

Industrial Device Server User's Manual

IDS-5011



Version 1.00

Aug 2010.



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Getting to Know Your Device Server

1.1 About the IDS-5011 Serial Device Server



IDS-5011 is an innovative 1 port RS232 to 1 port LAN device server.. To assure the agility and security of critical data, IDS-5011 offers many powerful features for SW redundant functions.

The IDS-5011 can simultaneously transfer data into 5 host PCs. This feature assures all critical data that saved in different host PC from Ethernet breaking or host PCs failure IDS-5011 also support the data encryption with SSL, so it can assure the data transfer safely.

Secondly, the IDS-5011 provides dual redundant power inputs on DC power jack and terminal block. IDS-5011 also provides NAT pass through function so that users are able to manage IDS-5011 inside or outside the NAT router. It is easy for different IP domain users to use IDS-5011. Therefore, IDS-5011 is the best communication redundant solution for current application of serial devices with Ethernet interface.

1.2 Software Features

- NAT-pass through: User can manage IDS-5011 through NAT router
- PPPoE for internet connection.
- Data Encryption with SSL for Security data transfer.
- DDNS for domain name service.
- 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

1.3 Hardware Features

- Redundant Power Inputs: 12~48 VDC on terminal block and power jack
- Operating Temperature: -10 to 60°C
- Storage Temperature: -40 to 85°C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-30
- 10/100Base-T(X) Ethernet port
- Dimensions(W x D x H) : 72mm(W)x125 mm(D)x31mm(H)

Hardware Installation

2.1 Install IDS-5011 on DIN-Rail

Each IDS-5011 has a Din-Rail kit on rear panel. The Din-Rail kit helps IDS-5011 to fix on the Din-Rail. It is easy to install the IDS-5011 on the Din-Rail:

2.1.1 Mount IDS-5011 on DIN-Rail

Step 1: Slant the IDS-5011 and mount the metal spring to Din-Rail.

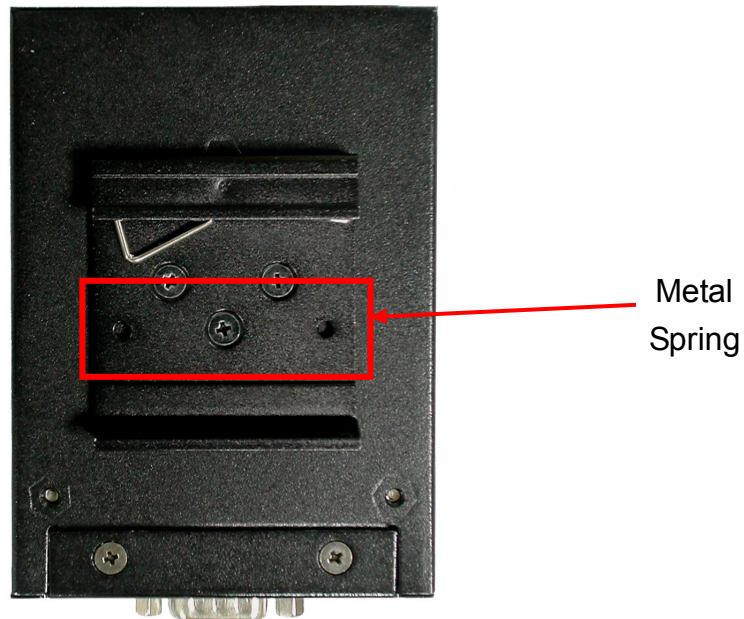


Figure 2-1

Step 2: Push the IDS-5011 toward the Din-Rail until you heard a “click” sound.

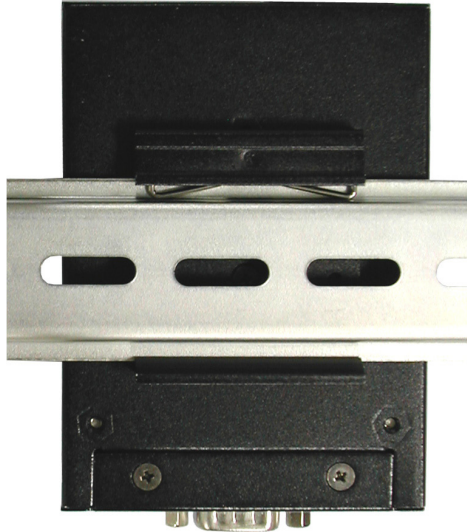


Figure 2-2

2.2 Wall Mounting Installation

Each IDS-5011 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-5011 on the wall:

2.2.1 Mount IDS-5011 on wall

Step 1: Remove Din-Rail kit.

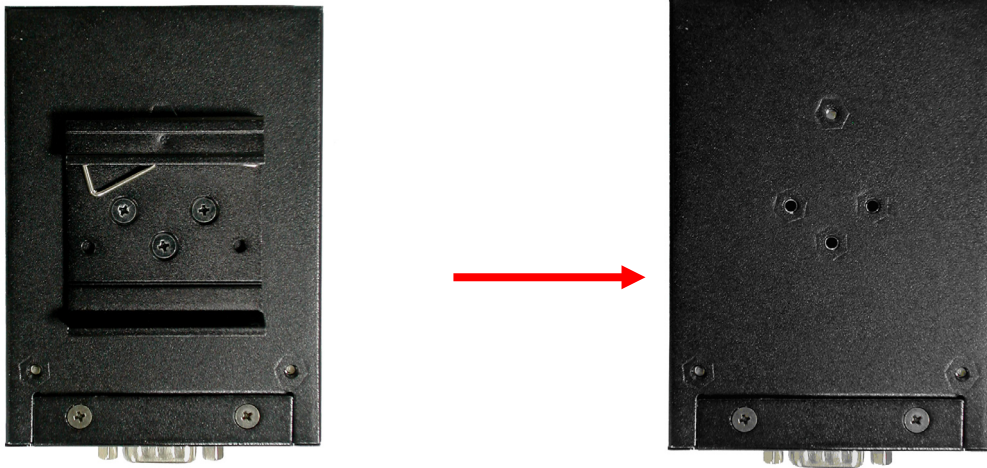


Figure 2-3

Step 2: Use 6 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-5011 from any damage, the size of screws should not be larger than the size that used in IDS-5011.

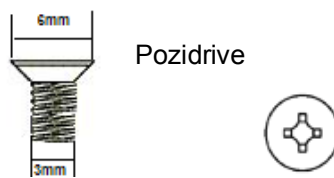


Figure 2-5

Hardware Overview

3.1 Front Panel



Figure 3-1

1. LED for PWR1 and system status. When the PWR1 links, the green led will be light on.
2. LED for PWR2 and system status. When the PWR2 links, the green led will be light on.
3. LED of 10/100Base-T(X) Ethernet.
4. LED of serial port. Green for transmitting, red for receiving



3.2 Front Panel LEDS

The following table describes the labels that stick on the IDS-5011.

LED	Color	Status	Description
PWR1	Green/Red	On	DC power 1 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
PWR2	Green/Red	On	DC power 2 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
ETH	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT
Serial	Green	Blinking	Serial port is transmitting data
	Red	Blinking	Serial port is receiving data

Table 3-1 Front panel LEDS

3.3 Top Panel

The Top panel components of IDS-5011 are shown as below:

1. Terminal block include: PWR1 (12 ~ 48V DC)
2. Power Jack include: PWR2 (12 ~ 48V DC)
3. RJ45 Ethernet Connector: 10/100Base-T(X) Ethernet interface.

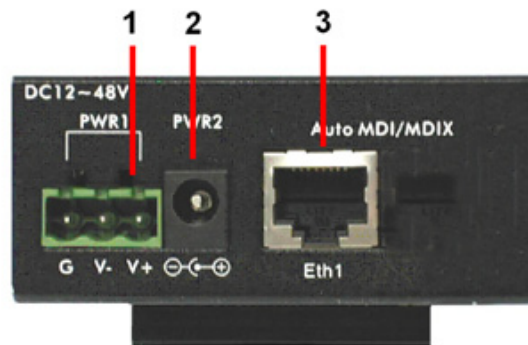


Figure 3-2

3.4 Bottom Panel

The bottom panel components of IDS-5011 are shown as below:

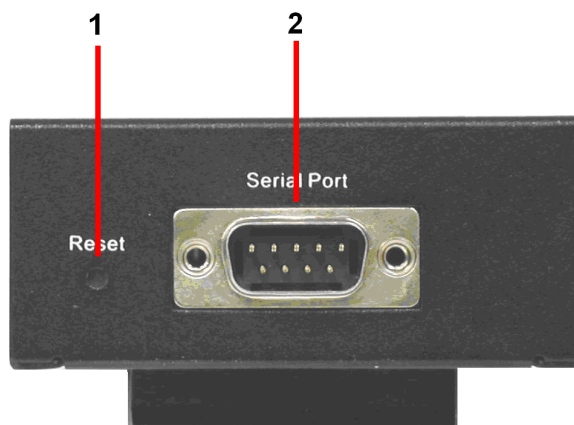
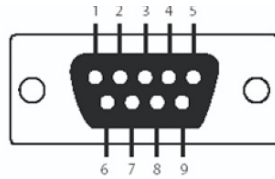


Figure 3-3

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

3.5 Rear Panel

The rear panel components of IDS-5011 are shown as below:

1. Screw holes for wall mount kit and DIN-Rail kit.
2. Din-Rail kit
3. Wall Mount kit.

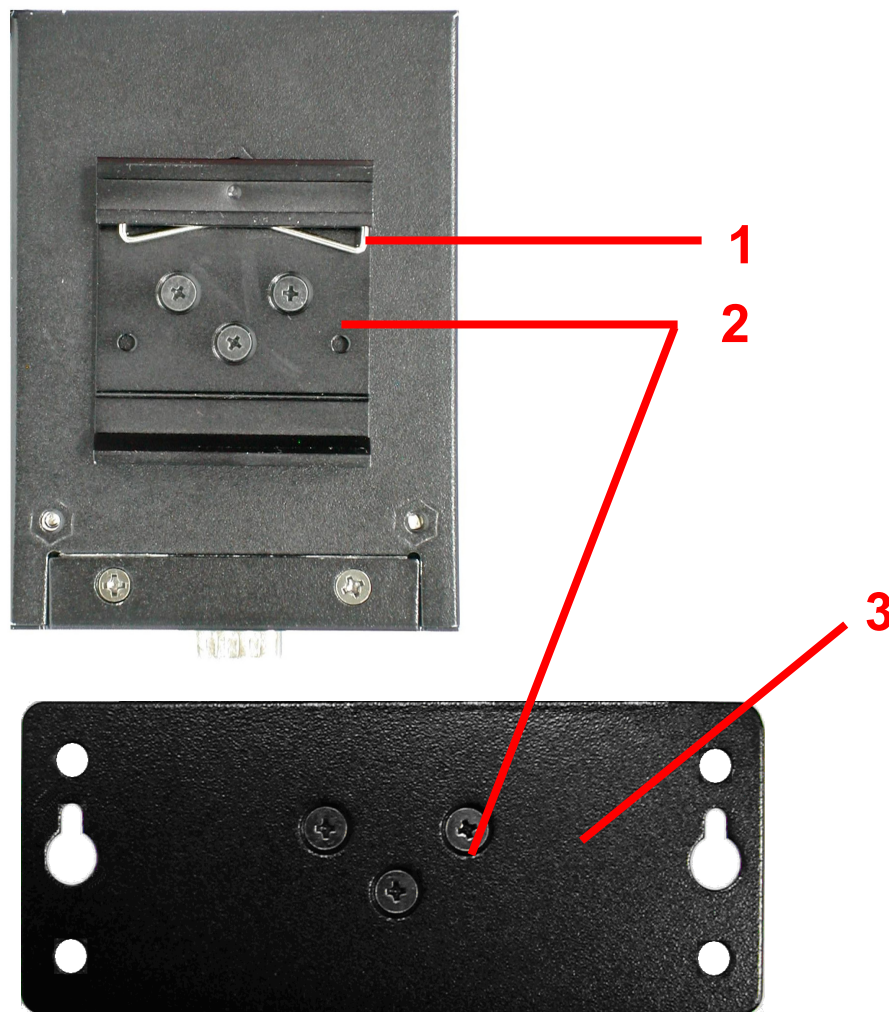


Figure 3-4 Rear Panel



Cables

4.1 Ethernet Cables

The IDS-5011 has standard Ethernet ports. According to the link type, the IDS-5011 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-5011 supports auto MDI/MDI-X operation. You can use a straight-through cable to connect PC to IDS-5011. 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.

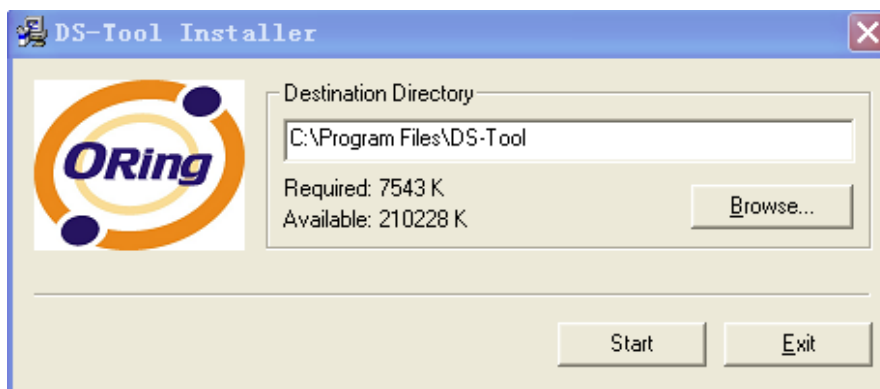


Figure 5-1

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

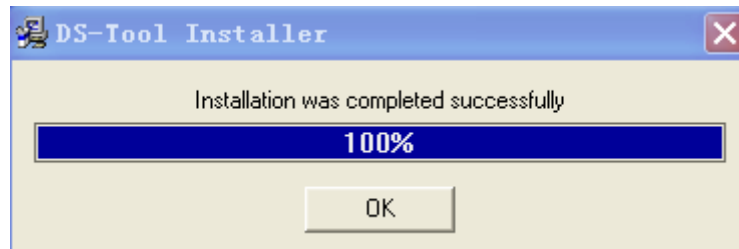


Figure 5-2

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.

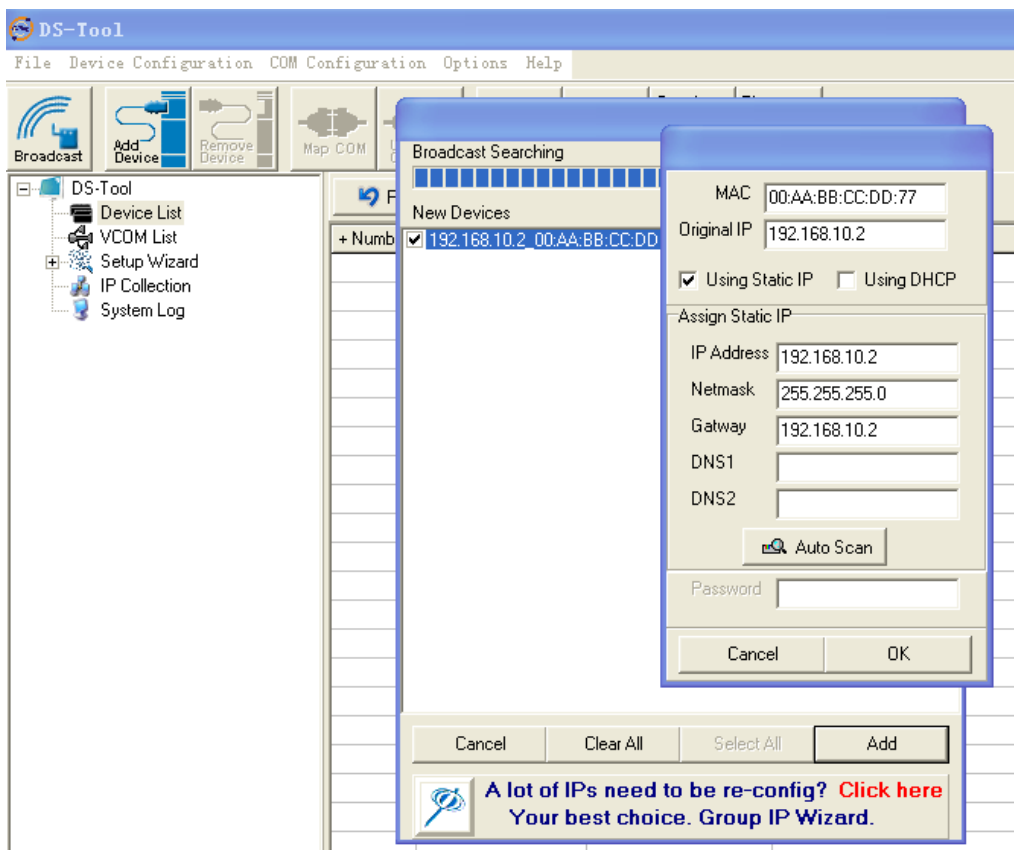


Figure 5-4

5.1.2.2 Configure device servers

General settings

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

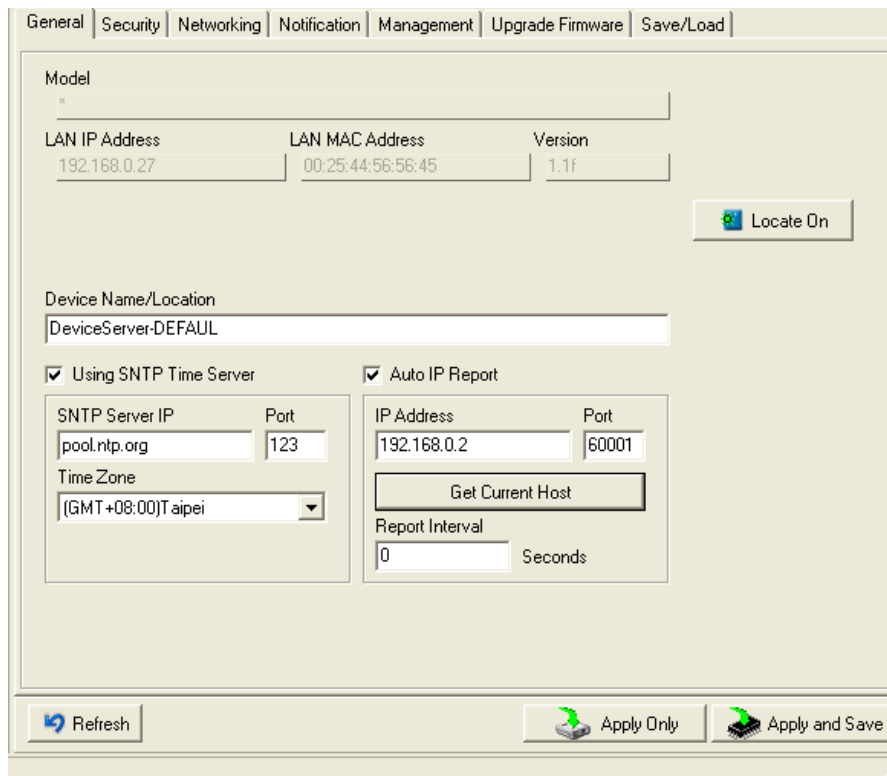


Figure 5-5 General settings

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

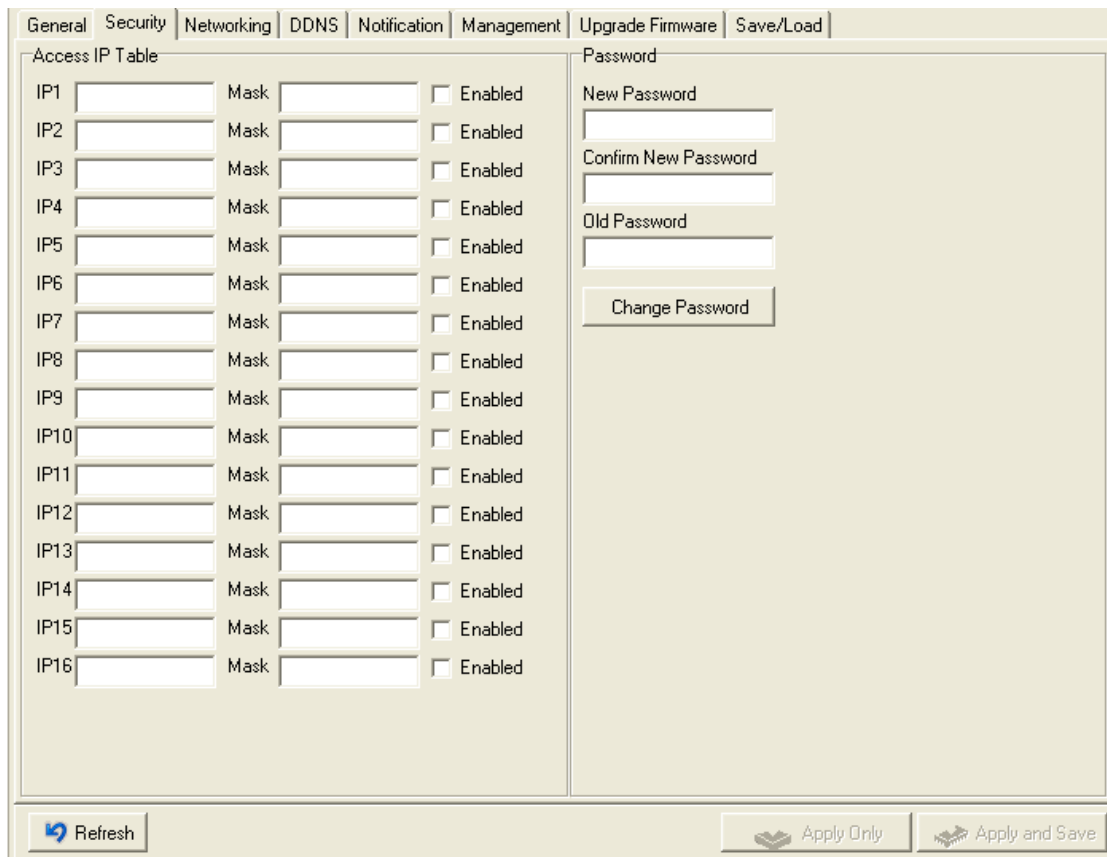


Figure 5-6 Security

The following table describes the labels in this screen.

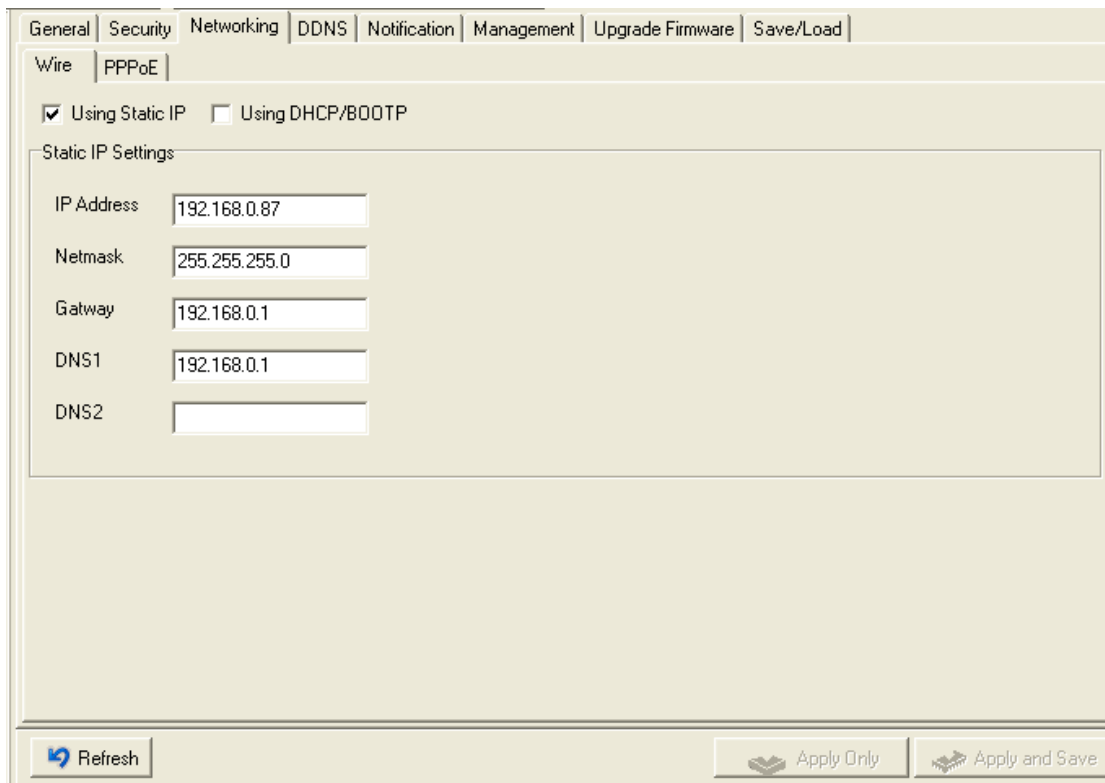
Label	Description
Accessible IP Setting	To prevent unauthorized access by setting host IP addresses and network masks.
Password setting	You can set the password to prevent unauthorized access from your server. Factory

	default is no password.
--	-------------------------

Table 5-2 Security

Network Setting

Device can connect the Network by wire. 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**”



The screenshot shows a web-based configuration interface for network settings. At the top, there are tabs for General, Security, Networking, DDNS, Notification, Management, Upgrade Firmware, and Save/Load. The 'Networking' tab is selected, and within it, the 'Wire' sub-tab is active. There are two radio buttons: 'Using Static IP' (checked) and 'Using DHCP/BOOTP' (unchecked). Below this, a section titled 'Static IP Settings' contains five input fields: IP Address (192.168.0.87), Netmask (255.255.255.0), Gateway (192.168.0.1), DNS1 (192.168.0.1), and DNS2 (empty). At the bottom of the interface, there are three buttons: 'Refresh', 'Apply Only', and 'Apply and Save'.

Figure 5-7 Network Setting



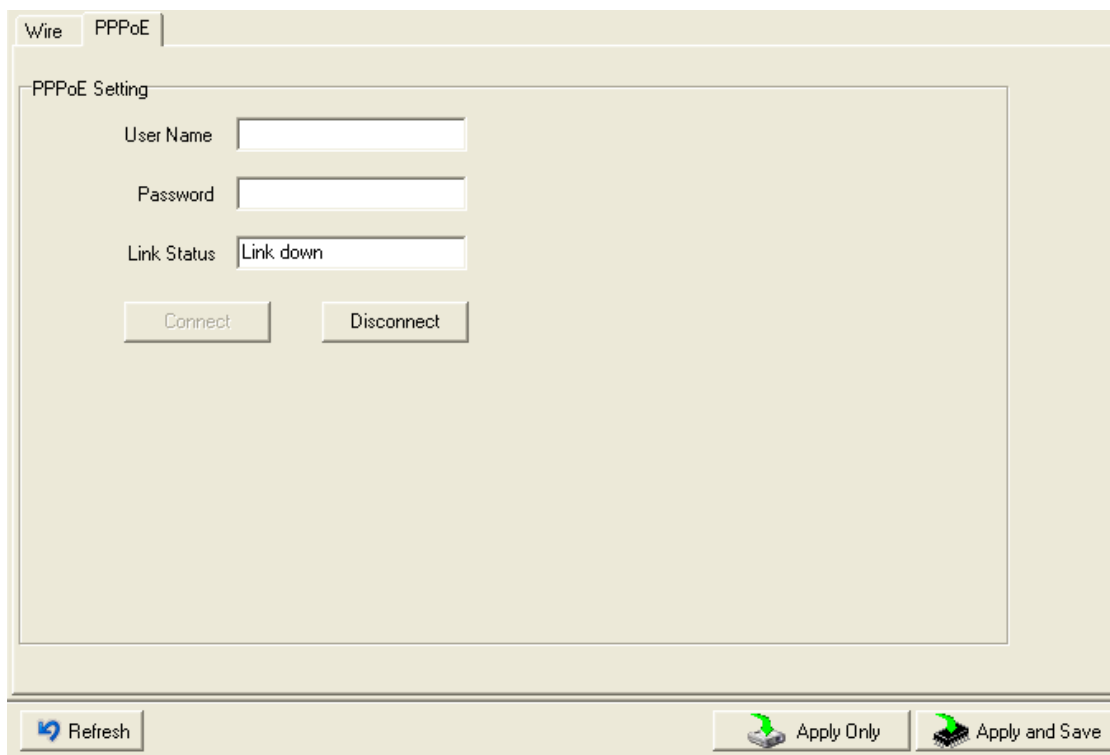
The following table describes the labels in this screen.

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.



The screenshot shows a web-based configuration interface for PPPoE. At the top, there are two tabs: 'Wire' and 'PPPoE'. The 'PPPoE' tab is active. Below the tabs, the title 'PPPoE Setting' is displayed. The main area contains three input fields: 'User Name', 'Password', and 'Link Status'. The 'Link Status' field currently displays 'Link down'. Below the input fields are two buttons: 'Connect' and 'Disconnect'. At the bottom of the interface, there are three buttons: 'Refresh', 'Apply Only', and 'Apply and Save'.

Figure 5-8 PPPoE Setting

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.

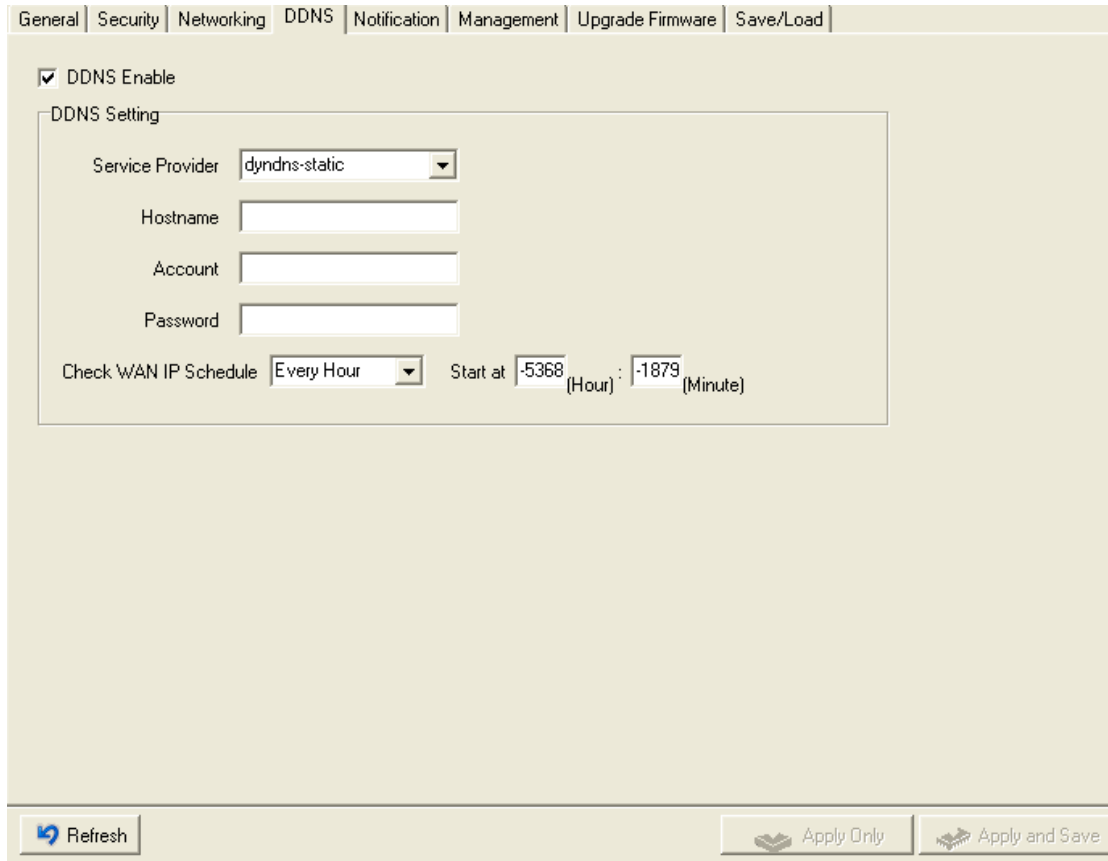


Figure 5-10 DDNS Setting

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	Your register Account and Password from the DDNS service Provider.
Check WAN IP Schedule	Device will check the IP address Status at interval time you set.

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.

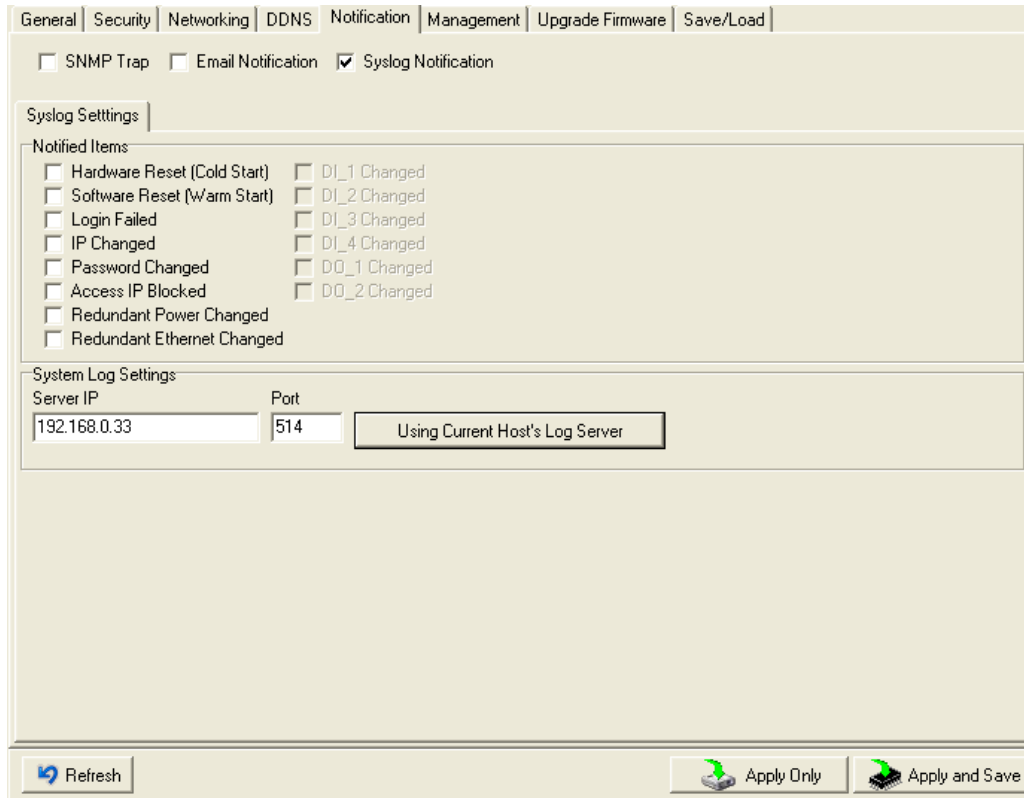


Figure 5-11 Notification

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.

Table 5-5 Notification

Management

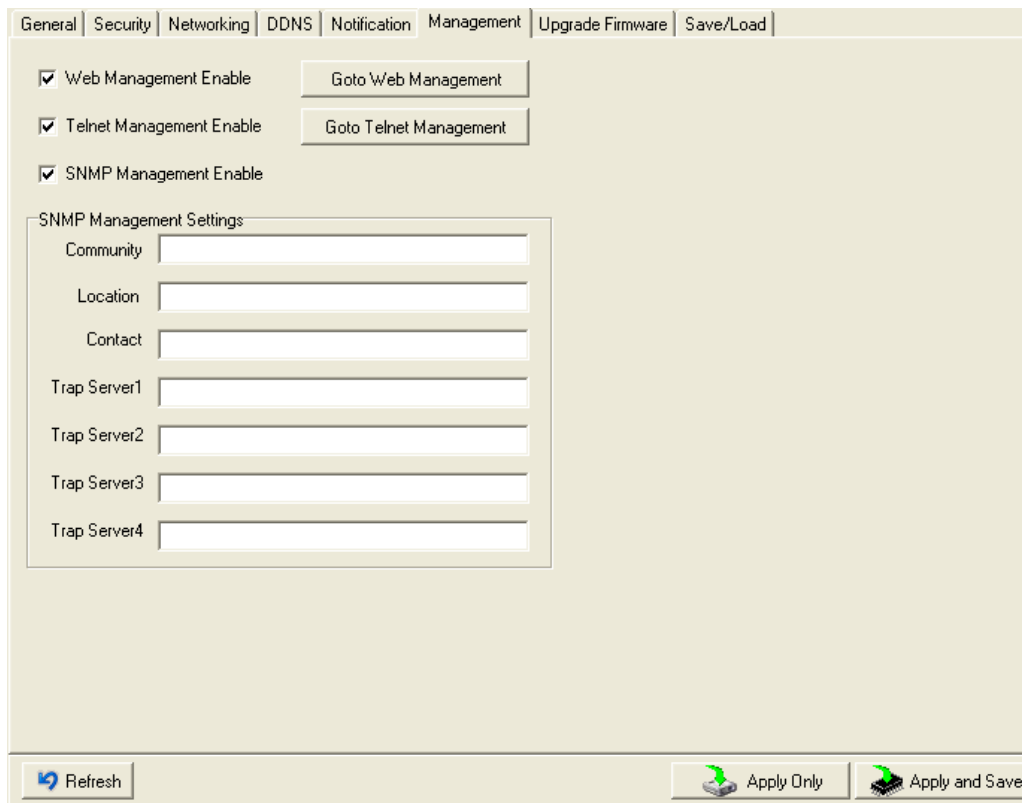


Figure 5-11 Management

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

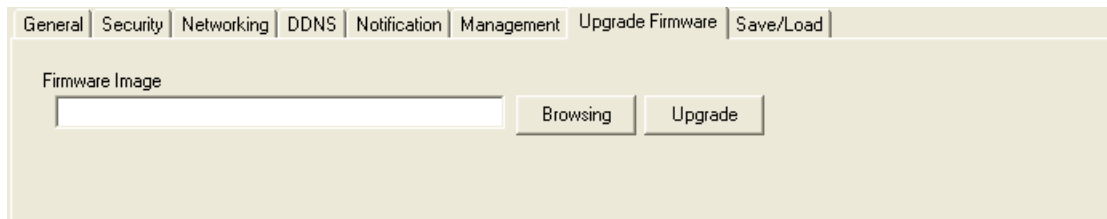


Figure 5-12 Upgrade Firmware

The following table describes the labels in this screen.

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

Table 5-7 Upgrade Firmware

Save/Load

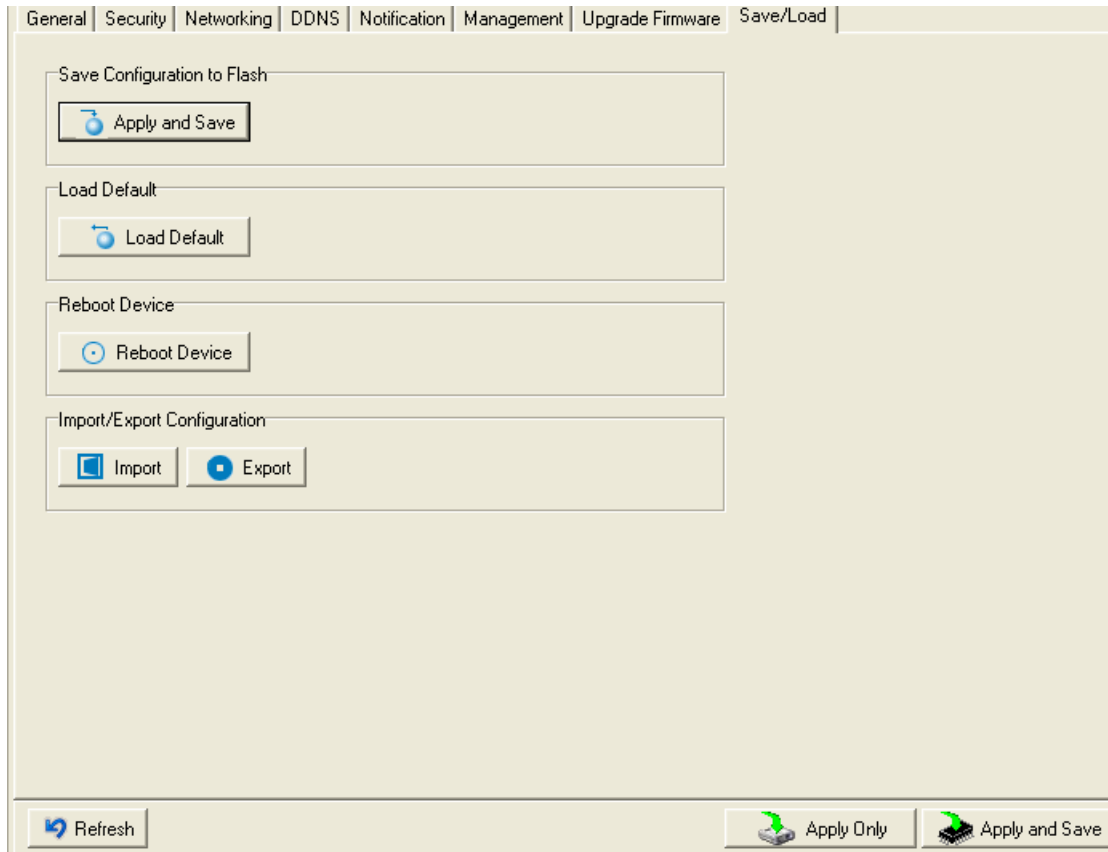


Figure 5-13 Save / Load

The following table describes the labels in this screen.

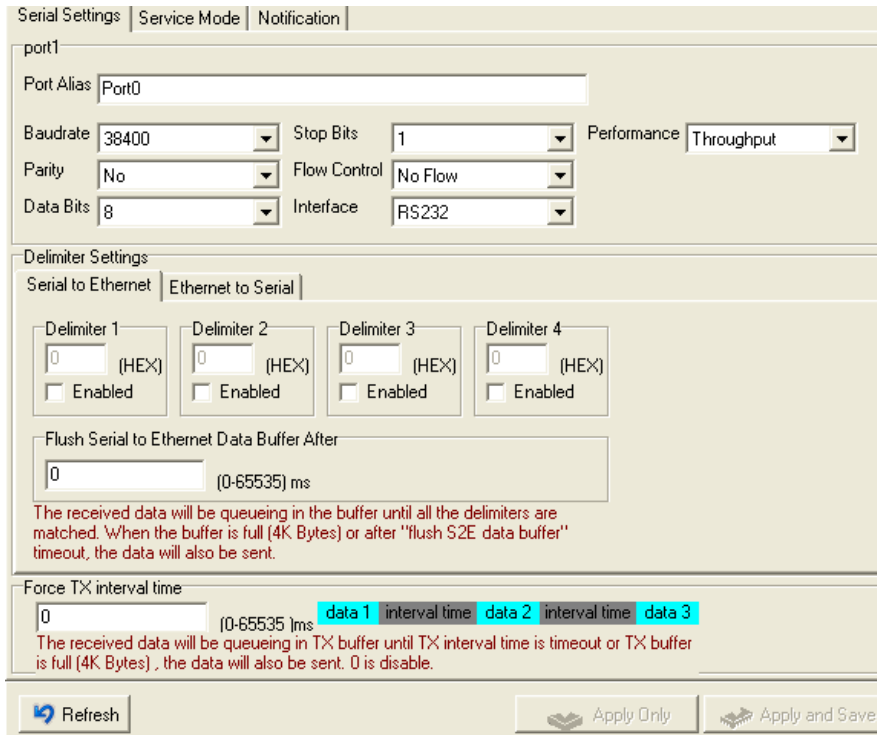
Label	Description
Save Configuration to Flash	Save current configuration into flash memory.
Load Default	Load default configuration except the network settings. If you want to load all factory default, you need to press “Reset” button on the device (Hardware restore).
Reboot Device	Reboot the device 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



Serial Settings | Service Mode | Notification

port1

Port Alias

Baudrate Stop Bits Performance

Parity Flow Control

Data Bits Interface

Delimiter Settings

Serial to Ethernet | Ethernet to Serial

Delimiter 1 (HEX) Enabled

Delimiter 2 (HEX) Enabled

Delimiter 3 (HEX) Enabled

Delimiter 4 (HEX) Enabled

Flush Serial to Ethernet Data Buffer After (0-65535) ms

The received data will be queueing 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.

Force TX interval time (0-65535) ms data 1 interval time data 2 interval time data 3

The received data will be queueing in TX buffer until TX interval time is timeout or TX buffer is full (4K Bytes) , the data will also be sent. 0 is disable.

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/RS422 / RS485(2-wires) / RS485(4-wires)
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
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Serial to Ethernet	<p>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.</p> <p>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.</p>
Ethernet to Serial	<p>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.</p> <p>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.</p>

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

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.

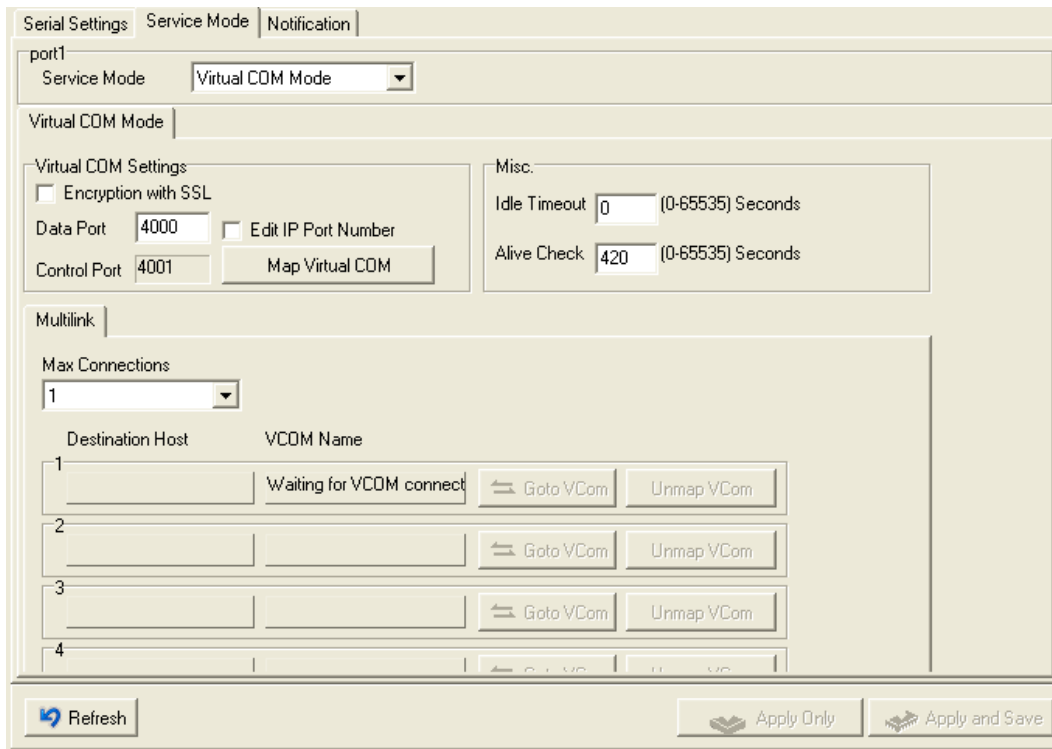


Figure 5-15 Virtual COM



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.

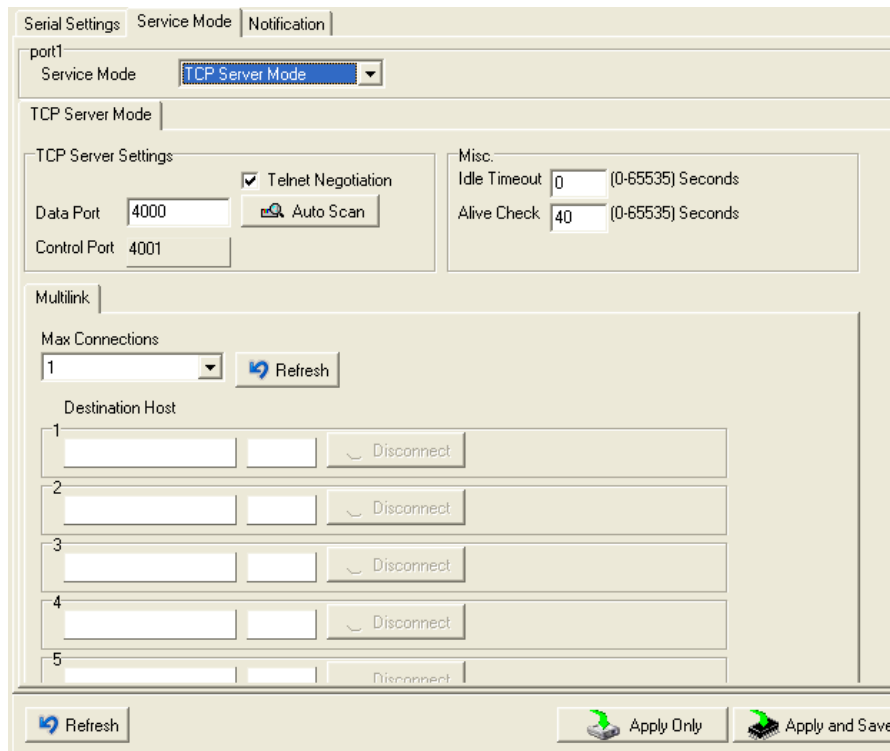


Figure 5-16 TCP Server mode

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.

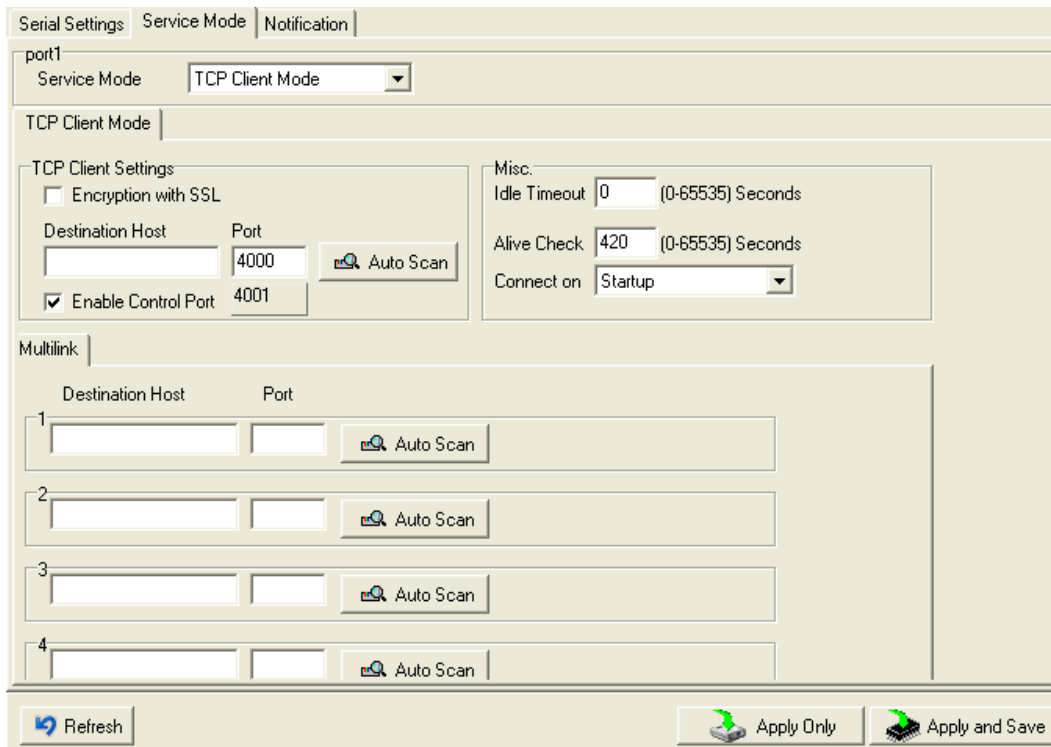


Figure 5-17 TCP Client Mode

The following table describes the labels in this screen.

Label	Description
-------	-------------

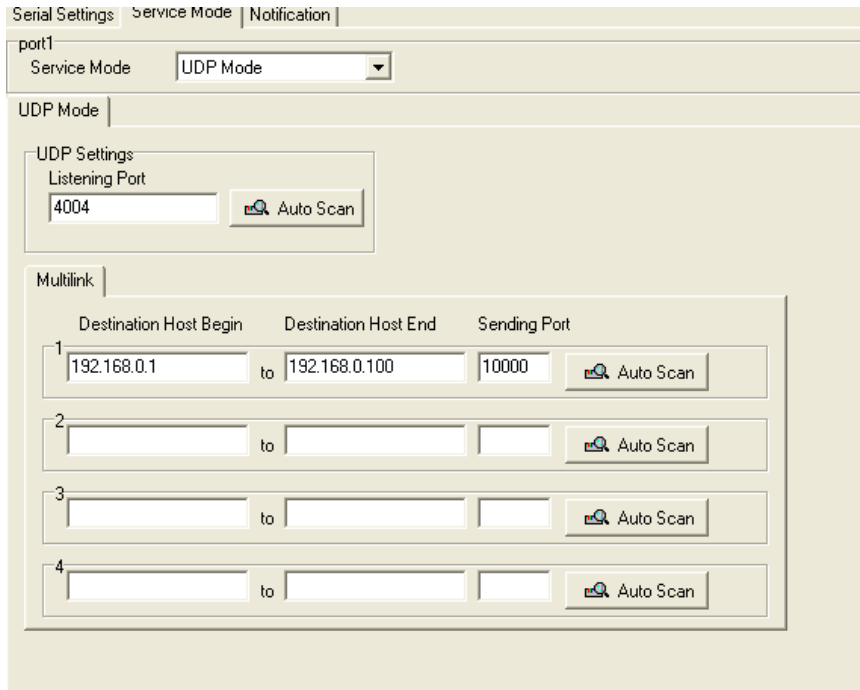


Encryption with SSL	Use SSL to encrypt data.
Destination Host	Set the IP address of host.
Port	Set the port number of data port.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect 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 5-12TCP 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



	Destination Host Begin	Destination Host End	Sending Port	
1	192.168.0.1	to 192.168.0.100	10000	Auto Scan
2		to		Auto Scan
3		to		Auto Scan
4		to		Auto Scan

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.

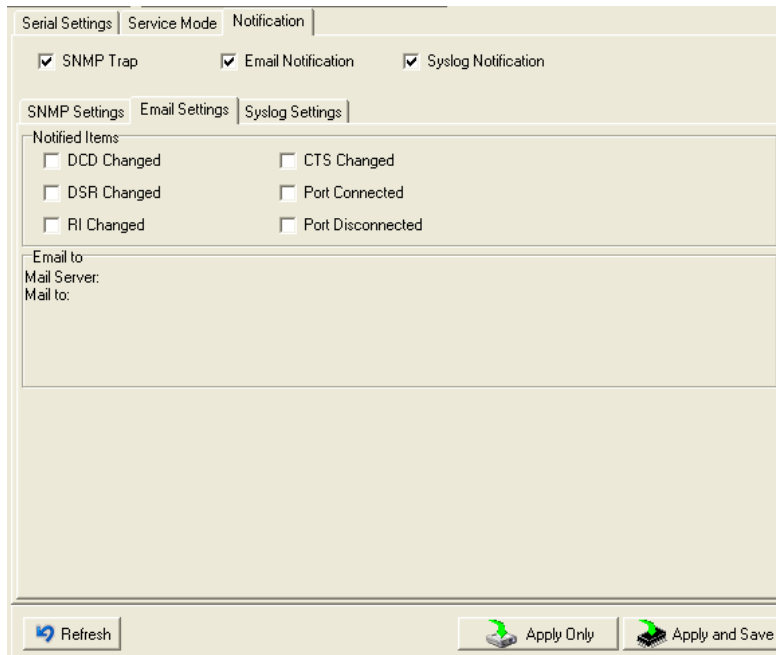


Figure 5-19 Notification

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 5-20 Certificate

Step 3: Input the name and password, then click "OK".

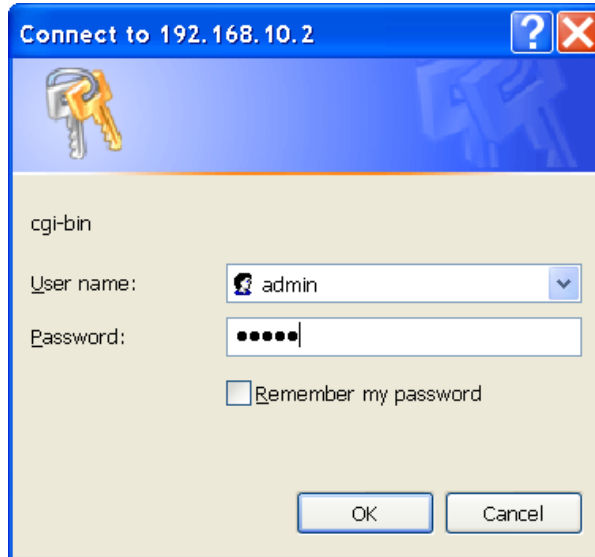
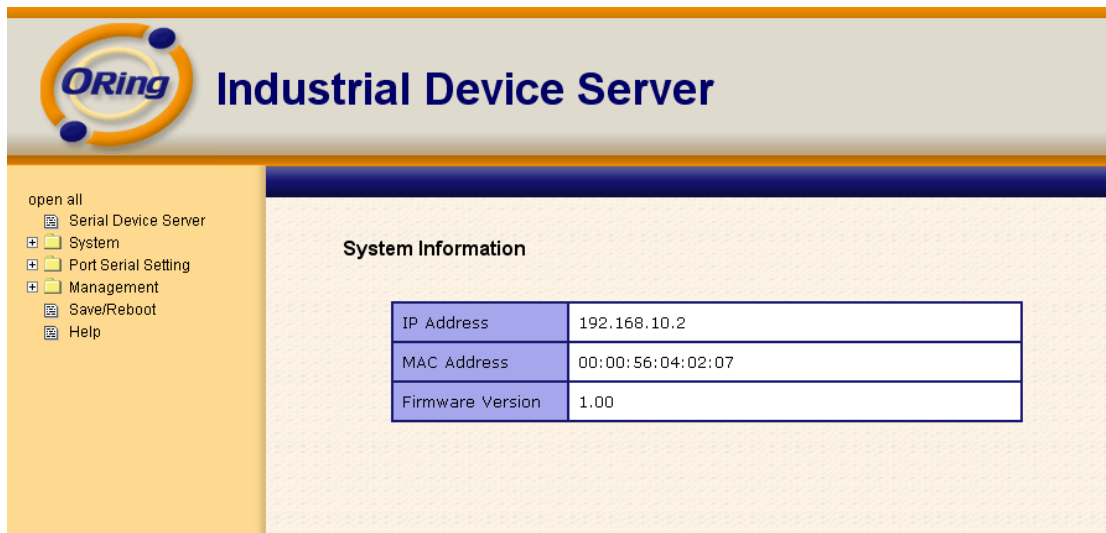


Figure 5-21 Certificate

*Only if password is set.

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



System Information	
IP Address	192.168.10.2
MAC Address	00:00:56:04:02:07
Firmware Version	1.00

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 5-14 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**”



The screenshot shows the web interface for the ORing Industrial Device Server. The main heading is "Industrial Device Server". On the left is a navigation menu with the following items: "open all", "Serial Device Server", "System" (expanded), "Time(SNTP)", "IP Configuration", "DDNS Configuration", "User Authentication", "Port Serial Setting", "Management", "Save/Reboot", and "Help". The main content area is titled "IP Configuration" and contains the following fields:

IP Configuration	Static
IP Address	192.168.0.90
Netmask	255.255.255.0
Gateway	192.168.0.1
DNS Server 1	192.168.0.1
DNS Server 2	
Auto IP Report	
Auto Report to IP	
Auto Report to TCP Port	0
Auto Report Interval	0 seconds

Below the form is an "Apply" button.

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 5-15 IP configurations

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.

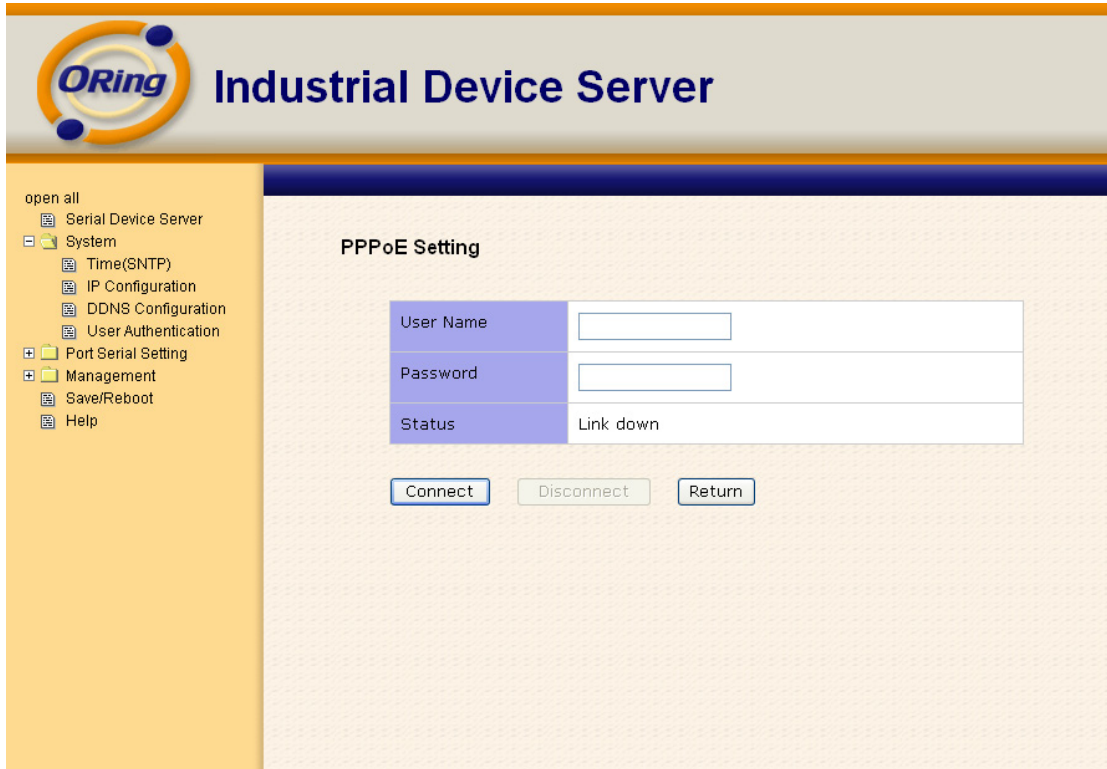


Figure 5-24 PPPoE setting.

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	Your register Account and Password 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.



The screenshot displays the web interface for the ORing Industrial Device Server. The page title is "Industrial Device Server". On the left, there is a navigation menu with the following items: "open all", "Serial Device Server", "System" (expanded), "Time(SNTP)", "IP Configuration", "DDNS Configuration", "User Authentication", "Port Serial Setting", "Management", "Save/Reboot", and "Help". The main content area is titled "User Authentication" and contains three input fields: "Old Password", "New Password", and "Confirm New Password". Below these fields is an "Apply" button.

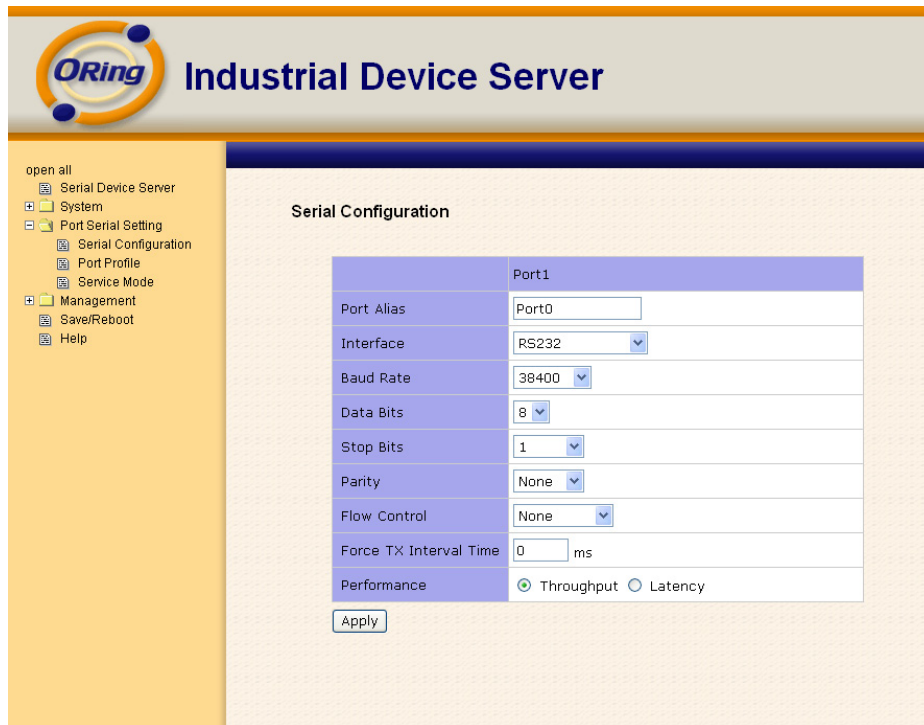
Field Label	Input Type
Old Password	Text Input
New Password	Text Input
Confirm New Password	Text Input

Apply

Figure 5-27 Authentication

5.2.1.2 Port serial setting

Serial configuration



Serial Configuration

Port Alias	Port0
Interface	RS232
Baud Rate	38400
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None
Force TX Interval Time	0 ms
Performance	<input checked="" type="radio"/> Throughput <input type="radio"/> Latency

Apply

Figure 5-28 Serial Configuration

The following table describes the labels in this screen.

Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS422 / RS485(2-wires) / RS485(4-wires)
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 5-18 Serial configuration

Port Profile



The screenshot shows the 'Port Profile' configuration page in the ORing Industrial Device Server web interface. The page has a header with the ORing logo and 'Industrial Device Server'. A left-hand navigation menu includes options like 'Serial Device Server', 'System', 'Port Serial Setting', 'Serial Configuration', 'Port Profile', 'Service Mode', 'Management', 'Save/Reboot', and 'Help'. The main content area is titled 'Port Profile' and contains a table of settings for 'Port1'.

Setting	Value
Local TCP Port	4000
Command Port	4001
Mode	Serial to Ethernet
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00
Mode	Ethernet to Serial
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00

An 'Apply' button is located at the bottom of the configuration area.

Figure 5-29 Port Profile



The following table describes the labels in this screen.

Label	Description
Serial to Ethernet	<p>Flush Data Buffer After:</p> <p>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.</p> <p>Delimiter:</p> <p>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</p>
Ethernet to serial	<p>Flush Data Buffer After:</p> <p>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.</p> <p>Delimiter:</p> <p>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</p>

Table 5-18 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 5-30 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.

<p>Alive Check</p>	<p>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.</p>
<p>Max Connection</p>	<p>The number of Max connection can support simultaneous connections are 5, default values is 1.</p>

Table 5-19 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.

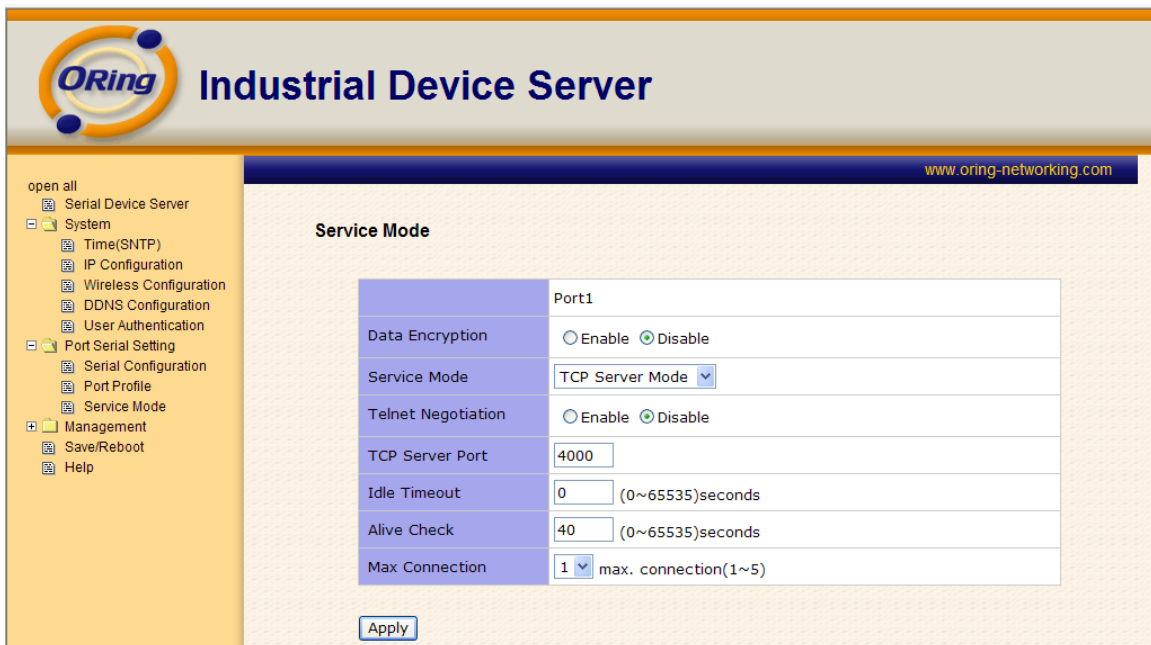


Figure 5-31 TCP Server Mode

The following table describes the labels in this screen.

Label	Description
Data Encryption	Use SSL to encrypt data.
Telnet Negotiation	Full Telnet command / symbol compatible
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 5-20 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 5-32 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 5-21 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

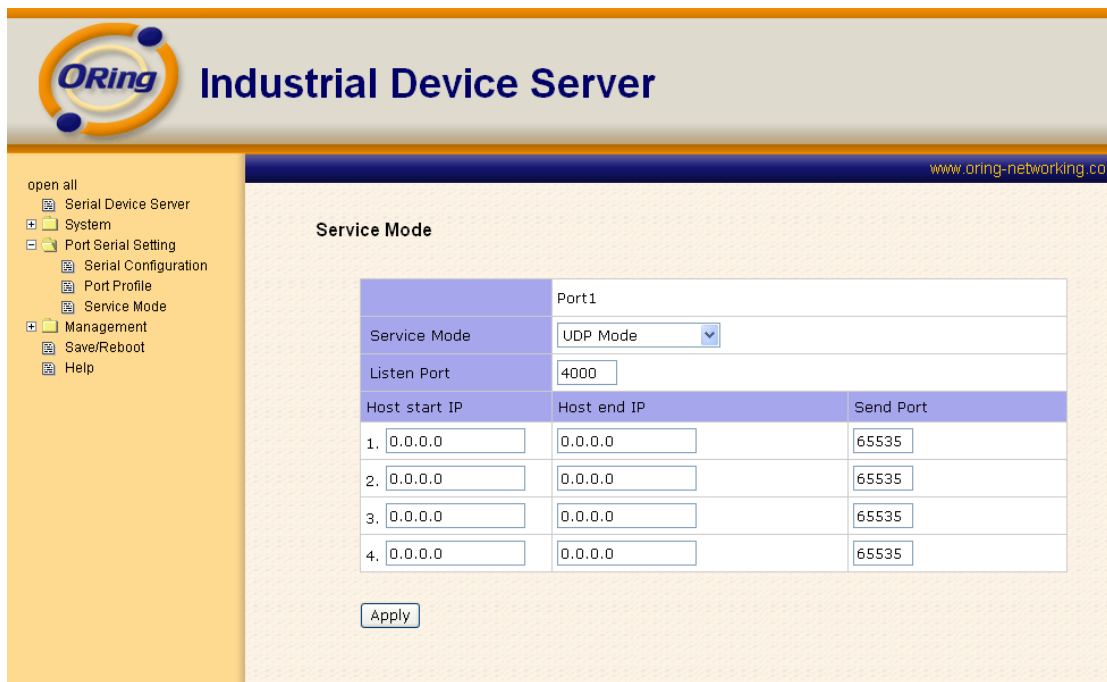


Figure 5-33 UDP client mode



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



The screenshot displays the ORing Industrial Device Server web interface. The top header features the ORing logo and the text "Industrial Device Server". On the left, a navigation menu lists various system settings, with "Access IP Control" selected. The main content area is titled "Access IP Control List" and contains a checkbox for "Enable IP Filtering (Not check this option will allow any IP to have assessibility)". Below this is a table with 16 rows, each representing a port. Each row has a "No." column, an "Activate the IP" checkbox, an "IP Address" input field, and a "Netmask" input field. All checkboxes are currently unchecked. An "Apply" button is located at the bottom left of the table area.

No.	Activate the IP	IP Address	Netmask
1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
2	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
3	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
4	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
5	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
7	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
8	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
9	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
10	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
11	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
12	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
13	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
14	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
15	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
16	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>

Apply

Figure 5-34 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.



The screenshot displays the 'SMTP/SNMP Configuration' page within the ORing Industrial Device Server web interface. The page is divided into two main sections: 'E-mail Settings' and 'SNMP Trap Server'. The 'E-mail Settings' section includes fields for 'SMTP Server' and 'Port', a checkbox for 'My server requires authentication', and input fields for 'User Name' and 'Password'. Below these are four 'E-mail Address' fields, labeled 'E-mail Address 1' through 'E-mail Address 4'. The 'SNMP Trap Server' section includes four 'SNMP Server' fields, labeled 'SNMP Server 1' through 'SNMP Server 4', and a 'Community' field. A left-hand navigation menu is visible, listing various system settings and management options.

E-mail Settings	
SMTP Server	<input type="text"/> Port <input type="text"/>
<input type="checkbox"/> My server requires authentication	
User Name	<input type="text"/>
Password	<input type="text"/>
E-mail Sender	<input type="text"/>
E-mail Address 1	<input type="text"/>
E-mail Address 2	<input type="text"/>
E-mail Address 3	<input type="text"/>
E-mail Address 4	<input type="text"/>
SNMP Trap Server	
SNMP Server 1	<input type="text"/>
SNMP Server 2	<input type="text"/>
SNMP Server 3	<input type="text"/>
SNMP Server 4	<input type="text"/>
Community	<input type="text"/>

Figure 5-35 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 5-36 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.
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.

Table 5-22 System event conf

5.2.1.4 Save/Reboot



Figure 5-37 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 5-23 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@192.168.0.75's password:
*****
*** ORING Industrial Serial Device Server Commander ***
*****
Input System Password: *****
Password confirmed. Starting Main Menu.
-----
[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
7. Wireless config setting
8. Wireless network setting
A. DDNS setting
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 5-38 SSH



Technical Specifications

ORing Device Server Model	IDS-5011
Feature	
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	1
Serial Ports	
Connector	DB9 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, PPPoE, DDNS
LED indicators	
Power indicator	PWR 1(2) / Ready: Red On: Power is on and booting up. Red Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly. 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.
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.)	4 Watts
Overload current protection	Present
Reverse polarity protection	Present on terminal block
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	72(W)x29.4(D)x123.4(H) mm (2.83x1.16x4.86 inch.)
Weight (g)	346 g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)



Operating Temperature	-40 to 70°C (-40 to 158°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