Industrial Device Server
DS-11-W User's Manual

Version 1.0

October, 2007.

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1

Getting to Know Your Device Server

1.1 About the DS-11-W Serial Device Server

DS-11-W is an innovative 1 port RS232/422/485 to 802.11b/g WLAN and 1 port LAN device server. Users are able to configure DS-11-W 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. Secondly, DS-11-W 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, DS-11-W provides dual redundant power inputs both on DC power jack and terminal block. DS-11-W also provides NAT pass through function so that users are able to manage DS-11-W inside or outside NAT router. It is easy for different IP domain users to use the Switch. Therefore, DS-11-W 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 DS-11-W 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

1.3 Hardware Features

- Redundant Power Inputs: 12~48 VDC on terminal block and power jack
- Operating Temperature: -10 to 55°C
- Storage Temperature: -20 to 85 °C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-30
- 1 10/100Base-T(X) Ethernet port
- Reverse SMA connector for 2.4GHz antenna
- Dimensions(W x D x H) : 72mm(W)x125 mm(D)x31mm(H)

2

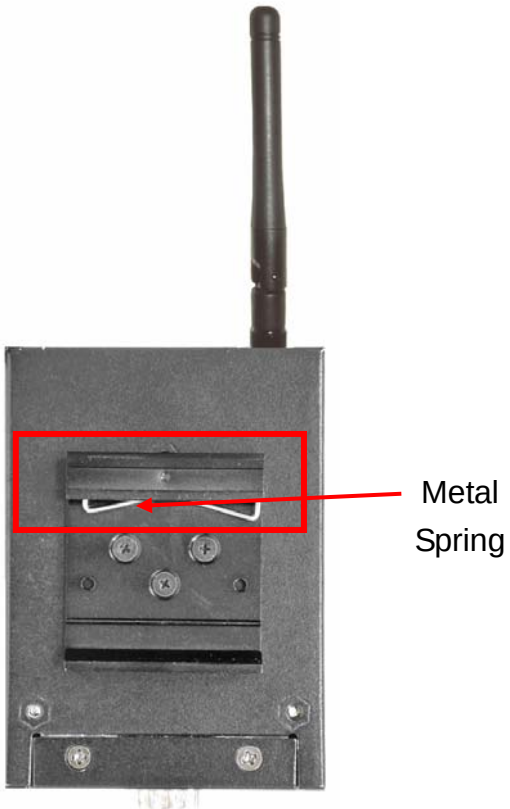
Hardware Installation

2.1 Install DS-11-W on DIN-Rail

Each DS-11-W has a Din-Rail kit on rear panel. The Din-Rail kit helps DS-11-W to fix on the Din-Rail. It is easy to install the DS-11-W on the Din-Rail:

2.1.1 Mount DS-11-W on DIN-Rail

Step 1: Slant the DS-11-W and mount the metal spring to Din-Rail.



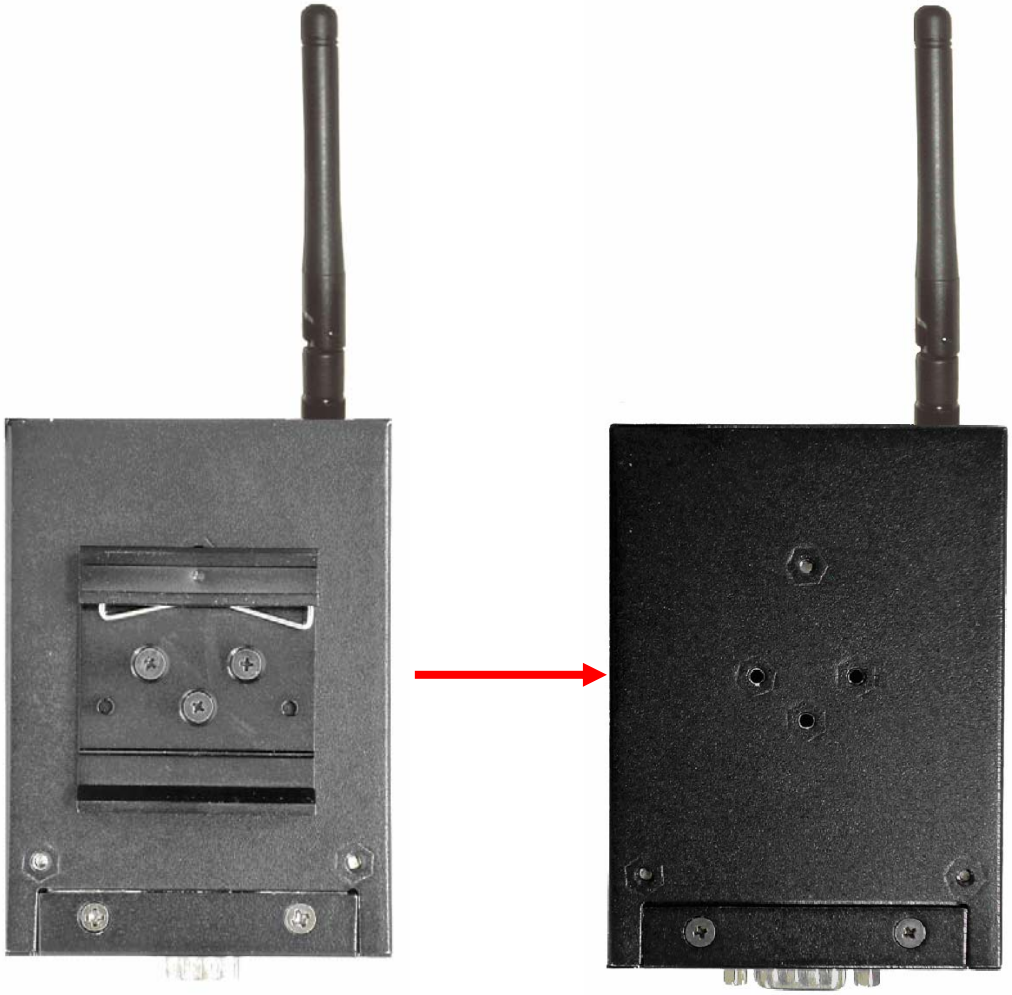
Step 2: Push the DS-11-W toward the Din-Rail until you heard a "click" sound.

2.2 Wall Mounting Installation

Each DS-11-W has another installation method. A wall mount panel can be found in the package. The following steps show how to mount the DS-11-W on the wall:

2.2.1 Mount DS-11-W on wall

Step 1: Remove Din-Rail kit.



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

The screws specification shows in the following two pictures. In order to prevent DS-11-W from any damage, the size of screws should not be larger than the size that used in DS-11-W.

Pozidrive

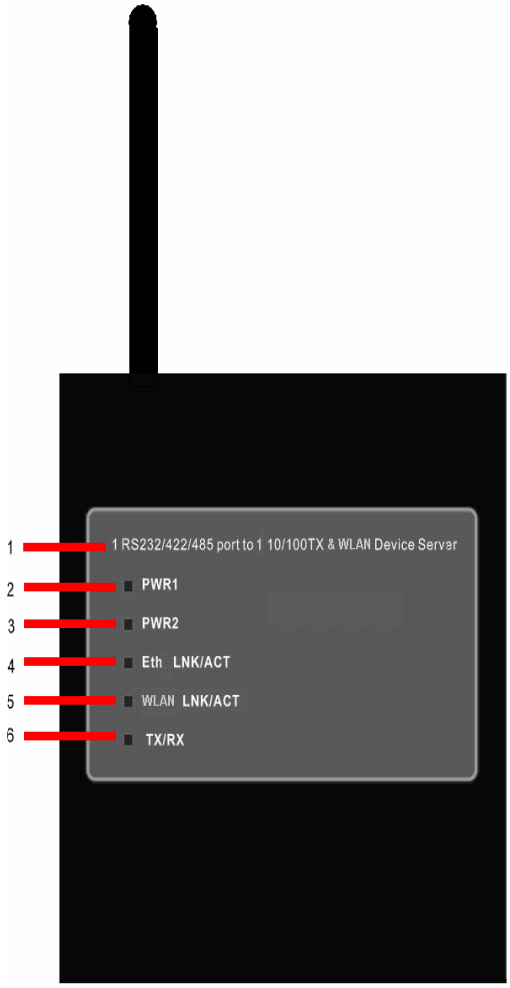
Step 3: Mount the combined DS-11-W on the wall.

3

Hardware Overview

3.1 Front Panel

DS-11-W



1. Product description of DS.
2. LED for PWR1 and system status. When the PWR1 links, the green led will be light on.
3. LED for PWR2 and system status. When the PWR2 links, the green led will be light on.

4. LED of 10/100Base-T(X) Ethernet port.
5. LED of 802.11b/g WLAN port.
6. LED of serial port. Green for transmitting, red for receiving

3.2 Front Panel LEDs

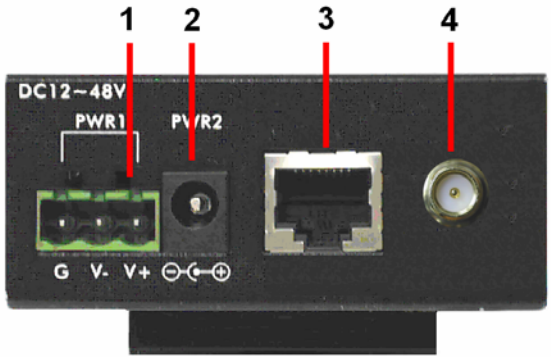
The following table describes the labels that stick on the DS.

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
WLAN	Green/Amber	Green On/Blinking	WLAN LNK/ACT Signal good
		Amber On/Blinking	WLAN LNK/ACT Signal poor
Serial	Green	Blinking	Serial port is transmitting data
	Red	Blinking	Serial port is receiving data

3.3 Top Panel

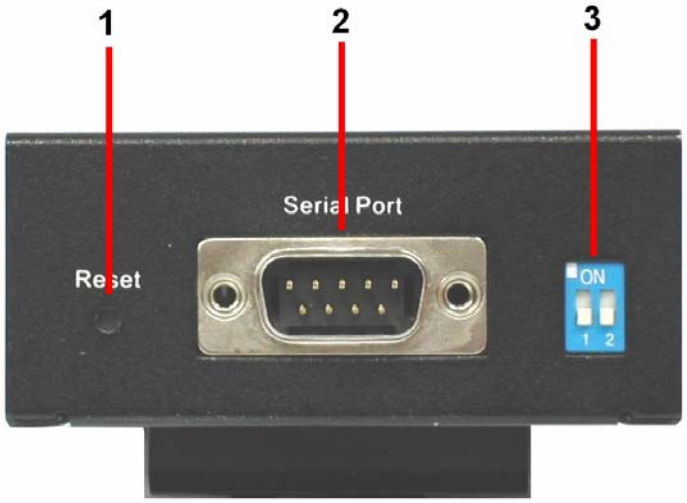
The Top panel components of DS are showed as below:

1. Terminal block include: PWR1 (12 ~ 48V DC)
2. Power Jack include: PWR2 (12 ~ 48V DC)
3. RJ45 Ethernet Connector: 2 10/100Base-T(X) Ethernet interface.
4. Reverse SMA connector for 2.4GHz antenna



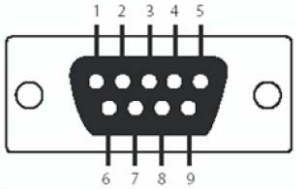
3.4 Bottom Panel

The bottom panel components of DS are showed as below:



1. Reset bottom. 5 seconds for factory default.
2. Male DB9 connector: Serial interface of RS-232/422/485 (2 wire)(4 wire).

Pin Assignment



Pin#	RS232	RS422	RS485(4 wire)	RS485(2 wire)
1	DCD	RXD-	RXD-	
2	RXD	RXD+	RXD+	
3	TXD	TXD+	TXD+	DATA+
4	DTR	TXD-	TXD-	DATA-
5	GND	GND	GND	GND
6	DSR			
7	RTS			
8	CTS			
9	RI			
RS232 mode act as DTE				

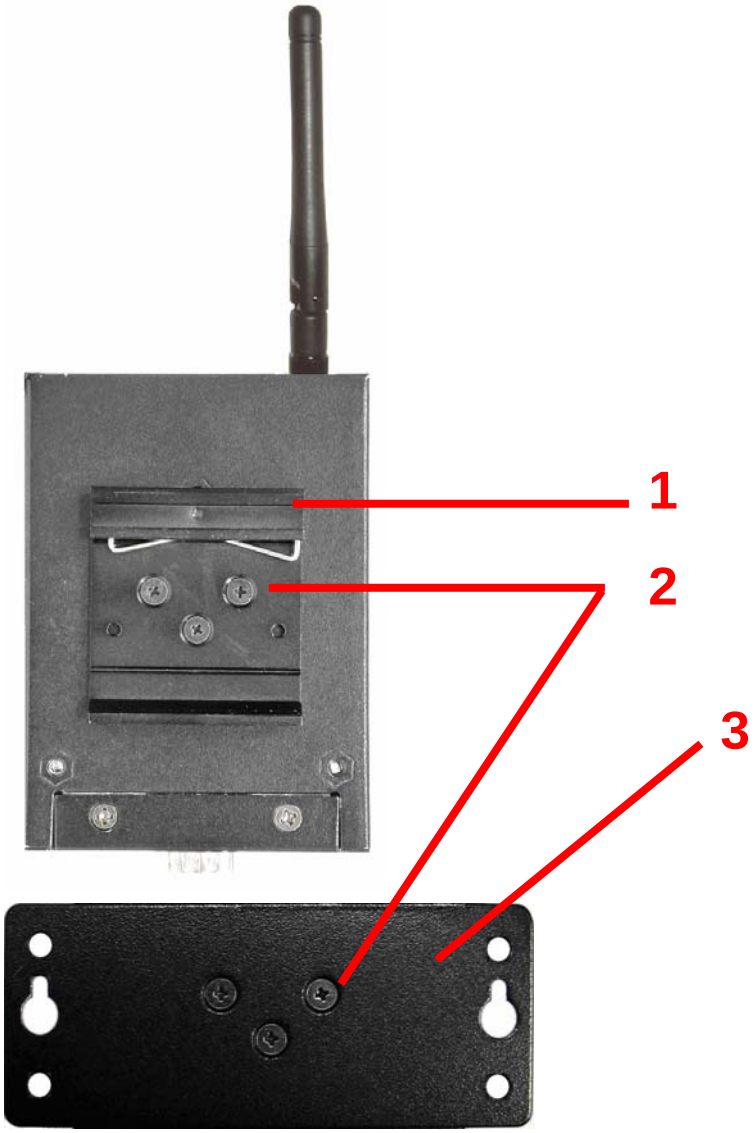
3. DIP Switch: Termination for RS-422/485

DIP1	DIP2	Termination Configuration
ON	ON	Termination for Long Distance 4-wire RS485/RS422
ON	OFF	Reserved
OFF	ON	Termination for Long Distance 2-wire RS485
OFF	OFF	No Termination for RS232/422/485(short distance)

3.5 Rear Panel

The rear panel components of DS are showed as below:

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


1
2
3

4

Cables

4.1 Ethernet Cables

The DS-11-W has standard Ethernet ports. According to the link type, the DS-11-W 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 Types and 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

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.

RJ-45 Pin Assignments

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

The DS supports auto MDI/MDI-X operation. You can use a straight-through cable to connect PC to DS-11-W. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

MDI/MDI-X pins assignment

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

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

5

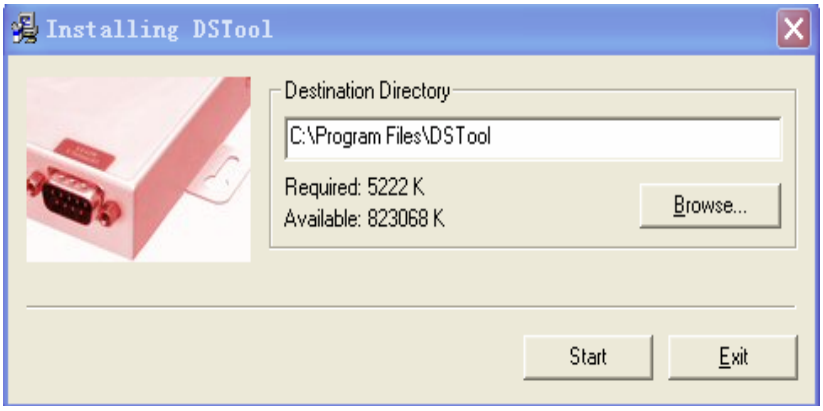
Management Interface

5.1 DS-Tool

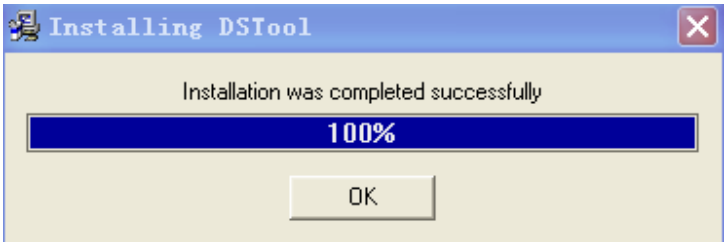
DS-Tool is a powerful Windows utility for DS series. It supports device discovery, device configuration, group setup, group firmware update, monitoring functions...etc. It is easy for you to install and configure devices over the network.

5.1.1 Install DS-Tool

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



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

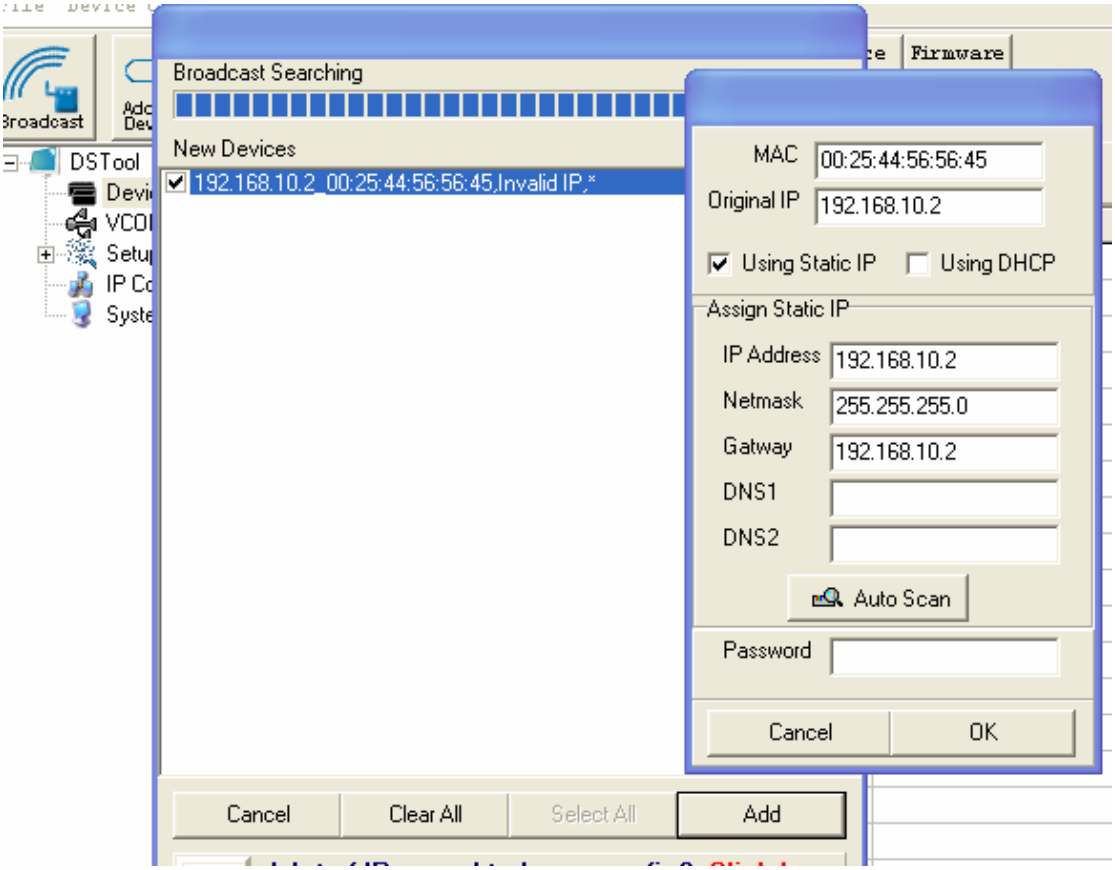


Step 3: Check for your selection.

5.1.2 Using DS-Tool

5.1.2.1 Explore DS device servers

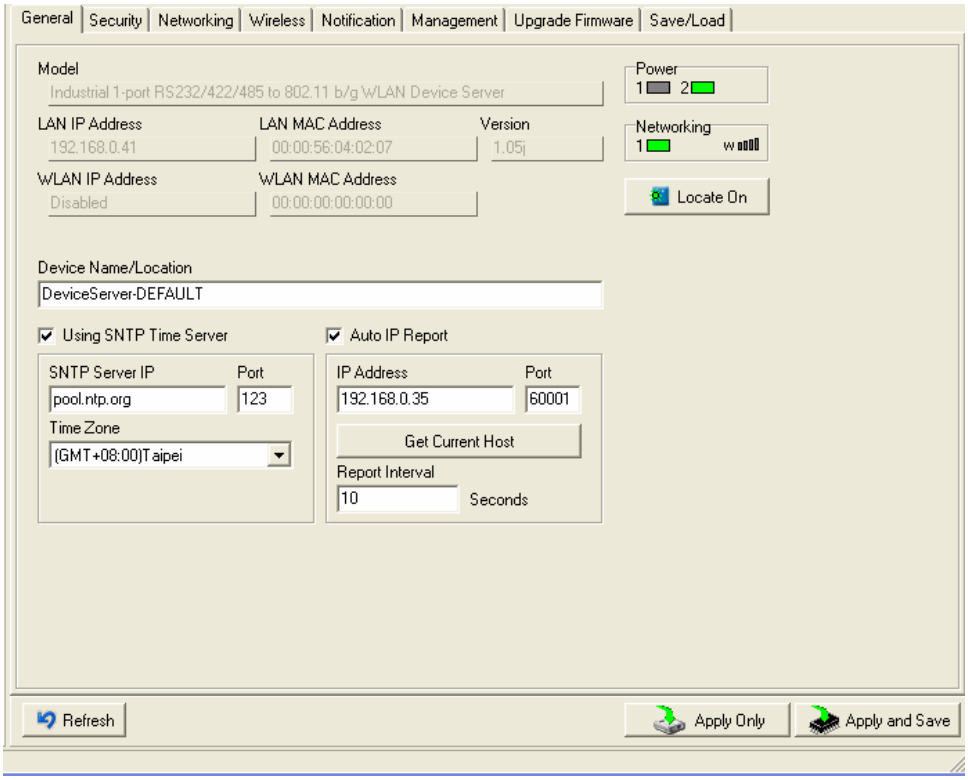
DS-Tool will broadcast to the network and search all available DS devices in the network. The default IP address of the device is "**192.168.10.2**", and selects the searching device you wish to use and press "**Add**" button. You can set static IP address or in DHCP client mode to get IP address automatically. Finally, click "**OK** "button to add the device.



5.1.2.2 Configure DS device servers

General settings

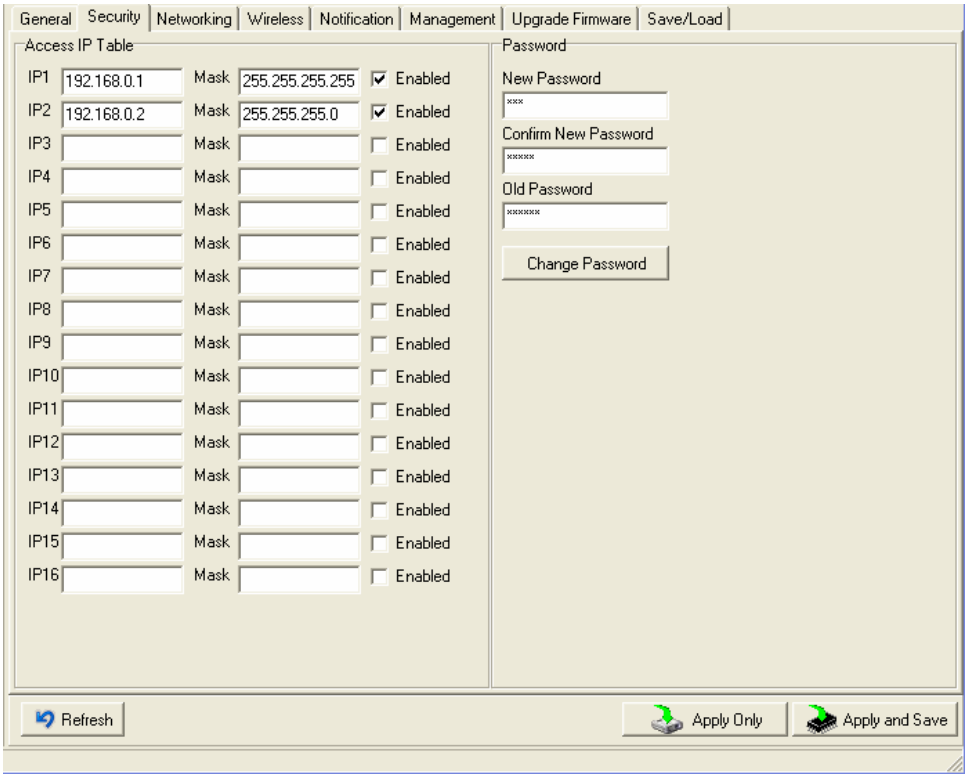
This page includes the setting of device name, SNTP server and Auto IP Report.



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. At "**IP collection** "option show the device report information. The report interval is 0 indicate disable this setting (default), but you can set the other IP or Port.

Security

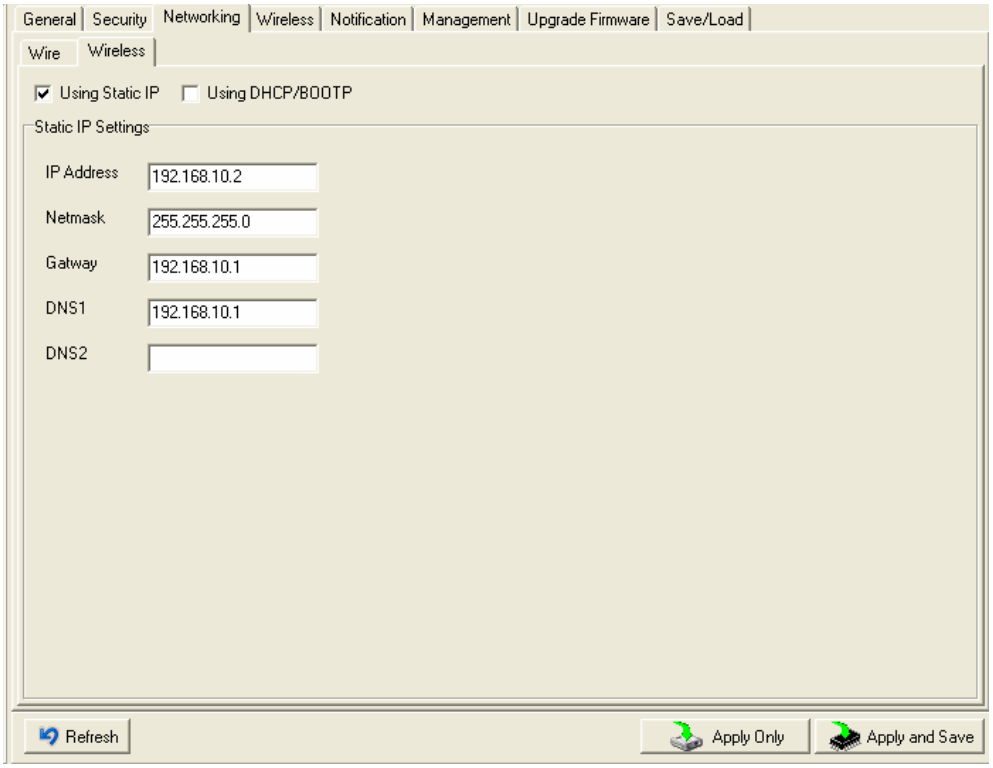


The following table describes the labels in this screen.

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

Network Setting

Device DS 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**"



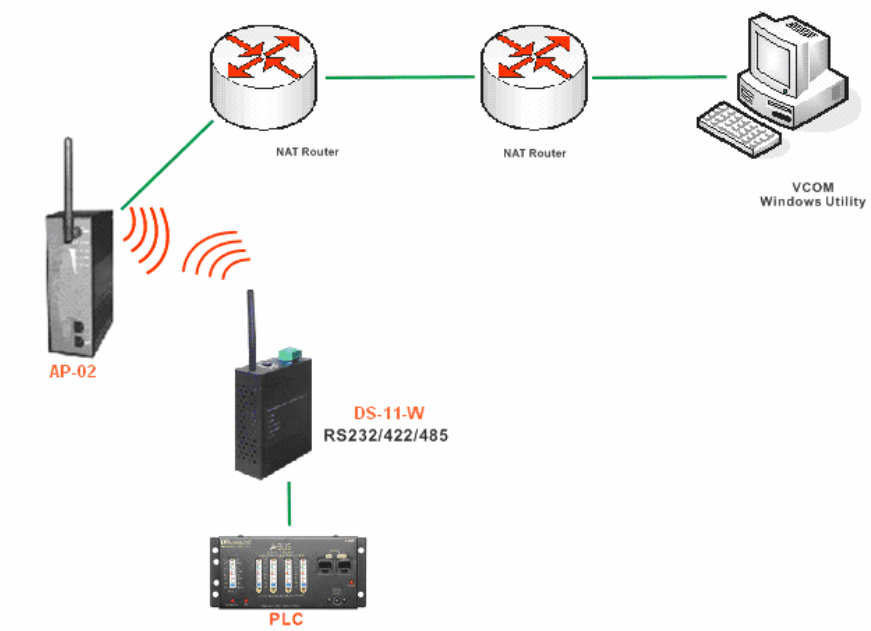
The following table describes the labels in this screen.

Label	Description
Using Static IP	Manually assigning an IP address.
Using DHCP/BOOTP	IP Address automatically assigned by a DHCP server in your network.
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.

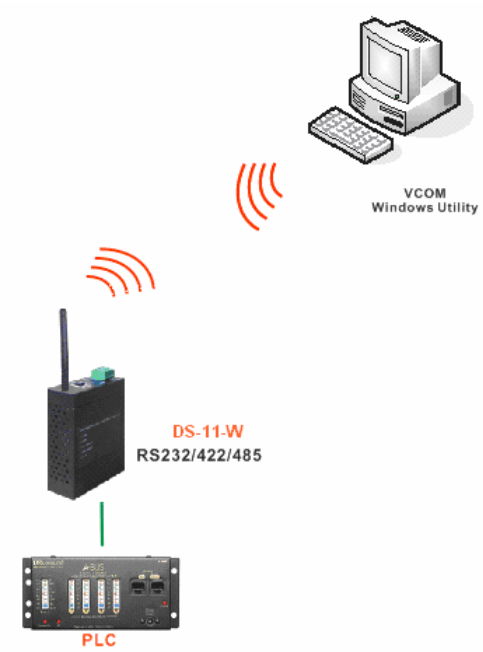
Wireless setting

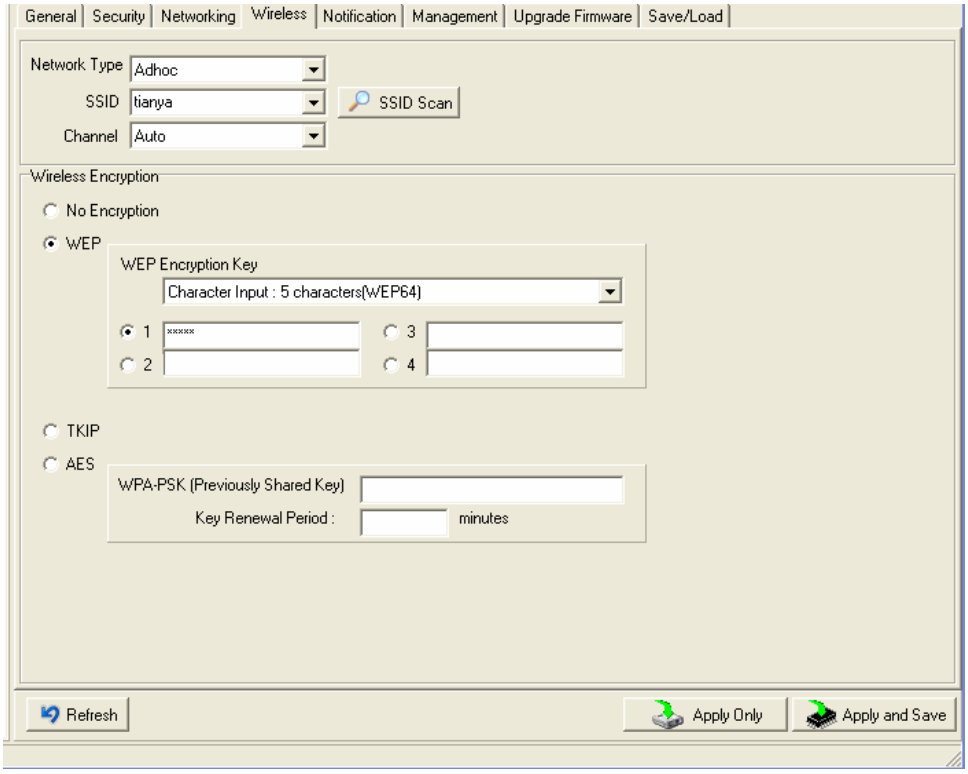
Wireless Network type includes two modes: Infra and Adhoc. The Infra type connects the network by wireless access point, but the Adhoc is formed by the association of wireless and mobile devices capable of communicating among themselves even when there is no networking infrastructure available.

Infra Network



Adhoc Network





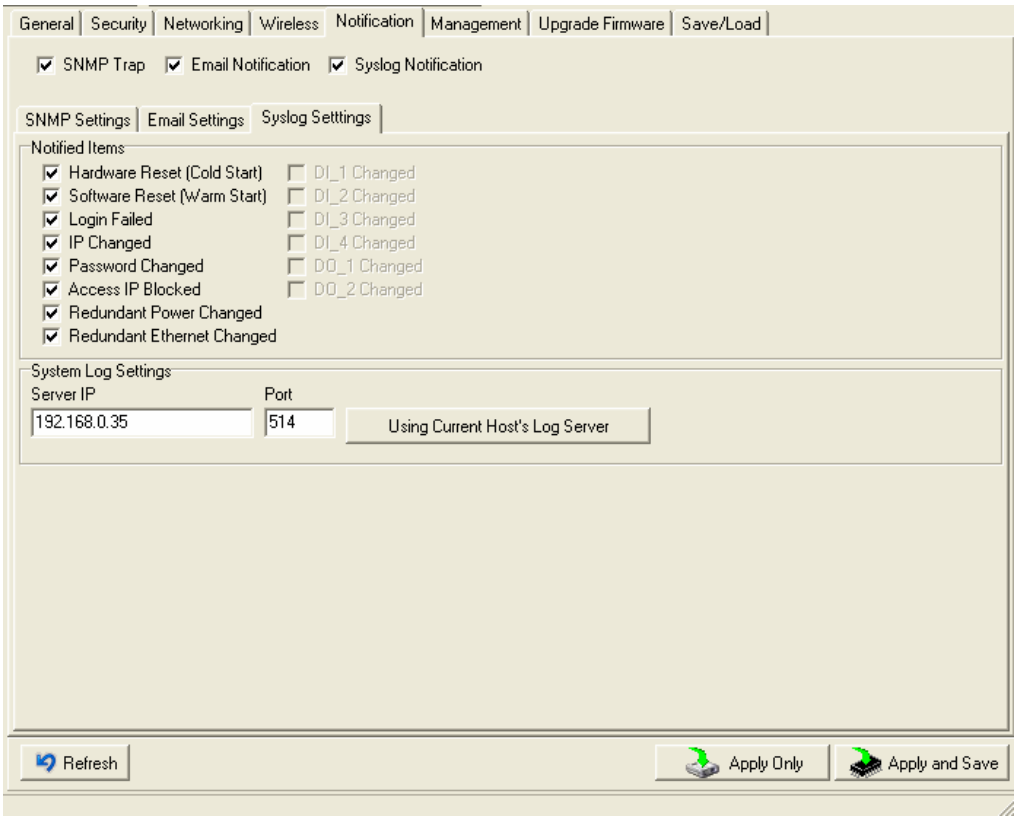
The following table describes the labels in this screen.

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.

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

Notification

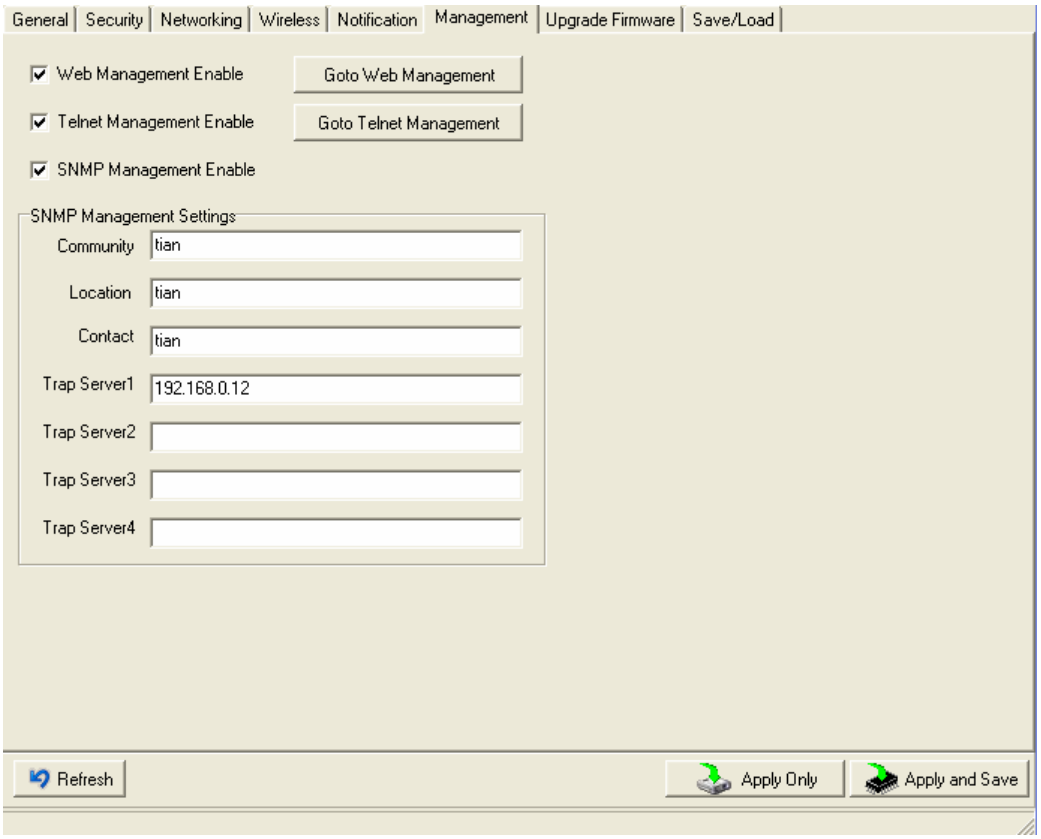
Specify the events that should be notified to the administrator. The events can be notified by E-mail, SNMP trap, or system log.



The following table describes the labels in this screen.

Label	Description
SNMP Trap	To notify events information by SNMP trap.
Email Notification	To notify events information by Email.
Syslog Notification	To notify events information by SySlog. You can use the current Host's Log server by click **"Using Current Host's Log Server"** button. You also can set other log server. (DS-tool log server port default 514)
Notify items	The events to be notified.
Apply	Apply current setting, but the setting will be lost after reboot.
Apply and Save	Apply and save current setting. Write configuration into flash memory.

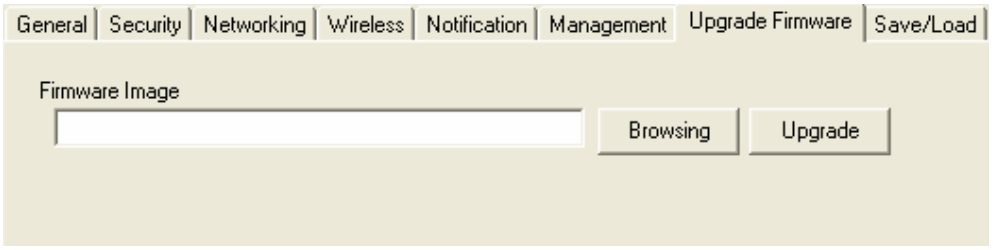
Management



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 device web page, then set the device by web.
Telnet Management Enable	To enable management by Telnet(SSH). Click "**Goto Telnet Management**" button to execute Telnet command.
SNMP Management Enable	To enable management by SNMP.
SNMP Management Settings	To configure SNMP server related settings.

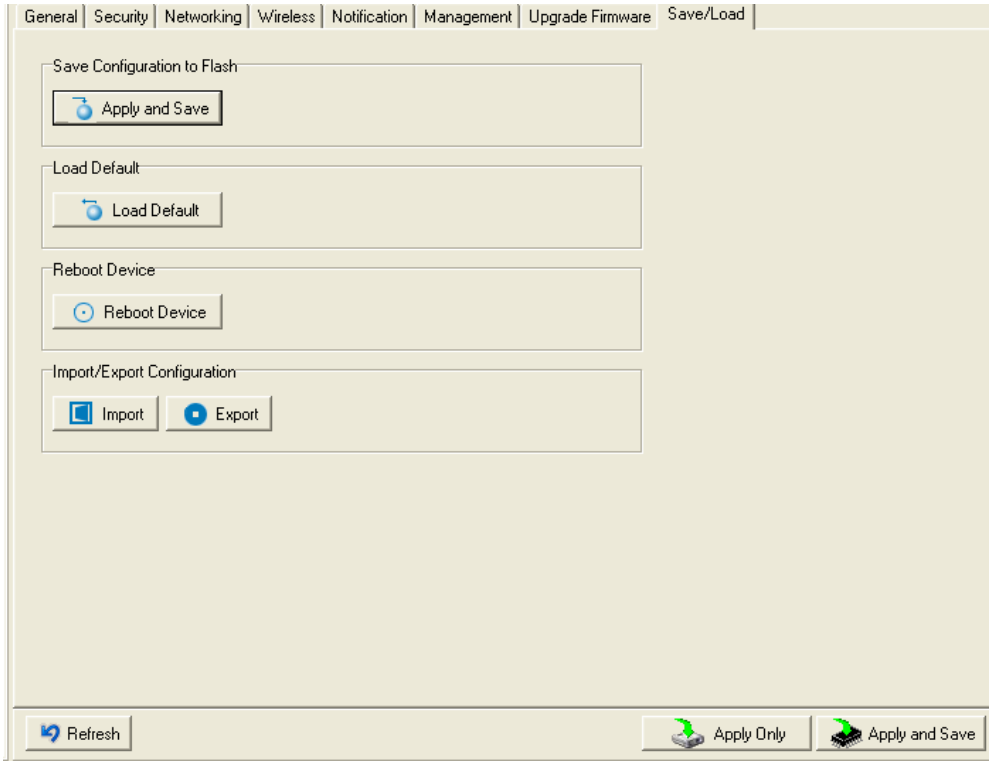
Upgrade Firmware



The following table describes the labels in this screen.

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

Save/Load



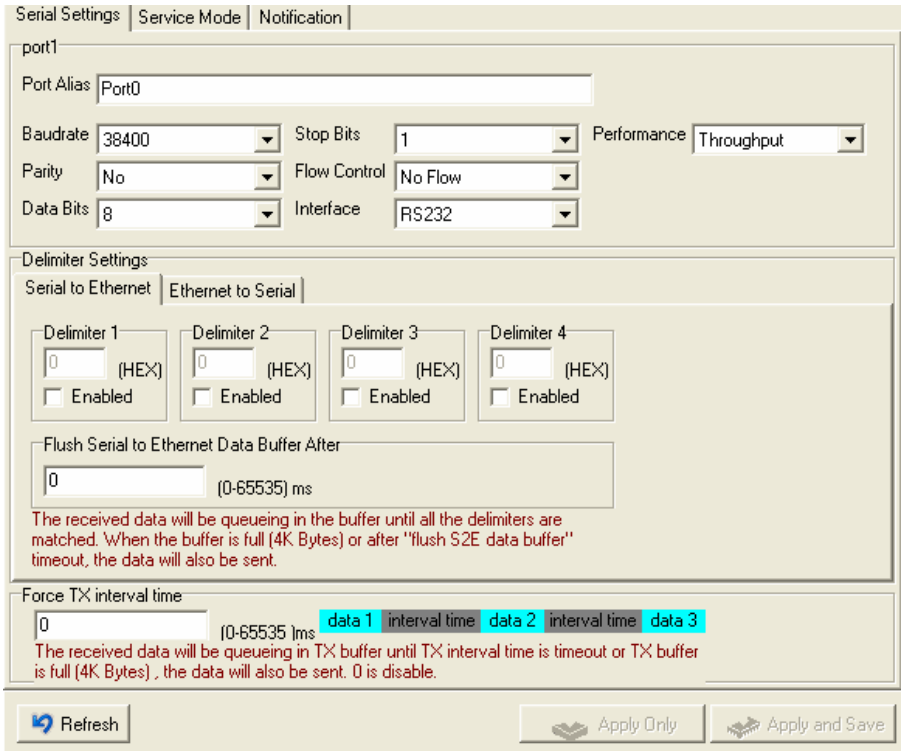
The following table describes the labels in this screen.

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	Export current configuration to a file to backup the configuration.

5.1.2.3 Configure serial port

Serial Settings



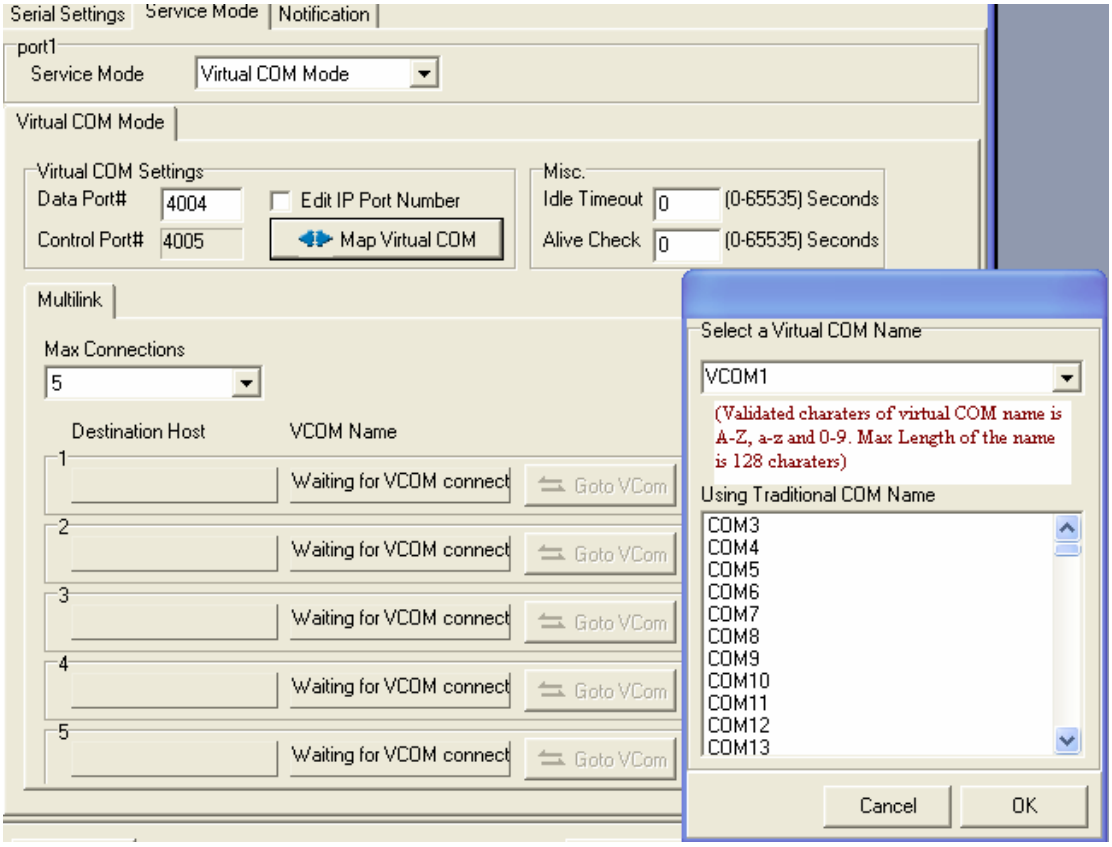
The following table describes the labels in this screen.

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

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.

Service Mode – Virtual COM Mode

In Virtual COM Mode, the DS-Tool 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.

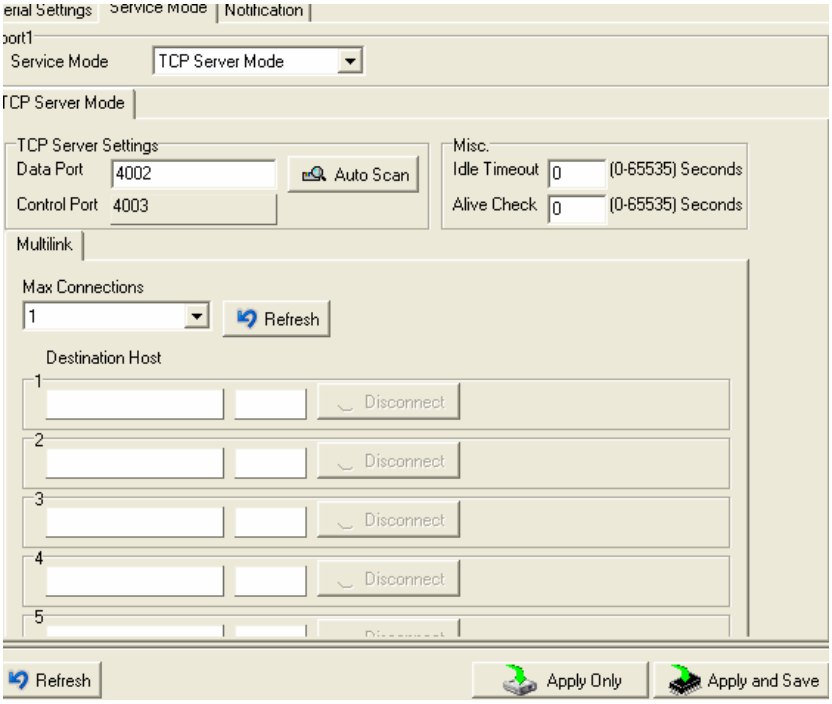


The following table describes the labels in this screen.

Label	Description
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.

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.

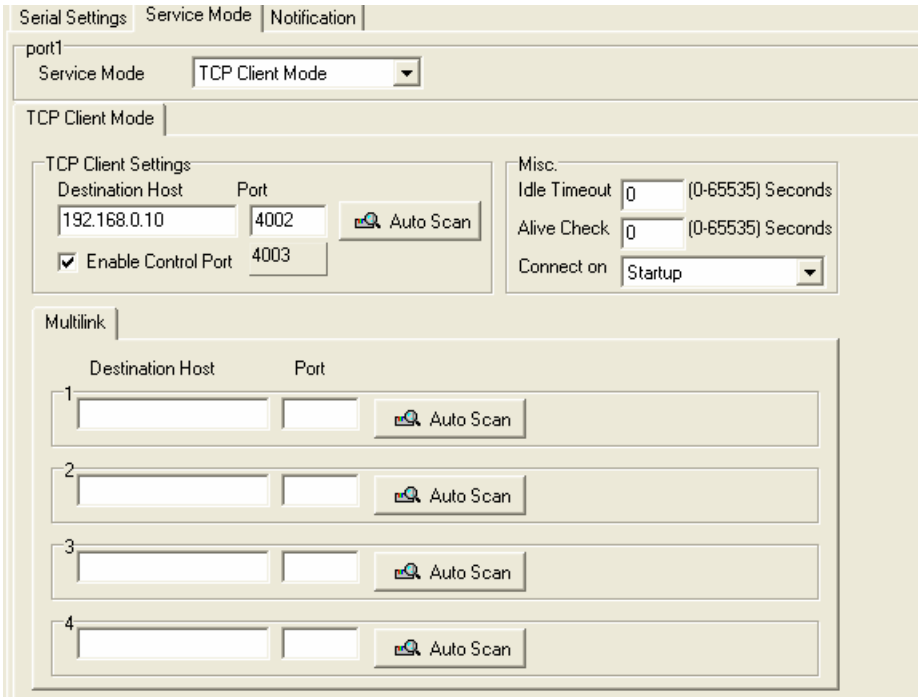


The following table describes the labels in this screen.

Label	Description
Data Port	Set the port number for data transmission.
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.

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.



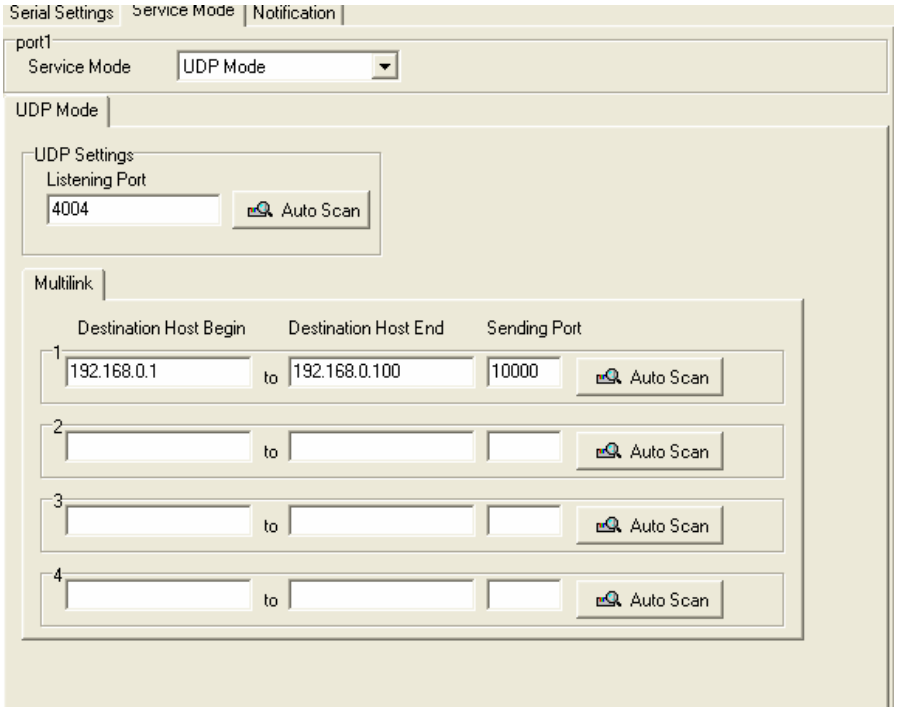
The following table describes the labels in this screen.

Label	Description
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.

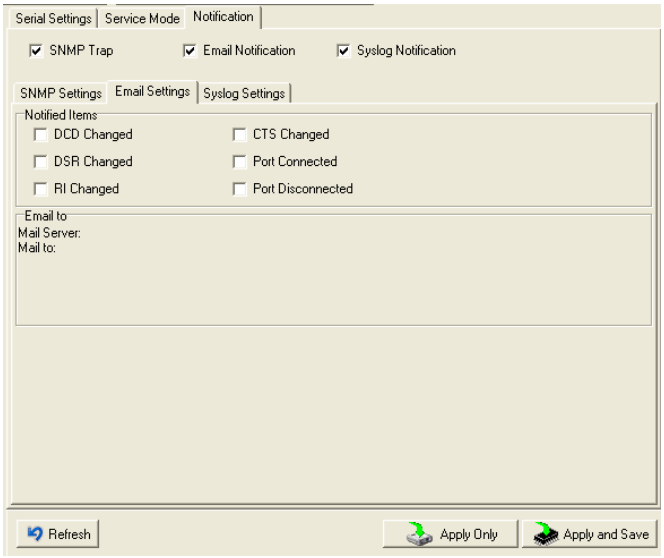
Service Mode – UDP Client Mode

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



Notification

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



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.

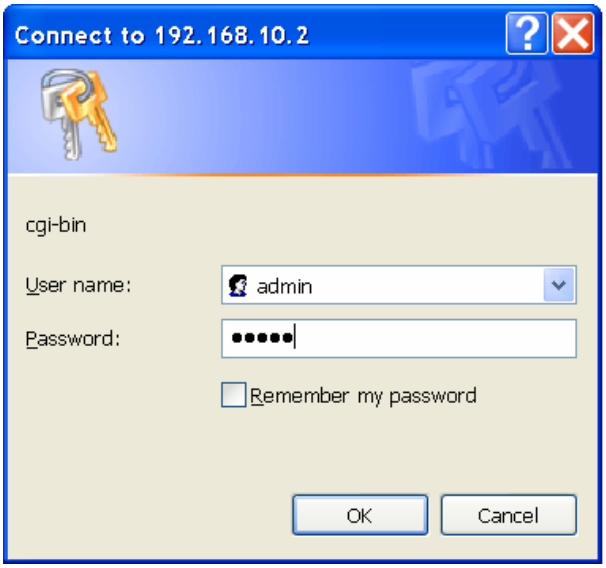
5.2 Configuration by Web Browser

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.

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

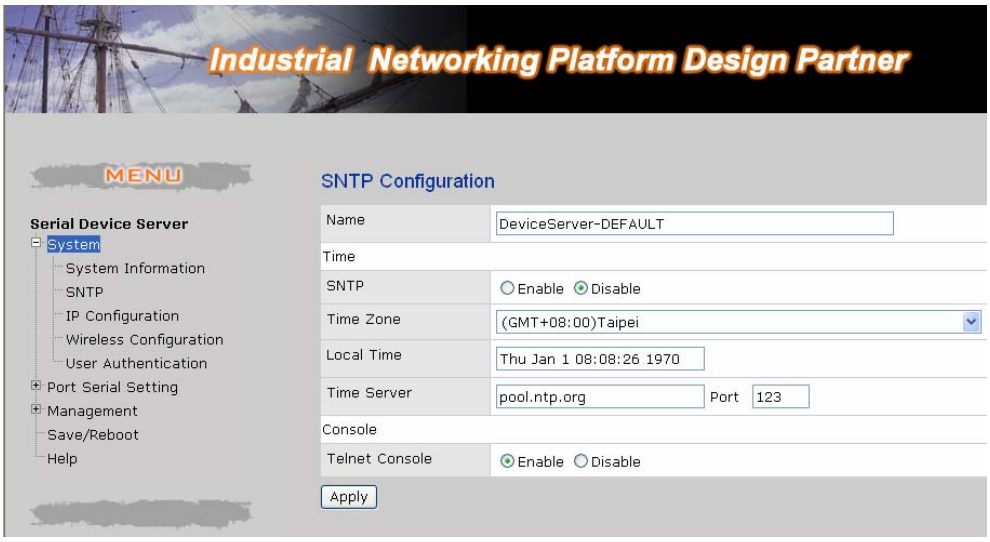


**Only if password is set*

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

5.2.1.1 System

SNTP

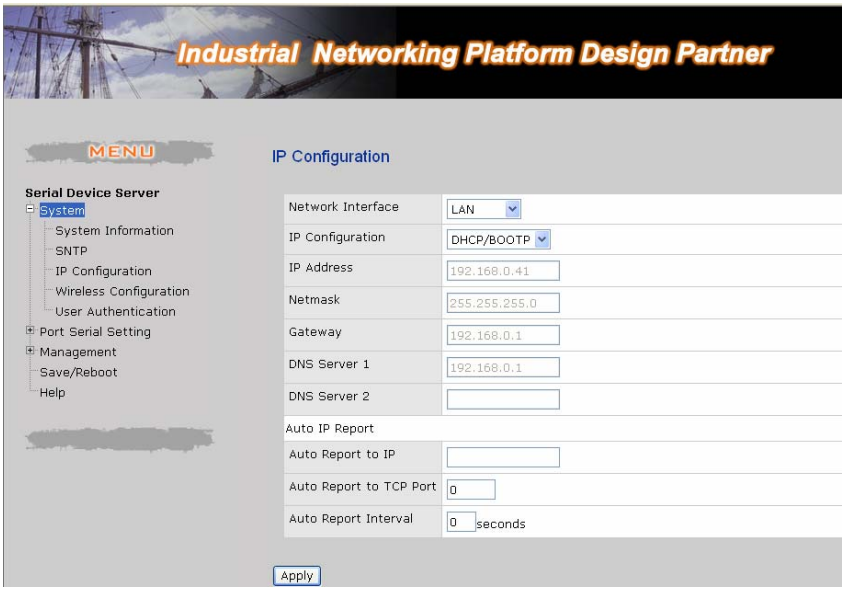


The following table describes the labels in this screen.

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.

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**"

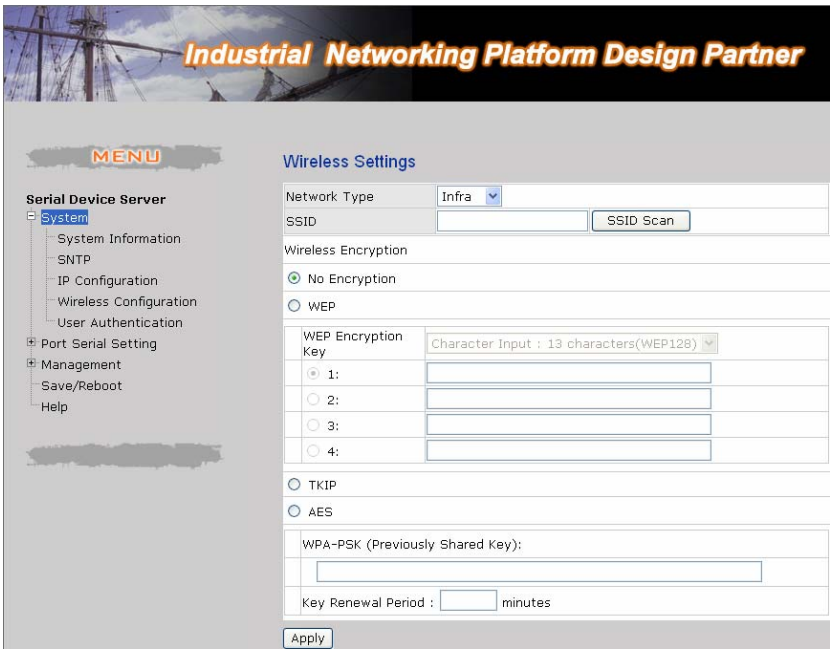


The following table describes the labels in this screen.

Label	Description
Network Type	Include Lan and Wireless.
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	Set the report IP address and TCP port (60001 DS-tool default), then the device server will report it status periodically. At DS-Tool->IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). Also you can set the other IP or Port.

Wireless setting

Wireless Network type 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 infrastructure available.

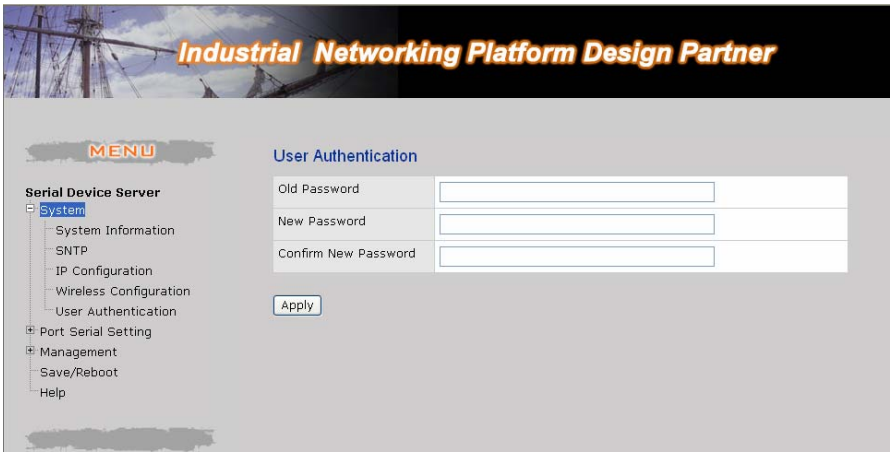


The following table describes the labels in this screen.

Label	Description
Network Type	Type include 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 we don't suggest to use it.
WEP	You can set four encryption 5 characters (WEP64),13 characters(WEP128), 10 digits(WEP64),26 digits(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.

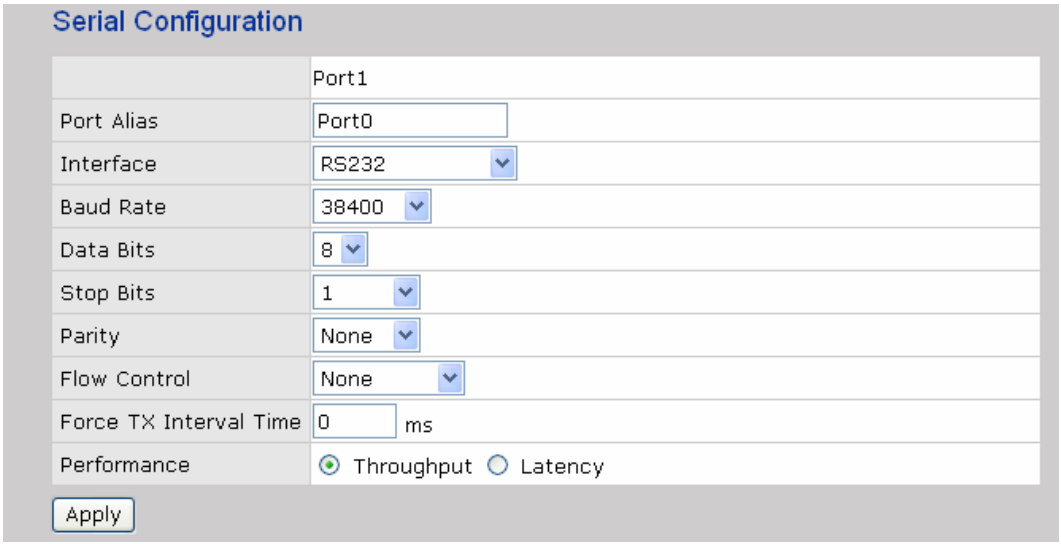
Authentication

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.



5.2.1.2 Port serial setting

Serial configuration

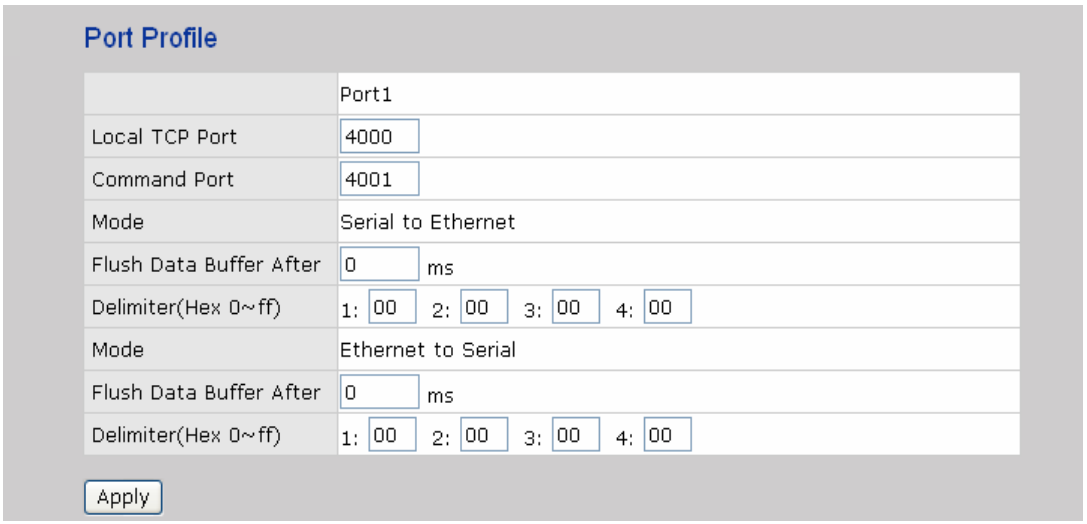


The following table describes the labels in this screen.

Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232 / RS422 / RS485(2-wires) / RS485(4-wires)
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
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.

Port Profile



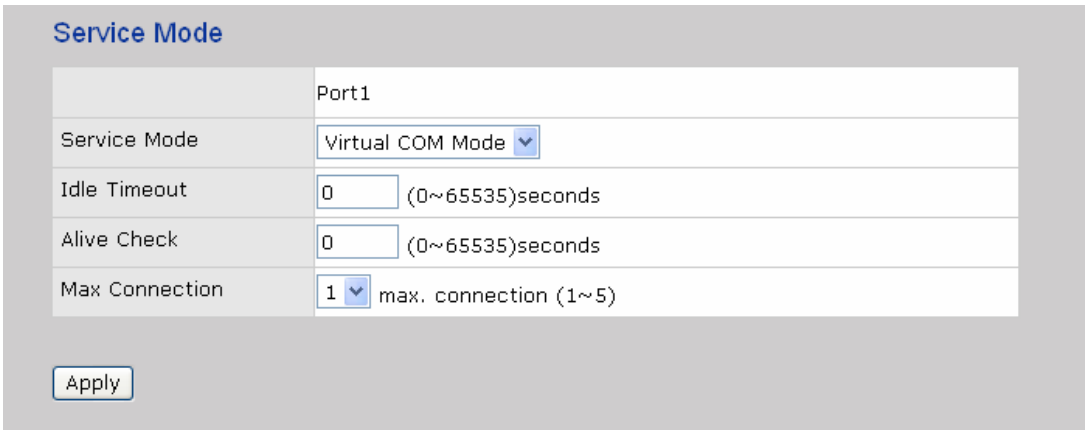
The following table describes the labels in this screen.

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

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.



**Not allowed to mapping Virtual COM from web*

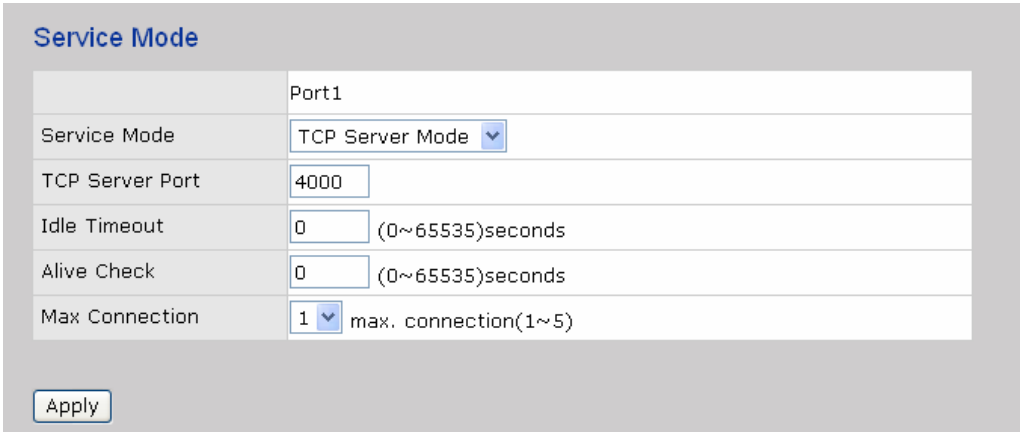
The following table describes the labels in this screen.

Label	Description
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.

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.



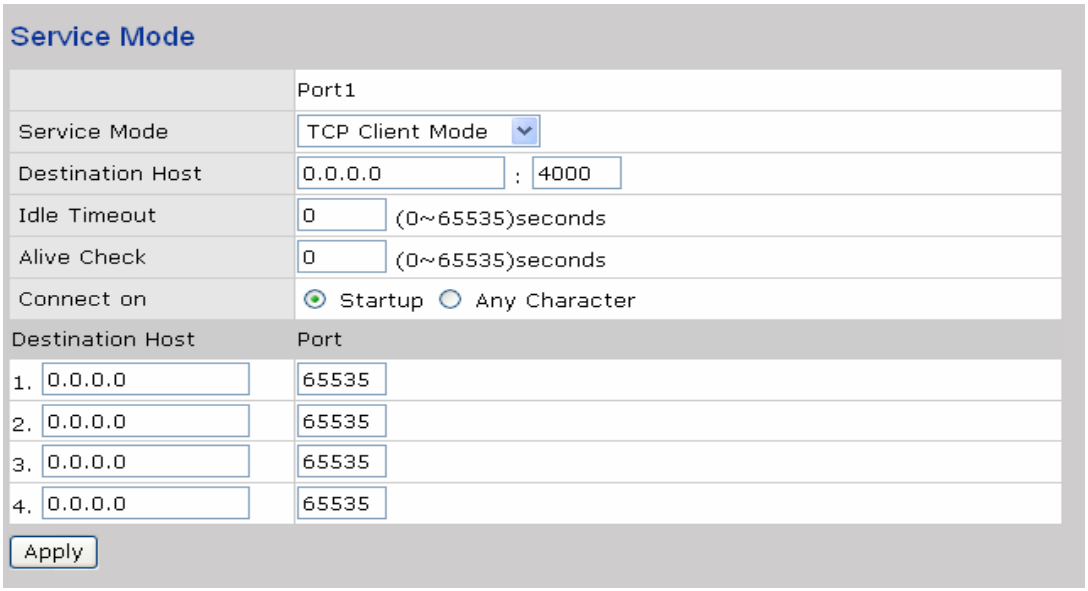
The following table describes the labels in this screen.

Label	Description
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	Support up to 5 simultaneous connections are 5, default values is 1.

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.



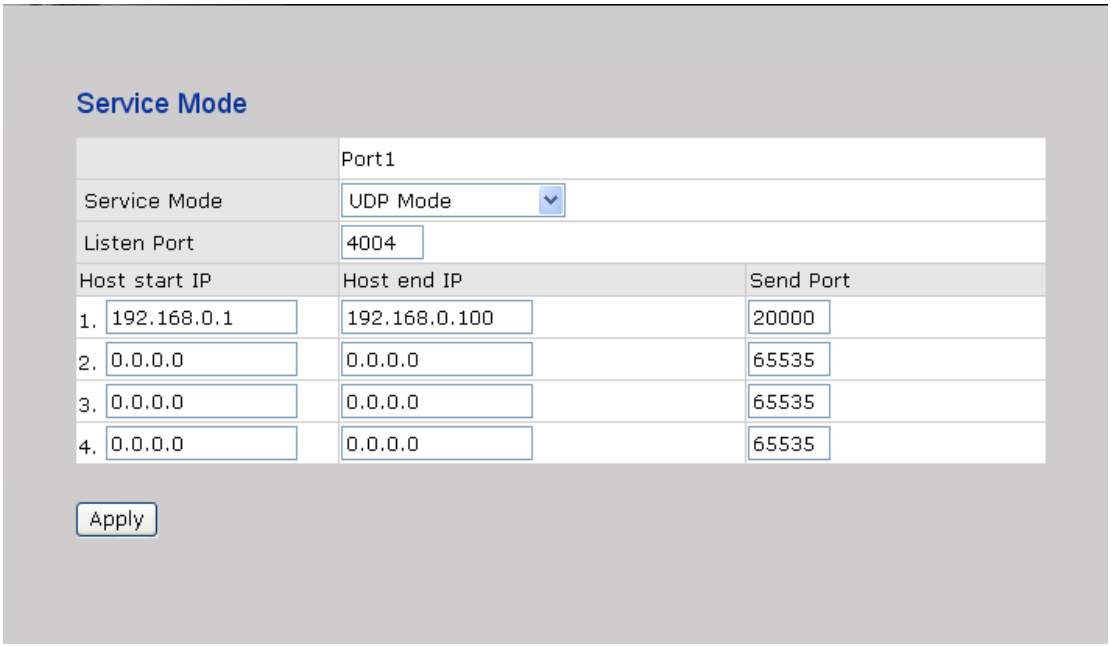
The following table describes the labels in this screen.

Label	Description
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.

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



5.2.1.3 Management

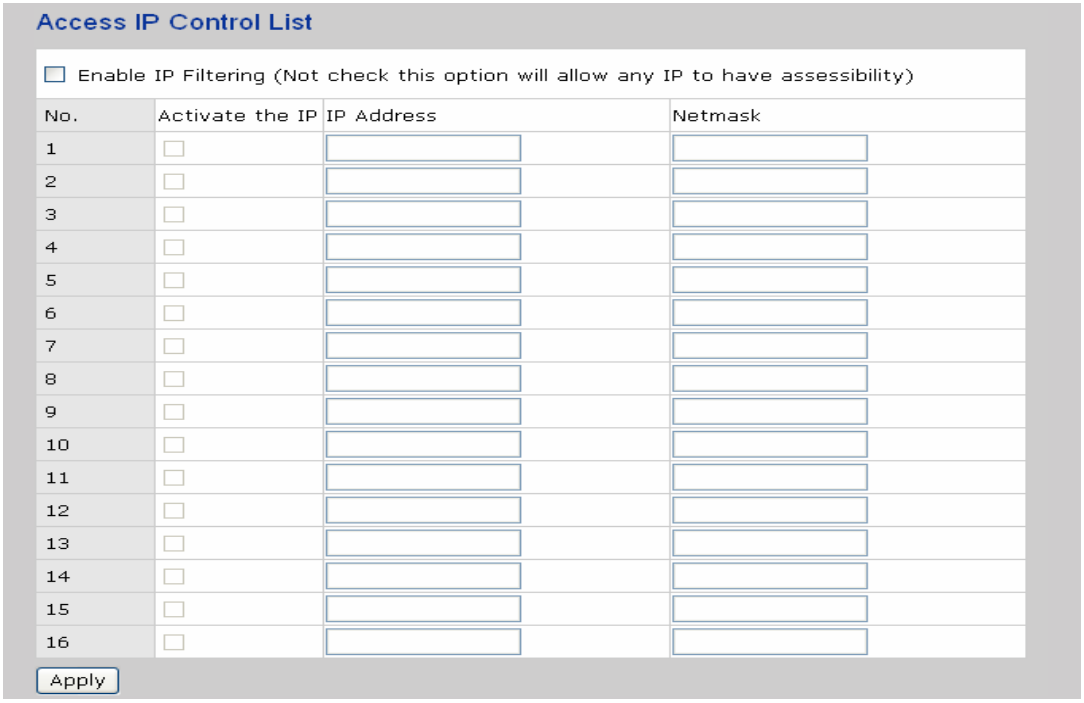
Accessible IP Settings

Accessible IP 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

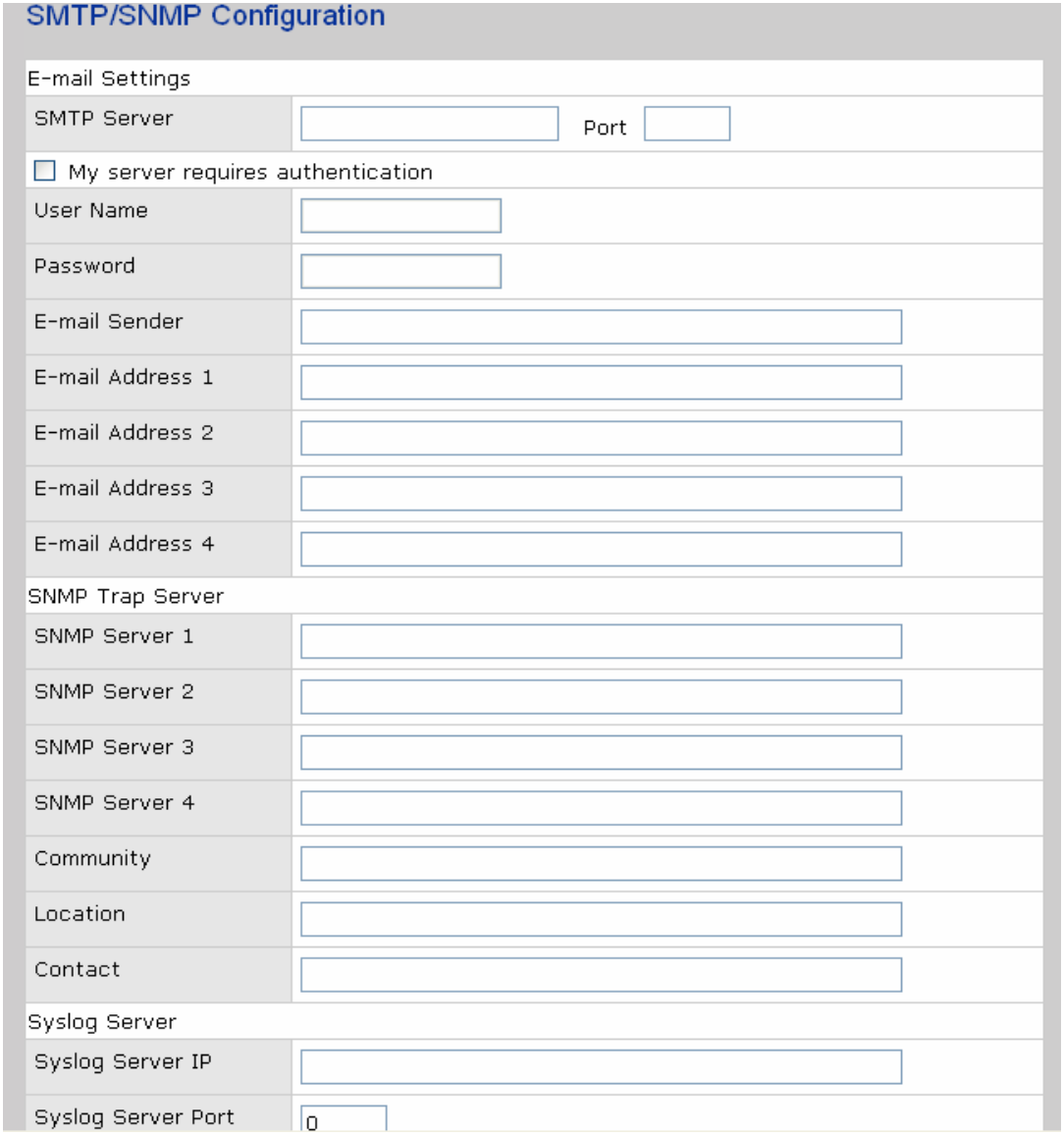


SMTP/SNMP Configuration

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.

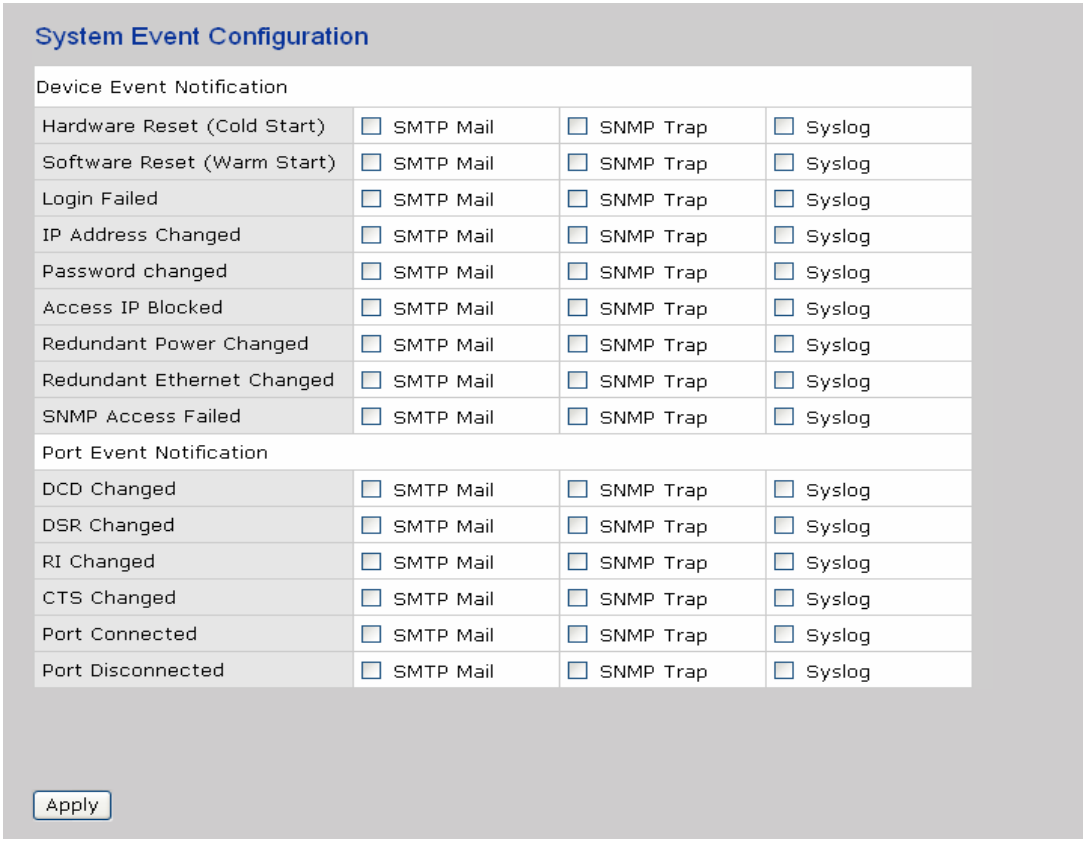
SNMP Server configuration includes the SNMP Trap Server IP address, Community, Location and Contact. There are 4 SNMP addresses you can specify to receive the notification.

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



System Event Configuration

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

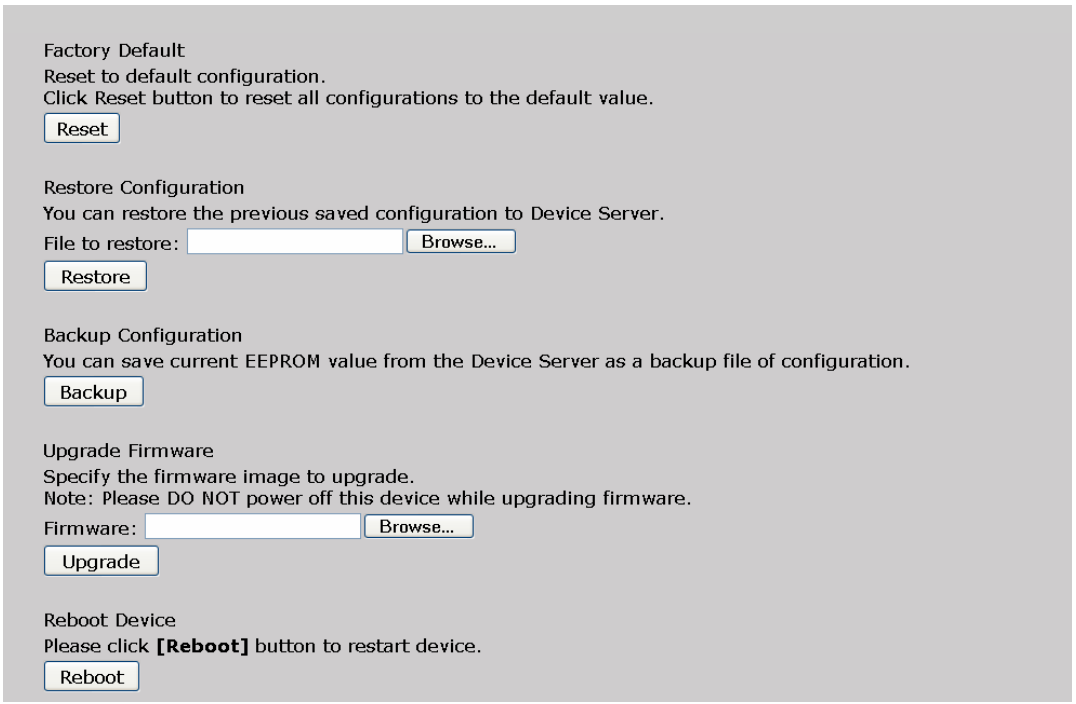


The following table describes the labels in this screen.

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	When status of power changed, a notification will be sent.

Power Change	
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.

5.2.1.4 Save/Reboot



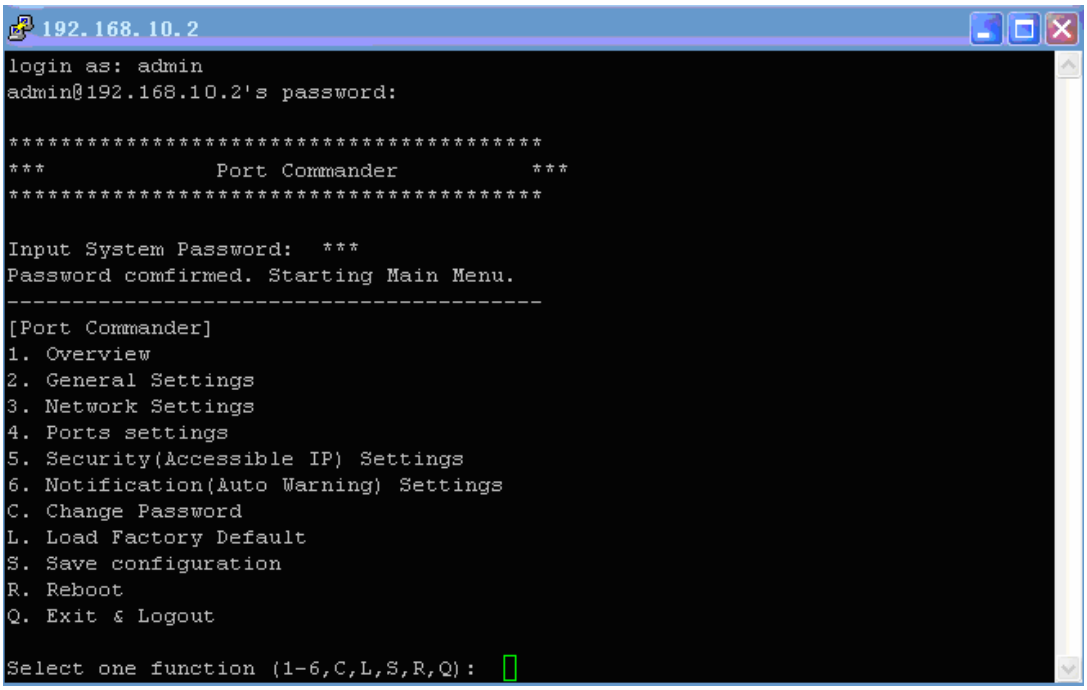
The following table describes the labels in this screen.

Label	Description
Load Factory Default	Load default configuration except settings of Network. If you want load all factory default, you should press "**Reset**" button on the device (Hardware restore).
Import Configuration	Restore the previous exported configuration.
Export 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).

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.



6

Technical Specifications

Network Interface	
Ethernet	1x 10/100Base-T(X) LAN
connector	RJ-45
Protection	Built-in1.5KV magnetic isolation
Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, ARP/RARP, DNS, SNMP MIB II, HTTPS, SSH
WLAN Feature	
Operating Mode	Client mode
Radio Frequency Type	DSSS
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM
Frequency Band	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: 16dBm
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA: WPA2 :802.11i(WEP and AES encryption) PSK (256-bit key pre-shared key supported) 802.1X and Radius supported TKIP encryption
Wireless Security	SSID broadcast disable
Serial Interface	
Interface	1x RS232 / RS422 / 4(2)-Wire RS485. Which can be configured by DS-Tool
Connector	Male DB9

Baud Rate	110 bps to 230.4 Kbps
Data Bits	5, 6, 7, 8
Parity	odd, even, none, mark, space
Stop Bits	1. 1.5, 2
RS-232 signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
RS-422 signals	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (4 wire) signals	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (2 wire) signals	Data+, Data-,GND
Flow control	XON/XOFF, RTS/CTS, DTR/DSR
Protection	Built-in15KV ESD protection
LED Indicators	PWR 1(2) / Ready: 1) Red On: Power is on and booting up. Red Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly. 2) Green On: Power is on and functioning normally. Green Blinking: Located by Administrator. ETH Link / ACT: Orange ON/Blinking: 10 Mbps Ethernet Green ON/Blinking: 100 Mbps Ethernet WLAN Link /ACT: Green: Link, Orange: Poor signal Serial TX / RX LEDs: Red: Serial port is receiving data Green: Serial port is transmitting data.
Power Requirements	
Power Input Voltage	PWR1: 12~48VDC in 3-pin Terminal Block PWR2: 12~48VDC in Power Jack with Power Adapter
Reverse Polarity Protection	Present at terminal block
Power Consumption	4 Watts Max
Software Utility	
Utility	DS-Tool for Windows NT/2000/XP/2003/VISTA Device discovery Auto IP report Device setting (run-time change, no rebooting) Access control list Group setting Device monitoring Serial port monitoring Log info Group Firmware update

Serial Mode	Virtual Com / TCP Server / TCP Client / UDP / Serial Tunnel TCP Alive Check Timeout Inactivity Timeout Delimiter for Data Packing Force TX Timeout for Data Packing
Multiple Link	5 Hosts simultaneous connection: Virtual Com / TCP server / TCP Client / UDP
VCOM Driver	Windows NT/2000/XP/2003/VISTA
Configuration	Web HTTPS console, SSH console, DS-Tool for Windows NT/2000/XP/VISTA
Environmental	
Operating Temperature	-10 to 55°C (14 to 131°F)
Operating Humidity	5% to 95%(Non-condensing)
Storage Temperature	-20 to 85°C (-4 to 185 F)°
Mechanical	
Dimensions(W x D x H)	72 mm(W)x 125 mm(D)x 31 mm(H)
Casing	IP-30 protection
Regulatory Approvals	
Shock	IEC60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
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), Level 3, EN61000-4-6 (CS), Level 3
MBTF	200,000 hours at least
Warranty	5 years

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

CAUTION:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.