Atop ABLELink® Wireless Serial Server SW5001

User Manual

Version 1.0

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Tel: 886-3-5508137

Fax: 886-3-5508131

www.atop.com.tw

IMPORTANT ANNOUNCEMENT

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Published by

Atop Technologies, Inc.

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

Jubei City, Hsinchu 302

Taiwan, R.O.C.

Tel: 886-3-5508137

Fax: 886-3-5508131

www.atop.com.tw

FCC WARNING

Class B for Wireless Serial Server (Model: SW5001)

This SW5001 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This SW5001 complies with FCC radiation exposure limits set forth for an uncontrolled environment. This SW5001 should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b/g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

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1. Introduction

Atop SW5001 Wireless Serial Server is a gateway between Ethernet (TCP/IP) and RS-232/RS-485 communications. It allows almost any serial device to be connected to a new or existing wireless network. The information transmitted by SW5001 is transparent to both host computers (IP network over wireless LAN or Ethernet) and devices (RS-232/RS-485). Data coming from the wireless LAN or 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 Wireless or Ethernet (TCP/IP) transparently.

In the computer integration manufacturing or industrial automation area, Atop SW5001 Wireless Serial Server is used for field devices to direct connect to Ethernet network. Terminal Server (main control program run in SW5001) transforms whatever data received from RS-232/RS-485 to TCP/UDP port then connects devices to the IP 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 Atop SW5001, 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.

Flexible configuration options enable this unit to be setup remotely over IP network by Telnet, web browser, or Window utility. Packed in a rugged DIN Rail mountable case and 9~30V DC power input range, SW5001 is ideal for almost any industrial and manufacturing automation.

1.1 Packaging

Atop SW5001 Wireless Serial Server x 1

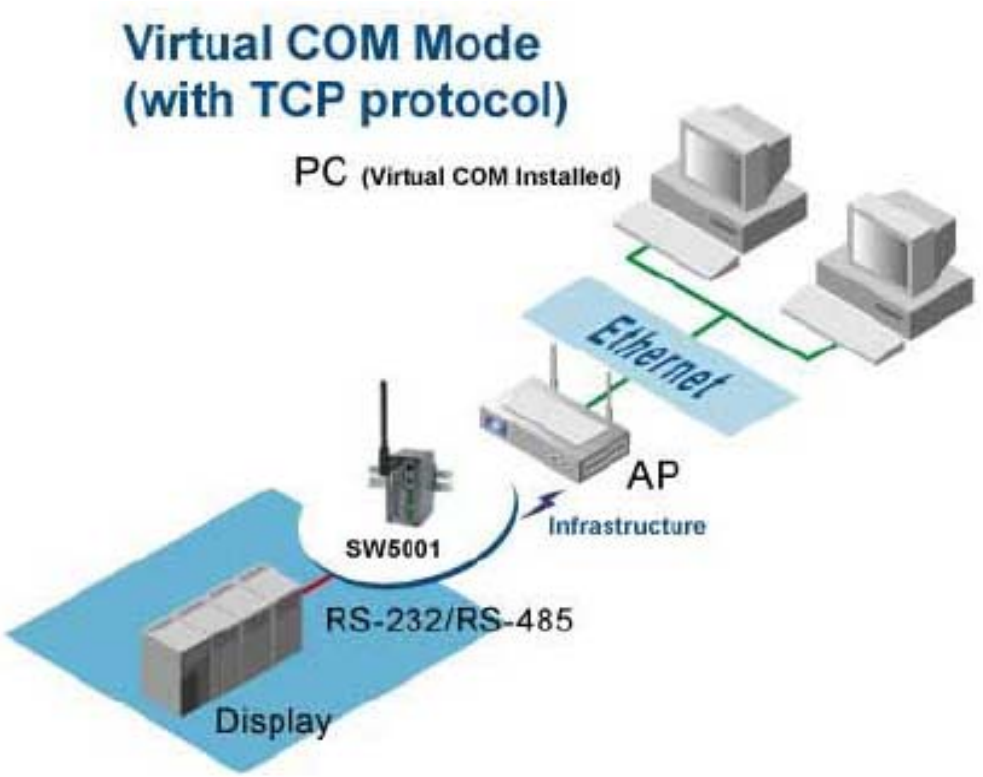
Mini DIN to RS-232 DB 9 connector cable x 1

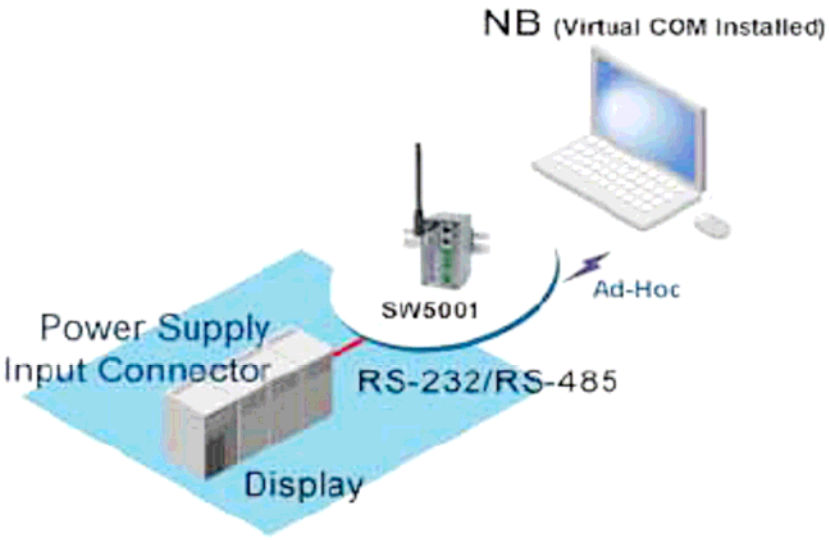
Wall mount x 2

Atop Wireless Serial Server quick start guide x 1

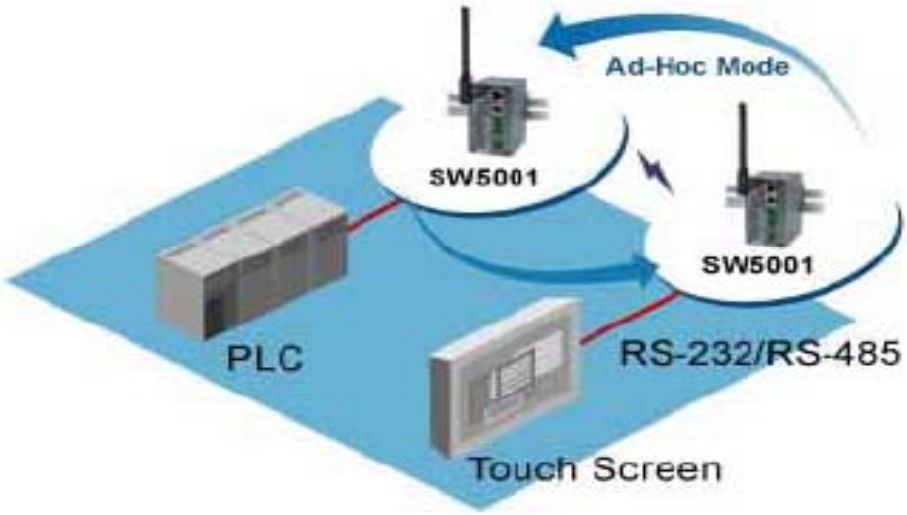
Product CD containing configuration utility and other tools

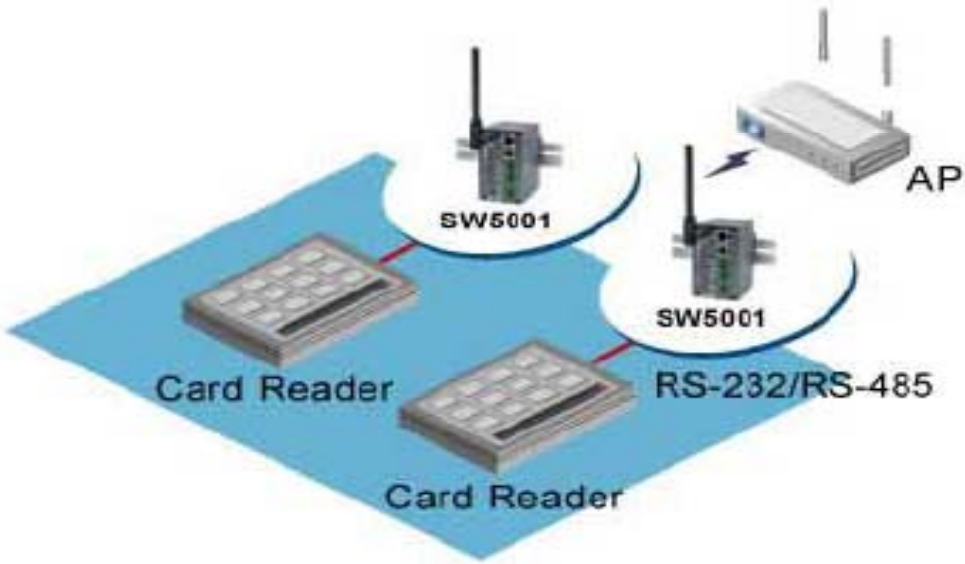
1. 2 Application Connectivity





Tunneling Mode
(with TCP or UDP protocol)





2. Nomenclature and Settings

2.1 Nomenclature of SW5001 Components

Figure 2.1 shows the names of SW5001 components. In the figure, the indicated switch settings represent factory settings.

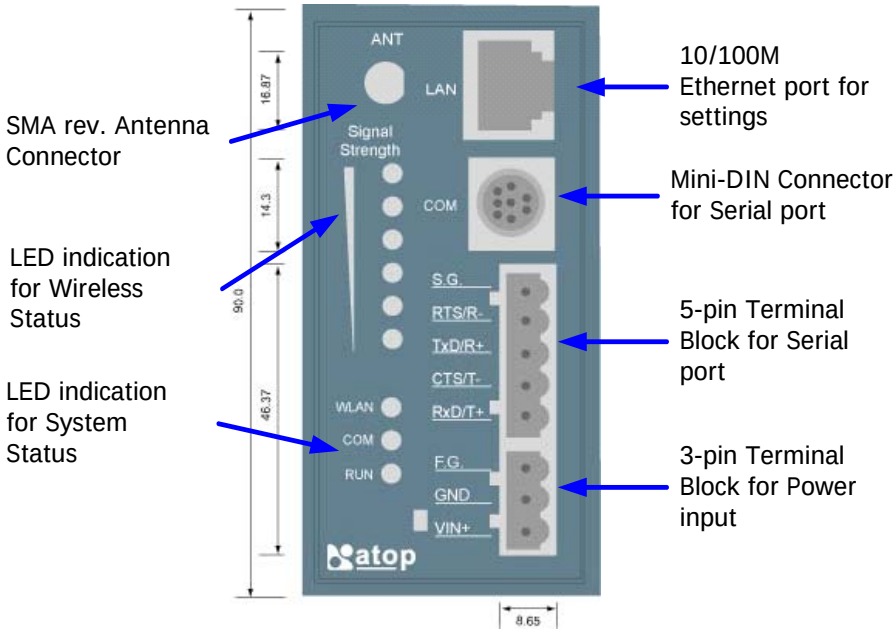


Figure 2.1. Nomenclature of SW5001 Components

2.2 MODE Switch

This sets or initializes the operating mode for the SW5001.

The factory default setting is RS-232 mode. You can use the software configurations to change the operating mode from the factory default settings to your desired mode by web or telnet tools.

SW5001 can be setup either RS-232, RS-485 or RS-422 mode by remote network tools, ex. Web browser and telnet.

3. Hardware Installation

- Prepare necessary cables, hub, power cord and RS-232/RS-485 connector.
- Place SW5001 to the area that an access point can cover, or connector it via Ethernet cable with RJ45 connecor.
- Connect a serial device to a serial port of SW5001, make sure the right connection of either RS-232 or RS-485.
- Plug in DC-9-30V, the buzzer will beep and the RUN LED will blink if SW5001 functions normally. Please refer to Appendix A.5 to see all of LED messages.
- Use **monitor.exe** configuration utility in the product CD or diskette to diagnose SW5001. If it starts up successfully, you are able to find the IP and MAC addresses of SW5001. You can change the network parameters of SW5001 to join your LAN by changing its IP address, gateway IP address and subnet mask.

Note: If there are more than one access points, the access point's ESSID must be the same.

3.1 Configuration

Atop SW5001 Wireless 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 1ms
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: Atop provides a 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 SW5001 and add this static entries to the ARP cache of the computer, when TCP/IP packet with destination port number 1 is sent to SW5001, it causes the device to check its MAC address with IP address, once SW5001 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 SW5001 using its MAC address printed on the label of the rear panel, then

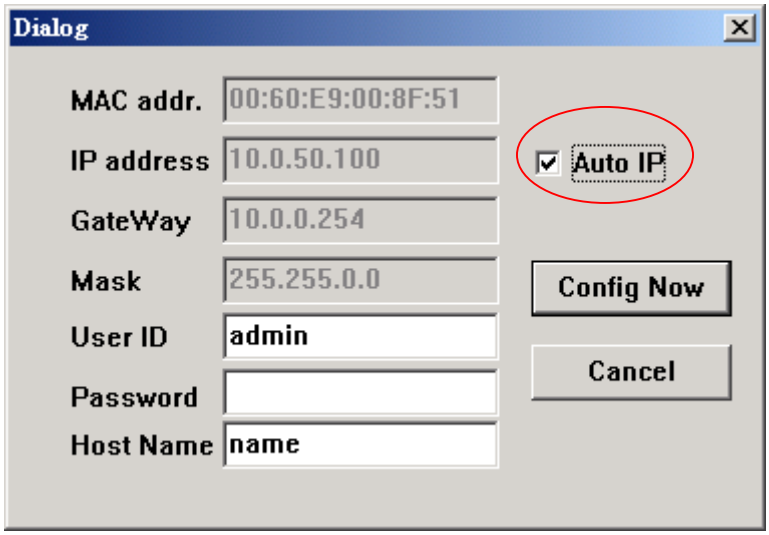
use Telnet to send the TCP/IP packet with destination port number 1 to SW5001, after SW5001 reboots it will change its IP address to the new one.

Note:

1. Arp command can only be used to set a static IP address of SW5001 using system reset user name admin and default password null.
2. Only TCP/IP packet with destination port number 1 will lead SW5001 to reboot and change the IP address.

3.3 Auto IP

A DHCP server automatically assigns the IP address and network settings. SW5001 supports DHCP. It will supply for the unit with an IP address gateway address, and subnet mask. You may use **Monitor.exe** software to search network information automatically by putting a check on **Auto IP** on Dialog window.



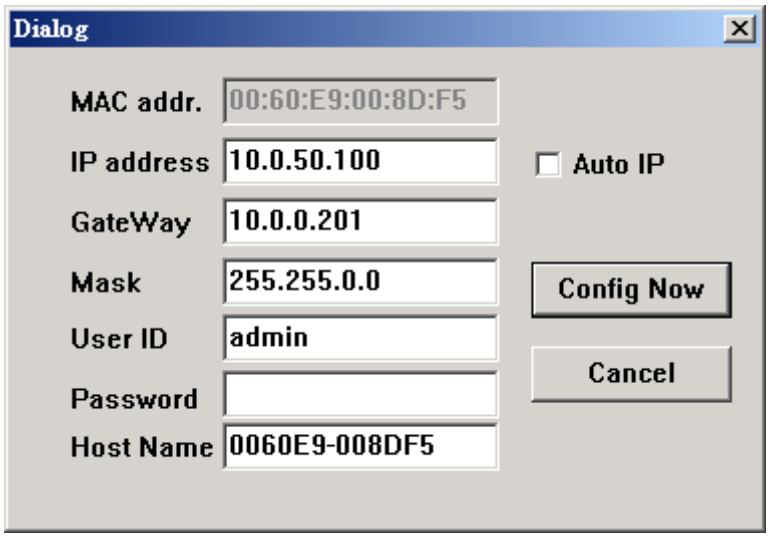
3.4 TCP/IP Port Number

Port number 4660 is default of SW5001 and is associated with serial port COM1. After your application program connects to the TCP port 4660 of SW5001, data being sent to this TCP connection from your application program are transparent to the COM1 of SW5001. Vice versa is also true.

4. Software Configuration

4.1 Configuration set by monitor.exe utility

Use **monitor.exe** that comes with the product CD or diskette to configure the network parameters of SW5001. As you can see from the following picture, you can change IP address, gateway IP address, subnet mask, user ID and password of SW5001 from the utility. For more details of the utility please refer to Appendix-D Configuration Utility.



4.2 Configuration set by Telnet utility

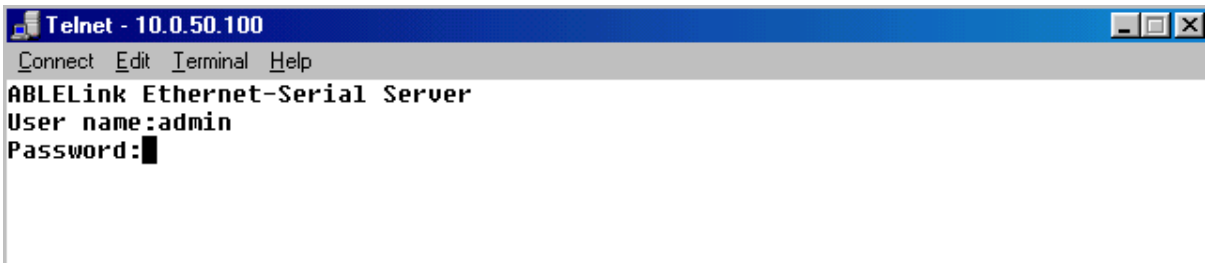
You can use Telnet utility to change configuration settings of SW5001. To do so, please do the following.

Log in to the system

- Telnet to SW5001 using command "**Telnet IP_address**".

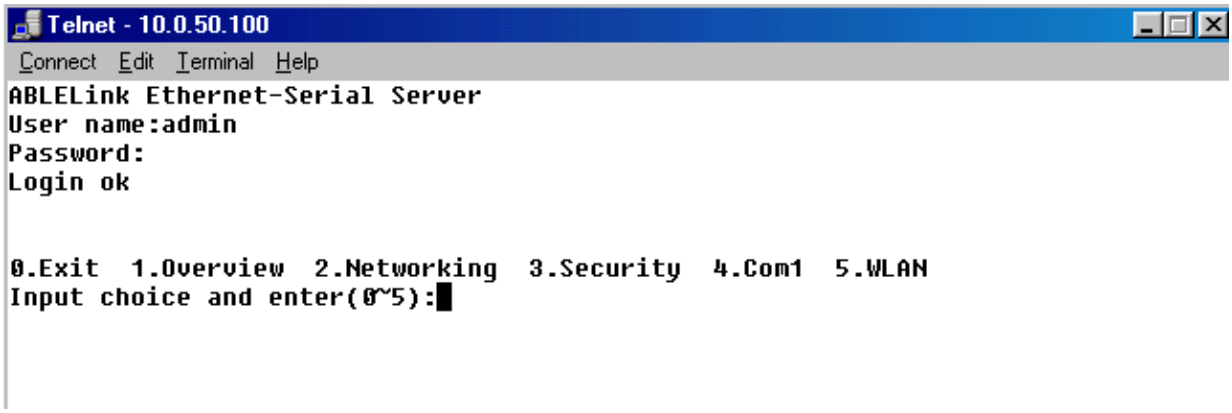
  For example Telnet 10.0.50.100

1. After Telnet to SW5001, system prompts for a password, the default password is null.



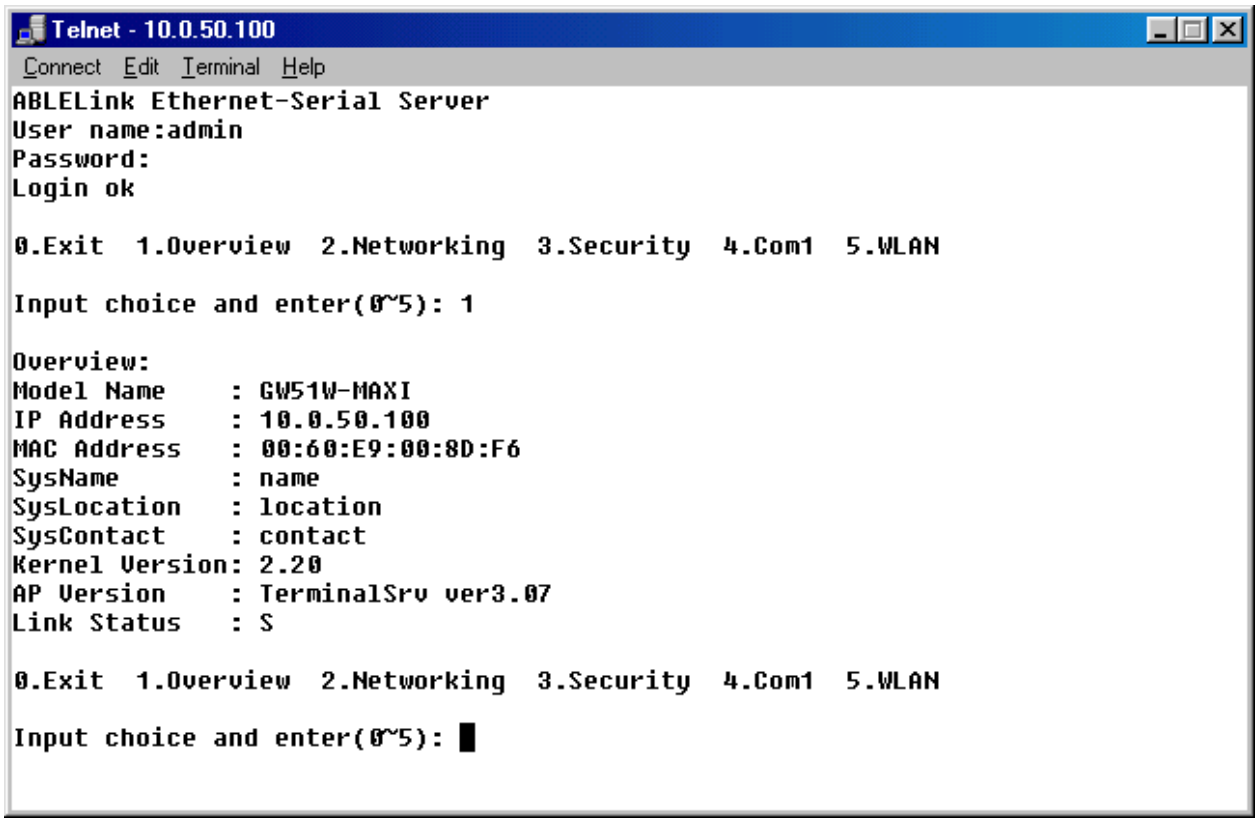
Note: You can press the default button of SW5001 to reset the password to the default value.

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



Notes:

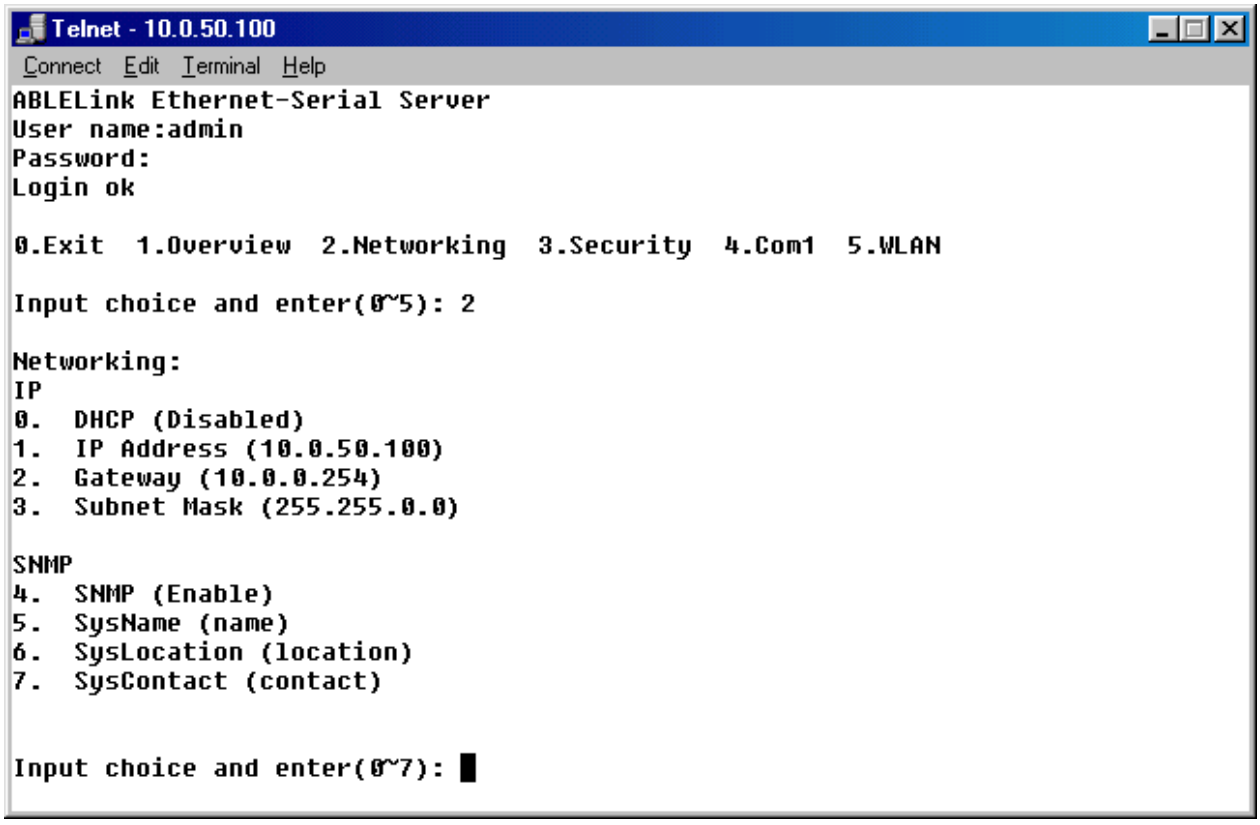
1. If SW5001 does not receive any command within 1 **minute**, Telnet will be terminated automatically.
2. The changes of networking parameters will take effect only when you exit and restart SW5001.
3. Select “1” from “Input choice and enter (0~5):” to enter overview page as following:



This page gives you the general information of SW5001 including IP and MAC address, SNMP information, kernel and AP version, and connection status of the device.

Networking

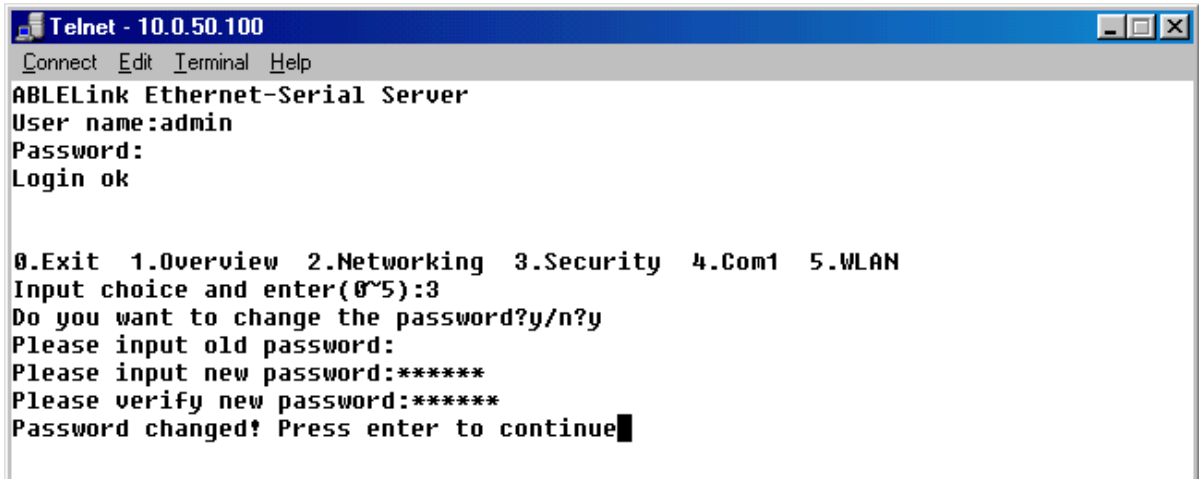
Select “2” from “Input choice and enter (0~5):” to enter Networking page as following:



This page allows you to change network settings of the device including IP address, subnet mask, gateway IP address and SNMP information of SW5001. 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 (0~5):” the following screen appears.



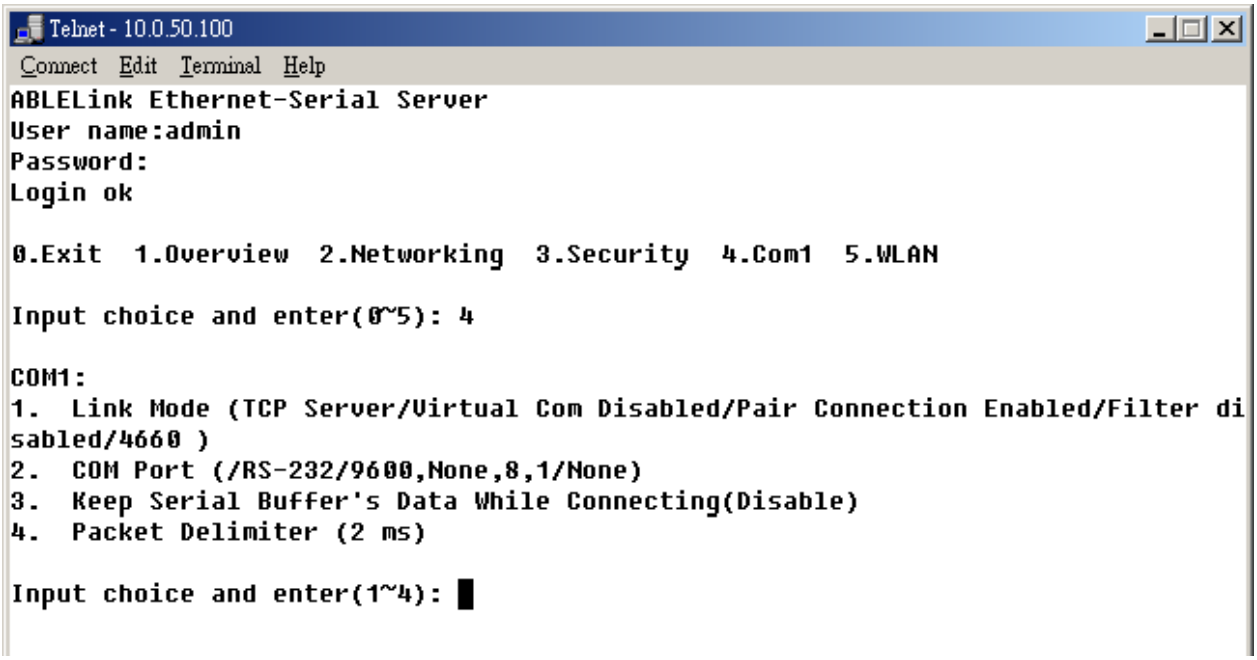
2. If you want to change the password, please type the old password in the “Please input old password”

field, type the new password in the “Please input new password” and the “Please verify new password” fields.

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

COM1 Setup

Select “4” from “Input choice and enter (0~5):” the following screen appears

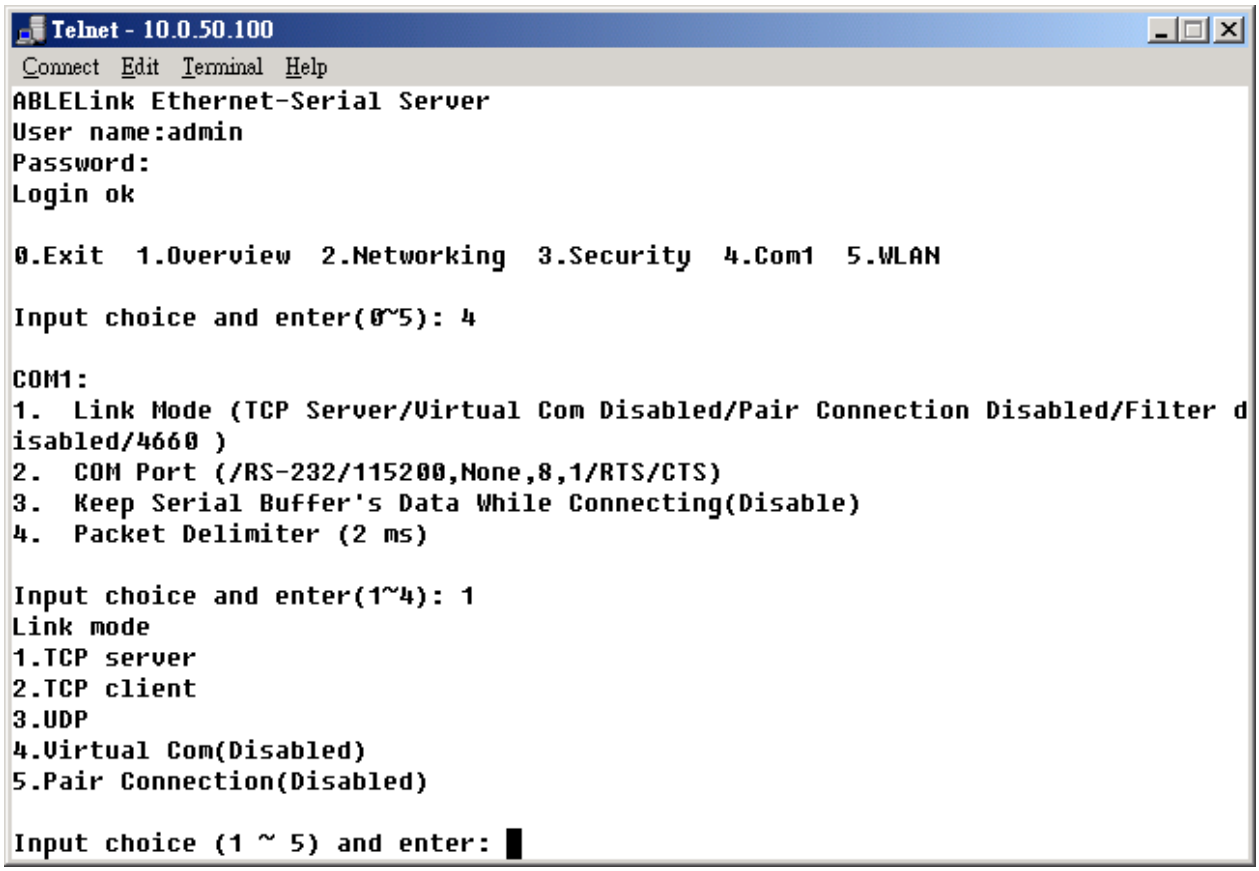


The page gives you an opportunity to configure parameters of COM1 setting which includes COM1 working mode, port parameters, enabling or disabling serial buffer’s data and setting packet delimiter.

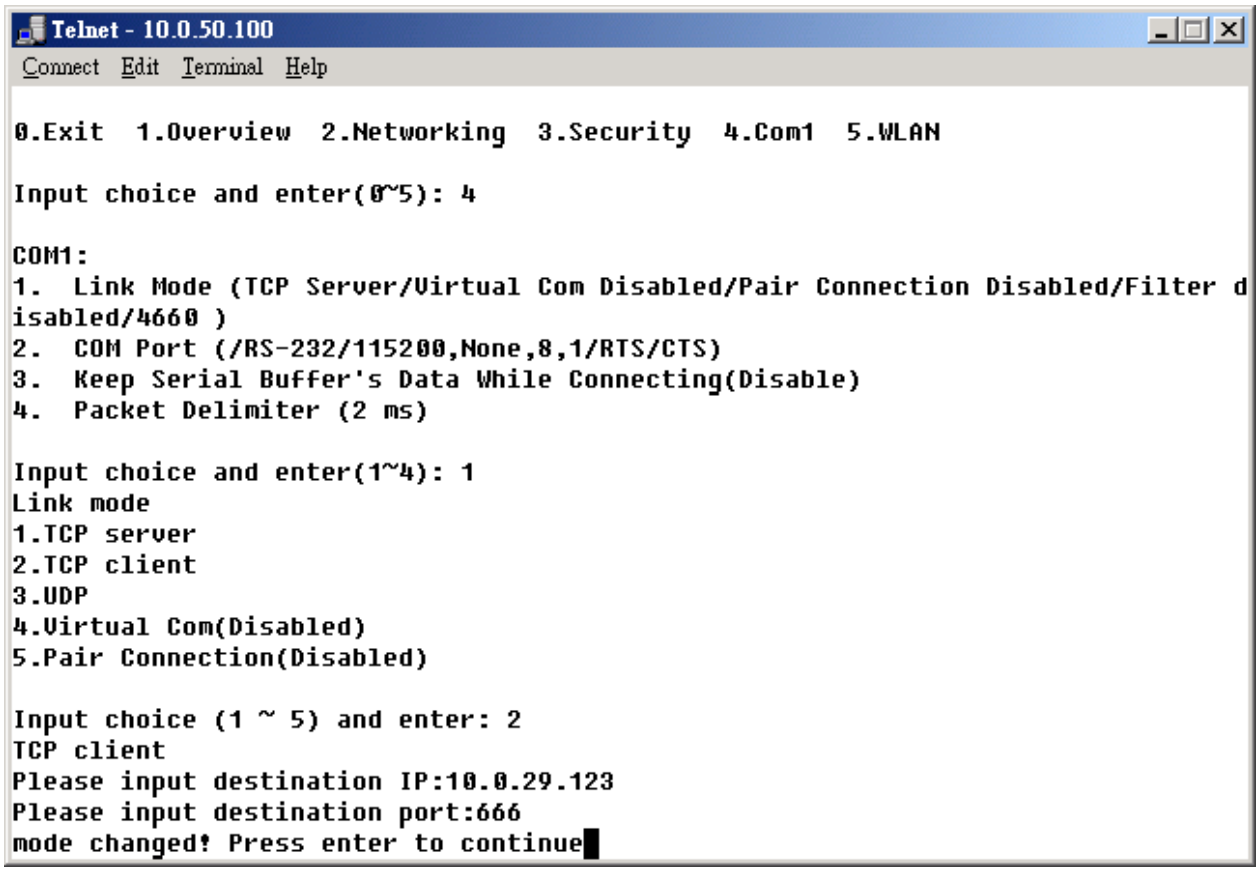
LINK1 Setup

Type 1 from “Input choice and enter (1~4):” of COM1, the following screen appears. Configure SW5001 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 SW5001.

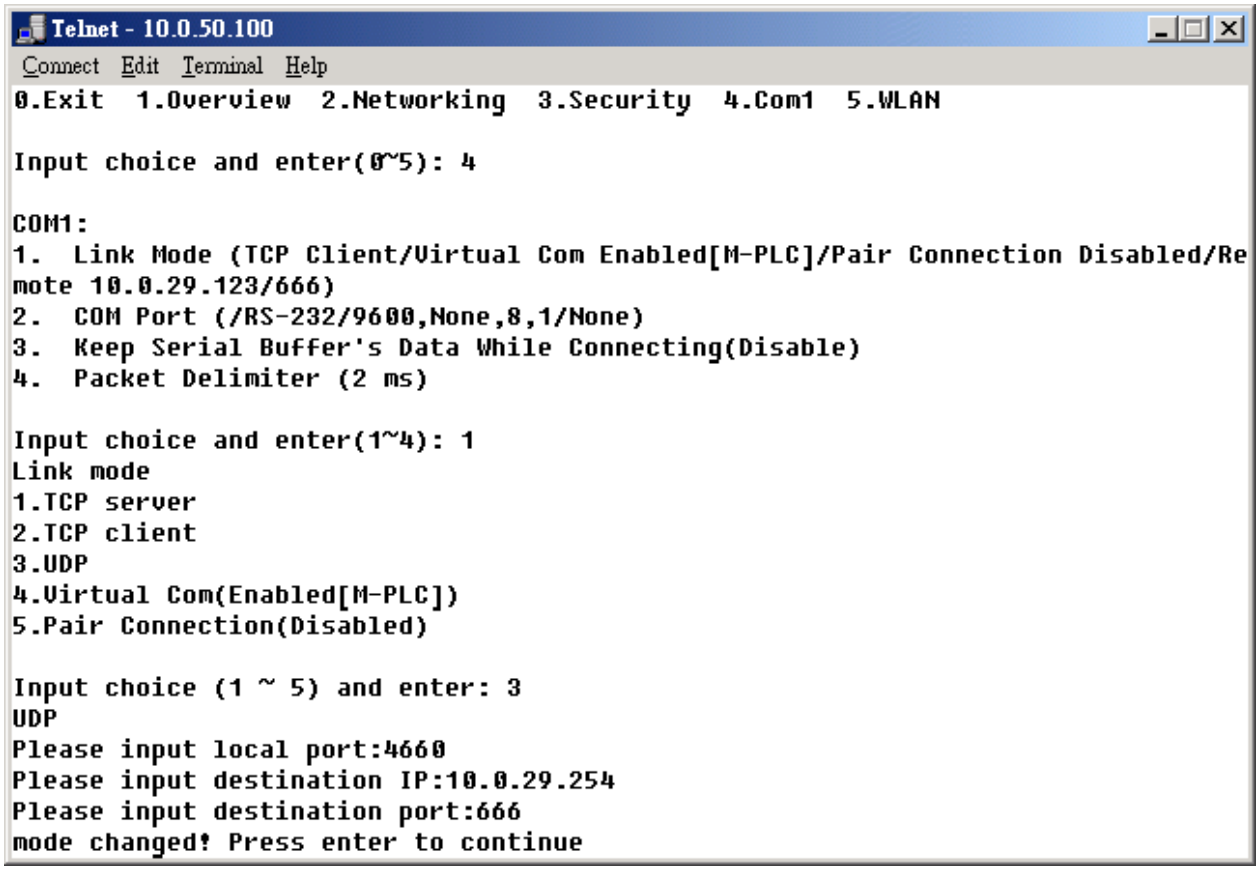
Note: IP filtering function is disabled if setting FILTER_IP to “0.0.0.0”.



Configure SW5001 as TCP client, the destination IP is 10.0.29.123, destination port is 666.

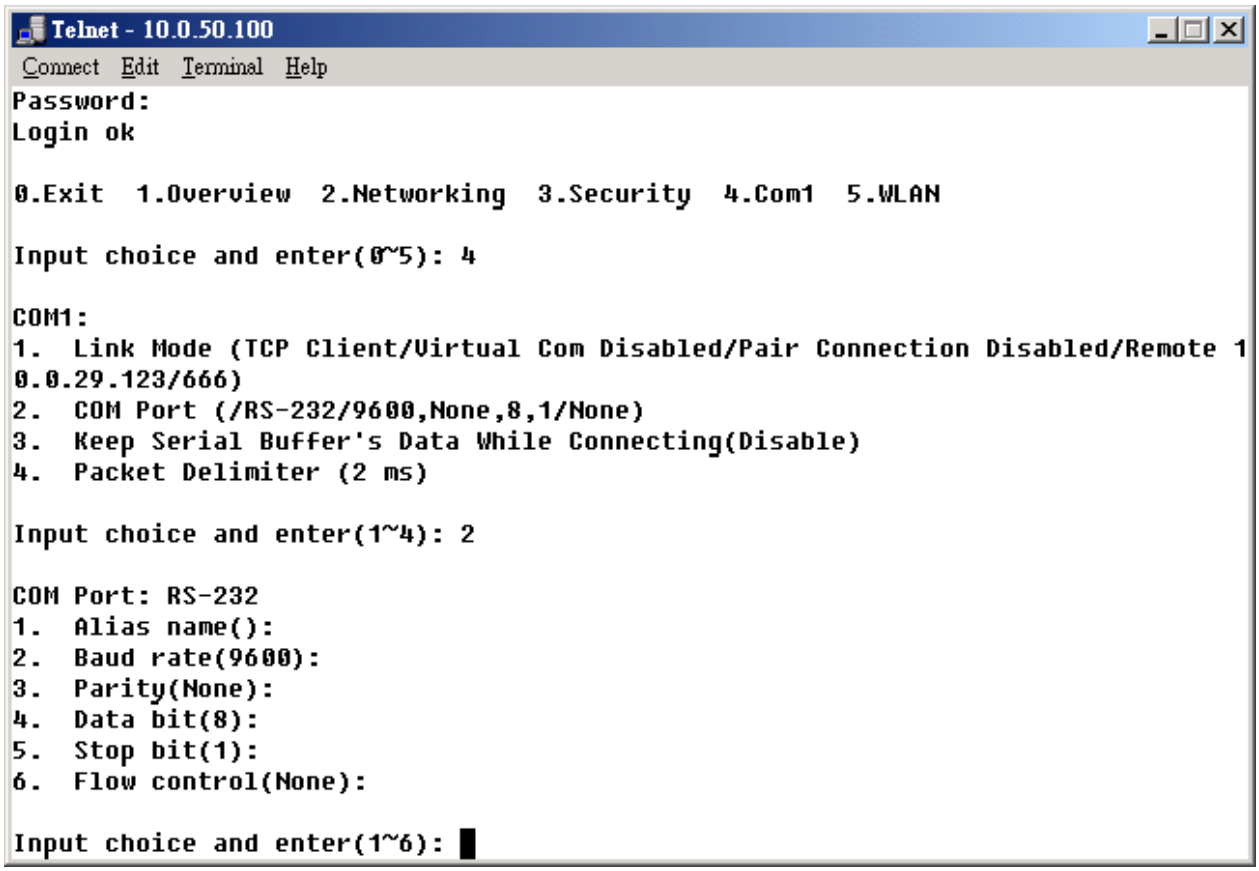


Configure SW5001 as UDP client, the local port is 4660, the destination IP is 10.0.29.254, destination port is 666.



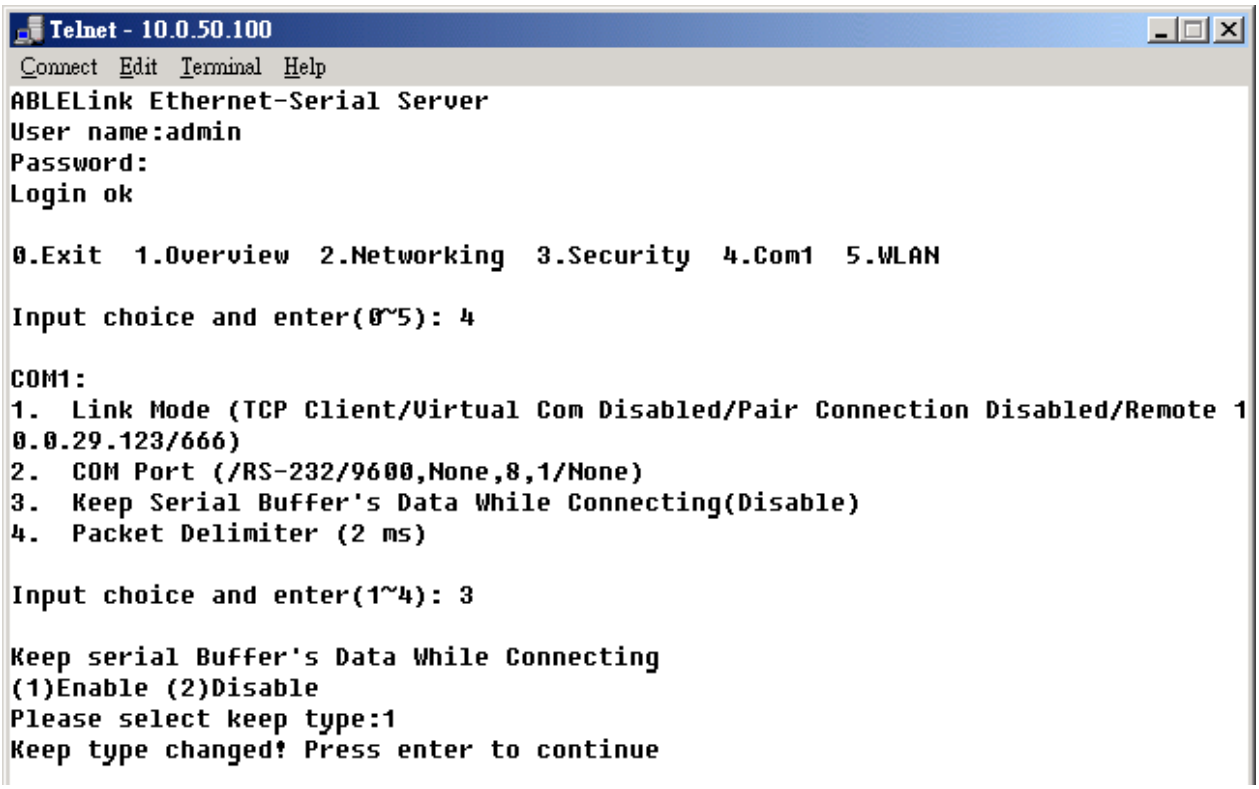
COM port setting

Type 2 from “Input choice and enter (1~4):” of COM1, the following screen appears, you 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 you want to use flow control and the type of flow control you want to use.



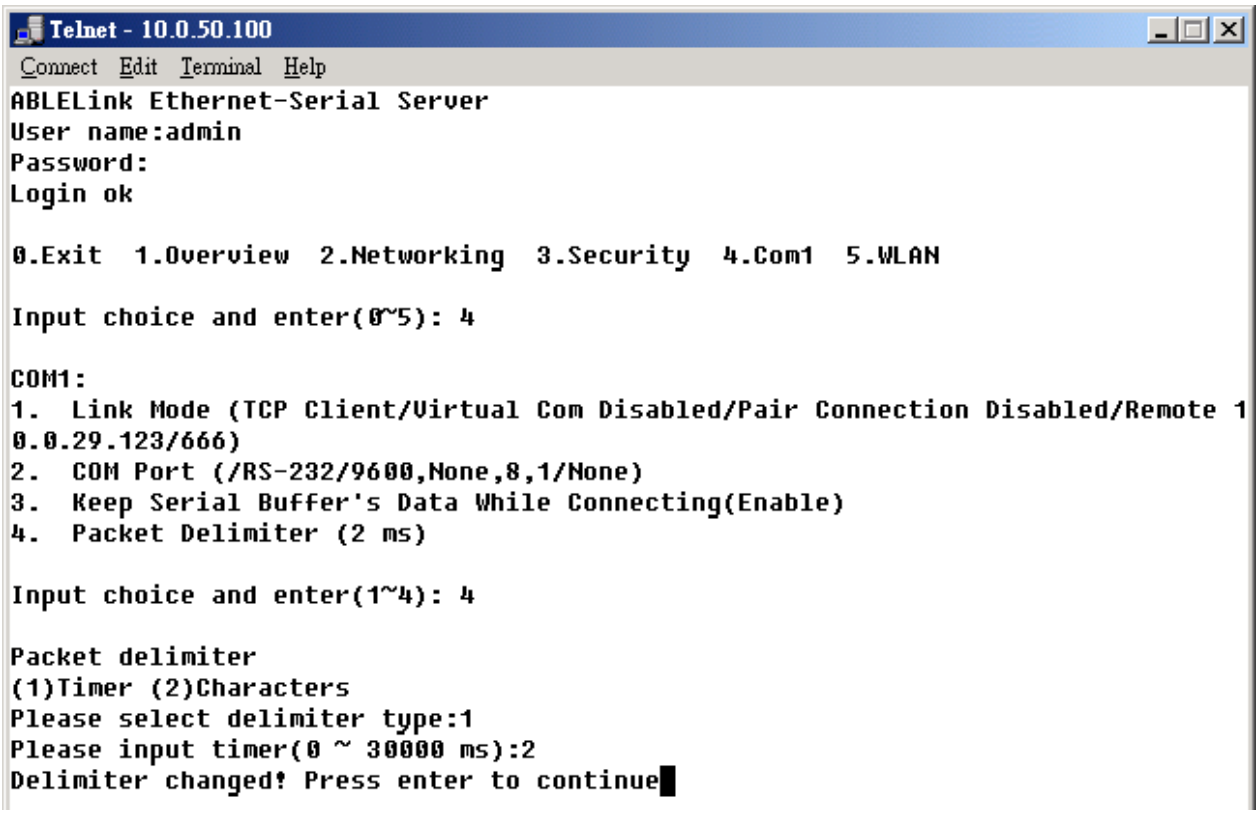
Enabling serial data buffer

Type 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 SW5001, once TCP/IP connection is resumed, the serial data will be sent through Ethernet connection, you can disable it if you wish.

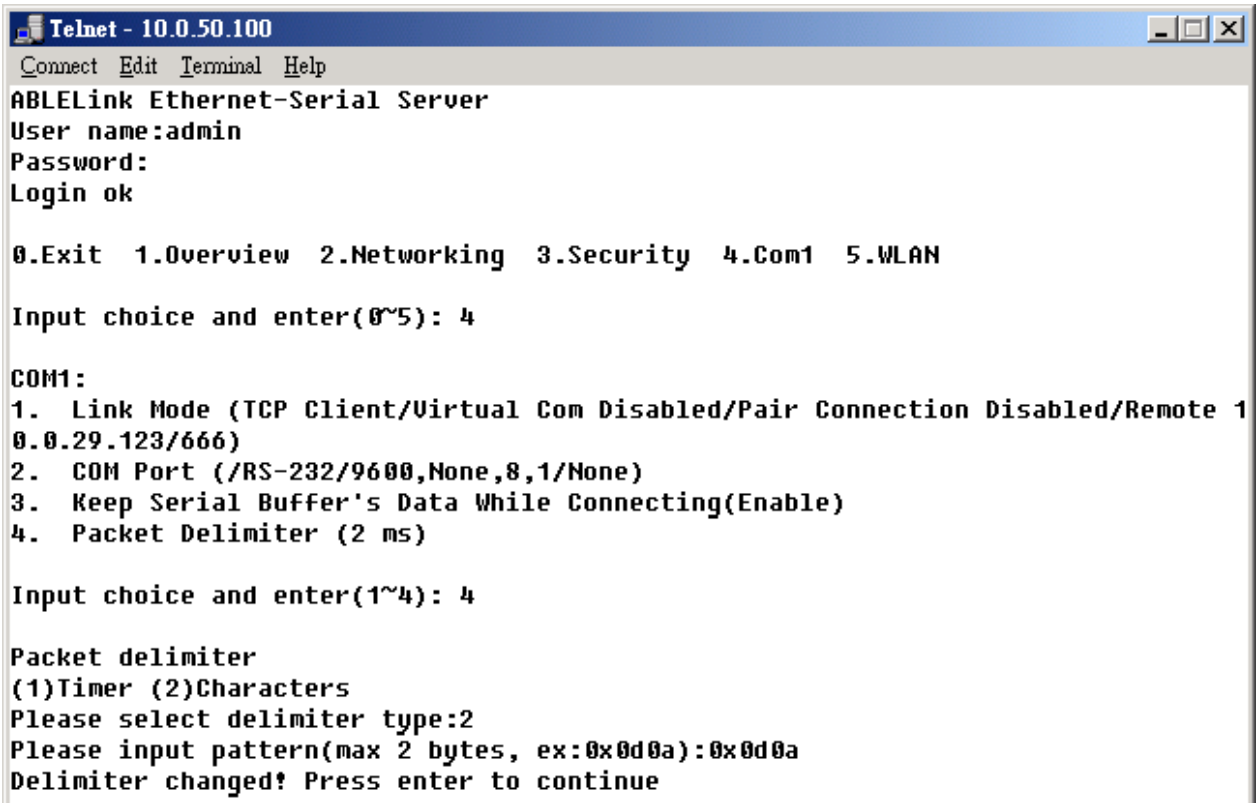


Setting packet delimiter

Packet delimiter is a way of controlling packets within serial communication. It can prevent packets from being cut thus keep the packets complete. SW5001 provides two ways of parameter setting as inter character timer and terminator. By default packet delimiter timer is 0 ms, you can change timer shown in the following figure:

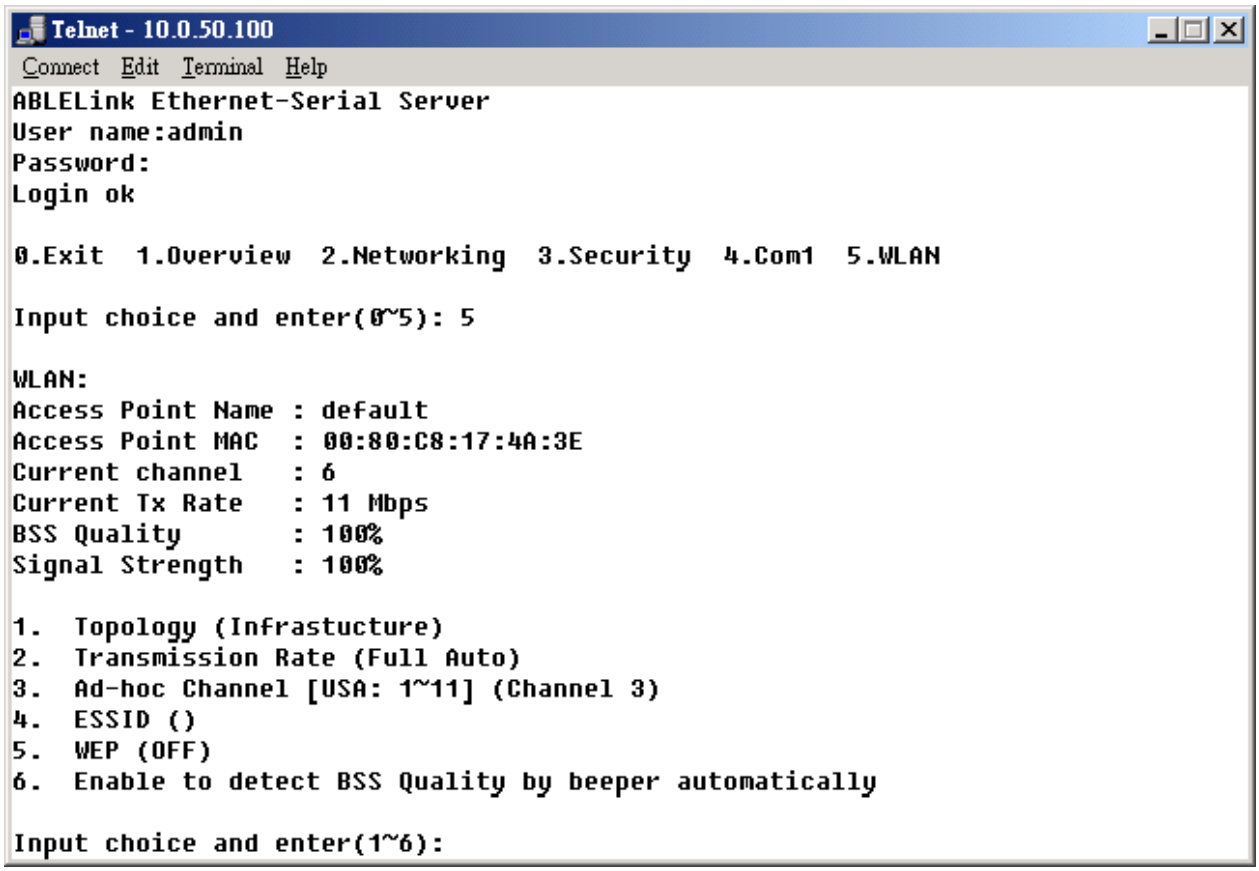


You can also choose character pattern as the packet delimiter indicated in the following figure:



Accessing Wireless LAN setting

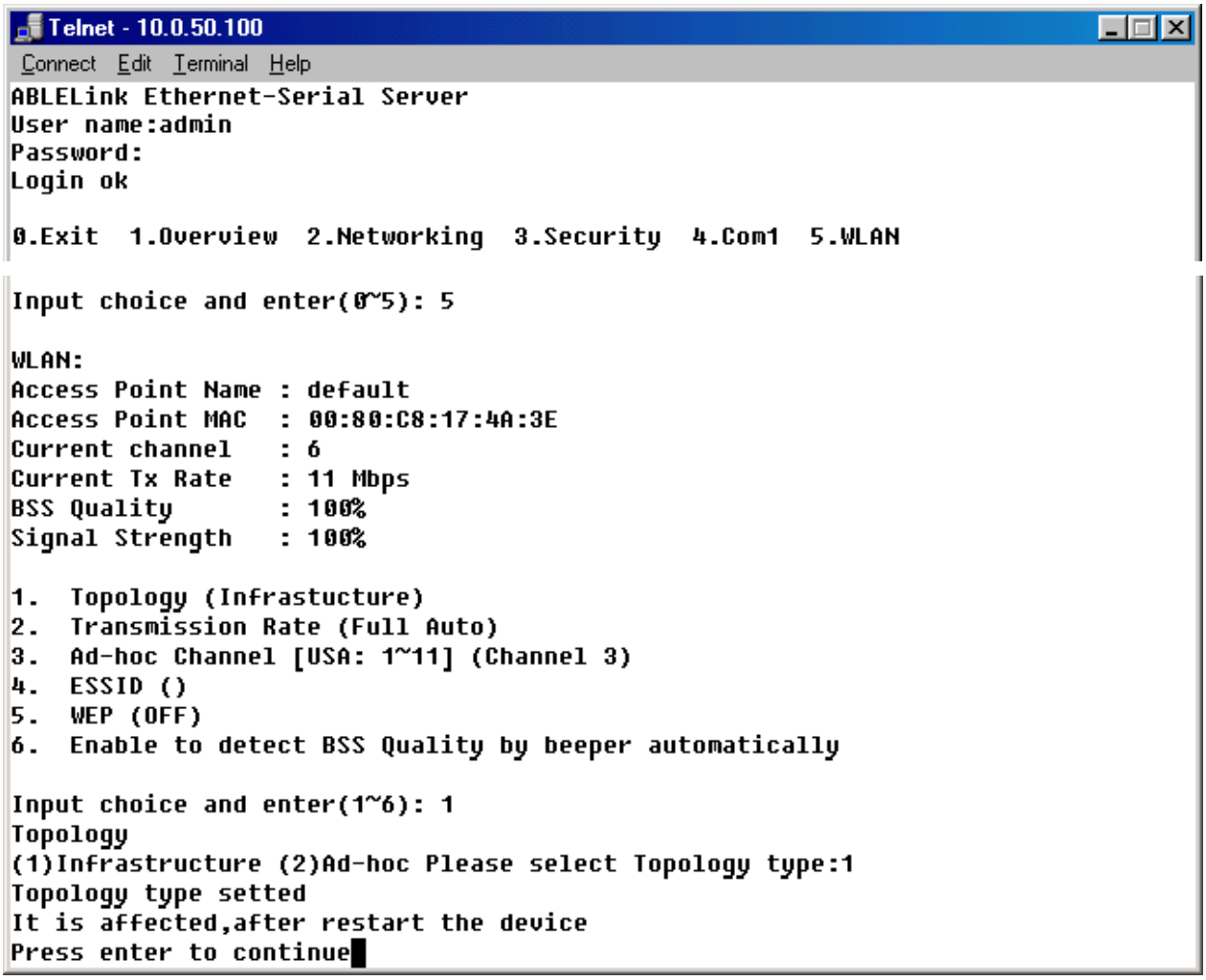
Select “5” from “Input choice and enter (0~5):” the following screen appears.



The above page gives you the general information about SW5001 wireless configurations including the access point it connects to, the current channel and transmitting rate it communicates with the other wireless devices, topology it uses, and what the ESSID (extended service set identifier) and WEP (wireless encryption protocol) are if you use them.

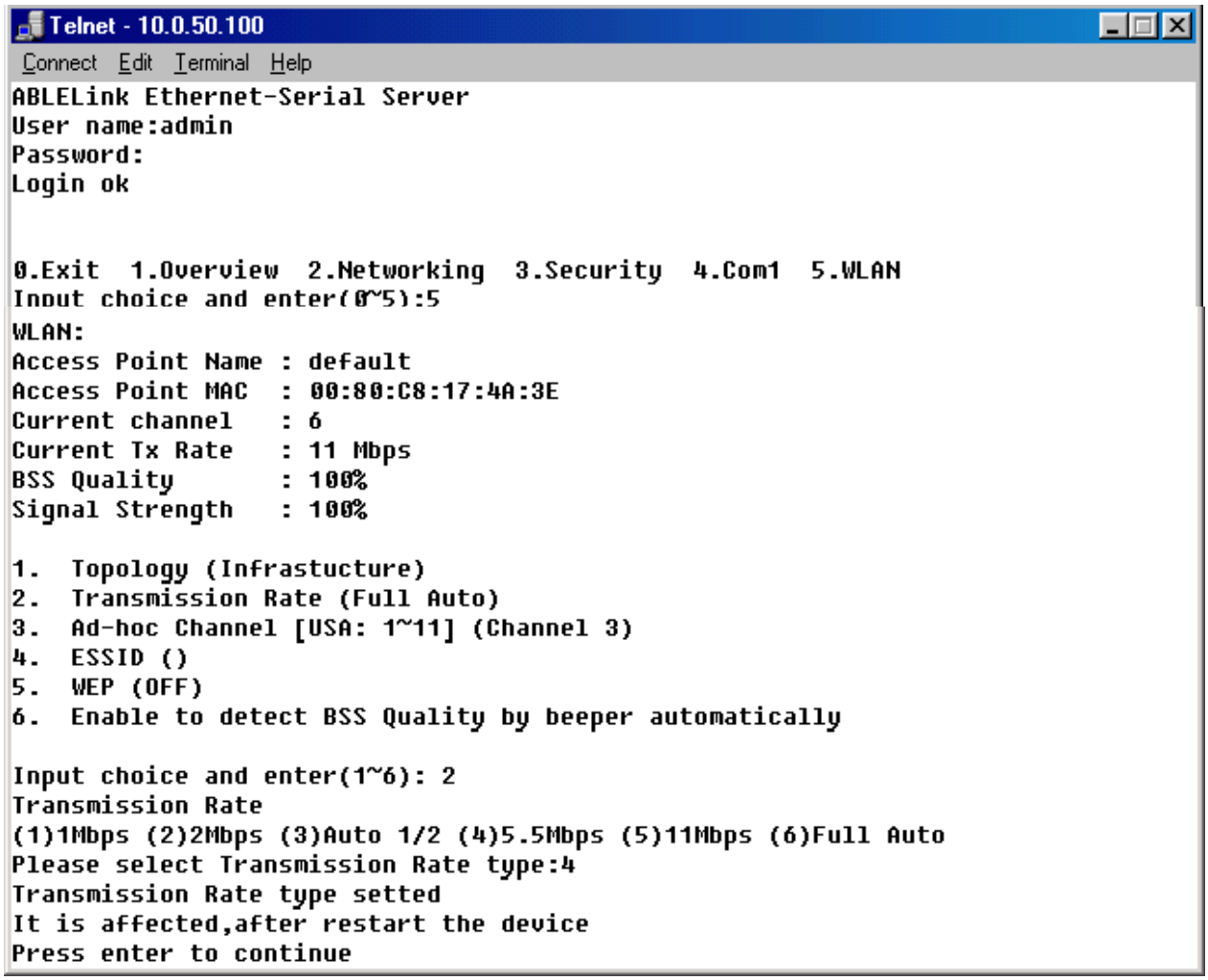
Wireless LAN topology

You can choose either infrastructure or ad-hoc mode for SW5001 as indicated in the following figure:



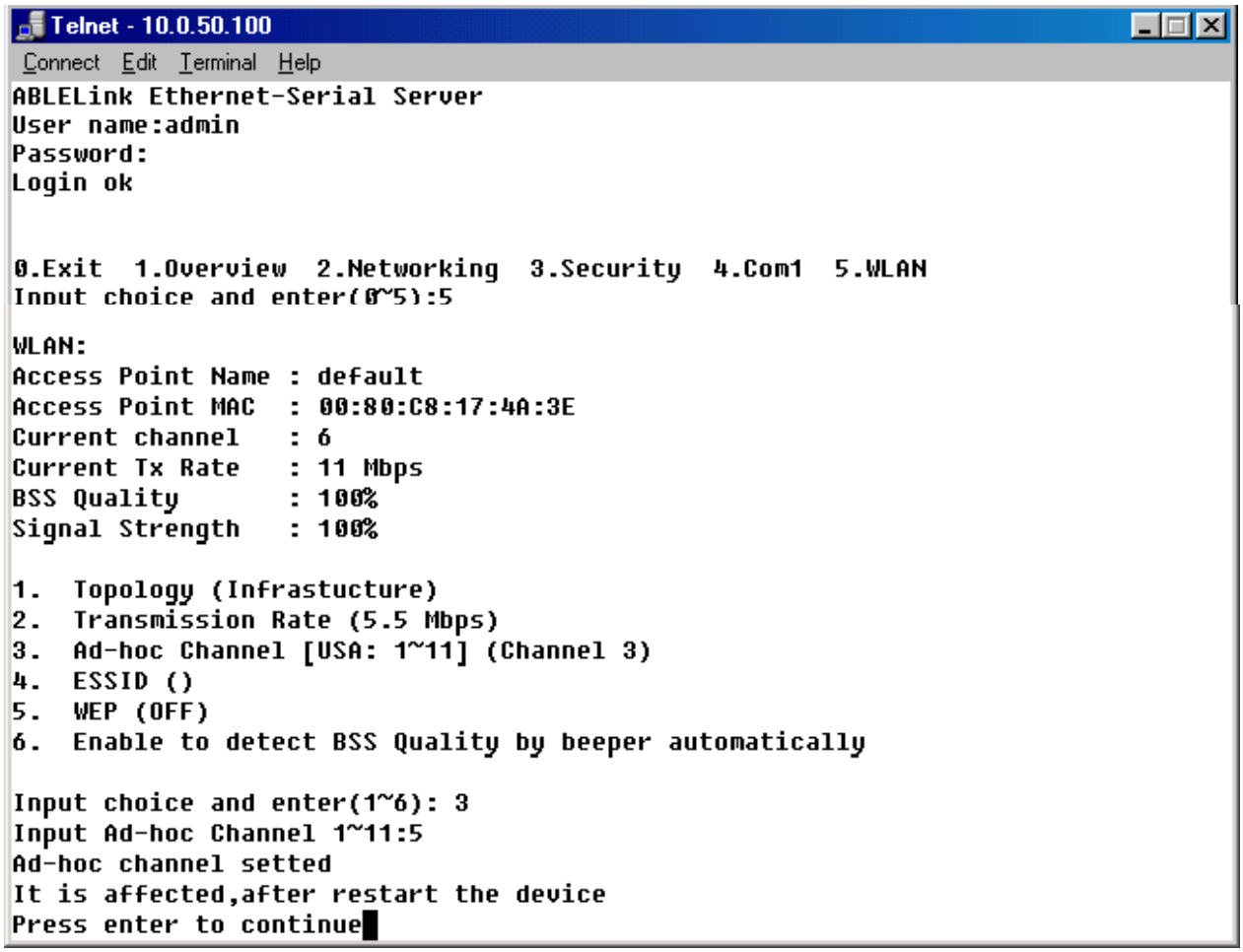
Wireless LAN Transmission Rate

You can set SW5001 transmission rate as 1 Mbps, 2Mbps, 5.5Mbps, 11Mbps, or full auto based on 802.11 standard shown in the following figure:



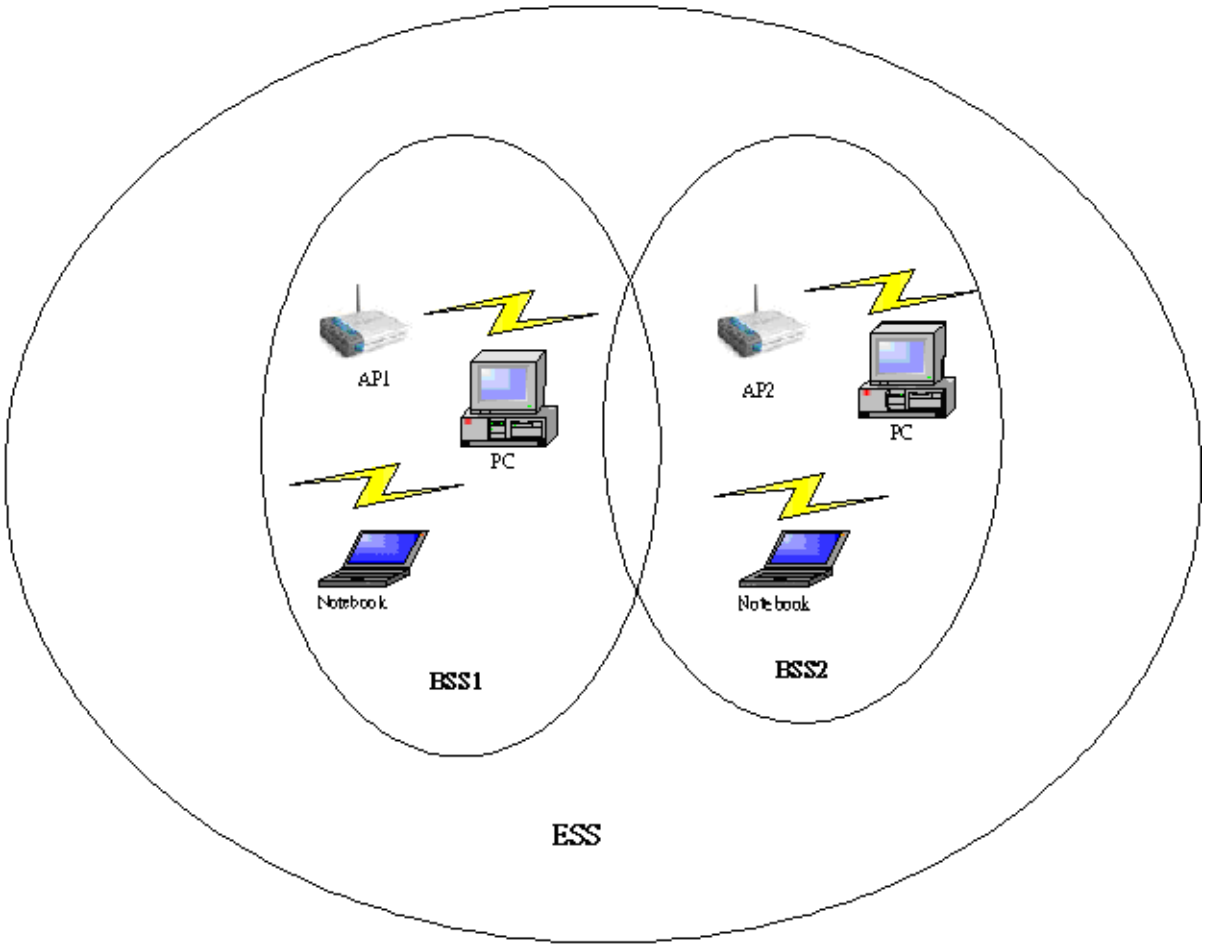
Wireless LAN Ad-hoc channel

You have to select the same channel for two wireless devices to talk to each other as indicated in the following figure:

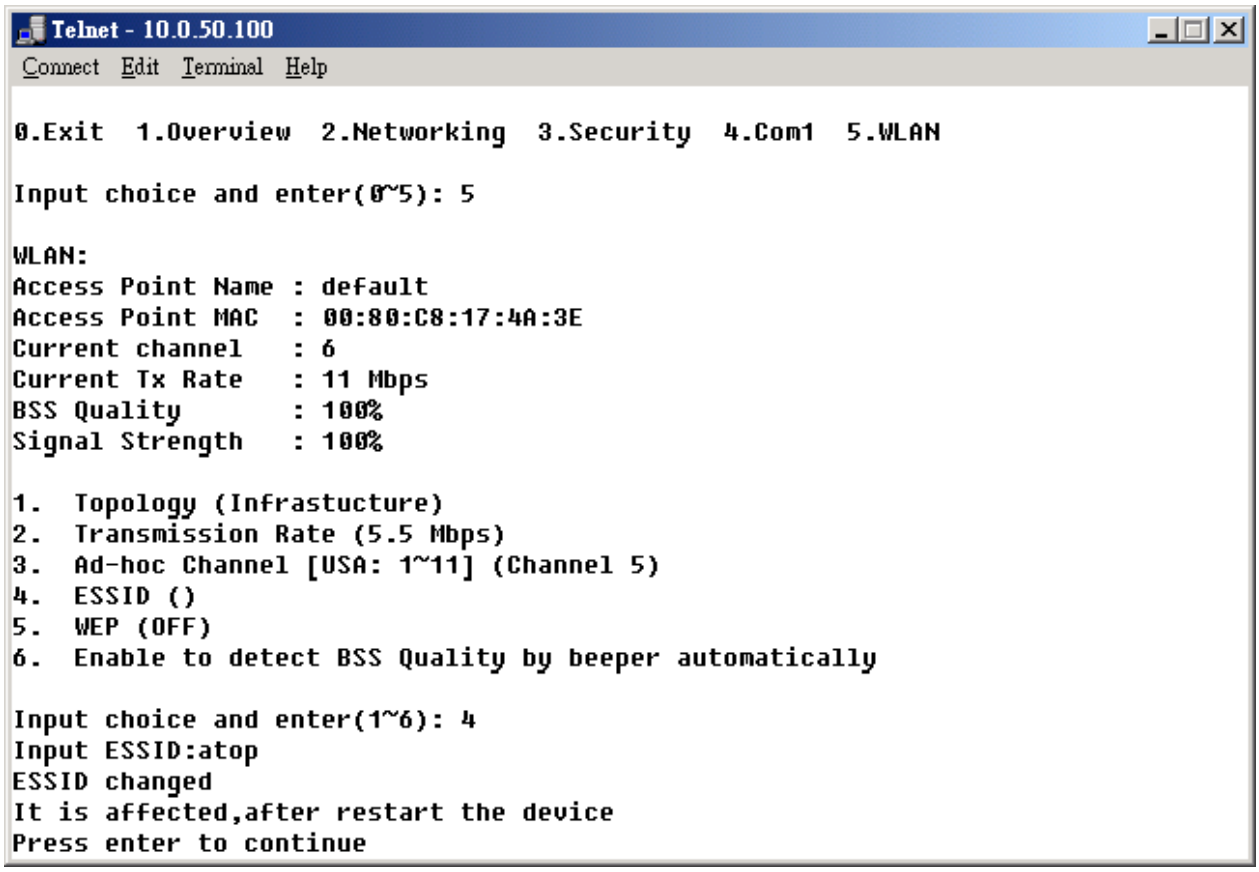


Wireless LAN ESSID

ESSID (extended service set identification) is used to identify all of the computers in the wireless LAN system, it is different from BSSID (basic service set identification) which contains a single access point (AP) and several other nodes. The following diagram illustrates this concept:

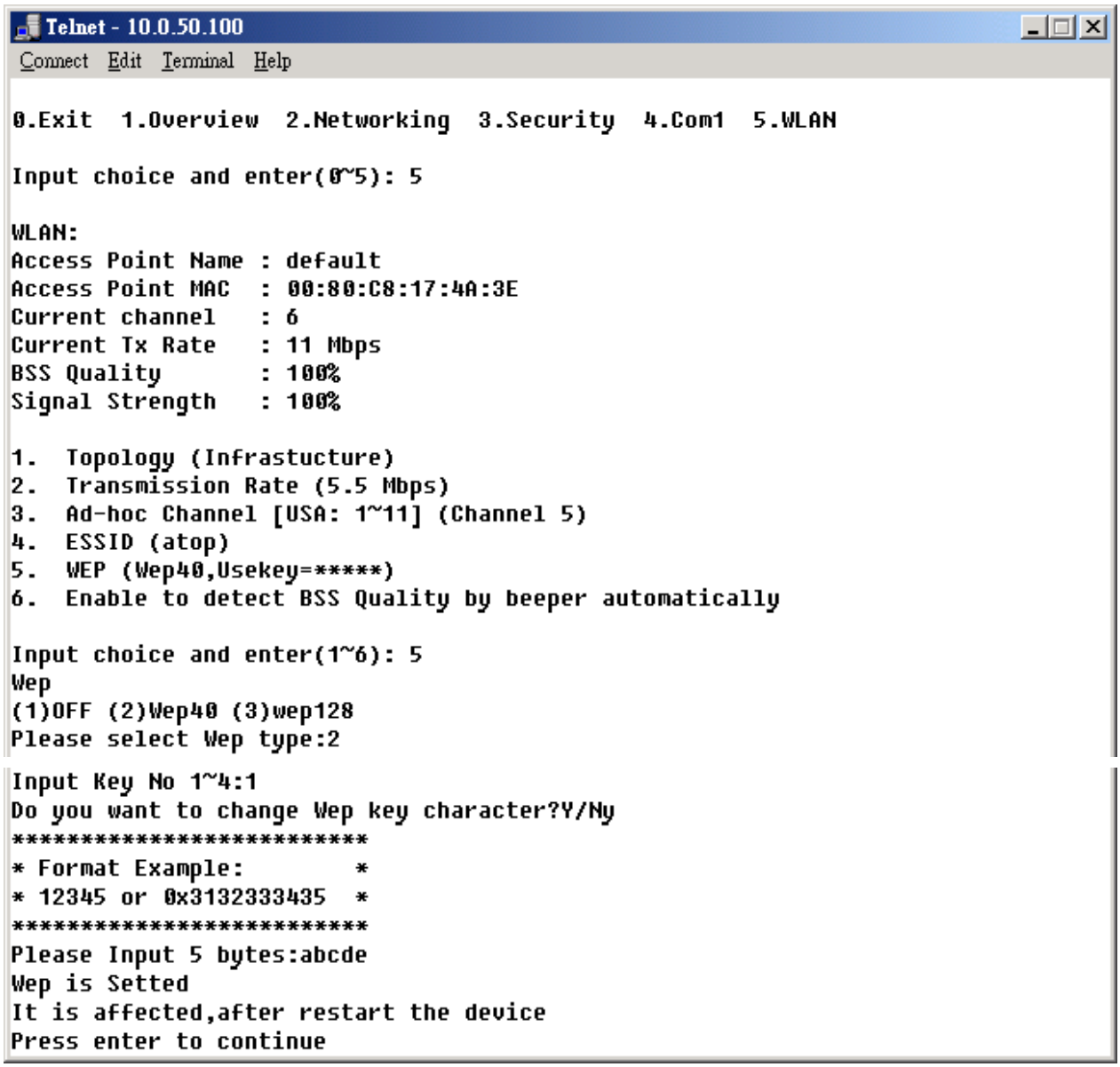


By default, SW5001's ESSID is NULL meaning that it can connect to any access point it detects regardless of SSID of the access point. However if there are two access points within the coverage of SW5001, it will not connect to either of them, in this case you have to specifically input the ESSID of one of the access points for connection. From telnet you can input ESSID as indicated in the following figure:



Wireless Encryption Protocol or Wired Equivalent Protocol (WEP) Setting

For security reason, SW5001 can set up to use WEP key of 40 bits or 128 bits to securely communicate in the wireless network. Telnet WEP key set up screen is as following:



4.4 Configuration set by web browser

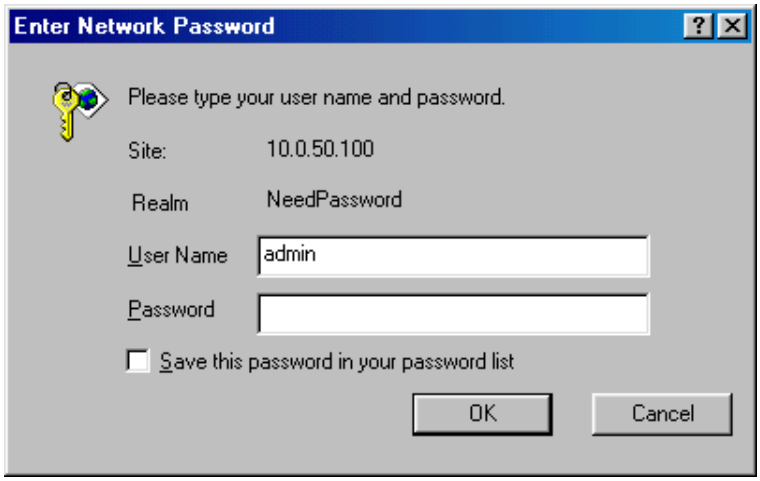
It is also possible to modify various settings through the web server interface. To do so, please follow the steps below.

Log in to the system

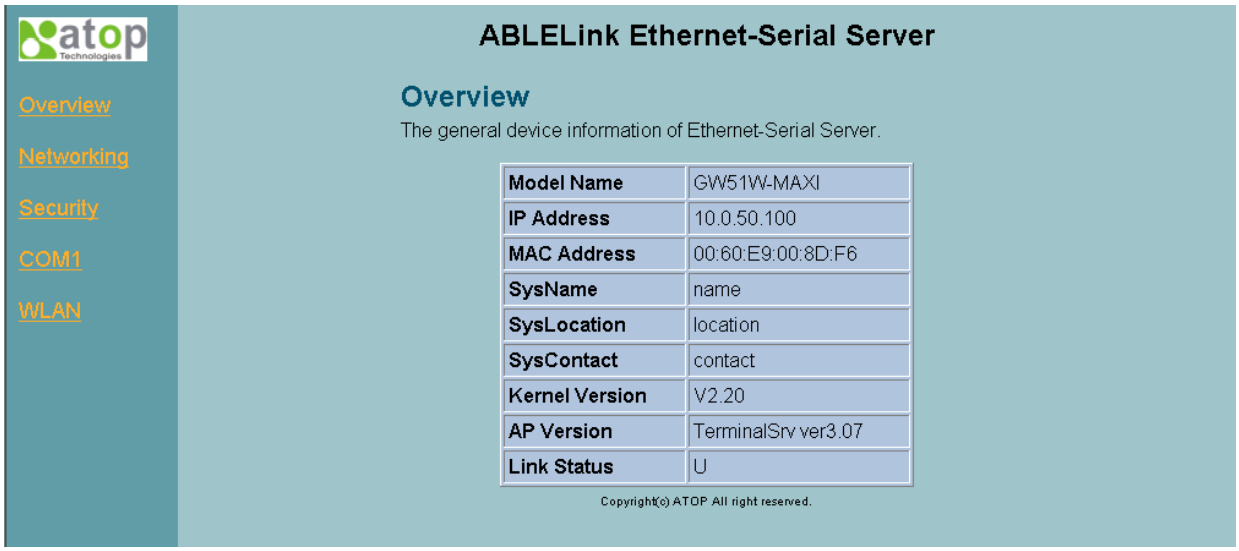
1. From web browser, type in the IP address of SW5001 in the URL.

   Example: http://10.0.50.100

2. The following authentication screen appears. Please type in user name and password then click on "OK". The user name is **admin** and password is **null** by default.

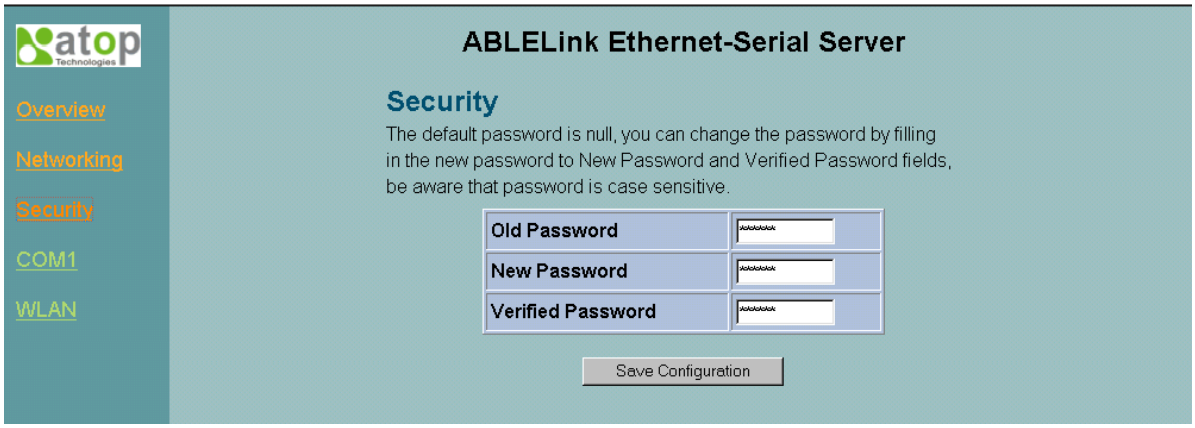


3. The following overview page appears.



Change the password

1. Click on the “Security” link and the following screen appears.



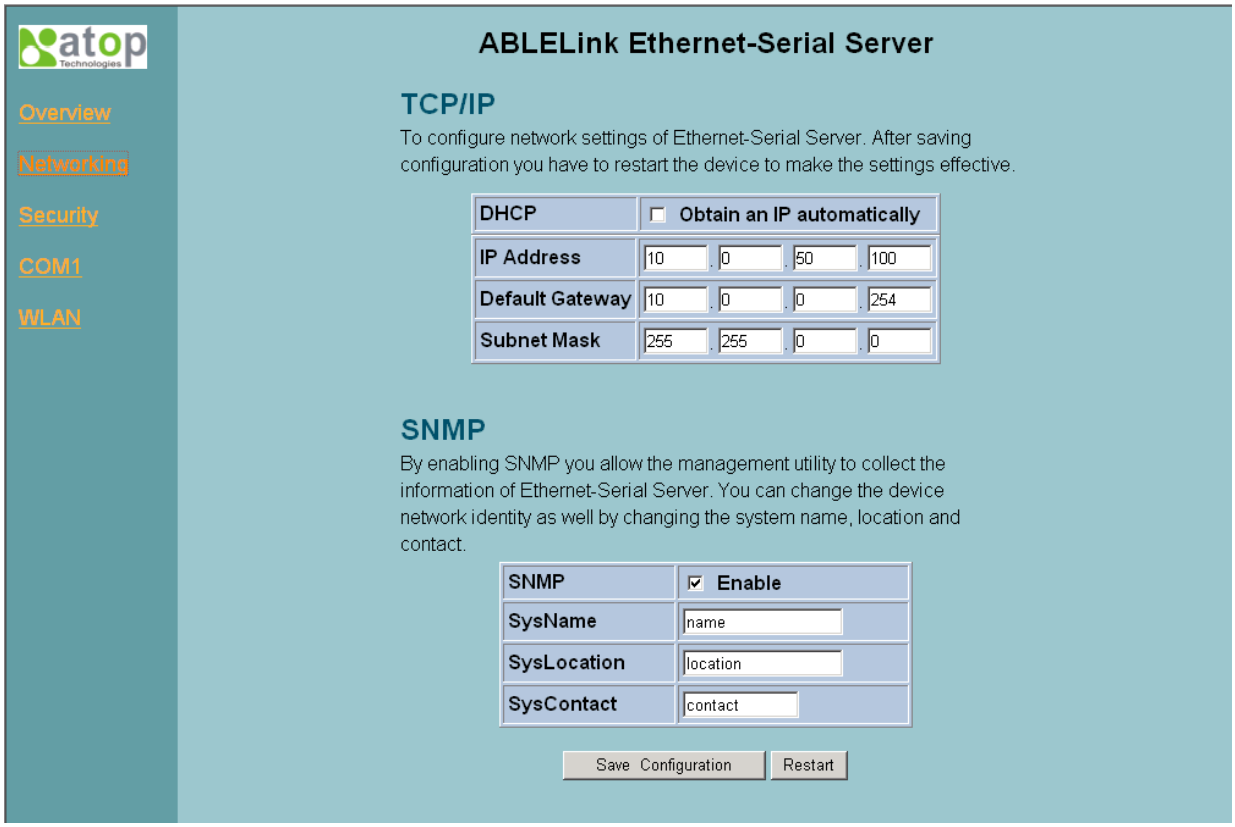
2. Please input the old password in the “Old Password” field, input the new password in the “**New Password**” and the “**Verified Password**” fields. Then click on **“Save Configuration”** to update the password.

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

Network setup

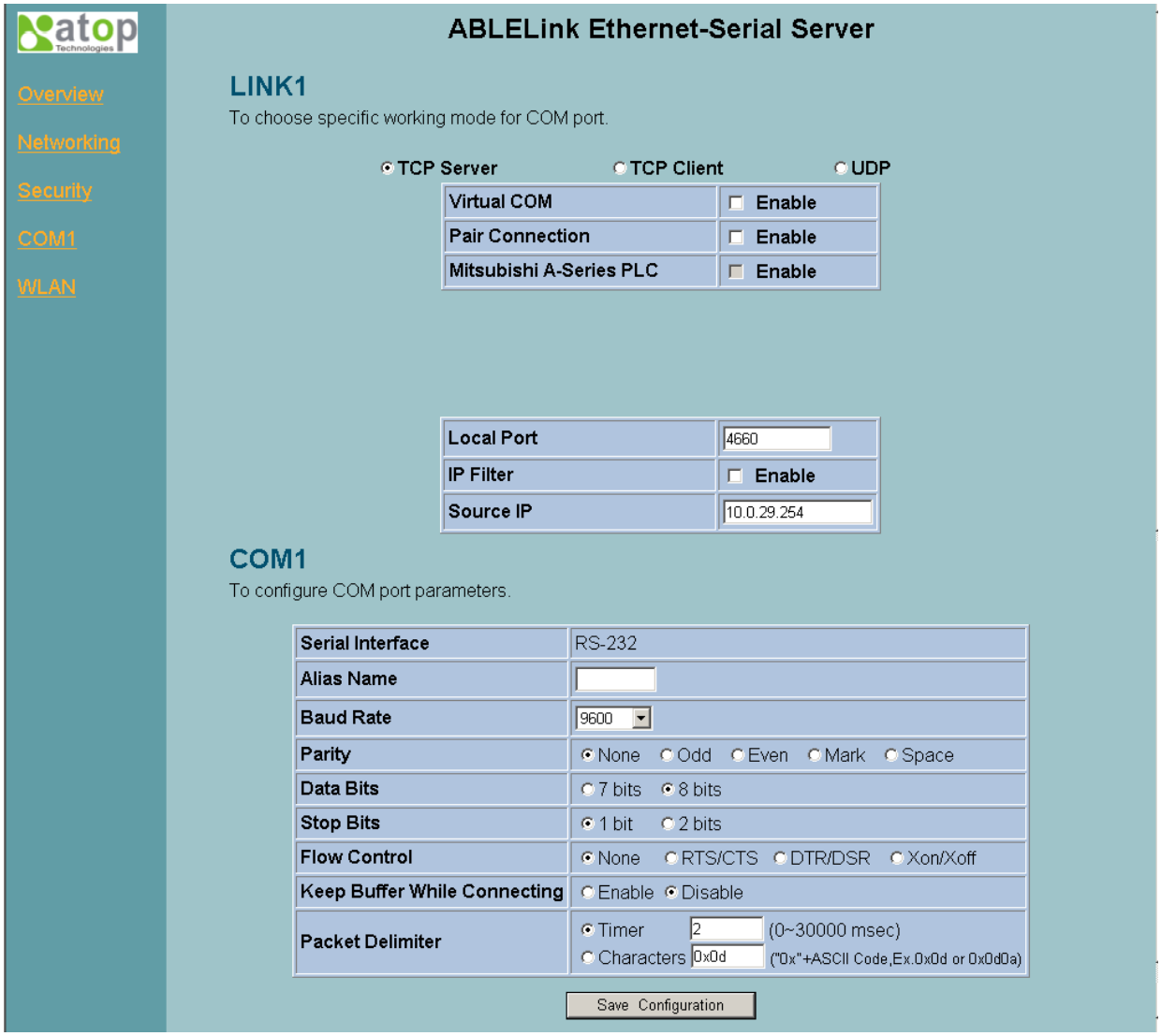
Click on the **"**Networking**"** link and the following screen appears. Fill in IP information under TCP/IP field. Alternatively, you can do the configuration by putting a check on DHCP to obtain auto IP address, gateway and subnet mask information.

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 you restart SW5001.



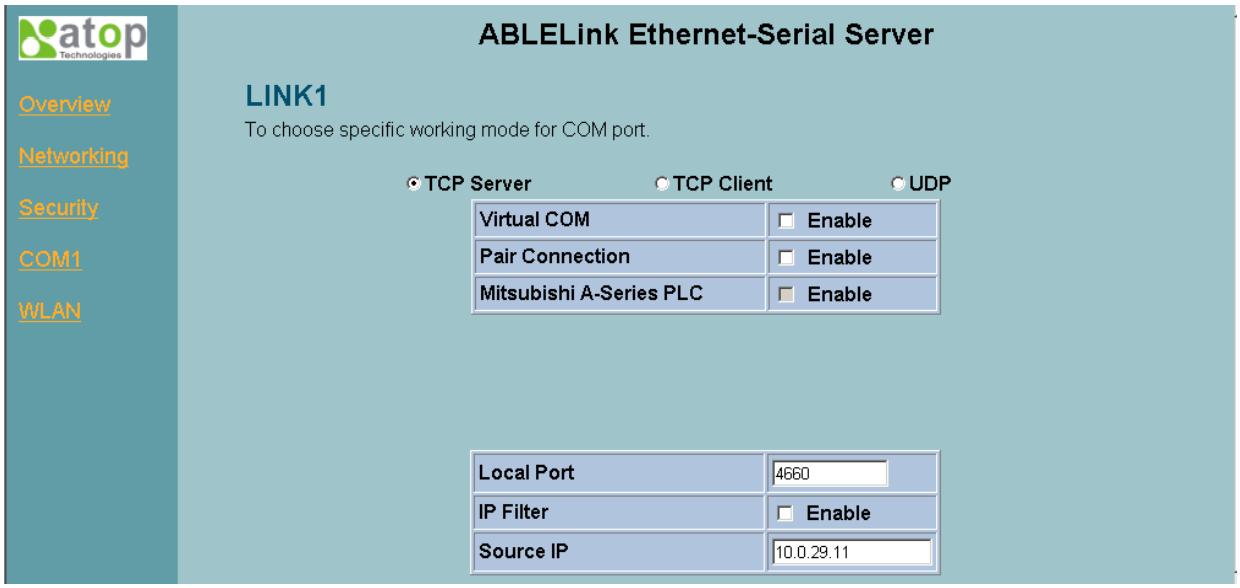
COM1 Setup

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.

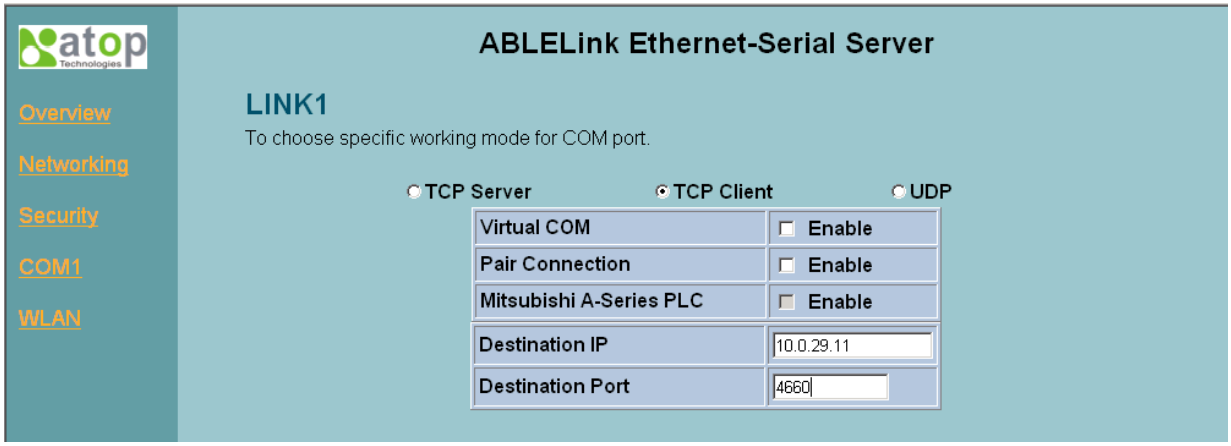


LINK1 Setup

1. Click on the **"COM1"** link and the following screen appears, you can configure SW5001 as transparent mode by default. Configure SW5001 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 SW5001.

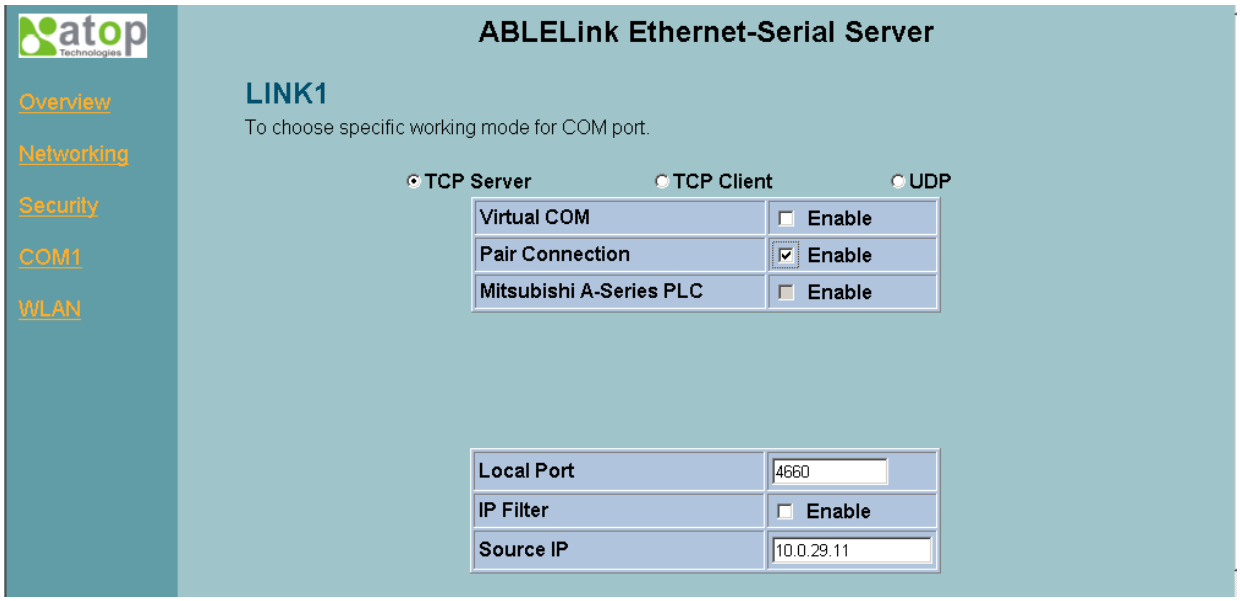


Configure SW5001 as TCP client, the destination IP is 10.0.29.11, destination port is 4660.

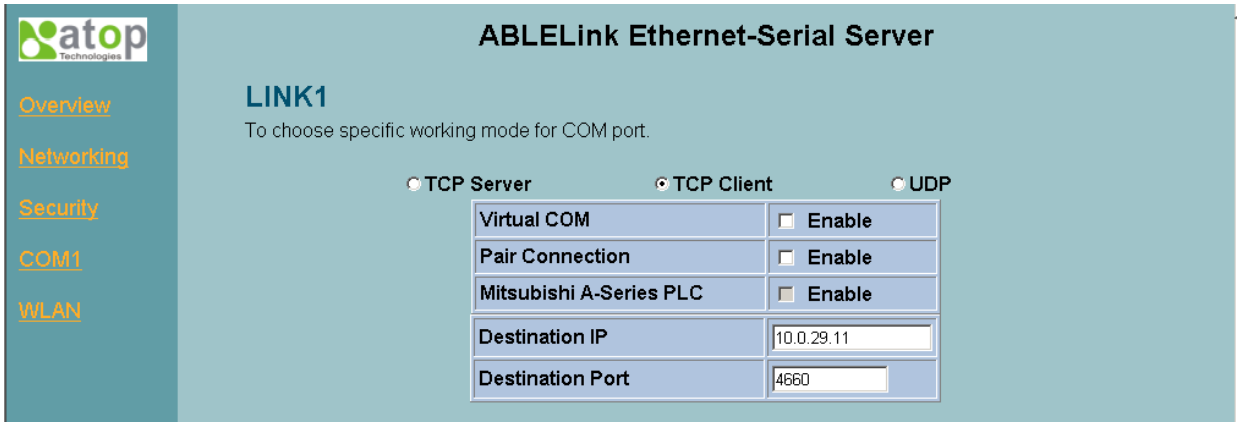


Pair Connection

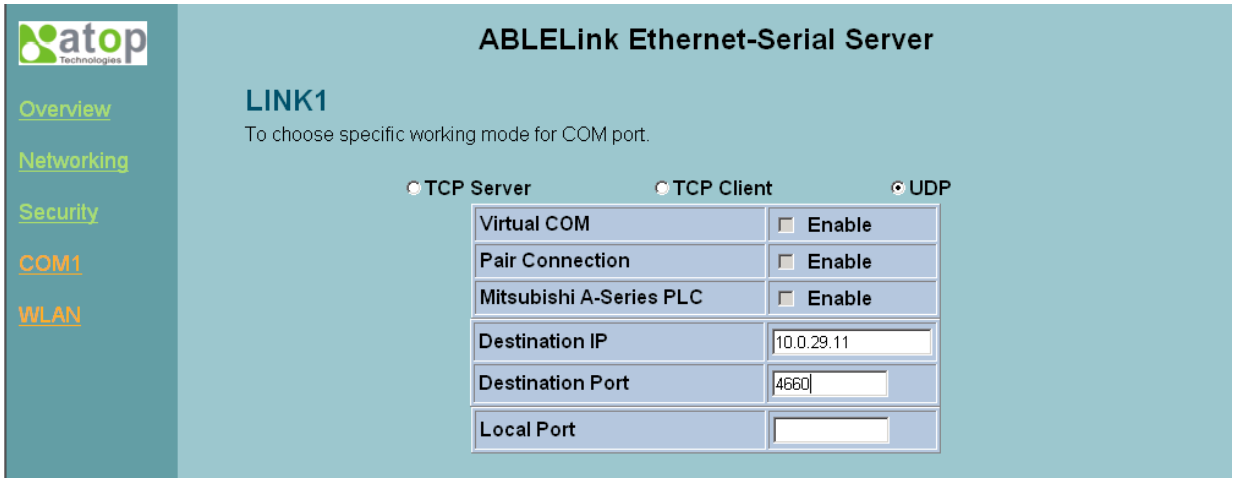
In the case of the serial connection is established with two or more SW5001 to send data over Ethernet network, i.e. pair connection mode, you can choose "pair connection" which is indicated in the following figure to cope with any type of serial device.



Configure SW5001 as TCP client, the destination IP is 10.0.29.11, destination port is 4660.



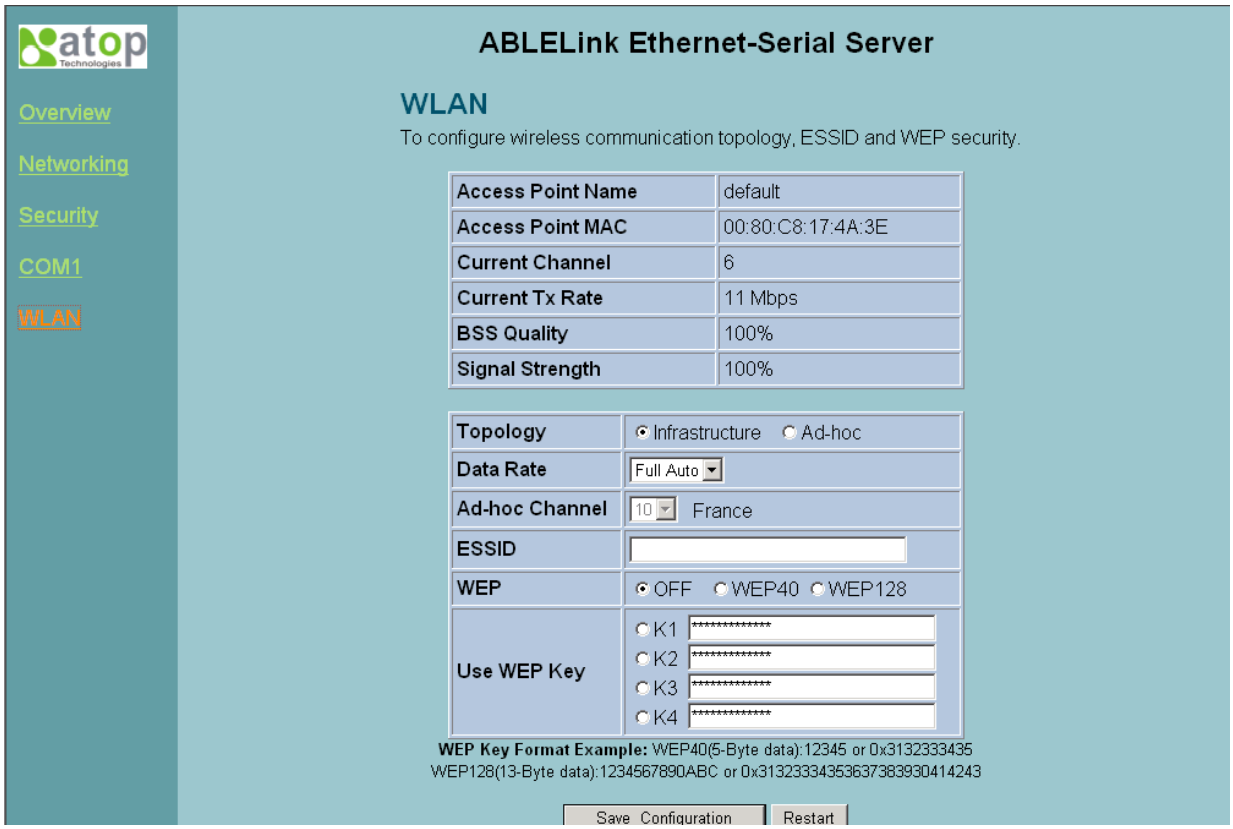
Configure SW5001 as UDP mode. Local port is 666, destination IP is 10.0.50.100 and destination port is 4660.



2. Click on “Save Configuration” to save the changes.
3. If the update is successful, the following screen appears.

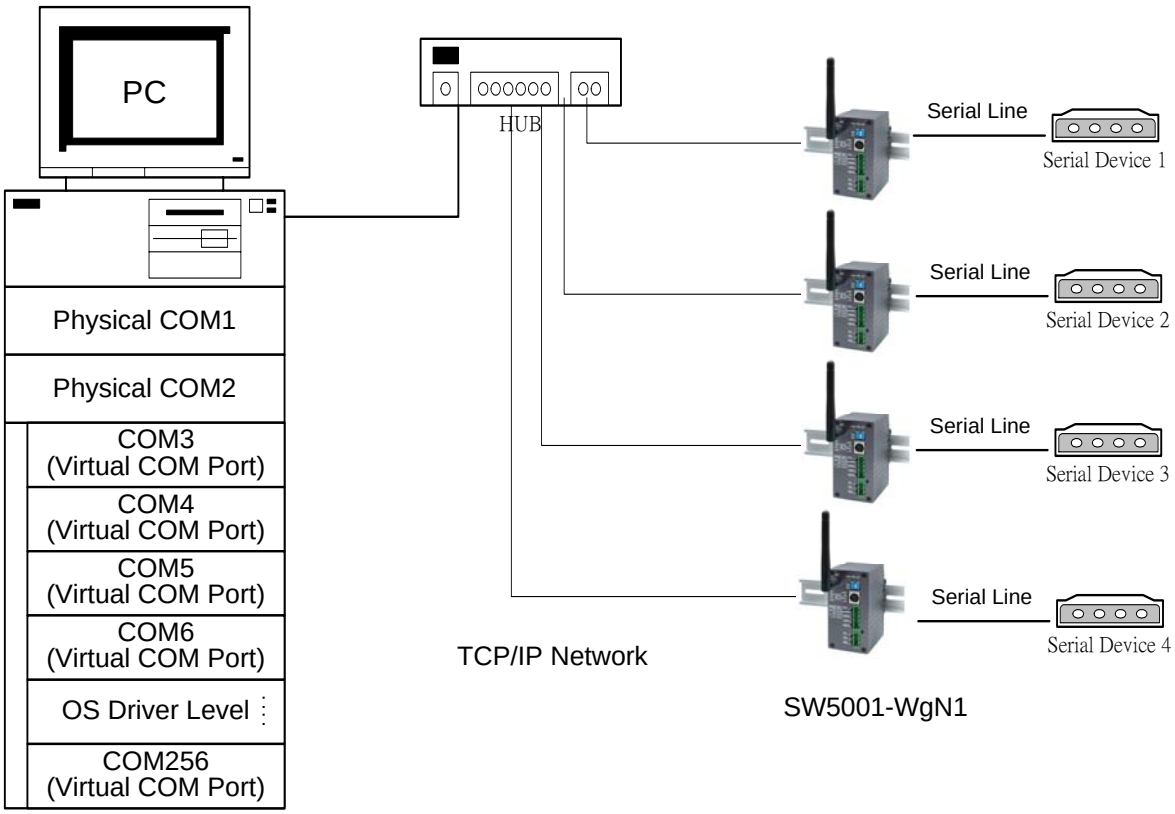
Wireless LAN Setup

You can configure wireless LAN parameters through web pages, the following page gives you the information of the access point SW5001 is connected to, it also allows you to configure SW5001's wireless topology, ESSID and WEP security. In addition, the BSS Quality and Signal Strength will indicate you the situation of signal.



4.5 Virtual COM Mode

Virtual COM driver mode for windows converts COM data to IP data to control the RS-232C port on a SW5001 via the IP. 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 SW5001 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 your 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 MetaFrame
- Windows Installer 2.0
- Network: Microsoft TCP/IP networking software

Applying to the serial server

Cautions on Use

Atop Virtual COM supports firmware AP v3.4 and above of ABLELink Wirless Serial Servers.

Limitation

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

Installation

Make sure you 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 your operating system.

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

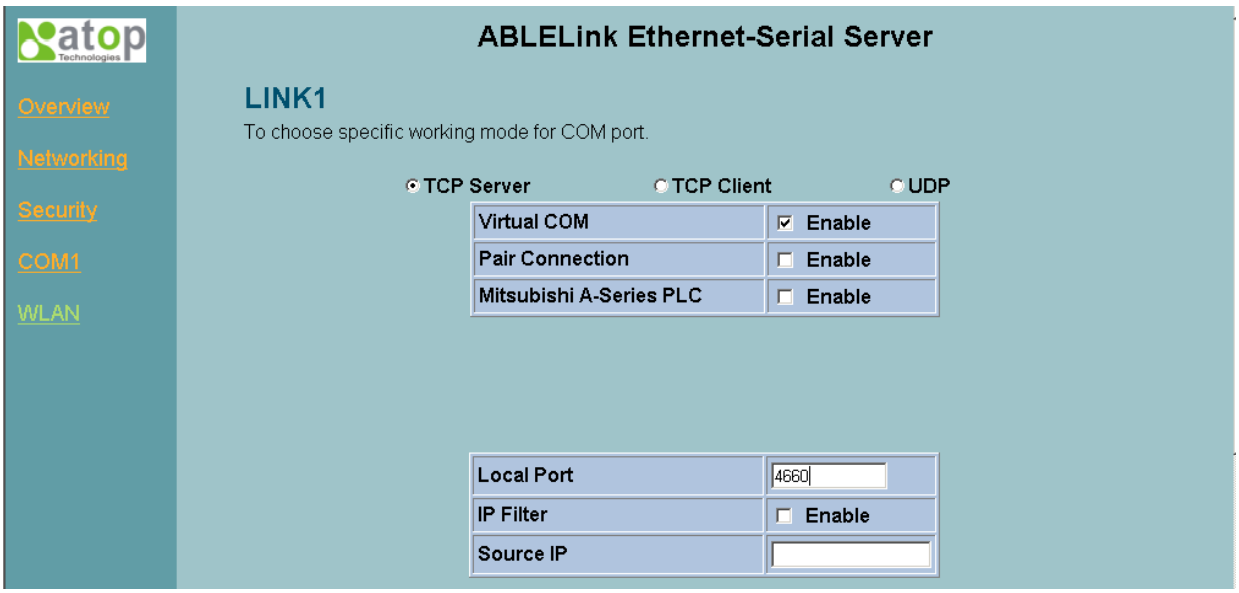
Uninstalling

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.

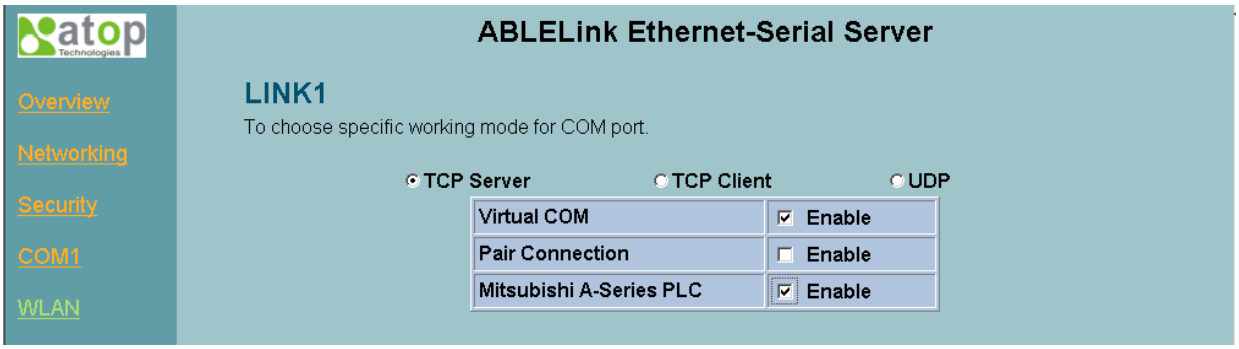
4.5.2 Virtual COM communication

4.5.2.1 Enable Virtual COM on SW5001

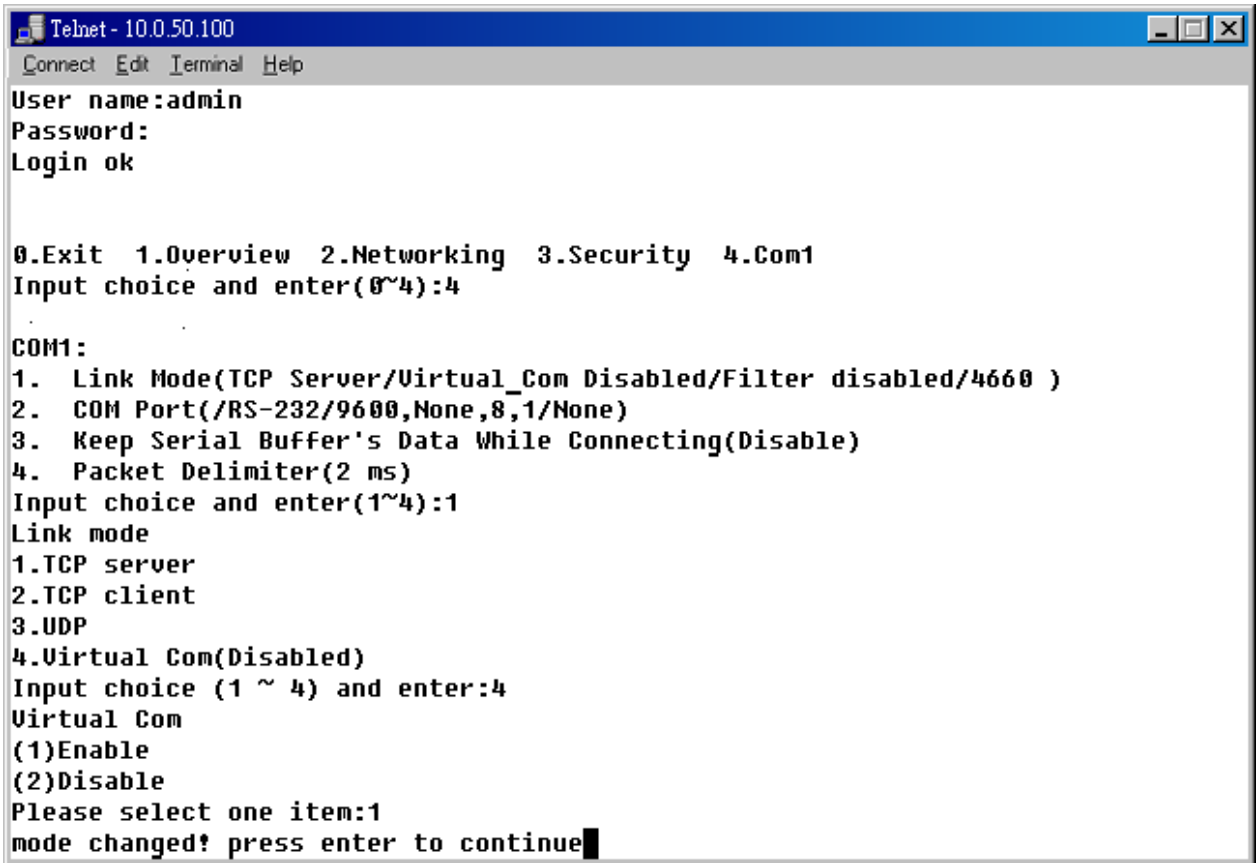
From web browser access to SW5001 by typing its IP address, click on COM1 link to access COM1 page, on the top half of the page click on "**TCP Serve**r" and enable Virtual COM by putting a check in front of the "Enable" button, then type in the local port number in the "**Local Por**t" field as indicated in the following figure:



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.

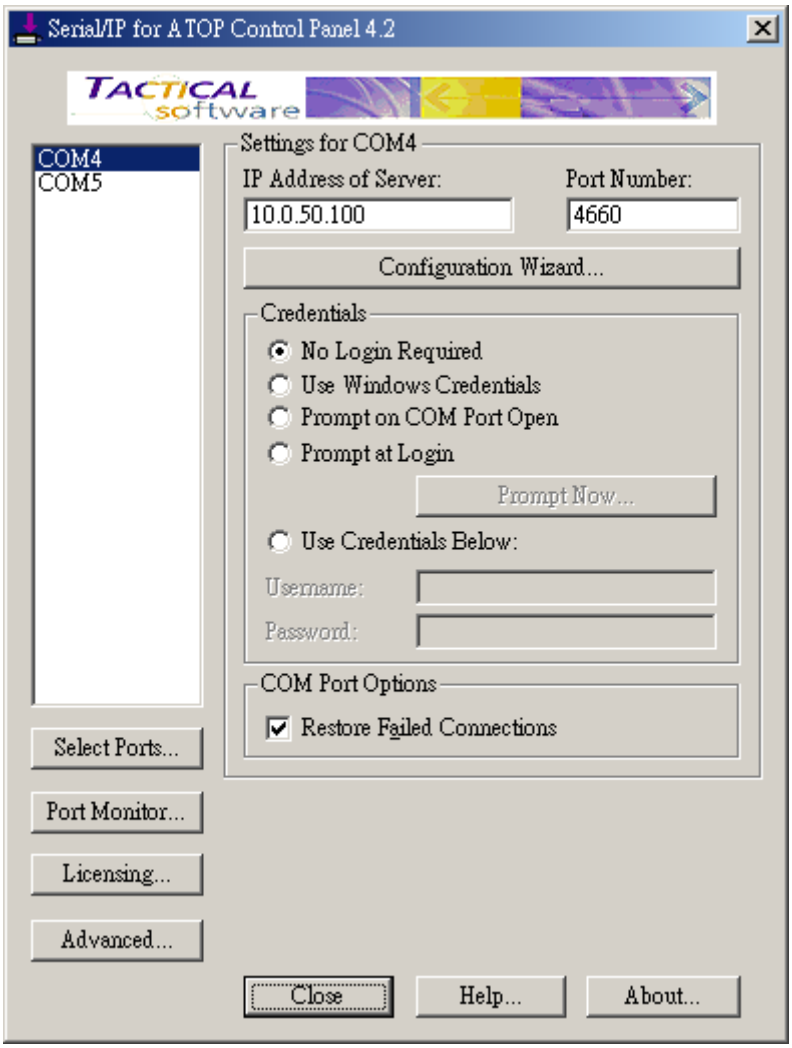


Or you can enable Virtual COM through telnet configuration by setting COM1 as TCP server, and type in the local port number for COM1, then enable virtual COM as shown in the following figure:



4.5.2.2 Run Serial/IP for ATOP program on monitoring 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 you 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. When you click on a COM port, the Control Panel display changes to reflect the settings for that COM port.

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

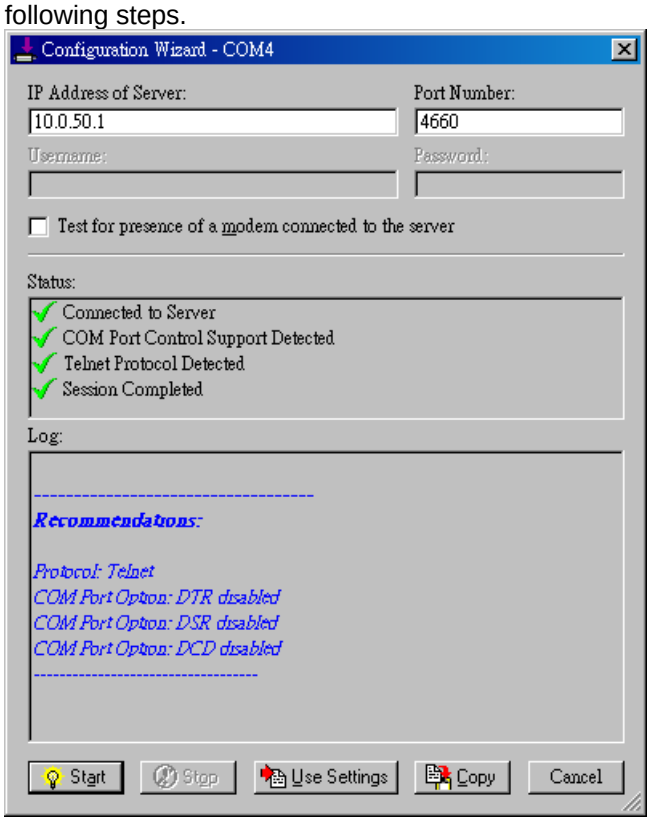
Configuring Virtual COM Ports

You 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 your 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 you 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 you 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 SW5001 is an SNMP device that allows many popular SNMP network management platforms such as HP OpenView and SunNet Manager to conduct monitoring on the device.

Depending on the network management tools you are using, device (SW5001) information can be collected from running the management tools including IP address, DNS name, system descriptions and NIC information etc.

Appendix A: SW5001 Wireless Serial Server Specifications

A.1. Hardware Specifications

	Specifications
CPU	150MHz RISC with MMU support
Memory	Flash: 8MB /2MB for Bootloader / SDRAM: 16MBytes.
Interface	Mini-PCI Slot (for Wireless Module)
Watchdog	Hardware Watchdog Reset
Debug Port	CPU Build in Com.
Wireless LAN	Compliance for IEEE802.11b/g
	WEP 64-bit/128-bit data encryption
	WPA Compatible (TKIP/AES Encryption)
	Mobile for Fast Roaming
	Modulation Type: CCK, DQPSK, DBPSK, OFDM (11g)
	Tx Power 11b: 14dBm / 11g: 13 dBm
	Rx Sensitivity: -66 dBm @ 54 Mbps, -80 dBm @ 11Mbps
	Transmission Rate: 54 Mbps (max.) with auto fallback
	Transmission distance: Up to 300 meters (@12 Mbps, in open areas)
	Antenna Connector: Reverse SMA
	Topologies: Infrastructure, Ad-Hoc
Ethernet	10/100M LAN (for Redundancy & Configuration)
	Protection: Built-in 1.5 KV magnetic isolation
	Configuration with Telnet Protocol
Serial Port	Support RS232/485/422 & Software Selection
	Baud Rate: 1200~921Kbps
	Parity Check: None/Odd/Even/Mark/Space
	Data Length: 7/8 Bit
	Stop Bit: 1/2
	Flow Control: None/ Software/ Hardware: RTS/CTS
	Terminal Block or DB9 Connector with 15KV ESD
Power	Input: DC 9V-30V
	Consumption: 4.5 W (Tx Mode)
Software	Protocols: ICMP, IP, TCP, UDP, DHCP Client, Telnet, DNS, SNMP, HTTP, SMTP, SNTP
	Utilities: Windows utility for Windows 98/2000/XP/2003
	Virtual COM for Windows 98/2000/XP/2003

Configuration	Web browser
	Telnet Console
	Windows utility
Mechanical	HxWxD: 90mm x 45mm x 75mm
	Metal Housing for IP50 Standard
Environment	Operating: 0 to 60°C (32 to 140°F), 5 to 95% RH
	Storage: -20 to 85°C (-4 to 185°F), 5 to 95%RH

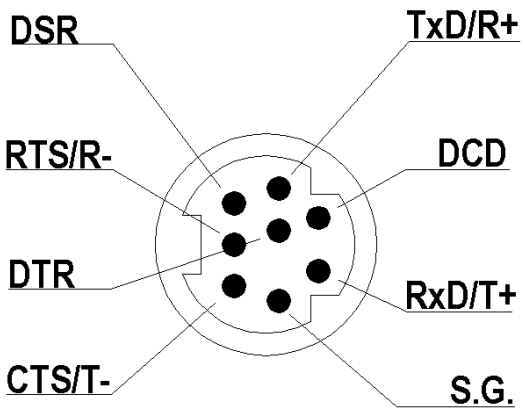
A.2. Software Specifications

Item	Specifications
Protocol	ICMP, IP, TCP, UDP, DHCP Client, Telnet, DNS, SNMP, HTTP, SMTP, SNTP
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

1. 8 pin Mini DIN connector



Pin assignments of Mini DIN connector is shown in the following table:

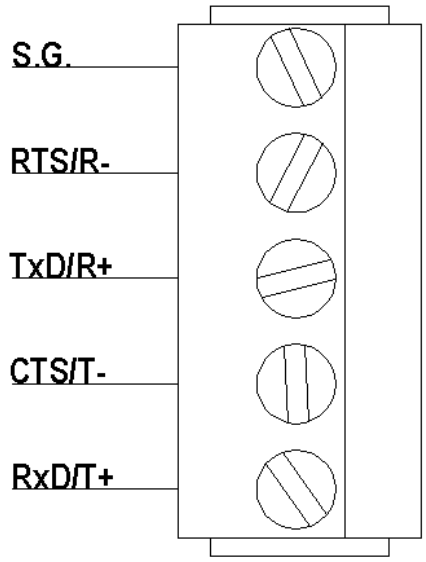
Pin#	RS-232 Full Duplex	RS-485 2 wire, Half Duplex	RS-485 4 wire, Full Duplex
1	DCD	N/A	N/A
2	RXD	N/A	**RxD/T+**
3	TXD	**TxD/R+**	**TxD/R+**
4	DTR	N/A (reserved)	N/A
5	SG (Signal Ground)	SG (Signal Ground)	SG (Signal Ground)
6	DSR	N/A	N/A
7	RTS	**RTS/R-**	**RTS/R-**
8	CTS	N/A	**CTS/T-**
9	N/A	N/A(reserved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

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	N/A
3	TXD	**DATA-**	**RXD-**
4	DTR	N/A (reserved)	**TXD-**
5	SG (Signal Ground)	SG (Signal Ground)	SG (Signal Ground)
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	**DATA+**	**RXD**+
9	RI	N/A(reserved for Atop devices)	**TXD+**

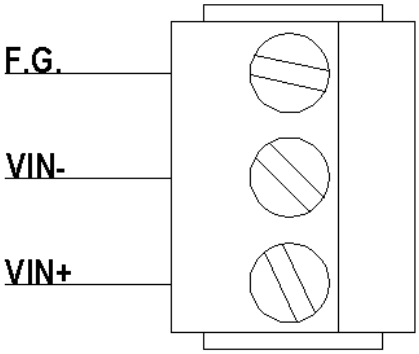
Note that RS-485 2 or 4 pins assignments of DB9 connector are different from those of Mini DIN connector.

2. Terminal Block Connector



RS-485 only uses RTS/R- and TxD/R+ for data communication while RS-232 or RS-422 uses RTS/R-, TxD/R+, CTS/T- and RxD/T+ for communicating data.

A.3.2 Power terminal block connector



A.4 LED Indication for Link Status

A.4.1 Detect SW5001 startup

“ ^ “ : Beep twice

“ = “ : Beep off

Message	Description
^==^========^^^ (5sec)	Startup OK and AP firmware is enabled

Table 1. Buzzer indication

A.4.2 Detect SW5001 Signal Strength

The BSS quality can be detected by LED indication in SW5001.

Run-time

When run-time, if the default key is pressed and then released, one of the specified actions will be down depending on the released time after you heard how many beeps.

BSS quality is indicated by count of LEDs, which is shown as bellowed:

Blink RED	There is no signal detected
One RED	The quality is between is 0%~20%
2 LEDs	The quality is between is 20%~40%
3 LEDs	The quality is between is 40%~60%
4 LEDs	The quality is between is 60%~80%
5 LEDs	The quality is between is 80%~100%

LAN LED

Message	Description
LED Off	No data is transmitting on Ethernet
LED blinking	Data is transmitting on Ethernet

Table 2. LAN LED Message

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

RUN LED

Message	Description
LED on	Jumper JP7 and JP8 are short to disable AP firmware in the flash memory.
LED blinking (rate: 0.5Sec)	AP firmware is running

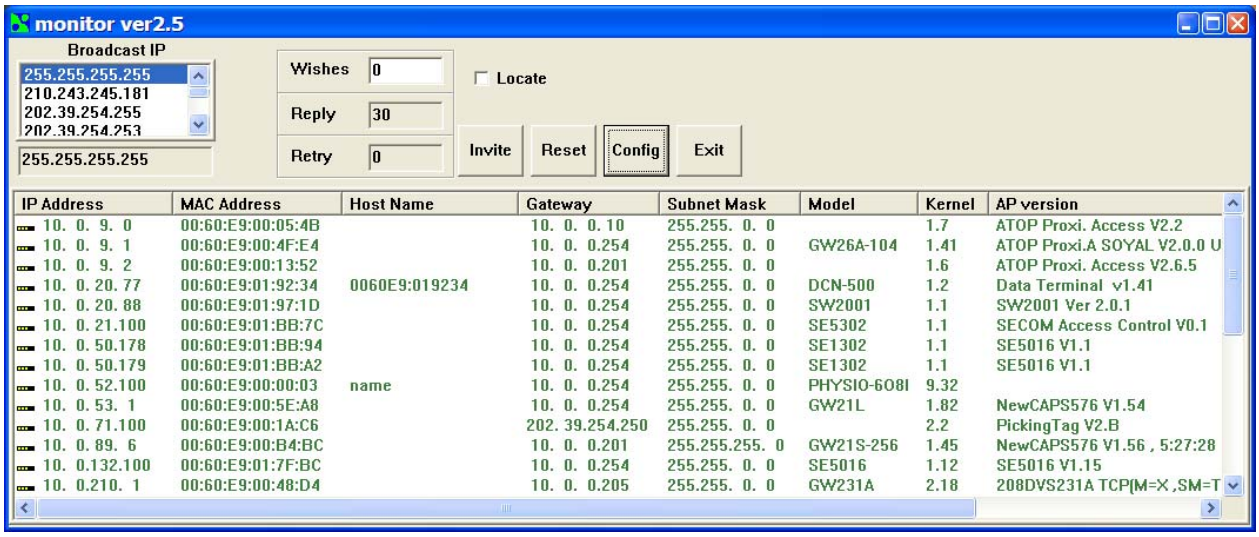
Table 4. RUN LED Message

Appendix B Configuration Utility

The configuration utility **monitor**XX**.exe** (XX: Version number) comes with the product CD or diskette is the main utility program to demonstrate and configure SW5001's settings.

D.1 Run the utility

Start the program under environment and the following window appears.



D.2 Detect Operational Devices

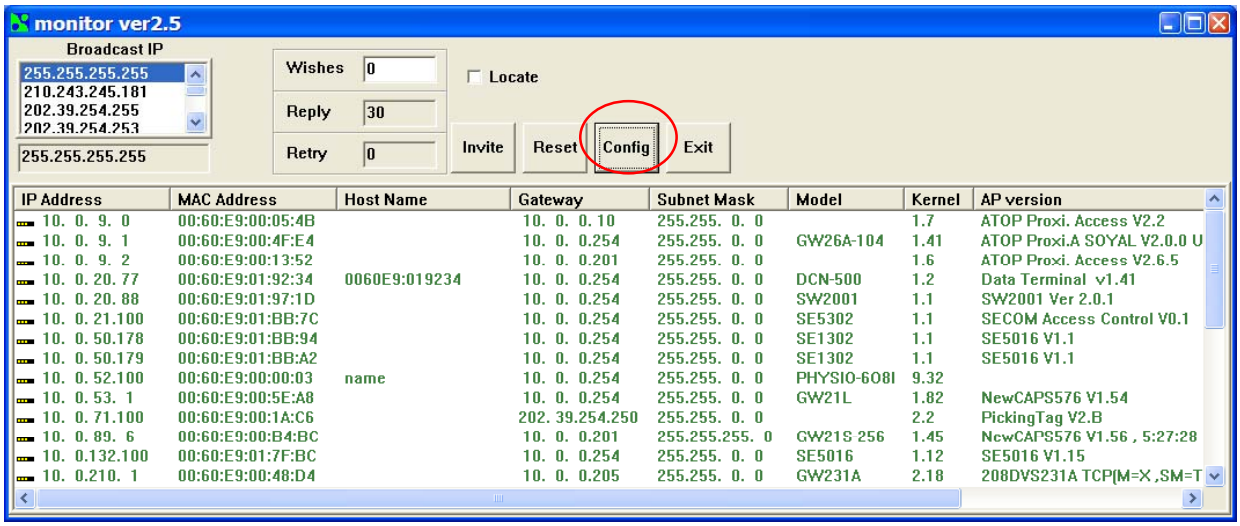
You may do the following steps to detect devices currently available on the network.

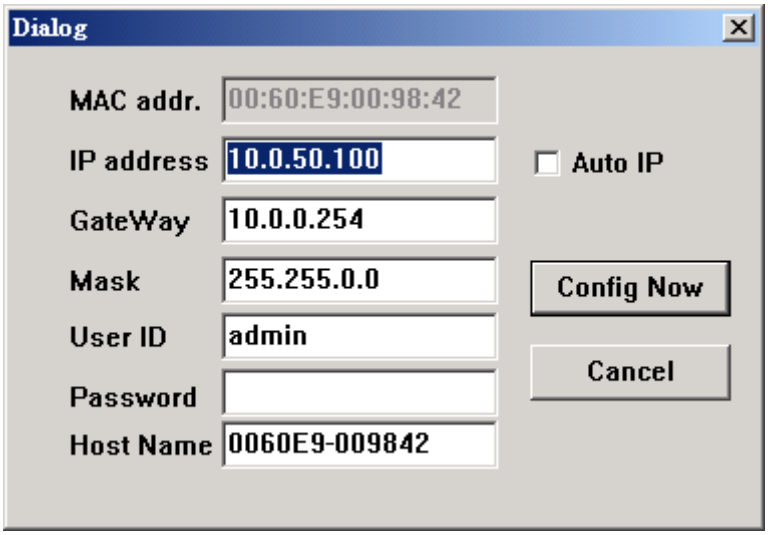
1. Start **monitor**XX**.exe** utility program.
2. Select an item from the **Broadcast IP** list.
3. Specify a number in the **Wishes** box.
4. Click on the **Invite** button. This will display all the devices information you have requested.

D.3 Configure Devices

You may use **monitor**XX**.exe** configuration utility to configure the settings of devices on the network. To do so, please follow the steps below.

1. Repeat the steps in the section of **D.2** to bring up the devices information.
2. Select the device you want to configure from the **IP Address** column, click on the **Config** button, a configuration window will popup as shown in Figure D2:





3. After you click the “Configure Now” button, the target device will return an ACK message indicating the modification is successful as shown in the following:

Please note **monitor25.exe** version 2.5 and above requires **gw21le.dll** library to function properly.

The following table lists the functional descriptions for all the fields.

Field Name	Field Descriptions
Broadcast IP	Except for the default IP 255.255.255.255, other items (IPs) are read from the file "seg.cfg". This field specifies a detecting IP range. It may be a designated IP or a broadcast IP.
Wishes	Specifies minimum number of the devices you wish to get reply from after sending an **Invite** request. If there is not as many as devices responding to your invitation, the system repeatedly sends invitation until your request is fulfilled.
Reply	Indicates the actual number of devices this utility program detected.
Retry	Specify the number of times that an Invite request is re-sent.
Locate	Locate the specified device.
Reset	Reset the selected device.
Config	Configure the selected device.
Exit	Exit this utility.
IP Address	Indicate the IP address of the device that replied to your request. • Leading tag "!" stands for IP address collision, possibly caused by duplicated IP addresses on the network. • Leading tag "?" stands for Mac address collision, possibly caused by duplicated Mac addresses on the network.
MAC Address	Indicates the MAC address of responding device.
Gateway	Indicates the IP address of the gateway.
Subnet Mask	Indicates the TCP/IP network mask.
OS	Indicates the OS version of the responding device.
AP Version	Indicates the AP version of the responding device.
Model	Indicates the model number of the responding device. This field is only available for monitor.exe version 2.0 and above.