



STE-708 & STE-716 Series

1U 19" Rackmount Industrial Serial Device Servers
8/16-Port Industrial RS232 and RS422/485 Serial Device Servers
with Dual LAN



User Manual

Version 1.0



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FCC NOTICE

This device 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 in a residential installation. This device generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Mark Warning

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Industrial Serial Connectivity

Industrial Wireless Serial Device Servers

User Manual

Version 1.0 (March 2015)

This manual supports the following models:

- | | |
|---------------------------|---------------------------|
| • STE-708A, STE-708A-EU | • STE-716A, STE-716A-EU |
| • STE-708A-48VDC | • STE-716A-48VDC |
| • STE-708Bi, STE-708Bi-EU | • STE-716Bi, STE-716Bi-EU |
| • STE-708Bi-48VDC | • STE-716Bi-48VDC |

This document is the current official release manual. Please check our website (www.antaيرا.com) for any updated manual or contact us by e-mail (support@antaيرا.com).

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1 Preface

Purpose of the Manual

This user manual is only to support users with the installation and configuration with some technical explanations for Antaira Technologies' STE-708 / STE-716 series. The manual will contain some advanced network management knowledge, instructions, examples, guidelines and general theories designed to help users manage the device and its corresponding software.

Who Should Use This User Manual

This manual is to be used by qualified network personnel or support technicians who are familiar with network operations. It is also useful for system programmers or network planners. This manual provides helpful and handy information for first time users. For any related problems, please contact Antaira Technologies for further assistance at (844) 268-2472.

Supported Platform

This manual is designed for the Antaira Technologies' STE-708 & STE-716 series and that model only.

Warranty Period

5-year limited warranty

2 Overview

2.1 Product Overview

Antaira Technologies' new STE-708 and STE-716 series is either an 8 or 16-port industrial 1U 19" rackmount designed as an RS232 or RS422/485 serial device server. Each unit is built with dual LAN ports which allow users to set up a ring topology network for dual data redundancy applications. It also supports high EMC protection and 2.5KV optical isolation for RS422/485 models. It is designed with wide operating temperature support (-20° to 70°C) to fulfill any industrial environmental application.

Many industrial applications still require legacy serial equipment such as PLCs, barcode scanners, display signs, security access controllers, CNC controllers and many more that are not yet Ethernet ready for a TCP/IP network. Antaira's STE-708 and STE-716 series are designed to transmit data bi-directionally between one-or-more serial devices to a TCP/IP network. Plus the advanced network and data redundancy features would allow users to execute an excellent remote management application.

2.2 Key Features

- Dual 10/100Mbps Fast Ethernet for redundancy with full duplex auto negotiation
- Support RAW TCP Server/ TCP Client / UDP / Virtual COM / Tunneling Modes
- Configuration: Built-in Web Server /Serial Console/ Telnet / Windows-based Utility
- Monitor, manage and control industrial field devices remotely

Caution

Beginning from this point, please use caution!!



- 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.

3 Getting Started

3.1 Model Comparison

Model	Description
STE-708A	8-Port 1U Rackmount Industrial RS232 Serial Device Server, AC Input, US Plug
STE-708A-EU	8-Port 1U Rackmount Industrial RS232 Serial Device Server, AC Input, EU Plug
STE-708A-DC	8-Port 1U Rackmount Industrial RS232 Serial Device Server, DC Input, US Plug
STE-708Bi	8-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, AC Input, US Plug
STE-708Bi-EU	8-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, EU Input, US Plug
STE-708Bi-DC	8-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, DC Input, US Plug
STE-716A	16-Port 1U Rackmount Industrial RS232 Serial Device Server, AC Input, US Plug
STE-716A-EU	16-Port 1U Rackmount Industrial RS232 Serial Device Server, AC Input, EU Plug
STE-716A-DC	16-Port 1U Rackmount Industrial RS232 Serial Device Server, DC Input, US Plug
STE-716Bi	16-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, AC Input, US Plug
STE-716Bi-EU	16-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, EU Input, US Plug
STE-716Bi-DC	16-Port 1U Rackmount Industrial RS422/485 Serial Device Server with Isolation, DC Input, US Plug

3.2 Inside the Package

The product package includes the following items:

Item	Qty	Description
STE-708 / STE-716 Series	1	Industrial Serial Device Server
Serial Cable	1	A serial cable to convert RJ45 to DB9 Male connection
AC Power Cord	1	US or EU model only
TB3	1	3-pin Lockable Terminal Block for DC input model only
Foot Rubbers	4	Attach to the bottom of the device (Optional)
Rackmount Kit	1	Mounting Kit for 19" Rack Mounting
Installation Guide	1	Hardware installation guide
Product CD (Utilities)	1	■ User Manual ■ Hardware Installation Guide ■ Serial Manager Utility

3.3 Panel Layout & Dimensions

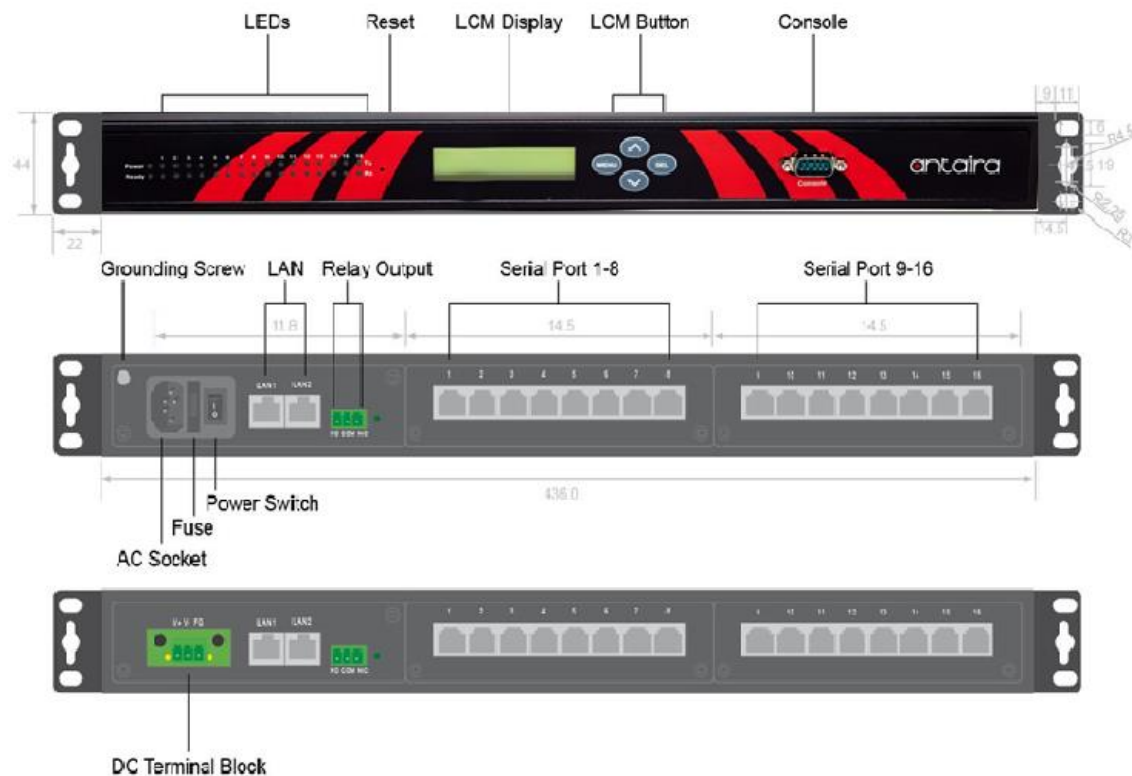


Figure 3.1 – STE-708/716 Series Front & Real Panel Layout

3.4 First Time Installation

Before installing the device, please adhere to all safety procedures described below. All users are responsible for their own damage to property or personal injuries resulting from careless installing or overall device mishandling. **Please do not attempt to manipulate the product in any way, if users are unsure of the steps described here, please contact Antaira Technologies' technical support team at (844)268-2472 or contact the local sales channel for immediate assistance.**

1. Prepare the power cord, LAN cable, serial cable, etc.; **do not connect the unit yet.**
2. Proceed to plug the power source to the unit.
3. Place the device in the desired location and connect it to the LAN via an Ethernet cable.
4. Connect the computer to the LAN network.

NOTE: Please refer to the 'Hardware Installation Guide' when attempting an installation. Also, please follow all procedures safely.

3.5 User Interface Overview

Antaira Technologies' STE-708 and 716 series are designed as a device that is capable of transmitting data between serial and Ethernet. The device's user interface is designed intuitively for ease of use to suit the customer's needs. The web configuration appears as follows in *Figure 3.2*.

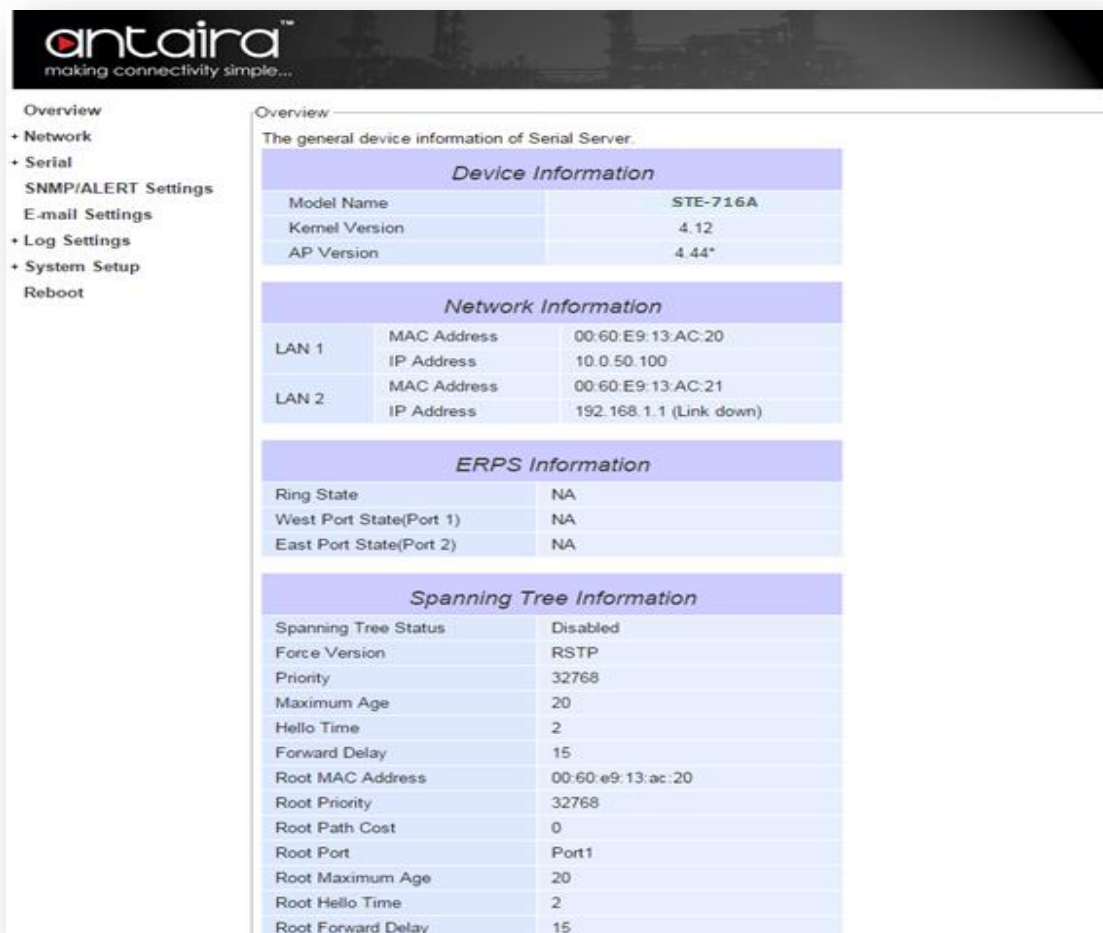


Figure 3.2 – Web Console Interface

On the left side, a menu-tree appears with all the modes and options available; while on the right side, the contents of each mode/option will be displayed in a graphical state. For more information on each selection, please refer to each option's section throughout this manual.

3.6 Factory Default Settings

All brand new STE-708 and 716 series will be set with factory default settings (*Figure 3.3*).

Parameters		Default Values
LAN 1	IP Address	10.0.50.100
	Gateway	10.0.0.254
	Subnet Mask	255.255.0.0
LAN 2	IP Address	192.168.1.1
	Gateway	192.168.1.254
	Subnet Mask	255.255.255.0
Username		Admin
Password		(blank)
COM		RS-232 (RS-422 if RS-232 is unavailable), 9600, None, 8,1,No Flow Control
COM Link Mode		Mode: RAW, Type: TCP Server, Listen port 4660, Filter=0.0.0.0

Figure 3.3 – Factory Default Settings

4 LCM Configuration

A Liquid Crystal Monitor (LCM) is installed on the front panel of the device that can be used to display device information and perform basic configurations. Below, (*Figure 4.1*) illustrates its buttons and corresponding functions.

Buttons	Functions
	Opens the main menu
	Scroll up
	Scroll down
	Confirms the selection. When working with IP addresses, pressing <SEL> means moving to the next digit.

Figure 4.1 – LCM Button Functions

4.1 Welcome Screen

When the device boots up, the LCM will display 'LAN1'. Users can press the scroll down button, and it will display 'LAN2' information. The format is as follows:

- LAN1: Link down
- 10.0.50.100 ▼

4.2 Main Manual Structure

Press the <Menu> key to enter the main menu. Press <Scroll Down> to go to the next layer or option. Press <Scroll Up> to go back one layer or option.

4.2.1 Overview

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
1.Overview	1.Model Name				Display Model Name
	2.Kenrnel ver.				Display Kernel Version
	3.AP ver.				Display AP Version
	4.LAN 1	1.LAN status			Display LAN 1 Status
		2.MAC			Display MAC Address of LAN 1
	5.LAN 2	1.LAN status			Display LAN 2 Status
		2.MAC			Display MAC Address of LAN 2

Figure 4.2 – LCM Button Functions - Overview

4.2.2 Network Settings

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.Network set	1.LAN 1	1. IP Config	1.Static IP		Change to Static IP Mode
		2. IP Address	2.DHCP		Change to DCHP Mode
		3. Net Mask			Display/Change LAN 1 IP
		4.Gateway			Display/Change the Gateway IP
	2.LAN 2	1. IP Config	1.Static IP		Change to Static IP Mode
		2. IP Address	2.DHCP		Change to DCHP Mode
		3. Net Mask			Display/Change LAN 2 IP
		4.Gateway			Display/Change the Gateway IP
	3.DNS Server 1				Display/ Change DNS Server 1 IP Address
	4.DNS Server 2				Display/ Change DNS Server 2 IP Address

Figure 4.3 – LCM Buttons - Network Settings

4.2.3 Serial Settings

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.Serial set	1.Select Port				Select a COM Port to Configure
	2.Parameter set	1.Baud Rate	1.300		Display/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/Change Parity
			2.Odd		
			3.Even		
			4.Mark		
			5.Space		
		3. Data Bits	1.5 bits		Display/Change Data Bit
			2.6 bits		
			3.7 bits		
			4.8 bits		
		4.Stop Bits	1.1 bits		Display/Change Stop Bit
			2.2 bits		
		5.Flow Control	1.None		Display/Change Flow Control Mode
			2.Xon/Xoff		
			3.Hardware		
		6.Delimiter	1.Net to Serial	1.Disable	Disable UART Delimiter
				2.Enable	1. Timer : Change UART delimiter to timer mode and set its time
					2. Char : Change UART delimiter to

					character mode and set the Character
		6.Delimiter	2.Serial to Net	1.Disable	Disable UART Delimiter
				2.Enable	1. Timer : Change UART delimiter to timer mode and set its time
					2. Char : Change UART delimiter to character mode and set the Character
		7.UART Mode	1.232		Display/Change UART Mode to RS232
			2.422		Display/Change UART Mode to RS422
			3.485		Display/Change UART Mode to RS485
		8.Apply to all	1.No		
			2.Yes		Apply serial settings to all serial ports
	3.Link Mode				Display/Change Link Mode
		1.TCP Server	1.Virtual COM	1.Disable	Display/Change Virtual COM Mode
				2.Enable	
			2.Local Port		Display/Change local listening port
			3.Max Connect		Display/Change maximum client connection (1~4)
			4.IP Filter	1.Disable	Display/Change IP Filter function and the IP address
				2.Enable	
			5.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	
		1.TCP Client	1.Dest IP 1		Display/Change Destination IP 1
				2.Enable	
			2.Dest Port 1		Display/Change Destination Port 1
			3.Destination 2	1.Disable	Disable Destination 2
				2.Enable	Display/Change Destination IP 2 and Destination port 2
			4.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	
		3.UDP	1.Local Port		Display/Change local listening port

			2.Dest IP 1		Display/Change Destination IP 1
			3.Dest Port 1		Display/Change Destination Port 1
			4.Destination [2~16]	1.Disable	Disable Destination [2~16]
				2.Enable	Display/Change Destination IP [2~16] and Destination port [2~16]
			5.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	

Figure 4.4 – LCM Buttons - Serial Settings

4.2.4 Server State

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.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 protect	1. LCM Console	1.No		Disable LCM Console Password Protection
			2.Yes		Enable and Change Password
		2. Reset Button	1.No		Disable Reset Button Password Protection
			2.Yes		Enable and Change Password on Reset Button
	3.Ping	1. LAN 1			Use "ping" command to check specific IP address for LAN 1
		2. LAN 2			Use "ping" command to check specific IP address for LAN 2

Figure 4.5 – LCM Buttons - Server state

4.2.5 Restart

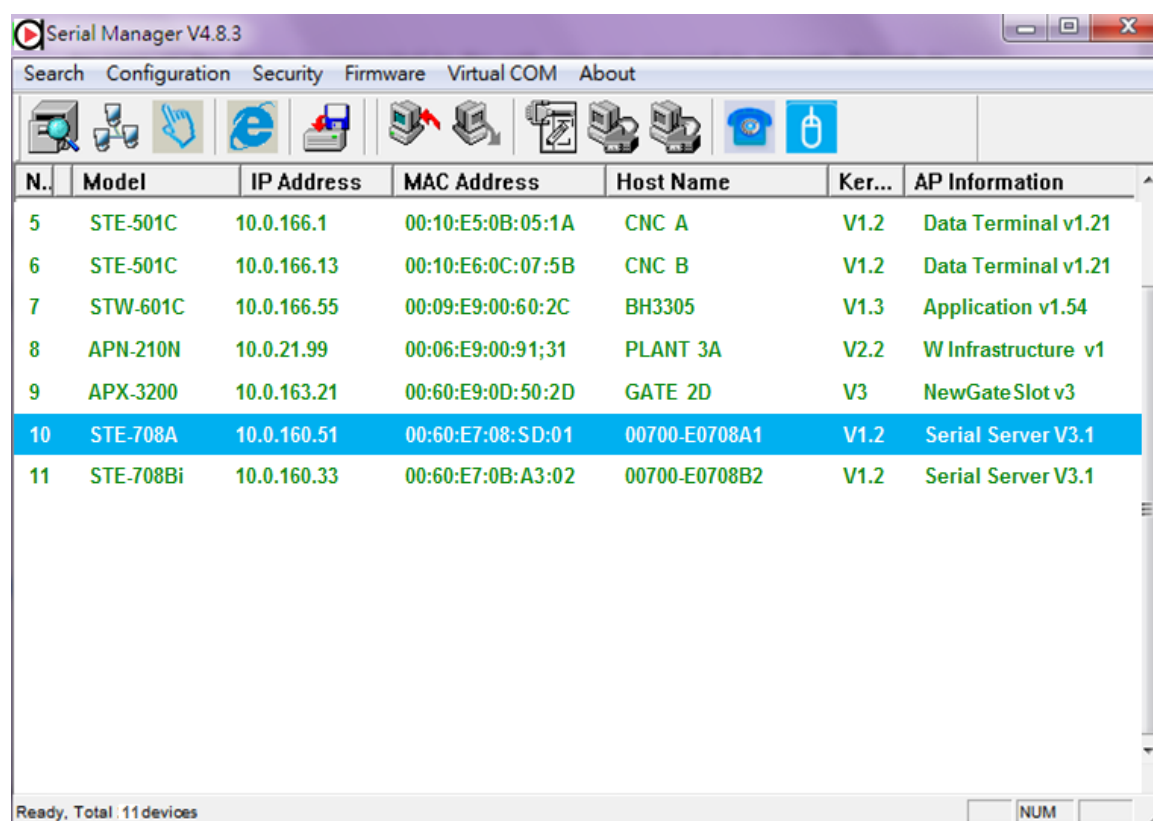
1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
5.Restart	1.No				Cancel Restart Command
	2.Yes				Restart Immediately

Figure 4.6 – LCM Buttons - Restart

5 Web Configuration

5.1 Administrator Login

As soon as the device is connected on the LAN, the user can proceed to navigate through its configuration using **Serial Manager** (utility that comes with the product CD), shown below in *Figure 5.1* (displaying the IP, MAC address, etc).



N..	Model	IP Address	MAC Address	Host Name	Ker...	AP Information
5	STE-501C	10.0.166.1	00:10:E5:0B:05:1A	CNC A	V1.2	Data Terminal v1.21
6	STE-501C	10.0.166.13	00:10:E6:0C:07:5B	CNC B	V1.2	Data Terminal v1.21
7	STW-601C	10.0.166.55	00:09:E9:00:60:2C	BH3305	V1.3	Application v1.54
8	APN-210N	10.0.21.99	00:06:E9:00:91:31	PLANT 3A	V2.2	W Infrastructure v1
9	APX-3200	10.0.163.21	00:60:E9:0D:50:2D	GATE 2D	V3	NewGateSlot v3
10	STE-708A	10.0.160.51	00:60:E7:08:SD:01	00700-E0708A1	V1.2	Serial Server V3.1
11	STE-708Bi	10.0.160.33	00:60:E7:0B:A3:02	00700-E0708B2	V1.2	Serial Server V3.1

Ready, Total: 11 devices

Figure 5.1 – Serial Manager Utility Interface

To access the device's Web UI, click on the **Config by browser** icon, and then the web browser will open. Insert the username and password (see factory default settings for more information), then click "OK" or press the 'Enter' key. Alternatively, enter the IP address of the device in the URL bar of the browser.

Note: Make sure the PC is located in the same network sub-net as the STE-708/716 series unit(s).

5.2 Overview

This section gives general status information for the device, network, ERPS and STP.



Figure 5.2 – General Information

Device Information: Displays the system's name and the Kernel/AP versions.

Device Information		
Model Name		STE-716A
Kernel Version		4.12
AP Version		4.44*

Figure 5.3 – Device Information

Networking Information: Displays both 'LAN1' and 'LAN 2' information on the overview page. The information provided includes the network settings.

Note: If the device is in bridge mode, bridge information will be shown instead.

Network Information		
LAN 1	MAC Address	00:60:E9:13:AC:20
	IP Address	10.0.50.100
LAN 2	MAC Address	00:60:E9:13:AC:21
	IP Address	192.168.1.1 (Link down)

Figure 5.4 – Network Information

Ethernet Ring Protection Switch (ERPS) Information: Displays the 'Ring' and 'Port' status.

<i>ERPS Information</i>	
Ring State	NA
West Port State(Port 1)	NA
East Port State(Port 2)	NA

Figure 5.5 – ERPS Information

Spanning Tree Information: Displays the current STP and STP Port settings and their status.

<i>Spanning Tree Information</i>	
Spanning Tree Status	Disabled
Force Version	RSTP
Priority	32768
Maximum Age	20
Hello Time	2
Forward Delay	15
Root MAC Address	00:60:e9:13:ac:20
Root Priority	32768
Root Path Cost	0
Root Port	Port1
Root Maximum Age	20
Root Hello Time	2
Root Forward Delay	15
Topology Changes	0
Last Topology Change	0

Figure 5.6 – STP Settings Information

<i>STP Port Information</i>				
Port	State	Role	Path Cost	Priority
Port1	Forwarding	Designated	200000	128
Port2	Forwarding	Designated	200000	128
Port	P2P	Edge	Des Cost	Des Port Priority
Port1	Yes	No	0	128
Port2	Yes	No	0	128
Port	Des Port	Des Root	Des Bridge	
Port1	1	32768	00:60:e9:13:ac:20	
Port2	2	32768	00:60:e9:13:ac:20	

Figure 5.7 – STP Port Information

5.3 Network Configuration

Click on the “**Network**” link to open the network settings.

➤ **LAN Mode Settings:**

■ **Dual Subnet Mode**

- Subnet is a logically visible subdivision of an IP network. The LAN 1 and LAN2 can be assigned to different subnets. This feature gives the user flexible network manageability.

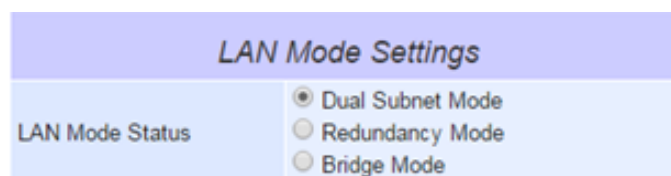


Figure 5.8 – LAN Mode Settings: Dual Subnet Mode

■ **Redundancy Mode**

- A goal for **redundant topologies** is to eliminate network downtime caused by a single point of failure. The LAN1 and LAN2 can be assigned to the same IP network. It will enable the network to recover rapidly from failure and fault, so that the failures and faults will be bypassed.

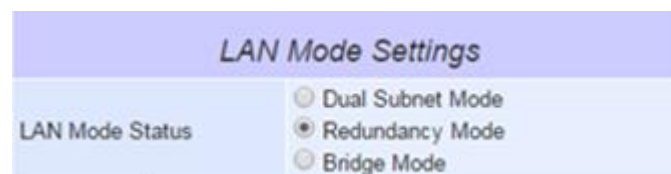


Figure 5.9 – LAN Mode Settings: Redundancy Mode

■ **Bridge Mode**

■ **Enable Bridge Mode**

- When the bridge function is enabled, LAN1 and LAN2 will use the same IP address for redundancy. Therefore, the LAN1 settings will become bridge settings and LAN2 settings will be disabled.

■ **Disable Bridge Mode**

- When the bridge function is disabled, LAN1 and LAN2 can be in different subnets. Fill in the bridge / LAN settings accordingly.

LAN Mode Settings	
LAN Mode Status	☐ Dual Subnet Mode ☐ Redundancy Mode ☒ Bridge Mode

Figure 5.10 – LAN Mode Settings: Bridge Mode

■ LAN Settings

■ DHCP

- Alternatively, users may activate the Dynamic Host Configuration Protocol (DHCP) client function by checking on the “**Obtain an IP automatically**” field to obtain an IP address, gateway/subnet mask, or a Domain Name System (DNS) from a DHCP server automatically.

LAN 1 Settings	
DHCP	☒ Obtain an IP automatically
IP Address	10 . 0 . 50 . 100
Subnet Mask	255 . 255 . 0 . 0
Default Gateway	10 . 0 . 0 . 254
ARP Announce	10 (0~300) seconds

LAN 2 Settings	
DHCP	☒ Obtain an IP automatically
IP Address	192 . 168 . 1 . 1
Subnet Mask	255 . 255 . 255 . 0
Default Gateway	192 . 168 . 1 . 254
ARP Announce	10 (0~300) seconds

Figure 5.11 – LAN Settings

■ DNS Settings:

- Fill in the Domain Name System (DNS) information in order to have an external DNS server turn a domain name into an IP address. This is crucial if the NTP and SMTP services use domain names instead of IP addresses. A DNS server will be retrieved from the DHCP server automatically if DHCP is enabled.

DNS Settings	
DNS1	168 . 95 . 1 . 1
DNS2	

Figure 5.12 – DNS Settings

■ Bridge Settings – Enable ERPS or STP Settings

- Users can setup the ERPS or Spanning Tree Protocol (STP) settings after the bridge mode is enabled. This is because users can connect all serial device servers into a ring topology network.
- **ERPS Settings:**
 - A typical ring topology provides multipoint connectivity, but the network traffic will loop inside the ring without a proper protection mechanism. Antaira's STE-708 / 716 series supports an Ethernet Ring Protection Switching (ERPS) protocol for Ethernet layer ring networks without requiring extra managed Ethernet switches.
 - By enabling the ERPS function, users can connect all serial device servers to a ring topology network.
 - Ethernet Ring Protection Switching (ERPS) provides a highly reliable and stable protection within the ring topology that does not form network loops that could potentially affect the network operation. In a the ring topology, each ring node is connected to an adjacent ring node participating in the same ring using two independent links (i.e. two ways). Loops can be avoided by guaranteeing that traffic may flow on all but one of the ring links at any given time.
 - This particular link is called a Ring Protection Link (RPL). A control message called an R-APS coordinates the activities of switching on/off the RPL. Under normal conditions, this link is blocked by the owner node, which is referred to as the blocking state. In case of a network failure, the RPL owner node will be responsible for unblocking the RPL to allow it to be used for forwarding, hence called the protection state. Therefore, the RPL becomes the backup link when a link failure occurs. The following table describes the functions of different ERPS settings.

ERPS
By enabling ERPS, you can connect devices to a ring network topology.

ERPS Settings	
ERPS State	☐ Enable ERPS
RAPS VLAN	4090
West Port	Port 1
East Port	Port 2
RPL Owner	☐ Enable RPL Owner
RPL Port	None ▼
WTR Timer	5 (0~12 min)
Holdoff Timer	0 (0~10000 ms)
Guard Timer	500 (10~2000 ms)
MEL	1 (0~7)

Figure 5.13 – Bridge Mode: ERPS Settings

➤ **STP Settings:**

- Standard Spanning Tree (STP) is supported by the IEEE standards. The STP function is to help prevent switching loops and ensuring broadcast radiation.
- STP creates a spanning tree and disables those redundant links that are on the same level of the tree, which leaves only a single active path between any two nodes. This function avoids flooding and increases the network efficiency.

Rapid Spanning Tree Protocol (RSTP) are also supported. It is an evolution of the STP. It has a slightly changed topology, which helps to provide a much faster spanning tree convergence. The following table explains each STP option's usage.

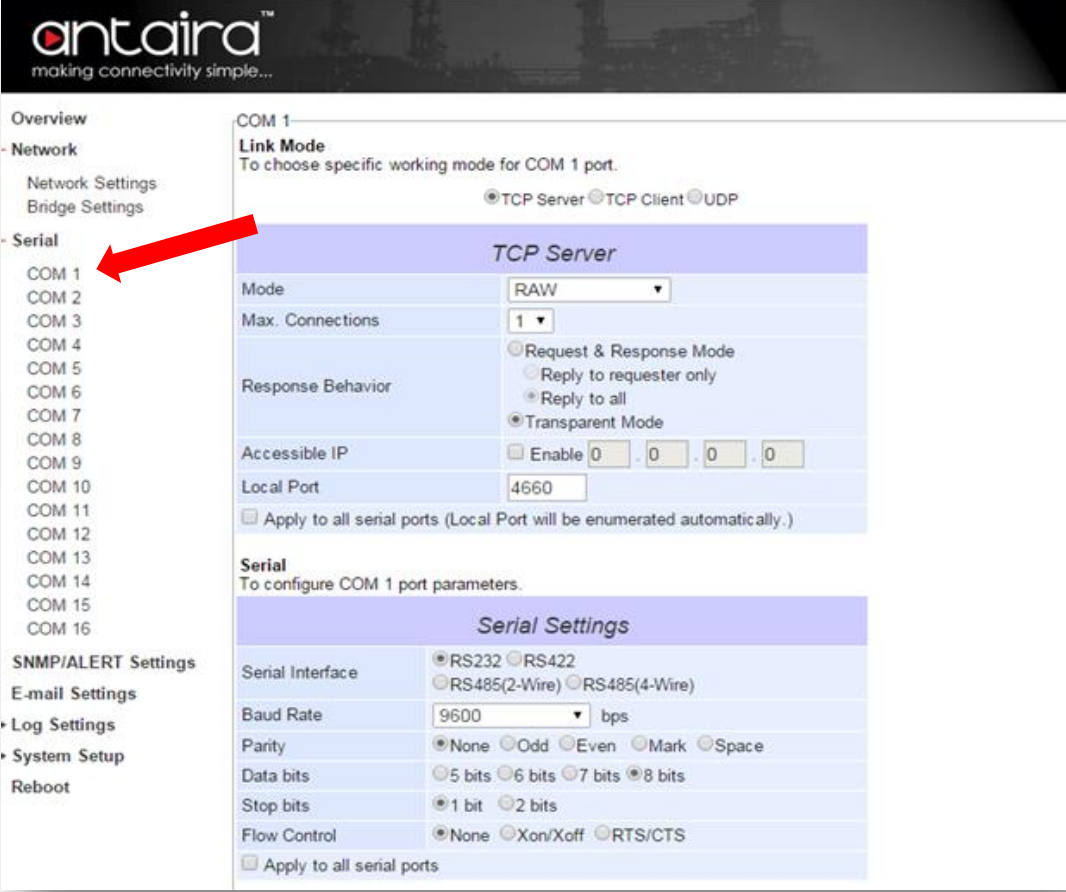
Label	Description
Spanning Tree	Choose whether to enable or disable Spanning tree
Force Version	Select STP or RSTP
Priority	Configures the bridge priority in the range of 0 ~ 61440. The switch with lower bridge priority has more chance to become a root bridge
Maximum Age	If a device is not the root and it does not receive a hello message in within the "Maximum Age", it will reconfigure itself as a root, ranges from 6 to 40 seconds
Hello Time	The amount of time that the root should wait before sending hello messages again, ranges from 1 to 10 seconds
Forward Delay	Configures the amount of time the device should wait before checking to see if it should change from the learning state to the forwarding state. Lesser delay time means that the state will change more quickly, ranges from 4 to 30 seconds
Port Path Cost	Configures the port path cost in the range of 1~200000000. This value will affect the combination path cost. The lowest combination path cost will be the best path to the Root Bridge
Port Priority	Configures the port priority in the range of 0~240. The port with the lowest priority value has the best route to the root bridge
Port P2P	Selects P2P (point to point) connection type: ➤ Force No: Force Port P2P link false ➤ Force Yes: Force Port P2P link to true ➤ Auto: Set Port P2P link to auto detection
Port Edge	Choose whether the port is an edge connection

Spanning Tree Settings	
Spanning Tree State	☒ Enabled
Force Version	RSTP ▼
Priority	32768 (0~61440)
Maximum Age	20 (6~40)
Hello Time	2 (1~10)
Forward Delay	15 (4~30)
Port1 Path Cost	200000 (1~200000000)
Port1 Priority	128 (0~240)
Port1 P2P	Auto ▼
Port1 Edge	Disabled ▼
Port2 Path Cost	200000 (1~200000000)
Port2 Priority	128 (0~240)
Port2 P2P	Auto ▼
Port2 Edge	Disabled ▼

Figure 5.14 – Bridge Mode: Spanning Tree Settings

5.4 Serial Settings

Click on the “Serial” link to open its submenu and COM1 settings.



The screenshot displays the Antaira web interface for configuring serial settings. The left sidebar contains a navigation menu with the following items: Overview, Network (Network Settings, Bridge Settings), Serial (highlighted with a red arrow), SNMP/ALERT Settings, E-mail Settings, Log Settings, System Setup, and Reboot. The main content area is titled 'COM 1' and is divided into two sections: 'Link Mode' and 'Serial'.

Link Mode
To choose specific working mode for COM 1 port.

☒ TCP Server ☐ TCP Client ☐ UDP

TCP Server

Mode	RAW
Max. Connections	1
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
Accessible IP	☐ Enable 0 . 0 . 0 . 0
Local Port	4660
☐ Apply to all serial ports (Local Port will be enumerated automatically.)	

Serial
To configure COM 1 port parameters.

Serial Settings

Serial Interface	☒ RS232 ☐ RS422 ☐ RS485(2-Wire) ☐ RS485(4-Wire)
Baud Rate	9600 bps
Parity	☒ None ☐ Odd ☐ Even ☐ Mark ☐ Space
Data bits	☐ 5 bits ☐ 6 bits ☐ 7 bits ☒ 8 bits
Stop bits	☒ 1 bit ☐ 2 bits
Flow Control	☒ None ☐ Xon/Xoff ☐ RTS/CTS
☐ Apply to all serial ports	

Figure 5.15 – Serial Port Settings

5.4.1 COM Configuration

This section will only focus on the serial settings as shown in *Figure 5.16*. Details on connectivity protocols and the settings will be described in **Chapter 7 Link Modes and Applications**.

The screenshot shows a configuration window for COM 1. It has two main sections: 'Link Mode' and 'Serial'.
Link Mode: The title is 'Link Mode' with the instruction 'To choose specific working mode for COM 1 port.' There are three radio buttons: 'TCP Server' (selected), 'TCP Client', and 'UDP'. Below this is a 'TCP Server' section with a purple header. It contains: 'Mode' set to 'RAW'; 'Max. Connections' set to '1'; 'Response Behavior' with three radio buttons: 'Request & Response Mode', 'Reply to requester only', and 'Transparent Mode' (selected); 'Accessible IP' with a checkbox 'Enable' and four input fields all set to '0'; 'Local Port' set to '4660'; and a checkbox 'Apply to all serial ports (Local Port will be enumerated automatically.)'.
Serial: The title is 'Serial' with the instruction 'To configure COM 1 port parameters.' Below this is a 'Serial Settings' section with a purple header. It contains: 'Serial Interface' with three radio buttons: 'RS232' (selected), 'RS422', and 'RS485(2-Wire)' and 'RS485(4-Wire)'; 'Baud Rate' set to '9600' bps; 'Parity' with four radio buttons: 'None' (selected), 'Odd', 'Even', and 'Mark'; 'Data bits' with four radio buttons: '5 bits', '6 bits', '7 bits', and '8 bits' (selected); 'Stop bits' with two radio buttons: '1 bit' (selected) and '2 bits'; 'Flow Control' with three radio buttons: 'None' (selected), 'Xon/Xoff', and 'RTS/CTS'; and a checkbox 'Apply to all serial ports'. At the bottom are two buttons: 'Save Configuration' and 'Advanced Settings'.

Figure 5.16 – Serial Port Settings

Match the below settings with the serial device:

- **UART Mode-** Select between RS-232, RS-422, and RS-485 (2-Wire or 4-Wire).
- **Baud Rate-** Select one of the baud rates from the dropdown box.
- **Parity/Data Bits/Stop Bits-** Configure them accordingly.
- **Flow Control-** Choose between 'No Flow Control', RTS/CTS (Hardware Flow Control), and Xon/Xoff (Software Flow Control). If Xon/Xoff is selected, Xon and Xoff characters are changeable. Defaults are 0x11 for Xon and 0x13 for Xoff. If the connecting program or serial device would like to receive the Xon/Xoff signals also, enable **“Permit Xon/Xoff Character Pass Through”**. Enable **“Xon/Xoff Special Control”** to allow synchronization between Xon/Xoff states and DSR/DTR signals.

Note: Check “Apply to all serial ports” to execute these settings throughout all the serial ports.

5.4.2 COM Configuration: Advanced Settings

Click on the “**Advanced Settings**” button to open the dialog (Figure 5.17).

ADVANCED SETTINGS		
TCP	TCP Timeout	☒ Enable 3600 (1~65535) seconds
Delimiters	Serial to Network Packet Delimiter	☒ Interval timeout 2 (1~30000) ms ☒ Auto(caculate by baudrate) ☐ Manual setting ☐ Discard Bytes < 0 within the time interval(1~1024)bytes ☐ Max. Bytes 1452 (within one packet:1~1452 bytes) ☐ Character 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
	Network to Serial Packet Delimiter	☐ Interval timeout 0 (1~30000) ms ☐ Max. Bytes 1452 (within one packet:1~1452 bytes) ☐ Character 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
	Character send interval	☐ Enable 0 (1~1000) ms
	Response interval timeout	☒ Enable 1000 (1~60000) ms (Work with Request & Response Mode only)
Serial	Serial FIFO	☒ Enable (Disabling this option at baud rates higher than 115200bps would result in data loss).
	Serial Buffer	☒ Empty serial buffer when a new TCP connection is established
☐ Apply to all serial ports		
Save Configuration		

Figure 5.17 – COM Configuration - Advanced Settings

TCP

- **TCP Timeout-** Specifies the value in “TCP Timeout” to force the STE-708 / STE-716 series to actively close a TCP connection after a specific inactivity time limit (no packets). The default value for it is 3600 seconds. Disabling this option means the serial device server would never actively close an established connection.

Delimiters

- **Serial to Network Packet Delimiter-** A packet delimiter is a way of packing data into serial communication. It is designed to keep packets on track. The STE-708/STE-716 series provides three types of delimiters: time delimiter, maximum bytes and character delimiter. Note that the following delimiters (interval, max byte and character) are programmed in the OR logic. Meaning that if any of the three conditions were met, the serial device server would transmit the serial data in its buffer over the network.

- **Interval Timeout-** The STE-708/STE-716 series will transmit the serial data in its buffer when the specified time interval has been reached and no more serial data comes in. The default value is calculated automatically based on the baud rate. If the automatic value results in chopped data, the timeout could be increased manually by switching to the “manual setting” and specifying a larger value. If the bytes do not reach a certain length, the bytes could be discarded to help avoid devices being connected on the TCP side. To do this, enable “**Discard Byte**”, then select the condition (>, <, =, !=) and the length desired.



Attention!!!

Interval Timeout Manual Calculation

The optimal “interval timeout” depends on the application, and it must be at least larger than one character interval within the specified baud rate.

For example, setting up serial port parameters to 1200 bps, 8 data bits, 1 stop bit, and no parity → then, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is $(10 \text{ (bits)} / 1200 \text{ (bits/s)}) * 1000 \text{ (ms/s)} = 8.3 \text{ ms}$.

Therefore, the “interval timeout” should be set larger than 8.3 ms, and then it would be rounded up to 9 ms.

- **Max Byte-** The STE-718/STE-716 series will transmit the serial data in its buffer when the specified length has been reached. If enabled, the serial device server will queue the data until it reaches a specific length. **This option is disabled by default.
- **Character-** The STE-718/STE-716 series will transmit the serial data in its buffer when it sees the incoming data included with the specified character (in HEX format). This field allows one or two characters. If the character delimiter is set to 0x0d, STE-718/STE-716 series will push out its serial buffer when it sees 0x0d (carriage return) in the serial data. **This option is disabled by default.
- **Network to Serial Packet Delimiter-** Same as the delimiters above, but controls data flow in the opposite direction. It will store data from the network interface in the queue and send it over to the serial interface until one of the delimiter conditions is met.
- **Character Send Interval-** This option specifies the time gap between each character. When set to two seconds, the serial device server will split the data in the queue and only transmit one character (byte) every two seconds. ** This option is disabled by default.
- **Response Interval Timeout-** This option only affects the ‘Request & Response Mode’ and has no effect on the ‘Transparent Mode’. When TCP data is received (request) and passed to the serial side, the device will wait for the set time before transferring another TCP data if the serial side does not receive any data (response).

Serial

- ➔ **Serial FIFO-** The STE-718/STE-716 series has its FIFO function enabled to optimize its serial performance as default. In some applications (particularly when the flow control is enabled), it may deem necessary to disable the FIFO function to minimize the amount of data that is transmitted through the serial interface after a flow of events is triggered to reduce the possibility of overloading the buffer inside the serial device. Please note that disabling this option on baud rates higher than 115200bps would reduce the data integrity noticeably.
- ➔ **Serial Buffer-** As default, the STE-718/STE-716 series will empty its serial buffer when a new TCP connection is established. This means that the TCP application will not receive buffered serial data during a TCP link breakage. To keep the serial data when there is no TCP connection, send out the buffered serial data immediately after a TCP connection is established (disable this option).

5.5 SNMP/Alert Settings

5.5.1 SNMP Settings:

The SNMP function is disabled by default.

- To enable this function check on the “**Enable SNMP**” option.
- Basic SNMP configurations such as Read/Write Community, SysName (System Name), SysLocation (System Location), and SysContact (System Contact) are supported.
- In addition, users can send SNMP Trap events to a SNMP Trap server by entering its IP address. The changes will become effective immediately after a successful save.

SNMP Settings	
SysName	0060E9-13AC20
SysLocation	location
SysContact	contact
SNMP	☐ Enable SNMP
Read Community	public
Write Community	private
SNMP Trap Server	0 . 0 . 0 . 0

Figure 5.18 – SNMP Settings

5.5.2 Alert Event

Events could be triggered in different ways. Various ways include: Cold Start, Warm Start, Authentication Failure, IP Change, Password Change, and Link Down.

The STE-708/STE-716 series supports three different types of event alerts - E-mail, SNMP Trap, and Relay.

Alert Event	Email/Relay	Trap
Cold Start	☐ E-mail	☐ Trap
Warm Start	☐ E-mail	☐ Trap
Authentication Failure	☐ E-mail	☐ Trap
IP Address Changed	☐ E-mail	
Password Changed	☐ E-mail	
LAN1 Link Down	☐ Relay ON	
LAN2 Link Down	☐ Relay ON	

Figure 5.19 – Alert Event Settings

5.5.3 E-mail Settings

In case the device raises an alert and/or warning message, it will send an email to the administrator's mailbox. **Email Settings** allow users to set up the device and be able to send an email.

1. To set up email sending, users are required to insert a **“Sender”** email address which will be the **“From”** on the email. Then, insert a **“Receiver”** email address to which the email is sent. Users can send the email to several recipients using semicolons (;) to separate each email address.
2. The next step is to set the **Email Server**.
 - a. Insert the **IP address** of a **Mail Server** from the local network.
 - b. If the **Mail Server** requires a user's authentication, then, enable the **“SMTP server authentication required”**, and insert the **Username** and **Password**.
 - c. Please contact the network administrator for the **Mail Server IP address** and the **Username** and **Password**,

Note: After the setup, users can click on the “Send test Mail” button to verify the mail settings.

E-mail Settings

To configure the device to send alerts by E-mail or Trap.

E-mail Settings	
Sender's E-mail address	
Receiver's E-mail address 1	
Receiver's E-mail address 2	
Receiver's E-mail address 3	
Receiver's E-mail address 4	
Receiver's E-mail address 5	

Mail Server	
Mail Server	
☐ Mail server authentication required.	
User name	
Password	

Figure 5.20 – E-mail Settings



Attention

It is also important to properly setup the default gateway and DNS servers in the network settings, so the STE-708/716 series can lookup DNS names and route the mails to the proper default gateway.

5.6 Log Settings

The Syslog function is turned on by default and cannot be turned off. It is used to log the system events and report to an external Syslog server (if necessary). Also, transmitted data could be logged for recording or debugging purposes. The logs could be reported to an external Syslog server as well.

5.6.1 System Log Settings

- **Enable Log Event to Flash-** Enabling this function to allow the device writes log events to the local flash; otherwise the logs would be cleared when the device restarts, due to this, it would be stored in the RAM by default.
- **Log Level-** 3 (LOG_ERR) is the only log level for STE-708/STE-716 series.
- **Enable Syslog Server-** Enabling this option would allow the device to send Syslog events to a remote Syslog server.
- **Syslog Server IP-** Users are required to specify the remote Syslog Serve IP, after the Syslog Server is enabled.
- **Syslog Server Service Port-** Users are required to specify the remote Syslog Server Port.

System Log Settings	
Enable Log Event to Flash	☐ Enabled
Log Level	3: (LOG_ERR) ▼
Enable Syslog Server	☐ Enabled
Syslog Server IP	0 . 0 . 0 . 0
Syslog Server Service Port	514 (1~65535, default=514)

Figure 5.21 – System Log Settings

5.6.2 COM Log Settings

- **Log Data Contents:**
 - **Enabled** - The COM logging function will log the content (raw bytes) of data that is being transmitted and received.
 - **Disabled** - The COM logging function will only log the data length to reduce the system's load.

Note: The STE-708 / STE-716 series can internally store up to 1500 lines.

A request or a response will consist of one line, data longer than 512 bytes will go into another line. Users can retrieve the logs by using a FTP Client. FTP login is the same as the WebUI; they are located in /var/log/logcomxx (xx is the port number).

When the reserved space is full, new logs will replace the old logs. It is strongly recommended to send COM logs to a remote Syslog server.

- **Data Log Types:** Hex or ASCII.
- **COM x:** Choose which port to log.
- **Enable Syslog Server:** Enabling this option will allow the device to send COM logs to a remote Syslog server. Users can set the device to send COM logs to the same Syslog server used previously for logging events.
- **Syslog Server IP:** Please specify the remote Syslog Server IP.
- **Syslog Server Service Port:** Please specify the remote Syslog Server Port.

COM Log Settings	
☐ Log Data Contents	Types: ☒ HEX ☐ ASCII
Com Ports	☐ Com1 ☐ Com2 ☐ Com3 ☐ Com4
	☐ Com5 ☐ Com6 ☐ Com7 ☐ Com8
	☐ Com9 ☐ Com10 ☐ Com11 ☐ Com12
	☐ Com13 ☐ Com14 ☐ Com15 ☐ Com16
Enable Syslog Server	☐
Syslog Server IP	0 . 0 . 0 . 0
Syslog Server Service Port	514 (1~65535, default=514)

Figure 5.22 – COM Log Settings

5.6.3 Event Log

Display the current syslog stored in the device.

Event Log

Index	Date	Time	Startup Time	Level	Event
1/1	2000.01.01	00:01:38	00d00h00m29s	alert	: Alert: Cold Start, SysName: 0080E9-13AC20, SysLocation: location

[Previous Page](#) [Next Page](#)

[Show All Event](#) [Clear All Event](#)

Figure 5.23 – Event Log Settings

Click on “Last Page” to go to the last page. Click on “Show All Event” to show all events in one page. Click on “Clear All Event” to clear the events stored in the device.

5.6.4 COM Data Log

Users can select from the COMx dropdown box to display logs from different COM ports. The first three lines were set to show the logging of data length and the last two lines were set to show data content in Hexadecimal.

COM Data Log

COM Log

Index	Date	Time	Startup Time	Level	Event
-------	------	------	--------------	-------	-------

Figure 5.24 – COM Data Log Settings

Click on “Last Page” to go to the last page. Click on “Show All Event” to show all events in one page. Click on “Clear All Event” to clear the events stored in the device.

5.7 System Setup

Click on the “**System Setup**” link to open its submenu and this will lead to the ‘Link State’.

5.7.1 Link and Serial State

Link and Serial State display the information of each connection for all serial ports for debugging purposes. They also display the byte count of each serial port’s transmit (Tx) and receive (Rx) data.

Link State

To display the link mode and the status of each connection.

Link State													
Com	Link Mode	TX	RX	TX Total	RX Total	IP1	IP2	IP3	IP4	IP5	IP6	IP7	IP8
1	TCP Server	0	0	0	0	Listen							
2	TCP Server	0	0	0	0	Listen							
3	TCP Server	0	0	0	0	Listen							
4	TCP Server	0	0	0	0	Listen							
5	TCP Server	0	0	0	0	Listen							
6	TCP Server	0	0	0	0	Listen							
7	TCP Server	0	0	0	0	Listen							
8	TCP Server	0	0	0	0	Listen							
9	TCP Server	0	0	0	0	Listen							
10	TCP Server	0	0	0	0	Listen							
11	TCP Server	0	0	0	0	Listen							
12	TCP Server	0	0	0	0	Listen							
13	TCP Server	0	0	0	0	Listen							
14	TCP Server	0	0	0	0	Listen							
15	TCP Server	0	0	0	0	Listen							
16	TCP Server	0	0	0	0	Listen							

Figure 5.25 – Link and Serial State

5.7.2 Time Settings

Date and time can be set manually, or using **Network Time Protocol (NTP)** to automatically synchronize with a time server. For auto-synching, select **NTP** in the **Time Setting** field, then proceed to fill the IP address or host name for it. If a hostname is entered, the DNS server must be properly configured; a Time Zone can be selected as well.



Attention

It is also important to properly setup a default gateway and DNS servers in the network settings, so the STE-708/STE-716 series can lookup DNS names and find the external NTP Server.

In case that the serial device server(s) are located in a region where **Daylight Saving Time (DST)** is being used, enable this option and setup the start and end date when DST will become effective. Also enter the time that DST offsets (usually one hour).

Time

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

Current System Time	
2000/1/1 Sat 08:04:19 Refresh	
System Time Setting	
Time Zone	(GMT) Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London ▼
Time Setting	☐ NTP ☒ Manual
NTP Setting	
NTP Server	pool.ntp.org
Manual Setting	
Date	Year: 2000 ▼ / Month: Jan ▼ / Day: 1 ▼
Time	Hour: (0~23) : 6 ▼ Minute: (0~59) : 4 ▼ Second: (0~59) : 19 ▼
Daylight Saving Setting	
☐ 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)

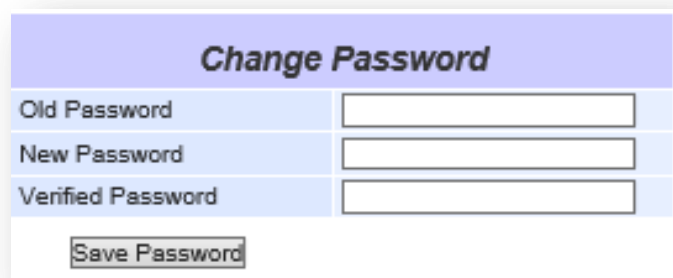
[Save Configuration](#)

Figure 5.26 – Time Settings

5.7.3 Security Configuration

Change Password

The default password is null, users can change the password by filling in the new password to the new Password and verified password fields. Be aware that the password is case sensitive.



The 'Change Password' form has a light blue header with the title 'Change Password'. Below the header, there are three input fields: 'Old Password', 'New Password', and 'Verified Password'. Each field is preceded by its label. At the bottom of the form is a 'Save Password' button.

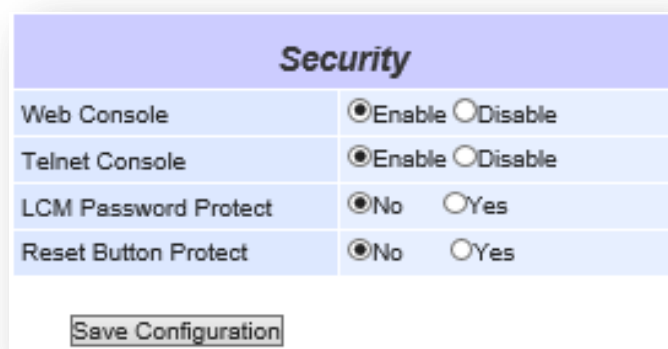
Change Password	
Old Password	
New Password	
Verified Password	
Save Password	

Figure 5.27 – Change Password

Security

Users can disable certain access methods to reduce the risk of system intrusion. This includes the Web UI, Telnet console, LCM, and the Reset Button.

- **Web Console** - Disable to prevent the Web UI from being accessed.
- **Telnet Console** - Disable to prevent the Telnet console from being accessed.
- **LCM Password Protect** - LCM will prompt for a password before the device can be configured through the LCM when it is protected. Press the “Up” and “Down” buttons next to the LCM to select the characters one by one.
- **Reset Button Protect** – Resetting the device back to the defaults becomes impossible when the reset button is protected.



The 'Security' form has a light blue header with the title 'Security'. Below the header, there are four rows of settings: 'Web Console', 'Telnet Console', 'LCM Password Protect', and 'Reset Button Protect'. Each row has two radio button options. At the bottom of the form is a 'Save Configuration' button.

Security	
Web Console	☒ Enable ☐ Disable
Telnet Console	☒ Enable ☐ Disable
LCM Password Protect	☒ No ☐ Yes
Reset Button Protect	☒ No ☐ Yes
Save Configuration	

Figure 5.28 – Security Settings

5.7.4 Backup and Restore Configuration

Users can backup and restore the current settings to the local computer (Figure 5.29).

Backup Configuration
Click **Backup** to save the current configuration to your computer.
Backup

Restore Configuration
Browse a backup configuration file and click **Upload** button to restore the device's configuration.
 Browse... **Upload**

Figure 5.29 – Backup & Restore Configuration

5.7.5 Firmware Upgrade

To upgrade the firmware, browse to the location of the new firmware binary file (.dld) and click the “Upload” button. In some cases, the device reconfiguration is required.

Select new firmware: **Browse**
Upload

Figure 5.30 – Firmware Upgrade

5.7.6 Reboot

Click on the “**Reboot**” link to perform the device restart if it is required. Users can also check the “Reset” box to restore the device to the original factory default settings, after click the “Reboot” button.

Reboot
Click **Reboot** to have the device performing a software restart.
Wait a minute before logging into the device again.
Adjust your PC LAN and WLAN setting according to the new device's configuration if needed.

Restore to Default Settings
Check **Reset** box and click **Reboot** if you need to restore the device to factory default settings.
☐ **Reset**

Reboot

Figure 5.31 – System Reboot

6 CLI Configuration

6.1 Accessing the CLI

Antaira's STE-708/STE-716 series can be configured by Command-Line Interface (CLI). There are two ways to access the CLI, and both methods will lead to the same CLI, i.e., a command line interface that allows users to modify most settings in the device.

6.1.1 Serial Console

The console interface follows a standard RS-232 specification. Users can find pin assignments in **Section 9.3.2**. The interface can be accessed with the following settings:

Baud rate	115200bps
Parity	None
Data bits	8 bits
Stop bit	1 bit
Flow Control	None

6.1.2 Telnet Console

Please be aware that Windows Vista / Windows 7 or higher do not have Telnet client installed by default, to install Microsoft Telnet client on these systems:

1. Click **Start**, and then click **Control Panel**.
2. On the **Control Panel** Home page, click **Programs**.
3. In the 'Programs and Features' section, click 'Turn Windows features on or off'.
4. If the **User Account Control** dialog box appears, confirm that the action it displays is correct, and then click **Continue**.
5. In the **Windows Features** list, select **Telnet Client**, and then click **OK** (*Figure 6.1*).

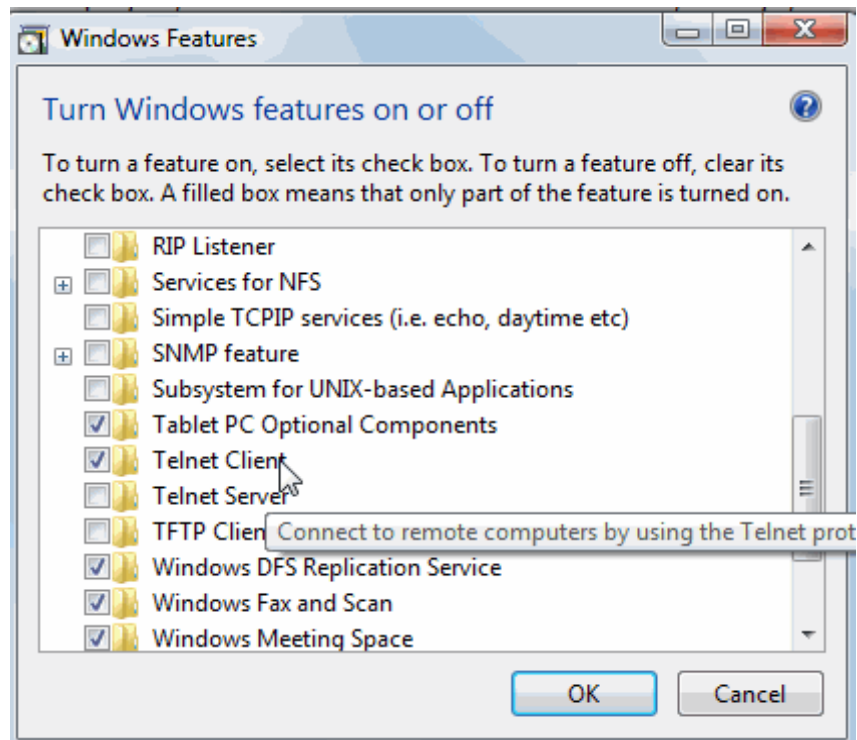


Figure 6.1

6.2 General Information

Open the command line interface (console terminal) and telnet to the device using its IP address. The default username is “**admin**” and password is empty (blank). A main menu should appear as below in *Figure 6.2*.

```
Username:admin
Password:
-----
Main Menu
-----
[0]EXIT
[1]Overview
[2]Networking
[6]COM Port Settings
[7]Alert Settings
[8]System
[9]Set to Default
[a]Restart
:
```

Figure 6.2

Notes:

1. The STE-708/STE-716 series will automatically close the telnet connection after 3 minutes of inactivity.
2. Press the “ESC” key to return to the previous menu.
3. Some changes to the device would take effect only after the device is restarted.
4. Detailed explanations are described as below LCM configuration.

6.2.1 LCM Configuration

A Liquid Crystal Monitor (LCM) is installed on the front panel of the device that can be used to display device information and perform basic configurations. Below (*Figure 6.3*) illustrates its buttons and corresponding functions.

Buttons	Functions
	Opens Main Menu or go back one level higher
	Scroll up
	Scroll down
	Confirm the selection. When working with IP addresses, pressing <SEL> means moving to the next digit

Figure 6.3 – LCM Buttons Function

6.3 Welcome Screen

When the device boots up, the LCM will display LAN1. Users can press the scroll down button, and it will display LAN2 information. The format is as follows:

- LAN1: Link down
- 10.0.50.100 ▼

6.4 Main Manual Structure

Press the <Menu> key to enter the main menu. Press <Scroll Down> to go to the next layer or option. Press <Scroll Up> to go to the back one layer or option.

6.4.1 Overview

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
1.Overview	1.Model Name				Display Model Name
	2.Kenrnel ver.				Display Kernel version
	3.AP ver.				Display AP version
	4.LAN 1	1.LAN status			Display LAN 1 status
		2.MAC			Display MAC address of LAN 1
	5.LAN 2	1.LAN status			Display LAN 2 status
		2.MAC			Display MAC address of LAN 2

Figure 6.4 – LCM Buttons Function - Overview

6.4.2 Network Settings

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.Network set	1.LAN 1	1. IP Config	1.Static IP		Change to Static IP Mode
		2. IP Address	2.DHCP		Change to DCHP Mode
		3. Net Mask			Display/Change LAN 1 IP
		4.Gateway			Display/Change the Gateway IP
	2.LAN 2	1. IP Config	1.Static IP		Change to Static IP Mode
		2. IP Address	2.DHCP		Change to DCHP Mode
		3. Net Mask			Display/Change LAN 2 IP
		4.Gateway			Display/Change the Gateway IP
	3.DNS Server 1				Display/ Change DNS Server 1 IP address
	4.DNS Server 2				Display/ Change DNS Server 2 IP address

Figure 6.5 – LCM Buttons - Network Settings

6.4.3 Serial Settings

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.Serial set	1.Select Port				Select a COM Port to configure
	2.Parameter set	1.Baud Rate	1.300		Display/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/Change Parity
			2.Odd		
			3.Even		
			4.Mark		
			5.Space		
		3. Data Bits	1.5 bits		Display/Change Data Bit
			2.6 bits		
			3.7 bits		
			4.8 bits		
		4.Stop Bits	1.1 bits		Display/Change Stop Bit
			2.2 bits		
		5.Flow Control	1.None		Display/Change Flow Control Mode
			2.Xon/Xoff		
			3.Hardware		
		6.Delimiter	1.Net to Serial	1.Disable	Disable UART Delimiter
				2.Enable	1.Timer: Change UART delimiter to timer mode and set its time
					2.Char: Change UART delimiter to

					character mode and set the Character
		6.Delimiter	2.Serial to Net	1.Disable	Disable UART Delimiter
				2.Enable	1.Timer: Change UART delimiter to timer mode and set its time
					2.Char: Change UART delimiter to character mode and set the Character
		7.UART Mode	1.232		Display/Change UART Mode to RS232
			2.422		Display/Change UART Mode to RS422
			3.485		Display/Change UART Mode to RS485
		8.Apply to all	1.No		
			2.Yes		Apply serial settings to all serial ports
	3.Link Mode				Display/Change Link Mode
		1.TCP Server	1.Virtual COM	1.Disable	Display/Change Virtual COM Mode
				2.Enable	
			2.Local Port		Display/Change local listening port
			3.Max Connect		Display/Change maximum client connection (1~4)
			4.IP Filter	1.Disable	Display/Change IP Filter function and the IP address
				2.Enable	
			5.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	
		1.TCP Client	1.Dest IP 1		Display/Change Destination IP 1
				2.Enable	
			2.Dest Port 1		Display/Change Destination Port 1
			3.Destination 2	1.Disable	Disable Destination 2
				2.Enable	Display/Change Destination IP 2 and Destination port 2
			4.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	
		3.UDP	1.Local Port		Display/Change local listening port

			2.Dest IP 1		Display/Change Destination IP 1
			3.Dest Port 1		Display/Change Destination Port 1
			4.Destination [2~16]	1.Disable	Disable Destination [2~16]
				2.Enable	Display/Change Destination IP [2~16] and Destination port [2~16]
			5.Apply to all	1.No	Apply Link Mode settings to all serial ports
				2.Yes	

Figure 6.6 – LCM Buttons - Serial Settings

6.4.4 Server State

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
2.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 protect	1. LCM Console	1.No		Disable LCM Console password protection
			2.Yes		Enable and Change password
		2. Reset Button	1.No		Disable Reset Button password protection
			2.Yes		Enable and Change password on Reset Button
	3.Ping	1. LAN 1			Use "ping" command to check specific IP address for LAN 1
		2. LAN 2			Use "ping" command to check specific IP address for LAN 2

Figure 6.7 – LCM Buttons - Server state

6.4.5 Restart

1 st Layer	2 nd Layer	3 rd Layer	4 th Layer	5 th Layer	Description
5.Restart	1.No				Cancel Restart Command
	2.Yes				Restart Immediately

Figure 6.8 – LCM Buttons - Restart

This system overview window gives the general information on Ethernet, MAC address, kernel and AP version.

Operation: Main → [1]Overview

```
-----  
              Overview  
-----  
Model Name      : SE5416  
Lan 1 IP Address : 010.000.050.102  
Lan 2 IP Address : 192.168.001.001 <Link down>  
Lan 1 MAC       : 00.60.E9.0A.E5.FE  
Lan 2 MAC       : 00.60.E9.0A.E5.FF  
Kernel Version  : 4.12  
AP Version      : 4.14  
Spanning Tree Status : Disabled  
-----  
[0]EXIT  
:_
```

Figure 6.9

6.5 Networking Configuration

This section allows users to change an IP address, subnet mask, gateway, or SNMP information. Please note that the new settings will not take effect until the device is restarted.

Operation: Main → [2] Networking

```
-----
Networking
-----
[0]EXIT
[1]LAN 1 Settings
[2]LAN 2 Settings
[3]DNS Settings
[5]SNMP Settings
[6]Bridge Settings
[7]ERPS Settings
[8]STP Settings
:
```

Figure 6.10

6.5.1 LAN 1 / LAN 2 Settings

Enter the “LAN settings” and it will display a configuration menu for the DHCP, IP address, subnet mask, and gateway of that LAN.

Operation: Main → [2] Networking → [1] LAN 1 Settings;

Operation: Main → [2] Networking → [2] LAN 2 Settings

```
-----
LAN 1 Settings
-----
[0]EXIT
[1]DHCP      :Disable<Static>
[2]IP        :010.000.176.111
[3]Netmask   :255.255.000.000
[4]Gateway   :010.000.000.254
:-
```

Figure 6.11

Note: It is not possible to configure LAN1 or LAN2 when the redundancy mode is enabled. Please go to the redundancy settings instead.

6.5.2 DNS Settings

Users can configure the DNS1 or DNS2 server IP address manually. Alternatively, if enabling the DHCP option in “**LAN 1 Settings**”, the STE-708/STE-716 series will retrieve the DNS server address from the DHCP server automatically.

Operation: Main → [2] Networking → [3] DNS Settings

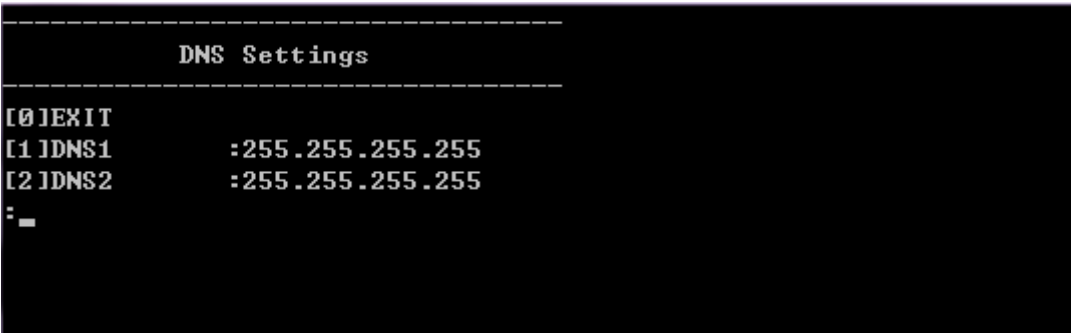


Figure 6.12

6.5.3 SNMP Settings

Antaira's STE-708/STE-716 series allows the user to enable or disable the SNMP function. The changes will become effective immediately. Basic SNMP configurations such as Read/Write Community, SysName (System Name), SysLocation (System Location), SysContact (System Contact), and SNMP Trap Server IP are supported.

Operation: Main → [2] Networking → [5] SNMP Settings



Figure 6.13

6.5.4 Redundancy Settings

STE-708/STE-716 series has a redundancy mode that can be enabled. When the redundancy mode is enabled, LAN1 and LAN2 would be merged to create one single Ethernet interface. When one of the physical LAN ports fail, the STE-708/STE-716 series would automatically use the other LAN port. This is where the user would configure network settings of the bridge.

Operation: Main → [2] Networking → [6] Redundancy Settings

```
[0]EXIT
[1]Bridge mode:Enable
[2]DHCP       :Disable<Static>
[3]IP         :010.000.176.111
[4]Netmask    :255.255.000.000
[5]Gateway    :010.000.000.254
:
```

Figure 6.14

6.6 COM Port Configuration

STE-708/STE-716 series allows users to configure the parameters of the COM port including COM Link mode and COM port parameters. First, enter the number of the COM port that is required for configuration.

```
-----
          COM Port Settings
-----
COM port number<Port Number:1~4, 0:exit>
:1
-----
          COM1 Port Settings
-----
[0]EXIT
[1]Link Mode   : TCP Server
[2]Com Setting : RS485,115200,n,8,1
:_
```

Figure 6.15

6.6.1 TCP Server for Link Mode

TCP Server mode is the default Link Mode for STE-708/STE-716 series. A TCP client is required to connect to this TCP server. Users will be required to configure **Virtual COM, Max Connections, IP Filter, and Local Port** settings.

Operation: Main→ [6] COM Port Setting→[1-4] Select Port→[1] Link Mode→[1] TCP Server

```
-----
          TCP Server <COM1>
-----
[0]EXIT
[1]Virtual COM       : Disable
[2]Max Connections  : 1
[3]IP Filter        : Disable
[4]Local Port       : 4660
: _
```

Figure 6.16

6.6.2 TCP Client for Link Mode

STE-708/STE-716 series' 'Link Mode' can be configured as a TCP Client. In this case, the serial device server will connect to a TCP server. Userw will be required to configure the settings for **Destination IP 1 and 2** (if enabled).

Operation: Main→ [6]COM Port Setting→[1-4]Select Port→[1]Link Mode→[2]TCP Client

```
-----
          TCP Client <COM1>
-----
[0]EXIT
[1]Destination IP 1  : 000.000.000.000
[2]Destination Port 1 : 4660
[3]Destination 2     : Disable
:
```

Figure 6.17

6.6.3 UDP Link Mode

STE-708/STE-716 series' link mode can be configured to utilize UDP. Note that UDP is a connection-less protocol, so data delivery is not guaranteed. Users will be required to configure the settings of **Destination IPs**. The 'Destination IP' field supports input of an IP range and it supports up to eight 'Destination IPs'.

Operation: Main→ [6] COM Port Setting→[1-4] Select Port→[1] Link Mode→[3] UDP

```
-----
                        UDP <COM1>
-----
[0]EXIT
[1]Local Port           : 4660
[2]Destination IP 1     : 010.000.176.004 ~ 004
[3]Destination Port 1   : 4660
[4]Destination 2        : Disable
[5]Destination 3        : Disable
[6]Destination 4        : Disable
[7]Destination 5        : Disable
[8]Destination 6        : Disable
[9]Destination 7        : Disable
[a]Destination 8        : Disable
: _
```

Figure 6.18

6.6.4 Serial Settings

Users can configure the UART mode, baud rate, parity, data bit, stop bit, and flow control.

Operation: Main→ [6] COM Port Setting→[1-4] Select Port→[2] Com Settings

```
-----
                        COM1 Setting
-----
[0]EXIT
[1]Uart mode           : RS485
[2]Baud rate           : 115200 bps
[3]Parity              : None
[4]Data bits           : 8 bits
[5]Stop bits           : 1 bit
[6]Flow control        : Xon/Xoff
:
```

Figure 6.19

6.7 Alert Settings

There are two sub-menu settings included inside the ‘Alert Settings’, which are ‘E-mail Settings’ and ‘Alert Event’.



Figure 6.20

6.7.1 Configuring E-mail

When an alert event is triggered, the STE-708/STE-716 series can send that event through email. Here, users can configure **Sender’s Email Address**, **Receiver’s Email Address** (up to 5), **Mail Server**, and **Require Authentication**.

Operation: Main→ [7] Alert Settings→[1] E-mail Settings

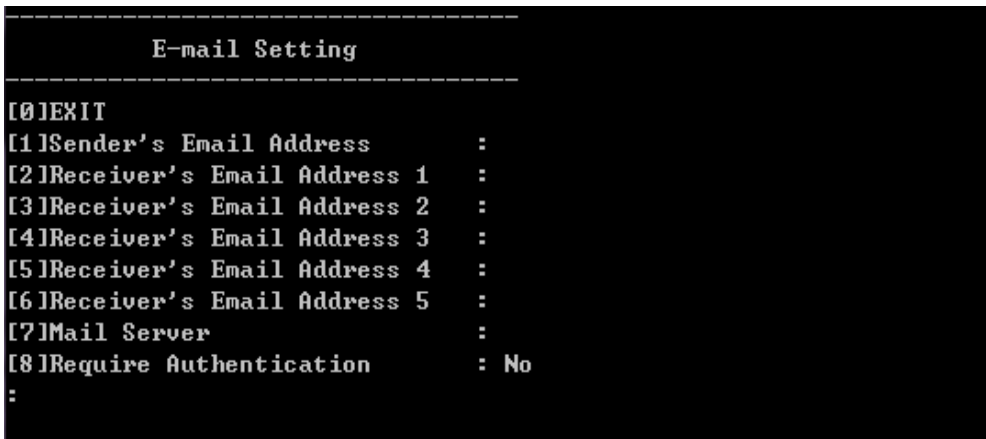


Figure 6.21

6.7.2 Configuring Alert Event

Choose the alert events that STE-708/STE-716 series should trigger and the method it should use to notify that event (Email, Trap, or Relay). Available events are **Cold Start, Warm Start, Authentication Failure, IP Address Change, Password Change, and Link Down.**

Operation: Main→ [7] Alert Settings→[2] Alert Event

```
-----
Alert Event
-----
[0]EXIT
[1]Cold Start           : Email OFF, Trap OFF
[2]Warm Start          : Email OFF, Trap OFF
[3]Authentication Failure : Email OFF, Trap OFF
[4]IP Address Changed  : Email OFF
[5]Password Changed    : Email OFF
[7]LAN1 Link Down      : Relay OFF
[8]LAN2 Link Down      : Relay OFF
:
```

Figure 6.22

6.8 System Configuration

There are three sub-menus included inside the 'System Settings', which are Link State, Time, and Security.

Operation: Main→ [8] System

```
-----
                        System Settings
-----
[0]EXIT
[1]Link State
[2]Time           : Manual
[3]Security
:
```

Figure 6.23

6.8.1 Link State

Link State information of each COM port will be displayed.

Operation: Main→ [8] System→[1] Link State

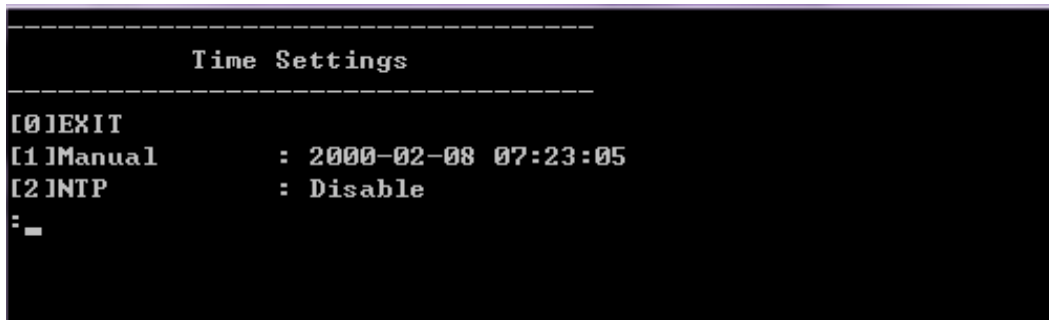
Remark: L-Listen, C-Connecting, D-Connected, R-Ready							
Port	Type	IP1	IP2	IP3	IP4	IP5	IP6
01	TCP Server	L					
02	TCP Client	C					
03	UDP	R					
04	TCP Server	L					
05	TCP Server	L					
06	TCP Server	L					
07	TCP Server	L					
08	TCP Server	L					
09	TCP Server	L					
10	TCP Server	L					
11	TCP Server	L					
12	TCP Server	L					
13	TCP Server	L					
14	TCP Server	L					
15	TCP Server	L					
16	TCP Server	L					
Press '0' to cancel ...							

Figure 6.24

6.8.2 Time Settings

Users can configure the system time manually or let the STE-708/STE-716 series retrieve time information from an NTP server. The changed will take effect immediately after the settings are saved.

Operation: Main→ [8] System→[2] Time



```
-----
                        Time Settings
-----
[0]EXIT
[1]Manual      : 2000-02-08 07:23:05
[2]NTP         : Disable
:_
```

Figure 6.25

6.8.3 Security Settings

Users can change the system password here. Moreover, it can block different access methods to prevent system intrusion.

Operation: Main→[8] System→[3] Security



```
-----
                        Security
-----
[0]EXIT
[1]Change Password
[2]Web Console      : Enable
[3]Telnet Console   : Enable
[4]LCM Password Protect : Disable
[5]Reset Button Protect : Disable
:_
```

Figure 6.26

Note: Please be aware not to disable options [2-4] all together because further configuration would not be possible.

6.9 Restoring Factory Default

Choose and confirm this option to reset the STE-708/STE-716 series back to its default settings.
The device would restart automatically to apply the default settings.

Operation: Main → [9] Set to Default

```
-----  
Main Menu  
-----  
[0]EXIT  
[1]Overview  
[2]Networking  
[6]COM Port Settings  
[7]Alert Settings  
[8]System  
[9]Set to Default  
[a]Restart  
:9  
Set to Default? <y/N>  
:_
```

Figure 6.27

6.9.1 Restart System

Choose and confirm this option to restart the STE-708/STE-716 series.

Operation: Main → [a] Restart

```
-----  
Main Menu  
-----  
[0]EXIT  
[1]Overview  
[2]Networking  
[6]COM Port Settings  
[7]Alert Settings  
[8]System  
[9]Set to Default  
[a]Restart  
:a  
Are you sure you want to restart? <y/N>  
:_
```

Figure 6.28

7 Link Modes and Applications

7.1 Link Mode Configuration

STE-708/STE-716 series supports different link modes, which are TCP Server, TCP Client, and UDP. Under the three link modes: TCP Server can support RAW, Virtual COM, or Reverse Telnet applications. TCP Client can support the Virtual COM application. In the upcoming sections, it will discuss how to setup different Link Modes properly.

Modes		Supports
TCP	Server	■ RAW ■ VCOM ■ Reverse Telnet
	Client	■ VCOM
UDP		Connectionless protocol

7.1.1 TCP Server Mode

STE-708/STE-716 series can be configured as a TCP server in a TCP/IP Network to listen for an incoming TCP client connection to a serial device. After the connection is established between the serial device server and the host computer, data can be transmitted in both directions; this also applies whenever the VCOM is running on server mode. Please be reminded that this is the device's default link mode.

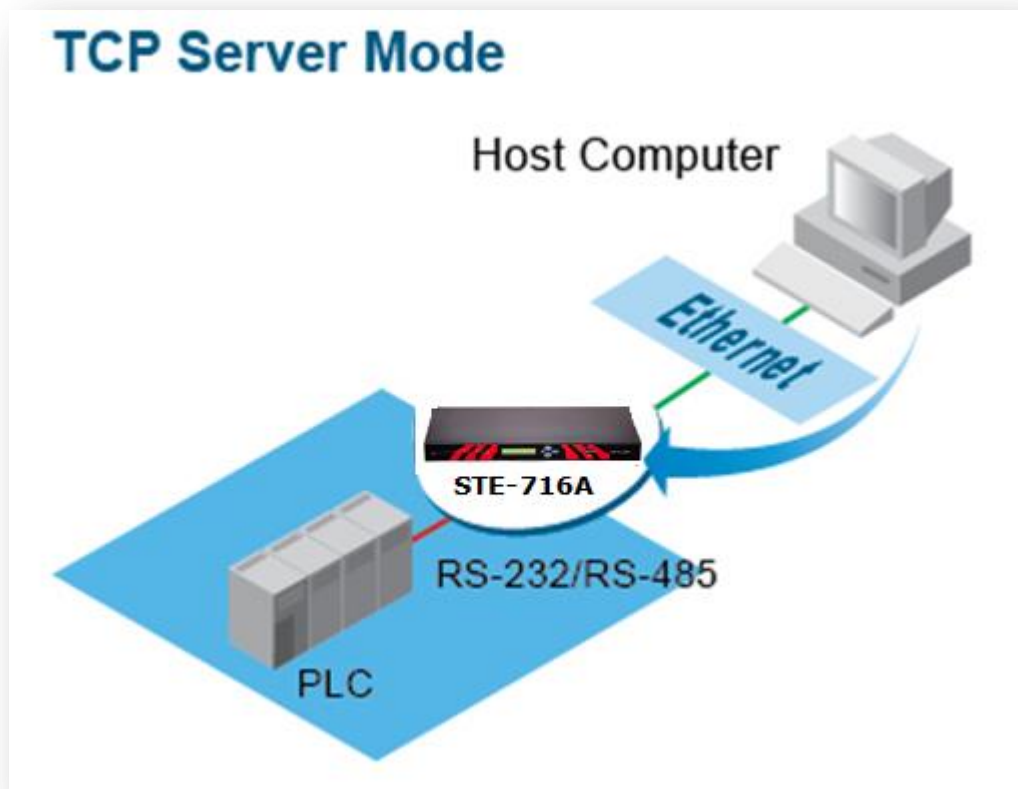


Figure 7.1

STE-708/STE-716 series defaults in TCP Server mode, and there are additional connection settings that can be configured (Figure 7.2). By selecting the TCP server mode, a TCP client program should be prepared to connect to the STE-708/STE-716 series.

●TCP Server ○TCP Client ○UDP

TCP Server

Mode	RAW
Max. Connections	1
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
Accessible IP	☐ Enable 0 . 0 . 0 . 0
Local Port	4660
☐ Apply to all serial ports (Local Port will be enumerated automatically.)	

Figure 7.2

For setting as a TCP Server, please follow the steps below.

- Click on the COMX link under **Serial** on the left hand side.
- Select TCP Server in the Link Modes; TCP Server is the default link mode.
- **Mode:** There are 3 different communication modes:
 - **RAW:** There is no protocol on this mode, meaning the data is passed transparently.
 - **Virtual COM:** The Virtual COM protocol is enabled on the device to communicate with a virtualized port from the client. It is possible to create a Virtual COM port on Windows/Linux in order to communicate with the device as a client.
 - **Reverse Telnet:** Used to connect the device and another serial device (usually a Terminal Server) with a Telnet program. Telnet programs in Windows / Linux usually require special handshaking to get the outputs and formatting show properly. The STE-708/STE-716 series will interact with those special commands (CR/LF commands) once 'Reverse Telnet' is enabled.
- Enter the 'Local Port', this option specifies the port number that the server should listen to; it is used by the client to connect to the server. Default local port is 4660.
- Go to **Response Behavior** for more information on this setting. For serial settings, go to **Sec. 5.4.1**. For Advanced settings, go to **Sec. 5.4.2**.
- Scroll to the bottom of the page and click on "**Save Configuration**" button to save the changes.

Other important variables to consider are:

- **IP Filter:** Enables the source IP option below to block an IP address from accessing the COM port.
- **Source IP:** Specifies the device's source IP which will be transmitting data to the server. In other words, the server will only allow data from this IP to flow (hence its own name implies Source IP). Only one source is allowed.
- **Maximum Connection:** The number of devices/clients (max. of 4 clients), to be served is set in this section.
- **Response Behavior:** There will be options, see below:
 - **Request & Response Mode:** It determines how the device will proceed when it receives requests from connected hosts. Under this mode, the port will hold requests from all other connected hosts until the serial device replies or the Response Interval timeout takes into effect to discard it; however, unrequested data sent from the serial device would be forwarded to all connected hosts.
 - **Reply to requester only:** The port will reply to the connected host who requested the data only.
 - **Reply to all:** A reply is sent to all connected hosts.
 - **Transparent Mode:** The port will forward requests from all connected hosts to the serial device immediately and reply to all connected hosts once it receives data from the serial device.

Note: LINK1 is associated with COM1; LINK2 is associated with COM2, and so on.

7.1.2 TCP Client Mode

The STE-708/STE-716 series can be configured as a TCP client in a TCP/IP Network to establish a connection with a TCP server in the host computer. After the connection is established, data can be transmitted between a serial device and a host computer in both directions; this also applies to virtual COM running in the client mode.

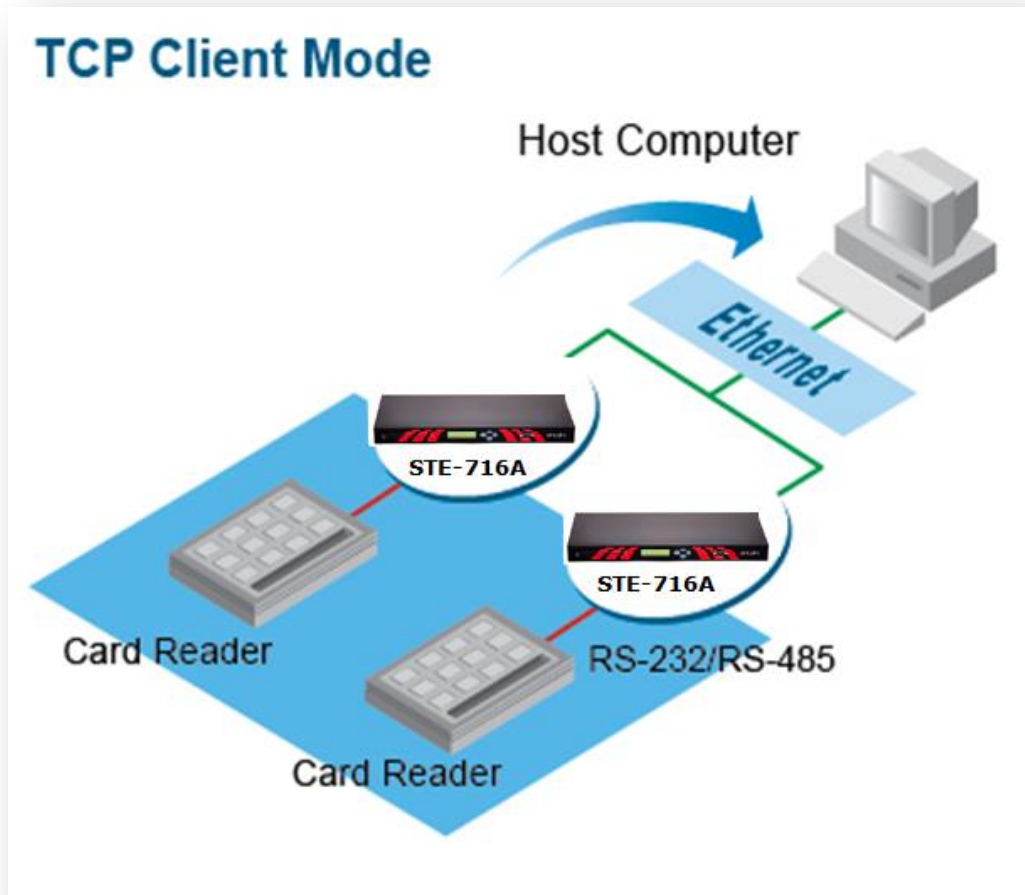


Figure 7.3

By selecting the TCP client mode, it means that a TCP server program should be prepared to connect to the STE-708/STE-716 series. Below, *Figure 7.4*

Figure shows all the settings provided for the TCP client.

☐ TCP Server ☒ TCP Client ☐ UDP

TCP Client

Mode	RAW
Destination IP 1	0 . 0 . 0 . 0
Destination Port 1	4660
Destination 2	☐ Enable
Destination IP 2	0 . 0 . 0 . 0
Destination Port 2	4660
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
☐ Apply to all serial ports	

Figure 7.4

For setting as a TCP Client, please follow the steps below.

- Click on the COMX port under **Serial** on the left hand side.
- Select TCP Client in the Link modes.
- Only two communication modes are available here: RAW and Virtual COM which definitions are the same as above in **Mode**.
- Enter the preferred **Destination IP** and **Port**. This should match the IP settings of the TCP Server program.
- Enable and enter Destination IP 2 and Port 2 (if necessary). Two different servers can be set here (for redundancy), the second server has to be enabled by ticking the box.
- Go to **Response Behavior** for more information on this setting. For serial settings, go to **Sec. 5.4.1**. For Advanced settings, go to **Sec. 5.4.2**.
- Scroll to the bottom of the page and click on “**Save Configuration**” button to save the changes.

7.1.3 UDP Mode

UDP is a faster but connectionless network protocol; it does not guarantee the delivery of network datagram. The STE-708/STE-716 series can be configured to transfer data using unicast or multicast UDP from the serial device to one or multiple host computers, data can be transmitted between the serial device and the host computer in both directions.

There is no **server** or **client** concept on this protocol, they are called **peers** or **nodes**. So here, it is only required to specify the **Local Port** that we should listen to and specify the **Destination IPs** of the remote **UDP nodes**.

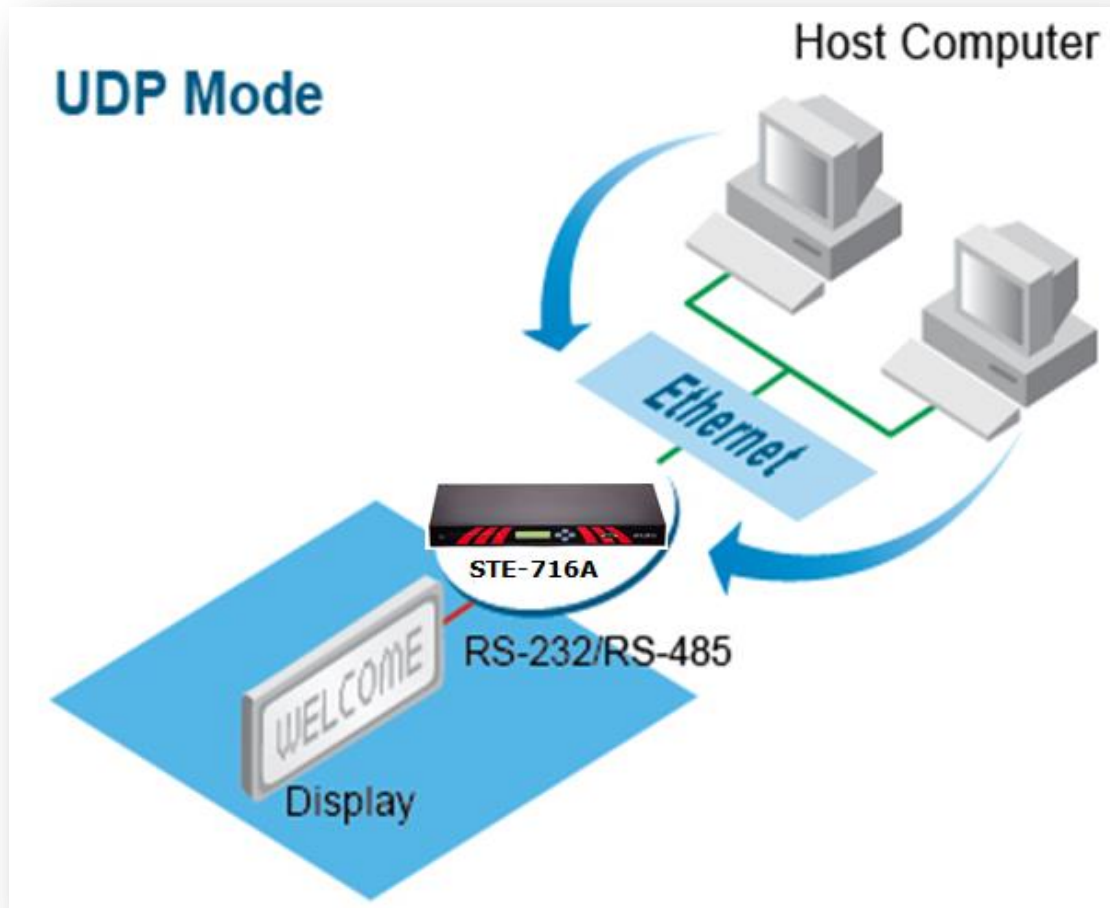


Figure 7.5

The STE-708/STE-716 series also supports the connectionless UDP protocol compared to the connection-oriented TCP protocol. Please be aware that even though UDP provides better efficiency in terms of response time and resource usage, it does not guarantee data delivery. It is recommended to utilize UDP only with cyclic polling protocols where each request is repeated and independent, such as Modbus Protocol. *Figure 7.6* shows the UDP settings.

☐ TCP Server
 ☐ TCP Client
 ☒ UDP

UDP

Local Port:

☒ Destination IP Address 1	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 2	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 3	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 4	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 5	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 6	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 7	0 . 0 . 0 . 0 ~ 0	Port 4660
☐ Destination IP Address 8	0 . 0 . 0 . 0 ~ 0	Port 4660

☐ Apply to all serial ports (Local Port will be enumerated automatically.)

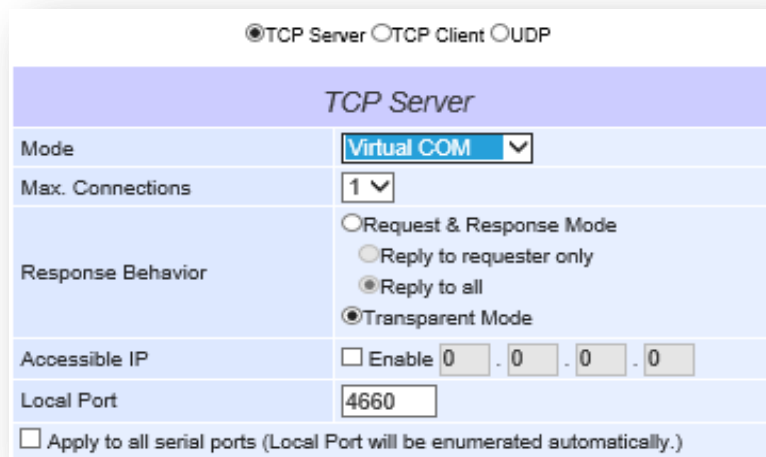
Figure 7.6

- Click on the COMX port under **Serial** on the left hand side.
- Select UDP in the Link modes.
- **Destination IP and Port:** Specify the **Begin** and **End IP** here. Four ranges of IP groups are allowed. This is the **IP** address of the UDP program and the **Port** it is listening to. Note that the maximum number of UDP nodes that STE-708/STE-716 series can handle would highly depend on the traffic load. *The STE-708/STE-716 series has been tested and is resulted to handle up to 100 UDP nodes (baud rate 9600 bps, request interval 100ms, and data length 30bytes).*
- Enter the **Local Listening Port**. This is the port that the STE-708/STE-716 series should listen to. Match this setting in the UDP program (usually called destination port in the UDP program).
- Go to **Response Behavior** for more information on this setting. For serial settings, go to **Sec. 5.4.1**. For Advanced settings, go to **Sec. 5.4.2**.
- Scroll to the bottom of the page and click on “**Save Configuration**” button to save the changes.

7.2 Link Mode Applications

7.2.1 TCP Server Application: Enable Virtual COM

The STE-708/STE-716 series will encapsulate control packets on top of the real data when Virtual COM is enabled. This will allow the Virtual COM port in the Windows/Linux system to access the STE-708/STE-716 series' COM ports. The benefit of using Virtual COM is that rewriting an existing COM program to read IP packets is unnecessary. In other words, it is possible to use an ordinary serial (COM) program. The conversion/virtualization of IP to COM is all done in the system driver transparently. *Figure 7.7* shows the STE-708/STE-716 series in TCP Server mode with Virtual COM enabled.



The screenshot shows a configuration window titled "TCP Server" with three radio buttons at the top: "TCP Server" (selected), "TCP Client", and "UDP". The window contains the following settings:

TCP Server	
Mode	Virtual COM
Max. Connections	1
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
Accessible IP	☐ Enable 0 . 0 . 0 . 0
Local Port	4660
☐ Apply to all serial ports (Local Port will be enumerated automatically.)	

Figure 7.7

- Follow **Sec.7.1.1** to configure the STE-708/STE-716 series in TCP Server mode properly.
- Click on the dropdown box of the **Mode** option and switch to “**Virtual COM**” to enable the Virtual COM application in the STE-708/STE-716 series.
- Scroll to the bottom of the page and click on “**Save Configuration**” button to save the changes.
- Configure Virtual COM in the Operating System. For Windows, refer to **Chapter 8**. For Linux, refer to a separate manual included in the Linux driver zip file. Remember the STE-708/STE-716 series' IP address and **Local Port** here in order to enter this information in the Serial/IP Virtual COM's Control Panel later.

7.2.2 TCP Server Application: Enable RFC 2217

The underlying protocol of Virtual COM is based on RFC 2217, the Telnet COM control option. Therefore, it is possible to use RFC 2217 with the STE-708/STE-716 series in the TCP Server mode. To do so, refer to **Sec 7.2.1** to enable Virtual COM, so that the STE-708/STE-716 series becomes aware of the commands. Note that there is no need to configure Virtual COM on the operating system because Virtual COM ports would not be used.

7.2.3 TCP Client Application: Enable Virtual COM

It is also possible to run VCOM in the TCP Client mode. It is usually easier to use Virtual COM in the Client mode if the STE-708/STE-716 series uses dynamic IP (DHCP) because setting a static IP address in Virtual COM's Control Panel in the operating system is not possible.

The screenshot shows a configuration window titled "TCP Client" with a header bar containing three radio buttons: "TCP Server", "TCP Client" (which is selected), and "UDP". Below the header, the "Mode" is set to "Virtual COM" in a dropdown menu. There are two destination settings: "Destination IP 1" and "Destination Port 1" (both set to 0.0.0.0 and 4660 respectively), and "Destination 2" (unchecked). "Destination IP 2" and "Destination Port 2" are also set to 0.0.0.0 and 4660. Under "Response Behavior", there are four radio buttons: "Request & Response Mode", "Reply to requester only", "Reply to all" (selected), and "Transparent Mode". At the bottom, there is a checkbox labeled "Apply to all serial ports" which is unchecked.

Figure 7.8

- Follow **Sec. 7.1.2** to configure the STE-708/STE-716 series in TCP Client mode properly.
- Click on the dropdown box of the **Mode** option and switch to "**Virtual COM**" to enable the Virtual COM application in the STE-708/STE-716 series.
- Scroll to the bottom of the page and click on the "**Save Configuration**" button to save the changes.
- Configure Virtual COM in the Operating System. For Windows, refer to **Chapter 8**. For Linux, refer to a separate manual included in the Linux driver zip file. Remember the destination port here in order to enter this information in Serial/IP Virtual COM's Control Panel later.

7.2.4 TCP Client Application: Enable RFC 2217

The underlying protocol of Virtual COM is based on RFC 2217, the Telnet COM Control Option. Therefore, it is possible to use RFC 2217 with the STE-708/STE-716 series in the TCP Client mode. To do so, refer to **Sec. 7.2.3** to enable Virtual COM, so that the STE-708/STE-716 series will be aware of the commands. Note that there is no need to configure the Virtual COM on the operating system because Virtual COM ports would not be used.

7.2.5 TCP Server Application: Configure Serial Server as a Pair Connection Master

Pair Connection is useful when pairing up two serial devices over the Ethernet or when it is impossible to install Virtual COM in the serial device. Pair connection does require two STE-708/STE-716 series units to work in a pair; one would be the 'Pair Connection Master' and the other would be the 'Pair Connection Slave'.

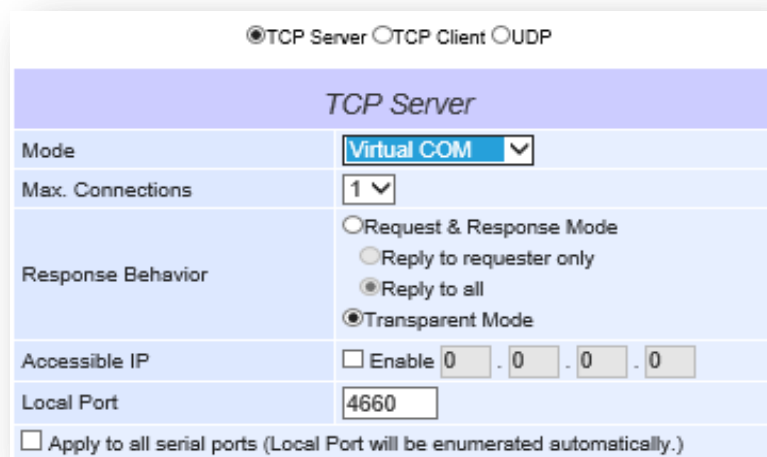


Figure 7.9

- Follow **Sec.7.2.1** to configure the STE-708/STE-716 series in TCP Server mode properly.
- Click on the dropdown box of the **Mode** option and switch to “**Virtual COM**” to enable the Virtual COM application in the STE-708/STE-716 series.
- Scroll to the bottom of the page and click on the “**Save Configuration**” button to save the changes.
- Remember the 'Pair Connection Master's' IP address here in order to enter this information for the 'Slave' later.
- Proceed to the **Sec. 7.2.6** to configure a 'Slave' to connect to this 'Master'.

7.2.6 TCP Client Application: Configure Server as a Pair Connection Slave

A **Pair Connection Slave** is shown in *Figure 7.10*Figure 7.10. It is necessary to pair up with a **Pair Connection Master**. Please setup a **Pair Connection Master** first before proceeding.

☐ TCP Server ☒ TCP Client ☐ UDP

TCP Client

Mode: Virtual COM

Destination IP 1: 0 . 0 . 0 . 0

Destination Port 1: 4660

Destination 2: ☐ Enable

Destination IP 2: 0 . 0 . 0 . 0

Destination Port 2: 4660

Response Behavior:

- ☐ Request & Response Mode
- ☐ Reply to requester only
- ☒ Reply to all
- ☒ Transparent Mode

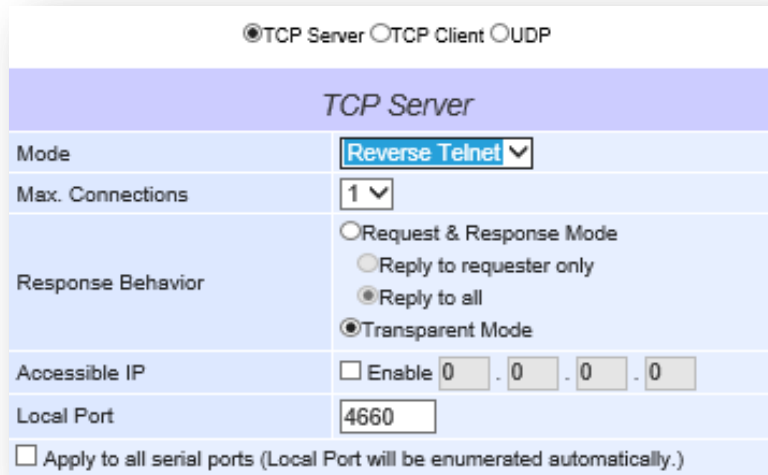
☐ Apply to all serial ports

Figure 7.10

- Follow **Sec.7.1.2** to configure the STE-708/STE-716 series in TCP Client mode properly.
- Click on the dropdown box of the **Mode** option and switch to “**Virtual COM**” to enable the Virtual COM application in the STE-708/STE-716 series.
- Match the Destination IP with the settings of ‘Pair Connection Master’s’ IP that was setup previously.
- Scroll to the bottom of the page and click on the “**Save Configuration**” button to save the changes.

7.2.7 TCP Server Application: Enable Reverse Telnet

Reverse Telnet is useful if a telnet program is used to connect to the STE-708/STE-716 series and the serial interface of the STE-708/STE-716 series is connected to a terminal server. Telnet programs in Windows/Linux require special handshaking to get the outputs and formatting to show properly. The STE-708/STE-716 series will interact with those special commands (CR/LF commands) if Reverse Telnet is enabled.



The screenshot shows a configuration window for the TCP Server. At the top, there are three radio buttons: **TCP Server** (selected), **TCP Client**, and **UDP**. Below this is a header bar labeled **TCP Server**. The configuration fields are as follows:

Field	Value
Mode	Reverse Telnet
Max. Connections	1
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
Accessible IP	☐ Enable 0 . 0 . 0 . 0
Local Port	4660
☐ Apply to all serial ports (Local Port will be enumerated automatically.)	

Figure 7.11

- Follow **Sec.7.2.1** to configure the STE-708/STE-716 series in TCP Server mode properly.
- Click on the dropdown box of the **Mode** option and switch to “**Reverse Telnet**” to enable the Reverse Telnet application in the STE-708/STE-716 series.
- Scroll to the bottom of the page and click on the “**Save Configuration**” button to save the changes.

7.2.8 UDP Application: Multi-Point Pair Connection

Pair connection can also be setup in UDP mode to have more than one ‘Pair Connection Master’ or ‘Slave’ to communicate to each other. For example, it is possible to setup one Modbus Master and six Modbus Slaves in UDP,

Figure 7.12. Note again, UDP does not guarantee data delivery and only data would be transmitted over Ethernet; other serial pings are not transmitted. If RS-232 is along with flow control, it is recommended to use Multi-Point Pair Connection in TCP.

Note: The destination IP and Port of the Slaves need to be equal to the Master's IP and Port.

Local Listening Port for the Slaves need to be equal to the Master's Destination Port, see the table on the next page for an example.

	IP Address	Link Mode	Local Listening Port	Destination IP	Destination Port
SERIAL SERVER Master COM1	10.0.50.100	UDP	5000	10.0.50.200~10.0.50.202	5000
SERIAL SERVER Master COM1	10.0.50.100	UDP	5001	10.0.50.200~10.0.50.201	5000
SERIAL SERVER Master COM1	10.0.50.100	UDP	5002	10.0.50.200	5000
SERIAL SERVER Slave 1 COM1	10.0.50.200	UDP	5000	10.0.50.100	5000
SERIAL SERVER Slave 1 COM2	10.0.50.200	UDP	5001	10.0.50.100	5001
SERIAL SERVER Slave 1 COM3	10.0.50.200	UDP	5002	10.0.50.100	5002
SERIAL SERVER Slave 2 COM1	10.0.50.201	UDP	5000	10.0.50.100	5000
SERIAL SERVER Slave 2 COM2	10.0.50.201	UDP	5001	10.0.50.100	5001
SERIAL SERVER Slave 3 COM1	10.0.50.202	UDP	5000	10.0.50.100	5000

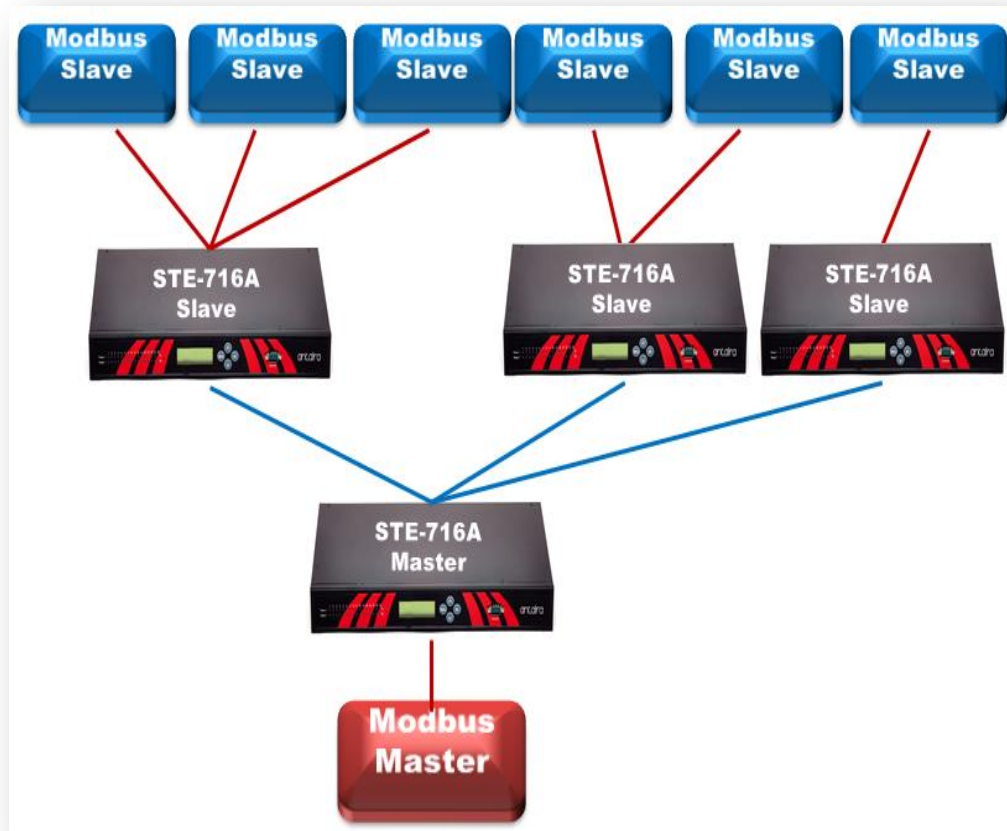


Figure 7.12

7.2.9 TCP Server Application: Multiple TCP Connections

The Multi-Connection option will allow up to a maximum of four TCP Client connections. Note that it is also possible to use this multi-connection feature in conjunction with other TCP Server applications, such as Virtual COM, Pair Connection, and Reverse Telnet. For example, enabling multi-connection along with Pair Connection will result in a Multi-Point Pair Connection in the TCP mode (**Sec.7.2.10**). For more information on Response behaviors please go to (**Response Behavior**).

TCP Server	
Mode	RAW
Max. Connections	4
Response Behavior	☐ Request & Response Mode ☐ Reply to requester only ☒ Reply to all ☒ Transparent Mode
Accessible IP	☐ Enable 0 . 0 . 0 . 0
Local Port	4660
☐ Apply to all serial ports (Local Port will be enumerated automatically.)	

Figure 7.13

7.2.10 TCP Server Application: Multi-Point TCP Pair Connections

The difference between Multi-Point TCP Pair Connection and Multi-Point UDP Pair Connection is that the TCP implementation would also exchange flow control pins for RS-232. However, the TCP Server is limited to a maximum of four connections. If there are four serial devices and they don't use flow control pins with RS-232 or RS-485, it is possible to setup a pair connection in the UDP mode, **Sec.7.2.8**. After multi-connection is enabled in the WebUI, refer to the following table to setup the Pair Connection as show in *Figure 7.14*.

	IP Address	Link Mode	Application	Local Listening Port	Destination IP	Destination Port
SERIAL SERVER Master COM1	10.0.50.100	TCP Server	Pair Connection Master	4660	-	-
SERIAL SERVER Slave 1 COM1	10.0.50.200	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SERIAL SERVER Slave 1 COM2	10.0.50.200	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SERIAL SERVER Slave 2 COM3	10.0.50.200	TCP Client	Pair Connection Slave	-	10.0.50.100	4660
SERIAL SERVER Slave 3 COM1	10.0.50.201	TCP Client	Pair Connection Slave	-	10.0.50.100	4660

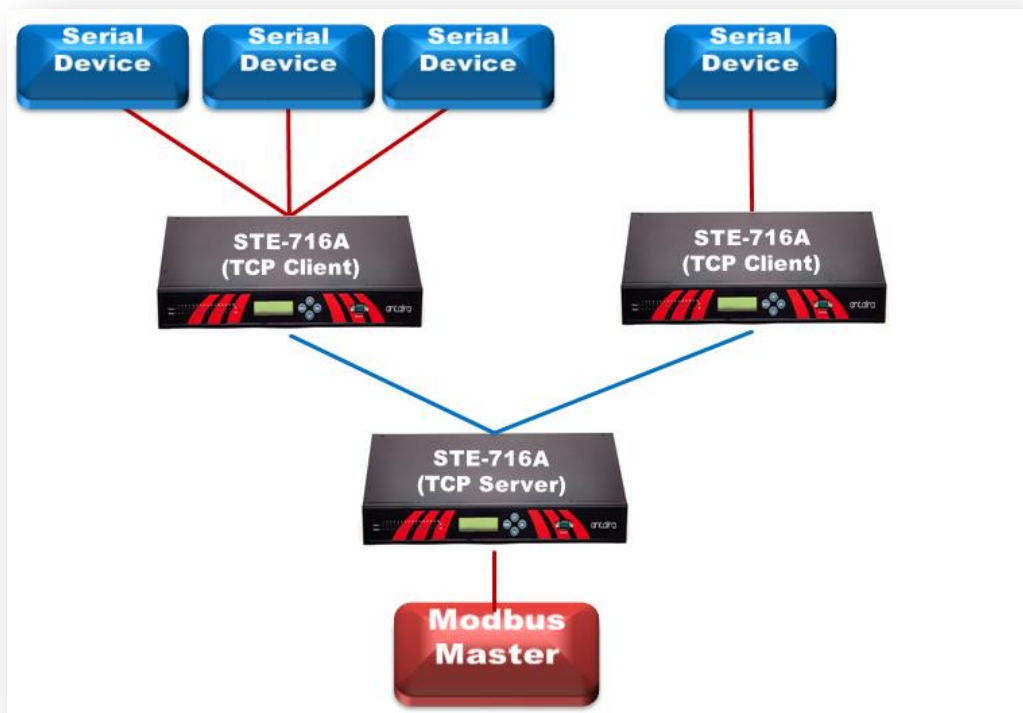


Figure 7.14

8 VCOM Installation & Troubleshooting

8.1 Enabling VCOM

The STE-708/STE-716 series will encapsulate control packets on top of the real data when Virtual COM is enabled. This will allow the Virtual COM port in the Windows/Linux system to access the STE-708/STE-716 series' COM ports. Remember that VCOM can only be enabled on the TCP Server Mode or TCP Client (

Figure 8.1).

The screenshot shows the 'TCP Server' configuration window. At the top, there are three radio buttons: 'TCP Server' (selected), 'TCP Client', and 'UDP'. Below this, the title 'TCP Server' is displayed. A dropdown menu for 'Mode' is open, showing three options: 'RAW', 'Virtual COM' (highlighted in blue), and 'Reverse Telnet'. Other fields include 'Max. Connections' (set to 1), 'Response Behavior' with three radio buttons ('Request & Response Mode', 'Reply to requester only', and 'Reply to all' selected), 'Accessible IP' with a checkbox 'Enable' and four input boxes (all set to 0), and 'Local Port' set to 4660. At the bottom, there is a checkbox 'Apply to all serial ports (Local Port will be enumerated automatically.)'.

Figure 8.1

The screenshot shows the 'TCP Client' configuration window. At the top, there are three radio buttons: 'TCP Server', 'TCP Client' (selected), and 'UDP'. Below this, the title 'TCP Client' is displayed. A dropdown menu for 'Mode' is open, showing three options: 'RAW', 'Virtual COM' (highlighted in blue), and 'Reverse Telnet'. Other fields include 'Destination IP 1' (set to 0.0.0.0), 'Destination Port 1' (set to 4660), 'Destination 2' with a checkbox 'Enable' (unchecked), 'Destination IP 2' (set to 0.0.0.0), and 'Destination Port 2' (set to 4660). The 'Response Behavior' section has three radio buttons ('Request & Response Mode', 'Reply to requester only', and 'Reply to all' selected). At the bottom, there is a checkbox 'Apply to all serial ports'.

Figure 8.2

Virtual COM allows remote access of serial devices over TCP/IP networks through Serial/IP Virtual COM ports that work like local native COM ports. *Figure 8.3* is a Virtual COM connection diagram.

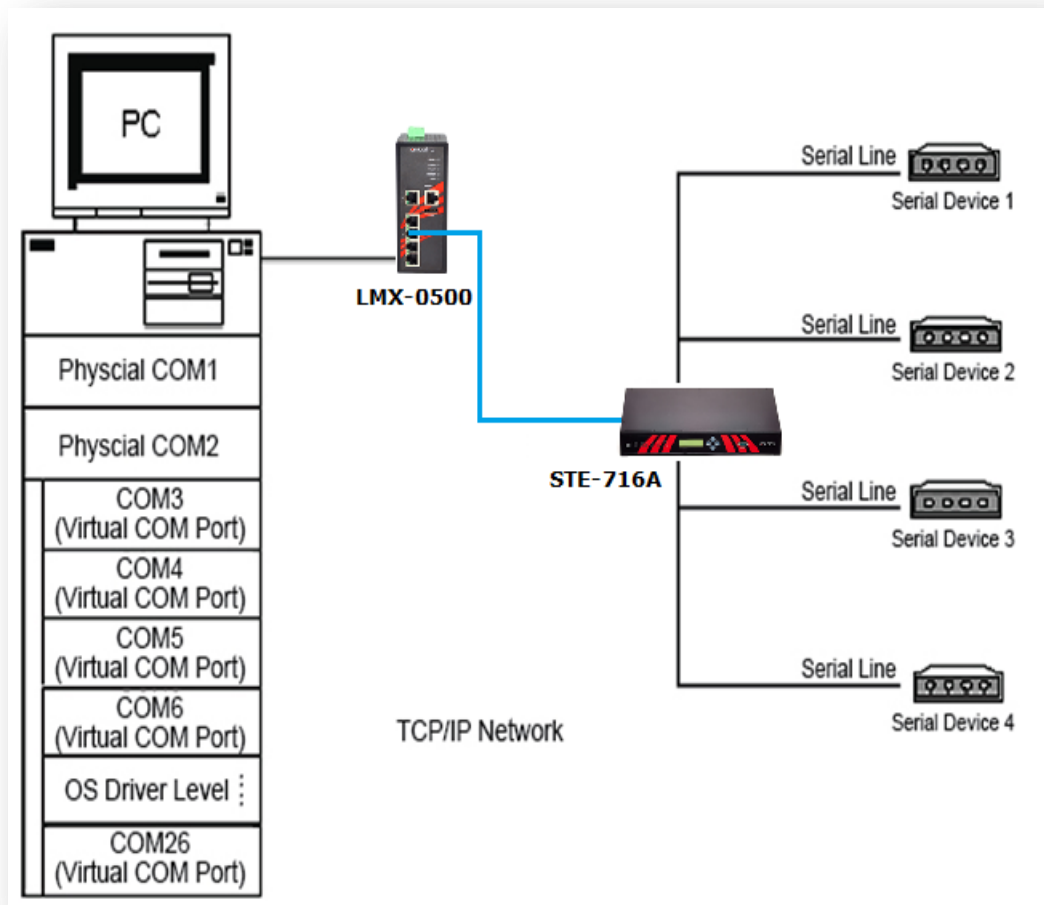


Figure 8.3

8.1.1 VCOM Driver Setup

System Requirements

- Windows 7/2008/Vista/2003/XP/2000/NT4/9x (32-bit or 64-bit version automatically installs)
- Native and virtual platforms, including Virtual Server and VMware
- Linux is available. Users are required to download a separate package called Virtual COM driver for Linux (**TTYredirector**). This available for download on Antaira Technologies' website or in the product's CD. The zipped package includes a binary file for installation

and a manual for Linux systems.

8.1.2 Limitations

The Virtual COM driver allows up to 256 **Virtual COM ports** in a single PC. Selecting within the range from COM1 to COM4096 is allowed. Please be aware that if any COM ports are already occupied by the system or other devices, it will not be available.

8.1.3 Installation

Run the Virtual COM setup file from the product CD or download a copy from Antaira Technologies' website to install the Virtual COM driver for the operating system. Turn off any anti-virus software and try again if installation fails. At the end of the installation, please select at least one Virtual COM port from the Serial/IP Control Panel.

8.1.4 Uninstalling

- From the Windows start menu select Control Panel, Add/Remove Programs.
- Select Serial/IP Version x.x.x in the list of installed software.
- Click the 'Remove' button to remove the program.

8.2 Enabling Virtual COM

8.2.1 Enable VCOM in Serial Device Servers

Enable Virtual COM in our serial device servers by logging into our WebUI. It is located under **COM configuration**. *Figure 8.4* shows how to enable Virtual COM in the STE-708/STE-716 Series. For a detailed **Link Mode configuration with Virtual COM**, please refer to **Sec. 7.2.1**.

The screenshot displays the 'TCP Server' configuration window. At the top, there are radio buttons for 'TCP Server' (selected), 'TCP Client', and 'UDP'. Below this, the 'TCP Server' section is highlighted in purple. The configuration fields include: 'Mode' set to 'Virtual COM' (dropdown), 'Max. Connections' set to '1' (dropdown), 'Response Behavior' with three radio buttons ('Request & Response Mode', 'Reply to requester only', and 'Transparent Mode' which is selected), 'Accessible IP' with a checkbox 'Enable' and IP address '0.0.0.0', and 'Local Port' set to '4660'. At the bottom, there is a checkbox 'Apply to all serial ports (Local Port will be enumerated automatically.)'.

Figure 8.4

8.2.2 Running Serial/IP in Windows

Find Serial/IP Control Panel from:

- Start → All Programs → Serial/IP → Control Panel
- In the Windows Control Panel, open the Serial/IP applet.
- In the Windows notification area as *Figure 8.5*, right click in the Serial/IP tray icon and click on **Configure** to open the Control Panel.

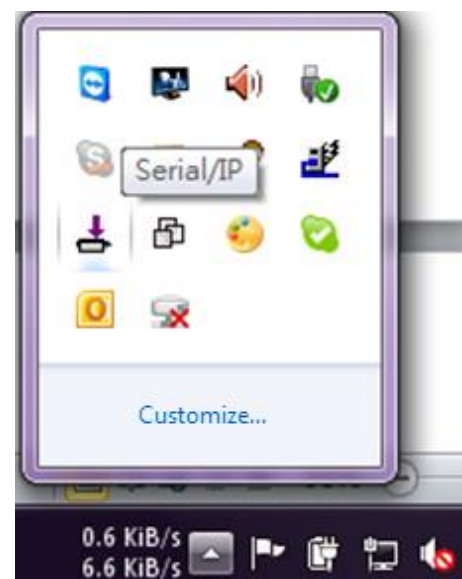


Figure 8.5

If no Virtual COM port is selected, a dialog will pop up and that asks the user to select at least one port as the Virtual COM port before proceeding (Figure 8.6).

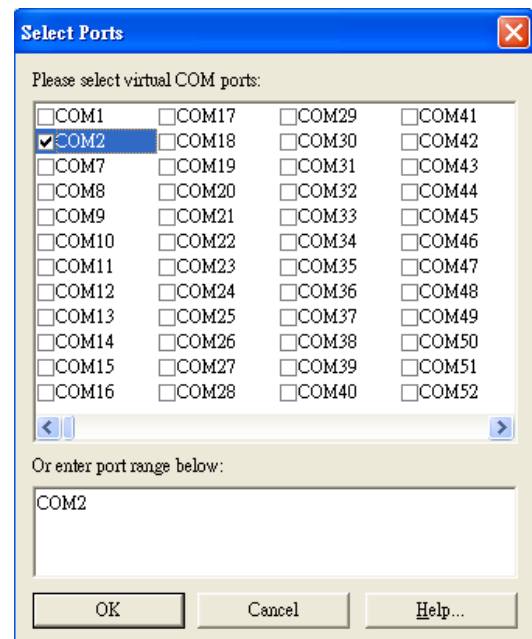


Figure 8.6

After at least one Virtual COM port is selected, the 'Control Panel' will show (Figure 8.7).

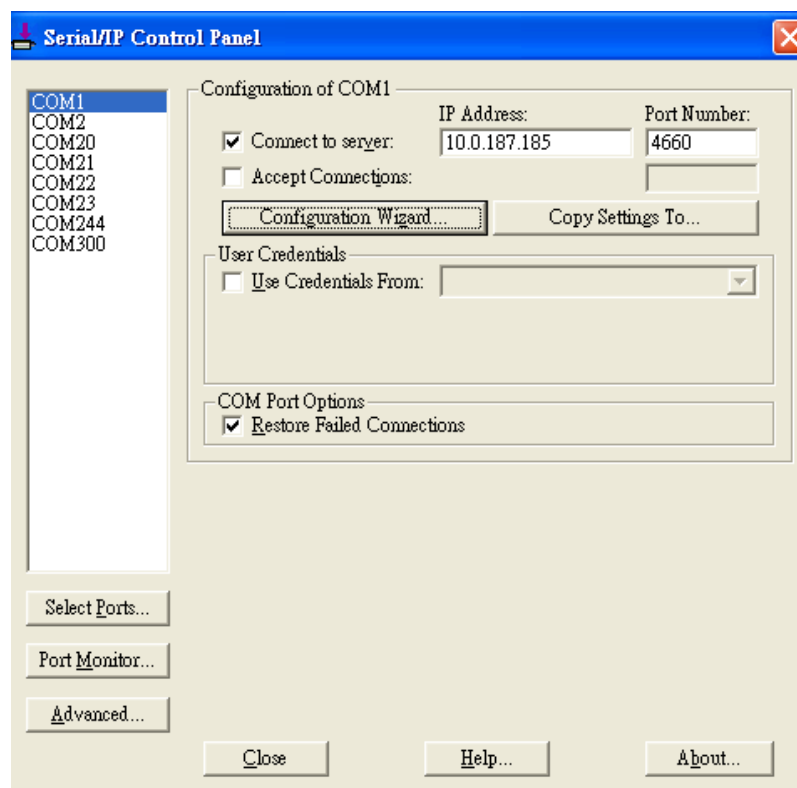


Figure 8.7

The left hand side of the 'Control Panel' shows the list of selected Virtual COM ports. Click on **Select Ports** to add or remove Virtual COM ports from the list. The right hand side of the 'Control Panel' shows the configurations of the selected Virtual COM port marked in blue. Each Virtual COM port can have its own settings.

Note: The changes to the Virtual COM ports will apply immediately, so there is no need to save the settings manually. However, if the Virtual COM port is already in use, it is necessary to close the Virtual COM port and open it after the TCP connection closes completely in order for the changes to take effect.

8.2.3 Configuring VCOM Ports

- If the serial device server is running in the TCP Server mode (recommended), a Serial/IP should be the TCP Client connecting to the serial device server. Enable **Connect to Server** and enter the **IP Address** of the serial device server with the **Port Number** specified. The **Port Number** here is the Local Listening Port for the serial device server.
- If the serial device server is running in TCP Client mode, the Serial/IP should be the TCP Server waiting for a serial device server to connect to it. Enable **Accept Connections** and enter the **Port Number**. The **Port Number** here is the Destination Port of the serial device server. Do not enable **Connect to Server** and **Accept Connections** together.

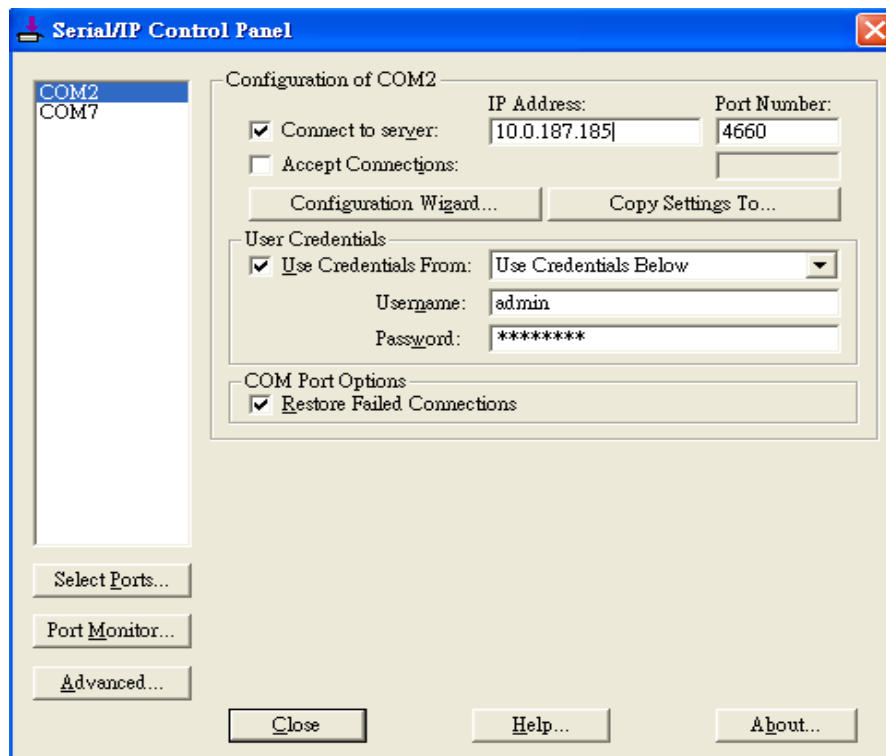


Figure 8.8

- Enable **Restore Failed Connections** to force Virtual COM to automatically restore failed connections with the serial device server in the case of unstable network connections.
- To test the Virtual COM connection, click the Configuration Wizard button and then click the **Start** button in the pop up window (Figure 8.9). If the test passes, all checks should be in green. To apply the changes in the Configuration Wizard window to the Control Panel, click on **Use Settings**. Click on **Copy** to copy the results to the system clipboard.
- To transfer the settings between Virtual COM ports, click on the 'Copy Settings To' button.

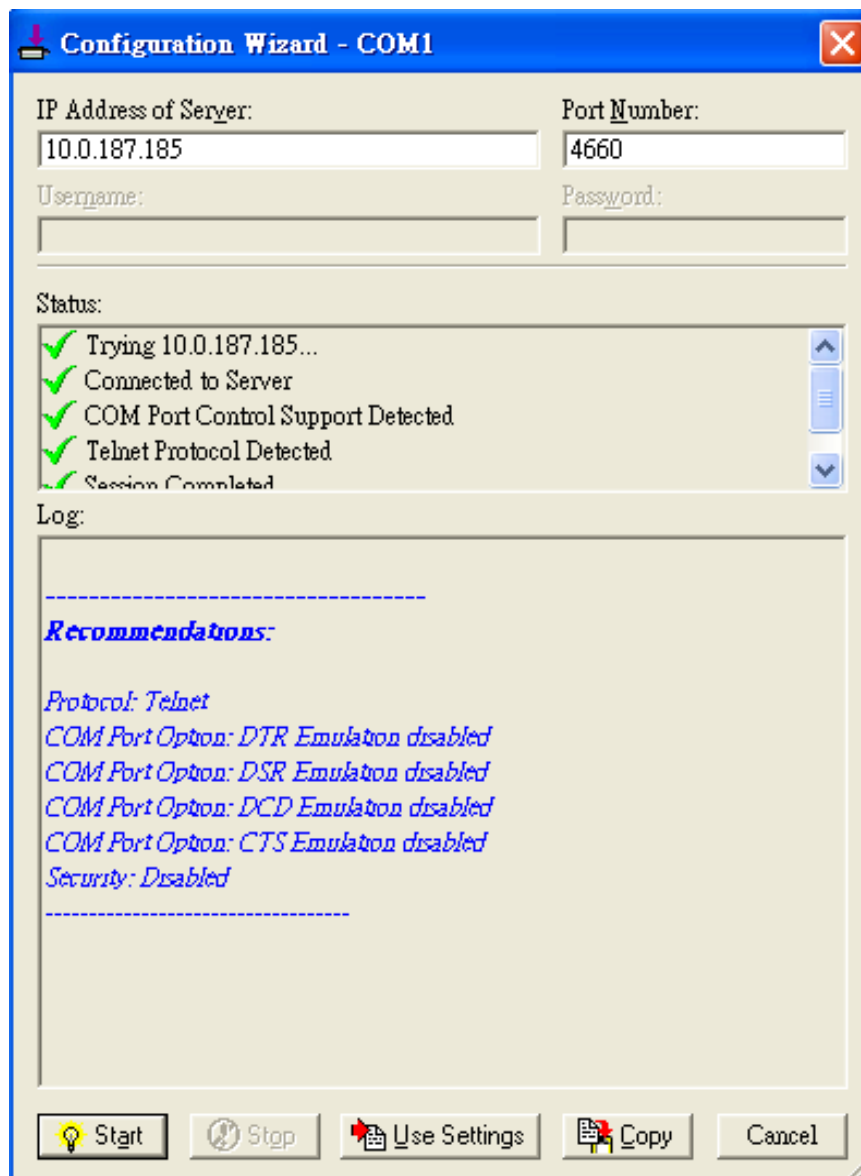


Figure 8.9

8.2.4 Exceptions

If the exclamation mark begins with **Warning: timeout trying x.x.x.x** as in *Figure 8.10*, please recheck the **VCOM IP** and **Port configuration** or the PC's **network configuration**.

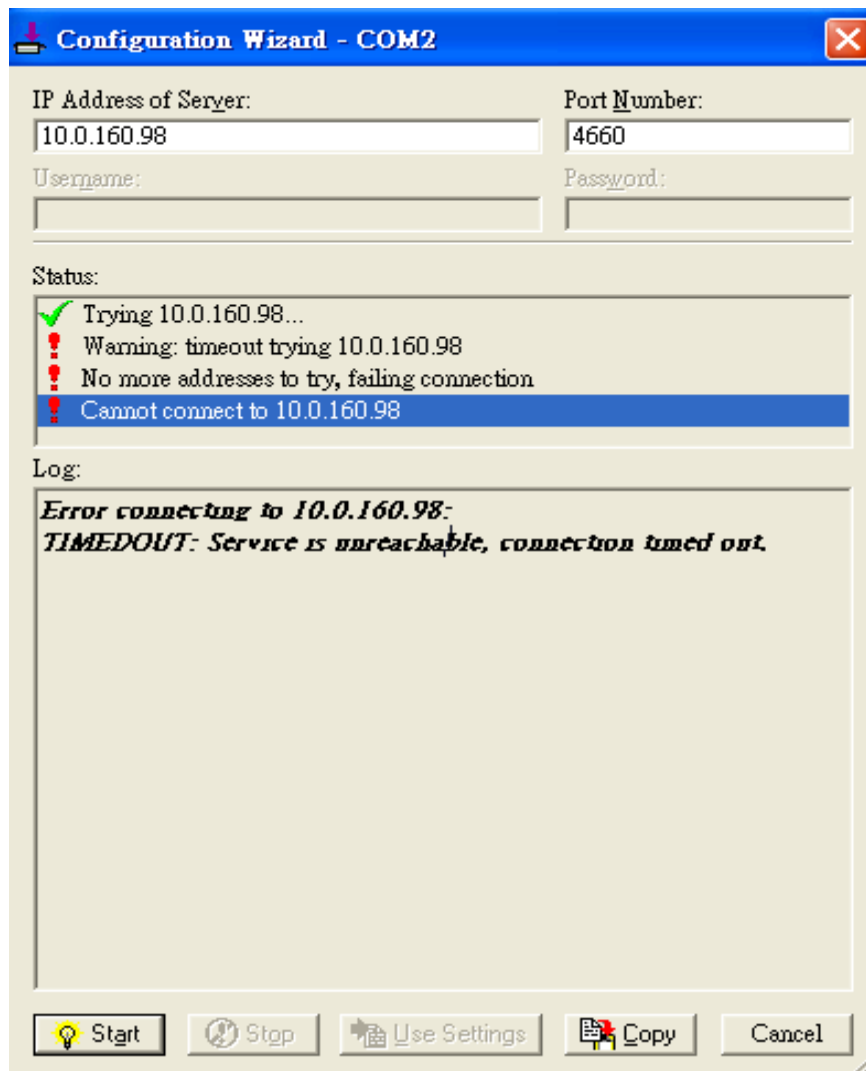


Figure 8.10

If there is a check with **Raw Connection Detected** and an exclamation mark with **Client not licensed for this server** as in *Figure 8.11*, please enable VCOM in the serial device server.

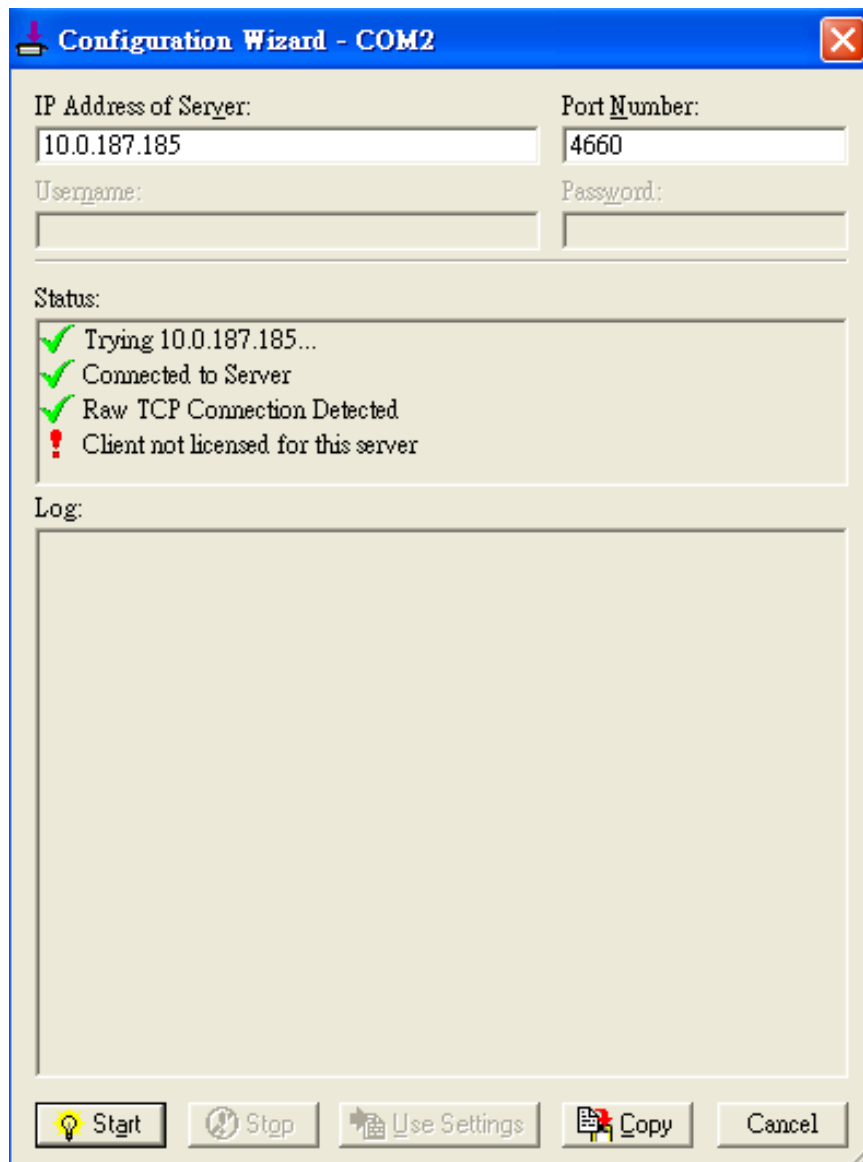


Figure 8.11

If there is a check with **Telnet Protocol Detected** and an exclamation mark with **Client not licensed for this server** as in *Figure 8.12*, this means that there is a licensing issue between the serial device server and Serial/IP. Please contact Antaira Technologies' technical support to obtain the correct VCOM software.

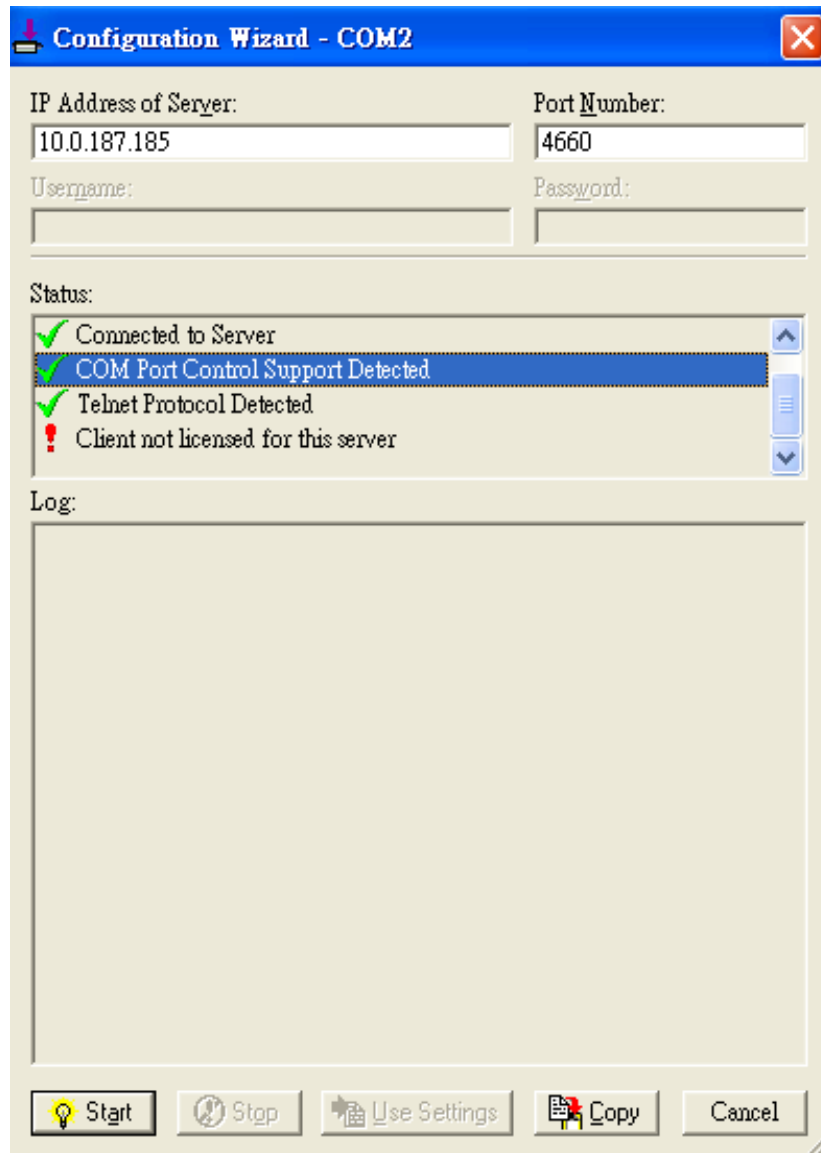


Figure 8.12

If the exclamation mark begins with **Server requires username/password login** as in *Figure 8.13*. It means VCOM Authentication in the serial device server is enabled, but credentials in the Serial/IP are not enabled.

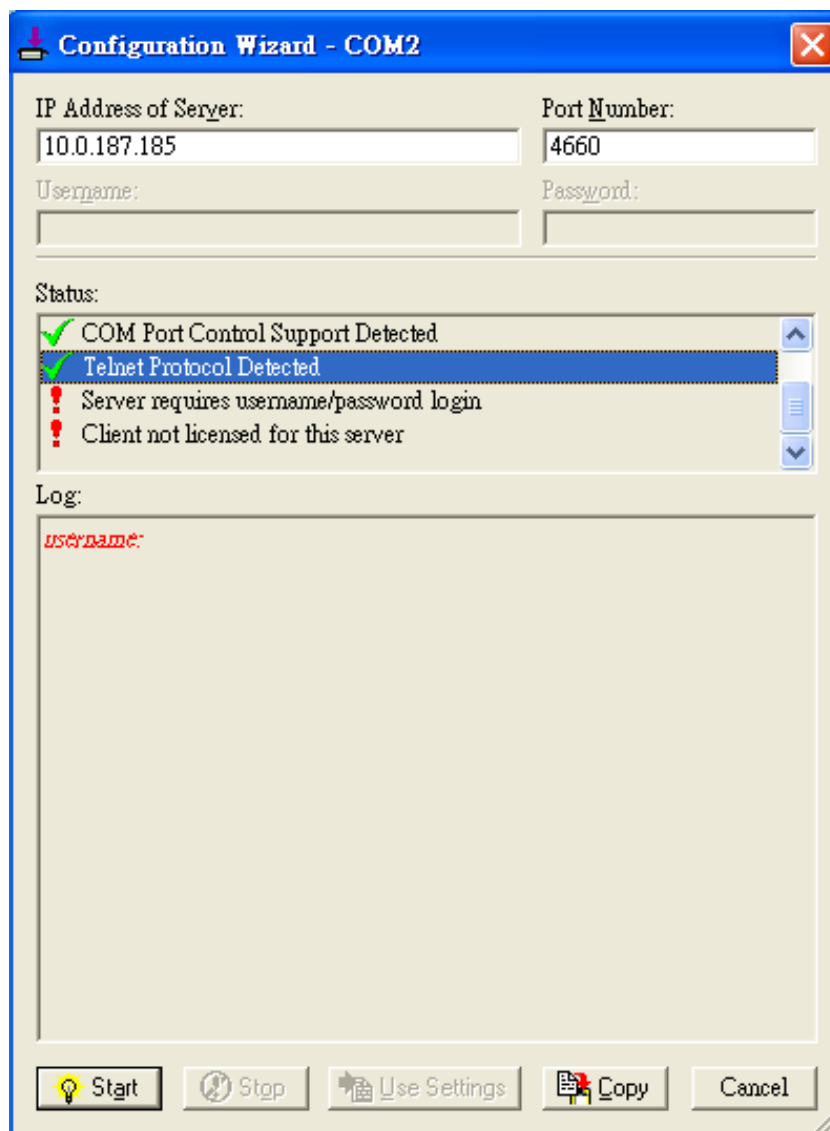


Figure 8.13

If the exclamation mark begins with a **“Username and/or password incorrect”** as in *Figure 8.14*; this means the wrong username and/or password was/were entered and the authentication process failed.

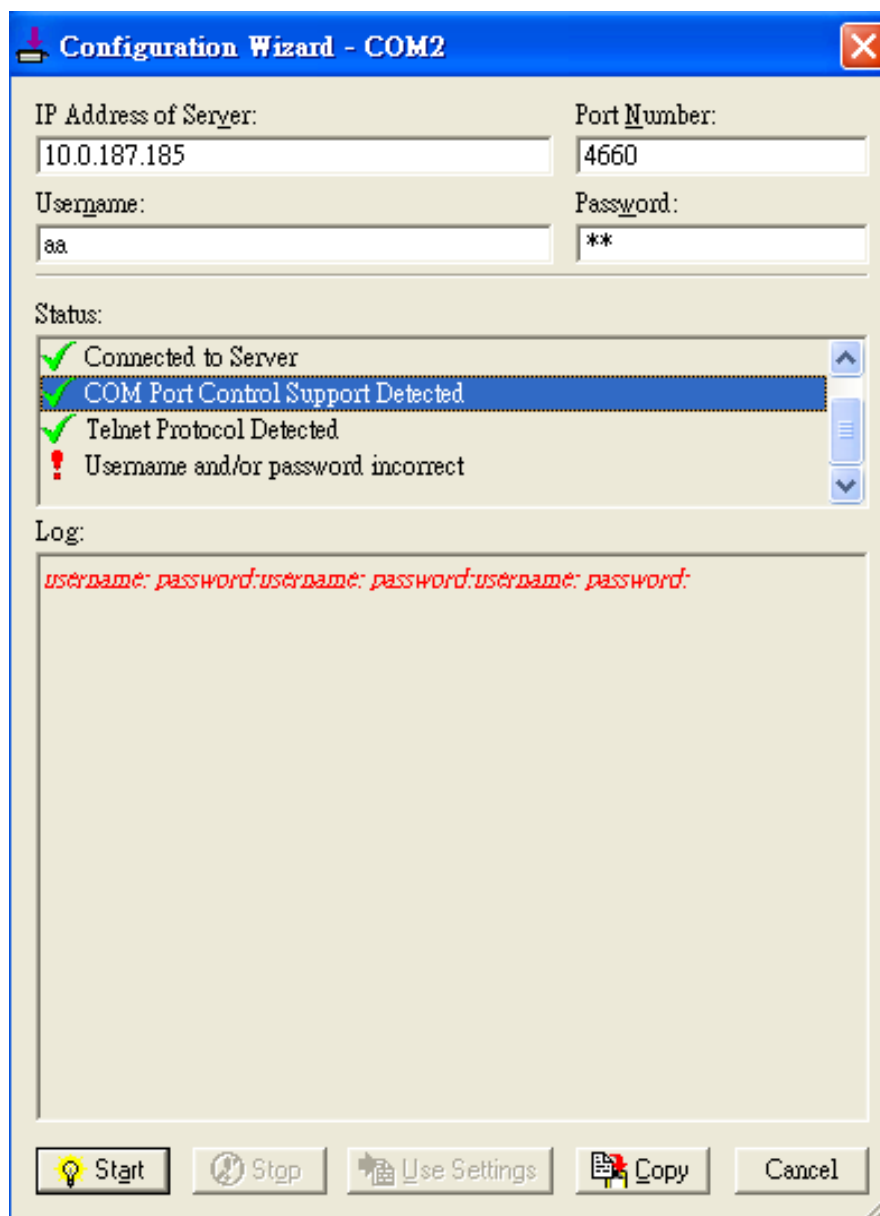


Figure 8.14

If the exclamation mark begins with **No login/password prompts received from server** as in *Figure 8.15*; it means that the credentials in the **Serial/IP** are enabled, but the **VCOM Authentication** in the serial device server is not enabled.

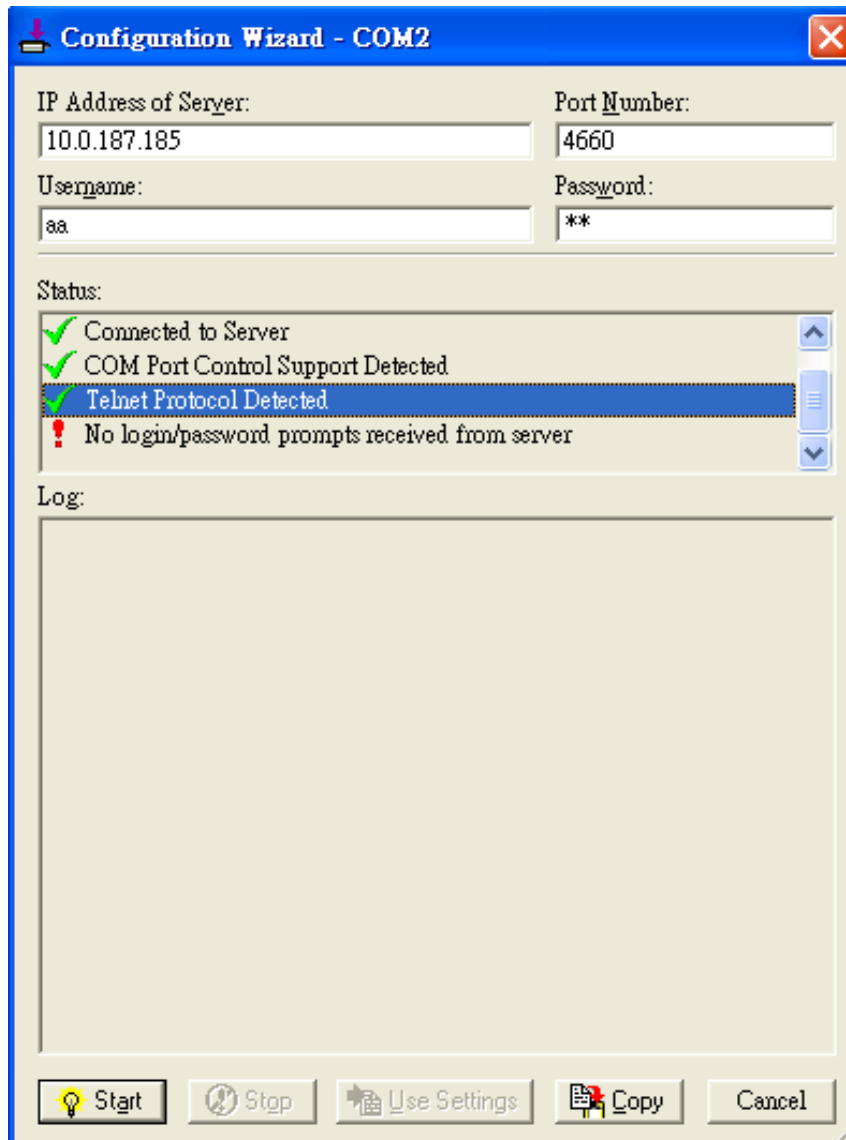


Figure 8.15

8.3 Using Serial/IP Port Monitor

8.3.1 Opening the Port Monitor

The Serial/IP Port Monitor can be opened by:

- Start → All Programs → Serial/IP → Port Monitor
- Double click the Serial/IP tray icon in the Windows notification area.
- In the Windows notification area, right click in the Serial/IP tray icon and click on **Port Monitor** to open the Port Monitor.
- Click on the **Port Monitor** button in the Serial/IP Control Panel

8.3.2 The Activity Panel

The activity panel provides a real-time display of the status of all Serial/IP COM ports as in *Figure 8.16*. If the Virtual COM Port is open and is properly configured to connect to a serial device server, the status would be **Connected**. If Serial/IP cannot find the specified serial device server, the status would be **Offline**.

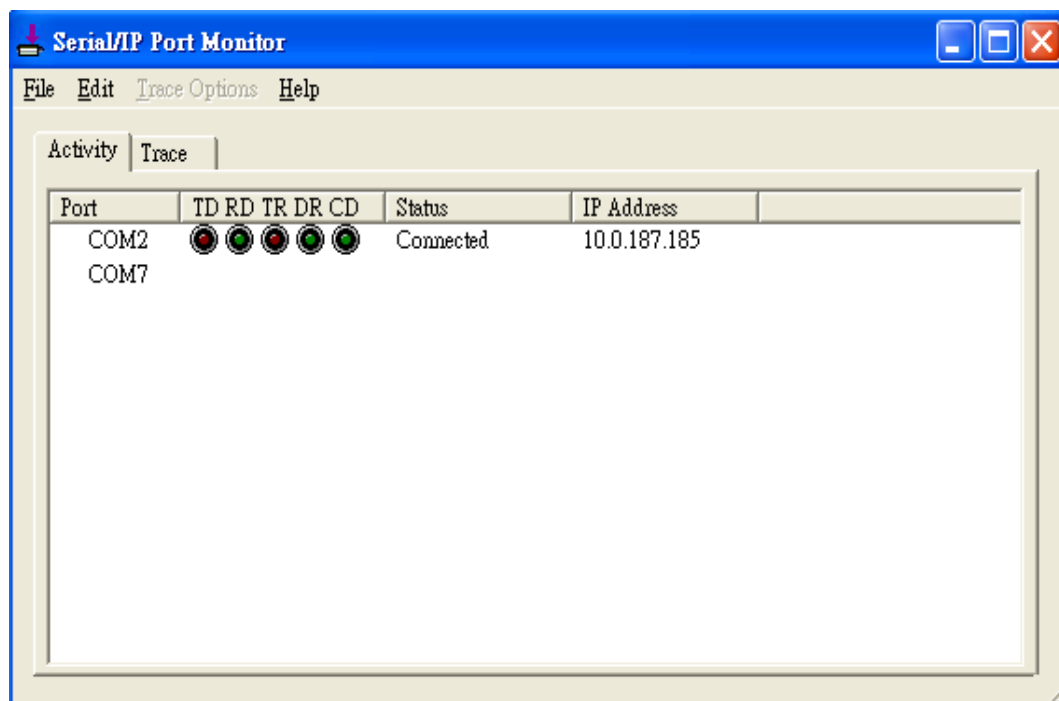


Figure 8.16

8.3.3 The Trace Panel

The trace panel provides a detailed, time-stamped, real-time display of all Serial/IP COM ports operations (*Figure 8.17*). Click on **Enable Trace** to start logging the Virtual COM communication. Click on File → Save As and send the log to Antaira Technologies' technical support for analysis if problems arise with the Virtual COM.

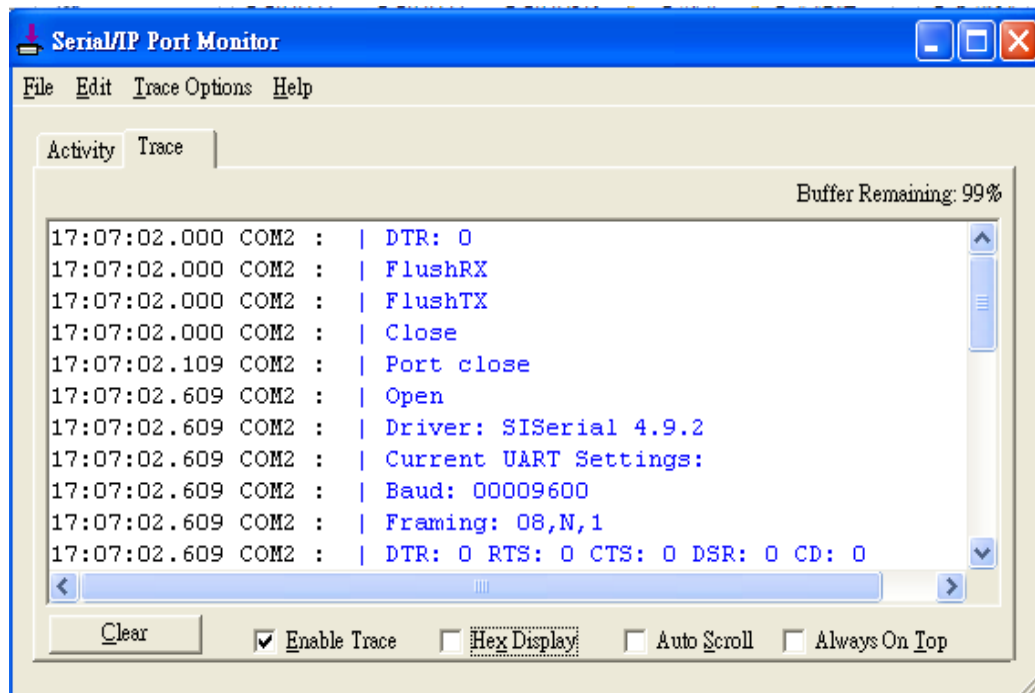


Figure 8.17

8.3.4 Serial/IP Advanced Settings

In the Serial/IP Control Panel, click on the **Advanced** button to open the Advanced Settings window (Figure 8.18). Users can then load the default settings by clicking on **Use Default Settings**.

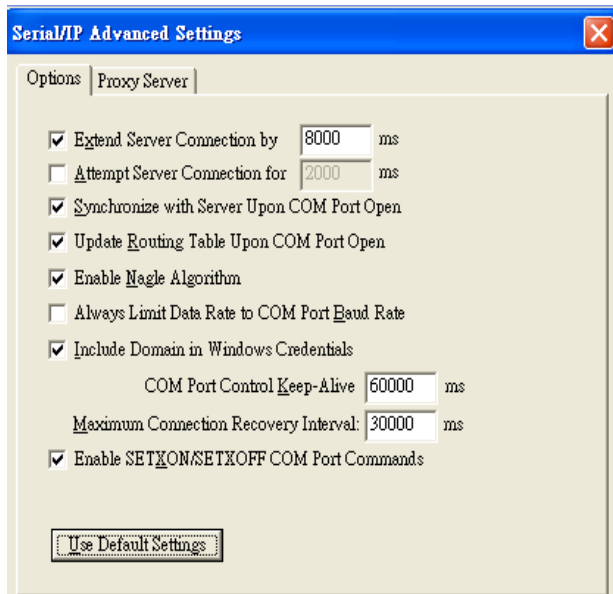


Figure 8.18

- **Extend Server Connection**
 - Maintains the TCP connection for a specified amount of time after the COM port is closed
- **Attempt Server Connection**
 - Terminates pending connection attempts if they do not succeed in the specified time
- **Synchronize with Server Upon COM Port Open**
 - Required by NT Systems (2000, XP, Vista, 7)
- **Update Routing Table Upon COM Port Open**
 - Maintains IP route to a server in a different subnet by modifying the IP routing table
- **Enable Nagle Algorithm**
 - Provides better network efficiency by imposing a minor latency on the data stream while it waits to fill network packets
- **Always Limit Data Rate to COM Port Baud Rate**
 - Limits the data rate to the baud rate that is in effect for the virtual COM port
- **Attempt Server Connection**
 - If credential is set to Windows Credentials, VCOM automatically adds the current Windows domain to the username
- **COM Port Control Keep-Alive**
 - Controls the interval at which VCOM will issue the keep-alive message. Input "0" to disable the function.
- **Maximum Connection Recovery Interval**
 - Controls the maximum time for "Restore Failed Connection"

Enable SETXON/SETXOFF COM Port Commands

This option enables additional negotiation on SETXON and SETXOFF commands and is only available for the “V” series serial device servers. If the application requires SETXON/SETXOFF feature, please contact Antaira Technologies’ technical support.

8.3.5 Using Serial/IP with a Proxy Server

The Serial/IP Redirector supports TCP network connections made through a proxy server, which may be controlling access to external networks (such as the Internet) from a private network that lacks transparent IP-based routing, such as NAT. Find the Proxy Server settings from the Advanced Settings windows and switch to the **Proxy Server** tab (*Figure 8.19*).

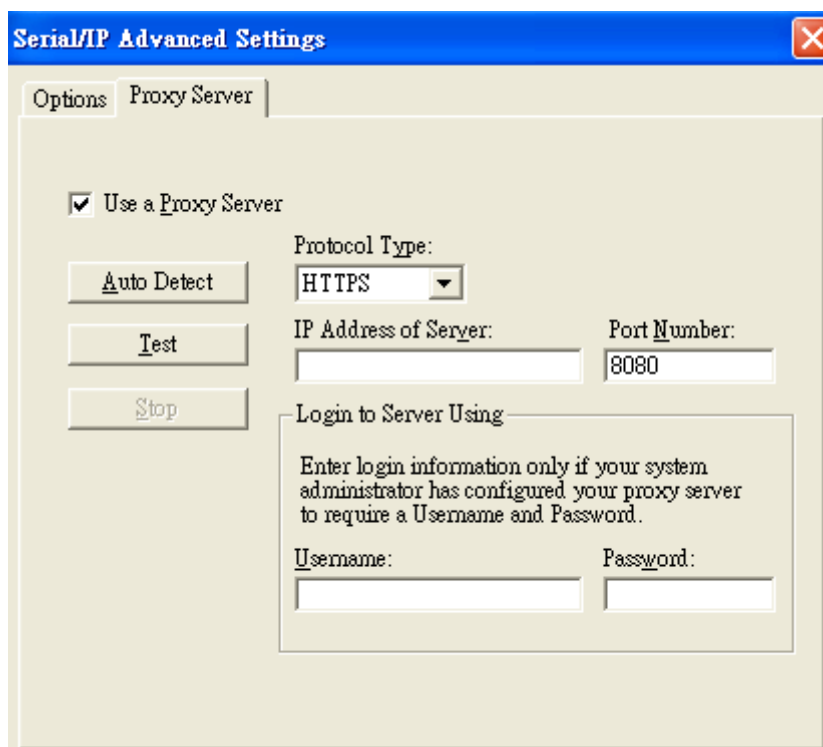


Figure 8.19

9 Technical Specifications

9.1 Hardware

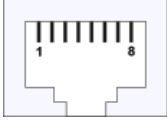
Network Interface	
Ethernet	2x RJ45 IEEE802.3u 10/100 Mbps
Auto MDI/MID-X	Yes
Serial Interface	
Connector	RJ-45 RS-232 or RS-422/485 (2- or 4-Wire)
Ports	8 or 16 Ports
Baud Rate	50~921600Kbps
Parity	None, Odd, Even, Space, Mark
Data Bits	5,6,7,8
Stop Bits	1,2
Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)
Power Characteristics	
Input Voltage	100~240 VAC (AC models) / 24-48 VDC (DC models)
Input Current (100VAC)	0.21A (AC models) / 0.54A (DC models)
Power Consumption	21W (AC models) / 13W (DC models)
Power Redundancy	No
Reverse Polarity Protection	Yes
Connector	AC Inlet or DC TB3
Mechanicals	
Dimensions	436 mm x 43.5 mm x 200 mm
Installation	19" Rack Mount
Reset Button	Yes
Weight	3200 g
Environmental Limits	
Operating Temperature	-20°C~70°C (-4°F~158°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5~95% RH, (non-condensing)

9.2 Software

Link Modes	
Protocols	DHCP Client, DNS, ERPS, HTTP, ICMP, IPv4, NTP, RFC2217, SMTP, SNMP, STP, Syslog, TCP, Telnet, UDP
Configuration	Serial Manager, Web UI, Serial console, Telnet
Virtual COM	Windows / Linux redirection software
Link Modes	
TCP Server	4 connections, Virtual COM, or Reverse Telnet
TCP Client	Dual destinations or Virtual COM
UDP	Up to 8 ranges of IPs

9.3 Pin Assignments

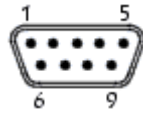
9.3.1 Serial and RJ-45 Connectors

		Ethernet	RS-232	RS-422 or RS-485 4-Wire	RS-485 2-Wire
	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	-	-

9.3.2 Serial and Female DB9 Connectors

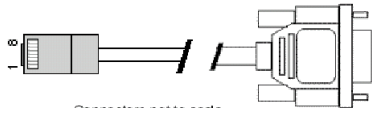
	RS-232	RS-485 2-Wire	RS-422 or RS-485 4-Wire
Pin 1	-	-	-
Pin 2	RXD	Data+	RX+
Pin 3	TXD	-	TX+
Pin 4	DTR	-	TX-
Pin 5	SG	SG	SG
Pin 6	DSR	Data-	RX-
Pin 7	RTS	-	-
Pin 8	CTS	-	-
Pin 9	-	-	-

9.3.3 Serial and Male DB9 Connectors

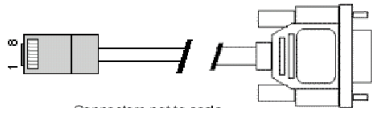
	RS-232	RS-485 2-Wire	RS-422 or RS-485 4-Wire
Pin 1	-	-	-
Pin 2	RXD	Data+	RX+
Pin 3	TXD	-	TX+
Pin 4	DTR	-	TX-
Pin 5	SG	SG	SG
Pin 6	DSR	Data-	RX-
Pin 7	RTS	-	-
Pin 8	CTS	-	-
Pin 9	-	-	-

*This cable (RJ-45 to Male DB9) is included in the package.

9.3.4 RJ-45 to Female DB9 Connection

RJ45		Cross Over Female DB9		
				
RTS	Pin 1	↔	Pin 8	CTS
DTR	Pin 2	↔	Pin 6	DSR
TXD	Pin 3	↔	Pin 2	RXD
SG	Pin 4	↔	Pin 5	GND
SG	Pin 5	↔		
RXD	Pin 6	↔	Pin 3	TXD
DSR	Pin 7	↔	Pin 4	DTR
CTS	Pin 8	↔	Pin 7	RTS

RJ-45 to Male DB9 Connection

RJ45		Straight Through 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	SG
SG	Pin 5	↔		
RXD	Pin 6	↔	Pin 2	RXD
DSR	Pin 7	↔	Pin 6	DSR
CTS	Pin 8	↔	Pin 8	CTS

9.4 LED Indicators

Name	Color	Status	Message
Power	Green	On	System is powered on
		Off	System is not powered on
Ready	Green	Off	System is not ready or halt
		Blinking	AP firmware is running normally
COM (Tx / Rx)	Green	Blinking	Data is transmitting on COM port
		Off	No data is transmitting
LAN	Orange	On	Ethernet is connected at 100Mbps
		Off	Ethernet is connected at 10Mbps or Disconnected
	Green	Blinking	Data is transmitting on this port
		Off	Ethernet is Disconnected

9.5 Buzzer

Message	Description
===^=====	Startup OK and AP firmware is enabled

“^” Beep

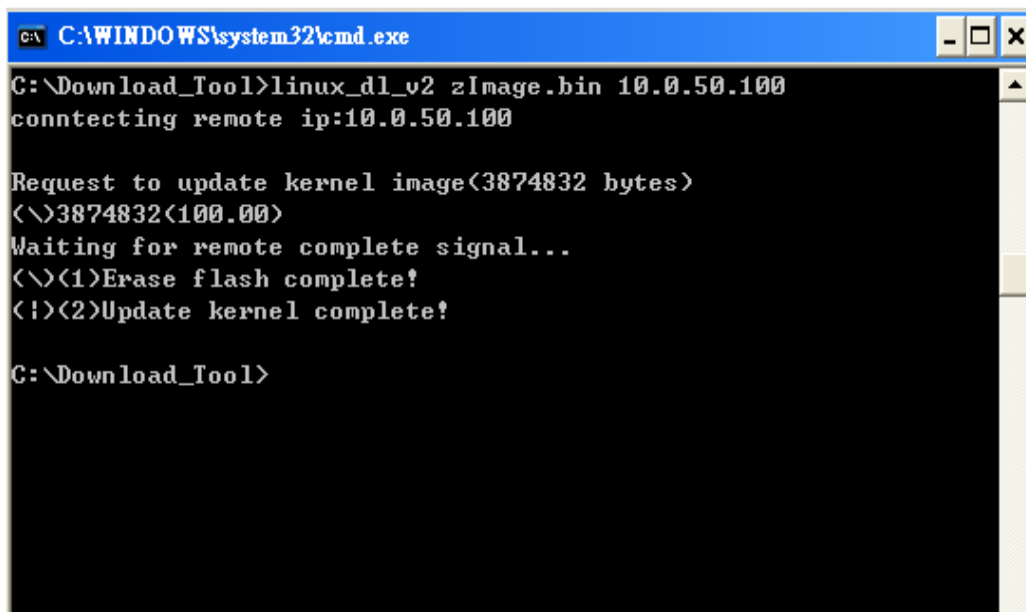
“=” Beep off

10 Upgrade System Firmware

10.1 Upgrade Procedure

- Obtain the latest firmware from www.antaيرا.com
- Make sure the PC and the STE-708/STE-716 series are on the same network; use the ping command or Serial Manager Utility for it.
- Edit "dll.bat" to fit the system requirements, be sure to save the settings before editing.
- Run linux_dl, for example: linux_dl_v2_zImage.bin 10.0.50.100
- STE-708/STE-716 Series will automatically restart each time after the firmware is successfully downloaded. The upgrade process should take around one minute.

Note: Note: "linux_dl_v2" is the executable upgrade and zImage.bin is the firmware file name; xxx.xxx.xxx.xxx is the STE-708/STE-716 series' IP address.



```
C:\WINDOWS\system32\cmd.exe
C:\Download_Tool>linux_dl_v2 zImage.bin 10.0.50.100
connecting remote ip:10.0.50.100

Request to update kernel image<3874832 bytes>
<\>3874832<100.00>
Waiting for remote complete signal...
<\><1>Erase flash complete!
<!\><2>Update kernel complete!

C:\Download_Tool>
```

11 Warranty

Limited Warranty Conditions

Products supplied are covered in this warranty for undesired performance or defects resulting from shipping, or any other event deemed to be the result of Antaira Technologies' mishandling. The warranty does not 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 Antaira Technologies
- 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 Antaira Technologies' control

RMA and Shipping Reimbursement

- Customers are required to obtain an authorized "RMA" number from Antaira Technologies before shipping the goods for repair.
- When in normal use, a sold product shall be replaced with a new one within 3 months upon purchase.
- As long as a product is under warranty, all parts and labor are free of charge to the customer.
- After the warranty period, the customer shall cover the cost for parts and labor.

Limited Liability

Antaira Technologies, LLC. would not be held responsible for any consequential losses from using Antaira Technologies' products.

Warranty

5 Years

Antaira Customer Service and Support

(Antaira US Headquarter) + 844-268-2472

(Antaira Europe Office) + 48-22-862-88-81

(Antaira Asia Office) + 886-2-2218-9733

Please report any problems to Antaira:

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Any changes to this material will be announced on the Antaira website.