

VCOM Configure Utility

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Table of Contents

1. Overview	1-1
1.1 Installation	1-1
1.2 PC Network Configuration	1-1
1.3 Starting VCOM.....	1-2
1.4 Search	1-3
1.5 Web.....	1-3
1.5.1 Administrator Setting	1-4
1.5.2 TCP Mode	1-5
1.5.3 UDP Mode.....	1-6
1.5.4 UART	1-7
1.5.5 Reset Device.....	1-8
1.6 Configure	1-8
2. Virtual COM Port	2-14
2.1 Add COM Port.....	2-14
2.2 Remove COM Port	2-14
2.3 Testing Virtual COM Ports.....	2-15
2.4 Exit	2-15

1. Overview

The GC-ATC-1000 is a cost effective and highly integrated Serial-to-Ethernet Converter. The module contains an 8051CPU, 64KB OTP ROM, 32K bytes SRAM, 10/100Mbps Ethernet and 230K serial port with handshake RTS and CTS.

GC-ATC-1000 can control 1 x RS232/422/485 device located virtually anywhere (via Ethernet or Internet). It supports Web setup for serial ports, IP address, Telnet, WEB browser and SNMP. It supports TCP/IP, UDP, DHCP, PPPoE, and Dynamic DNS.

VCOM version 3.3 allows you to easily configure the GC-ATC-1000 from a web browser or a Telnet connection. VCOM is also used to setup a Virtual COM port on the host PC.

VCOM 3.3 is a Beta release version. Please contact tech support and report any problems.

1.1 Installation

Installation of the GC-ATC-1000 is very simple. Locate the ATC1000 folder on the CD. Open the VCOM_v3_3 folder and double-click on vcomsetup.exe. Follow the installation instructions.

1.2 PC Network Configuration

The default IP address of the GC-ATC-1000 is 192.168.2.1. Your PC **MUST** be on the same subnet or the software will not find the device.

To set your PC to the same subnet, go to the Control Panel and click on Network Connections. Locate the Wireless Network Connection or Local Area Connection and right click on the icon. Select Properties. From the General menu tab, select Internet Protocol (TCP/IP) and click the Properties button.

Click the option labeled Use the following IP address, and enter an IP address in the same subnet as the GC-ATC-1000. For example, you could enter 192.168.2.2 for the IP address and 255.255.255.0 for the subnet mask. Verify that this address is available before using it. Click OK to use the new IP address. Close any other open windows. You are now ready to use VCOM software.

If you don't want to use VCOM software, simply open your browser window to 192.168.2.1 for the web manager. This will allow you to configure the device using the web server in the GC-ATC-1000. For more information on the web manager, see Web on page 1-3.

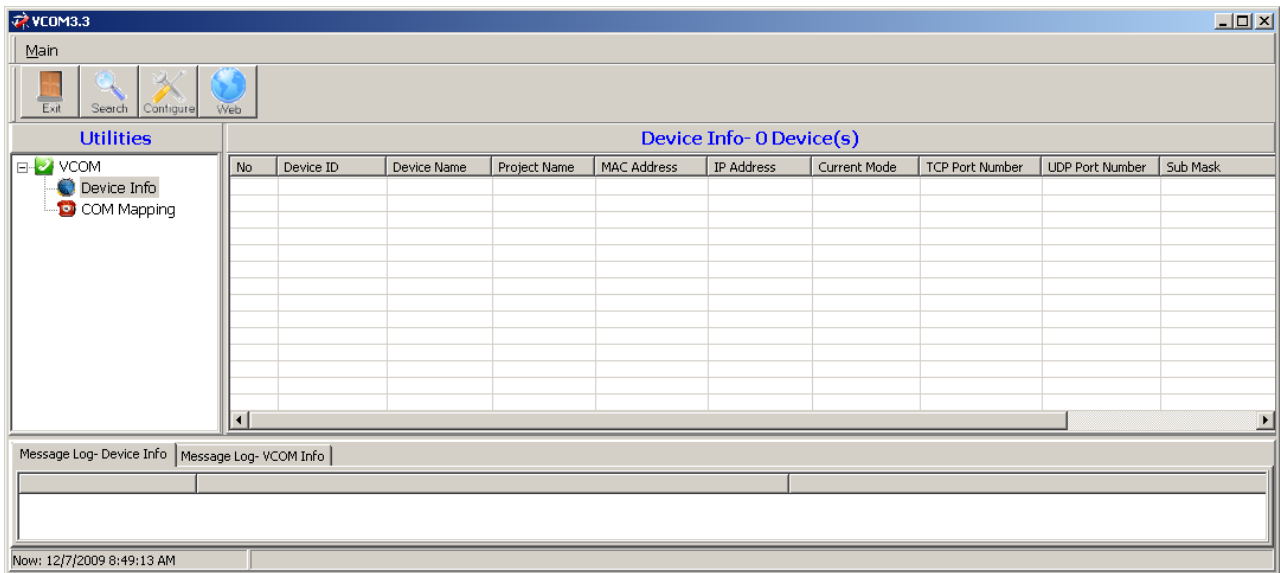
1.3 Starting VCOM

Go to Programs and locate **IC Plus Corp.** Select **VCOM** from the list. The program will start and immediately be reduced to the tray.

Note: The program will be running and you can locate the icon in the tray. The icon appears like a Swiss Army knife.

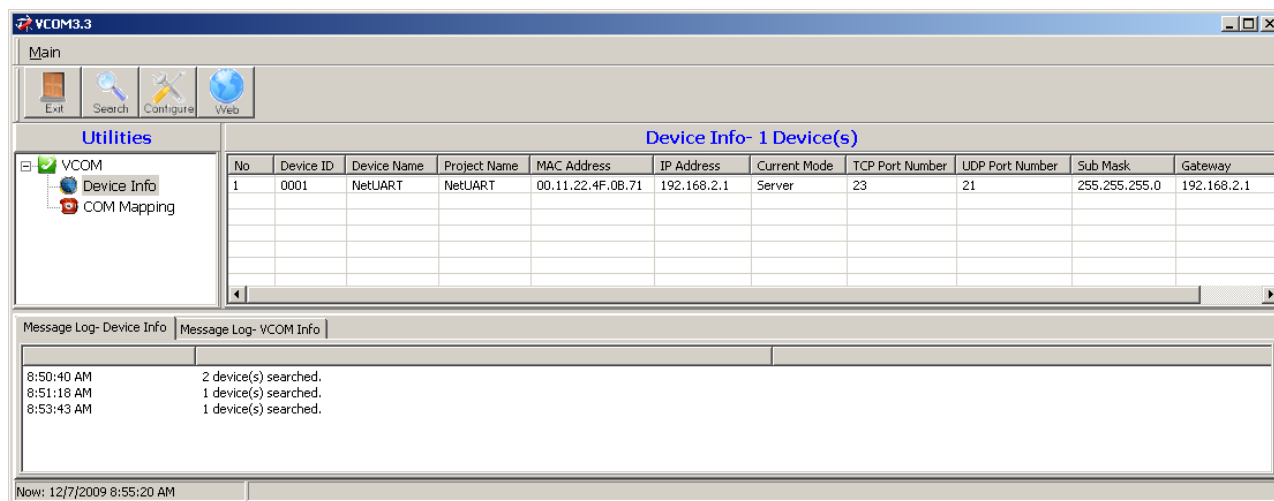
To bring the program to the main screen, double-click the VCOM icon in the tray. The following screen will appear. This is the Device Info screen, used to view and edit the setup parameters. To setup a virtual COM port, click the COM Mapping icon in the left pane.

The screen has been resized to better illustrate the information presented. There are four buttons on the toolbar. Use **Exit** to stop the program and remove it from the tray.



1.4 Search

The search button will search your network for all available devices. The search process takes about 5 seconds and the progress is displayed in a pop-up window. When the program locates a device, the device parameters are displayed in the device information window.



You will have two options to configure the GC-ATC-1000. You can use the **Configure** button to start a Telnet session, or use the **Web** button to open the Web manager.

We strongly suggest using the Web option.

The VCOM utility will also allow you to setup a virtual COM port that will redirect serial data to an Ethernet IP address. A remote GC-ATC-1000 can then receive the Ethernet packets and convert them to serial data. Instead of running a long cable, you can now use the virtual COM port to redirect serial data to a GC-ATC-1000 located anywhere there is Ethernet access. See Virtual COM Port on page 2-14.

1.5 Web

The GC-ATC-1000 contains a web server running a configuration utility. This is a very simple and quick way to configure the GC-ATC-1000.

To start the web configuration manager, select a device from the list and click the Web button. The User Log In screen will appear.

The screenshot shows a 'USER LOG IN' dialog box with the following fields:

- Site: 192.168.2.1
- ID:
- Password:
- OK button

The default ID is **admin** and the default password is **system**. Click OK to continue. The Administrator Setting page will open first, with other page options shown on the left side.

1.5.1 Administrator Setting

This section allows you to change the most important settings. You cannot change the MAC Address.

Enter a new IP address and subnet mask. If you are on a local network, you will not need the Gateway address.

Be careful when changing the Username and Password. If you forget them, you will have to hardware reset the device for the factory default settings.

Always press the **Update** button to write the changes to memory. To load the default settings, press the Load button.

Administrator Setting

Kernel Version	V1.42 2009/07/29			
MAC Address	00:11:22:4F:0B:71			
Nickname	<input type="text" value="NetUART"/>			
IP Setting				
IP Address	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="2"/>	<input type="text" value="1"/>
Subnet Mask	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="0"/>
Gateway	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="2"/>	<input type="text" value="1"/>
IP Configure	<input checked="" type="radio"/> Static <input type="radio"/> DHCP			
Password Setting				
Username	<input type="text" value="admin"/>	max:15		
Password	<input type="password" value="•••••"/>	max:15		
Confirm	<input type="password" value="•••••"/>			
<input type="button" value="Update"/>				
Load Default Setting to EEPROM	<input type="button" value="Load"/>			

1.5.2 TCP Mode

Telnet is a client-server protocol, based on a reliable connection-oriented transport. Typically this protocol is used to establish a connection to Transmission Control Protocol (TCP) port number 23, where a Telnet server application is listening. The default setting is Telnet Server.

You can change the Telnet protocol to Client. You then must enter the Remote ServerIP Address.

Select Disable to prevent any unwanted Telnet exchanges.

Always press the **Update** button to write the changes to memory.

TCP Control

Item	Value
Telnet Server/Client	<input type="radio"/> Server <input checked="" type="radio"/> Client <input type="radio"/> Disable
Port Number	<input type="text" value="23"/>
Remote Server IP Address	<input type="text" value="210"/> <input type="text" value="200"/> <input type="text" value="181"/> <input type="text" value="102"/>
Client mode inactive timeout	<input type="text" value="20"/> minute (1~99,0=Disable)
Server mode protect timeout	<input type="text" value="60"/> minute (1~98,0=Disable,99=Can't replace)
<input type="button" value="Update"/>	

1.5.3 UDP Mode

With UDP, computer applications can send messages, in this case referred to as datagrams, to other hosts on an Internet Protocol (IP) network without requiring prior communications to set up special transmission channels or data paths. UDP is sometimes called the Universal Datagram Protocol.

UDP uses a simple transmission model without implicit hand-shaking dialogues for guaranteeing reliability, ordering, or data integrity. Thus, UDP provides an unreliable service and datagrams may arrive out of order, appear duplicated, or go missing without notice. UDP assumes that error checking and correction is either not necessary or performed in the application, avoiding the overhead of such processing at the network interface level. Time-sensitive applications often use UDP because dropping packets is preferable to waiting for delayed packets, which may not be an option in a real-time system.

UDP applications use datagram sockets to establish host-to-host communications. Sockets bind the application to service ports, that function as the endpoints of data transmission. A port is a 16 bit integer value, allowing for port numbers between 0 and 65,535. Port 0 is reserved, but is a permissible source port value if the sending process does not expect messages in response.

Ports 1 through 1023 (hexadecimal 0x3FF) are named "well-known" ports and on Unix-like operating systems, binding to one of these ports requires superuser (root) access.

Ports 1024 through 49,151 (0xBFFF) are the registered ports.

Ports 49,152 through 65,535 (0xFFFF) are used as temporary ports primarily by clients when communicating to servers.

There are 10 Remote Address fields available. The default setting is UDP disabled.

UDP

Item	Value														
Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable														
Local Port	<input type="text" value="21"/>														
Remote Address	<table><thead><tr><th>IP</th><th>Port</th></tr></thead><tbody><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr><tr><td><input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></td><td><input type="text" value="0"/></td></tr></tbody></table>	IP	Port	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/>	<input type="text" value="0"/>
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1.5.4 UART

UART control defines how the serial port interface will be configured. Available modes are RS232, RS422 and RS485. Mark and Space are parity options for RS422/485. Hardware flow control will enable the RTS/CTS lines for RS232 protocol.

Always press the **Update** button to write the changes to memory.

UART Control

Item	Setting
Mode	RS232
Baudrate	57600
Character Bits	8
Parity Type	none
Stop Bit	1
Hardware Flow Control	none
Delimiter	<input type="checkbox"/> Character 1: 00, <input type="checkbox"/> Character 2: FF <input type="checkbox"/> Silent time: 5 (1~255)*200ms <input type="checkbox"/> Drop Character
<div>Update</div>	

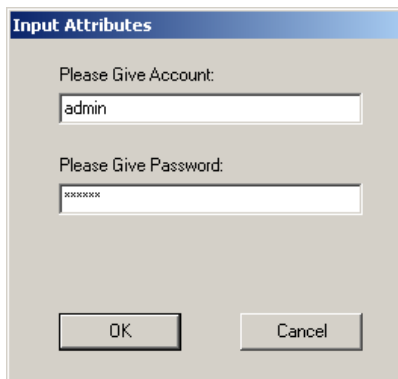
1.5.5 Reset Device

To reset the device, select the Reset Device option. A reset button will appear. Click the Reset button to continue. You will have to refresh the web page to enter the setup menu again. Resetting the device does not change any setup parameters.

To reset the device to factory defaults, remove power, press and hold the reset button, and apply power. The reset function takes several seconds to complete.

1.6 Configure

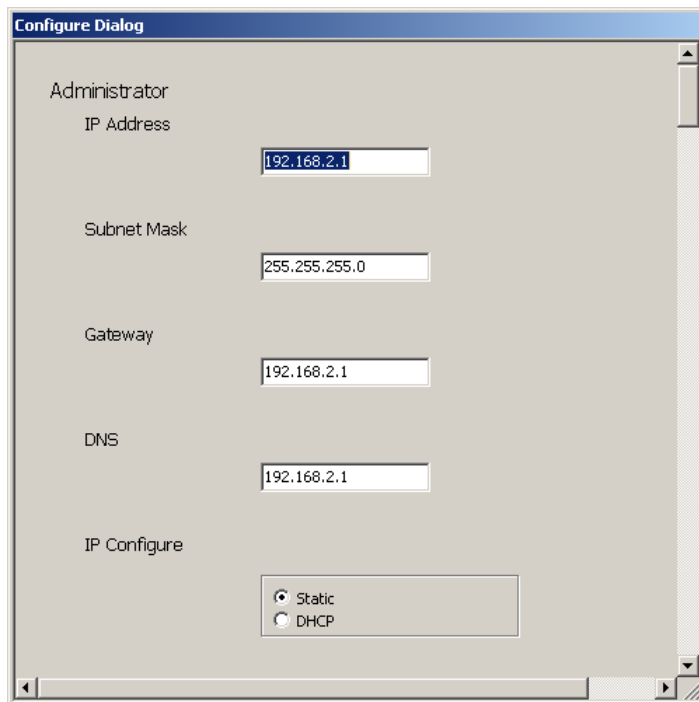
The Configure button is used to start a Telnet session with a selected item from the window. To select an item, click on it, then click the Configure button. A password window will appear.

A screenshot of a web-based dialog box titled "Input Attributes". It has a light gray background and a blue header bar. Inside, there are two text input fields. The first is labeled "Please Give Account:" and contains the text "admin". The second is labeled "Please Give Password:" and contains a series of "x" characters. At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

The default account name is **admin** and the default password is **system**. Enter the password information and click OK.

All of the setup options are displayed in a single, long window. You must scroll down to see all the options.

The first section of the setup window deals with the IP address.

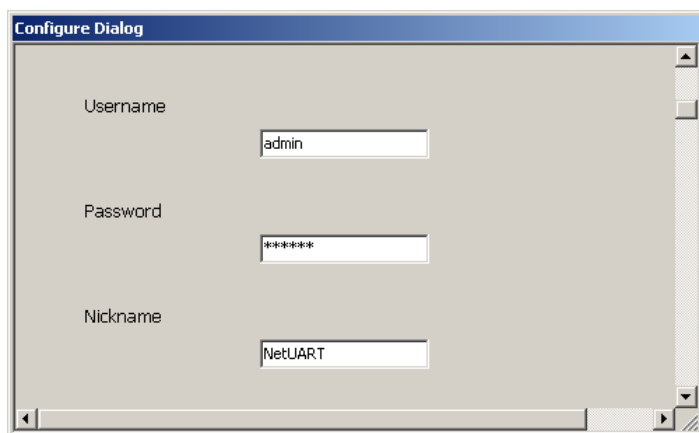


The screenshot shows a 'Configure Dialog' window with a blue title bar. The main area is light gray and contains several labels and text input fields. The labels are 'Administrator', 'IP Address', 'Subnet Mask', 'Gateway', 'DNS', and 'IP Configure'. The 'IP Address' field contains '192.168.2.1'. The 'Subnet Mask' field contains '255.255.255.0'. The 'Gateway' field contains '192.168.2.1'. The 'DNS' field contains '192.168.2.1'. The 'IP Configure' section has two radio buttons: 'Static' (which is selected) and 'DHCP'. The window has a standard Windows-style scrollbar on the right side.

Enter an IP address and subnet mask. You do not need a gateway if the IP address is on a local network.

For most applications, select Static IP configuration.

The next section of the setup window deals with the user name and password.

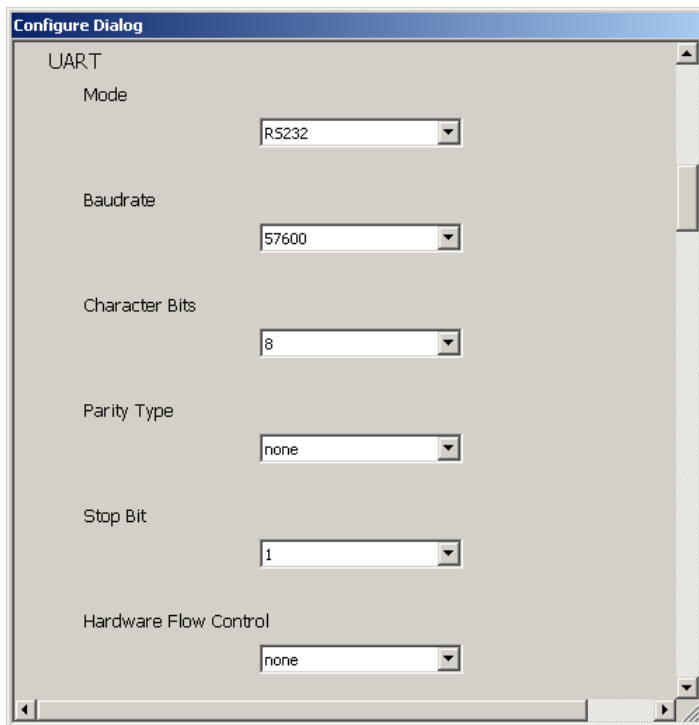


The screenshot shows a 'Configure Dialog' window with a blue title bar. The main area is light gray and contains several labels and text input fields. The labels are 'Username', 'Password', and 'Nickname'. The 'Username' field contains 'admin'. The 'Password' field contains '*****'. The 'Nickname' field contains 'NetUART'. The window has a standard Windows-style scrollbar on the right side.

Enter a new user name and password for your system. If you forget the user name or password, you will have to reset the unit and reconfigure it.

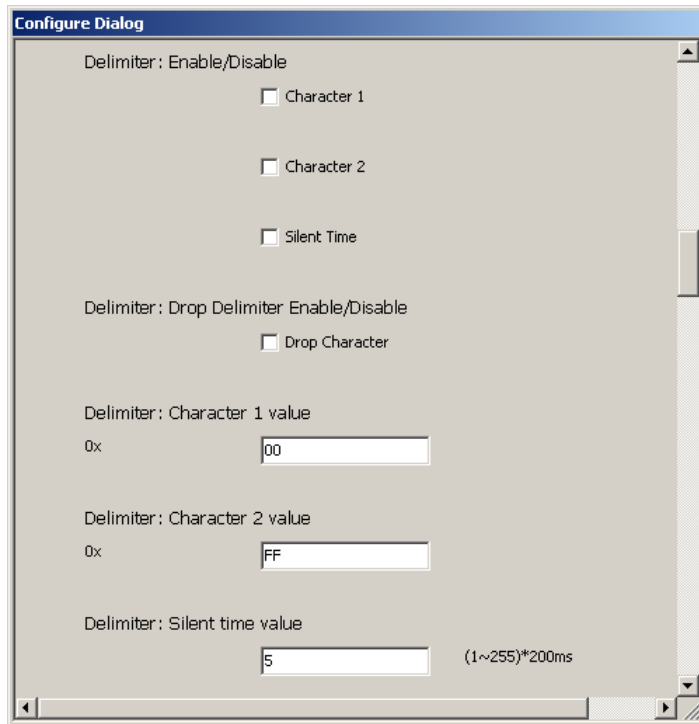
The Nickname is the name that will appear when the unit is scanned with VCOM.

The next section deals with the serial port parameters.



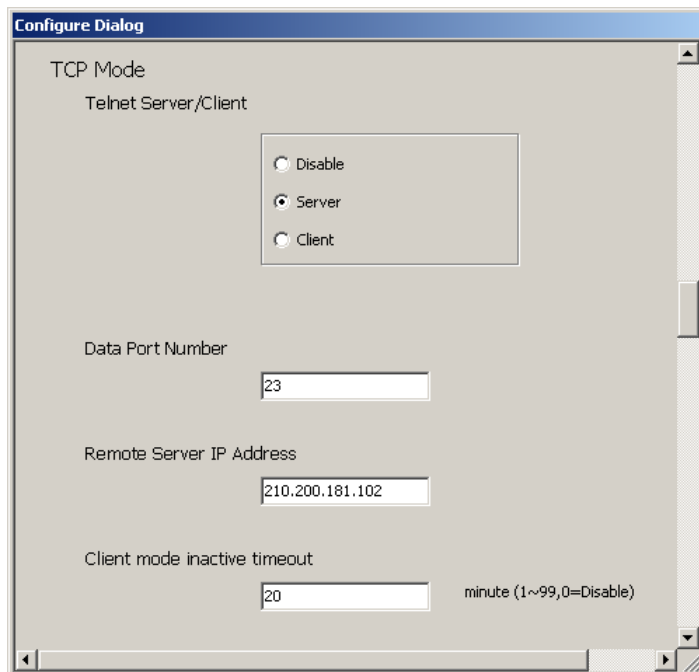
Select RS232, RS422 or RS485 for the Mode. Match the Baudrate, number of character bits, parity and stop bits to the device connected to the serial port. Set the Hardware Flow Control to hardware if you need RTS and CTS hardware control.

The next section deals with Delimiters.



The image shows a 'Configure Dialog' window with a title bar. The main content area is titled 'Delimiter: Enable/Disable' and contains three unchecked checkboxes: 'Character 1', 'Character 2', and 'Silent Time'. Below these is a section titled 'Delimiter: Drop Delimiter Enable/Disable' with an unchecked checkbox 'Drop Character'. Further down is 'Delimiter: Character 1 value' with a text box containing '00' and a label '0x' to its left. Below that is 'Delimiter: Character 2 value' with a text box containing 'FF' and a label '0x' to its left. At the bottom is 'Delimiter: Silent time value' with a text box containing '5' and a label '(1~255)*200ms' to its right. The window has a scrollbar on the right and a status bar at the bottom.

The next sections deal with TCP Mode setup.



The image shows a 'Configure Dialog' window with a title bar. The main content area is titled 'TCP Mode' and contains a section 'Telnet Server/Client' with three radio buttons: 'Disable', 'Server' (which is selected), and 'Client'. Below this is 'Data Port Number' with a text box containing '23'. Below that is 'Remote Server IP Address' with a text box containing '210.200.181.102'. At the bottom is 'Client mode inactive timeout' with a text box containing '20' and a label 'minute (1~99,0=Disable)' to its right. The window has a scrollbar on the right and a status bar at the bottom.

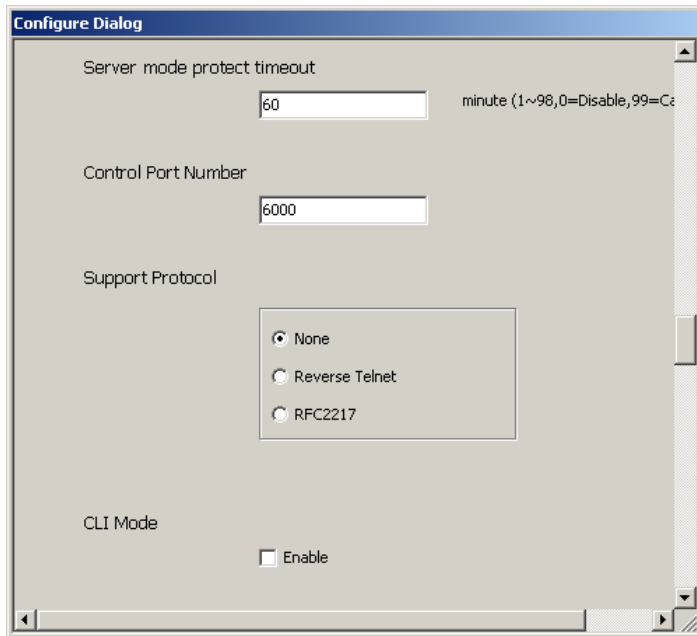
The default setting for Telnet Server/Client is Server. You can disable the Telnet function to prevent someone from changing the configuration through Telnet.

The default Data Port Number is 23, however you can change it to suit your network requirements.

If you select the Telnet Server/Client as Client, then you must enter a Remote Server IP Address.

Set the Client mode inactive timeout to the desired number of minutes. The default is 20 minutes. Set to 0 to disable.

(Scroll down to view the next options)

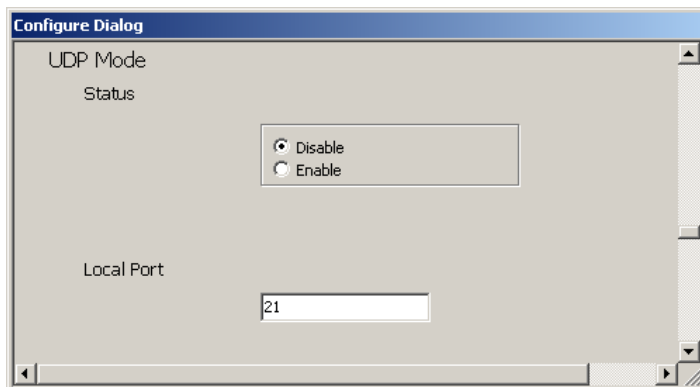


The image shows a 'Configure Dialog' window with a blue title bar. It contains the following settings:

- Server mode protect timeout:** A text box containing '60' with a label 'minute (1~98, 0=Disable, 99=Cancel)' to its right.
- Control Port Number:** A text box containing '6000'.
- Support Protocol:** A group box containing three radio buttons: 'None' (selected), 'Reverse Telnet', and 'RFC2217'.
- CLI Mode:** A checkbox labeled 'Enable' which is currently unchecked.

Enter the number of minutes for Server Mode protect timeout. The default is 1 hour. Set to 0 to disable.

The next section is for UDP Mode setup.



The image shows a 'Configure Dialog' window with a blue title bar. It contains the following settings:

- UDP Mode:** A section header.
- Status:** A group box containing two radio buttons: 'Disable' (selected) and 'Enable'.
- Local Port:** A text box containing '21'.

(Scroll down to view the next options)

The image shows a 'Configure Dialog' window with a title bar. Inside, it says 'UDP Mode: Remote Address'. There are three pairs of labels and input fields. The first pair is 'IP1' with an input field containing '0.0.0.0'. The second pair is 'Port1' with an input field containing '0'. The third pair is 'IP2' with an input field containing '0.0.0.0'. Below that is 'Port2' with an input field containing '0'. At the bottom is 'IP3' with an input field containing '0.0.0.0'. There are scroll bars on the right and bottom of the dialog box.

Set IP1 to the first UDP Remote Address. There are 10 available address selections. Enter a port address for each remote address.

The image shows a 'Configure Dialog' window with a title bar. Inside, it shows 'IP10' with an input field containing '0.0.0.0' and 'Port10' with an input field containing '0'. At the bottom right, there are two buttons: 'OK' with a green checkmark icon and 'Cancel' with a red X icon. There are scroll bars on the right and bottom of the dialog box.

You must select OK for any changes to be written to memory. Select Cancel to void any changes and exit the Telnet session.

2. Virtual COM Port

A virtual COM port on your PC has the same function as a hardware serial port, as far as the serial data is concerned. The hardware port sends out serial data to a device connected to the COM port. This is usually done over a serial cable, either RS232, RS422, or RS485. A virtual COM port sends out serial data but the data is converted to Ethernet packets, and is sent out over an Ethernet connection to a GC-ATC-1000. The GC-ATC-1000 receives the Ethernet packets and converts the data back to serial. The serial data is then directed to the device connected to the serial port of the GC-ATC-1000. Essentially, you have an unlimited serial link, with the ability to connect to a serial device from anywhere in the country.

2.1 Add COM Port

To add a virtual COM port, click the COM Mapping icon in the left pane. The toolbar will change to show the new **Add** and **Remove** icons. Click the **Add** button to display the following menu.

No	Device Name	MAC Address	IP Address	Current Mode
1	NetUART	00.11.22.4F.08.71	192.168.2.1	Server

TCP/UDP ☒ TCP ☐ UDP

Server/Client ☐ Server ☒ Client

IP Address Local Port

COM COM Remote Port

☒ OK ☒ Cancel

A new virtual COM port appears in the COM select box. Verify the IP address and remote port number and click OK.

2.2 Remove COM Port

Select an item from the COM Mapping list and click Remove. That's it.

2.3 Testing Virtual COM Ports

The concept of a virtual COM port can sometimes be confusing. Before you start connecting the GC-ATC-1000 to a piece of new equipment, you should try the quick test described below. The test allows you to connect a GC-ATC-1000 to your PC and test the virtual Ethernet port and the hardware serial port. The software for the test, Hyper Terminal, should already be on your computer.

Connect the GC-ATC-1000 serial port to a hardware serial port on your PC. Connect an Ethernet cable to the GC-ATC-1000 RJ45 Ethernet connector. Apply power.

To start the test software, go to Programs/Accessories/Communications and select Hyper Terminal. The Connection Description dialog will open.

Virtual Port

Enter **Virtual** in the name field and click OK. The **Connect To** dialog box will open.

Go down to the **Connect using** list box and select **TCP/IP (Winsock)**. The dialog box will change to show a **Host address** and **Port number**. Enter the Host address and port number that was assigned in a previous section. Example: Host address 192.168.2.1. and Port number 23. Click OK to make a TCP connection.

View the status line on the bottom of the window. If you see Auto detect, go back to the Properties icon and select the Settings tab. Change the Emulation to VT100 and click OK.

Click the call icon (looks like a phone) to remake a connection.

Resize the window to fit half of your screen. This window is the virtual COM window.

Serial Port

Now start another version of Hyper Terminal. This time enter **Serial** in the name field and click OK. The **Connect To** dialog box will open.

Go down to the **Connect using** list box and select the COM port that is connected to the GC-ATC-1000. Click OK. Enter the port settings that match the settings of the GC-ATC-1000. (Default settings: 57600, 8, None, 1, No Flow Control.) Click OK to make the connection.

View the status line on the bottom of the window. If you see Auto detect, go back to the Properties icon and use the Configure button to change the COM settings. Use the Settings tab to change the Emulation to VT100 and click OK. The status line should show Connected, VT100, and 57600 8-N-1.

Resize the window to fit half of your screen. This window is the hardware serial COM window.

TEST

Now, if everything was setup correctly, you should be able to type some characters in one window and see them appear in the other. Data is going in and out of the virtual com port via the Ethernet, and going in and out of the hardware serial port.

Neat!

2.4 Exit

If you close the application, it will return to the tray and stay resident. To close and exit VCOM, use the Exit button on the toolbar.

