rBOX610 Series

Robust Din-rail Fanless Embedded System – Web Configuration and App

Software User's Manual

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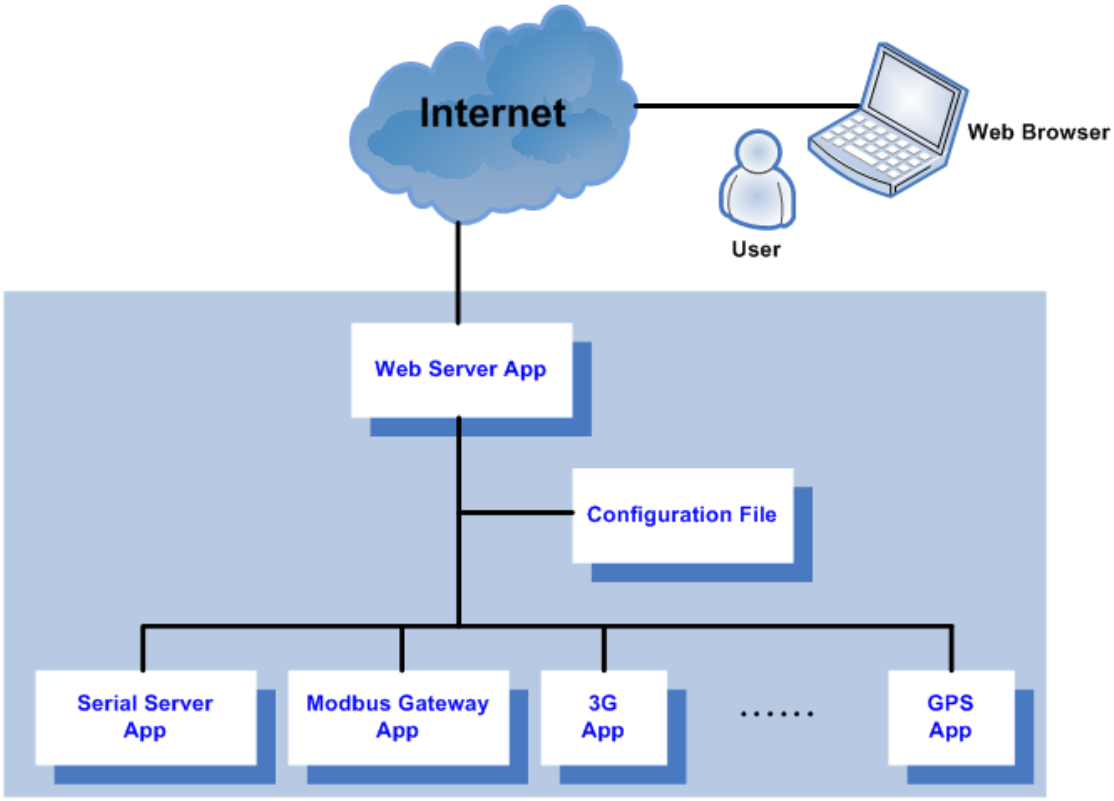
Chapter 1
Introduction

The rBOX610 comes with a set of application software providing functionalities like Serial Server, Modbus Gateway, 3G Configuration, GPS Configuration, DIO Configuration, SNMP, Alarm, and etc. Users also can download this package from website given below and install it on rBOX610.

http://www.axiomtek.com/Download/Download/rBOX610/rBOX610AP-2.2.2.tar.gz

Software Structure



The rBOX610 comes with a set of application software including Serial Server App, Modbus Gateway App, 3G App, GPS App, and Apps for DIO Configuration, SNMP, Alarm, and etc.

Through web browser, user can communicate with Web Server App for configuring Apps like Serial Server App, Modbus Gateway App, 3G App and etc. After set up, setting values are stored in a configuration file which is simultaneously used by Web Server App and other Apps.

Some data are stored in EEPROM, which will be read by some Apps when being executed. To ensure normal functioning of the Apps, it is strongly recommended that you should avoid modifying these data.

1.1 Specifications

- **OS: Linux**
  - Kernel: 2.6.35.3 (with Freescale and Axiomtek hardware modified patch).

- **Support Protocol Types**
  - ICMP.
  - TCP/IP.
  - UDP, DHCP, Telnet, SNMP, HTTP, HTTPS, SSL, SMTP, ARP, NTP, DNS, PPP, PPPoE, FTP, TFTP.

  Protocol in Details
  - **SNMP.**
    - Support V1/V2C/V3.
    - Support SNMP Private MIB.
    - Support read/write.
  - **HTTP/ HTPPS.**
    - Support SSL.
    - Support Import/ Export.
    - Support FW update.

- **Support Software Types (Developed by Axiomtek)**
  - **Serial Server.**
    - Support TCP Server/ TCP Client/ UDP/ Pair/ VC.
    - Support IP filter.
    - Support 32 TCP connections.
    - Support QOS.
  - **Modbus Gateway.**
    - Support Modbus TCP/ Modbus RTU/ Modbus ASCII.
    - Support IP filter.
    - Support 32 connections.
    - Support TCP for multiple comport.
    - Support QOS.
  - **3G.**
    - Set number connection.
    - Support user name/password.
    - Detect signal strength.
  - **GPS.**
    - Detect signal strength.
    - Support satellite positioning.

- **Support Functionalities**
  - **Remote Manager.**
    - Remote log.
    - Email.
    - SNMP.
    - Support Trap.
  - **Serial Port Redirector for Windows®.**
    - Windows® XP/ Windows® 2003 (32-bit, 64-bit)/ Windows® 7 (32-bit, 64-bit)/ Windows® Vista (32-bit, 64-bit)/ Windows® 2008 (32-bit, 64-bit).
    - Real com (visual com).
    - Centralized management.
    - Import/ Export for real com.
  - **Default Reading.**
    - Support default reading for MAC, IP and Model No.

- **Support Hardware I/O**
  - **WiFi (Optional).**
    - Detect signal strength.
    - Set AP connection.
    - Set web, wpa, wpa2.
    - Support search AP.

  - **Digital I/O.**
    - Read digital input.
    - Write digital output.

  - **CAN.**
    - Support open/ write/read/close functions.

  - **Watchdog Timer.**
    - Enable.
    - Clean.
    - Set timer.

  - **COM.**
    - RS-232/422/485 mode setting.

Note

All specifications and images are subject to change without notice.

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Chapter 2
Getting Started

2.1 Install the Application

Follow steps below to install the application package on rBOX610.

1. Download rBOX610AP-2.2.2.tar.gz.

2. To extract the compressed file.
   For Windows® users, you may use the WinRAR compression software utility.
   For Linux users, extract the source tar ball with the following command:
   $ tar zxf rBOX610AP-2.2.2.tar.gz

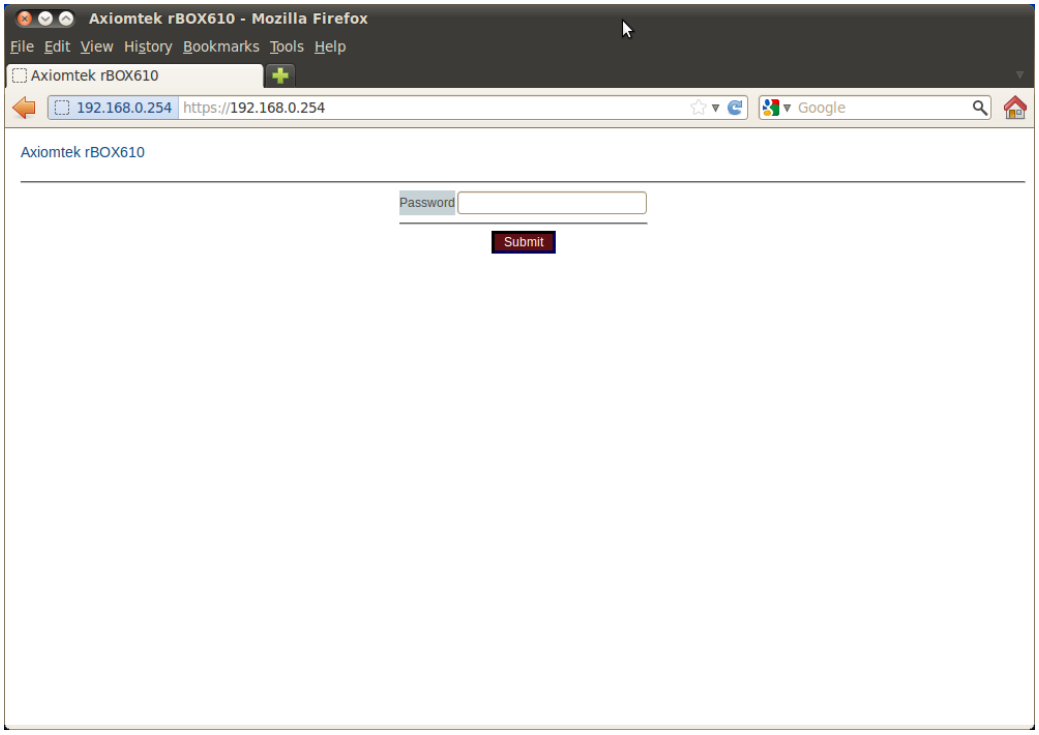
3. Now you can see the following 3 files:
   - rBOX610AP: Application package installation program.
   - uninstall.sh: A script file for uninstalling application package.
   - readme: A readme file.

4. Copy rBOX610AP and uninstall.sh to USB flash drive.

5. Boot up the rBOX610 and mount USB flash drive.
   $ mkdir -p /mnt/usb
   $ mount /dev/sda1 /mnt/usb
   $ cp /mnt/usb/rBOX610AP /root
   $ cp /mnt/usb/uninstall.sh /root

   Install the application.
   $ cd /root
   $ ./rBOX610AP
   If you see the message ‘Install success’, then please reboot rBOX610.
   $ reboot

6. After successful installation, the App LAN1 default IP address is 192.168.0.254 and LAN2 default IP address is 192.168.10.1. Open a web browser and key in the IP address into web browser's address bar. Then you can see the following web.config page displayed.



Please enter the default password "admin" when you login the web configuration page under Web App.

2.2 Uninstall the Application

Follow steps below to uninstall the application package from rBOX610.

1. Execute uninstall.sh to uninstall the application.
   ```
   $ cd /root
   $ sh uninstall.sh
   ```

2. Reboot rBOX610.
   ```
   $ reboot
   ```

Chapter 3
Application Software

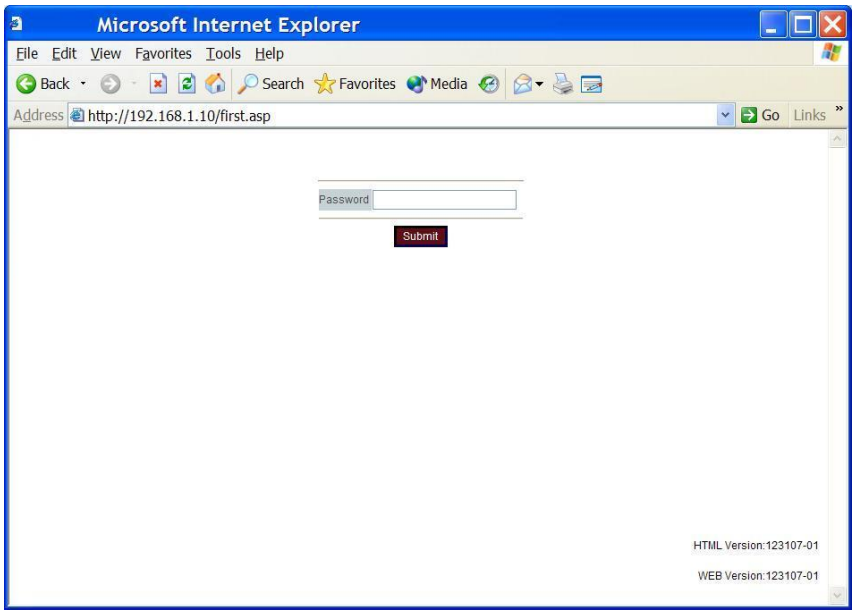
3.1 Web Configuration

Web Server App not only acts as Web portal from where user can configure Apps like Serial Server, Modbus Gateway, 3G, GPS, but also provides functionalities for configuring system time, alert by email or SNMP trap, enabling digital input/output, changing password, restoring factory default configuration, configuration file import/export and restarting system.

Follow instructions below for web configuration.

1. Login the rBOX610.

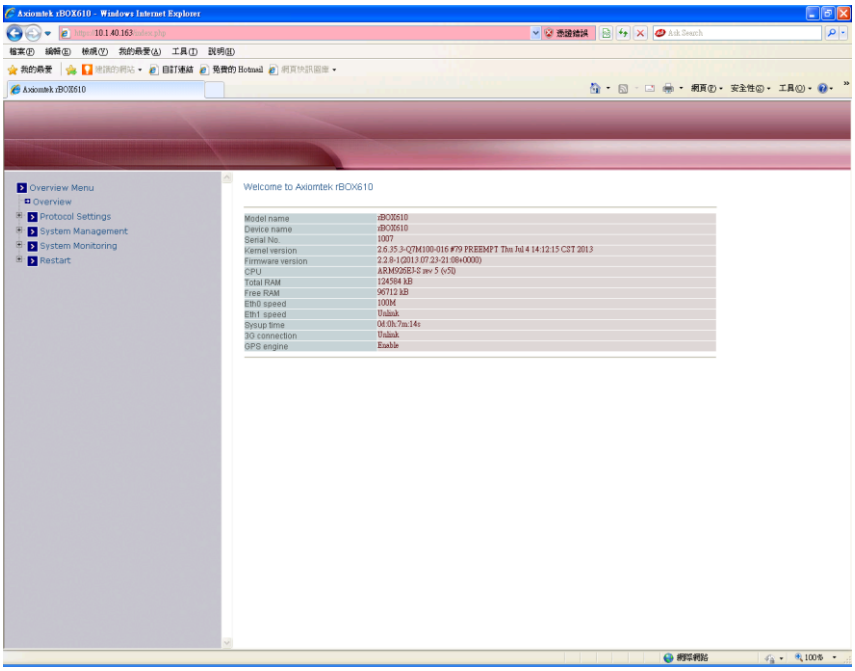
2. Open a web browser and key in the IP address: 192.168.0.254, into web browser's address bar. Then you can see the following web-based login page displayed.



3. Enter the factory default password: admin.

4. Then click the "Submit" button to login to the overview manual.

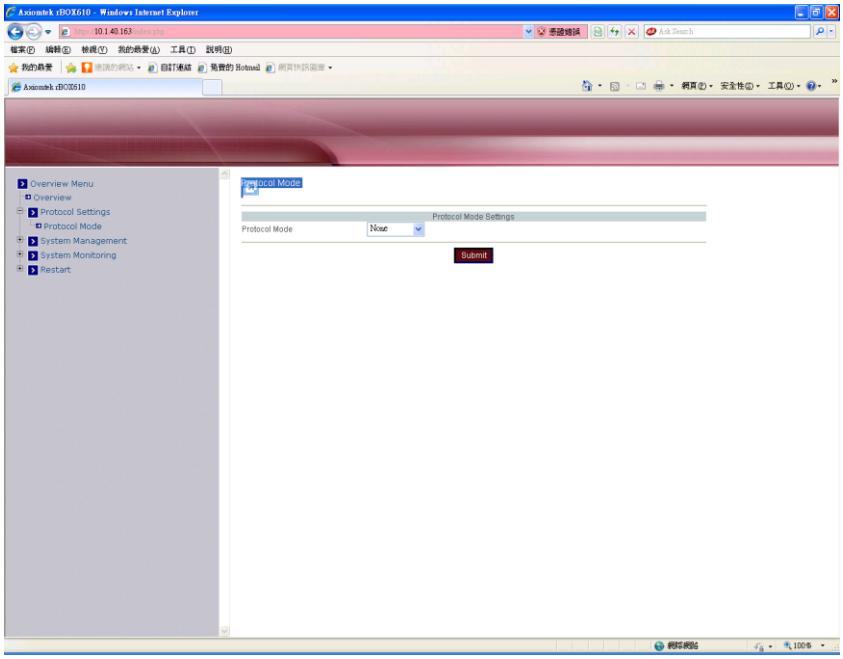
- **Overview Menu:**
  This system overview window gives the general information on rBOX610.



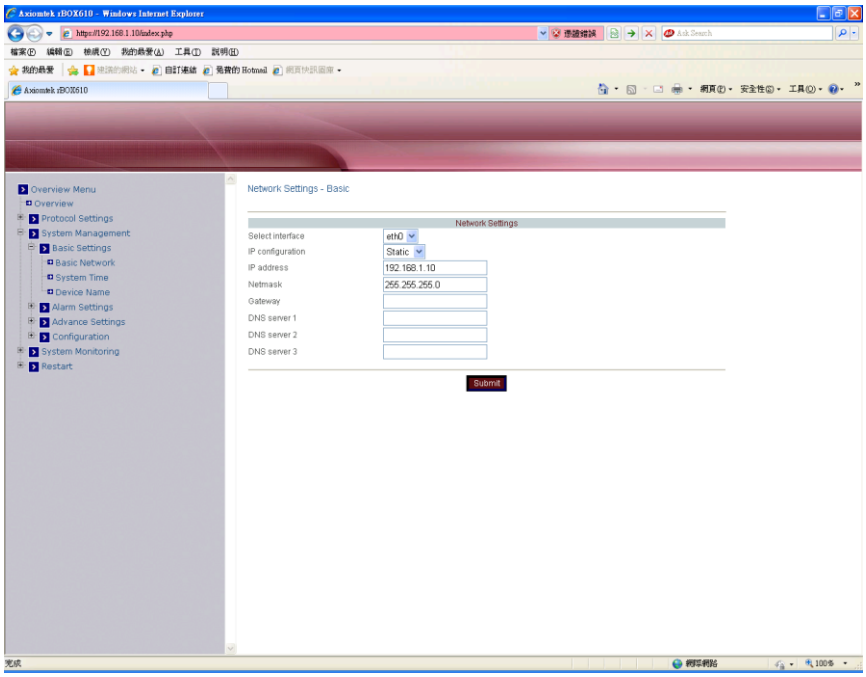
- **Protocol Mode:**
  There are 3 protocol modes: None, Serial Server and Modbus; which stands for 3 different controlling Apps. If None mode is selected, Web Server App takes control, all four COM ports are disabled (not used by application) which means users are allowed to develop COM port related programs, and the overall menu keep unchanged.

  If Serial Server mode is selected, the controlling App is Serial Server App, and the following menu items change in accordance to allow applicable configuration. If Modbus mode is selected, the controlling App is Modbus Gateway App, and the following menu items change in accordance to allow applicable configuration.

- **In None Mode: Web Server App takes control.**
  Choose None from the “Protocol Mode” drop-down list. Click “Submit” button when you have finished setting protocol mode.



- **Basic Network:**
  In Basic Network Settings page, users are allowed to edit Network Settings and Time Settings.



IP configuration
Click “IP configuration” drop-down menu to choose Static or DHCP from the drop-down list. User can manually assigns (if Static is selected) or DHCP server automatically supplies (if DHCP is selected) an IP address, gateway address and subnet mask to Modbus Gateway.

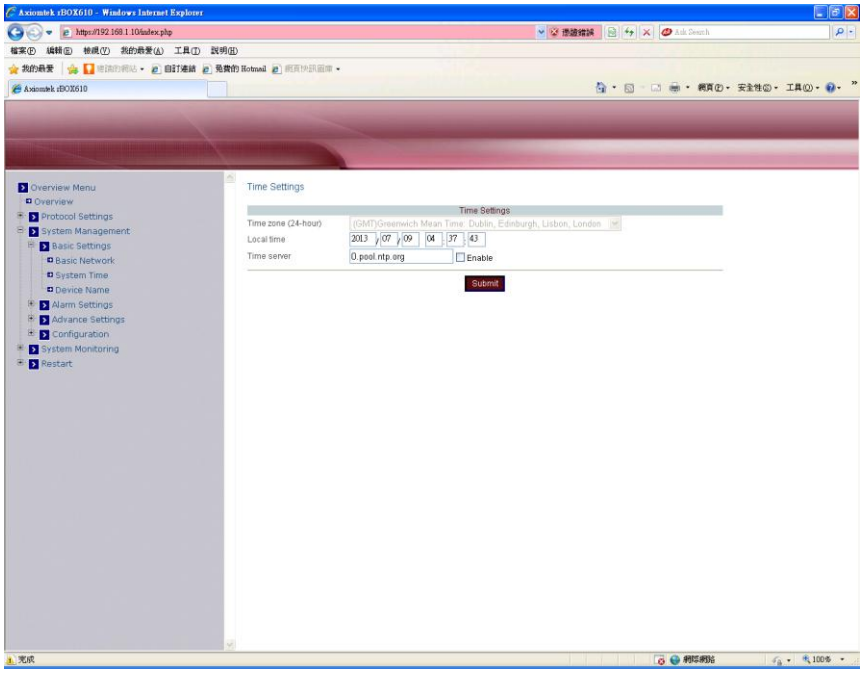
IP address
Click in “IP address” text box and type a new address to change the IP address.

Netmask
Click in “Netmask” text box and type a new address to change the Netmask.

Gateway
Click in “Gateway” text box and type a new address to change the Gateway.

DNS server 1, 2, 3
Click in “DNS server 1”, “DNS server 2” or “DNS server 3” text box and fill in DNS information.

- **System Time:**

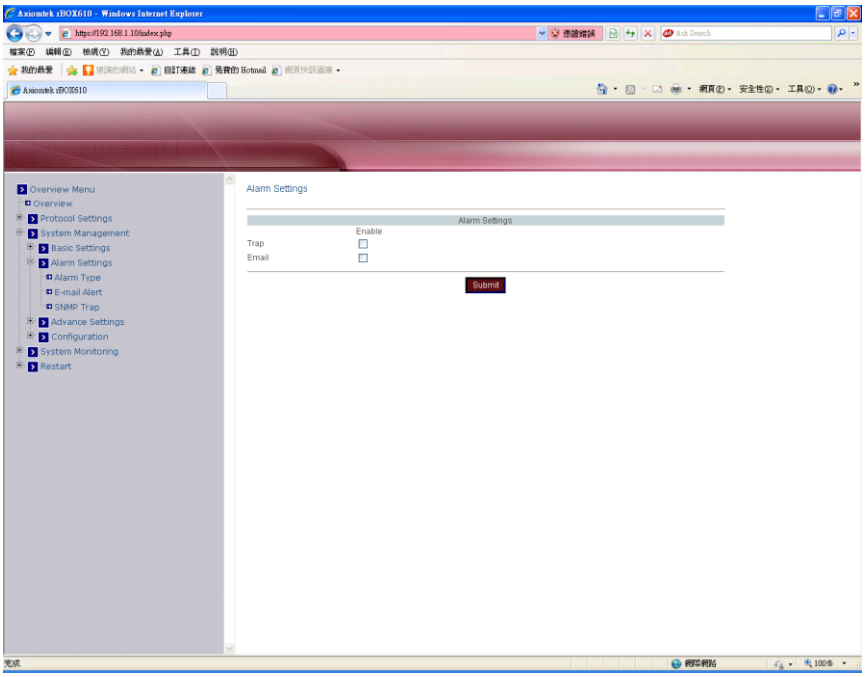


Time zone (24-hour)
Click “Time zone” drop-down menu to select a different time zone from the drop-down list.

Local time
Click in “Local time” text box to set date and time .

Time server
Click in “Time server” text box to enter time server address. Check this option to enable time server.

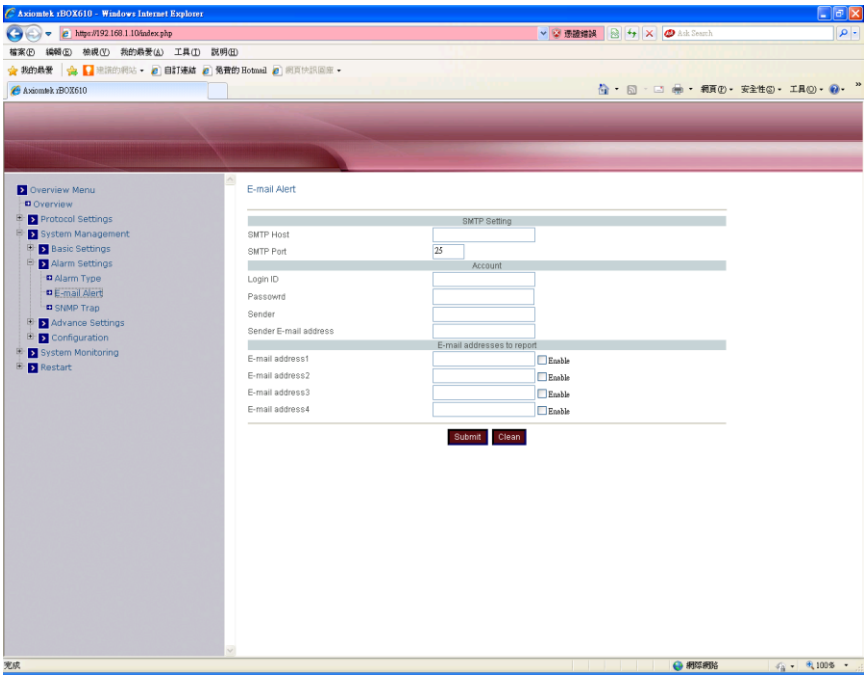
- **Alarm Type:**



If “Trap” or “Email” is checked, when event occurs the alarm message will be sent out by email or SNMP trap respectively.

Message	Event
Log-in password error	Login with wrong password.
Password has been reset	Change password.
IP has been modified	Change IP address (should plug power off and on).
Serial port status change System has warm-started	Change serial port or mode configuration.
Accessible IP status change Device has warm-started	Access Control List changed.
Device has warm-started	Port restart.
Serial port status change Device has warm-started	Change serial port or mode configuration.
Reset to Default (keep networking settings)	Restore factory defaults (keep networking settings).
Reset to Default	Restore factory defaults (all).
Device has started System has cold-started	Power plug on.
DI(DO) NO. status – High(Low)	DIO status changed.
Interface(eth0,ppp0…) status – Link up(down)	Network interface link up or link down.

- **Email Alert:**



SMTP Host
Click in "SMTP Host" text box and enter IP address of the SMTP (Simple Mail Transfer Protocol) host.

SMTP Port
Click in "SMTP Port" text box and enter the SMTP port number. The default SMTP port number is 25.

Login ID
Login the account of SMTP.

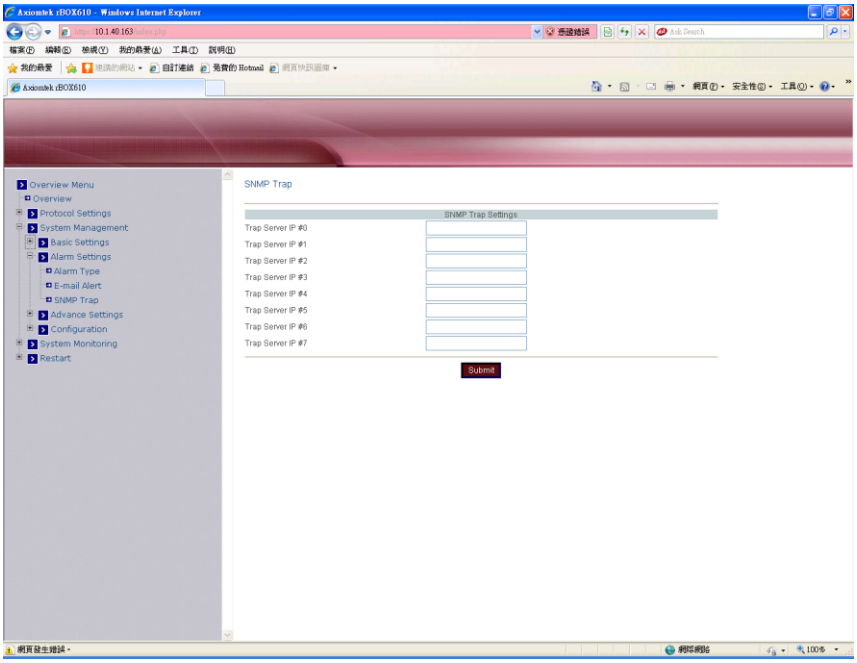
Password
Login the password for SMTP.

Sender
Sender's name.

Sender Email address
Sender's mailbox.

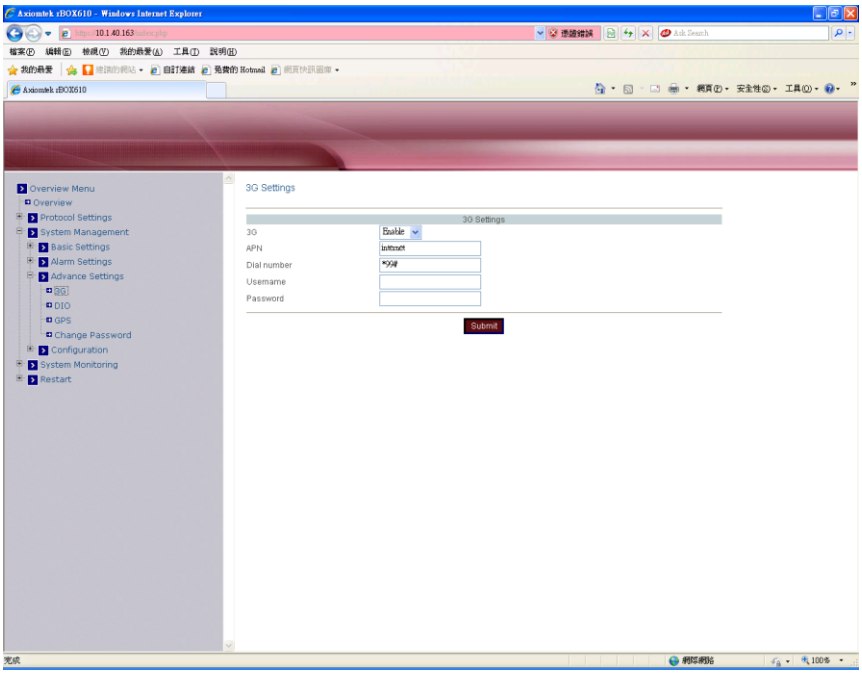
E-mail address 1~4
Click in "E-mail address 1~4" text box and specify email addresses for receiving emails. Use this option to enable email address 1~4 by checking the "Enable" box.

- **SNMP Trap:**
  This option is for IP address of remote SNMP trap receiver. Click in the text box and enter IP address of the remote SNMP trap receiver.



Once you have finished entering IP address, click the “Submit” button.

- **3G:**
  This option is for 3G settings.



3G
Choose “Enable” to connect 3G. Or choose “Disable” to unlink 3G.

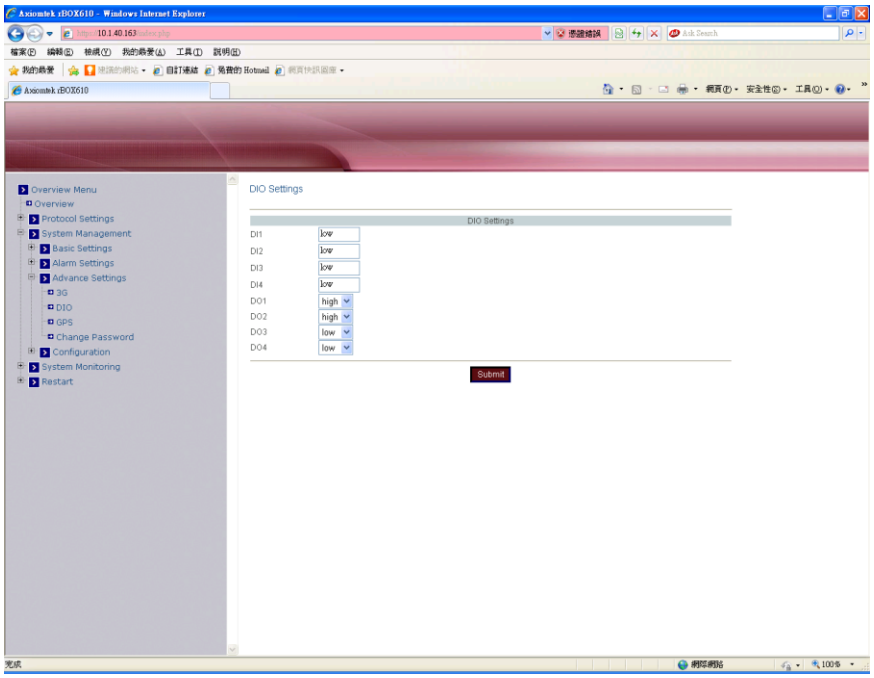
APN
Click in the text box and enter access point name.

Dial number
Click in the text box and enter dial-up number.

Username
Click in the text box and enter username.

Password
Click in the text box and enter password.

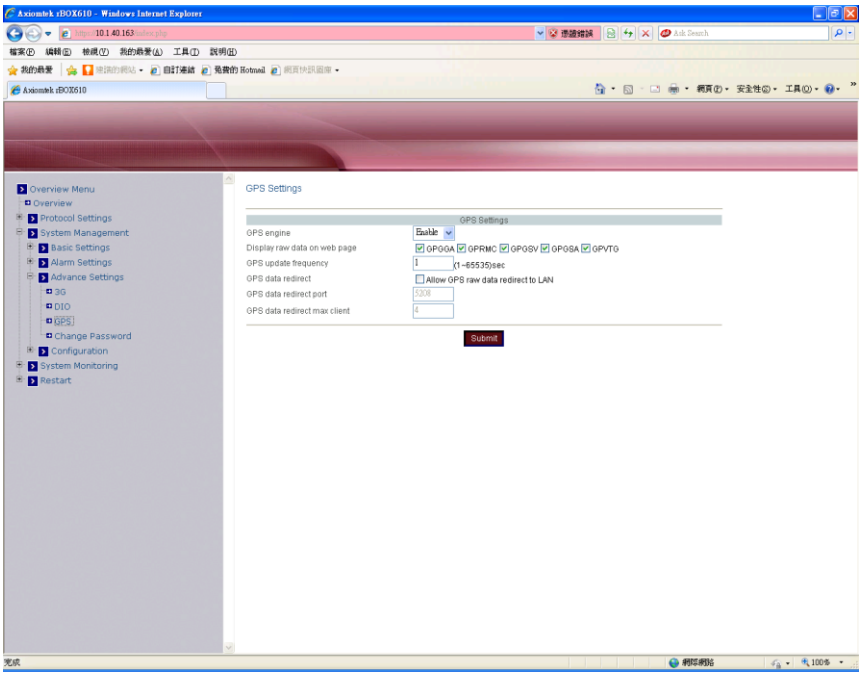
- **DIO:**
  This option is for digital input and output read/write.



DI1~4
Read only. The text boxes show status levels on digital inputs.

DO1~4
Read/write. Write high/low state to digital outputs, and read high/low state from digital outputs. The state read back is the current status level on digital output pin. It doesn't represent the status level after digital output pin is connected to external device.

- **GPS:**
  This option is for GPS settings.



GPS engine
Choose “Enable” to allow GPS to send out data. Or choose “Disable” to close GPS.

Display raw data on web page
Select raw data format to display on web page.

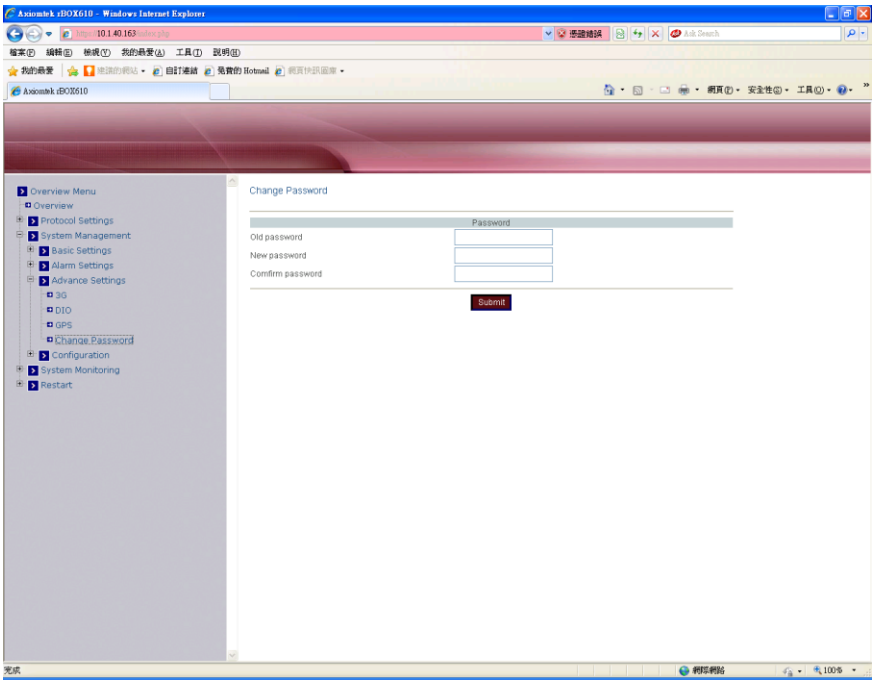
GPS update frequency
You can determine how often GPS raw data is updated. If global positioning fails, the update frequency value will be ignored and directly set to 1sec. If global positioning succeeds, this setting value automatically takes effect.

GPS data redirect
Send GPS raw data to LAN. Only activated if the option box is checked.

GPS data redirect port
Similar to the tcp port, its default value is 5208. This option is read only.

GPS data redirect max client
The maximum connections are 4. This option is read only.

- **Change Password:**



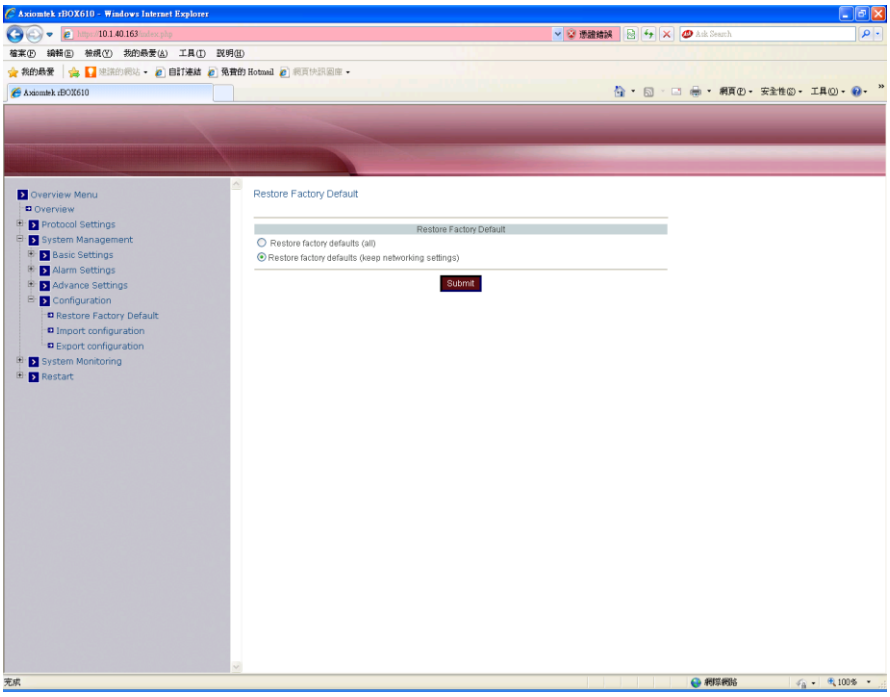
Old password
Click in the text box and enter old password of user admin.

New password
Click in the text box and enter new password of user admin.

Confirm password
Click in the text box and enter new password again to confirm.

When you have finished changing password, click the “Submit” button.

- **Restore Factory Default:**

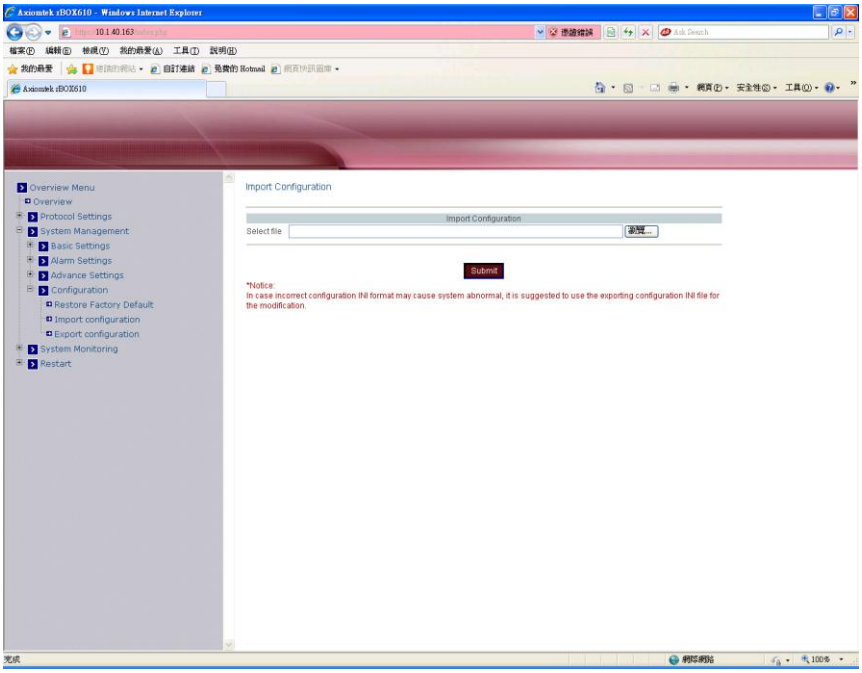


Restore factory defaults (all)
Check this option to restore Apps to its factory default values.

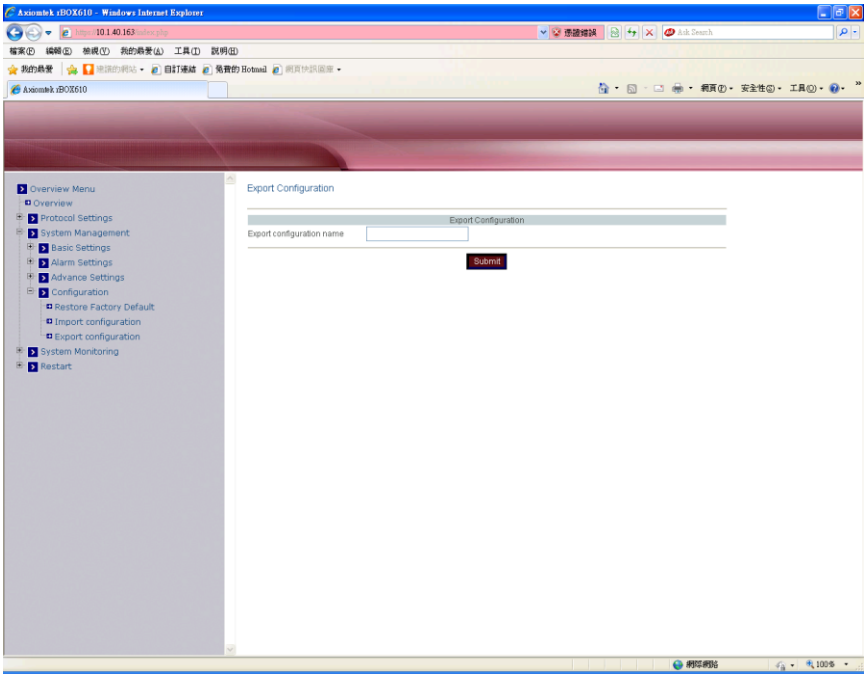
Restore factory defaults (keep networking settings)
Check this option to restore Apps to its factory default values, but keep the networking settings.

When you have finished restoring factory defaults, click the “Submit” button.

- **Import Configuration:**
  Re-configure and then import the configuration file. After reboot, the rBOX610 will use the new imported configuration file.



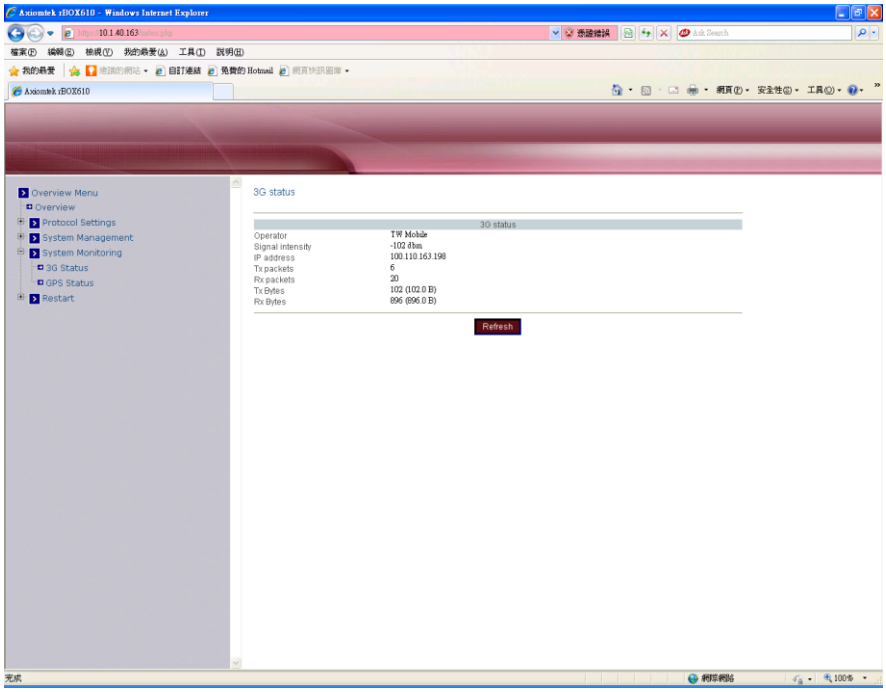
- **Export Configuration:**
  Export the configuration file of rBOX610.



3.2 3G App

The rBox610 embeds 3G module providing the third generation wireless broadband network. The 3G App monitors 3G module operating information. For 3G configuration, see section 3.1 Web Configuration.

- **3G Status:**
  Display 3G status.



Operator
Show 3G operator.

Signal intensity
Show 3G signal intensity.

IP address
The IP address obtained if 3G dial-up is successful.

Tx packets
Total number of packets transmitted.

Rx packets
Total number of packets received.

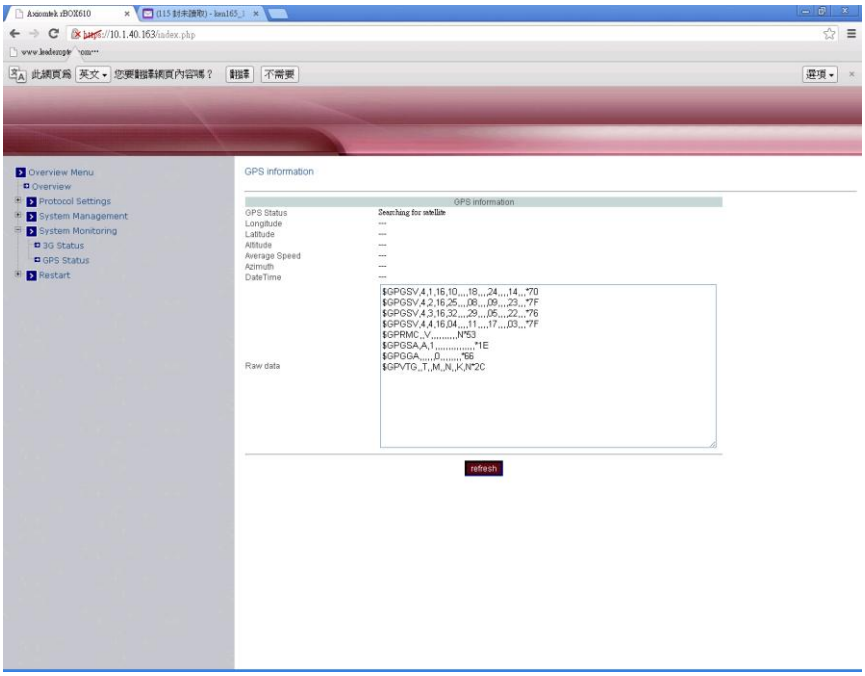
Tx bytes
Total number of bytes transmitted.

Rx bytes
Total number of bytes received.

3.3 GPS App

The rBox610 embeds GPS receiver module that receives location and time data from a space-based navigation system (Global Positioning System). The GPS App reads and displays these data, giving a way to locate rBox610 itself. For GPS configuration, see section 3.1 Web Configuration.

- **GPS Information:**
  Display GPS status, longitude, latitude, altitude, average speed, azimuth, data time and raw data.

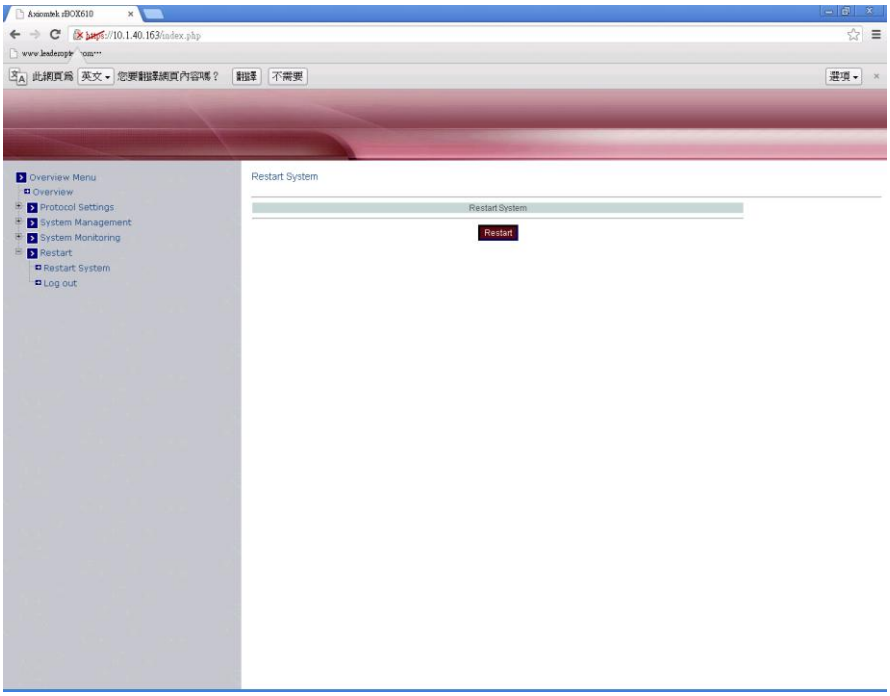


GPS Status
Can't find GPS device: GPS device is not installed.
The engine is disabled.
Searching for satellite: Unlocated.
Position fixed: Positioning.

Date Time
Display current time of GPS.

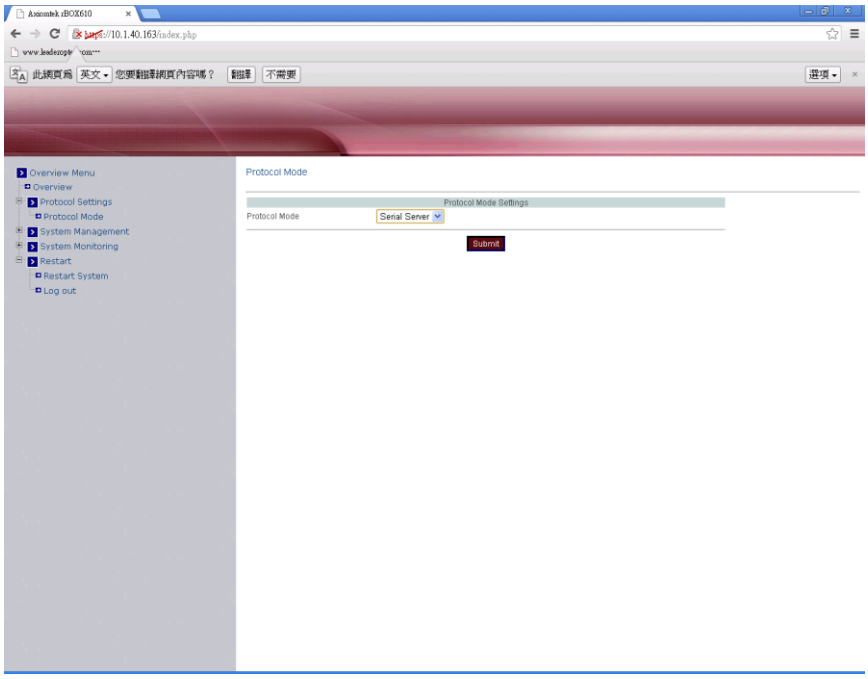
Raw data
Display current raw data of GPS.

- **Restart System:**
  Click the “Restart” button to restart the rBox610.

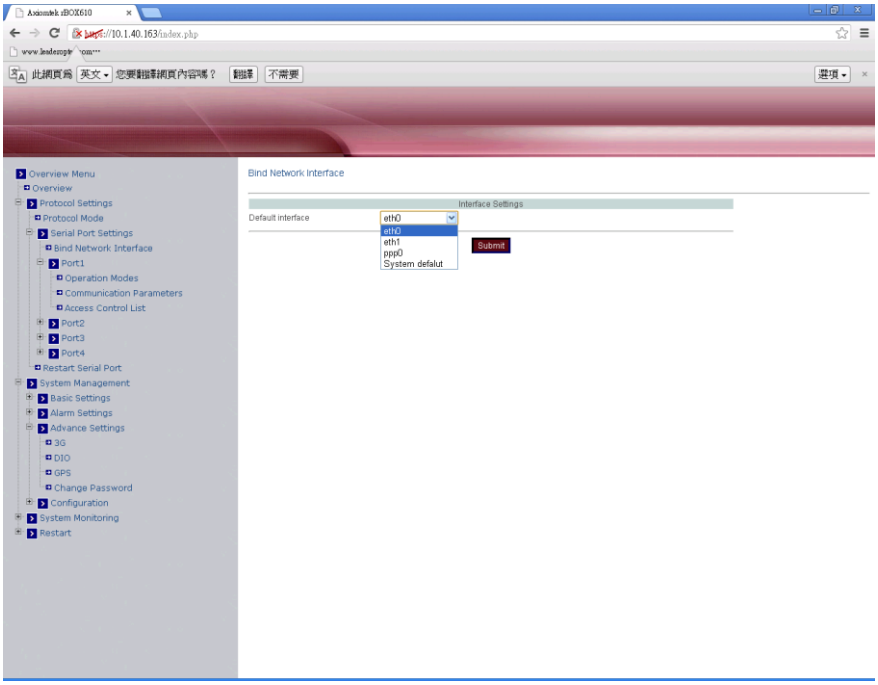


3.4 Serial Server App

Choose Serial Server from the “Protocol Mode” drop-down list to change to Serial Server function. Click “Submit” button when you have finished setting protocol mode.

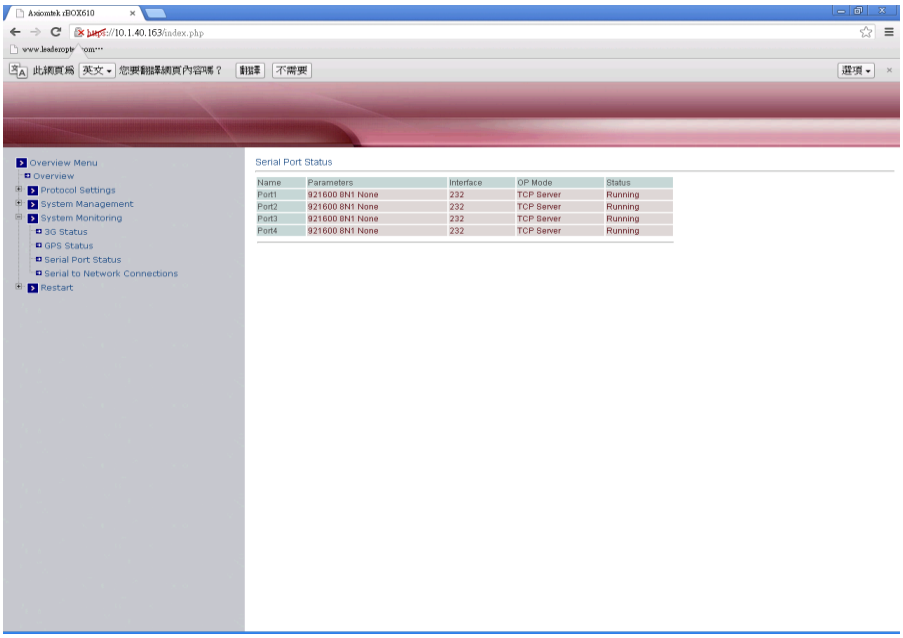


- **Bind Network Interface**
  Select the network interface used for transmitting and receiving data packets. This feature is limited to Serial Server and GPS data redirect only.



  The selection list includes eth0, eth1 and system default. But if 3G dial-up is successful, the ppp0 interface will automatically be added to the list.

- **Serial Port Status**
  Here user can configure serial port settings that include port status and port defined by user.



- **Serial to Network Connections**
  View the network connections status of serial port on the Serial Device Server.

3.4.1 Virtual Com Mode Setting

The Xport utility maps a serial port to a COM port on PC.

- **Operation Modes:**

  Application
  Click “Application” drop-down menu to select Virtual Com from the drop-down list.

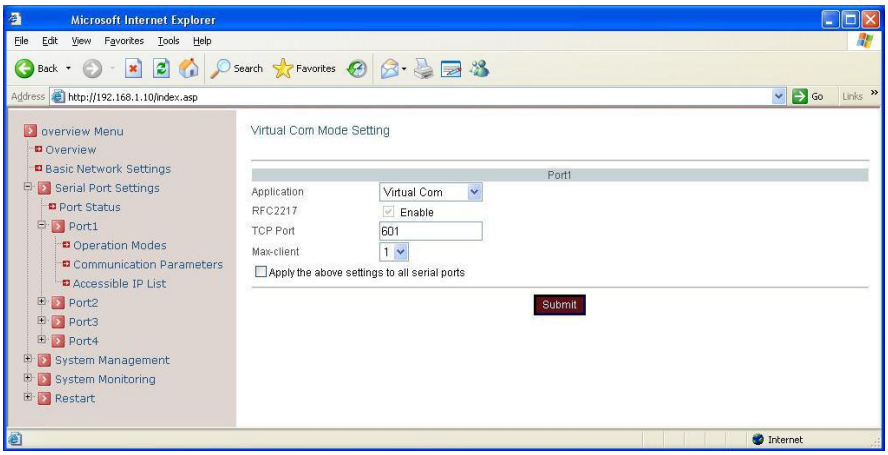
  RFC2217
  RFC2217 is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the Serial Device Server to a local COM port on the host computer. RFC2217 is always enabled for Virtual Com Mode Setting.

  TCP Port
  Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Serial Device Server. The default TCP Port number is 601.

  Max-client
  The maximum number of host computers that can receive data from the Serial Device Server simultaneously. Click “Max-client” drop-down menu to select 1~32 from the drop-down list.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Virtual Com Mode Setting.



- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Serial Device Server will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~921600bps from the drop-down list. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select Stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

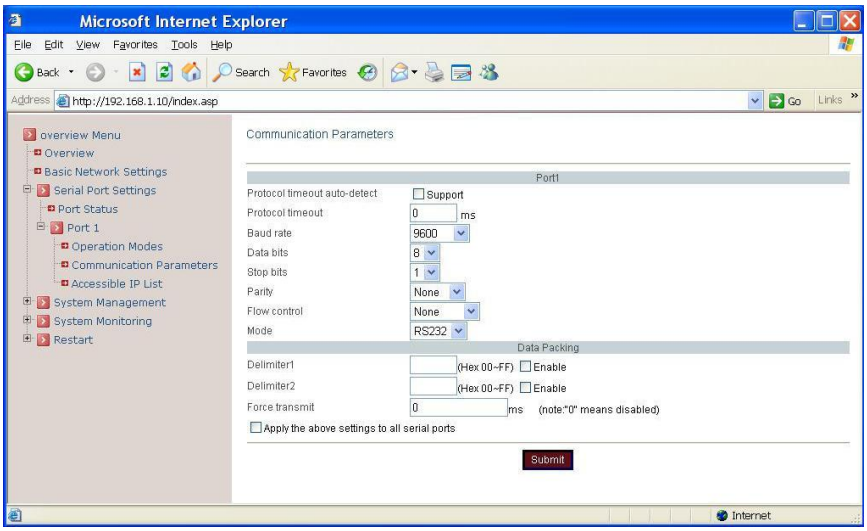
  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Delimiter1, 2
  Click in "Delimiter1, 2" text box and Delimiter1, 2 assigned to the serial port on the Serial Device Server. Check this option to enable Delimiter1, 2. The data will be transmitted if the Delimiter1 is received or Delimiter1 and Delimiter2 are received.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Serial Device Server. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable Force transmit.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click "Submit" button when you have finished setting communication parameters.

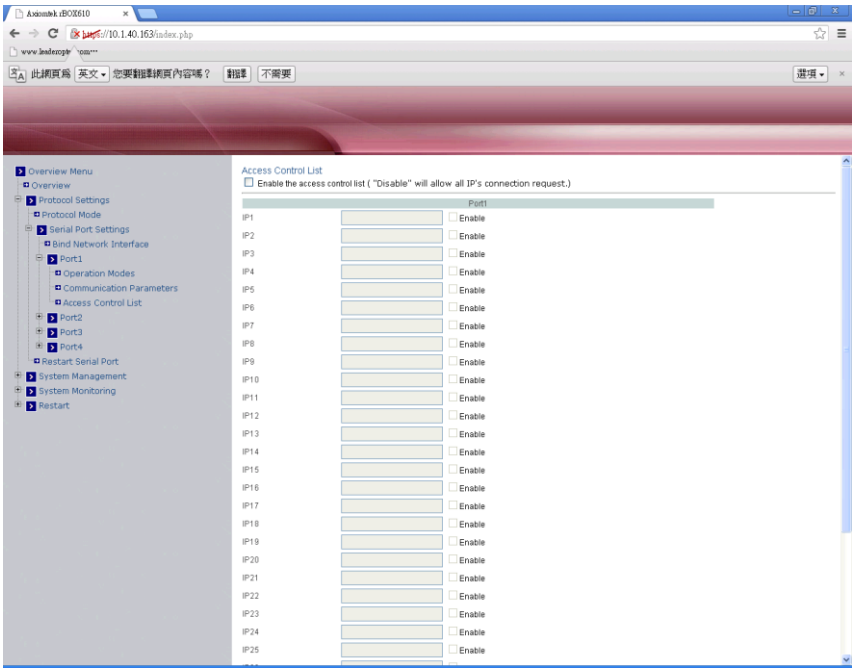


- **Access Control List:**

Access Control List
Check this option to enable the access control list. Disable will allow all IP's connection request.

IP1~32
Click in "IP1~32" text box and specify IP addresses that can access to the serial port on the Serial Device Server. Check this option to enable the IP addresses.

Click "Submit" button when you have finished setting access control list.



3.4.2 Pair Connection

One Serial Device Server is assigned as the master and the other Serial Device Server as the slave.

- **Operation Modes:**

  Application
  Click “Application” drop-down menu to select Pair Connection from the drop-down list.

  RFC2217
  RFC2217 is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the Serial Device Server to a local COM port on the host computer. RFC2217 is always enabled for Pair Connection Setting.

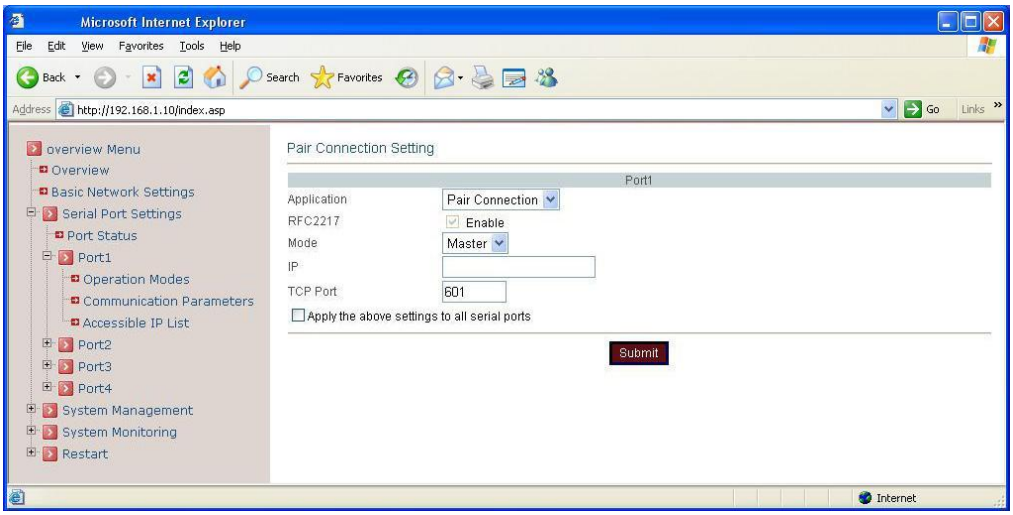
  Mode
  Click “Mode” drop-down menu to select Master or Slave from the drop-down list.

  IP
  Click in “IP” text box and specify the IP address of the Slave Serial Device Server of Pair Connection.

  TCP Port
  Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Serial Device Server. The default TCP Port number is 601.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Pair Connection Setting.



- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Serial Device Server will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~460800bps from the drop-down list for the serial port. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

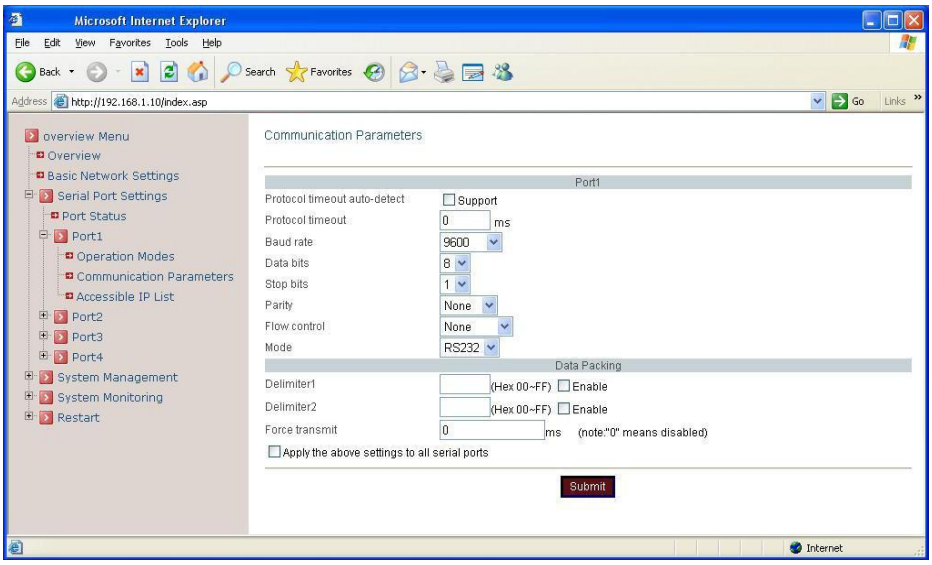
  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Serial Device Server. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable force transmit.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click "Submit" button when you have finished setting communication parameters.


Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.1.10/index.asp
Go Links
overview Menu
Overview
Basic Network Settings
Serial Port Settings
Port Status
Port1
Operation Modes
Communication Parameters
Accessible IP List
Port2
Port3
Port4
System Management
System Monitoring
Restart
Communication Parameters
Port1
Protocol timeout auto-detect
Support
Protocol timeout
0
ms
Baud rate
9600
Data bits
8
Stop bits
1
Parity
None
Flow control
None
Mode
RS232
Data Packing
Delimiter1
(Hex 00~FF)
Enable
Delimiter2
(Hex 00~FF)
Enable
Force transmit
0
ms
(note:"0" means disabled)
Apply the above settings to all serial ports
Submit
Internet

3.4.3 TCP Server Setting

TCP Server mode is default link mode of serial settings, and it can wait for connecting requests from remote host PCs which running Xport utility. Default TCP Port number of serial port on Serial Device Server is 601.

- **Operation Modes:**

  Application
  Click “Application” drop-down menu to select TCP Server from the drop-down list.

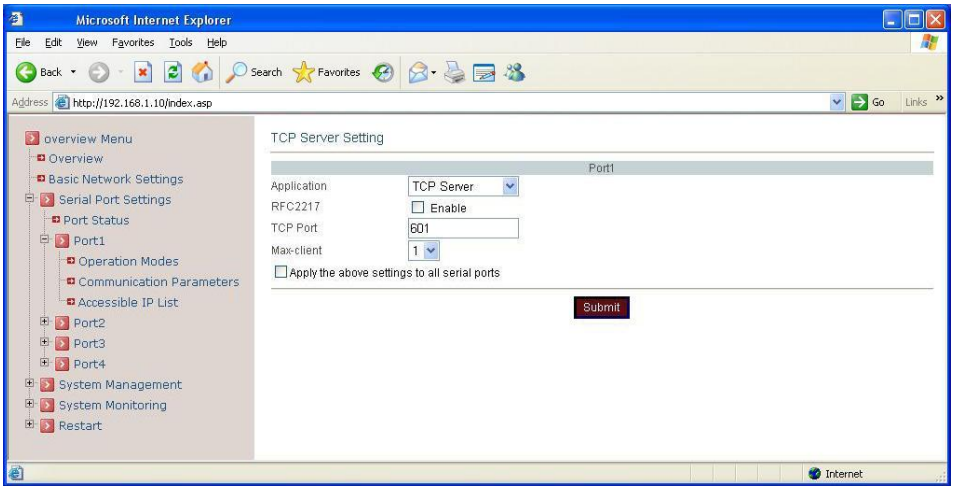
  RFC2217
  RFC2217 is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the Serial Device Server to a local COM port on the host computer. Check this option to enable RFC2217 for TCP Server Setting.

  TCP Port
  Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Serial Device Server. The default TCP Port number is 601.

  Max-client
  The maximum number of host computers that can receive data from the Serial Device Server simultaneously. Click “Max-client” drop-down menu to select 1~32 from the drop-down list.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished TCP Server Setting.



- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Serial Device Server will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~921600bps from the drop-down list for the serial port. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

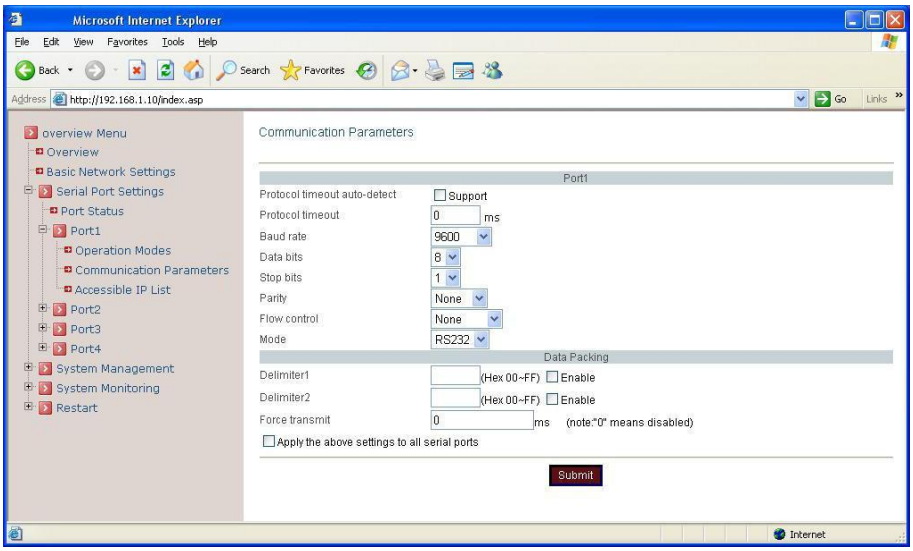
  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Delimiter1, 2
  Click in "Delimiter1, 2" text box and Delimiter1, 2 assigned to the serial port on the Serial Device Server. Check this option to enable Delimiter1, 2. The data will be transmitted if the Delimiter1 is received or Delimiter1 and Delimiter2 are received.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Serial Device Server. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable force transmit.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click "Submit" button when you have finished setting communication parameters.

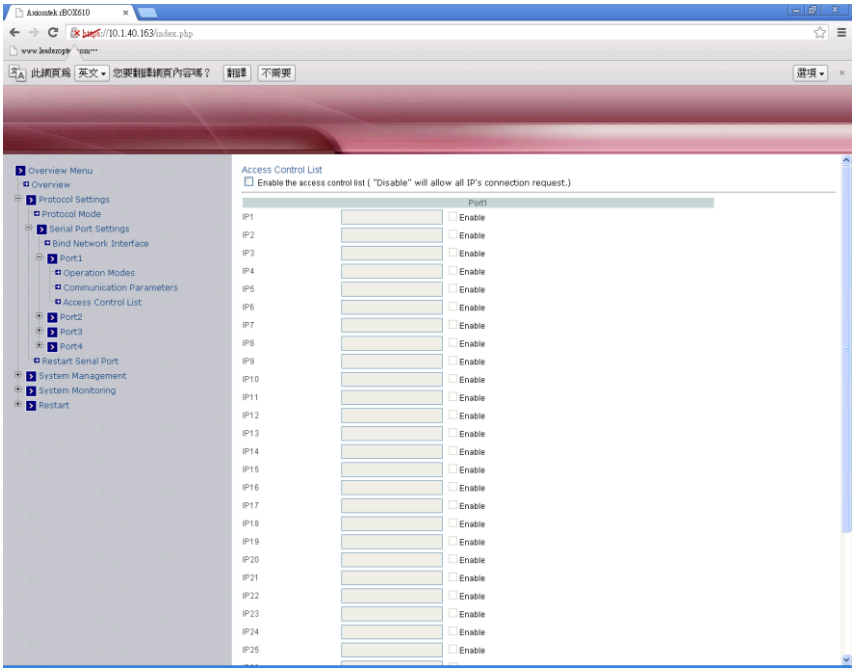


- **Access Control List:**

Access Control List
Check this option to enable the access control list. Disable will allow all IP's connection request.

IP1~32
Click in "IP1~32" text box and specify IP addresses that can access to the serial port on the Serial Device Server. Check this option to enable the IP addresses.

Click "Submit" button when you have finished setting access control list.



3.4.4 TCP Client Setting

User may enter IP addresses and port numbers of remote host computers to establish connection from Serial Device Server to remote host computers.

- **Operation Modes:**

  Application
  Click “Application” drop-down menu to select TCP Client from the drop-down list.

  RFC2217
  RFC2217 is used to establish a transparent connection between a host computer and a serial device by mapping the serial port on the Serial Device Server to a local COM port on the host computer. Check this option to enable RFC2217 for TCP Client Setting.

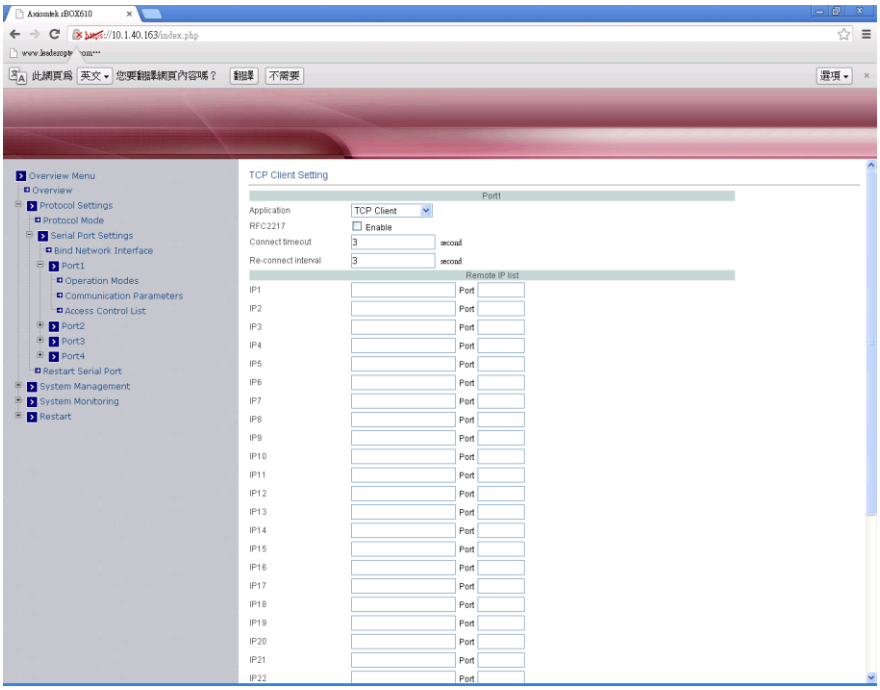
  Connect timeout
  Click in “Connect timeout” text box and type a period of connect timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (connect timeout). The default connect timeout is 3 seconds.

  Re-connect interval
  Click in “Re-connect interval” text box and type a period of re-connect interval assigned to the serial port on the Serial Device Server. The connection will be reestablished with other hosts for a defined period of time (re-connect interval). The default re-connect interval is 3 seconds.

  IP1~32, Port
  Click in “IP1~32” and “Port” text boxes and specify IP addresses and port numbers of remote host computers.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the TCP Client Setting.


Axiomtek rBOX610
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選項
Overview Menu
Overview
Protocol Settings
Protocol Mode
Serial Port Settings
Bind Network Interface
Port1
Operation Modes
Communication Parameters
Access Control List
Port2
Port3
Port4
Restart Serial Port
System Management
System Monitoring
Restart
TCP Client Setting
Port1
Application
TCP Client
RFC2217
Enable
Connect timeout
3
second
Re-connect interval
3
second
Remote IP list
IP1
IP2
IP3
IP4
IP5
IP6
IP7
IP8
IP9
IP10
IP11
IP12
IP13
IP14
IP15
IP16
IP17
IP18
IP19
IP20
IP21
IP22
Port

- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Serial Device Server will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~460800bps from the drop-down list for the serial port. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

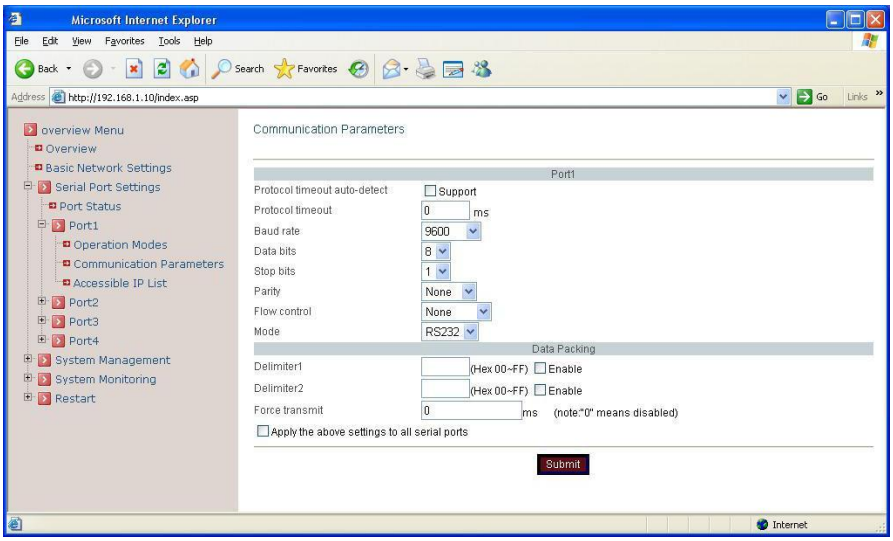
  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Delimiter1, 2
  Click in "Delimiter1, 2" text box and Delimiter1, 2 assigned to the serial port on the Serial Device Server. Check this option to enable Delimiter1, 2. The data will be transmitted if the Delimiter1 is received or Delimiter1 and Delimiter2 are received.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Serial Device Server. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable force transmit.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click "Submit" button when you have finished setting communication parameters.


Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.1.10/index.asp
Go Links
overview Menu
Overview
Basic Network Settings
Serial Port Settings
Port Status
Port1
Operation Modes
Communication Parameters
Accessible IP List
Port2
Port3
Port4
System Management
System Monitoring
Restart
Communication Parameters
Port1
Protocol timeout auto-detect
Support
Protocol timeout
0
ms
Baud rate
9600
Data bits
8
Stop bits
1
Parity
None
Flow control
None
Mode
RS232
Data Packing
Delimiter1
(Hex 00~FF)
Enable
Delimiter2
(Hex 00~FF)
Enable
Force transmit
0
ms
(note:"0" means disabled)
Apply the above settings to all serial ports
Submit
Internet

3.4.5 UDP Setting

Serial Device Server can be configured in a UDP mode to establish connection using Unicast or Multicast data from the serial device to one or multiple host computers. Vice versa is also true.

- **Operation Modes:**

  Application
  Click “Application” drop-down menu to select UDP from the drop-down list.

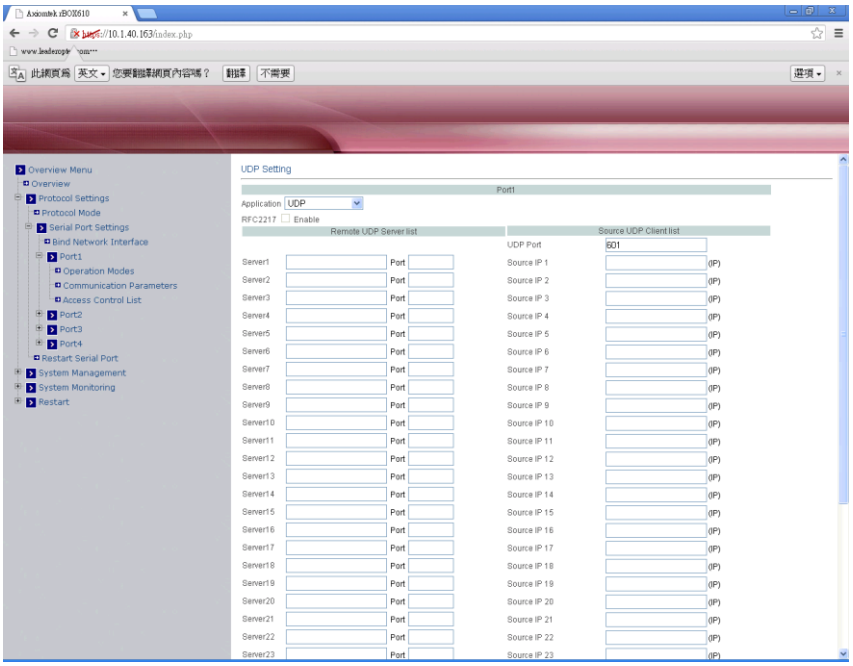
  Server1~32, Port
  Click in “Server1~32” and “Port” text boxes to specify IP addresses and port numbers of remote UDP Servers.

  UDP Port
  Click in “UDP Port” text box and type a UDP port number assigned to the Source UDP Clients. The default UDP port number is 601.

  Source IP 1~32
  Click in “Source IP 1~32” text box to specify IP addresses of Source UDP Clients.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the UDP Setting.



- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Serial Device Server will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Serial Device Server. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~460800bps from the drop-down list for the serial port. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

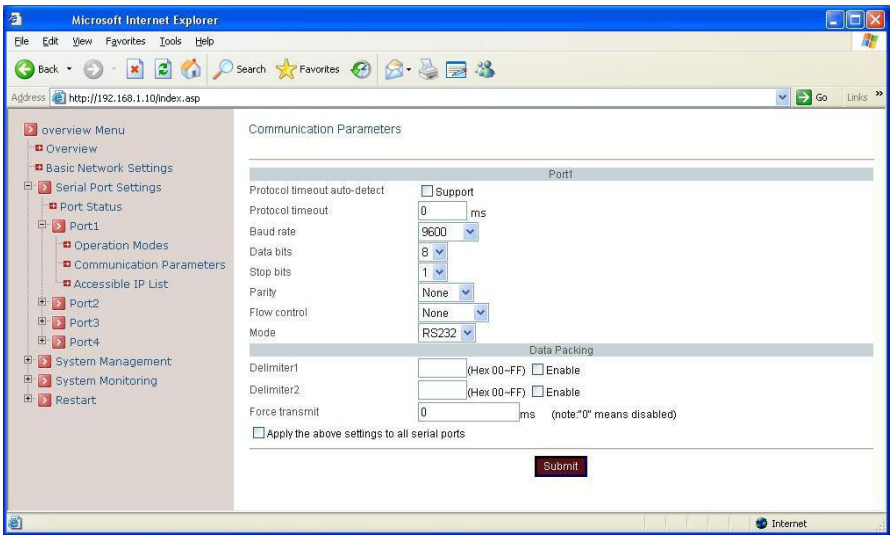
  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Delimiter1, 2
  Click in "Delimiter1, 2" text box and Delimiter1, 2 assigned to the serial port on the Serial Device Server. Check this option to enable Delimiter1, 2. The data will be transmitted if the Delimiter1 is received or Delimiter1 and Delimiter2 are received.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Serial Device Server. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable force transmit.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click "Submit" button when you have finished setting communication parameters.


Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.1.10/index.asp
Go Links
overview Menu
Overview
Basic Network Settings
Serial Port Settings
Port Status
Port1
Operation Modes
Communication Parameters
Accessible IP List
Port2
Port3
Port4
System Management
System Monitoring
Restart
Communication Parameters
Port1
Protocol timeout auto-detect
Support
Protocol timeout
0
ms
Baud rate
9600
Data bits
8
Stop bits
1
Parity
None
Flow control
None
Mode
RS232
Data Packing
Delimiter1
(Hex 00~FF)
Enable
Delimiter2
(Hex 00~FF)
Enable
Force transmit
0
ms
(note:"0" means disabled)
Apply the above settings to all serial ports
Submit
Internet

3.5 Modbus Gateway App

Choose Modbus from the “Protocol Mode” drop-down list to change to Modbus function. Click “Submit” button when you have finished setting Protocol Mode.

- **Port Group:**

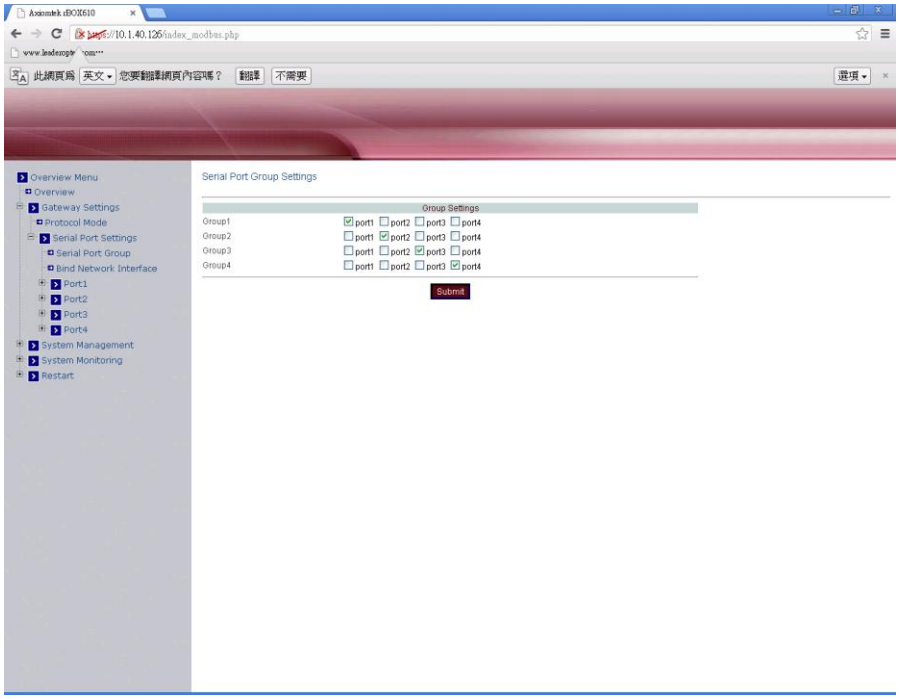
  Group1
  Use this option to check COM port 1~4. The checked COM port will be linked to the common TCP1.

  Group2
  Use this option to check COM port 1~4. The checked COM port will be linked to the common TCP2.

  Group3
  Use this option to check COM port 1~4. The checked COM port will be linked to the common TCP3.

  Group4
  Use this option to check COM port 1~4. The checked COM port will be linked to the common TCP4.

  Each COM port is limited to a single group.



3.5.1 LAN Port

Note

LAN Modbus must be set as master when Serial Modbus is set as slave, or vice versa.

- **Modbus TCP:**

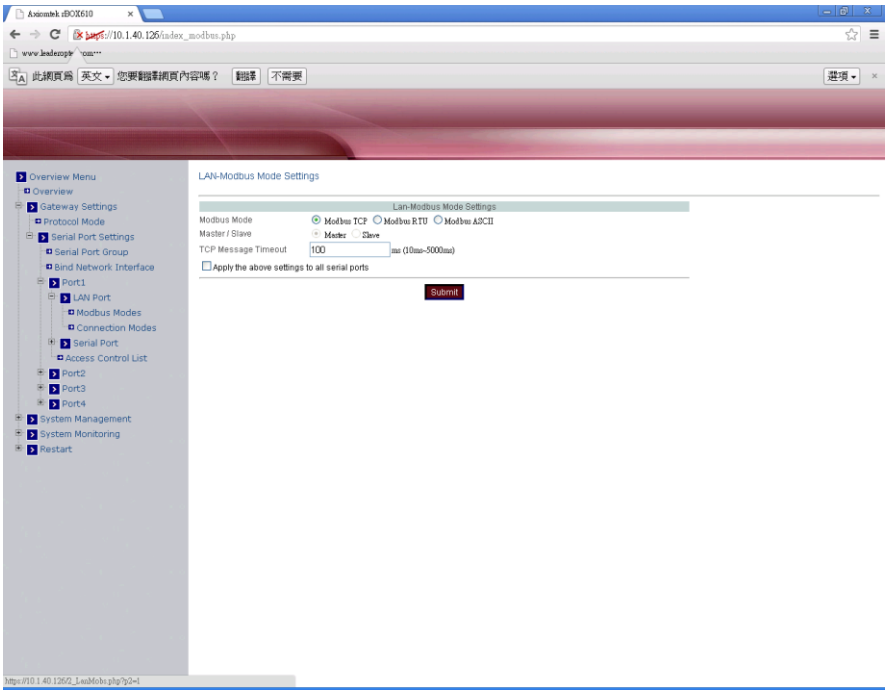
  Modbus Mode
  Check and choose Modbus TCP.

  Master/Slave
  Check and select master or slave.

  TCP Message Timeout
  Click in “TCP Message Timeout” text box and type a period of TCP Message Timeout.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports

  Click “Submit” button when you have finished the Modbus Modes Setting.



- **Operation Modes:**

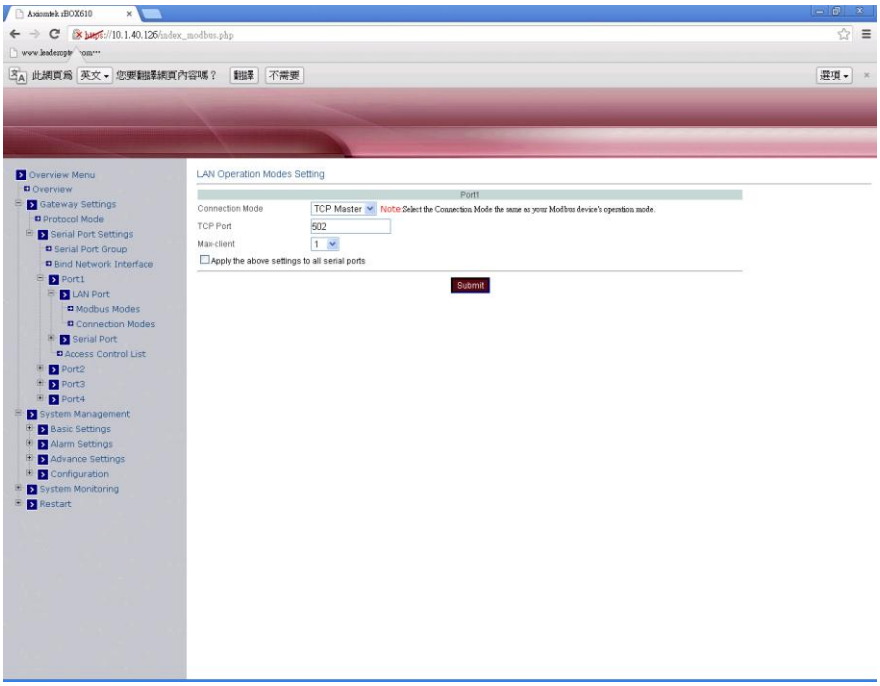
Connection Mode
Click “Connection Mode” drop-down menu to select TCP Master or TCP Slave from the drop-down list.

TCP Port
Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Modbus Gateway.

Max-client
The maximum number of host computers that can receive data from the Modbus Gateway simultaneously. Click “Max-client” drop-down menu to select 1~32 from the “Max-client” drop-down list.

Apply the above settings to all serial ports
Check this option to apply the above settings to all serial ports.

Click “Submit” button when you have finished the Connection Modes Setting.



- **Modbus RTU:**

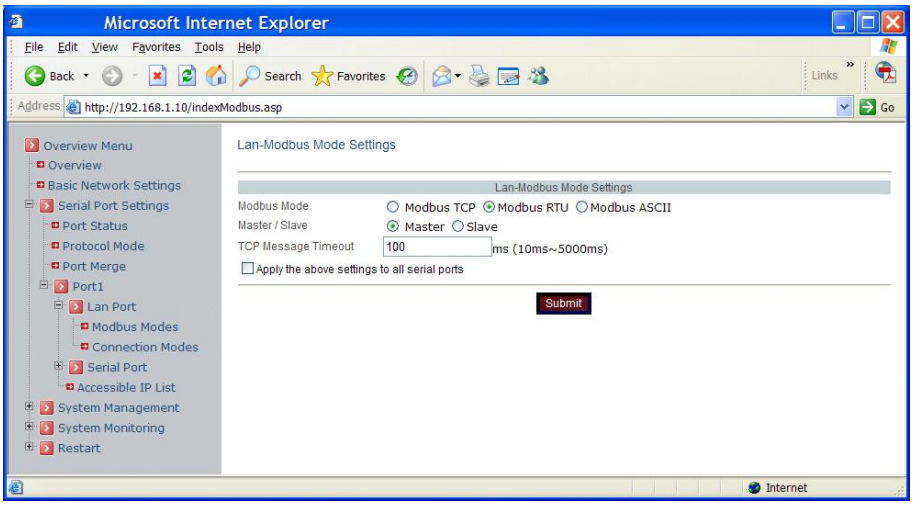
  Modbus Mode
  Check and choose Modbus RTU.

  Master/Slave
  Check and select master or slave.

  TCP Message Timeout
  Click in “TCP Message Timeout” text box and type a period of TCP Message Timeout.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Modbus Modes Setting.



- **Operation Modes:**

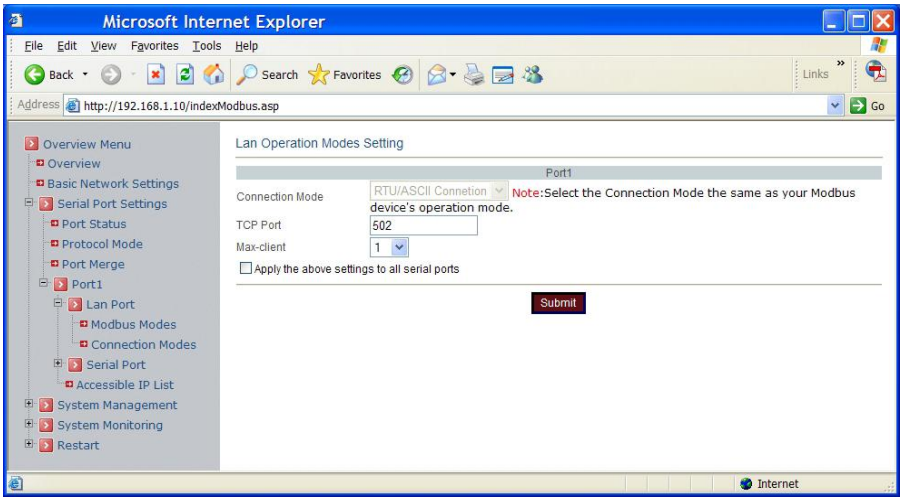
  Connection Mode
  Automatically set as RTU/ASCII connection.

  TCP Port
  Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Modbus Gateway.

  Max-client
  The maximum number of host computers that can receive data from the Modbus Gateway simultaneously. Click “Max-client” drop-down menu to select 1~32 from the “Max-client” drop-down list.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Connection Modes Setting.



- **Modbus ASCII:**

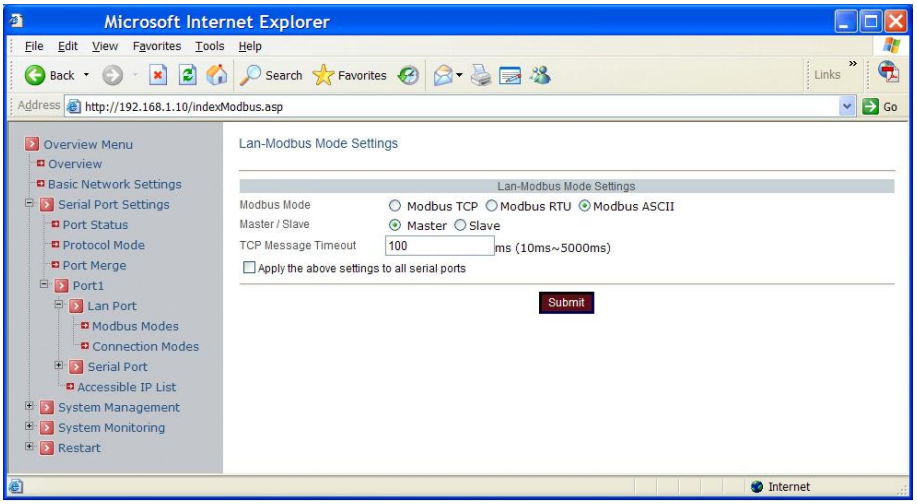
  Modbus Mode
  Check and choose Modbus ASCII.

  Master/Slave
  Check and select master or slave.

  TCP Message Timeout
  Click in “TCP Message Timeout” text box and type a period of TCP Message Timeout.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Modbus Modes Setting.



- **Operation Modes:**

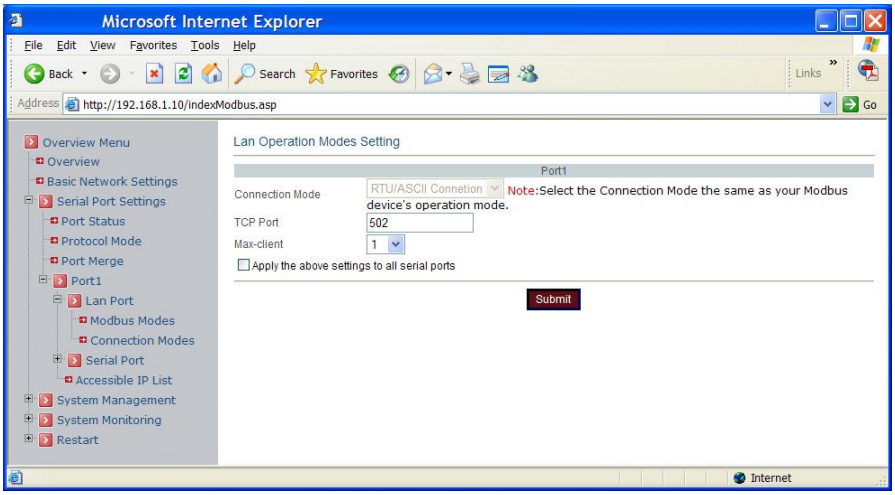
  Connection Mode
  Automatically set as RTU/ASCII connection.

  TCP Port
  Click in “TCP Port” text box and type a TCP Port number assigned to the serial port on the Modbus Gateway.

  Max-client
  The maximum number of host computers that can receive data from the Modbus Gateway simultaneously. Click “Max-client” drop-down menu to select 1~32 from the “Max-client” drop-down list.

  Apply the above settings to all serial ports
  Check this option to apply the above settings to all serial ports.

  Click “Submit” button when you have finished the Connection Modes Setting.



3.5.2 Serial Port

Note

LAN Modbus must be set as master when Serial Modbus is set as slave, or vice versa.

- **Modbus Modes:**

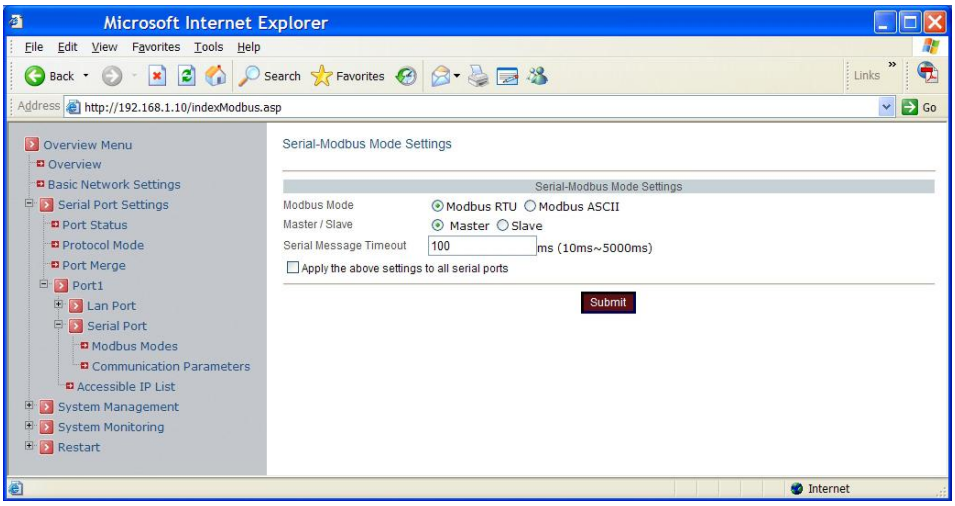
Modbus Mode
Check and choose Modbus RTU or Modbus ASCII.

Master/Slave
Check and select master or slave.

Serial Message Timeout
Click in “Serial Message Timeout” text box and type a period of Serial Message Timeout.

Apply the above settings to all serial ports
Check this option to apply the above settings to all serial ports.

Click “Submit” button when you have finished the Modbus Modes Setting.



- **Communication Parameters:**

  Protocol timeout auto-detect
  Check this option to support protocol timeout auto-detect. The Modbus Gateway will automatically test the TCP connection to remote host. If the TCP connection is idle, the TCP connection will be closed and the port will be freed for other hosts.

  Protocol timeout
  Click in "Protocol timeout" text box and type a period of protocol timeout assigned to the serial port on the Modbus Gateway. The connection will be closed and the port will be freed for connection with other hosts when serial port stops data transmission for a defined period of time (protocol timeout). The default protocol timeout is 0ms.

  Baud rate
  Click "Baud rate" drop-down menu to select baud rate 50~460800bps from the drop-down list for the serial port. The default baud rate of the serial port is 9600bps.

  Data bits
  Click "Data bits" drop-down menu to select data bits 5, 6, 7, or 8 from the drop-down list for the serial port. The default data bits of the serial port is 8 bits.

  Stop bits
  Click "Stop bits" drop-down menu to select stop bits 1 or 2 from the drop-down list for the serial port. The default stop bits of the serial port is 1 bit.

  Parity
  Click "Parity" drop-down menu to select parity None, Odd, Even, Mark, or Space from the drop-down list for the serial port. The default parity of the serial port is None.

  Flow control
  Click "Flow control" drop-down menu to select flow control None, Hardware, or Software from the drop-down list for the serial port. The default flow control of the serial port is None.

  Mode
  Click "Mode" drop-down menu to select mode RS232, RS485, or RS422 from the drop-down list for the serial port. The default mode of the serial port is RS232.

  Delimiter1, 2
  Click in "Delimiter1, 2" text box and Delimiter1, 2 assigned to the serial port on the Modbus Gateway. Check this option to enable Delimiter1, 2. The data will be transmitted if the Delimiter1 is received or Delimiter1 and Delimiter2 are received.

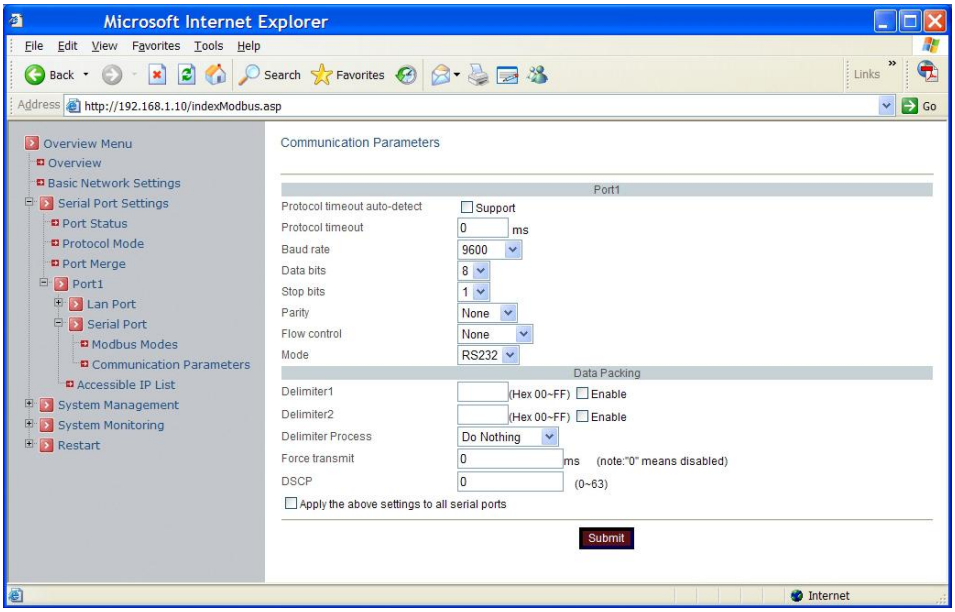
  Delimiter Process
  Click "Delimiter Process" drop-down menu to select Do Nothing or Strip Delimiter from drop-down list for the serial port.

  Force transmit
  Click in "Force transmit" text box and specify force transmit to the serial port on the Modbus Gateway. The data will be transmitted when the force transmit is reached. The default force transmit of the serial port is 0 to disable force transmit.

  DSCP
  Click in "DSCP" text box and type 0~63 to the serial port on the Modbus Gateway.

Apply the above settings to all serial ports
Check this option to apply the above settings to all serial ports.

Click “Submit” button when you have finished setting communication parameters.



- **Access Control List:**

Send keep alive
Check this option to send keep-alive packet.

Enable the access control list
Check this option to enable the access control list. Disable will allow all IP’s connection request.

IP1 ~ 32
Click in “IP1~32” text box and specify IP addresses that can access to the serial port on the Modbus Gateway. Check this option to enable the IP addresses.

Click “Submit” button when you have finished setting Access Control List.