IDS-342GT(+)

Industrial Device Server

User Manual

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www.oring-networking.com

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Table of Content

Getting Started 4
1.1 About IDS-342GT(+) 4
1.2 Software Features 4
1.3 Hardware Specifications 4

Hardware Overview 7
2.1 Front Panel 5
2.1.1 Ports and Connectors 5
2.1.2 LED 6
2.2 Top Panel 6
2.3 Rear Panel 7

Hardware Installation 8
3.1 DIN-rail Installation 8
3.2 Wall-mount Installation 8
3.3 Wiring 10
3.3.1 Grounding 10
3.3.2 Redundant Power Inputs 10
3.4 Connection 10
3.4.1 Cables 10

Management 14
4.1 DS-Tool 14
4.1.1 Install DS-Tool 14
4.1.2 Using DS-Tool 15
4.1.3 Configure Device Servers 16
4.1.4 Configure Serial Port 21
4.2 Web Management 30
4.2.1 System 32
4.2.1.1 Time (SNTP) 32
4.2.1.2 IP Configuration 34
4.2.1.3 User Authentication 35
4.2.2 Serial Setting 35
4.2.2.1 Serial Configuration 35
4.2.2.2 Port Profile 38
4.2.2.3 Service Mode 38

4.2.3 Management 45
4.2.3.1 System Log 45
4.2.3.2 SNMP 47
4.2.4 System Tools 48
4.2.4.1 Miscellaneous 48
4.2.5 System Status 48
4.2.5.1 System Info 48
4.2.6 Save/Restore Config 48
4.2.7 Firmware Update 49
4.2.8 Device Restart 50
4.3 Configuration by SSH Console 50
4.3.1 Connect to DS 50

Getting Started

1.1 About IDS-342GT(+)

The IDS-342GT(+) series of industrial device servers have four RS-232/422/485 ports and two Gigabit LAN ports designed for converting signals between serial and Ethernet networks. The series consists of PoE model (IDS-342GT+) and non-PoE model (IDS-342GT). The series provide standard features of device servers such as TCP/IP interfaces and versatile operation modes including Virtual Com, Serial Tunnel, TCP Server, TCP Client, and UDP. It also supports Windows utility DS-Tool which allows you to configure multiple devices and set up the mappings of Virtual Com. The device can transfer data to five host PCs simultaneously for redundancy in case of Ethernet connection breakdown or host PC failure. With HTTPS, SSH, and SSL encryption, the series can ensure data transmission security.

1.2 Software Features

- Supports five host devices including Virtual COM, TCP Server, TCP Client modes and four IP ranges
- Supports operating modes such as Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- Ensure high levels of security with SSL data encryption, HTTPS/SSH, IP access control and IP white list
- Event warning by Syslog, Email, SNMP trap, and beeper
- Configurable by Web Interface and Windows utility
- Various Windows O.S. supported: Windows NT/2000/ XP/ 2003/VISTA(32/64bit)/ Windows 7(32/64bit)

1.3 Hardware Specifications

- 4 x RS-232/422/485 serial ports
- 2 x 10/100/1000Base-T(X) Ethernet ports (ETH2 of IDS-342GT+ is PoE enabled with 1KV isolation)
- DIN-rail and wall-mount enabled
- Redundant DC power inputs
- Operating Temperature: -40 to 70^{o}C
- Storage Temperature: -40 to 85^{o}C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-30
- Dimensions: 54.2(W) x 106.1(D) x 145.4 (H) mm (2.13x4.18x5.72 inch.)

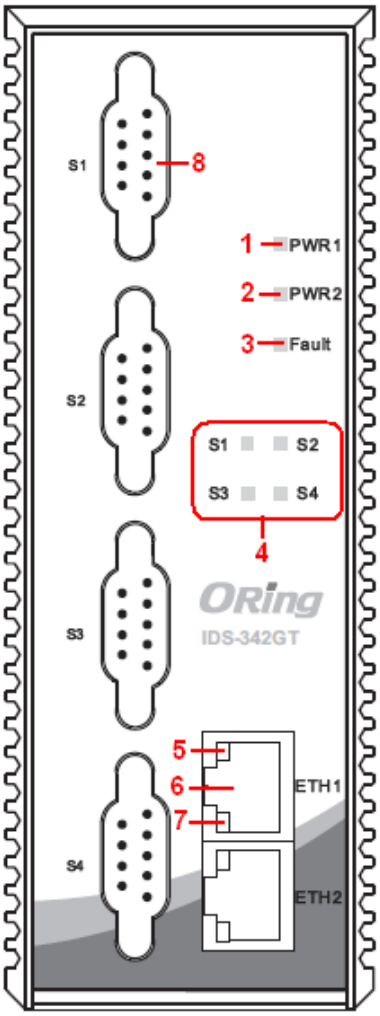
Hardware Overview

2.1 Front Panel

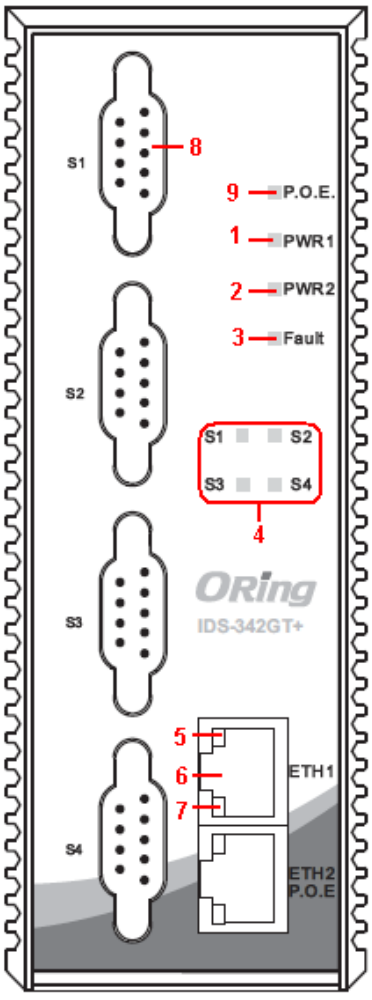
2.1.1 Ports and Connectors

The series provides the following ports on the front panel. The Ethernet ports on the device use RJ-45 connectors

Port	Description
Copper port	2 x 10/100/1000Base-T(X) ports (ETH2 of IDS-342GT+ is PoE-enabled)
Serial port	4 x DB9 serial ports



IDS-342GT



IDS-342GT+

1. Power module 1 status indicator
2. Power module 2 status indicator
3. Faulty relay indicator
4. Indicator for serial data communications
5. Indicator for LAN port speed
6. LAN port (ETH2 of IDS-342GT+ is PoE-enabled)
7. Indicator for LAN port connection status
8. Serial port
9. PoE power indicator

2.1.2 LED

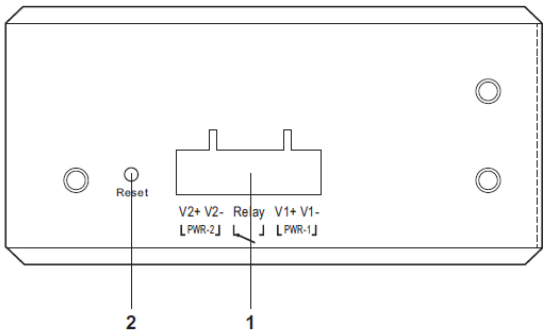
LED	Color	Status	Description
PW1/2	Green	On	Power is on and function normally
PoE	Green	On	PoE power enabled
10/100/1000Base-T(X) Fast Ethernet ports			
Speed	Green	On	Port running at 1000Mbps
	Amber	On	Port running at 100Mbps.
	Green/ Amber	Off	Port running at 10Mbps.
LNK/ACT	Green	On	Port is connected
	Green	Blinking	Transmitting data
Fault	Amber	On	Faulty relay (power failure or port disconnected)
Serial ports			
S1 – S4	Red	On	Receiving data
	Green	On	Transmitting data

2.2 Top Panel

Below are the top panel components of the device:

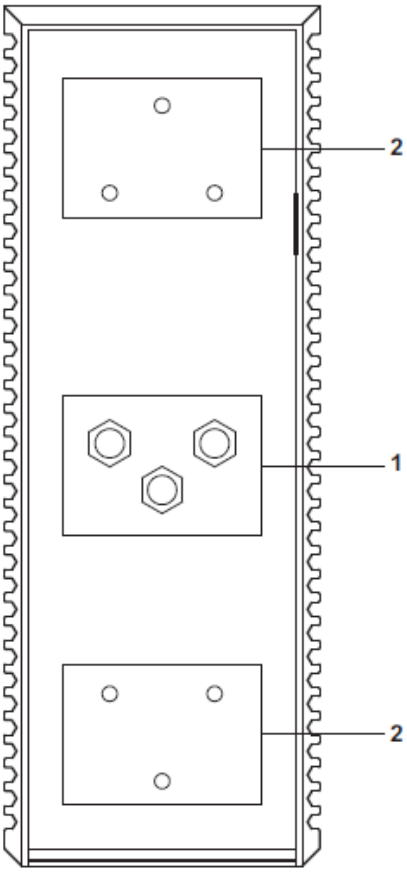
1. Terminal blocks: PWR1, PWR2, Relay

2. Ground wire. For more information on how to ground the switch, please refer to 3.3.1 Grounding.



1. Terminal block with power connectors
2. Reset button

2.3 Rear Panel

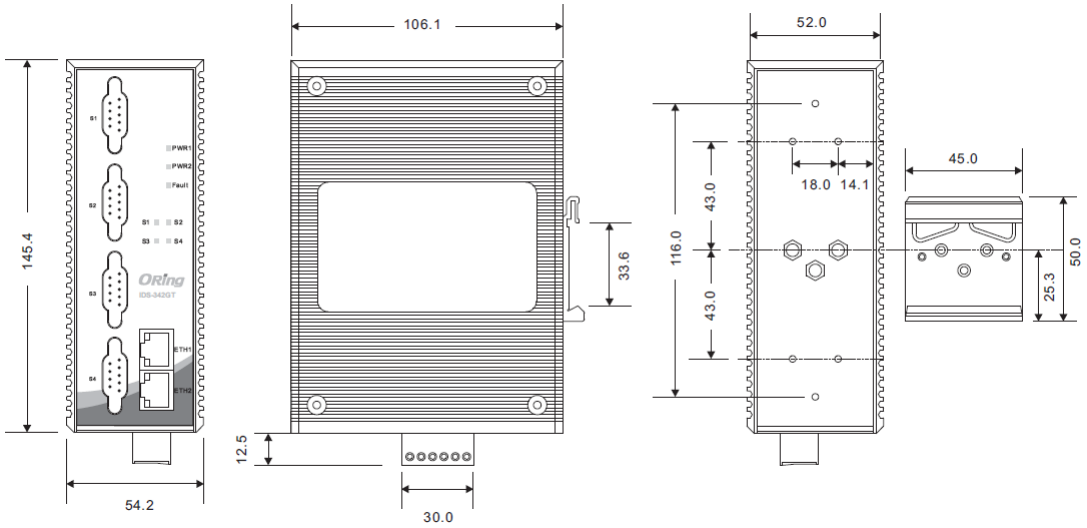


1. DIN-rail screw holes
2. Wall-mount screw holes

Hardware Installation

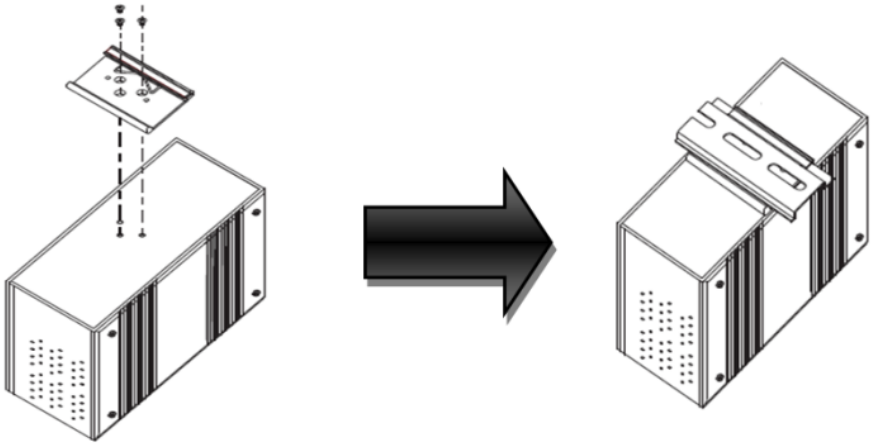
3.1 DIN-rail Installation

The device comes with a DIN-rail kit to allow you to fasten the device to a DIN-rail in any environments.



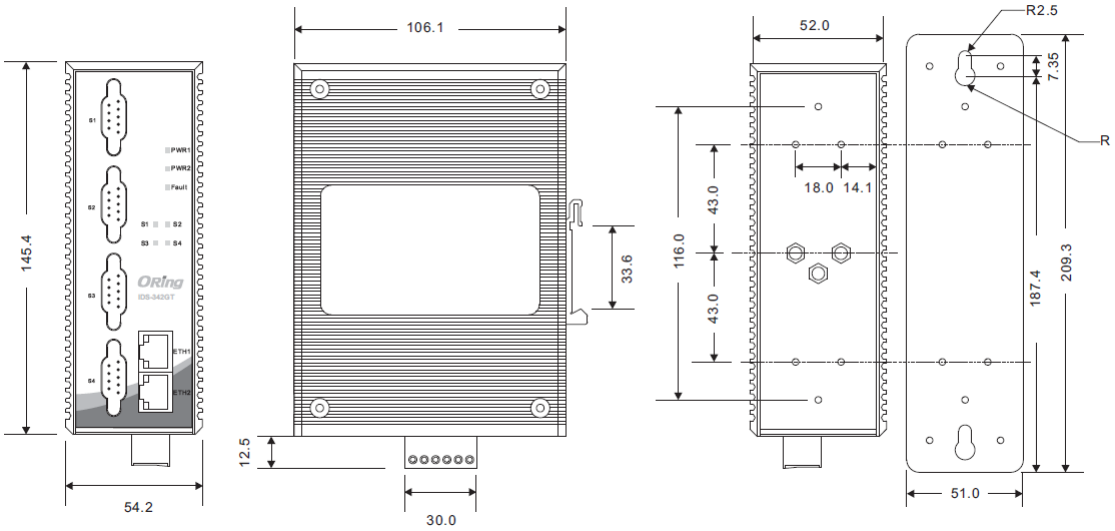
DIN-rail Kit Measurement (unit = mm)

Installing the device on the DIN-rail is easy. First, screw the Din-rail kit onto the back of the device, right in the middle of the back panel. Then slide the device onto a DIN-rail from the Din-rail kit and make sure the device clicks into the rail firmly.



3.2 Wall-mount Installation

Besides Din-rail, the device can be fixed to the wall via wall mount kits, which can be found in the package



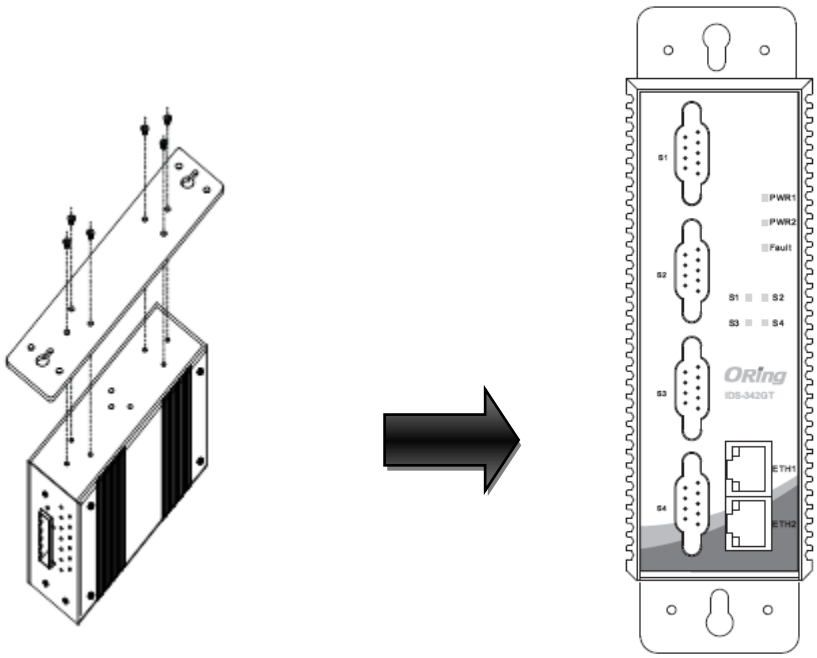
Wall-mount Kit Measurement (unit = mm)

To mount the device onto the wall, follow the steps:

Step 1: Screw the wall-mount kit onto the back of the device. A total of six screws are required, as shown below.

Step 2: Use the device, with wall mount plates attached, as a guide to mark the correct locations of the four screws.

Step 3: Insert a screw head through the large parts of the keyhole-shaped apertures, and then slide the device downwards. Tighten the screw for added stability.



3.3 Wiring

WARNING

Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate.

ATTENTION

1. Be sure to disconnect the power cord before installing and/or wiring your devices.
2. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.
3. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.
4. Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
5. Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
6. You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring sharing similar electrical characteristics can be bundled together
7. You should separate input wiring from output wiring
8. It is advised to label the wiring to all devices in the system

3.3.1 Grounding

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground pin on the power module to the grounding surface prior to connecting devices.

3.3.2 Redundant Power Inputs

The device has two sets of DC power inputs on a 6-pin terminal block located on top of the device. Follow the steps below to wire the power input on the terminal block.

Step 1: insert the negative/positive wires into the V-/V+ terminals, respectively.

Step 2: to keep the wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

3.4 Connection

3.4.1 Cables

10/100BASE-T(X) Pin Assignments

The device has a standard Ethernet port. According to the link type, the device uses CAT 3,

4, 5,5e UTP cables to connect to any other network devices (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
1000 BASE-T	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328ft)	M12

With 10/100Base-T(X) cables, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

10/100 Base-T(X) 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

1000 Base-T RJ-45 Pin Assignments :

Pin Number	Assignment
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

The device also supports auto MDI/MDI-X operation. You can use a straight-through cable to

connect PC and the device.

10/100 Base-T(X) MDI/MDI-X Pin Assignments.

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

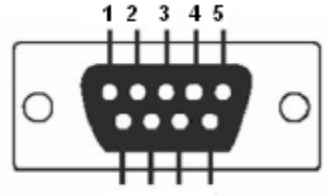
1000Base-T(X) MDI/MDI-X Pin Assignments:

Pin Number	MDI port	MDI-X port
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

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

DB9 serial port wiring

The serial ports can be connected using a DB9 cable. The DB9 connector supports RS232 / RS422 / RS485 operation modes. Please refer to the following table for the pin assignments of the DB9 connector.



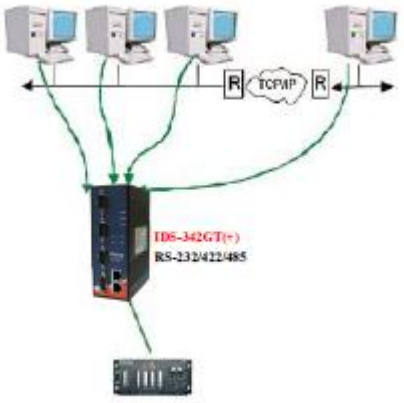
DB9 connector

Pin #	RS 232	RS 422	RS 485 (4 wire)	RS 485 (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			
RS 232 mod act as DTE				

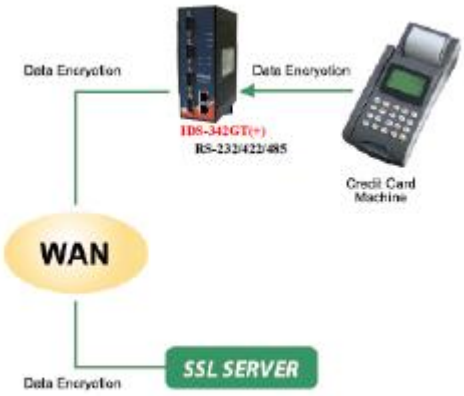
Management

4.1 DS-Tool

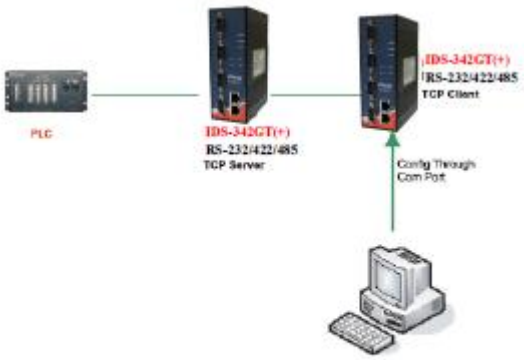
The Windows utility DS-Tool is a powerful Windows utility for DS series. It supports device discovery, device configuration, group setup, group firmware update, and monitoring functions. The tool enables you to easily install and configure devices on the network.



Multiple Host PCs



SSL Data Encryption

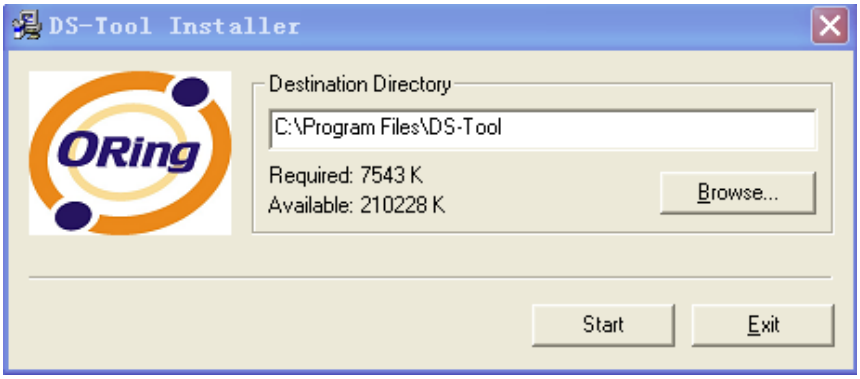


TCP Client/Server Modes

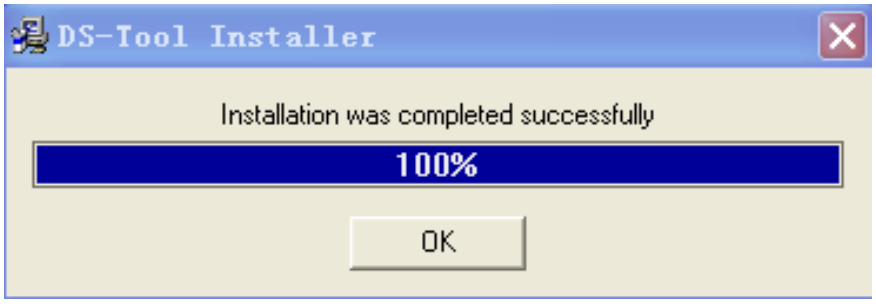
4.1.1 Install DS-Tool

Follow the steps below to install the tool.

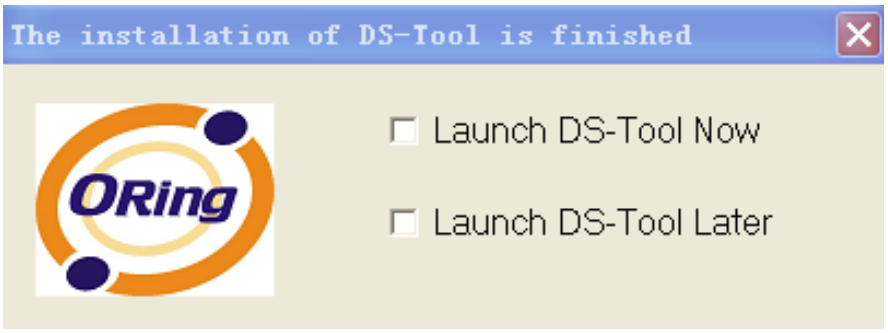
Step 1: Run the Setup program by clicking **Start** after selecting the folder for DS-Tool.



Step 2: When installation completes successfully, click **OK**.



Step 3: You can launch the tool right immediately by checking **Launch DS-Tool Now** or launch it later by checking **Launch DS-Tool Later.**

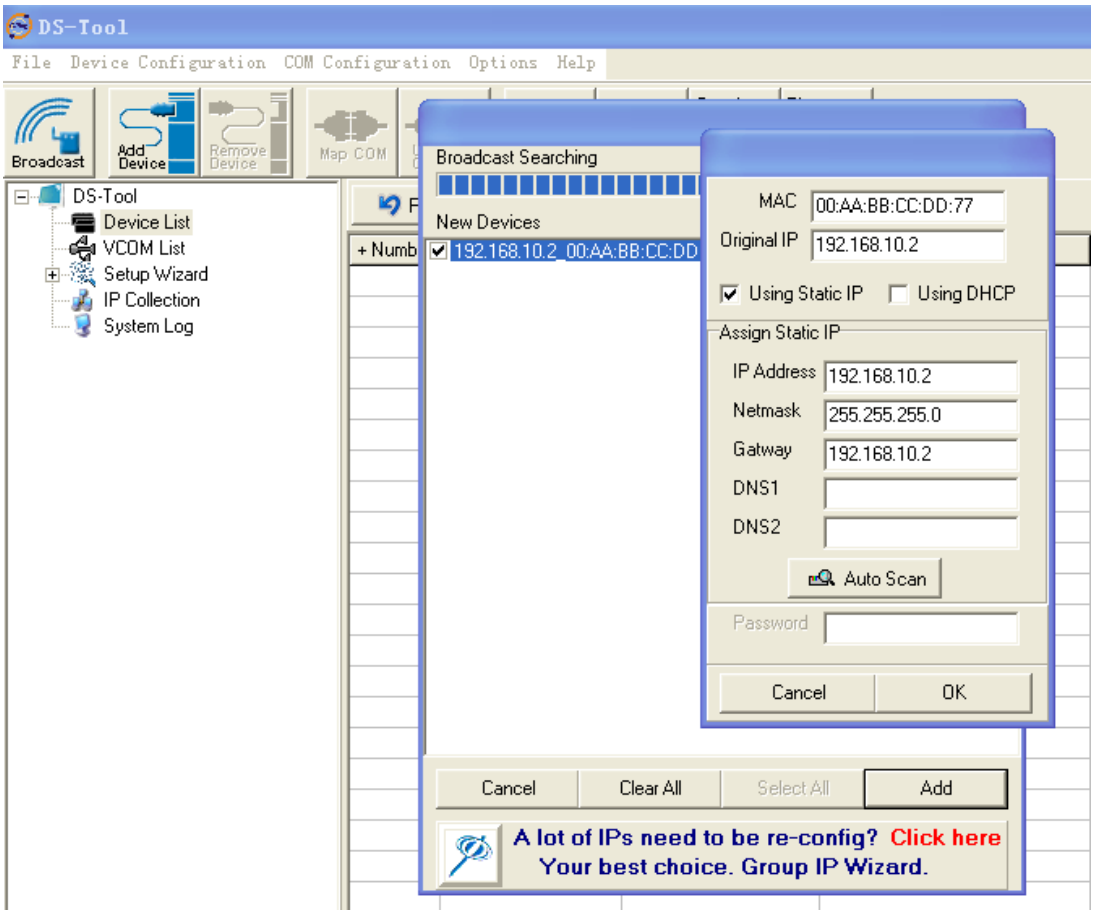


4.1.2 Using DS-Tool

Explore device servers

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

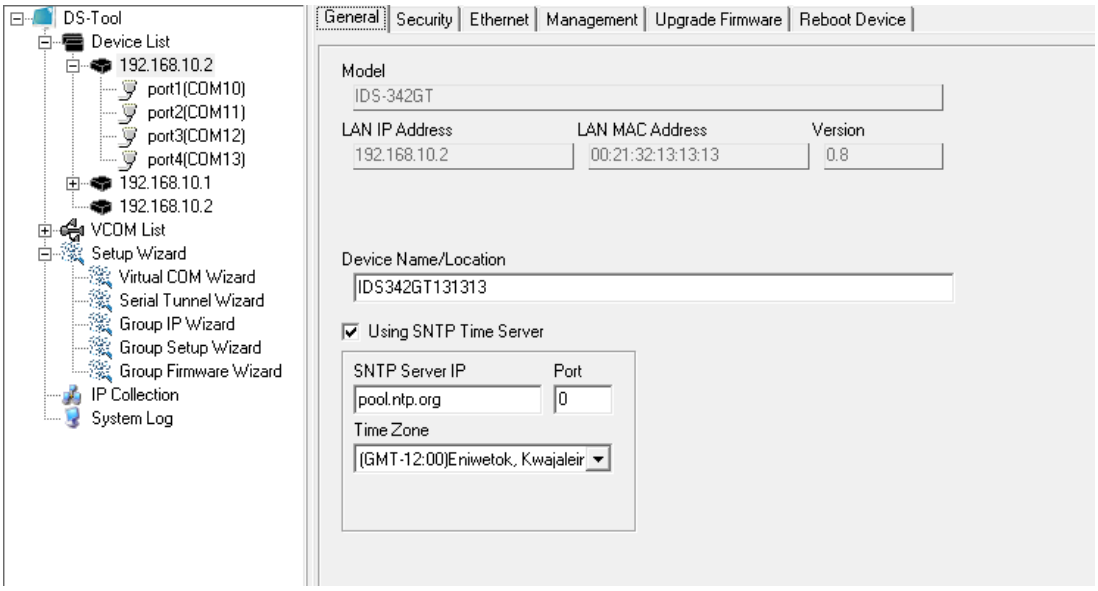
You can set a static IP address or use the DHCP client mode to acquire an IP address automatically. Click **OK** and the device will be added.



4.1.3 Configure Device Servers

General

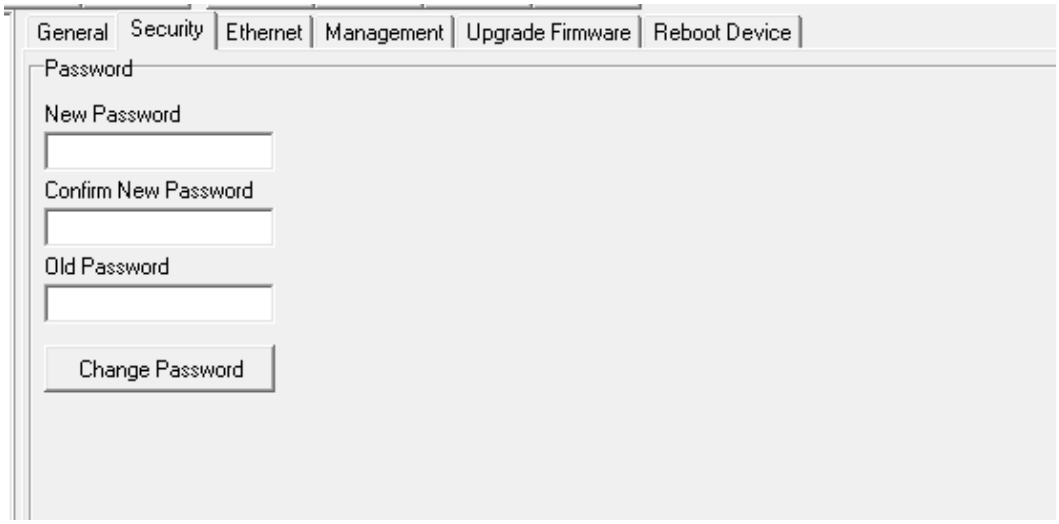
This page enables you to perform general configuration for the device, includes the device name, SNTP server, and auto IP report.



Label	Description
Device Name/Location	You can input the device name or related information in this field. By clicking **Locate On**, you can locate the serial server's position.
Using SNTP Time Server	If you want to set the time via a SNTP time server, check the box and input related information such as the SNTP server domain name or IP address and the port number, and select a time zone.

Security

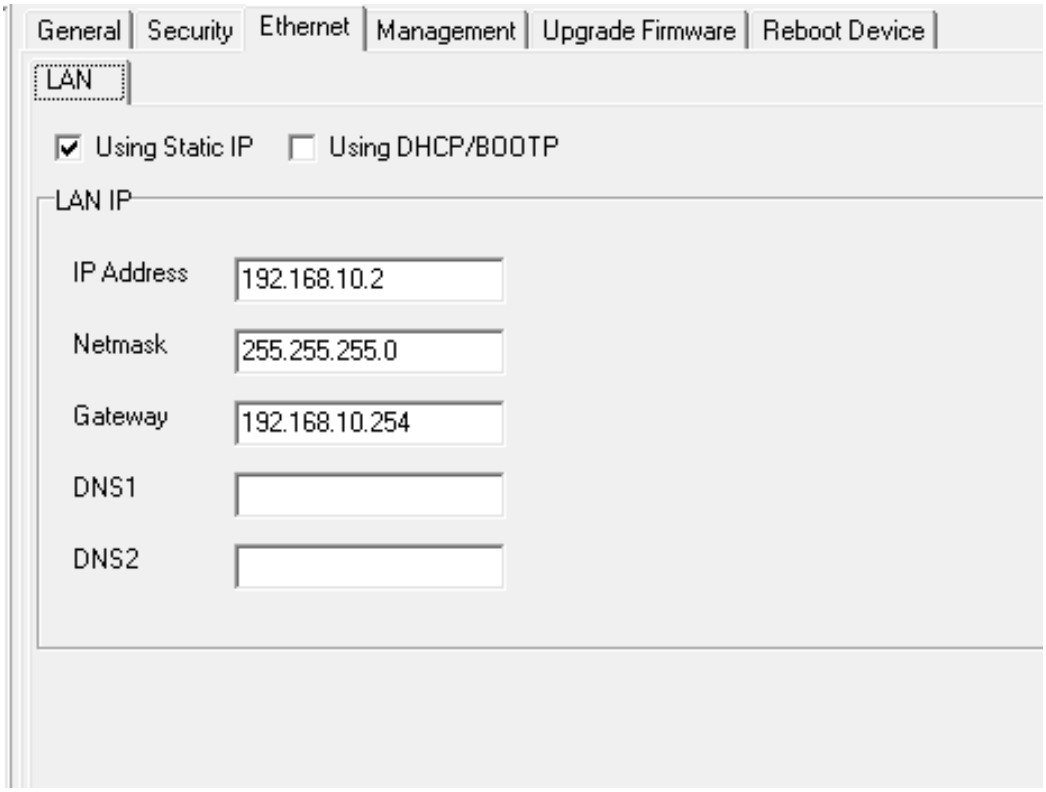
This page allows you to set up access IP tables for your device to allow authorized and deny unauthorized access, thereby ensuring data security and facilitating device management.



Label	Description
Password	You can set the password to prevent unauthorized access from your server. Factory default is no password.

Networking

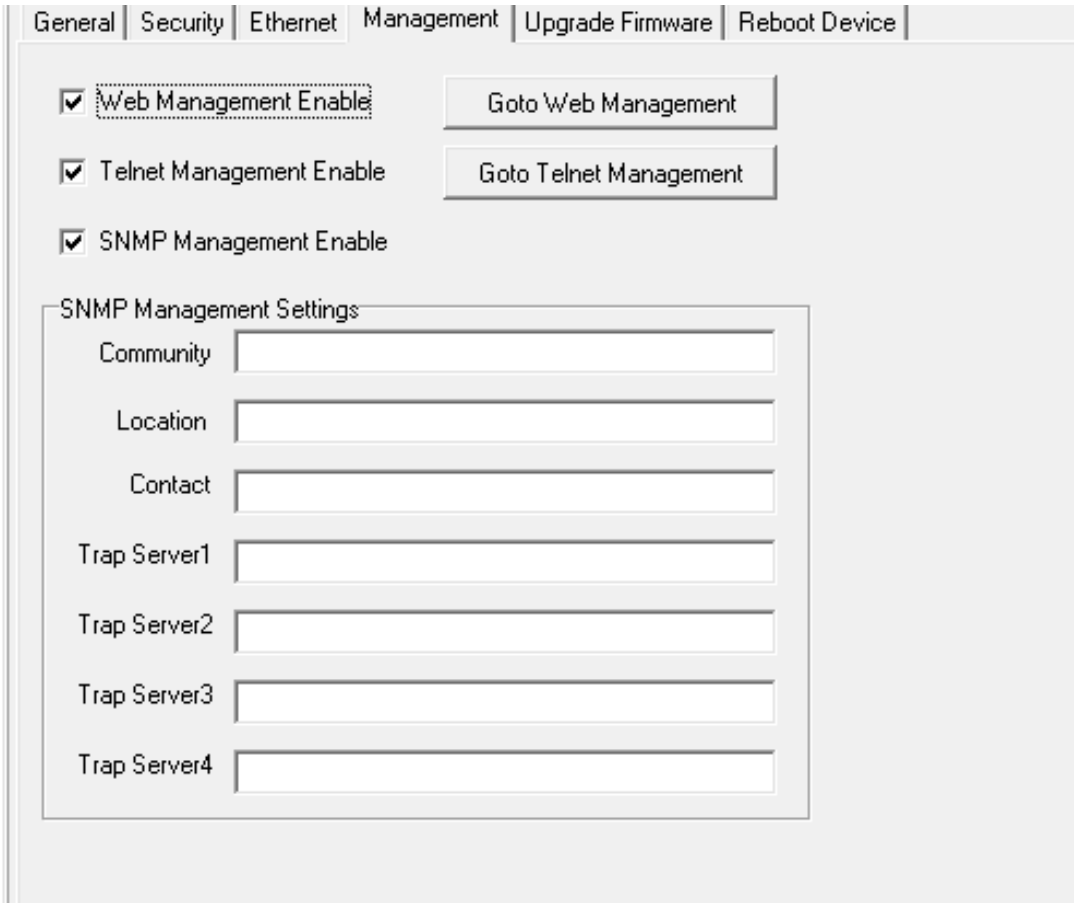
You must assign a valid IP address for the device before attaching it in your network environment. Your network administrator should provide you the IP address and related settings. The IP address must be unique within the network (otherwise, DS will not have a valid connection to the network). You can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



Label	Description
Using Static IP	Manually assign an IP address to the device.
Using DHCP/BOOTP	Check this box to have the IP address automatically assigned by a DHCP server in your network.
IP Address	Enter the IP address of the device
Netmask	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.
DNS1/2	Enter the IP addresses of the primary and secondary DNS servers. The DNS server translates domain names into IP address.

Management

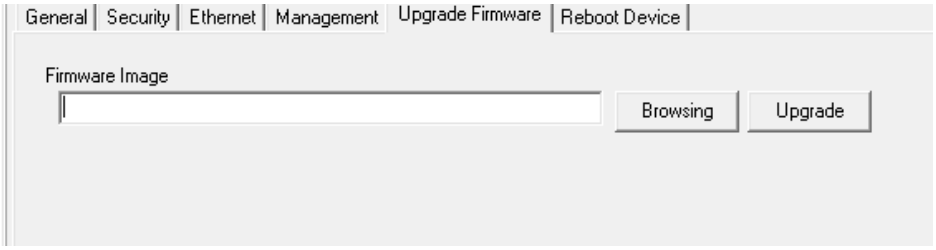
This section enables you to perform management functions using different interfaces including the Web, Telnet, and SNMP.



Label	Description
Web Management Enable	Check the box to enable management from Web. Click **Goto Web Management** button to access the Web.
Telnet Management Enable	Check the box to enable management by Telnet. Click **Goto Telnet Management** button to execute Telnet command.
SNMP Management Enable	Check the box to enable management by SNMP.
SNMP Management Settings	If **SNMP Management Enable** is checked, you need to fill in the SNMP settings in these fields by assigning the **Community**, **Location**, **Contact**, and **Trap Server**.

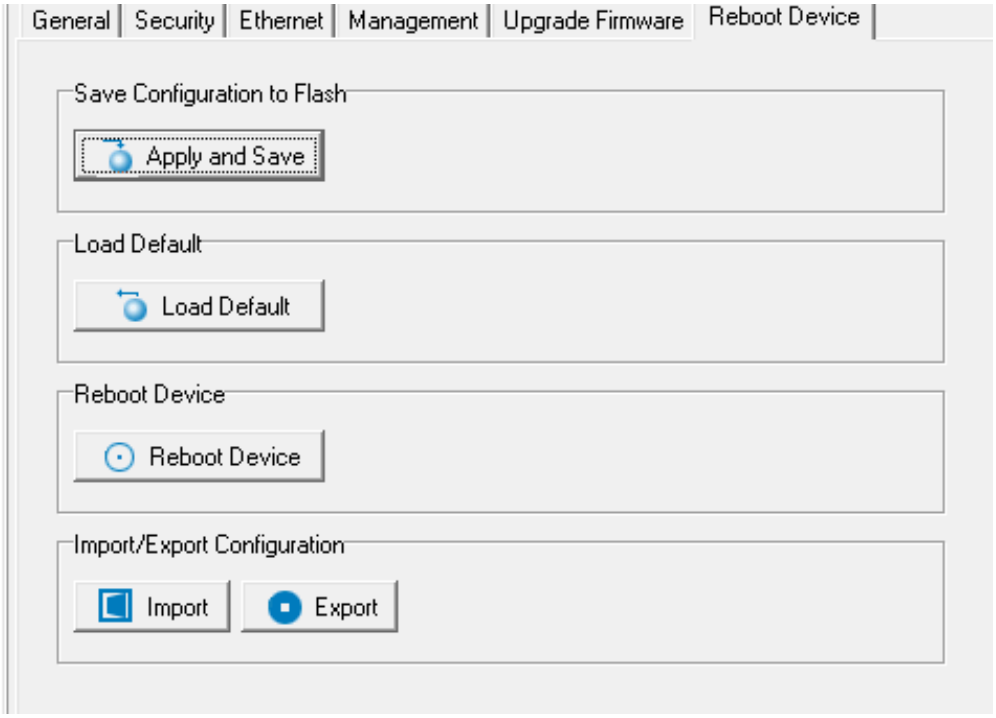
Upgrade Firmware

You can find up-to-date firmware from ORing's website. To update firmware for the device, save the firmware file in your host PC, and then specify the file location by clicking on the **Browsing** button and continue operation by pressing **Update**.



Save/Load

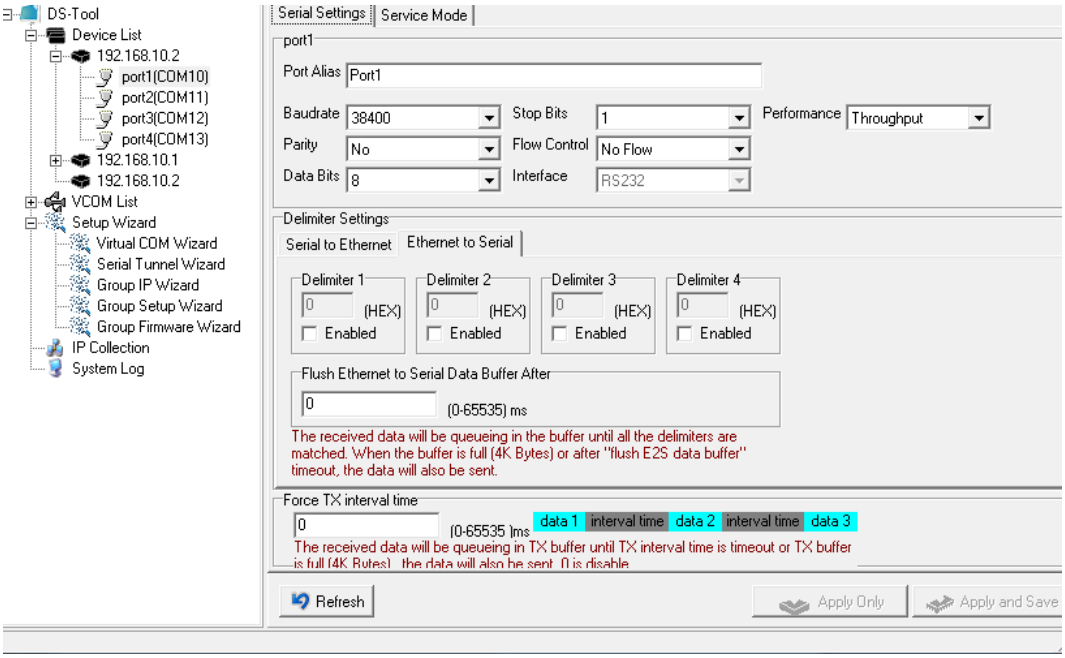
This page allows you to save the current configuration file to any local drive or any network drive to which your management computer can connect.



Label	Description
Apply and Save	Click this button will save all applied settings into the flash of the appliance.
Load Default	All parameters changes to factory's default except network settings. If you want to load all factory default, you need to press **Reset** button on the device (Hardware restore).
Reboot Device	Click this button will reboot device and need to broadcast again in order to search the device (warm start).
Import Configuration	Click this button will retrieve saved configuration file and apply it to in current device.
Export Configuration	Saving the current parameters to a file and export it to a current host.

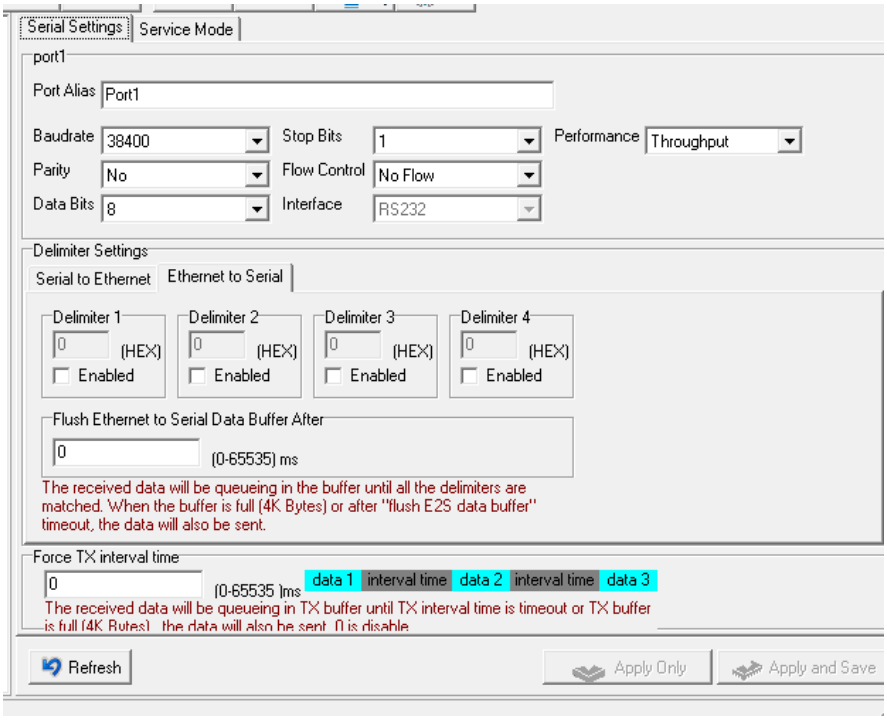
4.1.4 Configure Serial Port

You can configure the settings for each serial port by clicking on the port number in the left panel of the window. Once you click on a port, the following screen will show up in the right panel.



Serial Settings

The page allows you to configure serial parameters, serial communication modes, data packing options, and event notifications.



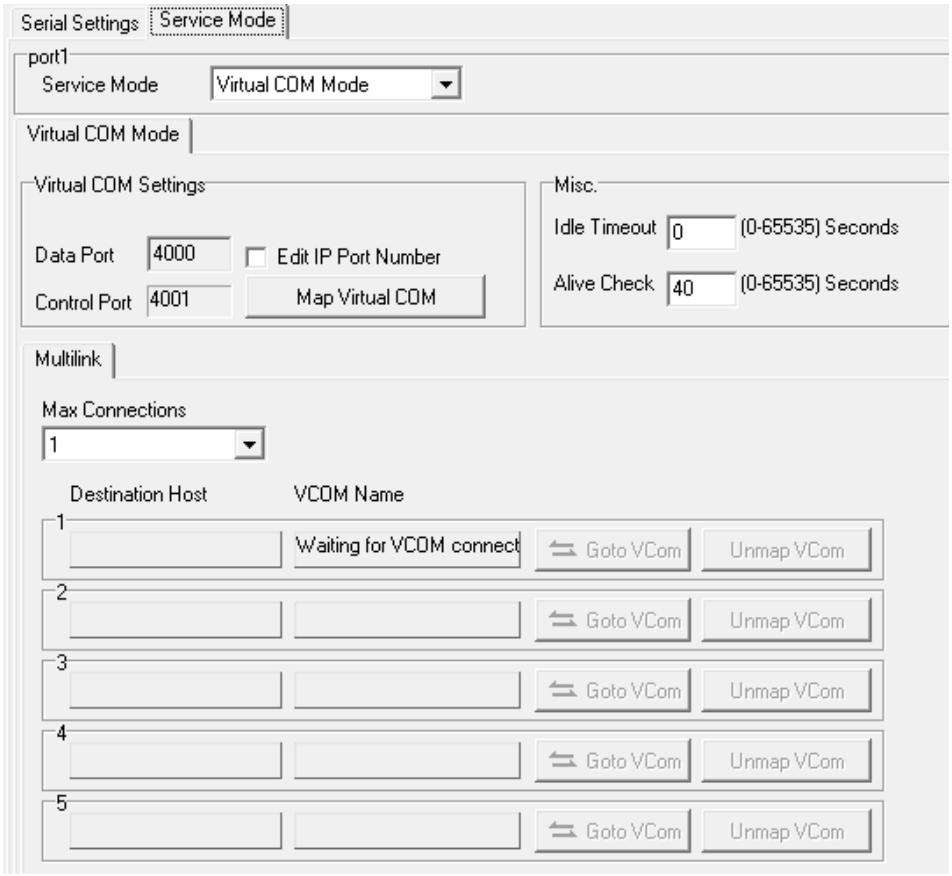
Label	Description
Port Alias	Port alias enables the device server to easily identify the serial devices connected to it. Enter an identifying name to be identified by the connected device.
Baud rate	Baud rate is the rate at which data is transferred over a serial link. When setting the baud rate to 9600bps, the serial port will transfer a maximum of 9600 bits per second. You can select a baud rate from the drop-down list which ranges from 110bps to 460800bps
Parity	Parity is a simple form of error detection which guards data on the cable between the connected devices and the serial port. Available options include: **None**: parity checking is not performed and the parity bit is not transmitted. **Odd**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits. **Even**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits. **Mark**: the parity bit is always set to the mark signal condition (logical 1) **Space**: the last transmitted data bit will always be a logical 0
Data Bits	Choose the number of data bits to transmit. You can configure data bits to be 5, 6, 7, or 8. Data is transmitted as a series of five, six, seven, or eight bits (five and six bit data formats are used rarely for specialized communications equipment).
Stop Bits	Choose the number of bits used to indicate the end of a byte. You can configure stop bits to be 1 or 2(1.5). If Stop Bits is 1.5, the stop bit is transferred for 150% of the normal time used to transfer one bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.
Flow Control	Serial communication consists of hardware flow control and software flow control, so called as the control is handled by software or hardware. **XOFF** and **OXN** is software flow control while **RTS/CTS** or **DTR/DSR** is hardware flow control.

	Choose **XOFF** to tell the computer to stop sending data; then the receiving side will send an XOFF character over its Tx line to tell the transmitting side to stop transmitting. Choose **XON** to tell the computer to begin sending data again; then the receiving side will send an XON character over its Tx line to tell the transmitting side to resume transmitting. In hardware flow control mode, when the device is ready to receive data, it sends a CTS (Clear To Send) signal to the device on the other end. When a device has something it wants to send, it will send a RTS (Ready To Send) signal and waits for a CTS signal to come back its way. These signals are sent apart from the data itself on separate wires.
Interface	Choose an interface for your serial device. Available interfaces include **RS-232, RS-422, RS-485(2-wires)**, and **RS-485(4-wires),**
Performance	**Throughput**: guarantees highest transmission speed. **Latency**: guarantees shortest response time.
Delimiter Settings	**Serial to Ethernet / Ethernet to Serial** For advanced data packing options, you can specify delimiters for Serial to Ethernet and / or Ethernet to Serial communications. 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.
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 driver establishes a transparent connection between host and serial device by mapping the port of the serial server serial port to a 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.

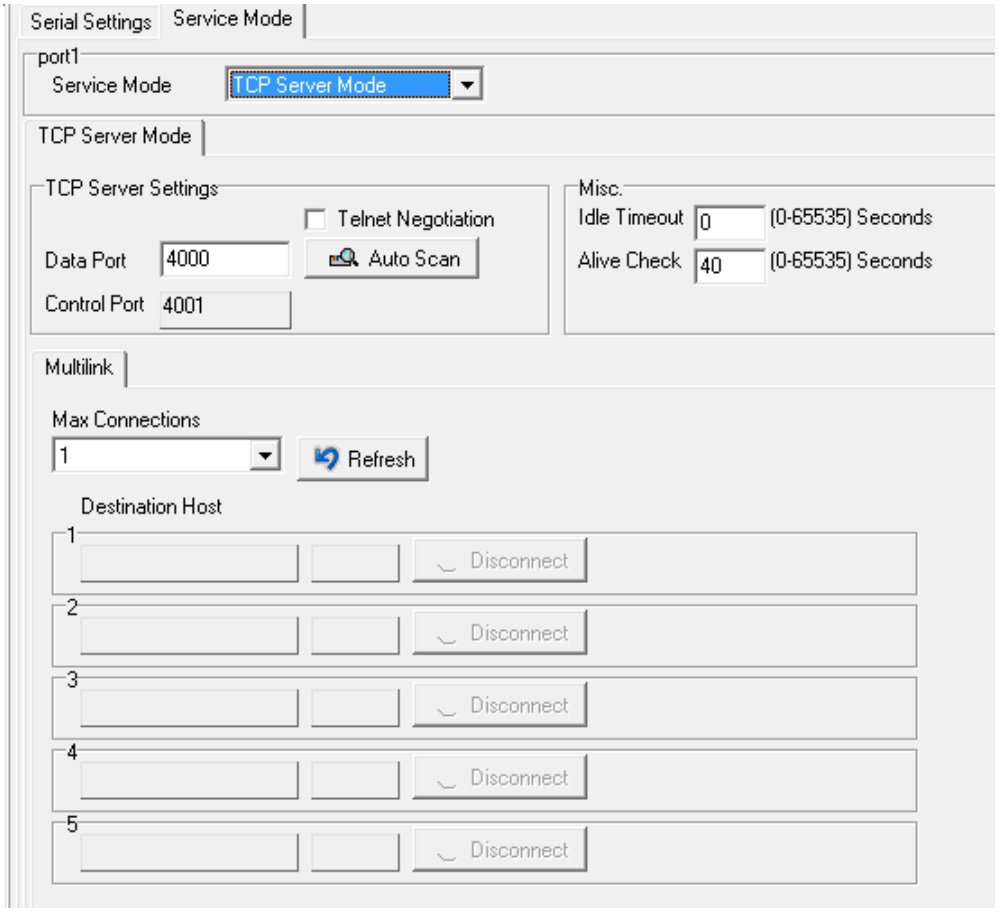


Label	Description
Data Port	Set the port number for data transmission.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is also the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a TCP alive-check package in each defined time interval (Alive Check) to remote host to check the the status of TCP connections. If the TCP connection is not alive, the connection will be closed and the port will be freed. **0** means the function is disabled which is

	also the factory default value.
Max Connection	The number of max connections can be supported simultaneously is **5**; default value is **1**.
Map Virtual COM	Select a Virtual COM name to map on.

TCP Server Mode

In TCP Server mode, the serial port on the device server is assigned a unique port number. The host computer initiates contact with the device server, establishes the connection, and receives data from the serial device. Five simultaneous connections are supported in this mode, enabling multiple hosts to collect data from the same serial device at the same time.

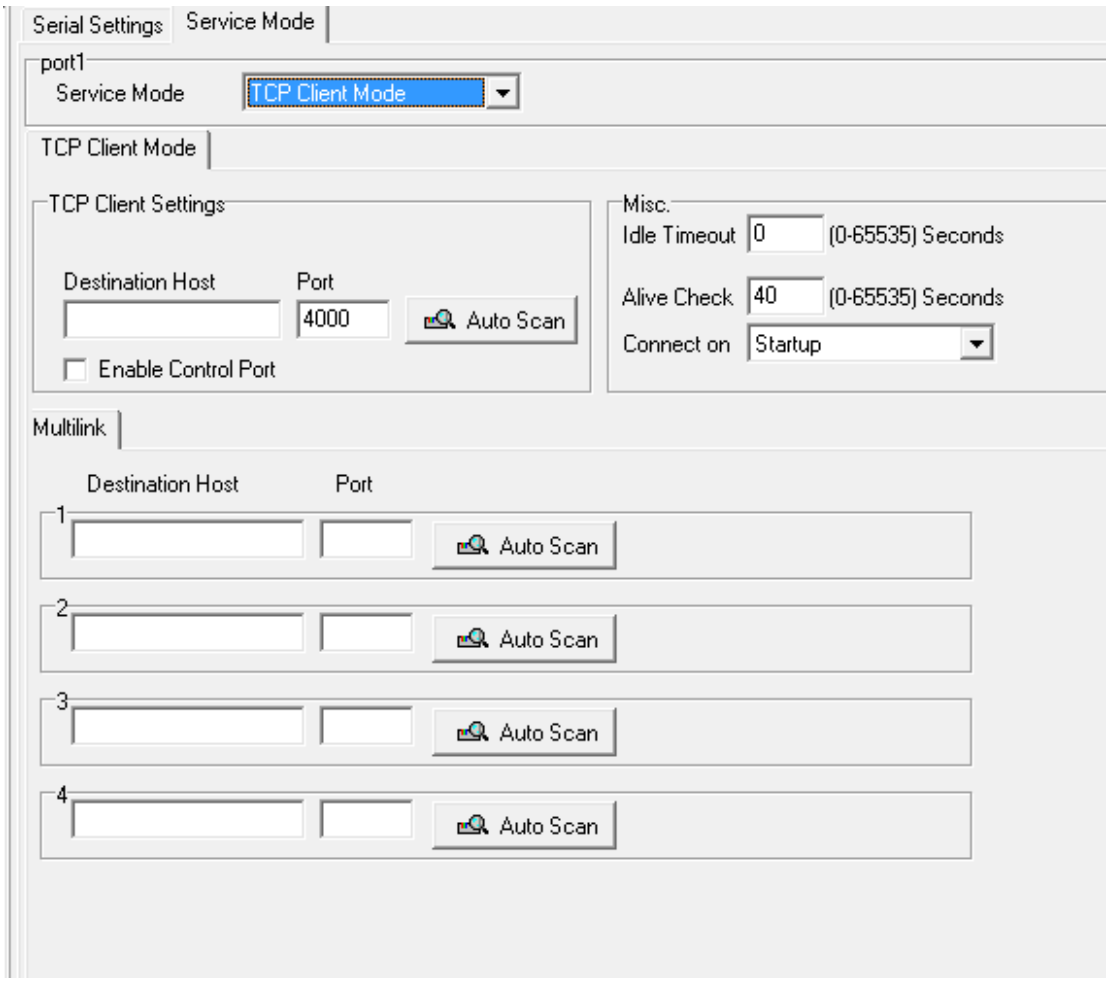


Label	Description
Data Port	Set the port number for data transmission.
Auto Scan	Scan the data port automatically.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is the factory default value. If multilink

	is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a 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** means the function is disabled which is the factory default value**.**
Max Connection	The number of maximum connections can be support simultaneously is **5**; default value is **1**.
Destination Host	Input the IP address of the host.

TCP Client Mode

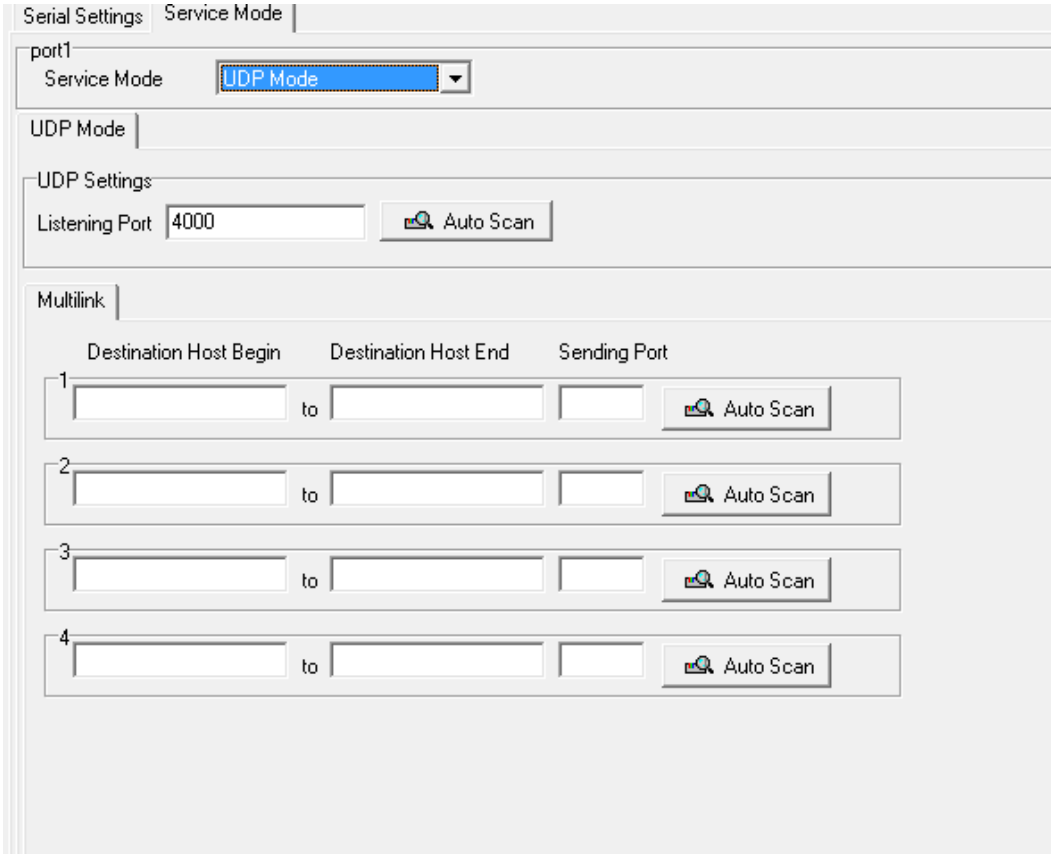
In TCP Client mode, the device can establish a TCP connection with the server by the method you have settled (Startup or any character). After the data has been transferred, the device can disconnect automatically from the server by using the TCP alive check time or idle time settings.



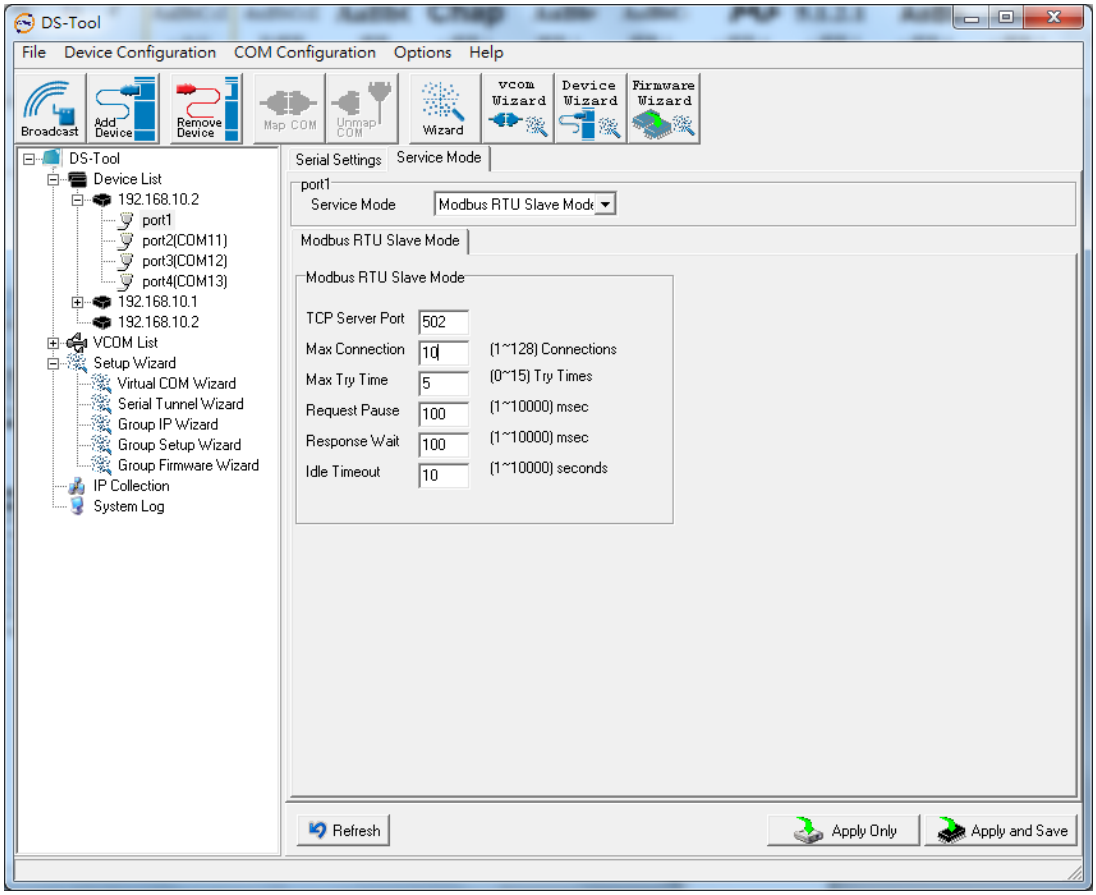
Label	Description
Destination Host	Input the IP address of the host.
Port	Set the port number of data port.
Idle Timeout	When a serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. **0** means the function is disabled which is the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send a 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** means the function is disabled which is the factory default value.
Connect on Startup	The TCP Client will build a TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build a TCP connection once the connected serial device starts to send data.

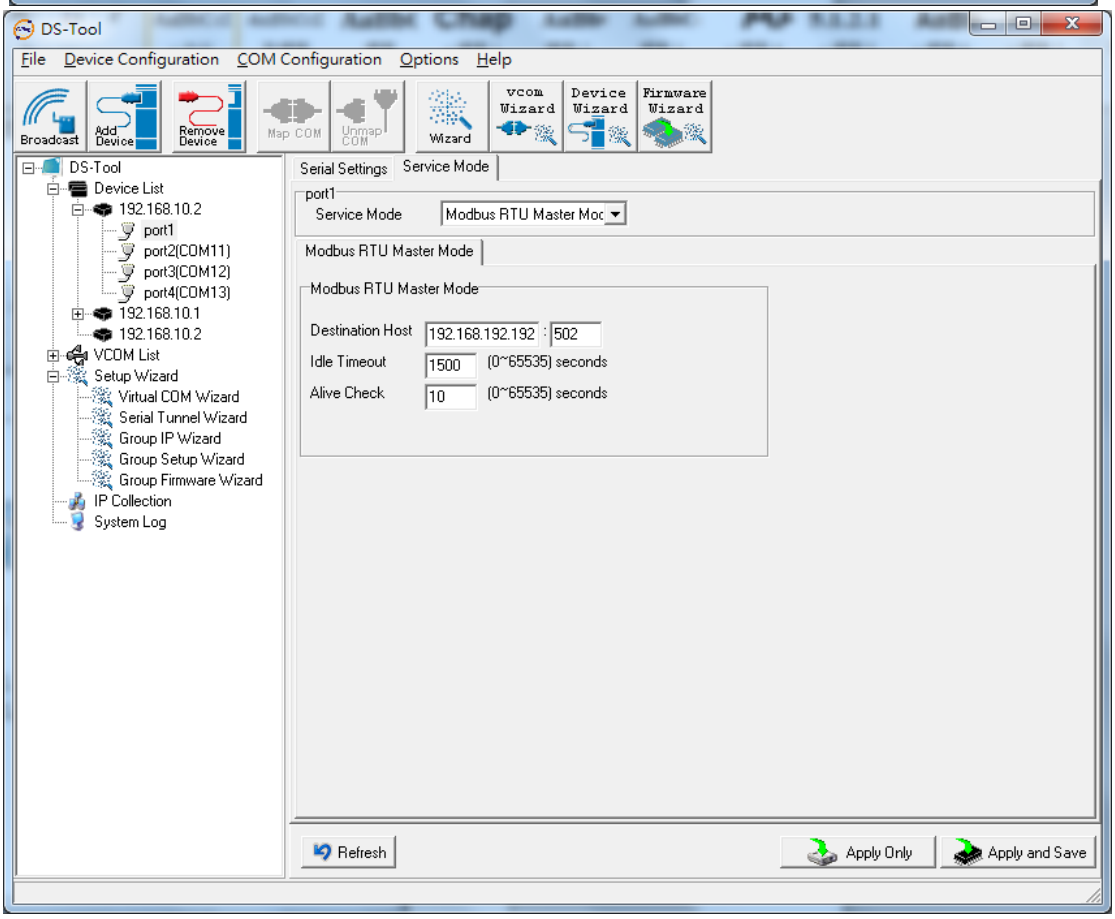
UDP Mode

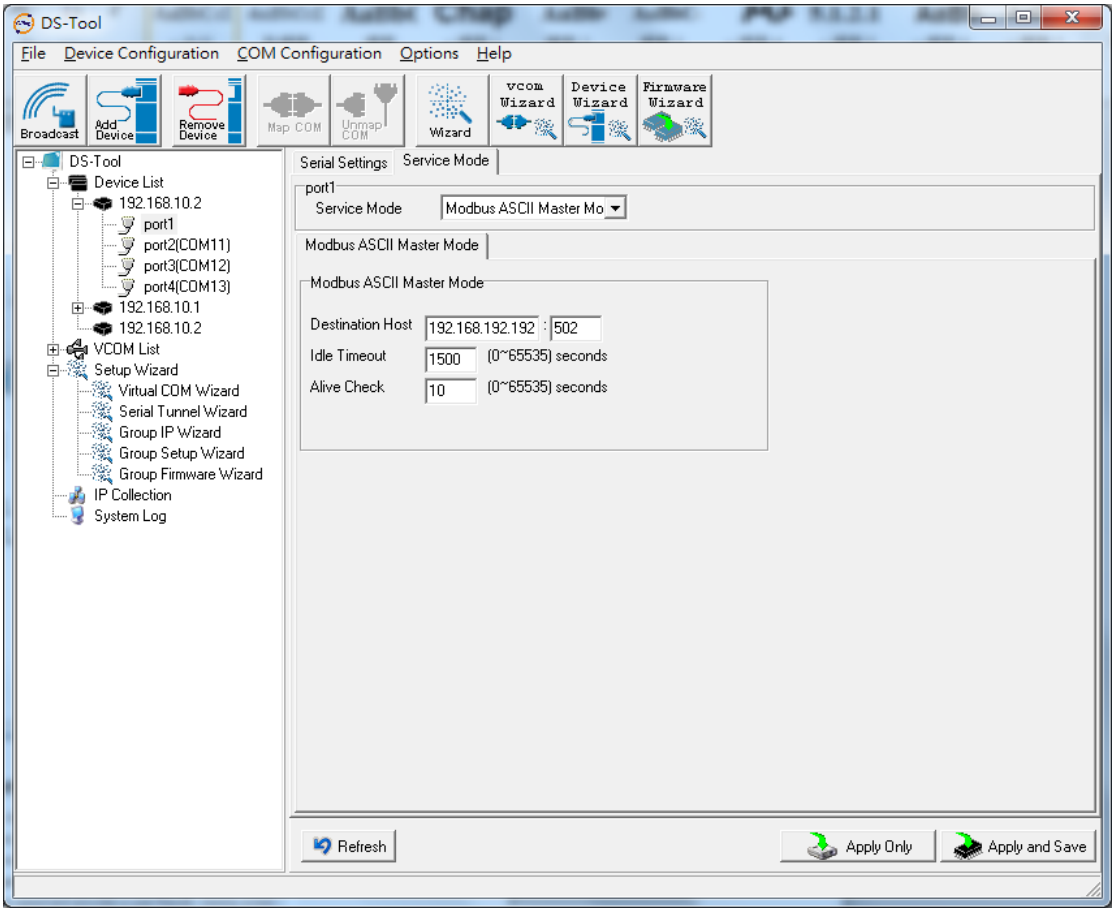
Compared to TCP communication, UDP is faster and more efficient as you can unicast or multicast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host.



Label	Description
Listening Port	IP port for listening incoming messages
Destination Host Begin / End	If there are more than one destination hosts, specify the IP address range by inputting a value in destination host IP begin / end fields. You can also auto scan the sending port number of the device
Sending Port	IP port for sending outgoing messages


DS-Tool
File Device Configuration COM Configuration Options Help
Broadcast
Add Device
Remove Device
Map COM
Unmap COM
Wizard
vcom Wizard
Device Wizard
Firmware Wizard
DS-Tool
Device List
192.168.10.2
port1
port2(COM11)
port3(COM12)
port4(COM13)
192.168.10.1
192.168.10.2
VCOM List
Setup Wizard
Virtual COM Wizard
Serial Tunnel Wizard
Group IP Wizard
Group Setup Wizard
Group Firmware Wizard
IP Collection
System Log
Serial Settings
Service Mode
port1
Service Mode
Modbus RTU Slave Mode
Modbus RTU Slave Mode
Modbus RTU Slave Mode
TCP Server Port 502
Max Connection 10 (1~128) Connections
Max Try Time 5 (0~15) Try Times
Request Pause 100 (1~10000) msec
Response Wait 100 (1~10000) msec
Idle Timeout 10 (1~10000) seconds
Refresh
Apply Only
Apply and Save


DS-Tool
File Device Configuration COM Configuration Options Help
Broadcast
Add Device
Remove Device
Map COM
Unmap COM
Wizard
vcom Wizard
Device Wizard
Firmware Wizard
DS-Tool
Device List
192.168.10.2
port1
port2(COM11)
port3(COM12)
port4(COM13)
192.168.10.1
192.168.10.2
VCOM List
Setup Wizard
Virtual COM Wizard
Serial Tunnel Wizard
Group IP Wizard
Group Setup Wizard
Group Firmware Wizard
IP Collection
System Log
Serial Settings
Service Mode
port1
Service Mode
Modbus RTU Master Mode
Modbus RTU Master Mode
Modbus RTU Master Mode
Destination Host 192.168.192.192 : 502
Idle Timeout 1500 (0~65535) seconds
Alive Check 10 (0~65535) seconds
Refresh
Apply Only
Apply and Save



4.2 Web Management

The device can be managed via a built-in web server which supports Internet Explorer (Internet Explorer 5.0 or above versions) and other Web browsers such as Chrome. Therefore, you can manage and configure the device easily and remotely. You can also upgrade firmware via a Web browser. The Web management function not only reduces network bandwidth consumption, but also enhances access speed and provides a user-friendly viewing screen.

Note: By default, IE5.0 or later version do not allow Java applets to open sockets. You need to modify the browser setting separately in order to enable Java applets for network ports.

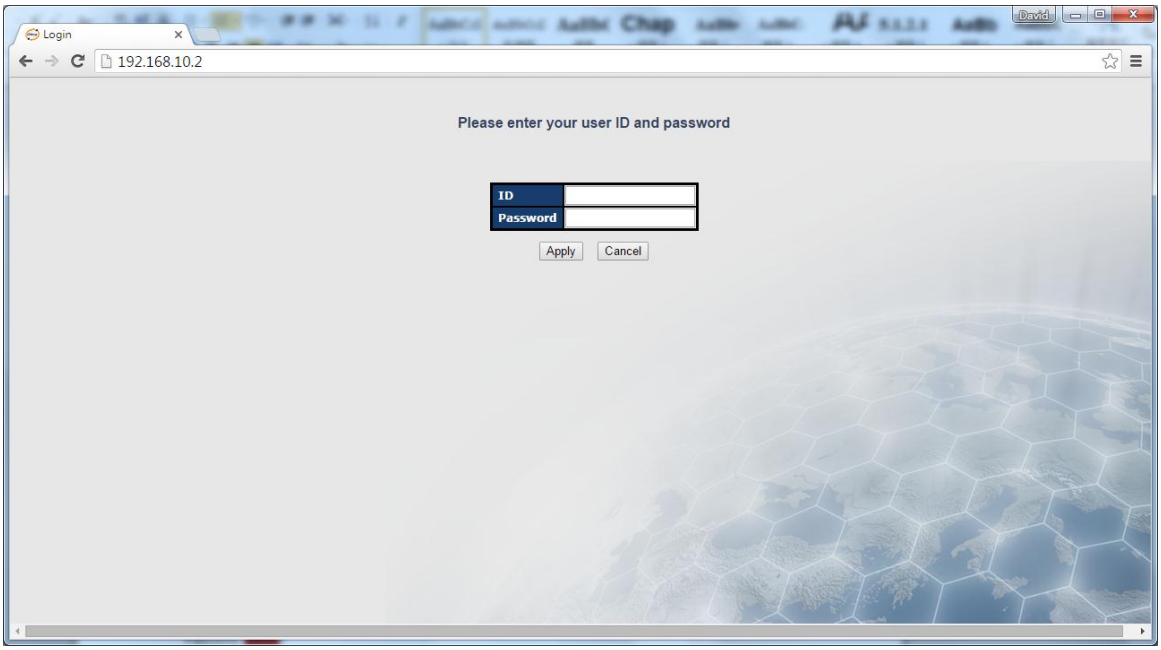
Management via Web Browser

Follow the steps below to manage your device via a Web browser

System Login

1. Launch an Internet Explorer.
2. Type http:// and the IP address of the device. Press **Enter**.

3. A login screen appears.
4. Log in with the default user name “admin”. By default, no password is required; however, you can set up a password later in the management page.
5. Press **Enter** or click **OK**, the management page appears.



Note: you can use the following default values:

IP Address: **192.168.10.2**

Subnet Mask: **255.255.255.0**

Default Gateway: **192.168.10.254**

User Name: **admin**

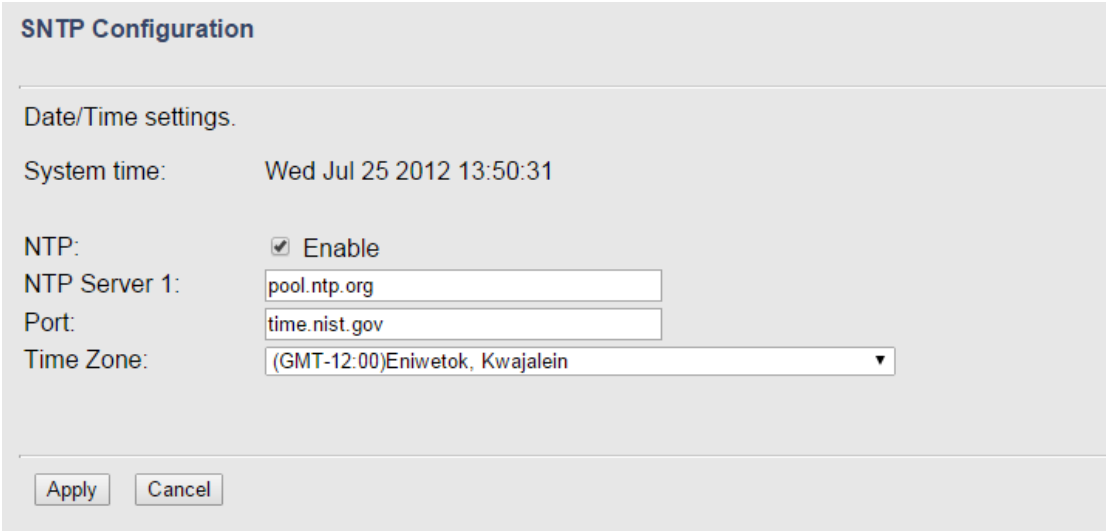
After logging in, you will see the information of the device as below.

On the left hand side of the management interface shows links to various settings. Clicking on the links will bring you to individual configuration pages.

4.2.1 System

4.2.1.1 Time (SNTP)

SNTP (Simple Network Time Protocol) is a protocol able to synchronize the time on your system to the clock on the Internet. It will synchronize your computer system time with a server that has already been synchronized by a source such as a radio, satellite receiver or modem.



Label	Description

Name	Enter the model name of the device
SNTP	Enable or disable SNTP function
Time Zone	Choose the time zone according to the location of the device
Local Time	Set up the local time
Time Server	Enter the address of the time server
Telnet Console	Click to enable or disable Telnet console function.

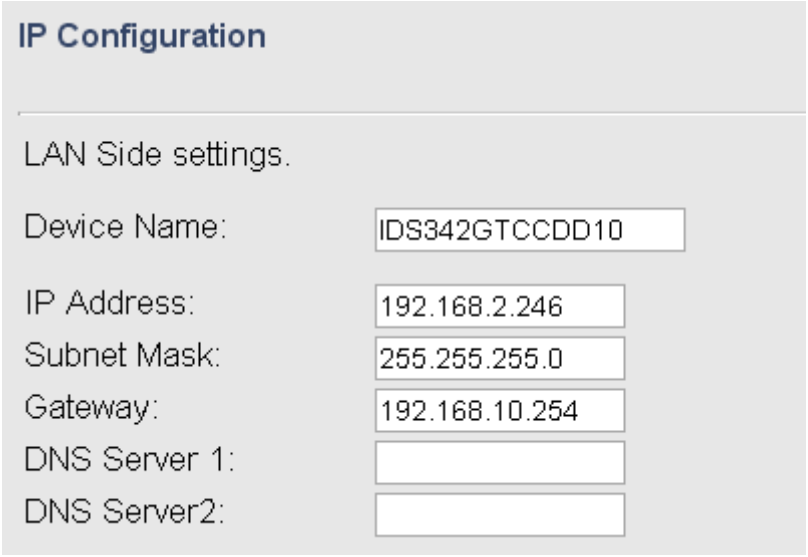
The following table lists different location time zones for your reference.

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am
CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter	+1 hour	1 pm
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, USSR Zone 7	+8 hours	8 pm

JST - Japan Standard, USSR Zone 8	+9 hours	9 pm
EAST - East Australian	+10 hours	10 pm
Standard GST Guam Standard, USSR Zone 9		
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight

4.2.1.2 IP Configuration

This page allows you to configure IP settings for the device. You can assign an IP address manually or leave it to DHCP/BOOTP servers which will reply with an automatically generated IP address and subnet mask for the device when they receive the request. The IP address must be unique and within the network, otherwise the device will not have a valid connection to the network. Select **Static IP** if you are using a fixed IP address. Click **Apply** after you complete configuration.

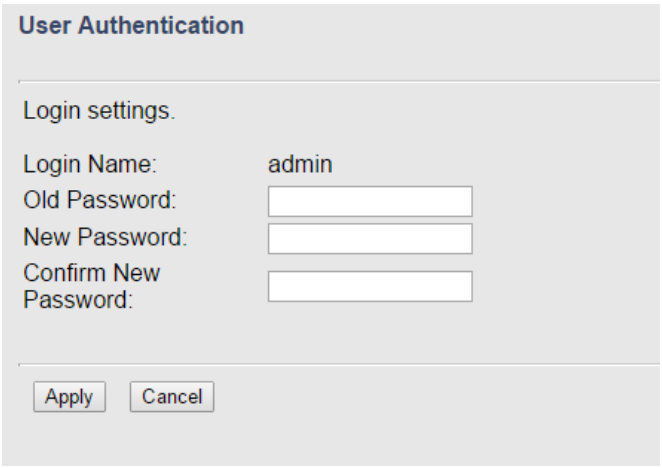


Label	Description
IP Configuration	Choose to use a static or DHCP-assigned IP. If you choose DHCP, the following fields will gray out. **Static**: Input an IP address for the device. **DHCP/BOOTP**: allows the IP address of the device to be automatically assigned by a configuration server. **PPPoE**: select this option if your ISP requires you to use a PPPoE connection which is typically used by DSL providers. Enter the PPPoE login user name and password

	which should have been provided to you by your ISP.
IP Address	Enter the IP address that identifies the server on the TCP/IP network
Netmask	Enter a subnet mask for the device.
Gateway	Enter the IP address of the router that provides network access outside the server's LAN
DNS Server 1/2	Enter the IP address of the primary and secondary domain name server
Auto Report to IP	Specify an IP address for reports generated by the Auto report function to be automatically sent to.
Auto Report to TCP Port	Specify a TCP Port for reports generated by the Auto report function to be automatically sent to.
Auto Report Interval	Specify a time interval for which reports will be delivered.

4.2.1.3 User Authentication

This page allows you to set up login account and password. You can also change your password in this page.

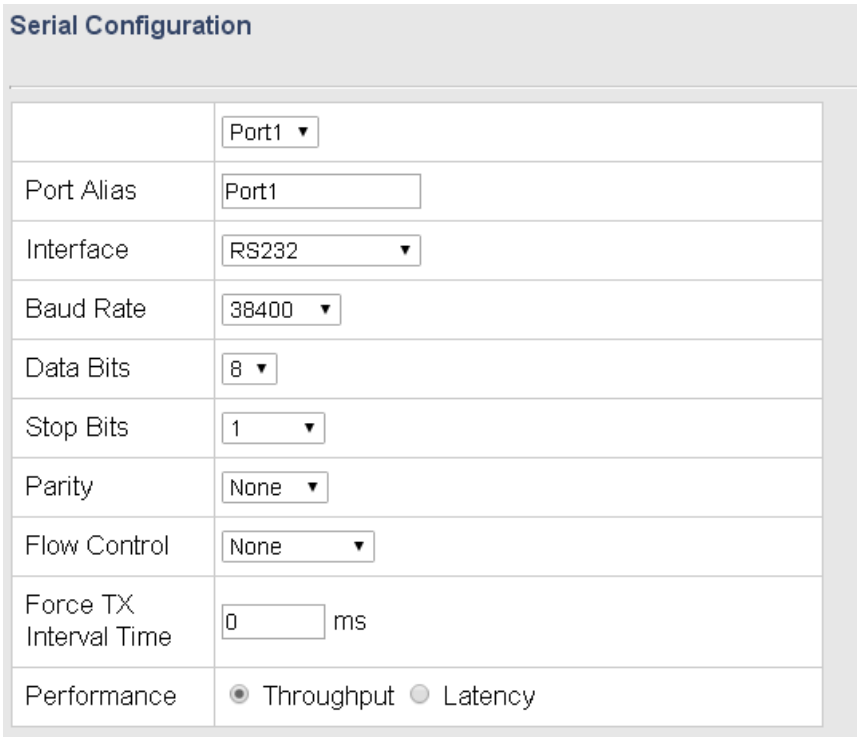


Label	Description
Old Password	Enter the existing password that is used to log in
New Password	Enter a new password that will be used to log in
Confirm New Password	Retype the new password to confirm

4.2.2 Serial Setting

4.2.2.1 Serial Configuration

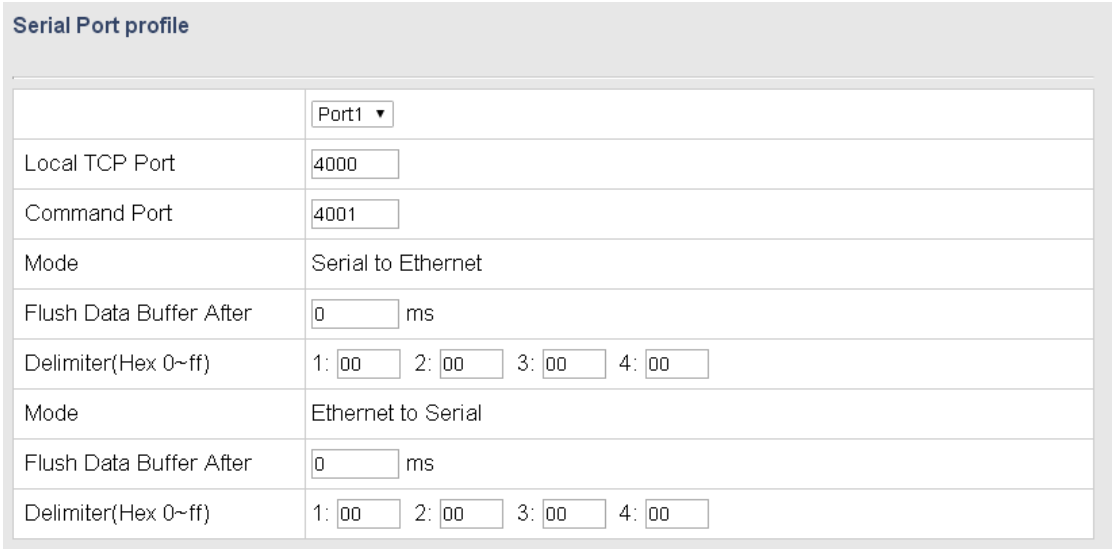
This page allows you to configure serial port parameters.



Label	Description
Port Alias	Enter the COM port number that modem is connected to
Interface	Choose an interface for your serial device. Available interfaces include **RS-232, RS-422, RS-485(2-wires), and RS-485(4-wires),**
Baud Rate	Choose a baud rate in the range between 110 bps and 460800 bps.
Data Bits	Choose the number of data bits to transmit. You can configure data bits to be 5, 6, 7, or 8. Data is transmitted as a series of five, six, seven, or eight bits (five and six bit data formats are used rarely for specialized communications equipment).
Stop Bits	Choose the number of bits used to indicate the end of a byte. You can configure stop bits to be 1 or 2(1.5). If Stop Bits is 1.5, the stop bit is transferred for 150% of the normal time used to transfer one bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.
Parity	Chose the method of detecting errors in transmission. Parity control bit modes include None, Odd, Even, Mark, and Space. **None**: parity checking is not performed and the parity bit is not

	transmitted. **Odd**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits. **Even**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits. **Mark**: the parity bit is always set to the mark signal condition (logical 1) **Space**: the last transmitted data bit will always be a logical 0
Flow Control	Serial communication consists of hardware flow control and software flow control, so called as the control is handled by software or hardware. **XOFF** and **OXN** is software flow control while **RTS/CTS or DTR/DSR** is hardware flow control. Choose **XOFF** to tell the computer to stop sending data; then the receiving side will send an XOFF character over its Tx line to tell the transmitting side to stop transmitting. Choose **XON** to tell the computer to begin sending data again; then the receiving side will send an XON character over its Tx line to tell the transmitting side to resume transmitting. In hardware flow control mode, when the device is ready to receive data, it sends a CTS (Clear To Send) signal to the device on the other end. When a device has something it wants to send, it will send a RTS (Ready To Send) signal and waits for a CTS signal to come back its way. These signals are sent apart from the data itself on separate wires.
FaceTX 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.

4.2.2.2 Port Profile

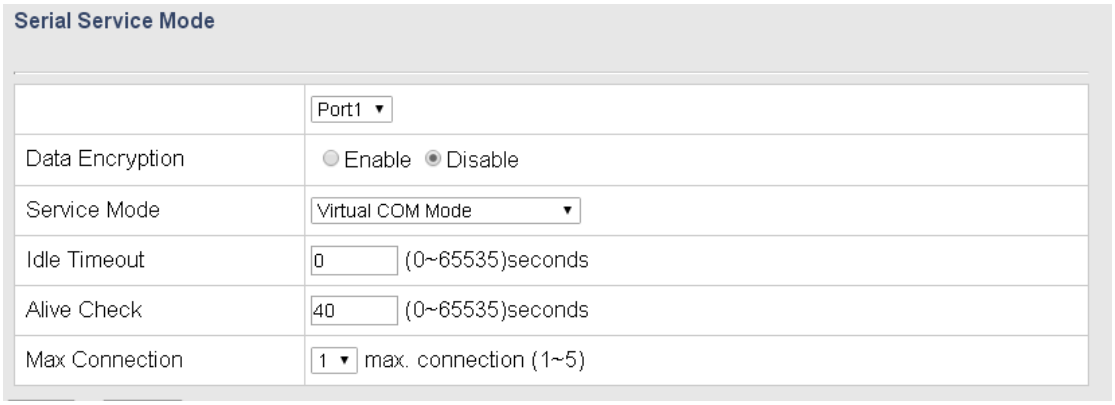


Label	Description
Local TCP Port	The TCP port the device uses to listen to connections, and that other devices must use to contact the device. To avoid conflicts with well known TCP ports, the default is set to 4000.
Command Port	Assign a serial port as command port
Flush Data Buffer After	The received 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.
Delimiter	For advanced data packing options, you can specify delimiters for **Serial to Ethernet** and / or **Ethernet to Serial** communications. 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**.

4.2.2.3 Service Mode

Virtual COM Mode

In Virtual COM Mode, the driver establishes a transparent connection between the host and the serial device by mapping the port of the serial server to a 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.

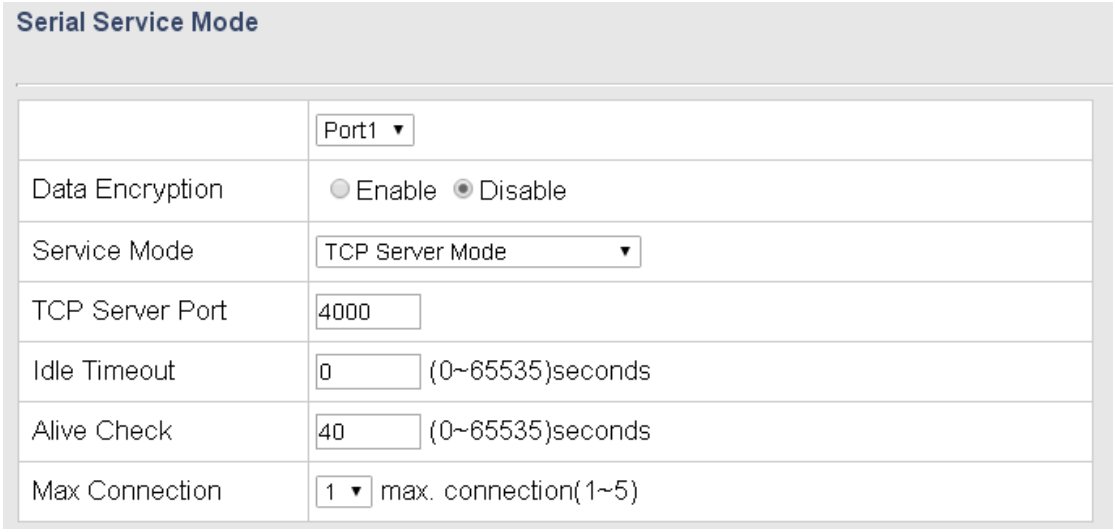


Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.
Max Connection	The number of Max connection can support simultaneous connections are **5**, default values is **1**.

**Not allowed to mapping Virtual COM from web*

TCP Server Mode

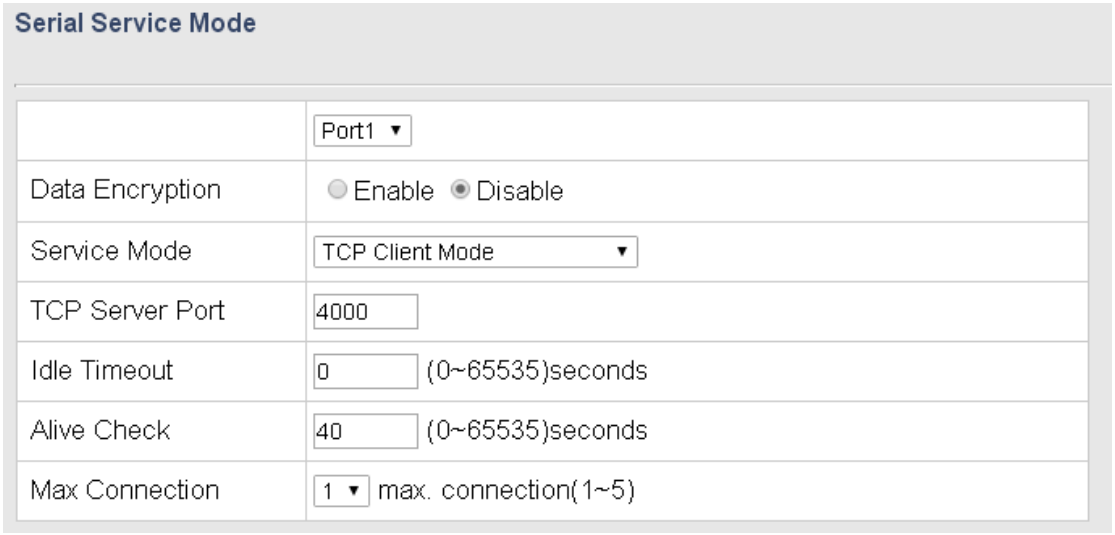
In TCP Server Mode, DS is configured with a unique port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After the device establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 5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



Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.
Max Connection	Assigns the number of maximum connections that can be supported simultaneously. The highest number is 5 and the default value is 1.

TCP Client Mode

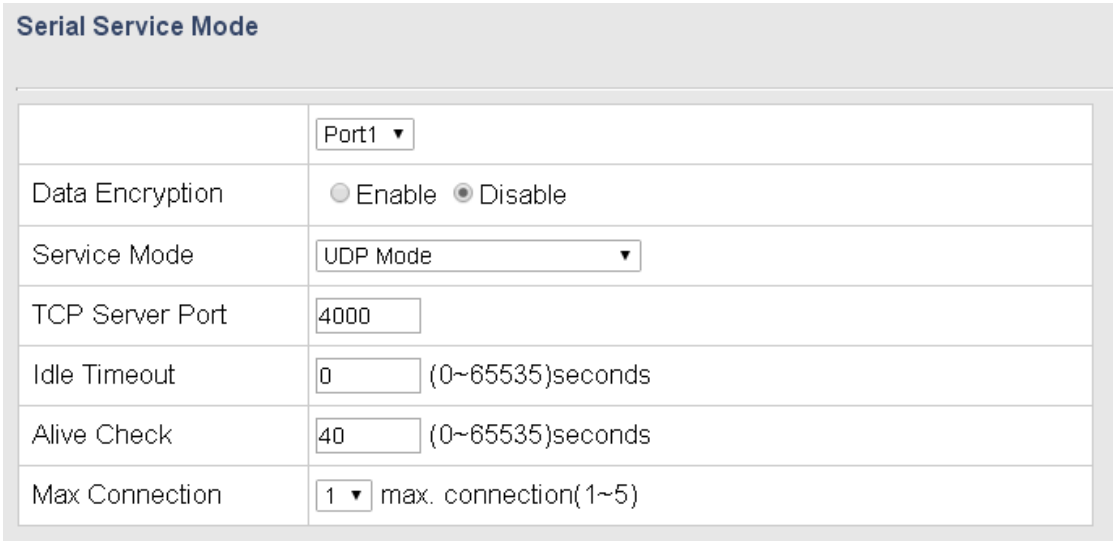
In TCP Client mode, the device can establish a TCP connection with the server by the method you set (Startup or any character). After the data has been transferred, the device can disconnect automatically from the server by using the TCP alive check time or idle timeout settings.



Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.
Max Connection	Assigns the number of maximum connections that can be supported simultaneously. The highest number is 5 and the default value is 1.

UDP Mode

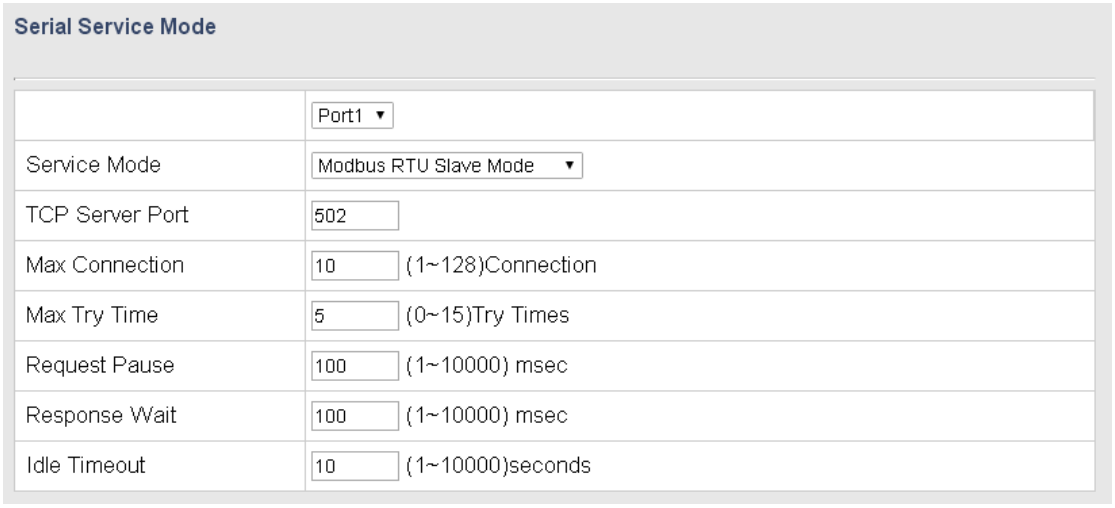
Compared to TCP communications, UDP is faster and more efficient. In UDP mode, you can uni-cast or multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host.



Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.
Max Connection	Assigns the number of maximum connections that can be supported simultaneously. The highest number is 5 and the default value is 1.

Modbus RTU Slave Mode

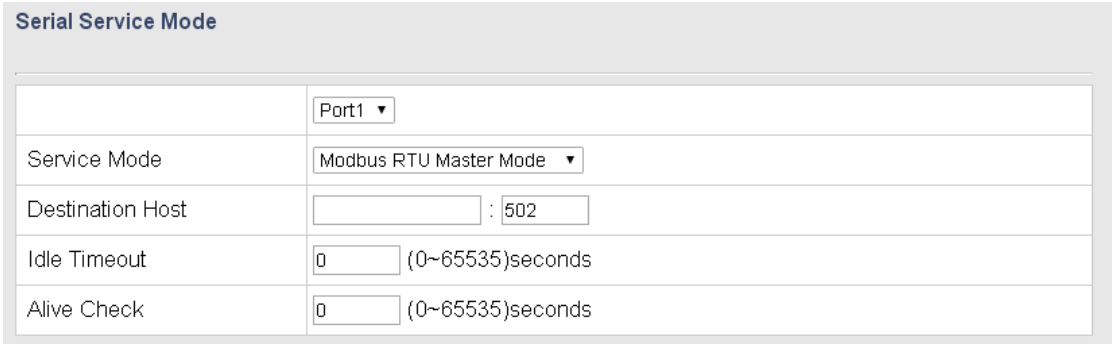
In this mode, the client will appear as Modbus RTU Slave devices on the Modbus RTU network. The server must send a response message to the master after receiving its messages, whether they are actual PLC's or devices acting as Modbus RTU Masters or other software applications capable of sending Modbus RTU Master requests.



Label	Description
TCP Server Port	Set the port number for data transmission.
Max Connection	Assigns the number of maximum connections that can be supported simultaneously. The highest number is 128 and the default value is 1.
Max Try Time	Specify the maximum number of request retries performed serially
Request Pause	Specify the delay between serial requests in milliseconds
Response Wait	Specify the serial response timeout in milliseconds. A serial retry will be sent if a response is not received within this timeout.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.

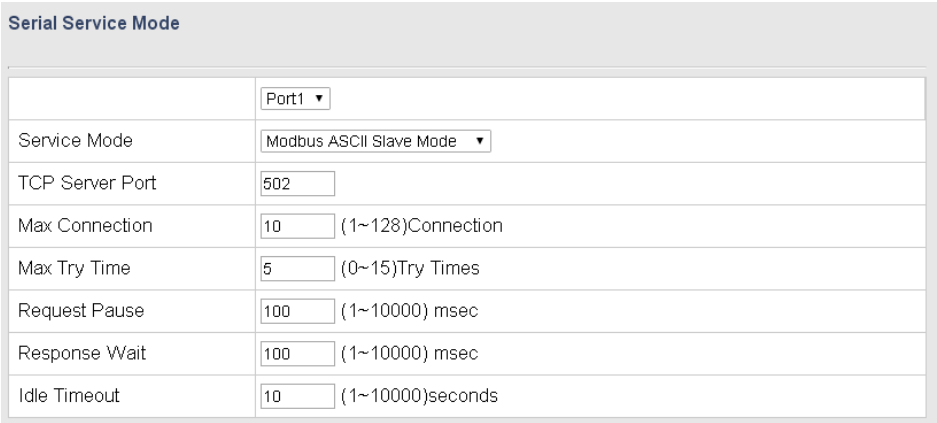
Modbus RTU Master Mode

In this mode, the client will act as a Modbus RTU master device which will send query messages such as data, requests for data or status, or commands to one or more slave devices (the servers) on a serial network.

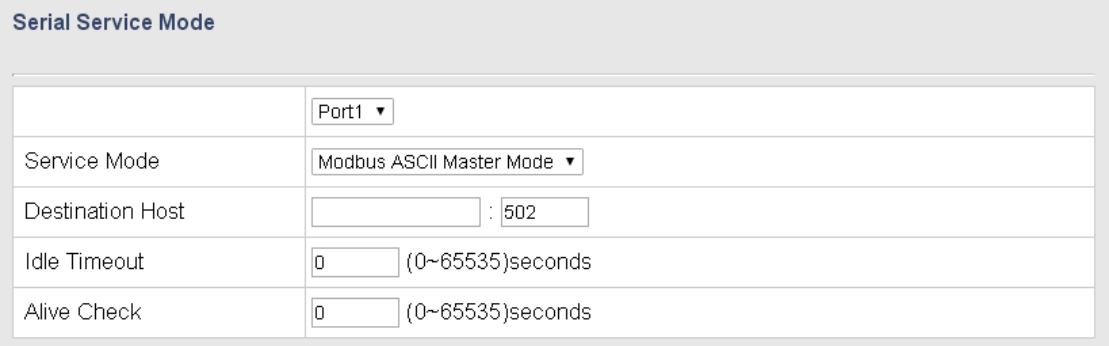


Label	Description
Destination Host	Enter the destination host's IP address or destination network
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.

Modbus ASCII Slave Mode



Label	Description
TCP Server Port	Set the port number for data transmission.
Max Connection	Assigns the number of maximum connections that can be supported simultaneously. The highest number is 128 and the default value is 1.
Max Try Time	Specify the maximum number of request retries performed serially
Request Pause	Specify the delay between serial requests in milliseconds
Response Wait	Specify the serial response timeout in milliseconds. A serial retry will be sent if a response is not received within this timeout.
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.



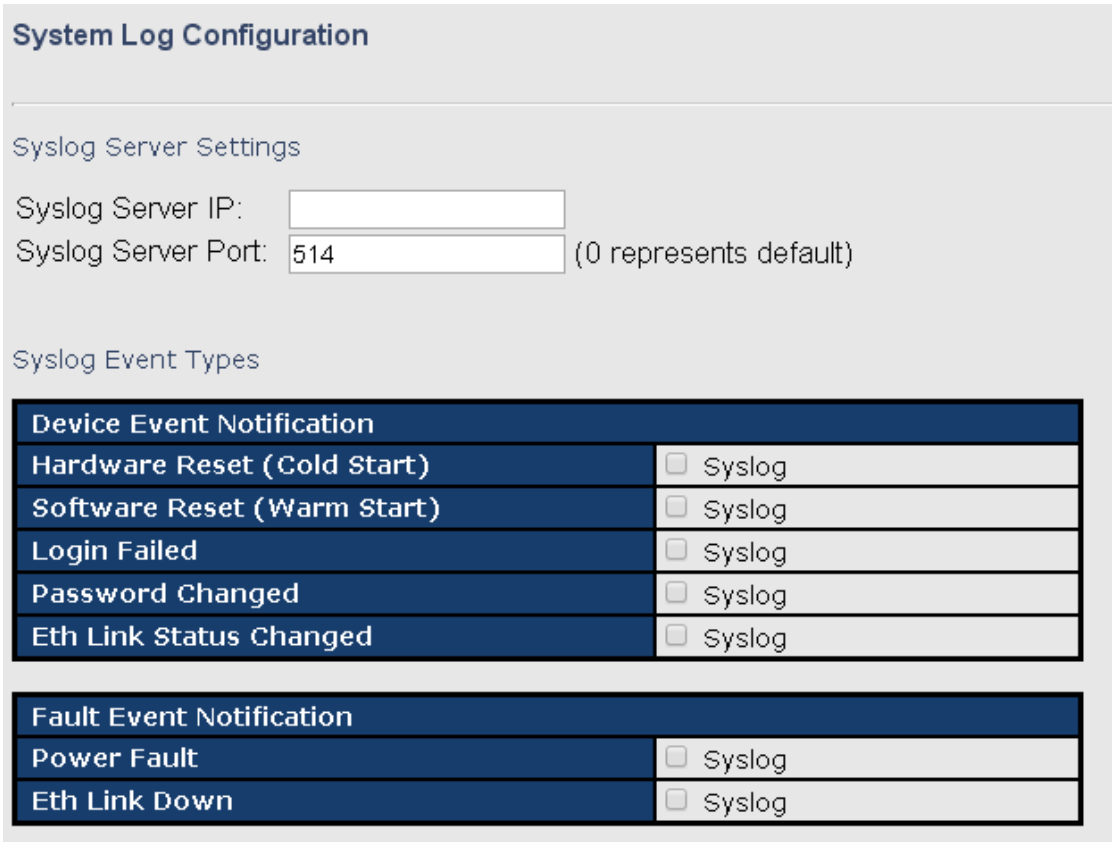
Label	Description
Destination Host	Enter the destination host's IP address or destination network
Idle Timeout	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. Specify a time in seconds by which the device will close a connection because of inactivity.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. Assign a time in seconds by which the device will perform alive check.

4.2.3 Management

When an error occurs, the device will notify you through system log, e-mail, SNMP, and relay. You can set up the targets or destinations which will receive error notifications in this page.

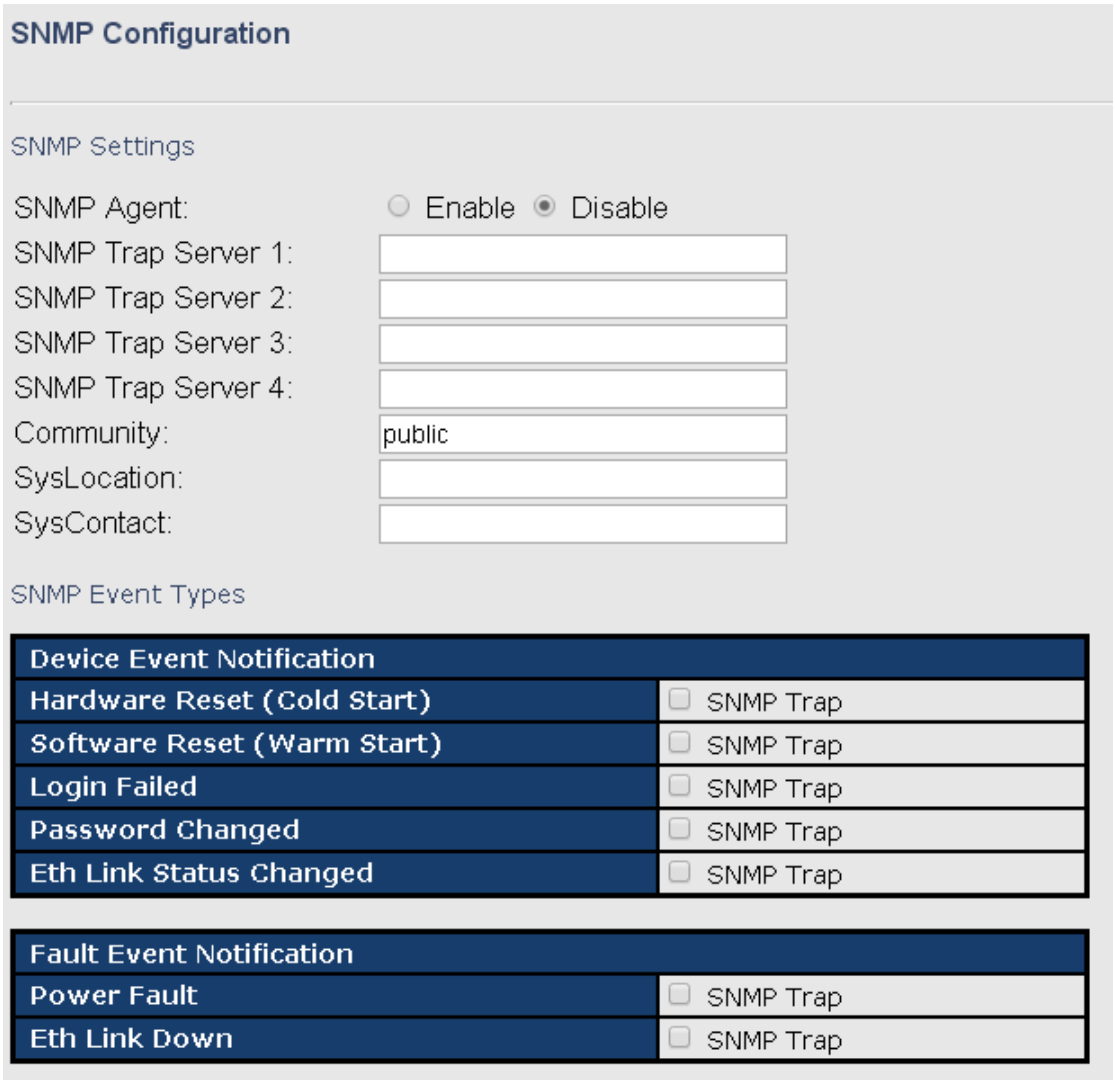
4.2.3.1 System Log

The device will constantly log events and activities in System Log and provide the file for you to review. You can click **Refresh** to renew the page or **Clear** to clear all or certain log entries.



Label	Description
Syslog Server IP	Enter the IP address of a remote server if you want the logs to be stored remotely. Leave it blank will disable remote syslog.
Syslog Server Port	Specifies the port to be logged remotely. Default port is 514.

4.2.3.2 SNMP

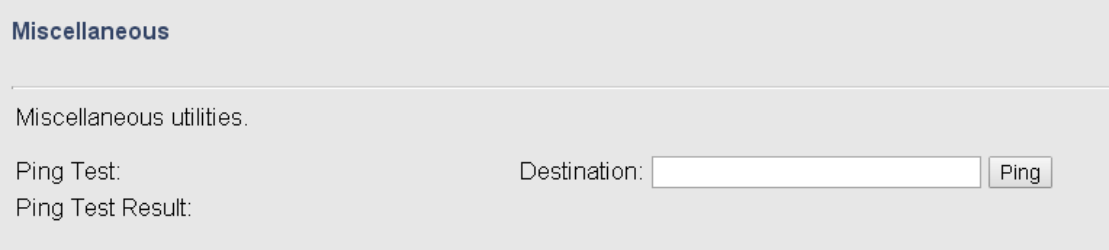


Label	Description
SNMP Agent	SNMP (Simple Network Management Protocol) Agent is a service program that runs on the access point. The agent provides management information to the NMS by keeping track of various operational aspects of the AP system. You can enable or disable the function.
SNMP Trap Server 1-4	Enter the IP address of the SNMP server which will send out traps generated by the AP.
Community	Community is a password to establish trust between managers and agents. Normally, **public** is used for read-write community.
SysLocation	Specifies sysLocation string
SysContact	Specifies sysContact string

4.2.4 System Tools

4.2.4.1 Miscellaneous

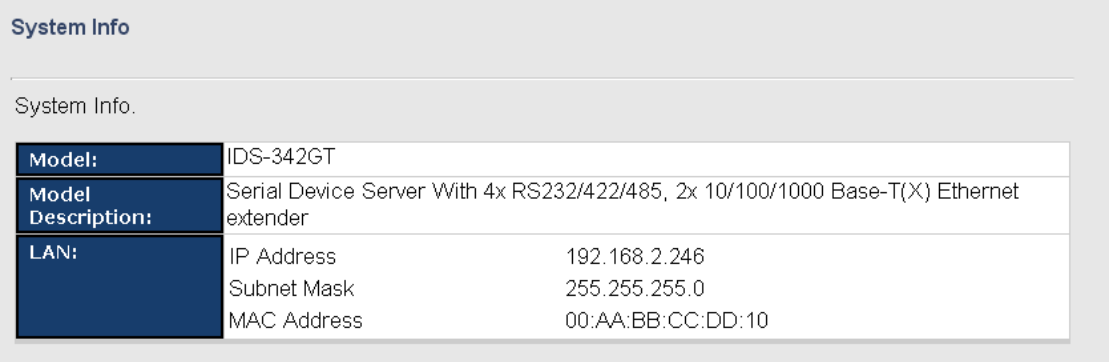
Ping enables you to test connectivity on an IP network. It's a useful tool to diagnose network problems on a device. It will analyze data transfer to determine whether multiple devices can communicate over the network successfully. A ping diagnostic can provide network latency information.



4.2.5 System Status

4.2.5.1 System Info

This page displays the detailed information of the device including model name, description, firmware version, WAN, LAN and wireless settings.



4.2.6 Save/Restore Config

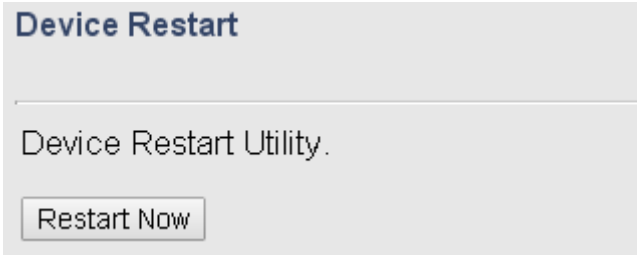
This page allows you to save configurations or return settings to previous status. You can download the configuration file from the Web. Note: users using old versions of Internet Explorer may have to click on the warning on top of the browser and choose **Download File**.

4.2.7 Firmware Update

ORing launches new firmware constantly to enhance device performance and functions. To upgrade firmware, download new firmware from ORing's website to your PC and install it via Web upgrade. Make sure the firmware file matches the model of your device. It will take several minutes to upload and update the firmware. After upgrade completes successfully, reboot the device.

4.2.8 Device Restart

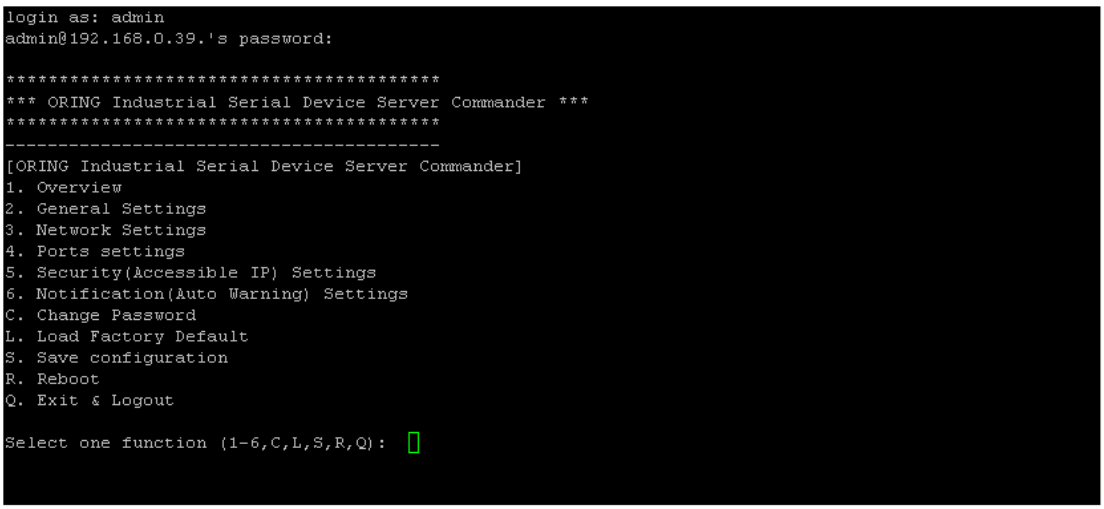
This page allows you to configure restart settings for the device.



4.3 Configuration by SSH Console

4.3.1 Connect to DS

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



Technical Specifications

ORing Device Server Model	IDS-342GT	IDS-342GT+
Physical Ports		
10/100/1000 Base-T(X) Ports in RJ45 Auto MDI/MDIX	**2**	
PoE P.D. port		Present at ETH2 Fully compliant with IEEE 802.3af Power Device specification Over load & short circuit protection Isolation Voltage: 1000 VDC min. Isolation Resistance : 10^8 ohms min
Serial Ports		
Connector	DB9 x 4	
Operation Mode	RS-232/422/485	
Serial Baud Rate	110 bps to 921.6 Kbps	
Data Bits	7, 8	
Parity	odd, even, none, mark, space	
Stop Bits	1, 1.5, 2	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND	
Flow Control	XON/XOFF, RTS/CTS, DTR/DSR	
Network Protocol		
Protocol	ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP V1/V2c, HTTPS	
Jumbo frame	Up to 9.6K Bytes	
LED indicators		
Power indicator	PWR 1(2) / Ready: Green On: Power is on and functioning Normally.	
10/100/1000 RJ45 port indicator	Top Green for port Link at 1000Mbps, Amber for port Link at 100Mbps, off for port Link at 10Mbps Bottom Green for port Link/Act	
Serial TX / RX LEDs:	Red: Serial port is receiving data Green: Serial port is transmitting data	
Power		
Redundant Input power	Dual DC inputs. 12-48VDC on 6-pin terminal block	
Power consumption (Typ.)	6.96W	
Overload current protection	Present	
Reverse polarity protection	Present on terminal block	
Physical Characteristic		
Enclosure	IP-30	
Dimension (W x D x H)	54.2(W)x106.1(D)x145.4(H) mm (2.13x4.18x5.72 inch.)	
Weight (g)	740g	745g
Environmental		
Storage Temperature	-40 to 85°C (-40 to 185°F)	
Operating Temperature	-40 to 70°C (-40 to 158°F)	
Operating Humidity	5% to 95% Non-condensing	
Regulatory approvals		
EMI	FCC Part 15, CISPR (EN55022) class A	
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11	
Shock	IEC60068-2-27	

Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
Warranty	5 years