

# **Industrial Device Server IDS-2102 User's Manual**

**Version 1.0**

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# Table of Content

GETTING TO KNOW YOUR DEVICE SERVER .....	2
1.1 <i>About the IDS-2102 Serial Device Server</i> .....	2
1.2 <i>Software Features</i> .....	2
1.3 <i>Hardware Features</i> .....	3
HARDWARE INSTALLATION .....	4
2.1 <i>Install IDS-2102 on DIN-Rail</i> .....	4
2.1.1    Mount IDS-2102 on DIN-Rail.....	4
2.2 <i>Wall Mounting Installation</i> .....	5
2.2.1    Mount IDS-2102 on wall.....	5
HARDWARE OVERVIEW.....	7
3.1 <i>Front Panel</i> .....	7
3.2 <i>Front Panel LEDs</i> .....	7
3.3 <i>Top Panel</i> .....	8
3.4 <i>Bottom Panel</i> .....	9
3.5 <i>Rear Panel</i> .....	10
CABLES .....	11
4.1 <i>Ethernet Cables</i> .....	11
MANAGEMENT INTERFACE .....	13
5.1 <i>X-ware</i> .....	13
5.1.1    Install X-ware.....	13
5.1.2    Using X-ware .....	14
5.1.2.1    Explore IDS device servers.....	14
5.1.2.2    Configure IDS device servers .....	14
5.1.2.3    Configure serial port .....	20
5.2 <i>Configuration by Web Browser</i> .....	28
5.2.1    Connect to the Web page .....	28
5.2.1.1    System .....	29
5.2.1.2    Port serial setting .....	31
5.2.1.3    Management .....	36
5.2.1.4    Save/Reboot.....	41
5.3 <i>Configuration by SSH Console</i> .....	42
5.3.1    Connect to IDS.....	42
TECHNICAL SPECIFICATIONS .....	43

# 1

## Getting to Know Your Device Server

### 1.1 About the IDS-2102 Serial Device Server



IDS-2102 is an innovative 1 port RS232/422/485 to 2 ports LAN redundant device server. To assure the agility and security of critical data, IDS-2102 offers many powerful features for HW & SW redundant functions. When the connection between master-link and LAN fails, the IDS-2102 can automatically switch to another LAN port within 10mS, and still guarantees a non-stop connection. IDS-2102 also supports switch mode, you can use Daisy Chain to reduce the usage of Ethernet switch ports. Secondly, the IDS-2102 can simultaneously transfer data into 5 host PCs. This feature can assure all critical data that saved in different host PC to avoid Ethernet break or host PCs failure. Thirdly, the IDS-2102 provides dual redundant power inputs on DC power jack and terminal block. IDS-2102 also provides NAT pass through function so that you are able to manage IDS-2102 inside or outside the NAT router. It is easy for different IP domain to use IDS-2102. You can configure and manage the device server easily by using the windows management tool (X-ware). Therefore, IDS-2102 is the best communication redundant solution for current application of serial devices.

### 1.2 Software Features

- Redundant Dual Ethernet Ports: Recovery time < 10mS
- Switch Mode Supported: Daisy Chain support to reduce usage of switch ports
- Secured Management by HTTPS and SSH
- Event Warning by Syslog, Email, SNMP Trap, and Beeper
- NAT-pass through: Manage through NAT router
- 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: -20 to 85°C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-30
- 2 10/100Base-T(X) Ethernet port
- Dimensions(W x D x H) : 72mm(W)x125 mm(D)x31mm(H)

# 2

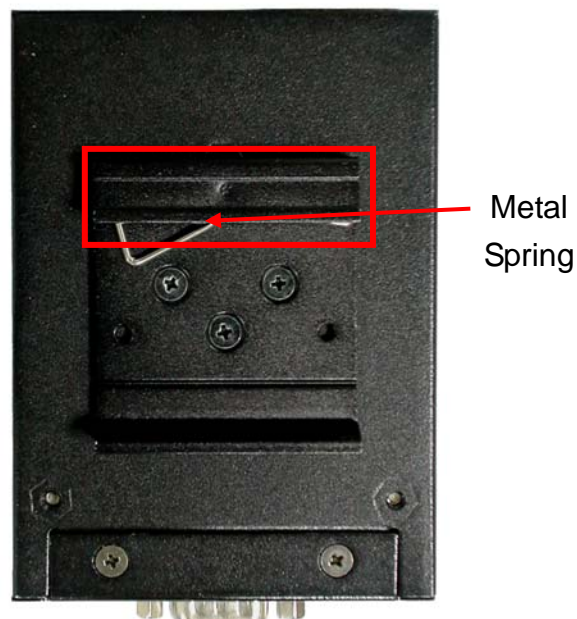
## Hardware Installation

### 2.1 Install IDS-2102 on DIN-Rail

Each IDS-2102 has a Din-Rail kit on rear panel. The Din-Rail kit helps IDS-2102 to fix on the Din-Rail. It is easy to install the IDS-2102 on the Din-Rail:

#### 2.1.1 Mount IDS-2102 on DIN-Rail

Step 1: Slant the IDS-2102 and mount the metal spring to Din-Rail.



Step 2: Push the IDS-2102 toward the Din-Rail until you heard a “click” sound.

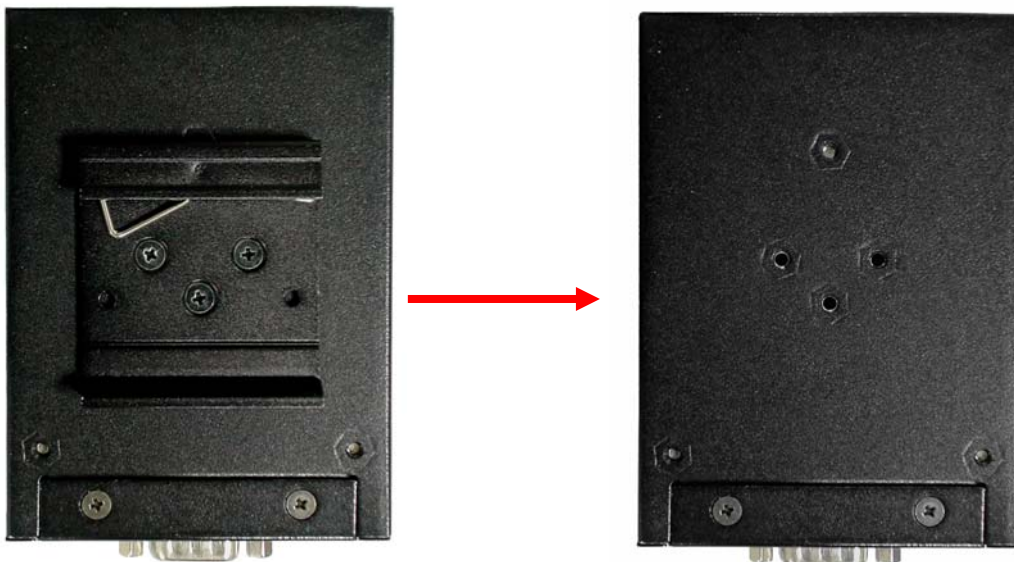


## 2.2 Wall Mounting Installation

Each IDS-2102 has another installation method. A wall mount panel can be found in the package. The following steps show how to mount the IDS-2102 on the wall:

### 2.2.1 Mount IDS-2102 on wall

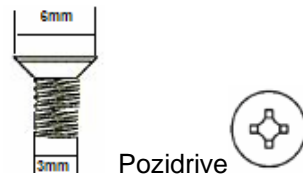
Step 1: Remove Din-Rail kit.



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 IDS-2102 from any damage, the size of screws should not be larger than the size that used in IDS-2102.



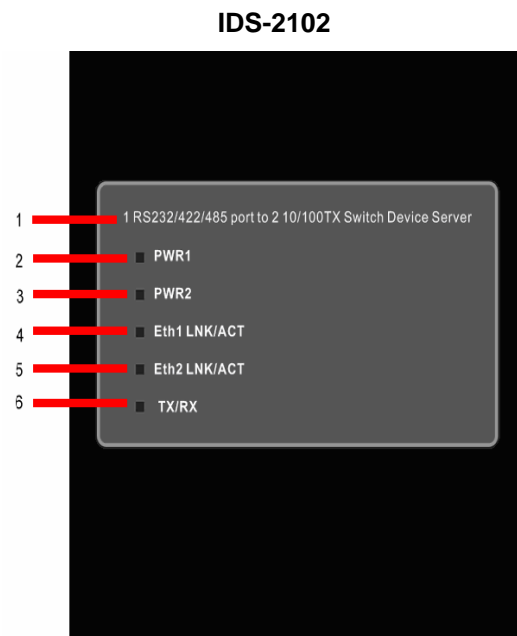
Step 3: Mount the combined IDS-2102 on the wall.



# 3

## Hardware Overview

### 3.1 Front Panel



1. Product description of IDS-2102.
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 1.
5. LED of 10/100Base-T(X) Ethernet port 2.
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 IDS-2102.

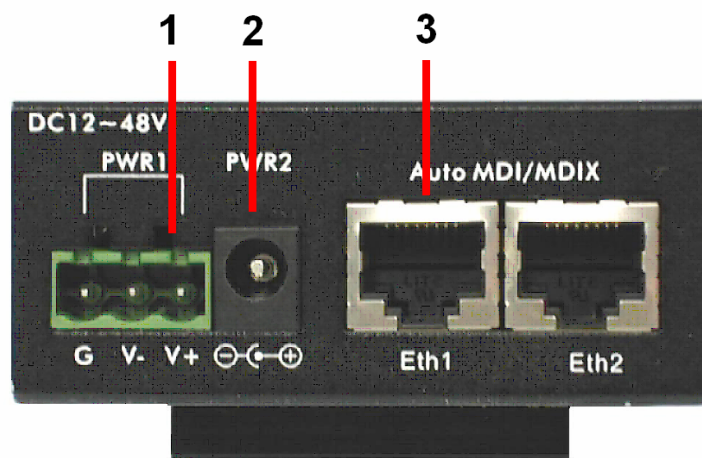


LED	Color	Status	Description
PWR1	Green/Red	On	DC power 1 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
PWR2	Green/Red	On	DC power 2 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
ETH1	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT
ETH2	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

### 3.3 Top Panel

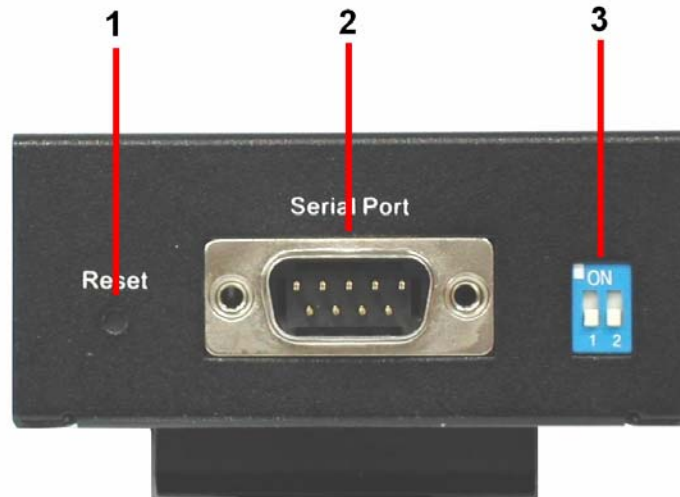
The Top panel components of IDS-2102 are showed as below:

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.



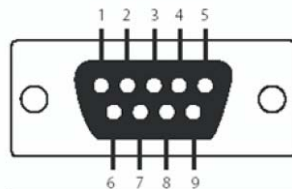
### 3.4 Bottom Panel

The bottom panel components of IDS-2102 are showed as below:



1. Reset button. 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				

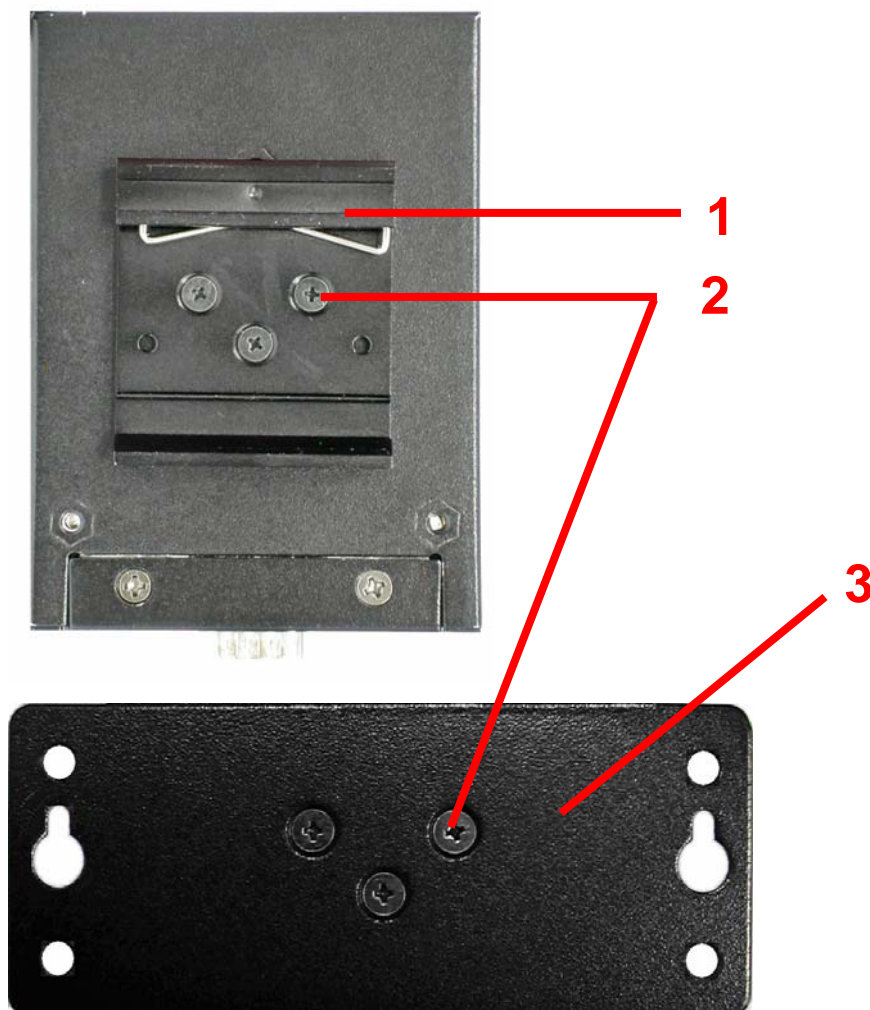
### 3. DIP Switch: Termination for RS-422/485

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 IDS-2102 are showed as below:

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



# 4

## Cables

### 4.1 Ethernet Cables

The IDS-2102 has standard Ethernet ports. According to the link type, the IDS-2102 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 IDS-2102 supports auto MDI/MDI-X operation. You can use a straight-through cable to connect PC to IDS-2102. 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

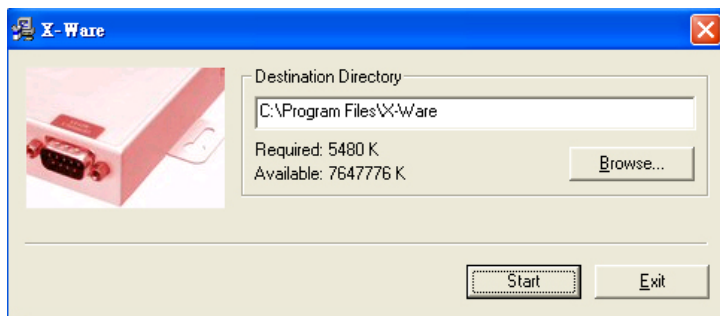
## Management Interface

### 5.1 X-ware

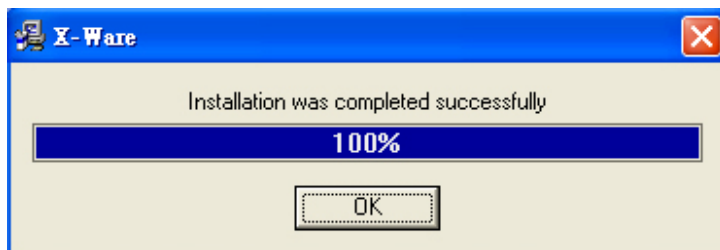
X-ware is a powerful Windows utility for IDS series. It supports device discovery, device configuration, group setup, group firmware update, monitoring functions...etc. It is easy for you to install and configure devices over the network.

#### 5.1.1 Install X-ware

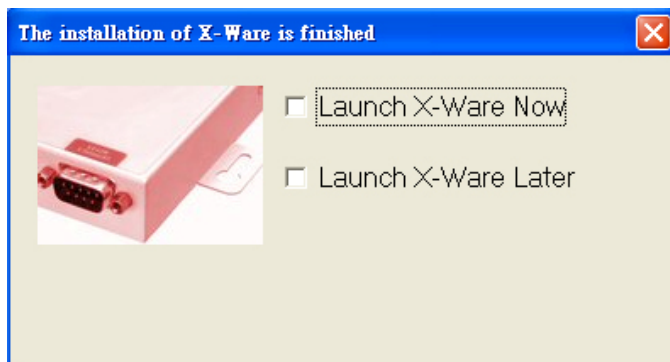
Step 1: Execute the Setup program, click **"start"** after selecting the folder for X-ware.



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



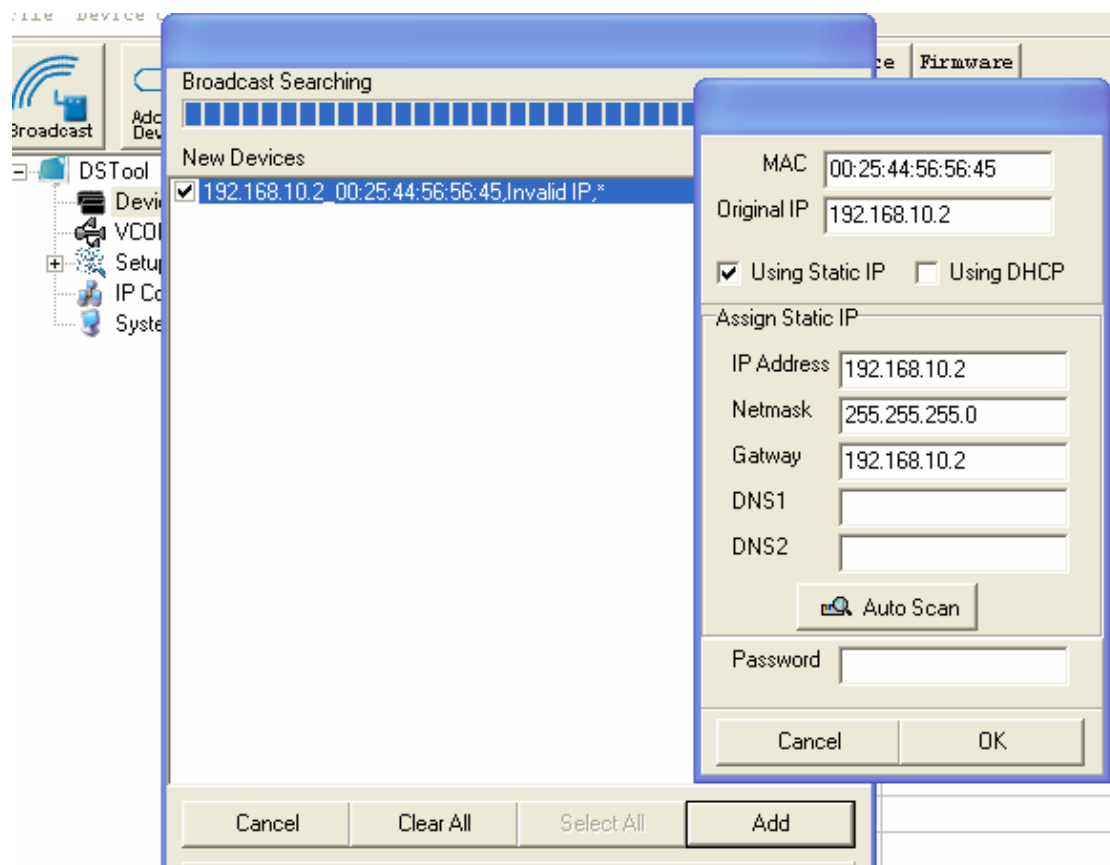
Step 3: Check for your selection.



## 5.1.2 Using X-ware

### 5.1.2.1 Explore IDS device servers

X-ware 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.



### 5.1.2.2 Configure IDS device servers

#### General settings

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

The screenshot shows a configuration window with the following elements:

- Navigation Tabs:** General | Security | Networking | Notification | Management | Upgrade Firmware | Save/Load
- Model:** \*
- LAN IP Address:** 192.168.0.27
- LAN MAC Address:** 00:25:44:56:56:45
- Version:** 1.1f
- Buttons:** Locate On
- Device Name/Location:** DeviceServer-DEFAULT
- Using SNTP Time Server:**
- Auto IP Report:**
- SNTP Server IP:** pool.ntp.org
- Port:** 123
- Time Zone:** (GMT+08:00)Taipei
- IP Address:** 192.168.0.2
- Port:** 60001
- Buttons:** Get Current Host
- Report Interval:** 0 Seconds
- Bottom Buttons:** Refresh, Apply Only, Apply and Save

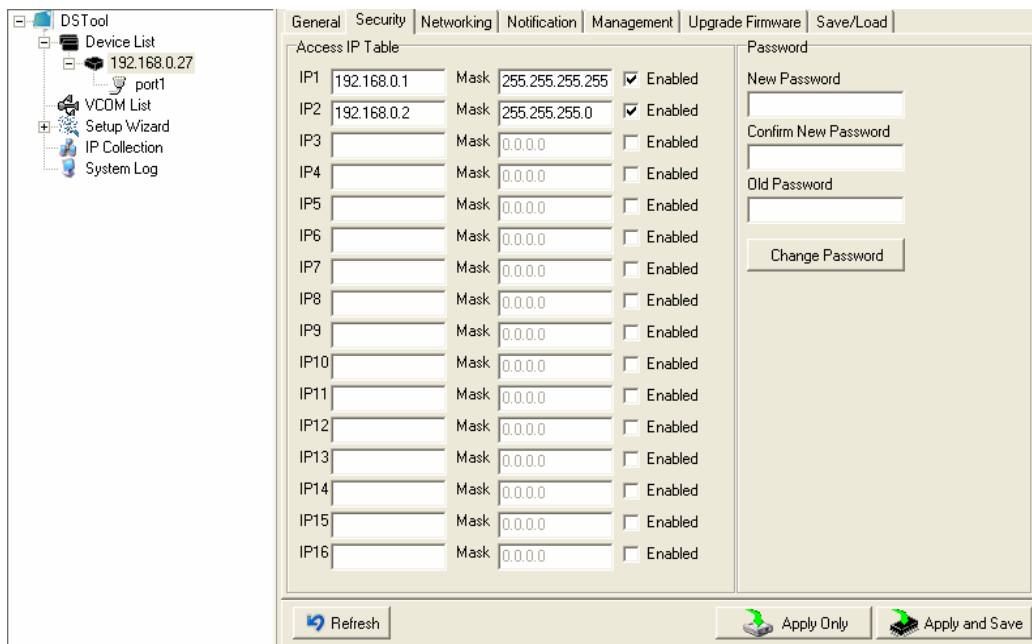
The following table describes the labels in this screen.

Label	Description
<b>Device Name/location</b>	You can set the device name or related information. By clicking " <b>Locate On</b> " button you can locate the serial server's position.
<b>Set SNTP</b>	Input the SNTP server domain name or IP address, port and select the Time zone.
<b>Set Auto IP Report</b>	By Clicking the " <b>Get current Host</b> " 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 server status. The report interval is 0 indicate disable this setting (default). But you can set the other IP or Port.

## Security

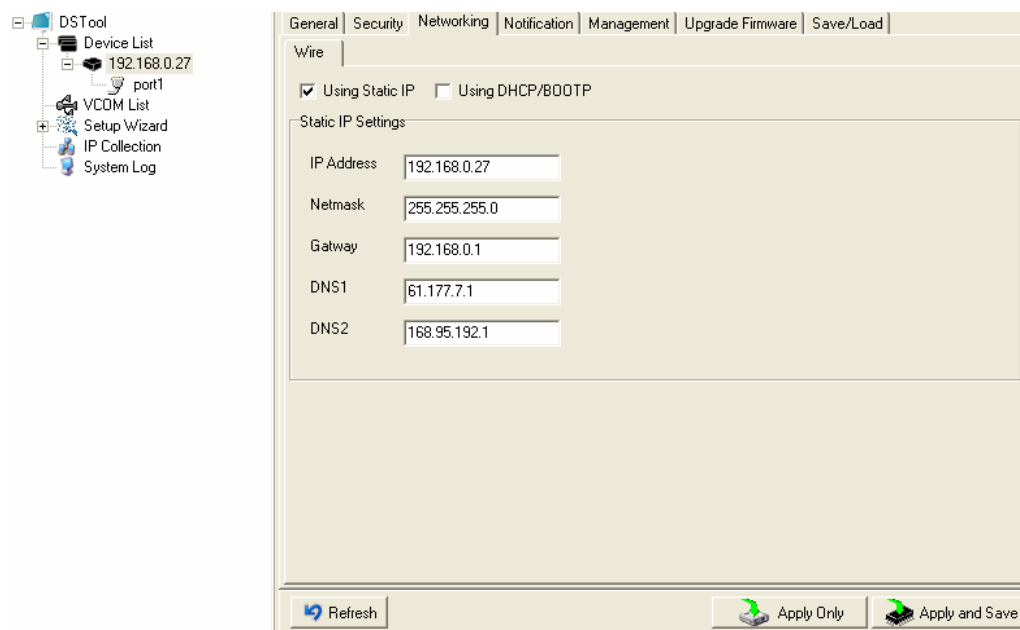




The following table describes the labels in this screen.

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

### Network Setting



The following table describes the labels in this screen.

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

### Notification

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

General | Security | Networking | Notification | Management | Upgrade Firmware | Save/Load

SNMP Trap     Email Notification     Syslog Notification

**Syslog Settings**

**Notified Items**

<input type="checkbox"/> Hardware Reset (Cold Start)	<input type="checkbox"/> Redundant Power Changed	<input type="checkbox"/> DO_1 Changed
<input type="checkbox"/> Software Reset (Warm Start)	<input type="checkbox"/> Redundant Ethernet Changed	<input type="checkbox"/> DO_2 Changed
<input type="checkbox"/> Login Failed	<input type="checkbox"/> DI_1 Changed	
<input type="checkbox"/> IP Changed	<input type="checkbox"/> DI_2 Changed	
<input checked="" type="checkbox"/> Password Changed	<input type="checkbox"/> DI_3 Changed	
<input type="checkbox"/> Access IP Blocked	<input type="checkbox"/> DI_4 Changed	

**System Log Settings**

Server IP	Port	
<input type="text" value="192.168.0.2"/>	<input type="text" value="514"/>	Using Current Host's Log Server

Refresh

Apply Only

Apply and Save

The following table describes the labels in this screen.

Label	Description
<b>SNMP Trap</b>	To notify events by SNMP trap.
<b>Email Notification</b>	To notify events by Email.
<b>Syslog Notification</b>	To notify events by Syslog.
<b>Notify items</b>	Events to be notified.
<b>Apply</b>	Apply current setting.
<b>Apply and Save</b>	Apply and save current setting.

### Management

General | Security | Networking | Notification | **management** | Upgrade Firmware

Web Management Enable Goto Web Management  
 Telnet Management Enable Goto Telnet Management  
 SNMP Management Enable

SNMP Management Settings

Community

Location

Contact

Trap Server1

Trap Server2

Trap Server3

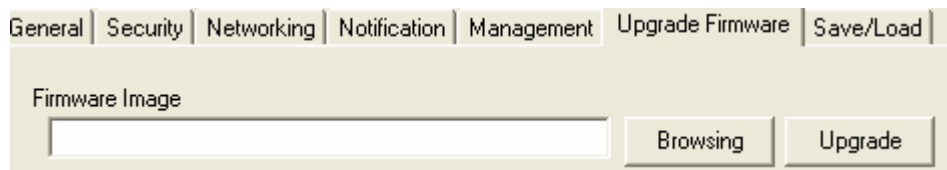
Trap Server4

The following table describes the labels in this screen.

Label	Description
<b>Web Management Enable</b>	To enable management from Web. Click " <b>Goto Web Management</b> " button to access web.
<b>Telnet Management Enable</b>	To enable management by Telnet. Click " <b>Goto Telnet Management</b> " button to execute Telnet command.
<b>SNMP</b>	To enable management by SNMP.

<b>Management Enable</b>	
<b>SNMP Management Settings</b>	To configure SNMP related settings.

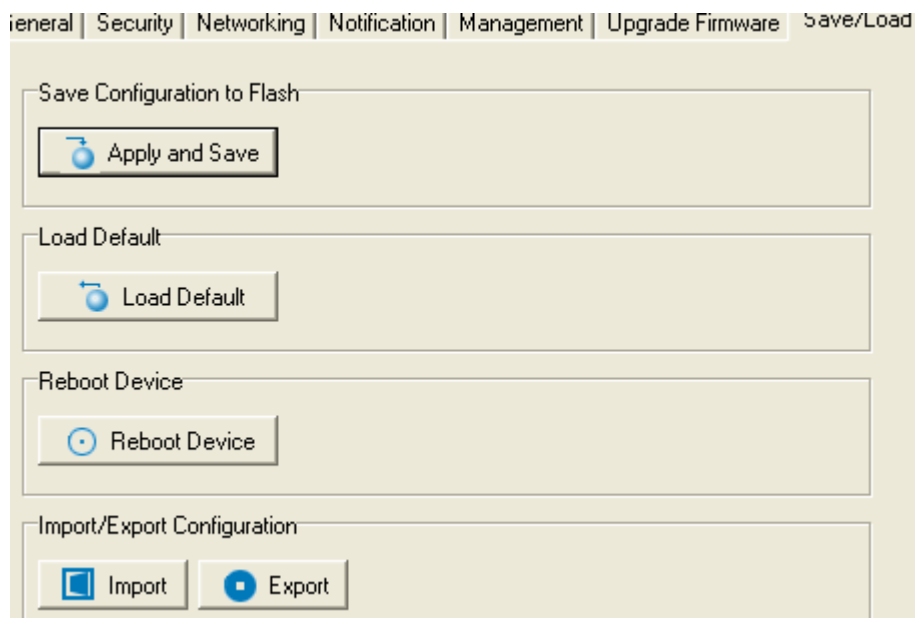
### Upgrade Firmware



The following table describes the labels in this screen.

Label	Description
<b>Browsing</b>	Browse the file and upgrade
<b>Upgrade</b>	Enable the firmware upgrade.

### Save/Load



The following table describes the labels in this screen.

Label	Description
<b>Save</b>	Save current configuration into flash memory.

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

### 5.1.2.3 Configure serial port

#### Serial Settings

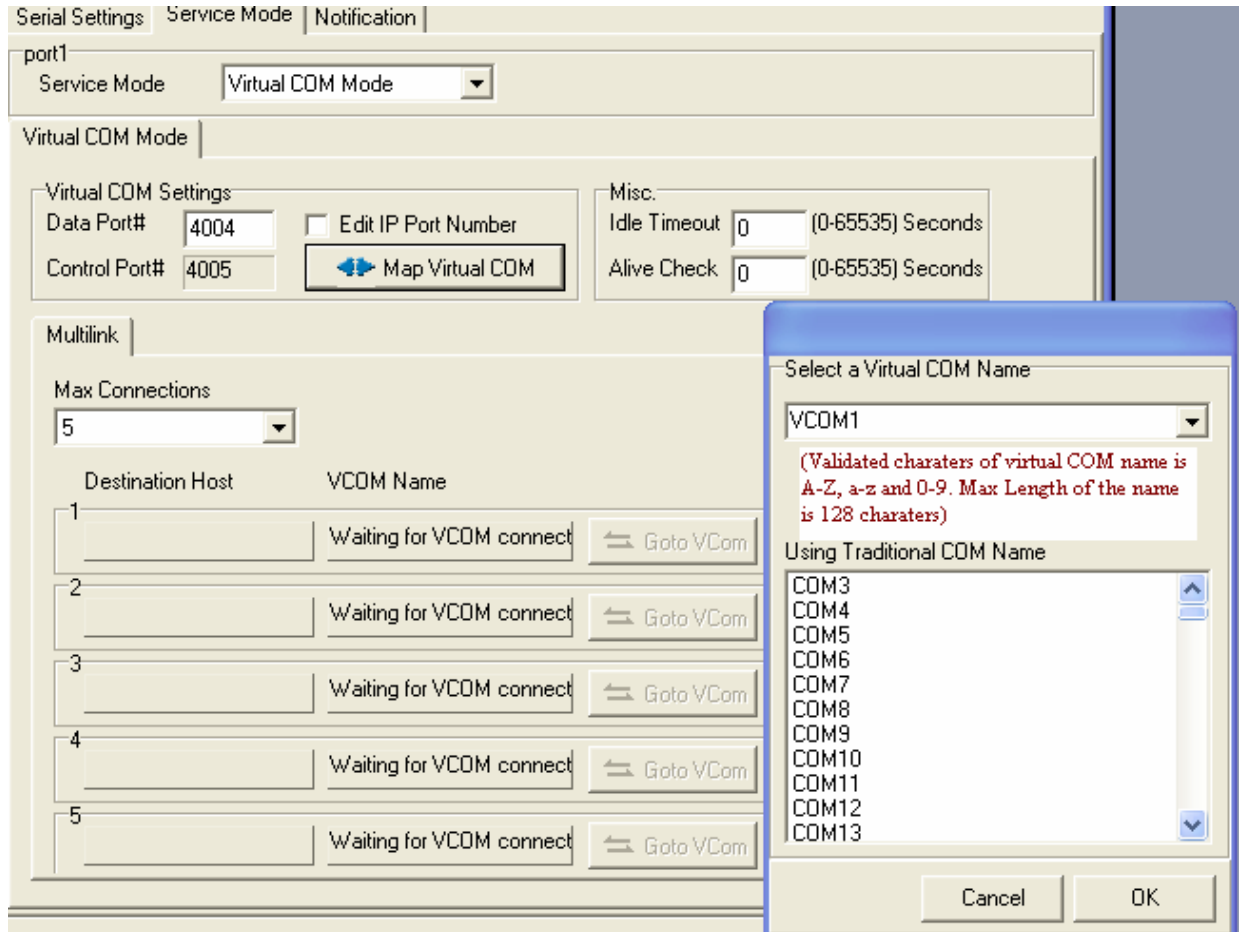
The following table describes the labels in this screen.

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

<b>Baud rate</b>	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps/460800bps
<b>Data Bits</b>	5, 6, 7, 8
<b>Stop Bits</b>	1, 2 (1.5)
<b>Parity</b>	No, Even, Odd, Mark, Space
<b>Flow Control</b>	No, XON/XOFF, RTS/CTS, DTR/DSR
<b>Performance</b>	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
<b>Serial to Ethernet</b>	<p><b>Delimiter:</b></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 "<b>Flush Serial to Ethernet data buffer</b>" times out. 0 means disable. Factory default is 0.</p> <p><b>Flush Data Buffer After:</b></p> <p>The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "<b>flush S2E data buffer</b>" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.</p>
<b>Ethernet to Serial</b>	<p><b>Delimiter:</b></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 "<b>Flush Ethernet to Serial data buffer</b>" times out. 0 means disable. Factory default is 0.</p> <p><b>Flush Data Buffer After:</b></p> <p>The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "<b>flushE2S data buffer</b>" timeout the data will also be sent. You can set the time from 0 to 65535 seconds.</p>
<b>Force TX Interval Time</b>	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.
<b>Load Default</b>	Remark the port to hint the connected device.

### 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.



The following table describes the labels in this screen.

Label	Description
<b>Map Virtual COM</b>	Select a Virtual COM Name to map on.
<b>Max Connection</b>	The number of Max connection can support simultaneous connections are 5, default values is 1.
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------

*\*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.

The following table describes the labels in this screen.

Label	Description
<b>Data Port</b>	Set the port number for data transmission.
<b>Auto Scan</b>	Scan the data port automatically.
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
<b>Max Connection</b>	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 screenshot displays the configuration interface for the device's TCP Client Mode. At the top, there are three tabs: 'Serial Settings', 'Service Mode', and 'Notification'. The 'Service Mode' tab is active, showing 'port1' with 'Service Mode' set to 'TCP Client Mode'. Below this, the 'TCP Client Mode' section is expanded, containing two sub-sections: 'TCP Client Settings' and 'Misc.'. 'TCP Client Settings' includes a 'Destination Host' field with the value '192.168.0.10', a 'Port' field with '4002', and an 'Enable Control Port' checkbox which is checked, with a value of '4003'. An 'Auto Scan' button is present next to the port field. The 'Misc.' section includes 'Idle Timeout' and 'Alive Check' fields, both set to '0', with a range of '(0-65535) Seconds', and a 'Connect on' dropdown menu set to 'Startup'. Below these is a 'Multilink' section with four rows, each containing 'Destination Host', 'Port', and 'Auto Scan' fields and buttons.

The following table describes the labels in this screen.

Label	Description
<b>Destination Host</b>	Set the IP address of host.
<b>Port</b>	Set the port number of data port.
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
<b>Connect on Startup</b>	The TCP Client will build TCP connection once the connected serial device is started.
<b>Connect on Any Character</b>	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

Serial Settings | Service Mode | Notification |

port1

Service Mode: UDP Mode

UDP Mode

UDP Settings

Listening Port: 4004

Multilink

	Destination Host Begin	to	Destination Host End	Sending Port	
1	192.168.0.1	to	192.168.0.100	10000	<input type="button" value="Auto Scan"/>
2		to			<input type="button" value="Auto Scan"/>
3		to			<input type="button" value="Auto Scan"/>
4		to			<input type="button" value="Auto Scan"/>

**Notification**

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

Serial Settings | Service Mode | Notification

SNMP Trap       Email Notification       Syslog Notification

SNMP Settings | Email Settings | Syslog Settings




Notified Items

DCD Changed       CTS Changed

DSR Changed       Port Connected

RI Changed       Port Disconnected

Email to:  
Mail Server:  
Mail to:

 Refresh       Apply Only       Apply and Save

The following table describes the labels in this screen.

Label	Description
<b>DCD changed</b>	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has changed. Notification will be sent.
<b>DSR changed</b>	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
<b>RI changed</b>	When RI (Ring Indicator) signal changes, it indicates that the incoming of a call. A Notification will be sent.
<b>CTS changed</b>	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
<b>Port connected</b>	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.
<b>Port disconnected</b>	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

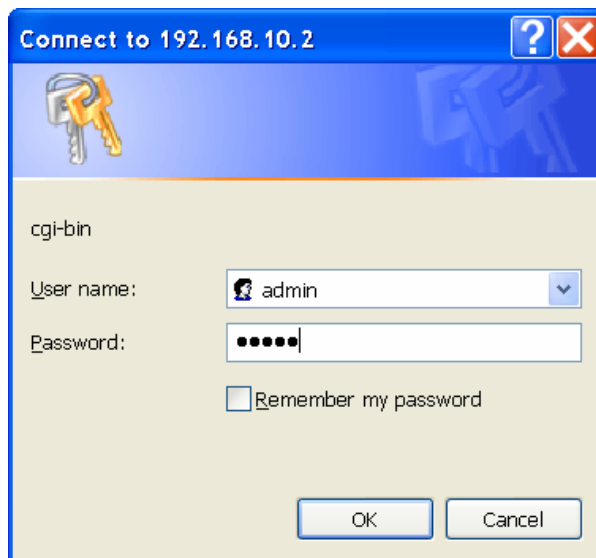
### 5.2.1 Connect to the Web page

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.

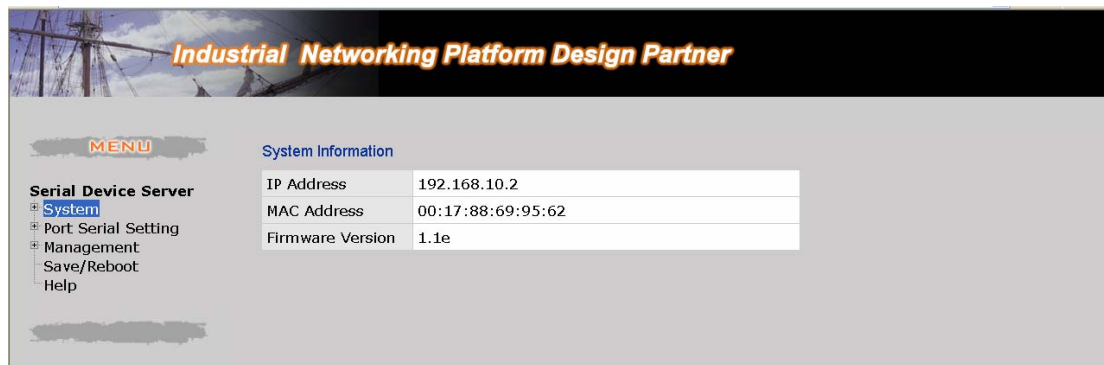


Step 3: Input the name and password, then click “OK”.



*\*Only if password is set.*

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



### 5.2.1.1 System SNTP



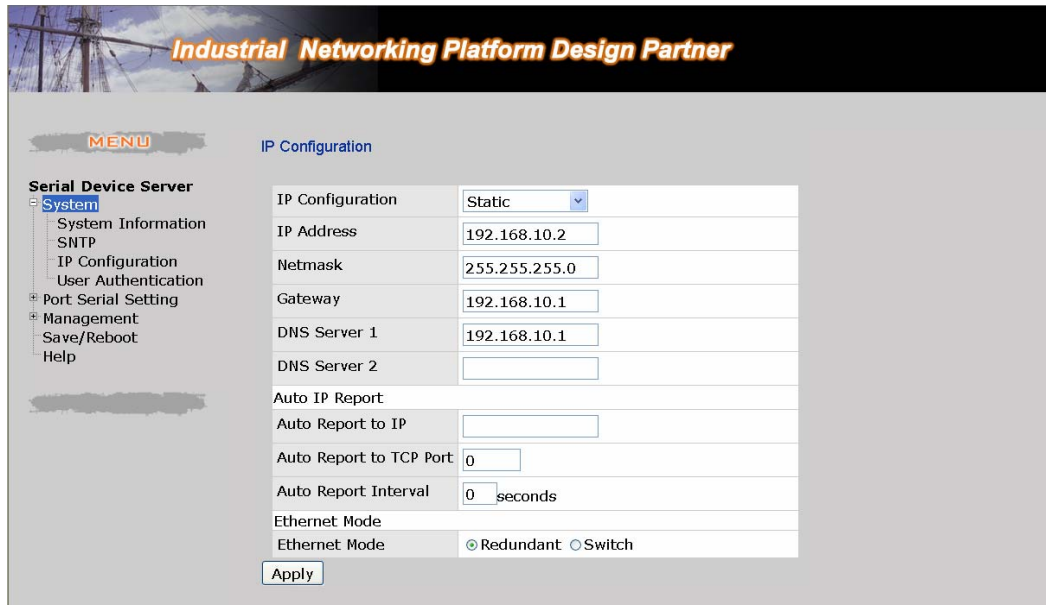
The following table describes the labels in this screen.

Label	Description
<b>Name</b>	You can set the name of DS.
<b>SNTP</b>	Enable the SNTP server.
<b>Time zone</b>	After you set the SNTP enable, select the time zone you located.
<b>Time server</b>	Input SNTP server domain name or IP address and Port.
<b>Console</b>	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
<b>DHCP/BOOTP</b>	Obtain the IP address automatically from DHCP server.
<b>Static IP Address</b>	Assigning an IP address manually.
<b>Subnet Mask</b>	Set the subnet mask to communicate on the network.
<b>Gateway</b>	Enter the IP address of the router in you network.
<b>DNS Server</b>	Enter the IP address of the DNS server to translate domain names into IP address.
<b>Switch Mode</b>	<p><b>Redundant:</b></p> <p>When the connection between master-link and LAN fails, the DS can automatically switch to another LAN port within10mS, and still guarantees a non-stop connection</p> <p><b>Switch:</b></p> <p>Daisy Chain support to reduce usage of switch ports.</p>

## 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.

**User Authentication**

Old Password	<input type="password" value="●●●"/>
New Password	<input type="password"/>
Confirm New Password	<input type="password"/>

### 5.2.1.2 Port serial setting

#### Serial configuration

**Serial Configuration**

	Port1
Port Alias	<input type="text" value="Port0"/>
Interface	<input type="text" value="RS232"/>
Baud Rate	<input type="text" value="38400"/>
Data Bits	<input type="text" value="8"/>
Stop Bits	<input type="text" value="1"/>
Parity	<input type="text" value="None"/>
Flow Control	<input type="text" value="None"/>
Force TX Interval Time	<input type="text" value="0"/> ms
Performance	<input checked="" type="radio"/> Throughput <input type="radio"/> Latency

The following table describes the labels in this screen.

Label	Description
<b>Port Alias</b>	Remark the port to hint the connected device.
<b>Interface</b>	RS232 / RS422 / RS485(2-wires) / RS485(4-wires)
<b>Baud rate</b>	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps/460800bps
<b>Data Bits</b>	5, 6, 7, 8
<b>Stop Bits</b>	1, 2 (1.5)
<b>Parity</b>	No, Even, Odd, Mark, Space
<b>Flow Control</b>	No, XON/XOFF, RTS/CTS, DTR/DSR
<b>Force TX Interval</b>	Force TX interval time is to specify the timeout when no data has been



<b>Time</b>	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.
<b>Performance</b>	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
<b>Apply</b>	Activate settings on this page.

### Port Profile

**Port Profile**

Port1	
Local TCP Port	<input type="text" value="4000"/>
Command Port	<input type="text" value="4001"/>
Mode	Serial to Ethernet
Flush Data Buffer After	<input type="text" value="0"/> ms
Delimiter(Hex 0~ff)	1: <input type="text" value="00"/> 2: <input type="text" value="00"/> 3: <input type="text" value="00"/> 4: <input type="text" value="00"/>
Mode	Ethernet to Serial
Flush Data Buffer After	<input type="text" value="0"/> ms
Delimiter(Hex 0~ff)	1: <input type="text" value="00"/> 2: <input type="text" value="00"/> 3: <input type="text" value="00"/> 4: <input type="text" value="00"/>

The following table describes the labels in this screen.

Label	Description
<b>Serial to Ethernet</b>	<p><b>Flush Data Buffer After:</b></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 "<b>flush S2E data buffer</b>" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds.</p> <p><b>Delimiter:</b></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 "<b>Flush Serial to Ethernet data buffer</b>" times out. 0 means disable. Factory default is 0</p>
<b>Ethernet to serial</b>	<p><b>Flush Data Buffer After:</b></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 "<b>flush E2S</b></p>

	<p><b>data buffer"</b> timeout, the data will also be sent. You can set the time from 0 to 65535 seconds.</p> <p><b>Delimiter:</b></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 "<b>Flush Ethernet to Serial data buffer</b>" times out. 0 means disable. Factory default is 0</p>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**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.

Service Mode	
	Port1
Service Mode	Virtual COM Mode
Idle Timeout	0 (0~65535)seconds
Alive Check	0 (0~65535)seconds
Max Connection	1 max. connection (1~5)

Apply

The following table describes the labels in this screen.

Label	Description
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
<b>Max Connection</b>	The number of Max connection can support simultaneous connections

	are 5, default values is 1.
--	-----------------------------

*\*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.

**Service Mode**

	Port1
Service Mode	TCP Server Mode <input type="button" value="v"/>
TCP Server Port	<input type="text" value="4000"/>
Idle Timeout	<input type="text" value="0"/> (0~65535)seconds
Alive Check	<input type="text" value="0"/> (0~65535)seconds
Max Connection	<input type="button" value="1"/> max. connection(1~5)

The following table describes the labels in this screen.

Label	Description
<b>TCP Server Port</b>	Set the port number for data transmission.
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
<b>Max Connection</b>	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.

#### Service Mode

	Port1
Service Mode	TCP Client Mode <span style="float: right;">▼</span>
Destination Host	0.0.0.0 : 4000
Idle Timeout	0 (0~65535)seconds
Alive Check	0 (0~65535)seconds
Connect on	<input checked="" type="radio"/> Startup <input type="radio"/> Any Character

	Destination Host	Port
1.	<input type="text" value="0.0.0.0"/>	<input type="text" value="65535"/>
2.	<input type="text" value="0.0.0.0"/>	<input type="text" value="65535"/>
3.	<input type="text" value="0.0.0.0"/>	<input type="text" value="65535"/>
4.	<input type="text" value="0.0.0.0"/>	<input type="text" value="65535"/>

The following table describes the labels in this screen.

Label	Description
<b>Destination Host</b>	Set the IP address of host and the port number of data port. .
<b>Idle Timeout</b>	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.
<b>Alive Check</b>	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.
<b>Connect on Startup</b>	The TCP Client will build TCP connection once the connected serial device is started.
<b>Connect on Any Character</b>	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

**Service Mode**

Port1		
Service Mode	UDP Mode	
Listen Port	4004	
Host start IP	Host end IP	Send Port
1. 192.168.0.1	192.168.0.100	20000
2. 0.0.0.0	0.0.0.0	65535
3. 0.0.0.0	0.0.0.0	65535
4. 0.0.0.0	0.0.0.0	65535

Apply

### 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

**Access IP Control List**

Enable IP Filtering (Not check this option will allow any IP to have accessibility)

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"/>

## 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 X-ware.

SMTP/SNMP Configuration	
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"/>
Location	<input type="text"/>
Contact	<input type="text"/>
Syslog Server	
Syslog Server IP	<input type="text"/>
Syslog Server Port	<input type="text" value="0"/>

## System Event Configuration

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

### System Event Configuration

Device Event Notification			
Hardware Reset (Cold Start)	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Software Reset (Warm Start)	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Login Failed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
IP Address Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Password changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Access IP Blocked	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Redundant Power Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Redundant Ethernet Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
SNMP Access Failed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Port Event Notification			
DCD Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
DSR Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
RI Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
CTS Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Port Connected	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Port Disconnected	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog

The following table describes the labels in this screen.

Label	Description
<b>Hardware Reset (Cold Start)</b>	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.
<b>Software Reset (Warm Start)</b>	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.
<b>Login Failed</b>	When an unauthorized access from the Console or Web interface, a notification will be sent.
<b>IP Address Changed</b>	When IP address of device changed, a notification will be sent.
<b>Password Changed</b>	When password of device changed, a notification will be sent.
<b>Access IP Blocked</b>	When the host accesses the device with blocked IP addresses, a notification will be sent.
<b>Redundant</b>	When status of power changed, a notification will be sent.



<b>Power Change</b>	
<b>Redundant Ethernet Change</b>	When status of Ethernet port changed, a notification will be sent.
<b>DCD changed</b>	When DCD (Data Carrier Detect) signal changes, it indicates that the modem connection status has been changed. A Notification will be sent.
<b>DSR changed</b>	When DSR (Data Set Ready) signal changes, it indicates that the data communication equipment is powered off. A Notification will be sent.
<b>RI changed</b>	When RI (Ring Indicator) signal changes, it indicates an incoming call. Notification will be sent.
<b>CTS changed</b>	When CTS (Clear To Send) signal changes, it indicates that the transmission between computer and DCE can proceed. A notification will be sent.
<b>Port connected</b>	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.
<b>Port disconnected</b>	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

Factory Default  
Reset to default configuration.  
Click Reset button to reset all configurations to the default value.

Restore Configuration  
You can restore the previous saved configuration to Device Server.

File to restore:

Backup Configuration  
You can save current EEPROM value from the Device Server as a backup file of configuration.

Upgrade Firmware  
Specify the firmware image to upgrade.  
Note: Please DO NOT power off this device while upgrading firmware.

Firmware:

Reboot Device  
Please click [**Reboot**] button to restart device.

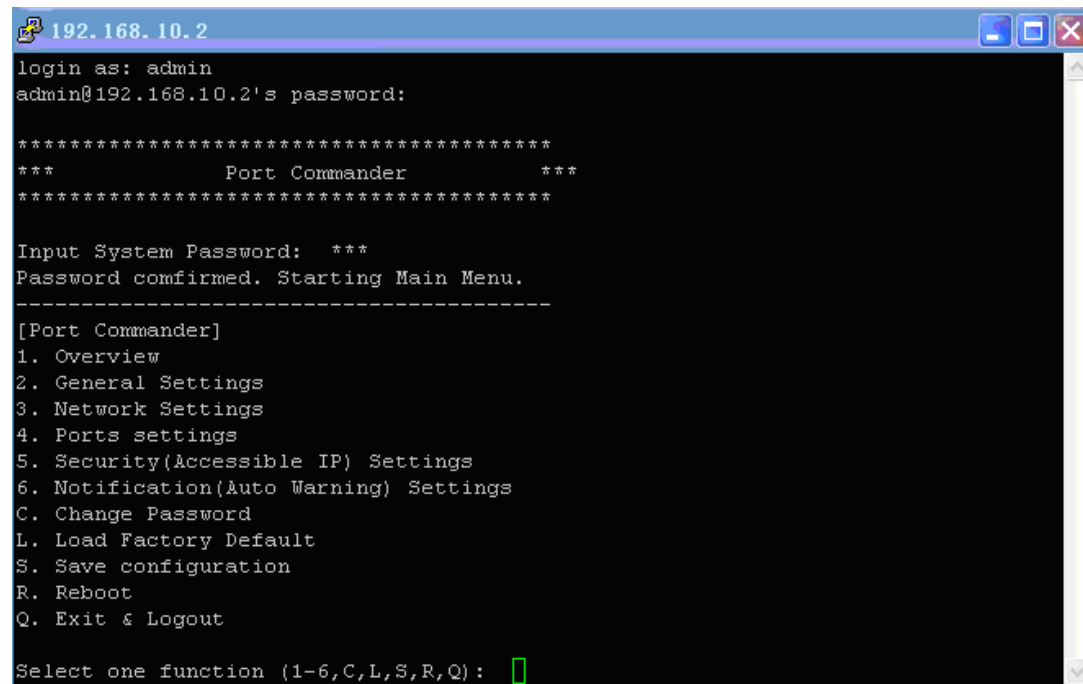
The following table describes the labels in this screen.

Label	Description
<b>Load Factory Default</b>	Load default configuration except settings of Network. If you want load all factory default, you should press " <b>Reset</b> " button on the device (Hardware restore).
<b>Import Configuration</b>	Restore the previous exported configuration.
<b>Export Configuration</b>	Export the current configuration to a file.
<b>Upgrade Firmware</b>	Upgrade to a new firmware with specified file.
<b>Reboot Device</b>	Reboot the device server (warm start).

## 5.3 Configuration by SSH Console

### 5.3.1 Connect to IDS

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



```
192.168.10.2
login as: admin
admin@192.168.10.2's password:

*****
***          Port Commander          ***
*****

Input System Password: ***
Password confirmed. Starting Main Menu.
-----
[Port Commander]
1. Overview
2. General Settings
3. Network Settings
4. Ports settings
5. Security(Accessible IP) Settings
6. Notification(Auto Warning) Settings
C. Change Password
L. Load Factory Default
S. Save configuration
R. Reboot
Q. Exit & Logout

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

## 6

## Technical Specifications

<b>LAN Interface</b>	
RJ45 Ports	2 x 10/100Base-T(X), Auto MDI/MDI-X
Protection	Built-in 1.5KV magnetic isolation
Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, ARP/RARP, DNS, SNMP MIB II, HTTPS, SSH
<b>Serial Interface</b>	
Interface	1x RS232 / RS422 / 4(2)-Wire RS485. Which can be configured by X-ware
Connector	Male DB9
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 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-in 15KV ESD protection
LED Indicators	<p>PWR 1(2) / Ready:</p> <p>1) Red On: Power is on and booting up. Red Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly.</p> <p>2) Green On: Power is on and functioning</p>

	<p>normally.</p> <p>Green Blinking: Located by Administrator.</p> <p>ETH1 (2) Link / ACT:</p> <p>Orange ON/Blinking: 10 Mbps Ethernet</p> <p>Green ON/Blinking: 100 Mbps Ethernet</p>
<b>Power Requirements</b>	
Power Input Voltage	<p>PWR1: 12 ~ 48VDC in power jack</p> <p>PWR1: 12 ~ 48VDC in 3-pin Terminal Block</p>
Reverse Polarity Protection	Present
Power Consumption	4 Watts Max
<b>Environmental</b>	
Operating Temperature	-10 to 60 °C (14 to 140°F)
Storage Temperature	-20 to 85 °C (-4 to 185°F)
Operating Humidity	5% to 95%, non-condensing
<b>Mechanical</b>	
Dimensions(W x D x H)	72mm(W)x125mm(D)x31mm(H)
Casing	IP-30 protection
<b>Regulatory Approvals</b>	
Regulatory Approvals	<p>CE class A</p> <p>RoHS</p>
EMS	<p>EN61000-4-2 (ESD), EN61000-4-3 (RS),</p> <p>EN61000-4-4 (EFT), EN61000-4-5 (Surge),</p> <p>Level 3, EN61000-4-6 (CS), Level 3</p>
Shock	IEC60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6