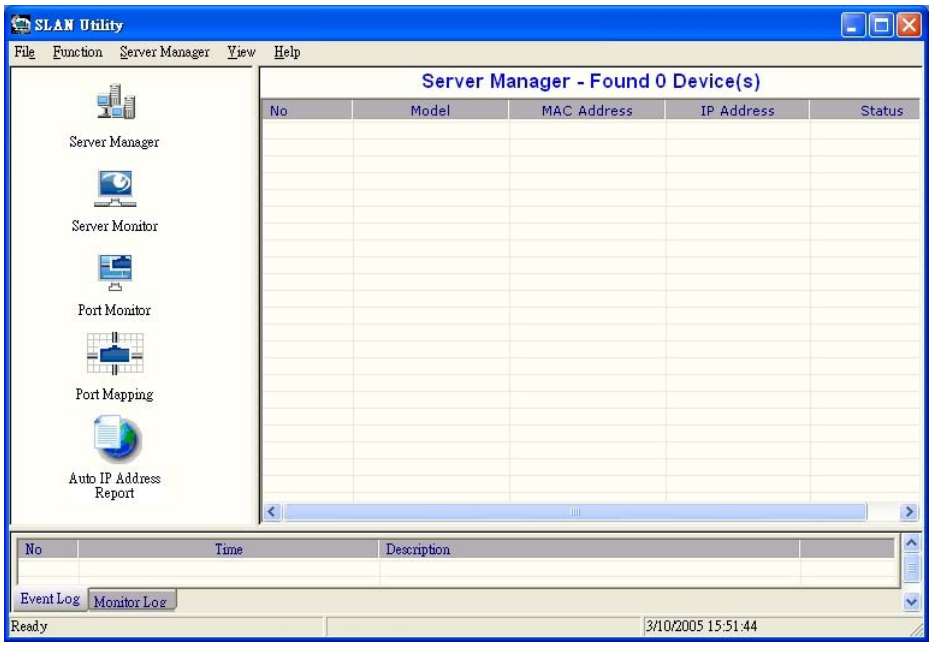


4. SLAN Utility Setup Application will start installing SLAN Utility software.



5. After finishing SLAN Utility installation, click “**Finish**” to exit.

6. Run “**SLAN Utility.exe**” icon on the desktop to entry SLAN Utility software.



Uninstalling SLAN Utility

1. Please insert the CD driver as bound with your SLAN product into your CD/DVD ROM, and run the "**PortUninst.exe**" file locate within the CD driver.

: \ SLAN \ Software \ PortUninst.exe

2. Please select both "**Uninstall Serial Software**" and "**Uninstall Parallel Software**" and click "**Uninstall**" to continue.

3. After finishing SLAN Utility uninstallation procedure, click "**Finish**" to exit.

Server Manager

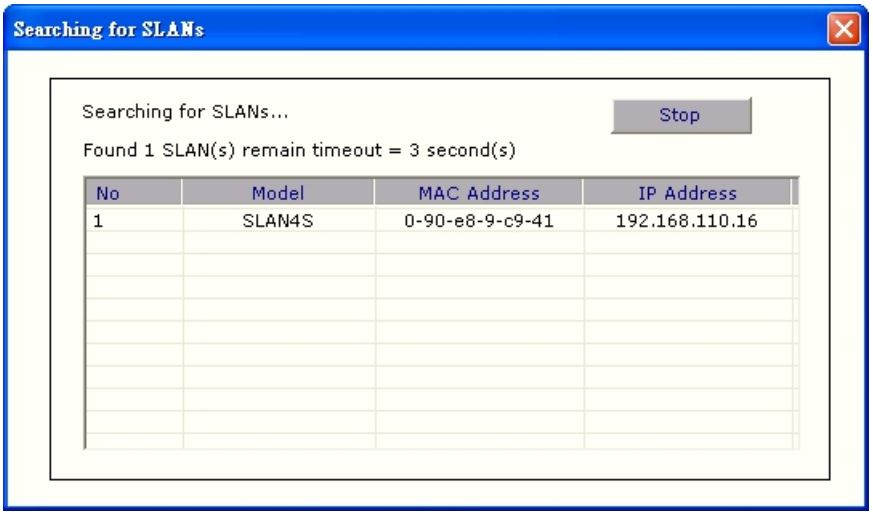
Server Manager is used to search, configure and store the Serial over Ethernet server configuration settings. If you are an administrator, you can modify Serial over Ethernet server all settings and in the Sever Manager selection.

◆ Search Device

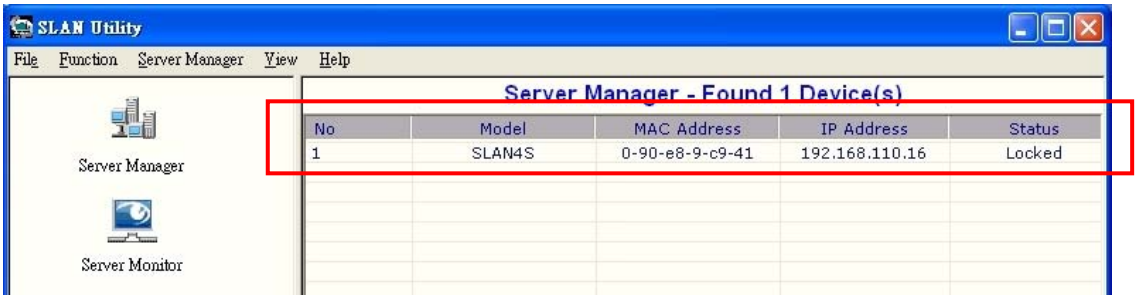
The Search Device function is used to locate all Serial over Ethernet servers that are connected to the same LAN as your computer by broadcast features. By Search Device locates all Serial over Ethernet servers connected to the LAN under same subnet as that of PC from where the search is initiated.

Place the cursor over the configuration row, and right click the Search Devices function.

The Searching for SLANs window will open and display the Model, IP Address, MAC Address, and search Progress.



When the search is complete, the Searching for SLANs window closes, and the Serial over Ethernet server that were located are displayed in the SLAN Utility.



For the example shown here, Broadcast search found one 4port Serial over Ethernet server on the LAN. As you can see, SLAN has password protection, which is indicated by **Locked** under **Status**.

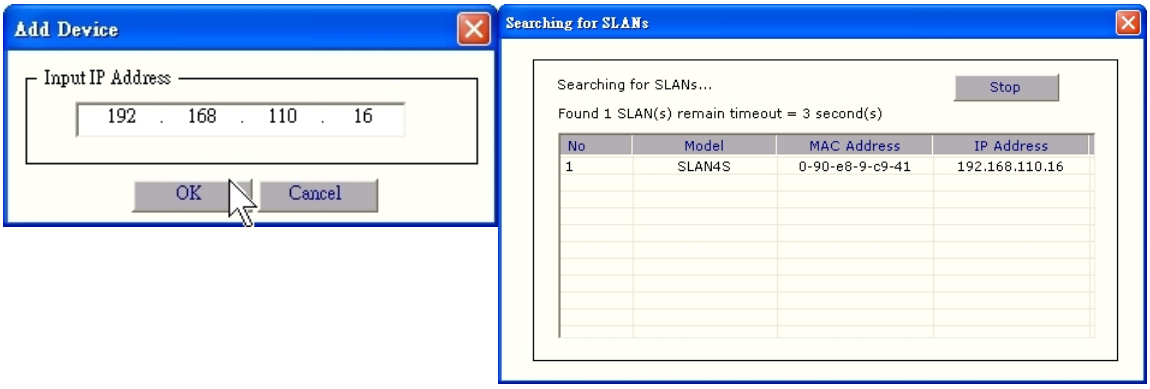
To configure one of the listed SLANs, place the cursor over the row displaying that SLAN's information, and then double click.

◆ Add with IP address

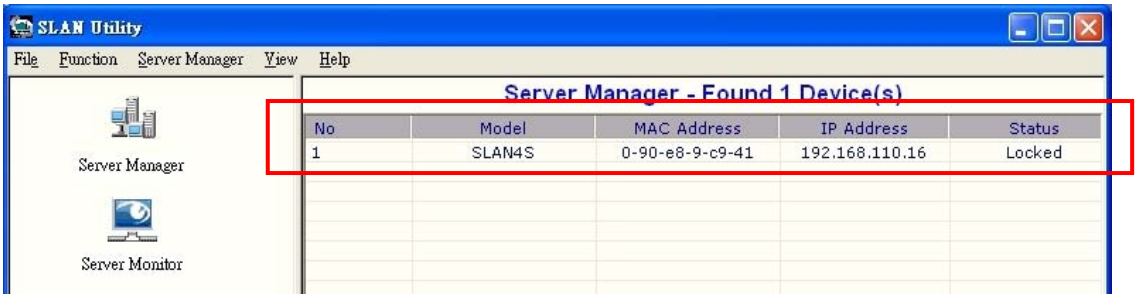
The Add with IP Address function is used to locate one Serial over Ethernet server connected to the LAN by designating one fixed IP address, such as different subnet structure.

Place the cursor over the configuration row, and right click the Add with IP Address function.

Please fill in IP address that Serial over Ethernet server located, and click “OK”. The Searching for SLANs window will open and display the Model, IP Address, MAC Address, and search Progress.



When the search is complete, the Searching for SLANs window closes, and the Serial over Ethernet server that were located are displayed in the SLAN Utility.

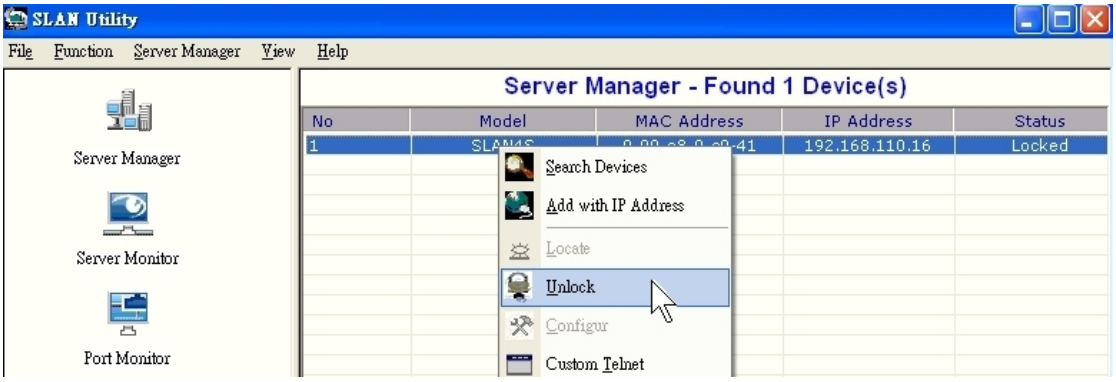


For the example shown here, Add with IP Address search found one 4port Serial over Ethernet server on the LAN. As you can see, SLAN has password protection, which is indicated by **Locked** under **Status**.

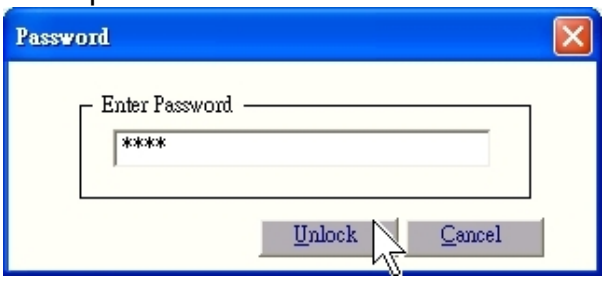
To configure one of the listed SLANs, place the cursor over the row displaying that SLAN’s information, and then double click.

◆ Unlock (Default password = 1234)

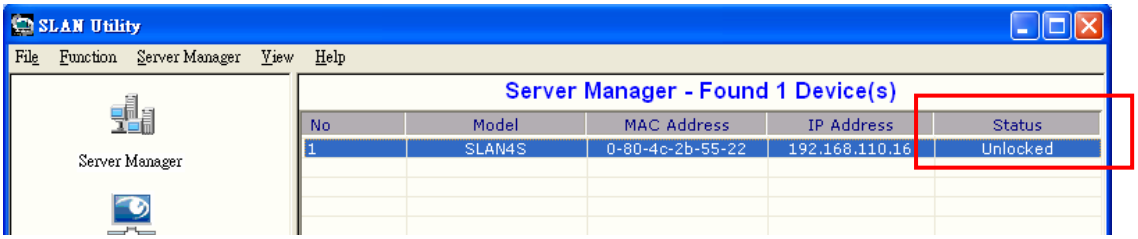
To configure one of the listed Serial over Ethernet servers, place the cursor over the row displaying that SLAN information, then right-click. Click on Unlock option in the pop-up window that prompts for a password.



Enter password & click unlock to continue.



The previous “Lock” status will switch to “**Unlock**” status. SLAN Utility will keep this SLAN in the Unlock status.

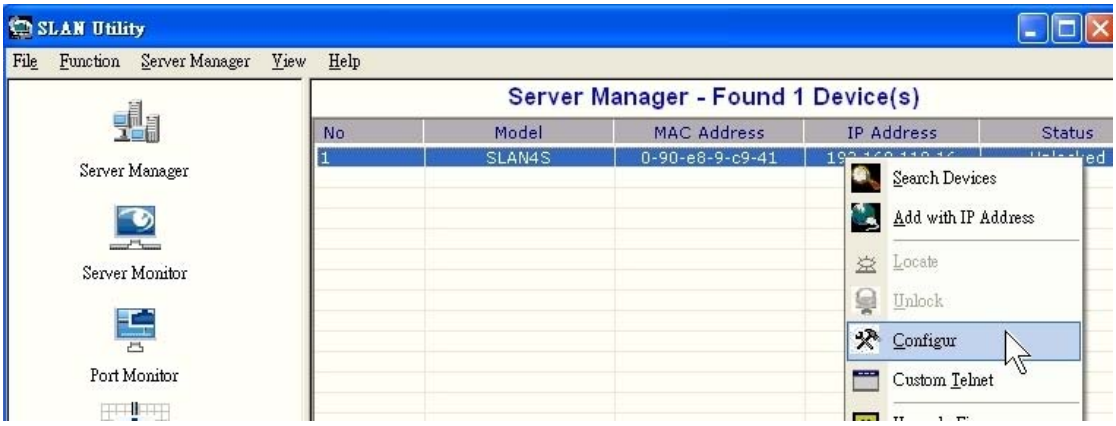


Note:

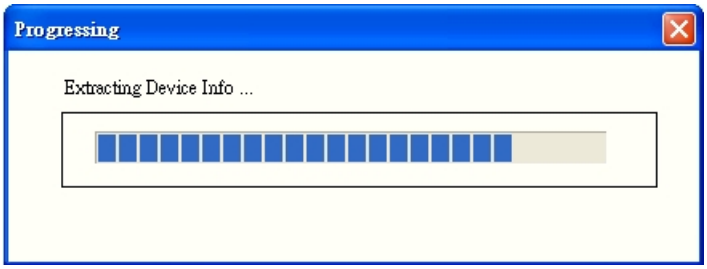
If the SLAN is password protected, then you will not be able to use the right click or double click method to open the configuration page. Be sure to unlock SLAN firstly, if the bellowing message pup-up.

◆ Configure

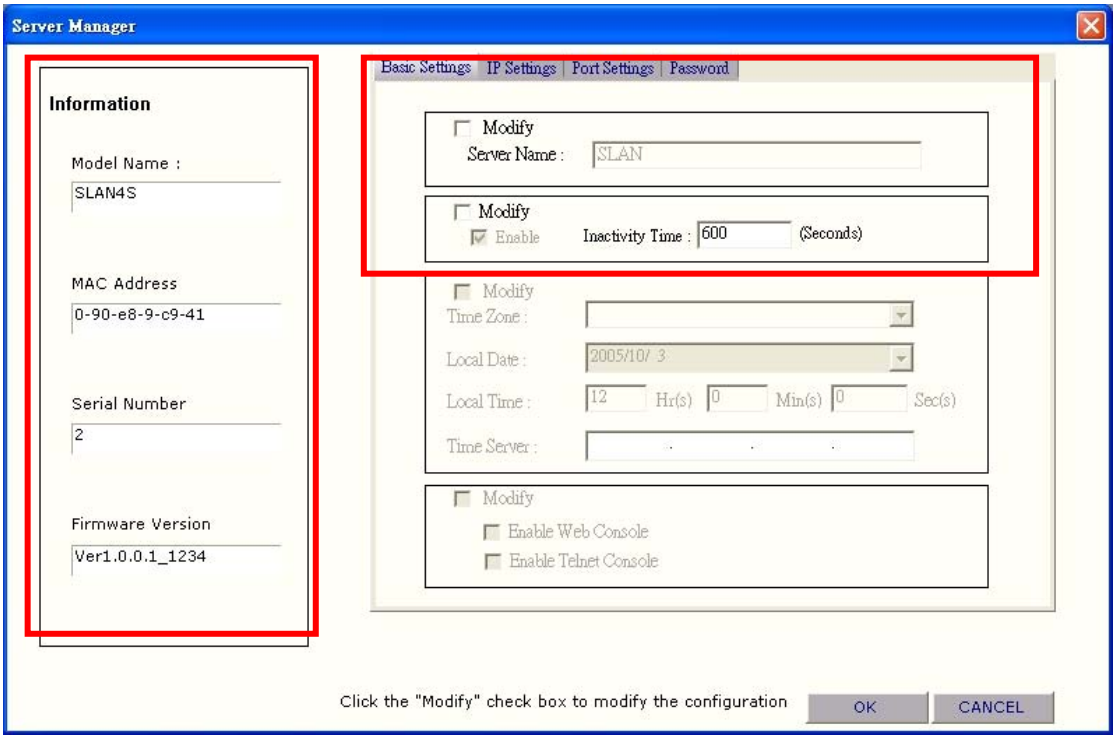
Now place the cursor over the row, right-click and launch a function dialog, click the configure function, the configuration window will open and display.



The progress bar shows that SLAN Utility is retrieving configuration information from the specific Serial over Ethernet server.



You can get this Serial over Ethernet server's information at the left part and configure the Serial over Ethernet server setting at the right part setting pages.

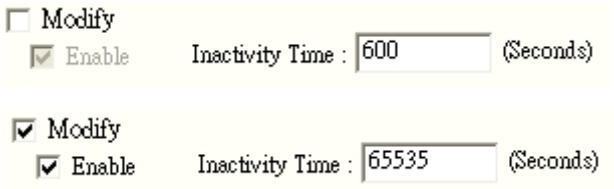


- **Information:**
  Information area will show Model Name, MAC Address, Serial Number, and Firmware version. User just only can read it instead of configuring those values.

- **Basic Settings:**
  User can configure the “Server Name” and “Inactivity Time” in this page.

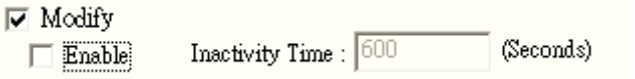
  A. Server Name: (Default = SLAN)
  Server name is specially designed to allow easy identification of the Serial over Ethernet servers which are connected to LAN. Click the “Modify” check box to modify configuration. You can input maximum 7 characters.

  B. Inactivity Time: (Default = Enable 600 seconds)
  Serial over Ethernet server automatically closes Real (remote) COM port connection if there is no data transmission through the serial port during the specific inactivity time. After the connection is closed, Serial over Ethernet server starts listening for another Real COM driver’s connection from another host. Click “Enable” and “Modify” check boxes to modify configuration. You can enter the inactivity time out range form 30 to 65535 seconds. Connections closure is done either by user or by in-activity time.



  30 ~ 65535 parameter defines the maintenances status as Closed or Listen on the Real COM mode connection. If disable this function of inactivity time, the current Real COM mode connection is maintained until there’s connection close request.

Note:
Please un-click “Enable” check box to disable inactivity time function.



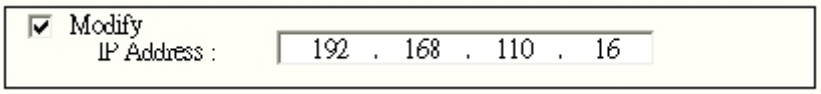
- **IP Settings:**

  Please assign a valid IP address to Serial over Ethernet server before working in your network environment. Your network system administrator should provide you with an IP address and related settings for your network.

  First time users can refer to Chapter 3, Initial IP Address Configuration, for more information. Click the “Modify” check box to modify configuration to activate the parameter setting box.

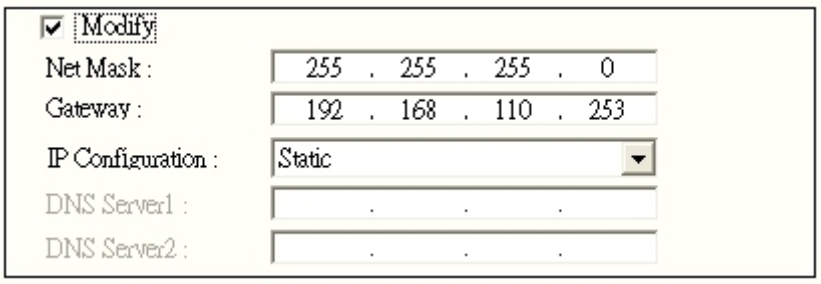
A. IP Address: (Default = 192.168.1.1)

An IP address is a permanent assigned to a network device. Computers use the IP addressed to identify and talk to each other over the network. Choose a proper IP address which is unique and valid in your network environment.



B. Net Mask: (Default = 255.255.255.0)

A subnet mask represents all the network hosts at one geographic location, in one building, or on the same local area network. When a packet is sent out over the network, the Serial over Ethernet server will use the subnet mask to check whether the desired TCP/IP host specified in the packet is on local network segment. If the address is on the same network segment as the Serial over Ethernet server, a connection established directly from the Serial over Ethernet server. Otherwise, the connection is established through the given default gateway.



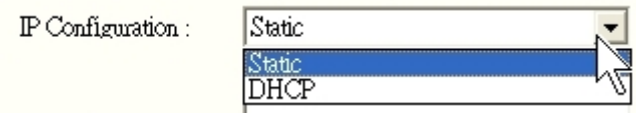
C. Gateway: (Default = 192.168.1.254)

A gateway is a network gateway that acts as an entrance to another network. Usually, the computers that control traffic within the network or at the local Internet service provider are gateway nodes. Serial over Ethernet server needs to know the IP address of the default gateway computer in order to communicate with the hosts outside the local network environment. For correct gateway IP address information, consult the network administrator.

D. IP Configuration: (Default = Static)

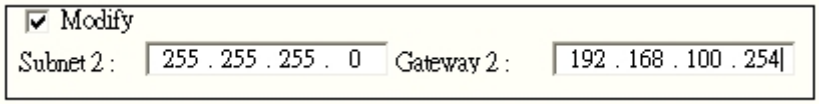
Static Mode: User defined IP address, Net Mask, Gateway.

DHCP Mode: DHCP Server assigned IP address, Net Mask, Gateway, DNS, and Time Server



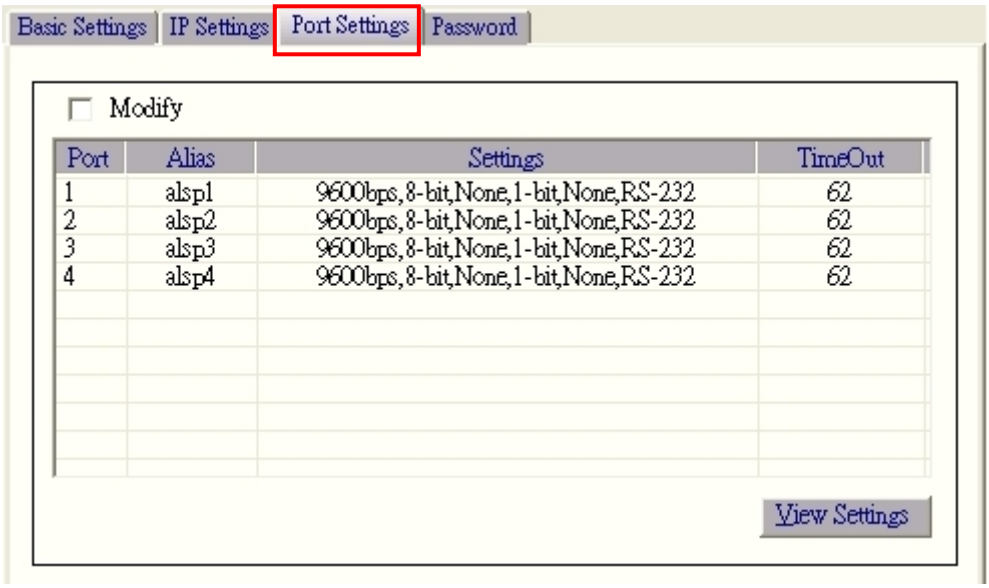
E. Subnet: (Default = Disable)

Under Network properties of Serial over Ethernet server there is an option to specify an alternate Subnet, gateway addresses. Once this is set, broadcast search can find Serial over Ethernet server from this subnet also.

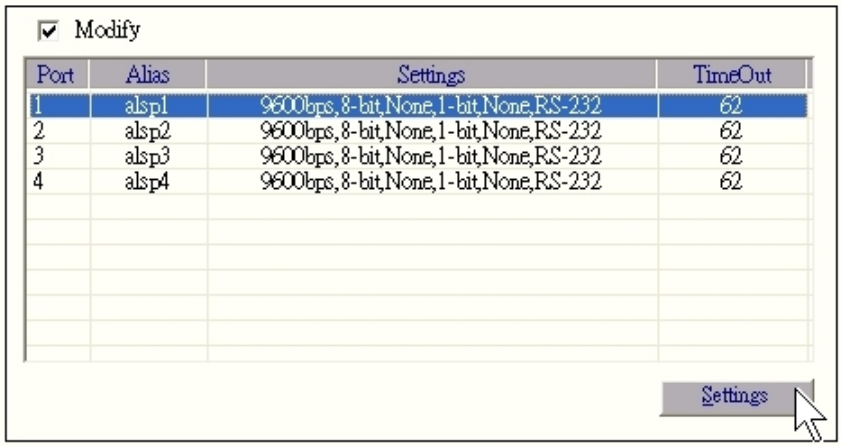


- **Port Settings:**

  Users can configure each serial port's settings in this page, including Alias, Time Out, Baud rate, Parity, Data bits, Stop bits, and Flow Control.



Click the "Modify" check box to activate the parameter, highlight and click the setting button at bottom of the specific port to modify the port setting.



You can simultaneously modify the configurations of multiple ports. To select multiple ports, hold down the "Ctrl" key when selecting additional ports or hold down the "Shift" key to select a group of ports.

A. Port Alias: (Default = alspX)

Port Alias is specially designed to allow easy identification of the serial devices which are connected to Serial over Ethernet server's serial port. Also you can click the "Apply port alias to all select ports" check box to rename all selected serial ports' alias efficiently. You can input maximum 5 characters.

B. Time Out: (Default = 62 x 0.5 ms)

This parameter defines the interval during which Serial over Ethernet server fetches the serial data from its internal buffer. If there is incoming data through the serial port, Serial over Ethernet server stores data in the internal buffer. Serial over Ethernet server transmits data stored in the buffer, but only if the internal buffer is full or reaches the given time specified as data transmitting timeout. Serial over Ethernet server's serial communication buffer size is 1K bytes per port.

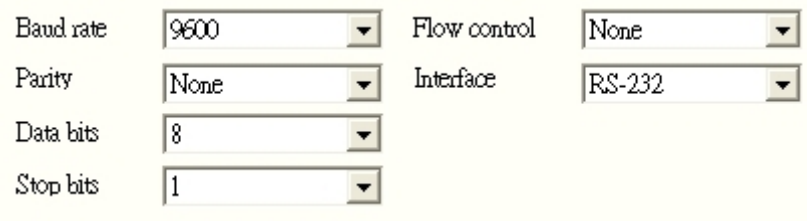
Optimal data transmitting timeout differs according to your baud rate setting. Please refer to our suggestion as below. Click the "Modify" check box to modify configuration.

Baud Rate (bps)	Time Out Settings (x 0.5 ms)
300 ~ 2400	147
4800 ~ 9600	62
19200 ~ 115200	21
230400 ~ 921600	88

Note:
This settings are used to avoid the Time-out forced by serial applications when the data transfers are happening at slower rates (Eg. Text file transfer through Hyper Terminal application).

C. Baud Rate: (Default = 9600 bps)

Serial over Ethernet server supports baud rate setting from 50 bps to 921.6 Kbps. Please refer to Chapter 3, baud rate settings, for more information.



D. Parity: (Default = None)

Serial over Ethernet server supports parity setting including None, Even, Odd, Space, and Mark.

E. Data bits: (Default = 8 bits)

Serial over Ethernet server supports data bits setting from 5 to 8 bit.

F. Stop bits: (Default = 1 bit)

Serial over Ethernet server supports stop bits setting 1, 1.5 or 2 bits.
Stop bits will be set to 1.5 when Data bits is set to 5 bits.

G. Flow Control: (Default = None)

Serial over Ethernet server supports flow control setting including None, Hardware, Xon/Xoff.

Note:
Check the serial communication parameters in your Serial Device's user's manual. You should set up Serial over Ethernet server's serial parameters with the same communication parameters used by your serial devices.

H. Interface: (Default = RS-232)

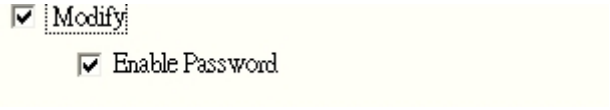
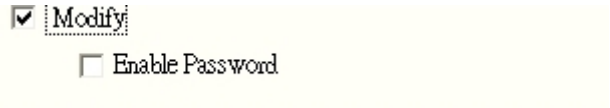
Serial over Ethernet servers support kinds of models, including pure RS-232, pure RS-422/485 or 3-in-1 RS-232/422/485 interfaces. It depends on what kind of product you bought. You can not select RS-232 or RS-422/485 serial interfaces in this selection. The result of selected just for Sever or Port Monitor display using only.

Note:
RS-232, RS-422, or RS-485 interface is made by hardware structures, and you can not choose it by SLAN Utility software configuration.

- **Password:**

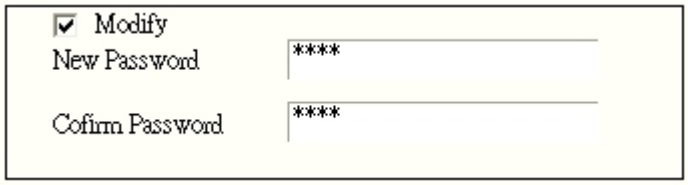
  Users can configure password settings in this page.

A. Enable Password: (Default = Enable)

Enable:	Serial over Ethernet server settings can not configure without password protection. 
Disable:	Serial over Ethernet server can be accessed and configured by anyone who connects in. In this case, the SLAN will not have password protection. 

B. Change Password:

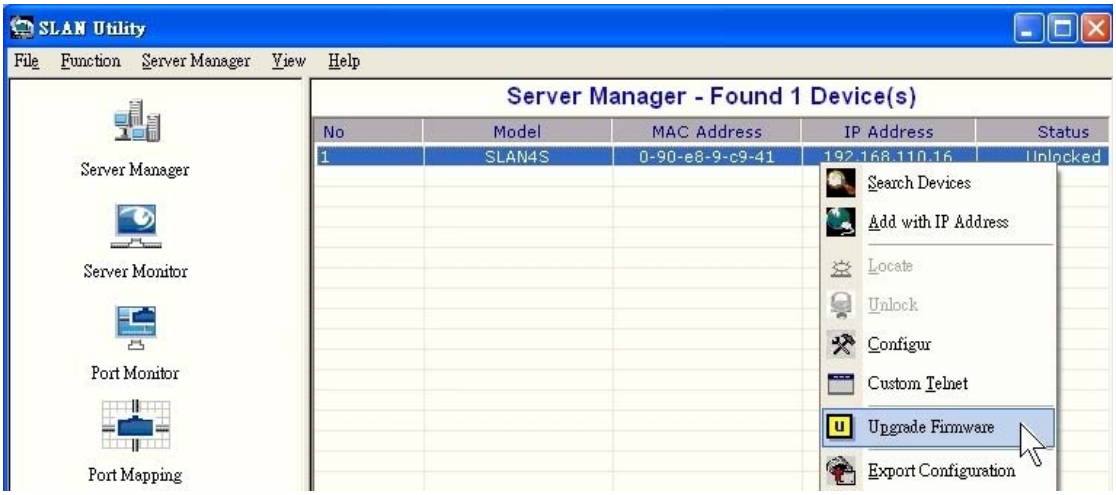
Click the “Modify” check box to change new password. You can input maximum 7 characters both in “New Password” and “Confirm Password” boxes.



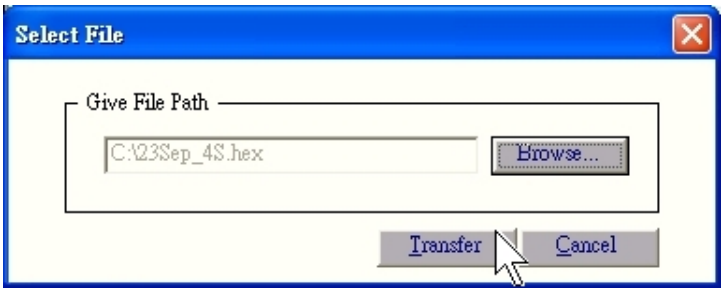
Note:
If you forget the password, the ONLY way to configure Serial over Ethernet server is by using Console mode to “Load Factory Default.” Please refer to Chapter 3, forget password section, for more information.

◆ Upgrade Firmware

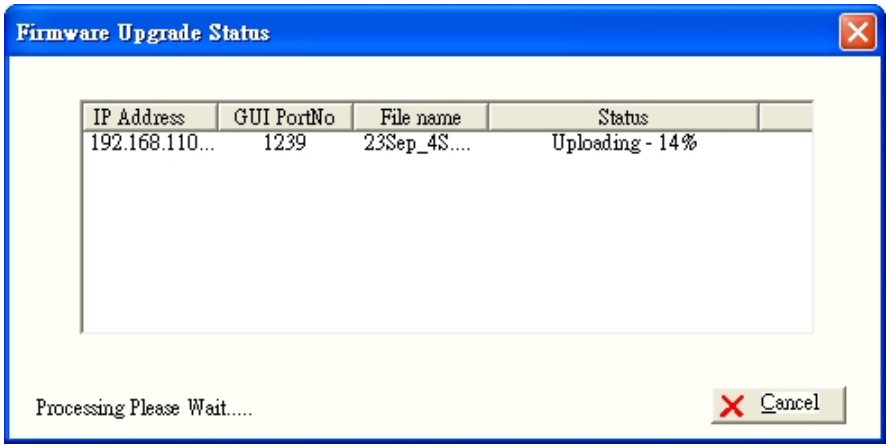
Please input the password to unlock the Serial over Ethernet server first, then right click on a specific the cursor over the configuration row and select the Upgrade Firmware function to start upgrading the firmware.



Download the latest firmware from your vendor website and click “Browser” to select correct firmware “**.hex**” file. Click “Transfer” to upgrade Serial over Ethernet server to the latest firmware version.



Users can check the progress of firmware upgrading process in status column. Please be patient of Serial over Ethernet server upgrading process.

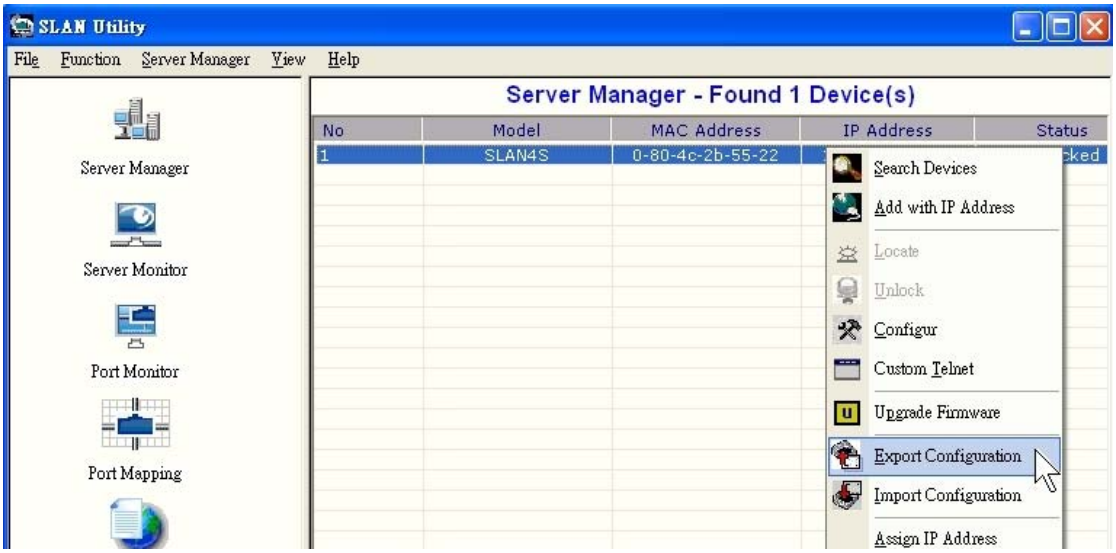


◆ Export / Import Configuration

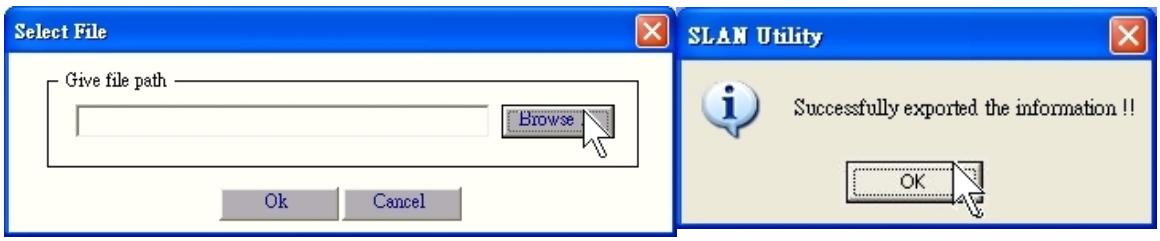
Please input the password to unlock the Serial over Ethernet server first, then right click on a specific the cursor over the configuration row and select the Export or Import Configuration function to start exporting or importing the configuration text file.

- **Export Configuration:**

This function is used to create a text file saving the current configuration of one particular Serial over Ethernet server. It can be saved as Cfgfile text file for quick usage on next iteration.

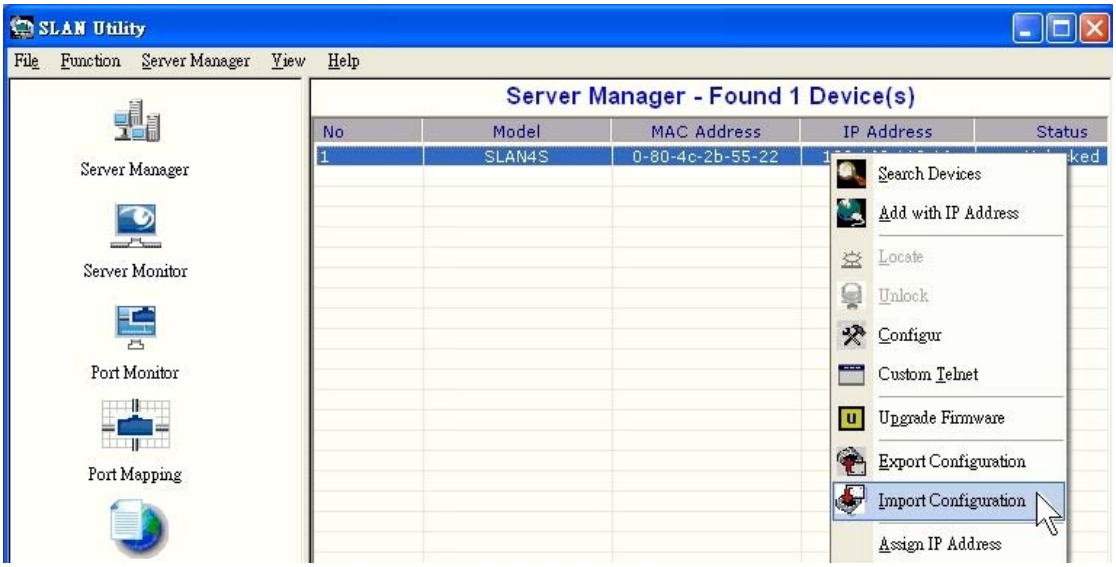


Browse to give path & file name for configuration to be saved. Click OK to save this Cfgfile text file in your system. Successful export message appears. Click OK to close the same.

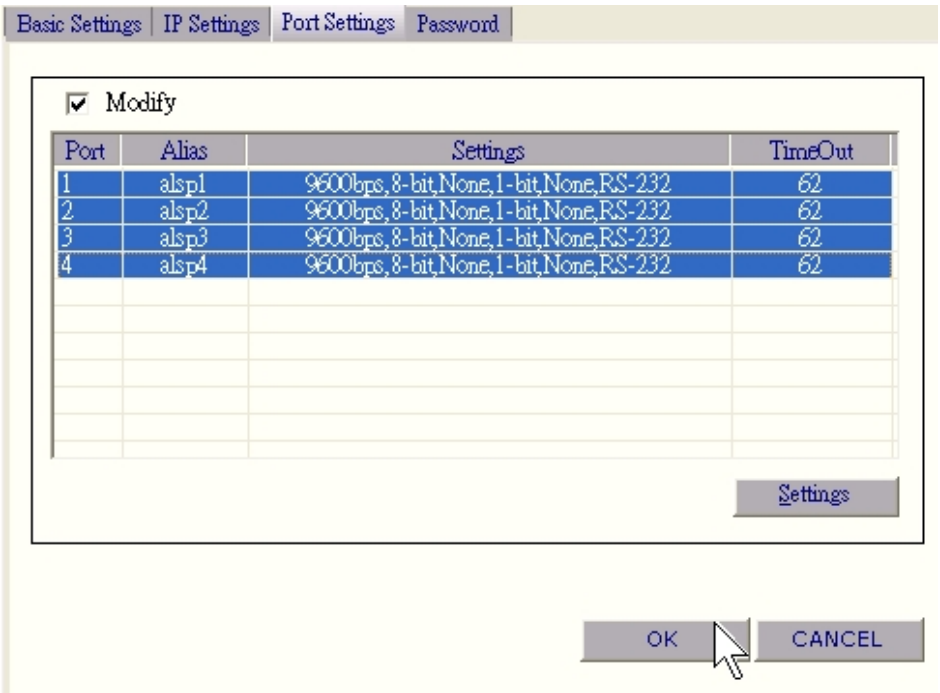


- **Import Configuration:**

This function is used to import one particular Serial over Ethernet server's configuration from the text file into one or more of the same model Serial over Ethernet server. To import a configuration, please select the target Cfgfile text file that user exported before.

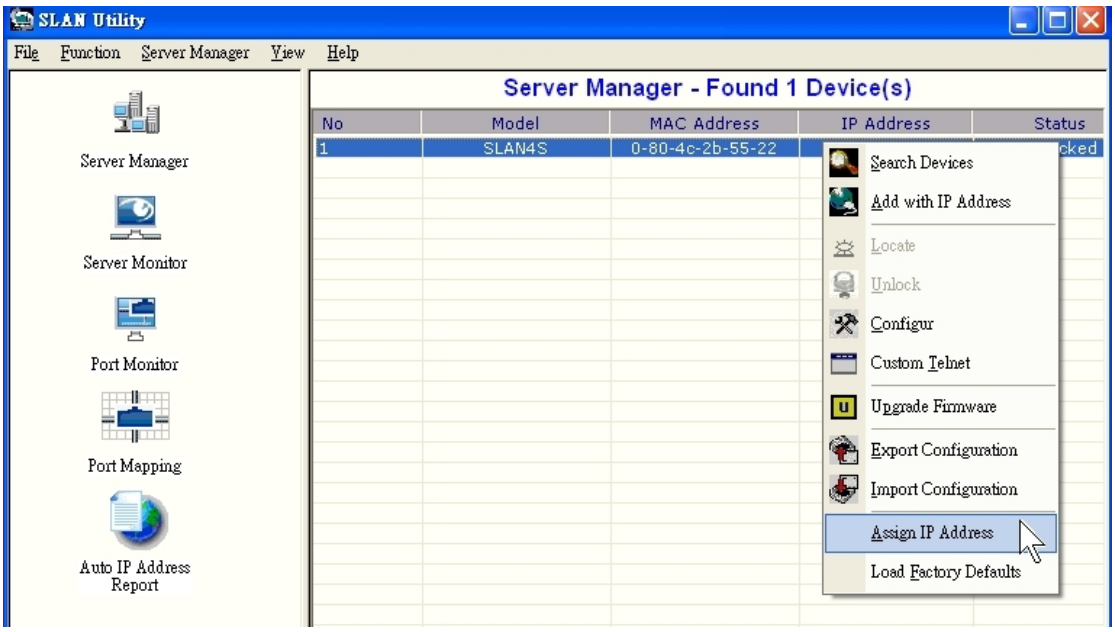


Configuration window appears, click on Port Settings page and enable Modify option. Now holding down the Ctrl key to select multiple ports then click on OK button to import the configuration settings.

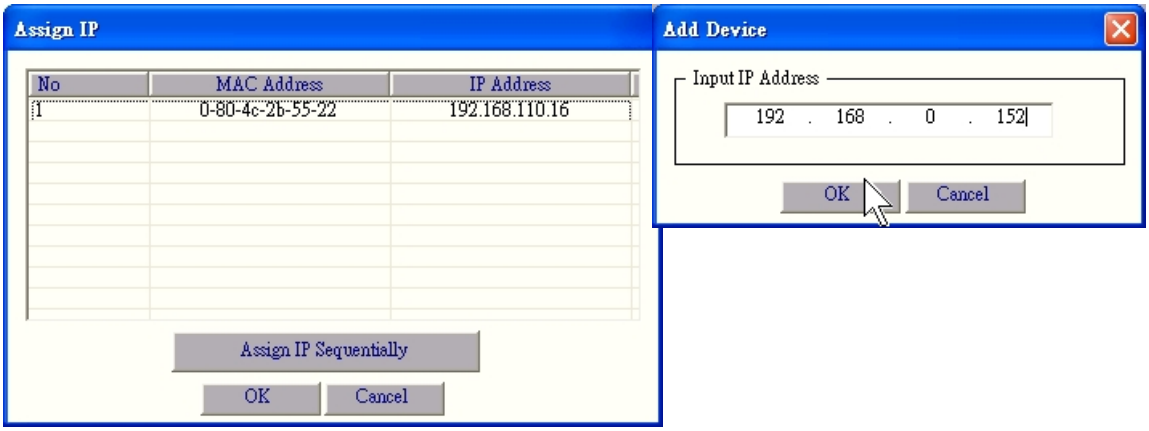


◆ Assign IP Address

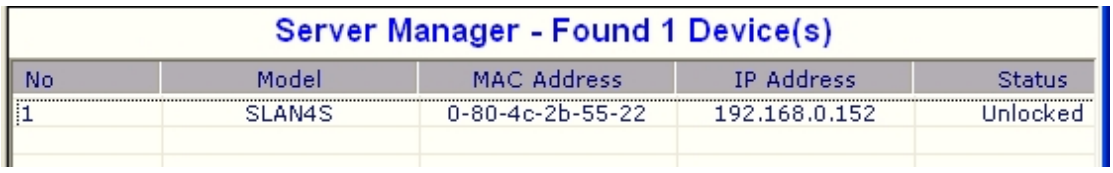
Please input the password to unlock the Serial over Ethernet server first, then right click on a specific the cursor over the configuration row and select the Assign IP Address function to assign any specific IP address of choice.



Select one Serial over Ethernet server and click “Assign IP Sequentially” in Assign IP windows. When Add Device window appears, please input the new IP address & Click OK

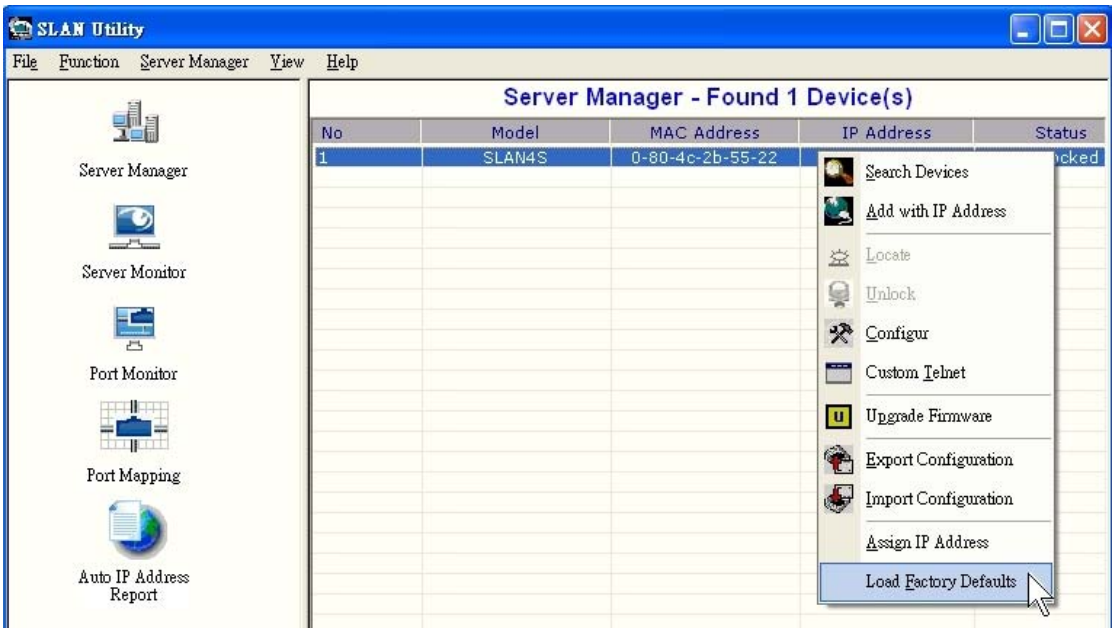


This Serial over Ethernet sever will be located with changed IP address now.



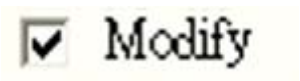
◆ Load Factory Defaults

Please input the password to unlock the Serial over Ethernet server first, then right click on a specific the cursor over the configuration row and select the Load Factory Defaults function to restore factory default settings.



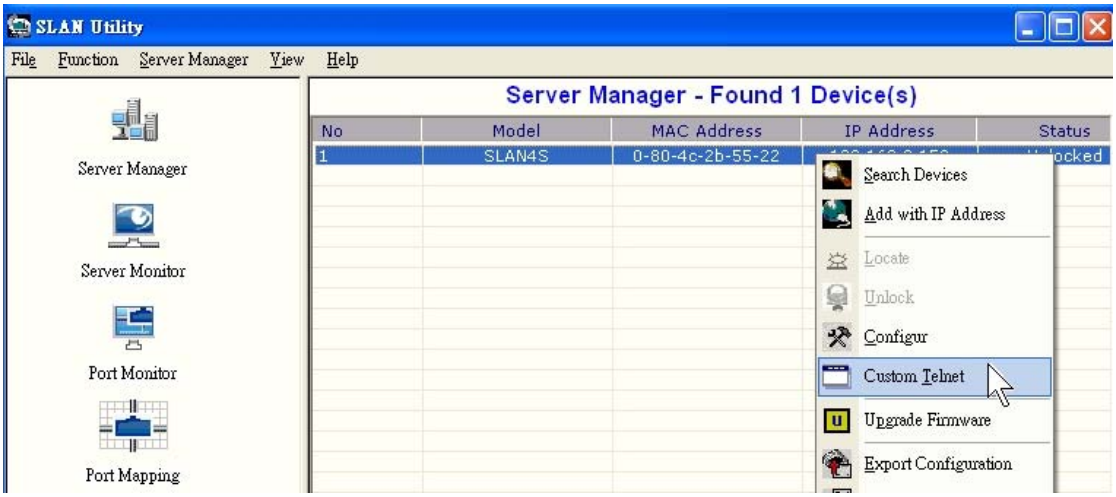
Note:
Remember to export the configuration file using SLAN Utility when you finish the configuration. By using the Import Configuration function of SLAN Utility, your configuration can be re-loaded into Serial over Ethernet services after using “Load Factory Defaults”.

Note:
Modify any configuration, you must first click in the modify box to activate the parameter setting box.

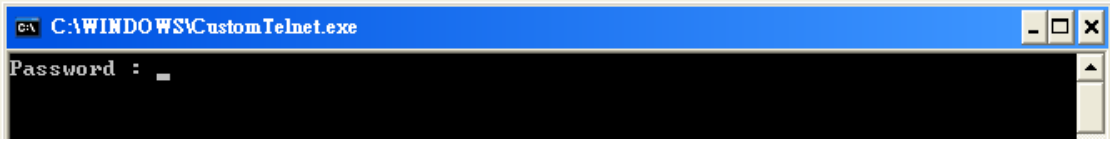


◆ Custom Telnet

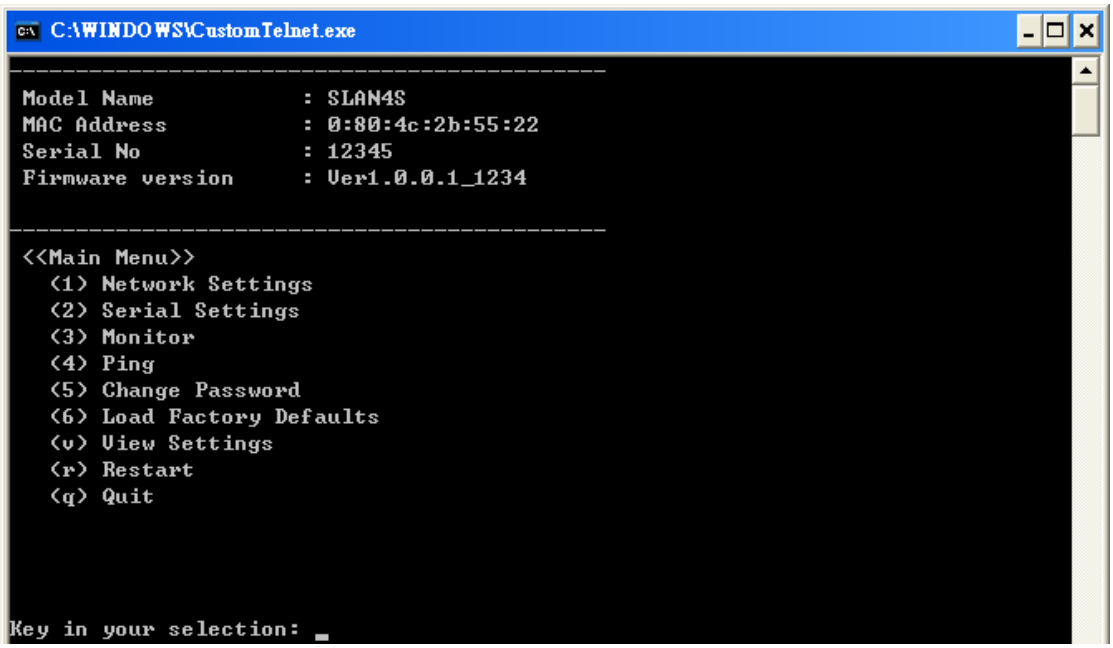
Custom Telnet is implemented as part of SLAN Utility GUI & the same can be accessed. Please input the password to unlock the Serial over Ethernet server first, then right click on a specific the cursor over the configuration row and select the Custom Telnet function to configure Serial over Ethernet server settings.



When custom telnet console opens, entry the password and press enter.

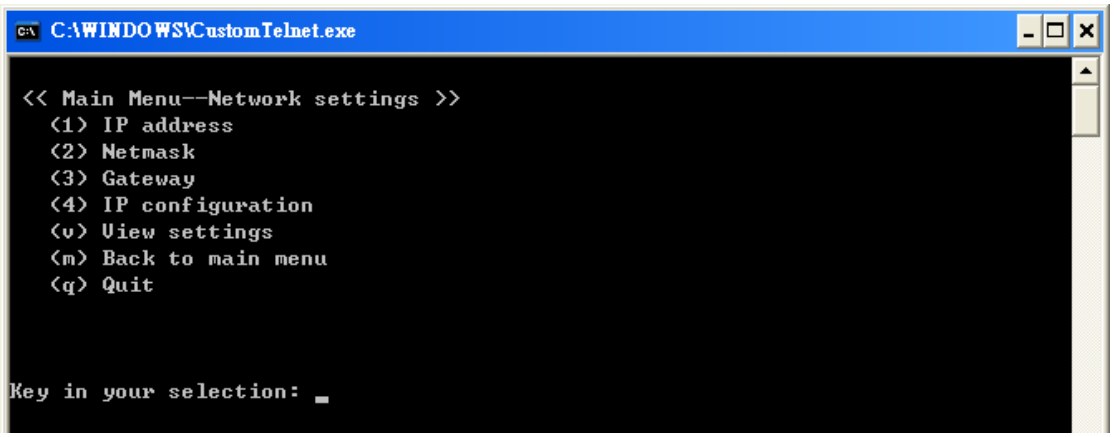


Custom Telnet main menu will show up as below, after password approved.

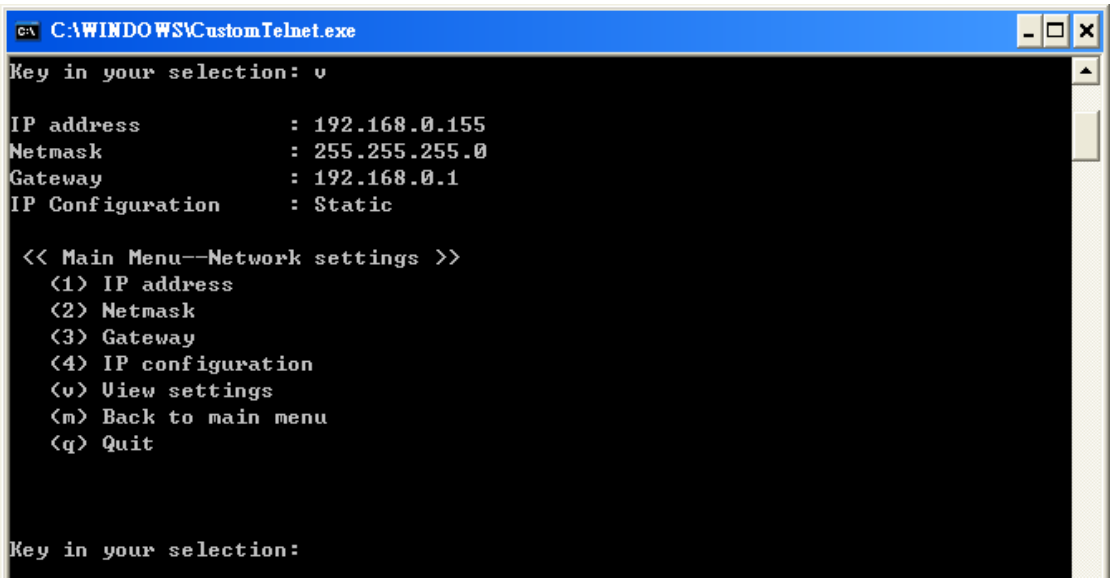


- **Network Settings:**

Press “1” in the main menu, and you can entry the network settings, including IP address, Netmask, Gateway, and IP configuration.



Press “V” in the main network settings menu, and you can view all network settings of Serial over Ethernet server.



Press “1” in the main network settings menu, and you can set IP Address.

Press “2” in the main network settings menu, and you can set Netmask.

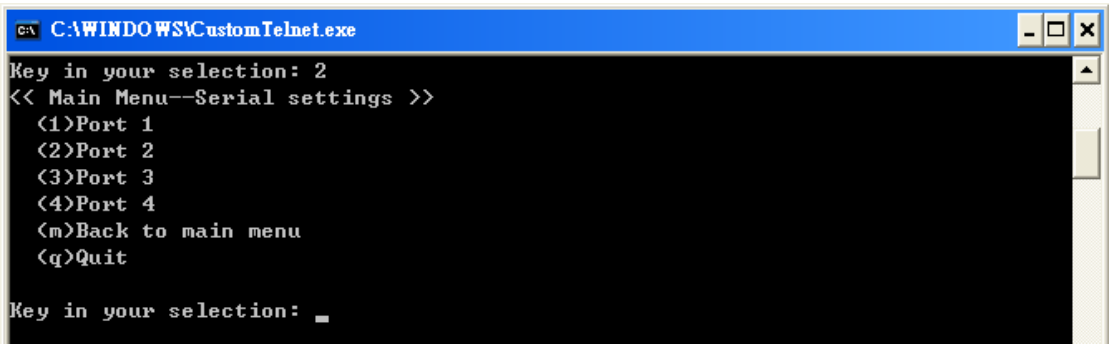
Press “3” in the main network settings menu, and you can set Gateway.

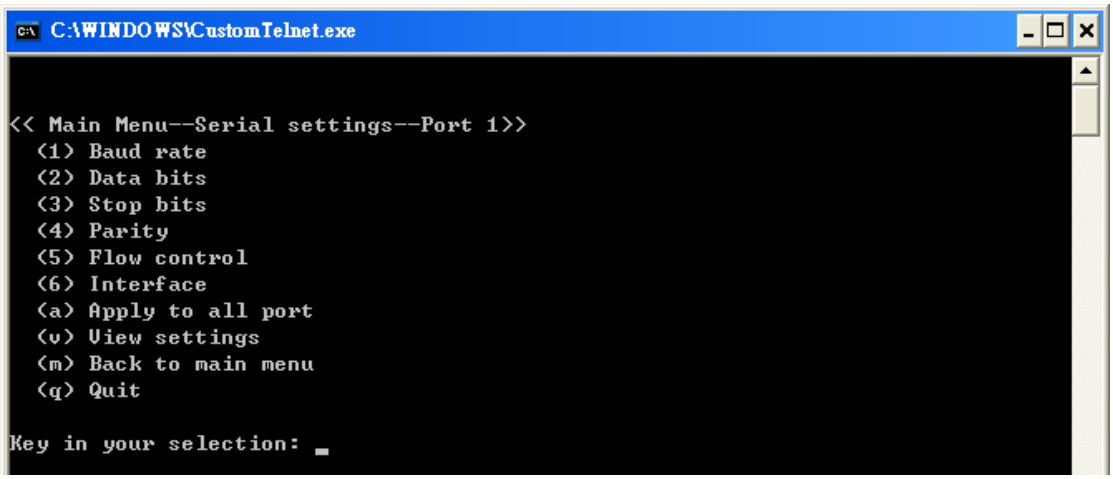
Press “4” in the main network settings menu, and you can switch between Static IP and DHCP mode.

Press “q” in the main network settings menu, and you can back to the custom telnet main menu.

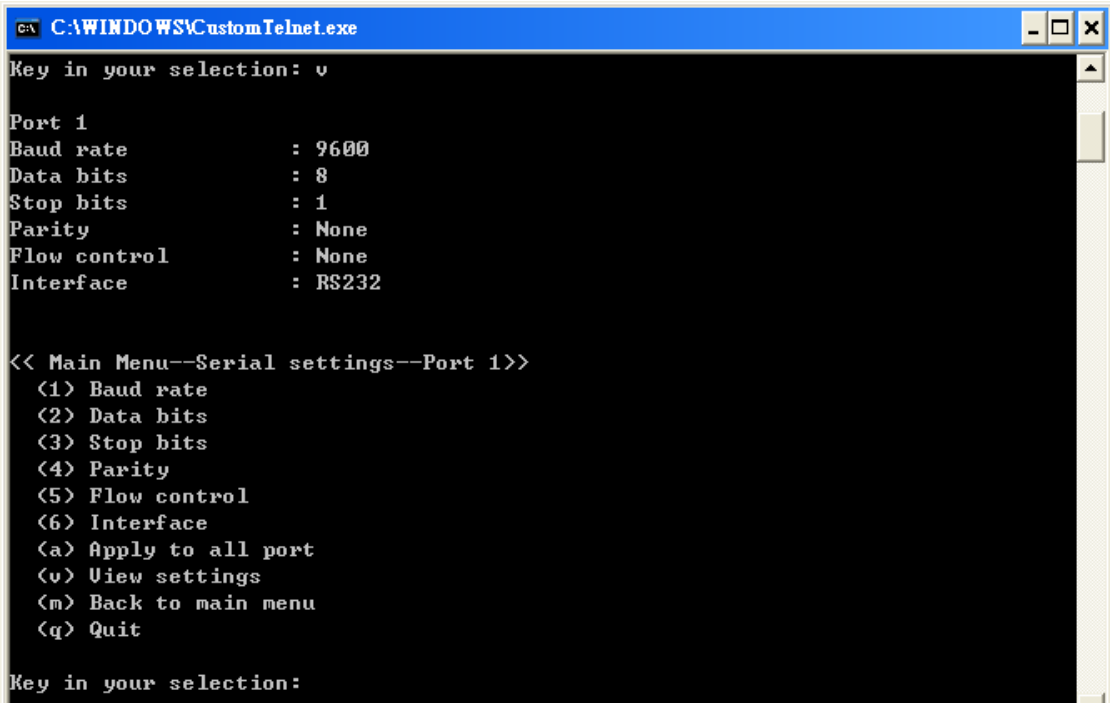
- **Serial Settings:**

Press “2” in the main menu, and you can entry the each serial port’s settings, including baud rate, data bit, stop, parity, and flow control.





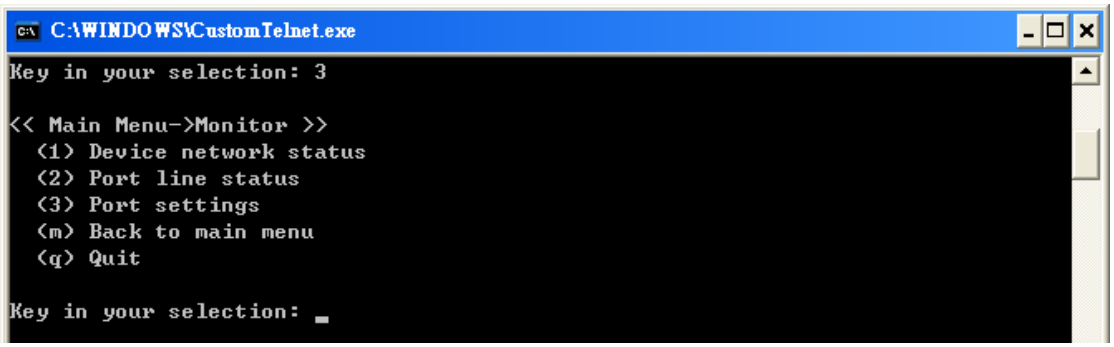
Press “V” in the serial port settings menu, and you can view settings.



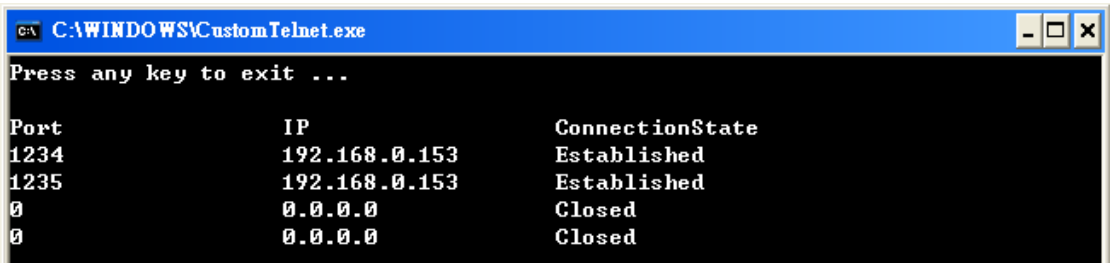
Press “q” in the menu, and you can back to the custom telnet main menu.

- **Monitor:**

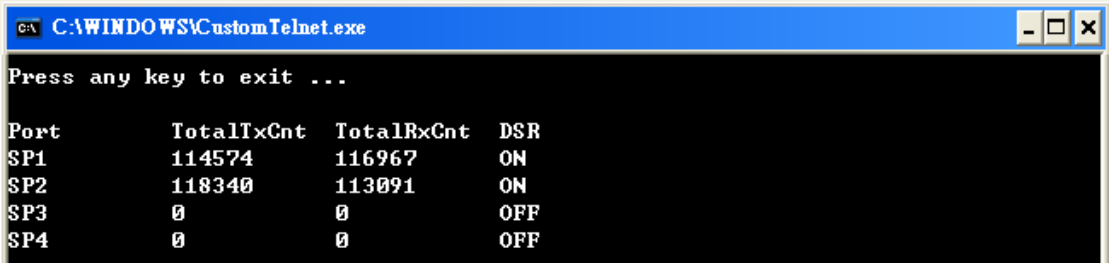
Press “3” in the main menu, and you can monitor the status of Serial over Ethernet server or serial port.



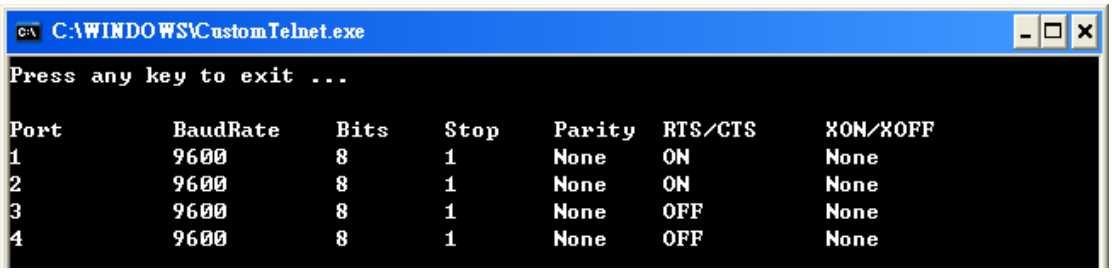
Press “1” to entry Device Network status monitor.



Press “2” to entry Port line status monitor.



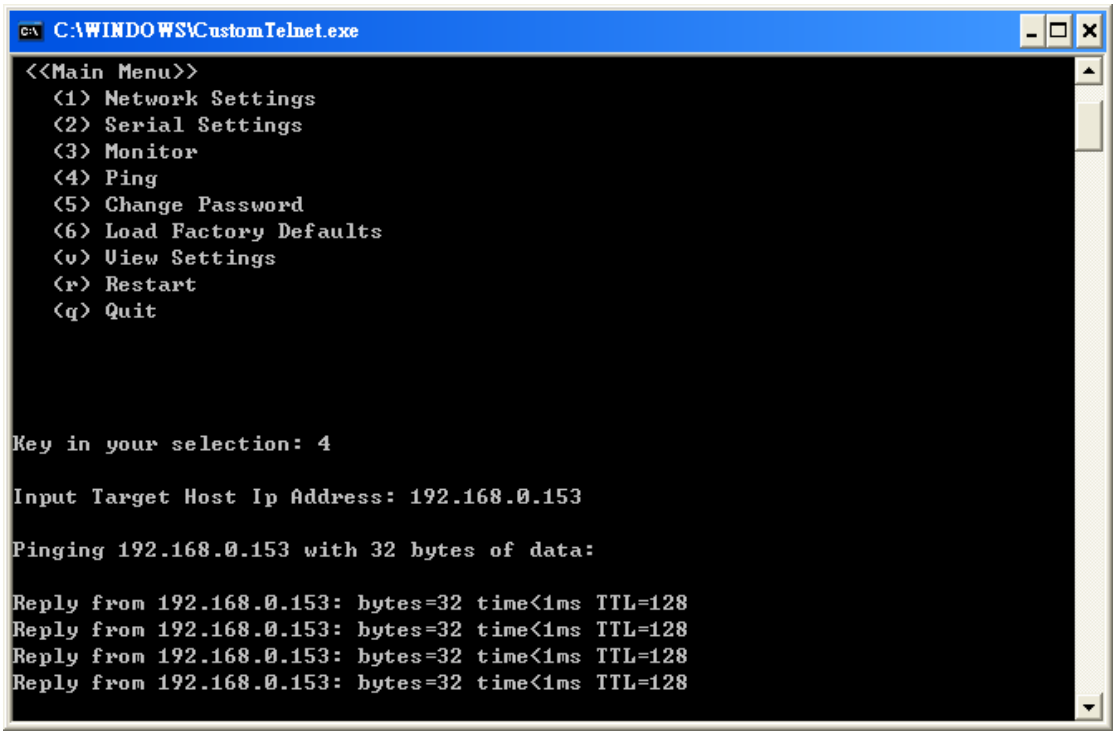
Press “3” to entry Port settings monitor.



Press “q” in the menu, and you can back to the custom telnet main menu.

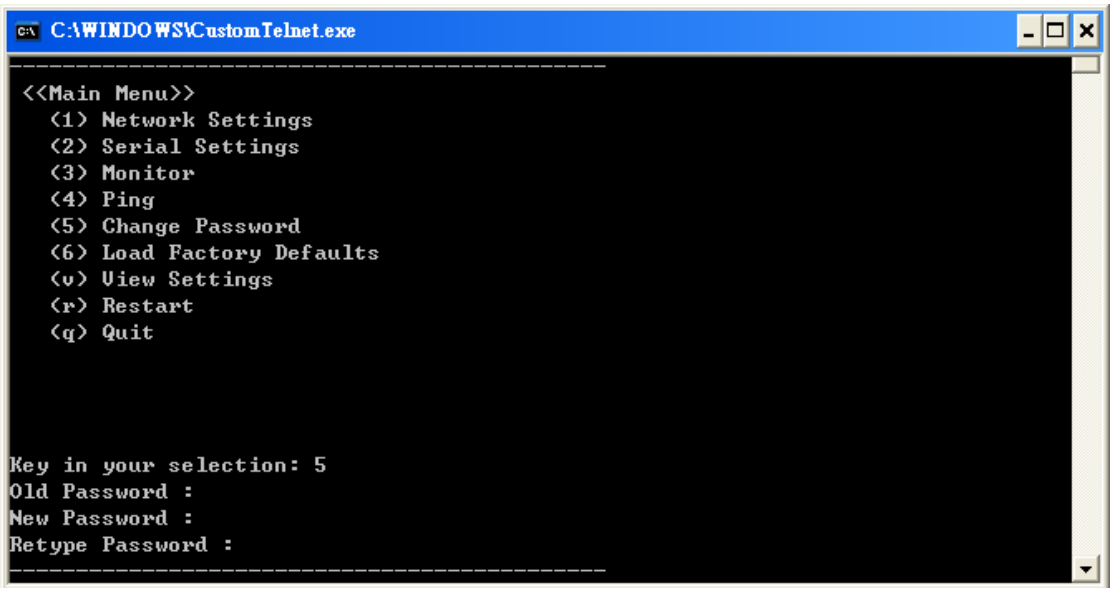
- **Ping:**

Press “4” in the main menu, and you can check (pin) with any PC or Serial over Ethernet Server under the same subnet.



- **Change Password:**

Press “5” in the main menu, and you can change password.



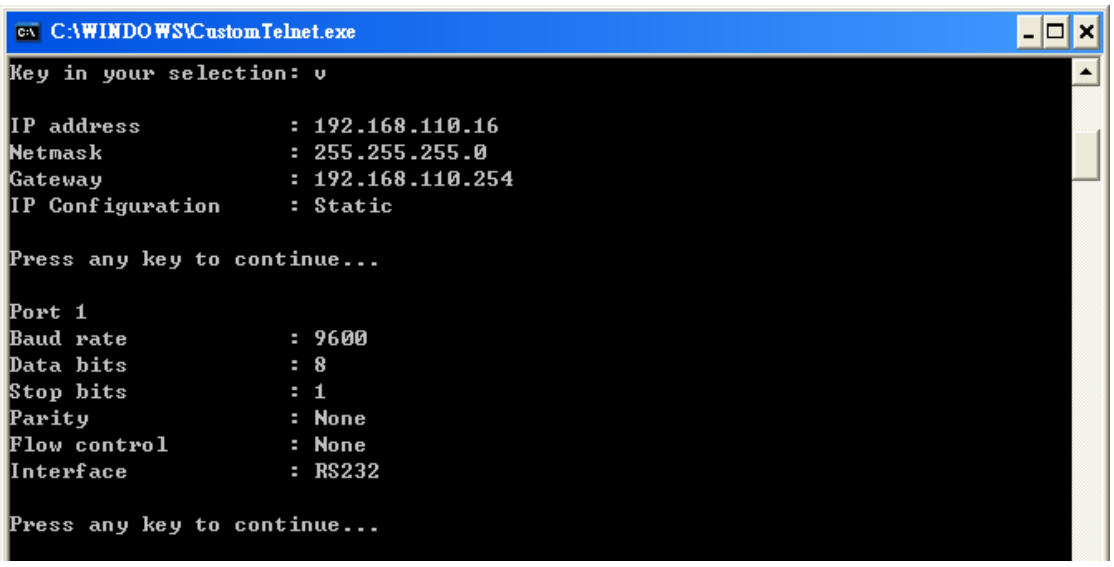
Please entry “Old Password”, “New Password”, and “Retype Password”.

- **Load Factory Defaults:**

Press “6” in the main menu, and you can load factory default settings.

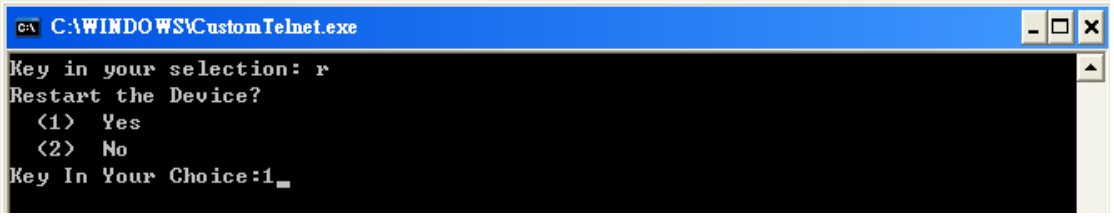
- **View Settings:**

Press “v” in the main menu, and you can load factory default settings.



- **Restart:**

Press “r” in the main menu, and you can restart Serial over Ethernet Server.



- **Quit:**

Press “q” in the main menu, and you can quit custom telnet function.

Server Monitor

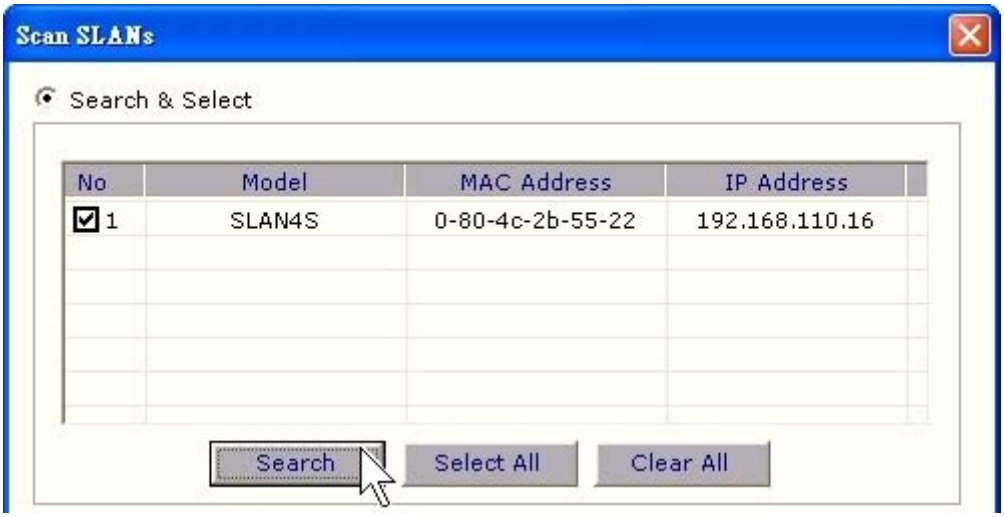
Server Monitor is used to monitor one or more of the same model Serial over Ethernet servers' status, including Alive, IP Address, Model, MAC Address, and COM number.

◆ Add Devices

The Add Devices function is used to locate all Serial over Ethernet servers that are connected to the same subnet as your computer by broadcast or specify IP address features. Place the cursor over the configuration row, and right click the Add Devices function.

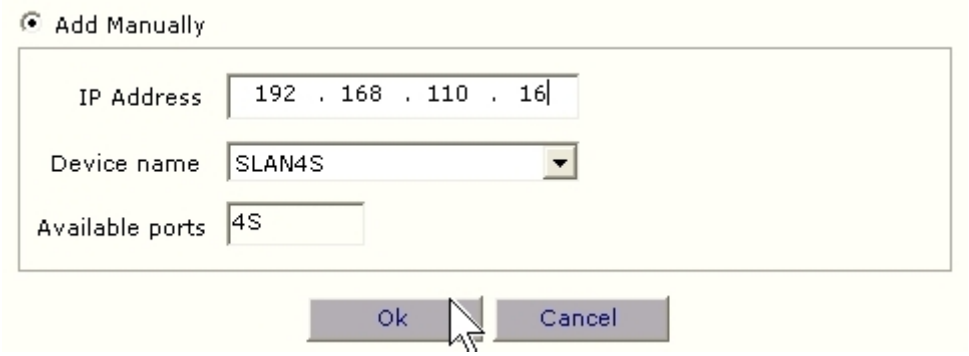
- **Broadcast Search:**

Press "Search" button and the Scan SLANs window will open and display the Serial over Ethernet servers in the same subnet.



- **Specify IP address:**

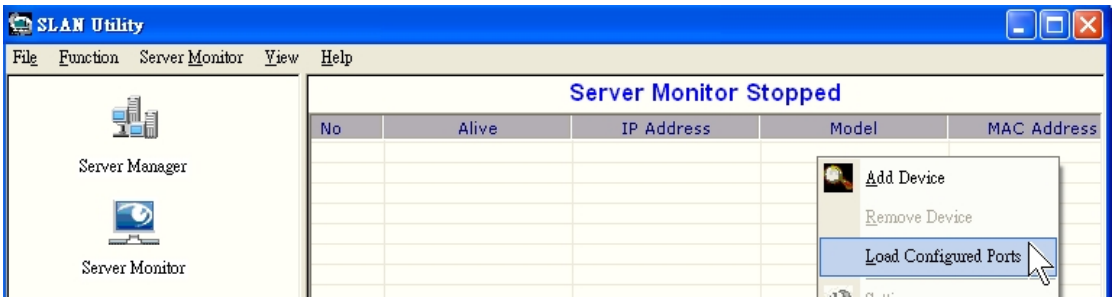
Select “Add Manually” option to start specifies IP address process. Please input IP address and select device name, then press “OK” to continue.

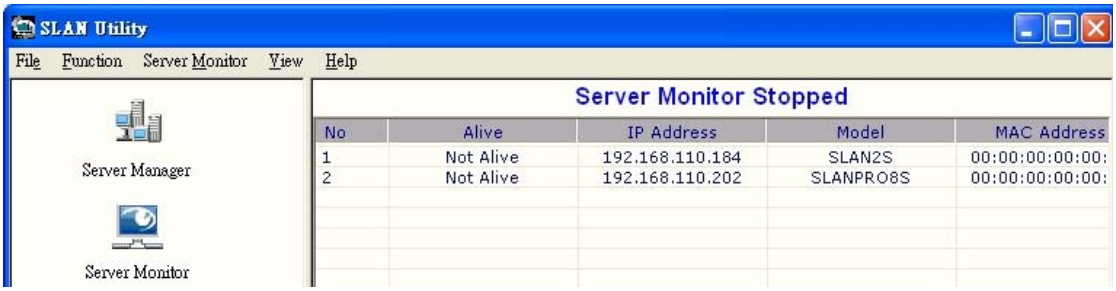


Note:
Device name depends on how many ports Serial over Ethernet server equips, such that SLAN**4S** represents 4 serial ports.

◆ Load Configured Ports

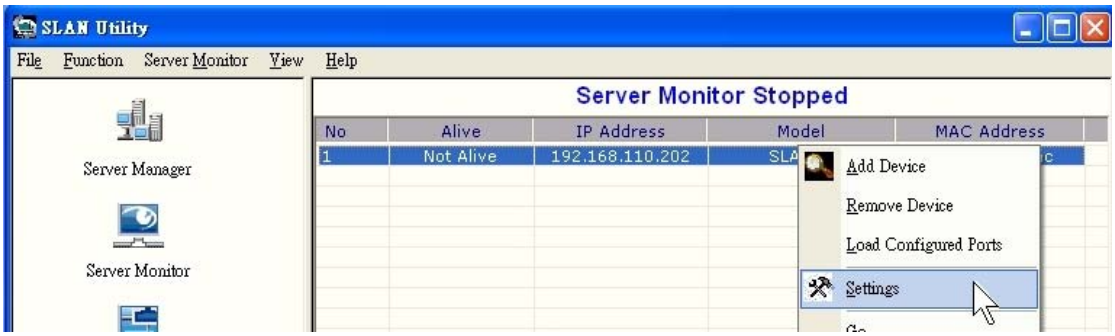
Users can entry “Load Configured Ports” process to reload the pervious Serial over Ethernet servers’ locations. Please place the cursor over the configuration row, and right click the Load Configured Port function.





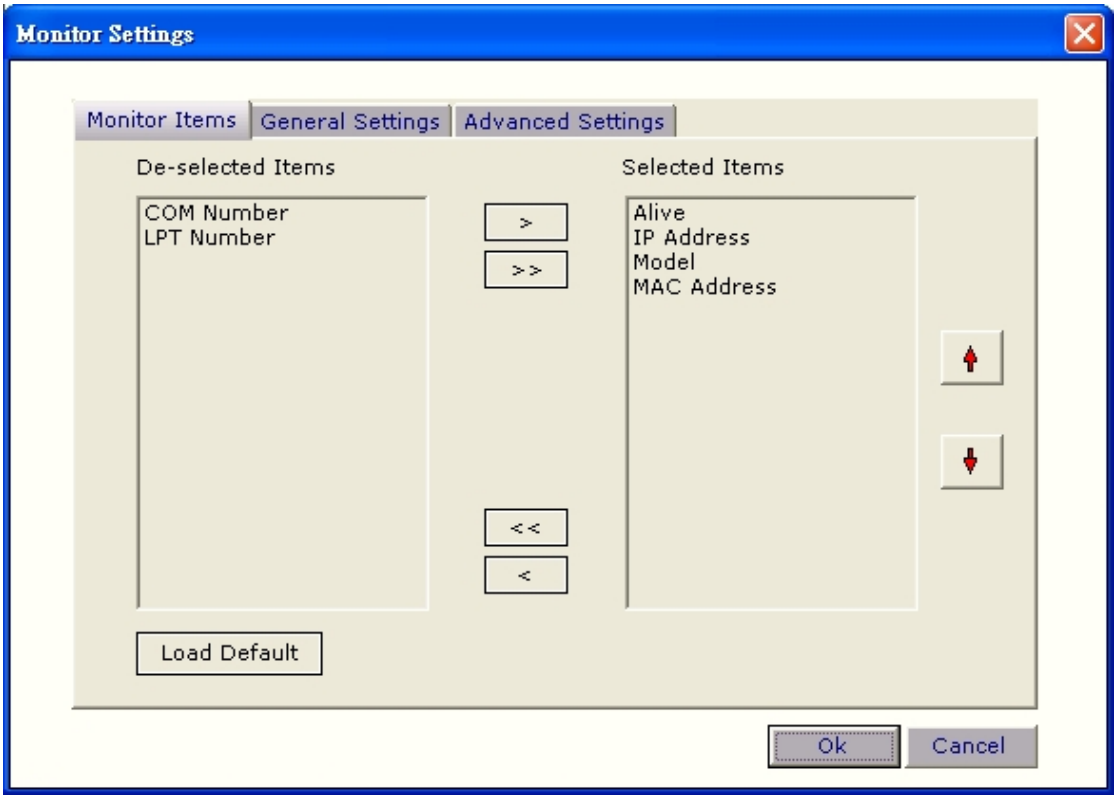
◆ Settings

Serial over Ethernet servers list will now appear on the Server Monitor screen. Please right click the SLAN and select Settings.



- **Monitoring items:**

Users can select monitoring items of Serial over Ethernet servers, including Alive check, IP Address, Model, MAC address, and COM number.

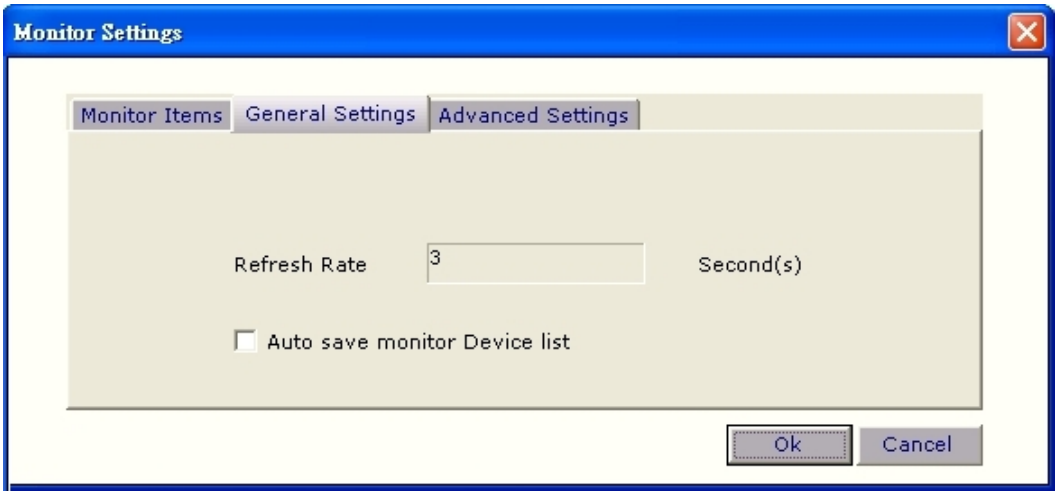


Note:

These buttons are used to change the order of items under Monitor display screen.

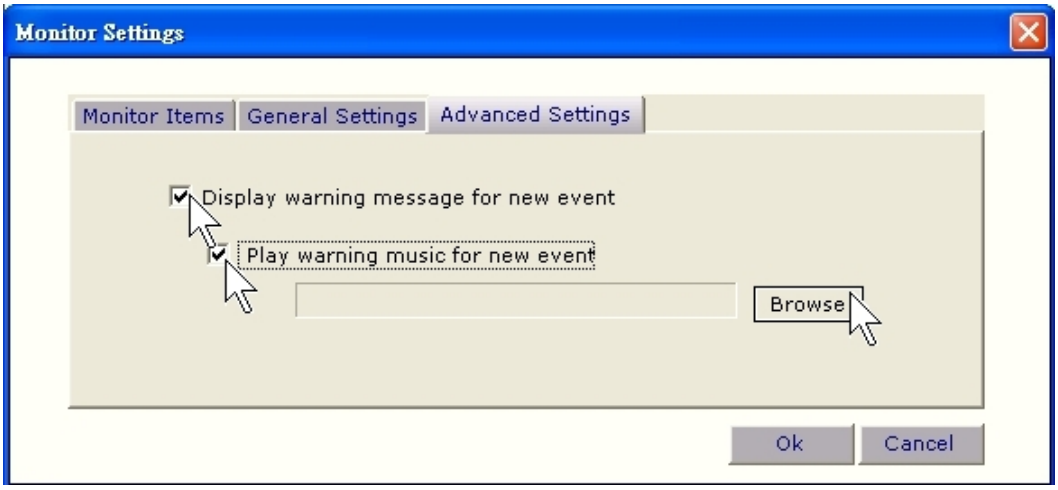
- **General Settings:**

Please select “Refresh Rate” in this page. You can enter the parameter range form 3 to 99 seconds and the default is 3 seconds.

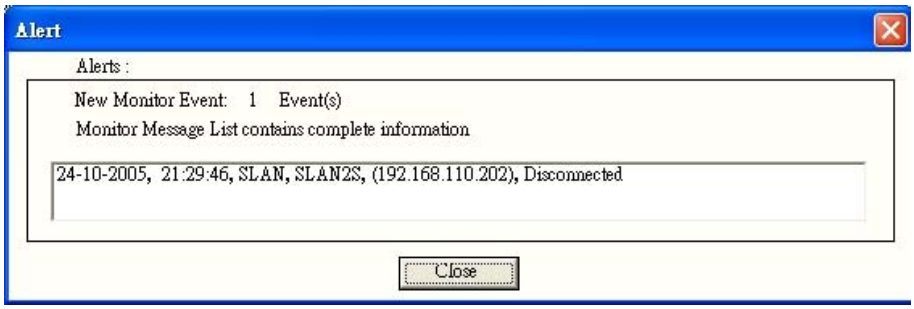


- **Advanced Settings:**

Please select Display warning message or Play the warning music in WAV format when a new event occurs in advanced settings page. New event means one of the Serial over Ethernet server in the monitor is “Alive” or “Not Alive,” or has lost connection with the Monitor program.

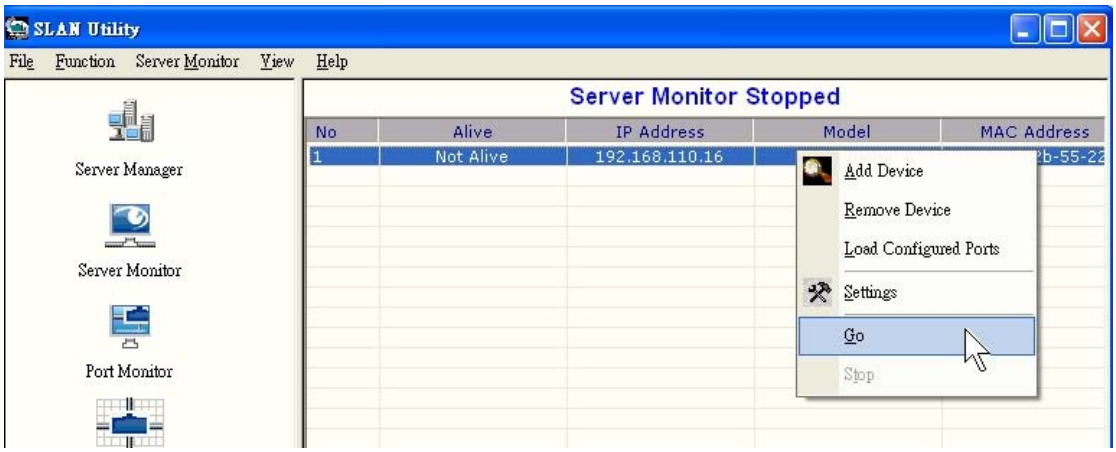


When one of the Serial over Ethernet server loses connection with the Monitor program, a warning alert will display automatically. The warning music will be played at the same time.

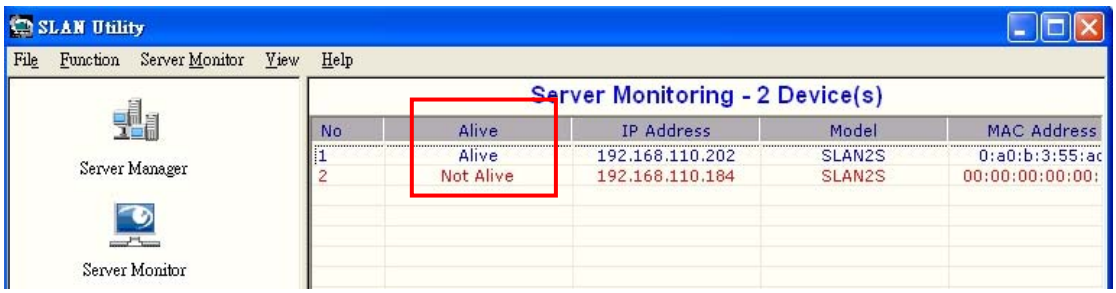


◆ Go

After setting all monitoring items of Serial over Ethernet servers, right click the SLAN and select Go to start monitoring.



In the Monitor screen, you can see the “Not Alive” Serial over Ethernet server is marked with red color. Blue color to represent that the monitor is active and red color to represent that the item being monitored is disconnected.



If the Serial over Ethernet server gets connected or disconnected, a warning message will be displayed to remind users.

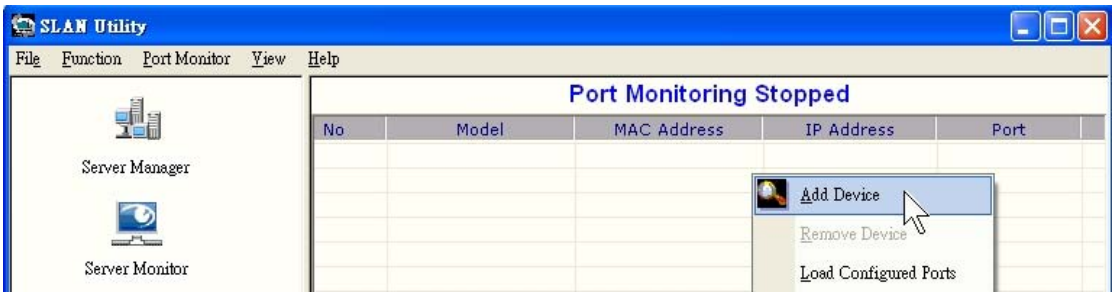
Note:
Be sure to entry “Go” procedure to start Server Monitor function.

Port Monitor

Port Monitor is used to monitor COM ports' statuses, including Model, Alive Check, IP Address, Model, MAC Address, and COM number, Tx/RX Thought……..and so on.

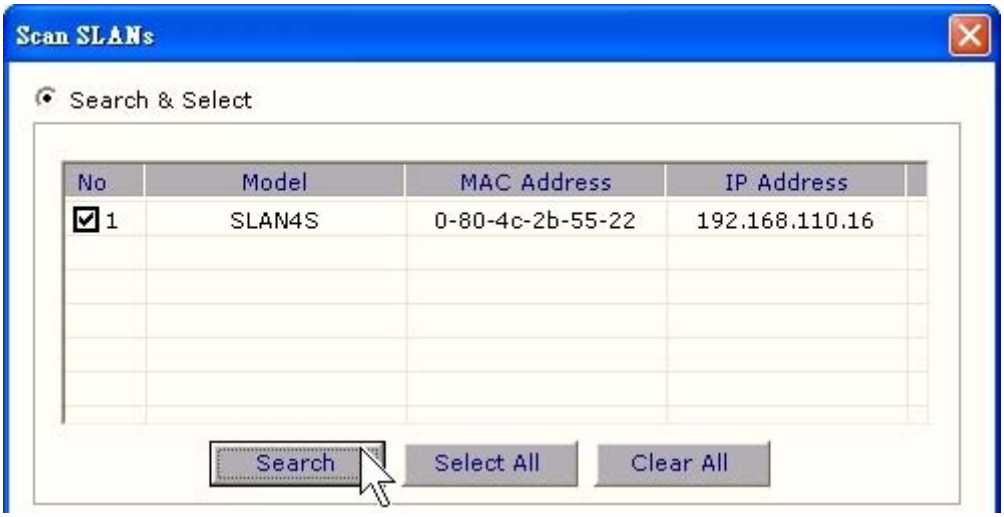
◆ Add Devices

The Add Devices function is used to locate all Serial over Ethernet servers that are connected to the same subnet as your computer by broadcast or specify IP address features. Place the cursor over the configuration row, and right click the Add Devices function.



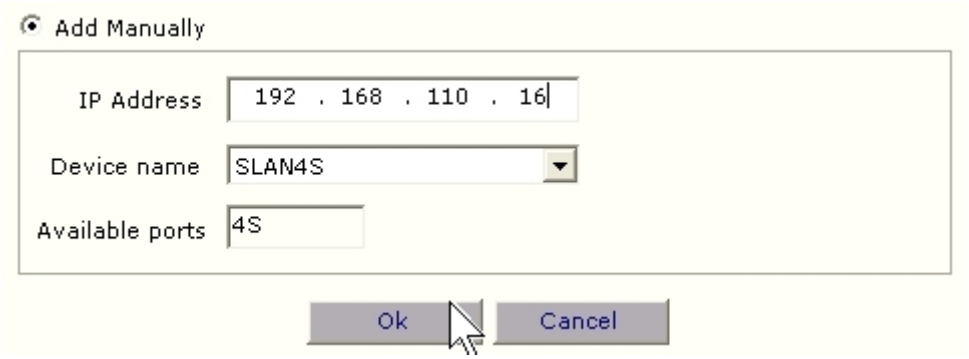
- **Broadcast Search:**

Press "Search" button and the Scan SLANs window will open and display the Serial over Ethernet servers in the same subnet.



- **Specify IP address:**

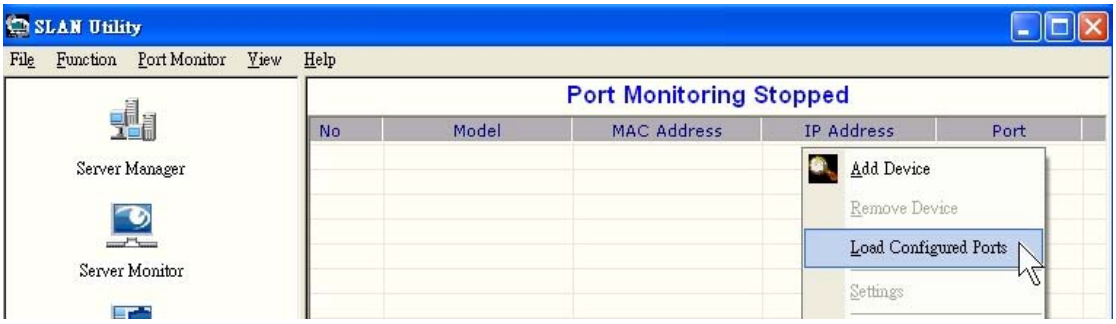
Select “Add Manually” option to start specifies IP address process. Please input IP address and select device name, then press “OK” to continue.

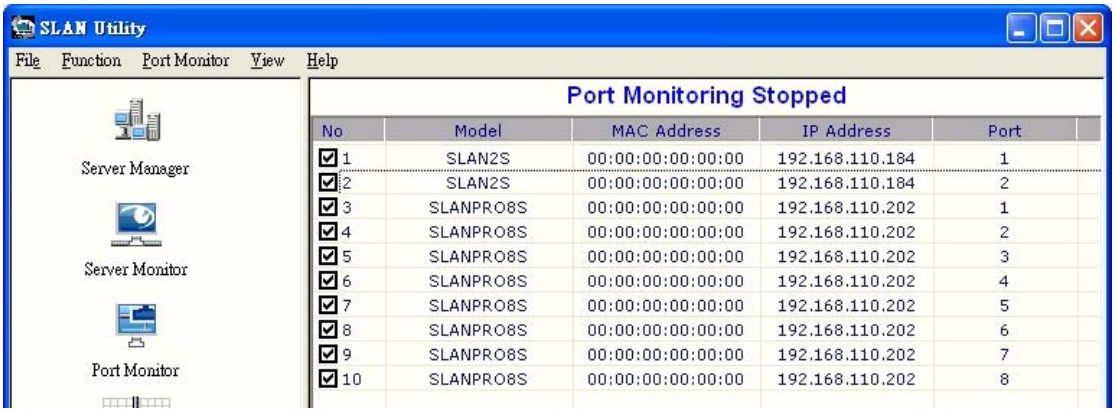


Note:
Device name depends on how many ports Serial over Ethernet server equips, such that SLAN**4S** represents 4 serial ports.

◆ Load Configured Ports

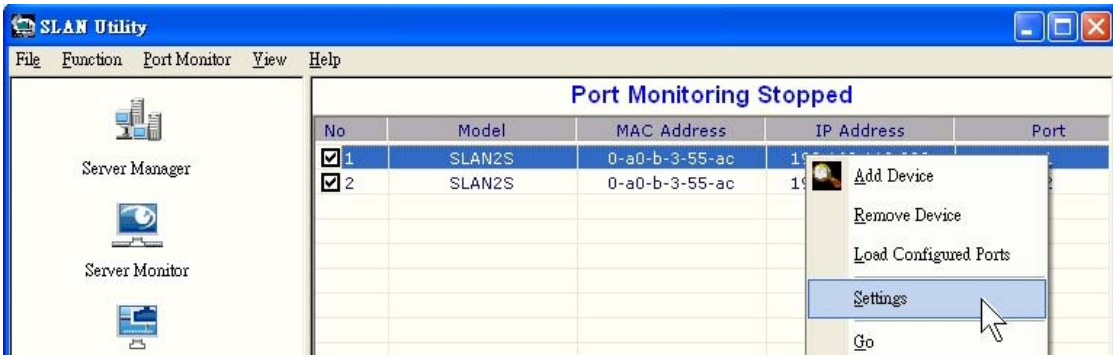
Users can entry “Load Configured Ports” process to reload the pervious COM ports’ locations. Please place the cursor over the configuration row, and right click the Load Configured Port function.





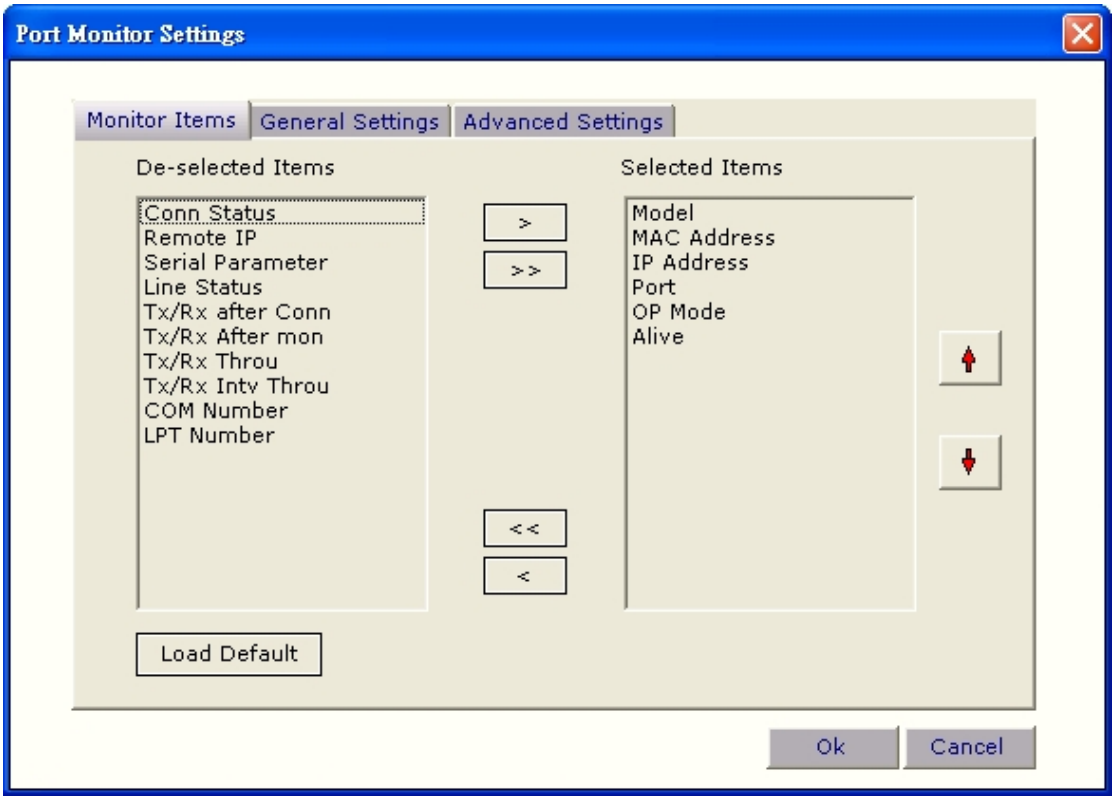
◆ Settings

Serial over Ethernet servers' COM port list will now appear on the Port Monitor screen. Please right click the SLAN and select Settings.



- **Monitoring items:**

Users can select monitoring items of COM port, including Model, MAC address, IP Address, COM port number, OP Mode, Alive check, Connection Status, Remote IP, Serial Parameter, Line Status, Tx/Rx after Connection, Tx/Rx after amount, Tx/Rx Interval Throughput, and Tx/Rx Throughput.



Up and down buttons are used to change the order of items under Monitor display screen.

Please read the detail of these statistic are calculated as below:

Tx/Rx after Connection:

This is the cumulative data count processed on particular TCP port from the time Monitoring has started. If monitoring is stopped and started then only this value will be reset. A unit is Bytes.

Tx/Rx after Mon :

Indicates the amount of data transferred in the polling interval time. The count will become zero if there is no data transfer. A unit is Bytes.

Tx/Rx Interval Throughput :

This is the interval throughput calculated on every refresh rate setting of GUI. Tx/Rx Interval throughput = ((Tx/Rx after Mon) * (DataBits + StopBits + 2)) / Polling Interval. Unit to be bits / sec.

This count resets to zero if there is no FT.

Tx/Rx Throughput :

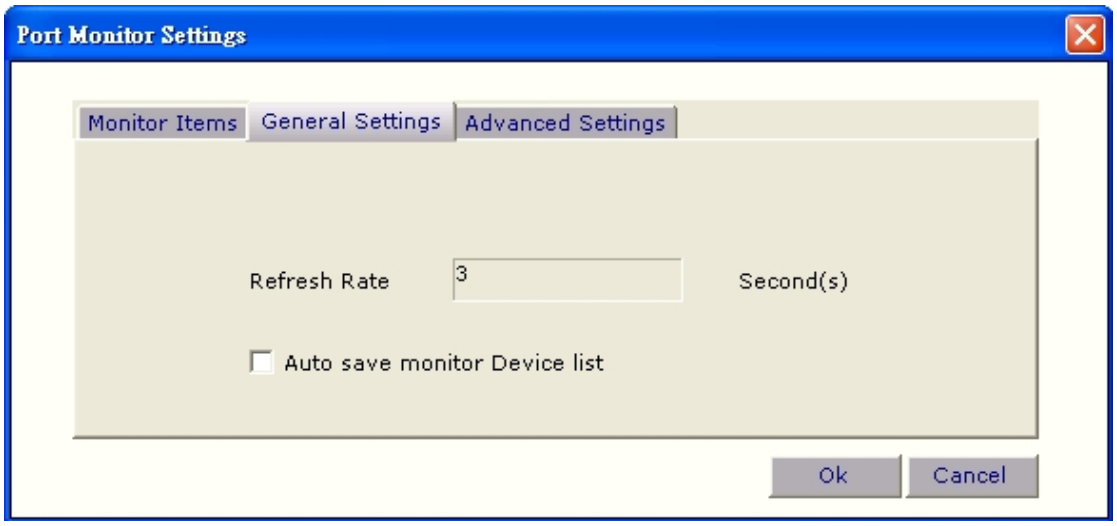
This is the average throughput calculated based on the total data transferred from the beginning of monitoring and the total time taken.

Tx/Rx throughput =((Tx Rx after connection)* (DataBits + StopBits + 2)) / Cumulative Polling Interval time. Units is Bits per second.

Since it is average, the throughput varies (reduces) when there is no file transfer.

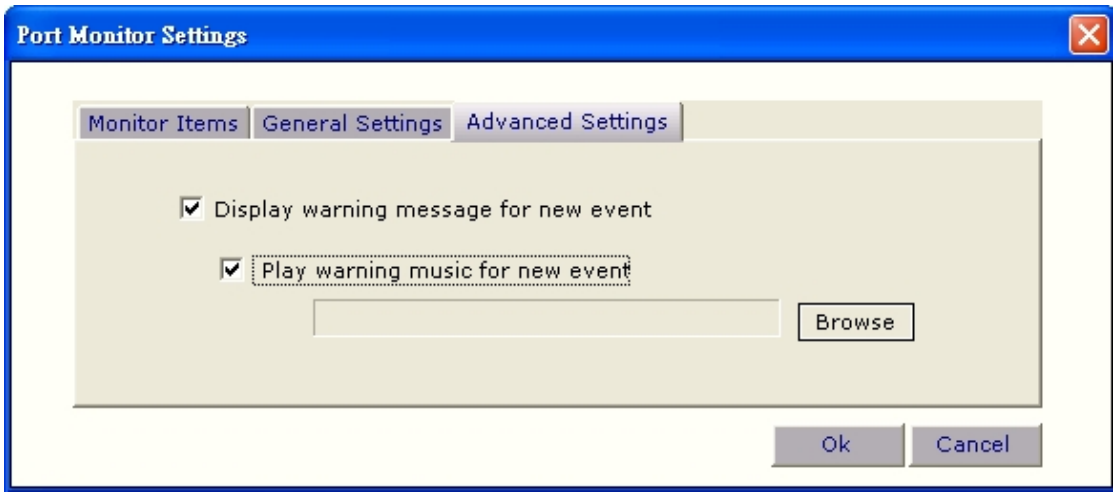
- **General Settings:**

Please select “Refresh Rate” in this page. You can enter the parameter range form 3 to 99 seconds and the default is 3 seconds.



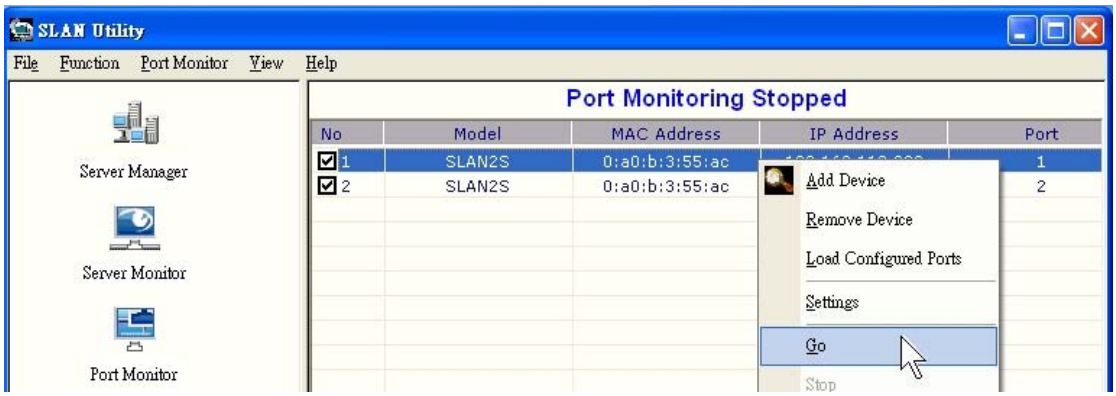
- **Advanced Settings:**

Please select Display warning message or Play the warning music in WAV format when a new event occurs in advanced settings page.

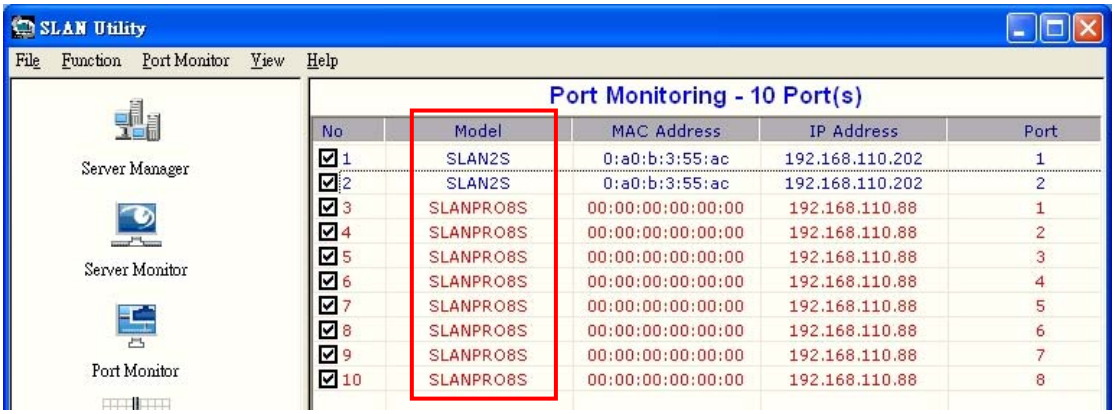


◆ Go

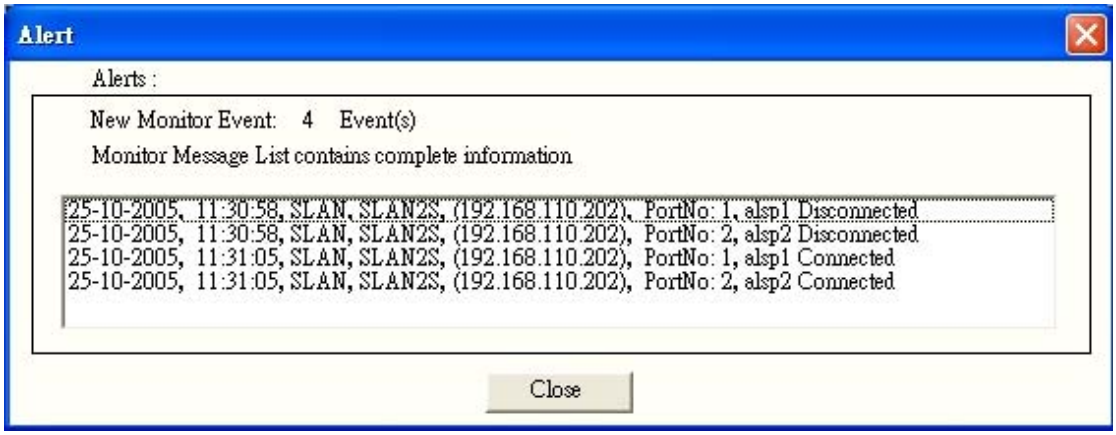
After setting all monitoring items of Serial over Ethernet servers, right click the SLAN and select Go to start monitoring.



In the Monitor screen, you can see the “Not Alive” Serial over Ethernet servers’ COM ports are marked with red color. Blue color to represent that the monitor is active and red one is disconnected.



If the COM port gets connected or disconnected, a warning message will be displayed to remind users.



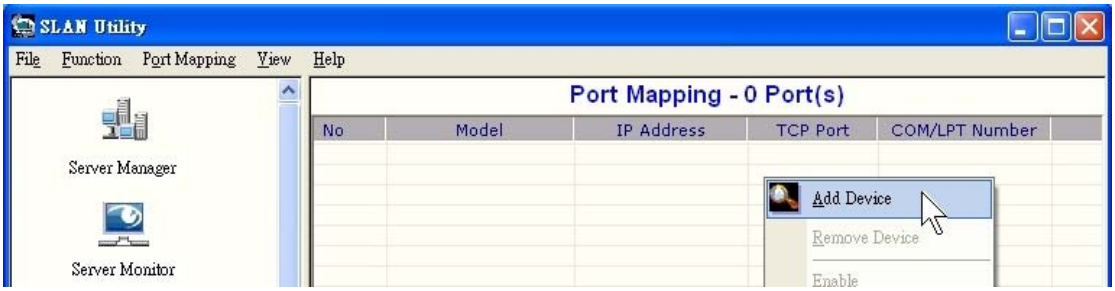
Note:
Be sure to entry “Go” procedure to start Port Monitor function.

Port Mapping

The Port Mapping feature allows Windows platform software using standard API calls to be used in an Ethernet application. After port mapping process, the COM port will look like a standard COM port to Windows software used in most applications allowing the software to open a connection with the serial port located anywhere on the LAN.

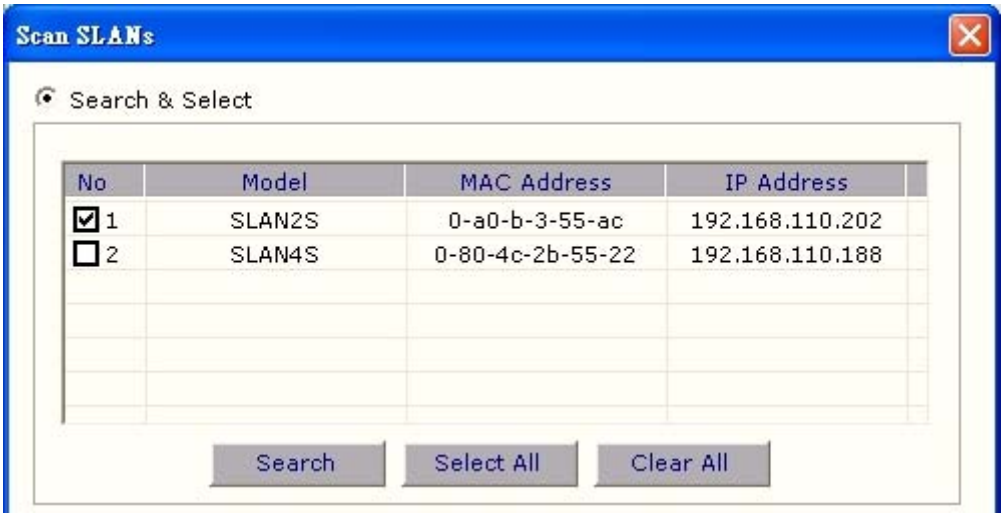
◆ Add Devices

The Add Devices function is used to locate all Serial over Ethernet servers that are connected to the same subnet as your computer by broadcast or specify IP address features. Place the cursor over the configuration row, and right click the Add Devices function.



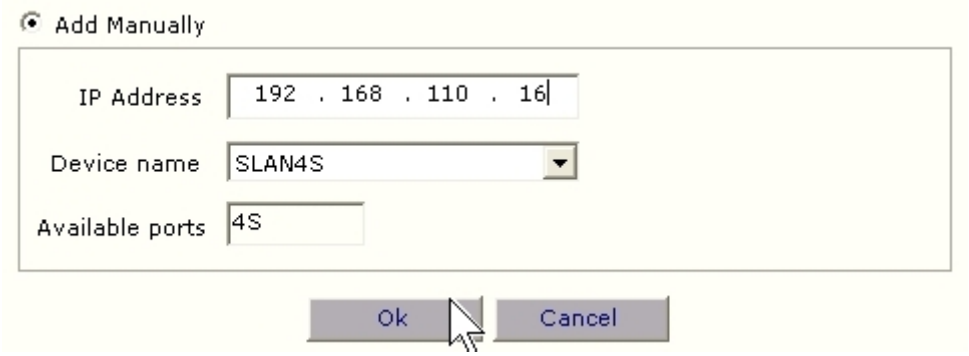
- **Broadcast Search:**

Press “Search” button and the Scan SLANs window will open and display the Serial over Ethernet servers in the same subnet.



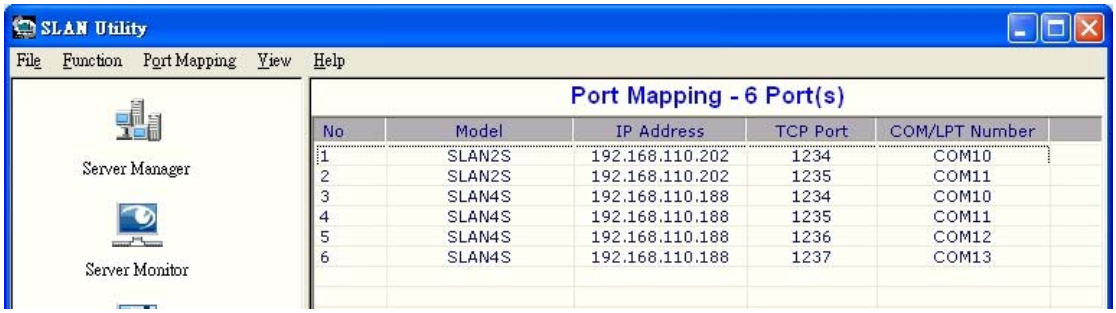
- **Specify IP address:**

Select “Add Manually” option to start specifies IP address process. Please input IP address and select device name, then press “OK” to continue.



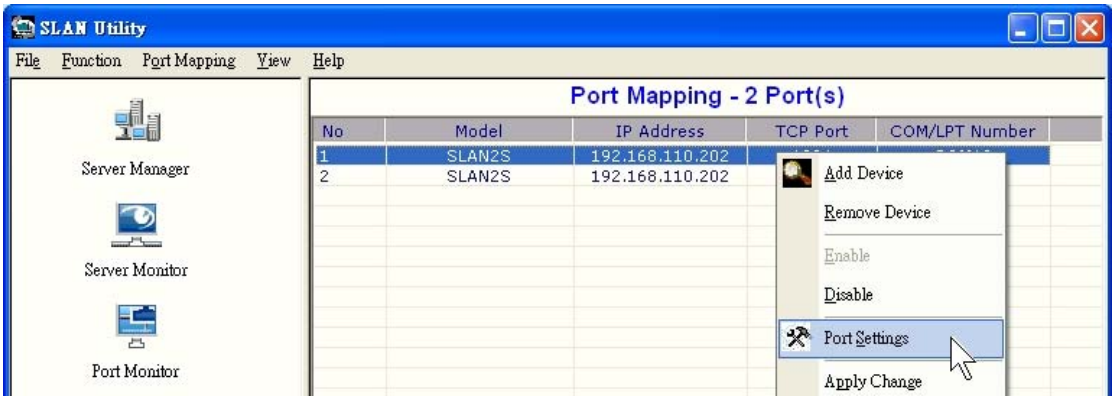
Note:
Device name depends on how many ports Serial over Ethernet server equips, such that SLAN**4S** represents 4 serial ports.

SLAN Utility will show all COM ports in the Port Mapping configuration screen.

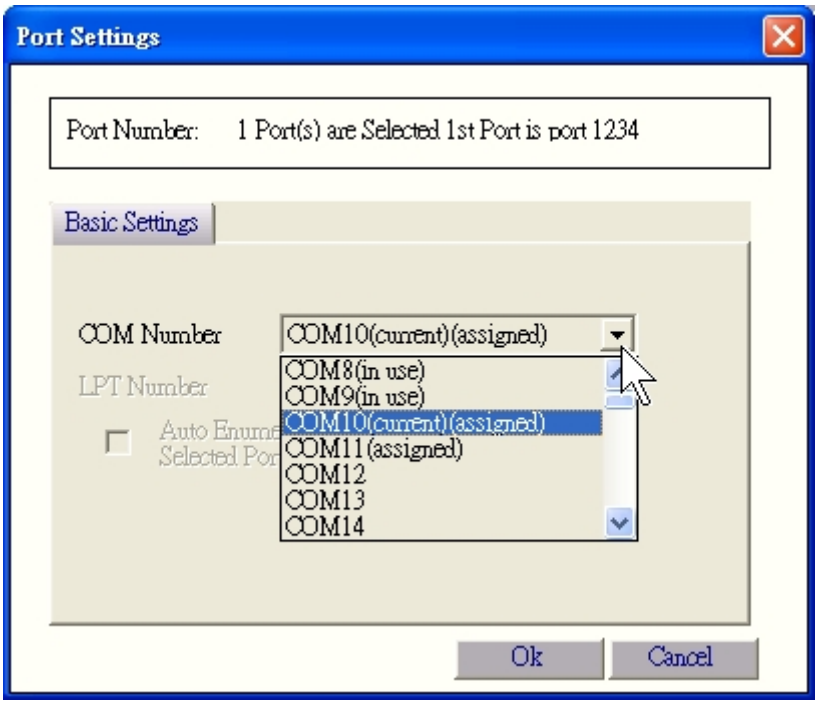


◆ Port Settings

Users can entry “Port Settings” process to modify COM port’s number. Please right click the SLAN and select port settings.

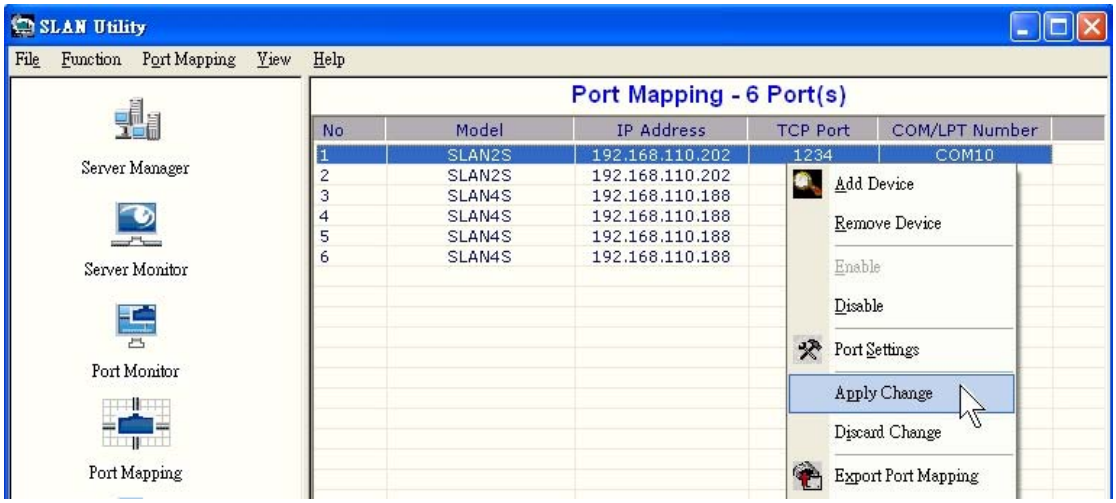


You can select COM Port number form COM1 to COM255. If this COM port is using now, there is a “in use” message shown.

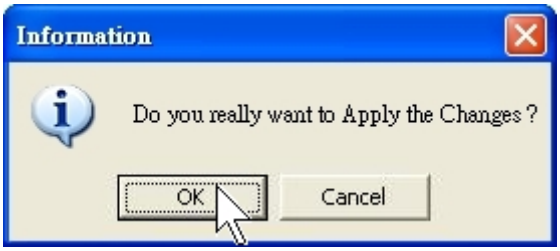


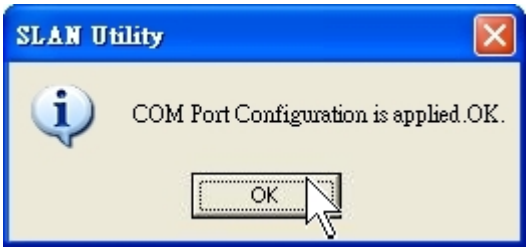
◆ Apply Change

After setting all COM ports, right click on the Serial over Ethernet Server and select “Apply Change” to start port mapping function.



Please click “OK” to enable port mapping function. After few minutes, system will respond COM port configuration is applied OK. Click “OK” to finish port mapping process.

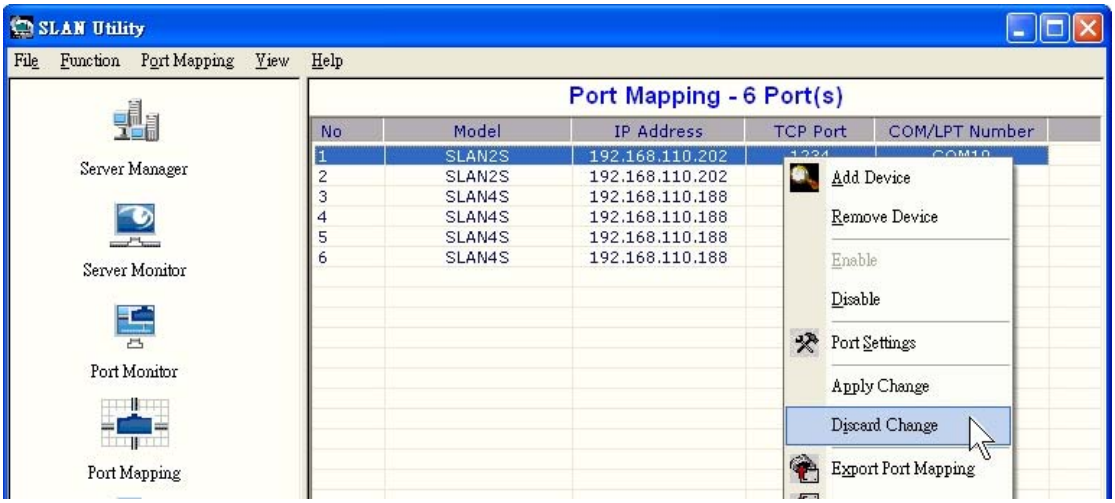




Note:
Be sure to entry “Apply Change” procedure to start port mapping function.

◆ Discard Change

Select “Discard Change” to make SLAN Utility NOT saving the COM Mapping configuration to the host. Right click on the Serial over Ethernet Server and select “Discard Change” to discard all configurations.

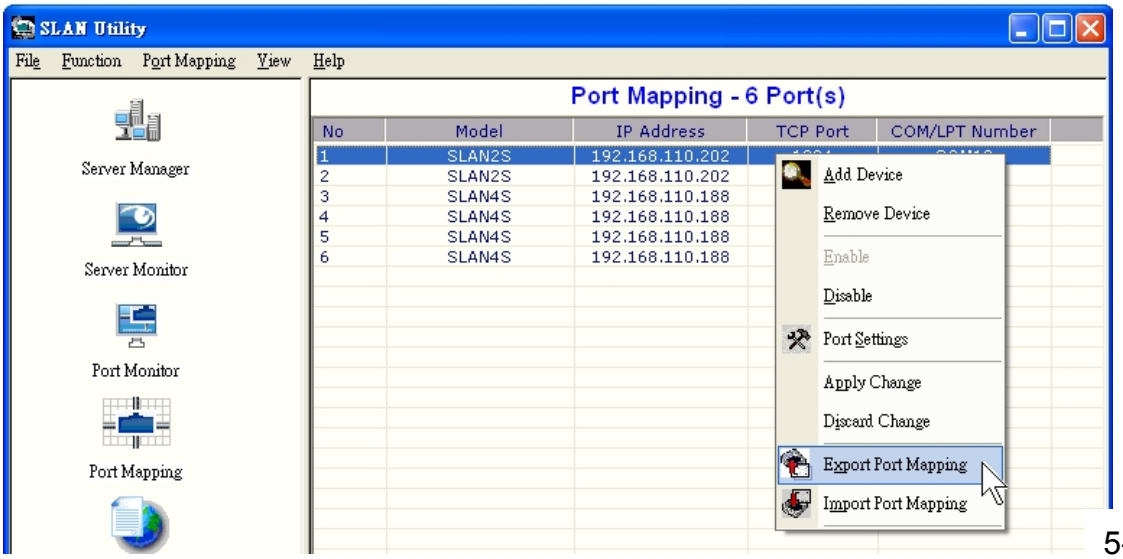


◆ Export / Import Configuration

Please right click on the Serial over Ethernet Server and select the Export or Import Port Mapping function to start exporting or importing the configuration text file.

- **Export Configuration:**

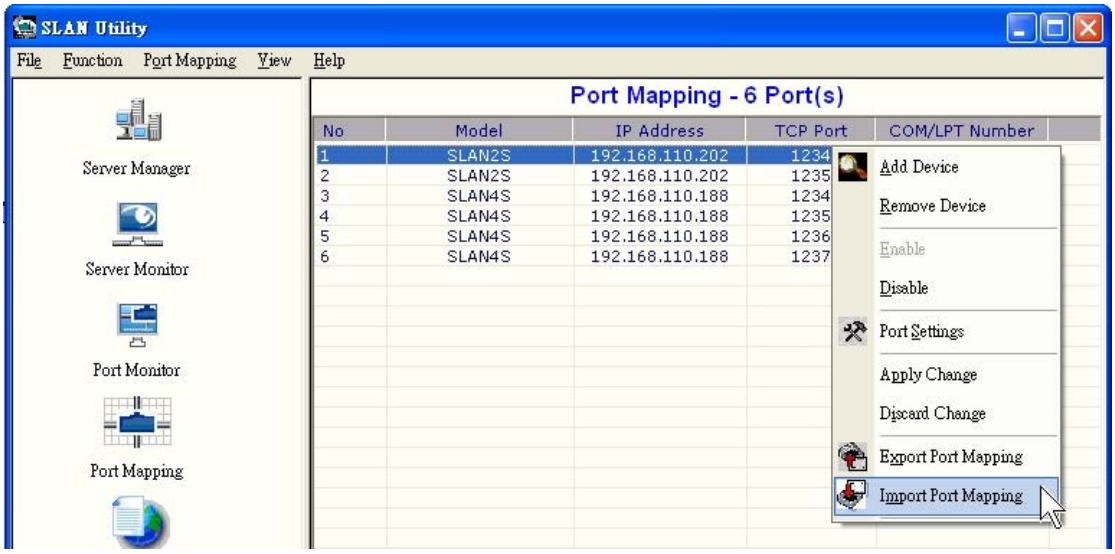
This function is used to create a text file saving the current configuration of one particular Serial over Ethernet server’s COM ports. It can be saved as ini text file for quick usage on next iteration.



Browse to give path & file name for configuration to be saved. Click OK to save this ini text file in your system. Successful export message appears. Click OK to close the same.

- **Import Configuration:**

This function is used to import one particular Serial over Ethernet server's COM port configuration from the text file into one or more of the same model Serial over Ethernet server. To import a configuration, please select the target ini text file that user exported before.



Configuration window appears, click on Port Settings page and enable Modify option. Now holding down the Ctrl key to select multiple ports then click on OK button to import the configuration settings.

Note:
Be sure to entry "Apply Change" procedure to start port mapping function.

Auto IP Address Report

Serial over Ethernet Server does not support “Auto IP Address Report”. Please skip this function.

Note:
Auto IP Address Report feature is supported by Serial over Ethernet Server Profession version, such as 8, 16, and 32 ports model.

6.

Port Re-Director Driver

This chapter introduces the configuration of Serial over Ethernet Server on Linux based operation system, including Linux 2.4.X (Redhat8, Redhat9), and Linux 2.6.X (Fedora Core 2.0) Kernels.

The following topics covered in this chapter:

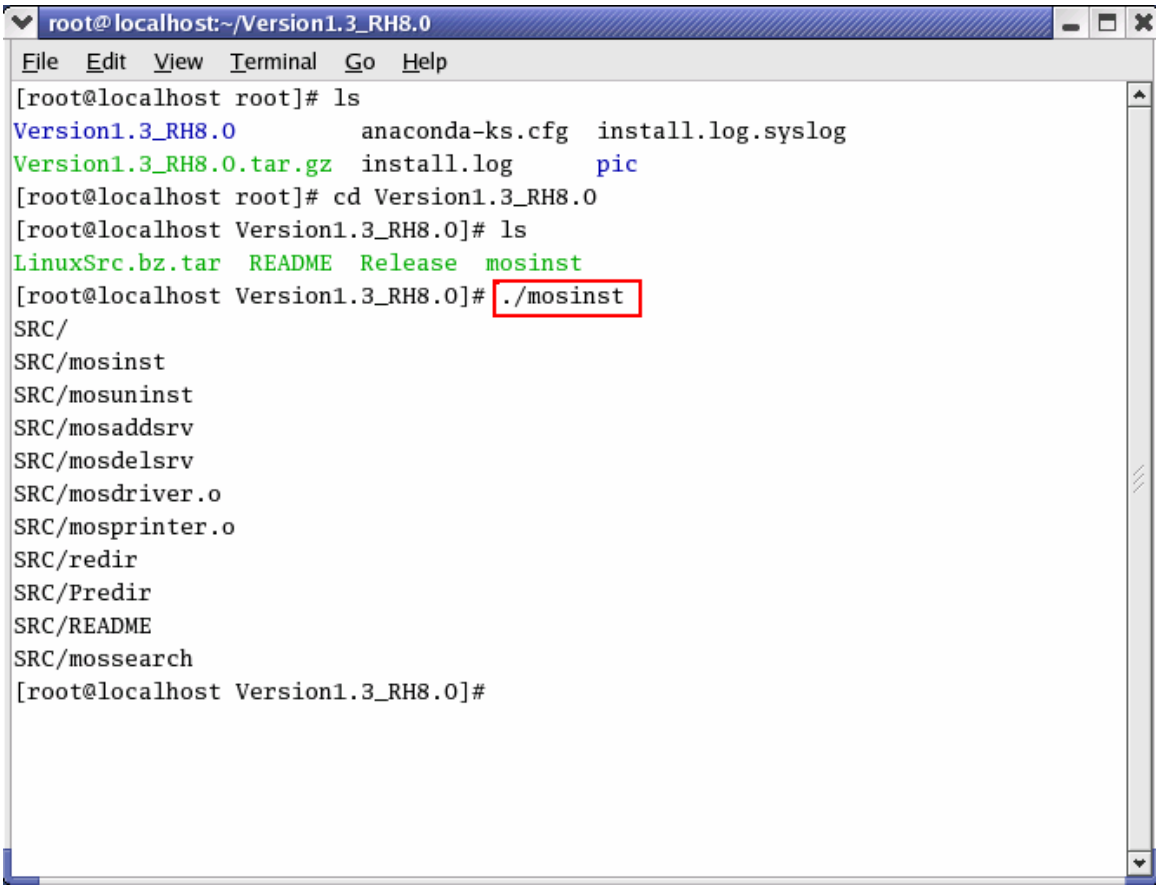
- **Install Port Re-Director Driver**
- **Uninstall Port Re-Director Driver**

Install Port Re-Director Driver

1. Be sure to login in system as super user (root) firstly. Please insert the CD driver as bound with your SLAN product into your CD/DVD ROM, and copy the Linux wizard file on your PC. Then extract Linux wizard to root folder.

   **: \ SLAN \ Software \ Linux **

2. Using Terminal and execute **./mosinst** in the root folder.

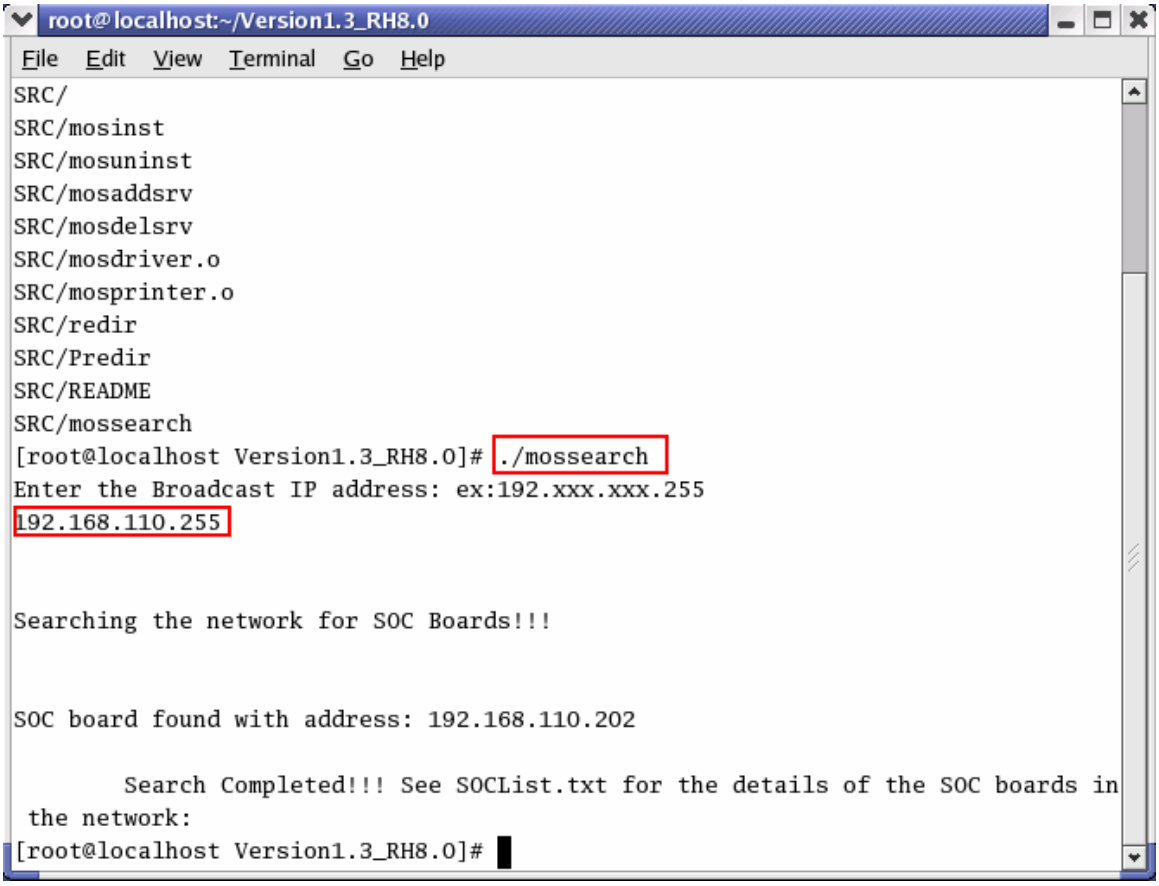


Mossearch:

This will scan the network and gives the output in one readable text file (SocList.txt) with the IP address of the SOC boards.

3. Execute **./mossearch**

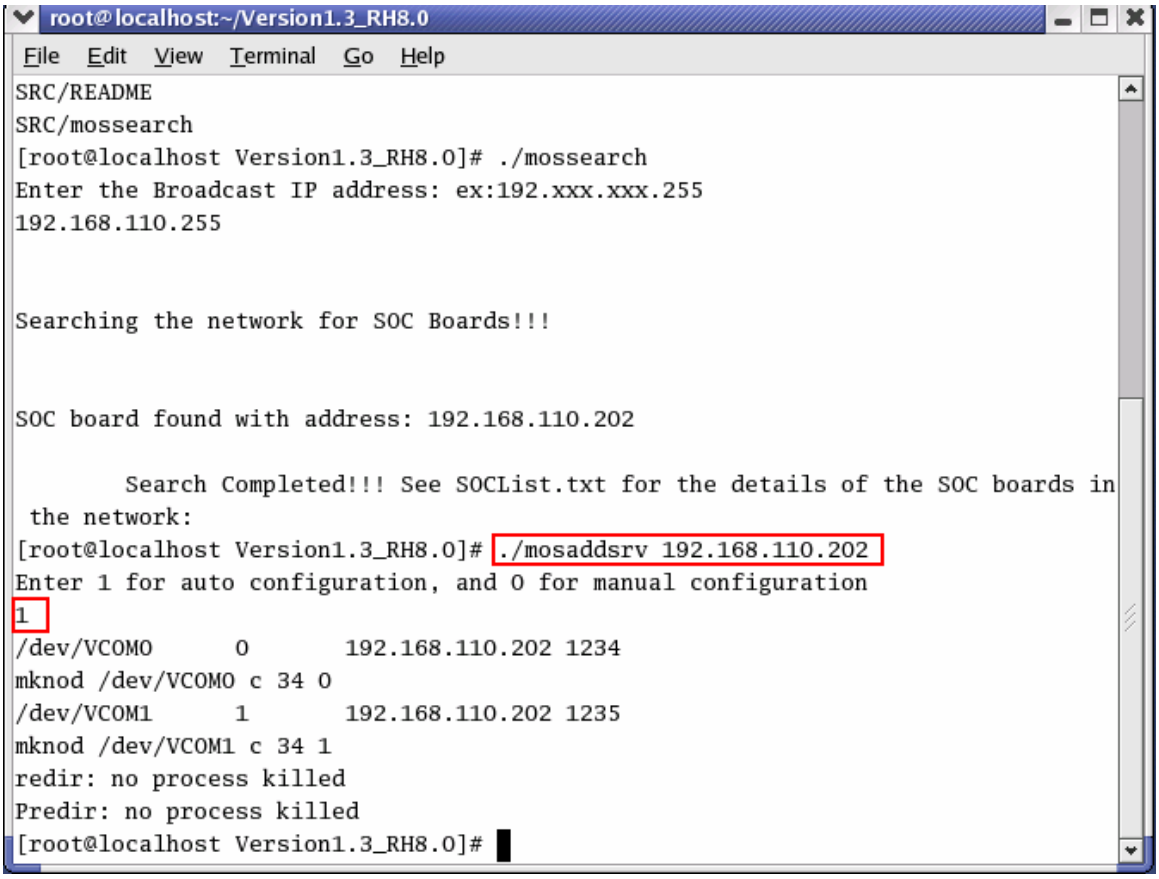
It will ask for Broadcast IP address of that network which the user will access. The generated file SOCList will have the list of the devices and the corresponding number of serial ports for each of the device.



4. Execute **./ Mosaddsrv**

This will add the board with some specfic IP address to the configuration file and creates the virtual port mapping for the board.

: ./mosaddsrv <Ipaddress>
./mosaddsrv 192.168.110.202



Following options available:-

1.User have option to configure the device either manual or automatic.In Manual configuration i.e User can configure only a part of ports(like 2 ports in existing available ports).
In Automatic configuration all the ports of the device are configured.

2.If the Device is already configured, it will ask the user to either replace existing board or continue.

mosaddsrv will add the entries in the Serial configuraton file(Com2eth.cfg)

The file Com2eth.cfg will have the entries of the virtual serial ports in the following format

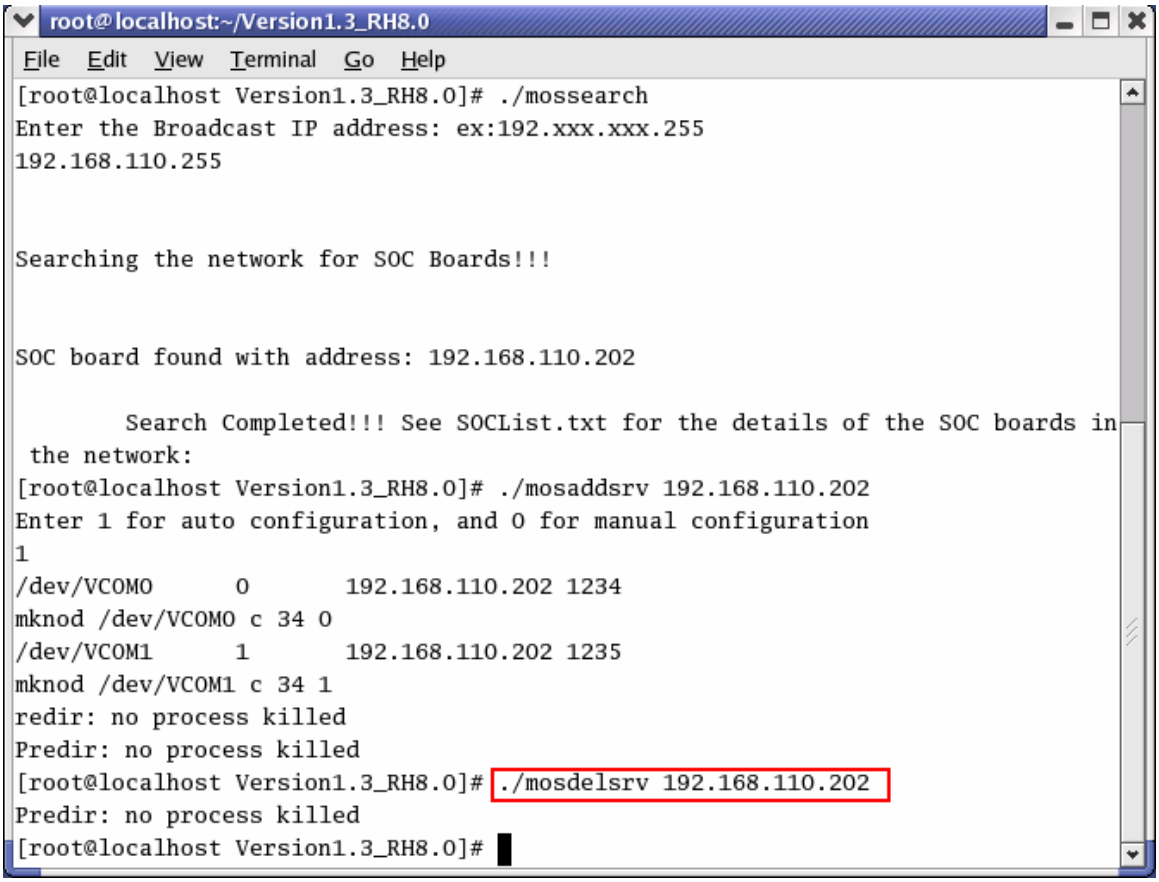
DeviceName	ProcDevice	IPaddress	PortNo
/dev/VCOM0	0	192.168.110.202	1234

Where "/dev/VCOM0" is the Virtual Serial port for Port0 of the board
192.168.110.202 and 1234 is the port Number

5. Execute **./ Mosdelsrv:**

Mosdelsrv delete the board with the specified address in the configuration files and also clears the port mapping.

Usage: ./mosdelsrv <IP address>
./mosdelsrv 192.168.110.202

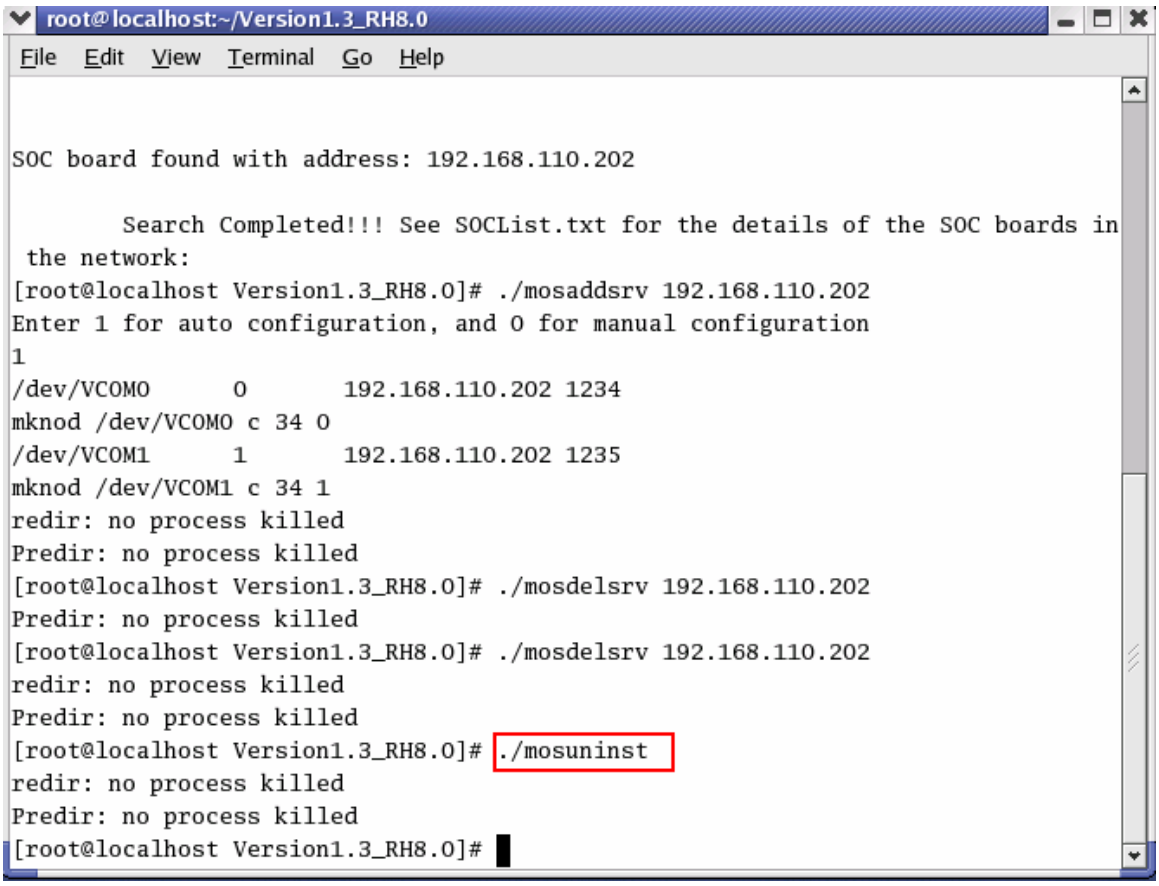


The released ports will be made available for the new devices going to be added further.

Uninstall Port Re-Director Driver

1. Execute **./ Mosuninst:**

Mosuninst will uninstall the serial and parallel driver from the system.
It also removes all the generated files and configuration files.



Note:

1.The Configuration files are automatically generated and they should not be changed manually.

2.To use the serial ports the user is supposed to check the configuration file Com2eth.cfg and select the corresponding virtual ports.

7.

Troubleshooting

This chapter shows some problems that user came with usually. Also you can check it if the Serial over Ethernet Server can not work properly in your system after following hardware and software installation steps.

Troubleshooting

1. I can not search any Serial over Ethernet Server in SLAN Utility.

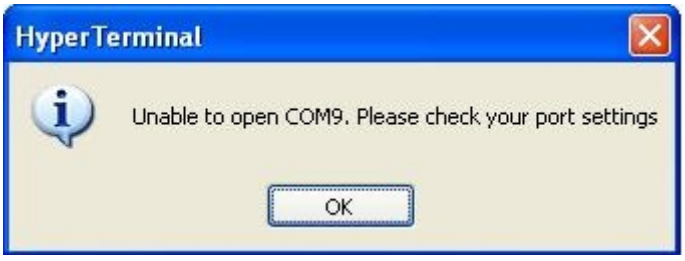
This problem may cause in following reason:

1. Please confirm your Serial over Ethernet Server's network setting firstly. Factory default IP is 192.168.1.1, be sure to configure it to match your Ethernet network settings. Please refer to chaper 3, Initial IP Configuration for detail.

2. If your PC and Serial over Ethernet Server are in the different subnets, please use "Add with IP Address " function, instead of "Seach Devices" function to access Serial over Ethernet Server.

3. Be sure to connect power and Ethernet cable connect to Serial over Ethernet Server properly.

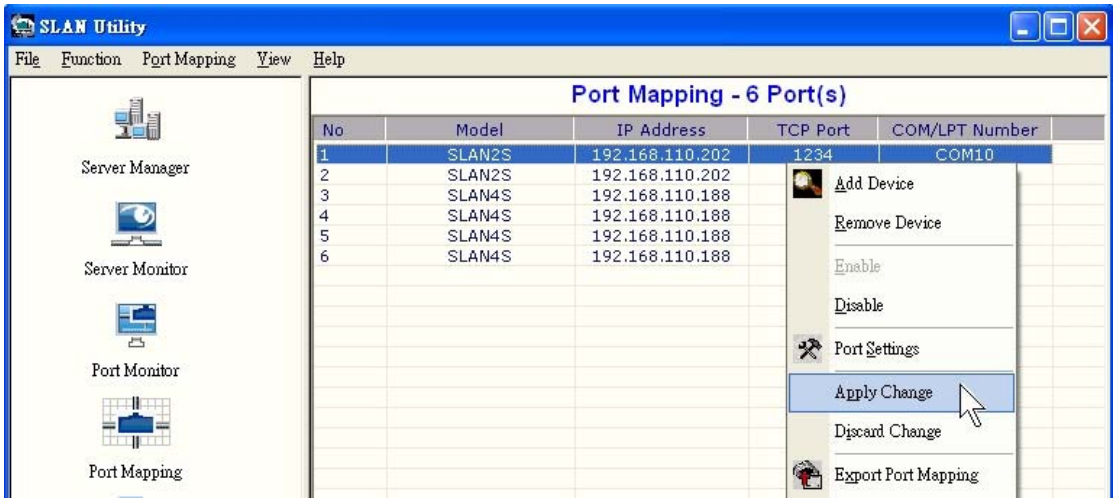
2. I can not open COM port after searching and setting all Serial over Ethernet Server.



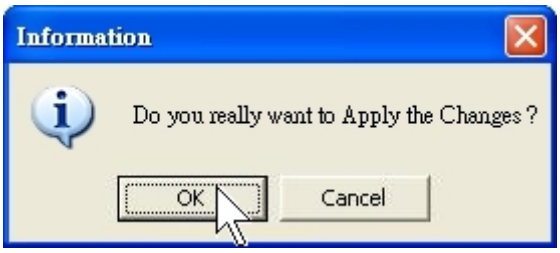
This problem may cause in following reason:

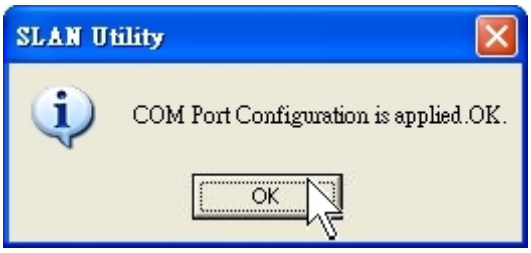
1. Please confirm Ethernet cables connected both on Serial over Ethernet Server and PC properly.

2. Please execute port mapping function in SLAN Utility. Be sure to execuite “Apply change” procedure to start port mapping function.

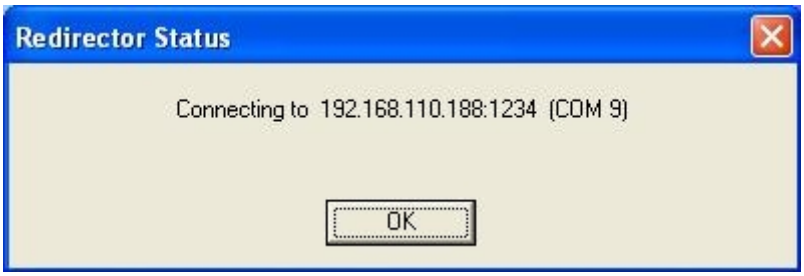


Please click “OK” to enable port mapping function. After few minutes, system will respond COM port configuration is applied OK. Click “OK” to finish port mapping process.

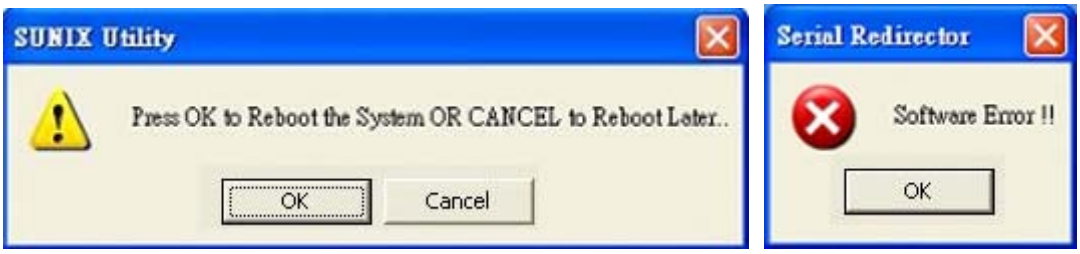




After mapping port fuction starting, you can check the “Redirector Status” windows pup-up when open assigned COM port.

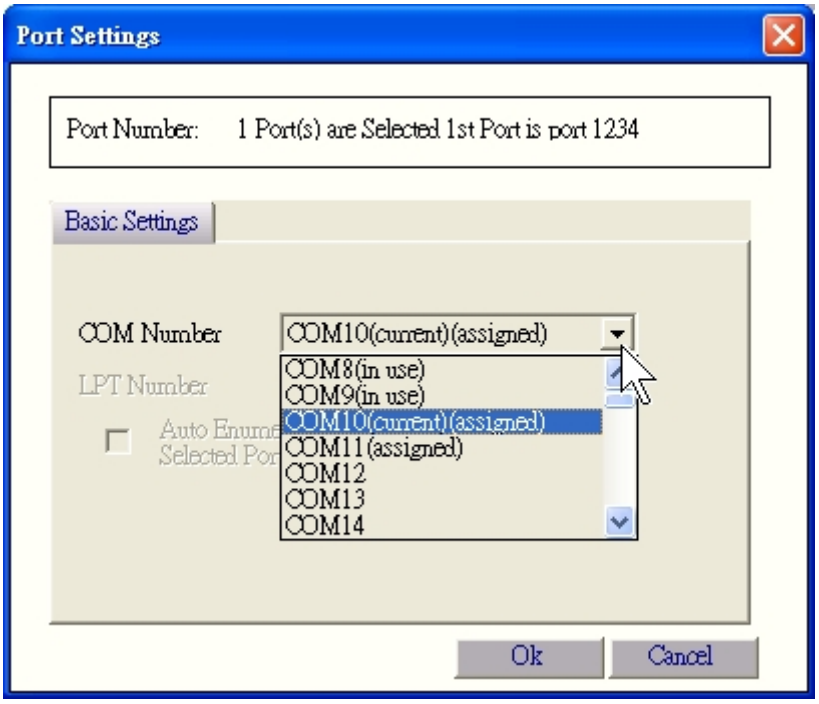


3. When apply change completed under port mapping fu nction, it is lunch a fail message windows as blow.



A: This issue resolved by updating COM number of one of the SLAN port to some un-used COM port, under Port Mapping function. Please change the COM port number to another one to solve this problem.

Port conflict was observed in Registry under Serial COM which was not reported in Windows COMDB. Such issue would occur when ever Serial applications don't report the COM numbers claimed by them to Windows COMDB.



How to check COM Number conflicts :

In registry windows maintains the installed COM port information at two places, which is as mentioned below.

HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\SERIALCOMM

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\COM Name Arbiter

When ever some one claims a COM port, they have to make entry in COMDB under COM Name Arbiter. If some one has an entry under SERIALCOMM and not have any entry under COM Name Arbiter then that port can cause conflict to other softwares when they try to occupy the port by refering to COMDB.

4. I can not configure Serial over Ethernet Server through console port.

Be sure to use Straight-Through RS-232 Serial cable connect between Serial over Ethenr Server and PC' COM port. Please refer to chapter 8, cable wiring section for detail. Remembering, always set baud rate at 57600 bpse level when access console port.

5. Can I use telnet or web console to access Serial over Ethernet Server.

No, Serial over Ethenet Server only supports Windows SLAN Utility and serial console for configuration.

6. How many Serial over Ethernet Servers that I can configure in the same SLAN Utility windows.

There is no limitation for users access and configure Serial over Ethenet Servers, even different SLAN models or differernt interface.

8.

Appendix

This chapter shows Serial over Ethernet Server core technologies and shows you how to contact with us for information about this and other products.

In this appendix, we cover the following topics.

- **Core Technologies**
- **Cable Wiring Diagrams**
- **Safety Guide**
- **Contract Information**

Core Technologies

Our R&D team is experienced and expert at many advanced technologies needed for manufacturing highly- reliable data communication products. This Serial over Ethernet Server equips many hardware and software features for users easily equipping in kinds of critical or harsh factory and industrial environment. It's also the best solution for all of industrial communication and automation application.

◆ High Performance & Intelligent ASIC SUN8989

SUN8989 is a high performance and intelligent Serial over Ethernet SoC (System on Chip) controller. It integrates 10/100 Mbps Ethernet controller with auto-detect features. Maximum transmission bandwidth ups to 1 Mbps shared by each serial port and built-in watchdog timer to prevent system lockup. It's not only for full compatibility with Microsoft OS series and Linux, but also allowing us to offer complete support for driver and technological change on the Serial RS-232 / 422 / 485.

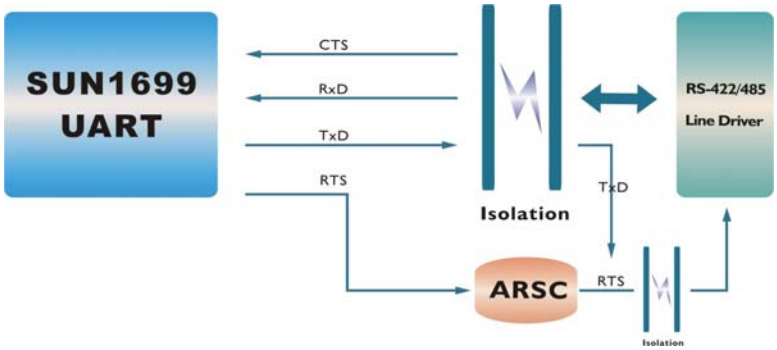
◆ RS-422/485 Auto Identify & Switch Technology

Serial over Ethernet Server has built-in RS-422/485 Auto Identify & Switch technology. It can automatically identify the state of RS-422 full-duplex or RS-485 half-duplex and control the data transceiver and receiver wires at the same port without selecting jumpers or switches anymore. It's more convenient for users to avoid shutting down Serial over Ethernet Server for jumpers or switches setting.

◆ RS-485 ARSC™ Technology

Due to the limitation of traditional RS-485 two wires half-duplex communication, system must determine when to switch the transmitter on and off. There is only one node can be switch on and off at any given time by software. ARSC™ (Auto RTS Signal Control) technology can identify the status of data transceiver or receiver and send RTS signal automatically, instead of using software/hardware to control the transmitter.

RS-422/485 Serial over Ethernet Server has built-in ARSC™ technology now. System can manage the RS-485 ports without writing extra code to control the half-duplex protocol by using ARSC™ technology.



◆ Termination Resistors Building In

When an electrical signal travels through two different resistance junctions in a transmission line, the impedance mismatch will sometimes cause signal reflection. Signal reflection causes signal distortion, which in turn contributes to communication errors. The solution to this problem is to establish the same impedance at the line ends as in the line itself by terminating them with resistors. It is normally sufficient when the value of the termination resistor equals the characteristic impedance of the transmission line. Serial over Ethernet Server has built-in in termination resistors to prevent those problems.

◆ Optical Isolation Protection (Optional)

The ground loop is a common problem in many industrial environments, especially in the state of ground voltage levels differ between connected devices in the type of critical or harsh factory environment when transmission line is long. Communications devices connected by long cables may be damaged by the mismatch between ground voltage levels at the two ends of the wire. Optical isolation uses photo cells at both ends of the line to isolate the devices' sensitive components from this type of electrical damage. PC/104 serial board provides 2.5KV optical isolation for power and signals to eliminate this kind of problem.

◆ Surge Protection (Optional)

Surges are high amplitude electrical pulses lasting only several millionths of a second in duration. They can be caused by heavy-duty equipment, power lines, short circuits, or large motors. A surge suppressor has the ability to effectively absorb the high energy in an extremely short period of time, preventing the connected devices from damage. To eliminate this problem, we provide the embedded 600W surge protection for all signals.

Cable Wiring Diagram

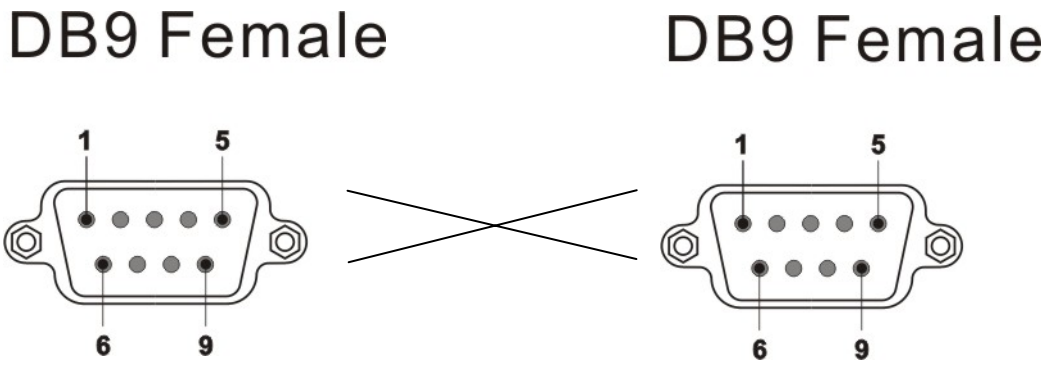
Please refer to the following illustration for Straight-Through and Cross-Over serial and Ethernet cable.

◆ Serial Cable

Please refer to the following illustration for Straight-Through and Cross-Over Serial cable.

- **Cross-Over Serial cable:**

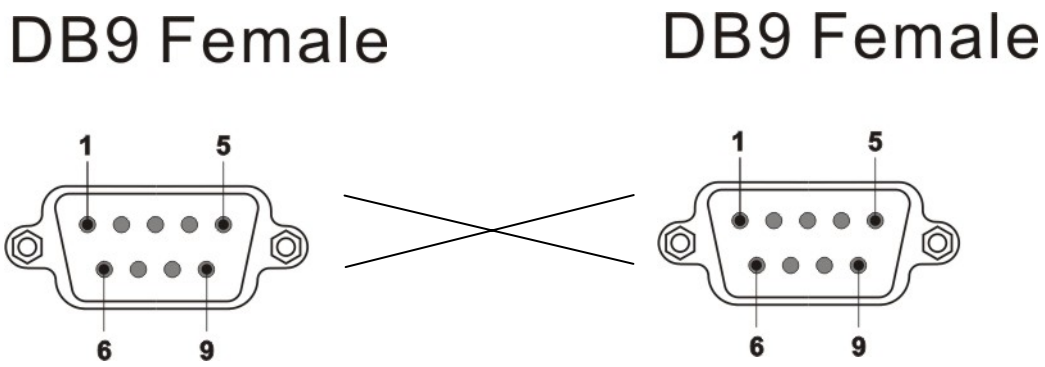
A. RS-232



Pin NO	Signal
1	DCD
2	TxD
3	RxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Signal	Pin NO
DCD	1
TxD	2
RxD	3
DTR	4
GND	5
DSR	6
RTS	7
CTS	8
RI	9

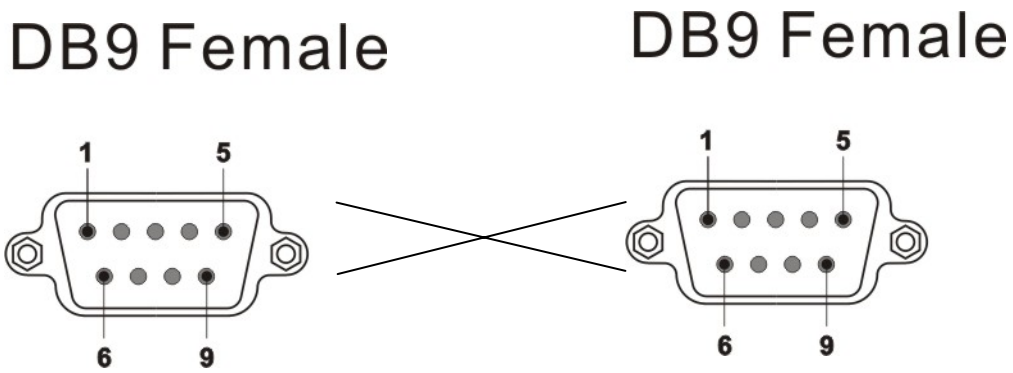
B. RS-422



Pin NO	Signal
1	TxD-
2	TxD+
3	RxD+
4	RxD-
5	GND
6	RTS-
7	RTS+
8	CTS+
9	CTS-

Signal	Pin NO
TxD-	1
TxD+	2
RxD+	3
RxD-	4
GND	5
RTS-	6
RTS+	7
CTS+	8
CTS-	9

C. RS-485

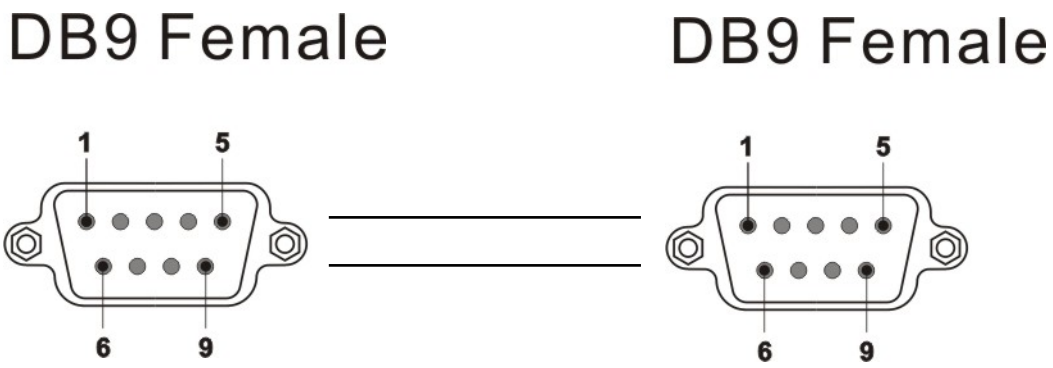


Pin NO	Signal
1	Data-
2	Data+
3	-
4	-
5	GND
6	RTS-
7	RTS+
8	CTS+
9	CTS-

Signal	Pin NO
Data-	1
Data+	2
-	3
-	4
GND	5
RTS-	6
RTS+	7
CTS+	8
CTS-	9

- **Straight-Through Serial cable:**

A. RS-232



Pin NO	Signal		Signal	Pin NO
1	DCD	———	DCD	1
2	TxD	———	TxD	2
3	RxD	———	RxD	3
4	DTR	———	DTR	4
5	GND	———	GND	5
	DSR	———	DSR	6
7	RTS	———	RTS	7
8	CTS	———	CTS	8
9	RI	———	RI	9

◆ Ethernet Cable

Please refer to the following illustration for Straight-Through and Cross-Over Ethernet cable.

Straight-Through Cable

Cable Wiring

3	3
6	6
1	1
2	2

Cross-Over Cable

Cable Wiring

3	1
6	2
1	3
2	6

Safety Guide

- Read and follow all instructions and warnings provided.
- Save these instructions for future use.
- When service or replacement of parts is required, ensure work is done by a qualified technician.
- Do not use this unit near water or in a rainy/moist environment.
- Use supplied cables only.
- Do not attempt to service this product yourself. Doing so will expose you to various hazards including dangerous voltage.
- Pay attention to power using.
- Please use factory default power adapter to prevent from damage.
- Disconnect the power cable (pull plug) in the following situations :
  * In the event of service.
  * Power cable/plug becomes damaged.
  * Unit is exposed to excess moisture/rain
  * Unit has been dropped.
  * Unit is being cleaned.
- Unit must be used with adult supervision at all times. Children must not be allowed to handle any of the cables.
- Never insert any objects other than CDs in the trays.
- Never insert any objects through ventilation holes.

Remember ! ! Any electrical equipment is hazardous if handled improperly.

Contract Information

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, SUNIX services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support

..... info@sunix.com.tw

World Wide Web (WWW) Site for product information:

.....http://www.sunix.com.tw