



# **MB54XX-X**

## **Modbus Gateway**

### **User's Manual**



v. 1.1

December, 2012

## Important Announcement

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# Preface

---

## **Purpose of the Manual**

This manual supports you during the installation and configuring of the MB54XX Modbus Gateway Series only, as well as it explains some technical options available with the mentioned product. As such, it contains some advanced network management knowledge, instructions, examples, guidelines and general theories designed to help users manage this device and its corresponding software; a background in general theory is a must when reading it. Please refer to the Glossary for technical terms and abbreviations (if any).

## **Who Should Use This User Manual**

This manual is to be used by qualified network personnel or support technician who are familiar with network operations; it might be useful for system programmers or network planners as well. This manual also provides helpful and handy information for first time users. For any related problems please contact your local distributor, should they be unable to assist you, please redirect your inquiries to [www.atop.com.tw](http://www.atop.com.tw) or [www.atop-tech.com](http://www.atop-tech.com) .

## **Supported Platform**

This manual is designed for the MB54XX Modbus Gateway Series and that series only.

## **Warranty Period**

We provide a 5 year limited warranty for the MB54XX Modbus Gateway Series.

## **Manufacturers Federal Communication Commission Declaration of Conformity Statement**

### **Model: MB54XX Modbus Gateway Series**

**NOTE:** 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 can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 expense.

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.

# 1 Introduction

---

## 1.1 Overview

The Modbus Gateway is an interface between Modbus Gateway and computer hosts running Modbus/TCP on Ethernet networks. Fully compliant with Modbus/TCP, the Modbus Gateway offers a convenient solution to connect existing devices or controllers running Modbus serial protocol (Modbus/ASCII or Modbus/RTU) to an Ethernet network. The MB54XX Series are standard Modbus gateways that convert between Modbus TCP and Modbus RTU/ASCII protocols.

The MB54XX Series support 16 simultaneous TCP master and 32 simultaneous requests for each TCP master. Each RS-232/422/485 serial port can be individually configured for Modbus RTU or Modbus ASCII operation or even different baudrate, allowing both types of networks to be fully integrated with Modbus TCP within one package.

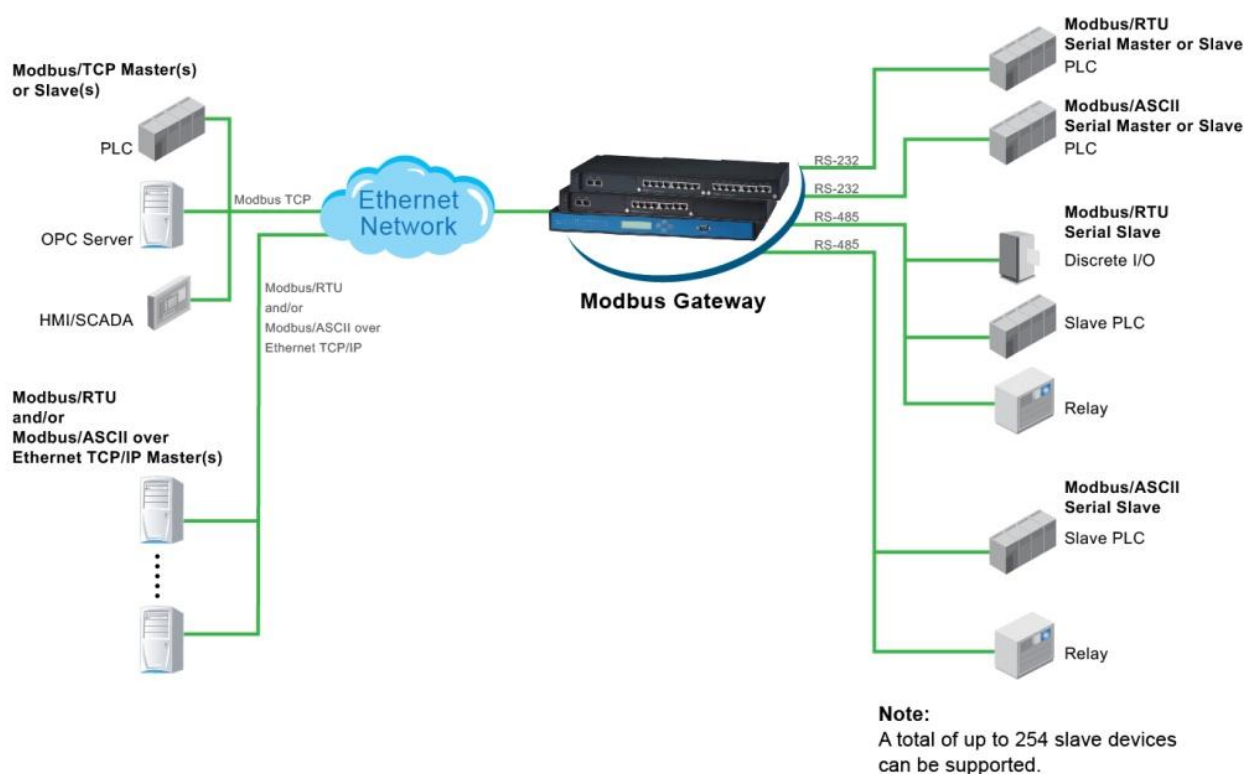


Fig. 1. 1

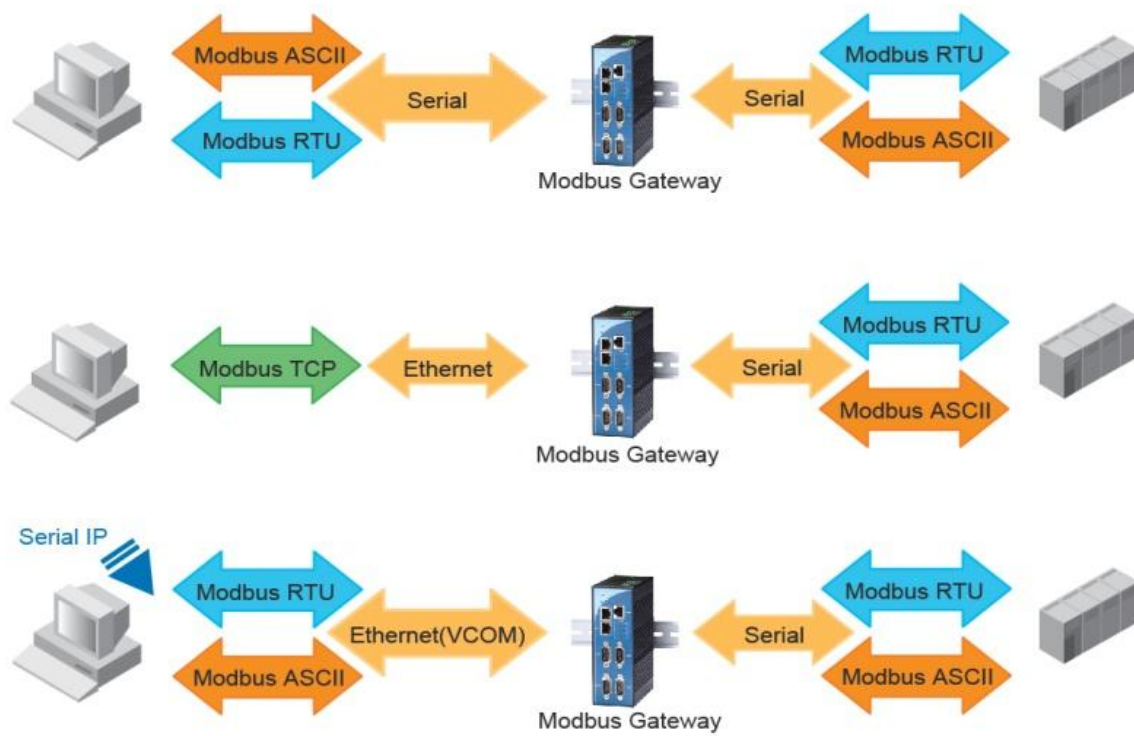


Fig. 1. 2



## 1.2 Features

- RISC 32-bit 266 MHz CPU
- Standard 19-inch rack-mount 1U high metal housing
- Software selectable RS-232/RS-485/RS-422 RJ-45 connection
- Dual 10/100 Mbps Ethernet ports for network redundancy
- Configurable via LCM buttons, Serial console, Telnet, Web and Windows-based utility program **Device View**®
- Relay output indicator for network link status
- LCM indication with 4 keypad settings
- Convert between Modbus TCP and Modbus RTU/ASCII
- 2 Ethernet port and 4,8, or 16 RS-232/422/485 ports
- Supports 16 simultaneous TCP masters with up to 32 simultaneous requests per master
- Easy hardware setup and configuration

### Caution

Beginning from here there will be extreme caution exercised.



Never install or work on electrical or cabling during periods of lightning activity. Never connect or disconnect power when hazardous gases are present.



**WARNING:** Disconnect the power and allow to cool 5 minutes before touching.

## 2 Getting Started

---

### 2.1 Inside the Package

Inside the purchased you will find the following items.

Table 2. 1

| Item               | Quantity | Description   |
|--------------------|----------|---|
| MB54XX Series      | 1        | Modbus Gateway  |
| Cable              | 1        | RJ-45 to Male DB9 cable   |
| Mounting Kit       | 1        | Rack Mounting Type-L angles (x 2)<br>Screws (x 6)   |
| Foot Rubbers       |          |   |
| Documentation + CD |          | Inside the CD you will find: <ul style="list-style-type: none"><li>● User's Manual</li><li>● Installation Guide</li><li>● <b>Device View</b>© utility</li></ul> |
|                    |          | Installation Guide + Warranty Card  |

## How to order

Please refer to the following product codes to place an order.

Table 2. 2

| Item          | Description  |
|---------------|--|
| MB5404D-X     | 4-Port Serial-to-Ethernet Intelligent Modbus Gateway, D-Sub(M)   |
| MB5404D-Sis-X | 4-Port Serial-to-Ethernet Intelligent Modbus Gateway, Terminal Block, 2 KV Isolation                   |
| MB5408-X (US) | 8-Port Serial-to-Ethernet Intelligent Modbus Gateway with RJ45 connectors, AC 100-240V, US power plug  |
| MB5408-X (EU) | 8-Port Serial-to-Ethernet Intelligent Modbus Gateway with RJ45 connectors, AC 100-240V, EU power plug  |
| MB5416-X (US) | 16-Port Serial-to-Ethernet Intelligent Modbus Gateway with RJ45 connectors, AC 100-240V, US power plug |
| MB5416-X (EU) | 16-Port Serial-to-Ethernet Intelligent Modbus Gateway with RJ45 connectors, AC 100-240V, EU power plug |

**Note:** Notify your sales representative immediately if any of the above items is missing or damaged upon delivery.

## 2.2 Appearance, Front & Rear Panels

The following figures show the device's front and rear panels.

### MB5404D-X (Left) / MB5404D-Sis-X (Right) Front Panel

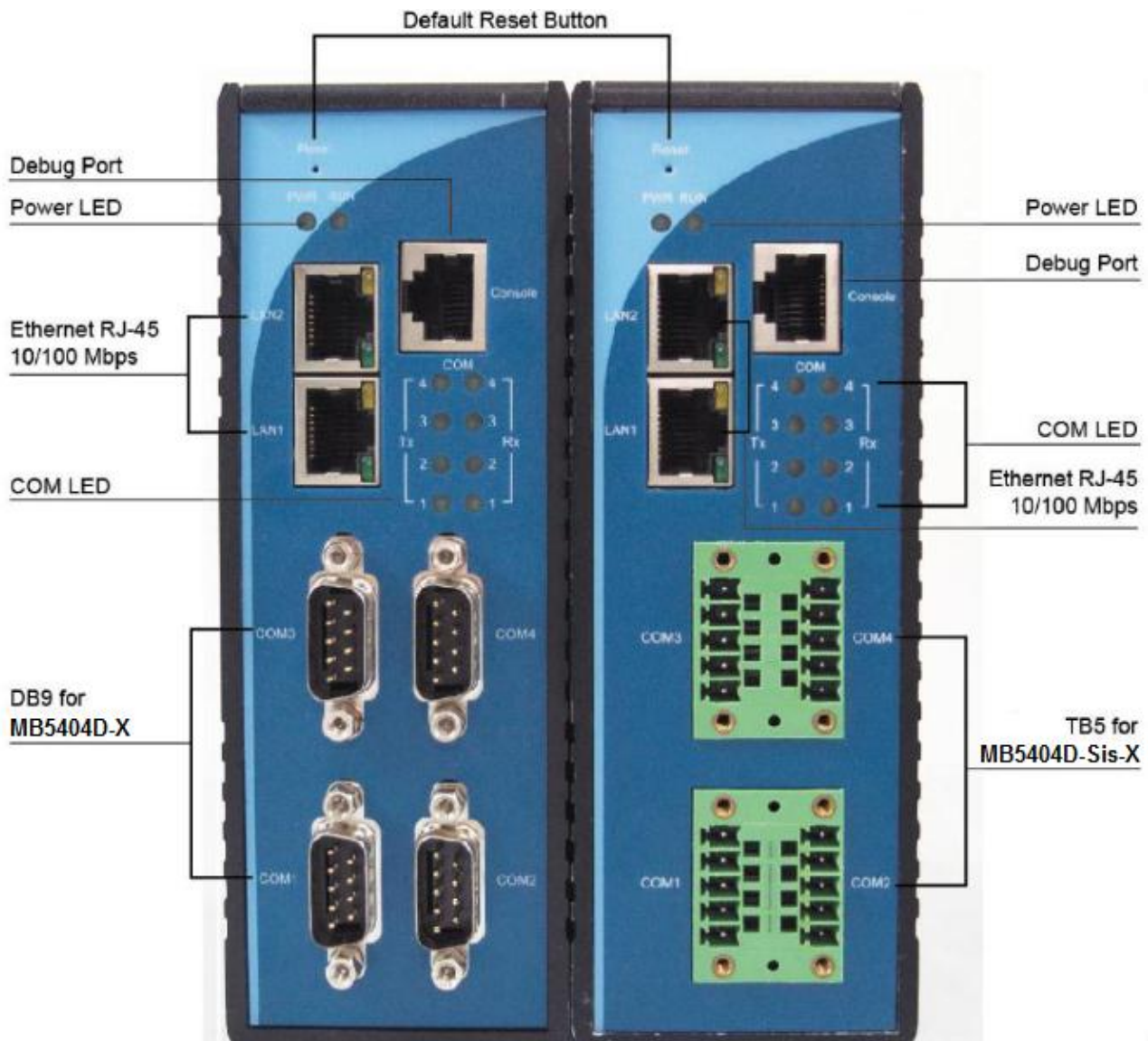


Fig. 2. 1

## MB5416-X Front and Rear Panel

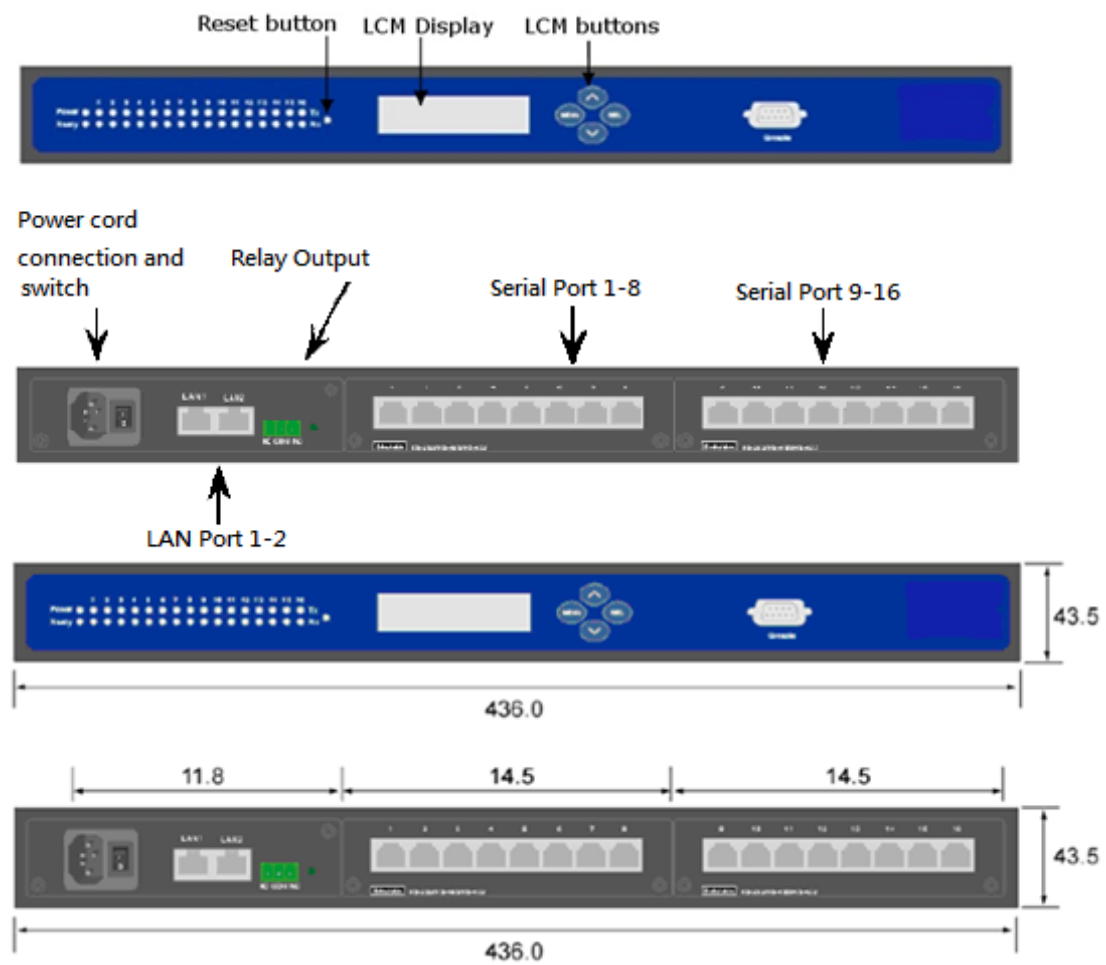


Fig. 2. 2

## MB5408-X Front and Rear Panel

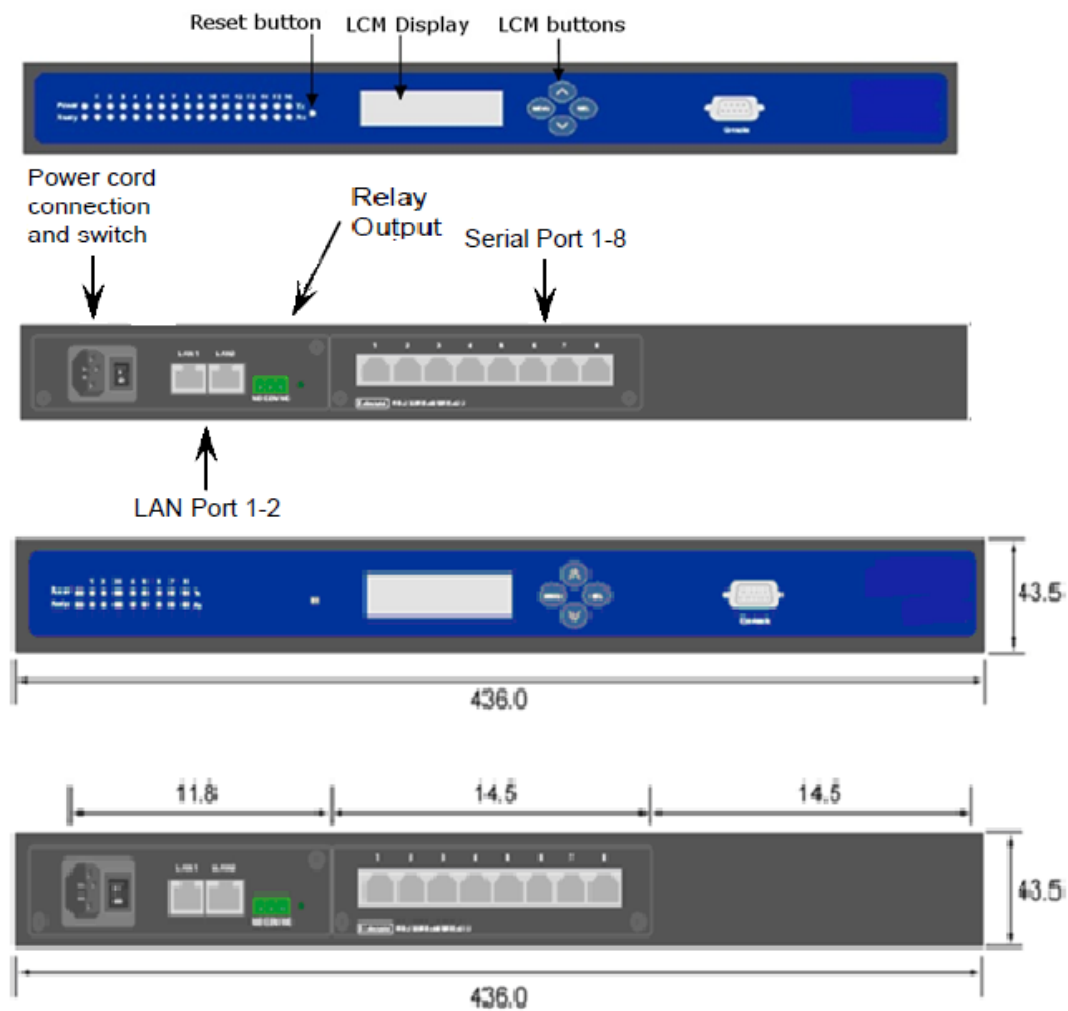


Fig. 2. 3

## 2.3 First Time Installation

Before installing the device, please adhere to all safety procedures described below, Atop will not be held liable for any damages to property or personal injuries resulting from the installation or overall use of the device. Do not attempt to manipulate the product in any way if unsure of the steps described here, in such cases please contact your dealer immediately.

1. Prepare the necessary cables, DC adapter, power cord, LAN cable, etc.; do not connect the unit yet.
2. Plug in the Power Supply/Adapter (MB5404D-X/MB5404D-Sis-X) or AC power cord (MB5408/5416-X) to a power outlet and turn on the power switch (please make sure the electric outlet has proper grounding so as to not cause damage to the unit, property or yourself); shortly thereafter the unit will beep once and the LCM Display will show a .
3. Within one minute, the buzzer shall beep once, and the LCM Display shall show the model's name.
4. Connect LAN1 to a network switch or to your LAN network with a UTP cable, and connect a host PC to your LAN network with another cable.
5. Connect a serial device to one of the serial ports, and make sure a correct cable is used (Pin assignments for a RS-232 device and for a RS-485 cable are shown in )

For more information on how to install the device, please refer to the Installation Guide available in your package.

## 2.4 Factory Default Settings

### Network Defaults

Note that the Modbus Gateway comes with one IP address for redundant Ethernet interfaces.

Table 2. 3

| Interface | Device IP   | Subnet mask | Gateway IP |
|-----------|-------------|-------------|------------|
| LAN 1     | 10.0.50.100 | 255.255.0.0 | 10.0.0.254 |

### Modbus Default

Table 2. 4

| Parameter  | Default Values   |
|--|--|
| <b>Modbus Master</b>   |  |
| TCP Settings   | <b>TCP Master</b> <ul style="list-style-type: none"><li>● <b>Mode:</b> TCP Master</li><li>● <b>Port:</b> 502</li></ul>                                 |
| <b>Modbus Slave</b>  |  |
| <ul style="list-style-type: none"><li>● MB5416-X:COM1 – COM16</li><li>● MB5408-X:COM1 – COM8</li><li>● MB5404D-X: COM1 – COM4</li><li>● MB5404D-Sis-X: COM1 – COM4</li></ul> | <b>Mode:</b> RTU Slave<br><b>Serial Configuration:</b> RS-232, 9600 bps, 8 data bits, None Parity bit, 1 stop bit, None Flow Control, Buffer Disabled, |



Other Default Settings are shown in the following table:

Table 2. 5

| Parameter           | Default Values        |
|---------------------|-----------------------|
| <b>Security</b>     |                       |
| User Name           | Admin                 |
| Password            | Null ( <i>blank</i> ) |
| <b>SNMP</b>         |                       |
| SysName of SNMP     | 0060E9-XXXXXX         |
| SysLocation of SNMP | Location              |
| SysContact of SNMP  | Contact               |
| SNMP                | Enable                |
| Read Community      | Public                |
| Write Community     | Private               |
| SNMP Trap Server    | 0.0.0.0               |

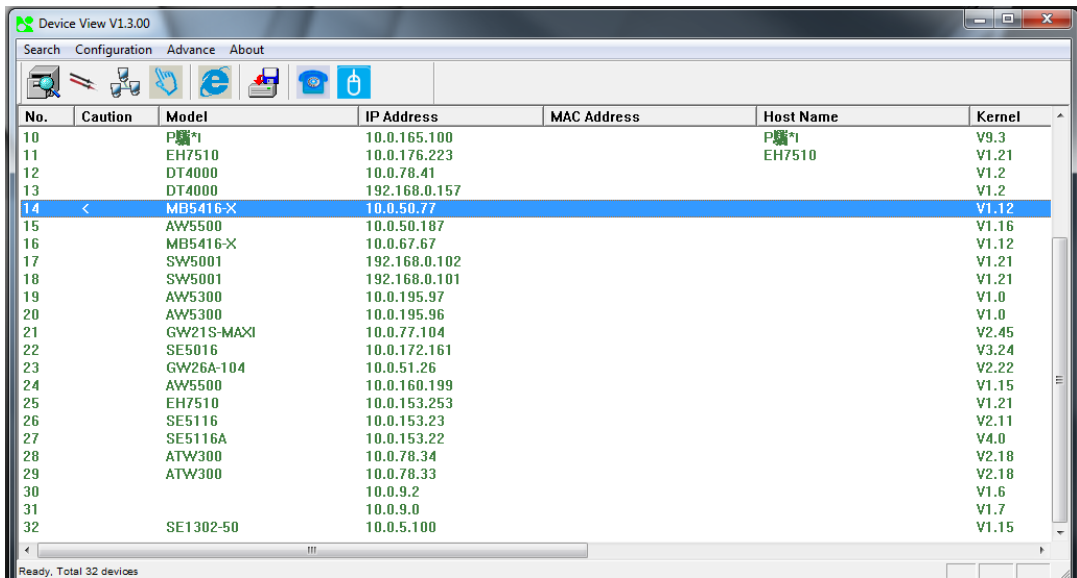
**Note:** you can press the “**Reset**” button on the front panel for 5 seconds (see Sec. [3.8.8](#) and [3.9](#)), to restore the server to factory default settings.

## 3 Configuration and Setup

---

### 3.1 Locating and IP configuring using Device View©

First, please install our configuration utility program **Device View©** that comes with the Product CD or download it from our websites ([www.atop.com.tw](http://www.atop.com.tw) or [www.atop-tech.com](http://www.atop-tech.com)). For more information on how to install **Device View©**, please refer to the manual that comes in the utility CD. To find the Modbus Gateway device on your network, press “**Scan**”, a list of devices currently connected to the network will be shown in the window.



The screenshot shows the 'Device View V1.3.00' application window. It has a menu bar with 'Search', 'Configuration', 'Advance', and 'About'. Below the menu is a toolbar with icons for search, configuration, and other functions. The main area is a table listing discovered devices. The table has columns for 'No.', 'Caution', 'Model', 'IP Address', 'MAC Address', 'Host Name', and 'Kernel'. Device 14, an MB5416-X, is selected and highlighted in blue. The status bar at the bottom indicates 'Ready, Total 32 devices'.

| No. | Caution | Model      | IP Address    | MAC Address | Host Name | Kernel |
|-----|---------|------------|---------------|-------------|-----------|--------|
| 10  |         | P...       | 10.0.165.100  |             | P...      | V9.3   |
| 11  |         | EH7510     | 10.0.176.223  |             | EH7510    | V1.21  |
| 12  |         | DT4000     | 10.0.78.41    |             |           | V1.2   |
| 13  |         | DT4000     | 192.168.0.157 |             |           | V1.2   |
| 14  | <       | MB5416-X   | 10.0.50.77    |             |           | V1.12  |
| 15  |         | AW5500     | 10.0.50.187   |             |           | V1.16  |
| 16  |         | MB5416-X   | 10.0.67.67    |             |           | V1.12  |
| 17  |         | SW5001     | 192.168.0.102 |             |           | V1.21  |
| 18  |         | SW5001     | 192.168.0.101 |             |           | V1.21  |
| 19  |         | AW5300     | 10.0.195.97   |             |           | V1.0   |
| 20  |         | AW5300     | 10.0.195.96   |             |           | V1.0   |
| 21  |         | GW21S-MAXI | 10.0.77.104   |             |           | V2.45  |
| 22  |         | SE5016     | 10.0.172.161  |             |           | V3.24  |
| 23  |         | GW26A-104  | 10.0.51.26    |             |           | V2.22  |
| 24  |         | AW5500     | 10.0.160.199  |             |           | V1.15  |
| 25  |         | EH7510     | 10.0.153.253  |             |           | V1.21  |
| 26  |         | SE5116     | 10.0.153.23   |             |           | V2.11  |
| 27  |         | SE5116A    | 10.0.153.22   |             |           | V4.0   |
| 28  |         | ATW300     | 10.0.78.34    |             |           | V2.18  |
| 29  |         | ATW300     | 10.0.78.33    |             |           | V2.18  |
| 30  |         |            | 10.0.9.2      |             |           | V1.6   |
| 31  |         |            | 10.0.9.0      |             |           | V1.7   |
| 32  |         | SE1302-50  | 10.0.5.100    |             |           | V1.15  |

Fig. 3. 1

**Note:** for illustration purpose only, actual values/settings may vary between devices.

The device might not be in the same subnet as your PC, because of this you will have to use our utility to locate it in your virtual environment. To configure each device, click the selected device (default IP: 10.0.50.100), and login with the default username and password. After successful login, click “**Configuration >Network...**” (Or Ctrl+N), and a pop-up window will appear as follows,

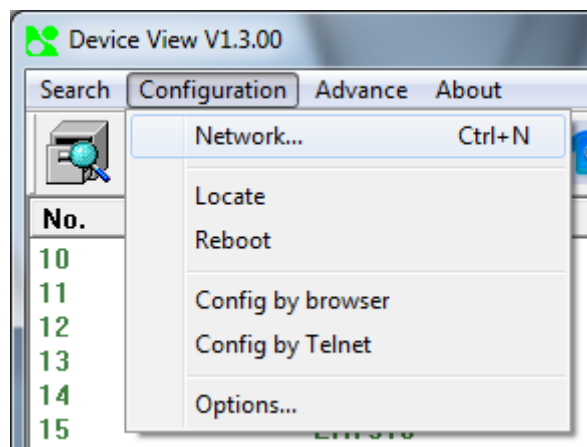


Fig. 3. 2

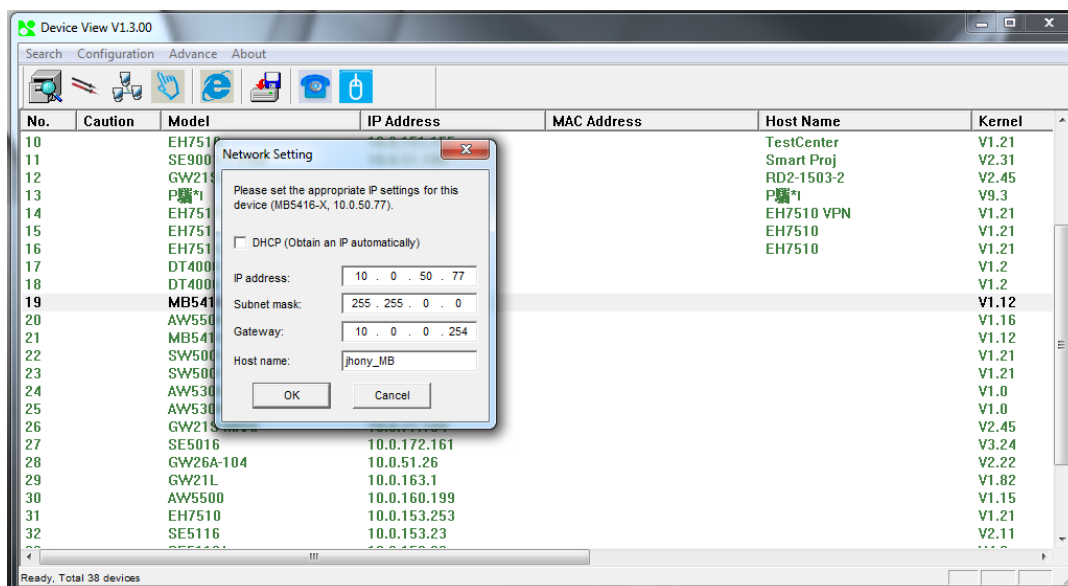


Fig. 3. 3

You may proceed then to change the IP address, to avoid any IP address conflict with other hosts on your LAN network or to connect the device to your existing LAN. The system will prompt you to Authorize whether you can do these changes or not, i.e., it will ask you for the Username and Password, (Fig. 3.4).

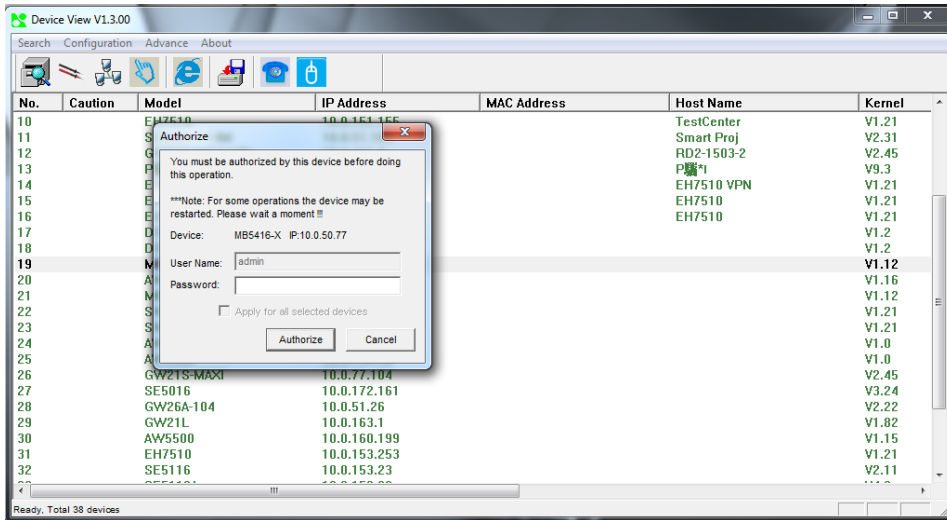


Fig. 3. 4

Please consult your system administrator if you do not know your network subnet mask and gateway address. If your LAN network address begins with **192.168.X.X**, then please use the LAN2 interface for configuration.

### 3.2 Configuration using Web Interface

Every MB54XX Modbus Gateway device is equipped with a built-in Web server in the firmware. Therefore, it can be accessed by using a browser for configuration by entering the device's IP (see [Sec. 2.4](#) for default value).



Overview

Network

- Basic Settings
- Advanced Settings
- Alert
- System
- Restart

#### OverView

The general device information of Modbus Gateway.

|                     |                    |                       |
|---------------------|--------------------|-----------------------|
| Model Name          | MB5416-X           |                       |
|                     |                    |                       |
| Device Information  | Kernel             | 1.12                  |
|                     | AP                 | 2.13                  |
| Network Information | Mode               | Redundancy Mode       |
|                     | LAN (use LAN1 now) | MAC 00:60:E9:14:72:58 |
|                     |                    | IP 10.0.50.76         |

Fig. 3. 5

- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

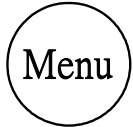



Fig. 3. 6

This type of configuration is the most user-friendly, most recommended and most common method used on your MB54XX Modbus Gateway. Please go to its corresponding section for a detailed explanation.

### 3.2.1 LCM (Liquid Crystal Matrix) Configuring (MB5408-X/5416-X only)

The device also has the option of manual configuration (without the software), by making use of its interactive console. Using this method is however, very easy and intuitive; buttons and their functions are described next.

Table 3. 1

| Buttons   |        | Button Description                                |
|---|--------|---|
|    | <Menu> | Open Main Menu, or to return to the previous Menu |
|    | <Up>   | Scroll up   |
|   | <Down> | Scroll down                                       |
|  | <SEL>  | Select  |

#### Example

To change the device's IP address, follow the approach below.

- Press **<Menu>** to enter **Main Menu**
- Press **<Down>** to scroll down to **2. Network Set**
- Press **<SEL>** to enter Network setting and then **<Up>/<Down>** to scroll up or down to **LAN1**
- Press **<SEL>** to enter **LAN1** and then **<Down>** to scroll down to **1. IP Config**
- Press **<SEL>** to enter **LAN1 IP Config** and then press **<Down>** to scroll down to **1. Static**, finally press **<SEL>** to save the selection.
- Press **<SEL><Down>** to enter **2. IP Address**. Use **<Up>/<Down>** to increase or decrease the **Digital of IP Address**, press **<Menu>** to return to one level higher after completion

- To enter: **3. Net mask** Use **<Up>/<Down>** to increase or decrease the Digital of subnet mask and then **<Menu>** to return to one level higher after completion
- To enter: **4. Gateway**. Use **<Up>/<Down>** to increase the Digital of default gateway and use **<Menu>** to return to one level higher after completion
- Press **<SEL>** to the end of the menu to return to one level higher and the device shall display System message **"Save & Restart"**. Push **<SEL>** to **2. Yes**, and **<SEL>** again after completion. The device shall restart and the new settings will appear.

The LCM command structure is as follows, Table.

Table 3. 2

| 1 <sup>st</sup> layer | 2 <sup>nd</sup> layer | 3rd layer    | 4 <sup>th</sup> layer | 5 <sup>th</sup> layer | Descriptions  |
|-----------------------|-----------------------|--------------|-----------------------|-----------------------|---|
| 1.Overview            | 1. Model name         |              |                       |                       | Display Model name                                  |
|                       | 2. Kernel ver.        |              |                       |                       | Display kernel version                              |
|                       | 3. AP ver.            |              |                       |                       | Display AP version                                  |
|                       | 4. Lan 1              | 1.Lan status |                       |                       | Display status of LAN1                              |
|                       |                       | 2.MAC        |                       |                       | Display MAC address of LAN1                         |
|                       | 5. Lan 2              | 1.Lan status |                       |                       | Display LAN of LAN2                                 |
|                       |                       | 2.MAC        |                       |                       | Display MAC address of LAN2                         |
| 2.Network set         | 1.Lan 1               | 1.IP config  | 1.Static IP           |                       | Display/Change static IP                            |
|                       |                       |              | 2.DHCP                |                       | Display dynamic IP or enable DHCP                   |
|                       |                       | 2.IP address |                       |                       | Display/Change LAN1 IP                              |
|                       |                       | 3.Net mask   |                       |                       | Display/ Change Net mask                            |
|                       |                       | 4.Gateway    |                       |                       | Display/Change the Gateway IP                       |
|                       | 2.DNS server1         |              |                       |                       | Display or Change 1st DNS IP address                |
|                       | 3.DNS server2         |              |                       |                       | Display or Change 2nd DNS IP address                |
| 3.Serial set          | 1.Select port         |              |                       |                       | Select COM Port: SE5016: [1]~[16] / SE5008: [1]~[8] |

|  |                 |                |             |  |                                     |
|--|-----------------|----------------|-------------|--|-------------------------------------|
|  | 2.Parameter set | 1.Baud Rate    | 1. 300      |  | Display or Change baud rate         |
|  |                 |                | 2. 600      |  |                                     |
|  |                 |                | 3. 1200     |  |                                     |
|  |                 |                | 4. 2400     |  |                                     |
|  |                 |                | 5. 4800     |  |                                     |
|  |                 |                | 6. 9600     |  |                                     |
|  |                 |                | 7. 19200    |  |                                     |
|  |                 |                | 8. 38400    |  |                                     |
|  |                 |                | 9. 57600    |  |                                     |
|  |                 |                | 10. 115200  |  |                                     |
|  |                 |                | 11. 230400  |  |                                     |
|  |                 |                | 12. 460800  |  |                                     |
|  |                 |                | 13. 921600  |  |                                     |
|  |                 | 2.Parity       | 1. None     |  | Display or Change Parity mode       |
|  |                 |                | 2. Odd      |  |                                     |
|  |                 |                | 3. Even     |  |                                     |
|  |                 |                | 4. Mark     |  |                                     |
|  |                 |                | 5.Space     |  |                                     |
|  |                 | 3.Data bits    | 1. 5 bits   |  | Display or Change Data bit length   |
|  |                 |                | 2. 6 bits   |  |                                     |
|  |                 |                | 3. 7 bits   |  |                                     |
|  |                 |                | 4. 8 bits   |  |                                     |
|  |                 | 4.Stop bits    | 1. 1 bits   |  | Display or Change Stop bit length   |
|  |                 |                | 2. 2 bits   |  |                                     |
|  |                 | 5.Flow control | 1. None     |  | Display or Change Flow control mode |
|  |                 |                | 2. Xon/Xoff |  |                                     |
|  |                 |                | 3. Hardware |  |                                     |



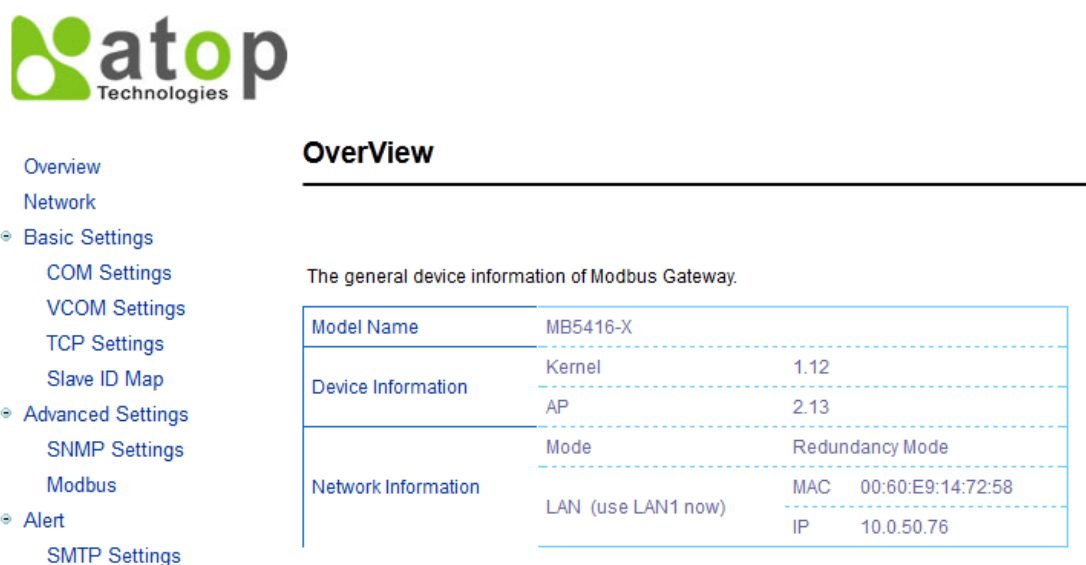
|                |                  |                  |           |  |  |
|----------------|------------------|------------------|-----------|--|--|
|                |                  | 6.UART mode      | 1. 232    |  | Display or Change UART mode for RS-232                   |
|                |                  |                  | 2. 422    |  | Display or Change UART for RS-422                        |
|                |                  |                  | 3. 485    |  | Display or Change UART for RS-485                        |
|                |                  | 7.Apply to all   | 1.No      |  |  |
|                |                  |                  | 2.Yes     |  | Apply UART setting to all serial ports                   |
| 4.Server state | 1.Console        | 1.Web console    | 1.Disable |  | Disable Web console                                      |
|                |                  |                  | 2.Enable  |  | Enable Web console                                       |
|                |                  | 2.Telnet console | 1.Disable |  | Disable Telnet console                                   |
|                |                  |                  | 2.Enable  |  | Enable Telnet console                                    |
|                | 2.Pwd protection | 1.LCM console    | 1.No      |  | Disable LCM console password protection                  |
|                |                  |                  | 2.Yes     |  | Enable and change the password                           |
|                |                  | 2.Reset button   | 1.No      |  | Disable the Reset button password protection             |
|                |                  |                  | 2.Yes     |  | Enable and change the password on Reset button           |
|                | 3.Ping           | 1.Lan 1          |           |  | Use "ping" command to check specific IP address for LAN1 |
|                |                  | 2.Lan 2          |           |  | Use "ping" command to check specific IP address for LAN2 |
| 5.Restart      | 1.No             |                  |           |  | Cancel Restart command                                   |
|                | 2.Yes            |                  |           |  | Restart immediately                                      |

### 3.2.2 Configure Automatic IP Assignment with DHCP

A DHCP server can automatically assign addresses to LAN1 or LAN2, the Subnet Mask, and the Gateway. You can simply check “**DHCP**” box in the Network Setting dialog using our **Device View**® utility and then restart it; once restarted it will be automatically configured.

## 3.3 Web Overview

In this section, only current information on the device's status and settings will be displayed.



**atop**  
Technologies

Overview  
Network  
Basic Settings  
COM Settings  
VCOM Settings  
TCP Settings  
Slave ID Map  
Advanced Settings  
SNMP Settings  
Modbus  
Alert  
SMTP Settings

### Overview

The general device information of Modbus Gateway.

|                     |                    |                 |                   |
|---------------------|--------------------|-----------------|-------------------|
| Model Name          | MB5416-X           |                 |                   |
| Device Information  | Kernel             | 1.12            |                   |
|                     | AP                 | 2.13            |                   |
| Network Information | Mode               | Redundancy Mode |                   |
|                     | LAN (use LAN1 now) | MAC             | 00:60:E9:14:72:58 |
|                     |                    | IP              | 10.0.50.76        |

Fig. 3. 7

- **Model Name** as its name implies, shows the device's model.
- **Device Information** displays information on the Kernel version, as well as the AP
- **Network Information** here you may find the Mode in which the device is currently working on (Dual Subnet, Redundancy Mode), and both LANs respective MAC and IP addresses.
  - **Dual Subnet Mode:** in which two Ethernet ports have separate IP addresses and subnets
  - **Redundancy Mode:** the system will just use one port for data transfer, if this port is disconnected, the whole system will change to another port automatically.

## 3.4 Network Configuration

In this section, IP, Subnet Mask and overall connectivity settings can be accessed. When on **Redundancy Mode** the device will have the two LAN ports connected<sup>1</sup> to the Network, but the signal will flow through one of them. In the case one line is out due to any reason there will still be another route so the signal can keep flowing.



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  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
  - Restart

### NetWork

---

To configure network settings of Modbus Gateway. After saving configuration you have to restart the device to make the settings effective.

☒ Redundancy Mode    ☐ Dual Subnet Mode

| LAN Settings    |   |     |    |     |
|-----------------|---|-----|----|-----|
| DHCP            | <input type="checkbox"/> Obtain an IP automatically |     |    |     |
| IP Address      | 10  | 0   | 50 | 76  |
| Subnet Mask     | 255   | 255 | 0  | 0   |
| Default Gateway | 10  | 0   | 0  | 254 |

| DNS Settings |    |    |    |    |
|--------------|----|----|----|----|
| DNS 1        | 17 | 17 | 17 | 17 |
| DNS 2        | 17 | 17 | 17 | 17 |

Save Configuration

Fig. 3. 8

---

**Note**<sup>1</sup>: you can still connect only one LAN port to the device, though you can still change the settings in it, there won't be a **Redundancy** function.

---

When the device is set on **Dual Subnet Mode**, a set of two IP addresses can be used without having **Redundancy**. This is especially useful when using two different networks.



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    - Modbus
  - Alert
    - SMTP Settings
    - Alert Events
  - System
    - Log Settings
    - System Log
    - Data Log
    - Modbus Statistic
    - Time
    - Security
    - Import/Export
    - Factory Default
  - Restart

## NetWork

To configure network settings of Modbus Gateway. After saving configuration you have to restart the device to make the settings effective.

☐ Redundancy Mode
 ☒ Dual Subnet Mode

| LAN 1 Settings  |   |
|-----------------|---|
| DHCP            | <input type="checkbox"/> Obtain an IP automatically |
| IP Address      | 10 . 0 . 50 . 76                                    |
| Subnet Mask     | 255 . 255 . 0 . 0                                   |
| Default Gateway | 10 . 0 . 0 . 254                                    |

| LAN 2 Settings  |   |
|-----------------|---|
| DHCP            | <input type="checkbox"/> Obtain an IP automatically |
| IP Address      | 192 . 168 . 1 . 1                                   |
| Subnet Mask     | 255 . 255 . 255 . 0                                 |
| Default Gateway | 192 . 168 . 1 . 254                                 |

| Default Gateway Select |  |
|------------------------|--|
| Default Gateway Select | <input checked="" type="radio"/> LAN1 <input type="radio"/> LAN2 |

| DNS Settings |                   |
|--------------|-------------------|
| DNS 1        | 17 . 17 . 17 . 17 |
| DNS 2        | 17 . 17 . 17 . 17 |

Save Configuration

Fig. 3. 9

## 3.5 Basic Settings

### 3.5.1 COM Settings

This section is responsible for settings on your physical ports, (may them be COM or serial).



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  - TCP Settings
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- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
  - Restart

#### Basic Settings > COM Settings

To configure COM 1 port parameters.

| Modbus Setting                                     |   |
|--|---|
| Operation Mode                                     | ASCII Master  |
| Serial Configuration                               |   |
| Interface  | <input checked="" type="radio"/> RS232 <input type="radio"/> RS422 <input type="radio"/> RS485  |
| Baud Rate  | 9600 bps  |
| Parity   | <input checked="" type="radio"/> None <input type="radio"/> Odd <input type="radio"/> Even <input type="radio"/> Mark <input type="radio"/> Space |
| Data Bits  | <input type="radio"/> 7 bits <input checked="" type="radio"/> 8 bits  |
| Stop Bits  | <input checked="" type="radio"/> 1 bit <input type="radio"/> 2 bits   |
| Flow Control                                       | <input checked="" type="radio"/> None <input type="radio"/> Xon/Xoff <input type="radio"/> RTS/CTS  |
| <input type="checkbox"/> Apply To All Serial Ports |   |

Save Configuration

| COM Number | Operation Mode | Interface | Baud Rate | Parity | Data Bits | Stop Bits | Flow Control |
|------------|----------------|-----------|-----------|--------|-----------|-----------|--------------|
| 01         | ASCII Master   | RS232     | 9600      | None   | 8         | 1         | None         |
| 02         | RTU Slave      | RS232     | 9600      | None   | 8         | 1         | None         |
| 03         | RTU Slave      | RS232     | 9600      | None   | 8         | 1         | None         |
| 04         | RTU Slave      | RS232     | 9600      | None   | 8         | 1         | None         |
| 05         | RTU Slave      | RS232     | 9600      | None   | 8         | 1         | None         |
| 06         | RTU Slave      | RS232     | 9600      | None   | 8         | 1         | None         |

Fig. 3. 10

### 3.5.2 Operation Mode

- **RTU Slave:** when working as a slave node, the device will wait and accept request from its master; data transfer is done under an RTU format.
- **RTU Master:** when working as a master node, the device will issue commands to the slave node; data transfer is under an RTU format.
- **ASCII Slave:** when working as a slave node, the device will wait and accept request from its own master; data transfer is under an ASCII format.
- **ASCII Master:** when working as a master node, the device will issue commands to the slave node; data transfer is under an ASCII format.

### 3.5.3 Serial Settings

This section has the following selections:

- RS-232/RS-422/RS-485 Software Selectable (Default: RS-232)
- Baud-rate: 110 bps ~ 921600 bps
- Parity: None, Even, Odd, Mark, or Space
- Data Bits: 5, 6, 7, or 8
- Stop Bits: 1 or 2
- Flow Control: None, Hardware CTS/RTS, Software Xon/Xoff

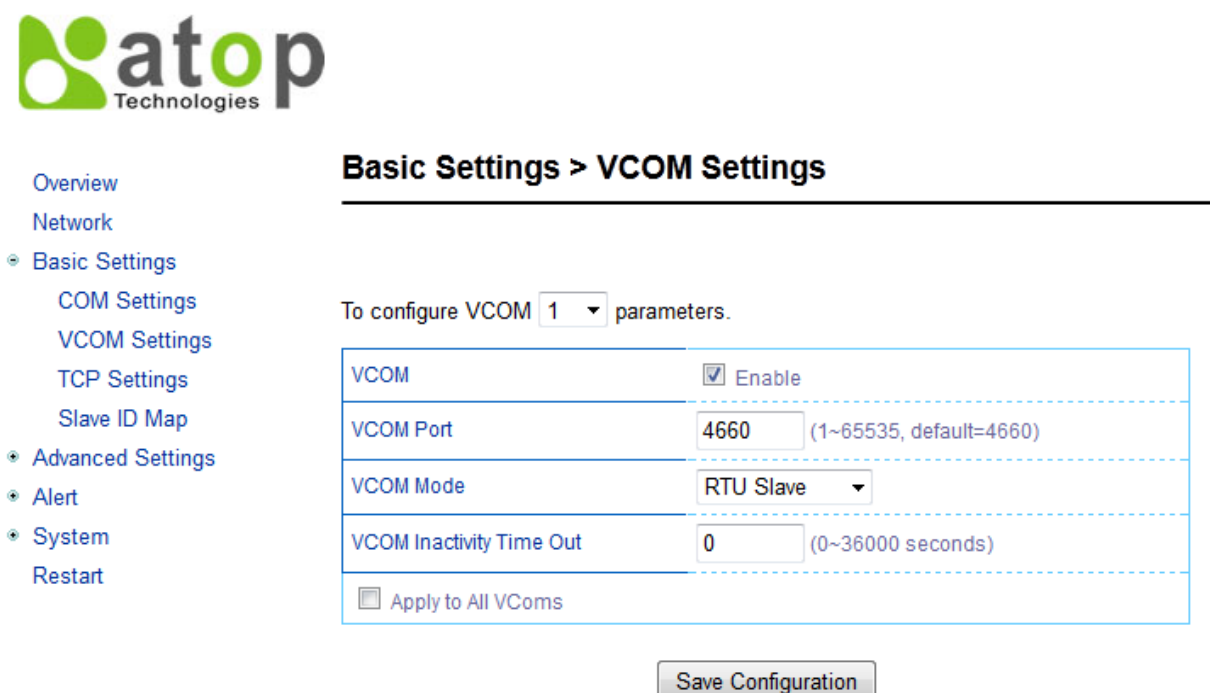
**Apply to all Serial Ports** Alternatively, the settings can be chosen to apply to all Serial Ports if needed by checking the last box on the options.

### 3.5.4 VCOM Settings

Generates a virtual Serial (COM) port within the device by the network connection, it is a **TCP connection** but the encoding is an Atop Technologies' exclusive private protocol. There is the choice to set your device as either a Master or a Slave in your network.

You will need a VCOM setting, proceed to go to **Basic Settings** → **VCOM Settings** and tick on the VCOM's "**Enable**" box to allow configuration on the port selected.

The options for Master are similar, the only difference being on the device's function.



The screenshot displays the Atop Technologies web interface. On the left is a navigation menu with links: Overview, Network, Basic Settings (selected), COM Settings, VCOM Settings, TCP Settings, Slave ID Map, Advanced Settings, Alert, System, and Restart. The main content area is titled "Basic Settings > VCOM Settings". Below the title, it says "To configure VCOM 1 parameters." followed by a dropdown menu showing "1". The configuration table has four rows: "VCOM" with an "Enable" checkbox checked; "VCOM Port" with a text input "4660" and a range "(1~65535, default=4660)"; "VCOM Mode" with a dropdown menu showing "RTU Slave"; and "VCOM Inactivity Time Out" with a text input "0" and a range "(0~36000 seconds)". Below the table is an "Apply to All VCOMs" checkbox. At the bottom is a "Save Configuration" button.

|                          |  |
|--------------------------|--|
| VCOM                     | <input checked="" type="checkbox"/> Enable |
| VCOM Port                | 4660 (1~65535, default=4660)               |
| VCOM Mode                | RTU Slave                                  |
| VCOM Inactivity Time Out | 0 (0~36000 seconds)                        |

☐ Apply to All VCOMs

Save Configuration

Fig. 3. 11

Choose whether your device conforms as an RTU or ASCII, which is the VCOM Mode.

- **VCOM Port** Using the TCP, the device listens whether there are any clients (VCOM clients), connecting (Serial-IP) to its ports.
- **VCOM Mode** Its definition is analogous to the one in [Sec. 3.5.2](#).

---

**Note:** Windows has its own restrictive Serial-IP software installed for use.

---



- Overview
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  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
- Alert
- System
  - Restart

## Basic Settings > VCOM Settings

To configure VCOM 1 parameters.

|   |  |
|---|--|
| VCOM  | <input checked="" type="checkbox"/> Enable |
| VCOM Port                                   | 4660 (1~65535, default=4660)               |
| VCOM Mode                                   | RTU Slave                                  |
| VCOM Inactivity Time Out                    | 00 seconds                                 |
| <input type="checkbox"/> Apply to All VCOMs |  |

Save Configuration

Fig. 3. 12

- **VCOM inactivity's Time Out** can be set as well (which is the period of time allowed between actions), with a maximum of 600 minutes or 10 hours. If no action has been taken after this period, VCOM connection will be automatically interrupted by the system.

It is important to note that alternatively, these settings can be chosen to be applied to All VCOMs if needed by checking the last box on the options.



- Overview
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  - VCOM Settings
  - TCP Settings
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- Advanced Settings
- Alert
- System
  - Restart

## Basic Settings > VCOM Settings

To configure VCOM 1 parameters.

|   |  |
|---|--|
| VCOM  | <input checked="" type="checkbox"/> Enable |
| VCOM Port                                   | 4660 (1~65535, default=4660)               |
| VCOM Mode                                   | RTU Slave                                  |
| VCOM Inactivity Time Out                    | 0 (0~36000 seconds)                        |
| <input type="checkbox"/> Apply to All VCOMs |  |

Save Configuration

Fig. 3. 13

Click on Save Configuration to keep all changes made.



### 3.5.5 TCP Settings

Settings for representing a **Modbus TCP connection** using the internet are set here. First go to **Basic Settings** ↔ **TCP Settings**, then proceed to choose whether to enable **TCP** ticking on the “**Enable**” box.



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  - SMTP Settings
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- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default

Restart

#### Basic Settings > TCP Settings

To configure TCP 1 parameters.

| Add New Modbus TCP      |   |  |  |  |  |
|-------------------------|---|--|--|--|--|
| TCP                     | <input checked="" type="checkbox"/> Enable                                  |  |  |  |  |
| Operation Mode          | <input checked="" type="radio"/> TCP Slave <input type="radio"/> TCP Master |  |  |  |  |
| Remote IP Address       | 10 . 0 . 34 . 2   |  |  |  |  |
| TCP Port                | 502 (1~65535, default=502)  |  |  |  |  |
| TCP Inactivity Time Out | 0 (0~36000 seconds)   |  |  |  |  |

Save Configuration

| <input type="checkbox"/> | TCP No. | Operation Mode | Remote IP Address | TCP Port | Inactivity Time Out |
|--------------------------|---------|----------------|-------------------|----------|---------------------|
| <input type="checkbox"/> | 01      | TCP Slave      | 10.0.34.2         | 502      | 0 seconds           |
| <input type="checkbox"/> | 16      | TCP Master     |                   | 502      | 0 seconds           |

Remove

Fig. 3. 14

- **TCP Slave:** When on this mode, the device will run on Slave mode and wait to receive Modbus requests from the Master; data transmission is done under a Modbus TCP format.
- **Remote IP Address** shows the device's slave node IP address.
- **TCP Port** shows the device's slave node TCP port.
- **VCOM inactivity's Time Out** can be set as well (which is the period of time allowed between actions), with a maximum of 600 minutes or 10 hours. If no action has been taken after this period, Modbus TCP connection will be automatically terminated by the system.



- Overview
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  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
- Alert
- System
- Restart

## Basic Settings > TCP Settings

---

To configure TCP 1 parameters.

| Add New Modbus TCP      |  |
|-------------------------|--|
| TCP                     | <input checked="" type="checkbox"/> Enable                                   |
| Operation Mode          | <input type="radio"/> TCP Slave <input checked="" type="radio"/> TCP Master  |
| TCP Port                | <input style="width: 80px;" type="text" value="502"/> (1~65535, default=502) |
| TCP Inactivity Time Out | <input style="width: 80px;" type="text" value="0"/> (0~36000 seconds)        |

Save Configuration

Fig. 3. 15

On Operation Mode choose whether the device is going to be a Slave or a Master. Remote IP Address refers to the IP belonging to the device that is going to be controlled from your MB54XX Series; this option is not available when the device is set as a Master. TCP Port is the port through which the signal is going to be relayed upon. And again, there is a TCP Inactivity Time Out with the same 10 hours maximum value as stated on the last [section](#). Configuration can be saved as well.

### 3.5.6 Slave ID Map

The system uses the Modbus ID to route Modbus' request commands (from the master node) to the respective slave node; it is paramount to define ID maps for each slave node. For every slave node, there must be a correct Virtual ID (Alias ID) and Real ID defined in the maps.



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  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

#### Basic Settings > Slave ID Map

To configure Slave 1 parameters.

| Slave ID Settings     |  |
|-----------------------|--|
| Slave                 | <input checked="" type="checkbox"/> Enable   |
| Slave Interface       | <div>COM</div> <div> <input type="radio"/> COM02   <input type="radio"/> COM03   <input type="radio"/> COM04   <input type="radio"/> COM05   <input type="radio"/> COM06   <input type="radio"/> COM07   <input type="radio"/> COM08   <input type="radio"/> COM09<br/> <input type="radio"/> COM10   <input type="radio"/> COM11   <input type="radio"/> COM12   <input type="radio"/> COM13   <input type="radio"/> COM14   <input type="radio"/> COM15   <input type="radio"/> COM16           </div> |
|                       | <div>TCP</div> <div><input checked="" type="radio"/> TCP01</div>   |
| Slave ID Setting Mode | <input checked="" type="radio"/> Alias Mode <input type="radio"/> Offset Mode  |
| Slave ID Setting      | <div>Alias ID: <input style="width: 50px;" type="text" value="8"/></div> <div>Real ID: <input style="width: 50px;" type="text" value="16"/></div>  |

Save Configuration

| <input type="checkbox"/> | Entry No. | Protocol   | Source        | Mode  | Slave ID Range (Virtual<->Real) |
|--------------------------|-----------|------------|---------------|-------|---------------------------------|
| <input type="checkbox"/> | 01        | Modbus/TCP | 10.0.34.2:502 | Alias | 008 <-> 016                     |

Remove

Fig. 3. 16

## Slave Interface

When a port is set to slave mode, a Slave interface will be then created for you. Select the **Slave Interface**, which is the **COM/VCOM/TCP port**; then select **Alias Mode** or **Offset Mode** to modify the range and offset as you needed.

- **Alias Mode** maps a virtual ID to a real ID each at the time.
  - **Alias ID** which refers to a Virtual ID for the reading Master node.
  - **Real ID** which is the real ID from the slave node.
- **Offset Mode** which refers to a range of defined ID maps.
  - **Slave ID Start** Virtual ID's start number.
  - **Slave ID End** Virtual ID's end number.
  - **Slave ID Offset** Real ID range, which is from (Slave ID Start -Offset) to (Slave ID End-Offset).



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  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

### Basic Settings > Slave ID Map

To configure Slave 1 parameters.

| Slave ID Settings     |  |
|-----------------------|--|
| Slave                 | <input checked="" type="checkbox"/> Enable   |
| Slave Interface       | COM <input type="radio"/> COM02 <input type="radio"/> COM03 <input type="radio"/> COM04 <input type="radio"/> COM05 <input type="radio"/> COM06 <input type="radio"/> COM07 <input type="radio"/> COM08 <input type="radio"/> COM09<br><input type="radio"/> COM10 <input type="radio"/> COM11 <input type="radio"/> COM12 <input type="radio"/> COM13 <input type="radio"/> COM14 <input type="radio"/> COM15 <input type="radio"/> COM16 |
|                       | TCP <input checked="" type="radio"/> TCP01   |
| Slave ID Setting Mode | <input type="radio"/> Alias Mode <input checked="" type="radio"/> Offset Mode  |
| Slave ID Start        | <input type="text" value="8"/>   |
| Slave ID End          | <input type="text" value="16"/>  |
| Slave ID Offset       | <input type="text" value="0"/>   |

Save Configuration

| <input type="checkbox"/> | Entry No. | Protocol   | Source        | Mode  | Slave ID Range (Virtual<->Real) |
|--------------------------|-----------|------------|---------------|-------|---------------------------------|
| <input type="checkbox"/> | 01        | Modbus/TCP | 10.0.34.2:502 | Alias | 008 <-> 016                     |

Remove

Fig. 3. 17

**Note:** on VCOM, TCP and COM, Master and Slave IDs can be set, while on COM and VCOM work only with Serial ports.

## 3.6 Advanced Settings

### 3.6.1 SNMP Settings

SNMP Settings determines whether your device settings can be viewed with standard SNMP software; by default it is disabled.

- **SysName** which is by default the MAC address
- **SysLocation** refers to the device's physical location.
- **SysContact** is the device administrator's contact information.

If you wish to make the information available for public viewing by a Read Community, simply check the **“Enable SNMP”** box and fill in **“Public\_viewers”** in **Read Community** field. If you wish to allow a group of people called **“Power\_users”** to change the information, enter **“Power\_users”** in **Write Community**. If you allow a trap server to collect device information, please fill in **SNMP Trap Server** with its corresponding IP address (the trap server designed to collect all alarm information). Configuration will take effect after the device is restarted.



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    SMTP Settings  
    Alert Events  
• System  
    Log Settings  
    System Log  
    Data Log  
    Modbus Statistic  
    Time  
    Security  
    Import/Export  
    Factory Default  
Restart

#### Advanced Settings > SNMP Settings

---

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


| SNMP Settings    |   |
|------------------|---|
| SysName          | <input type="text" value="0060E9-147258"/>  |
| SysLocation      | <input type="text" value="location"/>   |
| SysContact       | <input type="text" value="contact"/>  |
| SNMP             | <input type="checkbox"/> Enable   |
| Read Community   | <input type="text" value="public"/>   |
| Write Community  | <input type="text" value="private"/>  |
| SNMP Trap Server | <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> |

Fig. 3. 18

### 3.6.2 Modbus

In **Modbus** settings, you could select whether to enable **Modbus Exception** or not. If the Modbus' slave produces no response, timeout occurs, it may then be necessary for the gateway to return an Exception, and setting the Response timeout as follows.

- Configure timeout for each COM port
- Configure timeout for TCP/ VCOM port



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    Modbus  
• Alert  
    SMTP Settings  
    Alert Events  
• System  
    Log Settings  
    System Log  
    Data Log  
    Modbus Statistic  
    Time  
    Security  
    Import/Export  
    Factory Default  
Restart

#### Advanced Settings > Modbus

| Modbus Settings  |                                 |
|------------------|---------------------------------|
| Modbus Exception | <input type="checkbox"/> Enable |

| Response Timeout                           |                                   |
|--|-----------------------------------|
| COM 1 ▾                                    | 1000 (10-120000ms Default:1000ms) |
| <input type="checkbox"/> Apply to All Coms |                                   |
| TCP/ VCOM                                  | 1000 (10-120000ms Default:1000ms) |

Save Configuration

Fig. 3. 19

## 3.7 Alert Configuration

### 3.7.1 SMTP and Email Settings

In **Alert Events**, you can configure options to let your Modbus Gateway to send out device information to alert users, administrators, or responsible personnel. There are five anomalies defined in it to trigger alert functions.

- **Cold Start**, power supply is interrupted.
- **Warm Start**, the device Restart function is used, (either by pressing a button or by its interface).
- **Authentication Fail**, incorrect username and password are entered.
- **IP address change**, device's IP address is changed.
- **Password Changed**, authentication password is changed.



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    SNMP Settings  
    Modbus  
• Alert  
    SMTP Settings  
    Alert Events  
• System  
    Log Settings  
    System Log  
    Data Log  
    Modbus Statistic  
    Time  
    Security  
    Import/Export  
    Factory Default  
Restart

#### Alert > Alert Events

To configure the Modbus Gateway to send alert by E-mail or trap.

| Alert Event            |                                    |                               |
|------------------------|------------------------------------|-------------------------------|
| Cold Start             | <input type="checkbox"/> E-mail    | <input type="checkbox"/> Trap |
| Warm Start             | <input type="checkbox"/> E-mail    | <input type="checkbox"/> Trap |
| Authentication Failure | <input type="checkbox"/> E-mail    | <input type="checkbox"/> Trap |
| IP Address Changed     | <input type="checkbox"/> E-mail    |                               |
| Password Changed       | <input type="checkbox"/> E-mail    |                               |
| LAN1 Link Down         | <input type="checkbox"/> Relay Out |                               |
| LAN2 Link Down         | <input type="checkbox"/> Relay Out |                               |

Save Configuration

Fig. 3. 20

When enabled, an E-mail alert would be sent to the designated E-mail address in the **E-Mail Settings**. To setup an email alert function, you first need to configure the recipient's email address and the mail server.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
  - Restart

## Alert > SMTP Settings

---

To configure the SMTP server where the E-mail notification will be sent.

| E-mail Setting              |                      |
|-----------------------------|----------------------|
| Sender's E-mail Address     | <input type="text"/> |
| Receiver's E-mail Address 1 | <input type="text"/> |
| Receiver's E-mail Address 2 | <input type="text"/> |
| Receiver's E-mail Address 3 | <input type="text"/> |

| Mail Server   |                      |
|---|----------------------|
| Mail Server   | <input type="text"/> |
| <input type="checkbox"/> Mail Server Authentication Required. |                      |
| User Name   | <input type="text"/> |
| Password  | <input type="text"/> |

Fig. 3. 21



## 3.8 System

### 3.8.1 Log Settings

This section lets you change the way your report will be shown on your Log.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
  - Restart

#### System > Log Settings

---

|                            |   |
|----------------------------|---|
| Enable Log Event To Flash  | <input type="checkbox"/>  |
| Log Level                  | 4: (LOG_WARNING) ▼  |
| Enable Syslog Server       | <input type="checkbox"/>  |
| Syslog Server IP           | <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> |
| Syslog Server Service Port | <input type="text" value="514"/> (1~65535, default=514)   |

Save

Fig. 3. 22

### 3.8.2 System Log

This section merely shows a list of system running events currently (with every event's properties displayed), as well as the option to clear them all.

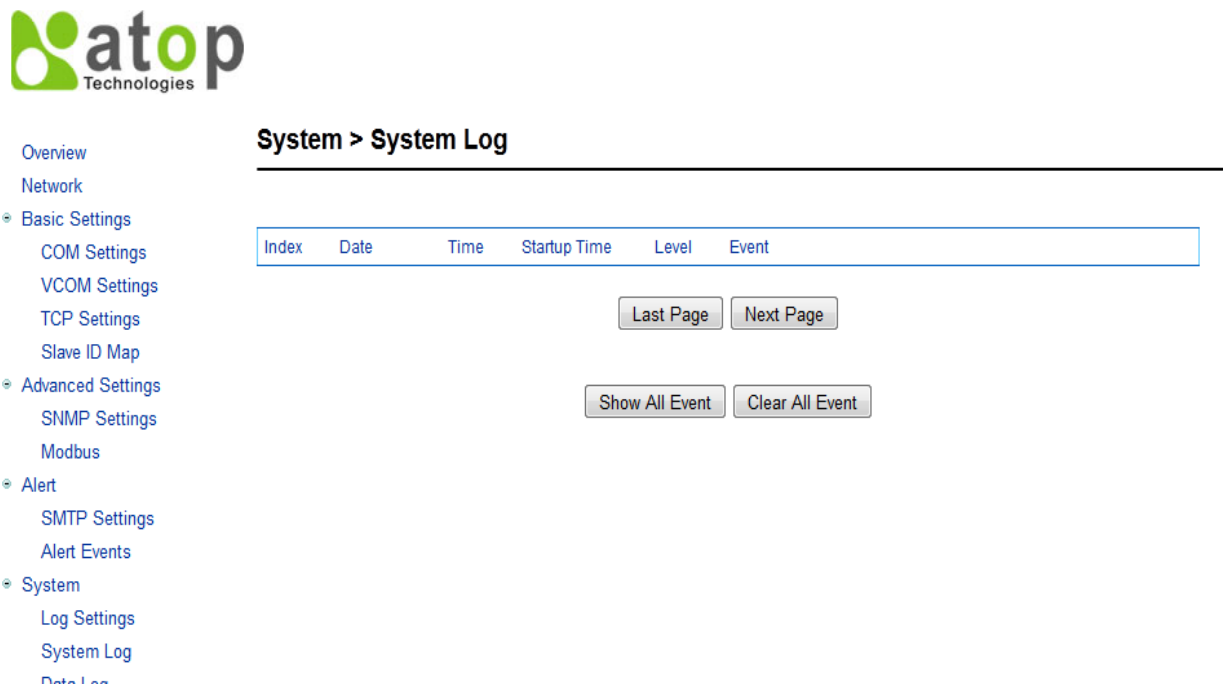


Fig. 3. 23

### 3.8.3 Data Log

**Event filtering** is available in this section for analysis; a number of options are available for a customized analysis. Traffic in the system can be done here as well.

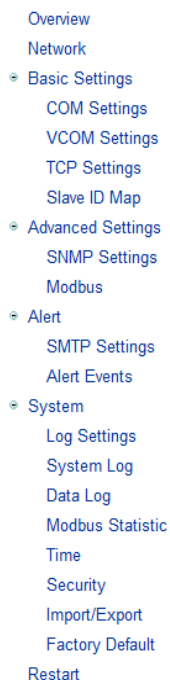
☒ All
 ☐ Slave ID Only
 ☐ Function Code Only

Filter Info.

| Index   | Time     | Type      | Slave ID | Function Code | Event  |
|---------|----------|-----------|----------|---------------|--|
| 1/1531  | 00:22:29 | TCP Resp. | 8        | 0x03          | 04 38 00 00 00 17 08 03 14 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
| 2/1531  | 00:22:29 | RTU Req.  | 16       | 0x03          | 10 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 A3 F7             |
| 3/1531  | 00:22:29 | RTU Req.  | 16       | 0x03          | 10 03 14 00 00 00 00 00 00 00 00 00 00 00 00   |
| 4/1531  | 00:22:28 | TCP Resp. | 8        | 0x03          | 04 37 00 00 00 17 08 03 14 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
| 5/1531  | 00:22:28 | RTU Req.  | 16       | 0x03          | 10 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 A3 F7             |
| 6/1531  | 00:22:28 | RTU Req.  | 16       | 0x03          | 10 03 14 00  |
| 7/1531  | 00:22:27 | TCP Resp. | 8        | 0x03          | 04 36 00 00 00 17 08 03 14 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 |
| 8/1531  | 00:22:27 | RTU Req.  | 16       | 0x03          | 10 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 A3 F7             |
| 9/1531  | 00:22:27 | RTU Req.  | 16       | 0x03          | 10 03 14 00 00 00 00 00  |
| 10/1531 | 00:22:26 | TCP Resp. | 8        | 0x03          | 04 35 00 00 00 17 08 03 14 00 00 00 00 00 00 00<br>00 00 00 00 00 00 00 00 00 00 00 00 00 00 |

Fig. 3. 24

All ports' information is available in this section.



## Refresh

| Interface | Net_Connection | DataType | Mode   | RxCnt  | RxByte     | TxCnt  | TxByte     |
|-----------|----------------|----------|--------|--------|------------|--------|------------|
| COM01     | 10.0.34.2:502  | ASCII    | MASTER | 009913 | 0000168521 | 009912 | 0000227976 |
| COM02     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM03     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM04     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM05     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM06     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM07     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM08     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM09     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM10     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM11     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM12     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM13     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM14     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM15     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| COM16     |                | RTU      | SLAVE  | 000000 | 0000000000 | 000000 | 0000000000 |
| TCP       | 10.0.34.2:502  | TCP      | SLAVE  | 009912 | 0000287448 | 009913 | 0000059478 |
| TCP(502)  | 0.0.0.0:502    | TCP      | MASTER | 000000 | 0000000000 | 000000 | 0000000000 |

Fig. 3. 25

### 3.8.5 Time

**Date and time** can be set manually, or using **Network Time Protocol (NTP)** to automatically synchronizes with a **Time Server**. For auto-synching check the box below **NTP Server Settings** “**Obtain date/time automatically**” proceeding then to fill the **IP address** or hostname for it. If a hostname is entered, the **DNS server** must be configured properly; a **Time Zone** can be selected as well, Fig. 3.26.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

#### System > Time

---

By enabling NTP you allow to adjust and set the device internal time, relative to Greenwich Mean Time.

| Current System Time   |                          |
|-----------------------|--------------------------|
| 2000/1/3 Mon 05:58:23 | <button>Refresh</button> |

| System Time Setting                                  |   |
|--|---|
| Time Zone  | (GMT) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London ▼    |
| Time Setting   | <input checked="" type="radio"/> NTP <input type="radio"/> Manual |
| <b>NTP Setting</b>                                   |   |
| NTP Server   | time.nist.gov   |
| <b>Manual Setting</b>                                |   |
| Date   | Year: 2000 ▼ / Month: Jan ▼ / Day: 3 ▼                            |
| Time   | Hour:(0~23): 5 ▼ Minute:(0~59): 58 ▼ Second:(0~59): 23 ▼          |
| <b>Daylight Saving Setting</b>                       |   |
| <input type="checkbox"/> Enable Daylight Saving Time |   |
| Start Date   | Month: Jan ▼ / Week: 1st ▼ / Day: Sun ▼ / Hour: 1 ▼               |
| End Date   | Month: Jan ▼ / Week: 1st ▼ / Day: Sun ▼ / Hour: 1 ▼               |
| Offset   | 1 ▼ hour(s)   |

Save Configuration

Fig. 3. 26

### 3.8.6 Security

**Password** settings are available at this section, as well as device's console configuration settings allowing users to limit the way they are able to configure the device.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

#### System > 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.

| Change Password   |                      |
|-------------------|----------------------|
| Old Password      | <input type="text"/> |
| New Password      | <input type="text"/> |
| Verified Password | <input type="text"/> |

Save Password

allow one to change the access methods to protect it against intrusion. All password protect function will use same password of above 'Change Password' setting data.

| Security             |   |
|----------------------|---|
| Web Console          | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Telnet Console       | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| LCM Password Protect | <input checked="" type="radio"/> No <input type="radio"/> Yes         |
| Reset Button Protect | <input checked="" type="radio"/> No <input type="radio"/> Yes         |

Save Configuration

Fig. 3. 27

### 3.8.7 Import/Export

Once all the configurations are set and the device is working properly, you may want to backup **(Export)** your configuration. Backup can be used when the new firmware is uploaded and it is reset to a factory default settings, it is done to prevent accidental loading of incompatible old settings. The backup file could also be used to efficiently deploy multiple Modbus Gateways of similar settings by restoring the settings to the devices by **Importing** the corresponding file.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

#### System > Import/Export

---

**Import** a configuration file to the device.

Configuration File:

Browse\_

Import Configuration

**Export** a configuration data from device and save to file.

Export Configuration

Fig. 3. 28



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

## System > Import/Export

Import a configuration file to the device.

Configuration File:

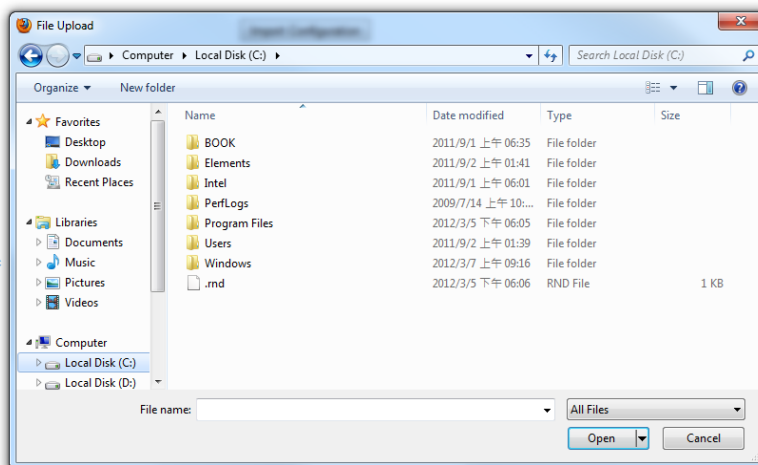


Fig. 3. 29



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

## System > Import/Export

Import a configuration file to the device.

Configuration File:

Export a configuration data from device and save to file.

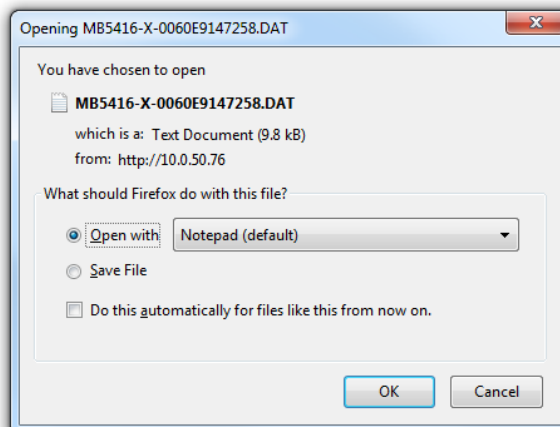


Fig. 3. 30



### 3.8.8 Factory Default

A simple return to **Factory Default** is available in our MB54XX Series.



- Overview
- Network
- Basic Settings
  - COM Settings
  - VCOM Settings
  - TCP Settings
  - Slave ID Map
- Advanced Settings
  - SNMP Settings
  - Modbus
- Alert
  - SMTP Settings
  - Alert Events
- System
  - Log Settings
  - System Log
  - Data Log
  - Modbus Statistic
  - Time
  - Security
  - Import/Export
  - Factory Default
- Restart

#### System > Factory Default

---

Restore all parameters to default.

Set to Default and Restart

Fig. 3. 31

## 3.9 Restart

**Restart** is just a click away in our Modbus Series.



Overview

Network

• Basic Settings

COM Settings

VCOM Settings

TCP Settings

Slave ID Map

• Advanced Settings

SNMP Settings

Modbus

• Alert

SMTP Settings

Alert Events

• System

Log Settings

System Log

Data Log

Modbus Statistic

Time

Security

Import/Export

Factory Default

Restart

### ReStart

---

When the system stops responding correctly, you can perform this. The restart will be complete when the RUN LED starts blinking.

Restart

Fig. 3. 32

## 4 Applications and Examples

---

On your device two different ID mapping definitions are given by the system, both using Modbus ID to route the requesting command (from the Master) to the Slave node.

### 4.1 Using ID offset range mapping

If the Slave ID is continuous, it is recommended to use the Offset mode, Fig. 4.1.

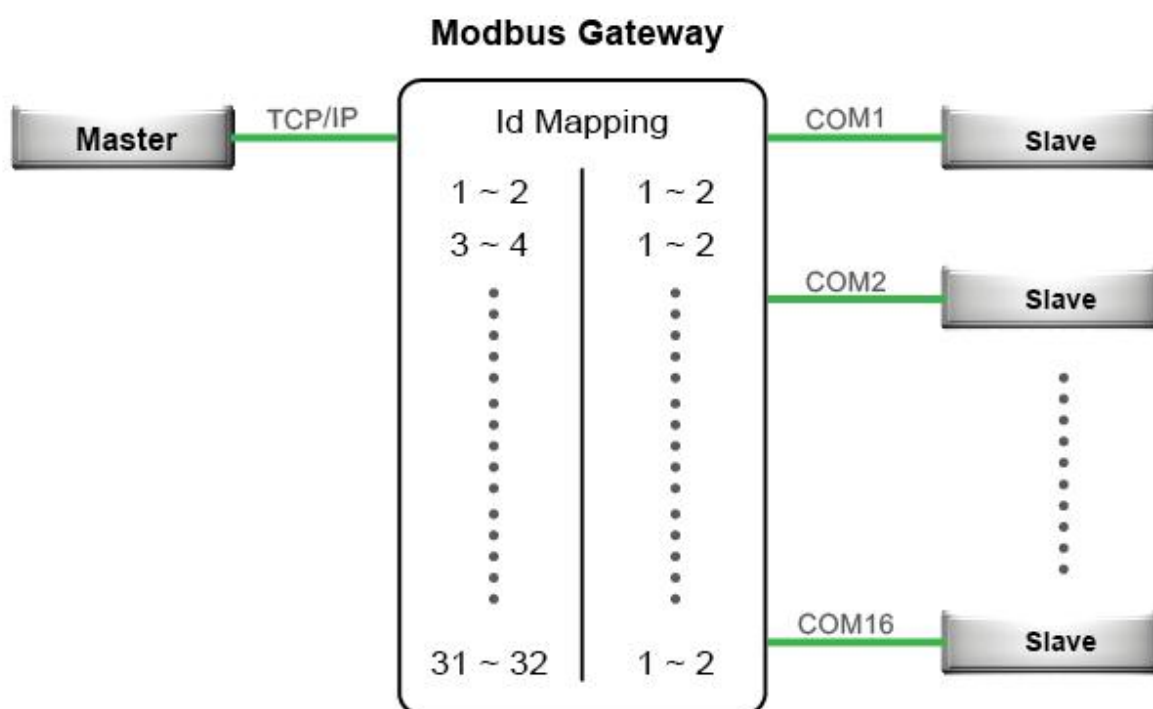


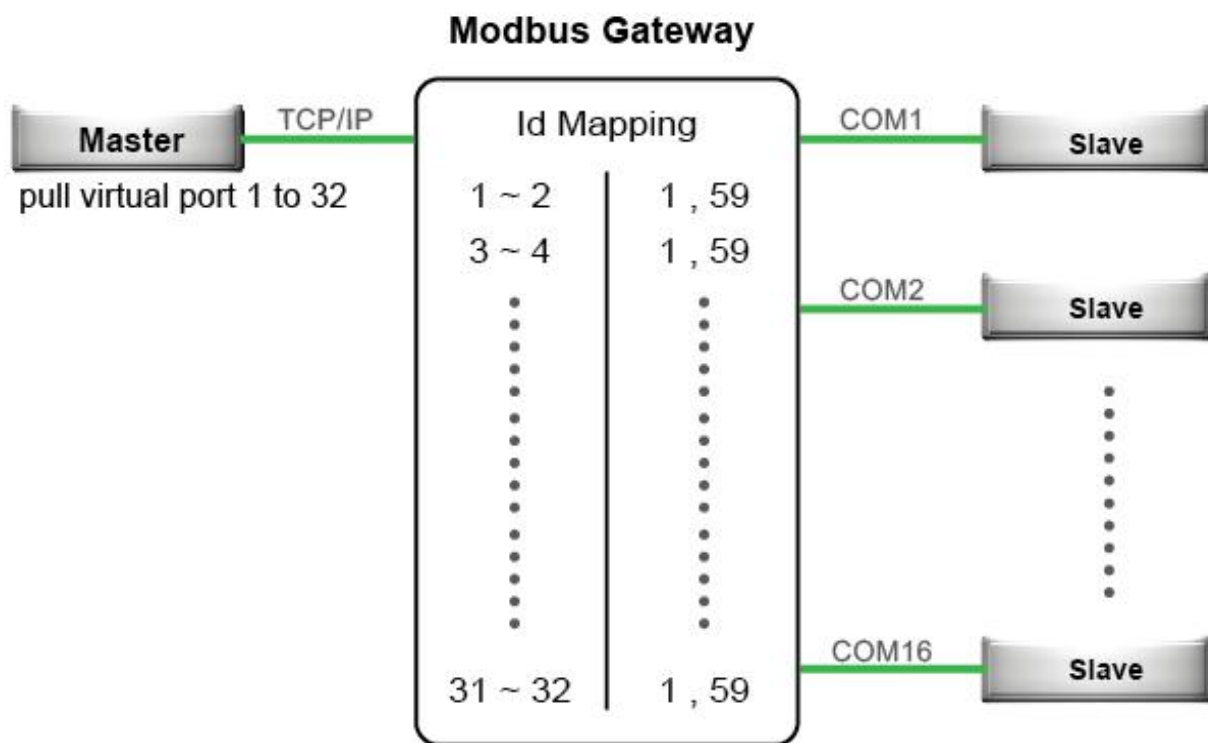
Fig. 4. 1

| <input type="checkbox"/> | Entry No. | Protocol   | Source | Mode   | Slave ID Range (Virtual<->Real) |
|--------------------------|-----------|------------|--------|--------|---------------------------------|
| <input type="checkbox"/> | 01        | Modbus/RTU | COM1   | Offset | 001 - 002 <-> 001 - 002         |
| <input type="checkbox"/> | 02        | Modbus/RTU | COM2   | Offset | 003 - 004 <-> 001 - 002         |
| <input type="checkbox"/> | 03        | Modbus/RTU | COM3   | Offset | 005 - 006 <-> 001 - 002         |
| <input type="checkbox"/> | 04        | Modbus/RTU | COM4   | Offset | 007 - 008 <-> 001 - 002         |
| <input type="checkbox"/> | 05        | Modbus/RTU | COM5   | Offset | 009 - 010 <-> 001 - 002         |
| <input type="checkbox"/> | 06        | Modbus/RTU | COM6   | Offset | 011 - 012 <-> 001 - 002         |
| <input type="checkbox"/> | 07        | Modbus/RTU | COM7   | Offset | 013 - 014 <-> 001 - 002         |
| <input type="checkbox"/> | 08        | Modbus/RTU | COM8   | Offset | 015 - 016 <-> 001 - 002         |
| <input type="checkbox"/> | 09        | Modbus/RTU | COM9   | Offset | 017 - 018 <-> 001 - 002         |
| <input type="checkbox"/> | 10        | Modbus/RTU | COM10  | Offset | 019 - 020 <-> 001 - 002         |
| <input type="checkbox"/> | 11        | Modbus/RTU | COM11  | Offset | 021 - 022 <-> 001 - 002         |
| <input type="checkbox"/> | 12        | Modbus/RTU | COM12  | Offset | 023 - 024 <-> 001 - 002         |
| <input type="checkbox"/> | 13        | Modbus/RTU | COM13  | Offset | 025 - 026 <-> 001 - 002         |
| <input type="checkbox"/> | 14        | Modbus/RTU | COM14  | Offset | 027 - 028 <-> 001 - 002         |
| <input type="checkbox"/> | 15        | Modbus/RTU | COM15  | Offset | 029 - 030 <-> 001 - 002         |
| <input type="checkbox"/> | 16        | Modbus/RTU | COM16  | Offset | 031 - 032 <-> 001 - 002         |

Fig. 4. 2

## 4.2 Using Alias ID mapping

This is only recommended if the ID is not continuous, Fig. 4.3.



\* Every slave will have two ID (1 and 59)

Fig. 4. 3

|                          |    |            |      |       |             |
|--------------------------|----|------------|------|-------|-------------|
| <input type="checkbox"/> | 03 | Modbus/RTU | COM2 | Alias | 003 <-> 001 |
| <input type="checkbox"/> | 04 | Modbus/RTU | COM2 | Alias | 004 <-> 059 |
| <input type="checkbox"/> | 05 | Modbus/RTU | COM3 | Alias | 005 <-> 001 |
| <input type="checkbox"/> | 06 | Modbus/RTU | COM3 | Alias | 006 <-> 059 |
| <input type="checkbox"/> | 07 | Modbus/RTU | COM4 | Alias | 007 <-> 001 |
| <input type="checkbox"/> | 08 | Modbus/RTU | COM4 | Alias | 008 <-> 059 |
| <input type="checkbox"/> | 09 | Modbus/RTU | COM5 | Alias | 009 <-> 001 |
| <input type="checkbox"/> | 10 | Modbus/RTU | COM5 | Alias | 010 <-> 059 |
| <input type="checkbox"/> | 11 | Modbus/RTU | COM6 | Alias | 011 <-> 001 |
| <input type="checkbox"/> | 12 | Modbus/RTU | COM6 | Alias | 012 <-> 059 |
| <input type="checkbox"/> | 13 | Modbus/RTU | COM7 | Alias | 013 <-> 001 |
| <input type="checkbox"/> | 14 | Modbus/RTU | COM7 | Alias | 014 <-> 059 |
| <input type="checkbox"/> | 15 | Modbus/RTU | COM8 | Alias | 015 <-> 001 |
| <input type="checkbox"/> | 16 | Modbus/RTU | COM8 | Alias | 016 <-> 059 |
| <input type="checkbox"/> | 17 | Modbus/RTU | COM9 | Alias | 017 <-> 001 |
| <input type="checkbox"/> | 18 | Modbus/RTU | COM9 | Alias | 018 <-> 059 |

Fig. 4. 4

# 5 Specifications

## 5.1 Hardware

Table 5. 1

| System             |  |
|--------------------|--|
| CPU                | 32-bit 266MHz RISC Processor with MMU  |
| Flash Memory       | 2 + 8 MB (2MB for Bootloader)  |
| RAM                | 128 MB DDR   |
| EEPROM             | 8 KB   |
| Reset              | Built-in Recessed Key (Restore to Factory Defaults)  |
| Watchdog           | Hardware built-in  |
| Network            |  |
| Ethernet Interface | <ul style="list-style-type: none"> <li>■ IEEE 802.3 Compliance</li> <li>■ Dual Port 10/100Mbps Auto-Detection</li> <li>■ Connection: RJ-45</li> <li>■ Auto MDI/MDI-X: No</li> </ul>  |
| Protection         | Built-in 1.5 KV Magnetic Isolation   |
| Protocol           | <div> <div> <ul style="list-style-type: none"> <li>■ ICMP</li> <li>■ TCP/IP</li> <li>■ UDP</li> <li>■ HTTP, ,</li> </ul> </div> <div> <ul style="list-style-type: none"> <li>■ SMTP</li> <li>■ NTP</li> <li>■ ARP</li> </ul> </div> </div> |

53

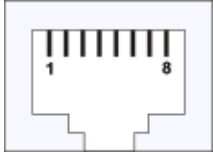


|                            |   |  |
|----------------------------|---|--|
| Input                      | <ul style="list-style-type: none"><li>● 100~240 V (MB5408-X, MB5416-X)</li><li>● DC9~48V (MB5404D-X, MB5404D-Sis-X)</li></ul> |  |
| Consumption                | <ul style="list-style-type: none"><li>● Max. 8.5 W (MB5408-X/MB5416-X)</li><li>● 5.58W (MB5404D-X, MB5404D-Sis-X)</li></ul>   |  |
| EMC                        | FCC Class A, CE Class A   |  |
| Mechanical                 |   |  |
| Dimensions (W x H x D, mm) | MB5408-X, MB5416-X  | 436 x 43.5 x 200                         |
|                            | MB5404D-X, MB5404D-Sis-X  | 53.4x145.7x119.9                         |
| Casing                     | SECC sheet metal (1 mm)   |  |
| Environmental              |   |  |
| Temperature                | Operation   | MB5404D-X, MB5404D-Sis-X : -40°C ~ 80°C, |
|                            |   | MB5408-X, MB5416-X : 0°C ~ 60°C,         |
|                            | Storage   | -40°C ~ 85°C, 5% ~ 95% RH                |
| Humidity                   | 5% ~ 95% Non-condensing   |  |

## Serial and RJ-45 Connectors Pin Assignments

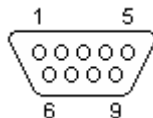
### RJ45 to Serial Connectors

Table 5. 2

|  |       |                 |               |               |               |
|---|-------|-----------------|---------------|---------------|---------------|
|   |       | <b>Ethernet</b> | <b>RS-232</b> | <b>RS-422</b> | <b>RS-485</b> |
|   | Pin 1 | Tx+             | RTS           | -             | -             |
|   | Pin 2 | Tx-             | DTR           | TX-           | -             |
|   | Pin 3 | Rx+             | TXD           | TX+           | -             |
|   | Pin 4 |                 | SG            | SG            | SG            |
|   | Pin 5 |                 | SG            | SG            | SG            |
|   | Pin 6 | Rx-             | RXD           | RX+           | Data+         |
|   | Pin 7 |                 | DSR           | RX-           | Data-         |
|   | Pin 8 |                 | CTS           | -             | -             |

## DB9 to RS-232/RS-485/RS-422 connectors (MB5404D-X)

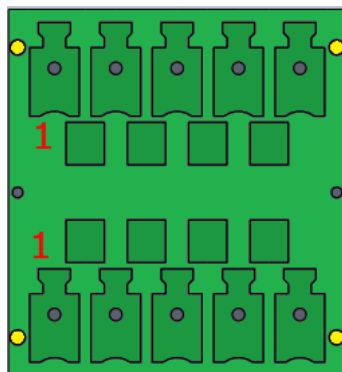
Table 5. 3



| Pin# | RS-232<br>Full Duplex | RS-422/4-Wire RS-485<br>Full Duplex | 2-Wire RS-485<br>Half Duplex |
|------|-----------------------|-------------------------------------|------------------------------|
| 1    | DCD                   | N/A                                 | N/A                          |
| 2    | RXD                   | <b>TXD+</b>                         | N/A (reserved)               |
| 3    | TXD                   | <b>RXD+</b>                         | <b>DATA+</b>                 |
| 4    | DTR                   | N/A                                 | N/A                          |
| 5    | SG (Signal Ground)    | SG (Signal Ground)                  | SG (Signal Ground)           |
| 6    | DSR                   | N/A                                 | N/A                          |
| 7    | RTS                   | <b>RXD-</b>                         | <b>DATA-</b>                 |
| 8    | CTS                   | <b>TXD-</b>                         | N/A (reserved)               |
| 9    | RI                    | N/A                                 | N/A                          |

## 5pin Terminal Block to RS-485/RS-422 connectors (MB5404D-Sis-X)

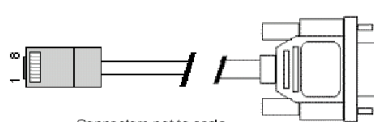
Table 5. 4



| Pin# | RS-422/4-Wire RS-485                        | 2-Wire RS-485                               |
|------|---|---|
|      | Full Duplex<br>for SE5404D-TB / SE5404D-Sis | Half Duplex<br>For SE5404D-TB / SE5404D-Sis |
| 1    | T+  | NC  |
| 2    | T-  | NC  |
| 3    | R+  | Data+                                       |
| 4    | R-  | Data-                                       |
| 5    | SG (Signal Ground)                          | SG (Signal Ground)                          |

## RJ45 to Male DB9 Connector

Table 5. 5

| RJ45  |       |   | Male DB9 |     |
|---|-------|---|----------|-----|
|  |       |   |          |     |
| RTS   | Pin 1 | ↔ | Pin 7    | RTS |
| DTR   | Pin 2 | ↔ | Pin 4    | DTR |
| TXD   | Pin 3 | ↔ | Pin 3    | TXD |
| SG  | Pin 4 | ↔ | Pin 5    | GND |
| SG  | Pin 5 | ↔ |          |     |
| RXD   | Pin 6 | ↔ | Pin 2    | RXD |
| DSR   | Pin 7 | ↔ | Pin 6    | DSR |
| CTS   | Pin 8 | ↔ | Pin 8    | CTS |

## RS-232/RS-422 to RJ-45 Cross over Connection

Table 5. 6

| RJ45 A |        |       |   | RJ45 B |        |        |
|--------|--------|-------|---|--------|--------|--------|
| RS-422 | RS-232 |       |   |        | RS-232 | RS-422 |
|        | RTS    | Pin 1 | ↔ | Pin 8  | CTS    |        |
| TX-    | DTR    | Pin 2 | ↔ | Pin 7  | DSR    | RX-    |
| TX+    | TXD    | Pin 3 | ↔ | Pin 6  | RXD    | RX+    |
|        | SG     | Pin 4 | ↔ | Pin 5  | SG     |        |
|        | SG     | Pin 5 | ↔ | Pin 4  | SG     |        |
| RX+    | RXD    | Pin 6 | ↔ | Pin 3  | TXD    | TX+    |
| RX-    | DSR    | Pin 7 | ↔ | Pin 2  | DTR    | TX-    |
|        | CTS    | Pin 8 | ↔ | Pin 1  | RTS    |        |










## RS-485 to RJ-43 Loop back Connection


Table 5. 7

| RJ45 A |       |   | RJ45 B |       |
|--------|-------|---|--------|-------|
| RS-485 |       |   | RS-485 |       |
|        | Pin 1 | ↔ | Pin 1  |       |
|        | Pin 2 | ↔ | Pin 2  |       |
|        | Pin 3 | ↔ | Pin 3  |       |
|        | Pin 4 | ↔ | Pin 4  |       |
|        | Pin 5 | ↔ | Pin 5  |       |
| Data+  | Pin 6 | ↔ | Pin 6  | Data+ |
| Data-  | Pin 7 | ↔ | Pin 7  | Data- |
|        | Pin 8 | ↔ | Pin 8  |       |

## LED indicators

Table 5. 8

| Name      | Color  | Message   |
|-----------|--|---|
| Power     |  (Steady Green)   | Power ON  |
| Ready     |  (Steady Green)   | Booting up  |
|           |  (Blinking Green) | In Activity   |
| TX (1-16) |  (Blinking Green) | Serial Port Transmission                            |
|           |  (Light Off)      | No Data Transmission                                |
| RX (1-16) |  (Blinking Green) | Serial Port Data Reception                          |
|           |  (Light Off)      | No Data Reception                                   |
| LAN1/LAN2 |  (Steady Amber)   | 100Mbps Ethernet connected                          |
|           |  (Light Off)      | 10Mbps Ethernet Connection or 100 Mbps Disconnected |

|  |  |                           |
|--|--|---------------------------|
|  |  (Blinking Green) | Ethernet Port in Activity |
|--|--|---------------------------|

## 5.2 Software

Table 5. 9

| Software           |   |
|--------------------|---|
| Utility            | "Virtual COM" Driver "Serial-IP" for Windows 98/2000/XP/2003/Vista  |
| Configuration Tool | <ul style="list-style-type: none"> <li>■ Web-based</li> <li>■ Telnet</li> <li>■ LCM</li> <li>■ <b>Device View©</b></li> </ul> |

## Appendix Configuration using Telnet Interface

---

The MB54XX Modbus Gateway device also has a built-in Telnet server program such that users can also configure the device using Telnet console software. To start the device configuration using Telnet console, please go to Windows Command software (Start→Run) and use “telnet” command to access the device. In the “Run” window, enter “*telnet device\_IP\_address*” (For example, telnet 10.0.50.100 if the device is connected to LAN1 port) as shown in Fig. The system will prompt for Username and Password. After the valid username and password are entered, the main menu shall appear as in Apx. 10. It shows all the configurations that can be used on the device.

If Telnet is not yet configured, please follow the steps mentioned below to configure it.

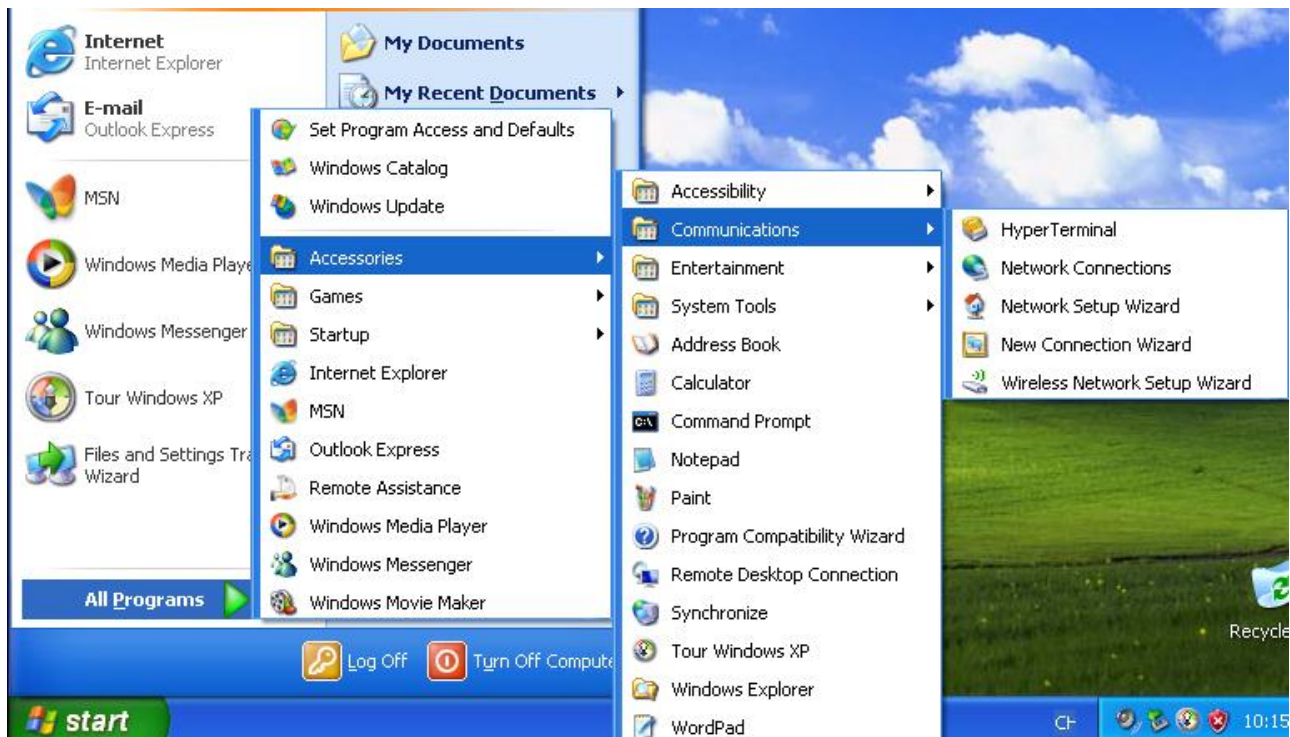
**Note:**

- The steps described below are for **Windows®** platforms.
- You can always press “ESC” key to return to the upper layer menu.
- If the device does not receive any command within 3 minutes, Telnet connection will be automatically terminated.



For Telnet interface configuring, please go to **Windows® Hyper Terminal** and follow the steps described below.

- On your Desktop go to **“Start → All Programs → Accessories → Communications → HyperTerminal”**.



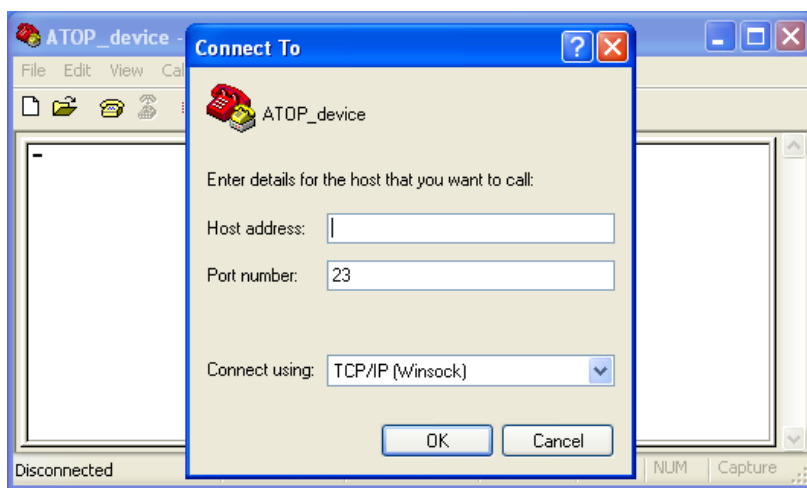
Apx. 1

- Fill the Name entry with a name of your choice, and select your favorite icon. The **“Connect to”** window will pop-out.



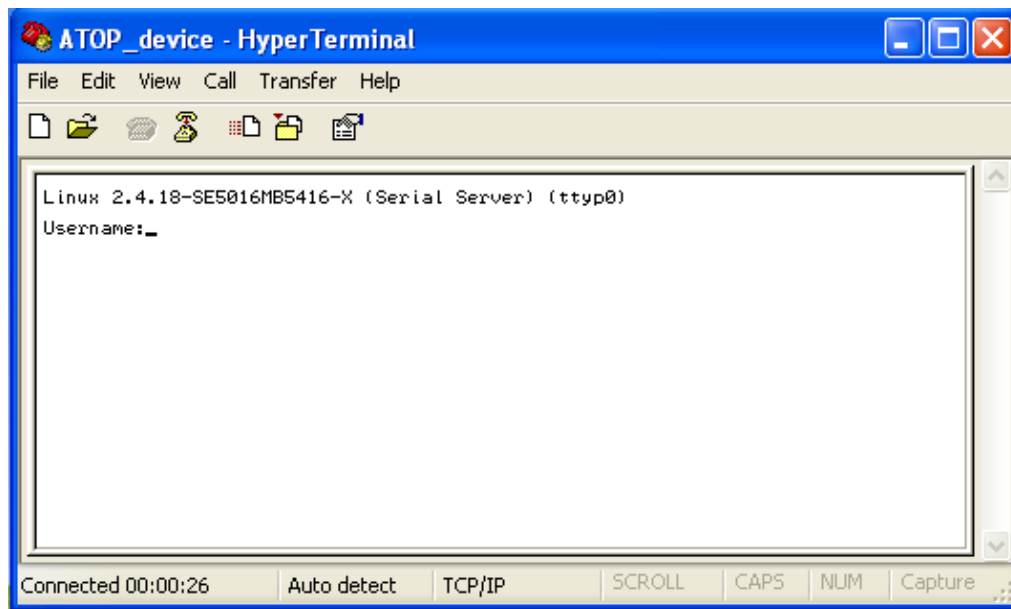
Apx. 2

- Select **“TCP/IP Winsock”** on **“Connect using”**, then check **“OK”**. Here **“Session 1-Hyperterminal”** will appear, and then type **“telnet 10.0.XXX.XXX”** (device's IP), to get into the device's login menu.



Apx. 3

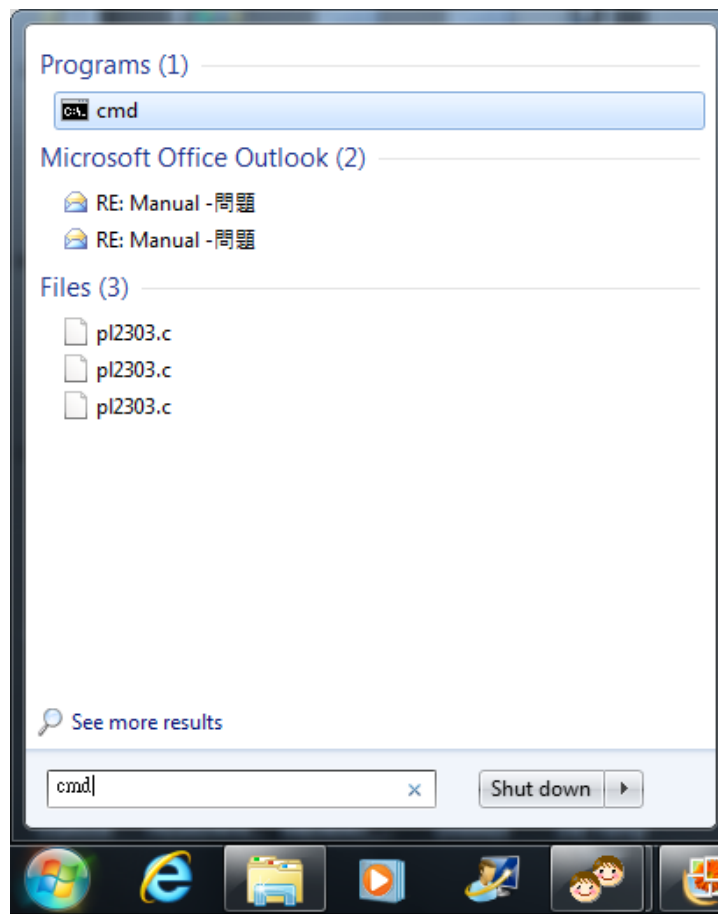
- Once the correct username and password are entered, you will see the configuration menu of the device on the display.



Apx. 4

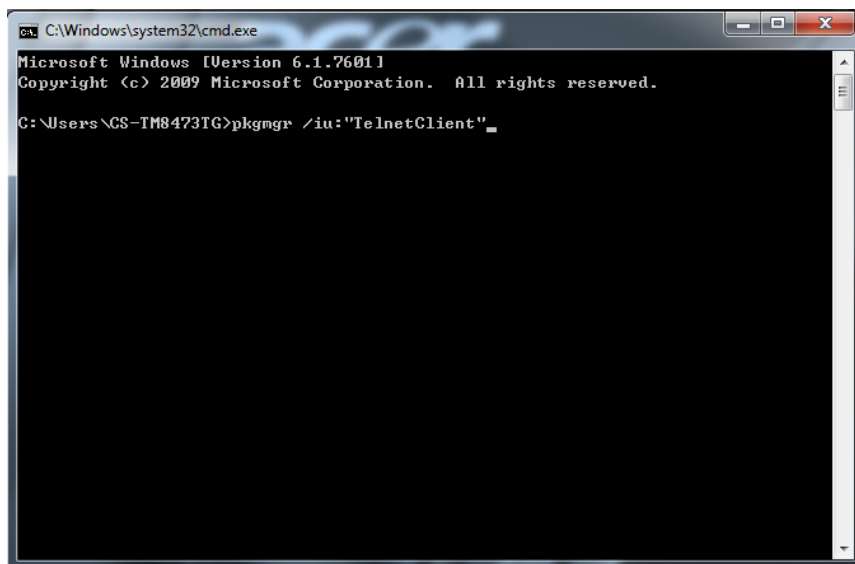
The steps before mentioned are for Win XP, in order to enable telnet in Win 7 follow the steps below.

1. Go to **Start** and on the “**Run**” box type **cmd**, **Fig.**



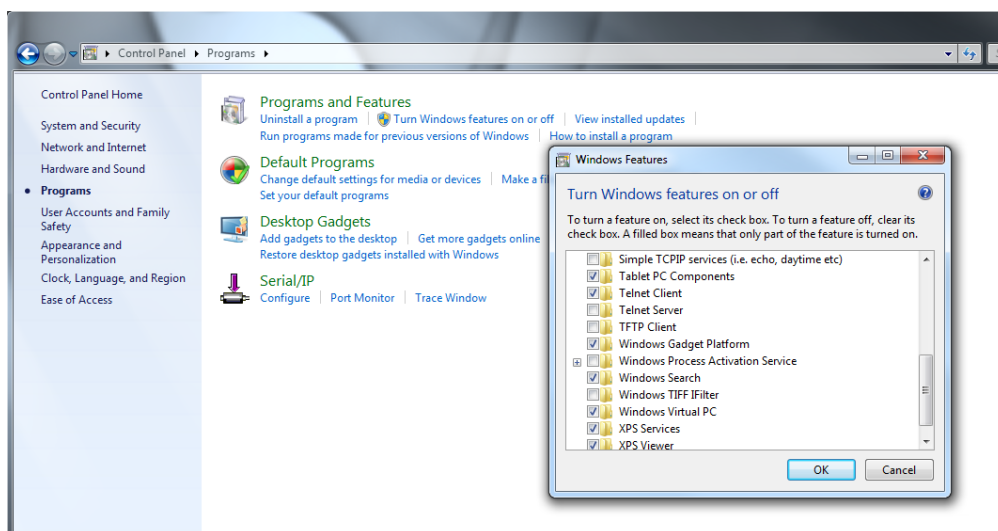
Apx. 5

2. A pop out window will appear as follows, type “ **pkmgr /iu:"TelnetClient"** ” and press Enter, your Telnet must be configured by now. If you wish to confirm if it is working, follow the next step.



Apx. 6

3. Go to **Control Panel** under **Programs and Features** press **Turn Windows features on or off** and click the **Telnet Client** box.



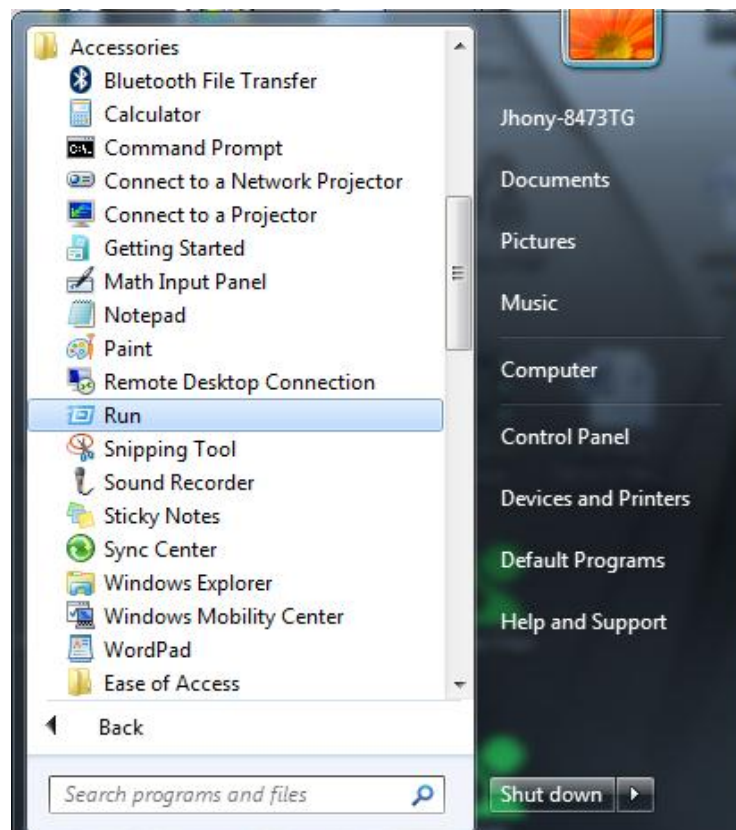
Apx. 7

---

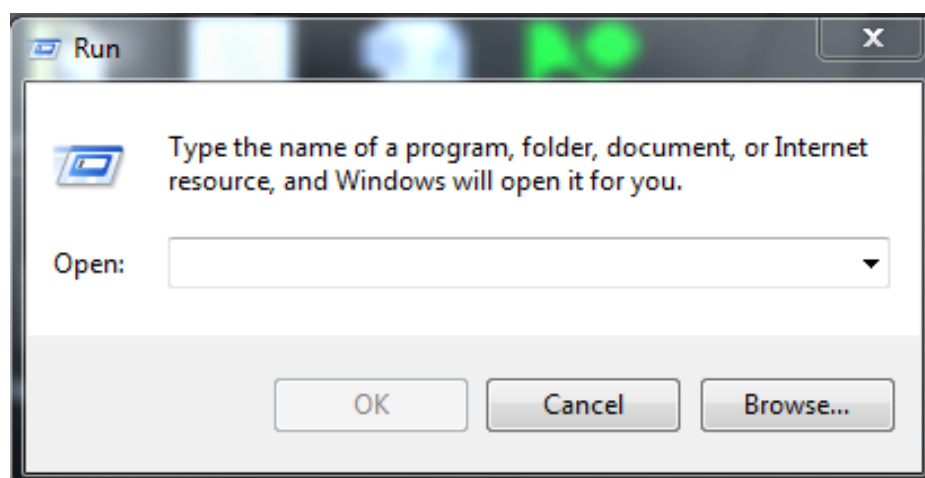
**Note:** Default “TCP port numbers” (in this manual, TCP port number, TCP local port number and TCP logical number are synonymous) are 4660 – 4667 for the MB5408-X model, and 4660 – 4675 for the MB5416-X model, each corresponding to COM1 – COM8 and COM1 – COM16, respectively.

---

After these steps are completed, telnet can be accessed by typing the device's IP using the “Run” command window on the Start programs.

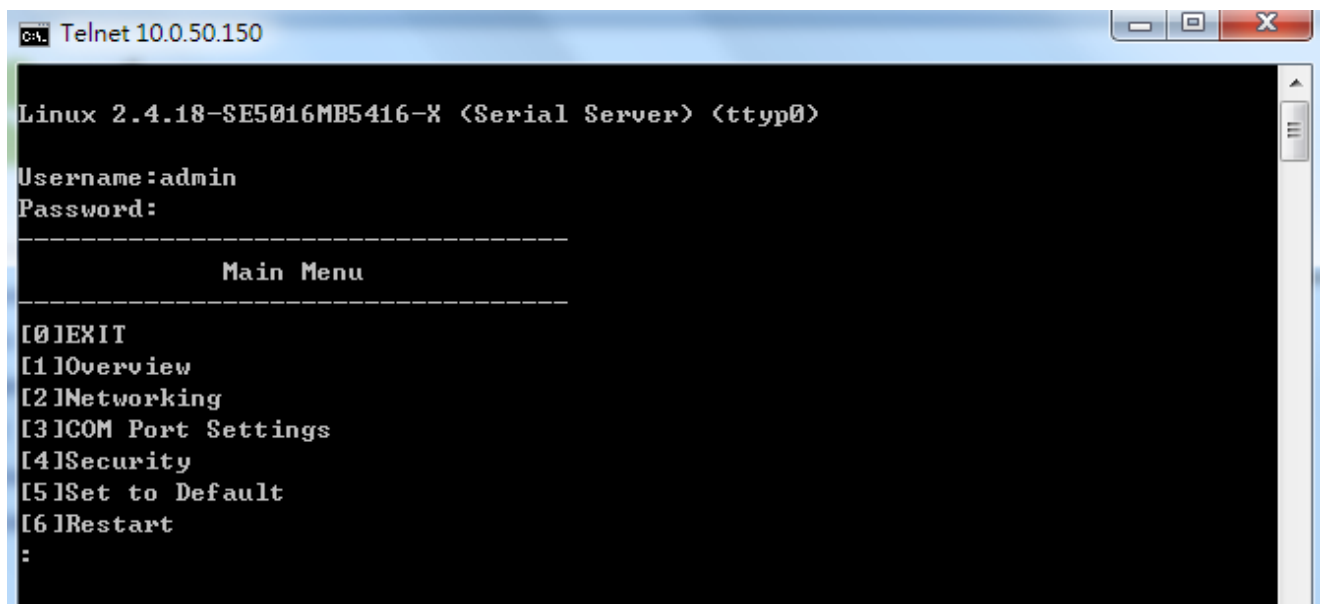


Apx. 8



Apx. 9

Its main menu is a command driven interface; it will look as follows.

A screenshot of a Telnet window titled 'Telnet 10.0.50.150'. The window shows a command-line interface for a Linux system (2.4.18-SE5016MB5416-X) acting as a Serial Server on ttty0. The user 'admin' has logged in. The main menu is displayed, listing options: [0]EXIT, [1]Overview, [2]Networking, [3]COM Port Settings, [4]Security, [5]Set to Default, and [6]Restart. The prompt is ':'.

```
CAL Telnet 10.0.50.150

Linux 2.4.18-SE5016MB5416-X <Serial Server> <ttyp0>

Username:admin
Password:

-----
                Main Menu
-----

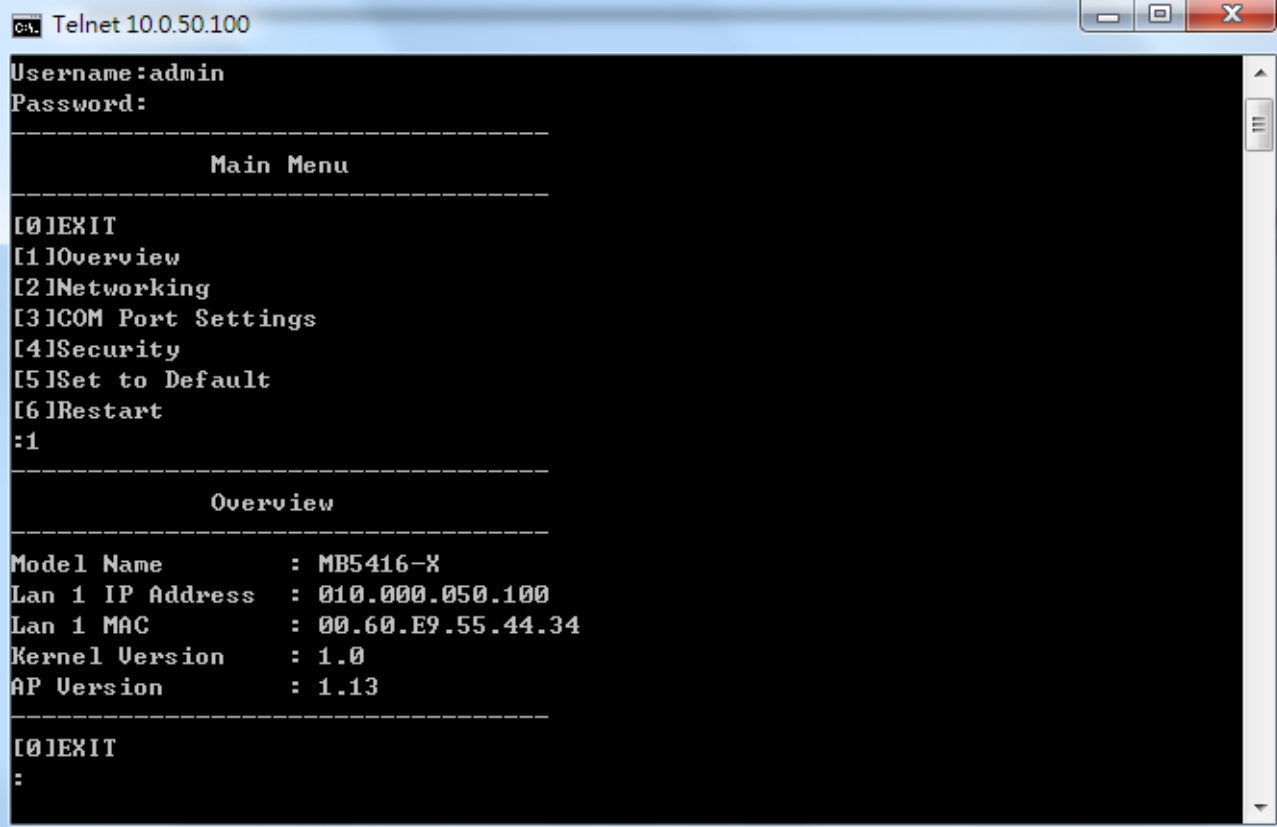
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:
```

Apx. 10

Most options appear the same as the ones in web browsing mode, the difference being that they have to be accessed by entering the number corresponded to that option.

For accessing each function please follow the steps described below.

- On the **Main Screen** → **[1] Overview**, (a more detailed description of this section is given on [Sec. 3.3](#))

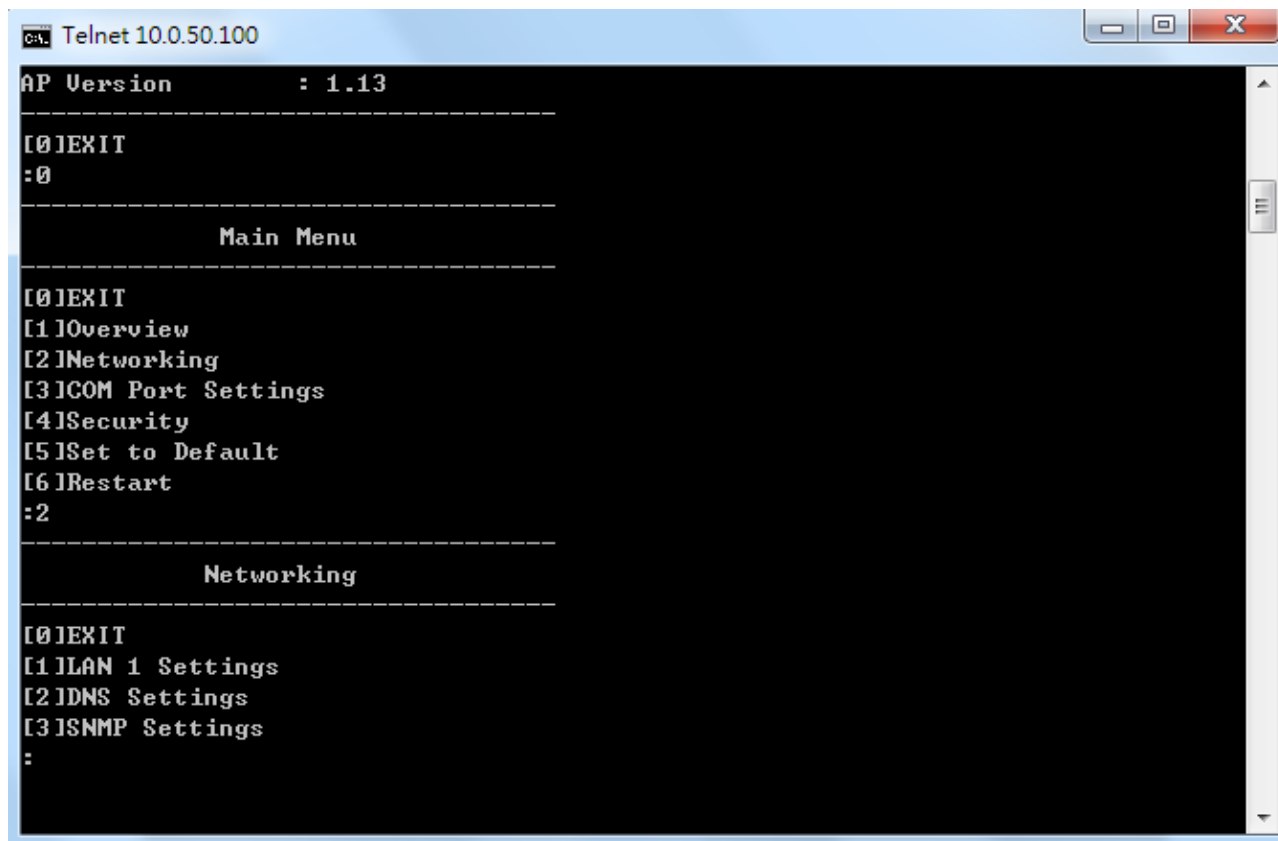


```
cal Telnet 10.0.50.100
Username:admin
Password:
-----
                Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:1
-----
                Overview
-----
Model Name       : MB5416-X
Lan 1 IP Address  : 010.000.050.100
Lan 1 MAC        : 00.60.E9.55.44.34
Kernel Version   : 1.0
AP Version       : 1.13
-----
[0]EXIT
:
```

Apx. 11



- **Main Screen** → **[2] Networking**, (a more detailed description of this section is given on [Sec. 3.4](#))

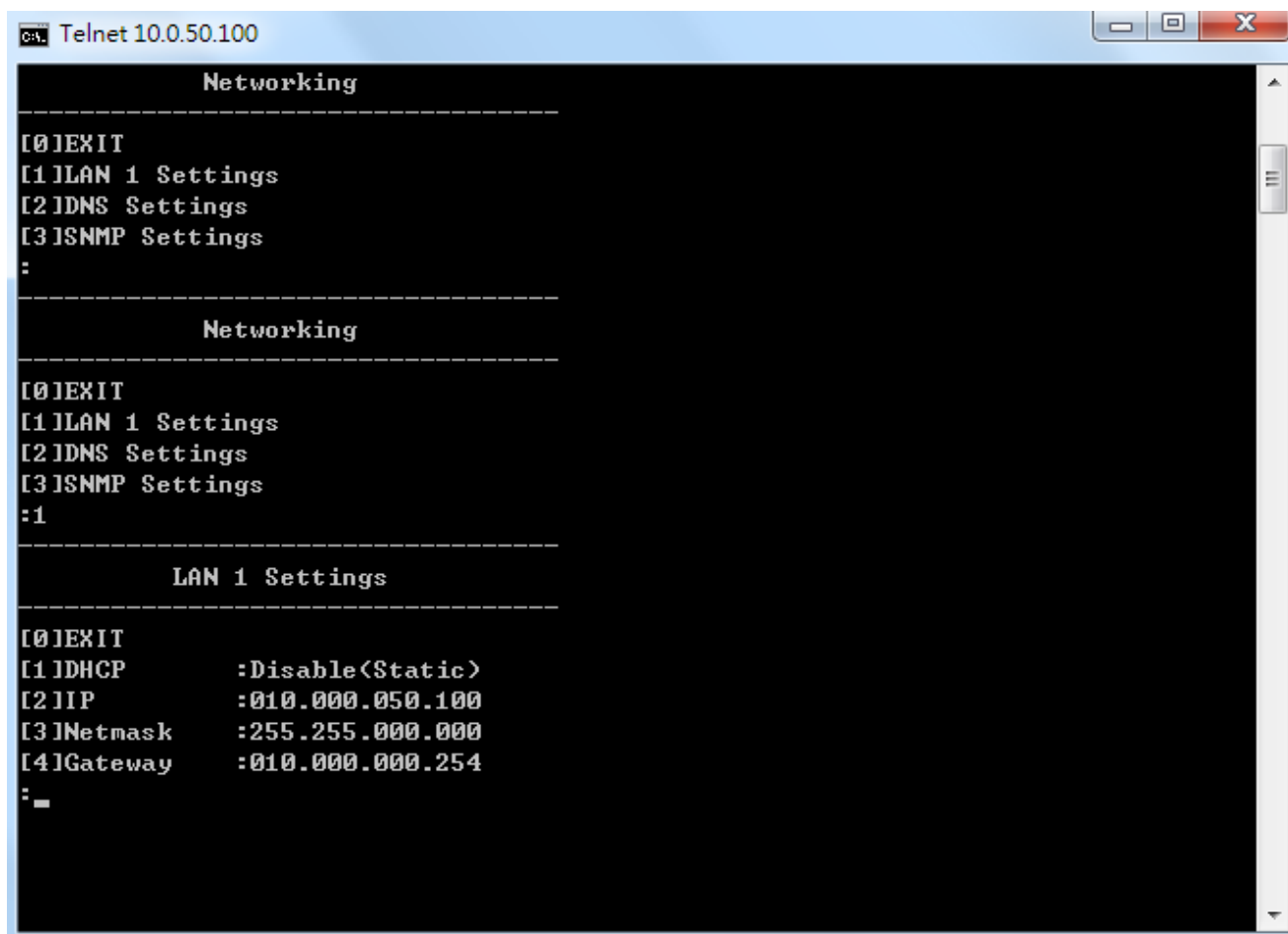


The screenshot shows a Telnet window titled 'Telnet 10.0.50.100'. The terminal displays the following text:

```
AP Version      : 1.13
-----
[0]EXIT
:0
-----
Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:2
-----
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:
```

Apx. 12

- **Main Screen** → **[2] Networking** → **[1]LAN 1 Settings**, (a more detailed description of this section is given on [Sec. 3.4](#))



```
C:\> Telnet 10.0.50.100

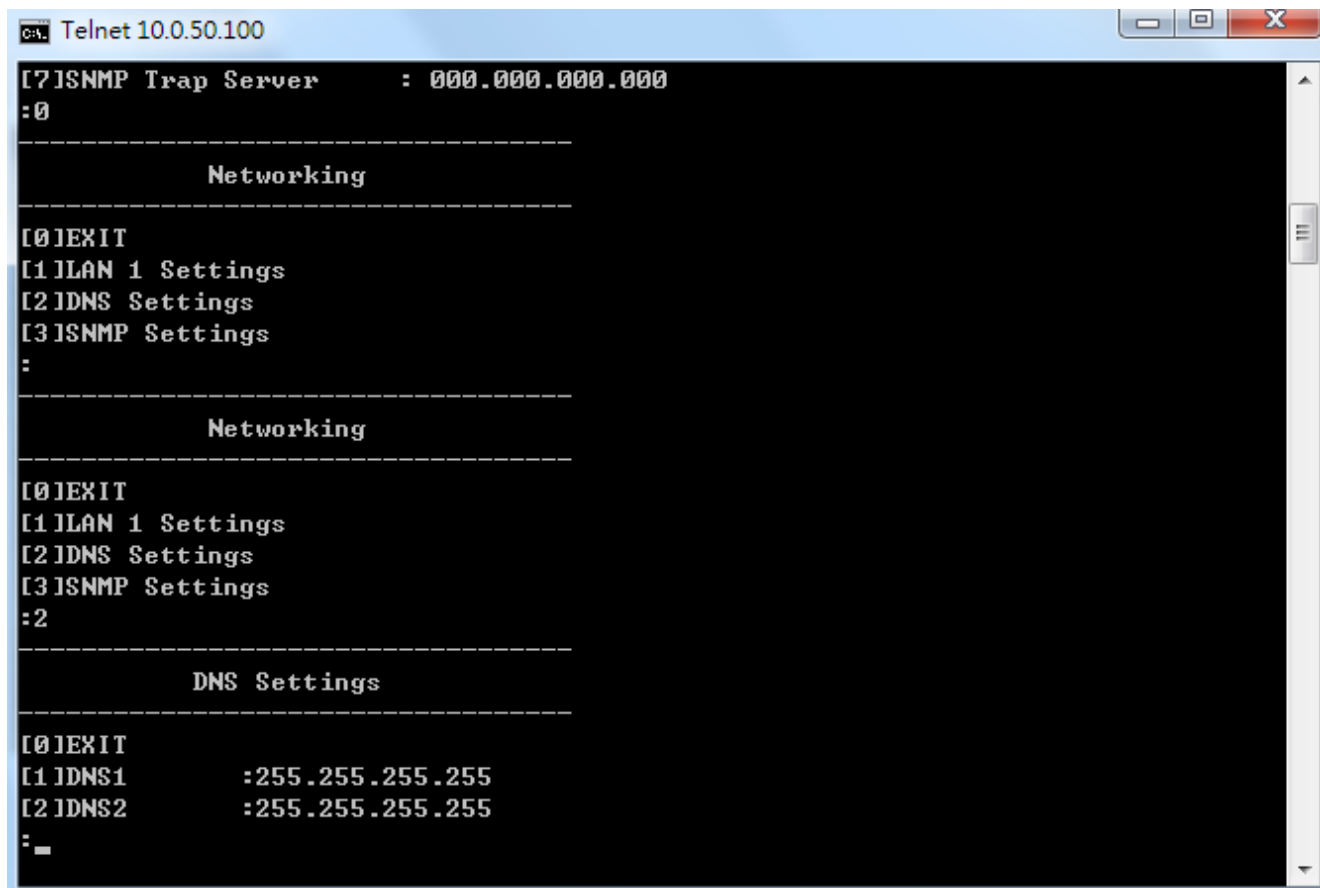
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:
-----

Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:1
-----

LAN 1 Settings
-----
[0]EXIT
[1]DHCP      :Disable<Static>
[2]IP       :010.000.050.100
[3]Netmask  :255.255.000.000
[4]Gateway  :010.000.000.254
:
_
```

Apx. 13

- **Main Screen → [2] Networking → [2] DNS Settings**, (a more detailed description of this section is given on [Sec. 3.4](#))



```
ca1 Telnet 10.0.50.100
[7]SNMP Trap Server      : 000.000.000.000
:0

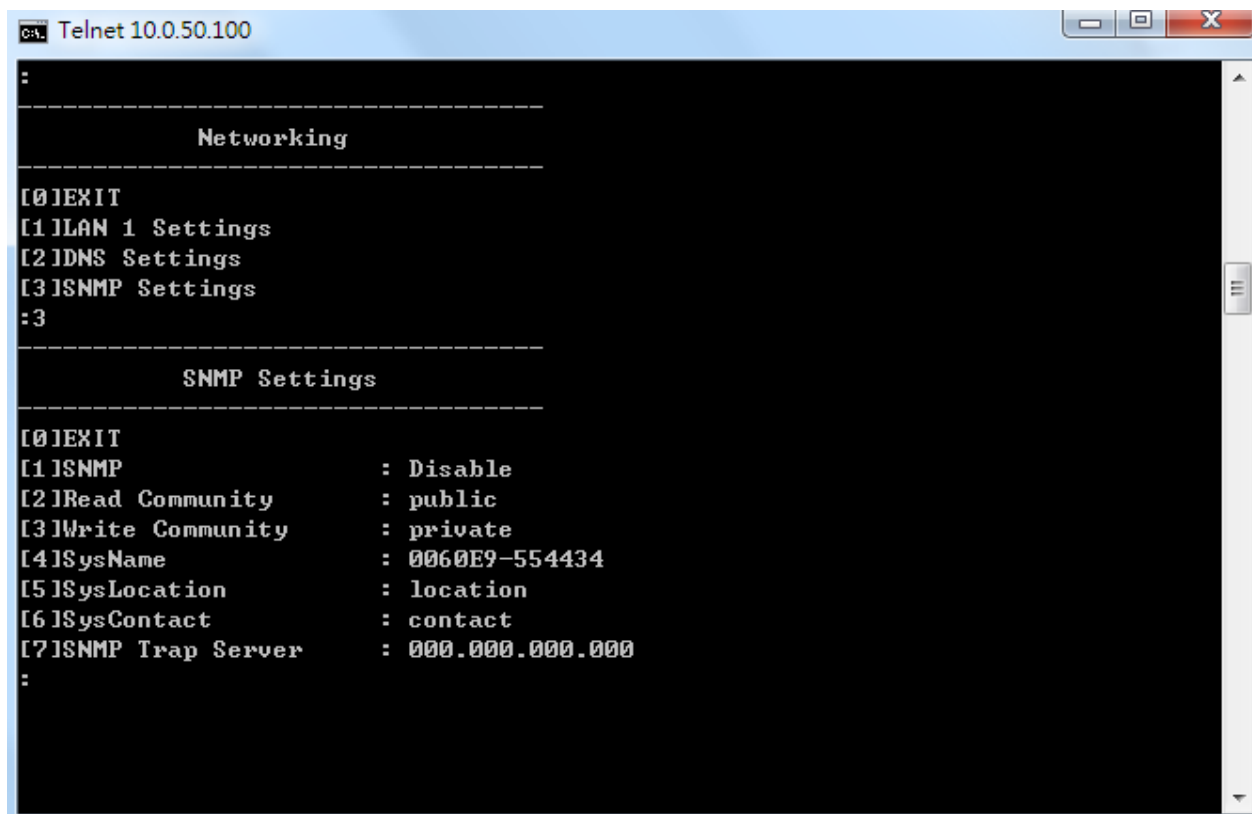
-----
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:

-----
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:2

-----
DNS Settings
-----
[0]EXIT
[1]DNS1      :255.255.255.255
[2]DNS2      :255.255.255.255
:_
```

Apx. 14

- **Main Screen → [2] Networking → [3] SNMP Settings**, (a more detailed description of this section is given on [Sec. 3.6.1](#))

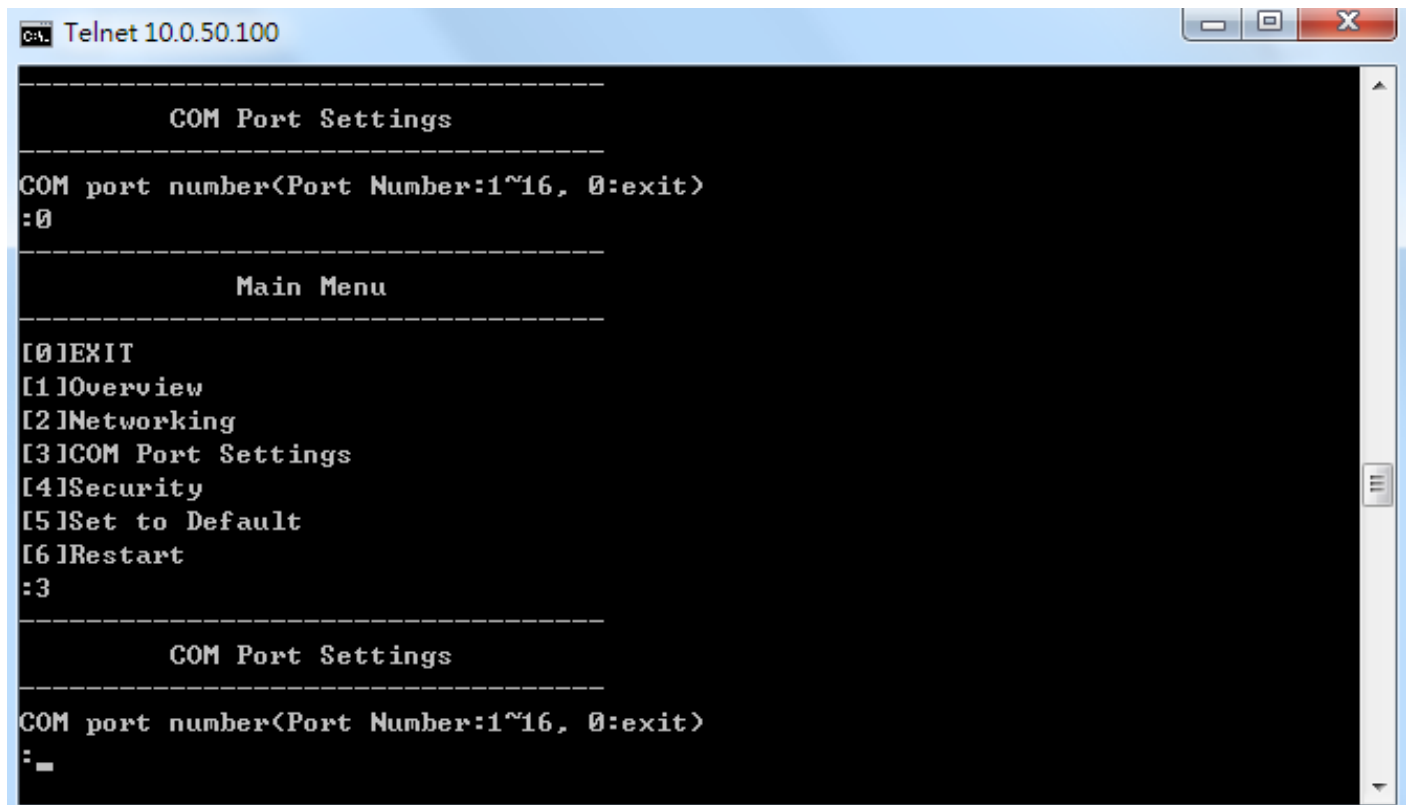


```
CA Telnet 10.0.50.100
:
-----
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]DNS Settings
[3]SNMP Settings
:3
-----
SNMP Settings
-----
[0]EXIT
[1]SNMP : Disable
[2]Read Community : public
[3]Write Community : private
[4]SysName : 0060E9-554434
[5]SysLocation : location
[6]SysContact : contact
[7]SNMP Trap Server : 000.000.000.000
:
```

Apx. 15

## COM Port Configuration: telnet

- **Main Screen** → **[3] COM Port Setting**, (a more detailed description of this section is given on [Sec. 3.5.1](#))



The screenshot shows a Telnet window titled "Telnet 10.0.50.100". The terminal displays a menu system for COM Port Settings. The first screen shows the "COM Port Settings" header, followed by the prompt "COM port number<Port Number:1~16, 0:exit>" and the input ":0". The second screen shows the "Main Menu" header, followed by a list of options: [0]EXIT, [1]Overview, [2]Networking, [3]COM Port Settings, [4]Security, [5]Set to Default, and [6]Restart. The input ":3" is shown. The third screen shows the "COM Port Settings" header again, followed by the prompt "COM port number<Port Number:1~16, 0:exit>" and the input ":-".

```
C:\> Telnet 10.0.50.100

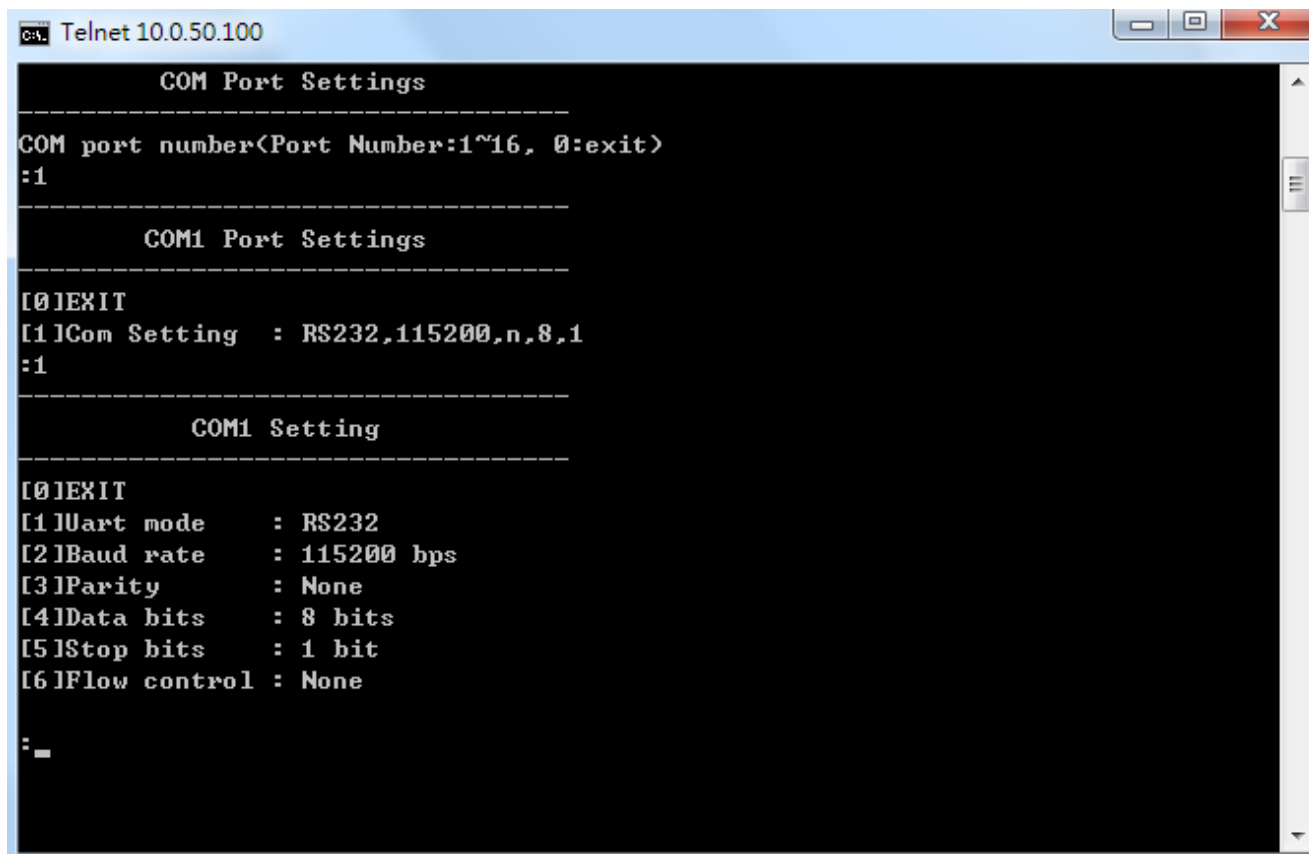
-----
COM Port Settings
-----
COM port number<Port Number:1~16, 0:exit>
:0

-----
Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:3

-----
COM Port Settings
-----
COM port number<Port Number:1~16, 0:exit>
:-
```

Apx. 16

- **Main Screen → [3] COM Port Setting → [1-16] Select Port → [3] COM Port Settings**, (a more detailed description of this section is given on [Sec. 3.5.1](#))



```
Ca Telnet 10.0.50.100

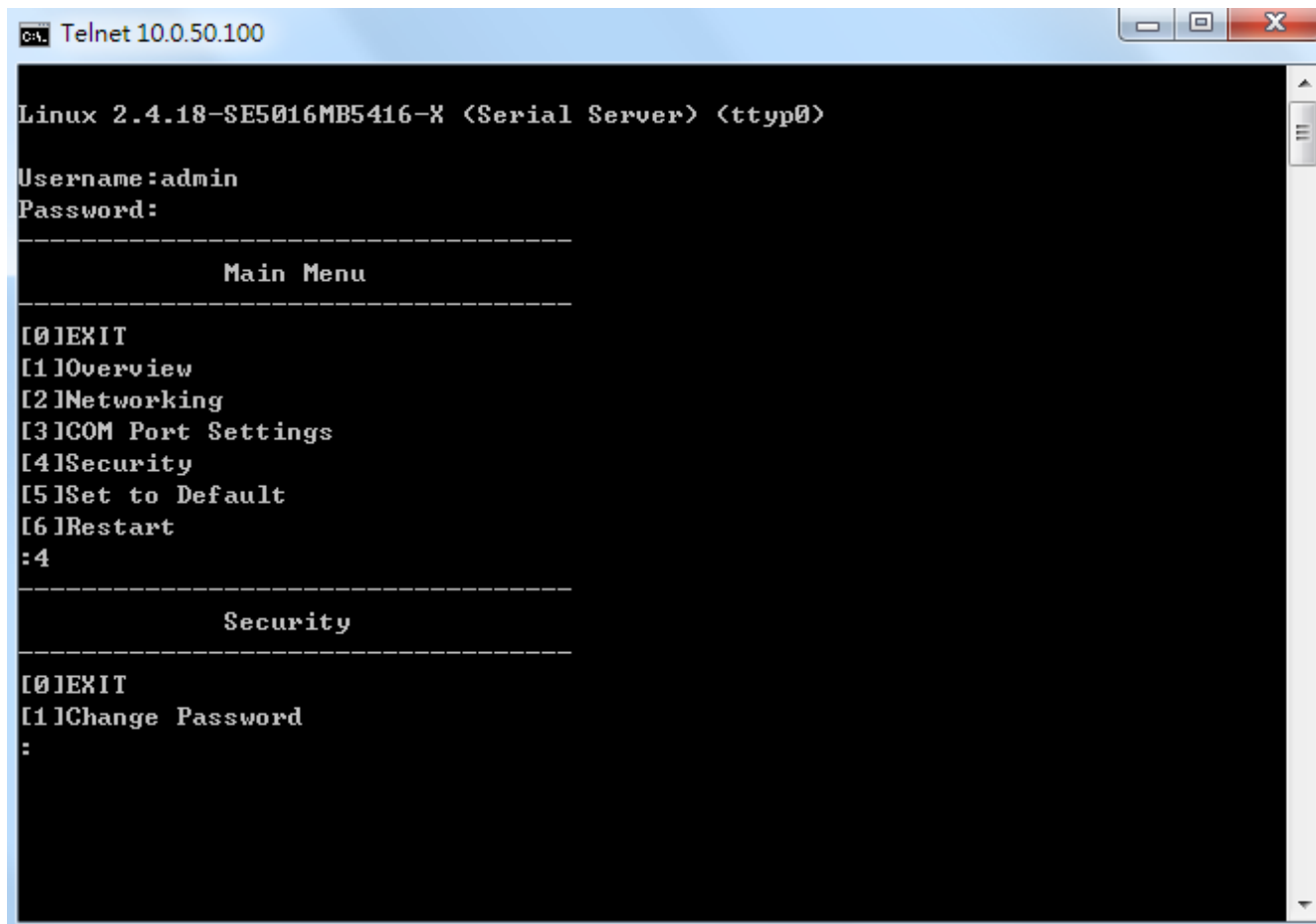
COM Port Settings
-----
COM port number<Port Number:1~16, 0:exit>
:1
-----

COM1 Port Settings
-----
[0]EXIT
[1]Com Setting : RS232,115200,n,8,1
:1
-----

COM1 Setting
-----
[0]EXIT
[1]Uart mode : RS232
[2]Baud rate : 115200 bps
[3]Parity : None
[4]Data bits : 8 bits
[5]Stop bits : 1 bit
[6]Flow control : None
:-
```

Apx. 17

- **Main Screen** → **[4] Security**, (a more detailed description of this section is given on [Sec. 3.8.6](#))



```
Ca Telnet 10.0.50.100

Linux 2.4.18-SE5016MB5416-X <Serial Server> <ttyp0>

Username:admin
Password:

-----
                Main Menu
-----

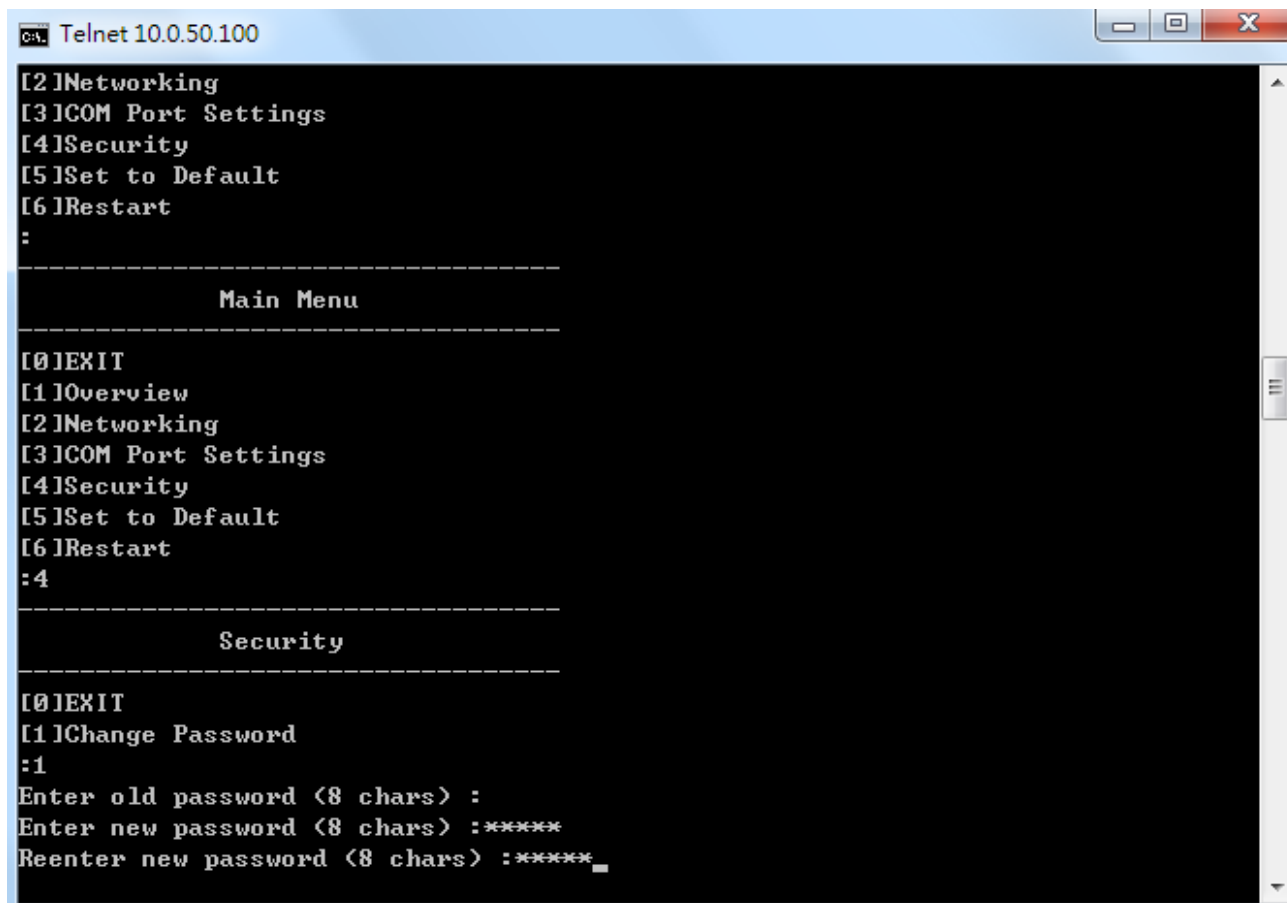
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:4

-----
                Security
-----

[0]EXIT
[1]Change Password
:
```

Apx. 18

- **Main Screen → [4] Security → [1] Change Password**, (a more detailed description of this section is given on [Sec. 3.8.6](#))



The screenshot shows a Telnet window titled 'Telnet 10.0.50.100'. The terminal displays a menu with the following options: [2] Networking, [3] COM Port Settings, [4] Security, [5] Set to Default, and [6] Restart. A colon ':' indicates further options. The user has selected [4] Security, which leads to a 'Security' menu with options [0] EXIT and [1] Change Password. The user has selected [1] Change Password, which prompts for the old password, new password, and reenter new password. The new password is entered as '\*\*\*\*\*'.

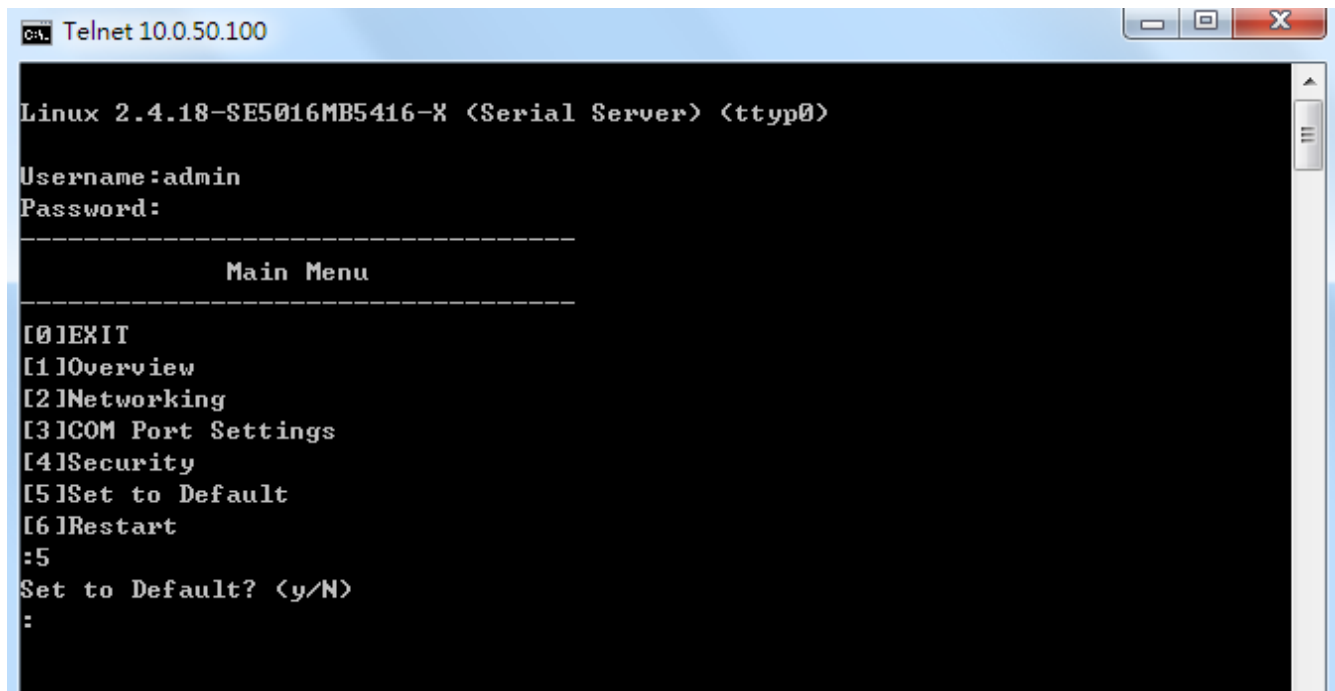
```
Telnet 10.0.50.100
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:
-----
Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:4
-----
Security
-----
[0]EXIT
[1]Change Password
:1
Enter old password (8 chars) :
Enter new password (8 chars) :*****
Reenter new password (8 chars) :*****
```

Apx. 19



## Reset to Factory Defaults

**Main Screen** → **[5] Set to Default**, (a more detailed description of this section is given on [Sec. 3.8.8](#))



```
Ca. Telnet 10.0.50.100

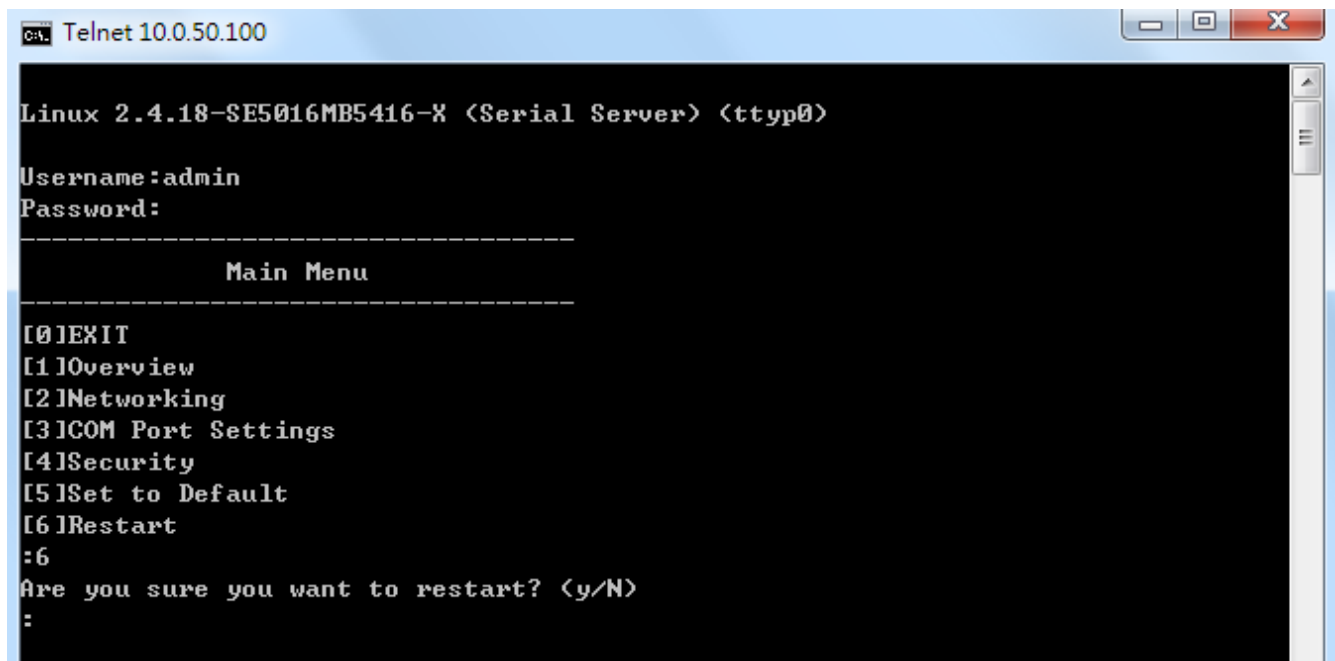
Linux 2.4.18-SE5016MB5416-X <Serial Server> <ttyp0>

Username:admin
Password:
-----
                Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:5
Set to Default? <y/N>
:
```

Apx. 20

## Restart

**Main Screen** → **[6] Restart**, (a more detailed description of this section is given on [Sec.3.9](#))



```
C:\> Telnet 10.0.50.100

Linux 2.4.18-SE5016MB5416-X <Serial Server> <ttyp0>

Username:admin
Password:
-----
                Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[3]COM Port Settings
[4]Security
[5]Set to Default
[6]Restart
:6
Are you sure you want to restart? <y/N>
:
```

Apx. 21

# Warranty

---

## Limited Warranty Conditions

Products supplied by Atop Technologies Inc., are covered in this warranty for undesired performance or defects resulting from shipping, or any other event deemed to be the result of Atop Technologies Inc., mishandling. The warranty doesn't cover however, equipment which has been damaged due to accident, misuse, abuse, such as:

- Use of incorrect power supply, connectors, or maintenance procedures
- Use of accessories not sanctioned by us
- Improper or insufficient ventilation
- Improper or unauthorized repair
- Replacement with unauthorized parts
- Failure to follow Our operating Instructions
- Fire, flood, "Act of God", or any other contingencies beyond our control.

## RMA and Shipping Reimbursement

- Customers must always obtain an authorized **"RMA" number** from us before shipping the goods to be repaired.
- When in normal use, a sold product shall be replaced with a new one within 3 months upon purchase. The shipping cost from the customer to us will be reimbursed.
- After 3 months and still within the warranty period, it is up to us whether to replace the unit with a new one; normally, as long as a product is under warranty, all parts and labor are free of charge to the customers.
- After the warranty period, the customer shall cover the cost for parts and labor.
- Three months after purchase, the shipping cost from you to us will not be reimbursed, but the shipping costs from us to the customer will be paid by us.

## Limited Liability

Atop Technologies Inc., shall not be held responsible for any consequential losses from using our products.

## **Warranty**

Atop Technologies Inc., gives a 5 years max for Modbus Gateway products.