

ABLELink[®]

SE5001 Ethernet Serial Server

User's Manual



Version 1.5
Updated on 2009/07/30



Tel: 886-3-5508137

Fax: 886-3-5508131

<http://www.atop.com.tw>

Important Announcement

The information contained in this document is the property of Atop Technologies, Inc. and is supplied for the sole purpose of the operation and maintenance of products of Atop Technologies, Inc. No part of this publication is to be used for any other purposes, and it is not to be reproduced, copied, disclosed, transmitted, stored in a retrieval system, or translated into any human or computer language, in any form, by any means, in whole or in part, without the prior express written consent of Atop Technologies, Inc.

Published by Atop Technologies, Inc.

2F, No. 146, Sec. 1, Tung-Hsing Rd.

Jubei, Hsinchu 30261

Taiwan, R.O.C.

Tel: 886-3-5508137

Fax: 886-3-5508131

www.atop.com.tw

Copyright © 2006 Atop Technologies, Inc. All rights reserved.

All other product names referenced herein are registered trademarks of their respective companies.

This document is intended to provide customers with brief descriptions on the product and to assist customers to get started. For detail information and operations of the product, please refer to the manual in the CD attached.

FCC WARNING

Class A for Ethernet Serial Server (Model SE5001)

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 radiates radio frequency energy and, if not installed and used in accordance with the instructions, 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 expenses.

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord can be used.

Use only shielded cables to connect other devices to this equipment by RS-232 or RS-485 ports.

Be cautioned that changes or modifications not expressly approved by the party responsible for compliance could void ones authority to operate the equipment.

Contents

1. Introduction	6
1.1 Packaging.....	6
2. Hardware Setup.....	9
2.1 LED Indicators	10
2.1.1 LAN LED	10
2.1.2 COM Port LED	10
2.1.3 RUN LED	10
2.2 Installation Procedures	10
3. Software Setup	11
3.1 Configuration by SerialManager	11
3.1.1 Static IP	11
3.1.2 Auto IP (Dynamic IP).....	12
3.2 Configuration by Telnet Utility	13
3.2.1 Login to the System	13
3.2.2 Networking	15
3.2.3 Change the Password	16
3.2.4 COM1 Setup	16
3.2.5 Configure SE5001 as TCP Client.....	18
3.2.6 Configure SE5001 as UDP Client	19
3.2.7 COM Port Setting	20
3.2.8 Enabling Serial Data Buffer	20
3.2.9 Setting Packet Delimiter	21
3.3 Configuration Using Web Browser	21
3.3.1 Log in to the System	22
3.3.2 Change the password	23
3.3.3 Network Setup.....	24
3.3.4 Configure SE5001 as TCP Server	24
3.3.5 Configure SE5001 as TCP Client.....	26
3.3.6 Pair Connection.....	28
3.4 Assign a New IP Address by ARP Command	29
4. Using Virtual COM	31

4.1 Setup of a Virtual COM Driver	31
4.1.1 Pre-installation Requirements	31
4.1.2 Cautions on Use	31
4.1.3 Limitation	31
4.1.4 Installation	32
4.1.5 Uninstalling	32
4.2 Virtual COM Communication	32
4.2.1 Enable Virtual COM on SE5001	32
4.2.2 Run Serial/IP for Atop on PC	34
4.3 Configuring Virtual COM Ports	34
5. SNMP Setup	36
5.1 SNMP Network Management Platform	36
5.2 Using NetworkView as an Example	36
6. Start Writing Ones Own Applications	38
6.1 Preparing the System	38
6.2 Running the Sample Program	38
6.2.1 TCPTTEST in Visual Basic	38
6.2.2 TCPTTEST2 in Visual C	39
7. Diagnostics	40
7.1 Use Standard TCP/IP Utility Ping Command	40
7.2 Use SerialManager Configuration Utility Program	40
7.3 Use TCPTTEST.exe or TCPTTEST2.exe Sample Program	41
Appendix A: Specifications	42
A.1 Hardware Specifications	42
A.2 Software Specifications	43
A.3 Panel Layout and Connector Pin Assignments	43
A.3.1 Panel Layout	43
A.3.2 DB9 Pin Assignments	44
A.3.3 Ethernet Port (RJ-45)	44
A.3.4 Power Terminal Block Connector	45
Note: It could be reversed for the pin of VIN- and VIN+	45
A.4 Buzzer/LED Message	45
A.4.1 Buzzer	45

A.4.2 LAN LED	45
A.4.3 COM Port LED	45
A.4.4 RUN LED	46
Appendix B: Upgrade System Firmware.....	47
B.1 Upgrade Procedures	47
B.2 Critical Issues of Upgrading	48
B.3 Error Messages	49
Appendix C: Disable System Firmware.....	50
Appendix D: Using SerialManager	51
D.1. SerialManager Introduction.....	51
D.2. Interface	51
D.3. Functions	51

1. Introduction

The SE5001 Ethernet Serial Server is a gateway between Ethernet (TCP/IP) and RS-232 or RS-485/RS-422 communications. The information transmitted by SE5001 is transparent to both host computers (Ethernet) and devices (RS-232 or RS-485/RS-422). Data coming from the Ethernet (TCP/IP) is sent to the designated RS-232 or RS-485/RS-422 port and data being received from RS-232 or RS-485/RS-422 port is sent to the Ethernet (TCP/IP) transparently.

In the computer integration manufacturing or industrial automation area, the SE5001 Ethernet Serial Server is used for field devices to direct connect to Ethernet network. Terminal Server (main control program run in SE5001) transforms whatever data received from RS-232 or RS-485/RS-422 to TCP/UDP port then connect devices to the Ethernet network via a single application program or multiple application programs.

Many control devices provide the ability to communicate with hosts through RS-232 or RS-485/RS-422 however RS-232 or RS-485/RS-422 serial communication has its limitations. For one, it is hard to transfer data through a long distance. With SE5001, it is possible to communicate with a remote device in the Intranet environment or even in the Internet and thus, increases the communication distance dramatically.

SE5001 offers one RS-232 or RS-485/RS-422 port, one RJ45 Ethernet and Watch-Dog Timer etc.

1.1 Packaging

Please check ones package contains the following items:

- Atop SE5001-S2 or SE5001-S5 Ethernet Serial Server x 1
- 5 pins Terminal Block for Serial Connector x 1 (only for SE5001-S5is)
- 3 pins Terminal Block for Power Connector x 1 (only for SE5001-S5is)
- Product CD containing configuration utility x 1
- Wall-mounting screws x 2
- Atop Serial Server quick start guide x 1

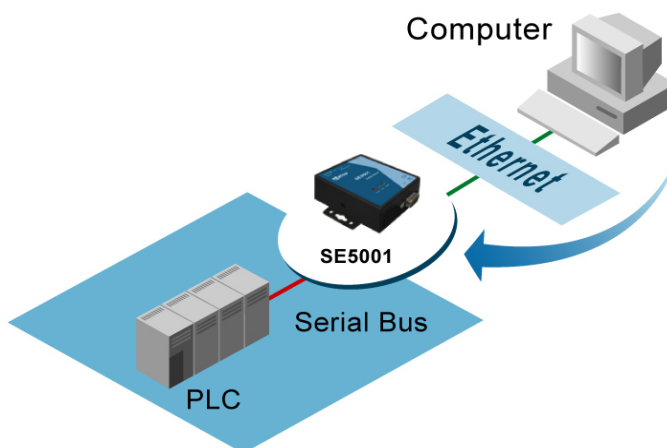
Optional Accessories :

1. DK-25 DIN-Rail Kit
2. Power Adapter with DC jack- PIN 1.3φ output 5.0V 1A
 - (1) AD5V1A(US) Switching adapter
 - (2) AD5V1A(EU) Switching adapter
3. Power Adapter with Terminal block output 12V 1.25A
 - (1) US315-12(US) Switching adapter
 - (2) US315-12(EU) Switching adapter

1.2 Application Connectivity

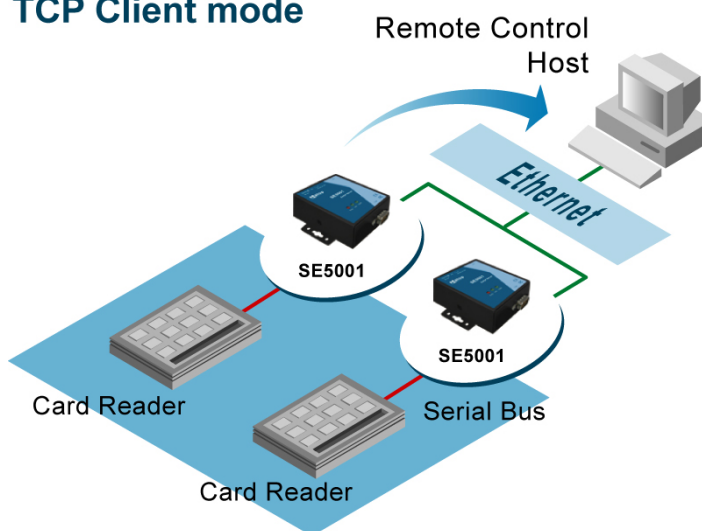
TCP Server Mode : SE5001 can be configured as a TCP server on TCP/IP Network to wait for other applications(clients) in host computer to establish a connection with the serial device. After the connection is established between serial device and host computer, data can be transmitted in both directions.

TCP Server Mode



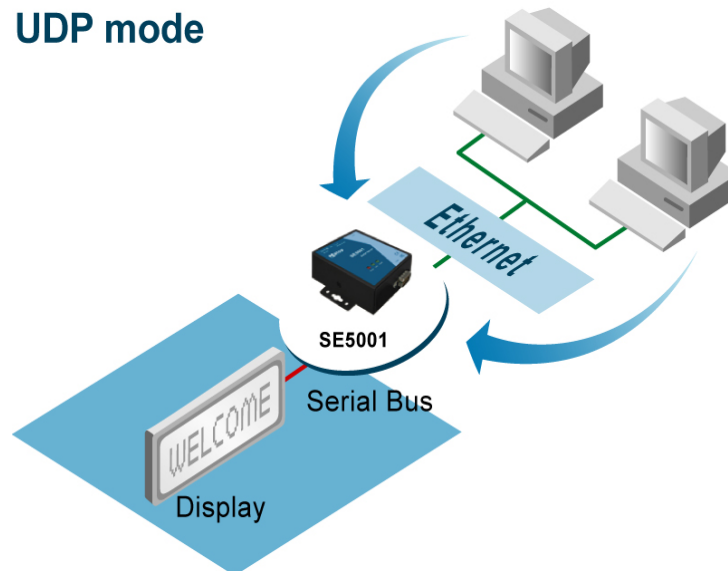
TCP Client Mode : SE5001 can be configured as a TCP client on TCP/IP Network to establish a connection with other applications(server) in host computer actively. After the connection is established, data can be transmitted between serial device and host computer in both directions.

TCP Client mode



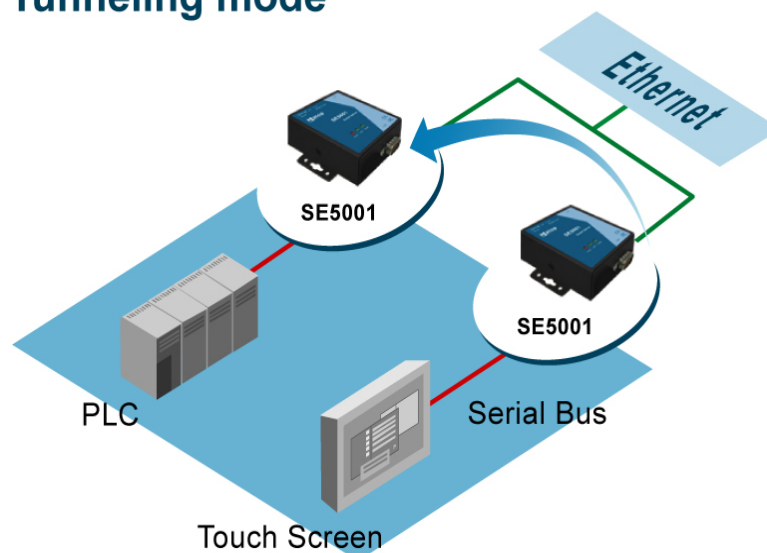
UDP Mode : UDP is a faster but non-guaranteed datagram delivery protocol. SE5001 can be configured as a UDP mode on TCP/IP Network to establish a connection using unicast or multicast data from the serial device to one or multiple host computers. Vice versa is also true.

UDP mode



Tunneling Mode : In the case of the serial connection is established with two or more SE5001 to send data over TCP/IP Network .It can avoid RS-232 interface 15 meter distance limitation imposed.

Tunneling mode



2. Hardware Setup

NOTE:

1. **SE5001-S2** (for RS-232), **SE5001-S5** (for RS422/485). Panel layout in Appendix A.3.1
2. One can press the reset button of SE5001 to reset the settings to the default value

Figure 2.1 shows the interfaces.

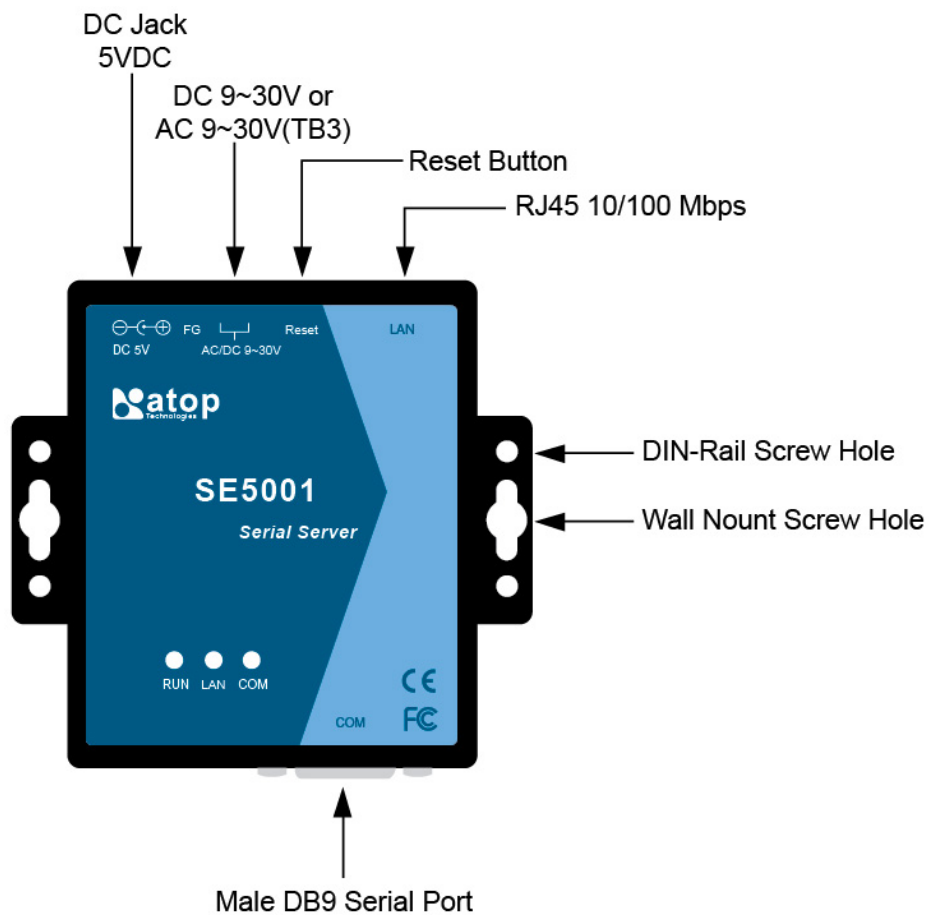


Figure 2.1 SE5001 interfaces.

2.1 LED Indicators

2.1.1 LAN LED

Message	Description
Off	Ethernet Disconnected
Blinking with Green	Data is transmitting on Ethernet for 100Mbps
Blinking with Orange	Data is transmitting on Ethernet for 10Mbps
Table 1. LAN LED Message	

2.1.2 COM Port LED

Message	Description
Off	No data is transmitting on COM port
Blinking	Data is transmitting on COM port
Table 2. COM Port LED Message	

2.1.3 RUN LED

Message	Description
On	Jumper JP1 Pin1 and Pin2 are shorted to disable AP firmware running
Blinking (rate: 0.5 Sec)	AP firmware is running normally
Table 3. RUN LED Message	

2.2 Installation Procedures

Step 1: Connect SE5001 to power source using 5V DC Jack (or 9~30V DC Terminal Block power source)

Note : SE5001 provide two power inputs can be connected simultaneously to live DC power sources. Anyone of the power inputs fails, the other live source acts as a backup to support power needs automatically. The redundant dual DC power inputs give one extra assurance of non-stop operation

Step 2: Connect SE5001 to ones Ethernet network. Use a standard straight-through Ethernet cable when one connect it to a hub/switch, one also can connect it to ones PC's Ethernet port via a cross-over Ethernet cable for easy set up. However, in this case one need to make sure ones PC is in the same network sub-net as SE5001.

Step 3: Connect SE5001's serial port to a serial device.

Step 4: Placement options. One can mount SE5001 to a wall/panel (Mounting screws included) or Din-Rail rack (Require optional item model: Din-Rail-Kit DK-25).

3. Software Setup

SE5001 Ethernet Serial Server is shipped with default settings shown in the following table:

Property	Default Value
IP Address	10.0.50.100
Gateway	10.0.0.254
Subnet Mask	255.255.0.0
User Name	admin
Password	Null(leave it blank)
COM 1	9600,None, 8, 1, No flow control, buffer disabled, packet delimiter timer 2ms
Link 1	Type: TCP Server, Listen port 4660, Filter=0.0.0.0, Virtual COM disabled
SysName of SNMP	name
SysLocation of SNMP	location
SysContact of SNMP	contact

3.1 Configuration by SerialManager

3.1.1 Static IP

Use **SerialManager** that comes with product CD to configure the network parameters of SE5001. Please click "**Configuration**" button(ref Figure 3.1) then give it a static IP information.(Figure 3.2)



Figure 3.1 Configure by SerialManager

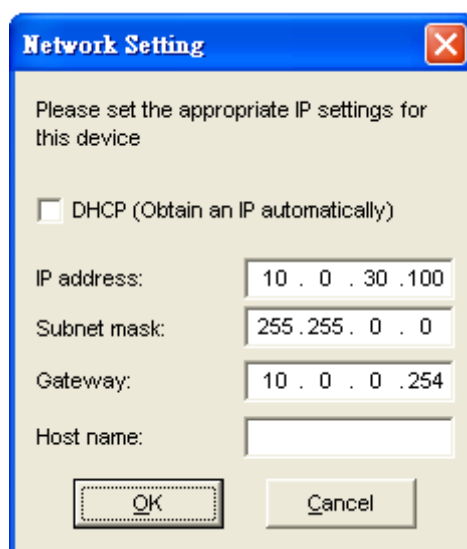


Figure 3.2 Static IP setup dialog window

3.1.2 Auto IP (Dynamic IP)

A DHCP server can automatically assign the IP address and network settings. SE5001 supports the DHCP function. By default, the DHCP function on SE5001 is disabled; one can use SerialManager software to search network information automatically by following steps :

- >Execute SerialManager (Figure 3.1)
- >Click on the IP address of SE5001 in SerialManager
- >Click "**Config**" button(It will pop-up Dialog Window)
- >Check "**Auto IP**" (Figure 3.3)
- >Click "**Config Now**" button(The SE5001 will restart and get IP from DHCP server automatically)

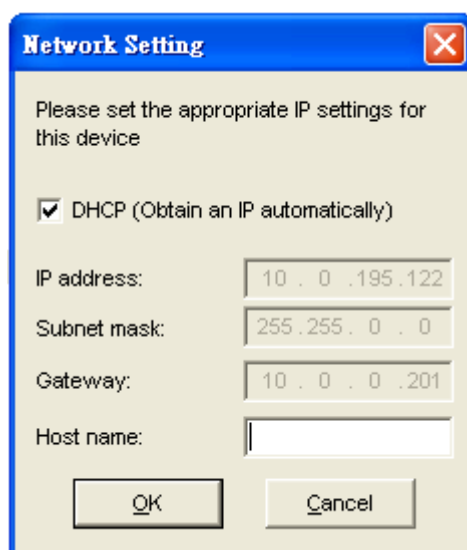


Figure 3.3 SerialManager Auto IP Dialog Window

3.2 Configuration by Telnet Utility

One can use Telnet utility to change configuration settings of SE5001 by following steps :

3.2.1 Login to the System

->Open Ms-DOS command prompt window

->Telnet to SE5001 using command "**Telnet IP_address**".(For example : Input **Telnet 10.0.50.100** in Ms-DOS command prompt window).After telnet to SE5001, system prompts for a password, the default password is left it blank. (Figure 3.4)

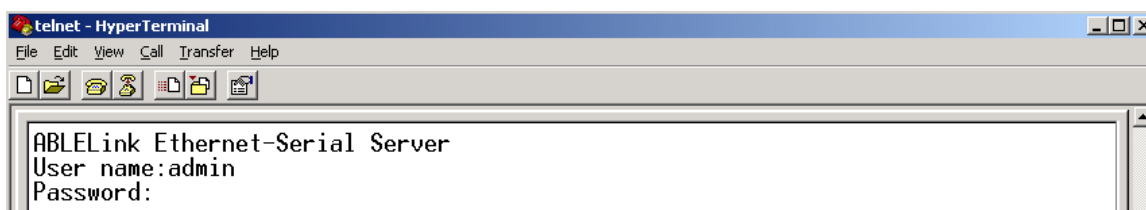


Figure 3.4 Login to the system

Note: One can press the default button of SE5001 to reset the password to the default value.

1. After verifying the password, the following terminal screen appears.(Figure 3.5)

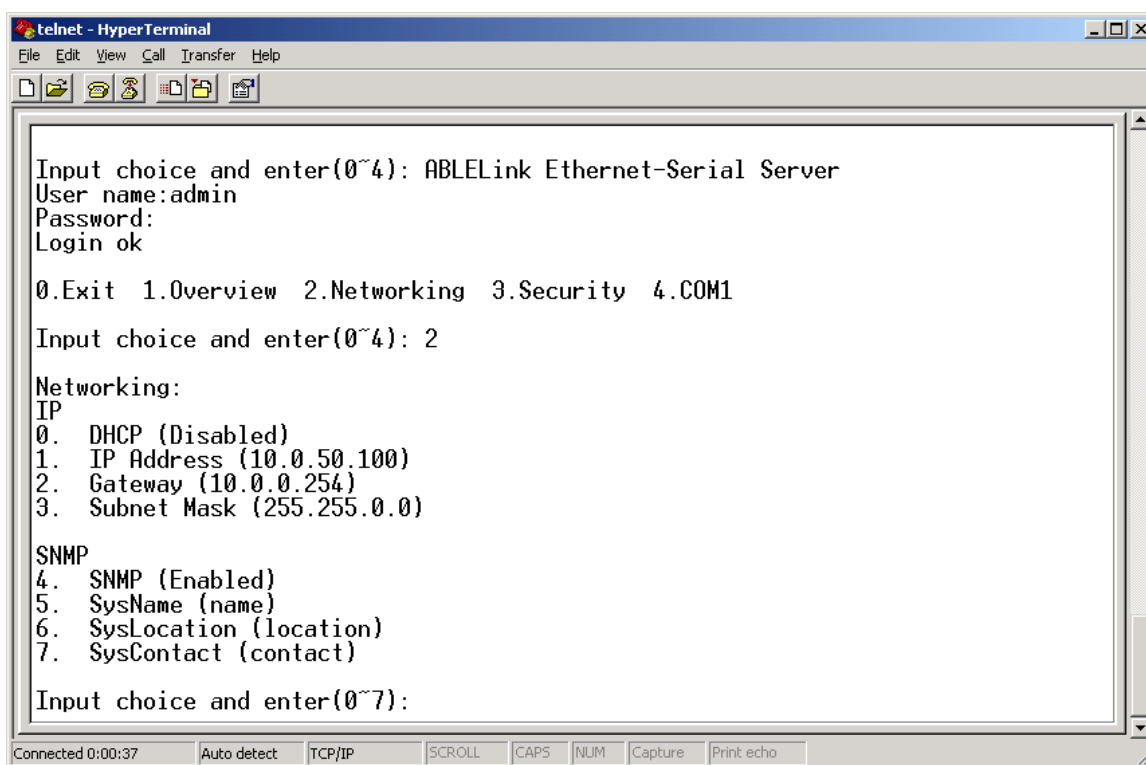


Figure 3.5 Main menu

Note:

1. If SE5001 does not receive any command within 1 **minute**, Telnet will be terminated automatically.
2. The changes of networking parameters will take effect only when one exit and restart SE5001.

->Select "1" from "Input choice and enter (0~4):" to enter overview page as following:(Figure 3.6)

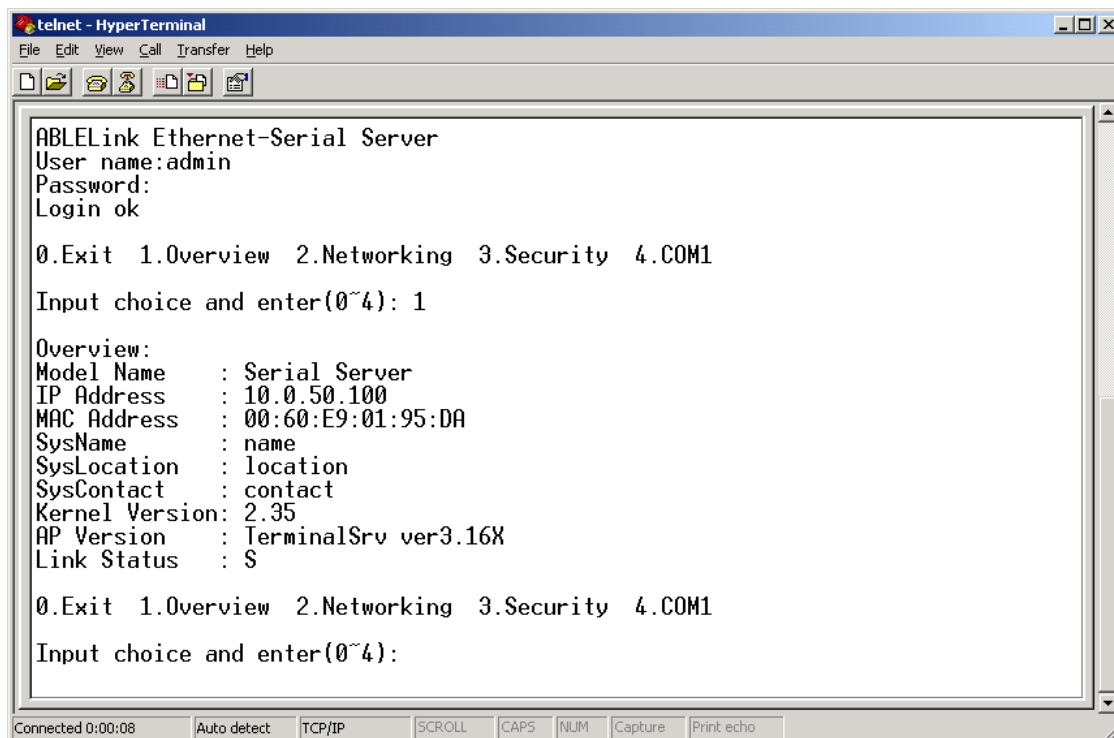


Figure 3.6 Overview

This page gives one the general information of SE5001 including IP and MAC address, SNMP information, kernel and AP version, and connection status of the device.

3.2.2 Networking

Select “2” from “Input choice and enter (0~4):” to enter Networking page as following:(Figure 3.7)

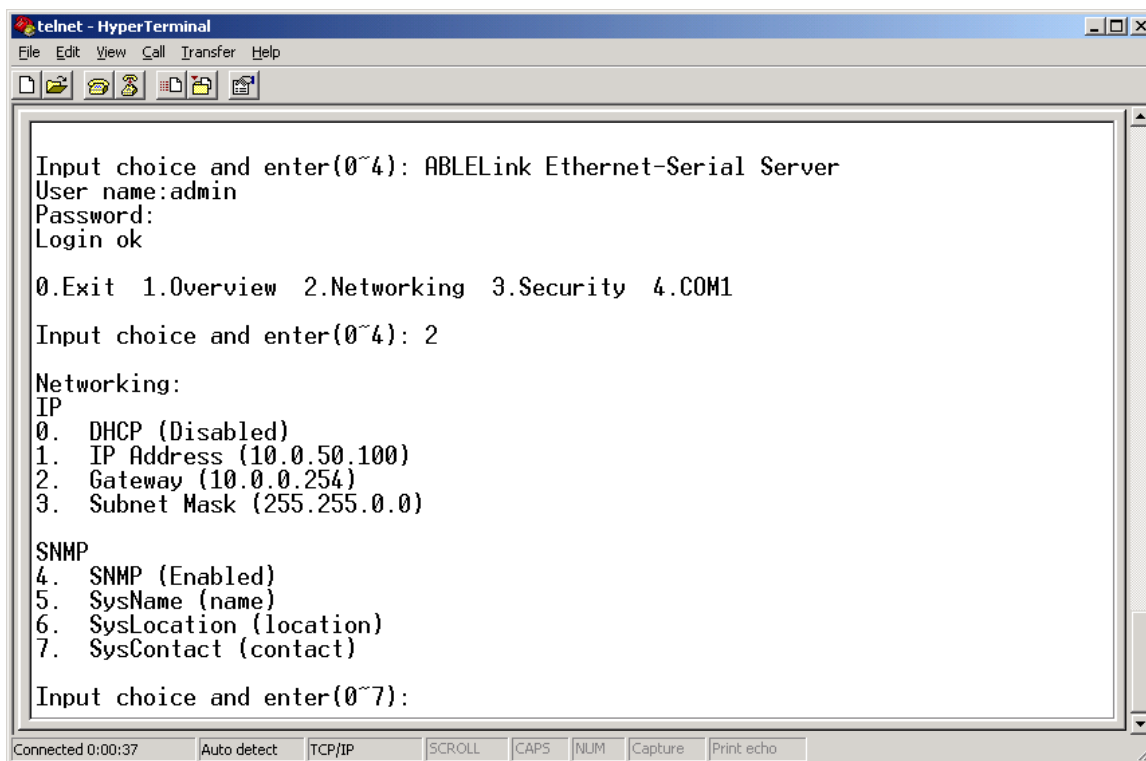


Figure 3.7 Network settings

This page allows one to change network settings of the device including IP address, subnet mask, gateway IP address and SNMP information of SE5001. Please notice that any setting change made on this page won't take effect until one restart the device.

Note: Press “ESC” key to return to the previous menu .

3.2.3 Change the Password

1. Select "3" from "Input choice and enter (0~4):" the following screen appears. (Figure 3.8)

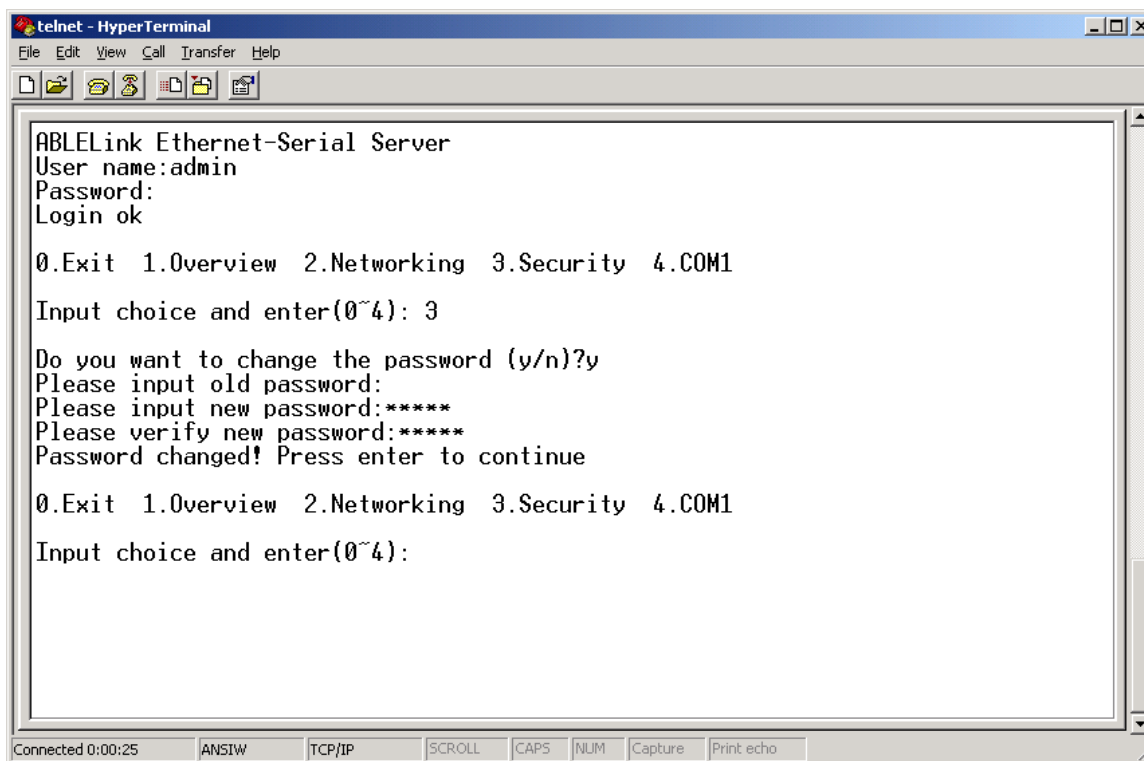


Figure 3.8 change the password

2. If one want to change the password, please type the old password in the "Please input old password" field, type the new password in the "Please input new password" and the "Please verify new password" fields.

Note: One can press the default key of product to reset password to the default value.

3.2.4 COM1 Setup

Select "4" from "Input choice and enter (0~4):" the following screen appears: (Figure 3.9)

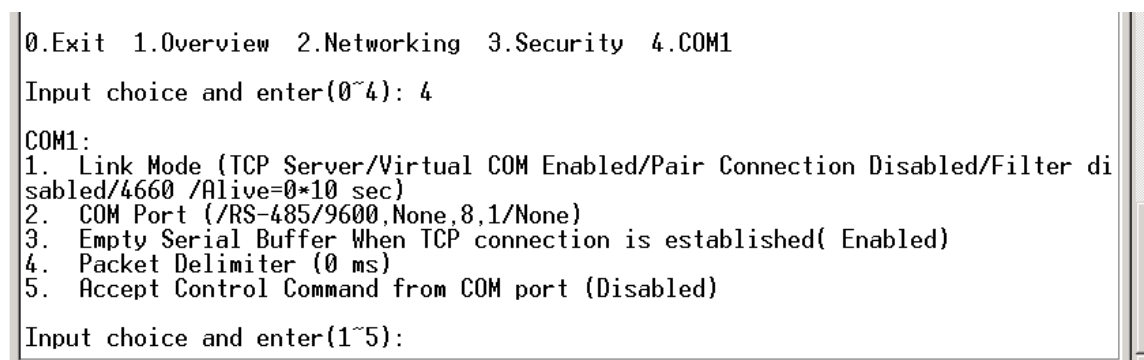


Figure 3.9 Com1 setup

The page gives one the opportunity to configure parameters of COM1 setting which include COM1 working mode, port parameters, enabling or disabling serial buffer's data and setting packet delimiter.

LINK Mode Setup **Configure SE5001 as TCP server** : (Figure 3.10)

→ Type **1** from **"Input choice and enter (1~4):"** of COM1

→ Type **1** in the **"Input choice(1~5) and enter : "**

→ Input local port in the **"Please input local port : "**

1.If one want to enable IP filter :

→ Input **y** in the **"Do one want to enable IP filter(y/n)?"**

→ Input source IP in the **"Please input Filter_IP : "**

→ Double click **"Enter"** key

2.If one don't want to enable IP filter :

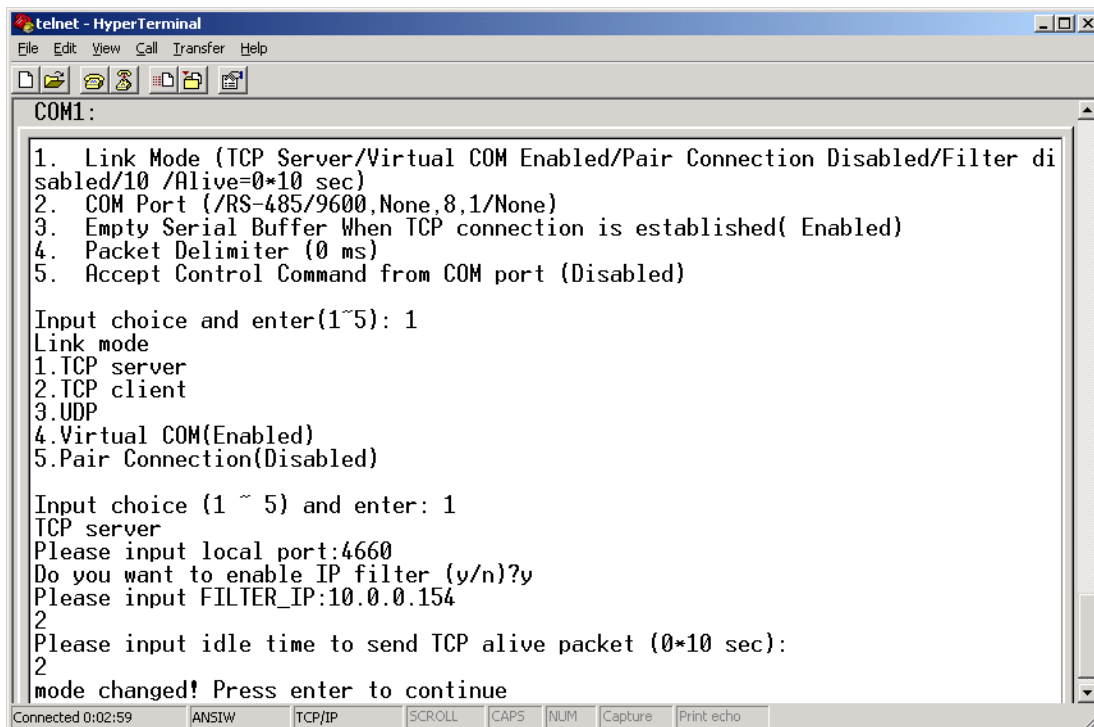
→ Input **n** in the **"Do one want to enable IP filter(y/n)?"**

→ Double click **"Enter"** key

→ Input idle time in **"Please input idle time to send TCP alive packet(4*10sec) : "**(If one input **2**->the sending TCP keep alive packet period will be change to 2*10 sec)

Note:

1. IP filtering function is disabled if setting FILTER_IP to "0.0.0.0".
2. IP filter is disabled by default
3. If IP filter is enabled, only source IP assigned can connect to SE5001.



```

telnet - HyperTerminal
File Edit View Call Transfer Help

COM1:
1. Link Mode (TCP Server/Virtual COM Enabled/Pair Connection Disabled/Filter disabled/10 /Alive=0*10 sec)
2. COM Port (/RS-485/9600,None,8,1/None)
3. Empty Serial Buffer When TCP connection is established( Enabled)
4. Packet Delimiter (0 ms)
5. Accept Control Command from COM port (Disabled)

Input choice and enter(1~5): 1
Link mode
1.TCP server
2.TCP client
3.UDP
4.Virtual COM(Enabled)
5.Pair Connection(Disabled)

Input choice (1 ~ 5) and enter: 1
TCP server
Please input local port:4660
Do you want to enable IP filter (y/n)?y
Please input FILTER_IP:10.0.0.154
2
Please input idle time to send TCP alive packet (0*10 sec):
2
mode changed! Press enter to continue
Connected 0:02:59  ANSIW  TCP/IP  SCROLL  CAPS  NUM  Capture  Print echo
  
```

Figure 3.10 Link Mode-TCP server setup

3.2.5 Configure SE5001 as TCP Client

- ➔ Type **2** in the **"Input choice(1~5) and enter :**" (Figure 3.11)
- ➔ Input destination IP in the **"Please input Destination IP :**"
- ➔ Input destination port in the **"Please input Destination port :**"
- 1.Type **1** for Connected always :
 - ➔ Double click **"Enter"** key
 - ➔ Input idle time in **"Please input idle time to send TCP alive packet(4*10sec) :**" (If one input **2**->the sending TCP keep alive packet period will be change to 2*10 sec)
- 2.Type **2** for Trigger by receiving COM port data :
 - ➔ Input idle time to disconnect in the **"Please input idle time to disconnect(0sec , 1~255) :**" (If one input **0**->disable the function; if one input **2** ->the serial Inactivity beyond 2 sec will cause disconnect)
 - ➔ Input error retrying time in **"Please input waiting time for error retrying(0 minute,1~255) :**" (If one input **0**->disable the function; if one input **2** ->the serial Inactivity beyond 2 sec will cause disconnect)
 - ➔ Double click **"Enter"** key
 - ➔ Input idle time in **"Please input idle time to send TCP alive packet(4*10sec) :**" (If one input **2**->the sending TCP keep alive packet period will be change to 2*10 sec)

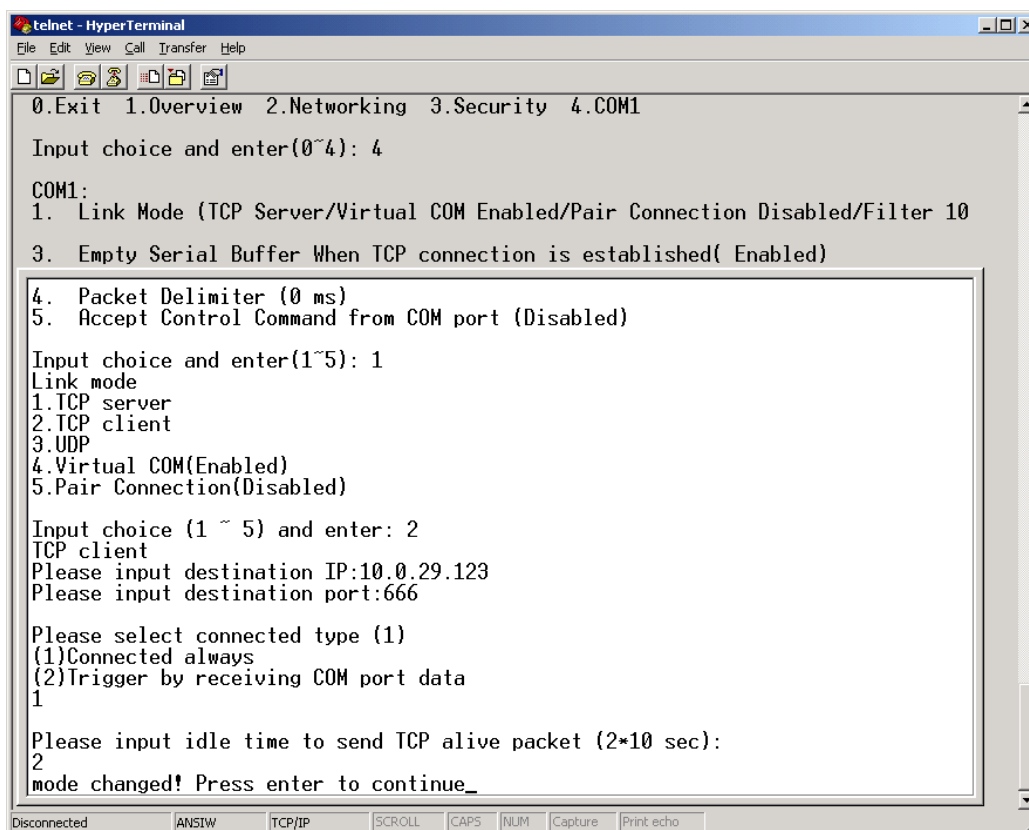


Figure 3.11 Link Mode-TCP client setup

3.2.6 Configure SE5001 as UDP Client

For example the local port is 4660, the destination IP is 10.0.29.254, destination port is 666.
(Figure 3.12)

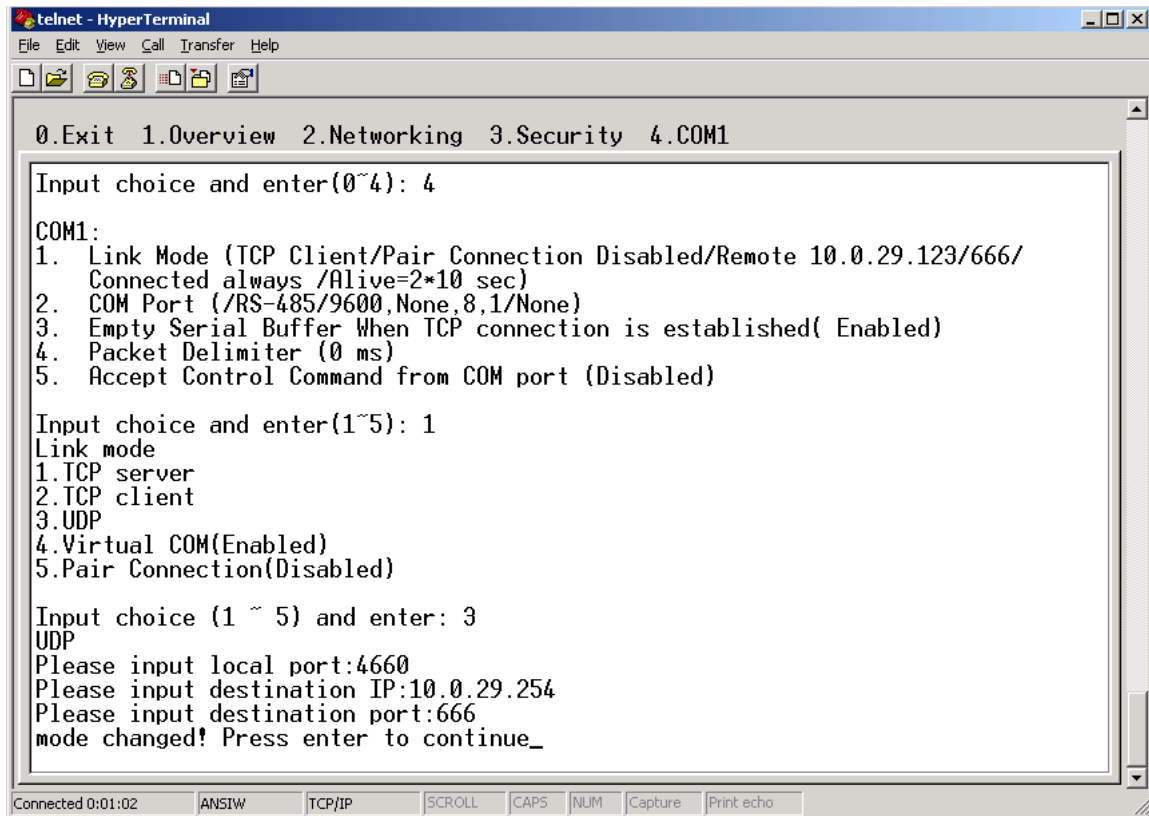
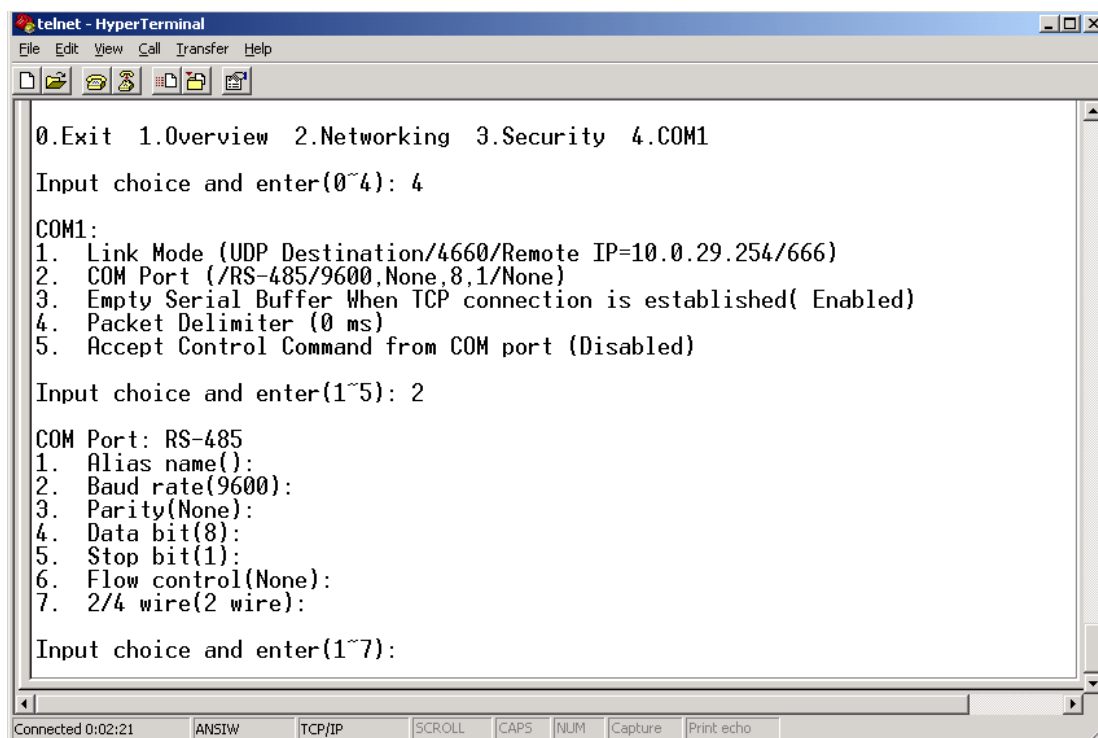


Figure 3.12 Link Mode-UDP client setup

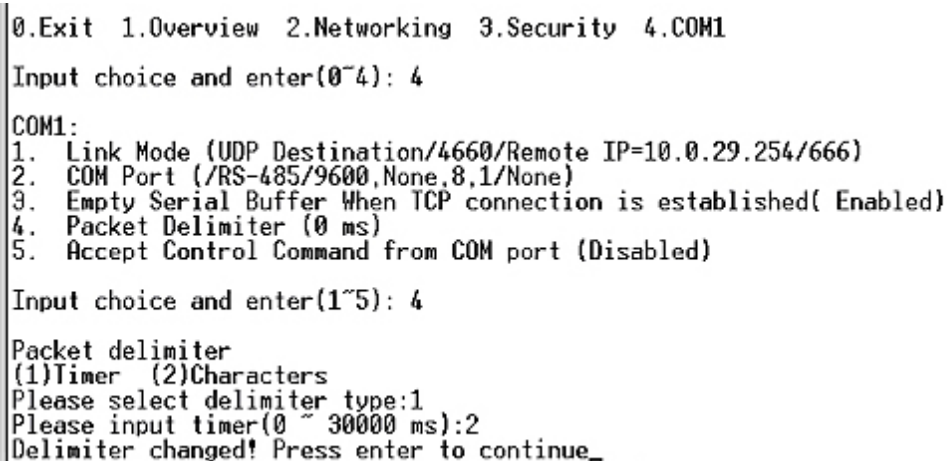
3.2.7 COM Port Setting

Type **2** from “**Input choice and enter (1~4):**” of COM1, the following screen appears, one can then give the COM port alias name, set the baud rate and parity, determine number of data bit and stop bit, and decide if one want to use flow control and the type of flow control one want to use.(Figure 3.13)



3.2.9 Setting Packet Delimiter

Packet delimiter is a way of controlling packets within serial communication. It can prevent packets from being cut thus keep the packets complete. SE5001 provides two ways of parameter setting as inter character timer and terminator. By default packet delimiter timer is 1 ms, one can change timer shown in the following figure:(Figure 3.15)



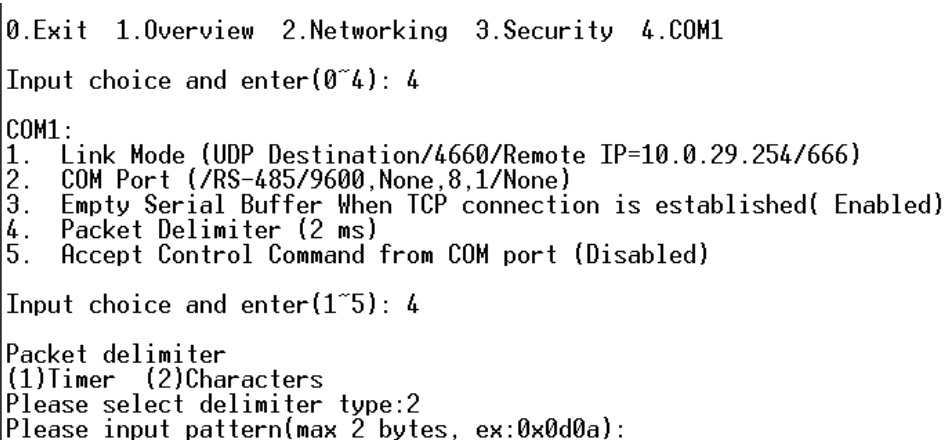
```
0.Exit 1.Overview 2.Networking 3.Security 4.COM1
Input choice and enter(0~4): 4
COM1:
1. Link Mode (UDP Destination/4660/Remote IP=10.0.29.254/666)
2. COM Port (/RS-485/9600,None,8,1/None)
3. Empty Serial Buffer When TCP connection is established( Enabled)
4. Packet Delimiter (0 ms)
5. Accept Control Command from COM port (Disabled)

Input choice and enter(1~5): 4

Packet delimiter
(1)Timer (2)Characters
Please select delimiter type:1
Please input timer(0 ~ 30000 ms):2
Delimiter changed! Press enter to continue_
```

Figure 3.15 Setting packet delimiter timer

One can also choose character pattern as the packet delimiter indicated in the following figure:
(Figure 3.16)



```
0.Exit 1.Overview 2.Networking 3.Security 4.COM1
Input choice and enter(0~4): 4
COM1:
1. Link Mode (UDP Destination/4660/Remote IP=10.0.29.254/666)
2. COM Port (/RS-485/9600,None,8,1/None)
3. Empty Serial Buffer When TCP connection is established( Enabled)
4. Packet Delimiter (2 ms)
5. Accept Control Command from COM port (Disabled)

Input choice and enter(1~5): 4

Packet delimiter
(1)Timer (2)Characters
Please select delimiter type:2
Please input pattern(max 2 bytes, ex:0x0d0a):
```

Figure 3.16 Setting packet delimiter-character pattern

3.2.10 Accept Control Command from COM port

SE5001 can also accept serial control commands directly over the network following RFC2217 format. For more detail about this function, please contact Technical Support for more information.

3.3 Configuration Using Web Browser

1. Make sure ones PC is located on the same network sub-net as SE5001
2. Open a web browser, then type in the IP address of SE5001 to be configured. Default user name is **admin** and default password is **null (leave it blank)**.

3. SE5001's network, link mode and COM ports settings can be configured in different web pages.
4. Click "**Save Configuration**" to save settings.
5. Click "**Restart**" button to make the change effective if necessary.

It is also possible to modify various settings through the web server interface. To do so, please follow the steps below.

3.3.1 Log in to the System

1. From web browser, type in the IP address of SE5001 in the URL.

Example: http://10.0.50.100

2. The following authentication screen appears. (Figure 3.17) Please type in user name and password then click on OK. The user name is admin and password is left it blank by default.

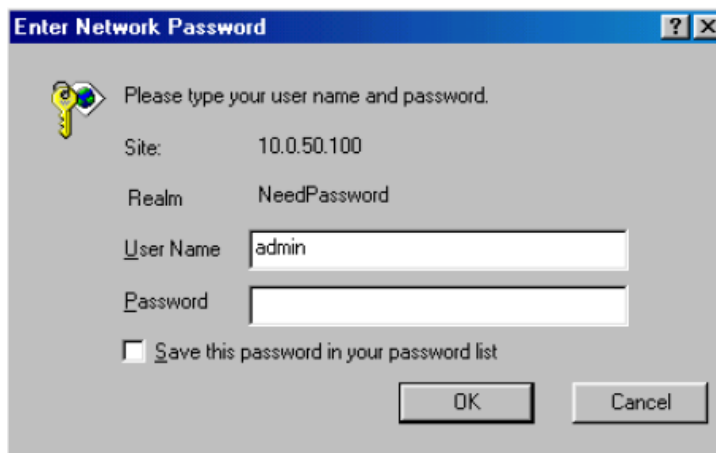
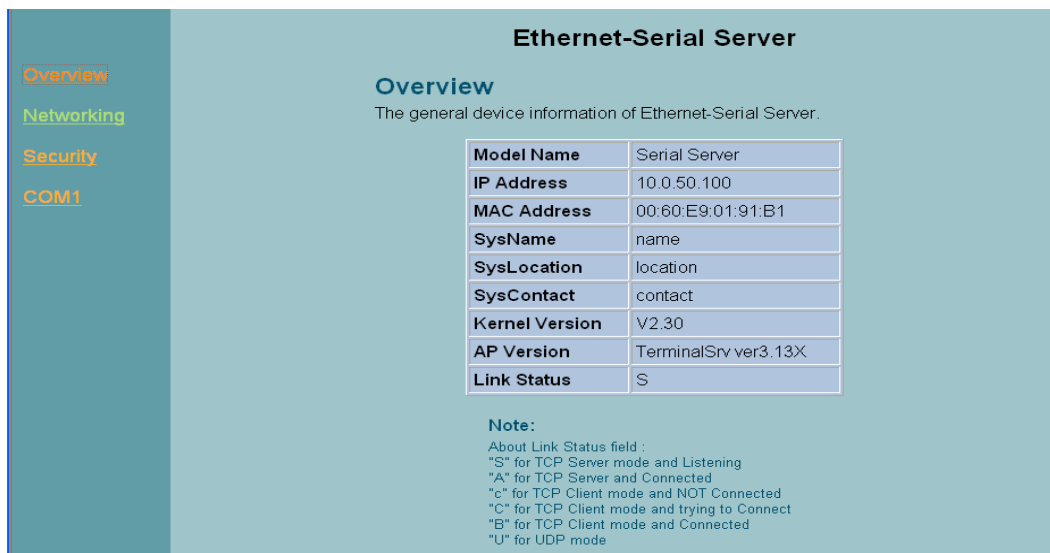


Figure 3.17 login the system via Web

3. The following overview page appears.(Figure 3.18)



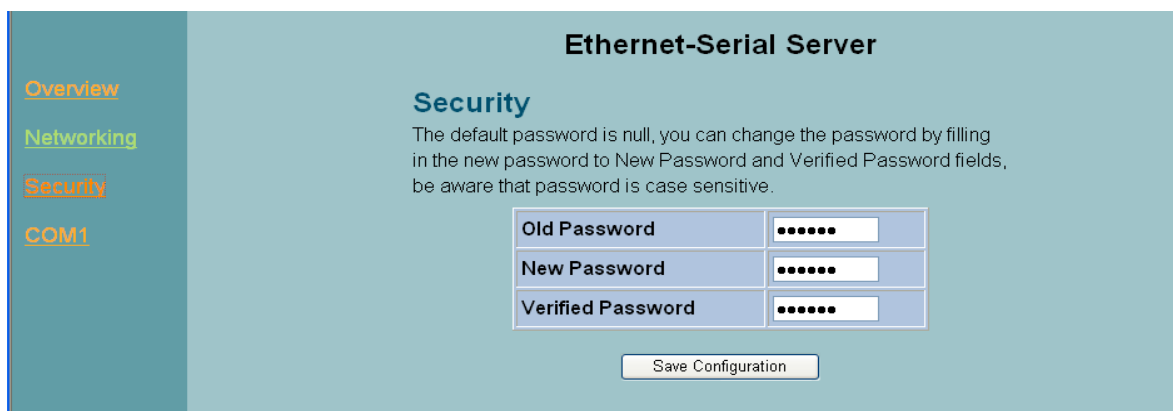
Model Name	Serial Server
IP Address	10.0.50.100
MAC Address	00:60:E9:01:91:B1
SysName	name
SysLocation	location
SysContact	contact
Kernel Version	V2.30
AP Version	TerminalSrv ver3.13X
Link Status	S

Note:
 About Link Status field :
 "S" for TCP Server mode and Listening
 "A" for TCP Server mode and Connected
 "c" for TCP Client mode and NOT Connected
 "C" for TCP Client mode and trying to Connect
 "B" for TCP Client mode and Connected
 "U" for UDP mode

Figure 3.18 Overview

3.3.2 Change the password

1. Click on the “**Security**” link and the following screen appears.(Figure 3.19)



Ethernet-Serial Server

Security

The default password is null, you can change the password by filling in the new password to New Password and Verified Password fields, be aware that password is case sensitive.

Old Password
New Password
Verified Password

Save Configuration

Figure 3.19 Change the password

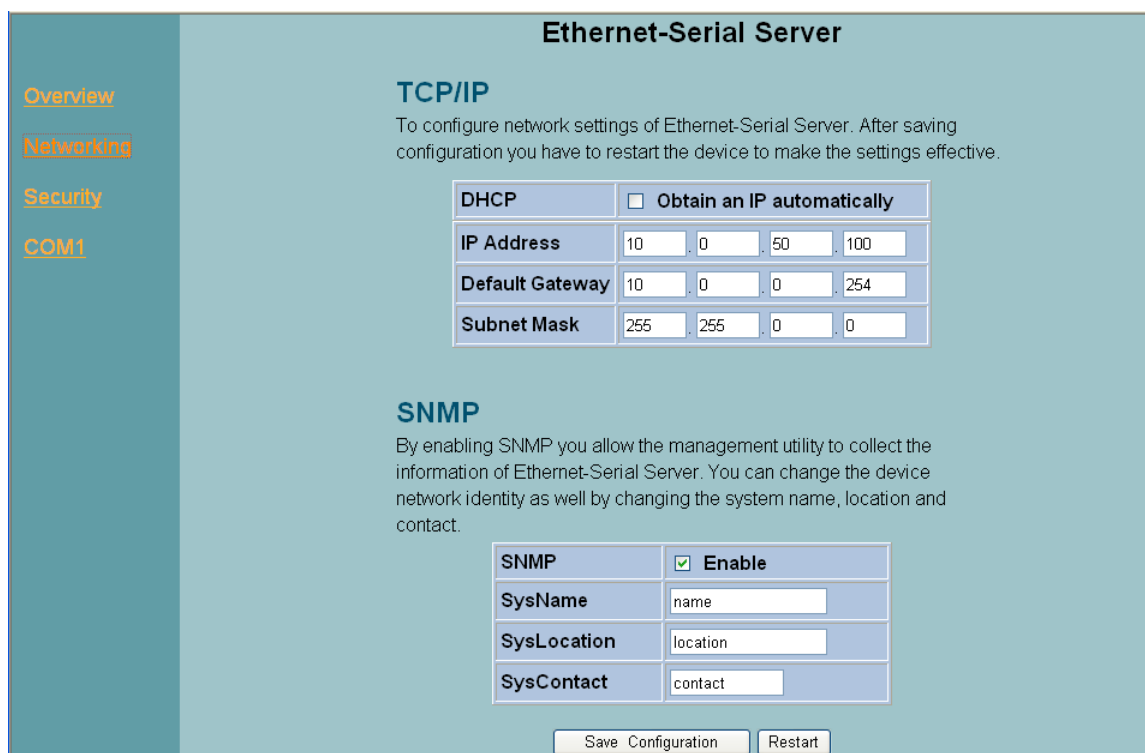
2. Please input the old password in the “**Old Password**” field, input the new password in the “**New Password**” and the “**Verified Password**” fields, and then click on “**Save Configuration**” to update the password.

Note: One can press the default key of product to reset password to the default value.

3.3.3 Network Setup

Click on the **“Networking”** link and the following screen appears. Fill in IP information under TCP/IP field. Alternatively, one can do the configuration by clicking on DHCP to obtain auto IP address, gateway and subnet mask information.

Enable SNMP by checking **“Enable”**, fill in network identification information under SNMP field and click on the **“Save Configuration”** button to save the changes, please notice that the setting will not become effective until one restart SE5001.(Figure 3.20)



Ethernet-Serial Server

TCP/IP
To configure network settings of Ethernet-Serial Server. After saving configuration you have to restart the device to make the settings effective.

DHCP	<input type="checkbox"/> Obtain an IP automatically
IP Address	10 . 0 . 50 . 100
Default Gateway	10 . 0 . 0 . 254
Subnet Mask	255 . 255 . 0 . 0

SNMP
By enabling SNMP you allow the management utility to collect the information of Ethernet-Serial Server. You can change the device network identity as well by changing the system name, location and contact.

SNMP	<input checked="" type="checkbox"/> Enable
SysName	name
SysLocation	location
SysContact	contact

Save Configuration Restart

Figure 3.20 Network setup

3.3.4 Configure SE5001 as TCP Server

one can configure SE5001 as transparent mode by default (Figure 3.21)

- ➔ Click on the **“COM1”** link and the following screen appears.
- ➔ Configure SE5001 as TCP server
- ➔ Input local listening port **“4660”**
- 1. If one want to enable IP filter :
 - ➔ Check **“IP filter”**
 - ➔ Input source IP in the **“Source IP”**
- 2. If one don't want to enable IP filter :
 - ➔ Don't check **“IP filter”**
 - ➔ Input idle time in **“Please input idle time to send TCP alive packet(sec) : ”**(If one input 2->the sending TCP keep alive packet period will be change to 2*10 sec)
 - ➔ Input TCP Inactivity time in **“TCP Inactivity Time Before Disconnect(sec) : ”**(If one input 2->TCP Inactivity beyond 2 sec will cause disconnect)

➔ Click on “**Save Configuration**” button to save the changes

Note:

1. IP filtering function is disabled if setting FILTER_IP to “0.0.0.0”.
2. IP filter is disabled by default
3. If IP filter is enabled, only source IP assigned can connect to SE5001.

[Overview](#)
[Networking](#)
[Security](#)
[COM1](#)

Ethernet-Serial Server

LINK1

To choose specific working mode for COM port.

☒ TCP Server ☐ TCP Client ☐ UDP

Enable VirtualCOM for Serial/IP	<input type="checkbox"/> Enable
Pair Connection	<input type="checkbox"/> Enable

Local Listening Port	4660
IP Filter	<input type="checkbox"/> Enable
Source IP	0.0.0.0
Idle Time Before Sending TCP Alive Packet	1 *10 sec (0~255, 0:Disable)
TCP Inactivity Time Before Disconnect	0 sec (0~255, 0:Disable)

[Overview](#)

[Networking](#)

[Security](#)

[COM1](#)

COM1

To configure COM port parameters.

Serial Interface	RS-232
Alias Name	<input type="text"/>
Baud Rate	9600
Parity	<input checked="" type="radio"/> None <input type="radio"/> Odd <input type="radio"/> Even <input type="radio"/> Mark <input type="radio"/> Space
Data Bits	<input type="radio"/> 7 bits <input checked="" type="radio"/> 8 bits
Stop Bits	<input checked="" type="radio"/> 1 bit <input type="radio"/> 2 bits
Flow Control	<input checked="" type="radio"/> None <input type="radio"/> RTS/CTS <input type="radio"/> DTR/DSR <input type="radio"/> Xon/Xoff
Xon/Xoff characters	Xon: <input type="text" value="0x11"/> Xoff: <input type="text" value="0x13"/> ("0x"+ASCII Code, e.g. 0x11)
Xon/Xoff Special Control	<input type="checkbox"/> Controlling DTR to simulate receiving Xon/Xoff and reading DSR to get Xon/Xoff currently
Empty Serial Buffer When TCP Connection is Established	<input type="radio"/> YES <input checked="" type="radio"/> No, (Default: Yes)
Data Packet Delimiter	<input checked="" type="radio"/> Inter-character Time Gap : <input type="text" value="2"/> msec (0~30000, 0:Disable) <input type="radio"/> Characters : <input type="text" value="0x0d"/> ("0x" + Hex Code, e.g. "0x0d" or "0x0d0a")

Figure 3.21 Com1 setup-TCP server

Note:

1. Default Port number of SE5001 is 4660 and it is associated with serial port COM1 respectively. After ones application program connects to the TCP port 4660 of SE5001, data being sent to this TCP connection from ones application program are transparent to the COM1 of SE5001. Vice versa is also true.
2. The serial interface will show different port interface according to the model of the serial server.

3.3.5 Configure SE5001 as TCP Client

- ➔ Configure SE5001 as TCP client, for example the destination IP is 10.0.29.11, destination port is 4660 .(Figure 3.22)
 - ➔ Input destination IP "10.0.29.11"
 - ➔ Input destination port in the "4660"
 - ➔ Input idle time in "Please input idle time to send TCP alive packet (sec) :"(If one input 4->the sending TCP keep alive packet period will be change to 4*10 sec)
1. Select "TCP Connect On Power-on" : to keep trying to establish TCP connection after Power on
 2. Select "TCP Connect On Any Serial Character" : Any serial character will trigger to establish the TCP connection
- ➔ Input idle time to disconnect in the "Serial Inactivity Time before disconnect(0sec , 1~255) :"(If one input 0->disable the function; if one input 2 ->the serial Inactivity beyond 2 sec will cause disconnect)
 - ➔ Input error retrying time in "Waiting Time Between Re-connect Attempts(0 minute,1~255) :"(If one input 0->disable the function; if one input 2 ->the serial Inactivity beyond 2 sec will cause disconnect)
 - ➔ Click on "Save Configuration" button to save the changes

To choose specific working mode for COM port.

☐ TCP Server ☒ TCP Client ☐ UDP

Enable VirtualCOM for Serial/IP	<input type="checkbox"/> Enable
Pair Connection	<input type="checkbox"/> Enable
Destination IP	10.0.29.11
Destination Port	4660

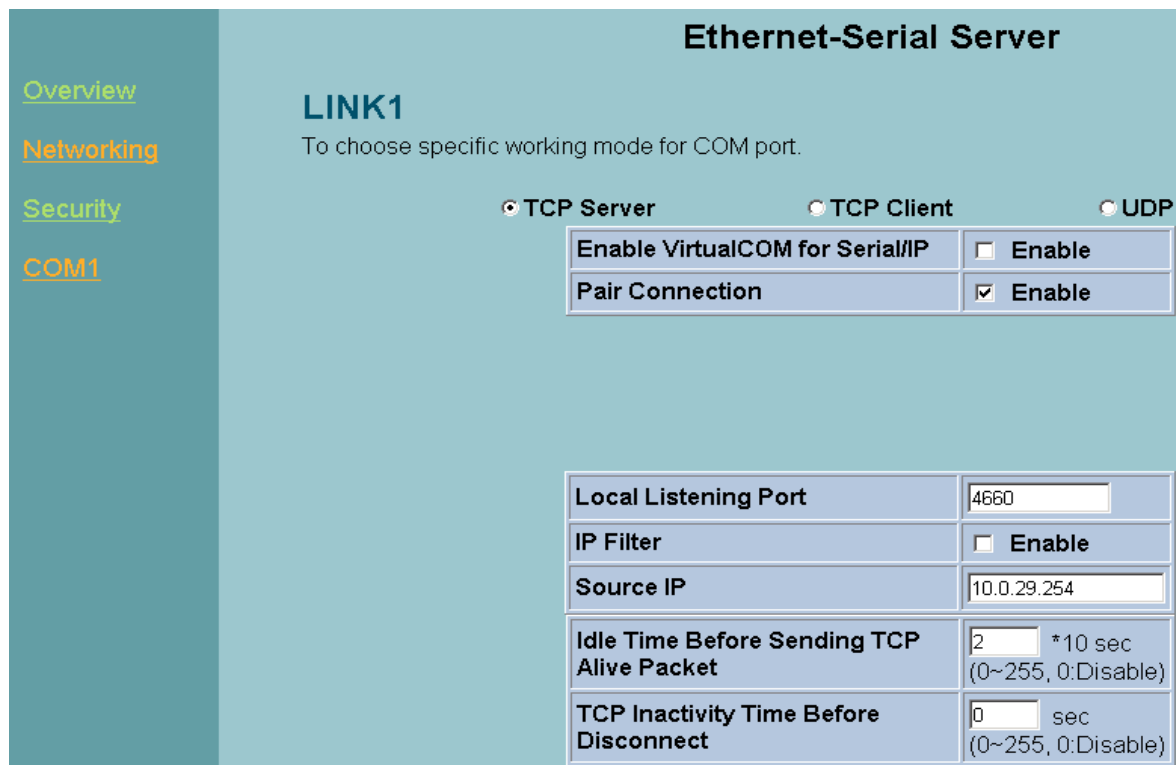
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)
TCP Inactivity Time Before Disconnect	0 sec (0~255, 0:Disable)

<input checked="" type="radio"/> TCP Connect On Power-on
<input type="radio"/> TCP Connect On Any Serial Character

Figure 3.22 Com1 setup-TCP client

3.3.6 Pair Connection

In the case of the serial connection is established with two or more SE5001 to send data over Ethernet network, i.e. pair connection mode, one can choose “**pair connection**” which is indicated in the following figure to cope with any type of serial device. (Figure 3.23)



Ethernet-Serial Server

LINK1
To choose specific working mode for COM port.

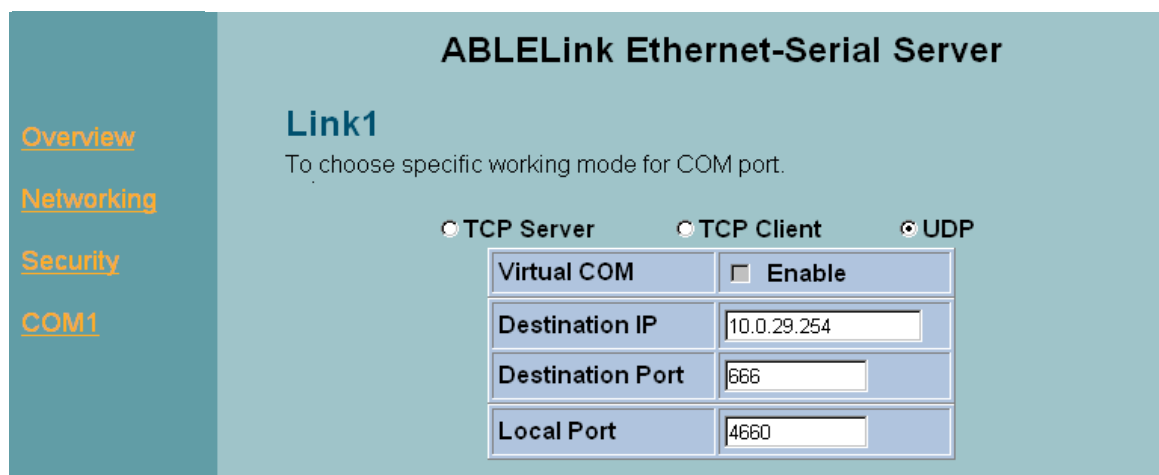
☒ TCP Server
 ☐ TCP Client
 ☐ UDP

Enable VirtualCOM for Serial/IP	<input type="checkbox"/> Enable
Pair Connection	<input checked="" type="checkbox"/> Enable

Local Listening Port	4660
IP Filter	<input type="checkbox"/> Enable
Source IP	10.0.29.254
Idle Time Before Sending TCP Alive Packet	2 *10 sec (0~255, 0:Disable)
TCP Inactivity Time Before Disconnect	0 sec (0~255, 0:Disable)

Figure 3.23 Com1 setup –pair connection

Configure SE5001 as UDP mode. Local port is 4660, destination IP is 10.0.29.254 and destination port is 4660.(Figure 3.24)



ABLELink Ethernet-Serial Server

Link1
To choose specific working mode for COM port.

☐ TCP Server
 ☐ TCP Client
 ☒ UDP

Virtual COM	<input type="checkbox"/> Enable
Destination IP	10.0.29.254
Destination Port	666
Local Port	4660

Figure 3.24 Com 1 setup –UDP mode

1. Click on “**Save Configuration**” to save the changes.
2. If the update is successful, the following screen appears.(Figure 3.25)

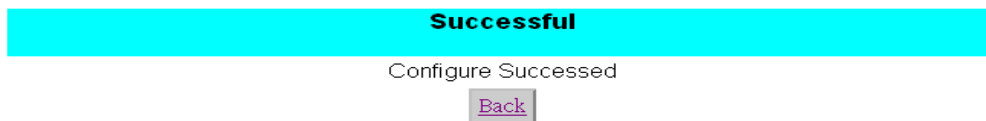


Figure 3.25 Configure success

3.4 Assign a New IP Address by ARP Command

Use ARP command to assign a static IP address of SE5001 using its hardware MAC address. The MAC address is printed on the rear side of device in the format of "0060E9-xxxxxx". The following example shows how it works within MS-DOS command prompt window.

(For example change IP from 10.0.50.100 to 10.0.50.101, and the MAC address of SE5001 is 00-60-e9-11-11-01)

Step1: Add the new host IP to ARP table

->Open Ms-DOS command prompt window

->Input **arp -s 10.0.50.101 00-60-E9-11-11-01** (Figure 3.26)

```
C:\Documents and Settings\Administrator>arp -s 10.0.50.101 00-60-e9-11-11-01
C:\Documents and Settings\Administrator>
```

Figure 3.26. Ms-DOS command prompt window

Step2: Change to new IP via telnet port 1 (Figure 3.27)

->Input **telnet 10.0.50.101 1**

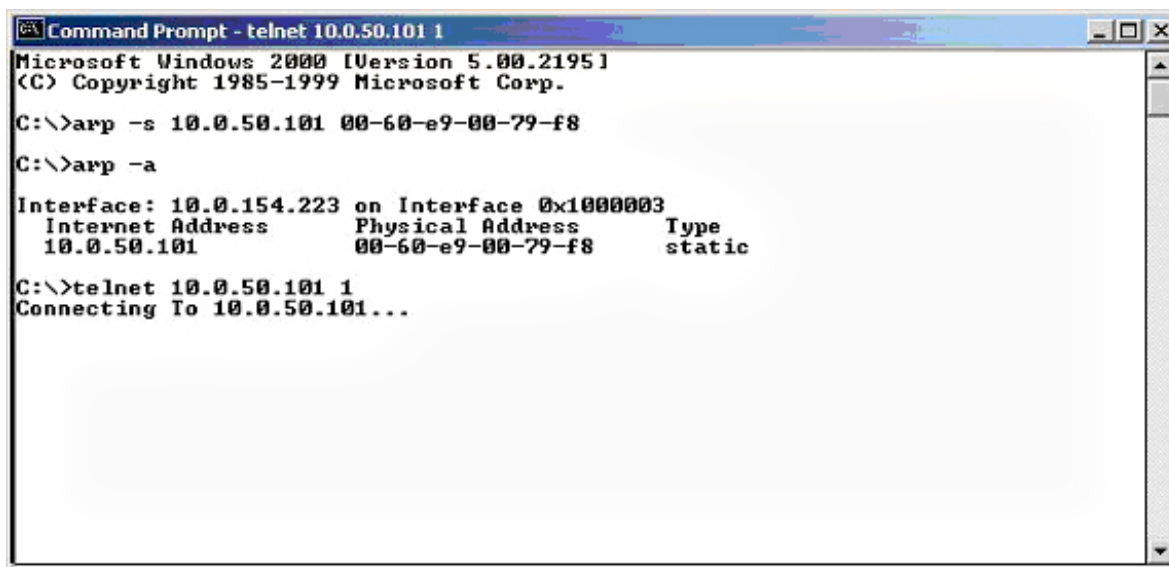
Note: The telnet will be fail and SE5001 will be restarted automatically, after restart the IP address should be change to 10.0.50.101

Step3: Using new IP to configure SE5001 via telnet

->Input **telnet 10.0.50.101**

Note 1: When using this method to change IP address, PC's IP address and SE5001 's IP address must belong to the same subnet.

Note 2: The changed IP address must be legal, otherwise it will be changed back to the default value (10.0.50.100) after restart.



```
Command Prompt - telnet 10.0.50.101 1
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-1999 Microsoft Corp.

C:\>arp -s 10.0.50.101 00-60-e9-00-79-f8

C:\>arp -a

Interface: 10.0.154.223 on Interface 0x10000003
Internet Address      Physical Address      Type
10.0.50.101           00-60-e9-00-79-f8    static

C:\>telnet 10.0.50.101 1
Connecting To 10.0.50.101...
```

Figure 3.27. Assigning a new IP address by ARP command

4. Using Virtual COM

Virtual COM driver mode for windows converts COM data to LAN data to control the RS-232 port on a SE5001 via the LAN. By creating virtual COM ports on the PC, the Virtual COM driver redirects the communications from the virtual COM ports to an IP address and port number on a SE5001 that connects the serial line device to the network. The following figure is Virtual COM connection diagram. (Figure 4.1)

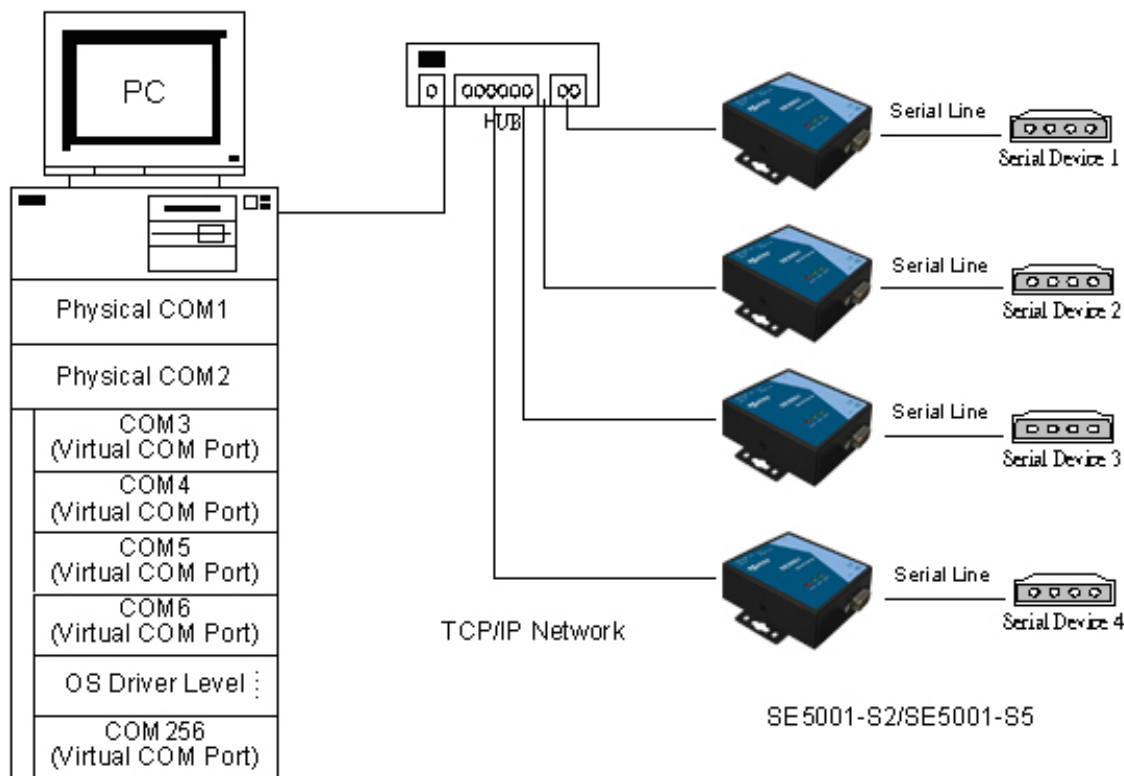


Figure 4.1 Virtual Com connection diagram

4.1 Setup of a Virtual COM Driver

4.1.1 Pre-installation Requirements

Please check the operation system on ones PC complied with the following requirements:

- Processor: Intel-compatible, Pentium class
- Operation system: Windows Server 2003, Windows XP, Windows 2000, Windows NT 4.0 SP5 or later, Windows Me, Windows 98, Windows 95, Microsoft NT/2000 Terminal Server, Citrix Meta Frame

4.1.2 Cautions on Use

The Virtual COM driver supports firmware AP v3.0 and later of SE5001 Serial-Ethernet Servers.

4.1.3 Limitation

The Virtual COM driver provides user to select up to 256 **COM ports** as Virtual COM ports in a SerialManager PC. User can select them from a list of COM ports, which is from COM1 up to COM256.

4.1.4 Installation

Make sure one have turned off all anti-virus software before beginning the installation. Run the Virtual COM setup file included in the CD to install Virtual COM driver for ones operating system.

In the end of the installation, please select one or two COM ports to become the Virtual COM ports.

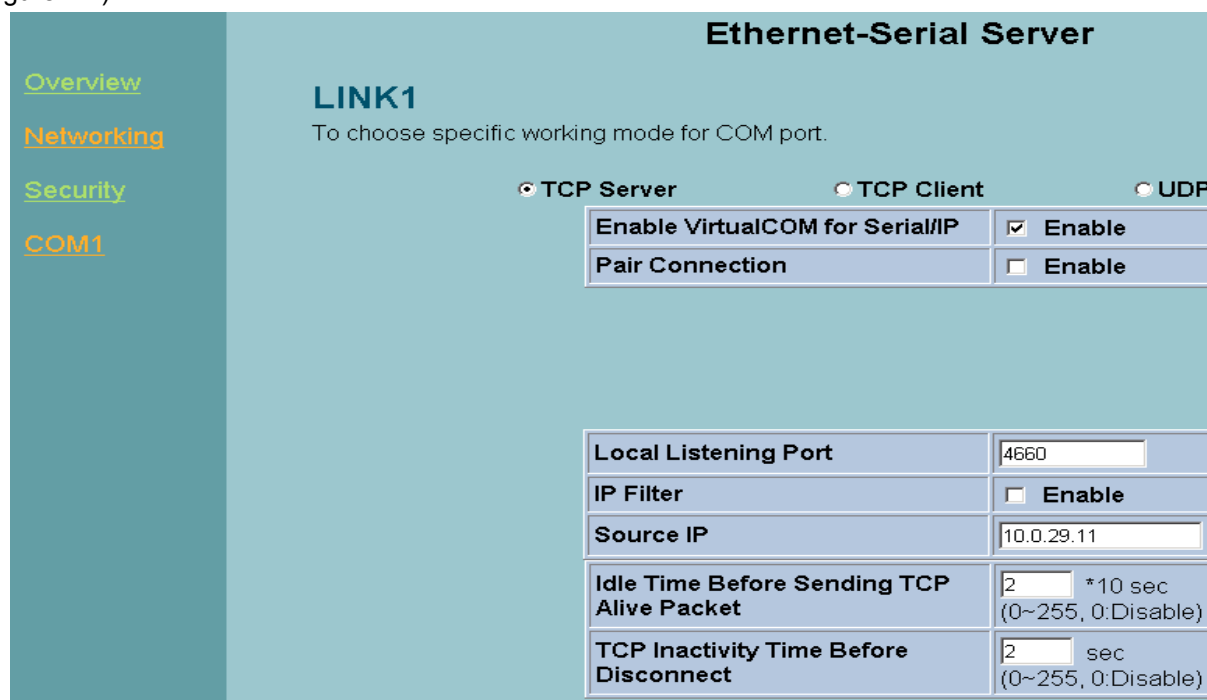
4.1.5 Uninstalling

1. From Windows Start menu select Setting, Control Panel, Add/Remove Programs.
2. Select **Serial IP for ATOP** in the list of installed software.
3. Click the **Add/Remove** button to remove the program, or From Windows Start menu select Programs, Serial IP for ATOP, **Uninstall Serial IP for ATOP** to remove the program.

4.2 Virtual COM Communication

4.2.1 Enable Virtual COM on SE5001

From web browser access to SE5001 by typing its IP address, click on COM1 link to access COM1 page, on the top half of the page click on "**TCP Server**" and enable Virtual COM by putting a check in front of the "Enable" button, then type in the local port number in the "**Local Port**" field as indicated in the following figure: (Figure 4.2)



Ethernet-Serial Server	
LINK1 To choose specific working mode for COM port.	
<input checked="" type="radio"/> TCP Server <input type="radio"/> TCP Client <input type="radio"/> UDP	
Enable VirtualCOM for Serial/IP	<input checked="" type="checkbox"/> Enable
Pair Connection	<input type="checkbox"/> Enable
Local Listening Port	4660
IP Filter	<input type="checkbox"/> Enable
Source IP	10.0.29.11
Idle Time Before Sending TCP Alive Packet	2 * 10 sec (0~255, 0:Disable)
TCP Inactivity Time Before Disconnect	2 sec (0~255, 0:Disable)

Figure 4.2 Enable Virtual Com

Or one can enable Virtual COM through telnet configuration by setting COM1 as TCP server, and type in the local port number for COM1, then enable virtual COM as shown in the following figure: (Figure 4.3)

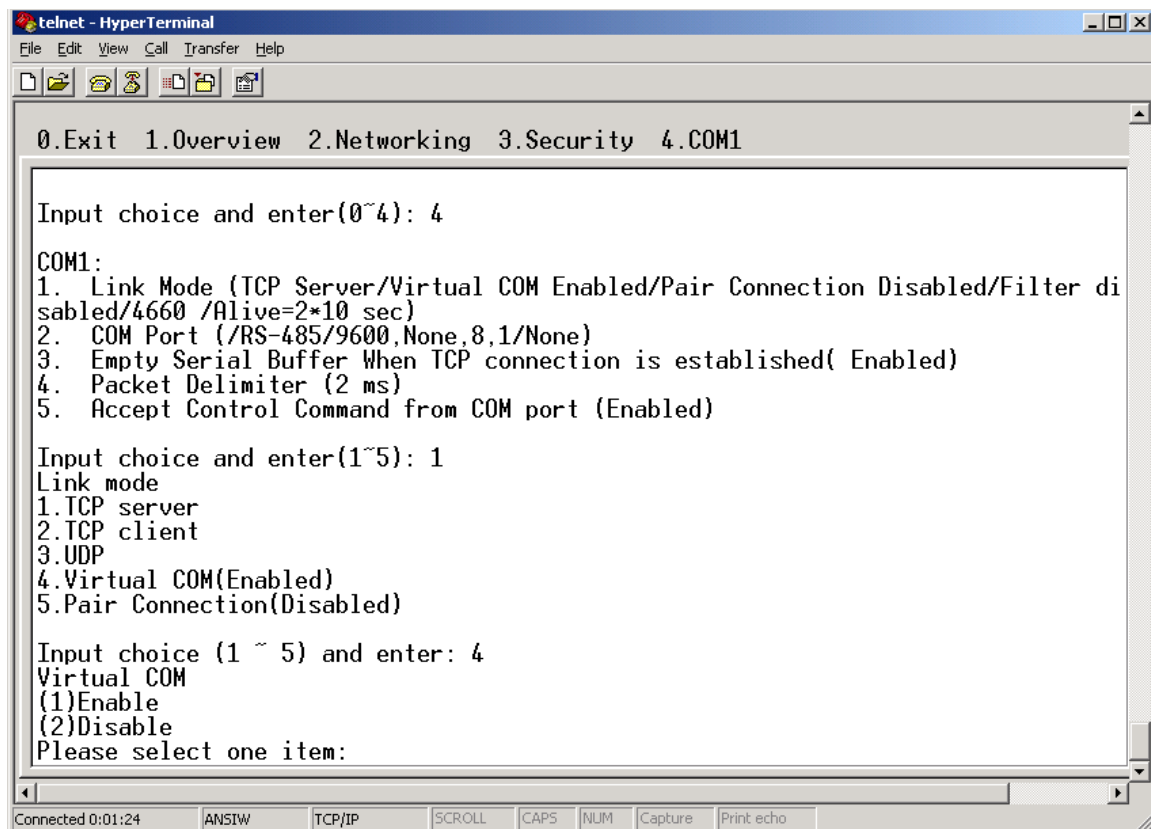


Figure 4.3 Enable Virtual Com via telnet

4.2.2 Run Serial/IP for Atop on PC

In the Window Start Menu, go to “Programs”, select “Serial/IP for ATOP” and select “Control Panel”. When “Select Port” windows pop-up, please select the serial port one want to configure. Then the configuration window will appear. (Figure 4.4)

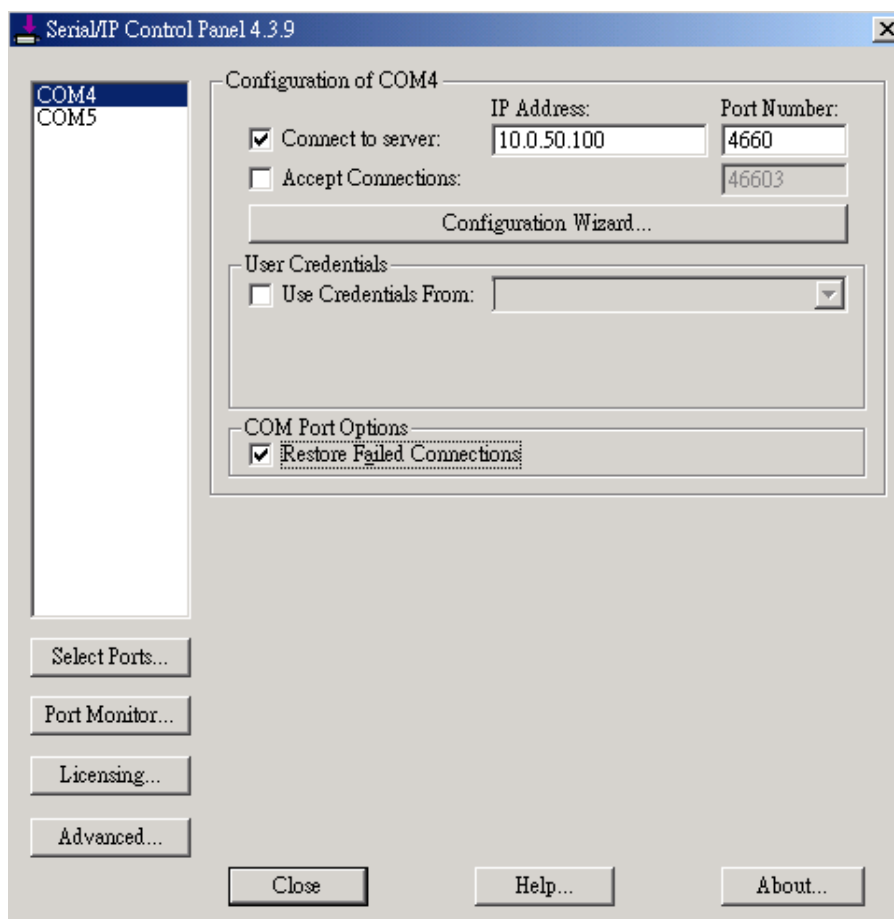


Figure 4.4 Serial/IP for Atop configuration

At the right side of Figure 4.4 is a sample Virtual COM Control Panel window. At the left side is the list of the COM ports that one have selected (in the Select Ports window) for use by the Virtual COM Redirector. If one wish to change which ports appear in this list, use the **Select Ports** button.

Each COM port has its own settings. When one click on a COM port, the Control Panel display changes to reflect the settings for that COM port.

Note: When one change settings for a COM port, the changes are effective immediately. There is no separate confirmation dialog to confirm or cancel ones changes.

4.3 Configuring Virtual COM Ports

One configure each Serial/IP COM port as follows: (Figure 4.5)

1. Select a COM port in the list.
2. For **IP Address of Server**, enter a numeric IP address for the serial server.
3. For **Port Number**, enter the TCP port number that the serial server uses to provide its serial ports to the network.

4. For **Server Credentials**, the default is **No Login Required**. If one's serial server does require a login by the Virtual COM Redirector, the Virtual COM Redirector needs to provide a username and/or password every time an application tries to use the serial server.
5. Click the **Configuration Wizard** button and then click the **Start** button that appears in the wizard window. This important step verifies that the Virtual COM Redirector can communicate with the serial server using the settings one has provided. If the **Log** display does not show errors, click the **Use Settings** button in the wizard, which makes the recommended settings effective and returns one to the Control Panel to continue with the following steps. (Figure 4.5)

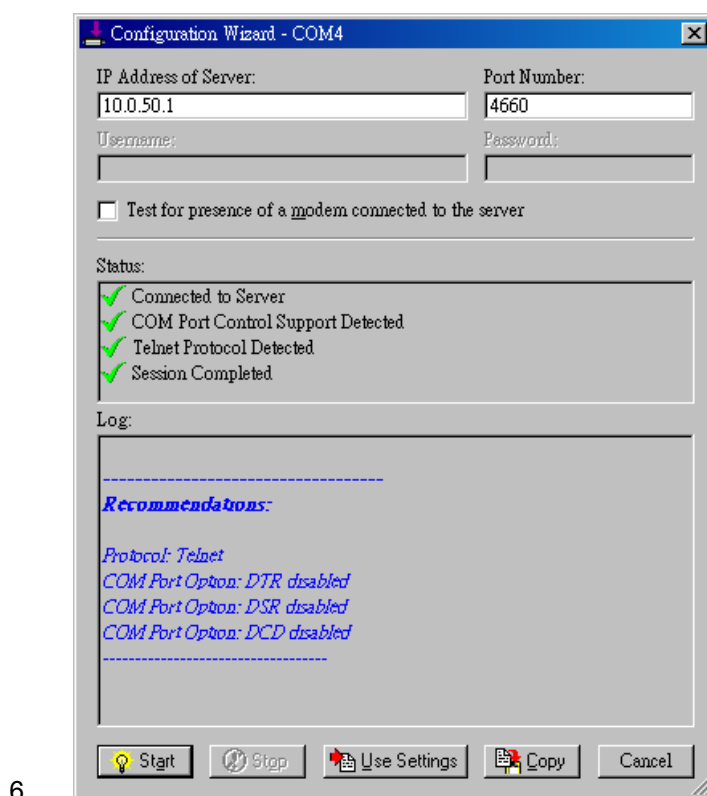


Figure 4.5 Configuration Wizard

7. For **Connection Protocol**, the setting must match the TCP/IP protocol that the serial server supports. The Configuration Wizard is usually able to determine the correct setting.
8. For **COM Port Options**, the settings must match the COM port behavior expected by the PC application that will use this COM port. The Configuration Wizard will recommend a combination of settings.

5. SNMP Setup

5.1 SNMP Network Management Platform


SE5001 is an SNMP device that allows many popular SNMP Network management platforms such as HP Open View and Sun Net Manager to conduct SerialManager.

Depending on the network management tools one are using, device SE5001 information can be collected from running the management tools including IP address, DNS name, system descriptions and NIC information etc.

5.2 Using NetworkView as an Example

NetworkView is a compact network management tool from NetworkView Software, Inc. (www.networkview.com). It discovers all TCP/IP nodes in a network using DNS, SNMP and ports information and documents with printed maps and reports for future use.

First, download and install the tool on ones PC (**Windows 2000 and Windows XP**), then start NetworkView.

1. Click on the  button to open a new file. The following screen shall appear, in the Addresses field, Enter in the IP address range to search (Figure 5.1).

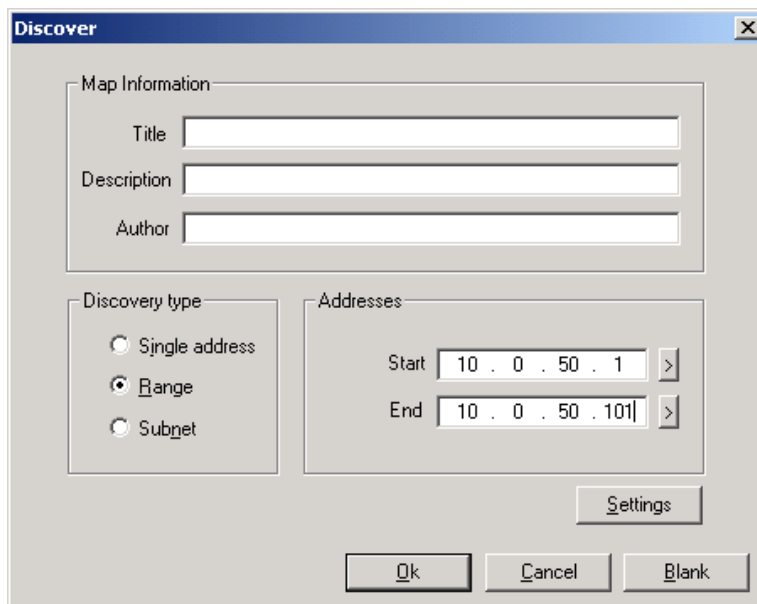


Figure 5.1 IP address searching

2. Click on “OK” and the following dialog box shall display the searching progress (Figure 5.2).

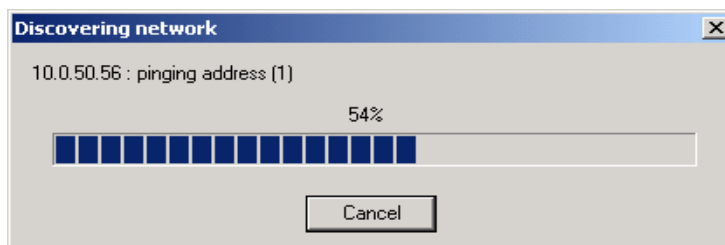


Figure 5.2 Searching progress

- After the search is completed, NetworkView will display the devices found in the main window, as shown below (Figure 5.3).

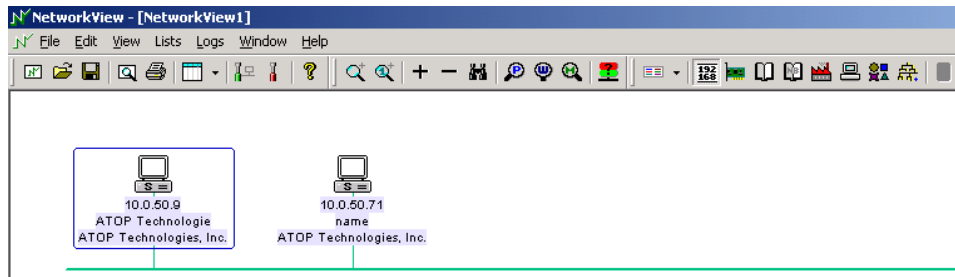


Figure 5.3 NetworkView display the devices found

- Double-click on the device icon to display information about the device, including IP Address, Company, SysLocation (Max 15 characters), SysName (Max 9 characters) and types etc (Figure 5.4).

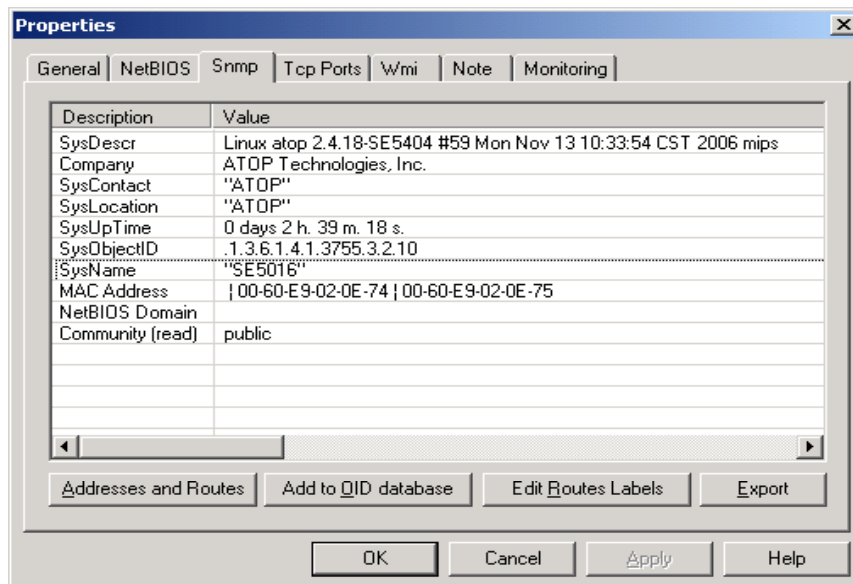


Figure 5.4 NetworkView display device information

Note:

- The NetworkView tool is limited to information extracting and viewing only.
- To modify the configurations please use the web server, Telnet or SerialManager configuration utilities.

6. Start Writing Ones Own Applications

Before one start writing ones host applications or programs to interact with SE5001, please make sure one have done the following.

6.1 Preparing the System

1. Properly connect SE5001 hardware including power, Ethernet and serial cable
2. Properly configure the parameters of SE5001 including connection type, IP address, gateway IP address, and network mask accordingly (see chapter 3 **Hardware Installation** section).
3. Configure SE5001 as TCP Server using default TCP port number 4660.
4. The host (PC) application program must be configured as a TCP client and connects to SE5001 with designated TCP port number 4660 for COM1.
5. Make sure SE5001 is running by checking the running status through **SerialManager** configuration utility.

6.2 Running the Sample Program

Sample programs written in VB and VC++ included in package are provided for one reference, source codes are also included. Test program can be found in the product CD or diskette under the directory of `\sample\vb_ap\` and `\sample\vc_ap\` respectively.

There are two test programs, TCPTTEST written in Visual Basic and TCPTTEST2 written in Visual C++.

6.2.1 TCPTTEST in Visual Basic

This sample program is written in Visual Basic 5.0 with Winsock Controls. It shows one how to send and receive data between host (PC) and SE5001 via Ethernet in two socket ports.

Run Visual Basic and open sample program tcptest.vbp, after the program is started successfully, one can start testing functions (Figure 6.1). For more information, please press **Help** in the program to get detail explanation.

Note: Please be sure the Microsoft visual studio family software is installed on the computer. Otherwise the sample program will not run.

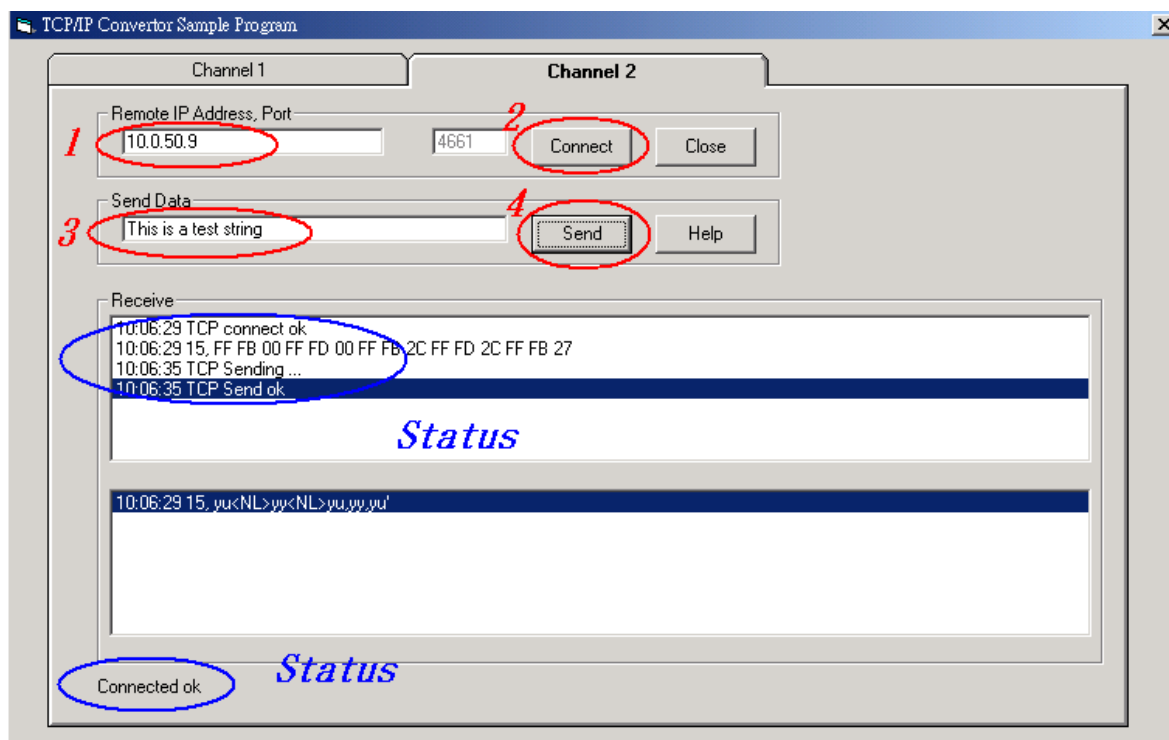


Figure 6.1 TCP test sample program in Visual Basic

6.2.2 TCPTTEST2 in Visual C

To start the program, please type in the following command in the command line prompt (Figure 6.2):

TCPTTEST2 IP_Address Port_Number

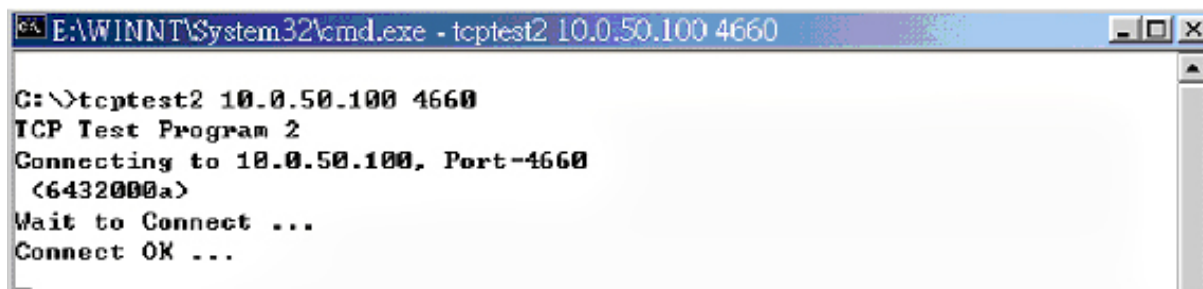


Figure 6.2 TCP test sample program in Visual C

The command **tcptest2 10.0.50.100 4660** brings one to connect to a TCP server of IP address *10.0.50.100* and port number *4660*, the received data is displayed on the screen and the data typed in is sent to the TCP server of the designated port number. One can also send binary data in hex format with a leading character "\". For example, "\00" and "\FF" represent ASCII code 0 and 255 respectively.

One can also use modem to connect to the serial server. Command **"AT10d"** sends standard AT command to the modem which in return responds with **"OK10D10A"** message to the host application.

Always use '=' then Enter key to exit the program.

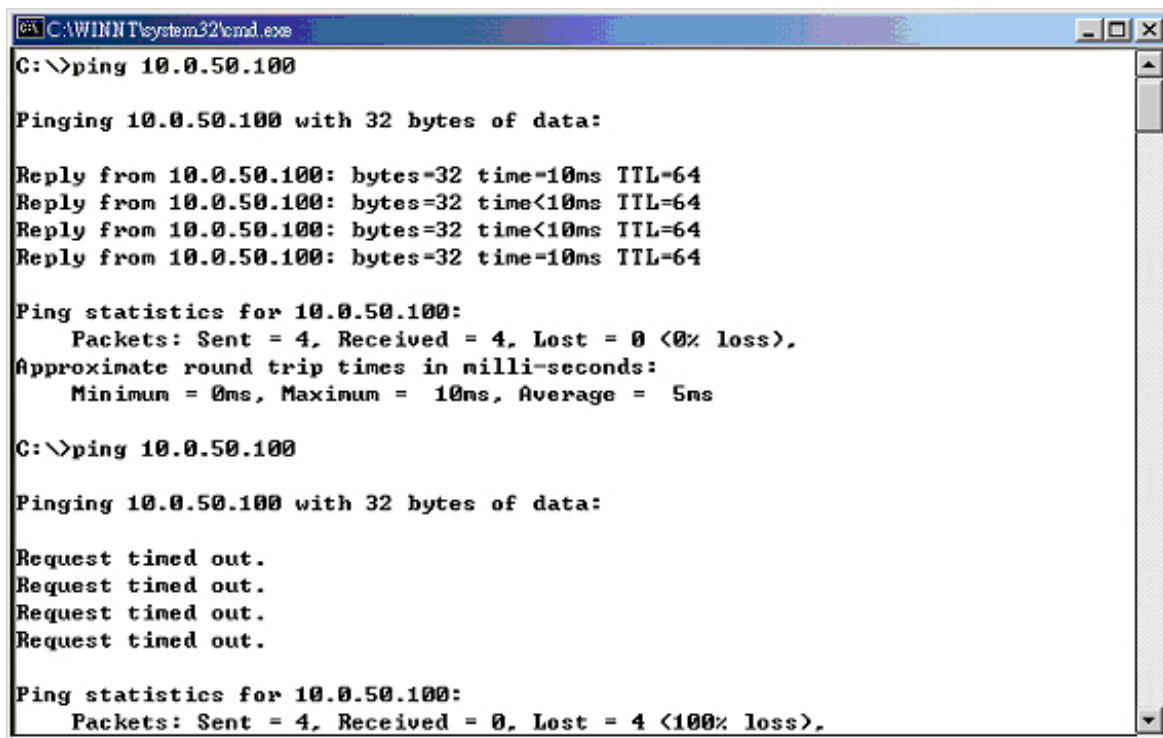
7. Diagnostics

There are several ways one can check on the status and availability of SE5001.

7.1 Use Standard TCP/IP Utility Ping Command

From Windows **Start** menu, select **Run** and type in “**ping <TCP Server IP address>**”.

If the connection is established, the Reply messages are displayed, otherwise it will indicate Request timed out (Figure 7.1).



```
C:\WINNT\system32\cmd.exe
C:\>ping 10.0.50.100

Pinging 10.0.50.100 with 32 bytes of data:

Reply from 10.0.50.100: bytes=32 time=10ms TTL=64
Reply from 10.0.50.100: bytes=32 time<10ms TTL=64
Reply from 10.0.50.100: bytes=32 time<10ms TTL=64
Reply from 10.0.50.100: bytes=32 time=10ms TTL=64

Ping statistics for 10.0.50.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 5ms

C:\>ping 10.0.50.100

Pinging 10.0.50.100 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

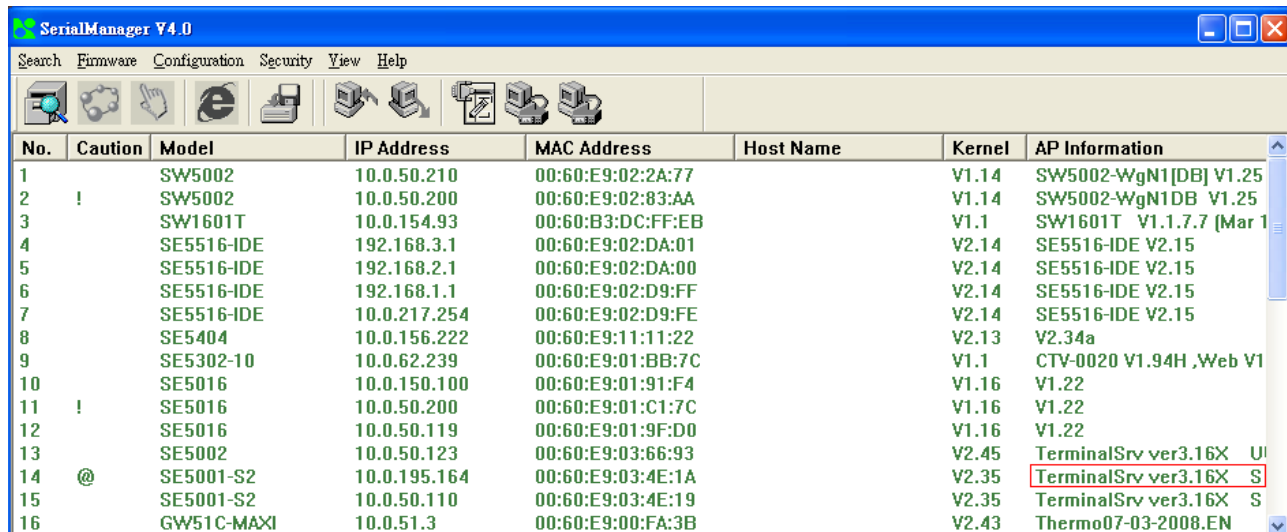
Ping statistics for 10.0.50.100:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Figure 7.1 Standard TCP/IP utility ping command

7.2 Use SerialManager Configuration Utility Program

Use **SerialManager** configuration program that comes with the product CD or diskette to check on the status of SE5001. The status and version can be read from the tool.

For example, 'S' means that COM1 is server mode and is not connected (Figure 7.2).



No.	Caution	Model	IP Address	MAC Address	Host Name	Kernel	AP Information
1		SW5002	10.0.50.210	00:60:E9:02:2A:77		V1.14	SW5002-WgN1[DB] V1.25
2	!	SW5002	10.0.50.200	00:60:E9:02:83:AA		V1.14	SW5002-WgN1DB V1.25
3		SW1601T	10.0.154.93	00:60:B3:DC:FF:EB		V1.1	SW1601T V1.1.7.7 [Mar 1
4		SE5516-IDE	192.168.3.1	00:60:E9:02:DA:01		V2.14	SE5516-IDE V2.15
5		SE5516-IDE	192.168.2.1	00:60:E9:02:DA:00		V2.14	SE5516-IDE V2.15
6		SE5516-IDE	192.168.1.1	00:60:E9:02:D9:FF		V2.14	SE5516-IDE V2.15
7		SE5516-IDE	10.0.217.254	00:60:E9:02:D9:FE		V2.14	SE5516-IDE V2.15
8		SE5404	10.0.156.222	00:60:E9:11:11:22		V2.13	V2.34a
9		SE5302-10	10.0.62.239	00:60:E9:01:BB:7C		V1.1	CTV-0020 V1.94H ,Web V1
10		SE5016	10.0.150.100	00:60:E9:01:91:F4		V1.16	V1.22
11	!	SE5016	10.0.50.200	00:60:E9:01:C1:7C		V1.16	V1.22
12		SE5016	10.0.50.119	00:60:E9:01:9F:D0		V1.16	V1.22
13		SE5002	10.0.50.123	00:60:E9:03:66:93		V2.45	TerminalSrv ver3.16X UI
14	@	SE5001-S2	10.0.195.164	00:60:E9:03:4E:1A		V2.35	TerminalSrv ver3.16X S
15		SE5001-S2	10.0.50.110	00:60:E9:03:4E:19		V2.35	TerminalSrv ver3.16X S
16		GW51C-MAXI	10.0.51.3	00:60:E9:00:FA:3B		V2.43	Thermo07-03-2008.EN

Figure 7.2 SerialManager configuration Utility

7.3 Use TCPTTEST.exe or TCPTTEST2.exe Sample Program

Use sample programs TCPTTEST.exe and TCPTTEST2.exe that comes with the product CD to check on the status of SE5001. Please refer to chapter 6.2 to run the sample programs.

Appendix A: Specifications

A.1 Hardware Specifications

	Specifications
CPU	<ul style="list-style-type: none"> 16-bit Embedded CPU 100MHz
Flash Memory	<ul style="list-style-type: none"> 512K Bytes
SDRAM	<ul style="list-style-type: none"> 512K Bytes
EEPROM	<ul style="list-style-type: none"> 512 Bytes
Host Communication	<ul style="list-style-type: none"> IEEE802.3 base band TCP/IP, UDP, SNMP, HTTP, Telnet, ARP, BOOTP, DHCP, ICMP
Reset	<ul style="list-style-type: none"> Built-in default key to restore factory default settings
Watch Dog Timer	<ul style="list-style-type: none"> 1.34 second hardware auto reset Power failure threshold: 4.75V
SerialPort Communication	<ul style="list-style-type: none"> One RS-232 or RS-485/RS-422 selectable RS-232: EIA-RS-232C standard, Full Duplex, DB9 RS-485: 2/4 wires, Half/Full duplex, Terminal Block RS-422: 4 wires, Half/Full duplex, Terminal Block Parameters <ol style="list-style-type: none"> Baud-rate: 1200 bps ~ 230Kbps Parity: None, Even, Odd, Mark, Space Data bits: 7,8 Stop bits: 1,2 Packet Delimiter: by inter-character timeout, by characters delimiter Flow Control: None, Hardware CTS/RTS, Software Xon/Xoff
LED indication	<ul style="list-style-type: none"> RUN x 1 LAN x 1 COM port1
Power Requirement	<ul style="list-style-type: none"> 5VDC Jack or DC +9~30V Terminal Block, 2.8 Watt Max
Temperature	<ul style="list-style-type: none"> Operation: 0°C to 60°C Storage: -20°C to 70°C
Humidity	<ul style="list-style-type: none"> 20%~90% non-condensing
Housing	<ul style="list-style-type: none"> 65mm(L) x 78mm(W) x 28mm(H)

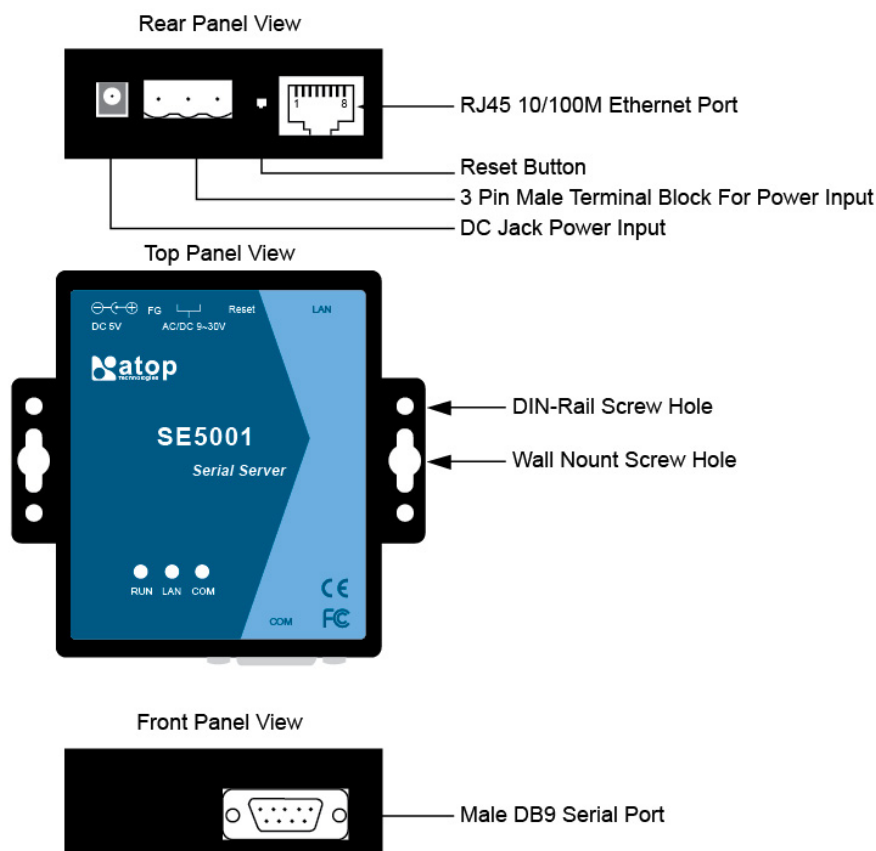
A.2 Software Specifications

Item	Specifications
Protocol	<ul style="list-style-type: none"> TCP/IP, UDP, HTTP, SNMP, ARP, Telnet, ICMP, BOOTP, DHCP, SMTP(Note)
Configuration	<ul style="list-style-type: none"> Configuration information for both TCP/IP and serial ports is kept in the EEPROM. Configuration utilities of Windows 95/98/2000/NT/XP/2003 are provided for configuring settings.
Internal Buffer Size	<ul style="list-style-type: none"> TCP receiving buffer size = 8K bytes TCP transmitting buffer size = 16K bytes RS-232 or RS-485/RS-422 receiving buffer size = 4K bytes RS-232 or RS-485/RS-422 transmitting buffer size = 4K bytes

A.3 Panel Layout and Connector Pin Assignments

A.3.1 Panel Layout

A.3.1.1 DB9 for SE5001-S2 (RS-232)/ SE5001-S5 (RS-422/RS-485)



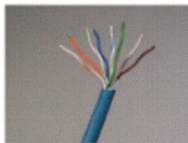
A.3.2 DB9 Pin Assignments

The pin assignments of DB9 connector on SE5001 is shown in the following table:

Pin#	RS-232 Full Duplex for SE5001-S2 Model	RS-485 2-wire Half Duplex for SE5001-S5 Model	RS-422/RS-485 4-wire Full Duplex for SE5001-S5 Model
1	DCD	N/A	N/A
2	RXD	N/A	TXD+
3	TXD	DATA+	RXD+
4	DTR	N/A	N/A
5	SG (Signal Ground)	SG (Signal Ground)	SG (Signal Ground)
6	DSR	N/A	N/A
7	RTS	DATA-	RXD-
8	CTS	N/A	TXD-
9	N/A	N/A	N/A

A.3.3 Ethernet Port (RJ-45)

1. Category 5 UTP cable, 8 core wire.



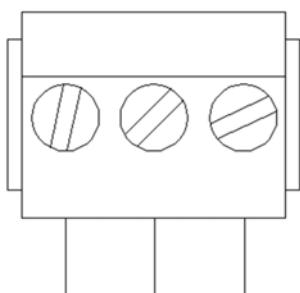
2. RJ45 Connector.

3. RJ45 Pin Assignment

Pin Assignment	568A Definition	568B Definition
Pin1	Green-White	Orange-White
Pin2	Green	Orange
Pin3	Orange-White	Green-White
Pin4	Blue	Blue
Pin5	Blue-White	Blue-White
Pin6	Orange	Green
Pin7	Brown-White	Brown-White
Pin8	Brown	Brown

One can choose either 568A or 568B definition. If one want to make a crossover cable, one should use 568A and 568B definition respectively in each terminal of a UTP cable.

A.3.4 Power Terminal Block Connector



F.G. VIN- VIN+

Note: It could be reversed for the pin of VIN- and VIN+.

A.4 Buzzer/LED Message

A.4.1 Buzzer

“ ^ “: Beep twice

“ = “: Beep off

Message	Description
^===^===^===^===^===^... (1sec)	Watchdog problem, return service is required
^^^^^^^^^^^^^^^^^^^^^^^^^^^...	Memory problem, return service is required
^==^=====^^ (5sec)	Startup OK but AP firmware is disabled
^==^=====^^^ (5sec)	Startup OK and AP firmware is enabled

Table 1. Buzzer Message

A.4.2 LAN LED

Message	Description
LED Off	Ethernet Disconnected
LED blinking with Green	Data is transmitting on Ethernet for 100Mbps
LED blinking with Orange	Data is transmitting on Ethernet for 10Mbps

Table 2. LAN LED Message

A.4.3 COM Port LED

Message	Description
LED off	No data is transmitting on COM port
LED on blinking state	Data is transmitting on COM port

Table 3. COM Port LED Message

A.4.4 RUN LED

Message	Description
LED on	Jumper JP1 pin1 and pin2 are short to disable AP firmware in the flash memory.
LED blinking (rate: 0.5Sec)	AP firmware is running
Table 4. RUN LED Message	

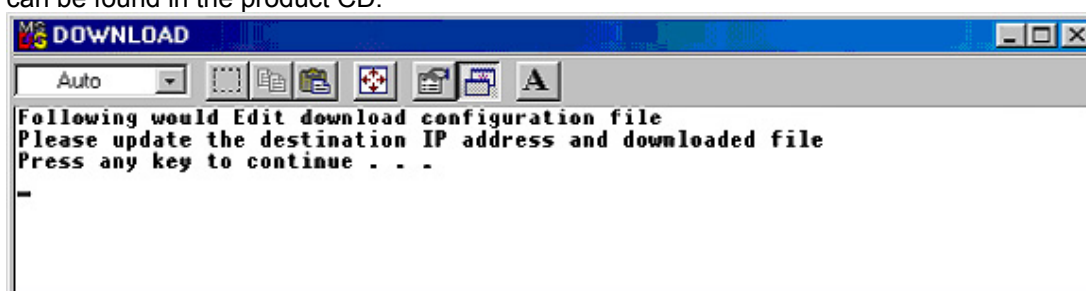
Appendix B: Upgrade System Firmware

After the new version of firmware is released, customers can download it from www.Atop.com.tw. After one download the firmware, please follow these instructions listed below.

B.1 Upgrade Procedures

When one get a new software version, please follow the sequences below to upgrade ones SE5001.

1. Connect a PC (Windows 95/98/NT/2000/XP) and SE5001 one wish to upgrade the firmware in the same TCP/IP network. Use command **ping** or SerialManager program to verify their availability.
2. Prepare the download tool and press any key to edit its configuration file **dapdl.cfg**. **dapdl.cfg** file can be found in the product CD.

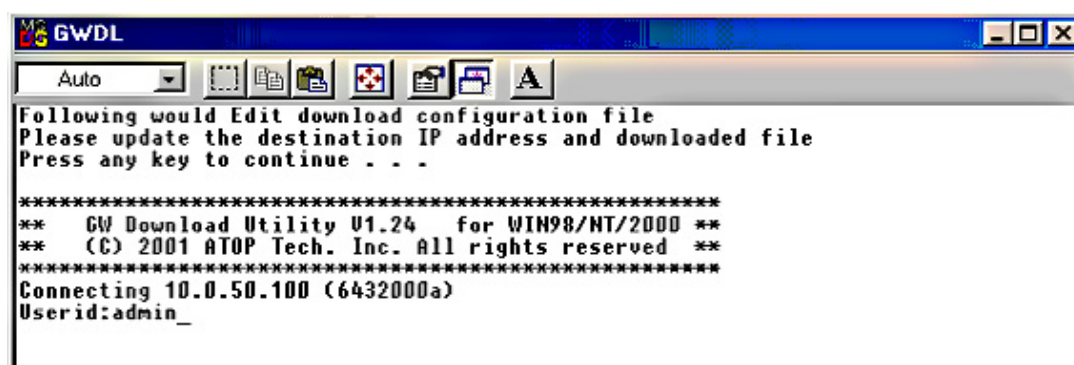


3. Edit the "**dapdl.cfg**" file to fit ones system need, the content of the file looks like as the following. Be sure to save ones modifications after the change is made.

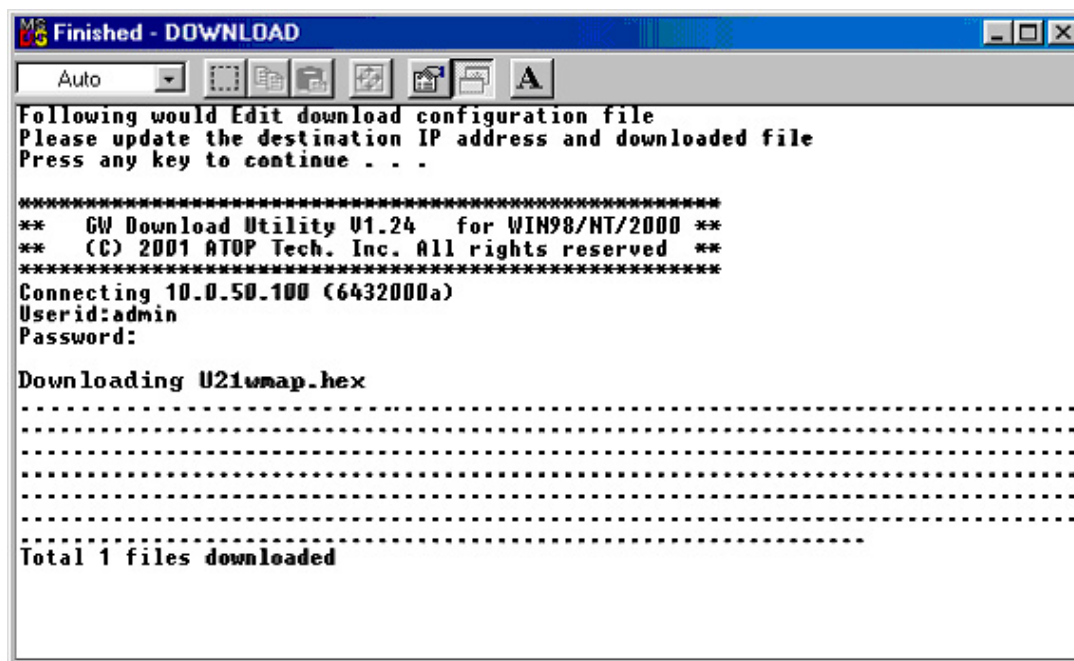
```
Remote_IP  10.0.50.100
Load       U5001ap.hex
```

The first line identifies the IP address of SE5001, the second line identifies the firmware (.Hex file) name to be downloaded.

4. Execute the utility program **download.bat**, it can be found in the product CD.
5. Input the user name and password credential, the new firmware will be downloaded.



6. SE5001 will automatically restart each time the firmware is successfully downloaded.



B.2 Critical Issues of Upgrading

- 1 One can always abort the upgrading process by pressing the **<Esc>** key from host PC during the upgrading process. SE5001 will restart automatically and the system remains intact.
- 2 If SE5001 does not receive any upgrading data within **30 seconds**, SE5001 will restart automatically and the system remains intact.
- 3 After the upgrading process finishes, SE5001 will program the flash memory and buzzer beeps 6 times then restarts. Normally, it takes around 10 seconds to complete the programming process. If an error occurs during the programming process, SE5001 will clear the corresponding memory and the system remains intact of what it was.

B.3 Error Messages

Firmware upgrade may not be successful if errors occur during the process.

Error Cause	Message	Comments
Illegal Hex file format	Hex File Text Error	
	Hex File Check-Sum Error	
	Hex File Format Error	
	Hex File End of Record Error	
SE5001 handshaking problem	SE5001 ACK Start Address Error	
	SE5001 ACK Length Error	
	SE5001 Response Command Error	
Configuration file	Remote IP not found	
	Open configuration file failure	

Appendix C: Disable System Firmware

The AP (application program) firmware of SE5001 can be disabled. This function is used in the situation that one downloaded a wrong version of firmware that caused the system crashed.

To disable the current version of firmware and prevent it from executing, please do the followings:

1. Turn the power off, open SE5001 case.
2. Short pin1 and pin2 of jumper JP1 on the right-top corner from the main board to disable AP firmware.
3. Power on SE5001.
4. Download the correct AP firmware to SE5001.
5. Remove the pin 1 and pin2 of jumper JP1 to enable AP firmware.
6. Close the case and continue ones operations.

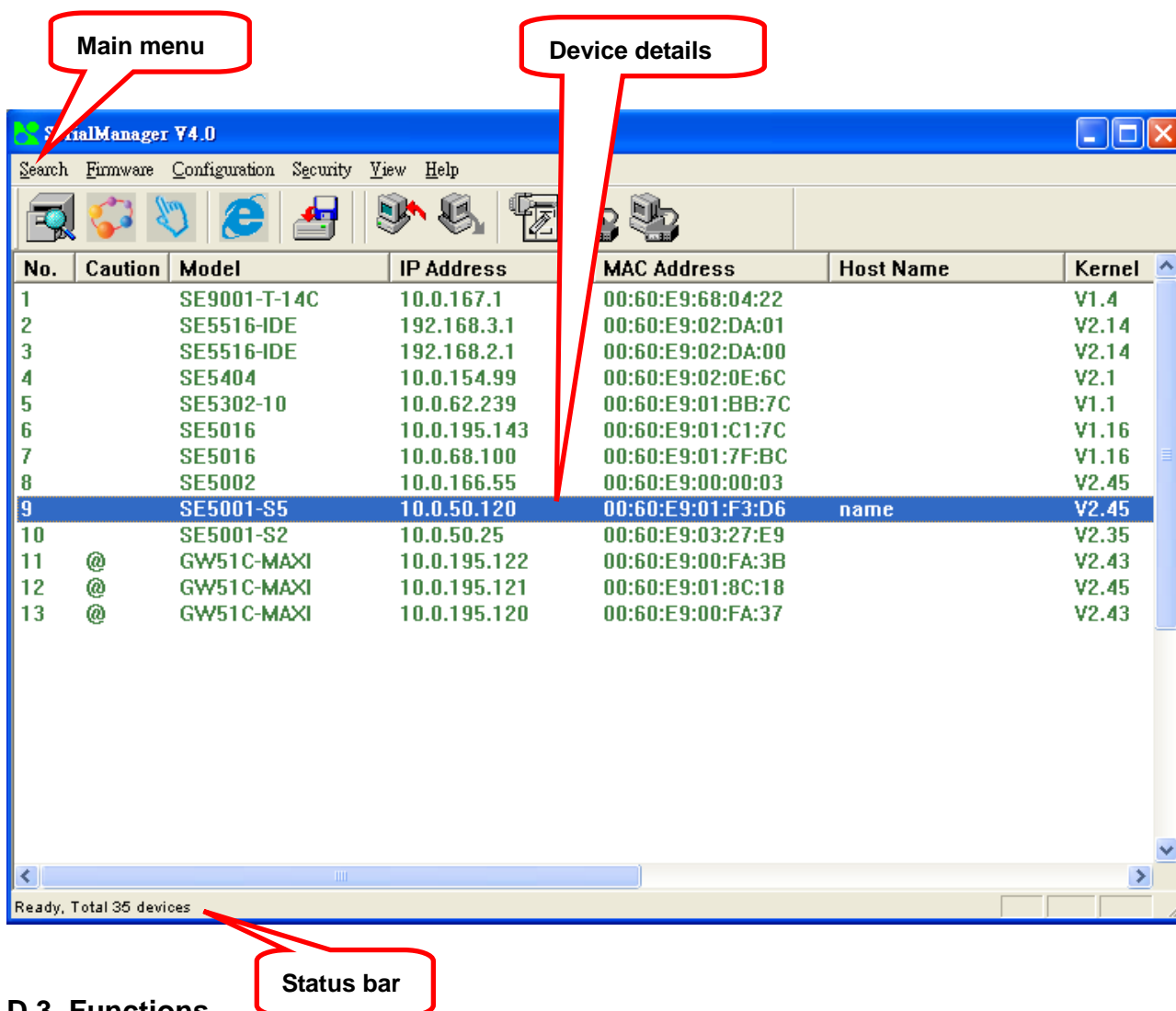
Appendix D: Using SerialManager

D.1. SerialManager Introduction

SerialManager, developed by ATOP, is a special tool for device management and configuration, and can realize the daily management on various ATOP network devices for address search, device positioning, parameter configuring, firmware downloading and so on.

D.2. Interface

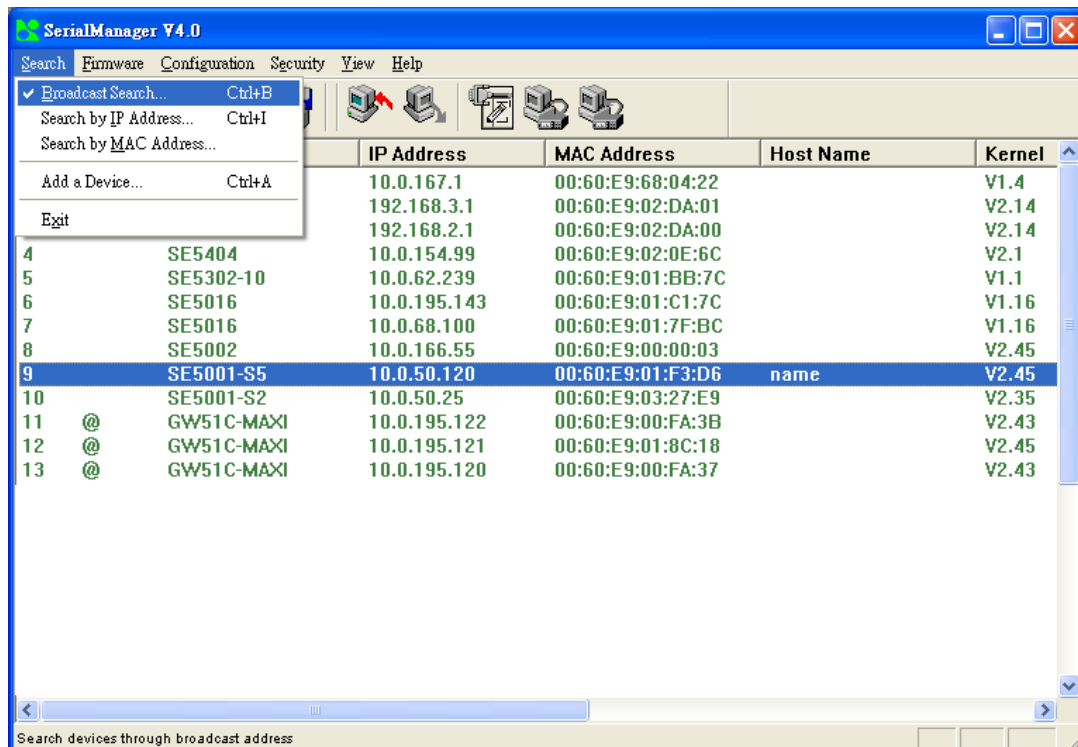
The operating interface of the **SerialManager** shown as below:



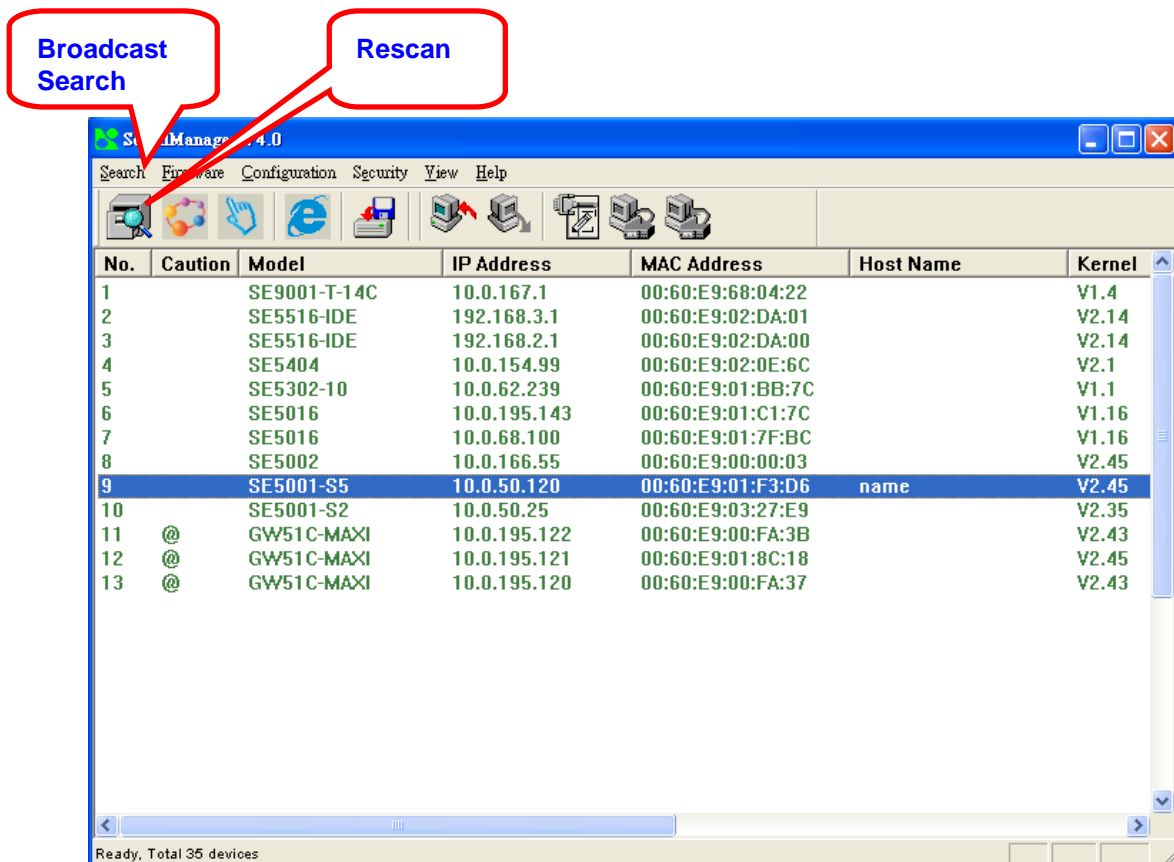
D.3. Functions

D3.1 Device Search

This function is applied to search devices in the network. The user can use four ways to search devices. They are search by broadcast, search by special IP addresses, search by special MAC addresses and rescanning devices by using the current search way. The user can select his required search way by clicking the **Search** option on the main menu, shown as below:

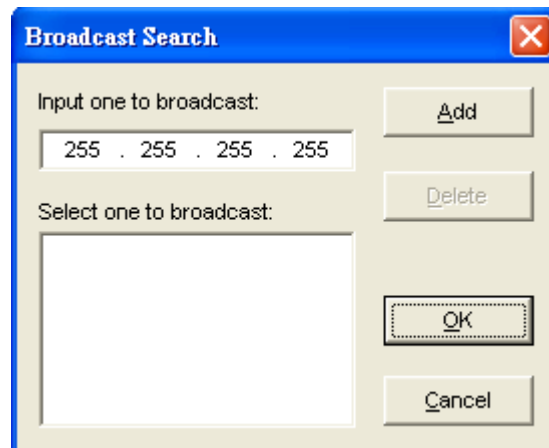


Or, select by clicking a button on the toolbar, as below:



D3.1.1 Broadcast Search

Once **Broadcast Search** is selected, a box will pop up as below:

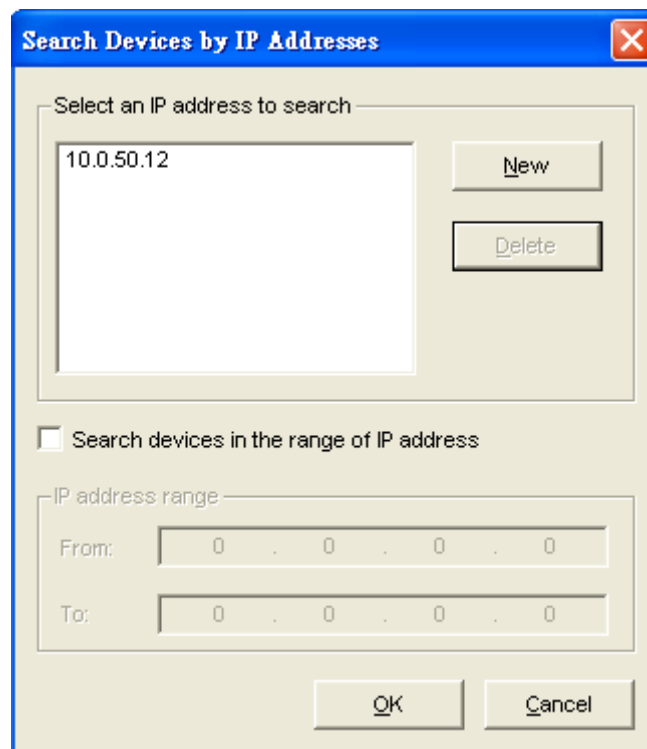


The **Broadcast Search** dialog box has a blue title bar with a close button. It contains two input sections. The first section, 'Input one to broadcast:', has a text field with '255 . 255 . 255 . 255' and an 'Add' button. The second section, 'Select one to broadcast:', has a large empty list box, a 'Delete' button, and 'OK' and 'Cancel' buttons at the bottom right.

The user may type in or select different broadcast address based on his/her own requirement.

D3.1.2 Search by IP address

Once **Search by IP Address** is selected, an interface will pop up as below:

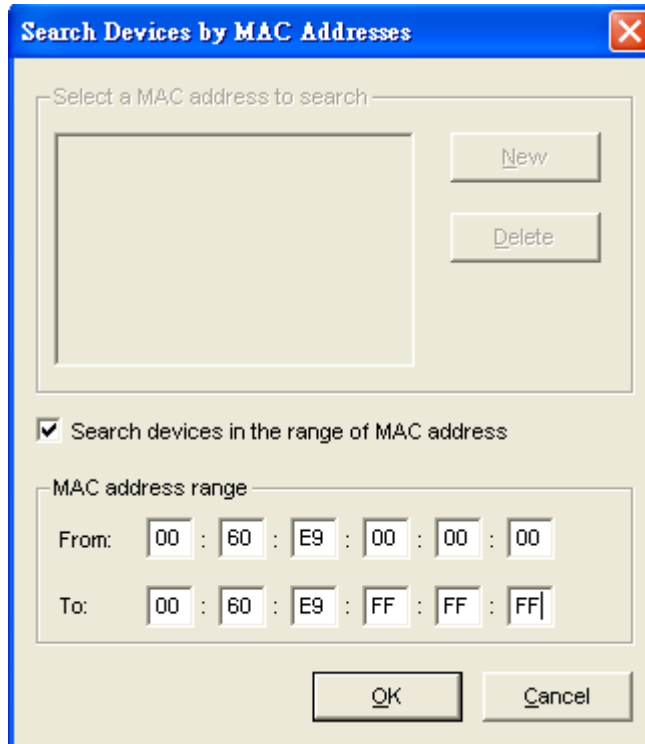


The **Search Devices by IP Addresses** dialog box has a blue title bar with a close button. It features a list box titled 'Select an IP address to search' containing '10.0.50.12', with 'New' and 'Delete' buttons to its right. Below this is a checkbox labeled 'Search devices in the range of IP address'. Underneath the checkbox is an 'IP address range' section with 'From:' and 'To:' labels, each followed by a text field containing '0 . 0 . 0 . 0'. 'OK' and 'Cancel' buttons are at the bottom right.

Here user may have two options: **Select an IP address to search** or **Search device in the range of IP address**.

D3.1.3 Search by MAC Address

If **Search by MAC Address** is selected, another box will pop up as below:



The dialog box titled "Search Devices by MAC Addresses" features a blue title bar with a close button. Inside, there is a section labeled "Select a MAC address to search" containing a large empty text box and two buttons: "New" and "Delete". Below this is a checked checkbox labeled "Search devices in the range of MAC address". Underneath the checkbox is a section labeled "MAC address range" with two rows of input fields. The "From:" row contains the values "00", "60", "E9", "00", "00", "00". The "To:" row contains the values "00", "60", "E9", "FF", "FF", "FF". At the bottom of the dialog are "OK" and "Cancel" buttons.

Here the user may search in two ways: **Search a MAC address to search** or **Search devices in the range of MAC address**

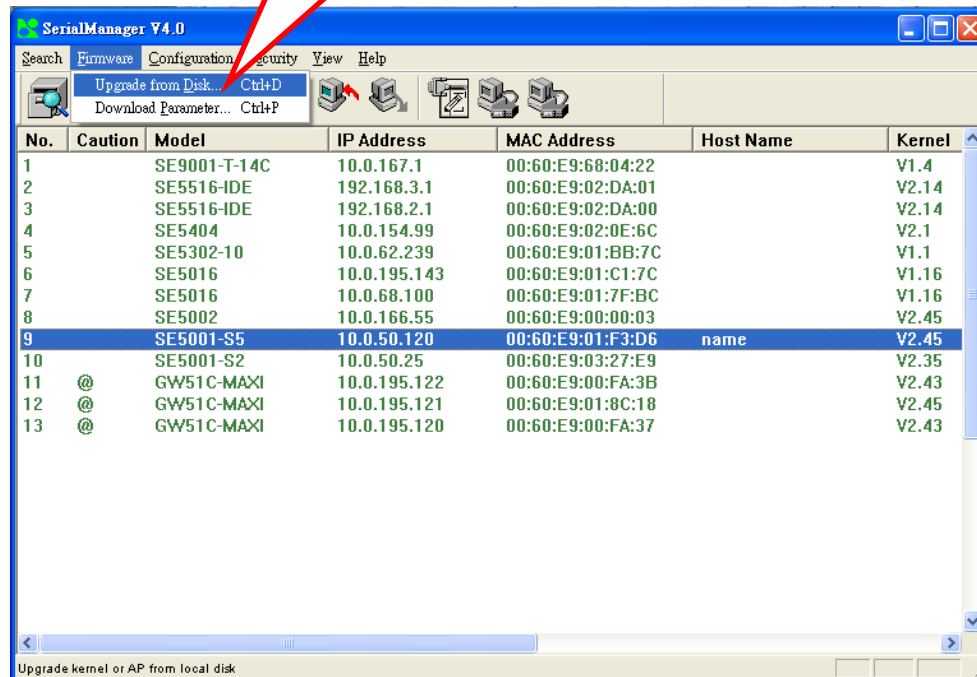
D3.1.4 Rescan

Once the user click the **Rescan** button on the toolbar, the SerialManager shall re-search devices by using the current search way.

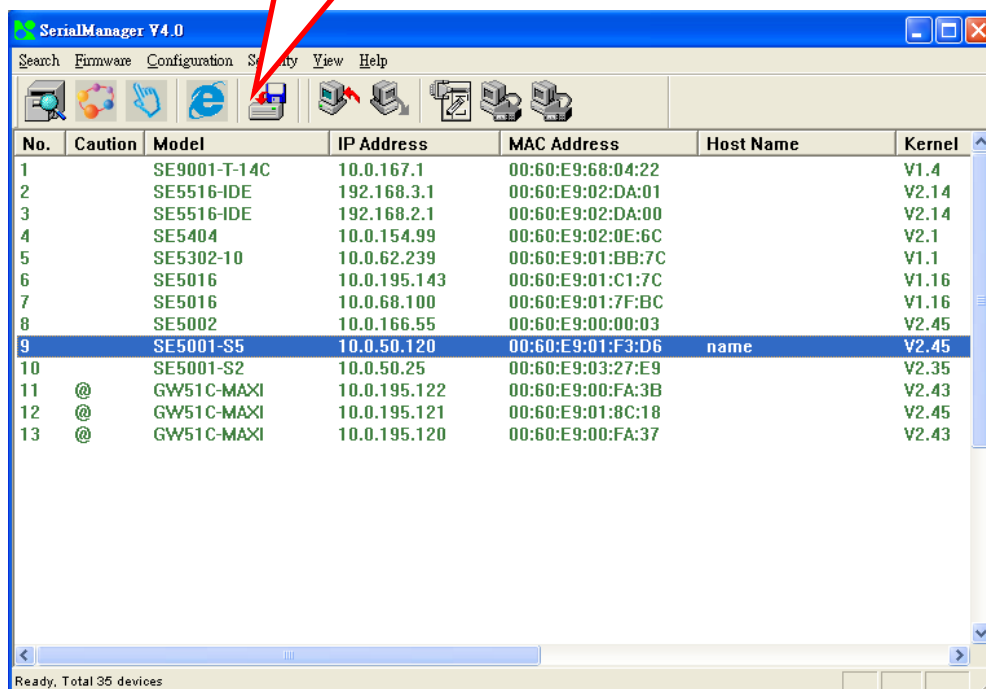
D3.2 Firmware

This function is applied to downloading a firmware into a selected device.

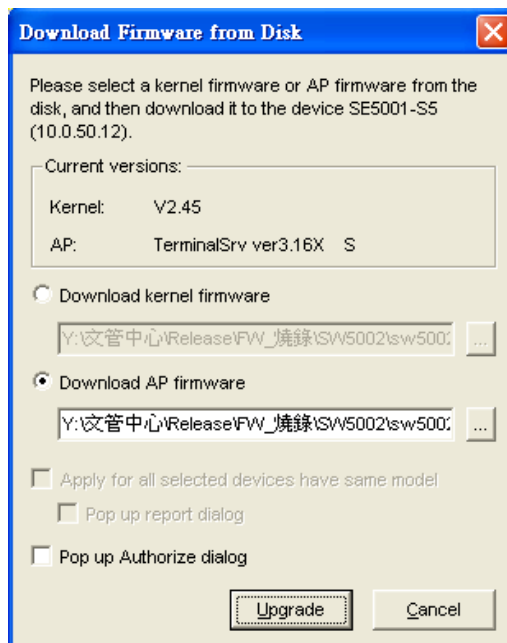
Upgrade from disk



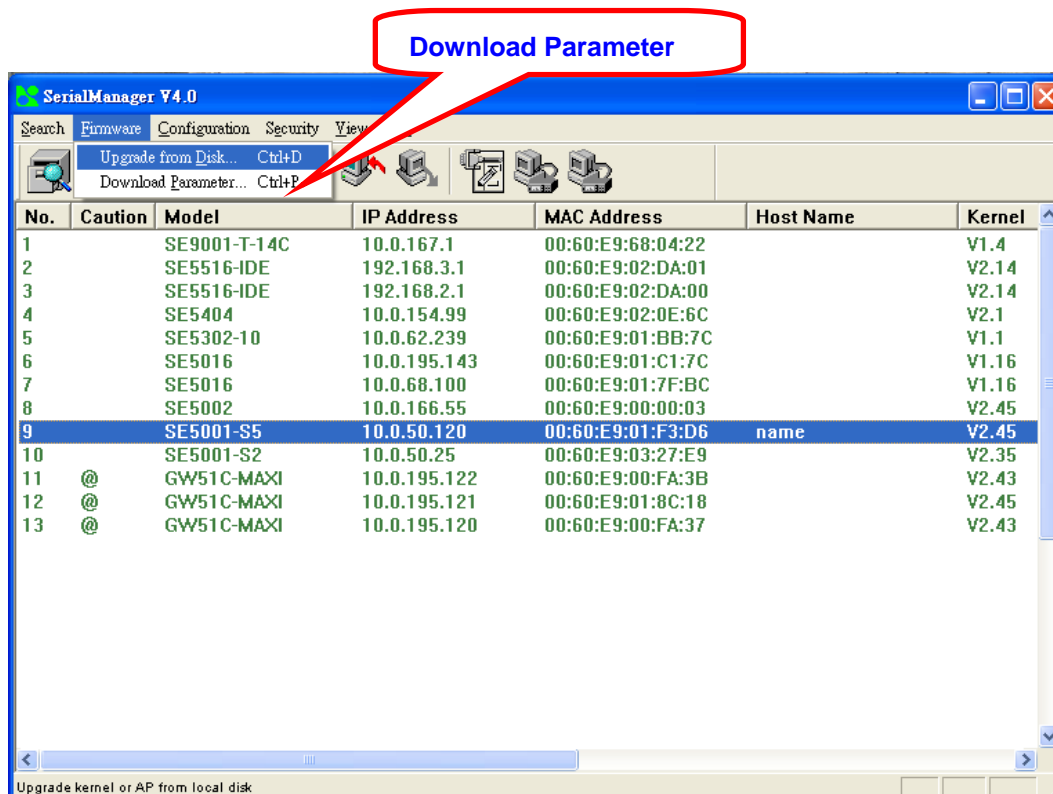
Upgrade from disk



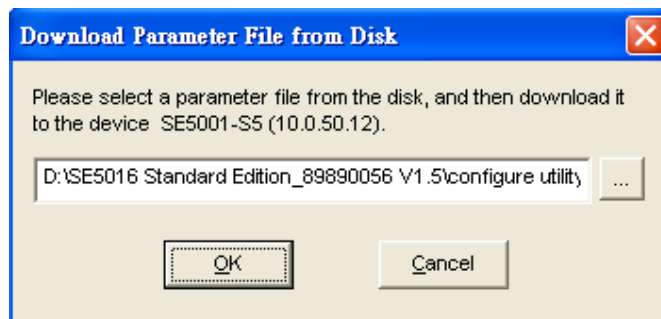
The user can enter the window for downloading by firstly clicking a designated network device, and then selecting the submenu option **Upgrade from disk** in the main menu option **Firmware**, or directly clicking the button **Upgrade from disk**. And then the user can select and download the required firmware from the disk, as shown in the figure below:



The user can also select several same devices at one time, and realize the firmware updating for them by selecting **Apply for all selected devices have same model**.



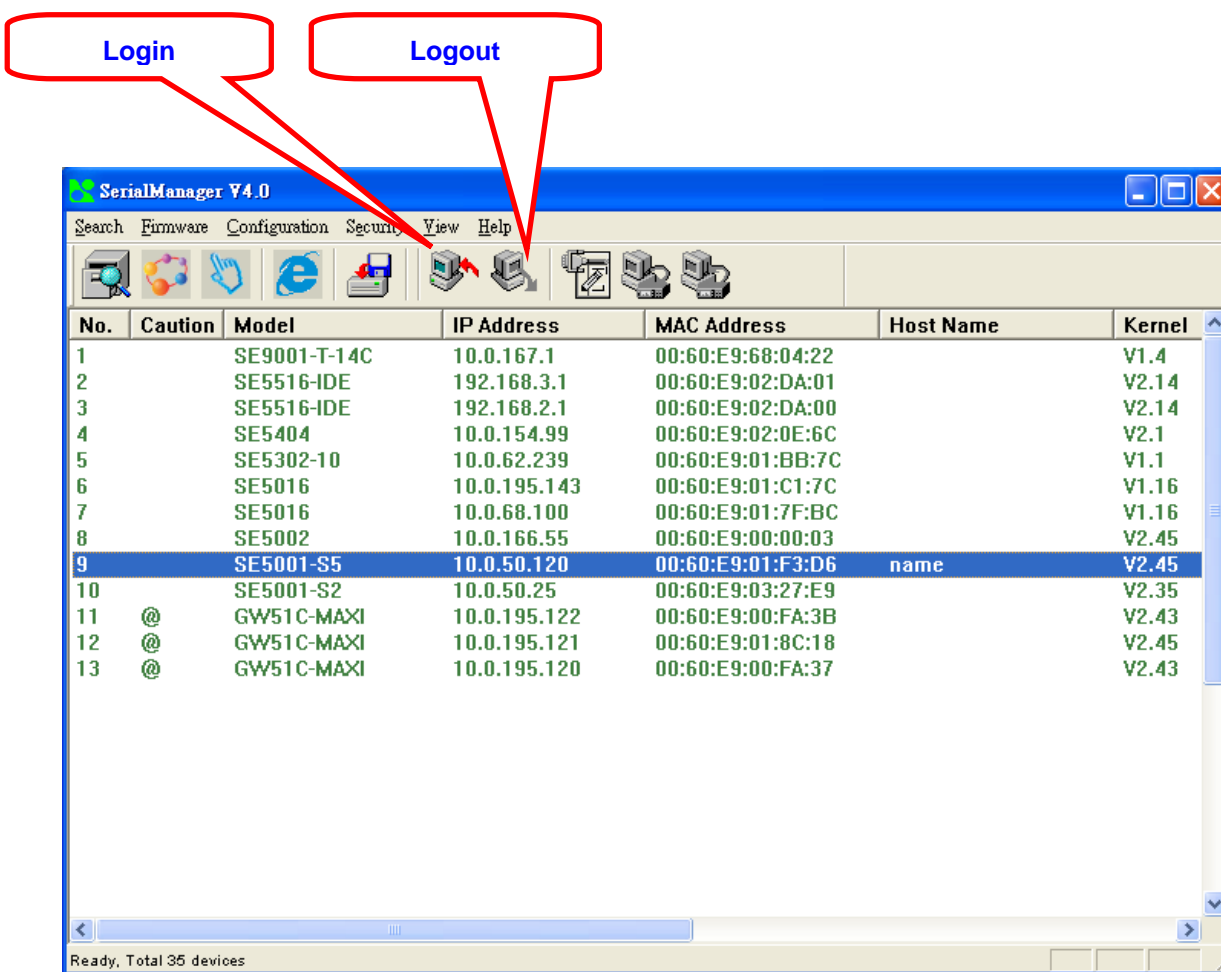
In addition for some devices with JFFS2 file system supported, the user can download the related parameter data into the device that supports the JFFS2 file system through a submenu **Download Parameter**. See details as the figure below:



Note: Some of old firmware version did not support SerialManager firmware upgrade function. Please refer to appendix "Upgrade System Software "for detail.

D3.3 Security

This function is applied to the security protection for the network devices, so as to supply some necessary protection to a device for configuration modifying, configuration leading-in and leading-out, and some other important functions. Here three functions are mainly supplied, including: **Login**, **Logout** and **Change Password**, shown as the figure below:



D3.3.1 Login

This function is applied to the login to any network device, as some important devices can only be operated after a successful login, shown as the figure below:

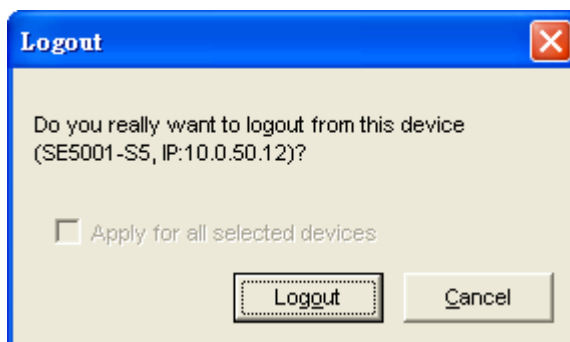


The Login dialog box has a blue title bar with the text "Login" and a red close button. The main area is light beige and contains the following elements: a text prompt "Enter a user name and password to login to this device.", a "Device:" label followed by the text "SE5001-S5 IP:10.0.50.12", a "User Name:" label followed by a text input field containing "admin", a "Password:" label followed by an empty password input field, a checkbox labeled "Apply for all selected devices" which is currently unchecked, and two buttons at the bottom: "Login" and "Cancel".

The user can also select several devices at one time, and log in them at the same time by selecting **Apply for all selected devices**.

D3.3.2 Logout

This function is applied to the logout from any network device, as the user should always carry out a logout after he/she has finished the operating action to any important device, shown as the figure below:

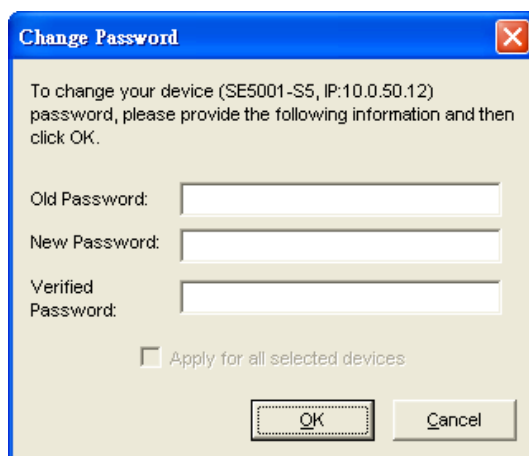


The Logout dialog box has a blue title bar with the text "Logout" and a red close button. The main area is light beige and contains the following elements: a text prompt "Do you really want to logout from this device (SE5001-S5, IP:10.0.50.12)?", a checkbox labeled "Apply for all selected devices" which is currently unchecked, and two buttons at the bottom: "Logout" and "Cancel".

The user can also select several devices at one time, and log out them at the same time by selecting **Apply for all selected devices**.

D3.3.3 Change Password

This function is applied to modifying the password for logging in any network device, but can only be realized after a successful log-in, shown as the figure below:

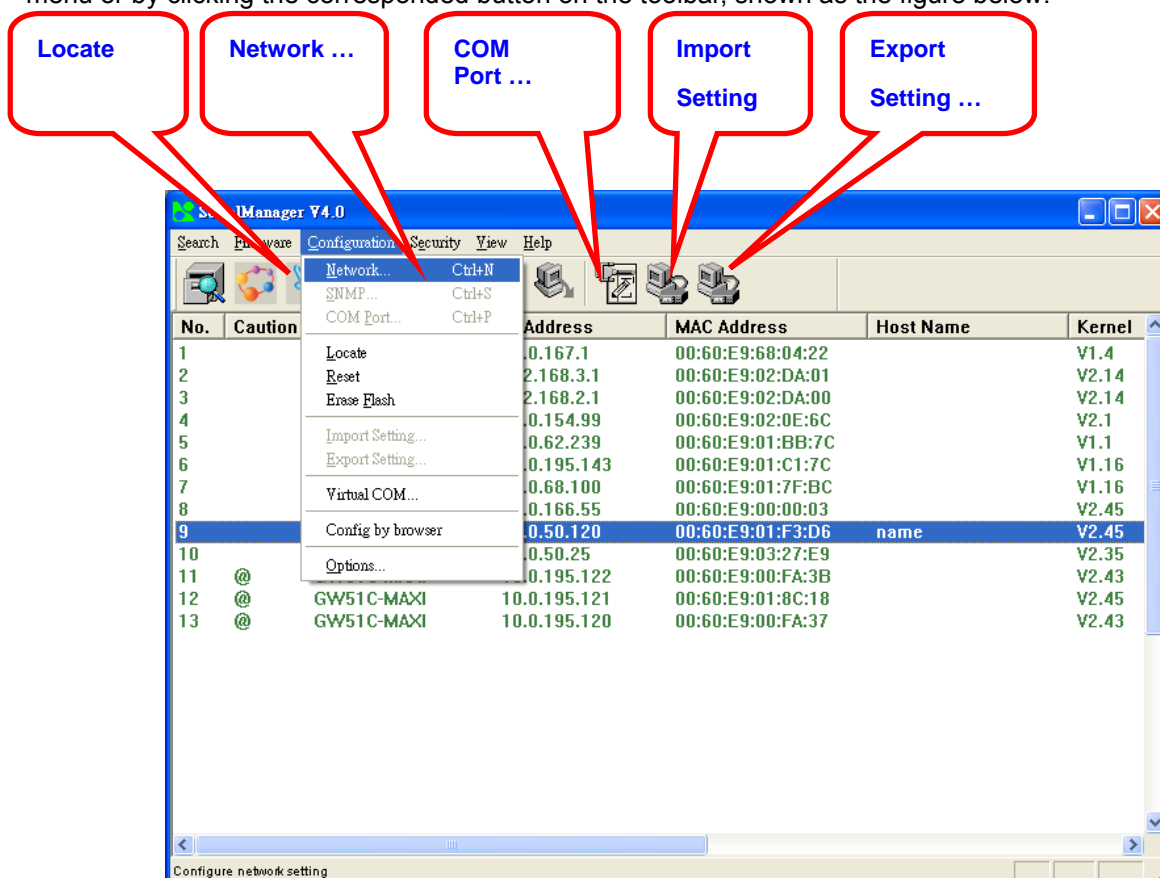


The user can also select several devices at one time, and modify their pins at the same time by selecting **Apply for all selected devices**.

D3.4 Configuration

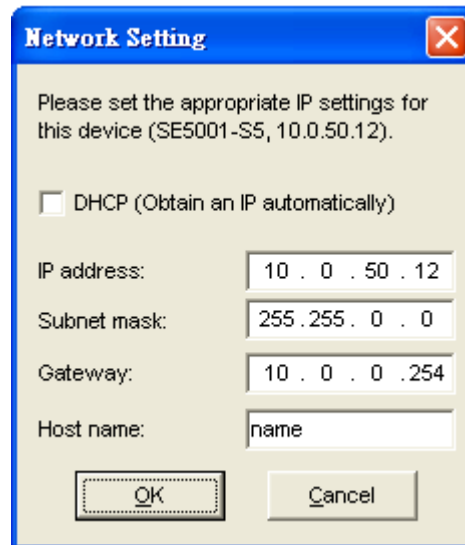
This function is applied to the configuring, import and export of work parameters for any network device, and here are mainly supplied with: 'Network ...', 'COM Port...', 'Locate', 'Reset', 'Erase Flash', 'Import Setting...', 'Export Setting...', 'Virtual COM...', 'Config by IE' and 'Options', and some other application functions. The user can carry out a configuration operating through

menu or by clicking the corresponded button on the toolbar, shown as the figure below:



D3.4.1 Network ...

The user can modify the IP address of any selected device, shown as the figure below:



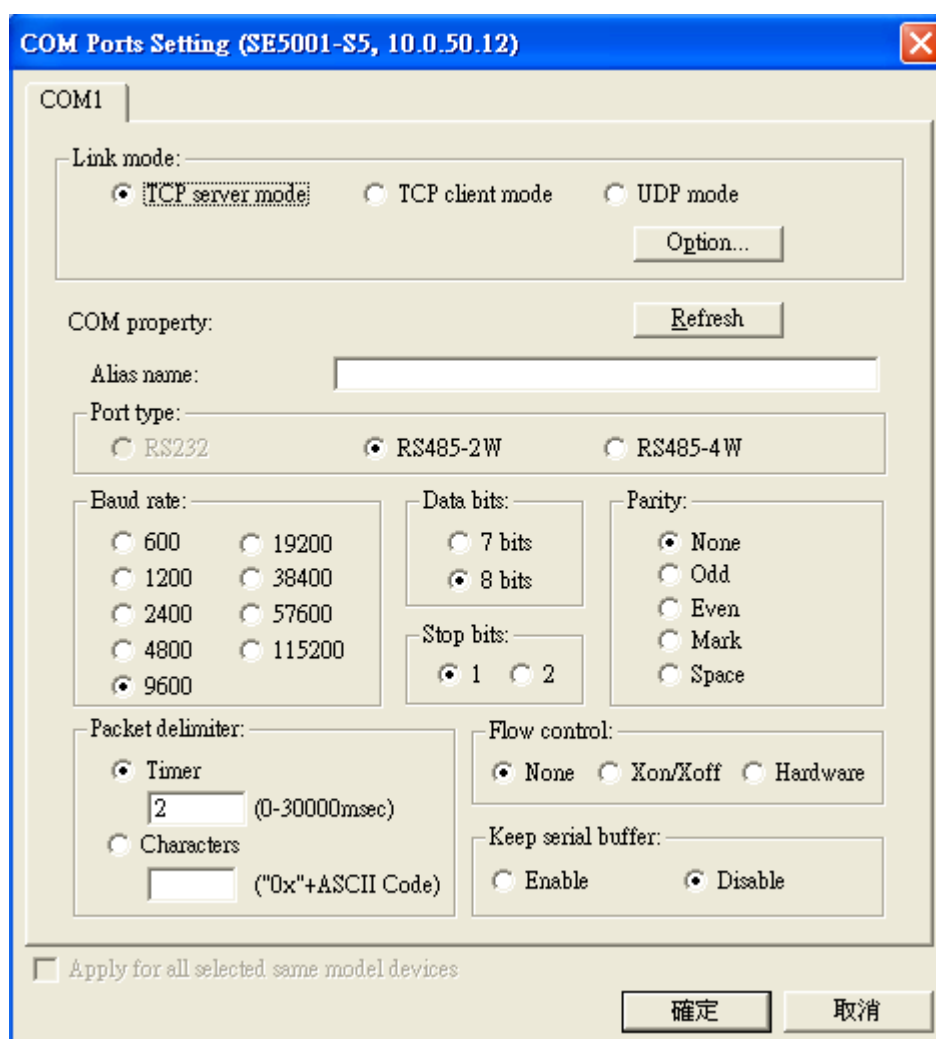
The image shows a 'Network Setting' dialog box with a blue title bar and a close button (X) in the top right corner. The main area has a light beige background. It contains the following elements:

- Text: 'Please set the appropriate IP settings for this device (SE5001-S5, 10.0.50.12).'.
- Checkbox: 'DHCP (Obtain an IP automatically)' with an unchecked box.
- IP address: A text field containing '10 . 0 . 50 . 12'.
- Subnet mask: A text field containing '255 . 255 . 0 . 0'.
- Gateway: A text field containing '10 . 0 . 0 . 254'.
- Host name: A text field containing 'name'.
- Buttons: 'OK' and 'Cancel' buttons at the bottom.

D3.4.2 COM Port ...

ATOP has developed various network products, and some of the ATOP devices are specially supplied to some serial-port servers, while this function is applied to the configuration of COM port parameters.

Note: This function can be realized only after a successful login, shown as the figure below:



COM Ports Setting (SE5001-S5, 10.0.50.12)

COM1

Link mode:

☒ TCP server mode ☐ TCP client mode ☐ UDP mode

Option...

COM property:

Refresh

Alias name:

Port type:

☐ RS232 ☒ RS485-2W ☐ RS485-4W

Baud rate:

☐ 600 ☐ 19200
☐ 1200 ☐ 38400
☐ 2400 ☐ 57600
☐ 4800 ☐ 115200
☒ 9600

Data bits:

☐ 7 bits ☒ 8 bits

Parity:

☒ None ☐ Odd
☐ Even ☐ Mark
☐ Space

Stop bits:

☒ 1 ☐ 2

Packet delimiter:

☒ Timer
 2 (0-30000msec)
☐ Characters
 ("0x"+ASCII Code)

Flow control:

☒ None ☐ Xon/Xoff ☐ Hardware

Keep serial buffer:

☐ Enable ☒ Disable

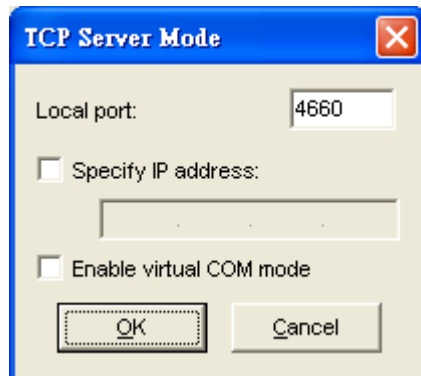
☐ Apply for all selected same model devices

確定 取消

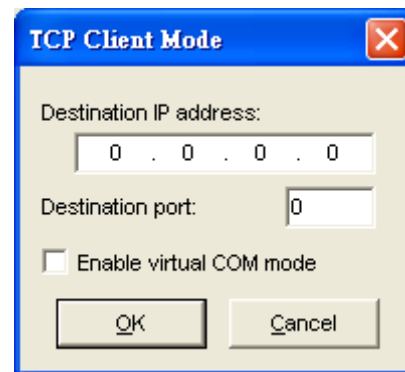
The user can also select several devices at one time, and carry out the configuration for them at the same time by selecting **Apply for all selected same model devices**

Note:

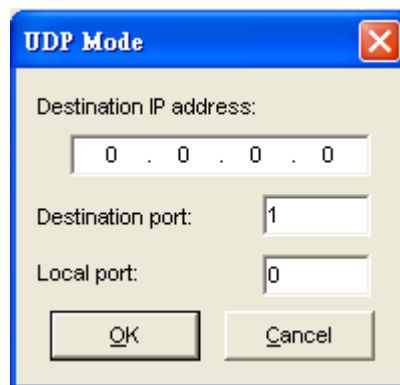
- 1 · COM tags: generated automatically according to the COM port number of the device. If a device has 4 COM port, there will be 4 tags: respectively COM1, COM2, COM3, COM4, and the like.
- 2 · Connecting mode: it means the connecting mode between the serial-port server and other network devices. Each COM corresponds to a connecting mode through which the transferring data will not be interfered by that in another connection. The user can set each corresponded connecting mode and the working parameter by clicking the button "Option", shown as the figure below:



TCP Server mode



TCP Client mode



UDP mode

- 3 · COM port property: it mainly represents the working parameter of the serial port setting, including: serial-port working type, baud rate, data bit, stop bit, parity bit, data packet delimiter and flow control, etc.

D3.4.3 Locate

The user can apply this function to locate a device when he knows it's IP address, but doesn't know its position. If a device is selected, the device will appear with singing by which the user can locate the device through the submenu option **Locate** or clicking the **Locate** button on the toolbar.

D3.4.4 Reset

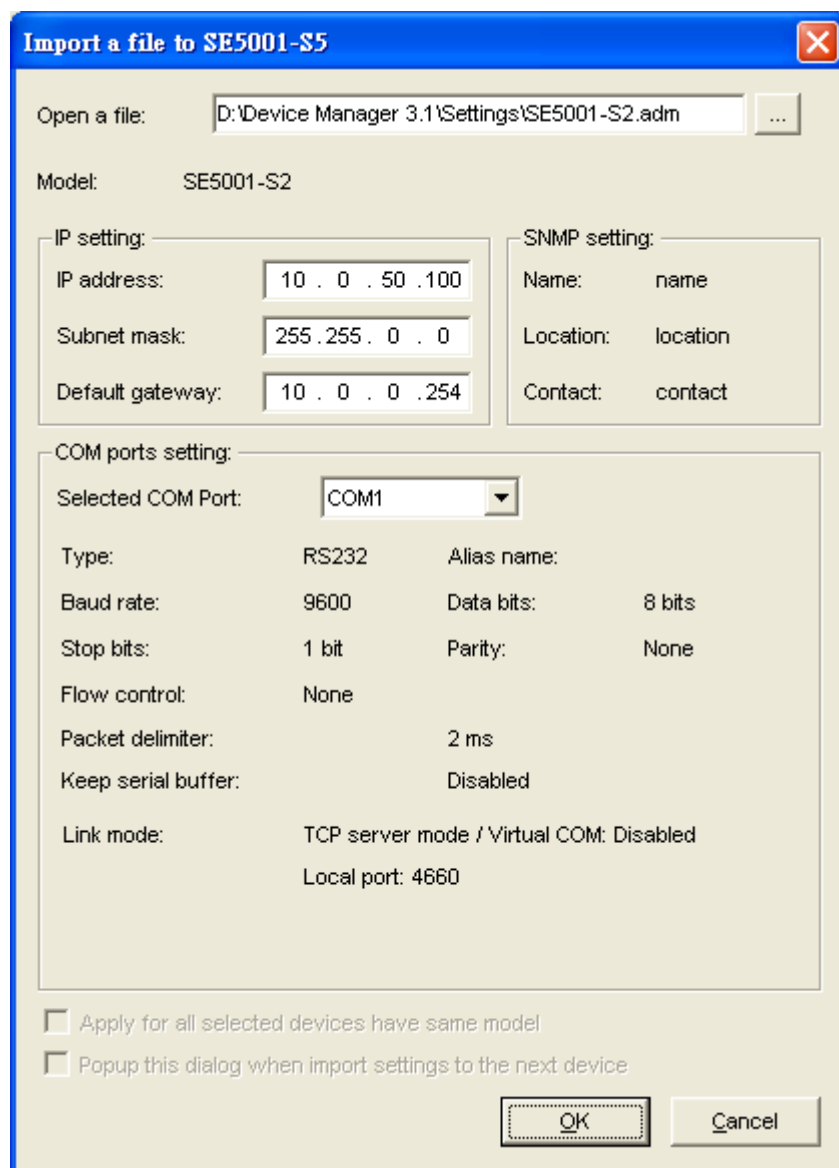
The device should be restarted after a successful modification of parameter configuration. And the user can carry out a restart through the submenu option **Reset**.

D3.4.5 Erase Flash

Some devices are supplied to the user with a certain capacity of Flash memory to save the user's data. And the user can erase the Flash through the submenu option **Erase Flash** or clicking the **Erase Flash** button on the toolbar when the memory capacity is to be used up or the history data are unnecessary to be saved.

D3.4.6 Import Setting ...

If a network has a large number of devices which are used for a same purpose, it would be very complicated to carry out the parameter configuration for each of the devices in the network one by one, while the user can import the parameter information of a standard parameter file directly into all the devices of the network through the submenu option **Import setting ...** or clicking the **Import setting ...** button on the toolbar, thus the work procedures can be largely reduced, shown as the figure below:



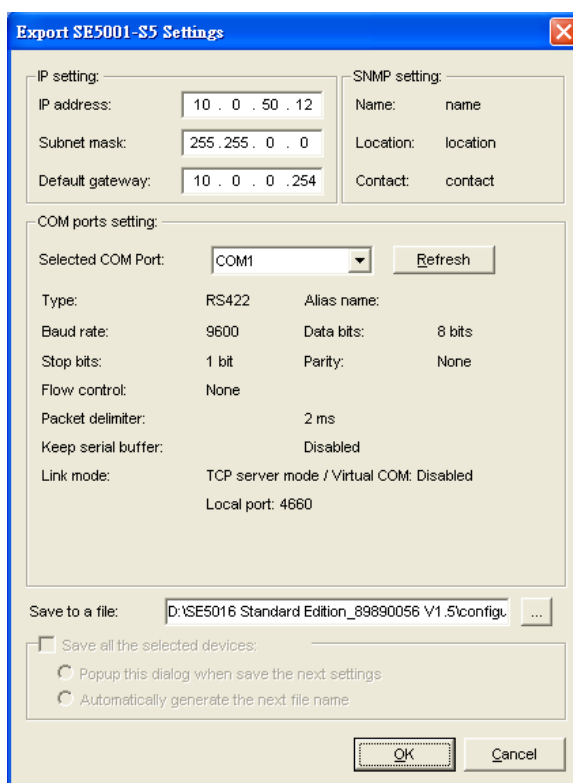
The dialog box titled "Import a file to SE5001-S5" contains the following fields and controls:

- Open a file:** A text box with the path "D:\Device Manager 3.1\Settings\SE5001-S2.adm" and a browse button (...).
- Model:** A text box containing "SE5001-S2".
- IP setting:**
 - IP address:** 10 . 0 . 50 . 100
 - Subnet mask:** 255 . 255 . 0 . 0
 - Default gateway:** 10 . 0 . 0 . 254
- SNMP setting:**
 - Name:** name
 - Location:** location
 - Contact:** contact
- COM ports setting:**
 - Selected COM Port:** A dropdown menu showing "COM1".
 - Type:** RS232
 - Baud rate:** 9600
 - Stop bits:** 1 bit
 - Flow control:** None
 - Packet delimiter:** 2 ms
 - Keep serial buffer:** Disabled
 - Alias name:**
 - Data bits:** 8 bits
 - Parity:** None
 - Link mode:** TCP server mode / Virtual COM: Disabled
 - Local port:** 4660
- Checkboxes:**
 - ☐ Apply for all selected devices have same model
 - ☐ Popup this dialog when import settings to the next device
- Buttons:** OK and Cancel.

The user can also select several devices at one time, and lead the parameter information of a standard parameter file into all the selected devices by selecting **Apply for all selected devices have same model**.

D3.4.7 Export Setting...

If a network has a large number of devices which are used for a same purpose, it would be very complicated to carry out the parameter configuration for each of the devices in the network one by one, while the user can save the parameter information of a standard device into a parameter file through the submenu option **Export setting...** or clicking the **Export setting...** button on the toolbar, thus the parameter information can be led in over again from this parameter file when the user is to carry out a configuration for any other device, shown as the figure below:



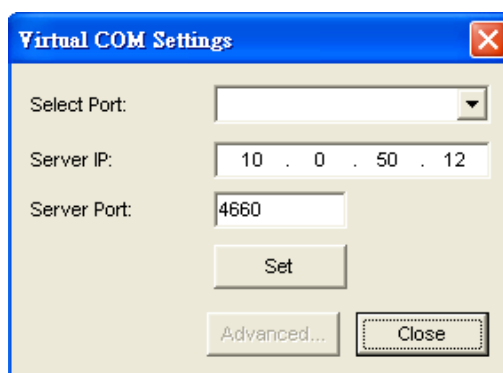
The dialog box titled "Export SE5001-S5 Settings" contains the following sections:

- IP setting:** IP address: 10 . 0 . 50 . 12, Subnet mask: 255 . 255 . 0 . 0, Default gateway: 10 . 0 . 0 . 254
- SNMP setting:** Name: name, Location: location, Contact: contact
- COM ports setting:**
 - Selected COM Port: COM1 (dropdown), Refresh button
 - Type: RS422, Alias name:
 - Baud rate: 9600, Data bits: 8 bits
 - Stop bits: 1 bit, Parity: None
 - Flow control: None
 - Packet delimiter: 2 ms
 - Keep serial buffer: Disabled
 - Link mode: TCP server mode / Virtual COM: Disabled, Local port: 4660
- Save to a file:** D:\SE5016 Standard Edition_89890056 V1.5\config. ...
- ☐ Save all the selected devices:
- ☐ Popup this dialog when save the next settings
- ☐ Automatically generate the next file name
- Buttons: OK, Cancel

The user can also select several devices at one time, and save the parameter information of these selected devices into a designated parameter file by selecting "Save all the selected devices".

D3.4.8 Virtual COM

Some devices are supplied with the function of virtual serial port, and the user can carry out any related setting through the submenu option "Virtual COM", shown as the figure below:

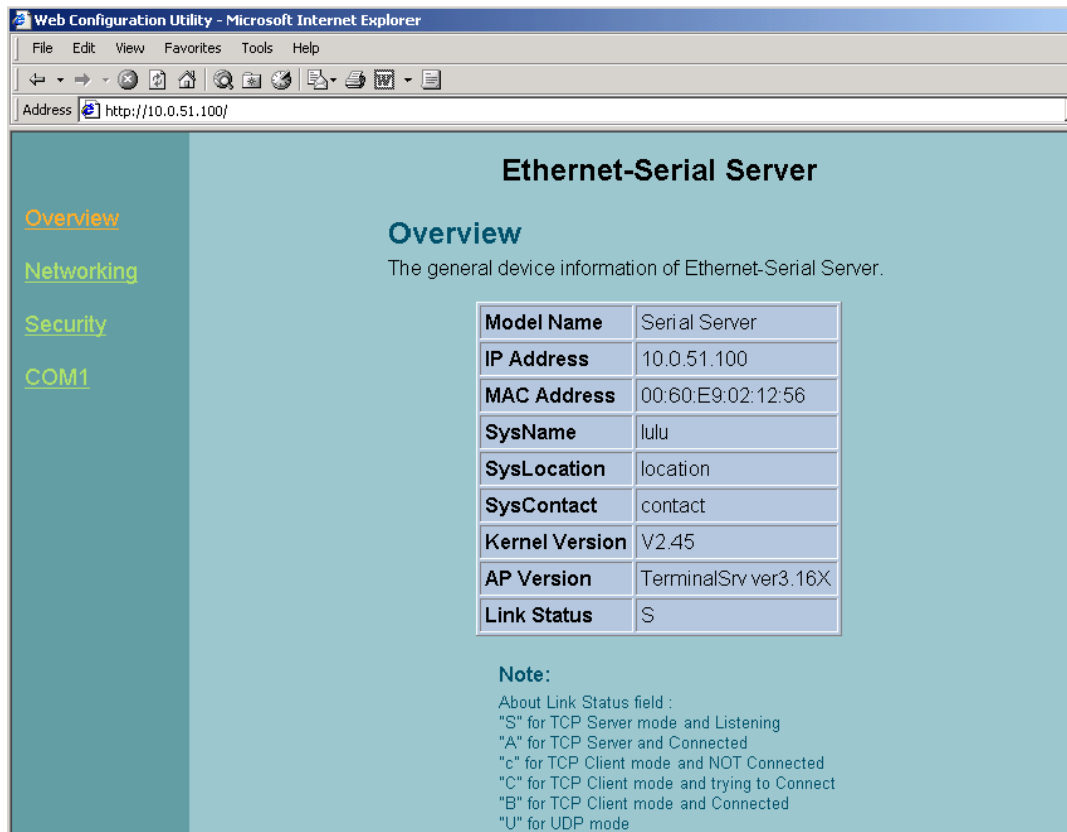


The dialog box titled "Virtual COM Settings" contains the following fields and buttons:

- Select Port: (dropdown menu)
- Server IP: 10 . 0 . 50 . 12
- Server Port: 4660
- Set button
- Advanced... button
- Close button

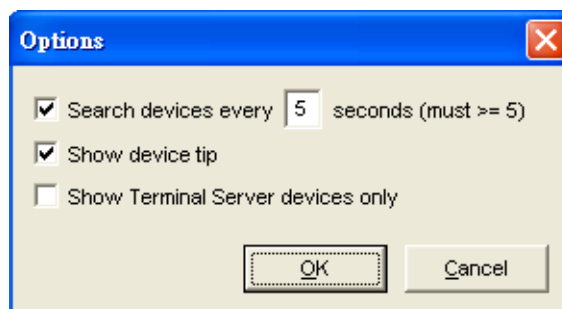
D3.4.9 Configure by IE

Some devices are supplied with build-in Web servers, and the user can carry out any parameter setting directly through the submenu option **Config by IE**, shown as the figure below:



D3.4.10 Option

The option is mainly applied to setting some common work rules of SerialManager, such as: search for the time interval of a network device, or whether to display any device indication and so on, shown as the figure below:



D3.5 View

The user can select a display mode of the network device according to his/her own requirement through the menu option "View", such as: display in sequence of device module name, or display in sequence of IP address and so on, shown as the figure below:

SerialManager V4.0

Search Firmware Configuration Security View Help

No.	Caution	Model	IP Address	MAC Address	Host Name	Kernel
1		SE9001-T-14C	10.0.167.1	00:60:E9:68:04:22		V1.4
2		SE5516-IDE	192.168.3.1	00:60:E9:02:DA:01		V2.14
3		SE5516-IDE	192.168.2.1	00:60:E9:02:DA:00		V2.14
4		SE5404	10.0.154.99	00:60:E9:02:0E:6C		V2.1
5		SE5302-10	10.0.62.239	00:60:E9:01:BB:7C		V1.1
6		SE5016	10.0.195.143	00:60:E9:01:C1:7C		V1.16
7		SE5016	10.0.68.100	00:60:E9:01:7F:BC		V1.16
8		SE5002	10.0.166.55	00:60:E9:00:00:03		V2.45
9		SE5001-S5	10.0.50.120	00:60:E9:01:F3:D6	name	V2.45
10		SE5001-S2	10.0.50.25	00:60:E9:03:27:E9		V2.35
11	@	GW51C-MAXI	10.0.195.122	00:60:E9:00:FA:3B		V2.43
12	@	GW51C-MAXI	10.0.195.121	00:60:E9:01:8C:18		V2.45
13	@	GW51C-MAXI	10.0.195.120	00:60:E9:00:FA:37		V2.43

Ready, Total 35 devices

D3.6 Help

This function is mainly applied to displaying some help information of the SerialManager, shown as the figure below:

