SE8502

Industrial IP68 Serial Device Server

User's Manual

v. 1.3

April, 2017

Important Announcement

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1 Preface

Purpose of the Manual

This manual supports you during the installation and configuring of the SE8502-M12 Series only, as well as it explains some technical options available with the mentioned product. As such, it contains some advanced network management knowledge, instructions, examples, guidelines and general theories designed to help users manage this device and its corresponding software; a background in general theory is a must when reading it. Please refer to the Glossary for technical terms and abbreviations.

Who Should Use This User Manual

This manual is to be used by qualified network personnel or support technicians who are familiar with network operations; it might be useful for system programmers or network planners as well. This manual also provides helpful and handy information for first time users. For any related problems please contact your local distributor, should they be unable to assist you, please redirect your inquiries to www.atop.com.tw or www.atop-tech.com .

Supported Platform

This manual is designed for the SE8502-M12 Series and that model only.

Warranty Period

We provide a **5 year limited warranty** for SE8502-M12 Series.

Federal Communications Commission Statement

FCC - This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

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

CE Warning

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

2 Introduction

2.1 Product Overview

SE8502-M12 is a waterproof, dustproof, and vibration-resistant Industrial 2-port IP68 Serial Server.

There is a strong demand for reliable and rugged networking solutions that can be used for the industrial workplace in harsh environmental conditions, such as high levels of moisture, dust, heat, electrical interference, and vibration. SE8502-M12 is a device that has an IP68-rated housing and M12 metal connectors. It also provides a wide operating temperature range from -40°C ~ 75°C.

SE8502-M12 supports multiple link modes with TCP server/client, UDP and Virtual COM all of which can be configured with our Windows-based utility. SE8502-M12 comes with M12 connectors which firmly secure the device's cable preventing link fails due to cable loosening that result from vibrating conditions, such as in moving vehicles. This example illustrates how to connect serial devices to a local area network or a backbone network, Figure 2.1.

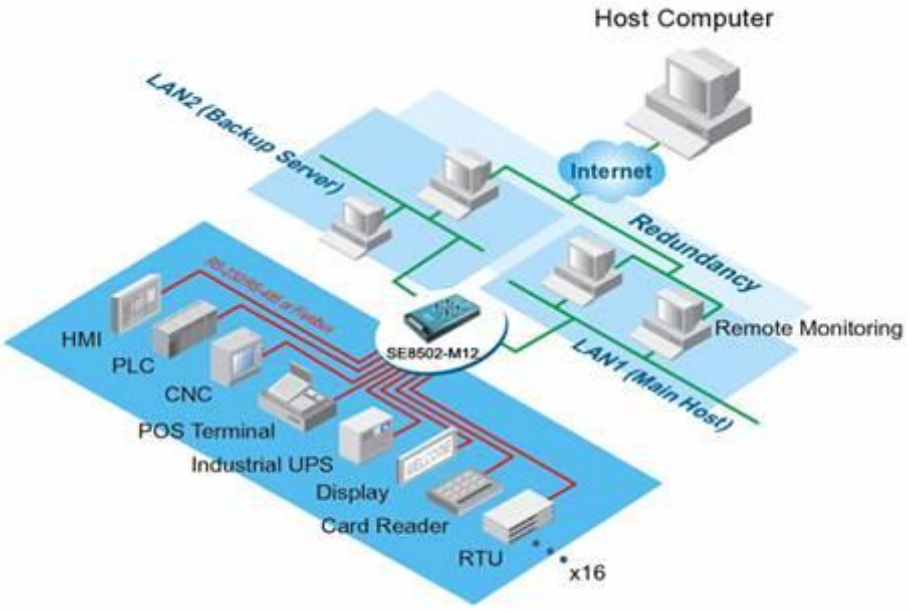


Figure 2.1

2.2 Features

The SE8502-M12 Series is our latest addition to our Industrial serial device products; its small size but powerful architecture makes it a perfect choice for industrial/manufacturing needs in which size is a decisive factor. It rewards our customers with superb connectivity withstanding all the harshness in your environment of choice. Among its many characteristics, we could mention:

- Configuration: Built-in Web Server / Telnet / Management Utility
- Firmware upgradable via Management Utility or Web UI
- Rigid aluminum case design complies with IP68 standard @ 60 minutes
- Wide temperature range : -40 ~ 75°C
- Field-style or DIN-Rail mounting

Caution

Beginning from here there will be extreme caution exercised.

Never install or work on electrical or cabling during periods of lighting activity. Never connect or disconnect power when hazardous gases are present.

WARNING: Disconnect the power and allow to cool 5 minutes before touching.

3 Getting Started

3.1 Inside the Package

Inside the product purchased you will find the following items:

Table 3.1

Item	Quantity	Description
SE8502-M12 Series	1	Industrial IP68 Serial Device Server
Installation Guide + Warranty Card	1	
Din Rail Kit	1	Already mounted to the device, only for SE8502-M12 (DIN-Rail) and SE8502-Sis-M12 (DIN-Rail)
CD (Utilities)	1	Inside you will find: ● User's Manual ● Installation Guide ● **Device Management Utility©** Configuration tool

Note: Please notify your sales representative if any of the above items is missing or damaged in any form upon delivery. If your sales representative is unable to satisfy your enquiries, please contact us directly.

3.2 Device Dimensions

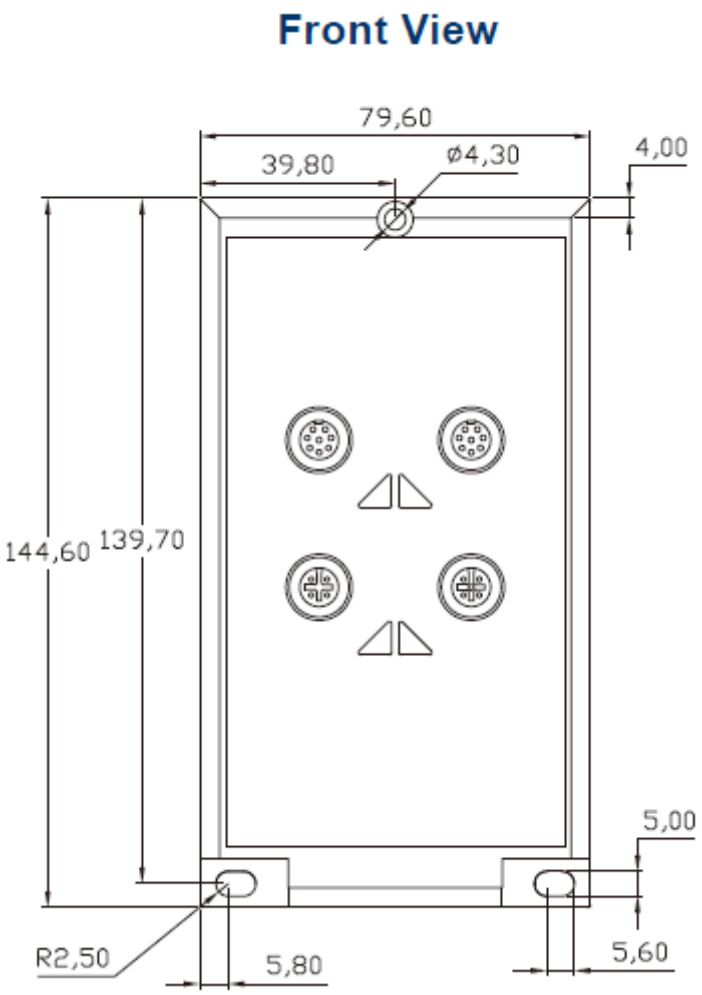


Figure 3.1

Without DIN-Rail:

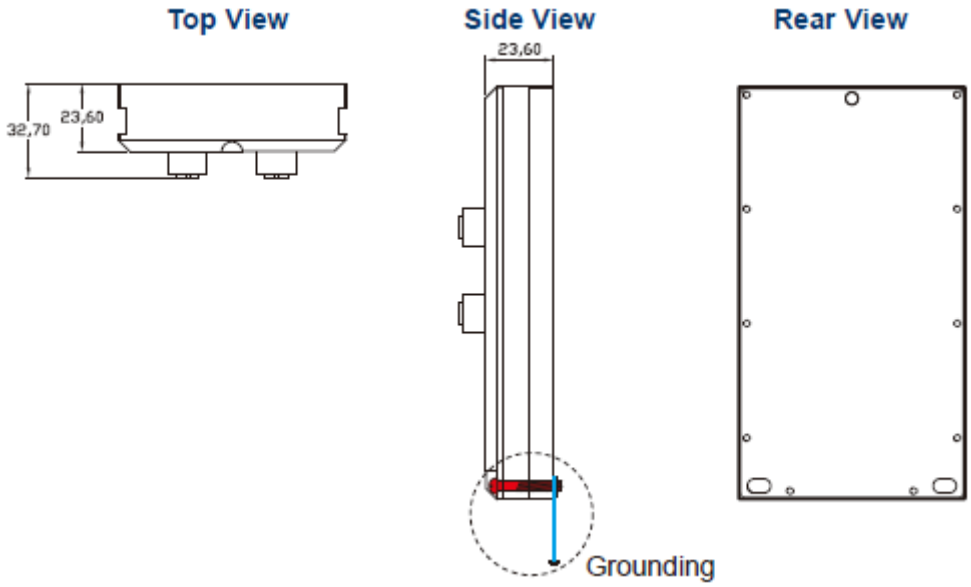


Figure 3.2

With DIN-Rail:

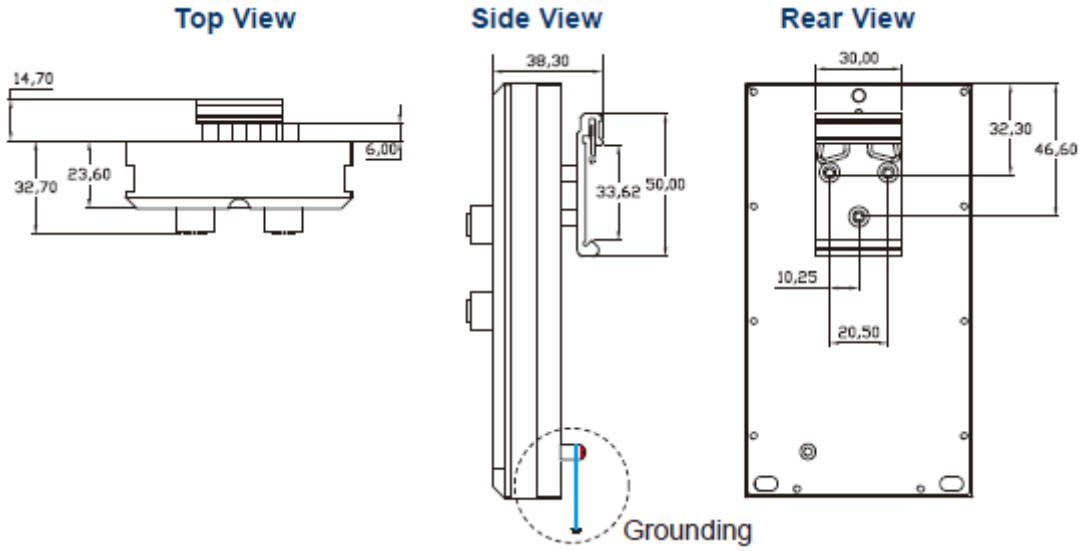


Figure 3.3

3.3 Panel Layouts

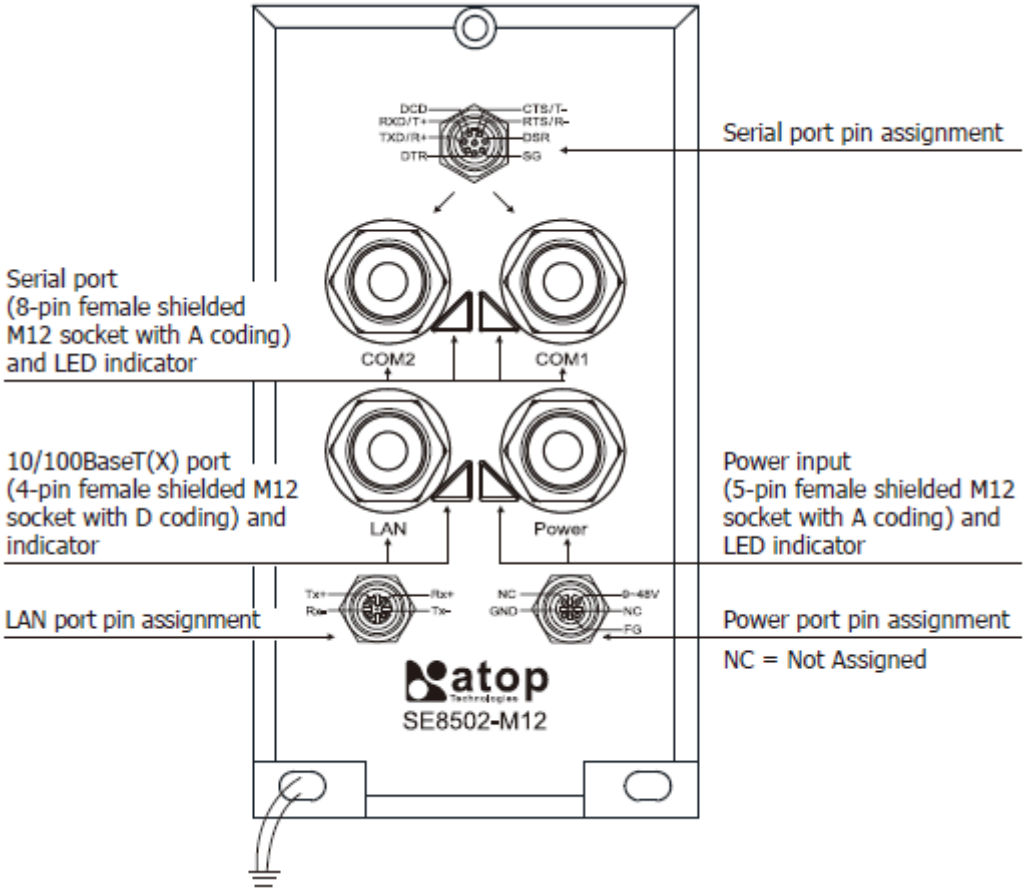
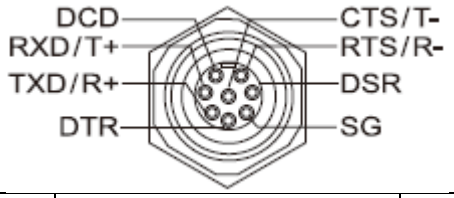


Figure 3.4

Note: Please be aware that if the SE8502-M12 is purchased before December 2012, the LAN port could be A-coded.

3.4 Pin Assignments

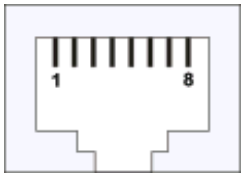
3.4.1 Serial Port



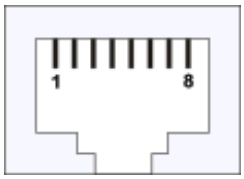
RS-232 Full Duplex	RS-422 / 4-Wire RS-485 Full Duplex	2-Wire RS-485 Half Duplex
DCD	N/A	N/A
RXD	T+	Data+
TXD	R+	N/A
DTR	N/A	N/A
SG	SG	SG
DSR	N/A	N/A
RTS	R-	Data-
CTS	T-	N/A

3.4.2 LAN Port

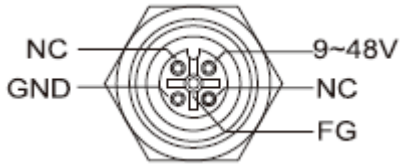
Straight-Through RJ-45 to M12 Wiring

 RJ-45	 M12
1	Tx+
2	Tx-
3	Rx+
4	-
5	-
6	Rx-
7	-
8	-

Crossover RJ-45 to M12 Wiring

 RJ-45	M12
1	Rx+
2	Rx-
3	Tx+
4	-
5	-
6	Tx-
7	-
8	-

3.4.3 Power Port


NC
GND
NC
9-48V
FG

3.5 First Time Installation

Before installing the device, please adhere to all safety procedures described below, Atop will not be held liable for any damages to property or personal injuries resulting from the installation or overall use of the device. **Do not attempt to manipulate the product in any way if unsure of the steps described here, in such cases please contact your dealer immediately.**

1 Unpack the Serial Server; make sure it has not suffered any visible external damages.

2 Proceed to do grounding on the device. This step is of extreme importance since the back of the product has its ground metal side exposed. For grounding just connect the corresponding grounding cable to the grounding point, make sure the cable's end has a solid contact with the grounding metal side.

3 Connect the device to a suitable power source.

4 Connect the device to the Ethernet network or a PC.

5 Always make sure that your PC is on the same network's subnet as your SE8502-M12.

6 Connect SE8502-M12's serial port to a serial device.

7 Proceed then to mount your SE8502-M12 either to a wall or to your DIN rail (depending on your current environment and choice of model).

Note: remember to please consult your Hardware Installation Guide when attempting an installation. Also, please follow all safe procedures when doing so.

3.6 User Interface Overview

The SE8502-M12 Series is a serial device server that is mainly used to connect to serial devices or terminal servers. Its user interface is designed intuitively for ease of use to suit the customer needs. The web configuration appears as follows, Figure 3.5.

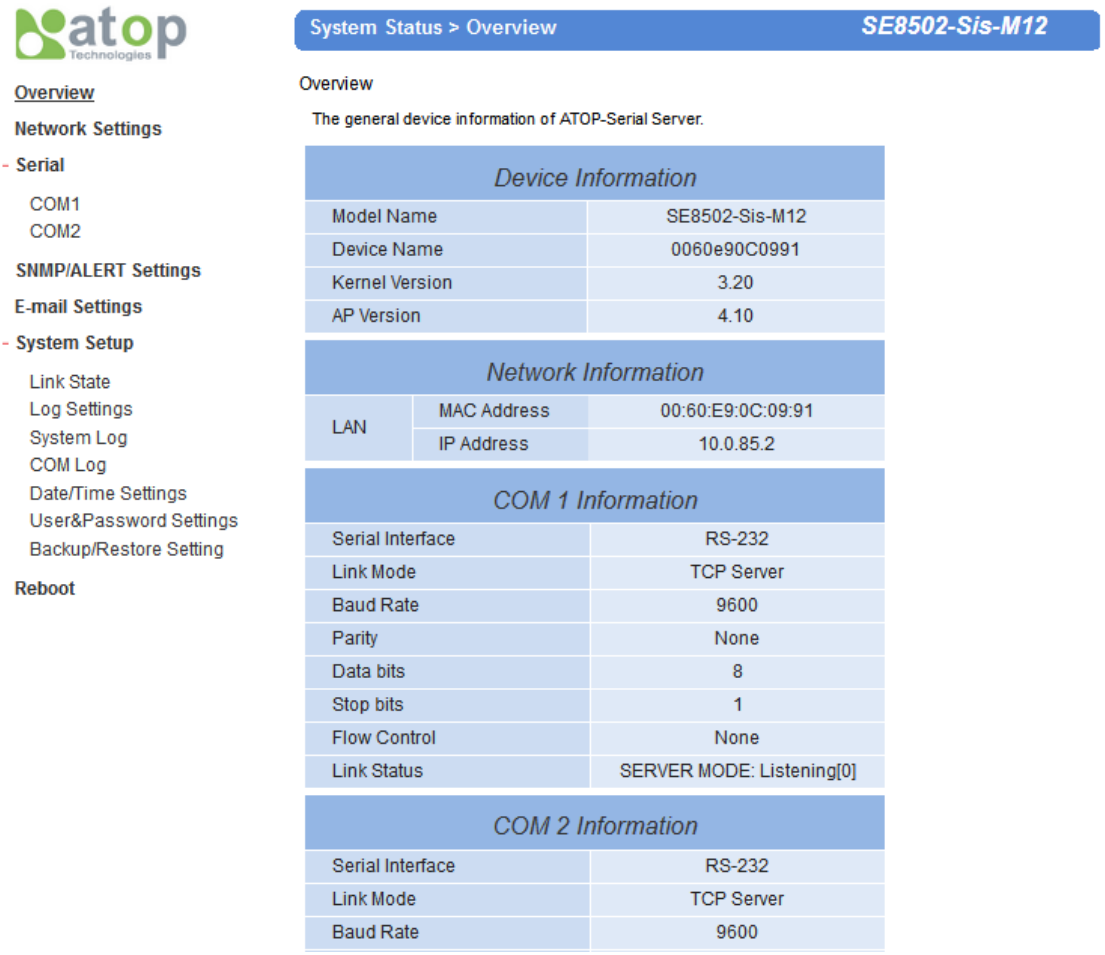


Figure 3.5

On the left side, a menu-tree appears with all the modes and options available (Figure 3.6).

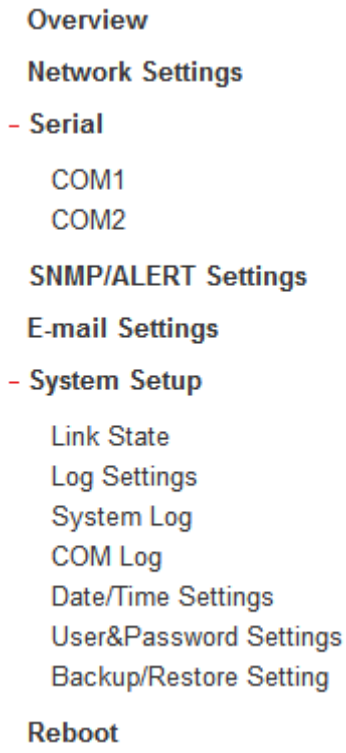


Figure 3.6

It is also worth noting that as a first step to view your device's overall settings, you should use **Serial Manager©** (the utility provided in the CD). There will be however, three buttons which will be present during almost each section, Table 3.2.

Table 3.2

Button	Function
Save & Apply	Saves and apply the current configuration input on the page.
Temporary Apply	As the caption implies, it applies the current configuration until the device is restarted.
Cancel	Cancel the current configuration input and shows the original setting.

3.7 Factory Default Settings

Upon arrival, the device will be set as follows,Table 3.3.

Table 3.3

Interface	Device IP	Subnet mask	Gateway IP	DNS1
LAN	10.0.50.100	255.255.0.0	10.0.0.254	168.95.1.1

Once the device is connected to the network, you can use your browser to configure the device. An authentication request will appear as in Figure 3.7.

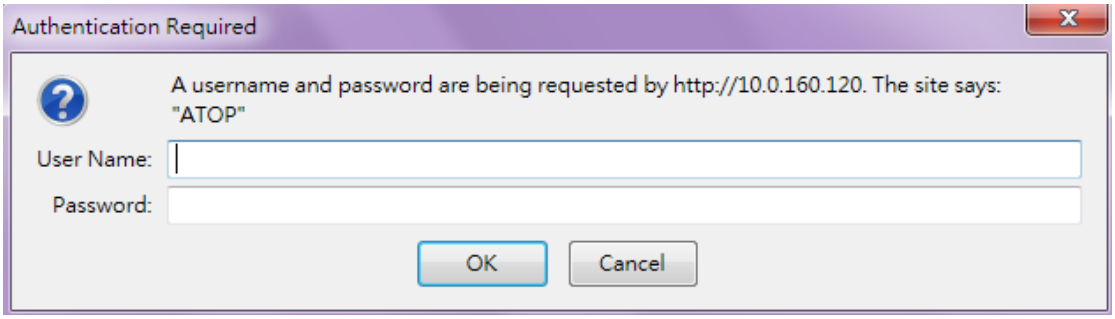


Figure 3.7

Other relevant default settings are as in Table 3.4.

Table 3.4

Parameter	Default Values
Security	
User Name	admin
Password	default
Serial	
● COM1	RS-232 (RS-422 for Sis models), 9600 bps, 8 data bits, None Parity bit, 1 stop bit, None Flow Control Packet Delimiter timer: Auto
● COM2	
SNMP	
SysName of SNMP	0060E9XXXXXX
SysLocation of SNMP	location
SysContact of SNMP	contact
SNMP	Enable
Read Community	public
Write Community	private
SNMP Trap Server	0.0.0.0

4 Web Configuration

4.1 Administrator Login

As soon as the device is connected on the LAN, the user can proceed to navigate through its configuration using **Device Management Utility ©**, (utility that comes in the CD); as noted in Figure 4.1 below, important information such as the IP, MAC address, etc is going to be displayed.

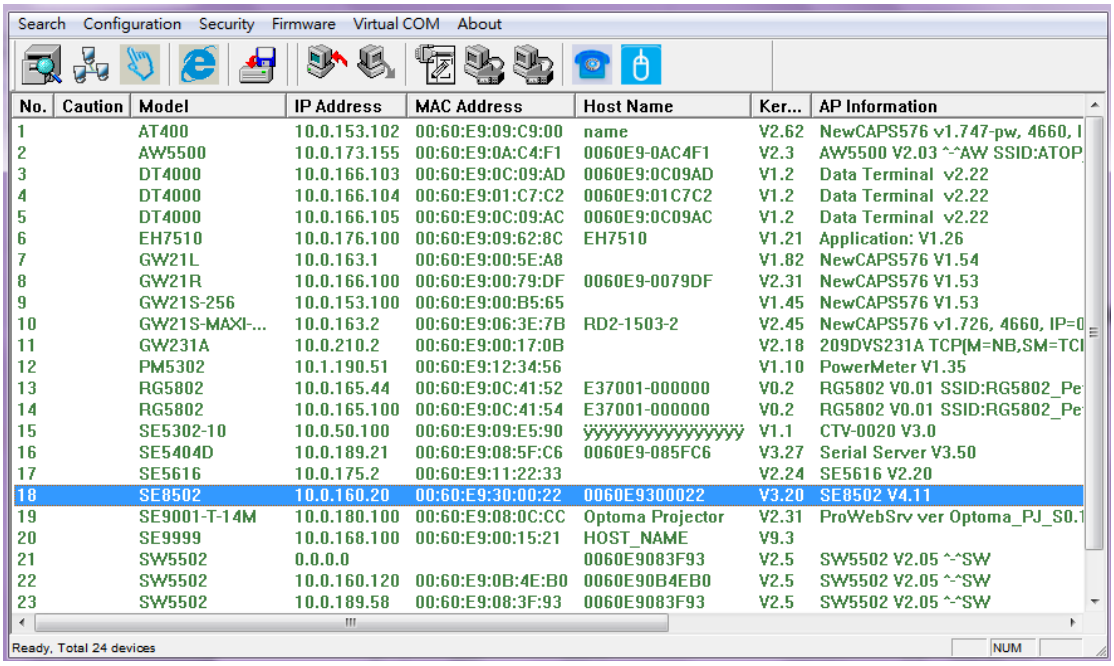


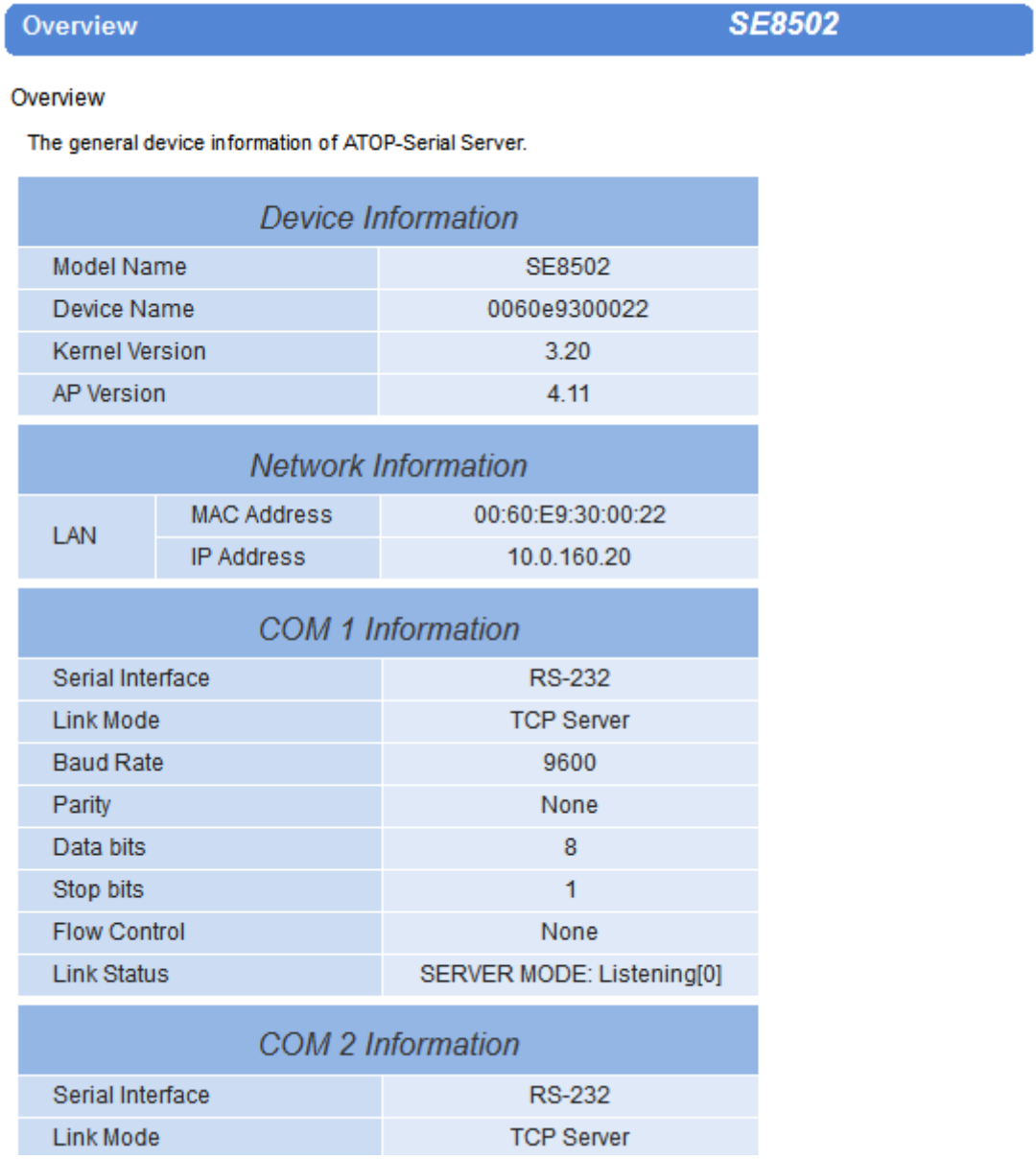
Figure 4.1

To access the device's Web UI click on the **Config by browser** icon, the web browser will open and prompt you to enter username and password (see Factory Default Settings for more information), proceed then to click "OK" or press Enter. Alternatively, enter the IP address of the device in the URL bar of the browser.

Note: Be sure your PC Is located in the same network sub-net as SE8502.

4.2 Overview

This is the welcome screen for the SE8502-M12 Series. Here you will find overall as well as general information.



Overview SE8502

Overview

The general device information of ATOP-Serial Server.

Device Information	
Model Name	SE8502
Device Name	0060e9300022
Kernel Version	3.20
AP Version	4.11

Network Information		
LAN	MAC Address	00:60:E9:30:00:22
	IP Address	10.0.160.20

COM 1 Information	
Serial Interface	RS-232
Link Mode	TCP Server
Baud Rate	9600
Parity	None
Data bits	8
Stop bits	1
Flow Control	None
Link Status	SERVER MODE: Listening[0]

COM 2 Information	
Serial Interface	RS-232
Link Mode	TCP Server

Figure 4.2

4.3 Network Settings

To setup the network settings, either enter the values manually or the device can get acquire IP information automatically from a DHCP server as well, just check **"Obtain an IP Address Automatically"** for it. If resolving a domain name is required (i.e. SNMP and NTP), enter proper **D**omain **N**ame **S**erver (DNS) IP addresses here.

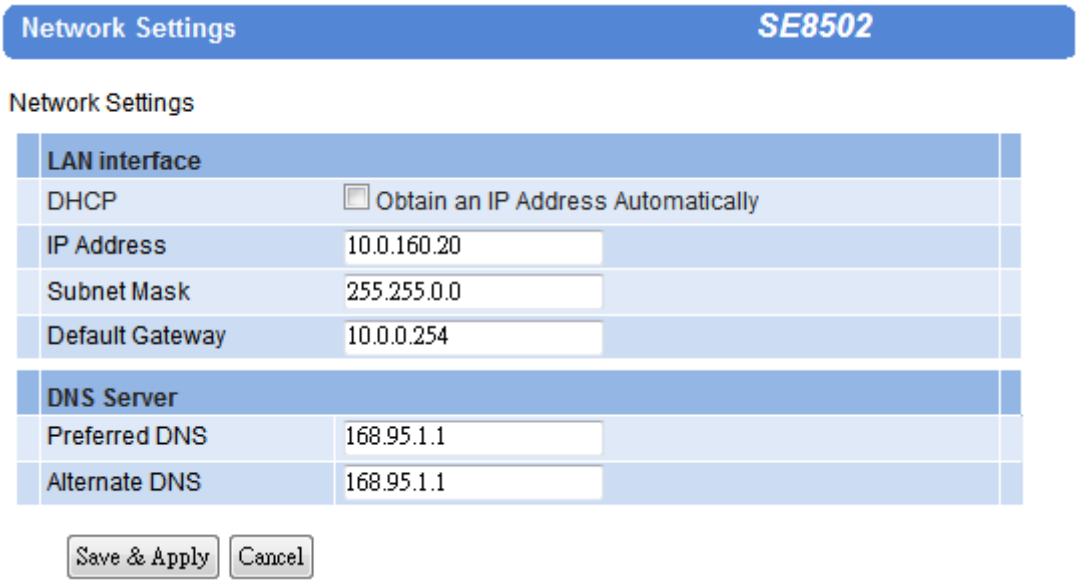


Figure 4.3

4.4 Serial

4.4.1 COM Port Overview

Detail on connectivity protocols and its settings are given in **Link Modes and Applications**; this section will only focus on the serial settings.

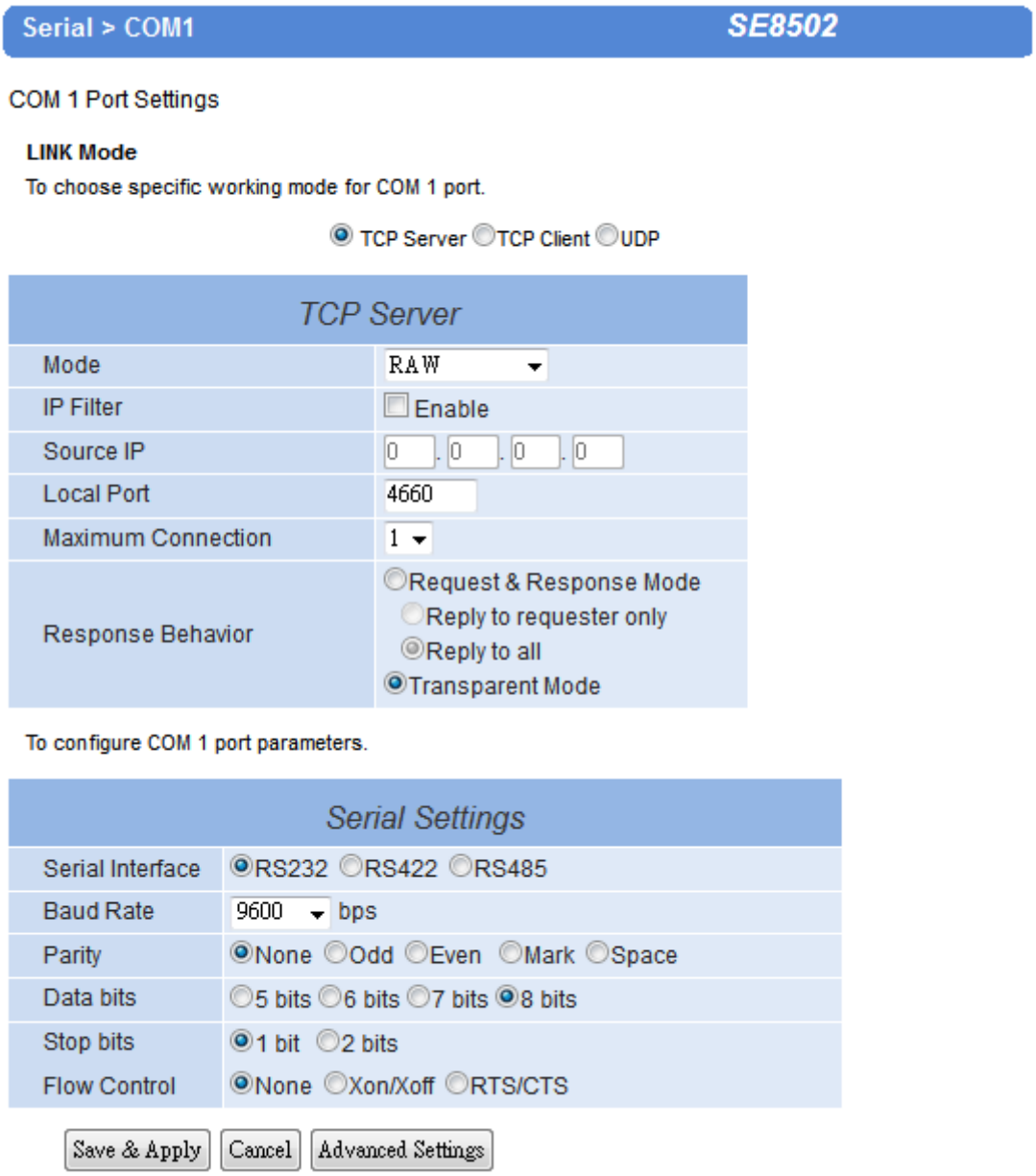


Figure 4.4

4.4.2 COM Configuration

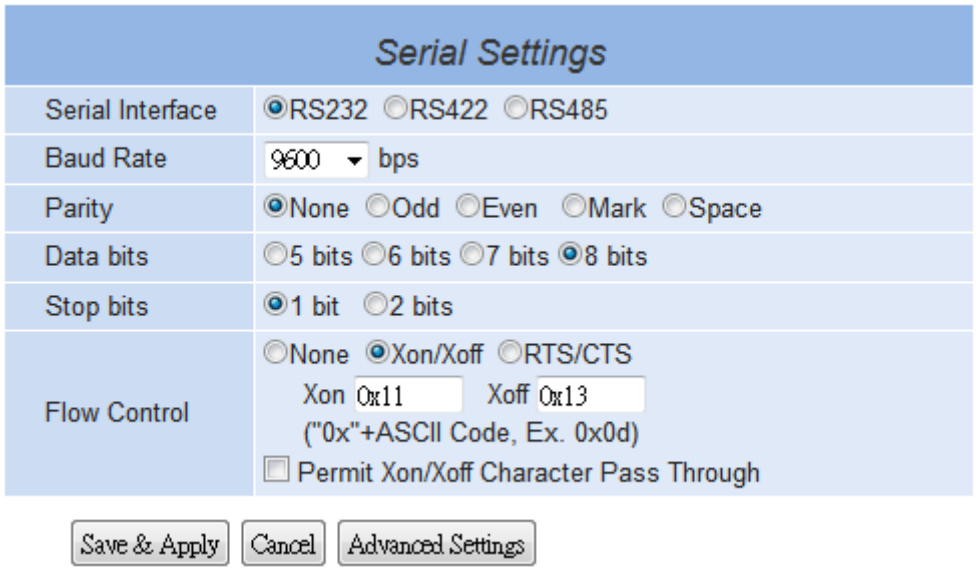


Figure 4.5

Configure serial settings in this page, Figure 4.5. Note that these settings need to match the ones in the serial device.

- **Serial Interface:** Select between RS-232, RS-422, and RS-485. Note that RS-485 refers to 2-Wire RS-485 and RS-422 is compatible with 4-Wire RS-485.
- **Baud Rate:** Select one of the baudrates from the dropdown box.
- **Parity / Data Bits / Stop Bits:** Configure them accordingly.
- **Flow Control:** Choose between No Flow Control, RTS/CTS (Hardware Flow Control), and Xon/Xoff (Software Flow Control). If Xon/Xoff is selected, Xon and Xoff characters are changeable. Defaults are 0x11 for Xon and 0x13 for Xoff. If the connecting program or serial device would like to receive the Xon/Xoff signals also, enable **"Permit Xon/Xoff Character Pass Through"**

4.4.3 COM Configuration: Advanced Settings

ADVANCED SETTINGS		
TCP	TCP Timeout	☑ Enable 3600 (0~60000) seconds
Delimiters	Serial to Network Packet Delimiter	☑ Interval timeout 2 (1~30000) ms ◉ Auto(caculate by baudrate) ○ Manual setting ☐ Max. Bytes 1452 (within one packet:1~1452 bytes) ☐ Character 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
	Network to Serial Packet Delimiter	☐ Interval timeout 10 (1~30000) ms ☐ Max. Bytes 1452 (within one packet:1~1452 bytes) ☐ Character 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
	Character send interval	☐ Enable 0 (0~1000) ms
	Response interval timeout	☑ Enable 1000 (0~60000) ms (Work with Request & Response Mode only)
Serial	Serial FIFO	☑ Enable (Disabling this option at baud rates higher than 115200bps would result in data loss).
	Serial Buffer	☑ Empty serial buffer when a new TCP connection is established

Figure 4.6

TCP

- **TCP Timeout:** Specify the value in “TCP Timeout” to force SE8502-M12 actively close a TCP connection after some specific inactivity time (no packets). The default value for it is 3600 seconds. Disabling this option means SE8502-M12 would never actively close an established connection.

Delimiters

- **Serial to Network Packet Delimiter:** Packet delimiter is a way of packing data in the serial communication. It is designed to keep packets in track. SE8502-M12 provides three types of delimiter: Time Delimiter, Maximum Bytes and Character Delimiter. Note that the following delimiters (Interval, Max Byte and Character) are programmed in the

OR logic. Meaning that if any of the three conditions were met, SE8502-M12 would transmit the serial data in its buffer over the network.

- **Interval timeout:** SE8502-M12 will transmit the serial data in its buffer when the specified time interval has reached and no more serial data comes in. The default value is calculated automatically based on the baud rate. If the automatic value results in chopped data, the timeout could be increased manually by switching to "Manual setting" and specifying a larger value.

Attention

Interval Timeout Manual Calculation

The optimal "Interval timeout" depends on the application, but it must be at least larger than one character interval within the specified baud rate. For example, assuming that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is (10 (bits)/1200 (bits/s))*1000 (ms/s) = 8.3 ms.

Therefore, you should set the "Interval timeout" to be larger than 8.3 ms. Rounding 8.3 ms to the next integer would get you 9 ms.

- **Max Byte:** SE8502-M12 will transmit the serial data in its buffer when the specified length has reached. Enable this option if you would like SE8502-M12 to queue the data until it reaches a specific length. This option is disabled by default.

- **Character:** SE8502-M12 will transmit the serial data in its buffer when it sees the incoming data include the specified character (in HEX format). This field allows one or two characters. If character delimiter is set to 0x0d, SE8502-M12 will push out its serial buffer when it sees 0x0d (carriage return) in the serial data. This option is disabled by default.

- **Network to Serial Packet Delimiter:** Same as the delimiters above, but controls data flow in the opposite direction. It will store data from the network interface in the queue and send it to over to the serial interface until one of the delimiter conditions is met.

- **Character Send Interval:** This option specifies the time gap between each character. When set to two second, SE8502-M12 would split the data in the queue and only transmit one character (byte) every two second. This option is disabled by default.

- **Response Interval Timeout:** This option only affects the Request & Response Mode and has no effect on the Transparent Mode. When TCP data is received (request) and passed to Serial side, the device will wait for the set time before transferring another TCP data if the Serial side did not receive any data (response).

Serial

- **Serial FIFO:** By default, SE8502-M12 has its FIFO function enabled to optimize its serial performance. In some applications (particularly when the flow control is enabled), it may deem necessary to disable the FIFO function to minimize the amount of data that is transmitted through the serial interface after a flow off event is triggered to reduce the possibility of overloading the buffer inside the serial device. Please note that disabling this option on baud rates higher than 115200bps would reduce the data integrity noticeably.

- **Serial Buffer:** By default, SE8502-M12 will empty its serial buffer when a new TCP connection is established. This means that the TCP application will not receive buffered serial data during a TCP link breakage. To keep the serial data when there is no TCP connection and send out the buffered serial data immediately after a TCP connection is established, disable this option**.**

4.5 SNMP/ALERT Settings

The SNMP is used by network management software to monitor devices in a network to retrieve network status information and to configure network parameters. The SNMP Settings shows the configuration of this device so it can be viewed by third-party SNMP software as shown below, Figure 4.7.

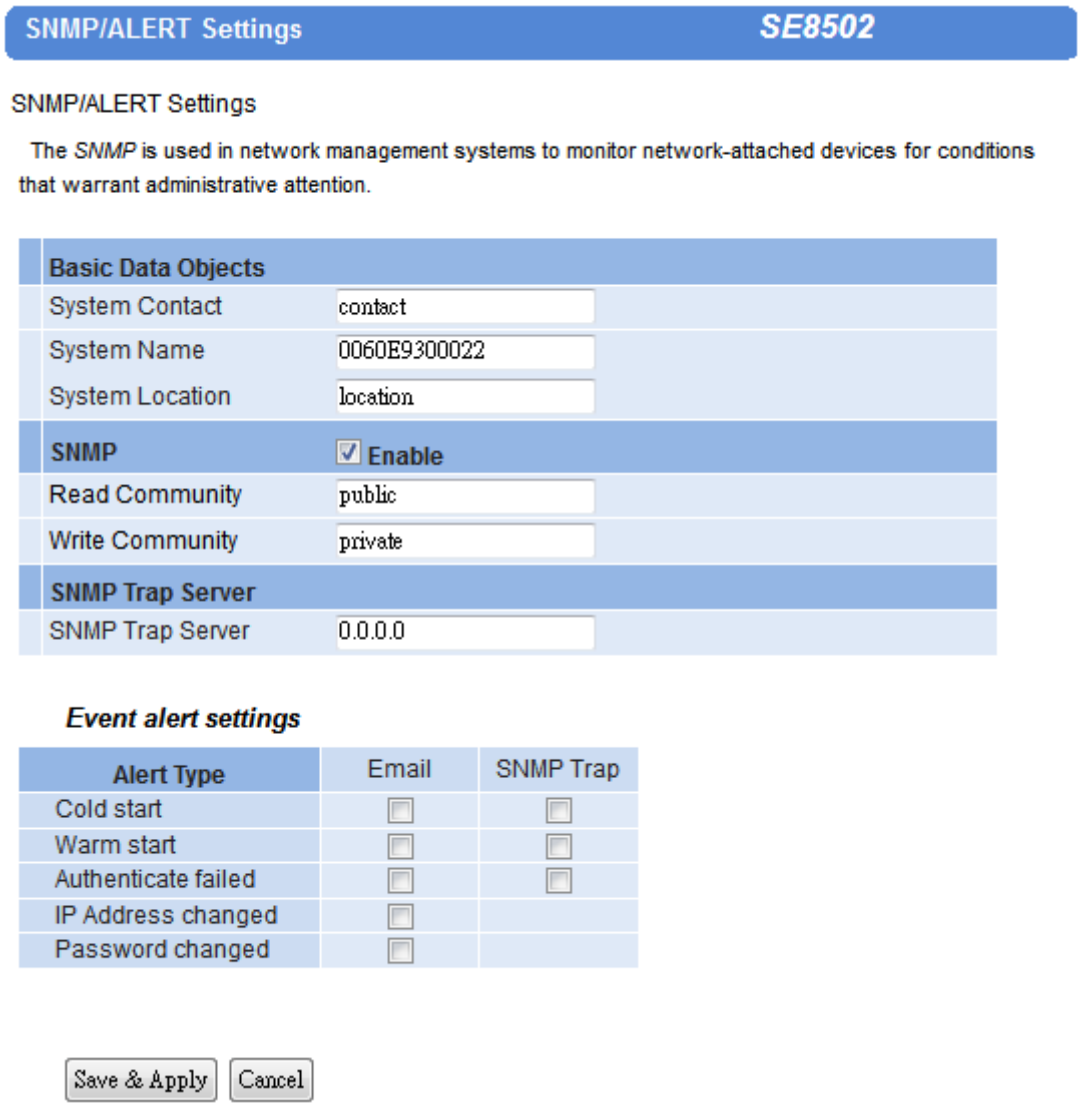


Figure 4.7

SE8502-M12 provides three SNMP fields, which are **"System Contact",** usually used to specify the device's contact information in case of emergency; **"System Name",** usually used to identify this device; and **"System Location",** usually used to specify the device location.
If you wish to make the device information available for public viewing/editing, **Enable** the SNMP function. Fill in the passphrase for the **"Read Community"**, the group that is allowed to read the device information and fill in the passphrase for the **"Write Community"**, the group that is allowed to read/modify the device information. By default SE8502-M12 comes in **public** for **Read Community** and **private** for **Write Community**. In case the device raises an alert due to any unexpected incident, a message will be dispatched to a SNMP trap server. Specify the **IP Address** of the **SNMP Trap Server** designed to collect all alert messages; any changes made will take effect after the device is restarted.

There are five events that will trigger the alarm; these alerts are useful for security control or security monitoring:

- **Cold Start,** when there is a power interruption.
- **Warm Start,** when the device resets.
- **Authentication Failure,** when an incorrect username or password is entered.
- **IP Address Changed,** when the device's IP is changed.
- **Password Changed,** when the administrator password is changed.

Any of the five events would trigger an alert. When enabled, an email alert would be sent to the designated address in the E-Mail Settings. A Trap alert would be sent to the designated Trap server in the SNMP Settings.
See **E-mail Settings**, to specify the email addresses to which the alert message is sent.

4.6 E-mail Settings

In case the device raises an alert and/or warning message, it will send an email to the administrator's mailbox. **Email Settings** allows you to set up the device to be able to send an email. To set up the email sending, you need to put a **"Sender"** email address which will be the **"From"** on the email. Then, you fill in **"Receiver"** email address to which the email is sent. You can send the email to several recipients using Semicolon (;) to separate each email address. Next step is to set the **Email Server**. First, you fill in the **IP address** of a **Mail Server** in your local network. If the **Mail Server** needs a user authentication, you need to enable **"SMTP server authentication required"**, and fill in **Username** and **Password.** Please contact your network administrator for **Mail Server IP address** and the **Username** and **Password,** Figure 4.8. You can click on "**Send Test Mail**" to verify your mail settings.

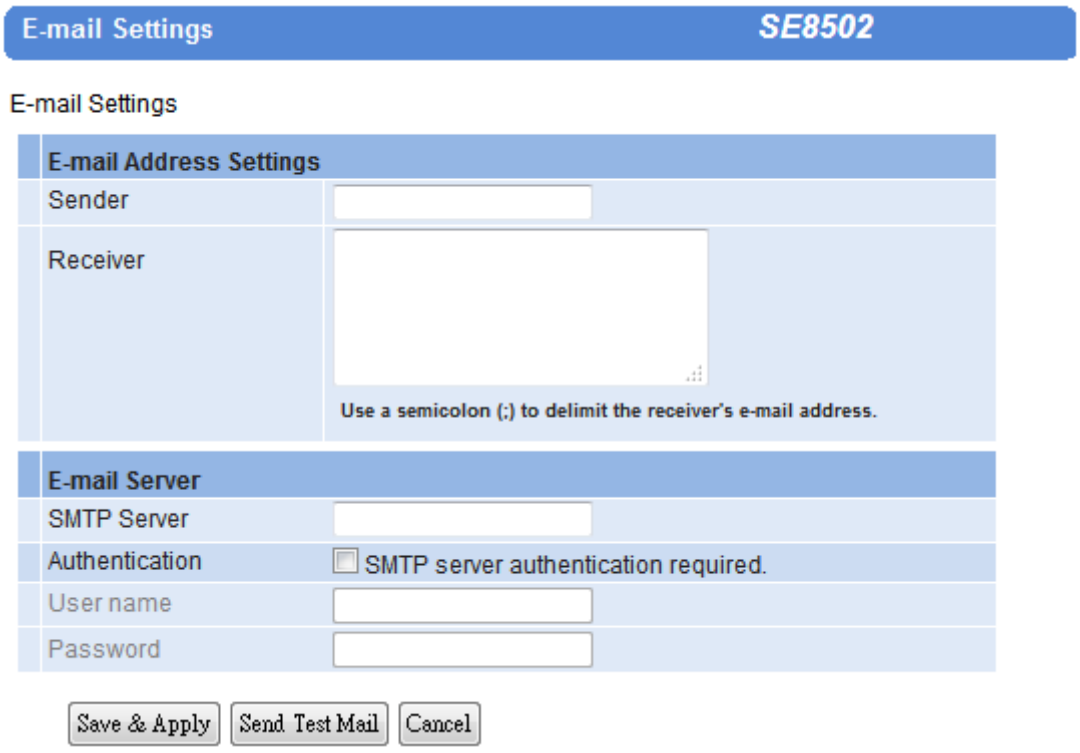


Figure 4.8

Attention

It is also important to setup Default Gateway and DNS Servers in the Network Settings properly, so your SE8502-M12 can lookup DNS names and route the mails to the proper default gateway.

4.7 System Setup

4.7.1 Link State

Link State displays the information of each connection of all serial ports for debugging purposes, Figure 4.9.

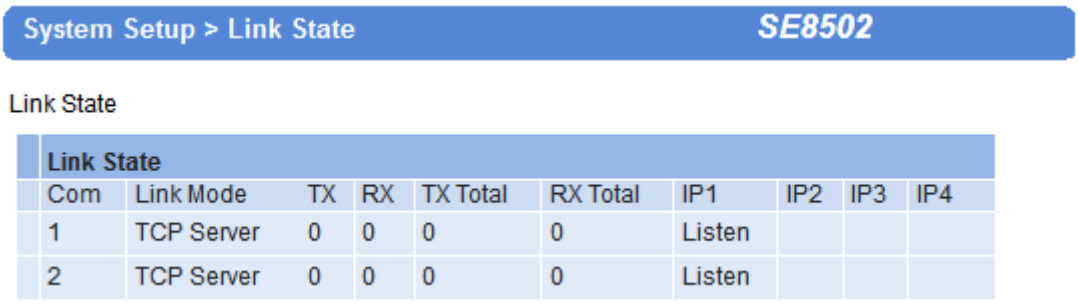


Figure 4.9

4.7.2 Log Settings

The Syslog function is turned on by default and cannot be turned off. It is used to log system events and report to an external Syslog server if necessary. Also, Transmitted data could be logged for recording or debugging purposes. The logs could be reported to an external Syslog server as well.

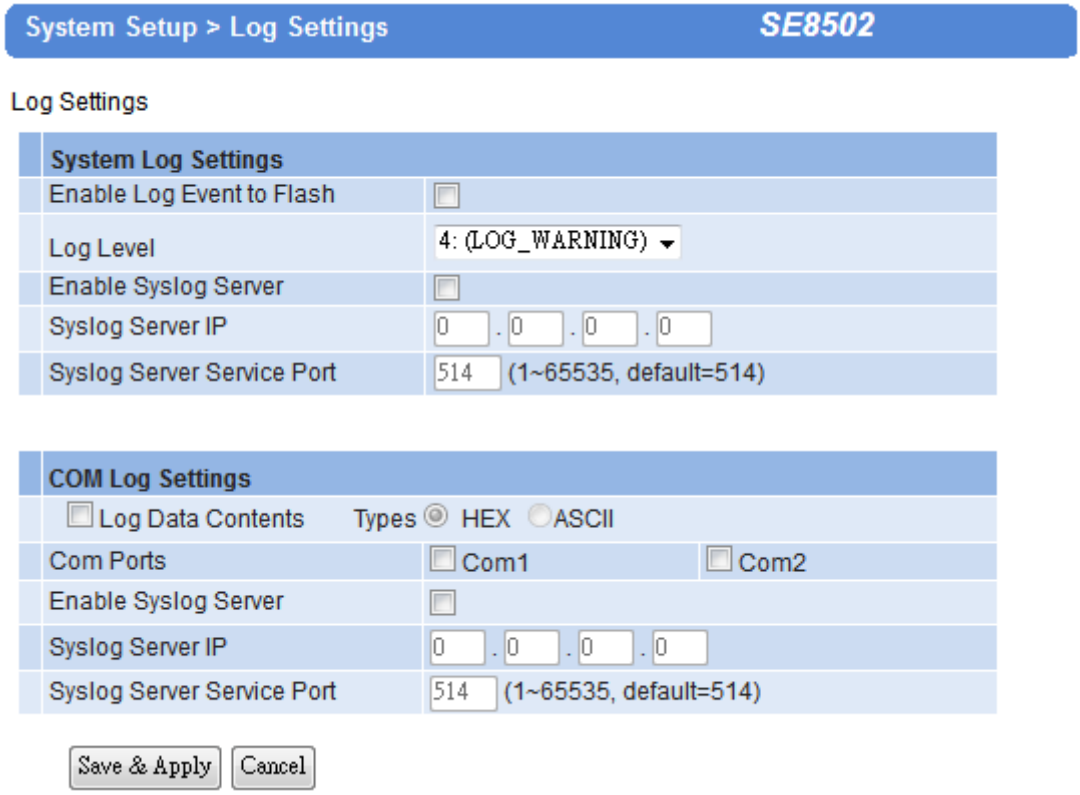


Figure 4.10

System Log Settings

- **Enable Log Event to Flash:** this would write log events to the local flash, otherwise the logs would be cleared when the device restarts because they are stored in the RAM by default.
- **Log Level:** produce more logs as the number increases (default is 4).
- **Enable Syslog Server:** enabling this option would allow you to send Syslog events to a remote Syslog server.
- **Syslog Server IP:** please specify the remote Syslog Server IP.
- **Syslog Server Service Port:** please specify the remote Syslog Server Port.

COM Log Settings

- **Log Data Contents:** if enabled, the COM logging function will log the content's data that is being transmitted and received (raw bytes). If disabled, COM logging function will only log data length to reduce system load.

Note: SE8502-M12 can store up to 1500 lines internally. A request or a response will consist of one line, data longer than 512 bytes will go into another line. You can retrieve the logs by using a **FTP Client,** FTP login is the same as the WebUI. They are located in **/var/log/logcomxx** (xx is the port number). When the reserved space is full, new logs will replace old logs. We strongly recommend sending COM logs to a remote Syslog server.

- **Data types:** select the logged data's format (HEX or ASCII).
- **COMx:** Select the ports to log.
- **Enable Syslog Server:** enabling this option would allow you to send COM logs to a remote Syslog server. You can send COM logs to the same Syslog server used previously for event logging.
- **Syslog Server IP:** please specify the remote Syslog server IP.
- **Syslog Server Service Port:** please specify the remote Syslog server Port.

4.7.3 Syslog

Display the current syslog stored in the device.

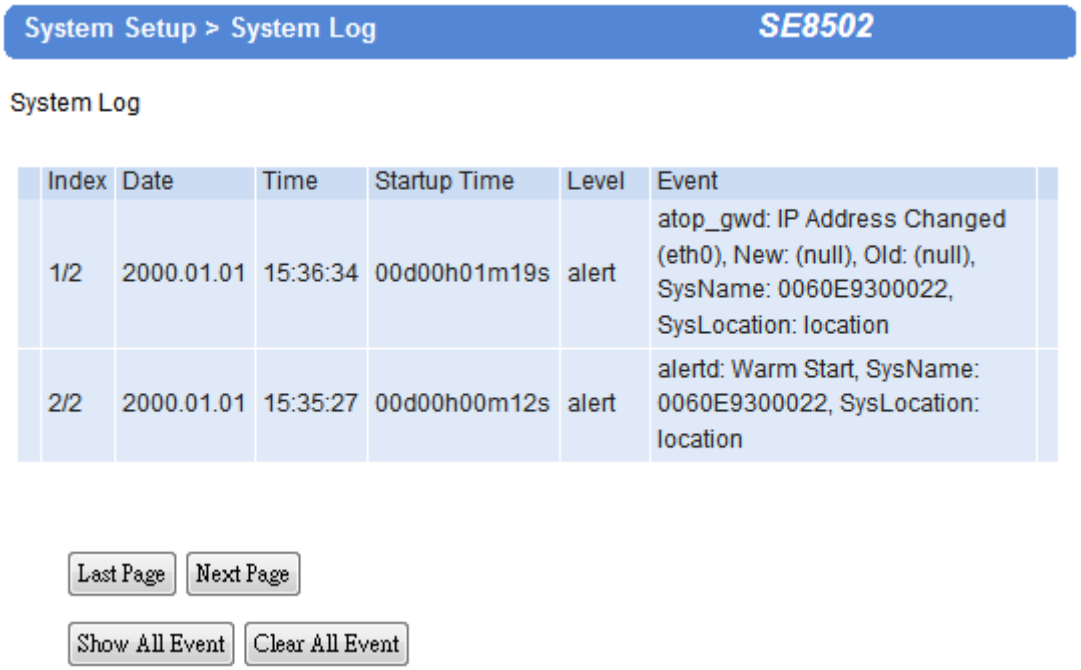


Figure 4.11

Click on “Last Page” to go to the last page. Click on “Show All Events” to show all events in one page. Click on “Clear All Events” to clear the events stored in the device.

4.7.4 COM Log

Display the current COM log stored in the device.

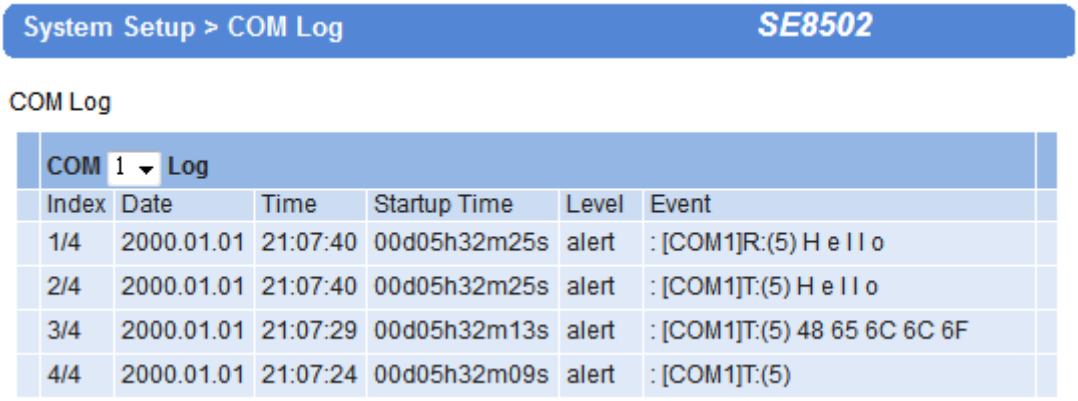


Figure 4.12

You can select from the COMx dropdown box to display logs from different COM ports. The first two lines shows logging of data content in ASCII. The first line is the data received by the COM port and the second line is the data sent from the COM port. The third line shows logging of data content in Hexadecimal. The last line shows logging of data length.

Click on **"Last Page"** to go to the last page. Click on **"Show All Events"** to show all events in one page. Click on **"Clear All Events"** to clear the events stored in the device. Click on **"Save To File"** to save all the events to a file locally.

4.7.5 Date/Time Settings

Date and time can be set manually, or using **N**etwork **T**ime **P**rotocol (NTP) to automatically synchronizes with a Time Server. For auto-synching check the box below **NTP Server Settings "Obtain date/time automatically"** proceeding then to fill the IP address or host name for it. If a hostname is entered, the DNS server must be configured properly; a Time Zone can be selected as well, Figure 4.13.

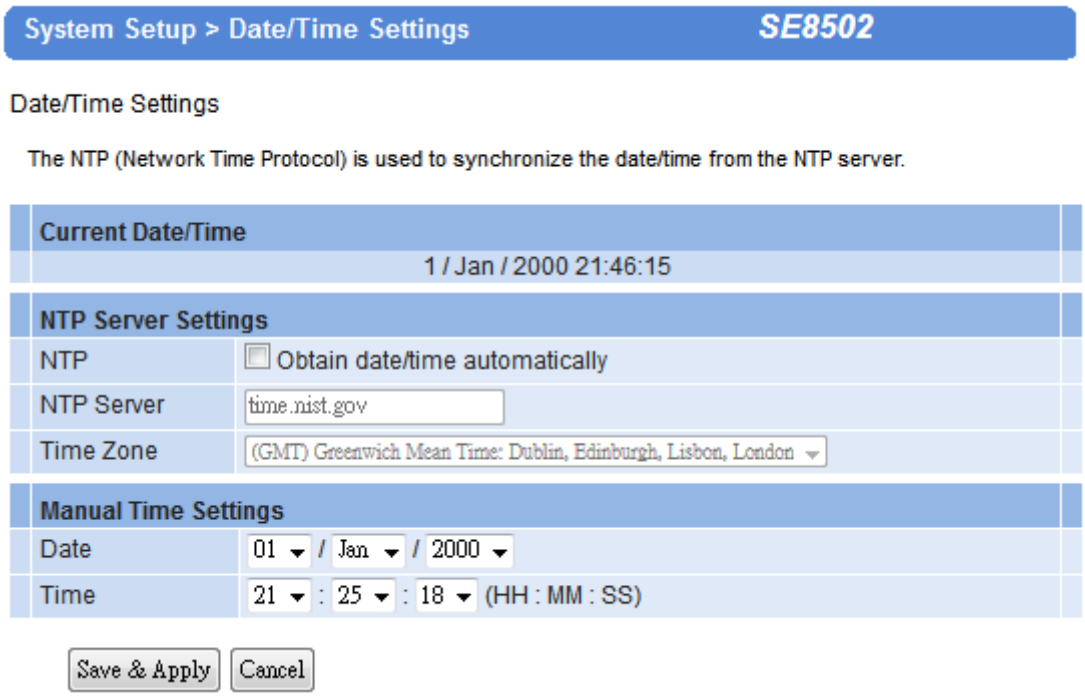


Figure 4.13

Attention

It is also important to setup Default Gateway and DNS Servers in the Network Settings properly, so your SE8502-M12 can lookup DNS names and find the external NTP server.

4.7.6 User & Password Settings

The SE8502-M12 Series allows **User** and **password management**, the user's default is as "admin" and password "default"; to set/change their value just follow the steps filling in the corresponding blanks and choose **Save & Apply** in the end, Figure 4.14.

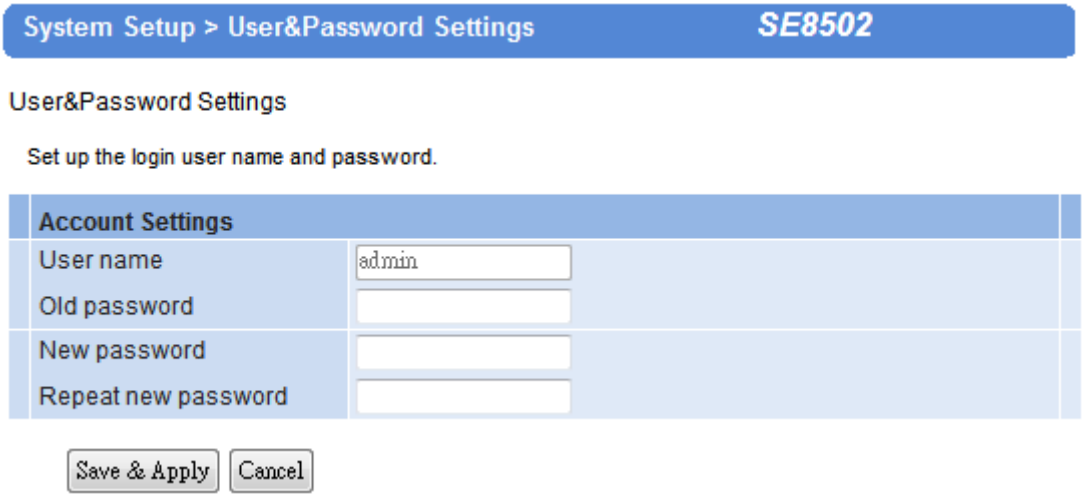


Figure 4.14

4.7.7 Backup/Restore Settings

Once all the configurations are set and the device is working properly, you may want to back up your configuration. Backup can be used when the new firmware is uploaded and it is reset to a factory default settings, it is done to prevent accidental loading of incompatible old settings. The backup file could also be used to efficiently deploy multiple SE8502-M12 Series devices of similar settings by uploading these settings to the devices.

To backup your configuration, click **"Backup"**, and a pop-up dialog is prompted for saving the backup file on your computer. It is important **NOT to modify the saved configuration file by any editor. Any modification to the file may corrupt the file, and it may not be used for restore.** Please contact our authorized distributors for more information on this subject.

To restore the configuration backup, click **"Browse"** to locate the backup file, and then click **"Upload"** to upload the configuration backup file to the device. Once, the backup file is successfully uploaded; the device will restart, the time needed for this process may vary on the equipment used, Figure 4.15.

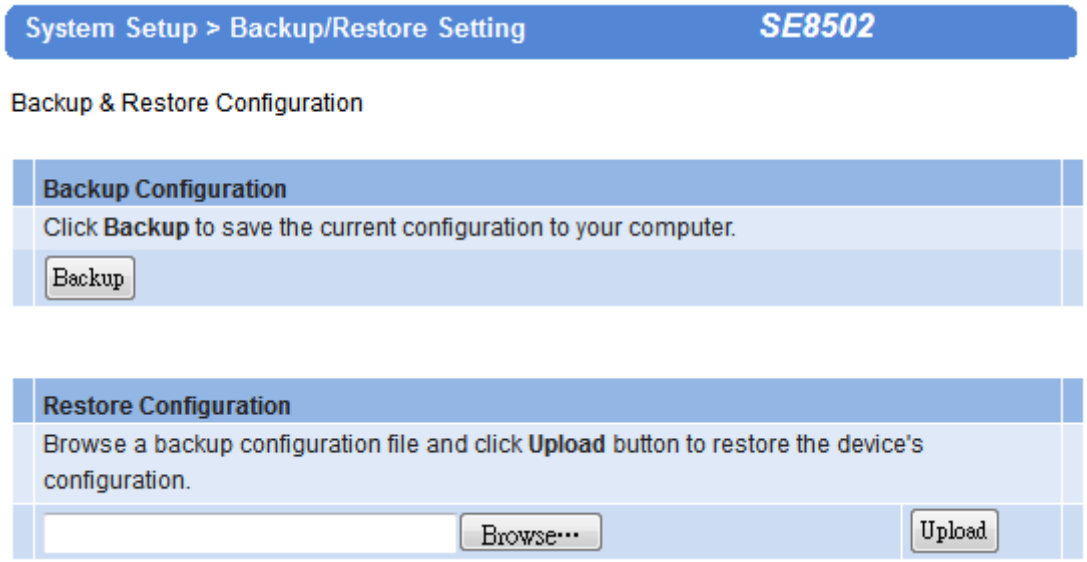


Figure 4.15

4.8 Reboot and Restore Default Settings

To manually reboot the device, you may click **"Reboot"**, after the click the device will restart. If a factory default setting is needed, the **"Reset"** checking box can be chosen, and then click on **Reboot,** Figure 4.16.

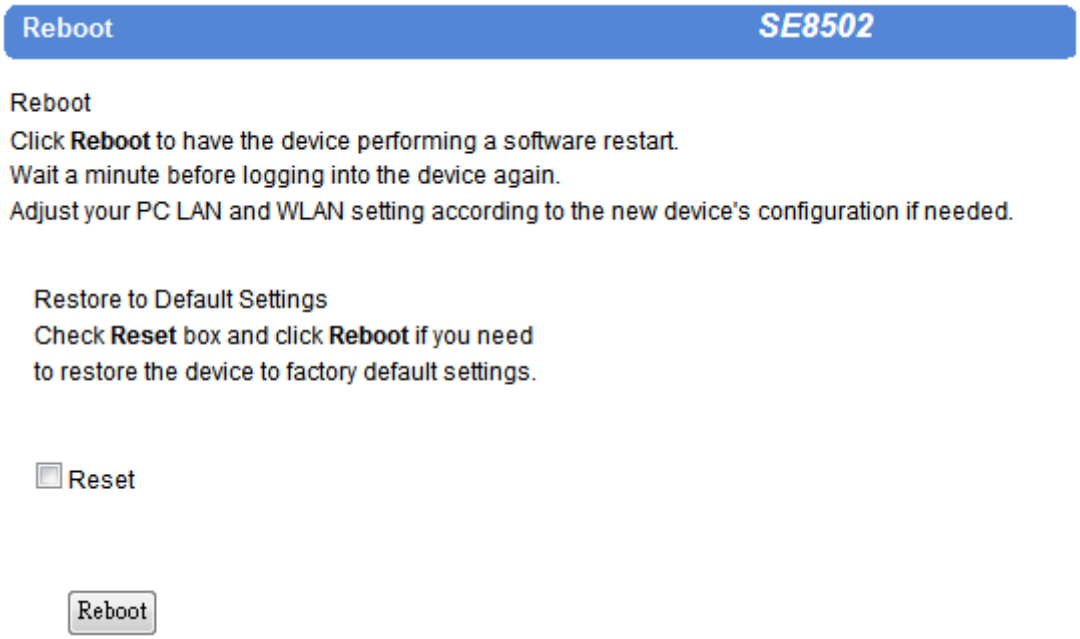


Figure 4.16

5 CLI Configuration

5.1 Telnet Console

SE8502-M12 can be configured by Telnet, i.e., a command line interface that allows you to modify most settings in your device.

Please be aware that Windows Vista / Windows 7 or higher do not have Telnet client installed by default, to install Microsoft Telnet client on these systems:

1. Click **Start**, and then click **Control Panel**.
2. On the **Control Panel** Home page, click **Programs**.
3. In the **Programs and Features** section, click **Turn Windows features on or off**.
4. If the **User Account Control** dialog box appears, confirm that the action it displays is what you want, and then click **Continue**.
5. In the **Windows Features** list, select **Telnet Client**, and then click **OK**, Figure 5.1.

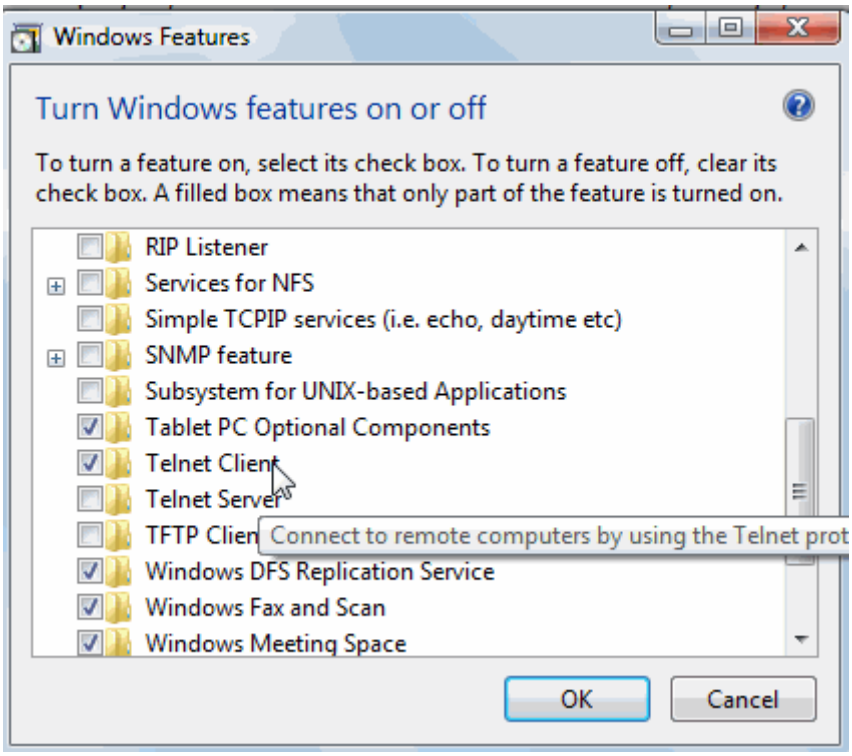


Figure 5.1

Open the command line interface (console terminal) and telnet to the device using its IP

address. The default username is “**admin**” and password is “default”. A main menu should appear, Figure 5.2.

Note:

1. SE8502-M12 will automatically close the telnet connection after one minute of inactivity.
2. Press the “ESC” key to return to the previous menu.
3. Some changes to the device would take effect only after the device is restarted.
4. Detailed explanations are embedded in the **Web Configuration** chapter; please refer to the respective sections.

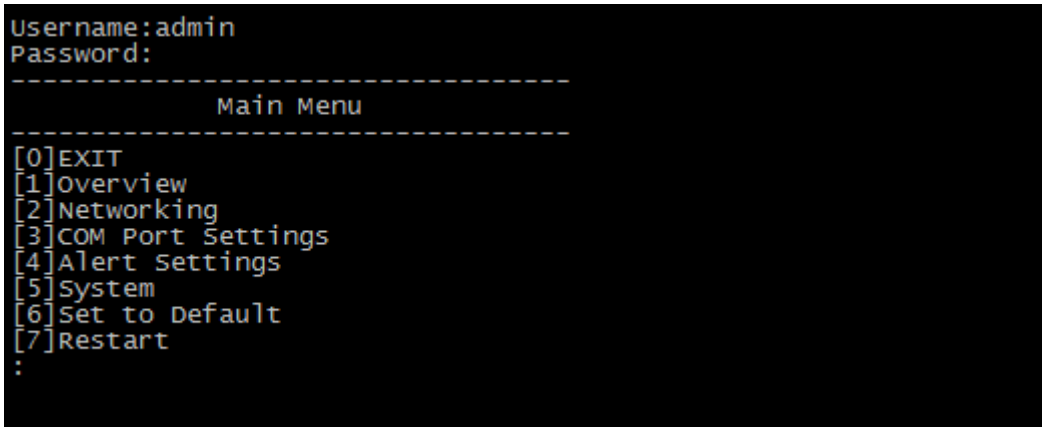


Figure 5.2

5.2 Overview

Displays LAN and firmware information.

Operation: Main -> [1] Overview

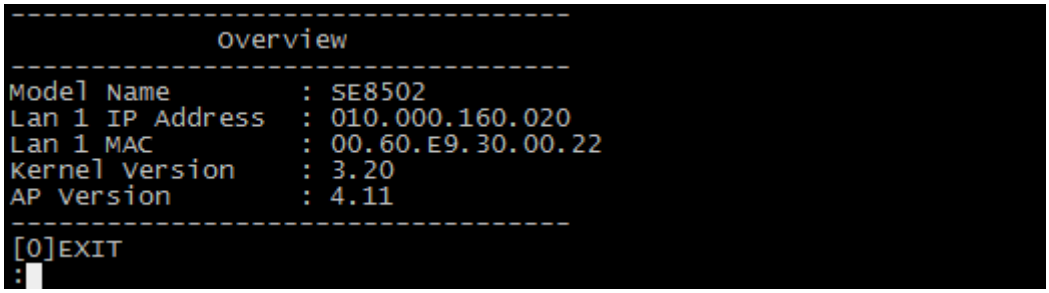


Figure 5.3

5.3 Networking

Configure LAN, DNS, and SNMP settings here.

Operation: Main -> [2] Networking

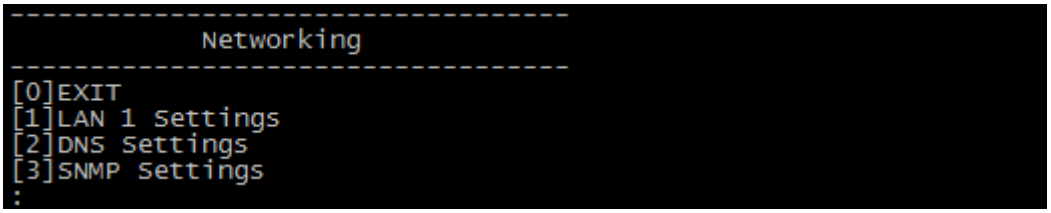


Figure 5.4

5.3.1 LAN1 / LAN2 Settings

Operation: Main -> [2] Networking -> [1] LAN1 Settings

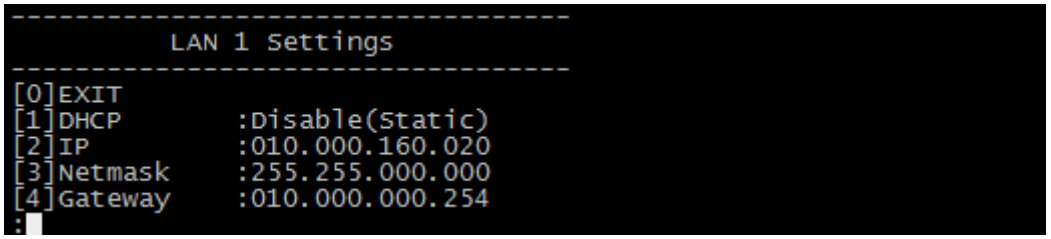


Figure 5.5

5.3.2 DNS Settings

Operation: Main -> [2] Networking -> [2] DNS Settings

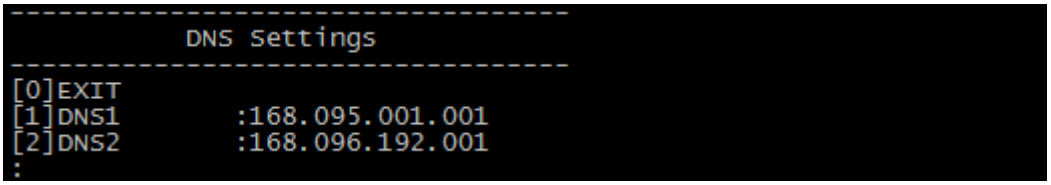


Figure 5.6

5.3.3 SNMP Settings

Operation: Main -> [2] Networking -> [3] SNMP Settings

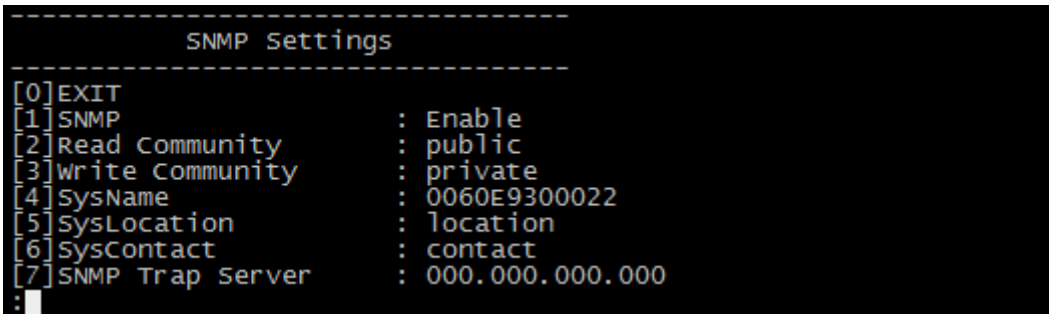


Figure 5.7

5.4 COM Port Settings

Configure the COM port settings. First choose the COM port to configure.

Operation: Main -> [3] COM Settings

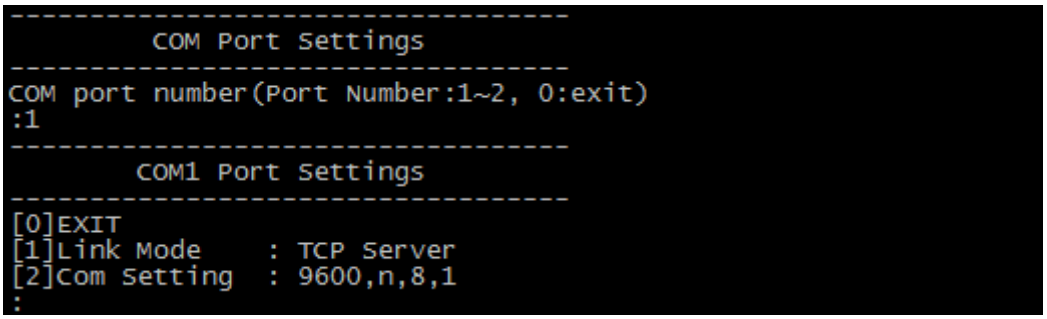


Figure 5.8

5.4.1 Link Mode

There are three link modes (TCP Server, TCP Client, and UDP) availale. For detailed explanations on the settings of each link mode, please refer to **Sec. 6.1**.

Operation: Main -> [3] COM Settings -> [1] Link Mode

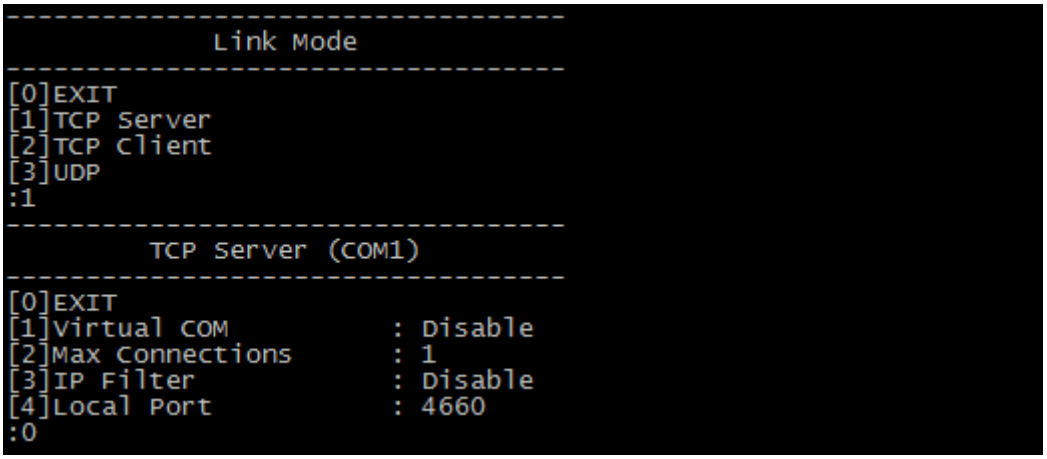


Figure 5.9

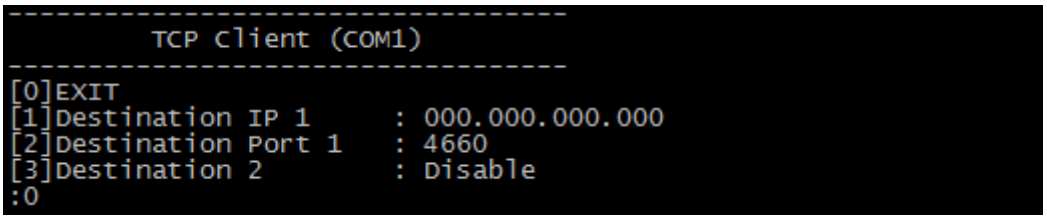


Figure 5.10

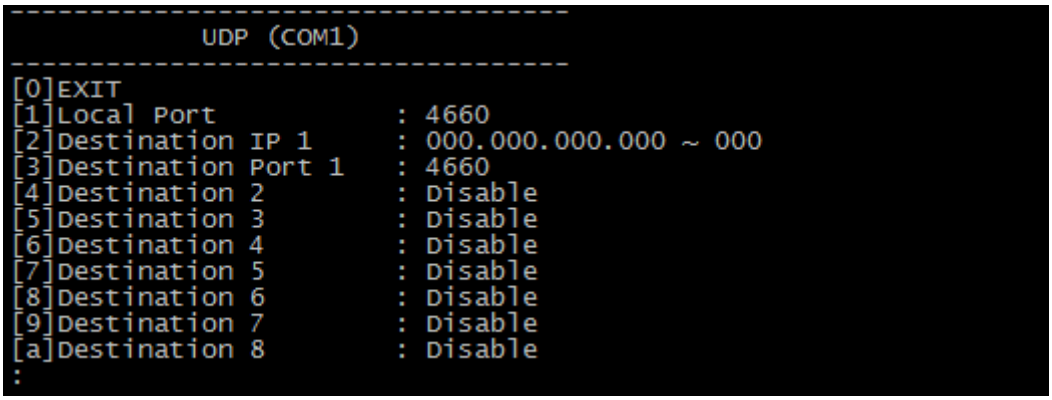


Figure 5.11

5.4.1 COM Setting

For detailed explanations on the COM settings, please refer to **Sec. 4.4.2** and **Sec. 4.4.3**.

Operation: Main -> [3] COM Settings -> [2] COM Setting

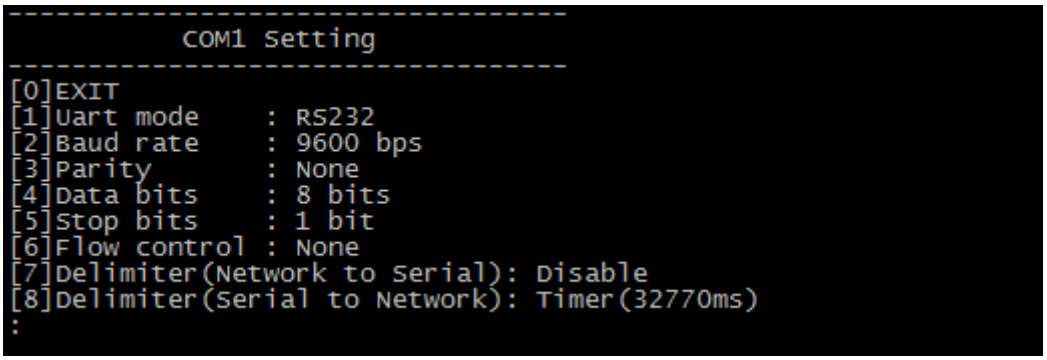


Figure 5.12

5.5 Alert Settings

Configure when an alert should be triggered and where the alert should be sent.

Operation: Main -> [4] Alert Settings

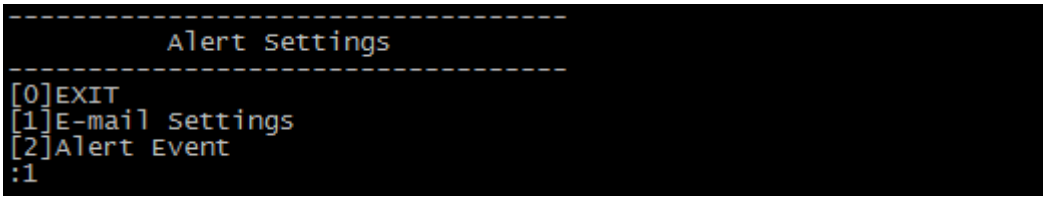


Figure 5.13

5.5.1 Email Settings

Operation: Main -> [4] Alert Settings -> [1] Email Settings

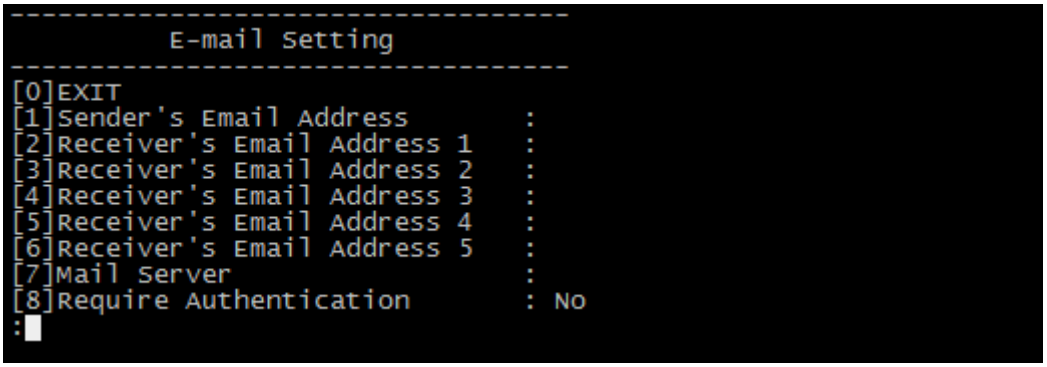


Figure 5.14

5.5.1 Alert Event

Operation: Main -> [4] Alert Settings -> [2] Alert Event

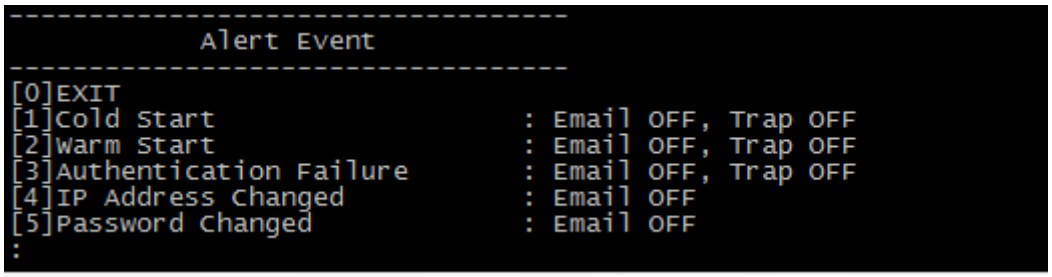


Figure 5.15

5.6 System

Various system status and settings and be viewed or modified here, including Link State of the COM ports, time, and security settings.

Operation: Main -> [5] System

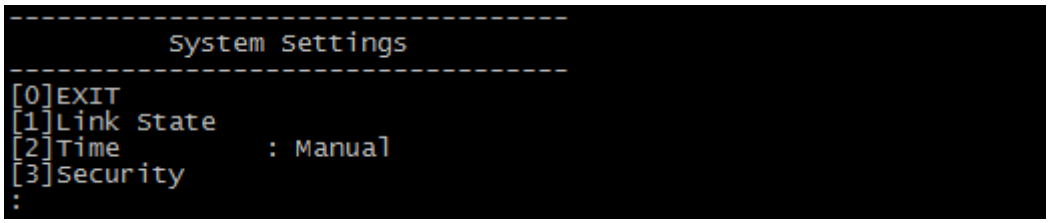


Figure 5.16

5.6.1 Link State

Operation: Main -> [5] System -> [1] Link State

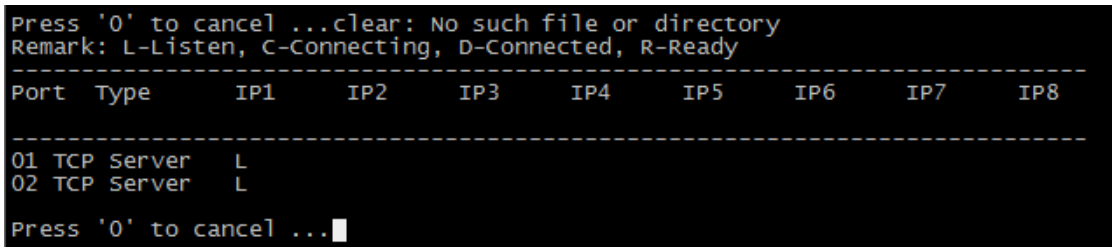


Figure 5.17

5.6.1 Time

Operation: Main -> [5] System -> [2] Time

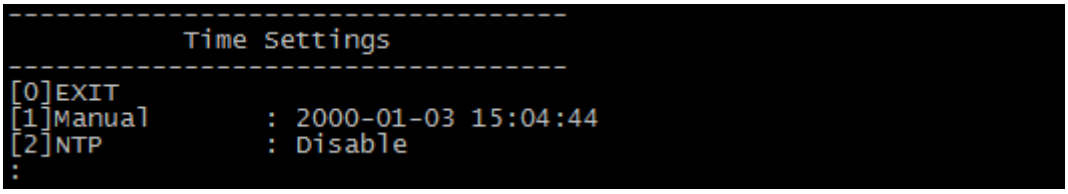


Figure 5.18

5.6.1 Security

Operation: Main -> [5] System -> [3] Security

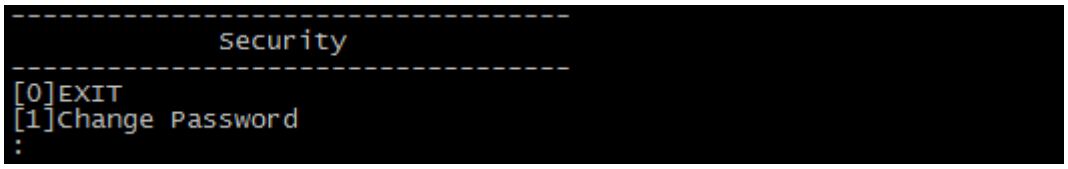


Figure 5.19

5.7 Set to Default

Reset all the settings back to the factory defaults. Enter “y” to confirm and the device will reboot.

Operation: Main -> [6] Set to Default

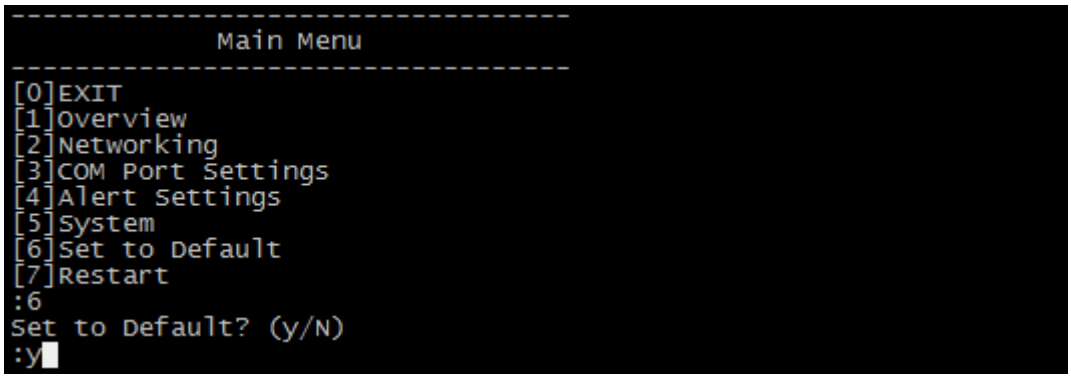


Figure 5.20

5.8 Restart

Operation: Main -> [7] Restart

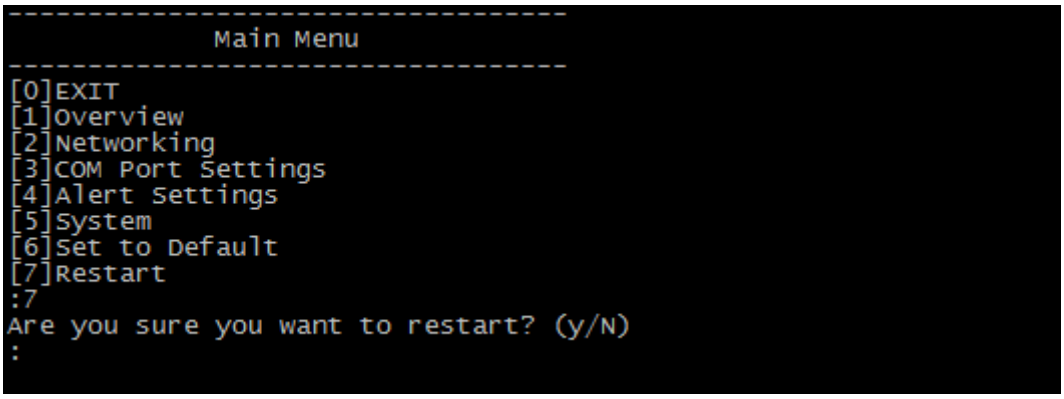


Figure 5.21

5.9 Exit

Choose this option to close the telnet connection.

Operation: Main -> [0] Exit

6 Link Modes and Applications

6.1 Link Mode Configuration

SE8502-M12 Series supports different Link Modes, which are TCP Server, TCP Client, and UDP. Under the three Link Modes, TCP Server can support RAW, Virtual COM, or Reverse Telnet applications. TCP Client can support Virtual COM application. In the upcoming sections, we will discuss how to setup different Link Modes properly.

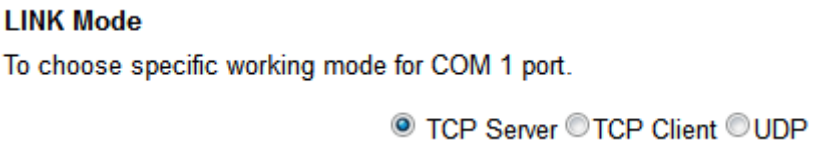


Figure 6.1

6.1.1 Link Mode: Configure SE8502-M12 as a TCP Server

SE8502-M12 Series can be configured as a TCP server in a TCP/IP Network to listen for an incoming TCP client connection to a serial device. After the connection is established between the serial device server and the host computer, data can be transmitted in both directions; this also applies whenever the VCOM is running on server mode. Please be reminded that this is the device's default link mode.

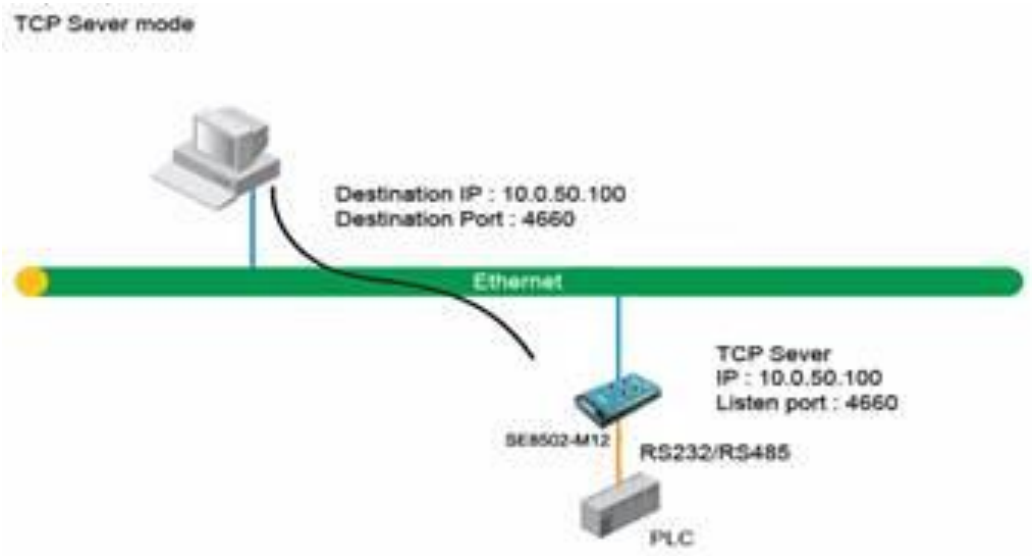


Figure 6.2

LINK Mode

To choose specific working mode for COM 1 port.

◉ TCP Server ○ TCP Client ○ UDP

TCP Server	
Mode	RAW
IP Filter	☐ Enable
Source IP	0 . 0 . 0 . 0
Local Port	4660
Maximum Connection	1
Response Behavior	○ Request & Response Mode ○ Reply to requester only ◉ Reply to all ◉ Transparent Mode

Figure 6.3

SE8502-M12 defaults in TCP Server mode, there are additional connection settings that can be configured, Figure 6.3. By selecting the TCP Server mode, a TCP Client program should be prepared to connect to SE8502.

- Click on the ***"COM1"*** link on the left hand side.

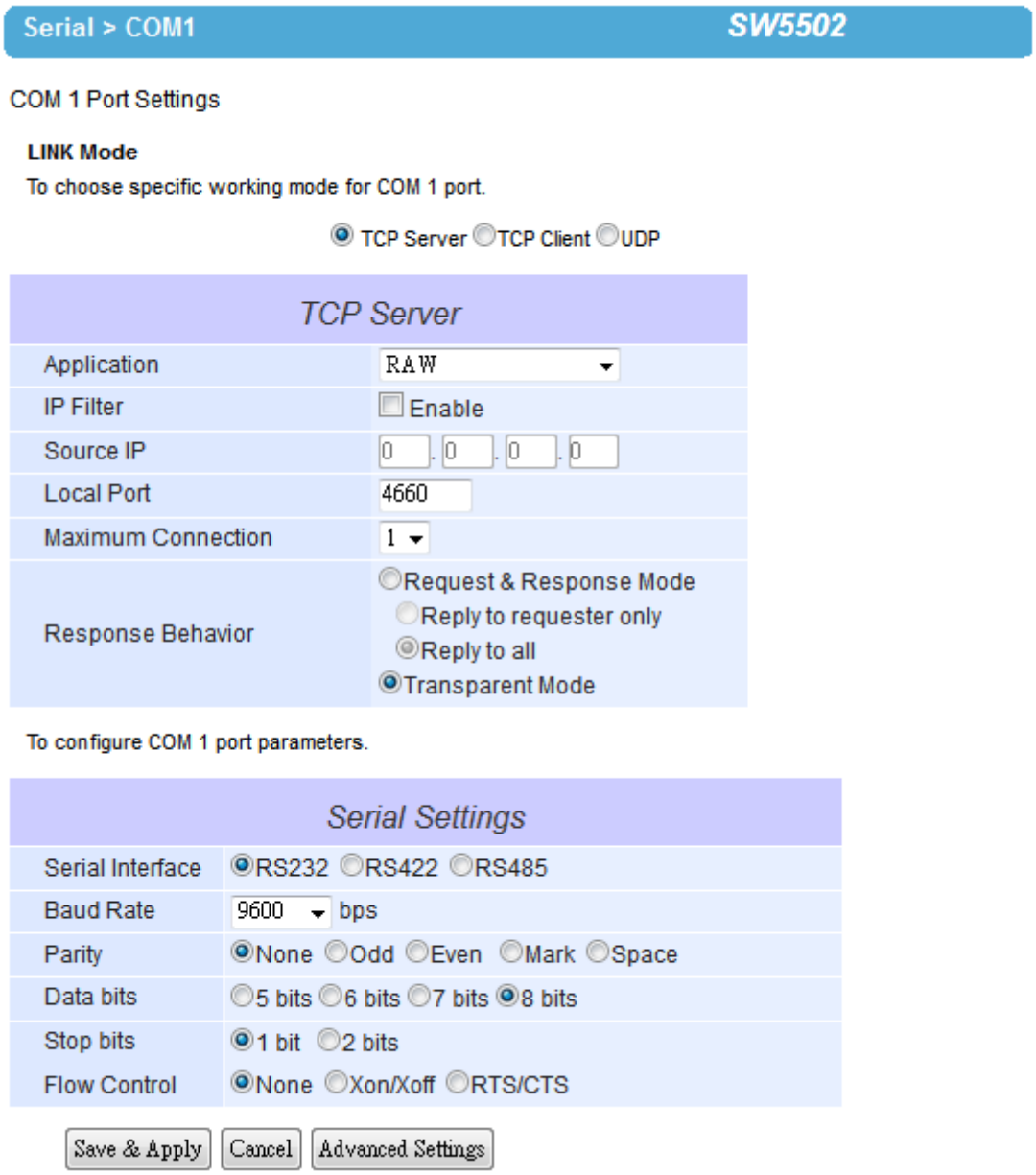


Figure 6.4

- Select **TCP Server** in the Link Modes; TCP Server is the default link mode. Also in this section you will find the following options.
  - **Application,** there are 3 different communication applications here:
    - **RAW,** there is no protocol on this mode, meaning the data is passed transparently.
    - **Virtual COM,** the Virtual COM protocol is enabled on the device to communicate with a virtualized port from the client. It is possible to create a Virtual COM port on Windows/Linux in order to communicate with the device as a Client.
    - **Reverse Telnet,** used to connect the device and another serial device (usually a Terminal Server) with a Telnet program. Telnet programs in Windows / Linux usually require special handshaking to get the outputs and formatting show properly. The SE8502-M12 Series will interact with those special commands (CR/LF commands) once Reverse Telnet is enabled.
- Enter the **Local Port**, this option specifies the port number that the server should listen to; it is used by the client to connect to the server. Default local port is 4660.
- Go to **Response Behavior** for more information on this setting. For serial settings, go to **Sec. 4.4.2**. For Advanced settings, go to **Sec. 4.4.3**.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.

Other important variables to consider are:

- **IP Filter**, enables the Source IP option below to block an IP address from accessing the COM port.
- **Source IP,** specifies the device's Source IP which will be transmitting data to our Server. In other words, our Server will only allow data from this IP to flow (hence its own name implies Source IP); only one source is allowed.
- **Maximum Connection,** the number of devices/clients (max. of 4 clients), to be served is set in this section.
- **Response Behavior,** in which we will have as options:
  - **Request & Response Mode,** it determines how the device will proceed when it receives requests from connected hosts. Under this mode, the port will hold requests from all other connected hosts until the serial device replies or the **Response Interval timeout** takes into effect to discard it; however, unrequested data sent from the serial device would be forwarded to all connected hosts.
    - **Reply to requester only**, the port will reply to the connected host who requested the data only.
    - **Reply to all,** a reply is sent to all connected hosts.
  - **Transparent mode,** the port will forward requests from all connected hosts to the serial device immediately and reply to all connected hosts once it receives data

from the serial device.

Note: LINK1 is associated with COM1; LINK2 is associated with COM2, and so on.

6.1.2 Link Mode: Configure SE8502-M12 as a TCP Client

SE8502-M12 Series can be configured as a TCP client in TCP/IP Network to establish a connection with a TCP server in the host computer. After the connection is established, data can be transmitted between a serial device and a host computer in both directions; this also applies to Virtual COM running in the client mode.

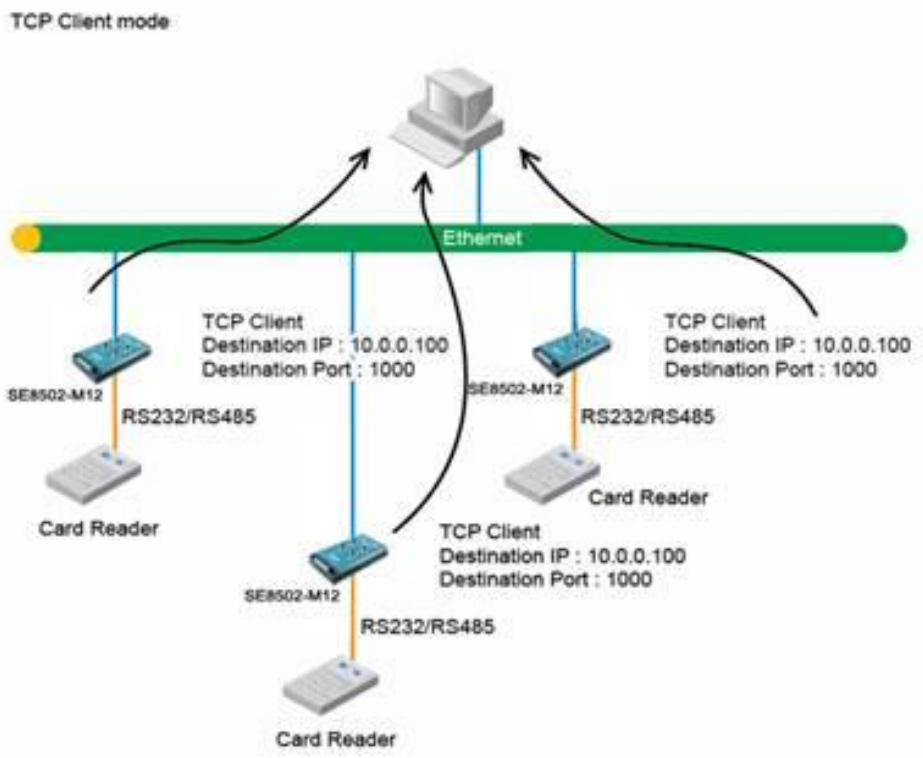


Figure 6.5

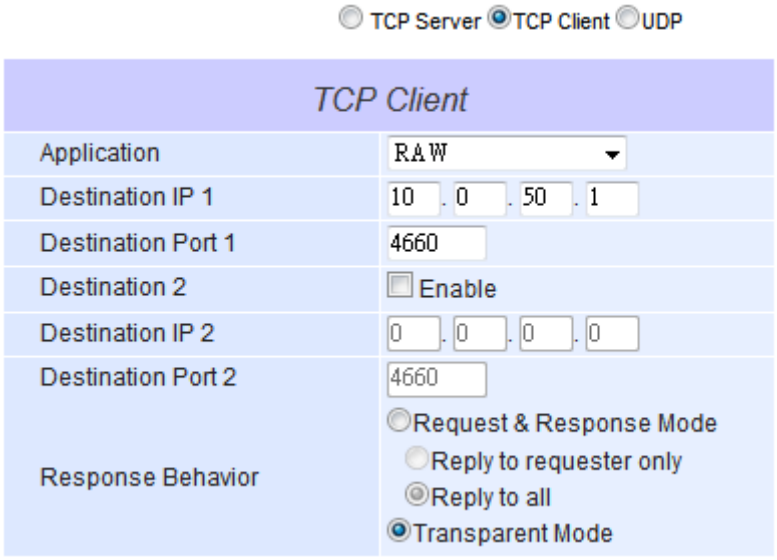


Figure 6.6

By selecting the TCP Client mode, it means that a TCP Server program should be prepared to connect to SE8502. Figure 6.6 shows all the settings provided for the TCP Client.

- Click on the ***"COM1"*** link on the left hand side.

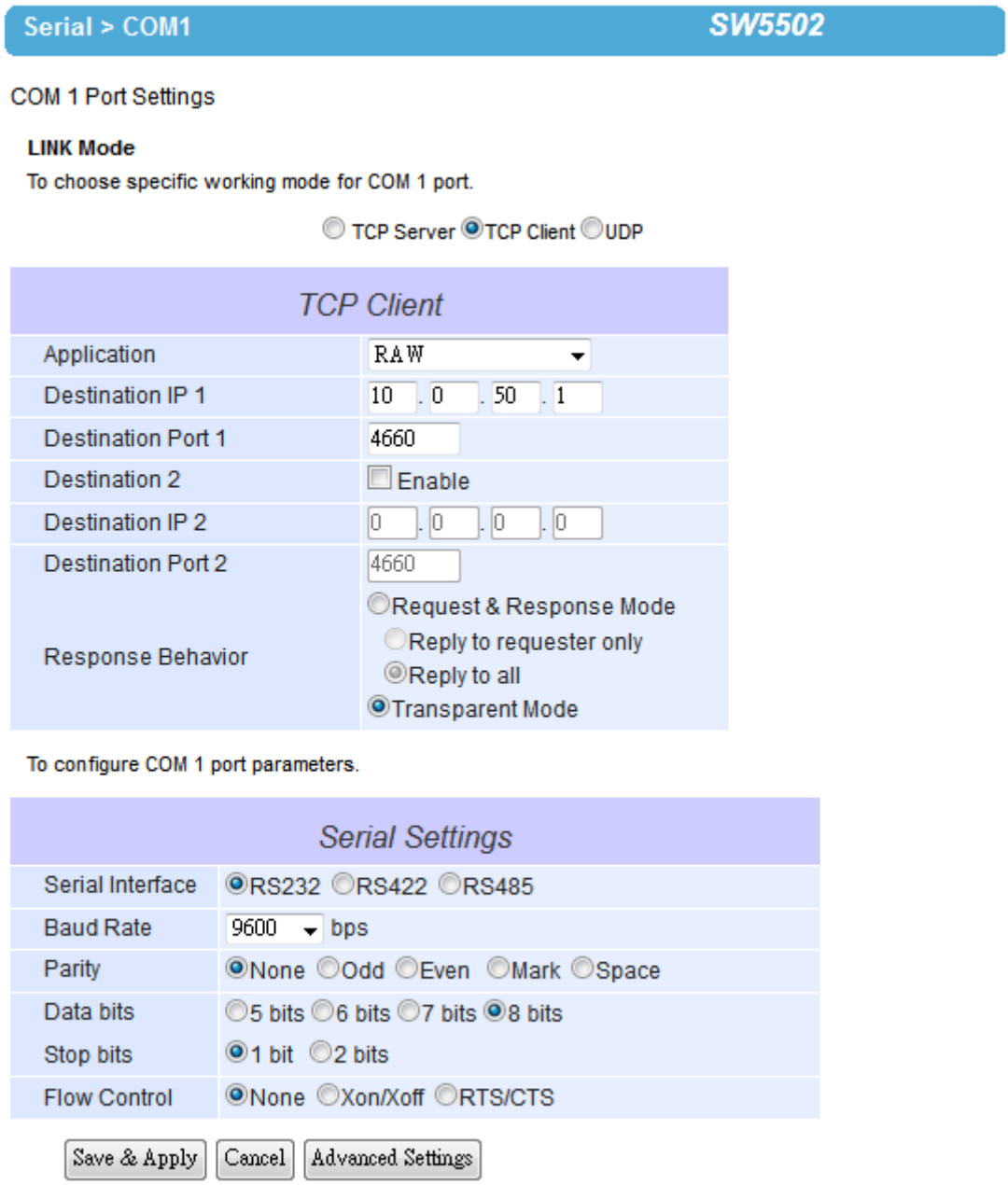


Figure 6.7

- Select **TCP Client** in the Link modes.
- Only two communication modes are available here: RAW and Virtual COM which definitions are the same as above in **Application**.
- Enter the preferred **Destination IP** and **Port**. This should match the IP settings of the TCP Server program.
- Enable and enter Destination IP 2 and Port 2 if necessary. Two different servers can be set here (for redundancy), the second server has to be enabled by ticking the box.

- Go to **Response Behavior** for more information on this setting. For serial settings, go to **Sec. 4.4.2**. For Advanced settings, go to **Sec. 4.4.3**.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.

6.1.3 Link Mode: Configure SE8502-M12 in UDP

UDP is a faster but connectionless network protocol; it does not guarantee the delivery of network datagram. The SE8502-M12 Series can be configured to transfer data using unicast or multicast UDP from the serial device to one or multiple host computers, data can be transmitted between serial device and host computer in both directions.

There is no **server** or **client** concept on this protocol, they are called **peers** or **nodes.** So here you only need to specify the **Local Port** that we should listen to and specify the **Destination IPs** of the remote **UDP nodes.**

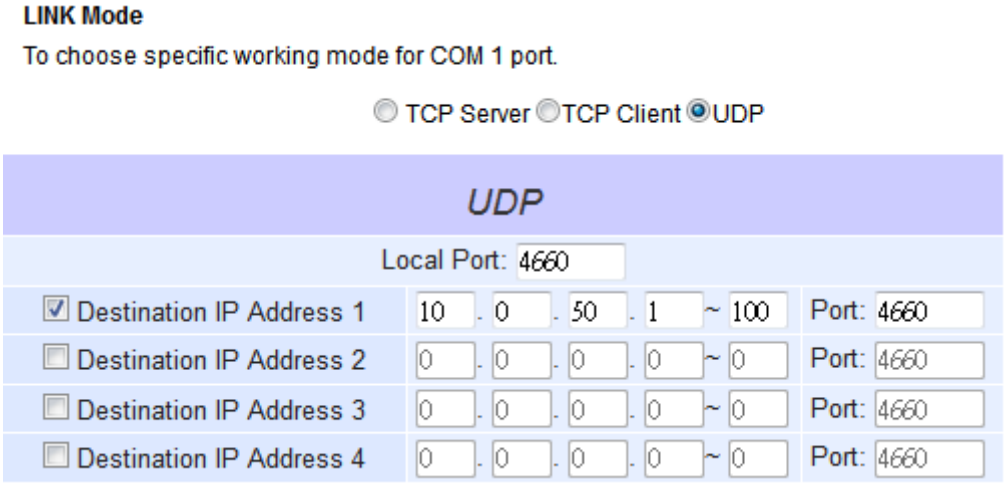


Figure 6.8

SE8502-M12 also supports connectionless UDP protocol compared to the connection-oriented TCP protocol. Please be aware that even though UDP provides better efficiency in terms of response time and resource usage, it does not guarantee data delivery. It is recommended to utilize UDP only with cyclic polling protocols where each request is repeated and independent, such as Modbus Protocol. Figure 6.8 shows the UDP settings.

- Click on the ***"COM1"*** link on the left hand side.

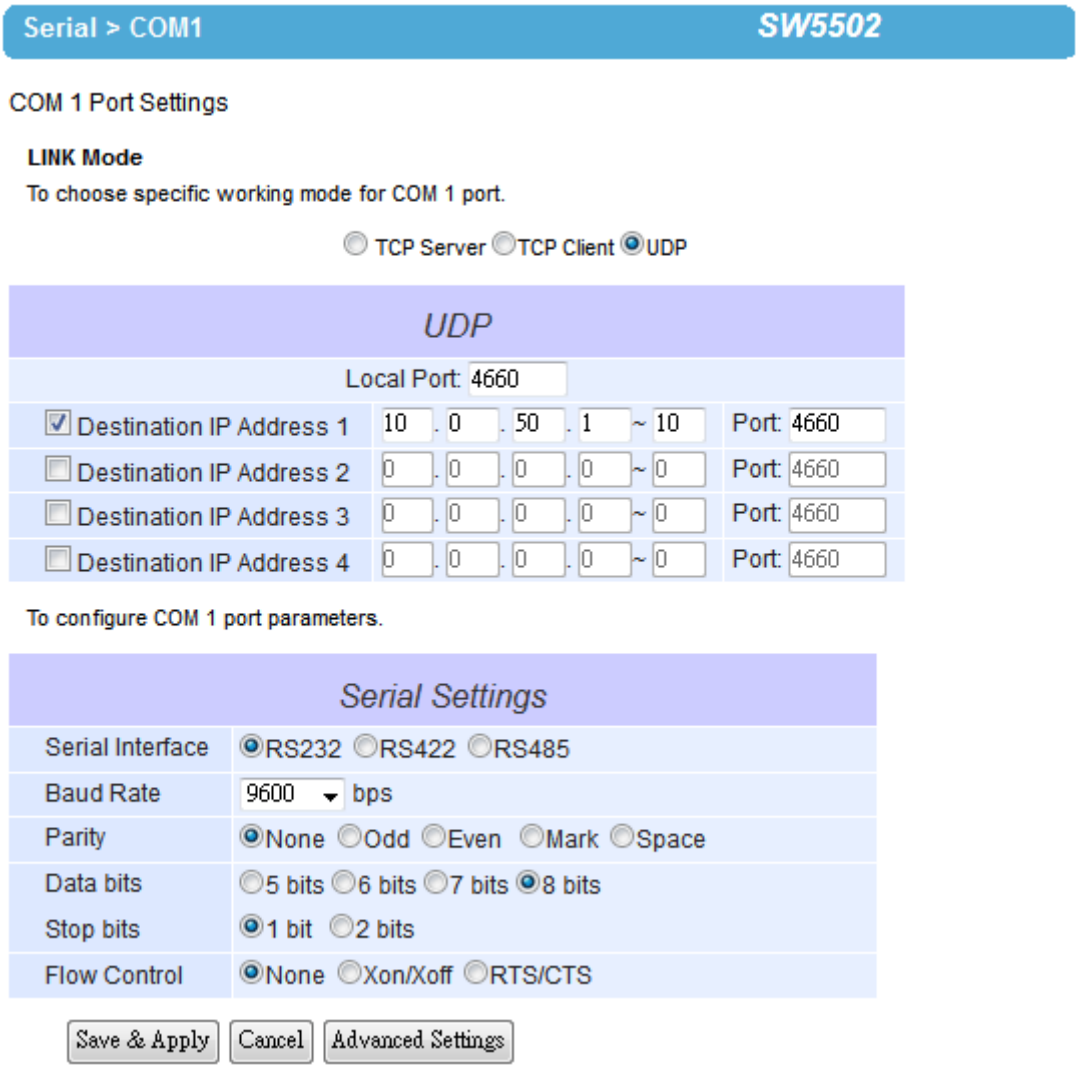


Figure 6.9

- Select **UDP** in the Link Modes.
- **Destination IP and Port:** Specify the **Begin** and **End IP** here. Four groups of range IPs are allowed. This is the **IP** address of the UDP program and the **Port** it is listening to. Note that the maximum number of UDP nodes that SE8502-M12 can handle would highly depend on the traffic load. *We have tested that SE8502-M12 can handle up to 200 UDP nodes (baud rate 9600 bps, request interval 100ms, and data length 30bytes).*
- Enter the **Local Listening Port**. This is the port that SE8502-M12 should listen to. Match this setting in the UDP program (usually called destination port in the UDP program).
- For serial settings, go to Sec. 4.4.2. For Advanced settings, go to Sec. 4.4.3.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.

6.2 Link Mode Applications

6.2.1 TCP Server Application: Enable Virtual COM

SE8502-M12 will encapsulate control packets on top of the real data when Virtual COM is enabled. This will allow the Virtual COM port in the Windows/Linux system to access SE8502's COM ports. The benefit of using Virtual COM is that rewriting an existing COM program to read IP packets is unnecessary. In other words, it is possible to use an ordinary serial (COM) program. The conversion/virtualization of IP to COM is all done in the system driver transparently. Figure 6.10 shows SE8502-M12 in TCP Server mode with Virtual COM enabled.

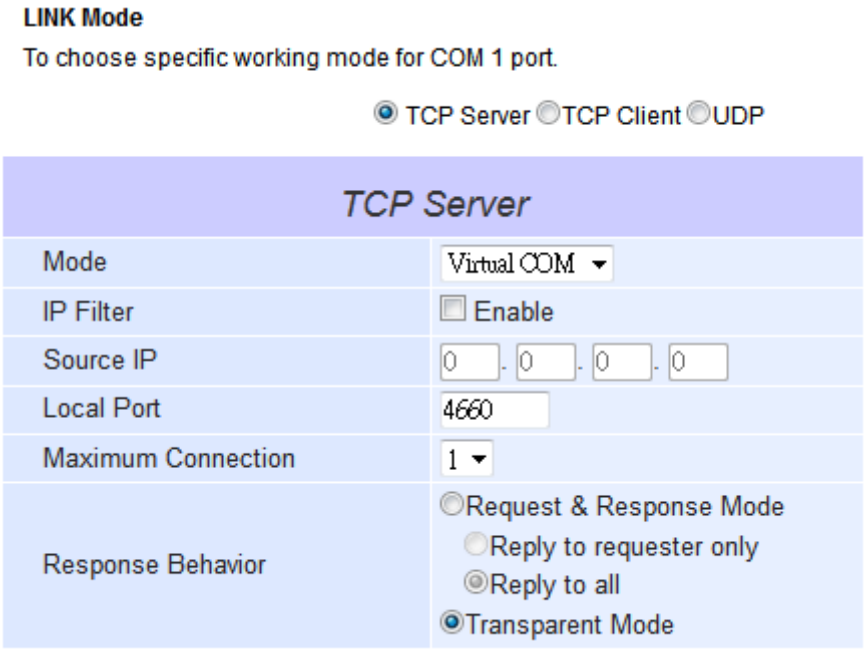


Figure 6.10

- Follow Sec. 6.1.1 to configure SE8502-M12 in TCP Server mode properly.
- Click on the dropdown box of the **Application** option and switch to "**Virtual COM**" to enabled Virtual COM application in SE8502.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.
- Configure Virtual COM in the Operating System. For Windows, refer to Chapter 7. For Linux, refer to a separate manual included in the Linux driver zip file. Remember SE8502's IP address and **Local Port** here in order to enter this information in Serial/IP Virtual COM's Control Panel later.

6.2.2 TCP Server Application: Enable RFC 2217

The underlying protocol of Virtual COM is based on RFC 2217, the Telnet COM Control Option. Therefore, it is possible to use RFC 2217 with SE8502-M12 in the TCP Server mode. To do so, refer to **Sec. 6.2.1** to enable Virtual COM, so that SE8502-M12 becomes aware of the commands. Note that there is no need to configure Virtual COM on the Operating System because Virtual COM ports would not be used.

6.2.3 TCP Client Application: Enable Virtual COM

It is also possible to run VCOM in TCP Client mode, Figure 6.11. It is usually easier to use Virtual COM in the Client mode if SE8502-M12 uses dynamic IP (DHCP) because setting a static IP address in Virtual COM's Control Panel in the Operating System is not possible.

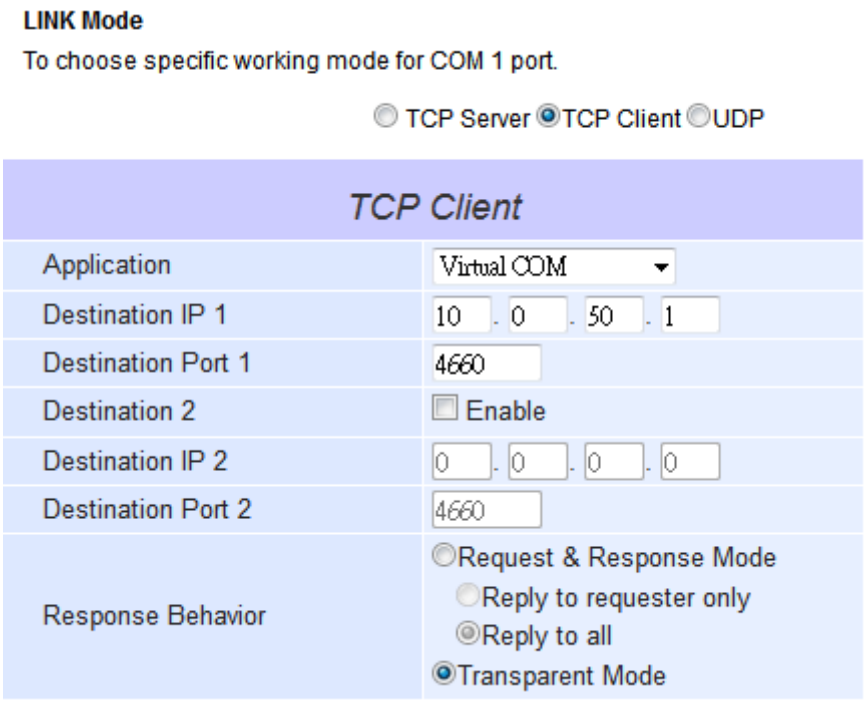


Figure 6.11

- Follow **Sec. 6.1.2** to configure SE8502-M12 in TCP Client mode properly.
- Click on the dropdown box of the **Application** option and switch to "**Virtual COM**" to enabled Virtual COM application in SE8502.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.
- Configure Virtual COM in the Operating System. For Windows, refer to **Chapter 7**. For Linux, refer to a separate manual included in the Linux driver zip file. Remember

the **Destination Port** here in order to enter this information in Serial/IP Virtual COM's Control Panel later.

6.2.4 TCP Client Application: Enable RFC 2217

The underlying protocol of Virtual COM is based on RFC 2217, the Telnet COM Control Option. Therefore, it is possible to use RFC 2217 with SE8502-M12 in the TCP Client mode. To do so, refer to **Sec. 6.2.3** to enable Virtual COM, so that SE8502-M12 becomes aware of the commands. Note that there is no need to configure Virtual COM on the Operating System because Virtual COM ports would not be used.

6.2.5 TCP Server Application: Configure as a Pair Connection Master

Pair Connection is useful when pairing up two serial devices over the Ethernet or when it is impossible to install Virtual COM in the serial device. Pair connection does require two SE8502-M12 to work in pair, one would be the Pair Connection Master and the other would be the Pair Connection Slave.

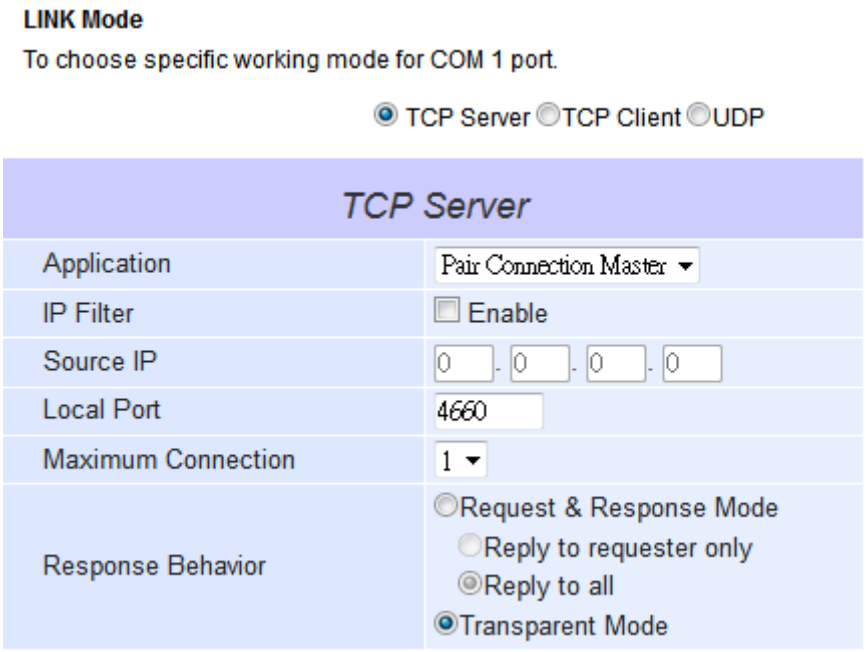


Figure 6.12

- Follow **Sec. 6.1.1** to configure SE8502-M12 in TCP Server mode properly.
- Click on the dropdown box of the **Application** option and switch to "**Pair Connection Master**" to enabled Pair Connection application in SE8502.

- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.
- Remember Pair Connection Master's IP address here in order to enter this information in the Slave later.
- Proceed to Sec. 6.2.6 to configure a Slave to connect to this Master.

6.2.6 TCP Client Application: Configure as a Pair Connection Slave

A **Pair Connection Slave, is** shown in Figure 6.13; it is necessary to pair up with a **Pair Connection Master**. Please setup a **Pair Connection Master** first before proceeding.

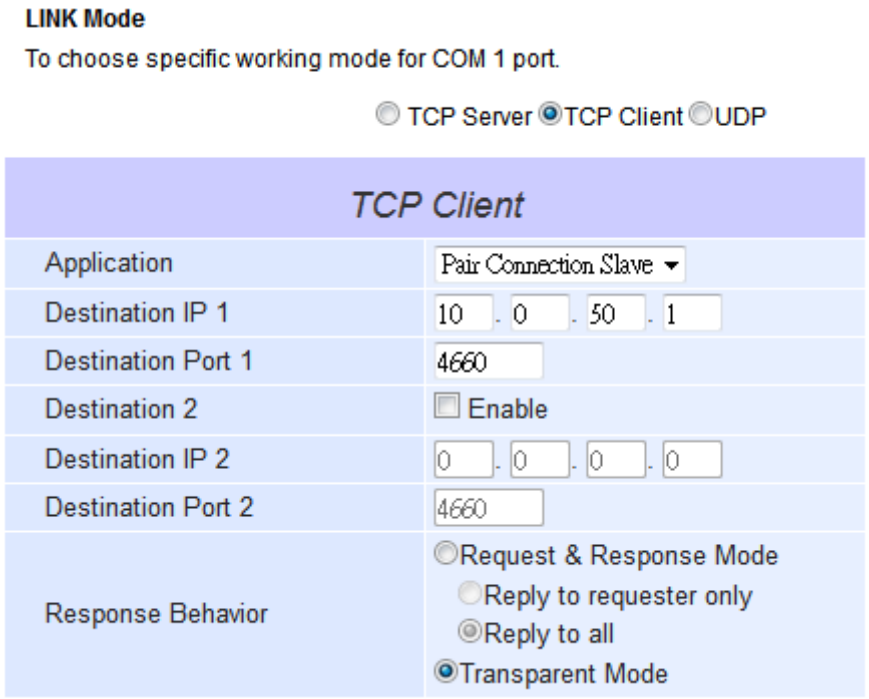


Figure 6.13

- Follow Sec. 6.1.2 to configure SE8502-M12 in TCP Client mode properly.
- Click on the dropdown box of the **Application** option and switch to "**Pair Connection Slave**" to enabled Pair Connection application in SE8502.
- Match the **Destination IP** with the settings of Pair Connection Master's IP that was setup previously.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.

6.2.7 TCP Server Application: Enable Reverse Telnet

Reverse Telnet is useful if a telnet program is used to connect to SE8502-M12 and the serial interface of the SE8502-M12 is connected to a Terminal Server. Telnet programs in Windows/Linux require special handshaking to get the outputs and formatting show properly. SE8502-M12 will interact with those special commands (CR/LF commands) if Reverse Telnet is enabled.

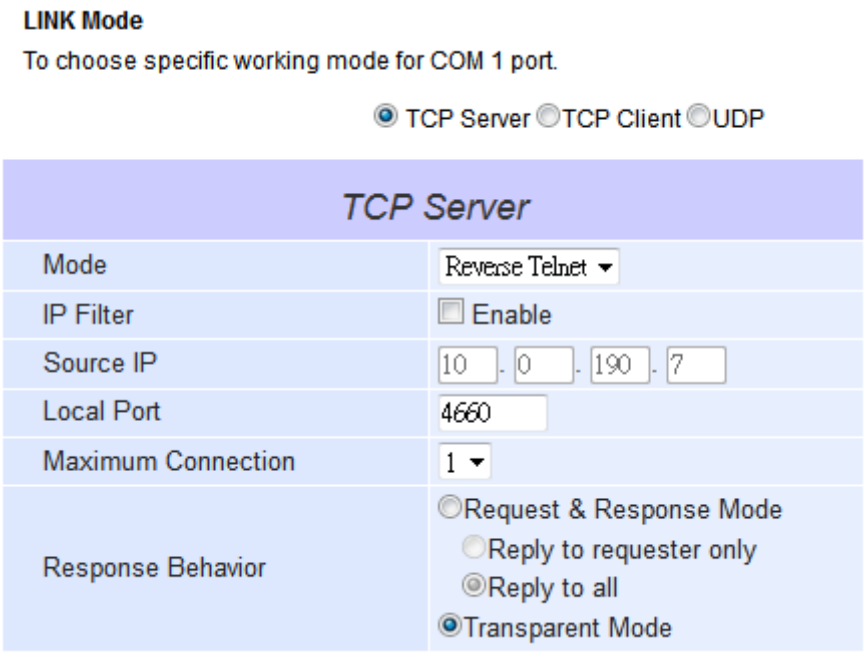


Figure 6.14

- Follow **Sec. 6.1.1** to configure SE8502-M12 in TCP Server mode properly.
- Click on the dropdown box of the **Application** option and switch to "**Reverse Telnet**" to enabled reverse telnet application in SE8502.
- Scroll to the bottom of the page and click on "**Save & Apply**" button to save the changes.

6.2.8 UDP Application: Multi-Point Pair Connection

It is also possible to setup pair connection in UDP mode to have more than one Pair Connection Master or Slave to communicate to each other. For example, it is possible to setup one Modbus Master and six Modbus Slaves in UDP, Figure 6.15. Note again that UDP does not guarantee data delivery and only data would be transmitted over Ethernet; other serial pings are not transmitted. If RS-232 along with flow control, it is recommended to use Multi-Point Pair Connection in TCP, see **Sec. 6.2.10**.

Note: The destination IP and Port of the Slaves need to be equal to the Master's IP and Port. Local Listening Port of the Slaves need to be equal to the Master's Destination Port, see Table for an example.

Table 6.1

	IP Address	Link Mode	Local Listening Port	Destination IP	Destination Port
SE8502 Master COM1	10.0.50.100	UDP	5000	10.0.50.200~10.0.50.203	5000
SE8502 Master COM1	10.0.50.100	UDP	5000	10.0.50.200~10.0.50.201	5001
SE8502 Slave 1 COM1	10.0.50.200	UDP	5000	10.0.50.100	5000
SE8502 Slave 1 COM2	10.0.50.200	UDP	5001	10.0.50.100	5000
SE8502 Slave 2 COM1	10.0.50.201	UDP	5000	10.0.50.100	5000
SE8502 Slave 2 COM2	10.0.50.201	UDP	5001	10.0.50.100	5000
SE8502 Slave 3 COM1	10.0.50.202	UDP	5000	10.0.50.100	5000
SE8502 Slave 4 COM1	10.0.50.203	UDP	5000	10.0.50.100	5000

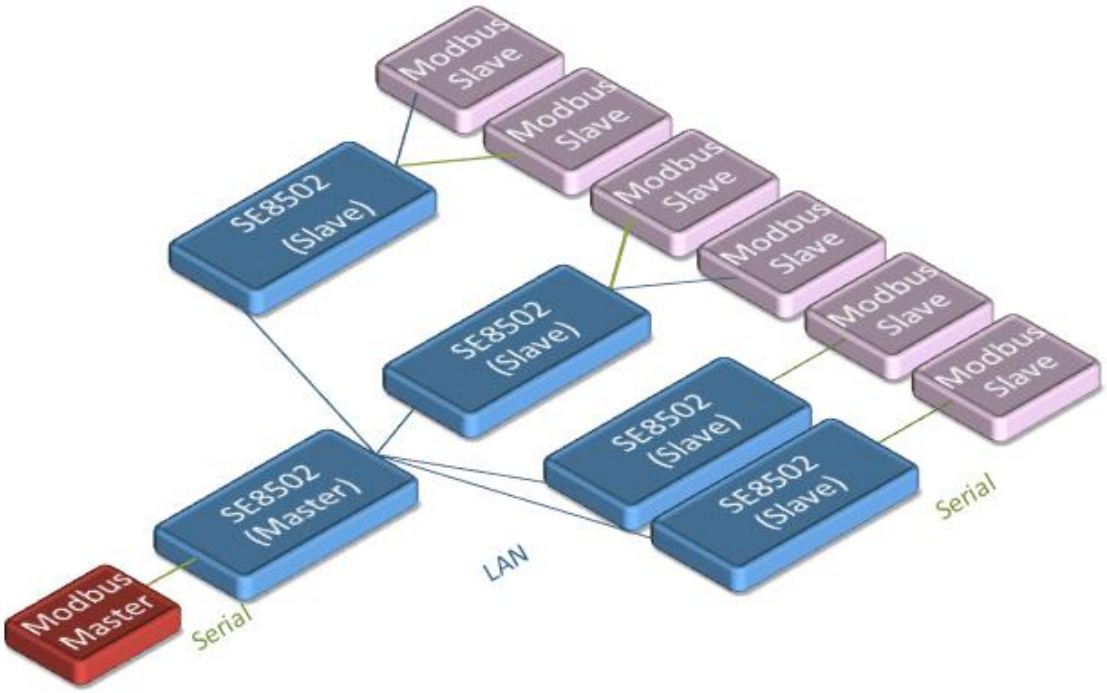


Figure 6.15

6.2.9 TCP Server Application: Multiple TCP Connections

The Multi-Connection option will allow up to a maximum of four TCP Client connections. Note that it is also possible to use this multi-connection feature in conjunction with other TCP Server applications, such as Virtual COM, Pair Connection, and Reverse Telnet. For example, enabling multi-connection along with Pair Connection will result in Multi-Point Pair Connection in TCP mode (**Sec. 6.2.10**). Go to **Response Behavior** for more information on this setting.

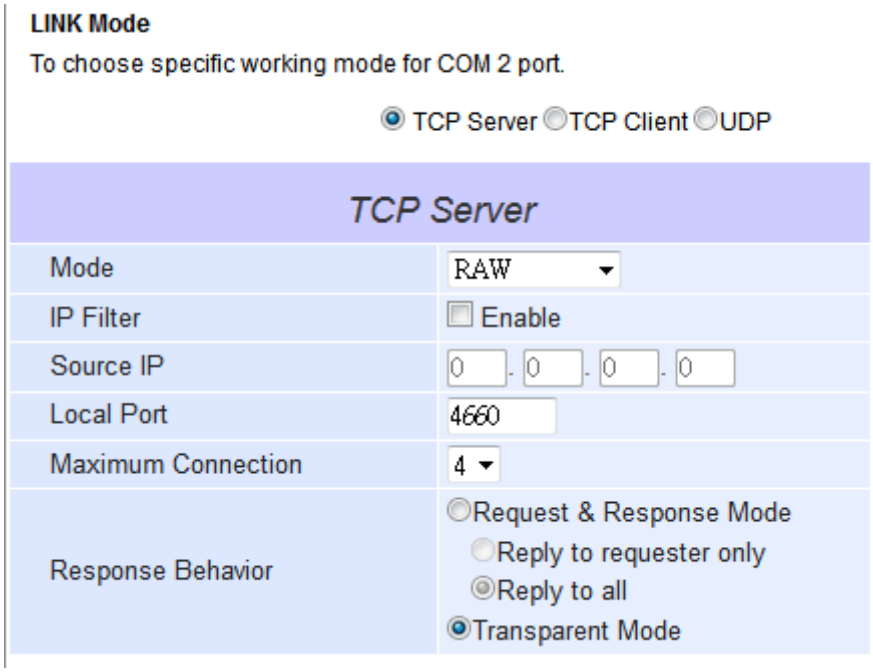


Figure 6.16

6.2.10 TCP Server Application: Multi-Point TCP Pair Connections

The difference between Multi-Point TCP Pair Connection and Multi-Point UDP Pair Connection is that the TCP implementation would also exchange flow control pins for RS-232. However, the TCP Server is limited to a maximum of four connections. If there are four serial devices and they don't use flow control pins with RS-232 or RS-485, it is possible to setup pair connection in UDP mode, Sec. 4.2.8. After multi-connection is enabled in the WebUI, refer to the following table to setup Pair Connection as in Table 6.2.

Table 6.2

	IP Address	Link Mode	Application	Local Listening Port	Destination IP	Destination Port
SE8502 Master COM1	10.0.50.100	TCP Server	Pair Connection Master	4660	-	-
SE8502 Slave 1 COM1	10.0.50.200	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SE8502 Slave 1 COM2	10.0.50.200	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SE8502 Slave 2 COM1	10.0.50.201	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SE8502 Slave 3 COM1	10.0.50.202	TCP Client	Pair Connection Slave	-	10.0.50.100	4660

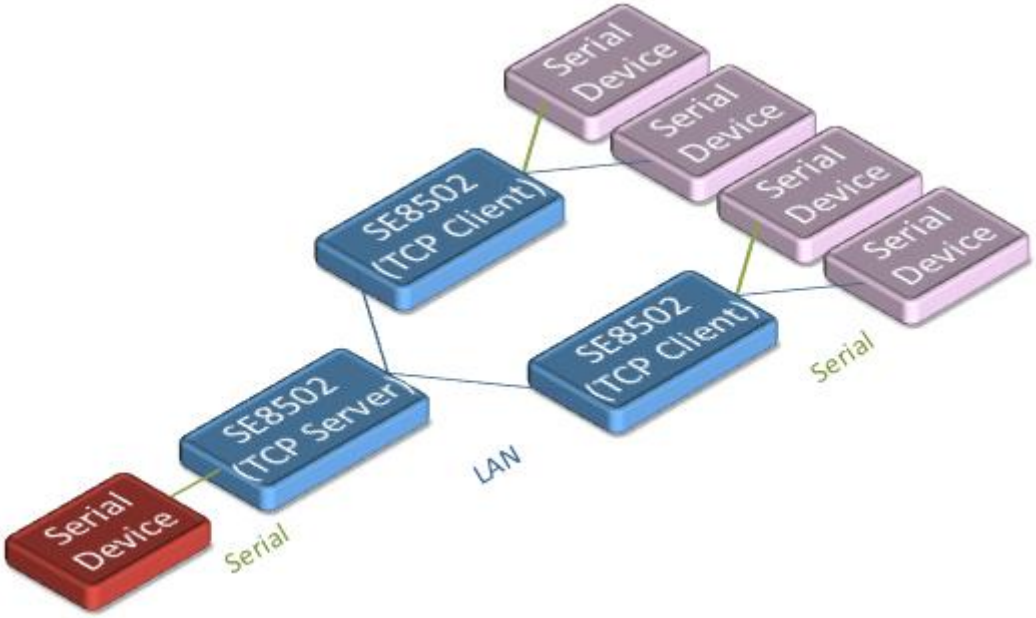


Figure 6.17

7 VCOM Installation & Troubleshooting

7.1 Enabling VCOM

SE8502-M12 will encapsulate control packets on top of the real data when Virtual COM is enabled. This will allow the Virtual COM port in the Windows/Linux system to access SE8502-M12's COM ports. Remember that VCOM can only be enabled on TCP Server Mode (Figure 7.1) or TCP Client (Figure 7.2).

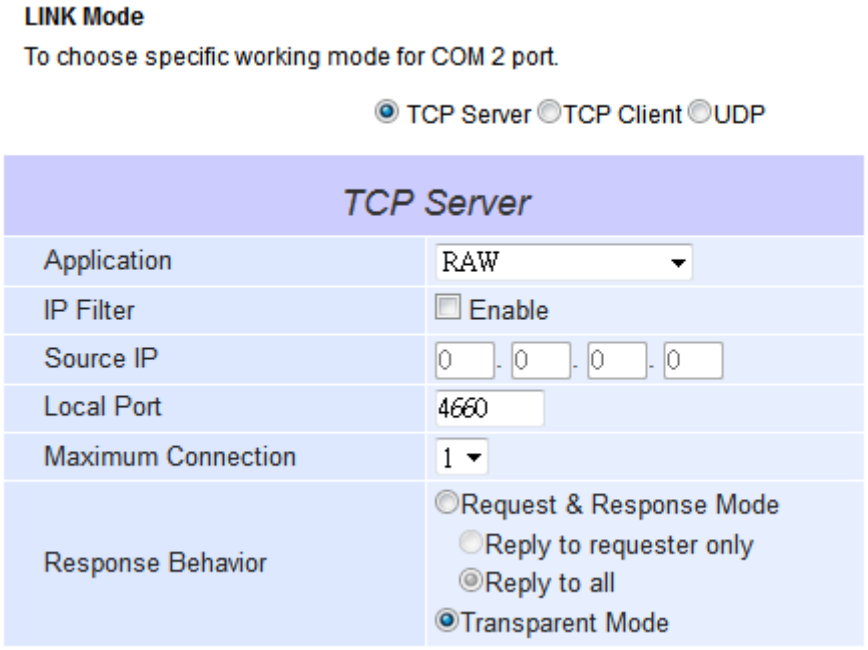


Figure 7.1

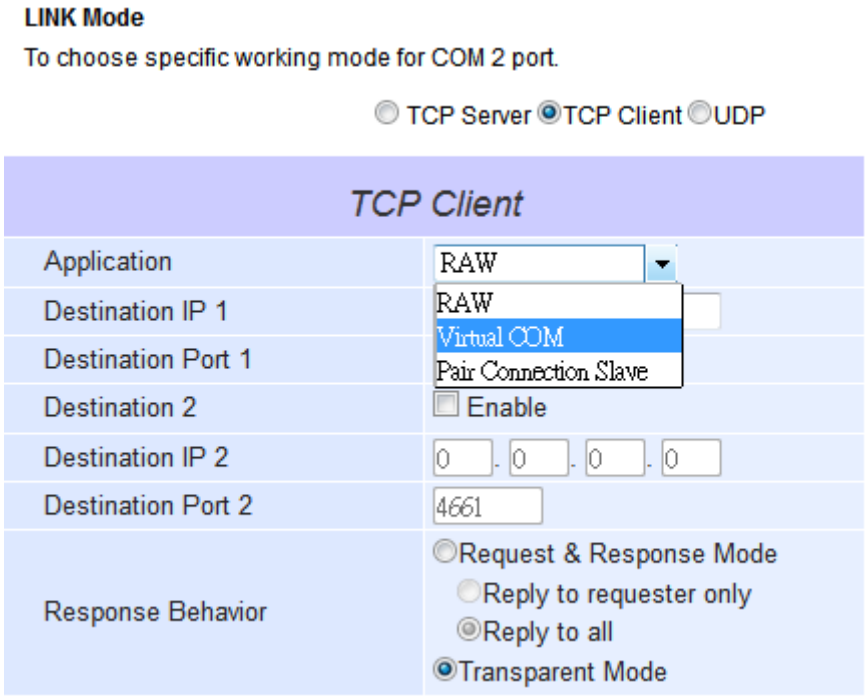


Figure 7.2

Virtual COM allows remote access of serial devices over TCP/IP networks through Serial/IP Virtual COM ports that work like local native COM ports. Figure 7.3 is a Virtual COM connection diagram.

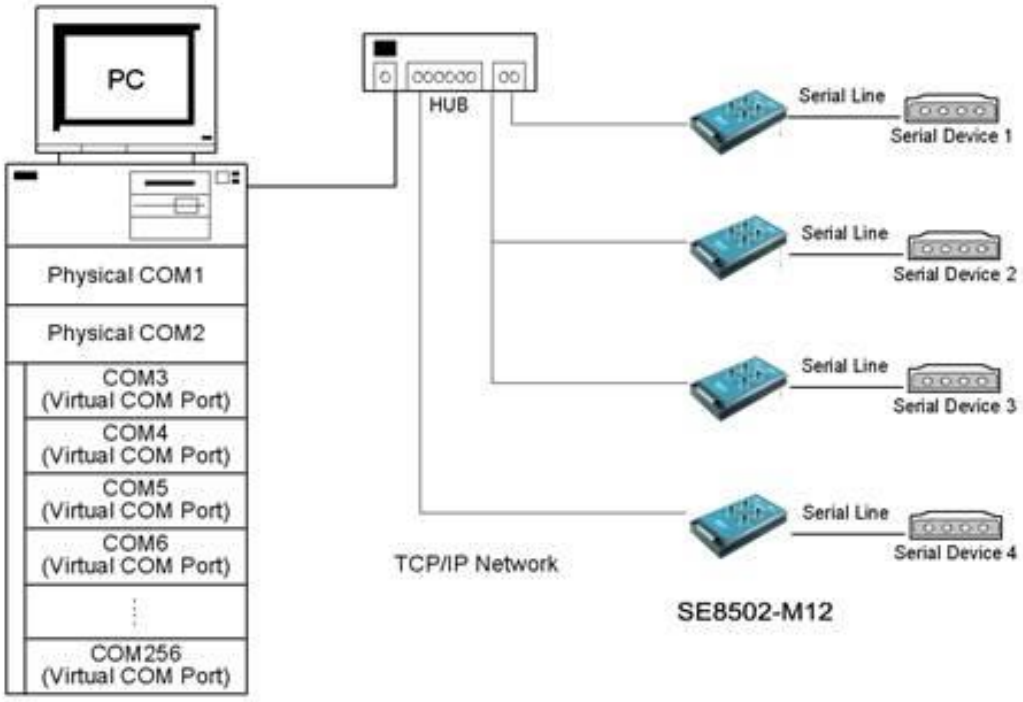

PC
HUB
Serial Line
Serial Device 1
Serial Line
Serial Device 2
Serial Line
Serial Device 3
Serial Line
Serial Device 4
Physical COM1
Physical COM2
COM3
(Virtual COM Port)
COM4
(Virtual COM Port)
COM5
(Virtual COM Port)
COM6
(Virtual COM Port)
COM256
(Virtual COM Port)
TCP/IP Network
SE8502-M12

Figure 7.3

7.1.1 VCOM driver setup

System Requirements

- Windows Platform (32/64 bits)
  - Win7
  - 2008
  - Vista
  - XP
  - 2003 (also Microsoft 2003 Terminal Server)
  - 2000 (also Microsoft 2000 Terminal Server)
  - NT (also Microsoft NT Terminal Server)
  - 4.0
  - 9x
- Citrix MetaFrame Access Suite
- **Linux,** also available but first you might need to download a separate package called Virtual COM driver for Linux **(TTYredirector)** available for download on Atop website or in the product CD. The zipped package includes a binary file for installation and a manual for Linux systems.

7.1.2 Limitation

The Virtual COM driver allows up to 256 **Virtual COM ports** in a single PC. Selecting in the range from COM1 to COM4096 is allowed. Note that COM ports already occupied by the system or other devices will not be available.

7.1.3 Installation

Run the Virtual COM setup file included in the CD or download a copy from our website to install the Virtual COM driver for the operating system. Turn off your anti-virus software and try again if installation fails. At the end of the installation, please select at least one Virtual COM port from the Serial/IP Control Panel.

7.1.4 Uninstalling

1 From Windows Start Menu select Control Panel, Add/Remove Programs.

2 Select **Serial/IP Version x.x.x** in the list of installed software.

3 Click the **Remove** button to remove the program.

7.2 Enabling Virtual COM

7.2.1 Enable VCOM in Serial device servers

Enable Virtual COM in our serial device servers by logging into our WebUI. It is located under **COM configuration**. Figure 7.4 show how to enable Virtual COM in SE8502. For a detailed **Link Mode configuration** with **Virtual COM**, please refer to the previous chapter starting from **Sec. 4.1** on **Link Mode configurations.**

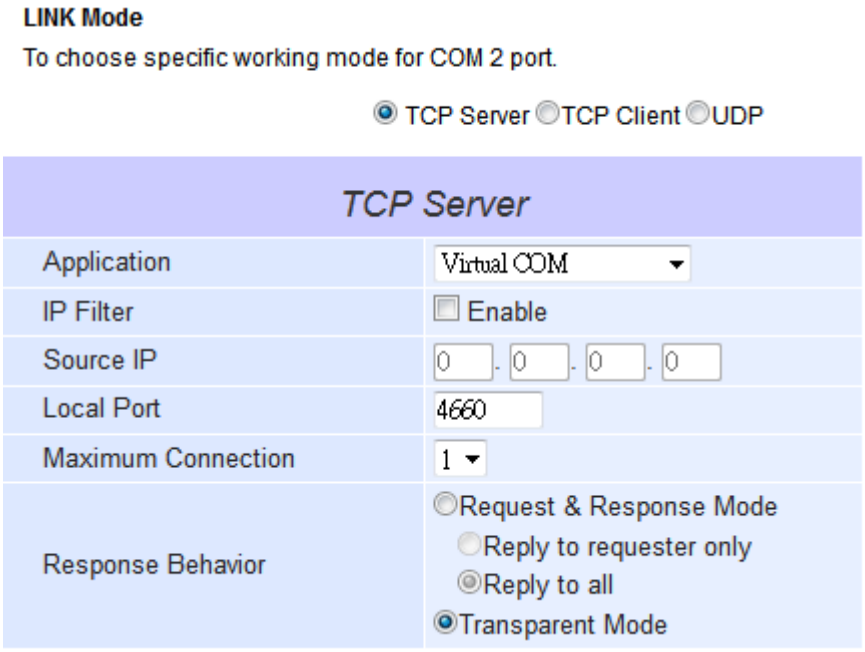


Figure 7.4

7.2.2 Running Serial/IP in Windows

Find Serial/IP Control Panel from:

- Start → All Programs → Serial/IP → Control Panel
- In the Windows Control Panel, open the Serial/IP applet.
- In the Windows notification area, Figure 7.5; right click in the Serial/IP tray icon and click on **Configure** to open the Control Panel.

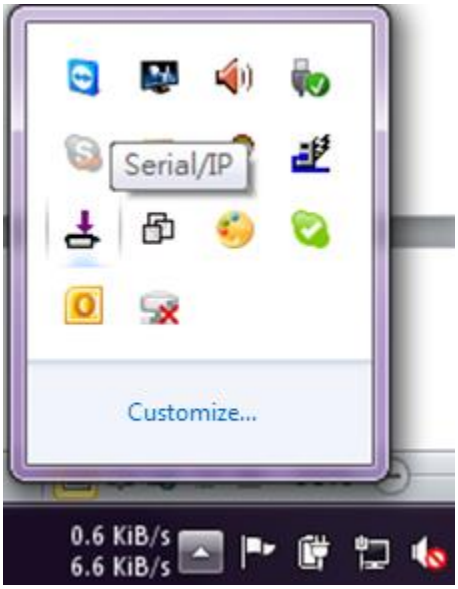


Figure 7.5

If no Virtual COM port is selected, a dialog will pop up and asks to select at least one port as the Virtual COM port before proceeding, Figure 7.6.

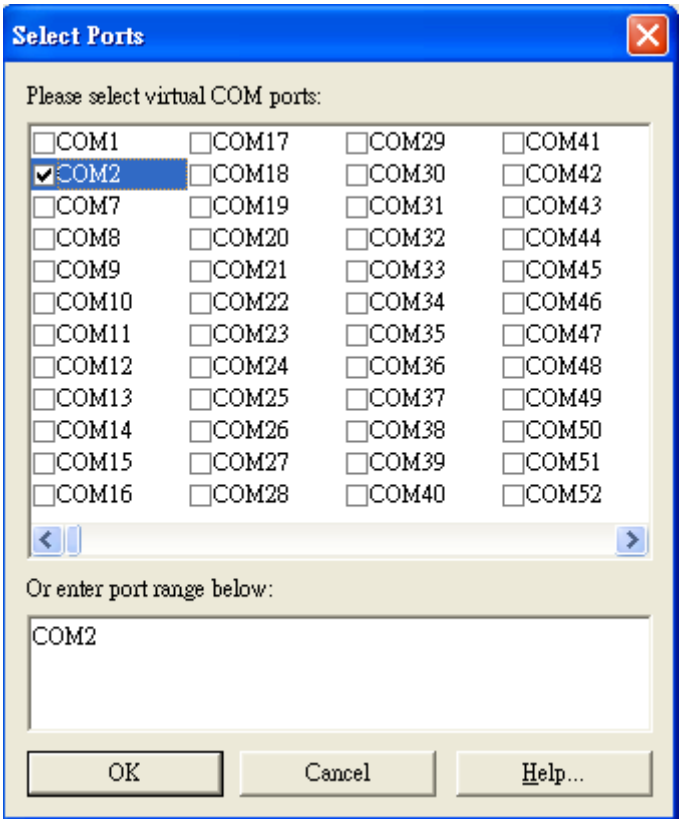


Figure 7.6

After at least one Virtual COM port is selected, the Control Panel will show, Figure 7.7.

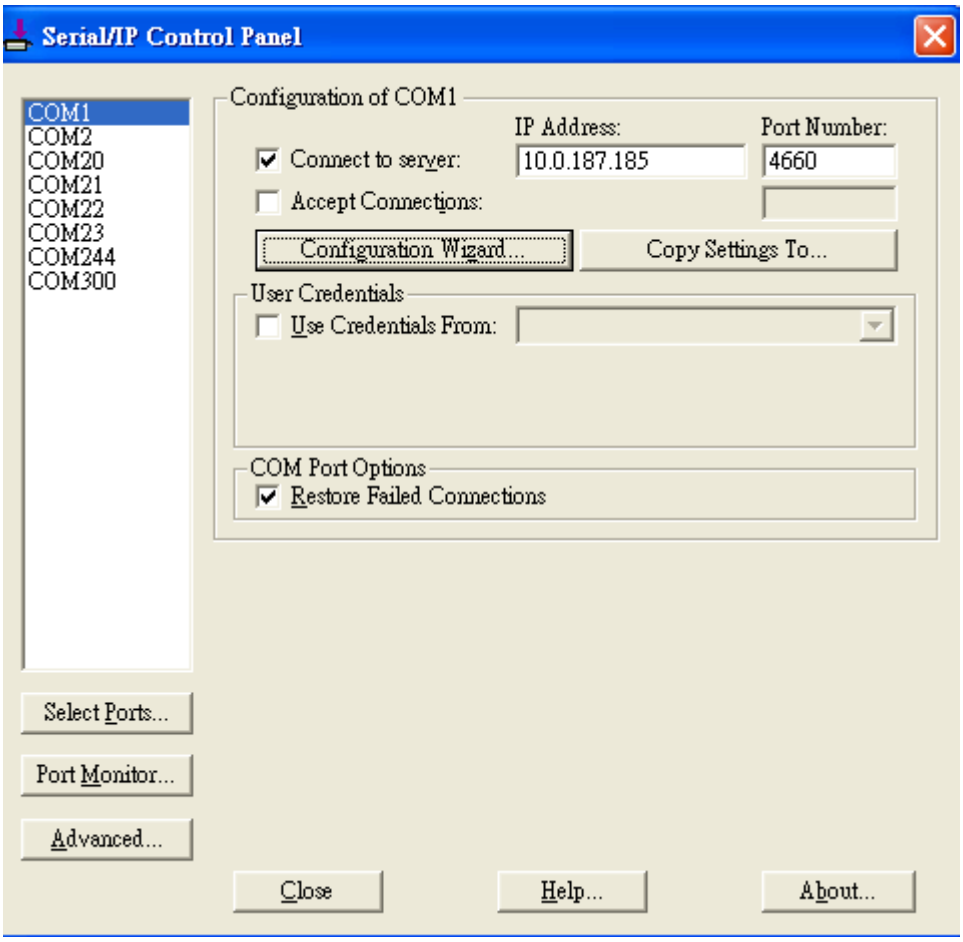


Figure 7.7

The left hand side of the Control Panel shows the list of selected Virtual COM ports. Click on **Select Ports** to add or remove Virtual COM ports from the list. The right hand side of the Control Panel shows the configurations of the selected Virtual COM port marked in blue. Each Virtual COM port can have its own settings.

Note: The changes to Virtual COM ports apply immediately, so there is no need to save the settings manually. However, if the Virtual COM port is already in use, it is necessary to close the Virtual COM port and open it after the TCP connection closes completely in order for the changes to take effect.

7.2.3 Configuring VCOM Ports

1. If the serial device server is running in TCP Server mode (recommended), a Serial/IP should be the TCP Client connecting to the serial device server. Enable **Connect to Server** and enter the **IP Address** of the serial device server with the **Port Number** specified. The **Port Number** here is the Local Listening Port for the serial device server.

2. If the serial device server is running in TCP Client mode, Serial/IP should be the TCP Server waiting for a serial device server to connect it. Enable **Accept Connections** and enter the **Port Number**. The **Port Number** here is the Destination Port of the serial device server. Do not enable **Connect to Server** and **Accept Connections** together.

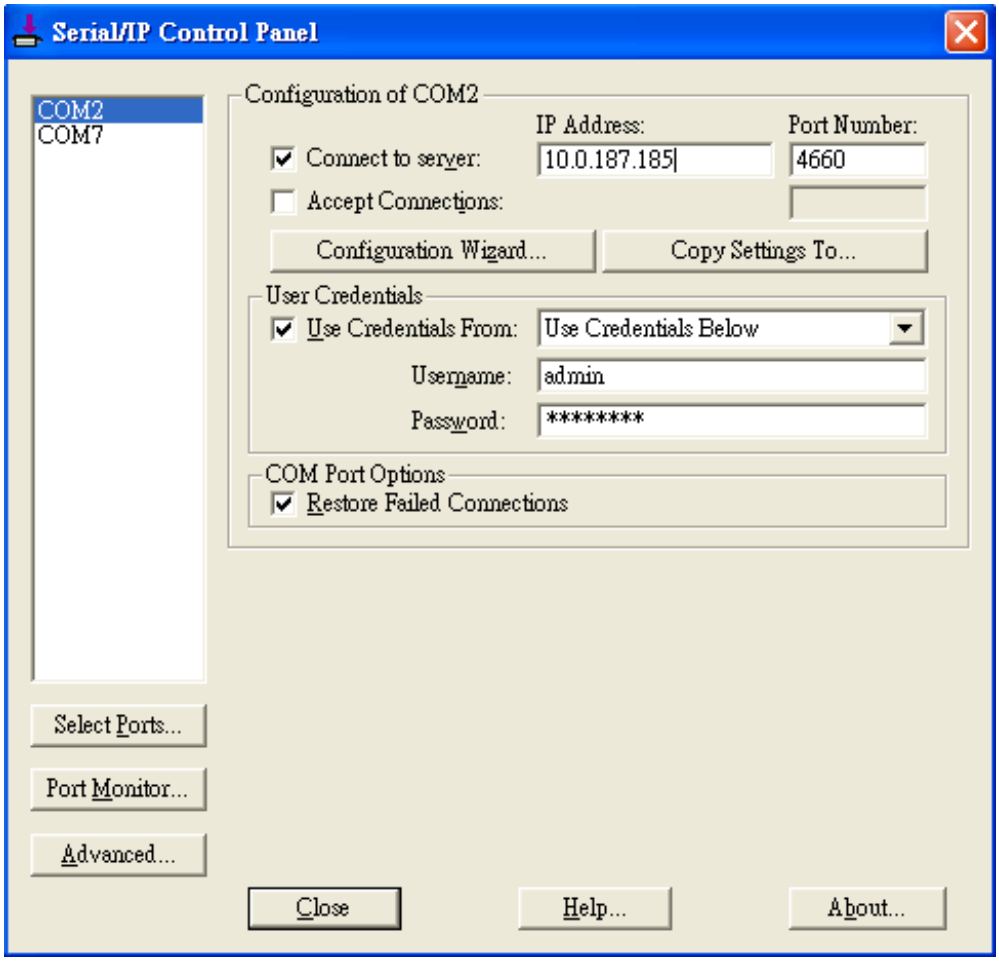


Figure 7.8

3. Enable **Restore Failed Connections** to force Virtual COM to automatically restore failed connections with the serial device server in the case of unstable network connections.

4. To test the Virtual COM connection, click the Configuration Wizard button and then click **Start** button in the pop up window (Figure 7.9). If the test passes, all checks should be in green. To apply the changes in the Configuration Wizard window to the Control Panel, click on **Use Settings**. Click on **Copy** to copy the results to the system clipboard.

5. To transfer the settings between Virtual COM ports, click on the **Copy Settings To** button.

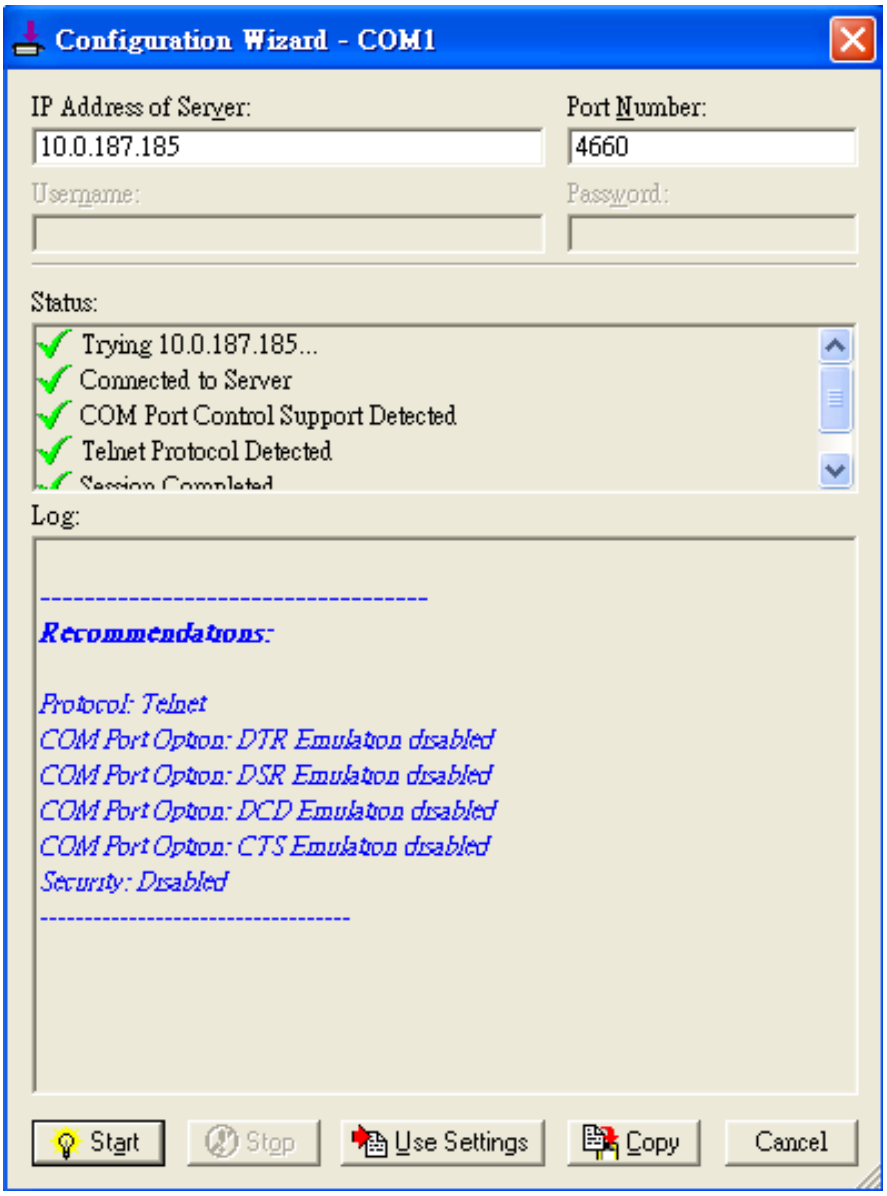


Figure 7.9

7.3 Exceptions

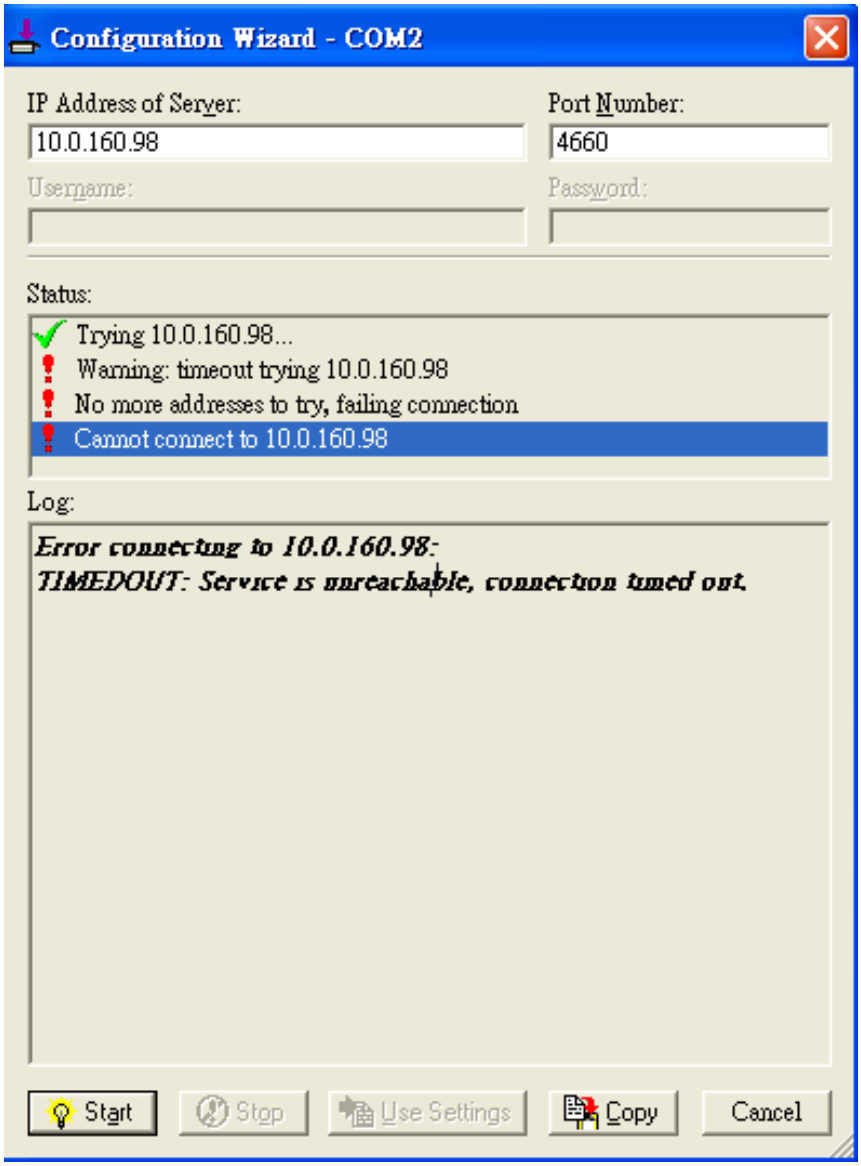


Figure 7.10

If the exclamation mark begins with **Warning: timeout trying x.x.x.x** as in Figure 7.10, recheck the **VCOM IP** and **Port configuration** or the PC's **network configuration.**

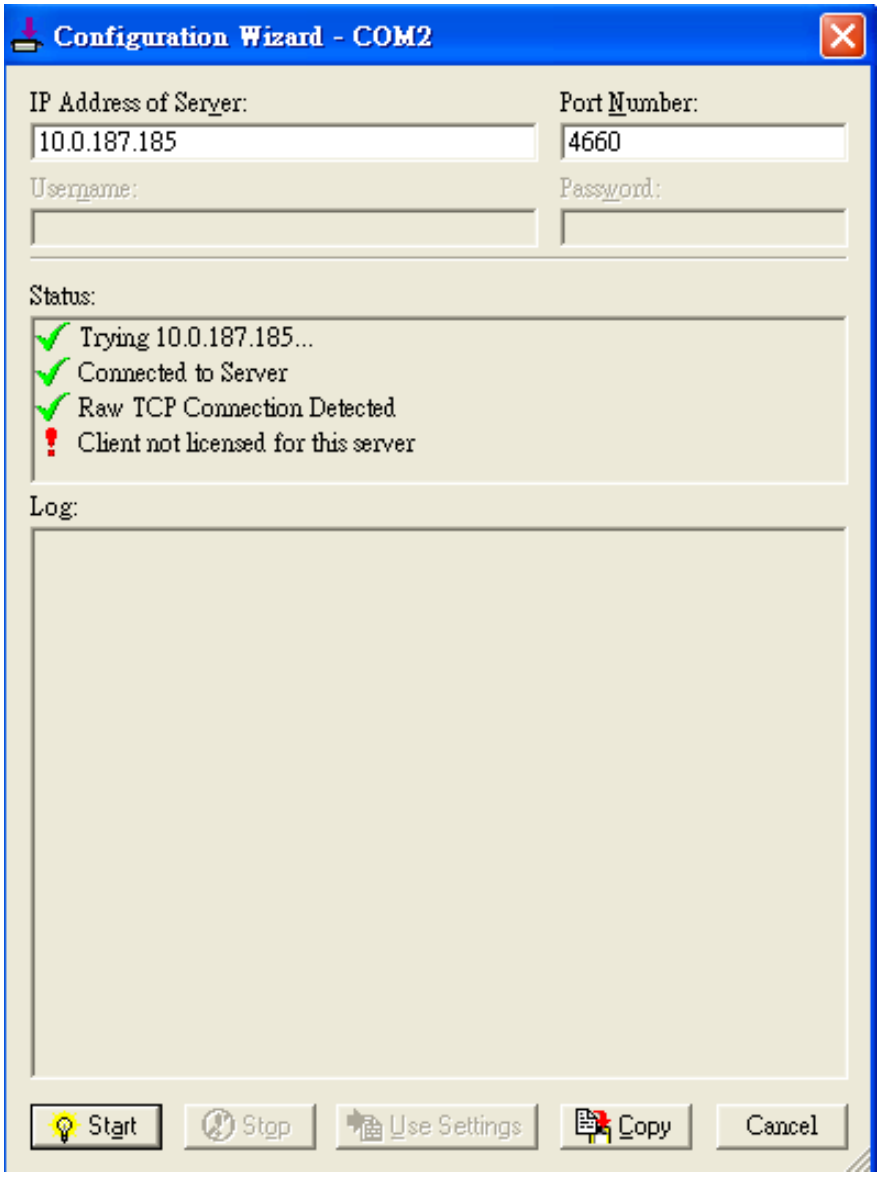


Figure 7.11

If there is a check with **Raw Connection Detected** and an exclamation mark with **Client not licensed for this server,** Figure 7.11, enable **VCOM** in the serial device server.

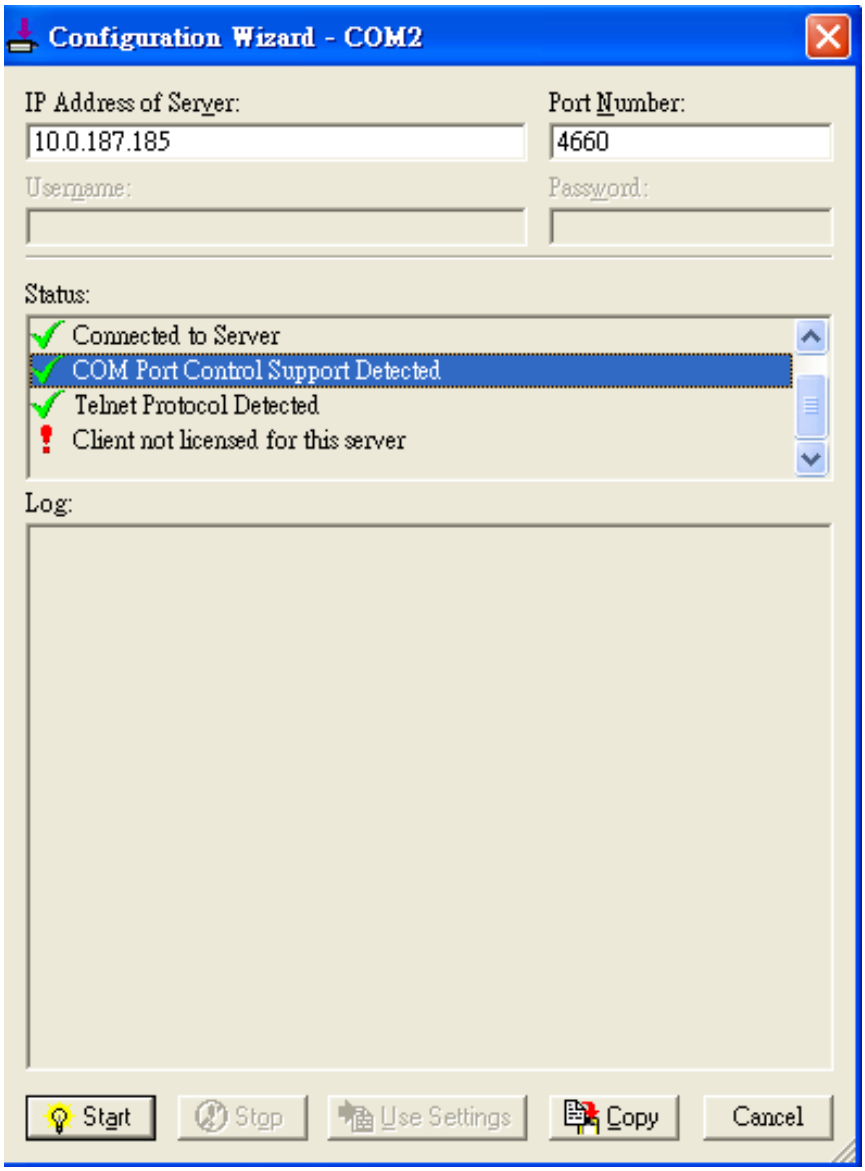


Figure 7.12

If there is a check with **Telnet Protocol Detected** and an exclamation mark with **Client not licensed for this server** as in Figure 7.12, this means that there is a licensing issue between the serial device server and Serial/IP. Please contact Atop technical support to obtain the correct VCOM software.

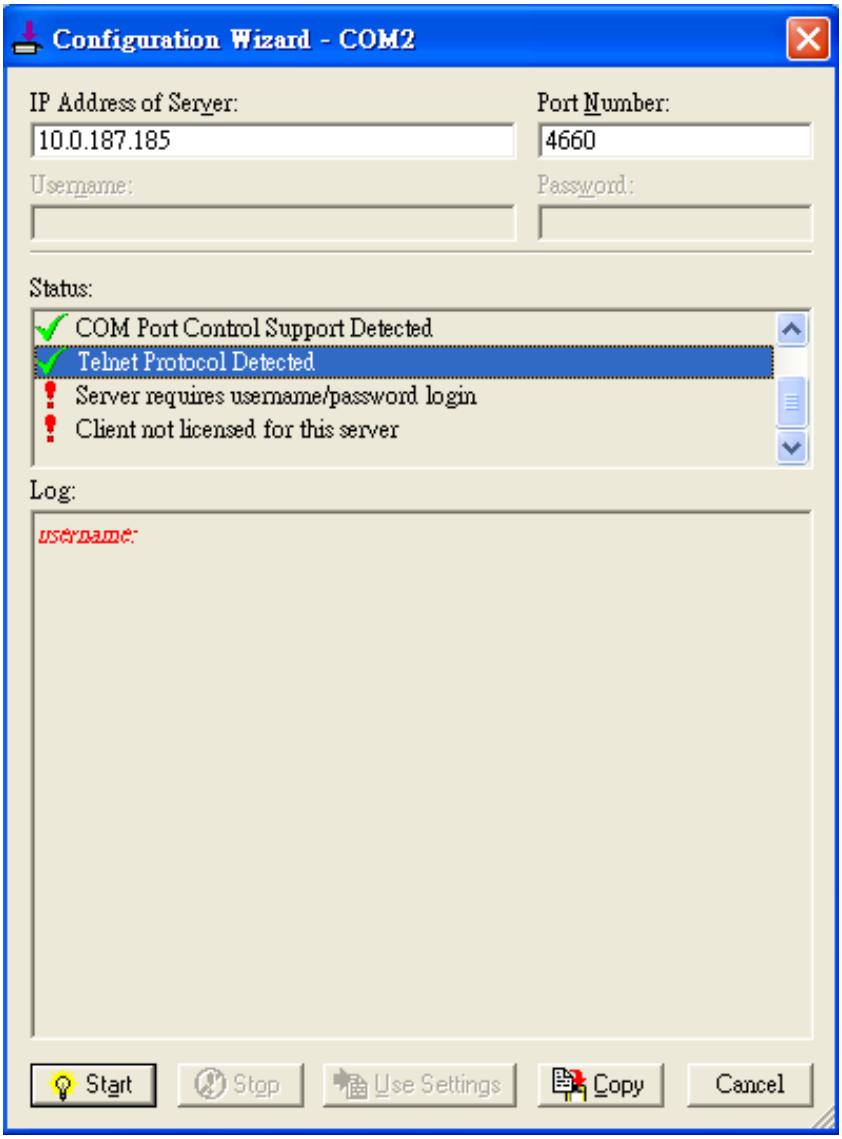


Figure 7.13

If the exclamation mark begins with **Server requires username/password login** Figure 7.13, it means **VCOM Authentication** in the serial device server is enabled, but credentials in the **Serial/IP** is not enabled.

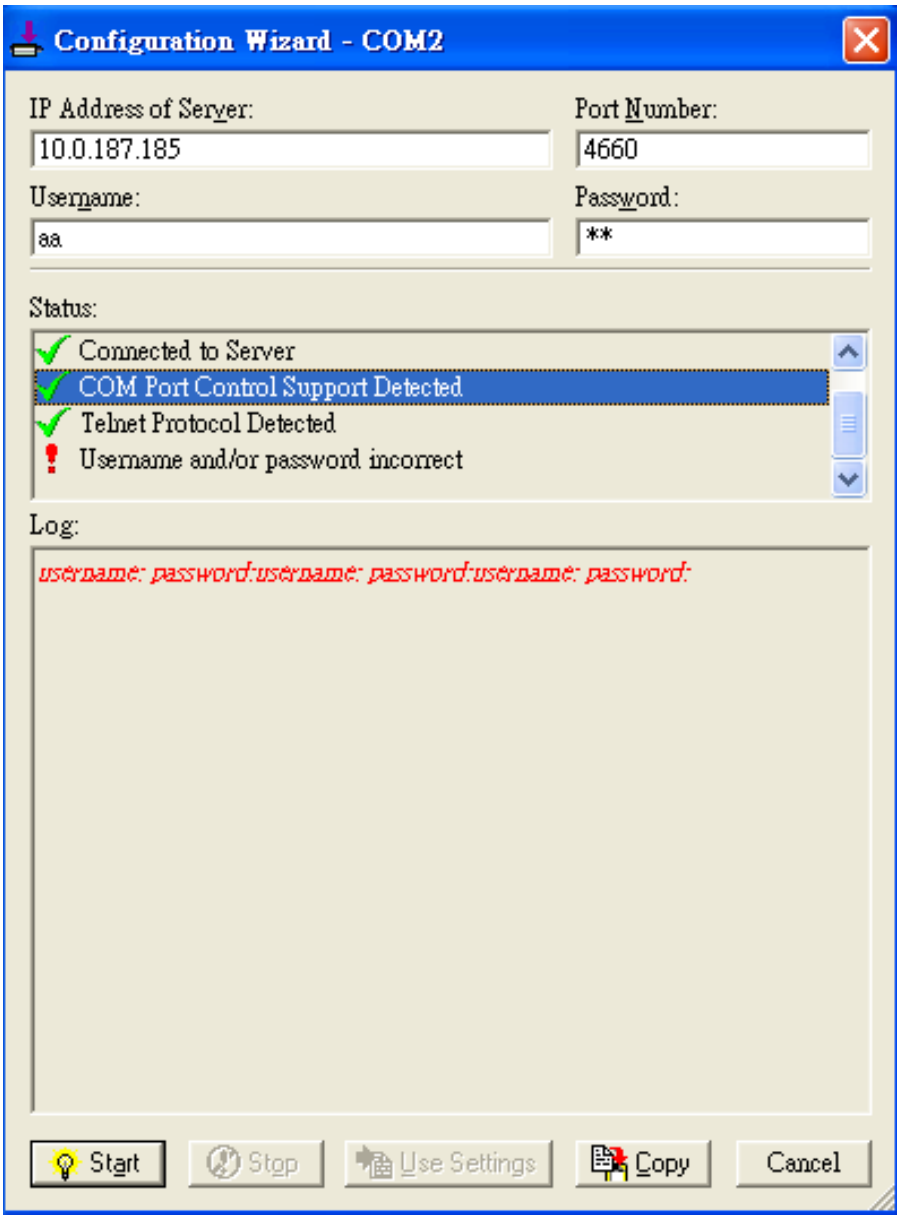


Figure 7.14

If the exclamation mark begins with a **"Username and/or password incorrect",** Figure 7.14, this means the wrong username and/or password were entered and the authentication process failed.

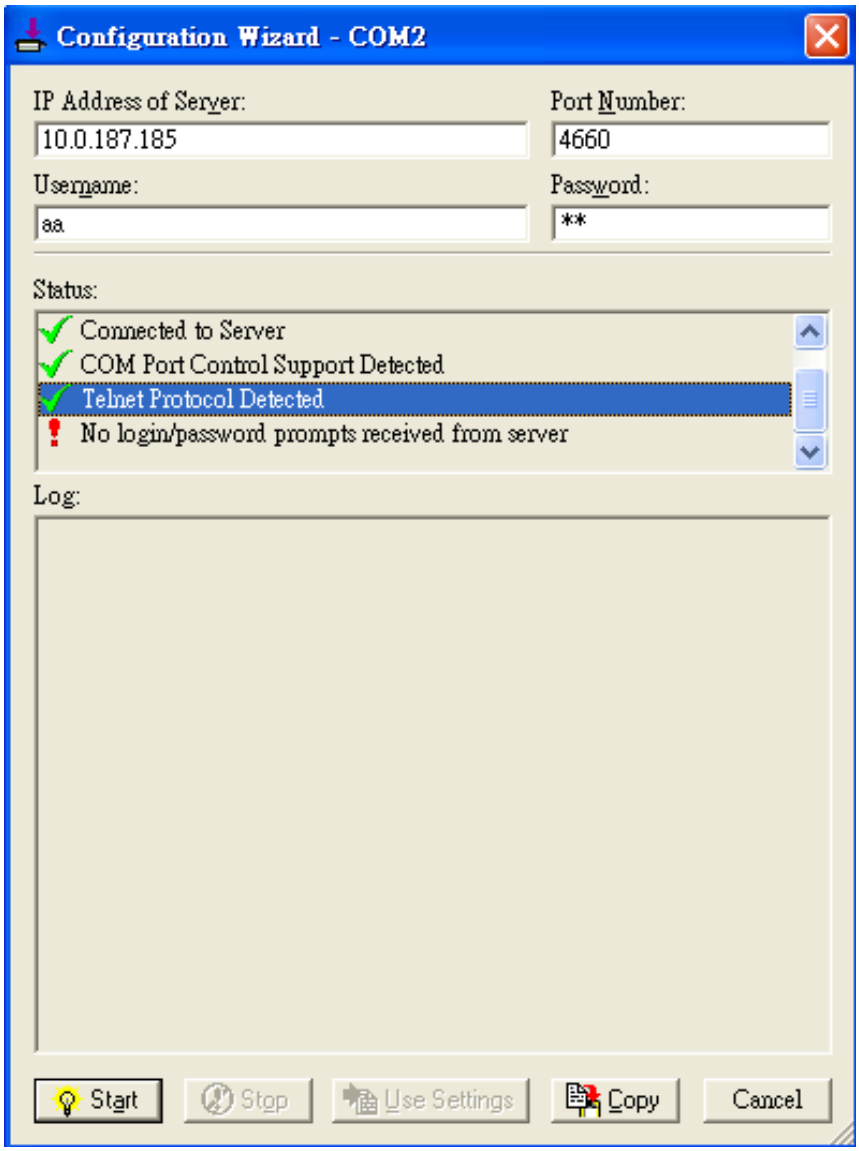


Figure 7.15

If the exclamation mark begins with **No login/password prompts received from server** Figure 7.15, it means credentials in the **Serial/IP** is enabled, but **VCOM Authentication** in the serial device server is not enabled.

7.4 Using Serial/IP Port Monitor

7.4.1 Opening the Port Monitor

The Serial/IP Port Monitor can be opened by:

- Start → All Programs → Serial/IP → Port Monitor
- Double click the Serial/IP tray icon in the Windows notification area.
- In the Windows notification area, right click in the Serial/IP tray icon and click on **Port Monitor** to open the Port Monitor.
- Click on the **Port Monitor** button in the Serial/IP Control Panel

7.4.2 The Activity Panel

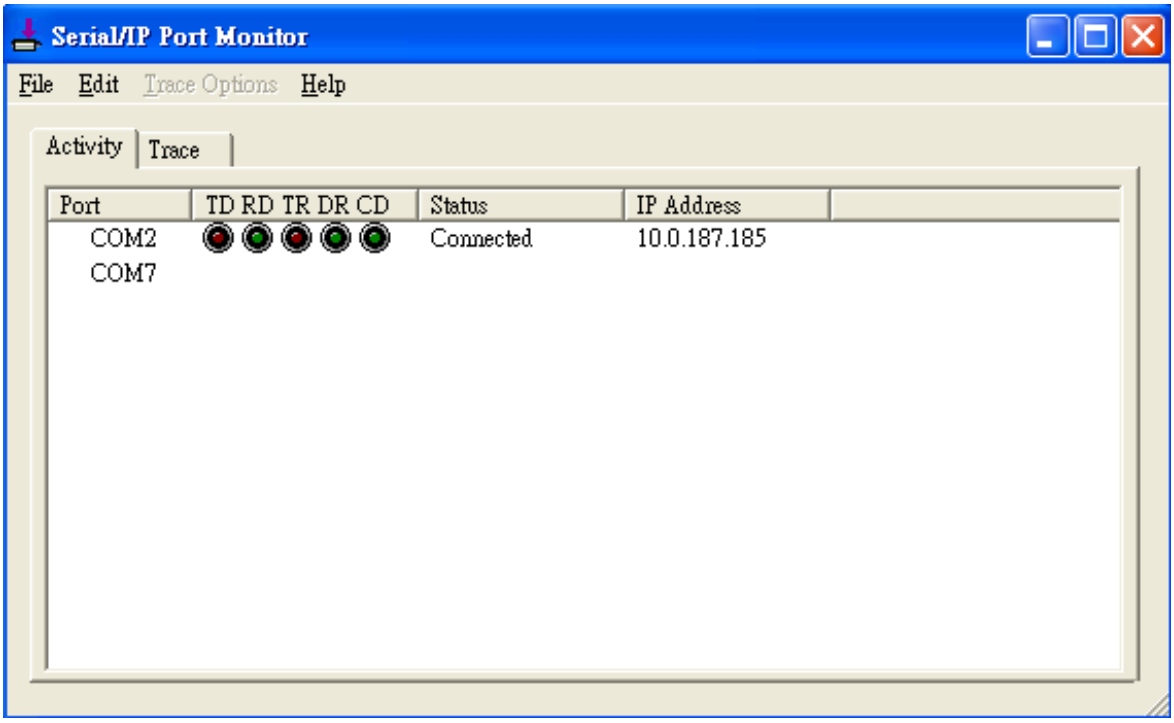


Figure 7.16

The Activity panel provides a real-time display of the status of all Serial/IP COM ports, Figure 7.16. If the Virtual COM Port is open and is properly configured to connect to a serial device server, the status would be **Connected.** If Serial/IP cannot find the specified serial device server, the status would be **Offline**.

7.4.3 The Trace Panel

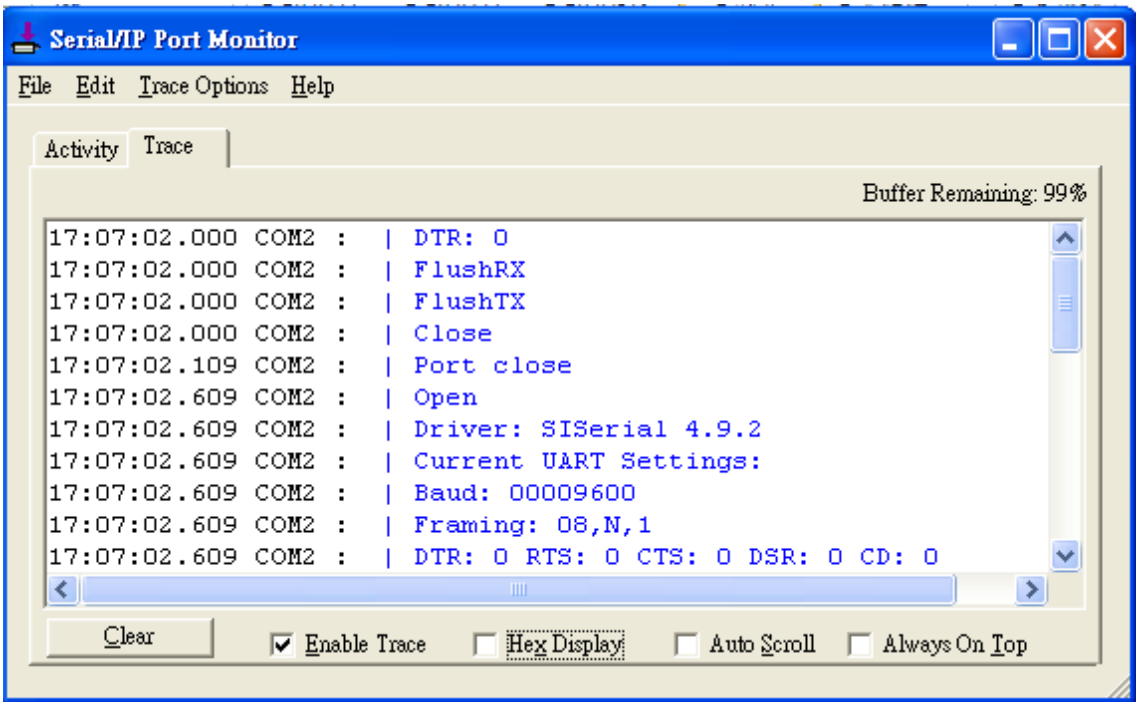


Figure 7.17

The Trace panel provides a detailed, time-stamped, real-time display of all Serial/IP COM ports operations, Figure 7.17. Click on **Enable Trace** to start logging Virtual COM communication. Click on File → Save As and send the log to Atop for analysis if problems arise with Virtual COM.

7.5 Serial/IP Advanced Settings

In the Serial/IP Control Panel, Click on the **Advanced** button to open Advanced Settings window (Figure 7.18). Click on **Use Default Settings** to load the default settings.

- **Extend Server Connection** Maintains the TCP connection for specified amount of time after COM port is closed
- **Attempt Server Connection** Terminates pending connection attempts if they do not succeed in the specified time
- **Synchronize with Server Upon COM Port Open** Required by NT Systems (2000, XP, Vista, 7)
- **Update Routing Table Upon COM Port Open** Maintains IP route to a server in a different subnet by modifying the IP routing table
- **Enable Nagle Algorithm** Provides better network efficiency by imposing a minor latency on the data stream while it waits to fill network packets
- **Always Limit Data Rate to COM Port Baud Rate** Limits the data rate to the baud rate that is in effect for the virtual COM port
- **Attempt Server Connection** If credential is set to Windows Credentials, VCOM automatically adds the current Windows domain to the username
- **COM Port Control Keep-Alive** Controls the interval at which VCOM will issue the keep-alive message, if no there is no activity
- **Maximum Connection Recovery Interval** Controls the maximum time for “Restore Failed Connection”
- **Enable SETXON/SETXOFF COM Port Commands** This option enables additional negotiation on SETXON and SETXOFF commands and is only available for the “V” series serial device servers. If the application requires SETXON/SETXOFF feature, please contact Atop Tech Support.

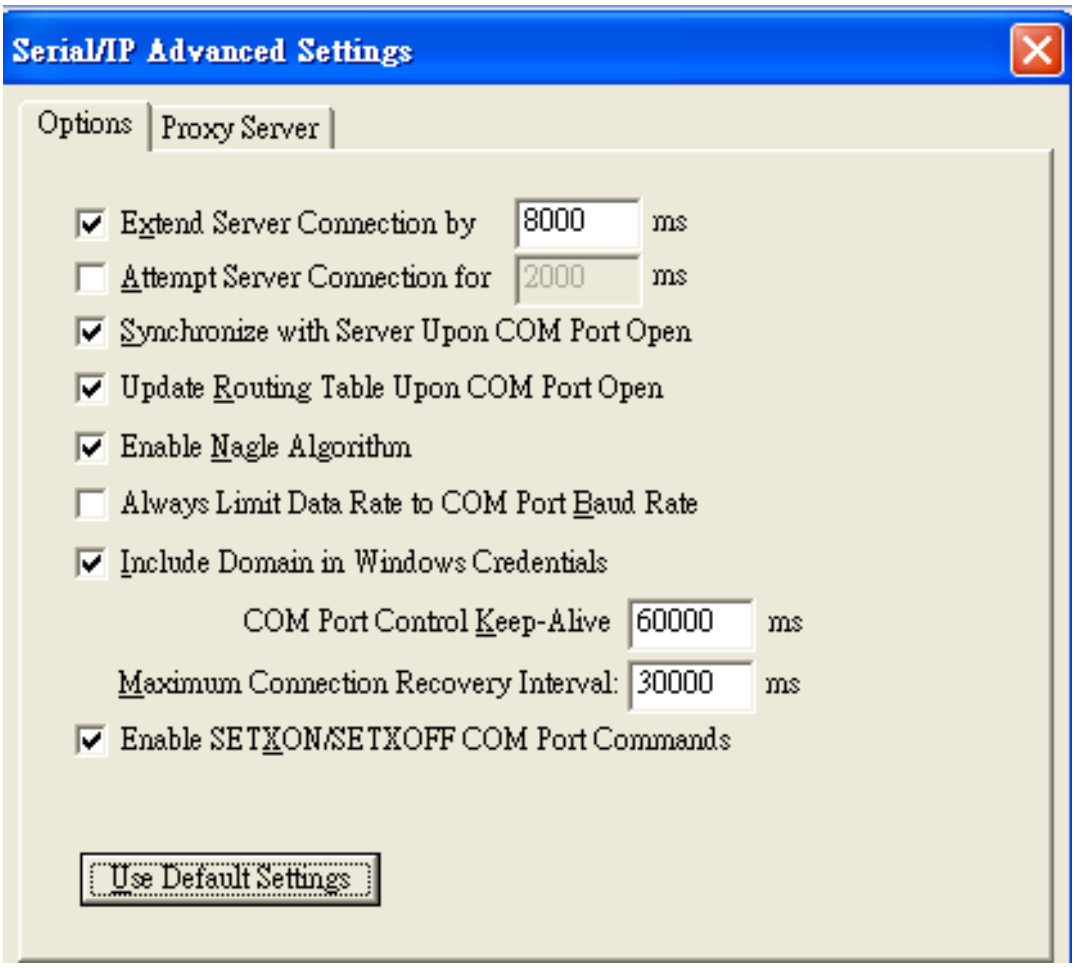

Serial/IP Advanced Settings
Options
Proxy Server
Extend Server Connection by
8000
ms
Attempt Server Connection for
2000
ms
Synchronize with Server Upon COM Port Open
Update Routing Table Upon COM Port Open
Enable Nagle Algorithm
Always Limit Data Rate to COM Port Baud Rate
Include Domain in Windows Credentials
COM Port Control Keep-Alive
60000
ms
Maximum Connection Recovery Interval:
30000
ms
Enable SETXON/SETXOFF COM Port Commands
Use Default Settings

Figure 7.18

7.6 Using Serial/IP with a Proxy Server

The Serial/IP Redirector supports TCP network connections made through a proxy server, which may be controlling access to external networks (such as the Internet) from a private network that lacks transparent IP-based routing, such as NAT. Find Proxy Server settings from the Advanced Settings windows and switch to the **Proxy Server** tab, Figure 7.19.

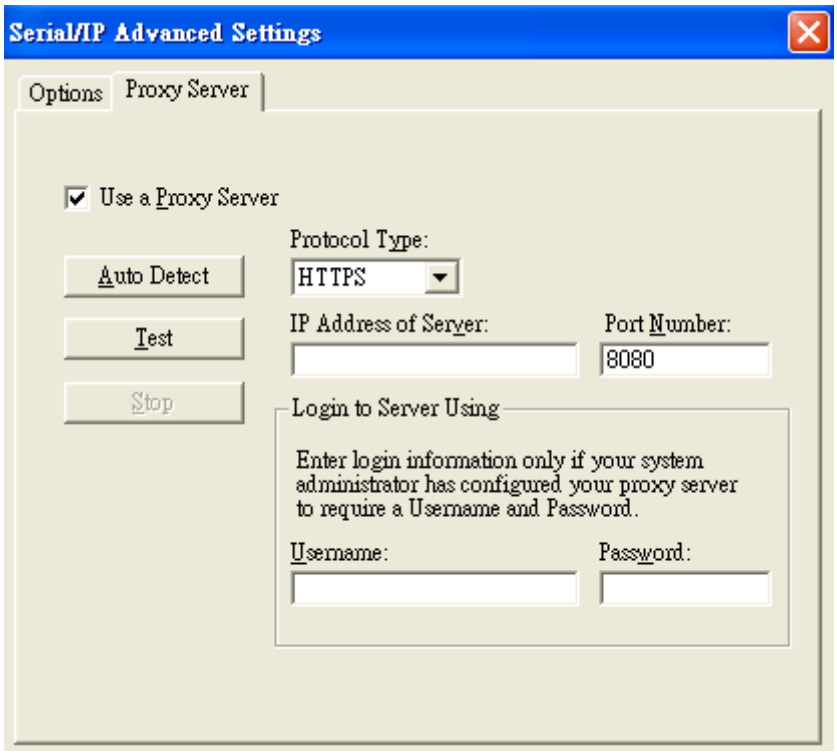


Figure 7.19

8 Specifications

8.1 Hardware

Models

Table 8.1

Name	Serial Port Isolation	DIN-Rail Kit
SE8502-M12	No	No
SE8502-M12 (DIN-Rail)	No	Yes
SE8502-Sis-M12	Yes	No
SE8502-Sis-M12 (DIN-Rail)	Yes	Yes

Physical Characteristics

Table 8.2

Housing	Front-Panel	Weight	Dimensions	Installation
IP68 protection	Common ID design	700g (approx.)	79.6 mm x 144.6 mm x 23.6mm	● Wall mount ● DIN-Rail (optional)

LED Indicators

Table 8.3

Name	Color	Status	Description
LAN	Orange	On	Ethernet is connected at 10Mbps
		Off	Ethernet is disconnected
	Green	On	Ethernet is connected at 100 Mbps
		Blinking	Data is transmitting on Ethernet
COM	Orange	On	Data is transmitting on COM port (Tx)
		Off	Data is not transmitting on COM port (Tx)
	Green	On	Data is transmitting on COM port (Rx)
		Off	Data is not transmitting on COM port (Rx)
RUN	Red	On	Device is powered on

		Off	Device is not powered on
	Green	On	Firmware is not running
		Blinking	Firmware is running normally

Regulatory Requirements:

Table 8.4

EMI	■ EN55022 (Class A) ■ FCC 15 Subpart B (Class A)

Table 8.5

EMS EN55024:

Test	Item		Value	Level	Criteria
IEC61000-4-2	**ESD**	■ Contact Discharge	±6KV	3**	A
		■ Air Discharge	±8KV	3	B
IEC61000-4-3	**RS**	■ Radiated(Enclosure)	10(V/m)	3	A
IEC61000-4-4	**EFT**	■ AC Power Port*	±2.0 KV	3	A
		■ DC Power Port	±2.0 KV	3	A
		■ LAN Port	±2.0 KV	4	B
		■ COM Port	±2.0 KV	4	A
IEC61000-4-5	**Surge**	■ AC Power Port*	Line-to-Line±2.0 KV	4	A
		■ DC Power Port	Line-to-Line±2.0 KV	4	A
		■ LAN Port	Line-to-Earth±2.0 KV	3	B
		■ COM Port	Line-to-Earth±2.0 KV	3	B
IEC61000-4-6	**CS**	■ Conducted(Enclosure)	3 V rms	2	A
IEC61000-4-8	**PFMF**	■ (Enclosure)	1(A/m)	1	A
IEC61000-4-11	**DIP**	■ AC Power Port	-	-	C

*AC Ports are tested through an authorized power adaptor.

** For the aluminum case models, the value is ±4KV, Level 2.

Environmental Limits

- **Operating Temperature:** -40°C ~75°C (-40°F ~167°F)
- **Storage Temperature:** -40°C ~85°C (-40°F ~ 185°F)
- **Ambient Relative Humidity:** 5~95%RH, (non-condensing)

Other

- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-32
- Vibration: IEC 60068-2-64
- MTBF: 30 years
- RoHS: Yes

8.2 Software Specifications

Table 8.6

Configuration	■ Browser (IE8+, Firefox 6+, and Chrome 13+) ■ Telnet ■ Serial Manager© (Windows utility)			
Protocol	■ ICMP ■ TCP ■ UDP ■ DHCP	■ DNS ■ SNMP ■ NTP ■ SMTP	■ HTTP ■ Telnet ■ IPv4	
Alert Events	■ E-mail	■ SNMP Trap		
Radio OFF option	Yes			
Other	■ Config Import / Export from Web with Wireless settings ■ Firmware upgrade through Web or **Serial Manager©** ■ Site Monitor / Site Survey			

9 Emergency System Recovery

If your device becomes inaccessible and the management utility cannot find your device, please use the following procedure to recover your device over TFTP.

System Recovery Procedures

System recovery is based on the TFTP Client embedded in the device. It can recover the device from a bad firmware or other unknown reasons that corrupted the firmware image inside the flash. Follow the procedures below to force SW550X to download a valid firmware from the TFTP Server to recover its Operating System.

Table 9.1

Default Settings	
TFTP Server	10.0.50.201
TFTP Server Subnet Mask	255.255.0.0
Name of Kernel Image	se8502-ker.rom*
Name of AP Image	se8502-ap.rom*
Name of “Reset to Default” file:	0060E9XXXXXX.cmd**
*Please obtain these images from the CD-ROM or contact Atop Tech Support in case the CD-ROM is missing. **Create an empty file on your own using the MAC address of the device.	

- If the yellow power LED does not flash anymore, the bootloader is damaged and there is no way to recover it; please contact directly Atop RMA for further solutions.
- Obtain and setup a **TFTP server** on your **PC**. Make sure that the **PC’s network settings** are set properly according to the default above.
- Place the kernel, AP images, and the “Reset to Default” file in the TFTP Server’s root directory. For Solarwinds TFTP Server, it is usually **C:\TFTP-Root.**
- Make sure that the device is powered OFF and the Ethernet cable is plugged in.
- Power ON the device.

- You should see that the device requested files from your TFTP Server. Please wait until the device shows up on the management utility. This process could take five more minutes or more.
- Stop or Close your TFTP Server to prevent firmware recovery loop every time the device restart.

10 Warranty

Limited Warranty Conditions

Products supplied by us are covered in this warranty for undesired performance or defects resulting from shipping, or any other event deemed to be the result of Atop Technologies' mishandling. The warranty does not cover however, equipment which has been damaged due to accident, misuse, abuse, such as:

- Use of incorrect power supply, connectors, or maintenance procedures
- Use of accessories not sanctioned by us
- Improper or insufficient ventilation
- Improper or unauthorized repair
- Replacement with unauthorized parts
- Failure to follow Our operating Instructions
- Fire, flood, "Act of God", or any other contingencies beyond our control.

RMA and Shipping Reimbursement

- Customers must always obtain an authorized "RMA" number from us before shipping the goods to be repaired.
- When in normal use, a sold product shall be replaced with a new one within 3 months upon purchase. The shipping cost from the customer to us will be reimbursed.
- After 3 months and still within the warranty period, it is up to us whether to replace the unit with a new one; normally, as long as a product is under warranty, all parts and labor are free of charge to the customers.
- After the warranty period, the customer shall cover the cost for parts and labor.
- Three months after purchase, the shipping cost from you to us will not be reimbursed, but the shipping costs from us to the customer will be paid by us.

Limited Liability

Atop Technologies Inc., shall not be held responsible for any consequential losses from using our products.

Warranty

Atop Technologies Inc., gives a 5 years max for Wireless Access Point products.