SE5001 Serial Device Server

User's Manual



Version 1.6 September 2011





Important Announcement

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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 Serial Device 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.



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1. Introduction

SE5001, the Ethernet Serial device server is a gateway between Ethernet (TCP/UDP) and RS-232/RS-422/RS-485 communications. The information transmitted by SE5001 is transparent to both host computers (Ethernet) and serial devices (RS-232/RS-422/RS-485). Data coming from the Ethernet is sent to the designated RS-232/RS-422/RS-485 port and data received from RS-232/RS-422/RS-485 port is sent to the Ethernet transparently allowing bidirectional communication.

In the computer-aided manufacturing or industrial automation areas, SE5001 is used by field devices to directly connect to an Ethernet network. The user can then use a network application or use the Virtual COM software to simulate a virtual com port in the PC to fetch serial data from SE5001 remotely over the Ethernet.

With SE5001, it is possible to communicate with a remote serial device in the LAN or even in the Internet, which increases the communication distance and scalability dramatically.

1.1 SE5001 Series Comparison

Model	Serial Type	Serial Interface	Serial Isolation	Power Interface
SE5001	RS-232 / RS-422 / RS-485	DB9	No	DC Jack* and 5.08mm TB3
SE5001-S2	RS-232	DB9	No	DC Jack* and 5.08mm TB3
SE5001-S5	RS-422 / RS-485	DB9	No	DC Jack* and 5.08mm TB3
SE5001-S5-TB5	RS-422 / RS-485	5.08mm TB5	No	DC Jack* and 5.08mm TB3
SE5001-S5is	RS-422 / RS-485	5.08mm TB5	Yes	ТВЗ

*The DC connector of the Adapter should have the following dimensions to fit the DC Jack:

1.35mm inner radius, 3.5mm outer radius, and 7.5mm length

1.2 Packaging

The package should contain following items:

- Atop SE5001 Ethernet Serial device server x 1
- 5 pins Terminal Block for Serial Connector x 1 (SE5001-S5is/SE5001-S5-TB5 only)
- 3 pins Terminal Block for Power Connector x 1
- Product CD containing configuration utility x 1
- Wall-mounting screws x 2
- Atop Serial device server quick start guide x 1



Optional Accessories				
Name	Part Number	Description		
DK-25	3020000000022G	DIN-Rail Kit		
UN305-0510(US-DC)	50500051500001G	DC jack (1.35/3.5/7.5 mm) power adaptor, 100-240VAC input, 1.0A @ 5 VDC output, US plug		
UNE305-0510(EU-DC)	50500051500011G	DC jack (1.35/3.5/7.5 mm) power adaptor, 100-240VAC input, 1.0A @ 5 VDC output, EU plug		
US315-12(US-TB3)	7010000000027G	3-pin Terminal block (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, US plug		
USE315-12(EU-TB3)	7010000000028G	3-pin Terminal block (5.08 mm) power adaptor, 100-240VAC input, 1.25A @ 12VDC output, EU plug		

1.3 Application Connectivity

TCP Server Mode: SE5001 can be configured as a TCP server in TCP/IP Network to listen for an incoming TCP client connection to the 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 to Virtual COM running in the server mode.



Figure 1.1 TCP Server Mode

TCP Client Mode: SE5001 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 serial device and host computer in both directions. This also applies to Virtual COM running in the client mode.

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Figure 1.2 TCP Client Mode

UDP Mode: UDP is a faster but connectionless network protocol. It does not guarantee the delivery of network datagrams. SE5001 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.



Tunneling Mode: In the case that the serial device needs to communicate with each other without a host computer, two SE5001s can be pair together (pair connection) to communicate over TCP or UDP transparently.

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The serial device would be unaware of the change in the communication medium.





2. Hardware Installation

NOTE:

- 1. Find SE5001 Panel layout in section A.3.1 Panel Layout.
- 2. SE5001-S5-TB5 has a TB5 serial interface instead of DB9.
- 3. Press the reset button on SE5001 to reset the settings back to the default value



Figure 2.1 SE5001 Interfaces (SE5001, SE5001-S2, SE5001-S5, SE5001-S5-TB5)





Figure 2.2 SE5001 Interfaces (SE5001-S5is)

2.1 Installation Procedure

<u>Step 1:</u> Connect SE5001 to a power source using its 5V DC Jack or its 9-30V DC Terminal Block. Note that the DC Jack is 5V only and should be used with a power adaptor.

Note : SE5001 provides two power inputs that can be connected simultaneously to different DC power sources. If any of the power inputs fail, the other power source can act as a backup to support the power needs automatically. The redundant dual DC power inputs give one extra assurance of non-stop operation.

- <u>Step 2:</u> Connect SE5001 to the Ethernet network. Use a standard straight-through Ethernet cable when connecting to a hub/switch. To simply the setup, a cross-over Ethernet cable can be used to connect the serial device server to a PC directly. Please make sure that the PC is in the same network subnet as SE5001.
- Step 3: Connect SE5001's serial port to a serial device.
- <u>Step 4:</u> Placement options: Mount SE5001 to a wall/panel (Mounting screws included) or Din-Rail rack (optional Din-Rail-Kit DK-25).



Attention

Disconnect the device from power source completely before installing and wiring the server.

Do not exceed the maximum allowable current of the power cord and common wire. Applying the wire over its specification would cause the wire to overheat and cause serious damage to the connected and neighboring equipment.

The casing could become too hot to touch when operating in harsh environments. Please handle with care.

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Attention

This product is intended to be grounded properly. Please do so via the Frame Ground.



3. Software Setup

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

Property	Default Value
IP Address	10.0.50.100
Gateway	10.0.254
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** in the product CD to configure network parameters of SE5001.

- ->Execute SerialManager (Figure 3.1)
- ->In SerialManager, click on the SE5001 that needs to be configured.
- ->Click on "Configuration"->"Network" or the "Network" button.
- ->Enter the desired network settings in the "Network Settings" window (Figure 3.2).
- ->Click "OK" and SE5001 will restart and apply new settings.



SerialManager V4.7							
<u>S</u> earch <u>C</u> or	<u>S</u> earch <u>Configuration</u> S <u>e</u> curity <u>A</u> dvance Virtual COM About						
N C	Model	IP Address	MAC Address	Host Name	Kernel 🐴		
1	SW5002	192.168.4	12:23:43:AE:22:12	122343-AE2212	V1.24		
2	SW5002	10.0.42.122	00:24:1D:9E:91:9F	122343-AE2212	V1.24		
3	SE7816	10.0.154.95	00:60:E9:05:A6:A0		V1.10 🚽		
4	SE5516-IDE	10.0.77.17	00:60:E9:EE:34:34		V2.15		
5	SE5416	10.0.172.54	00:60:E9:01:7F:BC	0060E9-017FBC	V3.20		
6	SE5404	10.0.189.46	00:E0:40:24:45:58	00E040-244558	V3.18		
7	SE5302-1	10.0.53.2	00:60:E9:56:66:66		V1.21		
8	SE5302	10.0.51.31	00:60:E9:02:6F:34		V1.15		
9	SE5002-R	10.0.161.1	00:60:E9:02:61:E7	name	V2.55		
10	SE5002	10.0.50.2	00:60:E9:01:EB:D9	0060E9-01EBD9	V2.54 🗸		
<					>		
Ready, Total	teady, Total 34 devices						

Figure 3.1 Configure by SerialManager

Network Setting			
Please set the appropriate IP settings for this device			
DHCP (Obtain an IP automatically)			
IP address: 10 . 0 . 30 .100			
Subnet mask:	255.255.0.0		
Gateway:	10 . 0 . 0 .254		
Host name:			
<u></u> K	Cancel		

Figure 3.2 Static IP setup dialog window

3.1.2. Auto IP (Dynamic IP)

A DHCP server can automatically assign an IP address and network settings to SE5001. By default, the DHCP function in SE5001 is disabled. Use SerialManager to enable the DHCP function.

->Execute SerialManager (Figure 3.1)

->In SerialManager, click on the SE5001 that needs to be configured.

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->Click on "Configuration"->"Network" or the "Network" button.

->Enable "DHCP" on the Network Settings window (Figure 3.3).

->Click "OK" and SE5001 will restart and get an IP from the DHCP server automatically.

Network Setting				
Please set the appropriate IP settings for this device				
DHCP (Obtain an IP automatically)				
IP address: 10.0.195.122				
Subnet mask: 255.255.0.0 Gateway: 10.0.0.201				
			Host name:	
<u>o</u> k	Cancel			

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 or any other telnet application

->Telnet to SE5001 using command "telnet IP_address". (For example : "telnet 10.0.50.100" in MS-DOS command prompt window). After telnet into SE5001, system will prompt for a password, the default password is blank. (Figure 3.4)



Figure 3.4 Login to the system

Note: 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).



×

EX Telnet 10.0.187.186



Figure 3.5 Main menu

Note:

- 1. If SE5001 does not receive any commands within 1 minute, Telnet connection will terminate automatically.
- 2. After "0. Exit" is selected, the console will ask the user to save the configurations.
- 3. Changes to networking parameters will take effect only SE5001 is restarted.

->Select "1" from "Input choice and enter (0~4):" to enter "Overview" (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.

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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

Change network settings of the device including IP address, subnet mask, gateway IP address and SNMP information on this page. Please note that any changes made on this page won't take effect until the device is restarted.

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)

```
Telnet 10.0.187.186

Ethernet-Serial Server

User name:admin

Password:

Login ok

Ø.Exit 1.Overview 2.Networking 3.Security 4.COM1
Input choice and enter(0~5): 3
Do you want to change the password (y/n)?y
Please input old password:
Please input new password:*****
Please verify new password:*****
Password changed! Press enter to continue_
```

Figure 3.8 Change the Password

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

This page includes the option to configure different COM1 parameters, including link mode, serial port settings, serial buffer, packet delimiter, and advanced control commands.

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3.2.5. Configure SE5001 as TCP server

ex Telnet 10.0.187.185	-	×
1. Link Mode (TCP Server / Virtual COM Disabled / Pair Connection Disabled	/	
Multi_Port Disabled / Filter 10.0.160.88 / 4660 / Alive=2*10 sec)		
2. COM Port < / RS-232 / 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(0~5): 1		
Link mode		
0.Exit		
1.TCP server		
2.TCP client		
3.UDP		
4.Virtual COM(Disabled)		
5.Pair Connection(Disabled)		
Input choice (0 ~ 5) and enter: 1		
TCP server		
Please input local port:4660		
Do you want to enable Multi_Port (y/n)?n		
Do you want to enable IP filter (y/n)?y		
Please input FILTER_IP:10.0.160.88		
Please input idle time to send TCP alive packet (2×10 sec): 5		
mode changed! Press enter to continue_		

Figure 3.10 Link Mode: TCP Server Setup

- → Type 1 (Link Mode) from "Input choice and enter (1~4):" of COM1
- → Type 1 (TCP Server) in the "Input choice(1~5) and enter : "
- → Input local port in the "Please input local port : "

To Enable IP filter :

- → Input y in the "Do one want to enable IP filter(y/n)?" to enable IP Filter. Otherwise input n.
- → Input source IP in the "Please input Filter_IP : "
- → Double click "Enter" key
- → Input idle time in "Please input idle time to send TCP alive packet(x*10sec) : "(ex. Input 2 to change the sending TCP keep alive packet period to 20 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's COM.
- 4. If the multi-connection firmware is installed, SE5001 will prompt for "Multi_Port", meaning multiple connection

3.2.6. Configure SE5001 as TCP Client

Telnet 10.0.187.185 × Link mode ٠ 0.Exit 1.TCP server 2.TCP client 3.UDP 4.Virtual COM(Disabled) 5.Pair Connection(Disabled) Input choice (0 ~ 5) and enter: 2 TCP client Please input destination IP:10.0.160.88 Please input destination port:4660 Please select connected type (2) (1)Connected always (2)Trigger by receiving COM port data Please input idle time to disconnect (3 sec, 1~255): 10 Please input waiting time for error retrying (1 minute,1~255): Please input idle time to send TCP alive packet (1*10 sec): mode changed! Press enter to continue_

Figure 3.11 Link Mode: TCP Client Setup

- → Type 2 in the "Input choice(1~5) and enter : "
- → Input destination IP in the "Please input Destination IP : "
- → Input destination port in the "Please input Destination port:"
- → Select TCP connection behavior: 1 for connect always, 2 for connect on serial data

If 2 is selected, console will prompt for additional configurations.

- Input idle time to disconnect in the "Please input idle time to disconnect(0sec , 1~255) : " (Input 0 to disable; Input 2 to disconnect TCP connection after 2 seconds of serial Inactivity)
- Input error retrying time in "Please input waiting time for error retrying(0 minute,1~255) : " (Input 0 to disable; Input 2 to try to connect to a TCP Server every 2 minutes)
- → Input idle time in "Please input idle time to send TCP alive packet(x*10sec): "(Input 2 to the send TCP keep alive packet every 20 seconds)



3.2.7. Configure SE5001 as UDP

UDP is a connectionless protocol. It is faster than TCP, but does not guarantee packet delivery to the remote host. Figure 3.12 shows how to setup UDP.



Figure 3.12 Link Mode: UDP Client Setup

- → Type 3 in the "Input choice(1~5) and enter : "
- → Input SE5001's local listening port in the "Please input local port: "
- → Input remote device's IP in the "Please input Destination IP:"
- → Input remote device's listening port in the "Please input Destination port:"

3.2.8. Enable / Disable Virtual COM

Enable or disable Virtual COM on this page. For more information on how to setup Virtual COM on different operating systems, please refer to chapter 4. Using Virtual COM.



- 🗆 🗙

EX Telnet 10.0.187.185

COMI		
COULT		
И.	Exit	
1.	Link Mode (TCP Server / Virtual COM Disabled / Pair Connection Disable	
	Multi_Port Disabled / Filter disabled / 4660 / Alive=4*10 sec)	
2.	COM Port (/ RS-232 / 9600, None, 8, 1 / None)	
3.	Empty Serial Buffer When TCP connection is established(Enabled)	
4.	Packet Delimiter (0x0d)	
5.	Accept Control Command from COM port (Disabled)	
Inpu	t choice and enter(0^5): 1	
Lin}	<pre>c mode</pre>	
0.E>	cit	
1.TC	CP server	
2.TC	CP client	
3.UI)P	
4.Vi	irtual COM(Disabled)	
5.Pa	vir Connection(Disabled)	
Tass	t shains (0 % E) and entage 4	
inpu	lt choice (0 5) and enter: 4	
Virt	cual COM	
(1)	chable	
(2)1	Disable	
Plea	use select one item:2	
mode	e changed! press enter to continue	

Figure 3.13 Configure Virtual COM

3.2.9. Enable / Disable Pair Connection

Enable or disable "Pair Connection" on this page. For more information on how to configure two serial device servers to work in pair connection, please refer to the pair connection section **3.3.13**.



EX Telnet 10.0.187.185 - 🗆 X COM1 : ٠ Ø. Exit Link Mode (TCP Server / Virtual COM Disabled / Pair Connection Disable 1. Multi_Port Disabled / Filter disabled / 4660 / Alive=4*10 sec) COM Port (/ RS-232 / 9600, None, 8,1 / None) 2 -3. Empty Serial Buffer When TCP connection is established(Enabled) Packet Delimiter (0x0d) Accept Control Command from COM port (Disabled) Input choice and enter(0~5): 1 Link mode 0.Exit 1.TCP server 2.TCP client 3.UDP 4.Virtual COM(Disabled) 5.Pair Connection(Disabled) Input choice (0 ~ 5) and enter: 5 Pair Connection <1>Enable (2)Disable Please select one item:2 node changed! press enter to continue

Figure 3.14 Configure Pair Connection

3.2.10. COM Port Setting

Type **2** from "**Input choice and enter (1~4):**" of COM1, the following screen appears. It is possible to give the COM port alias name, set the baud rate and parity, determine number of data bit and stop bit, and the type of flow control to use here (Figure 3.15).



ex Telnet 10.0.187.185	- 🗆 🗙
COM1 =	
0. Exit	
1. Link Mode (UDP Destination/4660/Remote IP=10.0.160.88/4660)	
2. COM Port (/ RS-232 / 9600,None,8,1 / None)	
3. Empty Serial Buffer When TCP connection is established(Disabled)	
4. Packet Delimiter (2 ms)	
5. Accept Control Command from COM port (Disabled)	
Input choice and enter(0~5): 2	
COM Port: RS-232	
0. Exit	
1. Alias name():	
2. Baud rate(9600):	
3. Parity(None):	
4. Data bit(8):	
5. Stop bit(1):	
6. Flow control(None):	
7. COM Type Selection (RS-232):	
Input choice and enter(0~7):	

Figure 3.15 COM Port Settings

3.2.11. Emptying Serial Buffer when TCP connection is established

Telnet 10.0.187.185	- 🗆 ×
	▲
COM1 :	
Ø. Exit	
1. Link Mode (UDP Destination/4660/Remote IP=10.0.160.88/4	660>
2. COM Port (123 / RS-232 / 2400,0dd,8,1 / Xon/Xoff)	
Empty Serial Buffer When TCP connection is established	Disabled)
4. Packet Delimiter (2 ms)	
5. Accept Control Command from COM port (Disabled)	
Input choice and enter(0~5): 3	
Empty Serial Buffer when TCP connection is established	
<1>Enable <2>Disable	
Please select the option:1	
Option is changed! Press enter to continue	

Figure 3.16 Com Port: Enabling Serial Buffer

Type **3** from "**Input choice and enter (1~4):**" of COM1, by default COM port serial buffer is enabled meaning that once a TCP connection is established, old serial data received from serial device before the connection will be

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emptied. If this option is disabled, SE5001 will keep old serial data when the connection is broken (Figure 3.16).

3.2.12. Setting Packet Delimiter

Packet delimiter is a way of packaging serial data. It can prevent serial data from being truncated by packing them in the same Ethernet packet. SE5001 provides two kinds of packet delimiter: Timer and Character. The default timer is 2 ms (0ms to disable this function). This means that if SE5001 does not receive new serial data within 2ms, it will send out all the serial data in buffer in one packet over Ethernet. The way to change the delimiter timer is shown in the following figure (Figure 3.17):

Telnet 10.0.187.185		וב	×
COM1 :			•
Ø. Exit			
 Link Mode (UDP Destination/4660/Remote IP=10.0.160.88/4660) 	>		
2. COM Port (123 / RS-232 / 2400,0dd,8,1 / Xon/Xoff)			
3. Empty Serial Buffer When TCP connection is established<	abled)		
4. Packet Delimiter (2 ms)			
5. Accept Control Command from COM port (Disabled)			
Input choice and enter(0~5): 4			
Packet delimiter			
(1)Timer (2)Characters			
Please select delimiter type:1			
Please input timer(0 ~ 30000 ms):0			
Delimiter changed! Press enter to continue			

Figure 3.17 Setting packet delimiter timer

Another kind is character delimiter. If the character delimiter is set to 0x0d, this means SE5001 will send out all the serial data in buffer in one packet over Ethernet only if it reads 0x0d. The following figure shows how to configure character delimiter:

(Figure 3.18)



EX Telnet 10.0.187.185 - 🗆 🗙 COM1: * Ø. Exit Link Mode (TCP Server / Virtual COM Disabled / Pair Connection Disable Multi_Port Disabled / Filter disabled / 4660 / Alive=4*10 sec> COM Port (/ RS-232 / 9600, None, 8, 1 / None) Empty Serial Buffer When TCP connection is established(Enabled) Packet Delimiter (2 ms) Accept Control Command from COM port (Disabled) Input choice and enter(0~5): 4 Packet delimiter (1)Timer (2)Characters Please select delimiter type:2 Please input pattern(max 2 bytes, ex:0x0d0a):0x0d Delimiter changed! Press enter to continue_

Figure 3.18 Setting Packet Delimiter: Character Pattern

3.2.13. Accept Control Command from COM port

SE5001 can also accept serial control commands (RFC2217) directly from the COM port. For more detail about this function, please contact our Technical Support for more information.

3.2.14. Backup EEPROM to Flash

Select "5" from "*Input choice and enter (0~5):*" the following screen should appear (Figure 3.19):



Figure 3.19 Backup EEPROM to Flash

- Type 1 from "Input choice and enter (0~2):" to back up the settings from the EEPROM to the Flash. SE5001 would then show "EEPROM Backup (Yes)".
- Type 2 from "Input choice and enter (0~2):" to erase the settings stored in the Flash. SE5001 would then show "EEPROM Backup (No)".



3.3 Configuration Using Web Browser

- 1. Make sure the PC is located in the same network sub-net as SE5001
- 2. Open a web browser, then Enter in the IP address of SE5001. 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 in "System" link 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. After opening the web browser, ex. Microsoft IE, Firefox or any other web browser, enter the IP address of SE5001 in the URL bar. **Example: http://10.0.50.100**
- 2. The following authentication screen should appear. Enter the **user name** and **password** then click on "**OK / Log in**". The default user name is **admin** and password is Null (*Leave it blank*).

Authentication Re	quired	x
The server 10.0.187 server says: NeedPa	7.184:80 requires a username and password ssword.	. The
User Name:		
Password:		
	Log In Can	cel

Figure 3.20 Login Security Check

3. The following overview page should show (Figure 3.21). Click on the links on the left to go to different configuration pages, which are "**Networking**", "**Security**", and "**COM**".



	Ethernet-Serial Server		
<u>Overview</u>	Overview		
Networking	The general device inf	ormation of Ethernet-Seri	al Server
<u>Security</u>	Model Name	SE5001	
0014	IP Address	10.0.187.184	
	MAC Address	00:60:E9:05:6D:A3	
	SysName	name	
	SysLocation	location	
	SysContact	contact	
	Kernel Version	V2.60	
	AP Version	TerminalSrv v3.454MU	
	Link Status	S	
	Note: About L "S" for T "A" for T "c" for T "C" for T "B" for T "B" for T "U" for L	ink Status field : "CP Server mode and Listening "CP Server and Connected CP Client mode and NOT Con "CP Client mode and trying to "CP Client mode and Connecte JDP mode) nected Connect ed

Figure 3.21 Overview



3.3.2. Networking Setup

Configure IP, SNMP, and alert settings on this page. Please fill in the IP information in the fields under the TCP/IP header (Figure 3.22). Alternatively, enable DHCP to obtain IP address, gateway and subnet mask from a DHCP server automatically.

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 Obtain an IP automatically					
	IP Address	10 .	0	. 187	. 185	
	Default Gateway	10 .	0	. 0	. 254	
	Subnet Mask	255 .	255	. 0	. 0	

Figure 3.22 IP Information Setup

Enable SNMP and Alert Events by checking "**Enable**" (Figure 3.23). Fill in SNMP information in the fields under the SNMP header. Enable different Alert Events to send these events to a SNMP Trap Server.

Cold/Warm Start: Triggers when the device is rebooted from the application level or physical level.

Link Down: Triggers when the TCP connection of the designated COM port is closed

Link Up: Triggers when the TCP connection of the designated COM port is established

Authentication Failure: Triggers when the username/password entered in the Telnet console or the WebUI is incorrect.



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.

sysName	name
sysLocation	location
sysContact	contact
tead Community	public
Vrite Community	private
rap Server IP	0.0.0.0
lert Event	 Cold/Warm Start Link Down Link Up Authentication Failure

Figure 3.23 SNMP Setup

After all the settings are entered, please click on the "**Save Configuration**" button to save the changes. Note that the settings would become active only after SE5001 is restarted.

3.3.3. Security Setup

Change the login password on this page (Figure 3.24).



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 Configu	Iration
Have Bac	скир
Backup EEF	PROM
Erase Bac	:kup

Figure 3.24 Security Setup

Please enter the old password in the "Old Password" field and enter the new password in the "New Password" and the "Verified Password" fields. Then click on the "Save Configuration" to save and apply the new password.

Note: Press the reset button next to the RJ-45 Jack to reset the settings back to the default value.

3.3.4. Backup EEPROM to Flash

This backup function could recover settings from the Flash to the EEPROM if the settings in the EEPROM are lost. If SE5001 detects that there is an EEPROM backup in the flash. It will compare the backup values in the Flash and EEPROM. If the values do not match, it will write the backup settings in the Flash to the EEPROM. To enable this function, follow Figure 3.24 in the Security Settings.

- Click on **Backup EEPROM** to back up the settings from the EEPROM to the Flash. SE5001 would then show **Have Backup**.
- Click on **Erase Backup** to erase the settings stored in the Flash. SE5001 would then show **No Backup**.

3.3.5. Link Mode Configuration



SE5001 supports different Link Modes, which are TCP Server, TCP Client, and UDP (Figure 3.25). Under the three Link Modes, TCP Server can support Virtual COM, Pair Connection, or Reverse Telnet applications. TCP Client can support Virtual COM or Pair Connection application. If none of the application is enabled, the SE5001 will run in RAW mode. In the upcoming sections, we will discuss how to setup different Link Modes properly.

LINK1			
To choose specific working mode for COM port.			
⊙ TCP Server ○ TCP Client ○ UDP			
Enable VirtualCOM for Serial/IP	Enable		
Pair Connection	Enable		
Reverse Telnet Mode	Enable		

Figure 3.25 Link Modes

3.3.6. Link Mode: Configure SE5001 as a TCP Server

SE5001 defaults in TCP Server mode, there are additional connection settings that can be configured (Figure 3.26). By selecting the TCP Server mode, a TCP Client program should be prepared to connect to SE5001.

- → Click on the "COM1" link on the left hand side.
- → Select **TCP Server**. TCP Server is the default link mode.
- → Enter the Local Listening Port. This is the port specified in the TCP Client program connecting to the serial device server. The default local port is 4660.
- → IP Filter: Only the designated IP address will be able to access the COM port if this option is enabled. This option is disabled by default.
- → TCP Keep-Alive: Specify the interval in the "Idle Time Before Sending TCP Alive Packet" to force SE5001 to send TCP Keep-Alive packets in the set interval to prevent disconnection from the client. Note that this field has a multiplier of 10, so the default value 4 means to send Keep-Alive packets every 40 seconds.
- → TCP Inactivity Timeout: Specify the value in "TCP Inactivity Time Before Disconnect" to force SE5001 actively close a TCP connection after some specific inactivity time (no packets). The default value is 0, which means the SE5001 would never close an established connection.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Go to the Application Configuration section starting from 3.3.9 to apply Virtual COM, Pair Connection, or Reverse Telnet application if applicable. Otherwise go to the COM Configuration (section 3.3.19) for serial settings directly.



LINK1

To choose specific working mode for COM port.

⊙ TCP Server ○ TCP Client ○ UDP			
Enable VirtualCOM for Serial/IP	Enable		
Pair Connection	Enable		
Reverse Telnet Mode	Enable		

Local Listening Port	4660
IP Filter	Enable, Source IP :
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)
TCP Inactivity Time Before Disconnect	o sec (0~255, 0:Disable)

Figure 3.26 TCP Server Setup

Note:

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

3.3.7. LINK Mode: Configure SE5001 as a TCP Client

By selecting the TCP Client mode, it means that a TCP Server program should be prepared to connect to SE5001. Figure 3.27 shows all the settings provided for the TCP Client.

- → Click on the **"COM1"** link on the left hand side.
- → Select TCP Client.
- → Enter the preferred **Destination IP** and **Port**. This should match the IP settings of the TCP Server program.
- → Connect Rule: Decide how SE5001 should connect to the TCP Server here. If SE5001 should always keep the connection, select TCP Connect on Power-on. This means SE5001 would connect to the TCP Server program when SE5001 is powered on. By default, TCP Connect on Any Serial Character is selected. This means that SE5001 would only connect to the TCP Server program when it receives data from its serial interface. If TCP Connect on Any Serial Character is selected, there are two additional options to change, which are Serial Inactivity Time Before Disconnect and Waiting Time Between Re-connect Attempts. Serial Inactivity Time Before Disconnect determines how long SE5001 should wait before closing a TCP connect on if there is no incoming serial data. The default value is 40 seconds. Waiting Time Between Re-connect Attempts determines the time SE5001 should wait before it tries to establish a connection with a TCP Server again if it fails to connect to the TCP Server. The default value is



1 minute.

- → TCP Keep-Alive: Specify the interval in the "Idle Time Before Sending TCP Alive Packet" to force SE5001 to send TCP Keep-Alive packets in the set interval to prevent disconnection from the client. Note that this field has a multiplier of 10, so the default value 4 means to send Keep-Alive packets every 40 seconds.
- → TCP Inactivity Timeout: Specify the value in "TCP Inactivity Time Before Disconnect" to force SE5001 actively close a TCP connection after some specific inactivity time (no packets). The default value is 0, which means the SE5001 would never close an established connection.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Go to the Application Configuration section starting from 3.3.11 to apply Virtual COM, Pair Connection, or Reverse Telnet application if applicable. Otherwise go to the COM Configuration (section 3.3.19) for serial settings directly.

LINK1			
To choose specific working mode for COM port.			
◯ TCP Server ⊙	TCP Client O UDP		
Enable VirtualCOM for Serial/IP	Enable		
Pair Connection	Enable		
Destination IP, Destination Port	IP : 10.0.160.88 Port : 4660		
Connecting Rule of TCP Client	OTCP Connect On Power-on		
	⊙ TCP Connect On Any Serial Character		
Serial Inactivity Time Before	40 sec (1~255)		
Waiting Time Potween Po connect			
Attempts	1 min (0~255, 0:Disable)		
Idle Time Before Sending TCP Alive	4 *10 soc (0~255_0:Disable)		
Packet	+ 10 Sec (0-235, 0.Disable)		
TCP Inactivity Time Before	o sec (0~255, 0:Disable)		
Disconnect			

Figure 3.27 TCP Client Setup

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3.3.8. Link Mode: Configure SE5001 in UDP

SE5001 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 3.28 shows the UDP settings.

- → Click on the "COM1" link on the left hand side.
- → Select UDP.
- → 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 SE5001 can handle would highly depend on the traffic load. We have tested that SE5001 can handle up to 32 UDP nodes (baud rate 9600 bps, request interval 100ms, and data length 30bytes).
- → Enter the Local Listening Port. This is the port that SE5001 should listen to. Match this setting in the UDP program (usually called destination port in the UDP program).
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Go to the section 3.3.16 to apply Pair Connection application if applicable. Otherwise go to the COM Configuration (section 3.3.19) for serial settings directly.

Ethernet-Serial Server				
LINK1				
To choose specific working mode for COM port.				
○ TCP Server ○ TCP Client ⊙ UDP				
	Begin IP	End IP	Port	
	10.0.160.1	- 10.0.160.10	: 4660	
Destination IP, Destination Port		-	:	
		-	:	
		-	:	
Local Listening Port	4660			

Figure 3.28 UDP Setup

3.3.9. TCP Server Application: Enable Virtual COM

SE5001 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 SE5001'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 3.29 shows SE5001 in TCP Server mode with Virtual COM enabled.


LINK1 To choose specific working mode for COM port.		
⊙ TCP Server ◯	TCP Client O UDP	
Enable VirtualCOM for Serial/IP	✓ Enable	
Pair Connection	Enable	
Enable VirtualCOM Authentication (Note: An empty password will fail to authenticate)	Enable	
Local Listening Port	4660	
IP Filter	Enable, Source IP : 0.0.0.0	
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)	
TCP Inactivity Time Before Disconnect	o sec (0~255, 0:Disable)	

Figure 3.29 TCP Server with Virtual COM Enabled

- → Follow section 3.2.5 to configure SE5001 in TCP Server mode properly.
- → Check Enable VirtualCOM for Serial/IP to enabled Virtual COM application in SE5001.
- → Check Enable VirtualCOM Authentication (Note: An empty password will fail to authenticate) to lock up Virtual COM access with SE5001's login password.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Configure Virtual COM in the Operating System. For Windows, refer to 4. Using Virtual COM. Remember SE5001's IP address and the Local Listening Port here in order to enter this information in Serial/IP Virtual COM's Control Panel later.

3.3.10. 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 SE5001 in the TCP Server mode. To do so, refer to section **3.3.9** to enable Virtual COM, so that SE5001 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.

3.3.11. TCP Client Application: Enable Virtual COM

It is also possible to run Virtual COM in TCP Client mode (Figure 3.30). It is usually easier to use Virtual COM in the Client mode if SE5001 uses dynamic IP (DHCP) because setting a static IP address in Virtual COM's Control Panel



is not possible.

LINK1 To choose specific working mode for COM port.		
○ TCP Server	TCP Client O UDP	
Enable VirtualCOM for Serial/IP	Enable	
Pair Connection	Enable	
Destination IP, Destination Port	IP : 10.0.160.88 Port : 4660	
Connecting Rule of TCP Client	 TCP Connect On Power-on TCP Connect On Any Serial Character 	
<u></u>	j	
Idle Time Before Sending TCP Alive		
Packet	4 *10 sec (0~255, 0:Disable)	
TCP Inactivity Time Before Disconnect	o sec (0~255, 0:Disable)	

Figure 3.30 TCP Client with Virtual COM Enabled

- → Follow section 3.2.6 to configure SE5001 in TCP Client mode properly.
- → Check Enable VirtualCOM for Serial/IP to enabled Virtual COM application in SE5001.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Configure Virtual COM in the Operating System. For Windows, refer to 4. Using Virtual COM. Remember SE5001's IP address and the Local Listening Port here in order to enter this information in Serial/IP Virtual COM's Control Panel later.

3.3.12. 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 SE5001 in the TCP Client mode. To do so, refer to section **3.3.11** to enable Virtual COM, so that SE5001 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.

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3.3.13. TCP Server Application: Configure SE5001 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 SE5001s to work in pair, one would be the Pair Connection Master (0) and the other would be the Pair Connection Slave.

LINK1 To choose specific working mode for COM port.		
● TCP Server ○	TCP Client O UDP	
Enable VirtualCOM for Serial/IP	Enable	
Pair Connection	✓ Enable	
Less Listening Deut		
Local Listening Port	4660	
IP Filter	Enable, Source IP : 0.0.0.0	
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)	

Figure 3.31 TCP Server with Pair Connection Enabled

- → Follow section 3.2.5 to configure SE5001 in TCP Server mode properly.
- → Check Enable Pair Connection to enabled Pair Connection application in SE5001.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Go to the Pair Connection Slave Setup below (section 3.3.14). Remember SE5001's IP address and the Local Listening Port here in order to enter this information in the Pair Connection Slave later.

3.3.14. TCP Client Application: Configure SE5001 as a Pair Connection Slave

A Pair Connection Slave (Figure 3.32) needs to pair up with a Pair Connection Master. Please setup a Pair Connection Master first before proceeding.



LINK1 To choose specific working mode for COM port.		
⊖ TCP Server ⊙	TCP Client OUDP	
Enable VirtualCOM for Serial/IP	Enable	
Pair Connection	✓ Enable	
Destination IP, Destination Port	IP : 10.0.160.88 Port : 4660	
Connecting Rule of TCP Client	 ● TCP Connect On Power-on ● TCP Connect On Any Serial Character 	
<u>.</u>		
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)	
TCP Inactivity Time Before Disconnect	o sec (0~255, 0:Disable)	

Figure 3.32 TCP Client with Pair Connection Enabled

- → Follow section 3.2.6 to configure SE5001 in TCP Client mode properly.
- → Check Enable Pair Connection to enabled Pair Connection application in SE5001.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.
- → Match the Destination IP and Port here with the settings of Pair Connection Master's IP and Listening Port setup previously.

3.3.15. TCP Server Application: Enable Reverse Telnet

Reverse Telnet application is useful if a telnet program is used to connect to SE5001 and the serial interface of the SE5001 is connected to a Terminal Server. Telnet programs in Windows / Linux usually require special handshaking to get the outputs and formatting show properly. SE5001 will interact with those special commands (CR/LF commands) if Reverse Telnet is enabled.



LINK1 To choose specific working mode for COM port

To choose specific working mode for boom port.			
● TCP Server ○	TCP Client	UDP	
Enable VirtualCOM for Serial/IP	🗆 Enable		
Pair Connection	Enable		
Reverse Telnet Mode	🗹 Enable		
Local Listening Port	4660		
IP Filter	Enable,	Source IP : 0.0.0.0	
Idle Time Before Sending TCP Alive Packet	4 *10 se	ec (0~255, 0:Disable)	
TCP Inactivity Time Before Disconnect	0 sec (0)~255, 0:Disable)	

Figure 3.33 TCP Server with Reverse Telnet Enabled

- → Follow section 3.2.5 to configure SE5001 in TCP Server mode properly.
- → Check Enable Pair Connection to enabled Pair Connection application in SE5001.
- → Scroll to the bottom of the page and click on "Save Configuration" button to save the changes.

3.3.16. 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 3.34). 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 (section 3.3.18).

➔ Note that 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 needs to be equal to the Master's Destination Port.

Sample Configuration:

	IP Address	Link Mode	Local Listening Port	Destination IP	Destination Port
SE5001 Master	10.0.50.100	UDP	5000	10.0.50.200~10.0.50.207	5000

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SE5001 Slave 1	10.0.50.200	UDP	5000	10.0.50.100	5000
SE5001 Slave 2	10.0.50.201	UDP	5000	10.0.50.100	5000
SE5001 Slave 3	10.0.50.202	UDP	5000	10.0.50.100	5000
SE5001 Slave 4	10.0.50.203	UDP	5000	10.0.50.100	5000
SE5001 Slave 5	10.0.50.204	UDP	5000	10.0.50.100	5000
SE5001 Slave 6	10.0.50.205	UDP	5000	10.0.50.100	5000



Figure 3.34 Multi-Point UDP Pair Connection with Modbus

3.3.17. TCP Server Application: Multiple TCP Connections

To have more than one TCP Client connecting to SE5001 in TCP Server mode, contact Atop Technical Support to obtain a special multi-connection version firmware. After the firmware is uploaded to SE5001, the WebUI will have one additional option called "**Multiple_Connections**" (Figure 3.35). The Multi-Connection option will allow up to a maximum of four TCP Client connections. SE5001 will broadcast serial data to all connected TCP Clients. 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 (section **3.3.18**).



LINK1

To choose specific working mode for COM port.

⊙ TCP Server ○ TC	P Client OUDP
Enable VirtualCOM for Serial/IP	Enable
Pair Connection	Enable
Reverse Telnet Mode	Enable
Local Listening Port	4660
IP Filter	Enable, Source IP : 0.0.0.0
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)

Figure 3.35 TCP Server with Multiple Connections Enabled

0

sec (0~255, 0:Disable)

Enable (Max. 4 Connections)

3.3.18. TCP Server Application: Multi-Point TCP Pair Connections

TCP Inactivity Time Before Disconnect

Multiple_Connections

The difference between Multi-Point TCP Pair Connection and Multi-Point UDP Pair Connection is that the TCP implementation would also exchange flow controls pins of RS-232. However, the TCP Server is limited to a maximum of four connections. If there are than four serial devices and does not use flow control pins with RS-232 or RS-485, it is possible to setup pair connection in UDP mode (section **3.3.16**). After multi-connection is enabled in the WebUI, refer to the following table to setup Pair Connection as in Figure 3.36.

	IP Address	Link Mode	Local Listening Port	Destination IP	Destination Port
SE5001 Master	10.0.50.100	TCP Server	5000	-	5000
SE5001 Slave 1	10.0.50.200	TCP Client	5000	10.0.50.100	5000
SE5001 Slave 2	10.0.50.201	TCP Client	5000	10.0.50.100	5000
SE5001 Slave 3	10.0.50.202	TCP Client	5000	10.0.50.100	5000
SE5001 Slave 4	10.0.50.203	TCP Client	5000	10.0.50.100	5000

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Figure 3.36 Multi-Point TCP Pair Connection

3.3.19. COM Configuration

Configure serial settings in this page (Figure 3.37). Note that these settings need to match the ones in the serial device.

Alias Name:

This field is for identification purpose only.

Baud Rate:

Select one of the baudrates from the dropdown box, or select Other and then enter the desired baudrate in the input box. Baudrates higher than 230400bps are not supported.

Parity / Data Bits / Stop Bits:

Configure them accordingly.

Flow Control:

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Choose between No Flow Control, RTS/CTS (Hardware Flow Control), DTR/DSR, 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 serial device uses Xon/Xoff in conjunction with DTR/DSR, enable **Controlling DTR to simulate receiving Xon/Xoff and reading DSR to get Xon/Xoff currently.**

Empty Serial Buffer When TCP Connection is Established:

By default, SE5001 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, set this option to **No.**

Data Packet Delimiter:

Packet delimiter is a way of packing data in the serial communication. It is designed to keep packets in track. SE5001 provides two types of delimiter: Time Delimiter and Character Delimiter.

- ➔ Time Delimiter: SE5001 will transmit the serial data in its buffer when the specified time interval has reached and no more serial data comes in. The default time is 2ms, which means SE5001 will push out its serial buffer if it does not receive any serial data with in 2ms.
- → Character Delimiter: SE5001 will transmit the serial data in its buffer when it sees the specified character. The default character delimiter is 0x0d, which means SE5001 will push out its serial buffer if it sees 0x0d (carriage return) in the serial data.

COM Type Selection:

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.

Click on "Save Configuration" button to save the changes.



COM1

To configure COM port parameters.

Serial Interface	RS-232	
Alias Name		
Baud Rate	9600 💌	
Parity	Old OEven OMark OSpace	
Data Bits	O7 bits ⊙8 bits	
Stop Bits	⊙1 bit ○2 bits	
Flow Control	○None ○RTS/CTS ○DTR/DSR ⊙Xon/Xoff	
Xon/Xoff characters	Xon: 0x11 Xoff: 0x13 ("0x"+ASCII Code,e.g.0x11)	
Xon/Xoff Special Control	Controling DTR to simulate receiving Xon/Xoff and reading DSR to get Xon/Xoff currently	
Empty Serial Buffer When TCP Connection is Established	⊙YES ONo, (Default: Yes)	
Data Packet Delimiter	 Inter-character Time Gap : 2 msec (0~30000, 0:Disable) Characters : 0x0d ("0x" + Hex Code, e.g. "0x0d" or "0x0d0a") 	
COM Type Selection	⊙RS232 ○RS485 ○RS422	

Save

Figure 3.37 COM Configuration

*For SE5001-S5, SE5001-S5-TB5 and SE5001-S5is, COM Type Selection will only show 2 Wires (RS-485) and 4 Wires (RS-422 / 4 Wire RS-485).

2/4 Wires Selection

O 2 Wires ⊙ 4 Wires

Figure 3.38 COM Configuration

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4. Using Virtual COM

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. The following figure is a 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 System Requirements

Windows 7, 2008, Vista, 2003, XP, 2000, NT 4.0, 9x, Microsoft NT/2000/2003 Terminal Server, Citrix MetaFrame Access Suite, native and virtual, 32 and 64-bit versions. Note that upgrading the operating systems to the latest Service Packs is required, especially for older Windows versions.

To run Virtual COM in Linux, there is a separate package called 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.

4.1.2 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.



4.1.3 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 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.

4.1.4 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.

4.2 Enable Virtual COM Serial device servers and Select Virtual COM in Windows

4.2.1 Enable Virtual COM in Serial Device Servers

Enable Virtual COM in our serial device servers by logging into our WebUI. It is located under COM configuration. Following figures show how to enable Virtual COM in different serial device servers that we offer. For detailed Link Mode configuration with Virtual COM, please refer to the previous sections starting from section 3.3.9 on Link Mode configurations.

LINK1 To choose specific working mode for COM port.		
● TCP Server ○	TCP Client O UDP	
Enable VirtualCOM for Serial/IP	✓ Enable	
Pair Connection	Enable	
Enable VirtualCOM Authentication (Note: An empty password will fail to authenticate)	Enable	
Local Listening Port	4660	
IP Filter	Enable, Source IP : 0.0.0.0	
Idle Time Before Sending TCP Alive Packet	4 *10 sec (0~255, 0:Disable)	
TCP Inactivity Time Before Disconnect	o sec (0~255, 0:Disable)	

Figure 4.2 Enable Virtual COM in SE5001, SE5002, or GW series

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COM 1

Link Mode

To choose specific working mode for COM 1 port.

⊙ TCP Serve	r OTCP Client OUDP	
	TCP Server	
Mode	Virtual COM 💌	
Max. Connections	1 💌	
	 Request & Response Mode Reply to requester only Reply to all Transparent Mode 	
IP Filter	🗆 Enable	
Source IP	0.0.0.0	
Local Port	4660	
Apply to all serial ports (Local Port will be enumerated automatically.)		

Figure 4.3 Enable Virtual COM in SE540x, SW500x, or EW5302



COM 1 Port Settings		
LINK Mode To choose specific working mode for COM 1 port.		
TCP Server		
Mode	Virtual COM	
IP Filter	🗖 Enable	
Source IP		
Local Port	4660	
Connect Number Limit	1 💌	
Response	ORequest & Response Mode OReply to requester only Reply to all Transparent Mode	

Figure 4.4 Enable Virtual COM in SW550x

It is also possible to enable Virtual COM in serial device servers using Telnet. Please refer to the section 3.2.8 on Telnet.



4.2.2 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 4.5), right click in the Serial/IP tray icon and click on **Configure** to open the Control Panel.

100% —	Serial/IP
🖻 🚠 🗟 🔗	<u>t</u> @ `

Figure 4.5 Serial/IP Notification Tray Icon

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 4.6).

Select Ports				X
Please select vi	rtual COM ports	:		
COM1	COM17	COM29	COM41	
COM2	COM18	□COM30	COM42	
COM7	COM19	COM31	COM43	
COM8	COM20	□COM32	COM44	
COM9	COM21	COM33	COM45	
COM10	COM22	COM34	COM46	
COM11	COM23	COM35	COM47	
COM12	COM24	COM36	COM48	
COM13	COM25	□COM37	COM49	
COM14	□COM26	□COM38	COM20	
COM15	COM27	□COM39	COM51	
COM16	COM28	COM40	COM52	
<				>
Or enter port r	Or enter port range below:			
COM2				
OK		ancel	<u>H</u> elp	

Figure 4.6 Select Virtual COM Ports

After at least one Virtual COM port is seletected, the Control Panel will show (Figure 4.7).



📥 Serial/IP Contr	ol Panel 🛛
COM1 COM20 COM20 COM21 COM22 COM23 COM244 COM300	Configuration of COM1 IP Address: Port Number: ✓ Connect to server: 10.0.187.185 4660 ▲ Accept Connections:
Select <u>P</u> orts	
Port <u>M</u> onitor	
<u>A</u> dvanced	
	<u>C</u> lose <u>H</u> elp A <u>b</u> out

Figure 4.7 Serial/IP Control Panel

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.

4.3 Configuring Virtual COM Ports

To Configure Virtual COM ports (Figure 4.7):

- If the serial device server is running in TCP Server mode (recommended), 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 of 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 SE5001 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.

3. If Enable VirtualCOM Authentication is enabled in the serial device server (this is only available in limited serial device servers), it is necessary to enable Use Credentials From and select Use Credentials Below from the list (Figure 4.8). Enter the Username and Password of the serial device server in the respective fields.

🛓 Serial/IP Contro	ol Panel	×
COM2 COM7	Configuration of COM2 IP Address: Port Number: ↓ Connect to server: 10.0.187.185 ↓ 4660 Accept Connections: Configuration Wizard Copy Settings To User Credentials ↓ Use Credentials Below Username: admin Password: ******** COM Port Options ↓ Restore Failed Connections	
Select <u>P</u> orts		
Port <u>M</u> onitor		
<u>A</u> dvanced		
	<u>C</u> lose <u>H</u> elp <u>About</u>	

Figure 4.8 Virtual COM with Credentials

- 4. 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.
- 5. To test the Virtual COM connection, click the Configuration Wizard button and then click **Start** button in the pop up window (Figure 4.9). 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.
- 6. To transfer the settings between Virtual COM ports, click on the **Copy Settings To** button.



Configuration Wizard - COM1	×
IP Address of Ser <u>v</u> er:	Port <u>N</u> umber:
10.0.187.185	4660
User <u>n</u> ame:	Pass <u>w</u> ord:
Status:	
🗸 Trying 10.0.187.185	^
🗸 Connected to Server	
🗸 COM Port Control Support Detected	
 Telnet Protocol Detected 	
Servion Completed	<u> </u>
Log:	
Recommendations: Protocol: Telnet COM Port Option: DTR Emulation disabled COM Port Option: DSR Emulation disabled COM Port Option: CTS Emulation disabled Security: Disabled 	
😵 Start 🕐 Stop	Cancel

Figure 4.9 Configuration Wizard

Exceptions:



Configuration Wizard - COM2	X
IP Address of Ser <u>v</u> er:	Port <u>N</u> umber:
10.0.160.98	4660
User <u>n</u> ame:	Pass <u>w</u> ord:
Status:	
🗸 Trying 10.0.160.98	
Warning: timeout trying 10.0.160.98	
No more addresses to try, failing connection	
Cannot connect to 10.0.160.98	
Log:	
TIMEDOUT: Service is unreachable, con	nection timed out.
Stop Start Stop	Cancel

Figure 4.10 Virtual COM Timeout Exception

a. If the exclamation mark begins with **Warning: timeout trying x.x.x.x** (Figure 4.10), recheck the Virtual COM IP and Port configuration or the PC's network configuration.



Configuration Wizard - COM2	×
IP Address of Ser <u>v</u> er:	Port <u>N</u> umber:
10.0.187.185	4660
Username:	Pass <u>w</u> ord:
]
Status:	
Trying 10.0.187.185	
Connected to Server	
Client not licensed for this server	
j - Tam	
Log.	
😵 Start 🖉 Stop 🖷 Use Settings	📴 Copy 📔 Cancel

Figure 4.11 Virtual COM Raw Connection Exception

b. If there is a check with **Raw Connection Detected** and an exclamation mark with **Client not licensed for this server** (Figure 4.11), enable Virtual COM in the serial device server.



Configuration Wizard - COM2	×
IP Address of Server:	Port <u>N</u> umber:
10.0.187.185	4660
Username:	Pass <u>w</u> ord:
Status:	
✓ Connected to Server	<u>^</u>
COM Port Control Support Detected	
I client Protocol Detected Client not licensed for this server	
	✓
Log:	
]	
😵 Start 🖉 Stop 👘 Use Settings	Cancel

Figure 4.12 Virtual COM License Exception

c. If there is a check with **Telnet Protocol Detected** and an exclamation mark with **Client not licensed for this server** (Figure 4.12), 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 Virtual COM software.



Configuration Wizard - COM2	
IP Address of Server:	Port <u>N</u> umber: 4660
Username:	Pass <u>w</u> ord:
Status: COM Port Control Support Detected Telnet Protocol Detected	
Server requires username/password login Client not licensed for this server	
US&TDADDE:	
Stop Start Settings	🛱 Copy Cancel

Figure 4.13 Virtual COM Credentials Exception

d. If the exclamation mark begins with **Server requires username/password login** (Figure 4.13), it means VirtualCOM Authentication in the serial device server is enabled, but credentials in the Serial/IP is not enabled.



Configuration Wizard - COM2	×
IP Address of Ser <u>v</u> er:	Port <u>N</u> umber:
10.0.187.185	4660
User <u>m</u> ame:	Pass <u>w</u> ord:
aa	**
Status:	
✓ Connected to Server	▲
COM Port Control Support Detected	
Telnet Protocol Detected	
Username and/or password incorrect	×
Log:	
Stop 🚯 Use Settings	Copy Cancel

Figure 4.14 Virtual COM Username Password Exception

e. If the exclamation mark begins with **Username and/or password incorrect** (Figure 4.14), this means the wrong username and/or password was entered and the authentication failed.



Configuration Wizard - COM2	X
P Address of Ser <u>v</u> er:	Port <u>N</u> umber:
10.0.187.185	4660
Jser <u>m</u> ame:	Pass <u>w</u> ord:
88.	**
'tatus:	
✔ Connected to Server	<u>^</u>
COM Port Control Support Detected	
 Telnet Protocol Detected 	
No login/password prompts received in	om server
/0g:	
Start Di Stop	ngs 📴 Copy Cancel

Figure 4.15 Virtual COM Credentials Exception

f. If the exclamation mark begins with **No login/password prompts received from server** (Figure 4.15), it means credentials in the Serial/IP is enabled, but VirtualCOM Authentication in the serial device server is not enabled.

4.4 Using Serial/IP Port Monitor

4.4.1. 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 (Figure 4.5).
- In the Windows notification area (Figure 4.5), 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

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4.4.2. The Activity Panel

📥 Serial/IP Port Monito	r		
<u>File Edit</u> <u>Trace</u> Options	<u>H</u> elp		
Activity Trace			1
Port TD RD TI	R DR CD Status	IP Address	
COM2 O COM7	D 🕲 🕲 Connected	10.0.187.185	

Figure 4.16 Port Monitor Activity Panel

The Activity panel provides a real-time display of the status of all Serial/IP COM ports (Figure 4.16). 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**.

4.4.3. The Trace Panel

Serial/I	P Port Mo	nitor				
le <u>E</u> dit	<u>T</u> race Optio	ns <u>H</u> elj	p			
Activity	Trace					
					Buffer Remaining:	99%
17:07:	02.000	COM2	:	Τ	DTR: 0	~
17:07:	:02.000	COM2	:	1	FlushRX	
17:07:	:02.000	COM2	:	1	FlushTX	
17:07:	:02.000	COM2	:	1	Close	
17:07:	02.109	COM2	:	1	Port close	
17:07:	02.609	COM2	:	1	Open	
17:07:	02.609	COM2	:	1	Driver: SISerial 4.9.2	
17:07:	02.609	COM2	:	1	Current UART Settings:	
17:07:	02.609	COM2	:	1	Baud: 00009600	
17:07:	02.609	COM2	:	Т	Framing: 08,N,1	
17:07:	02.609	COM2	:	Т	DTR: O RTS: O CTS: O DSR: O CD: O	~
<						
<u>C</u> le	ar	⊡ <u>E</u> r	nable	Tra	ce 🦵 <u>Hex Display</u> 🦵 Auto <u>S</u> croll 🦵 Always On <u>I</u> op	

Figure 4.17 Port Monitor Trace Panel

The Trace panel provides a detailed, time-stamped, real-time display of all Serial/IP COM ports operations (Figure 4.17). 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 arises with Virtual COM.

4.5 Serial/IP Advanced Settings

In the Serial/IP Control Panel, Click on the **Advanced** button to open Advanced Settings window (Figure 4.18). 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

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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.

2	Serial/IP Advanced Settings	×
	Options Proxy Server	
	 Extend Server Connection by 8000 ms <u>A</u>ttempt Server Connection for 2000 ms <u>S</u>ynchronize with Server Upon COM Port Open Update <u>R</u>outing Table Upon COM Port Open Enable <u>N</u>agle 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	
	Uze Default Settings	

Figure 4.18 Serial/IP Default Advanced Settings

4.6 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 4.19)



Serial/IP Advanced Se	ltings	X
Options Proxy Server]	
🔽 Use a <u>P</u> roxy Serv	er	
	Protocol Type:	
<u>A</u> uto Detect	HTTPS	
<u>T</u> est	IP Address of Ser <u>v</u> er:	Port <u>N</u> umber:
		18080
Stop	Login to Server Using	
	Enter login information only i administrator has configured y to require a Username and Pas	f your system our proxy server sword.
	<u>U</u> semame:	Pass <u>w</u> ord:

Figure 4.19 Serial/IP Proxy Settings



5. Writing a TCP Program

Before working on the sample TCP program, please make sure the serial device server is properly configured to the TCP server mode. The sample program is a TCP Client that connects to the serial device server.

5.1 Running the Sample Program

Sample programs written in Microsoft Visual Basic 6 and Visual C++ 6 are included in the CD with their source codes. Find them inside **\sample\vb_ap** and **\sample\vc_ap** respectively.

5.1.1 TCPTEST in Microsoft Visual Basic 6

This sample program is written in Visual Basic 6.0 with Winsock Controls. It demonstrates how to send and receive data from a PC to SE5001 via Ethernet using two TCP sockets.

Open the project file by double clicking tcptest.vbp or open it in Visual Basic (Figure 5.1). Press the **Start** button to launch TCPtest in debug mode.

🍾 TCPtest -	🖌 TCPtest - Microsoft Visual Basic [design] - [frmTCP (Form)]						
🔄, <u>F</u> ile <u>E</u> dit	<u>Y</u> iew <u>P</u> roject Format <u>D</u> ebug <u>R</u> un Query Diagram <u>T</u> ools <u>A</u> dd-Ins <u>W</u> indow <u>H</u> elp						
B • 👌 •	- 🛅 😂 🖬 🕺 🛍 📾 🛤 🗠 🗠 🕨 🔳 😻 🗃 🔁 🦉 🛠 🔁 🔊 🏥 0,-105						
K General	TCP/IP Convertor Sample Program						
N 🔛	Channel 1 Channel 2						
A [ab] [[™]] □	Remote IP Address, Port						
	Send Data AT\0d Send Help						

Figure 5.1 TCP Test Sample Program in Visual Basic

It is also possible to launch the precompiled program (Figure 5.2) without installing Visual Basic, double click on Tcptest.exe to launch. Make sure Visual Basic 6 Runtime is installed.

Service Pack 6 for Visual Basic 6.0: Run-Time Redistribution Pack from Microsoft:

http://www.microsoft.com/download/en/details.aspx?id=24417

The sample program first connects to the serial device server located at 10.0.187.185 with port 4660 and send Hello World! Note that the serial interface of the serial device server is in a loopback configuration (Rx and Tx are



shorted), so Hello World is returned by the serial device server back to the sample program. Start with backslash (\) to send hexadecimal bytes directly. For example, \0d sends 0d.

6	ICP/IP Convertor Sample Pro	gram		×
$\left[\right]$	Channel 1	Channel 2	2	
1	Remote IP Address, Port 10.0.187.185	4660	2 Connect Close	
4	Send Data Hello World!	5	Send Help	
	Receive 17:16:14 TCP connect ok 17:16:15 TCP Sending 17:16:15 TCP Send ok 17:16:15 12, 48 65 6C 6C 6F 20	57 6F 72 6C 64 21	Status	
[17:16:15 12, HelloWorld! Messages	Received		
3	Connected ok			

Figure 5.2 TCP Test GUI

5.1.2 TCPTEST2 in Microsoft Visual C++ 6

To modify the program, open the project file by double clicking tcptest2.dsw or open it in Visual C++ (Figure 5.3).





Figure 5.3 TCP Test Sample Program in Visual C++

To run the precompiled program, open the Windows command console, switch to the folder where the executable is located (vc_ap\Release\) and enter the following commands (Figure 5.3):

TCPTEST2 IP_Address Port_Number



📾 C:\WINDOWS\system32\cmd.exe - tcptest2 10.0.187.185 4660 👘

```
C:\vc_ap\Release>tcptest2 10.0.187.185 4660
TCP Test Program 2
Connecting to 10.0.187.185, Port=4660
(b9bb000a)
Wait to Connect ...
Connect OK ...
Hello World!
receive ok, count=12, data=
48 65 6c 6c 6f 20 57 6f 72 6c 64 21
```

Figure 5.4 TCP Test Console

The sample program first connects to the serial device server located at 10.0.187.185 with port 4660 and send Hello World! Note that the serial interface of the serial device server is in a loopback configuration (Rx and Tx are shorted), so Hello World is returned by the serial device server back to the sample program. Start with backslash (\) to send hexadecimal bytes directly. For example, \0d sends 0d. Enter "=" or use Ctrl+C to exit the program.



6. Diagnostics

There are several ways to can check the status and availability of the serial device server.

6.1 Use Standard Ping Command

From the Windows Start menu, select Run and type in "ping <TCP Server IP address>".

If the serial device server can receive ping requests sent from the host, it will reply to the ping message (Figure 6.1). If the ping request cannot reach the serial device server, timed out message will show (Figure 6.2).

```
C:\VINDOWS\system32\cmd.exe
C:\>ping 10.0.187.185
Pinging 10.0.187.185 with 32 bytes of data:
Reply from 10.0.187.185: bytes=32 time=1ms TTL=128
Ping statistics for 10.0.187.185:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
C:\>_
```



```
C:\WINDOWS\system32\cmd.exe
C:\>ping 10.0.50.101
Pinging 10.0.50.101 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 10.0.50.101:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>_
```



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6.2 Use SerialManager Configuration Utility

Use **SerialManager** configuration utility that comes with the product CD or download from Atop website to check on the status of the serial device server. The status and version can be read from the tool. For example, **'S'** means that COM1 is in TCP Server mode and is not connected to a TCP Client (Figure 6.3). **'A'** means that COM1 is in server mode and is connected to a TCP Client.

SerialManager ¥4.7.1						X
<u>Search Configuration</u> Security <u>A</u> dv	ance Virtual COM A <u>b</u> ou	at				
🔁 🎭 📎 🥭 🔮			b (2		
N C. Model IP Address	MAC Address	Host Name	Kernel	AP Information	1	
1 SE5001 10.0.187.185	00:60:E9:05:6D:A3	name	V2.60	TerminalSrv v	3.454MU	S
<						>
Ready, Total 1 devices						

Figure 6.3 SerialManager Utility

6.3 Use TCPTEST.exe or TCPTEST2.exe Sample Program

Use sample programs TCPTEST.exe and TCPTEST2.exe that comes with the product CD to check the status of the serial device server. Please refer to chapter **5**. Writing a TCP Program.



Appendix A: Specifications

A.1 Hardware Specifications

	Specifications					
CPU	16-bit Embedded CPU					
	• 100MHz					
Flash Memory	512K Bytes					
SDRAM	 512K Bytes 					
EEPROM	512 Bytes					
Reset	 Built-in reset to default button 					
Watch Dog Timer	 1.34 second software auto reset 					
	 Power failure threshold: 4.75V 					
Serial	 RS-232/RS-485/RS-422 (SE5001) 					
Communication	 RS-232 (SE5001-S2) 					
	 RS-422 / RS-485 (SE5001-S5 / SE5001-S5-TB5) 					
	 RS-422 / RS-485 with serial isolation (SE5001-S5is) 					
	Serial mode is software selectable					
	Parameters					
	1) Baud-rate: 1200 bps ~ 230Kbps					
	2) Parity: None, Even, Odd, Mark, Space					
	3) Data bits: 7,8					
	4) Stop bits: 1,2					
	5) Flow Control: None, CTS/RTS, DTR/DSR, Xon/Xoff					
	6) Packet Delimiter: time or character delimiter					
LED indication	• RUN x 1					
	LAN x 1					
	COM port1					
Power Requirement	 5VDC Jack with Power Adaptor or DC +9-30V Terminal Block 					
	1.5 Watt Max					
Temperature	Operation: 0°C to 60°C					
	■ Storage: -40°C to 85°C					
Humidity	■ 5%~95% non-condensing					
Housing	 65mm(L) x 78mm(W) x 28mm(H) 					



A.2 Software Specifications

Protocol		IPv4, TCP, UDP, ICMP, DHCP, SNMP, HTTP, Telnet, RFC2217	
Configuration	•	WebUI, Windows Utility, Telnet	
Internal Buffer Size	-	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 SE5001 / SE5001-S2 / SE5001-S5



A.3.1.2 SE5001-S5-TB5

*Only the serial interface is different between SE5001-S5 and SE5001-S5-TB5

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Front Panel View

A.3.1.2 TB5 for SE5001-S5is



A.3.2 Serial Pin Assignments

A.3.2.1 DB9 Pin Assignments

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

Pin#	RS-232 Full Duplex	2-Wire RS-485 Half Duplex	RS-422/4-Wire RS-485 Full Duplex
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)

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6	DSR	N/A	N/A
7	RTS	DATA-	RXD-
8	стѕ	N/A	TXD-
9	N/A	N/A	N/A

A3.2.2 TB5 Pin Assignments

Pin#	2-Wire RS-485 Half Duplex	RS-422/4-Wire RS-485 Full Duplex
1	NC	T+
2	NC	Т-
3	DATA+	R+
4	Data-	R-
5	SG (Signal Ground)	SG (Signal Ground)

A.3.3 Ethernet Port (RJ-45)

1. Category 5 UTP Ethernet cable.



- 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.

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A.3.4 Power Terminal Block Connector



F.G. VIN- VIN+

Note: Note: Reverse polarity protection is available in SE5001, so VIN+ and VIN- could be reversed.

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

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Table 3. COM Port LED Message

A.4.4 RUN LED

Message	Description	
LED on	AP firmware is disabled	
LED blinking (rate: 0.5Sec)	AP firmware is running	
Table 4. RUN LED Message		



Appendix B: Upgrade System Firmware

Firmware is available for download on Atop website: <u>http://www.atop.com.tw</u>. Subscribe to our RSS system <u>http://www.atop.com.tw/en/rss.php</u> to receive our latest firmware updates automatically.

B.1 Upgrade Procedures

This section introduces the command-line firmware upgrade utility included in the CD. Alternatively, use the GUI management utility SerialManager to upgrade the system firmware. Refer to section D.3.2 to use SerialManager to upgrade the system firmware.

After the new firmware is obtained, follow the procedures below to upgrade SE5001.

- 1. Connect a PC (Windows systems) and the SE5001 to the same subnet. Use **ping** command or SerialManager utility to verify its availability.
- 2. Locate dapdl.cfg (configuration file), gwdl.exe (download executable utility), and download.bat (download batch file) in the \download folder of the CD. Copy them to the system disk.
- 3. Locate the new system kernel and/or AP firmware to download. Move them inside the copied \download directory.
- 4. Double click on **download.bat** to start the firmware upgrade process.





Note: It is also possible to edit **dapdl.cfg** and run **gwdl.exe** manually without using the batch file **download.bat**.

- 5. Press any key to continue.
- 6. An editor will open **dapdl.cfg** automatically. Edit the content to match the IP address of SE5001 and the file name of the new firmware. **"dapdl.cfg"** has the following structure:

Remote_IP	10.0.50.100		
Load	firmware.hex		

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





Figure B.2 Dapdl.cfg Opened with an Editor

- 7. File->Save and File->Exit the text editor.
- 8. Enter the admin as the userid and the password of SE5001. If a password is not set, press enter. The batch file will upgrade the system firmware. SE5001 will restart automatically after the new firmware is uploaded.



Figure B.3 System Firmware Upgraded



9. Repeat the process above again for kernel or AP firmware if necessary.

Note: 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.2 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 to restore the device to the proper firmware in case an incompatible firmware was downloaded and the system crashes while loading the AP.

To disable the AP firmware and prevent it from executing, please do the following.

- 1. Power off the device.
- 2. While the reset button is pressed, power on the device.
- 3. In SerialManager, SE5001 will show up with a default kernel firmware and no AP firmware.
- 4. Download the correct AP firmware to SE5001.
- 5. The device will restart and recover to the downloaded firmware.



Figure C.1 SE5001 with no AP firmware disabled



Appendix D: Using SerialManager Utility

D.1 SerialManager utility Introduction

SerialManager, the utility developed by ATOP, is a special tool for device management and configuration. It can realize the daily management of various ATOP network devices for address search, device positioning, parameter configuring, and firmware downloading. Note that SE5404D is used to demonstrate the functionality of SerialManager instead of SE5001.

D.2 Interface

The operating interface of the SerialManager utility is shown below:

Se Se	rialManager ¥4.7	.1					\mathbf{X}
Search	<u>C</u> onfiguration S	<u>e</u> curity <u>A</u> dvance	Virtual COM About				
3		e 4					
No.	C Model	IP Address	MAC Address	Host Name	Kernel	AP Information	
1	SE5001	10.0.10.17	00:60:E9:05:6D:A3	name	V2.62	TerminalSrv v3.460U	С
2	SE5404D	10.0.10.26	00:60:E9:07:AC:10	host	V3.22	Serial Server V3.33	
<							>
Ready,	Total 2 devices						- <i>I</i> .

Figure D.1 GUI of SerialManager

Caution Field	Description
!	IP conflict. There are two devices with the same IP address in the network.
@	The device is using DHCP.
<	The device is being located.
+	Logged into the device.
?	MAC conflict. There are two devices with the same MAC address in the network.

Other than the type of Application loaded and its versions, the last few characters of the AP information will show the AP connection status. The number of letters displayed depends on the number of COM ports that the serial device server has. For example, AP information will show "..... AS" meaning that the serial device server has two COM ports. The first COM port is in TCP Server mode and is connected to a TCP client, while the second COM port is not connected.

AP Information

Description

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S	The COM port of the serial device server is in TCP Server mode and is not connected to a TCP Client
Α	The COM port of the serial device server is in TCP Server mode and is connected to a TCP Client
С	The COM port of the serial device server is in TCP Client mode and is trying to connect to a TCP Server
С	The COM port of the serial device server is in TCP Client mode and will enter C state soon.
В	The COM port of the serial device server is in TCP Client mode and is connected to a TCP Server
U	The COM port of the serial device server is in UDP mode

D.3 Functions

D.3.1 Device Search

This function scans all Atop devices in the network. There are three methods to search for devices: Search by Broadcast, Search by IP Address, and Search by MAC Address. Click on "**Search**" in the main menu shown below to select the search method.

SerialManager ¥4.7.1						×
Search <u>C</u> onfiguration Secu	urity <u>A</u> dvano	ce Virtual COM A <u>b</u> out				
✓ <u>B</u> roadcast Search Search by <u>I</u> P Address	Ctrl+B Ctrl+I					
Search by <u>M</u> AC Address	Ctrl+M	s MAC Address	Host Name	Kernel	AP Information	
Add a Device E <u>x</u> it	Ctrl+A	00:60:E9:05:6D:A3 00:60:E9:07:AC:10	name host	V2.62 V3.22	TerminalSrv v3.460U Serial Server V3.33	С
<						>
						/

Figure D.2 Search Function of SerialManager

To rescan for the devices in the network, press the **Rescan** button in the toolbar shown below.



Se Se	rialManager ¥4.7.	.1					×
Search	n <u>C</u> onfiguration Sg	ecurity <u>A</u> dvance	Virtual COM A <u>b</u> out				
3		e 4		\$ \$ \$	0		
No.	C Model	IP Address	MAC Address	Host Name	Kernel	AP Information	
1	SE5001	10.0.10.17	00:60:E9:05:6D:A3	name	V2.62	TerminalSrv v3.460U	С
2	SE5404D	10.0.10.26	00:60:E9:07:AC:10	host	V3.22	Serial Server V3.33	
<							>
Ready,	Total 2 devices						



Broadcast Search

Once "Broadcast Search" is selected, a box will pop up as below. Input or select different broadcast address based on the requirement.

Broadcast Search	
Input one to broadcast:	<u>A</u> dd
255 . 255 . 255 . 255	
Select one to broadcast:	Delete
	<u>K</u>
	Cancel

Figure D.4 Broadcast Search IPs Pop-up Dialog

Search by IP address

Once "Search by IP Address" is selected, an interface will pop up as below. Two options are available: Select an IP address to search or Search device in the range of IP address.



Search Devices by IP Addresses								X
_Select an I	P address	to se	arch					
10.0.50.1	20					<u>N</u> De	ew lete]
Search o	levices in range —	the ra	ange o	of IP a	ddress	\$		
From:	0		0		0		0	
To:	0		0		0		0	
				<u>о</u> к			<u>C</u> ancel	

Figure D.5 Search by Device IPs Pop-up Dialog

Search by MAC Address

If "Search by MAC Address" is selected, another box will pop up as below. There are two ways to filter the search results: "Select a MAC address to search" or "Search devices in the range of MAC address."



Search Devices by MAC Addresses	×
Celect a MAC address to search	_
New	
Delete	
Secret devices in the render of MAC address	
Search devices in the range of MAC address	
MAC address range	
From: 00 : 60 : E9 : 00 : 00 : 00	
To: 00 : 60 : E9 : FF : FF : FF	
<u>O</u> K <u>C</u> ancel	

Figure D.6 Search by Device MAC Pop-up Dialog

Rescan

Click the "Rescan" button in the toolbar, SerialManager shall rescan devices with the selected search method.

D.3.2 Firmware

This function is used to upload a new firmware to the device. First click on the designated device and in the main menu click Advanced->Firmware->Firmware Download or click the **Upgrade from Disk** button directly.



SerialManager ¥4.7.1	
Search Configuration Security Advance Virtual COM About	
Download Parameter	
No. C Model IP A	AP Information
1 + SE5001 10.0	TerminalSrv v3.460U C
2 SE5404D 10.0.10.26 00:60:E9:07:AC:10 host V3.22	Serial Server V3.33
	>
Upgrade kernel or AP from local disk	



Se:	rialM	anager V4	.7.1								X
<u>S</u> earch	<u> </u>	ufiguration	S <u>e</u> curity	<u>A</u> dvance	Virtual COM	A <u>b</u> out					
3] 🚽	U	e		I	1 E	\$. \$	1			
No.	С	Model	IP Ac	Idress	MAC Addr	ess	Host Name	Kernel	AP Inform	ation	
1	+	SE5001	10.0	.10.17	00:60:E9:	J5:6D:A3	name	V2.62	TerminalS	rv v3.460U	С
2		SE5404	D 10.0	.10.26	00:60:E9:	07:AC:10	host	¥3.22	Serial Ser	ver V3.33	
<											>
Ready,	Total	2 devices									

Figure D.8 Firmware Upgrade Button in SerialManager

Select the required firmware from the disk, as shown in the figure below. Press **Upgrade** to start uploading the new firmware to the device. Select more than one device and enable **Apply for all selected devices have same model** to upgrade multiple devices all at once.



Download Firmware from Disk				
Please select a kernel firmware or AP firmware from the disk, and then download it to the device SE5404D (10.0.10.26).				
Current versions:				
Kernel: V3.22				
AP: Serial Server V3.33				
Download kernel firmware Y:\Evan\SerialManager\Firmware\				
Download AP firmware				
C:\TFTP-Root\se5404k322a333.dld				
Apply for all selected devices have same model				
Pop up report dialog				
Pop up Authorize dialog				
<u>U</u> pgrade <u>C</u> ancel				

Figure D.9 Firmware Upgrade Pop-up Dialog

D.3.3 Configuration

The configuration submenu provides different device settings and options to access the device as shown in the figure below.

Note:

- 1) Greyed out fields require logging into the device before they enable.
- 2) Configurations can apply to multiple devices of the same kind by selecting multiple devices in the SerialManager and checking "Apply for all selected devices" option.



Seri	ialManager V4.	.7.1					X
<u>S</u> earch	<u>C</u> onfiguration	S <u>e</u> curity <u>A</u> dvanc	e Virtual COM A <u>b</u> out				
	<u>N</u> etwork SNMP	Ctrl+N Ctrl+S	N		1		
No.	COM <u>P</u> ort	Ctrl+P	MAC Address	Host Name	Kernel	AP Information	
1	<u>L</u> ocate		00:60:E9:05:6D:A3	name	V2.62	TerminalSrv v3.460U	С
2	<u>R</u> eboot		00:60:E9:07:AC:10	host	V3.22	Serial Server V3.33	
	Import Settin Export Settin	g g					
	Config by br Config by Te	owser elnet					
<	Options						>

Figure D.10 Configuration Options Menu in SerialManager

Network

Modify the Network Settings of the selected device shown as the figure below. Statically assign IP address, subnet mask, gateway, and host name. Select the DHCP option to obtain IP information from a DHCP server automatically.

Network Setting	\mathbf{X}
Please set the approp device (SE5404D, 10	oriate IP settings for this .0.50.10).
🔲 DHCP (Obtain an	IP automatically)
IP address:	10 . 0 . 50 . 10
Subnet mask:	255 . 255 . 0 . 0
Gateway:	10 . 0 . 0 . 254
Host name:	0060E9-026F70
<u></u> K	Cancel

Figure D.11 Network Settings Pop-up Dialog

SNMP

Modify the SNMP Settings of the selected device shown as the figure below. SNMP fields supported are Name, Location, and Contact.



SNMP Setting					
Please set the appropriate SNMP settings for this device (SE5404D, 10.0.50.10).					
Name: 0060E9-026F70					
Location: location					
Contact: contact					
Apply for all selected devices					
OK <u>C</u> ancel					

Figure D.12 SNMP Settings Pop-up Dialog

COM Port

ATOP has developed various Serial device server products. Different serial device sever could offer different COM settings. SerialManager could only offer the most important settings here. For the complete settings, please use the WebUI. The COM Port setting dialog is shown below.



COM Ports Setting (SE5404D, 10.0).50.10)		X
COM1 COM2 COM3 COM4			
Link mode: C ICP server mode Local port: 4660 IP Filter: Enable virtual COM mode	C TCP client mode	e C UDP mode Connection limit: 1	T
COM property:	Apply to	Apply to a all serial ports <u>R</u> efres	l serial ports
C RS232	• RS422	C RS48	5
Baud rate: C 300 • 9600 C 600 C 19200 C 1200 C 38400 C 2400 C 57600 C 4800 C 115200	C 230400 C 460800 C 921600	Data bits: 5 bits • 7 bits 6 bits • 8 bits Stop bits: • 1 • 2	Parity: O None O Odd Even Mark Space
Packet delimiter (Network to Serial) Timer Enable (10-30000msec) Characters ("0x"+ASCII Co Advanced Delimiter Settings *** Note: If a parameter or an optio): Packet delin Timer de) Chara n is missing, please co	niter(Serial to Network): Enable (10-30000msec) cters ("0x"+ASCII Code)	Flow control: None Xon/Xoff RTS/CTS
Apply for all selected devices with th	e same model		取消

Figure D.13 COM Settings Pop-up Dialog

* Note: COM tabs: Generated automatically according to the COM port number of the device. If a device has 4 COM ports, there will be, for example, 4 tabs, COM1, COM2, COM3, and COM4.

Link mode: This is to setup the COM port in TCP Server, TCP Client or UDP modes.

Local Port: This is the port that the COM port is listening to (TCP Server and UDP modes only).



Destination IP and Port: This is the IP and the port that the COM port should connect to (TCP Client and UDP only).

IP Filter: Enable this option to restrict network access of this COM port to a specific IP Address (TCP Server only).

Enable Virtual COM Mode: Enable or Disable Virtual COM application on this COM port.

COM property: Select or enter the desired parameters, including alias name, serial port type, baud rate, data bit, stop bit, parity, flow control, packet delimiter, and serial buffer control. The options vary depending on the model you have.

Locate

To locate a device, select **Locate** in the submenu or click on the **Locate** button in the toolbar. Use this function to locate a device that shows up in the SerialManager, but its location is unknown. A located device would beep until it is de-located by pressing the **Locate** again.

Reboot

To reboot a device, select **Reboot** in the submenu.

Import Setting

If there are a lot of devices to manage, it should be easier to utilize the export and import function to import similar settings to multiple devices all at once. Import the configuration file by selecting **Import setting** in the submenu or by clicking the **Import setting** button on the toolbar. The Import Settings dialog is shown below.



Import a file to SE	5404D		X
Open a file: C:	SE5404D_0060e9	026f70.adm	
Model: SE540)4D		
IP setting:		SNMP s	etting:
IP address:	10.0.50.	10 Name:	0060E9-026F7
Subnet mask:	255.255.0.	0 Locatio	n: location
Default gateway:	10.0.0.	254 Contact	t: contact
COM ports setting:			
Selected COM Port	COM1	•	
Туре:	RS422	Alias name:	
Baud rate:	9600	Data bits:	7 bits
Stop bits:	1 bit	Parity:	Even
Flow control:	None		
Packet delimiter(Ne	twork to Serial):	AUTO	
Packet delimiter(Se	rial to Network):		
Link mode:	TCP server	mode / Virtual CON	/I: Enabled
	Local port: I	0	
	Max connec	ctions: 0	
Apply for all sele	cted devices with	the same model	
Popup this dialog	while importing se	ettings to the next o	levice
		<u></u> к	Cancel

Figure D.14 Import Function Pop-up Dialog

Export Setting

Export settings from the device for backup purpose or import to another device. Export the settings to a file by selecting **Export setting** in the submenu or clicking the **Export setting** button in the toolbar The Export Setting dialog is shown in the figure below.



Export SE5404D Setting	gs	X
IP setting: IP address: 10 Subnet mask: 255	. 0 . 50 . 10 . 255 . 0 . 0	SNMP setting: Name: 0060E9-026F70 Location: location
Default gateway: 10	. 0 . 0 . 254	Contact: contact
COM ports setting:		
Selected COM Port:	COM1	▼ <u>R</u> efresh
Туре:	RS422 Alias r	name:
Baud rate:	9600 Data b	oits: 7 bits
Stop bits:	1 bit Parity:	Even
Flow control:	None	
Packet delimiter(Networ	k to Serial): AUTO	
Packet delimiter(Serial to	o Network):	
Link mode:	TCP server mode / Vi	irtual COM: Enabled
	Local port: 0	
	Max connections: 0	
Save to a file: C:\S	E5404D_0060e9026f7(D.adm
Save all the selected	I devices:	
C Popup this dialog	while exporting setting	s from next device
C Automatically gen	erate the next file name	8
		<u>Q</u> K <u>Cancel</u>

Figure D.15 Export Function Pop-up Dialog

Configure by Browser

The WebUI provides additional device-specific parameters that SerialManager does not provide. This is the recommended way to configure the device. Select "Config by Browser" in the submenu or click on the browser button in the toolbar to launch the WebUI in the browser. A sample WebUI is shown below.



	SE54	404D)				
OverviewNetwork	Overv	iew					
Serial	The general device information of Serial Server.						
• Alert		Device	Information				
 System 	Kernel	√ersion	3.20				
	AP Ver	sion	3.30				
		Networl	< Information				
	LAN 1	MAC Address	00:60:E9:02:6F:70				
		IP Address	10.0.50.10				
	LAN 2	MAC Address	00:60:E9:02:6F:71				
		IP Address	192.168.1.1 (Link down)				

Figure D.16 WebUI of the Serial Device Server

Configure by Telnet

Select "Config by Telnet" in the submenu or click the on the **Telephone** button in the toolbar to launch the telnet console connecting to the device.

Option

Configure SerialManager preferences in this dialog:

- 1. Set the SerialManager's scan interval
- 2. If device tip option is turned on, SerialManager will show additional information when the mouse cursor stays on the device.
- 3. Select which Network Interface Card that SerialManager uses. If this option is set to DEFAULT, SerialManger will use the default NIC that the operating system assigns.



Options			X
Search devices	every 10		seconds (must >= 5)
NIC Selection	DEFAULT	•	
	Ōĸ		<u>C</u> ancel

Figure D.17 Preferences of SerialManager

D.3.4 Security

The Security submenu provides: Login, Logout and Change Password functions, shown in the figure below.

SerialManager ¥4	.7.1					X
Search Configuration	S <u>e</u> curity <u>A</u> dvance	V <u>i</u> rtual COM A <u>b</u> out				
🛃 🖧 📎	Login Lo <u>go</u> ut	<u>~ S.</u> 🔨	\$. \$	1		
No. C Model	Change <u>P</u> assword	Address	Host Name	Kernel	AP Information	
1 SE5001	10.0.10.17	00:60:E9:05:6D:A3	name	V2.62	TerminalSrv v3.460U	С
2 SE5404	D 10.0.10.26	00:60:E9:07:AC:10	host	¥3.22	Serial Server V3.33	
<						>

Figure D.18 Security Menu in SerialManager

Login

In order to configure sensitive information in the device, a successful login would be required before those options enable. Select **Login** from the submenu or press the **Login** button in the toolbar and enter the correct password to login to the device as shown in the following figure.

Note: Double clicking on the device would also login/log out from the device.



Login	
Enter a user device. Note: This fur Serial Server	name and password to login to this nction is only available for the standard
Device:	SE5404D IP:10.0.50.10
User Name:	admin
Password:	
Г	Apply for all selected devices
	Login <u>C</u> ancel

Logout

Select **Logout** from the submenu or press the **Logout** button in the toolbar after a successful login to logout from the device as shown in the following figure.

Login Pop-up Dialog

Figure D.19



Figure D.20 Logout Pop-up Dialog

Change Password

Select **Change Password** from the submenu after a successful login to change the login password of the device as shown in the following figure.



Change Passwor	i 🔀
To change your d please provide th	evice (SE5404D, IP:10.0.50.10) password, e following information and then click OK.
Old Password:	*****
New Password:	
Verified Password:	
	Apply for all selected devices
	OK <u>C</u> ancel

Figure D.21 Change Password Pop-up Dialog

D.3.5 Virtual COM

Most serial device servers are supplied with the Virtual COM function. Virtual COM settings are integrated in the SerialManager. Use this integrated Virtual COM working area or the original Serial/IP Tools to configure Virtual COM.

SerialManager ¥4.7.1				
<u>S</u> earch <u>C</u> onfiguration S <u>e</u> curity <u>A</u> dvance	Virtual COM About	_		
🔁 🖧 📎 🥭 🛃	Configuration Show	b 🕸 😰		
No. C Model IP Address	Add device (Manually)	st Name Kernel	AP Information	
1 SE5001 10.0.10.17	Remove devices	ne ¥2.62	TerminalSrv v3.460U	С
2 + SE5404D 10.0.10.26	Port Enable	st V3.22	Serial Server V3.33	
	Port Disable			
	<u>A</u> pply			
	Serial/IP Tools	·		
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Figure D.22 Virtual COM Confirmation Menu in SerialManager

Select Configuration Show, a new Virtual COM Working Area would appear.



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1		SE5001	10.	0.10.17	00:60:E9:0	15:6D:A3	name	1	/2.62	Termin	alSrv v3.4	160U	С
2	+	SE5404	D 10.	0.10.26	00:60:E9:0	7:AC:10	host	١	/3.22	Serial S	Server V3.	.33	
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Figure D.23 Virtual COM Working Area in SerialManager

Select one device or multiple devices to be added. After the device is selected, right click in the blank working area and select "Add devices".

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No.	C Model	IP Address	MAC Addres	s	Host Nam	e Ke	rnel /	AP Informatio	on
1	SE5001	10.0.10.17	00:60:E9:05	:6D:A3	name	V2.	.62]	TerminalSrv	v3.460U C
2	+ SE5404D	10.0.10.26	00:60:E9:07	:AC:10	host	¥3.	.22 \$	Serial Serve	r V3.33
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Mod	el	IP Addres	S	Host N	lame		Port	Mapping	g Remarl
							Ac Ro Po Po	dd devices emove devices ort Mapping ort Enable ort Disable	
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Ready,	Total 2 devices						_		

Figure D.24 Add a Device to the Working Area in SerialManager

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The device should be added. Right click on any port and a context menu will show. Remove the device from the Virtual COM working area by selecting "Remove devices." Disable Virtual COM for a specific port by selecting "Port Disable". Remember to click **Apply** to apply any changes.

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No.	C	Mode	:I	IP Address	MAC Addres	SS	Host Name	Kernel	AP Information	
1		SE50	01	10.0.10.17	00:60:E9:0	5:6D:A3	name	V2.62	TerminalSrv v	3.460U C
2	+	SE54	04D	10.0.10.26	00:60:E9:07	7:AC:10	host	V3.22	Serial Server \	/3.33
<										>
Mod					1		1			
mou	el		IP A	ddress	Host N	Port	Mapping	Remar	k	
SE54 SE54 SE54 SE54	ei 404D 404D 404D 404D		IP A 10.0 10.0 10.0 10.0	ddress 0.10.26 0.10.26 0.10.26 0.10.26	Host N host host host host	Port 1 2 3 4	Mapping COM1 COM8 COM9 COM10	Remari	k Add devices Remove devices Port Mapping Port Enable Port Disable Apply	Mode Mode Mode Mode

Figure D.25 Virtual COM Right-Click Context Options

Select **Port Mapping** to setup the Virtual COM port accordingly.

Virtual COM Settings
Please select the COM port which you would like to redirect to Serial/IP.
COM1 : connect to 10.0.10.26, 4660
TCP port: 4660
Mode: Server mode C Client mode
✓ Restore Failed Connection
OK Cancel

Figure D.26 Virtual COM Settings Pop-up Dialog



D.3.6 About

<text>

Figure D.27 About Page Pop-Up