

ABLELink[®]

GW51C-MAXI Serial Server

User's Manual



Version 1.4

Updated on February, 2008.



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IMPORTANT ANNOUNCEMENT

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FCC WARNING

Class A for Ethernet-Serial Server (Model GW51C-MAXI Serial Server)

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 / RS-485 ports.

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

Contents

1. INTRODUCTION	5
1.1 PACKAGING.....	5
1. 2 APPLICATION CONNECTIVITY.....	6
2. HARDWARE DESCRIPTION	9
2.1 INTERFACE.....	9
2.2 MODE SWITCH.....	9
3. INSTALLATION PROCEDURES	10
3.1 DEFAULT SETTINGS	10
3.2 ASSIGNING A NEW IP ADDRESS BY ARP COMMAND	10
3.3 AUTO IP WITH DHCP	11
3.4 TCP/IP PORT NUMBER	12
4. SOFTWARE CONFIGURATION.....	13
4.1 CONFIGURE BY SERIALMANAGER.....	13
4.2 CONFIGURE BY TELNET UTILITY.....	13
4.3 CONFIGURE BY HYPER TERMINAL CONSOLE UTILITY	23
4.4 CONFIGURE BY WEB BROWSER	24
4.5 VIRTUAL COM MODE	30
4.5.1 Setup of a virtual COM driver	30
4.5.2 Virtual COM communication	31
5. SNMP SETUP	36
5.1 SNMP NETWORK MANAGEMENT PLATFORM	36
5.2 USING NETWORKVIEW AS AN EXAMPLE	36
6. START WRITING ONES OWN APPLICATIONS.....	38
6.1 PREPARING THE SYSTEM.....	38
6.2 RUNNING THE SAMPLE PROGRAM.....	38
6.2.1 TCPTTEST in Visual Basic	38
6.2.2 TCPTTEST2 in Visual C	39
7. DIAGNOSTICS	41
7.1 USE STANDARD TCP/IP UTILITY <i>PING</i> COMMAND	41

7.2 USE SERIALMANAGER CONFIGURATION UTILITY PROGRAM	41
7.3 USE TCPTTEST.EXE OR TCPTTEST2.EXE SAMPLE PROGRAM	42
APPENDIX A: GW51C-MAXI SERIAL SERVER SPECIFICATIONS	43
A.1. HARDWARE SPECIFICATIONS	43
A.2. SOFTWARE SPECIFICATIONS	44
A.3 CONNECTOR PIN ASSIGNMENTS	44
A.3.1 COM Port.....	44
A.3.2 Ethernet Port (RJ-45)	46
A.3.3 Power terminal block connector	47
A.4 BUZZER/LED MESSAGE	47
A.4.1 Buzzer	47
A.4.2 LAN LED.....	47
A.4.3 COM Port LED.....	48
A.4.4 RUN LED	48
APPENDIX B. UPGRADE SYSTEM SOFTWARE.....	49
B.1 UPGRADE PROCEDURES	49
B.2 CRITICAL ISSUES OF UPGRADING	50
B.3 ERROR MESSAGES	50
APPENDIX C. HARDWARE CONFIGURATION	51
C.1 DISABLE SYSTEM FIRMWARE	51
APPENDIX D CONFIGURATION UTILITY	52
D.1. SERIALMANAGER INTRODUCTION	52
D.2. INTERFACE	52
D.3. FUNCTIONS	52

1. Introduction

GW51C-MAXI Serial Server is a gateway between Ethernet (TCP/IP) and RS-232/RS-485 communications. The information transmitted by GW51C-MAXI Serial Server is transparent to both host computers (Ethernet) and devices (RS-232/RS-485). Data coming from the Ethernet (TCP/IP) is sent to the designated RS-232/RS-485 port and data being received from RS-232/RS-485 port is sent to the Ethernet (TCP/IP) transparently.

In the computer integration manufacturing or industrial automation area, the GW51C-MAXI Serial Server is used for field devices to direct connect to Ethernet network. Terminal Server (main control program run in GW51C-MAXI Serial Server) transforms whatever data received from RS-232/RS-485 to TCP/UDP port then connect devices to the Ethernet network via a single application program or multiple application programs.

Many control devices provide the ability to communicate with hosts through RS-232/RS-485 however RS-232/RS-485 serial communication has its limitations. For one, it is hard to transfer data through a long distance. With GW51C-MAXI Serial Server, it is possible to communicate with a remote device in the Intranet environment or even in the Internet and thus, increases the communication distance dramatically.

GW51C-MAXI Serial Server from Atop Technologies Inc. offers one RS-232/ RS-485 port, one RJ45 Ethernet and Watch-Dog Timer etc.

1.1 Packaging

- Atop Wireless Serial Server x 1
- 5 pins Terminal Block for Serial Connector x 1
- 3 pins Terminal Block for Power Connector x 1
- Mini DIN to DB-9 Cable x 1
- Wall mount kits x 2
- Atop Wireless Serial Server quick start guide x 1
- Product CD containing configuration utility x 1
- Product Warranty card x 1

Optional Accessories :

- Power Adapter with Terminal block output 12V1.25A
 - (1) US315-12 (US) Switching adapter
 - (2) US315-12 (EU) Switching adapter

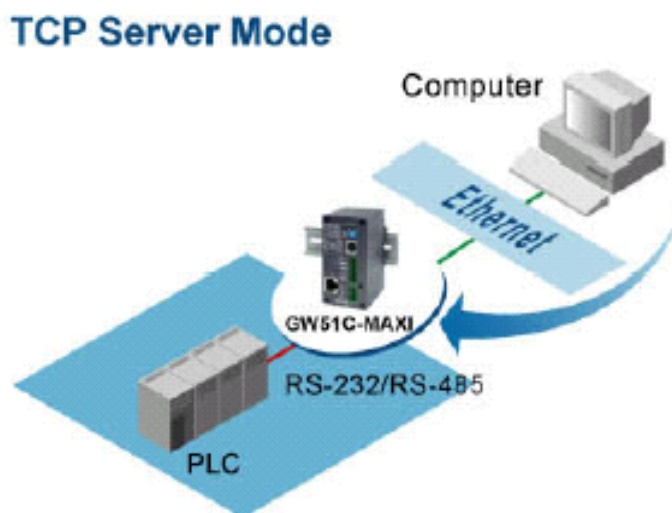
UL Notice for Power supplier

All the series of GW products are intended to be supplied by a Listed Power Unit marked with "LPS", "Limited Power Source" or "Class 2" and output rate 9~30VDC, 0.3A minimum. Or, use the recommended power supply in "Optional Accessories".

1. 2 Application Connectivity

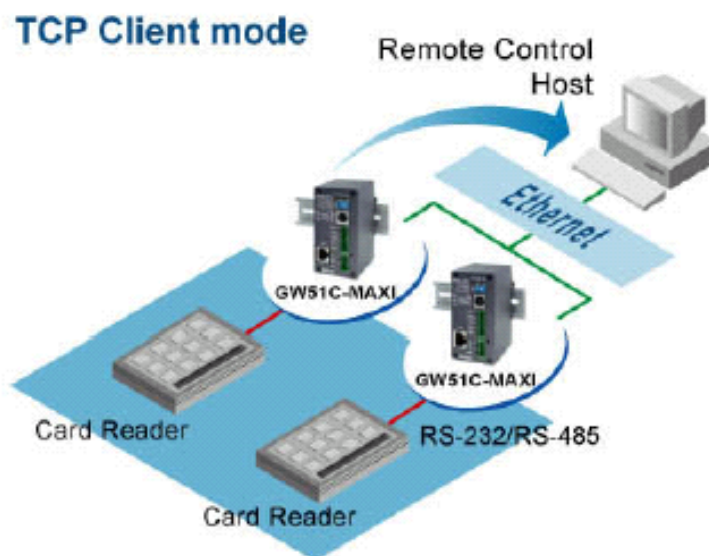
The GW51C-MAXI Serial Server can be operated in one of the following 4 modes:

TCP Server Mode : GW51C-MAXI Serial Server can be configured in a TCP server mode on an Ethernet Network to wait for the host computer to establish a connection with the serial device (the client). After the connection is established, data can flow in both directions (TCP Server Mode).



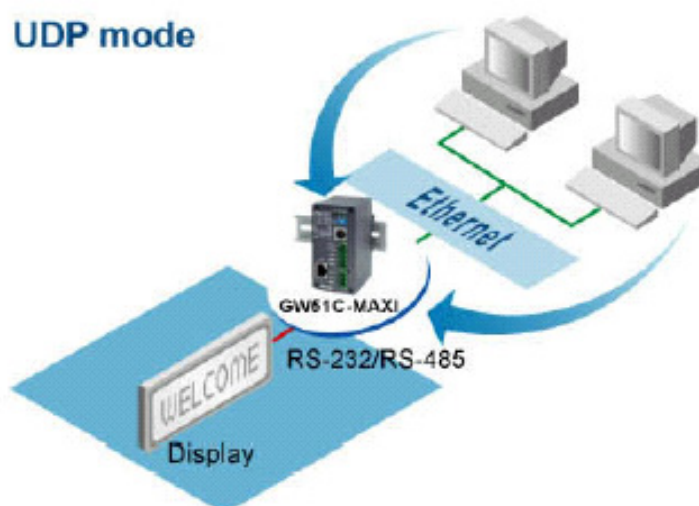
TCP Server Mode

TCP Client Mode : GW51C-MAXI Serial Server can be configured in a TCP client mode on a TCP/IP Network to actively establish a connection with an applications server –the host computer. After the connection is established, data can flow in both directions (TCP Client Mode)



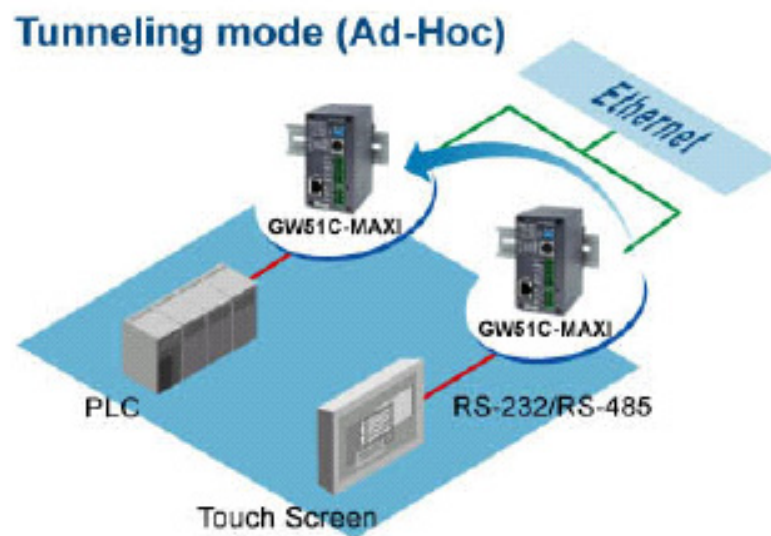
TCP Client Mode

UDP Mode : UDP is a fast but non-guaranteed datagram delivery protocol. GW51C-MAXI Serial Server can be configured in a UDP mode on a TCP/IP Network to establish a connection, using unicast or broadcast data to and from a serial device to one or multiple host computers (UDP Mode)



UDP Mode

Tunneling Mode(Pair Connection) : The tunneling mode is used for multiple serial devices to “talk” to each other through GW51C-MAXI Serial Server’s and their Ethernet connections (Tunneling Mode). This mode is particularly useful when two serial devices are far away, because their communication distance is limited to 15 m.



Tunneling Mode

2. Hardware Description

2.1 Interface

Figure 2.1 shows the interface of GW51C-MAXI Serial Server Connectors、LEDs & the factory switch settings.

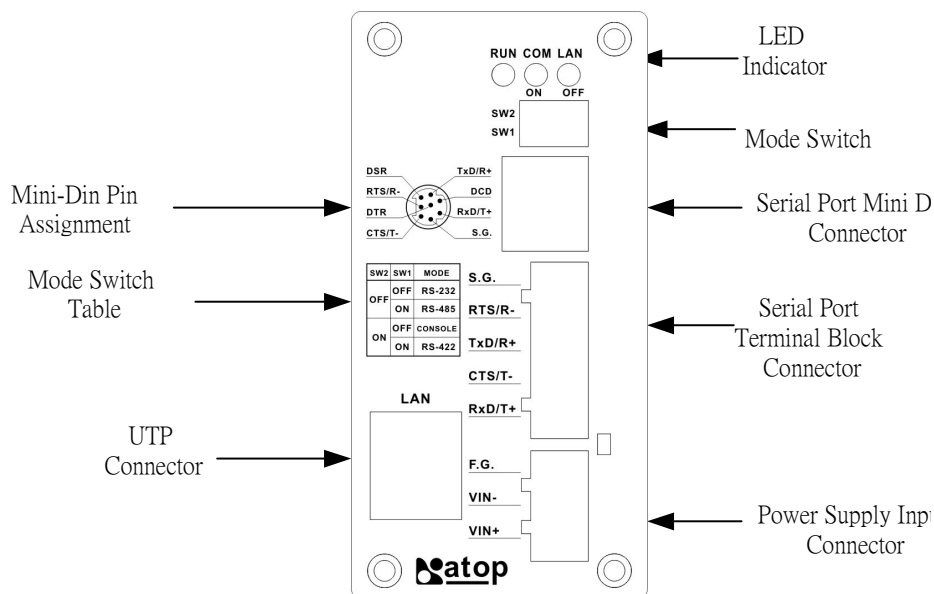


Figure 2.1. Front Plate of GW51C-MAXI Serial Server

2.2 MODE Switch

This sets or initializes the operating mode for the GW51C-MAXI Serial Server. The factory default setting is that Switch 1 (SW1) and Switch 2 (SW2) are set to OFF. You can use the Mode switch to change the operating mode from the factory default settings to your desired mode.

GW51C-MAXI Serial Server can be setup either RS-232, RS-485, RS-422 or Console configuration mode by MODE Switch.

SW1	SW2	Mode
OFF	OFF	RS-232
	ON	CONSOLE
ON	OFF	RS-485
	ON	RS-422

3. Installation Procedures

- Prepare necessary cables, hub, power cord and RS232/RS485 connector.
- Connect GW51C-MAXI Serial Server to Ethernet network via hub/switch or direct connect to host computer through cross over cable.
- Connect a serial device to a serial port of GW51C-MAXI Serial Server, make sure the right connection of either RS-232 or RS-485.
- Plug in DC9-30V, the buzzer will beep and the RUN LED will blink if GW51C-MAXI Serial Server functions normally. Please refer to Appendix A.4 to see all of LED messages.
- Use **SerialManager** configuration utility in the product CD or diskette to diagnose GW51C-MAXI Serial Server. If it starts up successfully, you are able to find the IP and MAC addresses of GW51C-MAXI Serial Server. One can change the network parameters of GW51C-MAXI Serial Server to join your LAN by changing its IP address, gateway IP address and subnet mask.

3.1 Default settings

GW51C-MAXI Serial Server is shipped with default settings shown in the following table:

Property	Default Value
IP Address	10.0.50.100
Gateway	10.0.0.254
Subnet Mask	255.255.0.0
User Name	admin
Password	Null
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

Note: One can press the default button to restore system settings including IP address, gateway IP address and subnet mask etc. to the defaults. Press and hold the default button for 5 seconds till the server reboots.

3.2 Assigning a new IP Address by ARP command

ARP -s is used to assign a static IP address of GW51C-MAXI Serial Server and add this static entries to the ARP cache of the computer, when TCP/IP packet with destination port number 1 is sent to GW51C-MAXI Serial Server, it causes the device to check its MAC address with IP address, once GW51C-MAXI Serial Server finds those two unmatched, it will reboot and change to the new IP address which was set by ARP -s command. The following example uses ARP to assign a static IP address of

GW51C-MAXI Serial Server using its MAC address printed on the label of the rear panel, then use Telnet to send the TCP/IP packet with destination port number 1 to GW51C-MAXI Serial Server, after GW51C-MAXI Serial Server reboots it will change its IP address to the new one.



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

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

C:\>arp -a

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

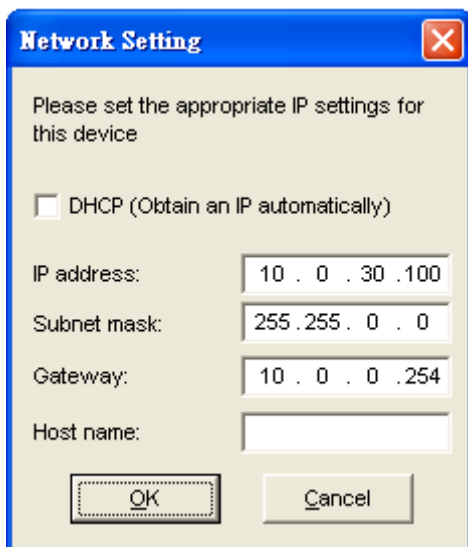
C:\>telnet 10.0.50.101 1
Connecting To 10.0.50.101...
```

Notes:

1. Arp command can only be used to set a static IP address of GW51C-MAXI Serial Server using system default user name admin and default password null.
2. Only TCP/IP packet with destination port number 1 will lead GW51C-MAXI Serial Server to reboot and change the IP address.

3.3 Auto IP with DHCP

A DHCP server automatically assigns the IP address and network settings. GW51C-MAXI Serial Server supports DHCP. It will supply for the unit with an IP address gateway address, and subnet mask. You may use **SerialManager** software to search network information automatically by putting a check on **Auto IP** on Dialog window.



The image shows a 'Network Setting' dialog box with a blue title bar and a red close button. The text inside says 'Please set the appropriate IP settings for this device'. There is a checkbox for 'DHCP (Obtain an IP automatically)' which is currently unchecked. Below this are four input fields: 'IP address:' with the value '10 . 0 . 30 . 100', 'Subnet mask:' with '255 . 255 . 0 . 0', 'Gateway:' with '10 . 0 . 0 . 254', and 'Host name:' which is empty. At the bottom are 'OK' and 'Cancel' buttons.

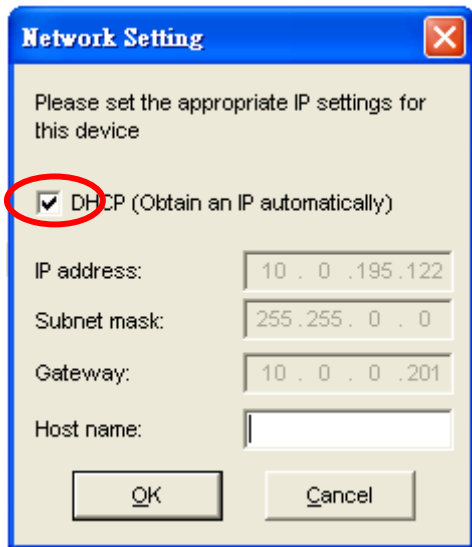
3.4 TCP/IP Port Number

Port number 4660 is default of GW51C-MAXI Serial Server and is associated with serial port COM1 respectively. After your application program connects to the TCP port 4660 of GW51C-MAXI Serial Server, data being sent to this TCP connection from your application program are transparent to the COM1 of GW51C-MAXI Serial Server. Vice versa is also true.

4. Software Configuration

4.1 Configure by SerialManager

Use **SerialManager** that comes with the product CD or diskette to configure the network parameters of GW51C-MAXI Serial Server. As you can see from the following picture, you can change IP address, gateway IP address, subnet mask, user ID and password of GW51C-MAXI Serial Server from the utility. For more details of the utility please refer to Appendix-D Configuration Utility.



4.2 Configure by Telnet utility

You can use Telnet utility to change configuration settings of GW51C-MAXI Serial Server. To do so, please do the following.

Log in to the system

Using the following command Telnet to GW51C-MAXI Serial Server "**Telnet IP_address**".

For example Telnet 10.0.50.100

1. After telnet to GW51C-MAXI Serial Server, system prompts for a password, the default password is null (leave it blank).

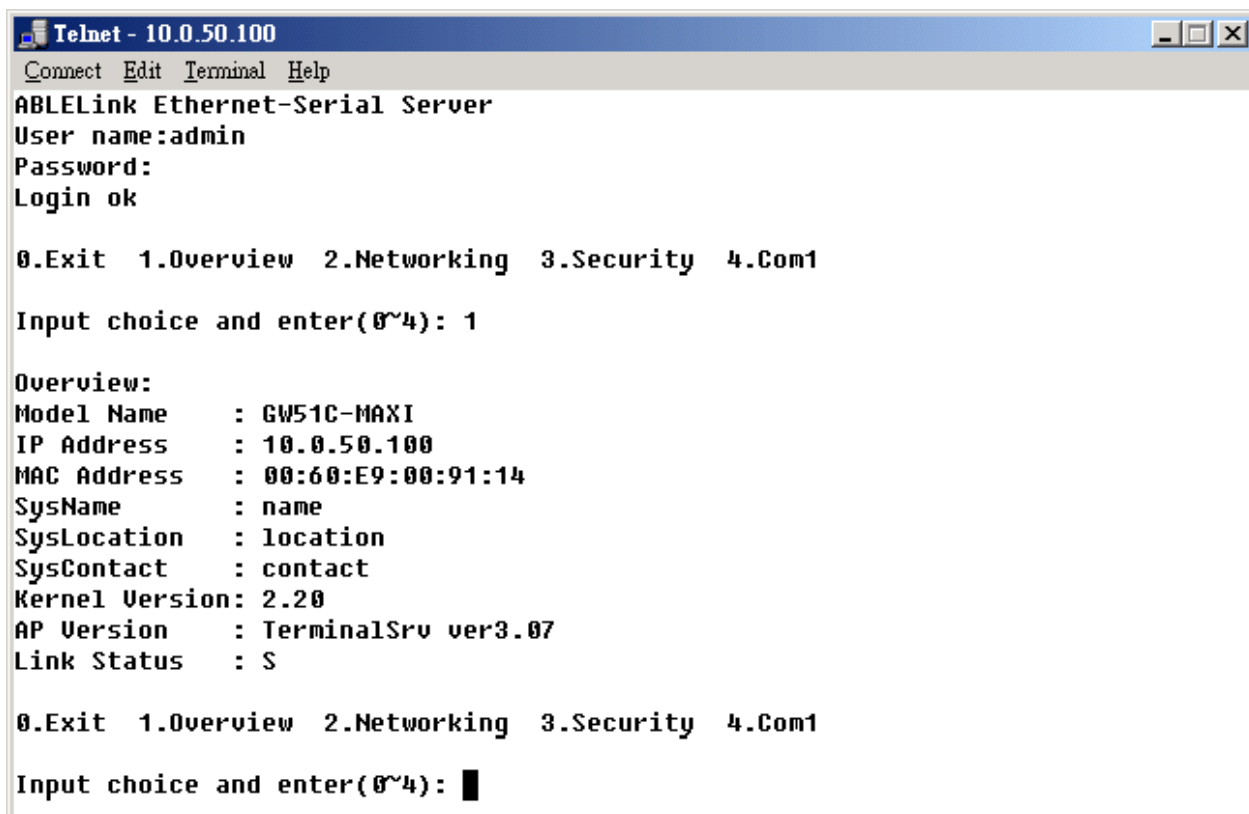


Note: One can press the default button of GW51C-MAXI Serial Server to reset the password to the default value.

2. After verifying the password, the following terminal screen appears.

NOTE:

1. If GW51C-MAXI Serial Server does not receive any command within 1 **minute**, Telnet will be terminated automatically.
2. The changes of networking parameters will take effect only when you exit and restart GW51C-MAXI Serial Server.
3. Select "1" from "Input choice and enter (0~4):" to enter overview page as following:



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 1

Overview:
Model Name      : GW51C-MAXI
IP Address      : 10.0.50.100
MAC Address     : 00:60:E9:00:91:14
SysName        : name
SysLocation     : location
SysContact      : contact
Kernel Version  : 2.20
AP Version      : TerminalSrv ver3.07
Link Status     : S

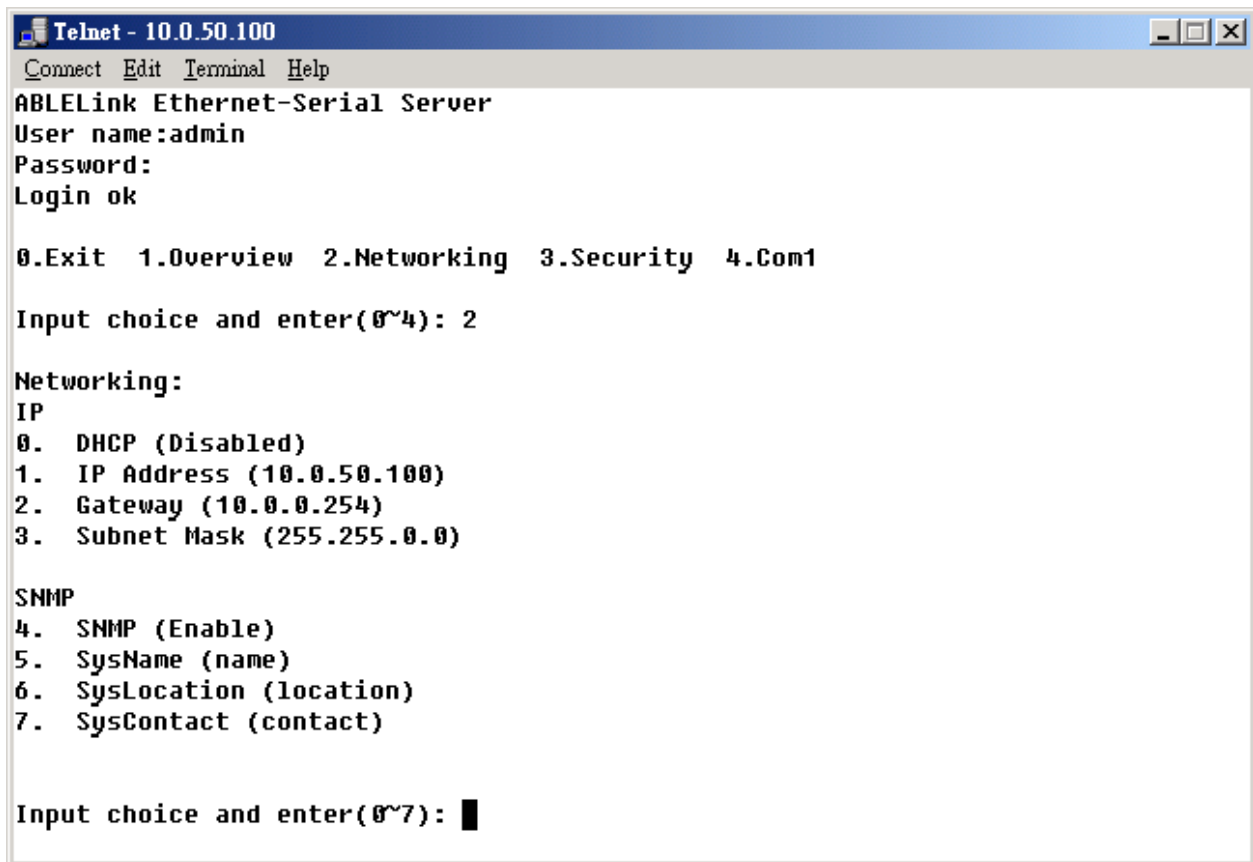
0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): █
```

This page gives one the general information of GW51C-MAXI Serial Server including IP and MAC address, SNMP information, kernel and AP version, and connection status of the device.

Networking

Select "2" from "Input choice and enter (0~4):" to enter Networking page as following:



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 2

Networking:
IP
0. DHCP (Disabled)
1. IP Address (10.0.50.100)
2. Gateway (10.0.0.254)
3. Subnet Mask (255.255.0.0)

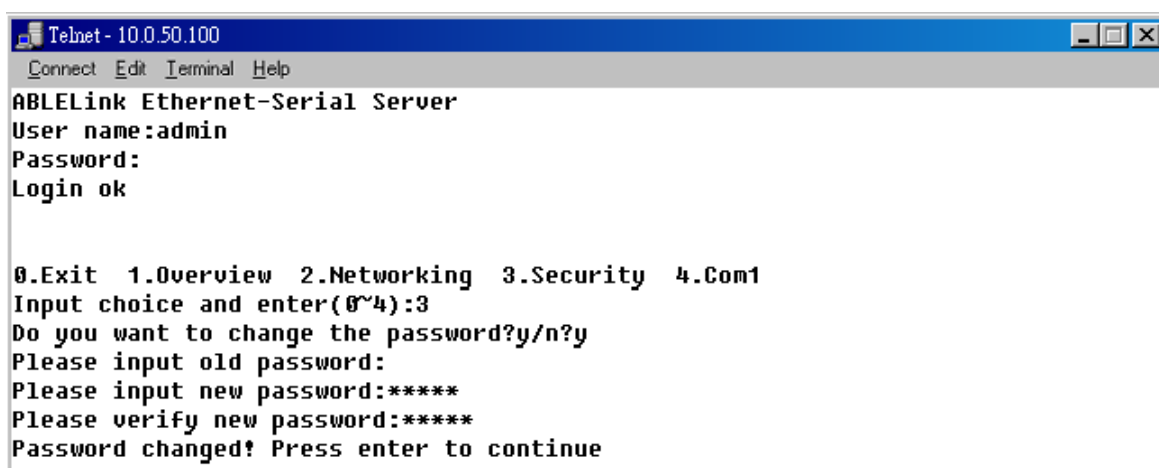
SNMP
4. SNMP (Enable)
5. SysName (name)
6. SysLocation (location)
7. SysContact (contact)

Input choice and enter(0~7):
```

This page allows one to change network settings of the device including IP address, subnet mask, gateway IP address and SNMP information of GW51C-MAXI Serial Server. Please notice that any setting change made on this page won't take effect until you restart the device.

Change the password

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



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

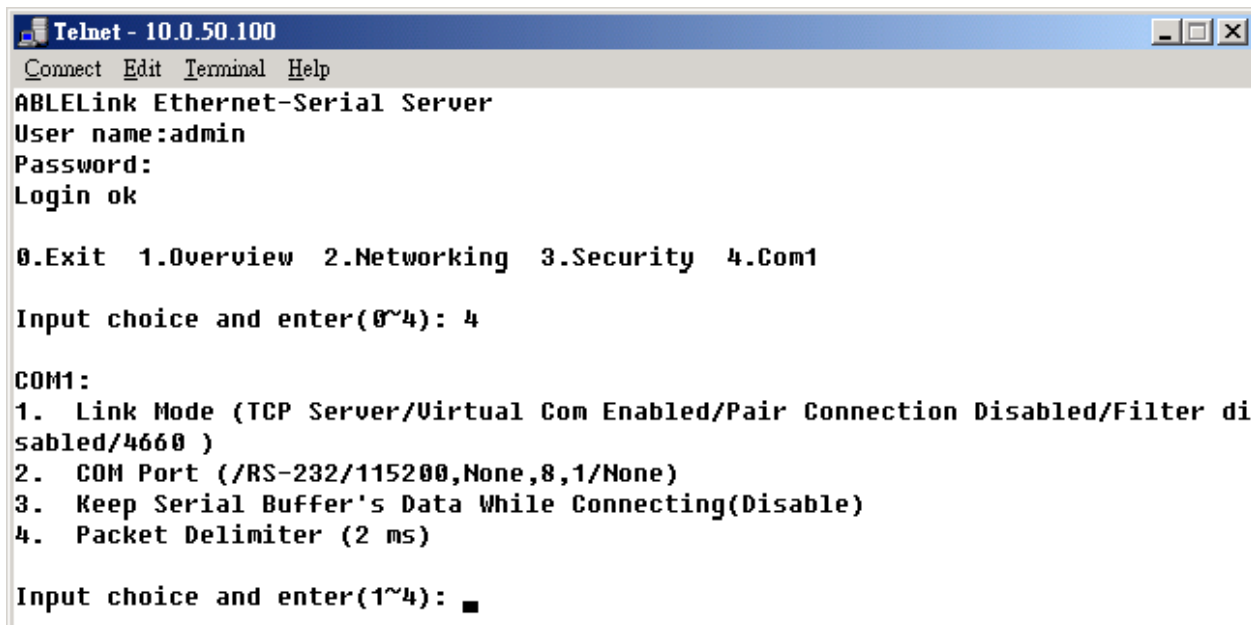
0.Exit 1.Overview 2.Networking 3.Security 4.Com1
Input choice and enter(0~4):3
Do you want to change the password?y/n?y
Please input old password:
Please input new password:*****
Please verify new password:*****
Password changed! Press enter to continue
```

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

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

COM1 Setup

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



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/115200,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Disable)
4. Packet Delimiter (2 ms)

Input choice and enter(1~4):
```

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

LINK1 Setup

Enter in 1 from "Input choice and enter (1~4):" of COM1, the following screen appears. Configure GW51C-MAXI Serial Server as TCP server and the local port is 4660. IP filter is disabled by default, if IP filter is enabled, only source IP 10.0.0.154 can connect to GW51C-MAXI Serial Server.

Note: IP filtering function is disabled if setting FILTER_IP to "0.0.0.0".

```
Telnet - 10.0.50.100
Connect Edit Terminal Help
0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Disabled/Pair Connection Disabled/Filter d
disabled/4660 )
2. COM Port (/RS-232/115200,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Disable)
4. Packet Delimiter (2 ms)

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

Input choice (1 ~ 5) and enter: 1
TCP server
Please input local port:4660
Do you want to enable IP filter?Y/N?y
Please input FILTER_IP:10.0.0.154
mode changed! Press enter to continue
```

Configure GW51C-MAXI Serial Server as TCP client, the destination IP is 10.0.29.123, destination port is 666.

```
Telnet - 10.0.50.100
Connect Edit Terminal Help

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/115200,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Disable)
4. Packet Delimiter (2 ms)

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

Input choice (1 ~ 5) and enter: 2
TCP client
Please input destination IP:10.0.29.123
Please input destination port:666
mode changed! Press enter to continue
```

Configure GW51C-MAXI Serial Server as UDP client, the local port is 4660, the destination IP is 10.0.29.254, destination port is 666.

```
Telnet - 10.0.50.100
Connect Edit Terminal Help
0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Client/Virtual Com Disabled/Pair Connection Disabled/Remote 1
0.0.29.123/666)
2. COM Port (/RS-232/9600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Disable)
4. Packet Delimiter (2 ms)

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

Input choice (1 ~ 5) and enter: 3
UDP
Please input local port:4660
Please input destination IP:10.0.29.254
Please input destination port:666
mode changed! Press enter to continue
```

COM port setting

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

```
Telnet - 10.0.50.100
Connect Edit Terminal Help
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/57600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Enable)
4. Packet Delimiter (2 ms)

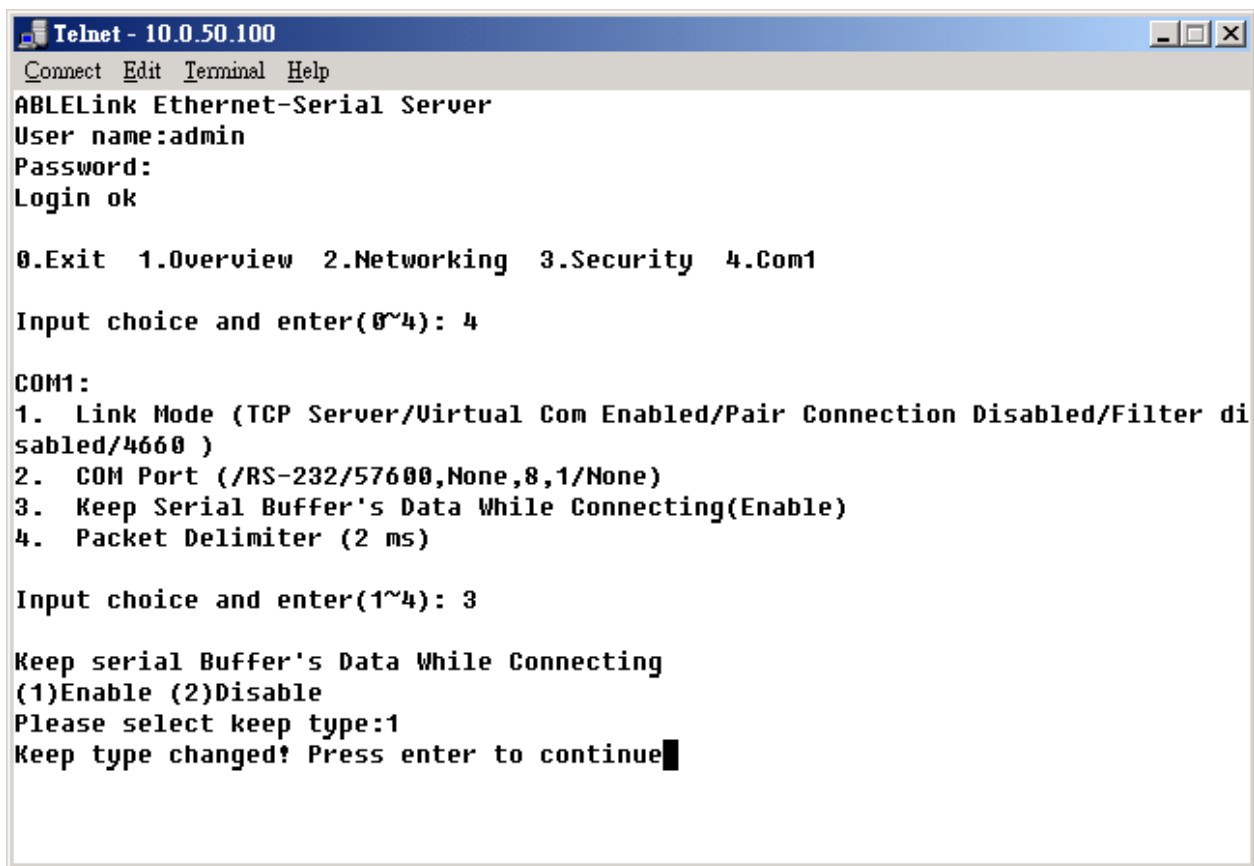
Input choice and enter(1~4): 2

COM Port: RS-232
1. Alias name():
2. Baud rate(57600):
3. Parity(None):
4. Data bit(8):
5. Stop bit(1):
6. Flow control(None):

Input choice and enter(1~6):
```

Enabling serial data buffer

Enter in 3 from "Input choice and enter (1~4):" of COM1, by default COM port serial data buffer is enabled meaning that when TCP/IP Ethernet connection is broken, serial data collected from serial device will be kept in GW51C-MAXI Serial Server, once TCP/IP connection is resumed, the serial data will be sent through Ethernet connection, one can disable it if one wish.



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

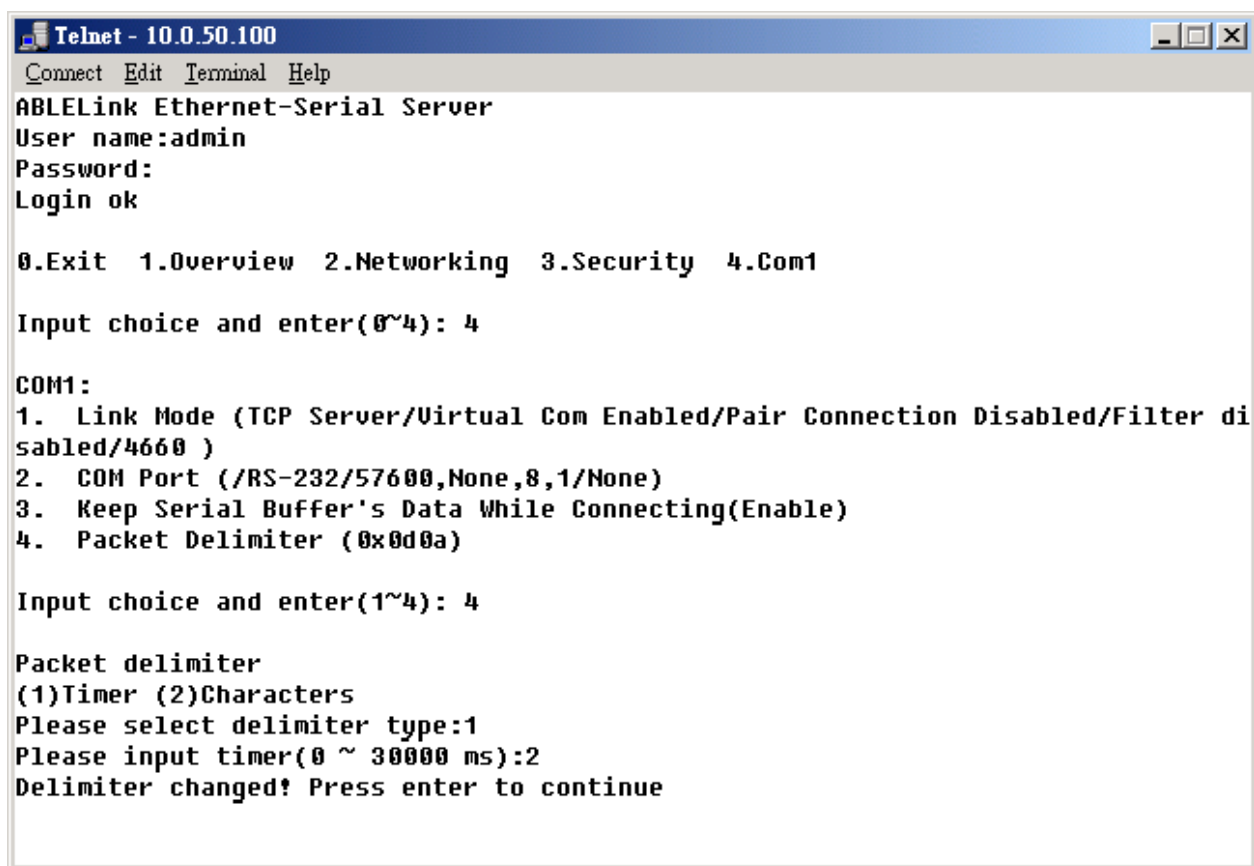
COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/57600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Enable)
4. Packet Delimiter (2 ms)

Input choice and enter(1~4): 3

Keep serial Buffer's Data While Connecting
(1)Enable (2)Disable
Please select keep type:1
Keep type changed? Press enter to continue
```

Setting packet delimiter

Packet delimiter is a way of controlling packets within serial communication. It can prevent packets from being cut thus keep the packets complete. GW51C-MAXI Serial Server provides two ways of parameter setting as inter character timer and terminator. By default packet delimiter timer is 1 ms, one can change timer shown in the following figure:



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

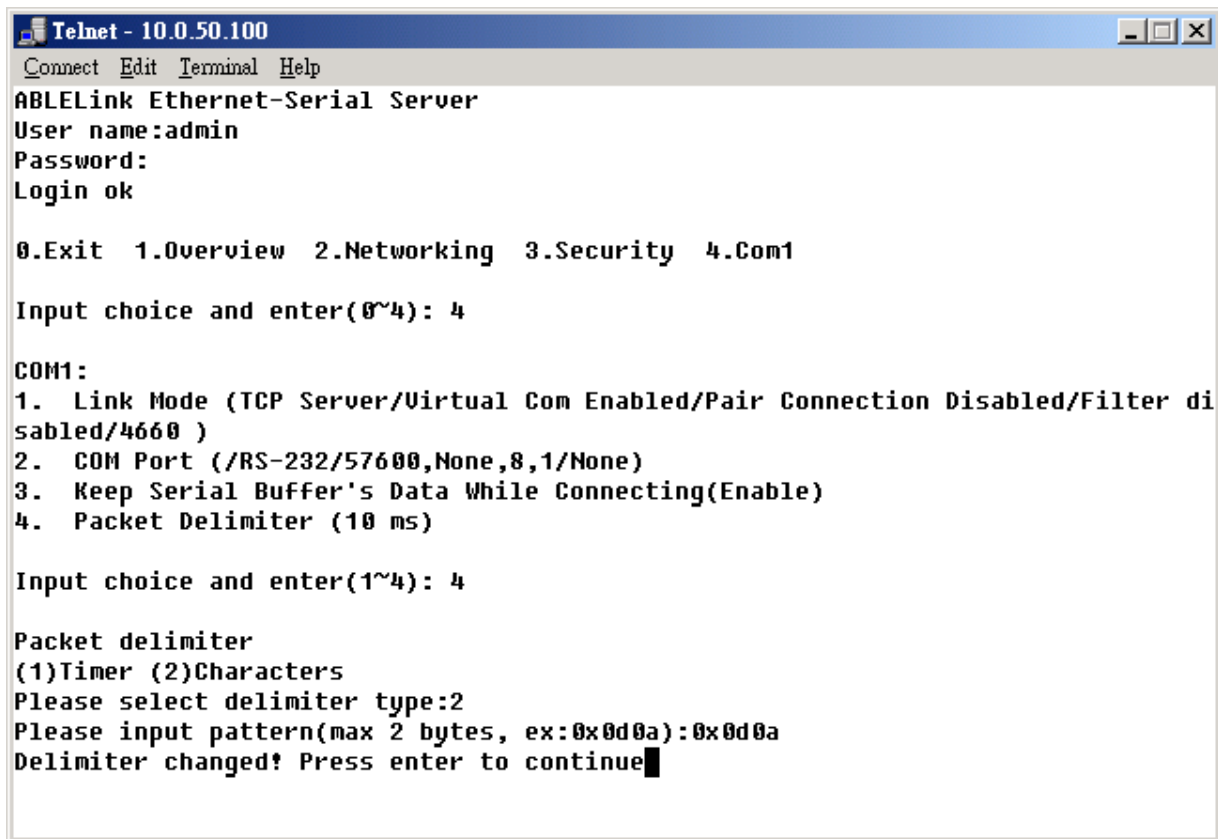
Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/57600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Enable)
4. Packet Delimiter (0x0d0a)

Input choice and enter(1~4): 4

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

One can also choose character pattern as the packet delimiter indicated in the following figure:



```
Telnet - 10.0.50.100
Connect Edit Terminal Help
ABLELink Ethernet-Serial Server
User name:admin
Password:
Login ok

0.Exit 1.Overview 2.Networking 3.Security 4.Com1

Input choice and enter(0~4): 4

COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Filter disabled/4660 )
2. COM Port (/RS-232/57600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Enable)
4. Packet Delimiter (10 ms)

Input choice and enter(1~4): 4

Packet delimiter
(1)Timer (2)Characters
Please select delimiter type:2
Please input pattern(max 2 bytes, ex:0x0d0a):0x0d0a
Delimiter changed! Press enter to continue
```

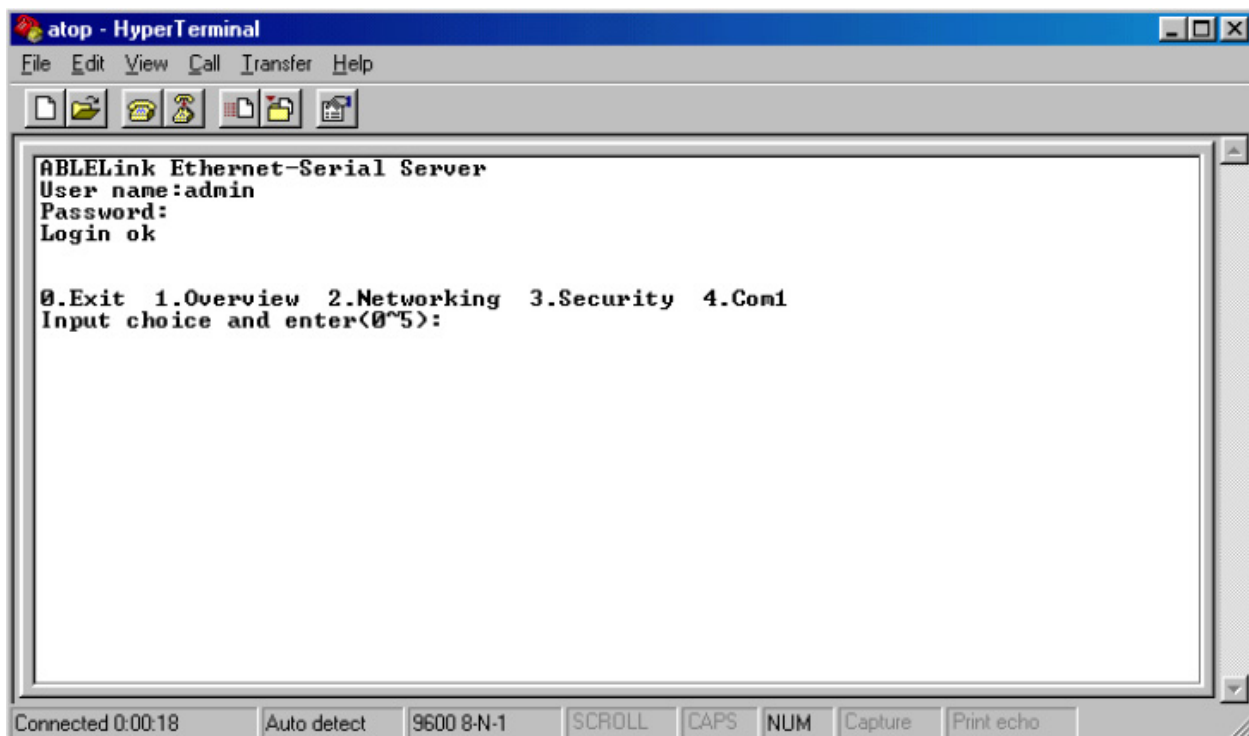
4.3 Configure by Hyper Terminal console utility

1. Power off GW51C-MAXI Serial Server.
2. Set the MODE switch SW1 to 'OFF' and SW2 to 'ON'.
3. Use a PC to connect to GW51C-MAXI Serial Server's console with RS-232 cross over cable.
4. Power on GW51C-MAXI Serial Server.
5. Open a Hyper Terminal program from ones computer Start menu -> Programs -> Accessories -> Communication -> Hyper Terminal, set COM2 parameters as follows.
 - Baud rate: 9600 bps
 - Data bit: 8 bits
 - Parity: None
 - Stop bit: 1bit
 - Flow control: None

Note:

At present time baud rate is fixed at **9600, 8, n, 1, without flow control** for console port communication, RS-232C parameters of ones computer COM port and GW51C-MAXI Serial Server must be the same.

- Once Hyper Terminal is connected, enter in username and password then the following Hyper Terminal window appears,



- The following configuration operations are totally the same as those by Telnet.
- After finishing console settings, power off GW51C-MAXI Serial Server, put SW1 and SW2 back to the previous setting.

4.4 Configure by web browser

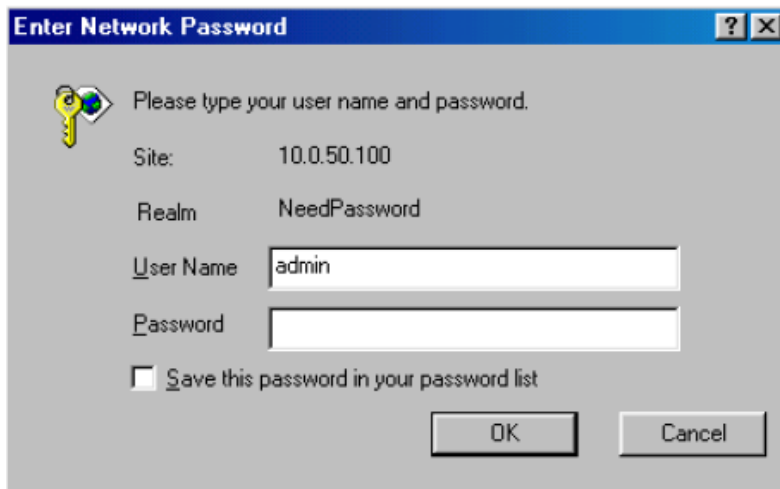
It is also possible to modify various settings through the web server interface. To do so, please follow the steps below.

Log in to the system

- From web browser, enter in the IP address of GW51C-MAXI Serial Server in the URL.

Example: <http://10.0.50.100>

- The following authentication screen appears. Please enter in user name and password then click on OK. The user name is admin and password is null by default.



Enter Network Password

Please type your user name and password.

Site: 10.0.50.100

Realm: NeedPassword

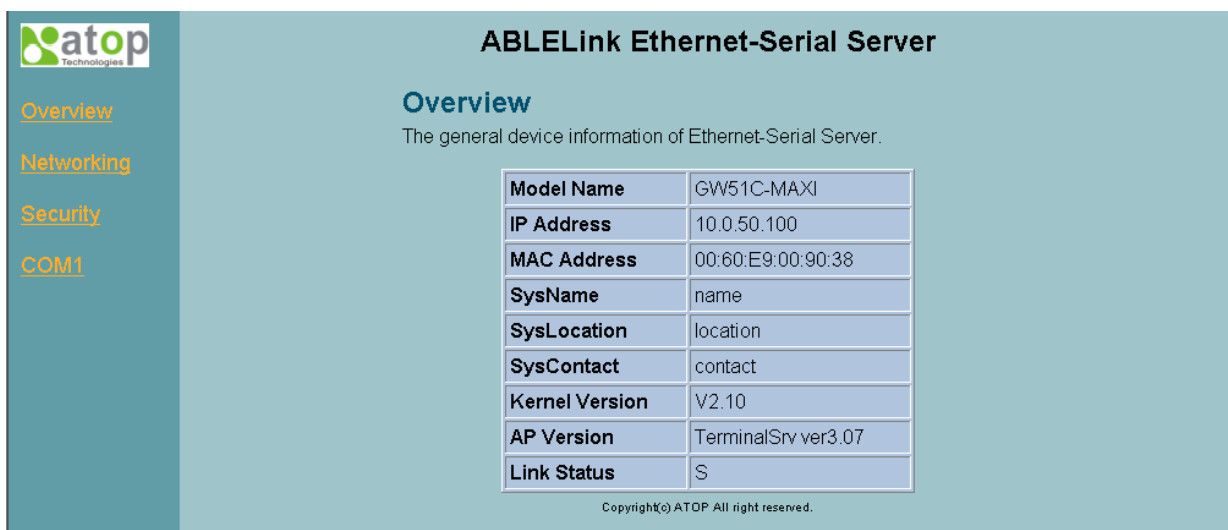
User Name: admin

Password:

☐ Save this password in your password list

OK Cancel

3. The following overview page appears.



atop Technologies

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

ABLELink Ethernet-Serial Server

Overview

The general device information of Ethernet-Serial Server.

Model Name	GW51C-MAXI
IP Address	10.0.50.100
MAC Address	00:60:E9:00:90:38
SysName	name
SysLocation	location
SysContact	contact
Kernel Version	V2.10
AP Version	TerminalSrv ver3.07
Link Status	S

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Change the password

1. Click on the "Security" link and the following screen appears.



atop Technologies

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

ABLELink Ethernet-Serial Server

Security

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

Old Password	*****
New Password	*****
Verified Password	*****

Save Configuration

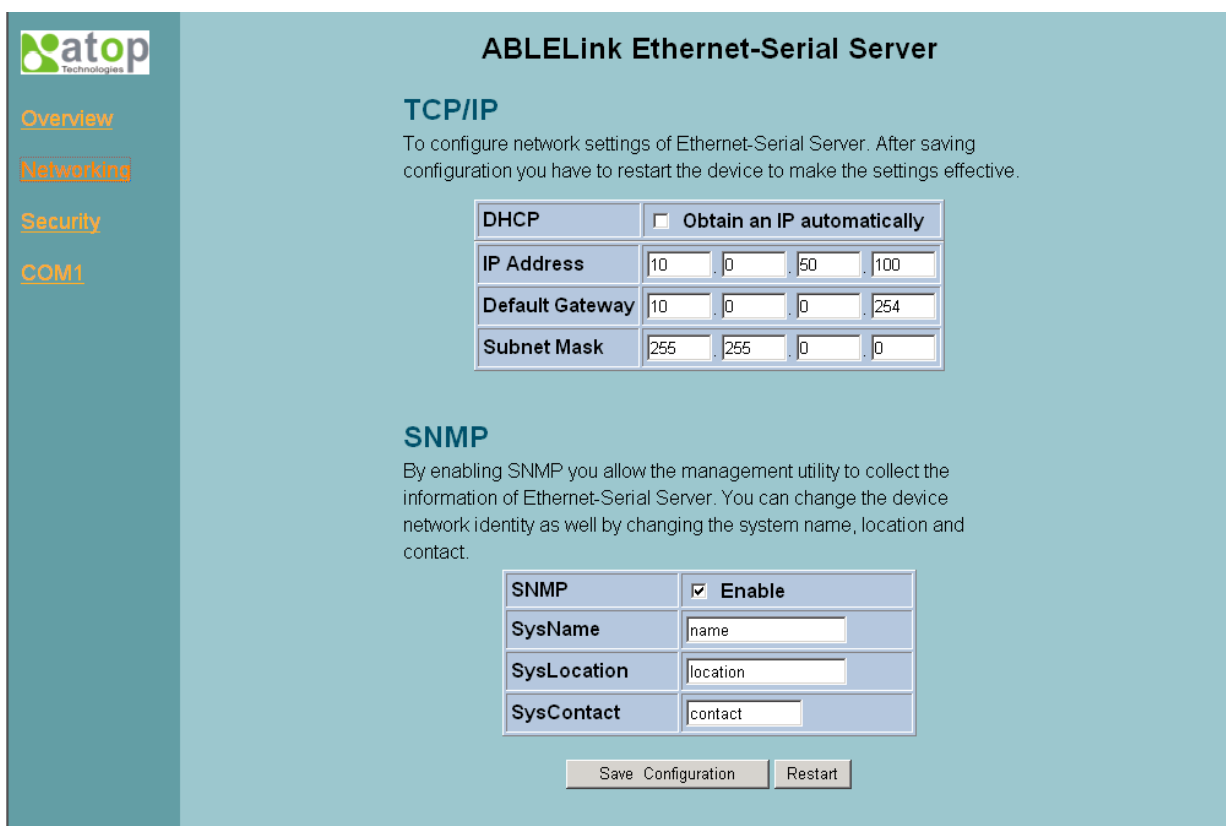
- Please input the old password in the “Old Password” field, input the new password in the “New Password” and the “Verified Password” fields, and then click on “Save Configuration” to update the password.

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

Network setup

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

Enable SNMP by checking “Enable”, fill in network identification information under SNMP field and click on the “Save Configuration” button to save the changes, please notice that the setting will not become effective until one restart GW51C-MAXI Serial Server.



ABLELink 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 . 50 . 100
Default Gateway	10 . 0 . 0 . 254
Subnet Mask	255 . 255 . 0 . 0
SNMP By enabling SNMP you allow the management utility to collect the information of Ethernet-Serial Server. You can change the device network identity as well by changing the system name, location and contact.	
SNMP	☒ Enable
SysName	name
SysLocation	location
SysContact	contact
Save Configuration Restart	

COM1 Setup

1. Click on the “**COM1**” link and the following screen appears. Fill in COM1 parameter information under COM1 field then click on “Save Configuration” button to save the changes.



ABLELink Ethernet-Serial Server

LINK1
To choose specific working mode for COM port.

☒ TCP Server
 ☐ TCP Client
 ☐ UDP

Virtual COM	☐ Enable
Pair Connection	☐ Enable
Mitsubishi A-Series PLC	☐ Enable

Local Port	4660
IP Filter	☐ Enable
Source IP	10.0.29.254

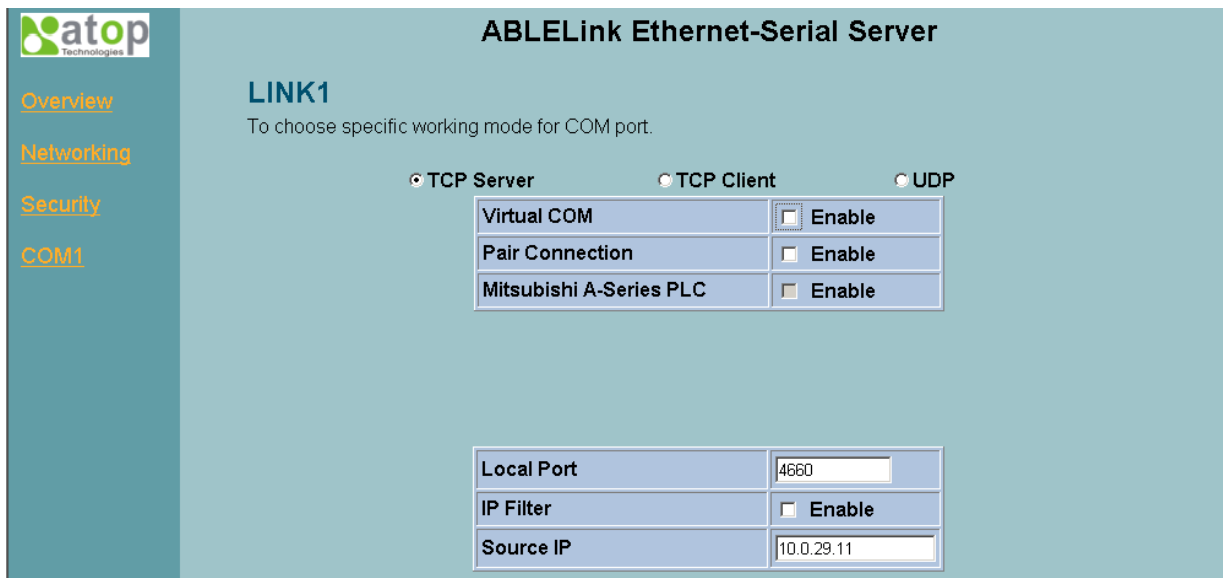
COM1
To configure COM port parameters.

Serial Interface	RS-232
Alias Name	
Baud Rate	9600
Parity	☒ None ☐ Odd ☐ Even ☐ Mark ☐ Space
Data Bits	☐ 7 bits ☒ 8 bits
Stop Bits	☒ 1 bit ☐ 2 bits
Flow Control	☒ None ☐ RTS/CTS ☐ DTR/DSR ☐ Xon/Xoff
Keep Buffer While Connecting	☒ Enable ☐ Disable
Packet Delimiter	☐ Timer (0~30000 msec) ☒ Characters 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)

Save Configuration

LINK1 Setup

1. Click on the “**COM1**” link and the following screen appears, one can configure GW51C-MAXI Serial Server as transparent mode by default. Configure GW51C-MAXI Serial Server as TCP server and the local port is 4660, IP filter is disabled by default, if IP filter is enabled, only source IP 10.0.29.11 can connect to GW51C-MAXI Serial Server.



ABLELink Ethernet-Serial Server

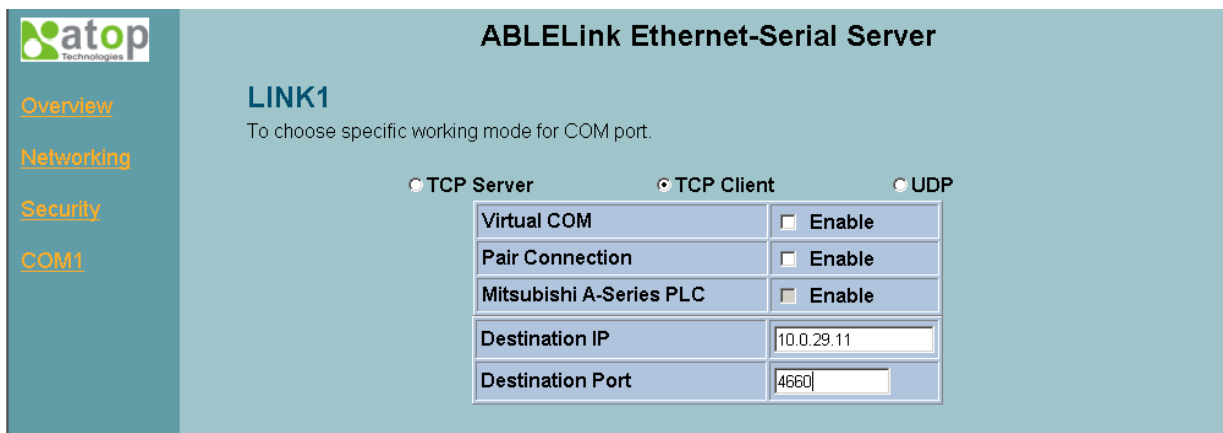
LINK1
To choose specific working mode for COM port.

☒ TCP Server
 ☐ TCP Client
 ☐ UDP

Virtual COM	☐ Enable
Pair Connection	☐ Enable
Mitsubishi A-Series PLC	☐ Enable

Local Port	4660
IP Filter	☐ Enable
Source IP	10.0.29.11

Configure GW51C-MAXI Serial Server as TCP client, the destination IP is 10.0.29.11, destination port is 4660.



ABLELink Ethernet-Serial Server

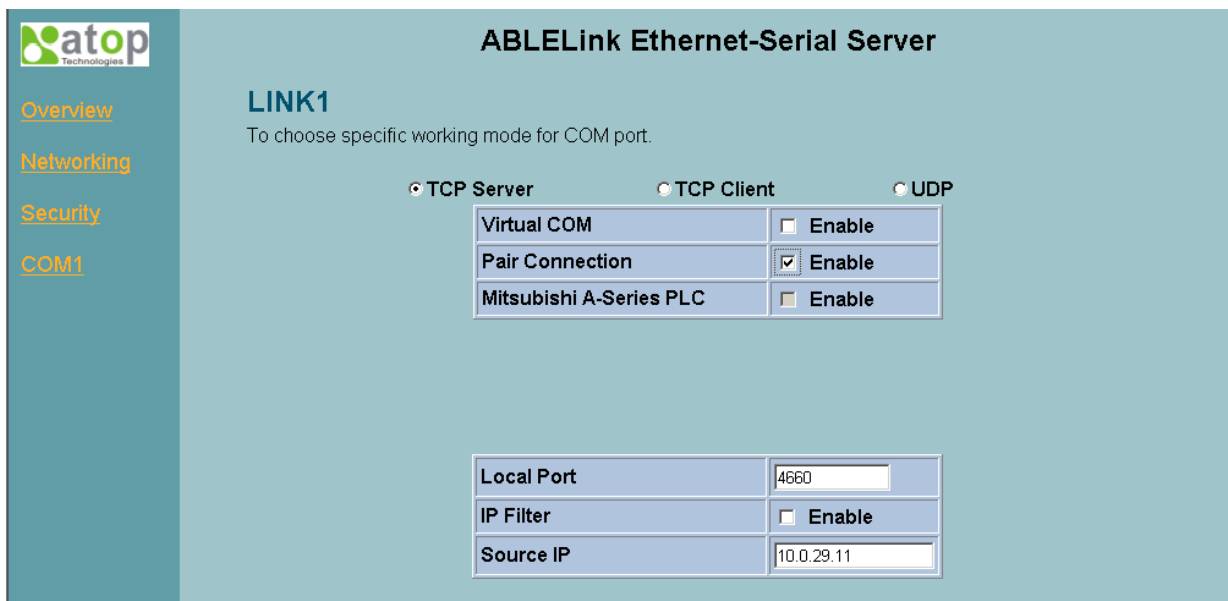
LINK1
To choose specific working mode for COM port.

☐ TCP Server
 ☒ TCP Client
 ☐ UDP

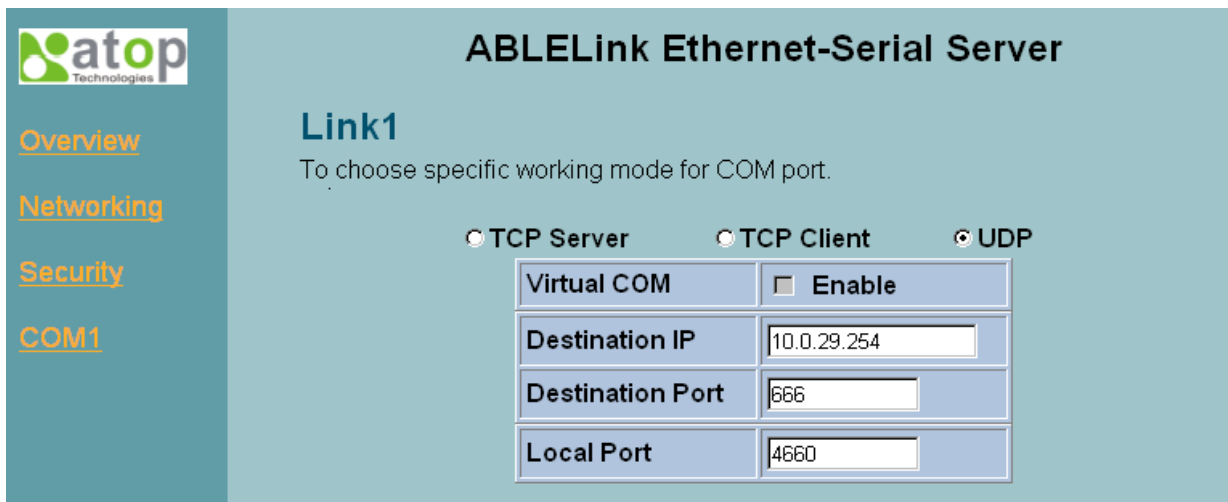
Virtual COM	☐ Enable
Pair Connection	☐ Enable
Mitsubishi A-Series PLC	☐ Enable
Destination IP	10.0.29.11
Destination Port	4660

Pair Connection (Tunneling Mode)

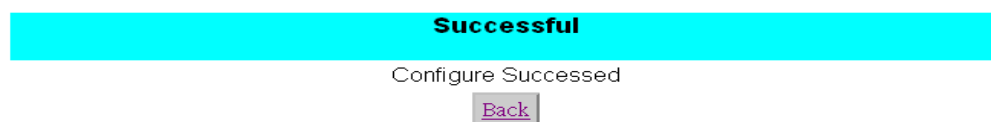
In the case of the serial connection is established with two or more GW51C-MAXI Serial Server to send data over Ethernet network, i.e. pair connection mode, one can choose “pair connection” which is indicated in the following figure to cope with any type of serial device.



Configure GW51C-MAXI Serial Server as UDP mode. Local port is 4660, destination IP is 10.0.29.254 and destination port is 4660.

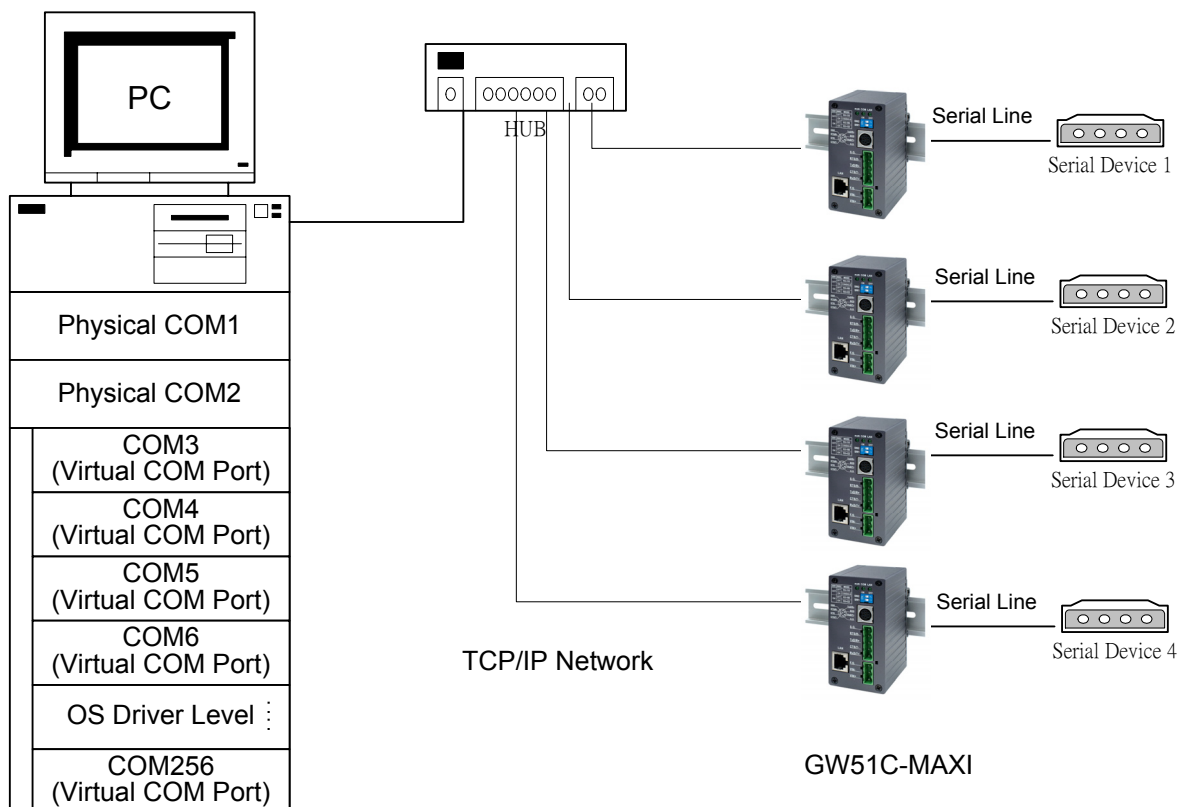


- Click on "Save Configuration" to save the changes.
- If the update is successful, the following screen appears.



4.5 Virtual COM Mode

Virtual COM driver mode for windows converts COM data to LAN data to control the RS-232C port on a GW51C-MAXI Serial Server via the LAN. By creating virtual COM ports on the PC, Atop Virtual COM redirects the communications from the virtual COM ports to an IP address and port number on a GW51C-MAXI Serial Server that connects the serial line device to the network. The following figure is Atop Virtual COM connection diagram.



4.5.1 Setup of a virtual COM driver

Pre-installation requirements

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

- Processor: Intel-compatible, Pentium class
- Operation system: Windows Server 2003, Windows XP, Windows 2000, Windows NT 4.0 SP5 or later, Windows Me, Windows 98, Windows 95, Microsoft NT/2000 Terminal Server, Citrix Meta Frame
- Windows Installer 2.0
- Network: Microsoft TCP/IP networking software

Applying to the serial server

Cautions on Use

Virtual COM supports firmware AP v3.4 and above of ABLELink Serial-Ethernet Servers.

Limitation

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

Installation

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

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

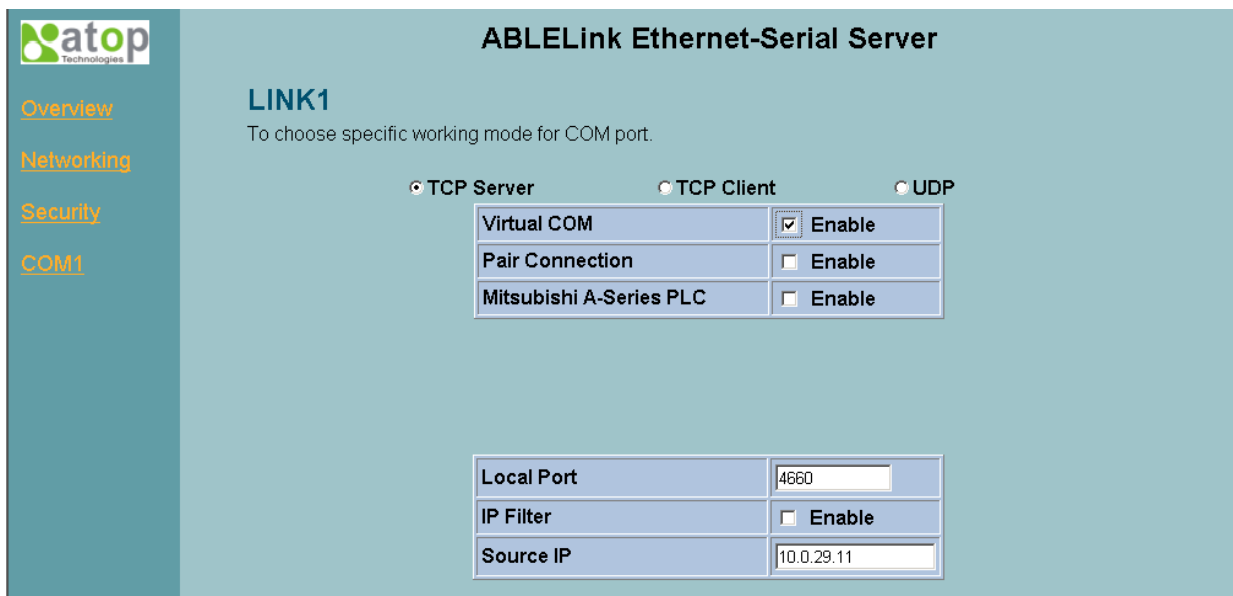
Uninstalling

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

4.5.2 Virtual COM communication

4.5.2.1 Enable Virtual COM on GW51C-MAXI Serial Server

From web browser access to GW51C-MAXI Serial Server by typing its IP address, click on COM1 link to access COM1 page, on the top half of the page click on **"TCP Server"** and enable Virtual COM by putting a check in front of the "Enable" button, then enter in the local port number in the **"Local Port"** field as indicated in the following figure:



ABLELink Ethernet-Serial Server

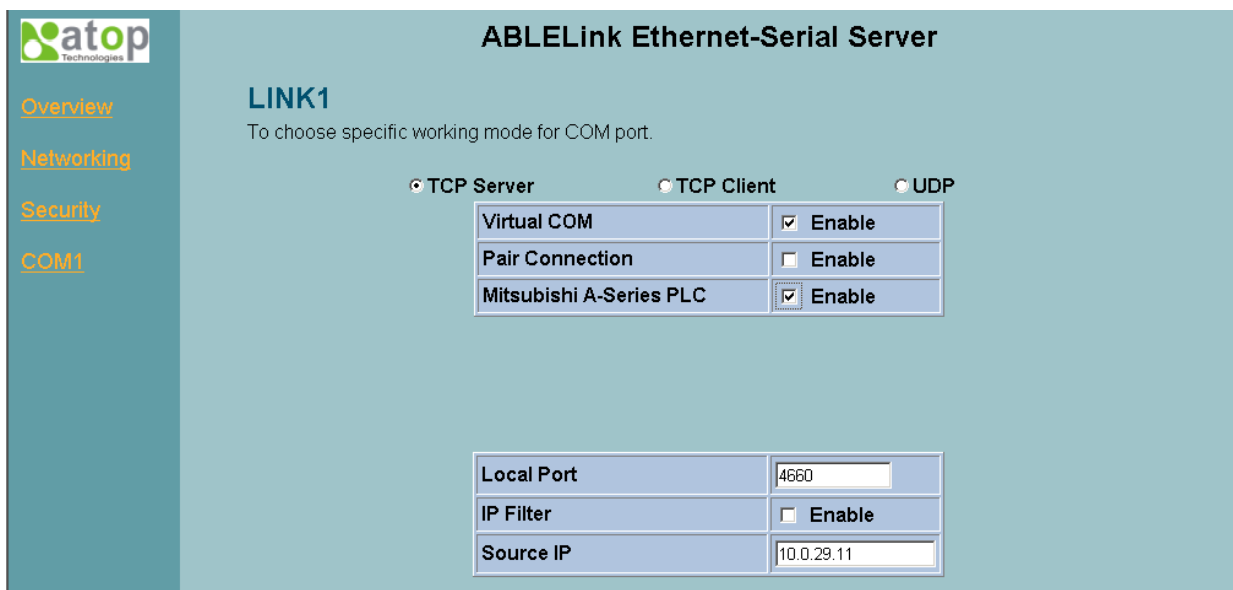
LINK1
To choose specific working mode for COM port.

☒ TCP Server ☐ TCP Client ☐ UDP

Virtual COM	☒ Enable
Pair Connection	☐ Enable
Mitsubishi A-Series PLC	☐ Enable

Local Port	4660
IP Filter	☐ Enable
Source IP	10.0.29.11

For the users of Mitsubishi A-Series PLC, it may be recommended to enable “**Mitsubishi A-Series PLC**” in the case of some connection problems occurred.



ABLELink Ethernet-Serial Server

LINK1
To choose specific working mode for COM port.

☒ TCP Server ☐ TCP Client ☐ UDP

Virtual COM	☒ Enable
Pair Connection	☐ Enable
Mitsubishi A-Series PLC	☒ Enable

Local Port	4660
IP Filter	☐ Enable
Source IP	10.0.29.11

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

```
Telnet - 10.0.50.100
Connect Edit Terminal Help

0.Exit  1.Overview  2.Networking  3.Security  4.Com1

Input choice and enter(0~4): 4

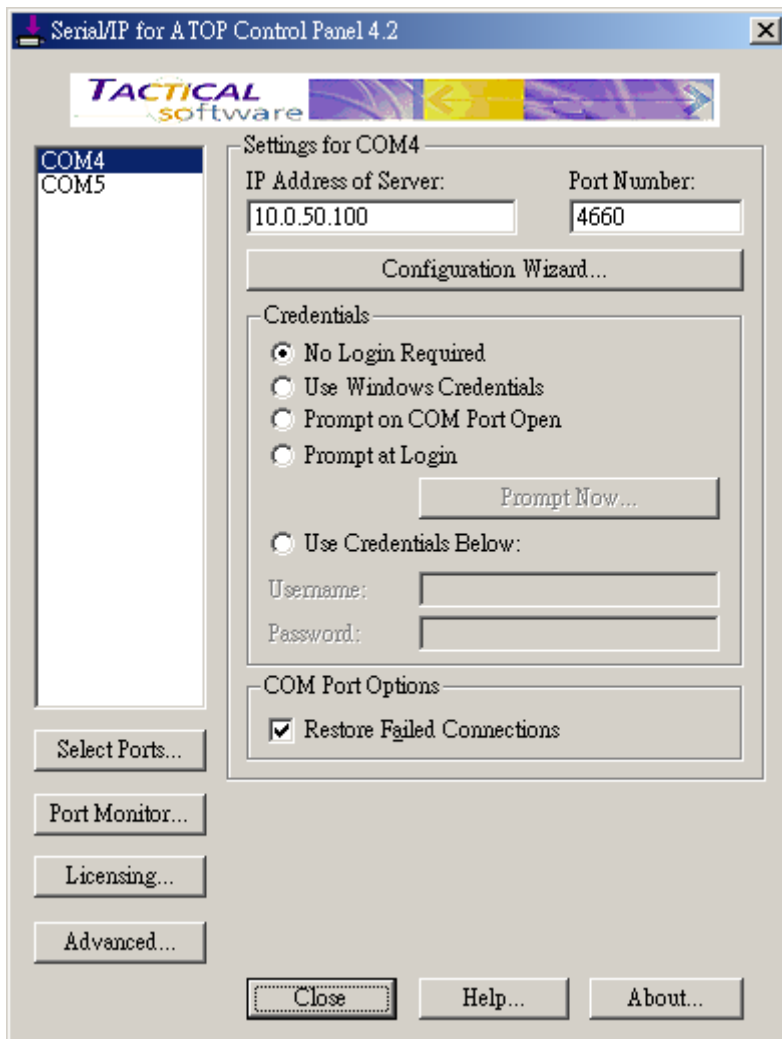
COM1:
1. Link Mode (TCP Server/Virtual Com Enabled/Pair Connection Disabled/Disabled/4660 )
2. COM Port (/RS-232/57600,None,8,1/None)
3. Keep Serial Buffer's Data While Connecting(Enable)
4. Packet Delimiter (10 ms)

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

Input choice (1 ~ 5) and enter: 4
Virtual Com
(1)Enable
(2)Disable
Please select one item:
```

4.5.2.2 Run Serial/IP for ATOP program on PC

In the Window Start Menu, select the Serial/IP for ATOP program group and select **Serial/IP for ATOP Configuration**. The configuration window is shown as following:



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

Each COM port has its own settings. Once one click on COM port, the Control Panel display should change the settings for that COM port.

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

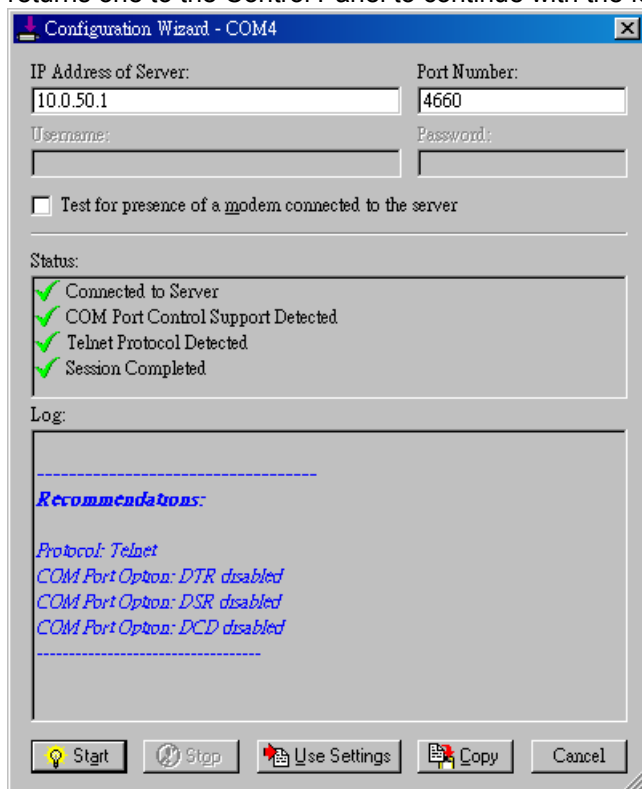
Configuring Virtual COM Ports

One configure each Serial/IP COM port as follows:

1. Select a COM port in the list.
2. For **IP Address of Server**, enter a numeric IP address for the serial server.
3. For **Port Number**, enter the TCP port number that the serial server uses to provide its serial ports to the network.
4. For **Server Credentials**, the default is **No Login Required**. If one serial server does require a login by the Virtual COM Redirector, the Virtual COM Redirector needs to provide a username

and/or password every time an application tries to use the serial server.

5. Click the **Configuration Wizard** button and then click the **Start** button that appears in the wizard window. This important step verifies that the Virtual COM Redirector can communicate with the serial server using the settings one have provided. If the **Log** display does not show errors, click the **Use Settings** button in the wizard, which makes the recommended settings effective and returns one to the Control Panel to continue with the following steps.



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

5. SNMP Setup

5.1 SNMP Network Management Platform

Atop GW51C-MAXI Serial Server is an SNMP device that allows many popular SNMP Network management platforms such as HP Open View and Sun Net Manager to conduct on the SerialManager.

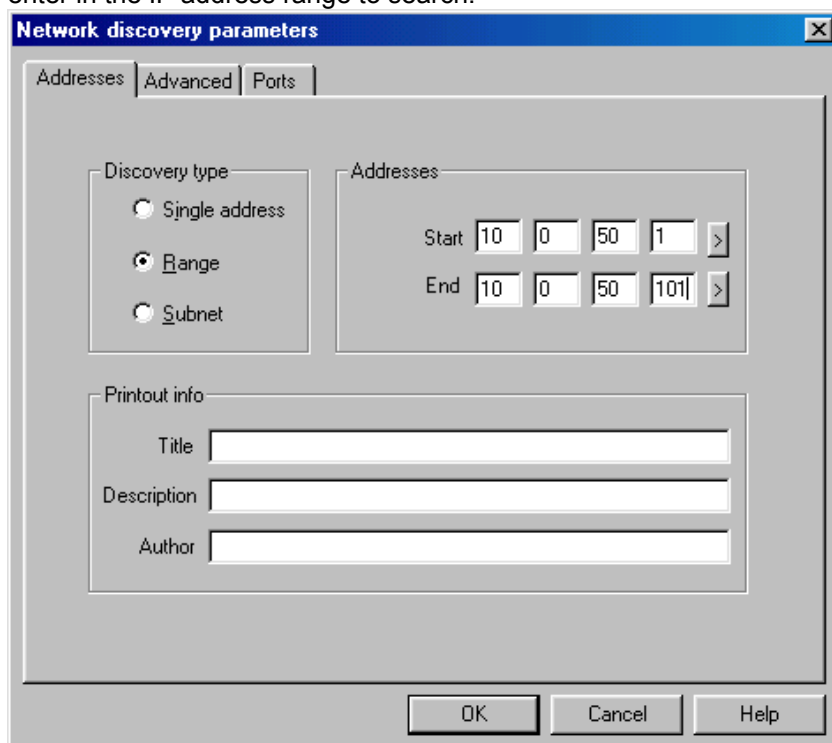
Depending on the network management tools one are using, device (GW51C-MAXI Serial Server) information can be collected from running the management tools including IP address, DNS name, system descriptions and NIC information etc.

5.2 Using NetworkView As An Example

The NetworkView is a compact network management tool from NetworkView Software, Inc. (www.networkview.com). It discovers all TCP/IP nodes in a network using DNS, SNMP and ports information and documents with printed maps and reports for future use. One may visit their web sites and get a free download.

To use NetworkView, one will need to download and install the tool on ones PC (**Windows NT and Windows 9x only**). Please refer to the installation instructions that come with the tool.

1. After one have done the NetworkView installation, start NetworkView.
2. Click on the  button to open a new file. The following screen appears, in the Addresses field, enter in the IP address range to search.



Network discovery parameters

Addresses | Advanced | Ports

Discovery type

☐ Single address

☒ Range

☐ Subnet

Addresses

Start 10 0 50 1 >

End 10 0 50 101 >

Printout info

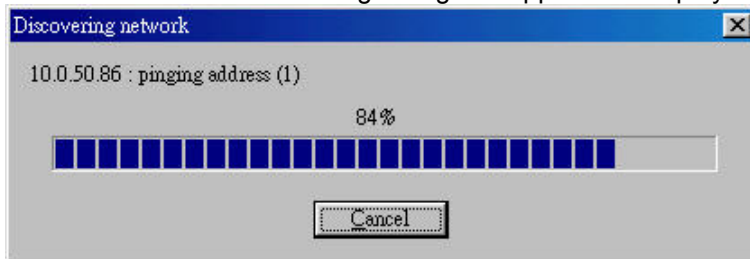
Title

Description

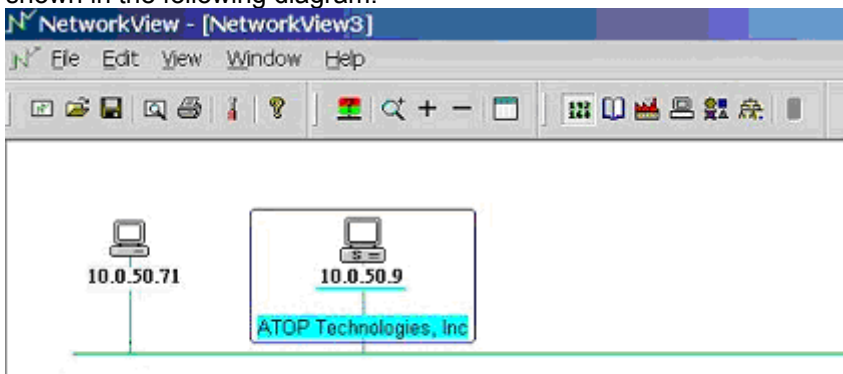
Author

OK Cancel Help

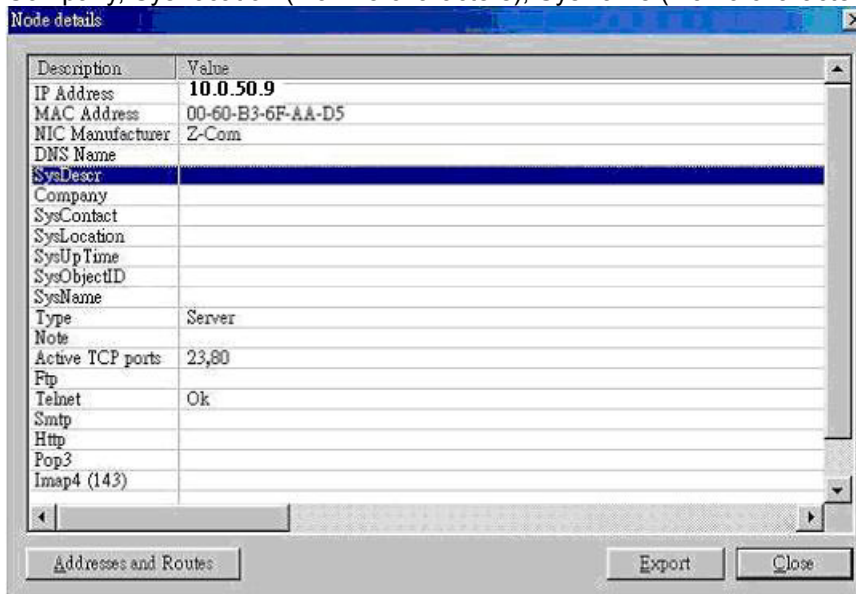
3. Click on "OK" and the following dialog box appears. It displays the searching progress.



4. When the search is completed, NetworkView will display the devices found in the main window, as shown in the following diagram.



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



Note:

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

6. Start Writing ones Own Applications

Before one start writing ones host applications or programs to interact with GW51C-MAXI Serial Server, please make sure one have done the following.

6.1 Preparing The System

1. Properly connect GW51C-MAXI Serial Server hardware including power, Ethernet and RS-232/RS-485 cables.
2. Properly configure the parameters of GW51C-MAXI Serial Server including connection type, IP address, gateway IP address, and network mask accordingly (see chapter 3 **Hardware Installation** section).
3. Configure GW51C-MAXI Serial Server as TCP Server using default TCP port number 4660.
4. The host (PC) application program must be configured as a TCP client and connects to GW51C-MAXI Serial Server with designated TCP port number 4660 for COM1.
5. Make sure GW51C-MAXI Serial Server is running by checking the running status through SerialManager configuration utility.

6.2 Running The Sample Program

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

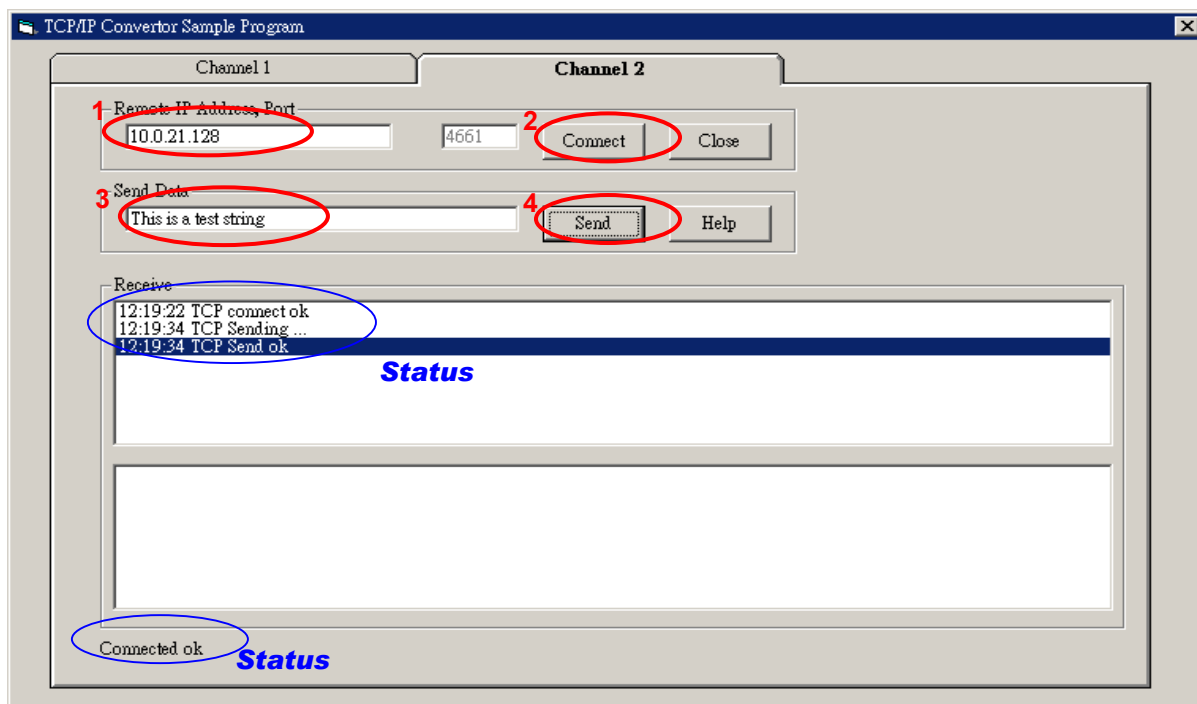
There are two test programs, TCPTTEST written in Visual Basic and TCPTTEST2 written in Visual C++.

6.2.1 TCPTTEST in Visual Basic

This sample program is written in Visual Basic 5.0 with Winsock Controls. It shows one how to send and receive data between host (PC) and GW51C-MAXI Serial Server via Ethernet in two socket ports.

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

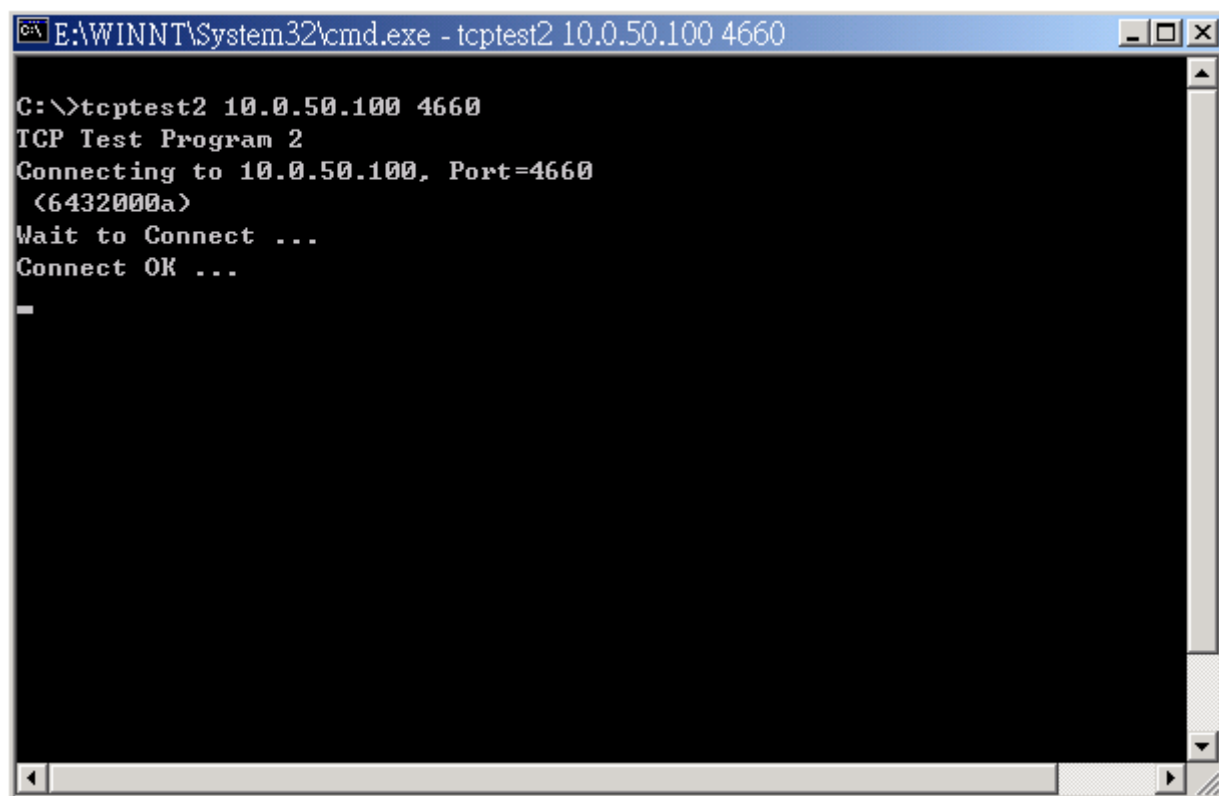
Note: Please be sure the Microsoft visual studio family software is installed on the computer. Otherwise the sample program will not run.



6.2.2 TCPTTEST2 in Visual C

To start the program, please enter in the following command in the command line prompt:

TCPTTEST2 IP_Address Port_Number



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

One can also use modem to connect to the serial server. Command **"AT\rOd"** sends standard AT command to the modem which in return responds with **"OK\r0D\r0A"** message to the host application.

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

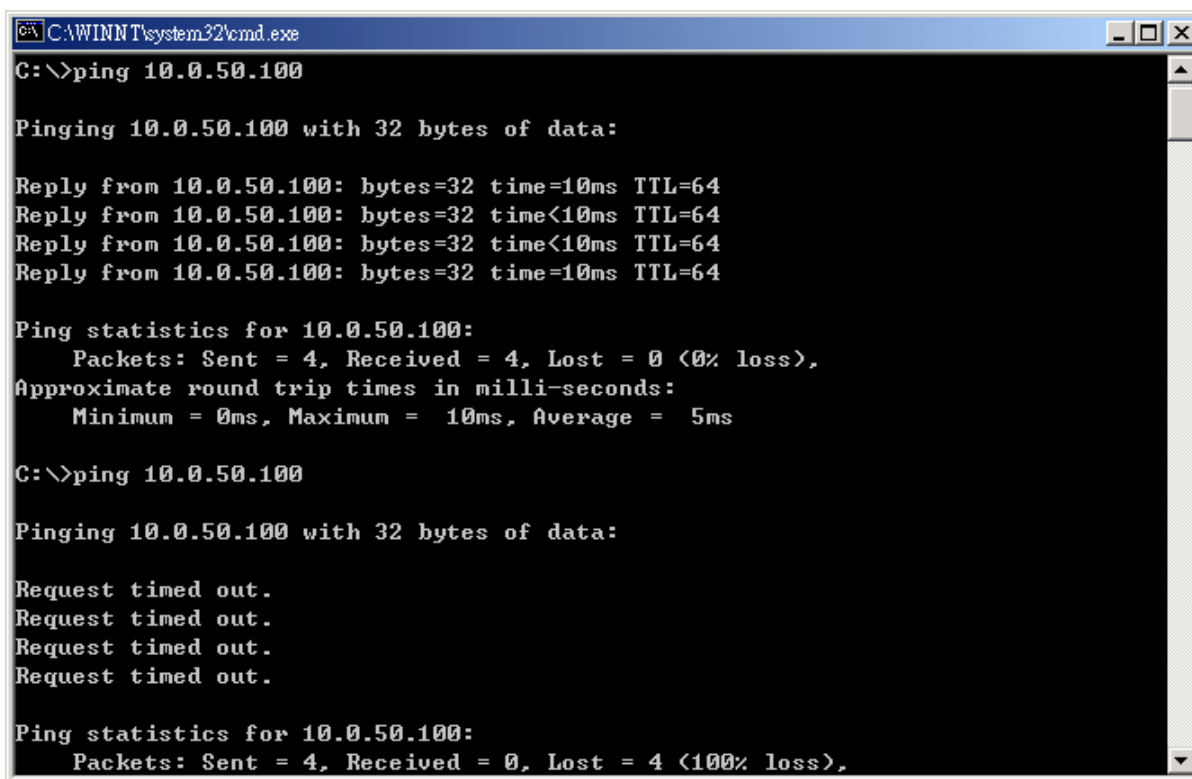
7. Diagnostics

There are several ways one can check on the status and availability of GW51C-MAXI Serial Server.

7.1 Use Standard TCP/IP Utility *ping* Command

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

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



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

Pinging 10.0.50.100 with 32 bytes of data:

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

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

C:\>ping 10.0.50.100

Pinging 10.0.50.100 with 32 bytes of data:

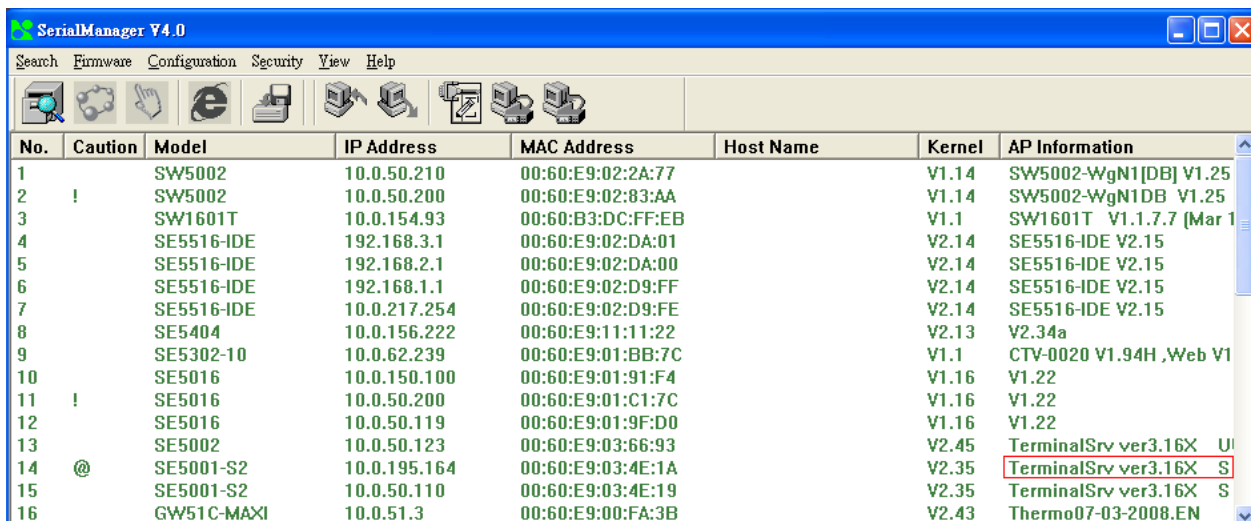
Request timed out.
Request timed out.
Request timed out.
Request timed out.

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

7.2 Use SerialManager Configuration Utility Program

Use **SerialManager** configuration program that comes with the product CD or diskette to check on the status of GW51C-MAXI Serial Server. The status and version can be read from the tool.

For example, 's' means that COM1 is server mode and is not connected.



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

7.3 Use TCPTTEST.EXE or TCPTTEST2.EXE Sample Program

Use sample programs TCPTTEST.EXE and TCPTTEST2.EXE that comes with the product CD or diskette to check on the status of GW51C-MAXI Serial Server. Please refer to chapter 6.2 to run the sample programs.

Appendix A: GW51C-MAXI Serial Server Specifications

A.1. Hardware Specifications

	Specifications
CPU	• 16-bit Embedded CPU • 100MHz
Flash Memory	• 512K Bytes
SDRAM	• 512K Bytes
EEPROM	• 512 Bytes
Host Communication	• IEEE802.3 base band • TCP/IP, UDP, SNMP, HTTP, Telnet, ARP, BOOTP, DHCP
Reset	• Built-in default key to restore factory default settings
Watch Dog Timer	• 1.34 second hardware auto reset • Power failure threshold: 4.75V
Serial Port Communication	• One RS-232 or RS-485 selectable • RS-232: EIA-RS-232C standard, Full Duplex, 8 pins Mini-DIN or 5 pins terminal block • RS-485: 2/4 wires, Half/Full duplex, 8 pins Mini-DIN or 5 pins terminal • Parameters 1) Baud-rate: 1200 bps ~ 230400 bps 2) Parity: None, Even, Odd, Mark, Space 3) Data bits: 7,8 4) Stop bits: 1,2 5) Packet Delimiter: by inter-character timeout, by characters delin 6) Flow Control: None, Hardware CTS/RTS, Software Xon/Xoff
LED indication	• RUN x 1 • LAN x 1 • COM port1
Power Requirement	• +9~30Vdc, 2.8 Watt Max
Temperature	• Operation: 0°C to 60°C • Storage: -40°C to 70°C
Humidity	• 20%~90% non-condensing
Housing	• 91mm(L) x 46mm(W) x 76mm(H)

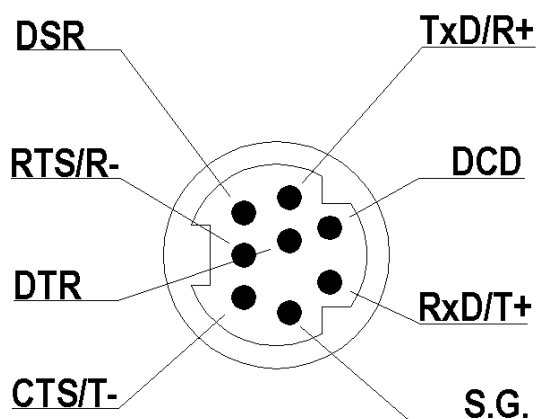
A.2. Software Specifications

Item	Specifications
Protocol	TCP, UDP, ARP, ICMP, SNMP, HTTP, Telnet, BOOTP,DHCP
Configuration	- Configuration information for both TCP/IP and serial ports is kept in the EEPROM. - Configuration utilities of Windows 95/98/2000/NT/XP/2003 are provided for configuring settings.
Internal Buffer Size	- TCP receiving buffer size = 8K bytes - TCP transmitting buffer size = 16K bytes - RS-232/RS-485 receiving buffer size = 4K bytes - RS-232/RS-485 transmitting buffer size = 4K bytes

A.3 Connector Pin Assignments

A.3.1 COM Port

8 pin Mini DIN connector

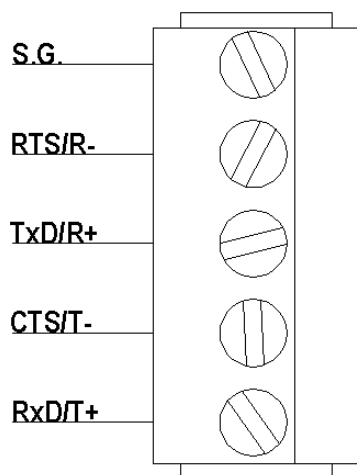


Atop provides Mini DIN connector to DB9 connector cable, the pin assignments of DB9 connector is shown in the following table:

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

Note: RS485 2 or 4 pins assignments of DB9 connector are different from those of Mini DIN connector.

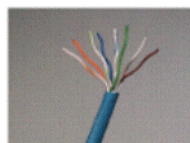
Terminal Block Connector



RS485 only uses RTS/R- and TxD/R+ for data communication while RS232 or RS422 uses RTS/R-, TxD/R+, CTS/T- and RxD/T+ for communicating data.

A.3.2 Ethernet Port (RJ-45)

1. Category 5 UTP cable, 8 core wire.



2. RJ45 Connector.

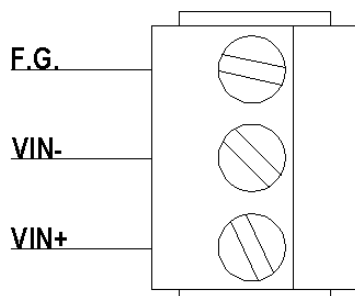


3. RJ45 Pin Assignment

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

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

A.3.3 Power terminal block connector



A.4 Buzzer/LED Message

A.4.1 Buzzer

“ ^ “: Beep twice

“ = “: Beep off

Message	Description
^===^===^===^===^===^===^... (1sec)	Watchdog problem, return service is required
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^... ^==^=====^^ (5sec)	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	No data is transmitting on Ethernet
LED blinking	Data is transmitting on Ethernet

Table 2. LAN LED Message

A.4.3 COM Port LED

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

Table 3. COM Port LED Message

A.4.4 RUN LED

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

Table 4. RUN LED Message

Appendix B. Upgrade System Software

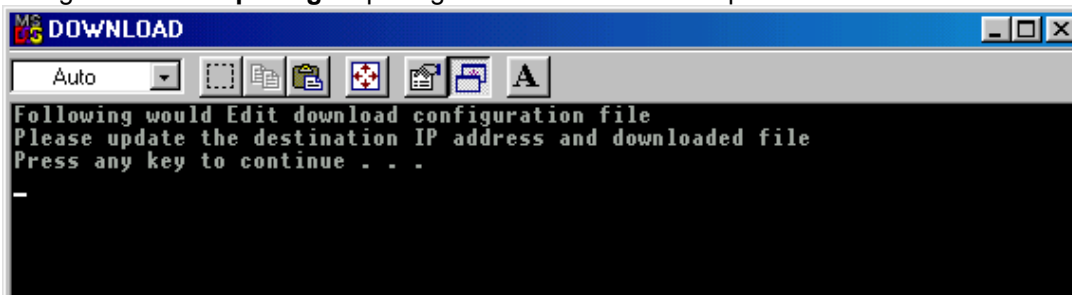
After the new version of firmware is released, customers can download it from Atop web site at www.atop.com.tw. One can contact Atop sales person to request the newest product CD as well.

One may decide to or not to upgrade the system's firmware. To do so, please follow these instructions listed below.

B.1 Upgrade Procedures

When one get a new software version, please follow the sequences below to upgrade ones GW51C-MAXI Serial Server.

1. Connect a PC (Windows 95/98/NT/2000) and GW51C-MAXI Serial Server one wish to upgrade the firmware in the same TCP/IP network. Use command **ping** or **SerialManager** program to verify their availability.
2. Prepare the download tool. Execute the utility program **download.bat** and press any key to edit its configuration file **dapdl.cfg**. **dapdl.cfg** file can be found in the product CD.



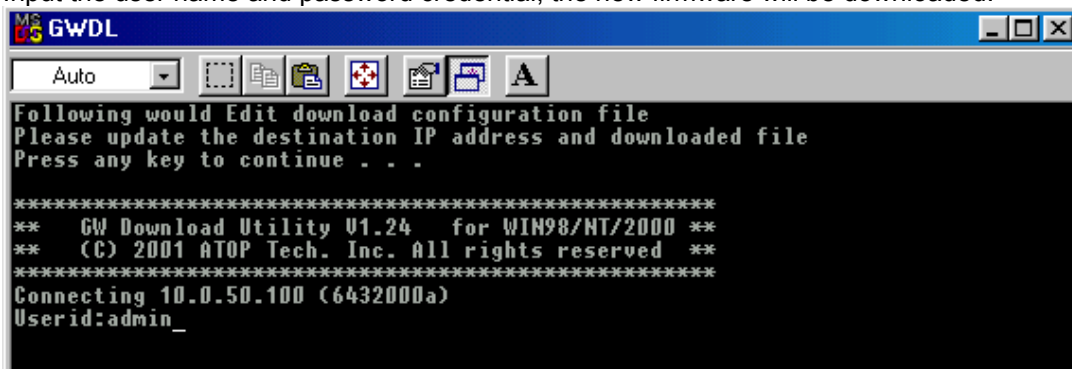
3. Edit the "**dapdl.cfg**" file to fit ones system need, the content of the file looks like as the following. Be sure to save ones modifications after the change is made.

Remote_IP 10.0.50.100

Load U51cmap.hex

The first line identifies the IP address of GW51C-MAXI Serial Server, the second line identifies the firmware (.Hex file) name to be downloaded.

4. Input the user name and password credential, the new firmware will be downloaded.



5. GW51C-MAXI Serial Server will automatically restart each time the firmware is successfully downloaded.

Appendix C. Hardware Configuration

C.1 Disable System Firmware

The AP (application program) firmware of GW51C-MAXI Serial Server can be disabled. This function is used in the situation that one downloaded a wrong version of firmware that caused the system crashed.

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

1. Turn the power off, open GW51C-MAXI Serial Server case.
2. Short pin1 and pin2 of jumper JP1 on the right-top corner from the main board to disable AP firmware.
3. Power on GW51C-MAXI Serial Server.
4. Download the correct AP firmware to GW51C-MAXI Serial Server.
5. Remove the pin 1 and pin2 of jumper JP1 to enable AP firmware.
6. Close the case and continue ones operations.

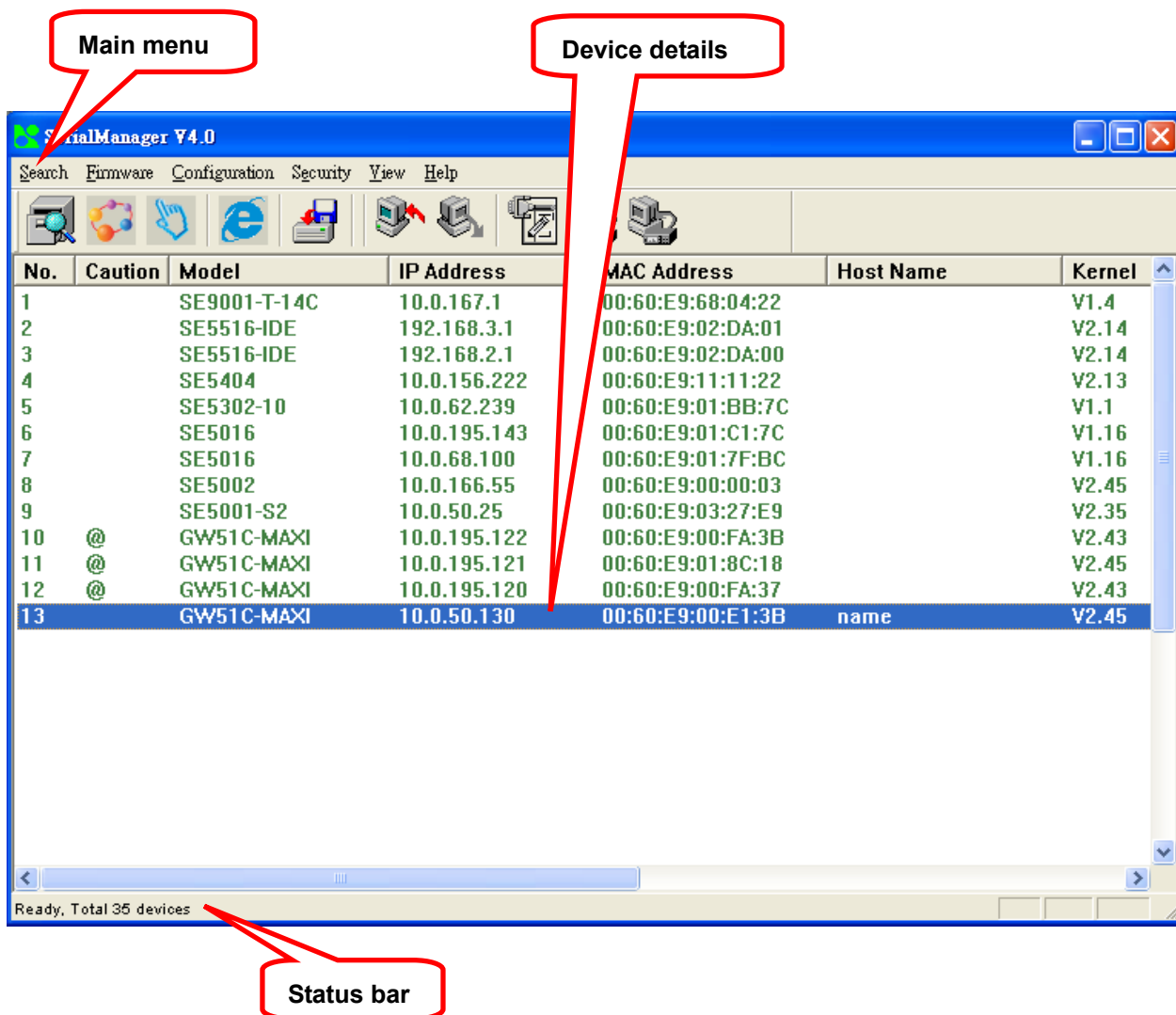
Appendix D Configuration Utility

D.1. SerialManager Introduction

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

D.2. Interface

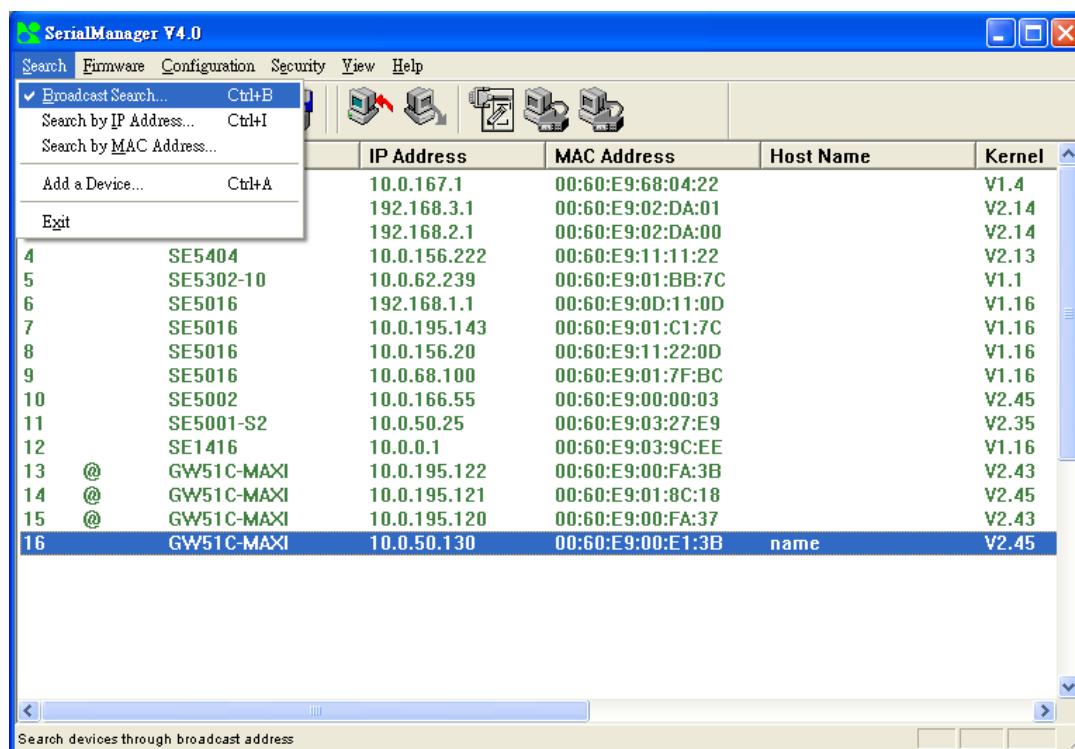
The operating interface of the **SerialManager** shown as below:



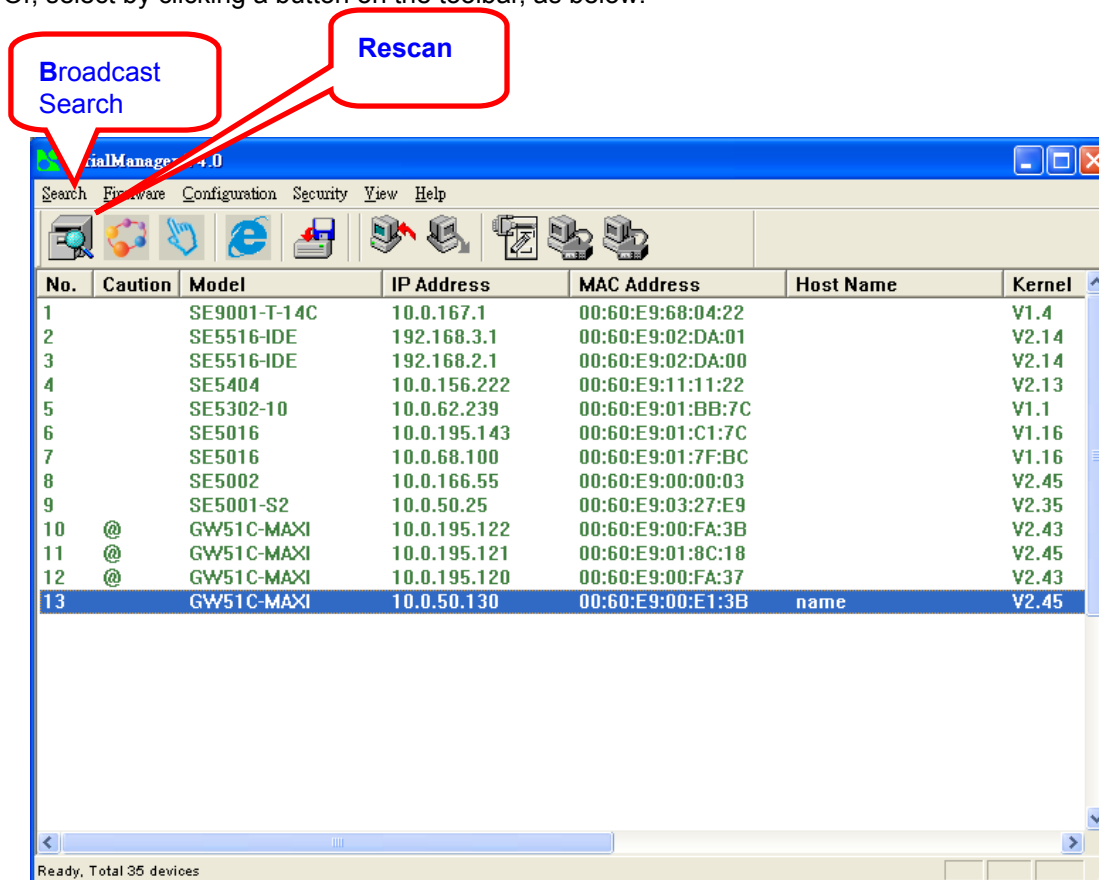
D.3. Functions

D3.1 Device Search

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

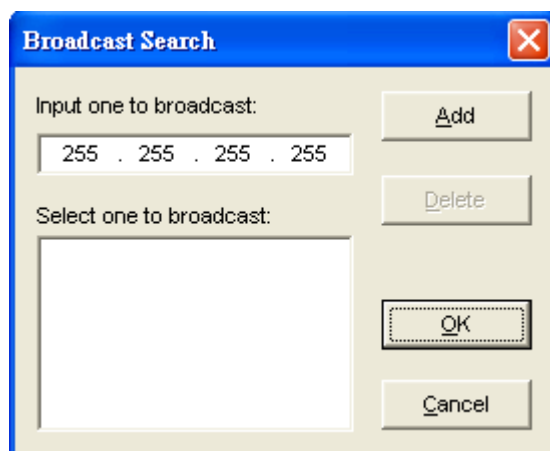


Or, select by clicking a button on the toolbar, as below:



D3.1.1 Broadcast Search

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

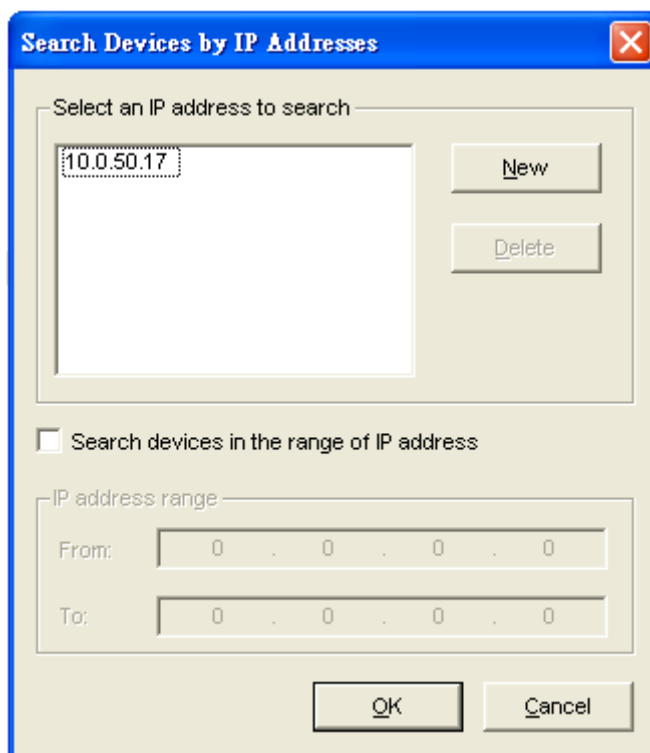


The 'Broadcast Search' dialog box has a blue title bar with a close button. It contains two input sections. The first section, 'Input one to broadcast:', has a text field with '255 . 255 . 255 . 255' and an 'Add' button. The second section, 'Select one to broadcast:', has a large empty list box, a 'Delete'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

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

D3.1.2 Search by IP address

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



The 'Search Devices by IP Addresses' dialog box has a blue title bar with a close button. It features a section 'Select an IP address to search' with a text field containing '10.0.50.17', a 'New' button, and a 'Delete' button. Below this is a checkbox labeled 'Search devices in the range of IP address'. At the bottom, there is an 'IP address range' section with 'From:' and 'To:' labels, each followed by a four-part IP address field (all showing '0 . 0 . 0 . 0'). 'OK' and 'Cancel' buttons are at the bottom right.

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

D3.1.3 Search by MAC Address

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

Search Devices by MAC Addresses

Select a MAC address to search

New

Delete

☒ 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

OK Cancel

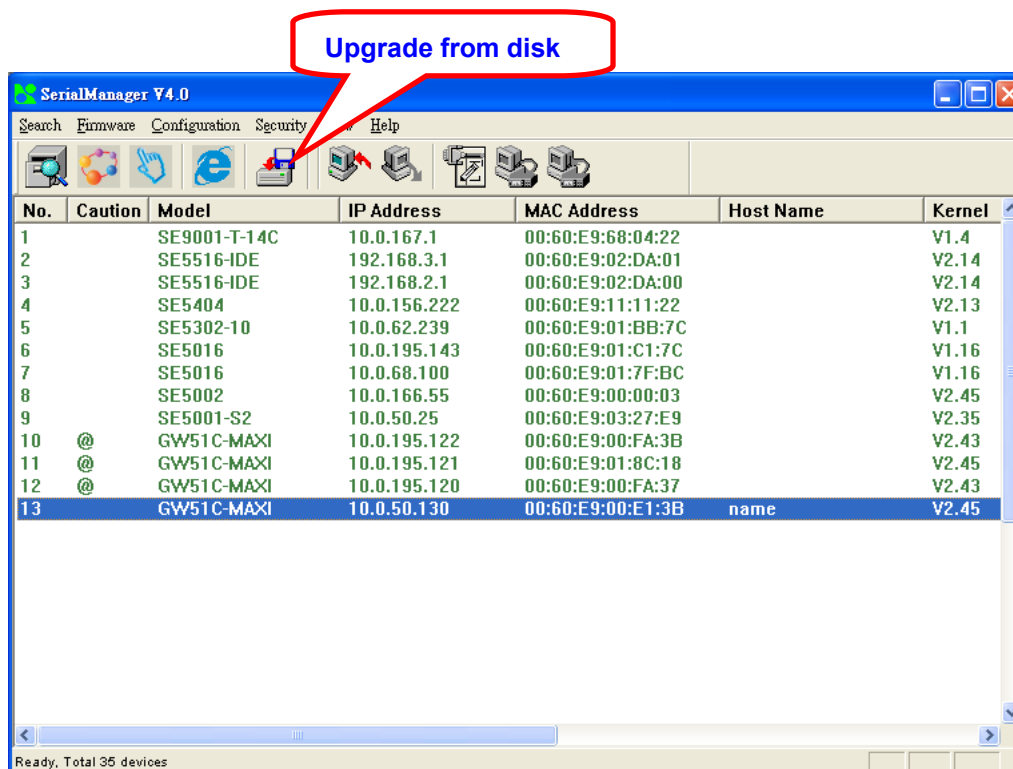
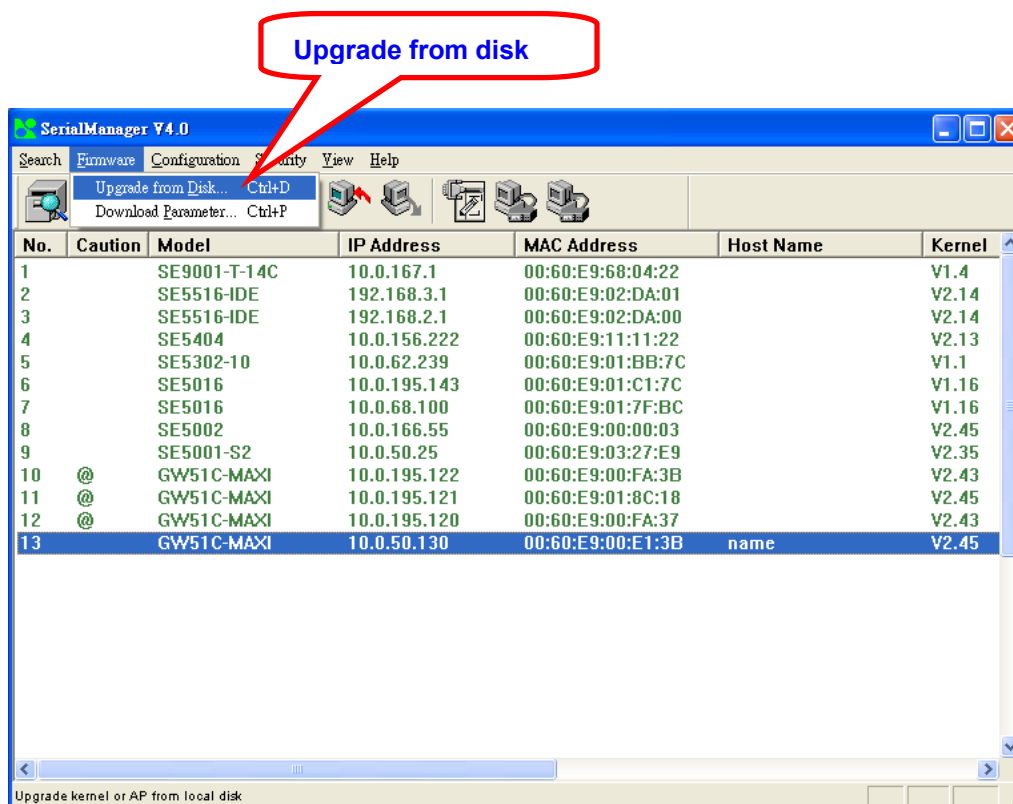
Here the user may search in two ways: **Search a MAC address to search** or **Search devices in the range of MAC address**

D3.1.4 Rescan

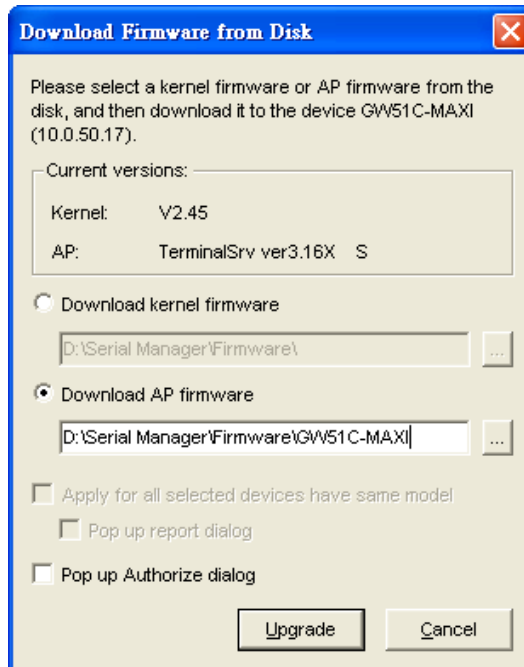
Once the user click the **Rescan** button on the toolbar, the SerialManager shall re-search devices by using the current search way.

D3.2 Firmware

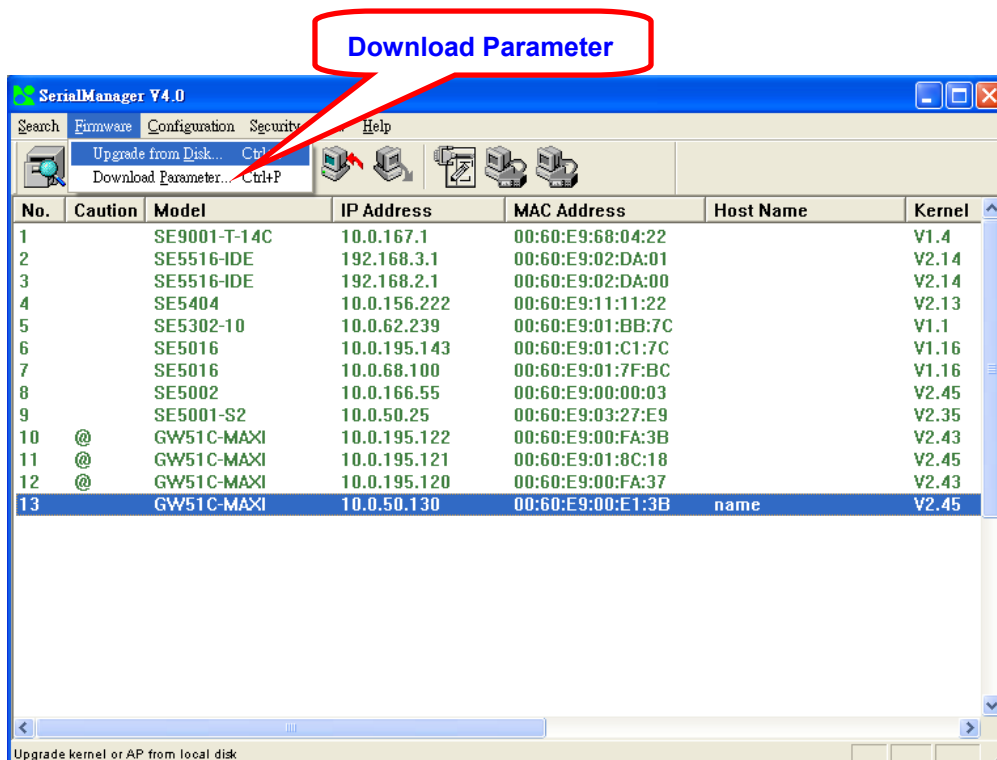
This function is applied to downloading a firmware into a selected device.



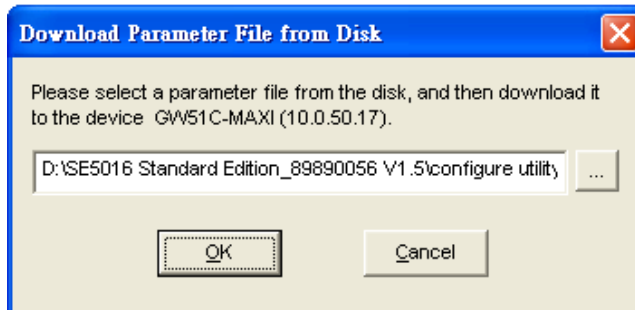
The user can enter the window for downloading by firstly clicking a designated network device, and then selecting the submenu option **Upgrade from disk** in the main menu option **Firmware**, or directly clicking the button **Upgrade from disk**. And then the user can select and download the required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



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



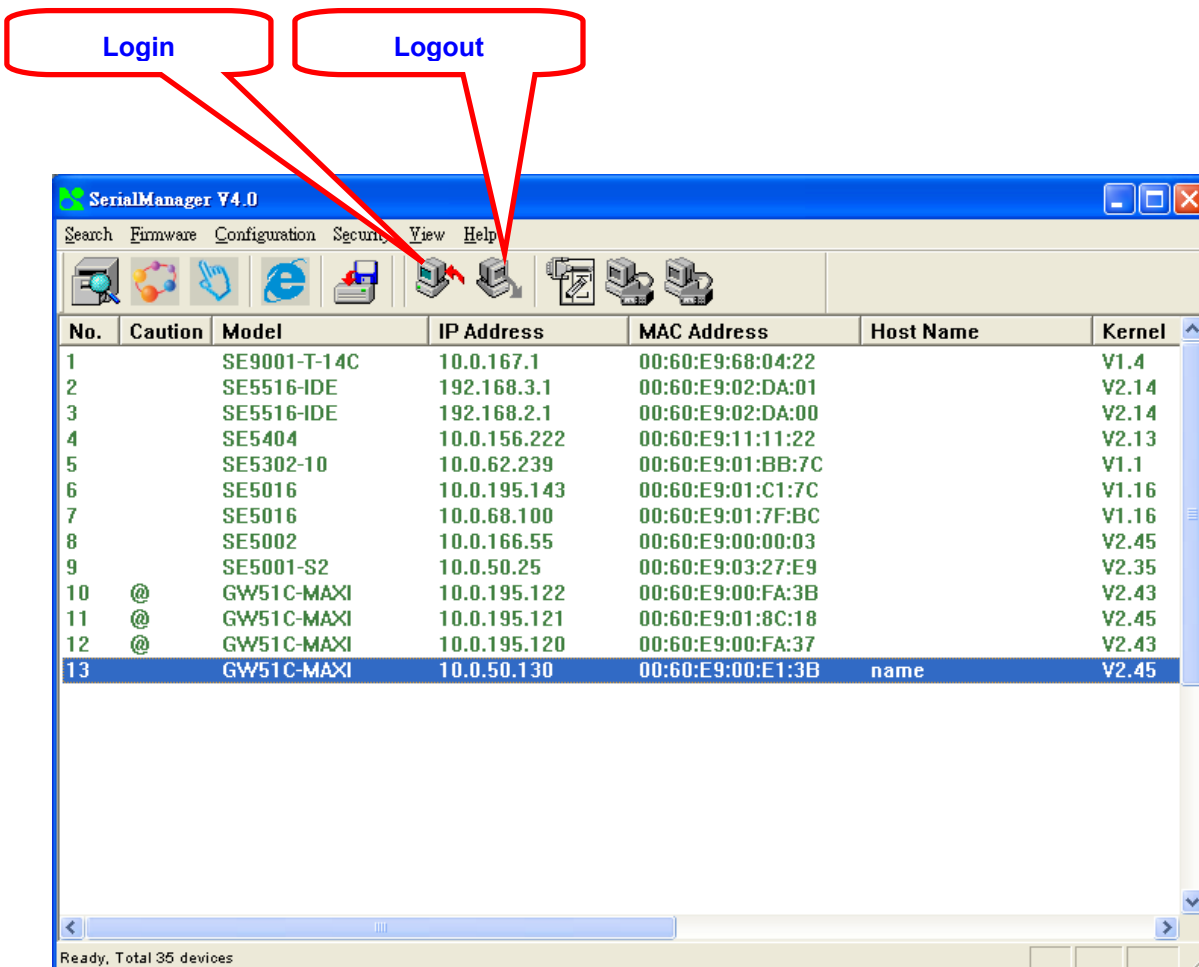
In addition for some devices with JFFS2 file system supported, the user can download the related parameter data into the device that supports the JFFS2 file system through a submenu **Download Parameter**. See details as the figure below:



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

D3.3 Security

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



D3.3.1 Login

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

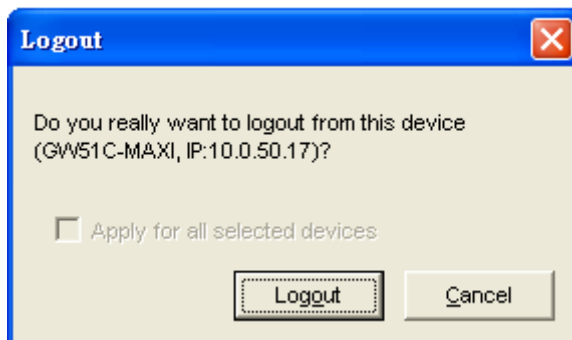


A screenshot of a 'Login' dialog box. The title bar is blue with the text 'Login' and a red close button. The main area is light beige. It contains the text 'Enter a user name and password to login to this device.' followed by 'Device: GW51C-MAXI IP:10.0.50.17'. Below this are two input fields: 'User Name:' with 'admin' entered, and 'Password:' which is empty. At the bottom, there is a checkbox labeled 'Apply for all selected devices' and two buttons: 'Login' and 'Cancel'.

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

D3.3.2 Logout

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



A screenshot of a 'Logout' dialog box. The title bar is blue with the text 'Logout' and a red close button. The main area is light beige. It contains the text 'Do you really want to logout from this device (GW51C-MAXI, IP:10.0.50.17)?'. Below this is a checkbox labeled 'Apply for all selected devices' and two buttons: 'Logout' and 'Cancel'.

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

D3.3.3 Change Password

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

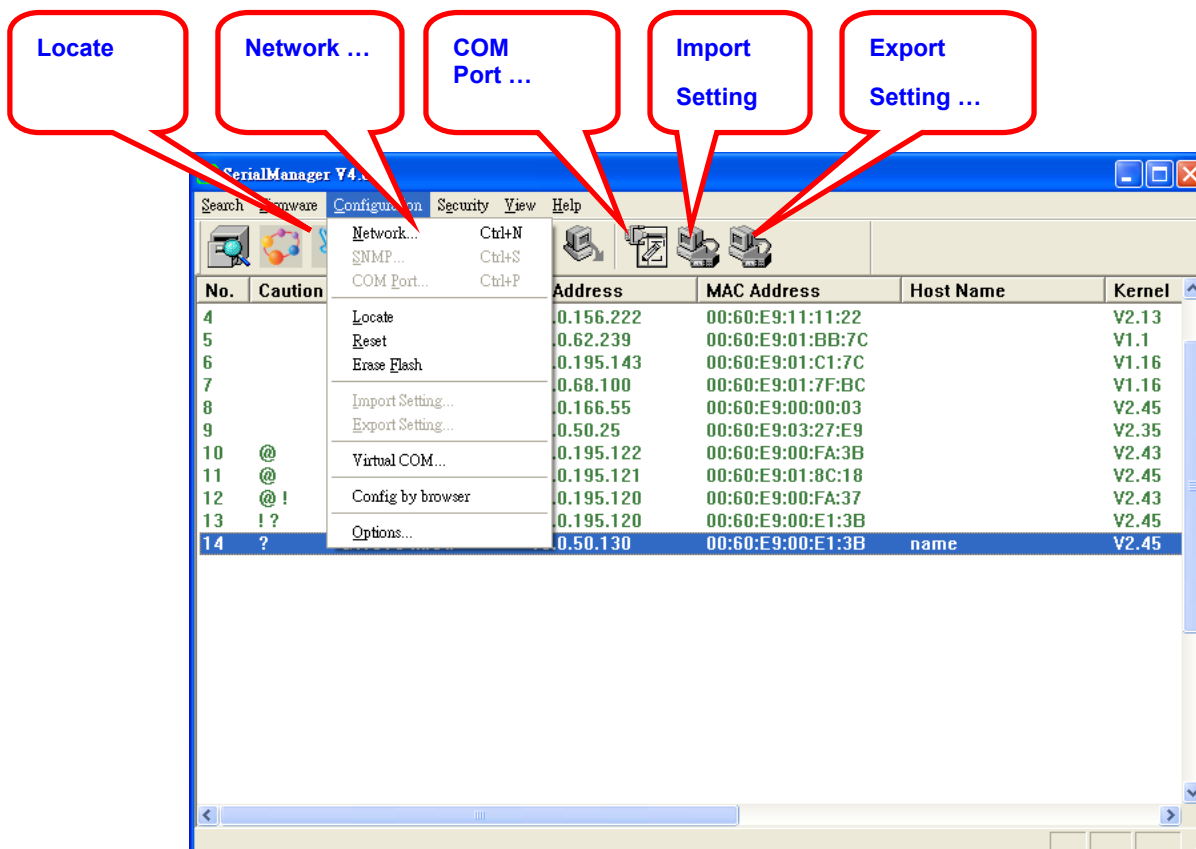


The user can also select several devices at one time, and modify their pins at the same time by selecting **Apply for all selected devices**.

D3.4 Configuration

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

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



D3.4.1 Network ...

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

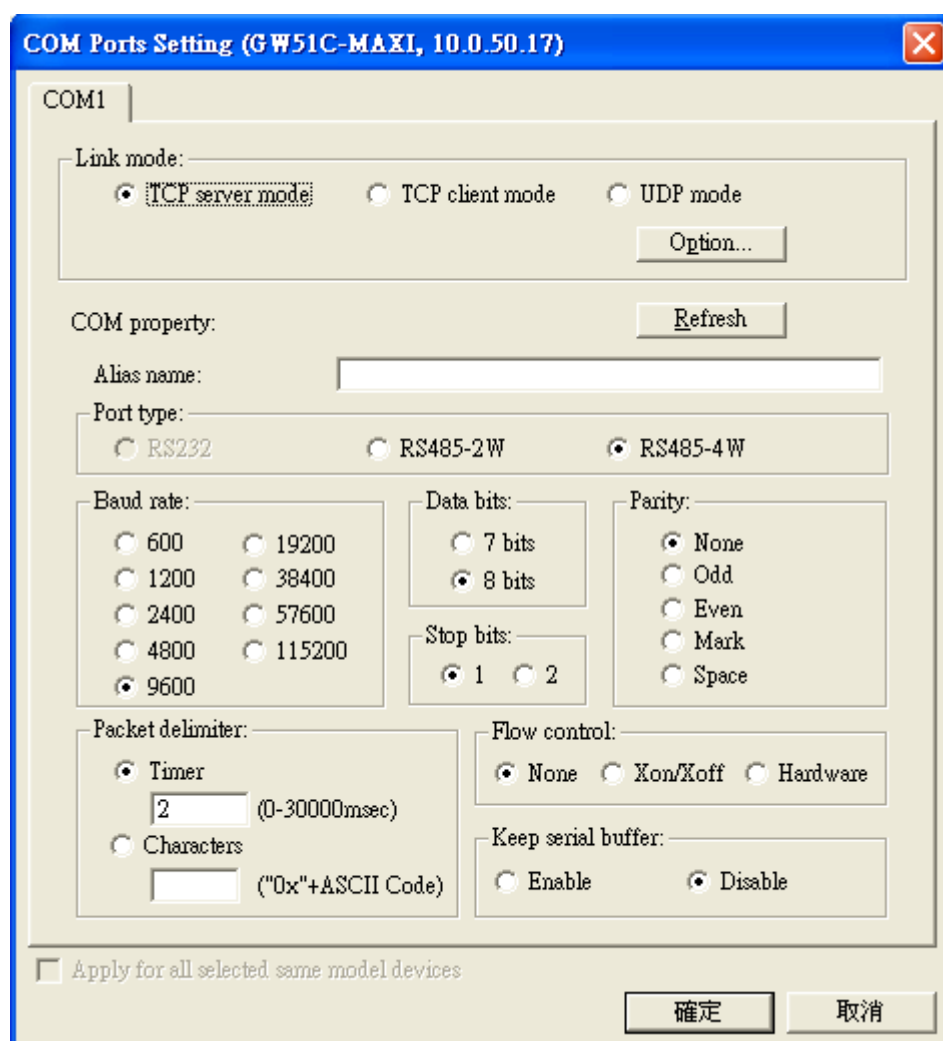


The image shows a 'Network Setting' dialog box with a blue title bar and a close button. The main text area contains the instruction: 'Please set the appropriate IP settings for this device (GW51C-MAXI, 10.0.50.17)'. Below this is a checkbox labeled 'DHCP (Obtain an IP automatically)' which is currently unchecked. There are four text input fields: 'IP address:' with the value '10 . 0 . 50 . 17', 'Subnet mask:' with '255 . 255 . 0 . 0', 'Gateway:' with '10 . 0 . 0 . 254', and 'Host name:' with the text 'name'. At the bottom are two buttons: 'OK' and 'Cancel'.

D3.4.2 COM Port ...

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

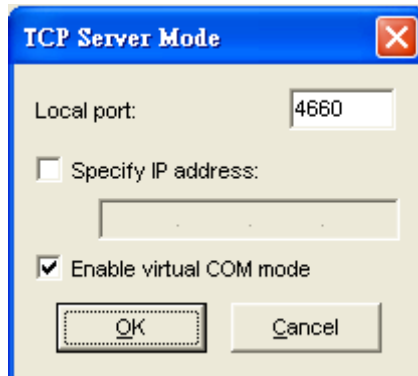
Note: This function can be realized only after a successful login, shown as the figure below:



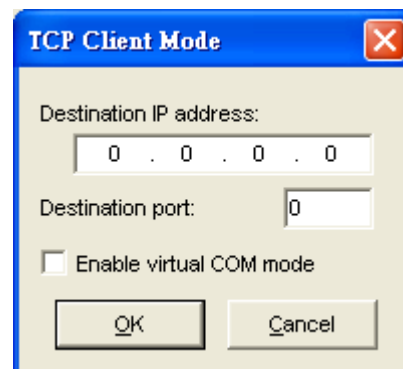
The user can also select several devices at one time, and carry out the configuration for them at the same time by selecting **Apply for all selected same model devices**

Note:

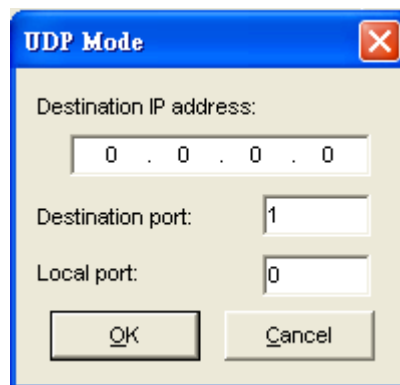
- 1 · COM tags: generated automatically according to the COM port number of the device. If a device has 4 COM port, there will be 4 tags: respectively COM1, COM2, COM3, COM4, and the like.
- 2 · Connecting mode: it means the connecting mode between the serial-port server and other network devices. Each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



TCP Server mode



TCP Client mode



UDP mode

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

D3.4.3 Locate

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

D3.4.4 Reset

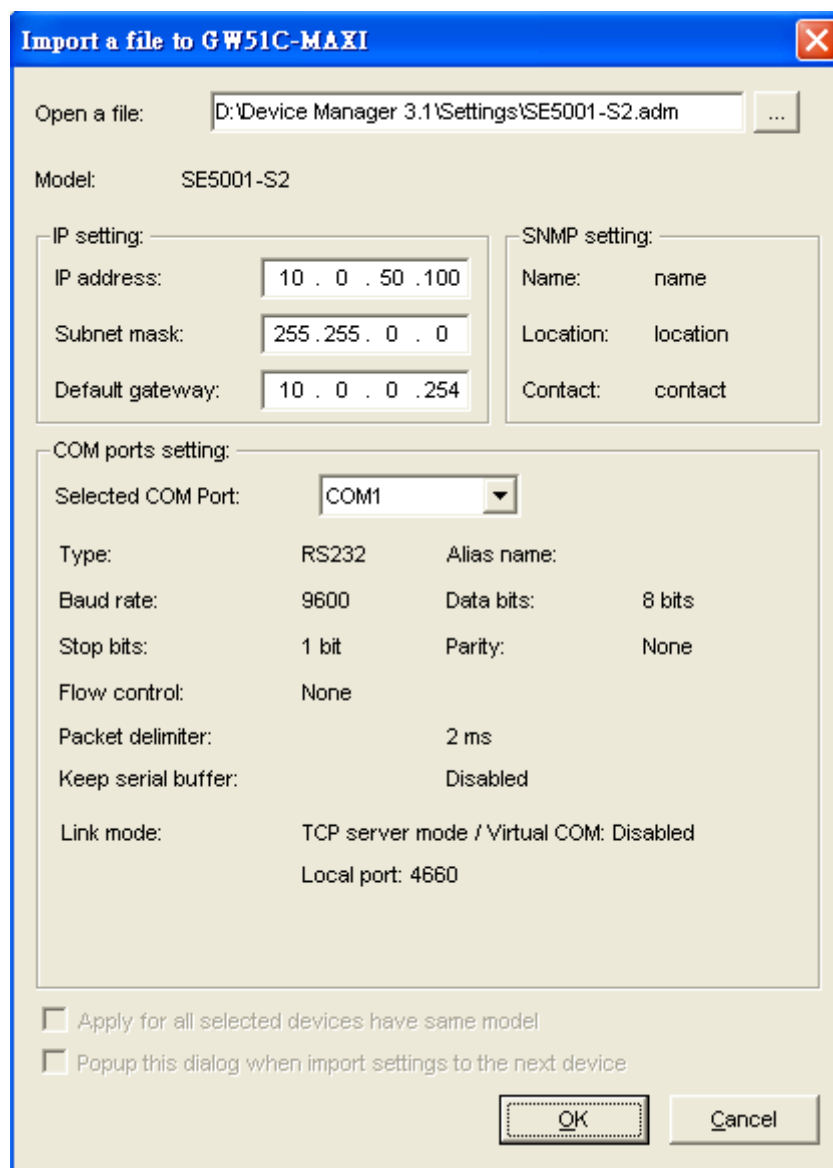
The device should be restarted after a successful modification of parameter configuration. And the user can carry out a restart through the submenu option **Reset**.

D3.4.5 Erase Flash

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

D3.4.6 Import Setting ...

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



Import a file to GW51C-MAXI

Open a file: D:\Device Manager 3.1\Settings\SE5001-S2.adm

Model: SE5001-S2

IP setting:

IP address: 10 . 0 . 50 . 100

Subnet mask: 255 . 255 . 0 . 0

Default gateway: 10 . 0 . 0 . 254

SNMP setting:

Name: name

Location: location

Contact: contact

COM ports setting:

Selected COM Port: COM1

Type: RS232 Alias name:

Baud rate: 9600 Data bits: 8 bits

Stop bits: 1 bit Parity: None

Flow control: None

Packet delimiter: 2 ms

Keep serial buffer: Disabled

Link mode: TCP server mode / Virtual COM: Disabled

Local port: 4660

☐ Apply for all selected devices have same model

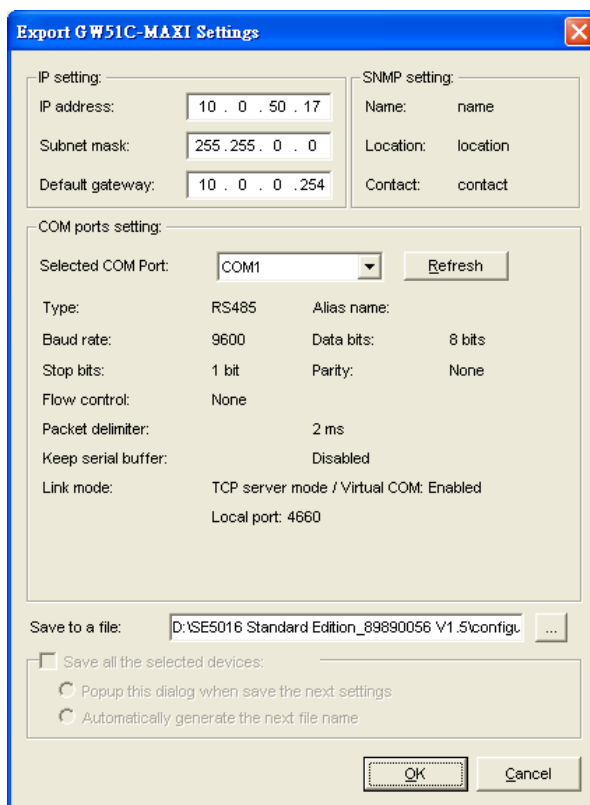
☐ Popup this dialog when import settings to the next device

OK Cancel

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

D3.4.7 Export Setting...

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



The dialog box titled "Export GW51C-MAXI Settings" contains the following sections:

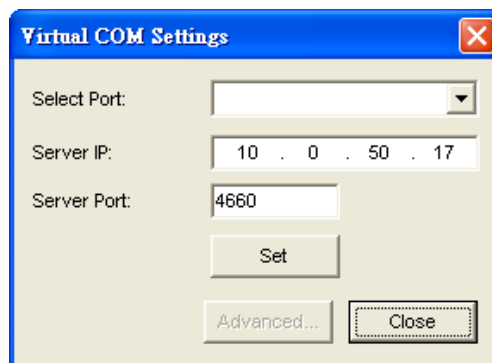
- IP setting:** IP address: 10 . 0 . 50 . 17, Subnet mask: 255 . 255 . 0 . 0, Default gateway: 10 . 0 . 0 . 254
- SNMP setting:** Name: name, Location: location, Contact: contact
- COM ports setting:** Selected COM Port: COM1 (with a Refresh button), Type: RS485, Baud rate: 9600, Stop bits: 1 bit, Flow control: None, Packet delimiter: 2 ms, Keep serial buffer: Disabled, Link mode: TCP server mode / Virtual COM: Enabled, Local port: 4660
- Save to a file:** D:\SE5016 Standard Edition_89890056 V1.5\configu. ...
- Save all the selected devices:** (checked) with options:
- ☐ Popup this dialog when save the next settings
- ☐ Automatically generate the next file name

Buttons at the bottom: OK, Cancel

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

D3.4.8 Virtual COM

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

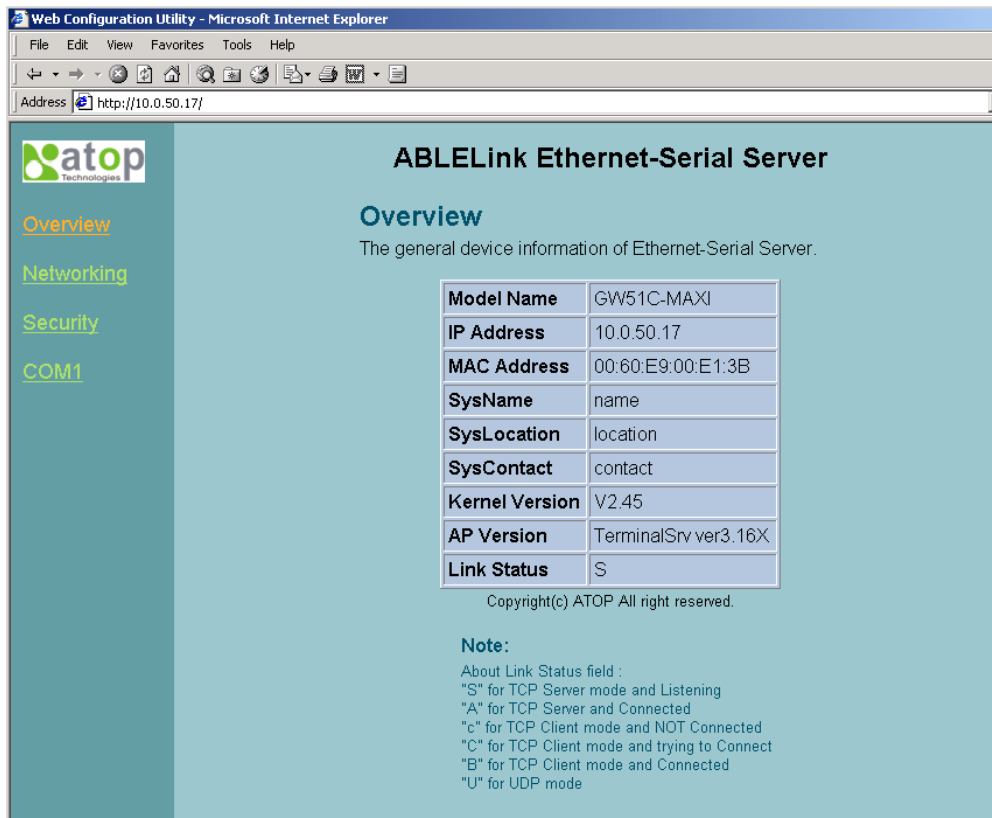


The dialog box titled "Virtual COM Settings" contains the following fields and buttons:

- Select Port: (dropdown menu)
- Server IP: 10 . 0 . 50 . 17
- Server Port: 4660
- Set button
- Advanced... button
- Close button

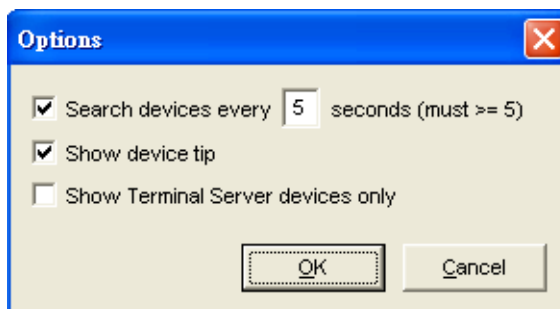
D3.4.9 Configure by IE

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



D3.4.10 Option

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



D3.5 View

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

SerialManager V4.0

Search Firmware Configuration Security View Help

No.	Caution	Model	IP Address	MAC Address	Host Name	Kernel
1		SE9001-T-14C	10.0.167.1	00:60:E9:68:04:22		V1.4
2		SE5516-IDE	192.168.3.1	00:60:E9:02:DA:01		V2.14
3		SE5516-IDE	192.168.2.1	00:60:E9:02:DA:00		V2.14
4		SE5404	10.0.156.222	00:60:E9:11:11:22		V2.13
5		SE5302-10	10.0.62.239	00:60:E9:01:BB:7C		V1.1
6		SE5016	10.0.195.143	00:60:E9:01:C1:7C		V1.16
7		SE5016	10.0.68.100	00:60:E9:01:7F:BC		V1.16
8		SE5002	10.0.166.55	00:60:E9:00:00:03		V2.45
9		SE5001-S2	10.0.50.25	00:60:E9:03:27:E9		V2.35
10	@	GW51C-MAXI	10.0.195.122	00:60:E9:00:FA:3B		V2.43
11	@	GW51C-MAXI	10.0.195.121	00:60:E9:01:8C:18		V2.45
12	@	GW51C-MAXI	10.0.195.120	00:60:E9:00:FA:37		V2.43
13		GW51C-MAXI	10.0.50.130	00:60:E9:00:E1:3B	name	V2.45

Ready, Total 35 devices

D3.6 Help

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

