IDS-1112

Industrial Wireless Device Server

User's Manual

Version 1.0

Apr, 2013

www.oring-networking.com

COPYRIGHT NOTICE

TRADEMARKS

is a registered trademark of ORing Industrial Networking Corp.

All other trademarks belong to their respective owners.

REGULATORY COMPLIANCE STATEMENT

Product(s) associated with this publication complies/comply with all applicable regulations. Please refer to the Technical Specifications section for more details.

WARRANTY

ORing warrants that all ORing products are free from defects in material and workmanship for a specified warranty period from the invoice date (5 years for most products). ORing will repair or replace products found by ORing to be defective within this warranty period, with shipment expenses apportioned by ORing and the distributor. This warranty does not cover product modifications or repairs done by persons other than ORing-approved personnel, and this warranty does not apply to ORing products that are misused, abused, improperly installed, or damaged by accidents.

Please refer to the Technical Specifications section for the actual warranty period(s) of the product(s) associated with this publication.

DISCLAIMER

Information in this publication is intended to be accurate. ORing shall not be responsible for its use or infringements on third-parties as a result of its use. There may occasionally be unintentional errors on this publication. ORing reserves the right to revise the contents of this publication without notice.

CONTACT INFORMATION

ORing Industrial Networking Corp.

3F., No.542-2, Zhongzheng Rd., Xindian Dist., New Taipei City 23148, Taiwan (R.O.C.)

Tel: +886-2-2218-1066   //   Fax: +886-2-2218-1014

Website: www.oring-networking.com

Technical Support

E-mail: support@oring-networking.com

Sales Contact

E-mail: sales@oring-networking.com (Headquarters)

sales@oring-networking.com.cn (China)

Table of Content

Getting to Know Your Device Server

1.1 About the IDS-1112 Serial Device Server

IDS-1112 is an innovative 1 port RS232 to 802.11b/g WLAN and 1 port LAN device server. Users are able to configure IDS-1112 by DS-Tool via LAN port or WLAN interface, but not simultaneously. Once LAN port is activated, WLAN interface will enter standby mode to minimize power consumption.

IDS-1112 can simultaneously transfer data into 5 host PCs. This feature can assure all critical data that saved in different host PCs to avoid Ethernet break or host PCs failure.

Thirdly, IDS-1112 provides dual redundant power inputs both on DC power jack and terminal block. IDS-1112 also provides NAT pass through function so that users are able to manage IDS-1112 inside or outside NAT router. It is easy for different IP domain users to use the Switch. Therefore, IDS-1112 is the best communication solution for wireless application of serial devices.

1.2 Software Features

- High Speed Air Connectivity: WLAN interface support up to 54Mbps link speed
- Highly Security Capability: WEP/WPA/WPA2/802.1X/Radius/TKIP supported
- NAT-pass through: User can manage IDS-1112 through NAT router
- Redundant Power Inputs: 12~48VDC on power jack and terminal block
- Redundant multiple host devices: 5 simultaneous in Virtual COM, TCP Server, TCP Client mode, UDP
- Secured Management by HTTPS and SSH.

- Versatile Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- Event Warning by Syslog, Email, SNMP trap, and Beeper
- Various Windows O.S. supported: Windows NT/2000/ XP/ 2003/VISTA(32/64bit)/Windows 7(32/64bit)

1.3   Hardware Features

- Redundant Power Inputs: 12~48 VDC on terminal block and power jack
- Operating Temperature: -10 to 65°C
- Storage Temperature: -40 to 85°C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-40
- 2 x10/100Base-T(X) Ethernet port
- Reverse SMA connector for 2.4GHz antenna
- Dimensions(W x D x H) : 72(W)x29.4(D)x123.4(H) mm (2.83x 1.16 x 4.86 inch)

Hardware Installation

2.1 Install IDS-1112 on DIN-Rail

Each IDS-1112 has a Din-Rail kit on rear panel.   The Din-Rail kit helps IDS-1112 to fix on the Din-Rail.   It is easy to install the IDS-1112 on the Din-Rail:

2.1.1 Mount IDS-1112 on DIN-Rail

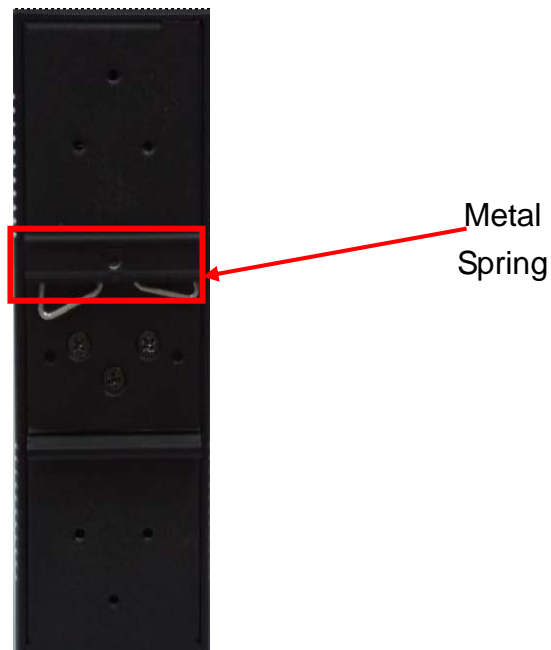Step 1:   Slant the IDS-1112 and mount the metal spring to Din-Rail.

Metal
Spring

Figure 2-1

Step 2:   Push the IDS-1112 toward the Din-Rail until you heard a "click" sound.

Figure 2-2

2.2   **Wall Mounting Installation**

Each IDS-1112 has another installation method for you. A wall mount panel can be found in the package. The following steps show how to mount the IDS-1112 on the wall:

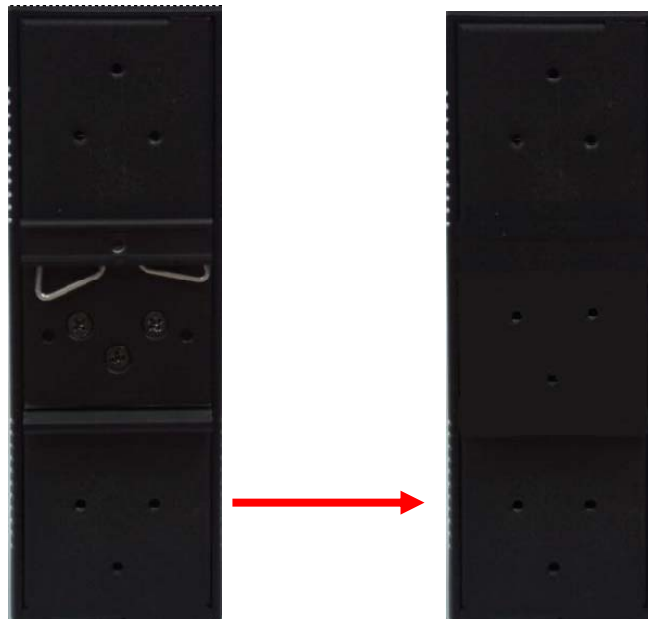## 2.2.1 Mount IDS-1112 on wall

Step 1: Remove Din-Rail kit.

Figure 2-3

Step 2:   Use 3 screws that can be found in the package to combine the wall mount panel. Just like the picture shows below:

Figure 2-4

The screws specification shows in the following two pictures. In order to prevent IDS-1112 from any damage, the size of screws should not be larger than the size that used in IDS-1112.
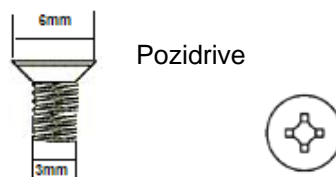

Pozidrive

Figure 2-5

Step 3:   Mount the combined IDS-1112 on the wall.   .

Hardware Overview
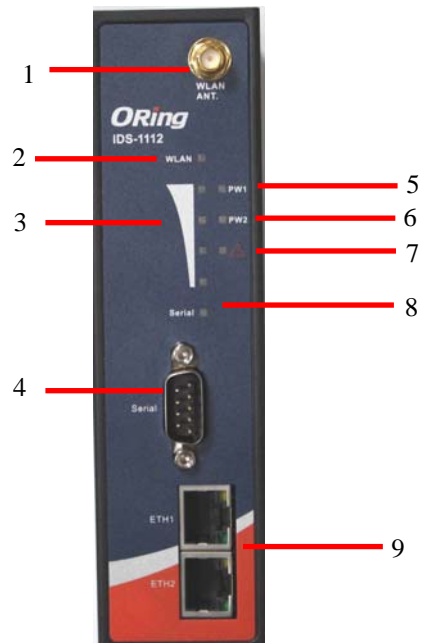
3.1   Front Panel

Figure 3-1

1. WLAN Antenna

2. WLAN LED indicator, light up after the wireless is enable.

3. WLAN signal strength indicator, WLAN Strength: 1<25% , 2<50%, 3<75%, 4<100%.

4. RS-232 serial port.

5. LED for PWR1 and system status. When the PWR1 links, the green LED will be light on.

6. LED for PWR2 and system status. When the PWR2 links, the green LED will be light on

7. LED for fault indicator. When fault occurred, this red LED will be light on.

8. LED of serial port.   Green for transmitting, red for receiving

9. 10/100Base-T(X) Ethernet port

3.2   Front Panel LEDS

The following table describes the labels that stick on the IDS-1112.

LED	Color	Status	Description
PWR1	Green/Red	On	DC power 1 activated.
PWR2	Green/Red	On	DC power 2 activated.
ETH 1/2	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT
WLAN	Green	Green On/Blinking	WLAN LNK/ACT
WLAN Signal Strength	Green	On	1<25% , 2<50%, 3<75%, 4<100%.
Serial	Green	Blinking	Serial port is transmitting data
	Red	Blinking	Serial port is receiving data

Table 3-1 Front panel LEDs

3.3   Bottom Panel

The bottom panel components of IDS-1112 are shown as below:

PWR1, PWR2 (12-48V DC)

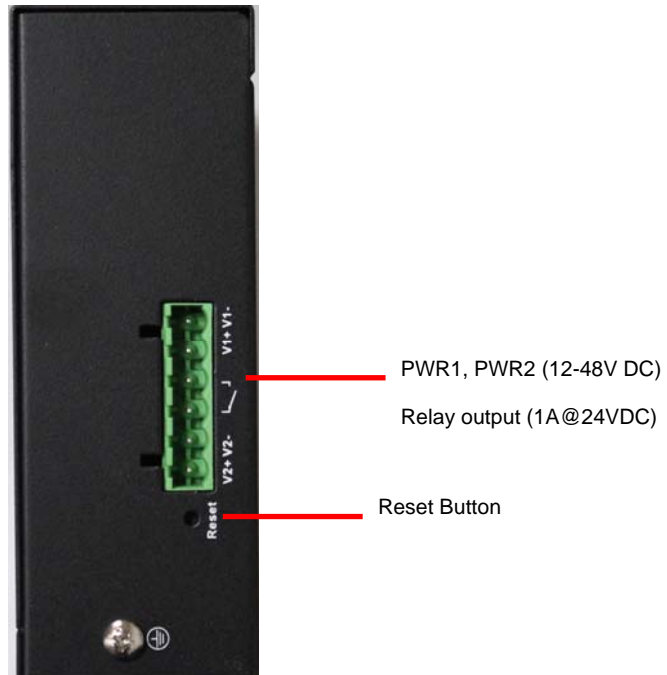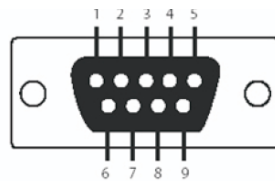Relay output (1A@24VDC)

Reset Button

Figure 3-3

1. Reset button. 5 seconds for factory default.
2. Male DB9 connector: Serial interface of RS-232.

DB9 connector

Pin #	RS 232
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI
RS 232 mod act as DTE	

Table 3-2 Pin assignment

3.4   Rear Panel

The rear panel components of IDS-1112 are shown as below:

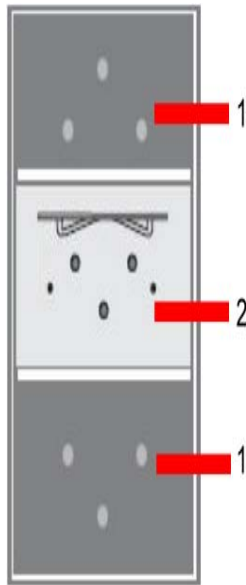1. Screw holes for wall mount kit and DIN-Rail kit.

2. Din-Rail kit

Figure 3-4 Rear Panel

Cables

4.1   Ethernet Cables

The IDS-1112 has standard Ethernet ports.   According to the link type, the IDS-1112 use CAT 3, 4, 5,5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs).   Please refer to the following table for cable specifications.

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

Table 4-1 Cable Types and Specifications

100BASE-TX/10BASE-T Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

Table 4-2 RJ-45 Pin Assignments

The IDS-1112 supports auto MDI/MDI-X operation.　You can use a straight- through cable to connect PC to IDS-1112.　The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Table 4-2 MDI / MDI-X pins assignment

Note: *"+" and "-" signs represent the polarity of the wires that make up each wire pair.*

Management Interface

5.1 DS-Tool

DS-Tool is a powerful Windows utility for DS series. It supports device discovery, device configuration, group setup, group firmware update, monitoring functions...etc. It is easy for you to install and configure devices over the network.

5.1.1 Install IDS-Tool

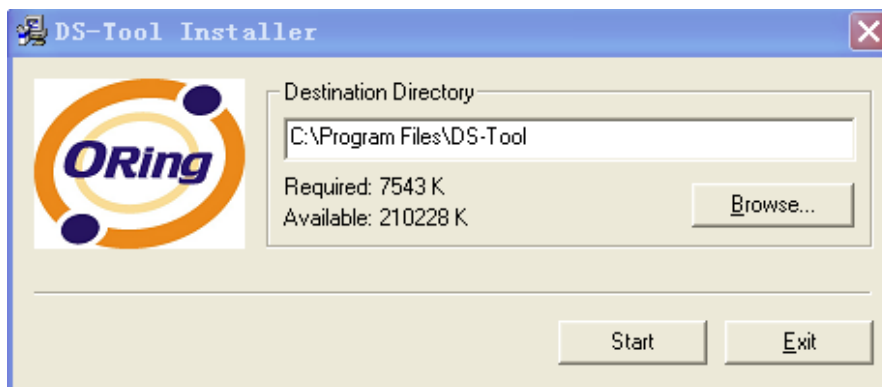Step 1: Execute the Setup program, click "**start**" after selecting the folder for DS-Tool.

Figure 5-1

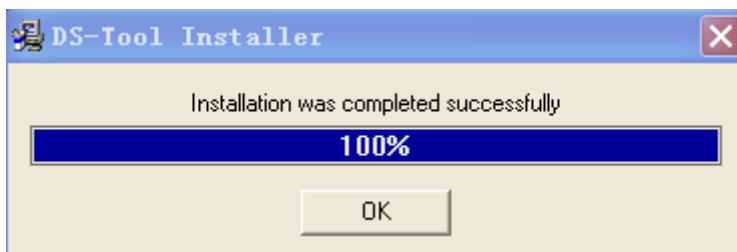Step 2:   When installation complete successfully, then click "OK".

Figure 5-2

Step 3:   Check for your selection.

Figure 5-3

5.1.2   Using DS-Tool

5.1.2.1   Explore device servers

DS-Tool will broadcast to the network and search all available DS devices in the network. The default IP address of device is "**192.168.10.2**", and selects the searching device you wish to use and press "**Add**" button.

You can set static IP address or in DHCP client mode to get IP address automatically. Finally, click "**OK** "button to add the device.
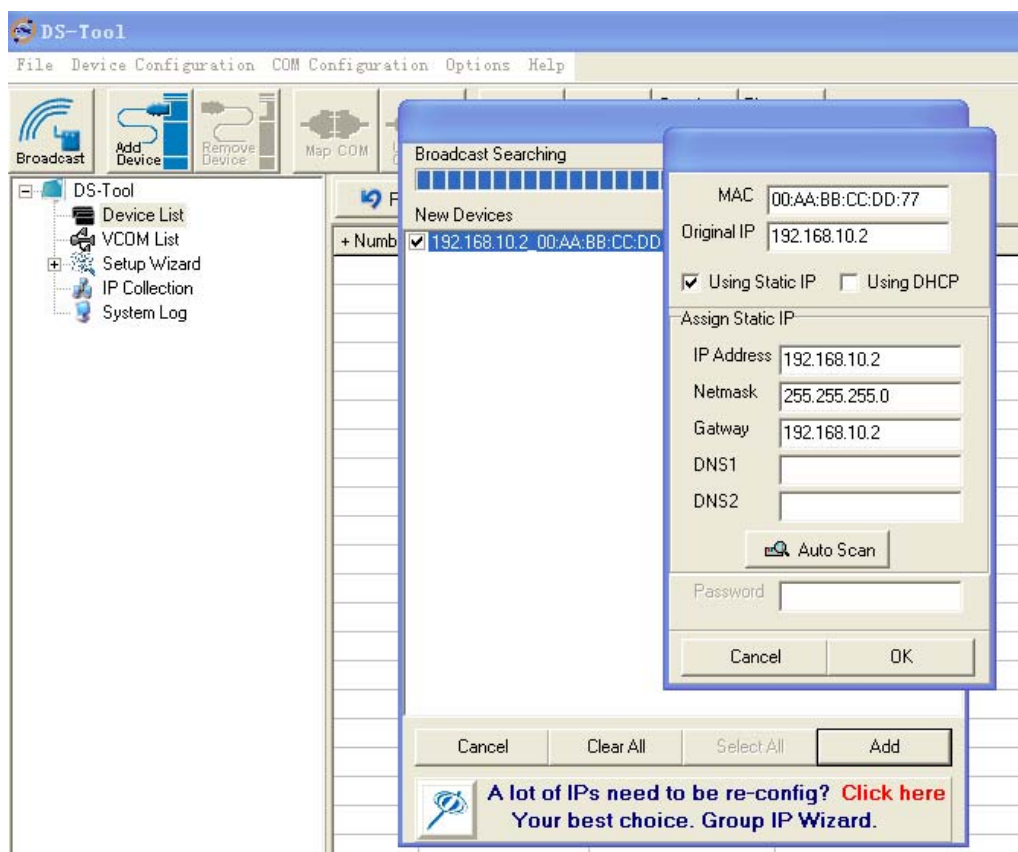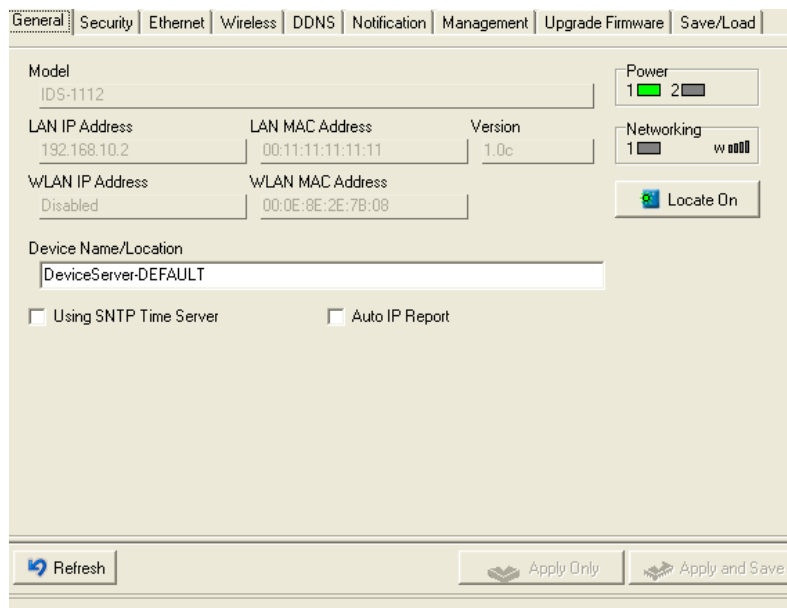

Figure 5-4

5.1.2.2   Configure device servers

General settings

This page includes the setting of device name, SNTP server and Auto IP Report.

Figure 5-5 General settings

The following table describes the labels in this screen.

Label	Description
Device Name/location	You can set the device name or related information. By clicking "Locate On" button you can locate the serial server's position.
Set SNTP	Input the SNTP server domain name or IP address, port and select the Time zone.

| Set Auto IP Report | By Clicking the "**Get current Host**" button you will get your local IP, and then set the Report interval time. The device server will report its status periodically. |

Table 5-1 General settings

At IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). But you can set the other IP or Port.

Security

Figure 5-6 Security

The following table describes the labels in this screen.

Label	Description

Accessible IP Setting	To prevent unauthorized access by setting host IP addresses and network masks.
Password setting	You can set the password to prevent unauthorized access from your server. Factory default is no password.

Table 5-2 Security

Network Setting

Device can connect the Network by wire and wireless.   You must assign a valid IP address for DS before attached in your network environment.   Your network administrator should provide you the IP address and related settings.   The IP address must be unique within the network (otherwise, DS will not have a valid connection to the network).   You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP.   The Factory Default IP address is "**192.168.10.2**"
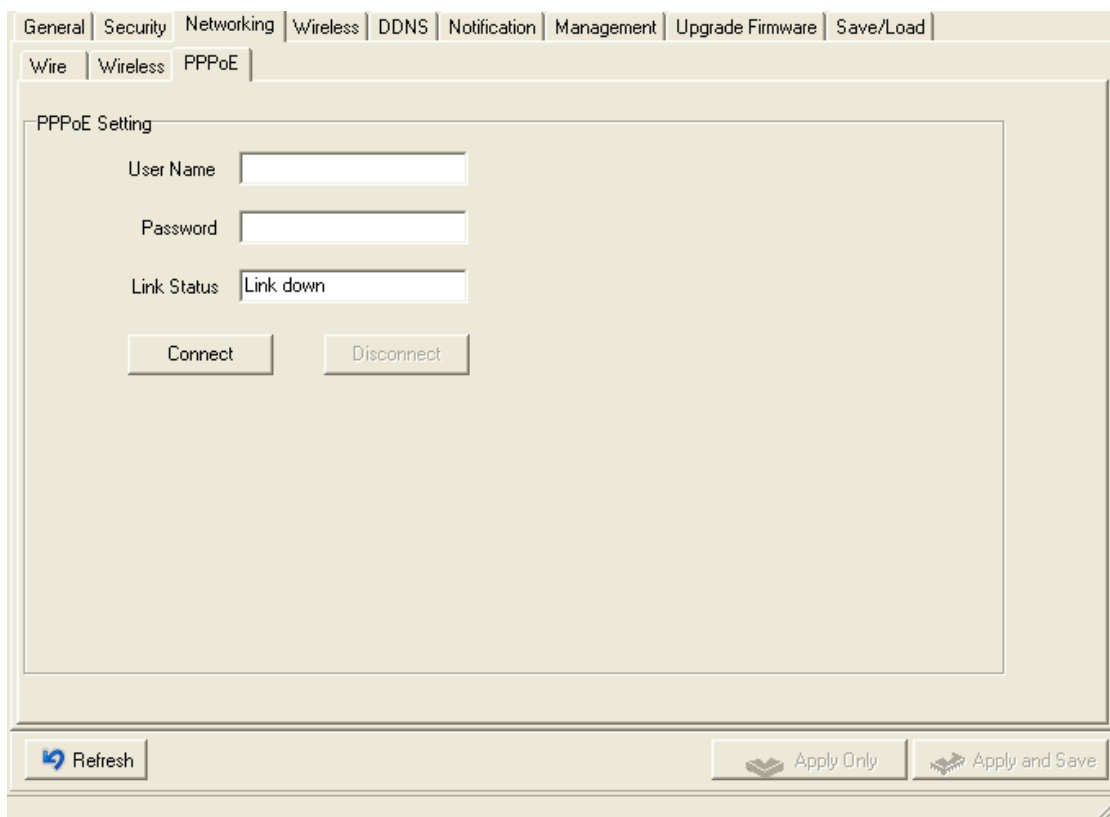

Figure 5-7 Network Setting

The following table describes the labels in this screen.

Label	Description
Using DHCP/BOOTP	IP Address automatically assigned by a DHCP server in your network.
Static IP Address	Manually assigning an IP address.
Subnet Mask	All devices on the network must have the same subnet mask to communicate on the network.
Gateway	Enter the IP address of the router in you network.
DNS Server	Enter the IP address of the DNS server, The DNS server translates domain names into IP address.

Table 5-3 Network setting

PPPoE

PPPoE (Point-to-Point Protocol over Ethernet), Device can use PPPoE mode to connect the Network. Input the **"username"** and "**Password**", then click "**Connect**" button. If the device has been connected, the **"Link Status"** will become the "Link up" and device will get an IP address from PPPoE server。Click "**Disconnect**" button to disconnect the PPPoE connection.

Figure 5-8 PPPoE Setting

Wireless setting

Wireless Network type includes two modes: INFRA and ADHOC. The INFRA type connects the network by wireless access point, but the ADHOC is formed by the association of wireless and mobile devices capable of communicating among themselves even when there is no networking INFRA structure available.

Figure 5-9 Wireless Network Setting

The following table describes the labels in this screen.

Label	Description
Network Type	Type includes INFRA and ADHOC.

SSID	Service Set Identifier Default is the default setting. The SSID is a unique name that identifies a network. All devices on a network must share the same SSID name in order to communicate on the network.
Channel	All devices on the network must be set to the same channel to communicate on the network. You can select the Auto.
NO Encryption	You can set no encryption mode, but this mode is insecurity and don't suggest use.
WEP	You can set four encryption 5characters (WEP64), 13 characters (WEP128), 10 digits (WEP64), 26digits (WEP128).
TKIP	TKIP (Temporal Key Integrity Protocol) is a key management protocol.
AES	AES (Advanced Encryption System) is a variable bit length symmetric digital encryption algorithm.
EAP-Type	Select the EAP type , support EAP-TLS, EAP-TTLS & EAP-PEAP
Identity	Input Identity of Radius server users
Password	Input password of Radius server users
CA Cert	Upload a CA certificate.
Client Cert	Upload a certificate. (not require for EAP-PEAP)
Private Key	Upload a private Key. (not require for EAP-PEAP)

Table 5-3 Wireless Network setting

Simply unplug the RJ-45 to change into wireless connection

DDNS

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing your computer to be more easily accessed from various locations on the Internet.

Figure 5-10 DDNS Setting

The following table describes the labels in this screen.

Label	Description
Service Provider	Choose the DDNS service Provider
Hostname	You must first apply an account from the DDNS service Provider such as www.dyndns.org, then register with the dynamic DNS service. Input the fixed hostname you got from the DDNS service.
Account mand Password	Input the Account and Password you have registered from the DDNS service Provider

Table 5-4 DDNS setting

Notification

Specify the events that should be notified to the administrator. The events can be alarmed by E-mail, SNMP trap, or system log.
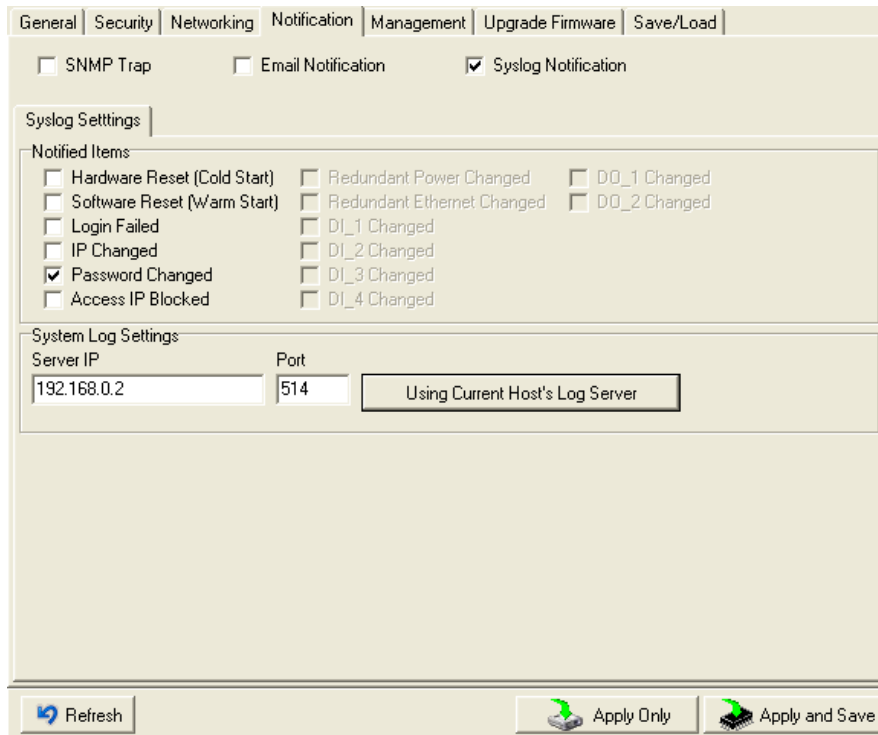

Figure 5-11 Notification

The following table describes the labels in this screen.

Label	Description
SNMP Trap	To notify events by SNMP trap.
Email Notification	To notify events by Email.
Syslog Notification	To notify events by Syslog.

Notify items	Events to be notified.
Apply	Apply current setting.
Apply and Save	Apply and save current setting.

Table 5-5 Notification

Management

Figure 5-11 Management

The following table describes the labels in this screen.

Label	Description
Web Management Enable	To enable management from Web. Click "**Goto Web Management**" button to access web.

Telnet Management Enable	To enable management by Telnet. Click "**Goto Telnet Management**" button to execute Telnet command.
SNMP Management Enable	To enable management by SNMP.
SNMP Management Settings	To configure SNMP related settings.

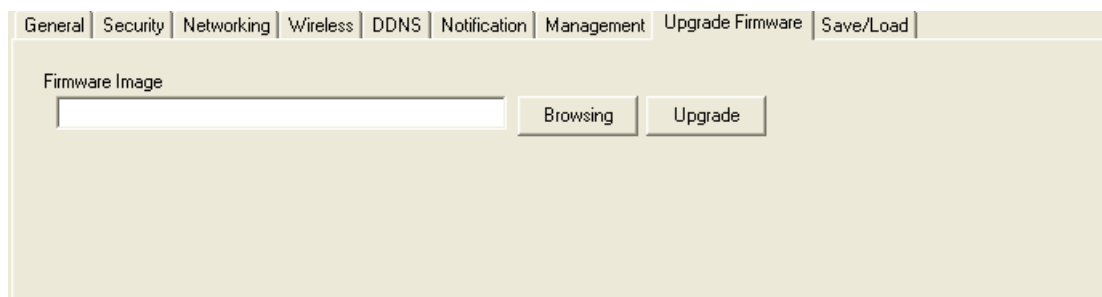*Table 5-6 Management*

Upgrade Firmware

Figure 5-12   Upgrade Firmware

The following table describes the labels in this screen.

Label	Description
Browsing	Browse the file and upgrade
Upgrade	Enable the firmware upgrade.

Table 5-7Upgrade Firmware

Save/Load

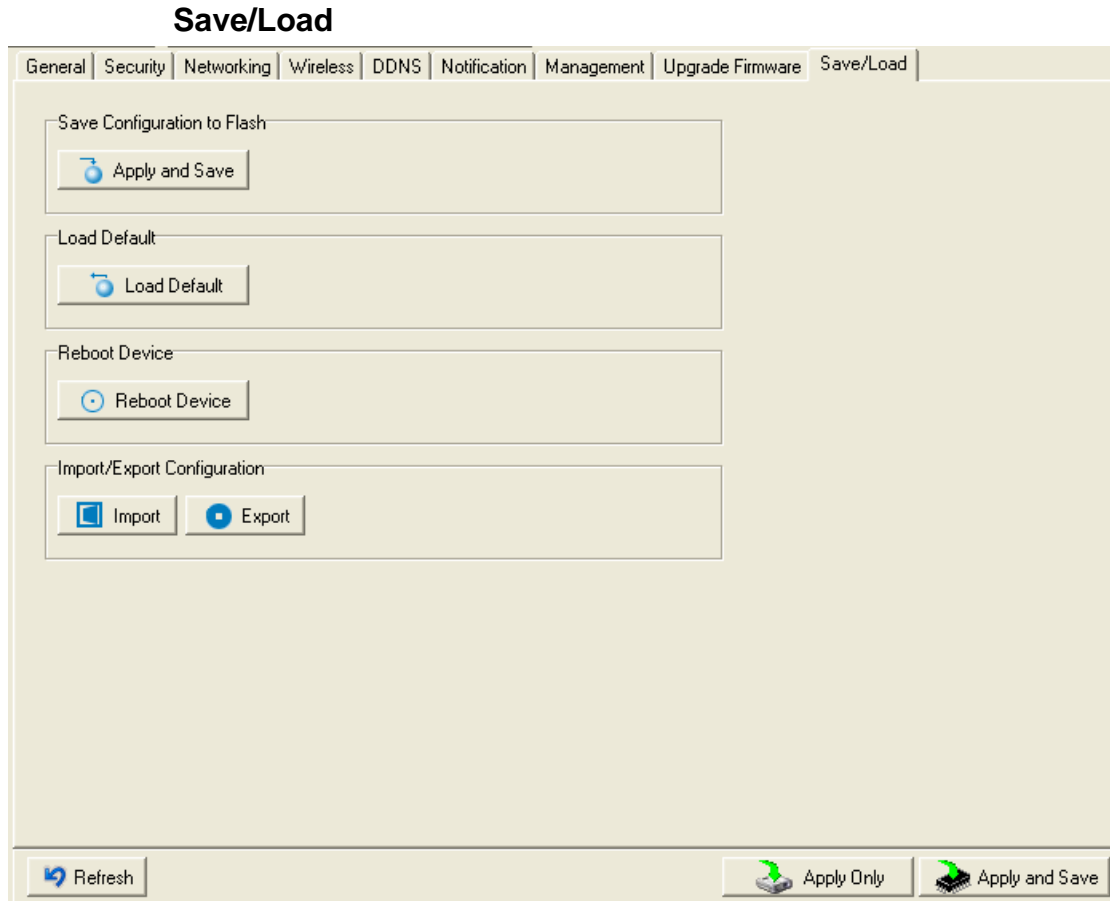*Figure 5-13 Save / Load*

The following table describes the labels in this screen.

Label	Description
Save Configuration to Flash	Save current configuration into flash memory.

Load Default	Load default configuration except the network settings. If you want to load all factory default, you need to press "**Reset**" button on the device (Hardware restore).
Reboot Device	Reboot the device server (warm start).
Import Configuration	Restore the previous exported configuration.
Export Configuration	Exported current configuration to a file to backup the configuration.

Table 5-8 Save / Load

5.1.2.3 Configure serial port

Serial Settings

Figure 5-14Serial Settings

The following table describes the labels in this screen.
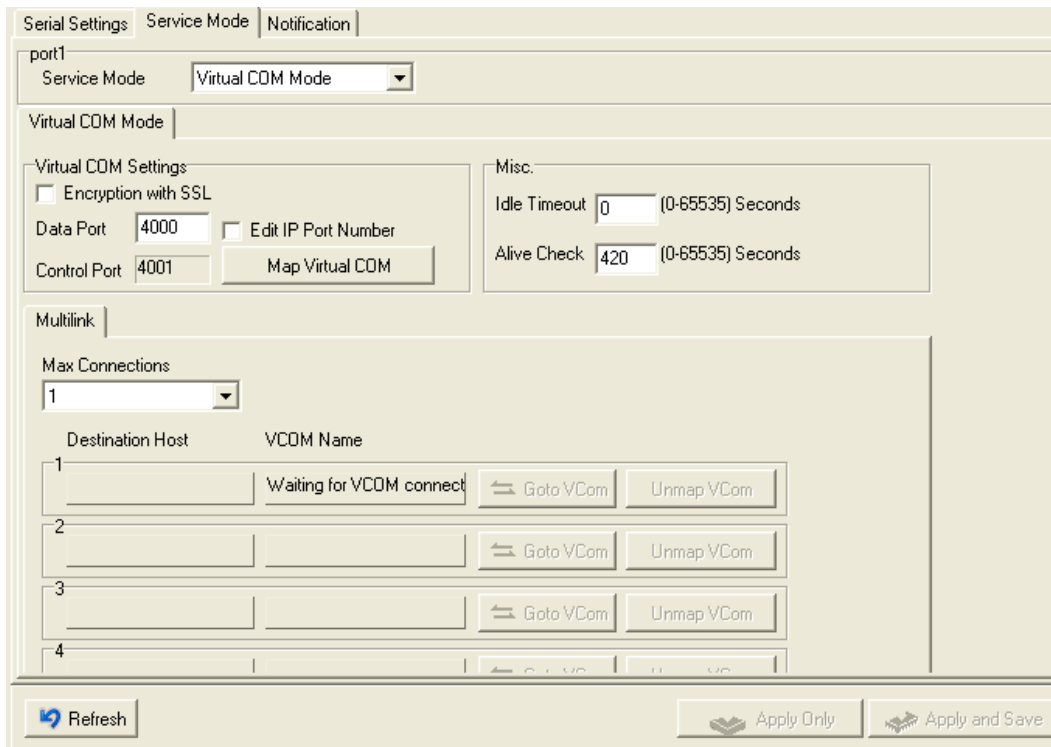
Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232
Baud rate	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps
Data Bits	5, 6, 7, 8
Stop Bits	1, 2 (1.5)
Parity	No, Even, Odd, Mark, Space
Flow Control	No, XON/XOFF, RTS/CTS, DTR/DSR
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Serial to Ethernet	**Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0. **Flush Data Buffer After:** The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.
Ethernet to Serial	**Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0. **Flush Data Buffer After:** The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flushE2S data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.

Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0.

Table 5-9 Serial settings

Service Mode – Virtual COM Mode

In Virtual COM Mode, The driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.

Figure 5-15 Virtual COM

The following table describes the labels in this screen.

Label	Description
Encryption with SSL	Use SSL to encrypt data.
Map Virtual COM	Select a Virtual COM Name to map on.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.

Table 5-10 Virtual COM

*Not allowed to mapping Virtual COM from web

Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network.   In this case, DS waits passively to be contacted by the device.   After a connection is established, it can then proceed with data transmission.   TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.
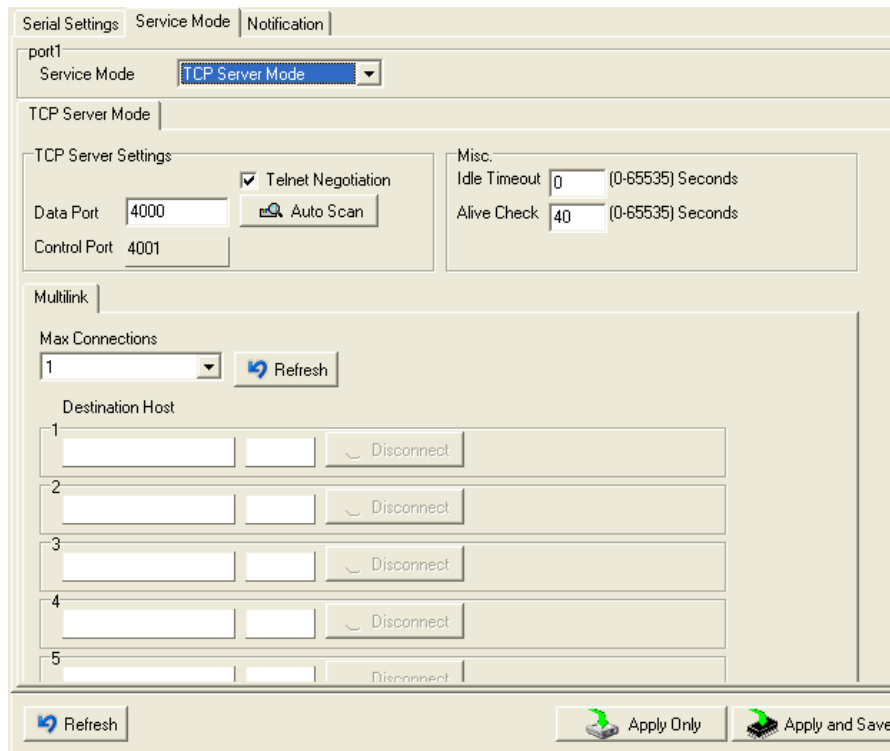
Figure 5-16 TCP Server mode

The following table describes the labels in this screen.

Label	Description
Encryption with SSL	Use SSL to encrypt data.
Data Port	Set the port number for data transmission.
Telnet Negotiation	Full Telnet command / symbol compatible
Auto Scan	Scan the data port automatically.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.

Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

Table 5-11 TCP Server mode

Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you have settled (Startup or any character).   After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or Idle time settings.

Figure 5-17 TCP Client Mode

The following table describes the labels in this screen.

Label	Description
Encryption with SSL	Use SSL to encrypt data.

Destination Host	Set the IP address of host.
Port	Set the port number of data port.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts.　0 indicate disable this function.　Factory default value is 0.　If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection.　If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function.　Factory default is 0.
Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

Table 5-12 TCP Client mode

Service Mode – UDP Mode

Compared to TCP communication, UDP is faster and more efficient.　In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host

Figure 5-18 UDP mode

Notification

Specify the events that should be noticed.   The events can be noticed by
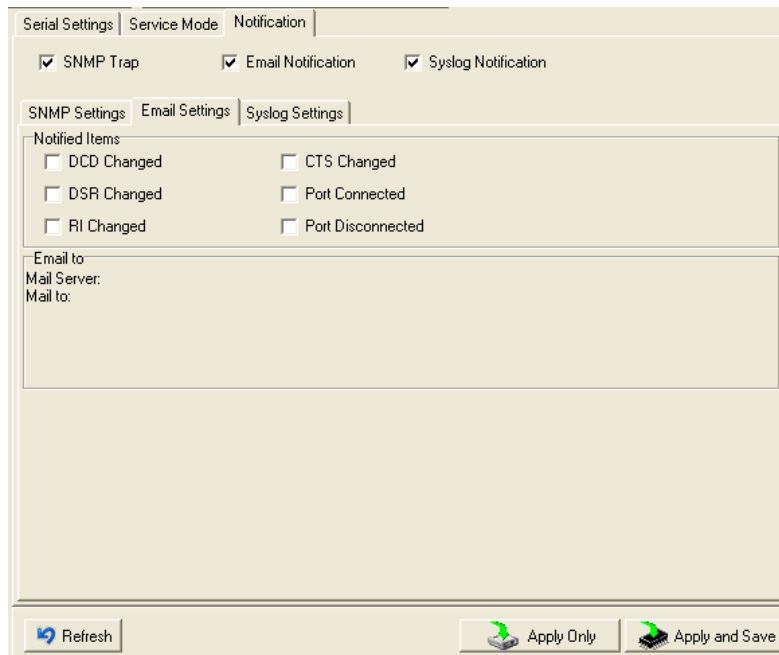E-mail, SNMP trap or system log.

Figure 5-19 Notification

The following table describes the labels in this screen.

Label	Description
DCD changed	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has changed. Notification will be sent.
DSR changed	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
RI changed	When RI (Ring Indicator) signal changes, it indicates that the incoming of a call. A Notification will be sent.
CTS changed	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
Port connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent.

Port disconnected	In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent.

Table 5-13 Notification

5.2   Configuration by Web Browser

5.2.1   CONNECT TO THE WEB PAGE

Step 1:   Input the IP address of DS with "**https://192.168.10.2**" in the Address input box of IE.

Step 2:   Click "**Yes**" button on the dialog box.

Figure 5-19 Certificate
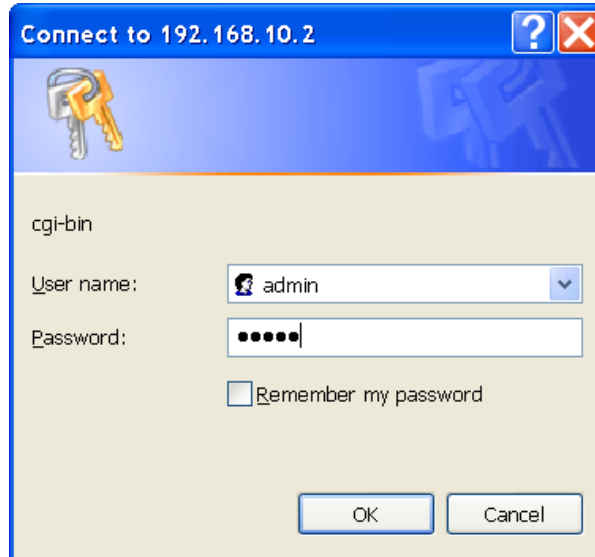
Step 3:   Input the name and password, then click "**OK**".

Figure 5-20 Certificate

Only if password is set.

Step 4:   The system information will be shown as below.

Figure 5-21 System information

5.2.1.1　System

Time (SNTP)

Figure 5-22 Time (SNTP)

The following table describes the labels in this screen.

Label	Description
Name	You can set the name of DS.
SNTP	Enable the SNTP server.
Time zone	After you set the SNTP enable, select the time zone you located.
Time server	Input SNTP server domain name or IP address and Port.
Console	Telnet Console (SSH) is included for security reasons.　In some cases, you may need to disable this function to prevent unauthorized access from internet.　The factory default is enable.

Table 5-13 Time (SNTP)

IP Configuration

You must assign a valid IP address for DS before attached in your network environment.   Your network administrator should provide you with the IP address and related settings.   The IP address must be unique and within the network (otherwise, DS will not have a valid connection to the network).   You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP.   The Factory Default IP address is "**192.168.10.2**"
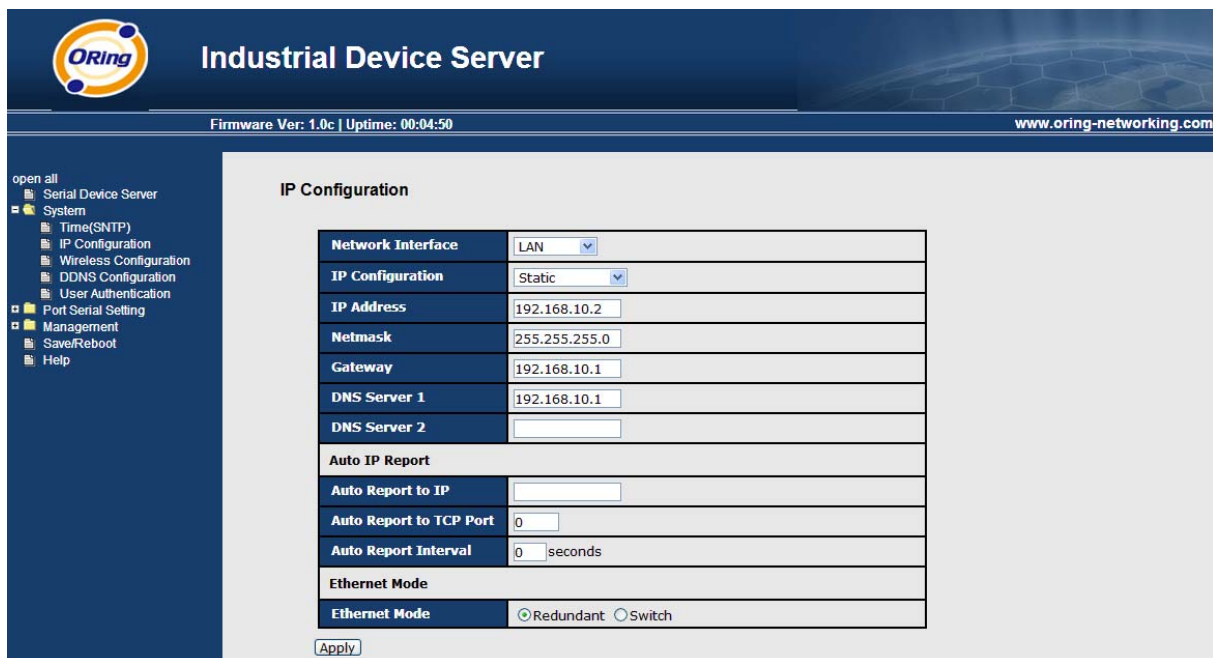

Figure 5-23 IP configuration

The following table describes the labels in this screen.

Label	Description
DHCP/BOOTP	Obtain the IP address automatically from DHCP server.
Static IP Address	Assigning an IP address manually.
Subnet Mask	Set the subnet mask to communicate on the network.
Gateway	Enter the IP address of the router in you network.
DNS Server	Enter the IP address of the DNS server to translate domain names into IP address.
Auto IP Report	The device server will report its status periodically. At DS-Tool->IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). But you can set the other IP or Port.

Table 5-14 IP configuration

PPPoE setting

PPPoE (Point-to-Point Protocol over Ethernet), Device can use PPPoE mode to connect the Network. Input the **"username"** and "Password", then click **"Connect"** button. If the device has been connected, the **"Status"** will become the **"Link up"** and device will get an IP address from PPPoE server. Click "Return" button, return the **"IP Configuration"** default page.

Wireless configuration

Wireless Network include two mode: INFRA and ADHOC. The INFRA type connect the network by wireless access point, but the ADHOC is formed by the association of wireless and mobile devices capable of communicating among themselves even if there is no networking INFRA structure available.
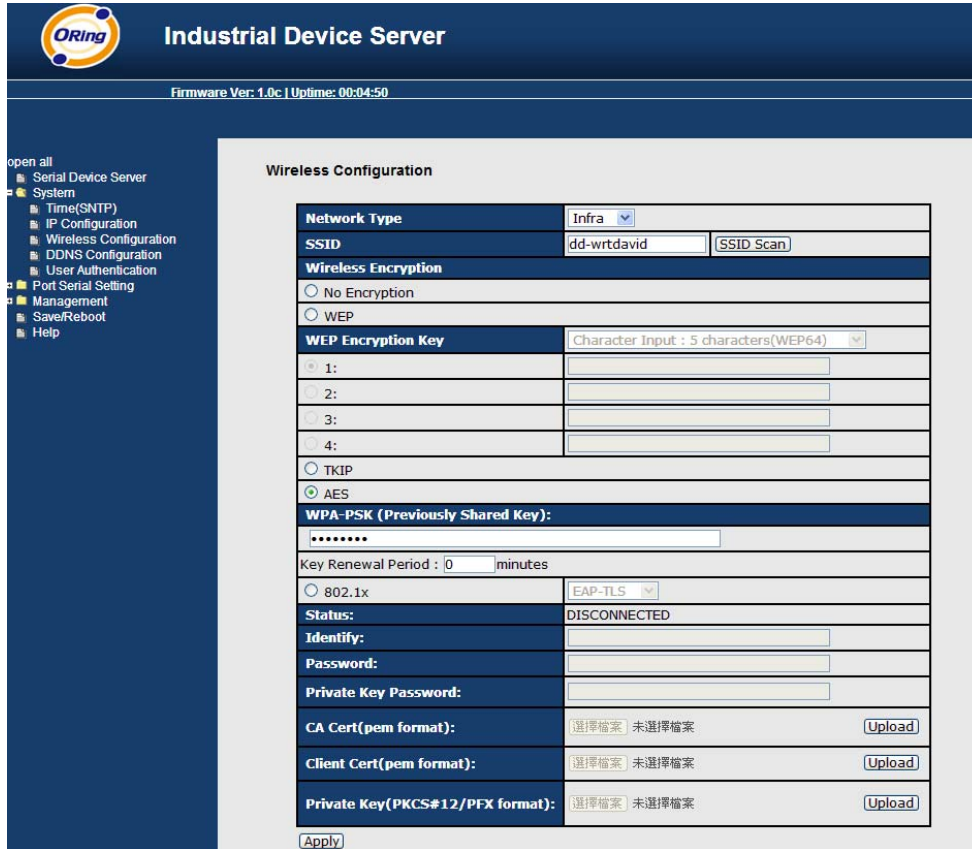
Figure 5-24 Wireless configurations

The following table describes the labels in this screen.

Label	Description
Network Type	Type includes INFRA and ADHOC.
SSID	Service Set Identifier Default is the default setting. The SSID is a unique name that identifies a network. All devices on a network must share the same SSID name in order to communicate on the network.
Channel	All devices on the network must be set to the same channel to communicate on the network. You can select the Auto.
NO Encryption	You can set no encryption mode, but this mode is insecurity and don't suggest use.
WEP	You can set four encryption 5characters (WEP64), 13 characters (WEP128), 10 digits (WEP64), 26digits (WEP128).

TKIP	TKIP (Temporal Key Integrity Protocol) is a key management protocol.
AES	AES (Advanced Encryption System) is a variable bit length symmetric digital encryption algorithm.
EAP-Type	Select the EAP type , support EAP-TLS, EAP-TTLS & EAP-PEAP
Identity	Input Identity of Radius server users
Password	Input password of Radius server users
CA Cert	Upload a CA certificate.
Client Cert	Upload a certificate. (not require for EAP-PEAP)
Private Key	Upload a private Key. (not require for EAP-PEAP)

Table 5-14 Wireless Network setting

*Simply unplug the RJ-45 to change into wireless connection

DDNS Configuration

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing your computer to be more easily accessed from various locations on the Internet.

Figure 5-26 DDNS setting

The following table describes the labels in this screen.

Label	Description

Service Provider	Choose the DDNS service Provider
Hostname	You must first apply an account from the DDNS service Provider such as www.dyndns.org, then register with the dynamic DNS service. Input the fixed hostname you got from the DDNS service.
Account and Password	Input the Account and Password you have registered from the DDNS service Provider.
Check WAN IP Schedule	Device will check the IP address Status at interval time you set.

Table 5-16 DDNS Setting

Authentication

You can set the password to prevent unauthorized access from network.   Input the "**Old password**" and "**New password**" to change the password.   Factory default is no password.
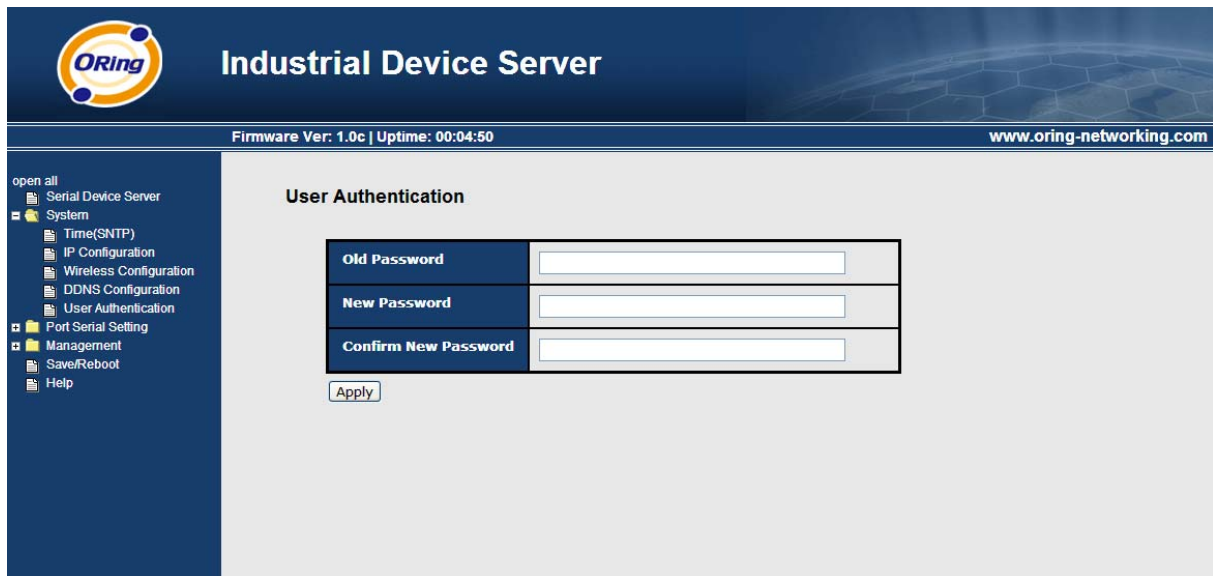

Figure 5-25 Authentication

5.2.1.2 Port serial setting

Serial configuration

Figure 5-26 Serial configuration

The following table describes the labels in this screen.

Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232
Baud rate	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps/460800bps
Data Bits	5, 6, 7, 8
Stop Bits	1, 2 (1.5)

Parity	No, Even, Odd, Mark, Space
Flow Control	No, XON/XOFF, RTS/CTS, DTR/DSR
Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0.
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Apply	Activate settings on this page.

Table 5-15 Serial configuration

Port Profile

Figure 5-27 Port Profile

The following table describes the labels in this screen.

Label	Description
Serial to Ethernet	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0
Ethernet to serial	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush E2S data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0

Table 5-16 Port Profile

Service Mode – Virtual COM Mode

In Virtual COM Mode, the driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer.　Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.

Figure 5-28 Virtual COM mode

The following table describes the labels in this screen.

Label	Description
Data Encryption	Use SSL to encrypt data.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function.　Factory default value is 0.　If Multilink is configured, only the first host connection is effective for this setting.

Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

Table 5-17 Virtual COM mode

*Not allowed to mapping Virtual COM from web

Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network.   In this case, DS waits passively to be contacted by the device.   After the device establishes a connection with the serial device, it can then proceed with data transmission.   TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.

Figure 5-29 TCP Server Mode

The following table describes the labels in this screen.

Label	Description
Data Encryption	Use SSL to encrypt data.
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

Table 5-18 TCP server mode

Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you set (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or Idle timeout settings.

Figure 5-30 TCP client mode

The following table describes the labels in this screen.

Label	Description
Data Encryption	Use SSL to encrypt data.
Destination Host	Set the IP address of host and the port number of data port. .
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.

Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

Table 5-19 TCP client mode

Service Mode – UDP Client Mode

Compared to TCP communication, UDP is faster and more efficient.   In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host
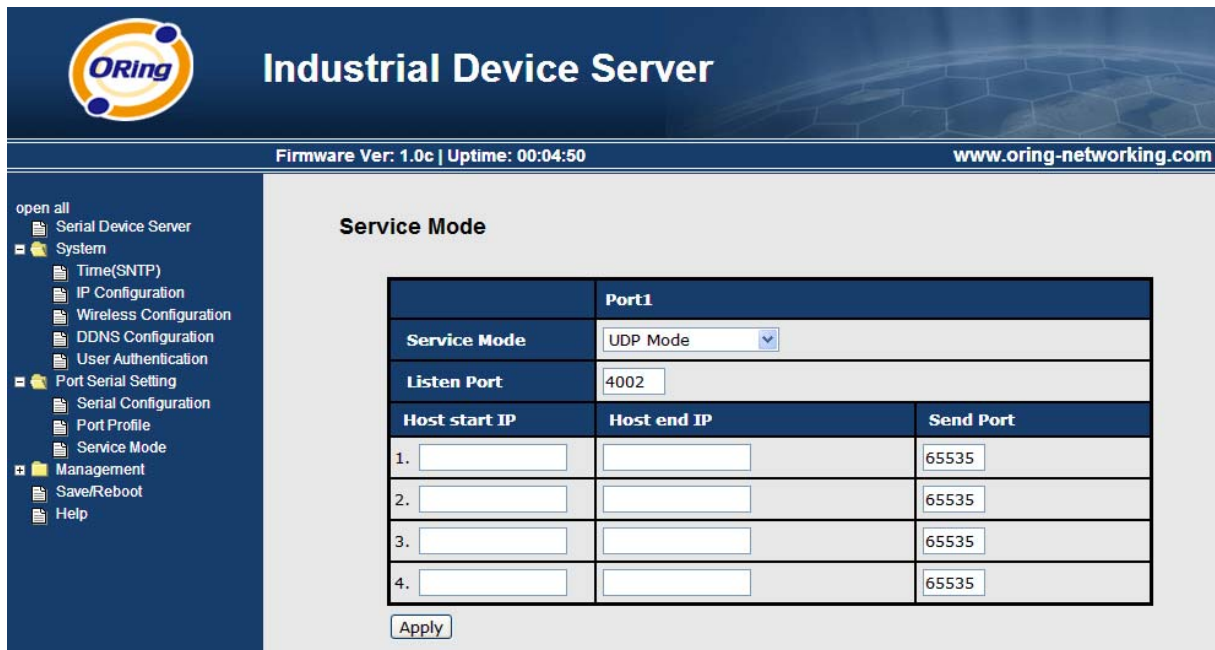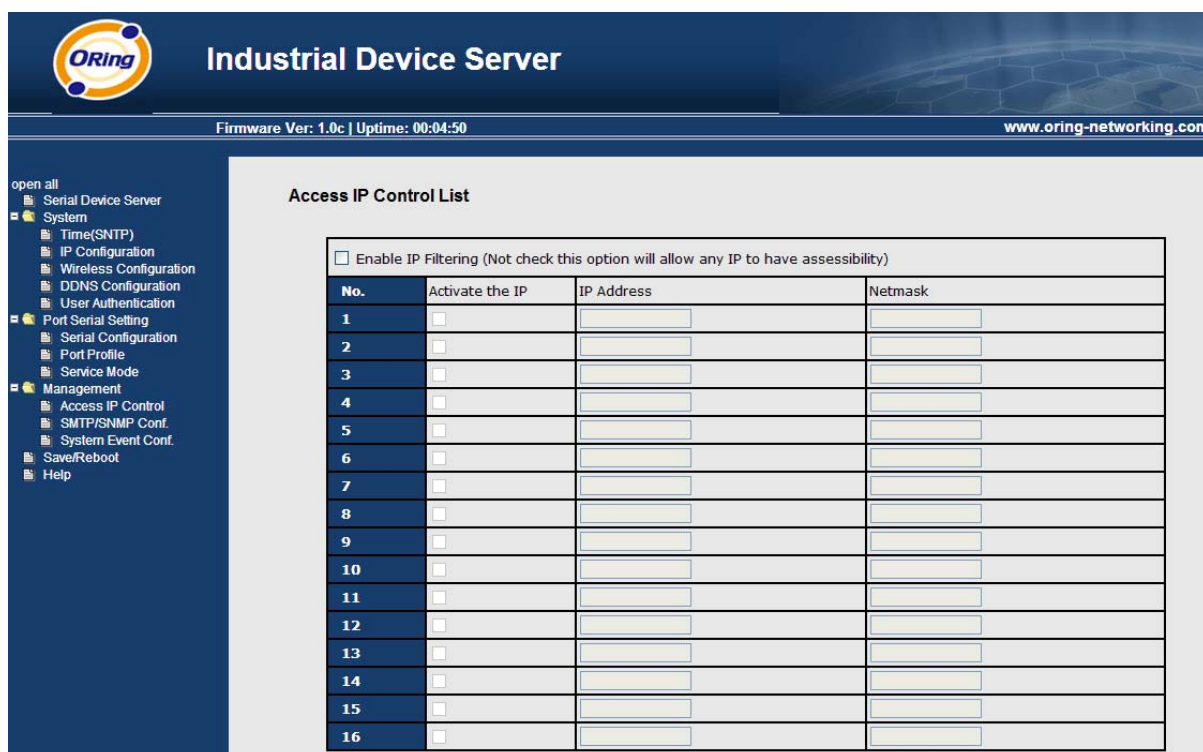
Figure 5-31 UDP client mode

5.2.1.3 Management

Access IP Control

Access IP Control Settings allow you to add or block the remote host IP addresses to prevent unauthorized access.   If host's IP address is in the accessible IP table, then the host will be allowed to access the DS.   You can choose one of the following cases by setting the parameter.

1. Only one host with a special IP address can access the device server, "**IP address /255.255.255.255**" (e.g., "**192.168.0.1/255.255.255.255**").

2. Hosts on a specific subnet can access the device server.   "**IP address/255.255.255.0**" (e.g., "**192.168.0.2/255.255.255.0**")

3. Any host can access the device server.   Disable this function by un-checking the "**Enable IP Filter**" checkbox

Figure 5-32 Access IP

SMTP/SNMP Conf

Email Server configuration includes the mail server's IP address or domain.   If the authentication is required, specify your name and password.   There are 4 Email addresses that you can specify to receive the notification.

SNMP Server configuration includes the SNMP Trap Server IP address, Community, Location and Contact.   There are 4 SNMP addresses you can specify to receive the notification.

SysLog server configuration includes the server IP and server Port.   This option need to use with DS-Tool.

Figure 5-33 SMTP / SNMP conf

System Event Conf.

Specify the events that should be notified to the administrator.   The events can be alarmed by E-mail, SNMP trap, or system log.

Figure 5-34 SMTP / SNMP conf

The following table describes the labels in this screen.

Label	Description
Hardware Reset (Cold Start)	This refers to starting the system from power off (contrast this with warm start). When performing a cold start, DS will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap after booting.

Software Reset (Warm Start)	This refers to restart the computer without turning the power off. When performing a warm start, DS will automatically send an E-mail, log information or SNMP trap after reboot.
Login Failed	When an unauthorized access from the Console or Web interface, a notification will be sent.
IP Address Changed	When IP address of device changed, a notification will be sent.
Password Changed	When password of device changed, a notification will be sent.
Access IP Blocked	When the host accesses the device with blocked IP addresses, a notification will be sent.
Redundant Power Change	When status of power changed, a notification will be sent.
Redundant Ethernet Change	When status of Ethernet port changed, a notification will be sent.
DCD changed	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has been changed. A Notification will be sent.
DSR changed	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
RI changed	When RI (Ring Indicator) signal changes, it indicates an incoming call. Notification will be sent.
CTS changed	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
Port connected	In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent.
Port disconnected	In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent.
Power 1 Fault	When Power 1 Fault, a notification will be sent and the Fault LED will be lighted.
Power 2 Fault	When Power 2 Fault, a notification will be sent and Fault LED will be lighted.

Eth1 link down	When Eth1 link down, a notification will be sent and Fault LED will be lighted.
Eth2 link down	When Eth2 link down, a notification will be sent and Fault LED will be lighted.

Table 5-20 System event conf

5.2.1.4 Save/Reboot

Figure 5-35 Save / Reboot

The following table describes the labels in this screen.

Label	Description
Factory Default	Load default configuration except settings of Network. If you want load all factory default, you should press "**Reset**" button about the five seconds on the device (Hardware restore).
Restore Configuration	Restore the previous exported configuration.
Backup Configuration	Export the current configuration to a file.
Upgrade Firmware	Upgrade to a new firmware with specified file.

Reboot Device	Reboot the device server (warm start).

Table 5-21 Save / Reboot

5.3 Configuration by SSH Console

5.3.1 Connect to DS

You can use SSH Tool (e.g., PUTTY) to access SSH console of DS.   The SSH console interface is shown below.

```
login as: admin
admin@192.168.0.39.'s password:

*****************************************
*** ORING Industrial Serial Device Server Commander ***
*****************************************
------------------------------------------
[ORING Industrial Serial Device Server Commander]
1. Overview
2. General Settings
3. Network Settings
4. Ports settings
5. Security(Accessible IP) Settings
6. Notification(Auto Warning) Settings
C. Change Password
L. Load Factory Default
S. Save configuration
R. Reboot
Q. Exit & Logout

Select one function (1-6,C,L,S,R,Q):
```

Figure 5-36 SSH

Technical Specifications

ORing Device Server Model	IDS-1112
Feature	
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	**1**
WLAN Feature	
WLAN Standard	IEEE 802.11b/g
Operating Mode	Client mode
Antenna Connector	Reverse SMA
Radio Frequency Type	DSSS, OFDM
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM
Frequency	America/FCC: 2.412~2.462 GHz (11 channels) Europe CE/ETSI: 2.412~2.472 GHz (13 channels)
Transmission Rate	IEEE802.11b: 1/ 2/ 5.5/ 11 Mbps IEEE802.11g: 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54 Mbps
Transmit Power	IEEE802.11b/g: 18dBm
Receiver Sensitivity	-81dBm @ 11Mbps, PER< 8%; -64dBm @ 54Mbps, PER< 10%
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA/WPA2 :802.11i(WEP and AES encryption) WAP-PSK (256-bit key pre-shared key supported) 802.1X Authentication supported TKIP encryption
Serial Ports	
Connector	DB9(male) x 1
Operation Mode	RS232
Serial Baud Rate	110 bps to 460.8 Kbps
Data Bits	5, 6, 7, 8
Parity	odd, even, none, mark, space
Stop Bits	1, 1.5, 2
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
Flow Control	XON/XOFF, RTS/CTS, DTR/DSR
Network Protocol	
Protocol	ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP V1/V2c, HTTPS, SMTP, DDNS, PPPoE
LED indicators	
Power indicator	PWR 1(2) / Ready: Red On: Power is on and booting up.

	Green On: Power is on and functioning Normally. Green Blinking: Located by Administrator.
10/100TX RJ45 port indicator	Green for port Link/Act at 100Mbps. Amber for port Link/Act at 10Mbps.
WLAN indicator	WLAN Link /ACT: Green: WLAN Strength: 1<25% , 2<50%, 3<75%, 4<100%
Serial TX / RX LEDs:	Red: Serial port is receiving data Green: Serial port is transmitting data
Power	
Redundant Input power	Dual DC inputs. 12-48VDC on 3-pin terminal block and power jack
Power consumption (Typ.)	5.3 Watts
Overload current protection	Present
Reverse polarity protection	Present on terminal block
Physical Characteristic	
Enclosure	IP-40
Dimension (W x D x H)	41 (W)x 114 (D)x153 (H) mm (1.61 x4.48 x6.02 inch.)
Weight (g)	551 g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-10 to 60°C (14 to 140°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory approvals	
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
Warranty	5 years