3onedata

RIO1000 Series

Industrial I/O Server

User Manual

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Preface

The device user manual describes the following contents:

- Network management method
- Overview of related principles of network management

Audience

This manual applies to the following engineers:

- Network administrators
- Technical support engineers

Text Format Convention

Format	Description
" "	Words with "" represent the interface words. Fox example "Port number".
>	Multi-level path is separated by ">". Such as opening the local connection path description: Open "Control Panel> Network Connection> Local Area Connection".
Light Blue Font	It represents the words clicked to achieve hyperlink. The font color is as follows: 'Light Blue'.
About this chapter	The section 'about this chapter' provide links to various sections of this chapter, as well as links to the Principles Operations Section of this chapter.

Symbols

Format	Description
⚠ Notice	Remind the announcements in the operation, improper operation may result in data loss or equipment damage.

Format	Description
⚠ Warning	Pay attention to the notes on the mark, improper operation may cause personal injury.
📄 Note	Conduct a necessary supplements and explanations for the description of operation content.
🔑 Key	Configuration, operation, or tips for device usage.
💡 Tips	Pay attention to the operation or information to ensure success device configuration or normal working.

Port Convention

The port number in this manual is only an example, and does not represent the actual port with this number on the device. In actual use, the port number existing on the device shall prevail.

Revision Record

Version No.	Date	Revision note
01	6/18/2021	Product release
02	1/10/2023	Add point-to-point function

Content

1 Log in the Web Interface

1.1 WEB Browsing System Requirement

Using this device, the system should meet the following conditions.

Hardware and software	System requirements
CPU	Above Pentium 586
Memory	Above 128MB
Resolution	Above 1024x768
Color	256 color or above
Browser	Internet Explorer 6.0 or above
Operating system	Windows XP/7/8/10

1.2 Setting IP Address of PC

The default management of device is as follows:

IP Settings	Default Value
IP address (LINK1)	192.168.1.254
Subnet mask	255.255.255.0

Note

The network configuration of the device supports single IP and double IP modes, and the default is double IP mode.

- In the single IP mode, the default IP address of Ethernet port LINK1/LINK2 is 192.168.1.254.

- In the Dual IP mode, the default IP address of Ethernet port LINK1 is 192.168.1.254, the default IP address of Ethernet port LINK2 is 192.168.8.254.

When configuring a device through the Web:

- Before conducting remote configuration, please confirm the route between computer and device is reachable.

- Before making a local configuration, make sure that the IP address of the computer and the serial server are on the same subnet.

![Note icon]Note

While configuring the device for the first time, if the device is configured locally and accessed through LINK1, first confirm that the network segment of the current PC is 1.

Eg: Assume that the IP address of the current PC is 192.168.5.60, change the network segment "5" of the IP address to "1".

Operation Steps

Amendment steps as follow:

Step 1 Open "Control Panel> Network Connection> Local Area Connection> Properties> Internet Protocol Version 4 (TCP / IPv4)> Properties".

Step 2 Change the selected "5" in red frame of the picture below to "1".
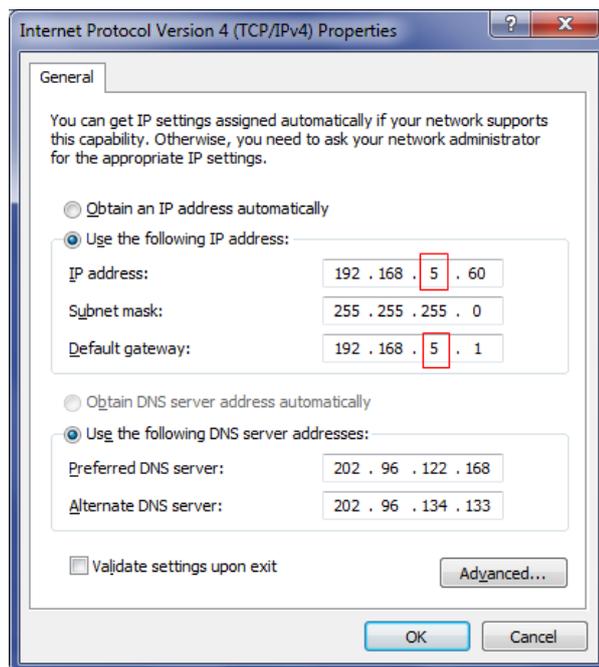
Step 3 Click "OK", IP address is modified successfully.

Step 4 End.

1.3　Log in the Web Configuration Interface

Operation Steps

Login in the web configuration interface as follow:

Step 1 Run the computer browser.

Step 2 Enter the address of the device "http://192.168.1.254" in the address bar of the browser.

Step 3 Click the "Enter" key.

Step 4 Pop-up dialog box as shown below, enter the user name and password in the login window.
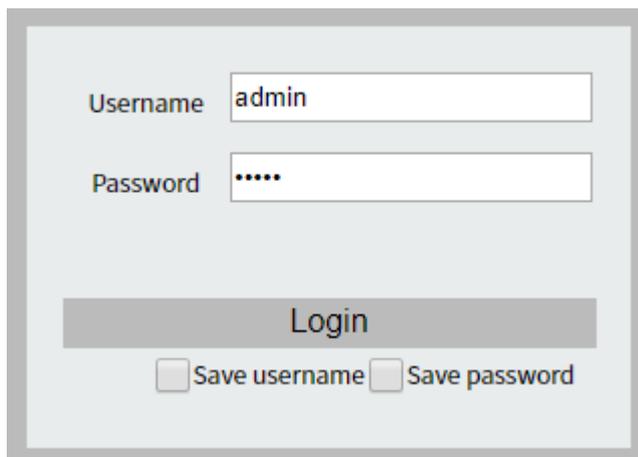
Note:

- The default username and password are "admin"; please strictly distinguish capital and small letter while entering.
- Default username and password have the administrator privileges.

Step 5 Click "Login".

Step 6 End.

After login in successfully, user can configure relative parameters and information according to demands.

2 System Info

2.1   Product Information

Function Description

In "Device information" interface, user can check Device name,Device model, Serial No, Firmware Ver, Device time, Description, Number of LAN, CPU Utilization, Memory Utilization and so on.

Operation Path

Open in order: "System Maintenance > Device information".

Interface Description

The product information interface is as follows:
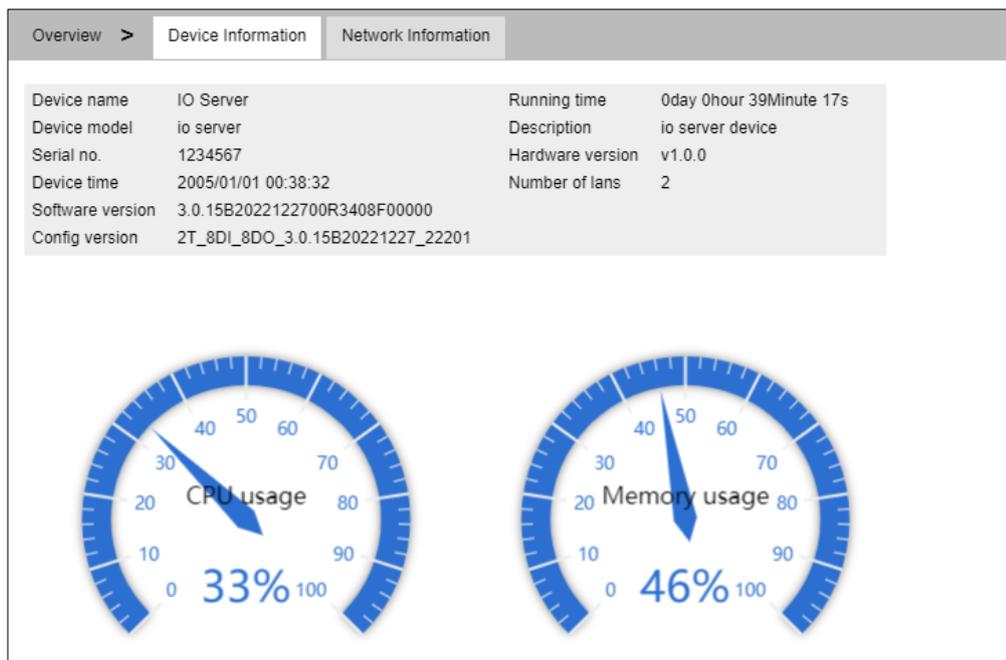

The main elements configuration description of device information interface:

Interface Element	Description
Device Name	Network identity or device type of the device.
Device Model.	Equipment model or name of the device.
Serial No.	Serial number of the device
Firmware Version	Software version information of the device.
Device Time	The current device time display, synchronizes the local PC or NTP server time.
Running Time	Current device running time after being powered on.
Description	Port information of the device.
Hardware Version	Current hardware version information, pay attention to the hardware version limits in software version.
Number of Lans	The network port number of the device.
CPU Usage	CPU usage of the current device.
Memory Usage	Memory usage of the current device.

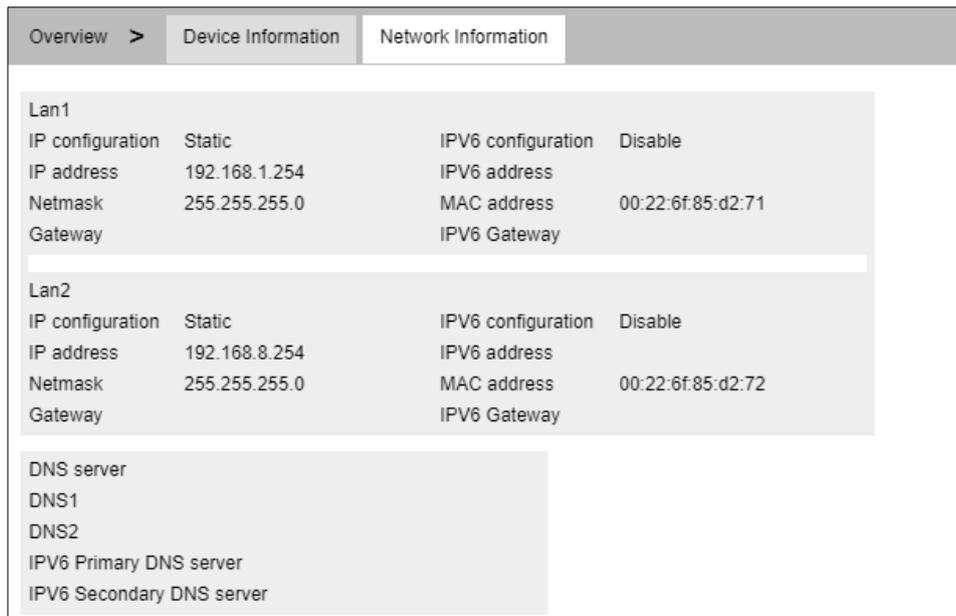## 2.2　Network information

Function Description

On the page of "Network information", user can check device network address information and DNS server information.

Operation Path

Open in order: "System Information" > Network Information".

Interface Description

Network information interface as follows:

Overview > Device Information | Network Information

Lan1
IP configuration   Static   IPV6 configuration   Disable
IP address   192.168.1.254   IPV6 address
Netmask   255.255.255.0   MAC address   00:22:6f:85:d2:71
Gateway   IPV6 Gateway

Lan2
IP configuration   Static   IPV6 configuration   Disable
IP address   192.168.8.254   IPV6 address
Netmask   255.255.255.0   MAC address   00:22:6f:85:d2:72
Gateway   IPV6 Gateway

DNS server
DNS1
DNS2
IPV6 Primary DNS server
IPV6 Secondary DNS server

The main elements configuration description of network information interface.

Interface Element	Description
LAN1	**LAN1 information bar**
IP Configuration	Shows how the LAN 1 of the device gets the IP address.
Netmask	Display device subnet mask.
MAC Address	Display device LAN 1 MAC address.
IP Address	Display LAN1 IP address.
Gateway	Display LAN1 gateway address.
LAN2	**LAN2 information bar**
IP Configuration	Shows how the LAN 2 of the device gets the IP address.
Netmask	Display device LAN2 subnet mask.
MAC Address	Display device LAN 2 MAC address.
IP Address	Display LAN2 IP address.
Gateway	Display LAN2 IP address.
DNS Server	**DNS server information bar**
DNS1	Display device main DNS server address.
DNS2	Display device backup DNS server address.

3 Network Configuration

Function Description

On the "Network Settings" page, user can set the IP address and DNS address of this device. The IP address of the device supports DHCP/BOOTP protocol dynamic acquisition or static manual configuration. The device provides two Ethernet ports, which can work in single IP mode (redundant mode/switching mode) and dual IP mode to meet the requirements of various network environments.

Operation Path

Open: "Network Configuration".

Interface Description 1: Single IP

Single IP interface is as below:

Interface Description 2: Dual IP

Dual IP interface is as below:

The main element configuration description of network configuration interface:

Interface Element	Description
LAN Mode	The network mode drop-down list of the device can be selected as follows: • Single IP: the device ports LINK1 and LINK2 are in the same network LAN1; • Dual IP: the device has dual IP and dual MAC addresses, with port LINK1 in network LAN1 and port LINK2 in network LAN2.

Interface Element	Description
Mode Configuration	In the single IP mode, the operation mode of the equipment network port can be checked as follows: ● Redundancy mode: Ports LINK1 and LINK2 are redundant ports, which support link backup. One port is in active state and one port is in backup state; ● Switch mode: ports LINK1 and LINK2 are normal Ethernet ports.
LAN1	**LAN1 Configuration Bar**
LAN1 IP Configuration	Configuration of network address of device LAN 1: ● Obtain an IP address automatically(DHCP): Obtain an IP address, subnet mask, and gateway address automatically from DHCP server. ● Manual setting: manually configure the IP address, subnet mask, and gateway address. ● BOOTP: Automatically obtain IP address, subnet mask and default gateway address from BOOTP(Bootstrap Protocol) server.
LAN1 IP Address	The IP address of the device LAN1 is 192.168.1.254 by default in manual setting mode.
LAN1 Subnet Mask.	The subnet mask of the device LAN1 is 255.255.255.0 by default in manual setting mode.
LAN1 Gateway	The gateway address of the device LAN 1 in manual setting mode.
LAN2	**LAN2 configuration bar**
LAN2 IP Configuration	Configuration of network address of device LAN 2: ● Obtain an IP address automatically(DHCP): Obtain an IP address, subnet mask, and gateway address automatically from DHCP server. ● Manual setting: manually configure the IP address, subnet mask, and gateway address. ● BOOTP: Automatically obtain IP address, subnet mask and default gateway address from BOOTP(Bootstrap Protocol) server.
LAN2 IP Address	The IP address of the device LAN2 is 192.168.8.254 by default in manual setting mode.
LAN2 Subnet Mask.	The subnet mask of the device LAN2 is 255.255.255.0 by default in manual setting mode.
LAN2 Gateway	The gateway address of the device LAN 2 in manual setting mode.

Interface Element	Description
DNS Settings	**DNS Settings Bar**
Primary DNS Server	IP address of DNS server, for example: 202.96.133.4.
Secondary DNS Server	DNS Sever backup IP address, for example: 202.96.133.5.

4 Communication Settings

Function Description

On the "Communication Settings" page, you can configure the Modbus TCP connection timeout and communication watchdog time.

Operation Path

Open: "Communication Settings".

Interface Description

The Communication Settings interface as follows:

The main element configuration description of Communication Settings interface:

Interface Element	Description
Enable Server Socket Idle Connection Timedout Interval	Modbus TCP idle connection timeout, value range: 1-65535, unit: seconds. When the Modbus TCP idle connection time exceeds the specified value, the device will disconnect the corresponding Modbus TCP connection.
Enable Communication Watchdog	Communication watchdog time in safe mode, value range: 1-65535, unit: s. When the Modbus TCP

Interface Element	Description
	connection is lost or the interruption time exceeds the specified value, the system will enter the safe mode and the DO state will change to the set safe value.
Auto Clear Alarm for Safe Mode	When the Modbus TCP connection returns to normal, the system will exit the safe mode and automatically clear the safe mode alarm.

5 Address Configuration

5.1 User-Defined Modbus Address

Function Description

On the "User-Defined Modbus Address" page, you can enable the Modbus TCP Slave protocol to customize the starting address and function code of the slave station.

Operation Path

Open in order: "Address Configuration > User-Defined Modbus Address ".

Interface Description

The Customize Address interface is as follow:

No.	Description	User-defined Start Address(DEC)	Function Code	Read/Write	Total Channels	Data Type
1	DO Value	0	01:COIL STATUS	RW	8	1bit
2	DO Pulse Status	16	01:COIL STATUS	RW	8	1bit
3	DO Value All Channel	32	03:HOLDING REGISTER	RW	1	1WORD
4	DI Value	0	02:INPUT STATUS	R	8	1bit
5	DI Counter Value (Double Word)	16	04:INPUT REGISTER	R	8	2WORD
6	DI Value All Channel	48	04:INPUT REGISTER	R	1	1WORD
7	DI Counter Start/Stop	256	01:COIL STATUS	RW	8	1bit
8	DI Counter Reset	272	01:COIL STATUS	RW	8	1bit
9	P2P Connect Status	4096	02:INPUT STATUS	R	8	1bit
10	P2P Output Safe Flag	4112	02:INPUT STATUS	R	8	1bit
11	Clear P2P Output Safe Flag	4128	01:COIL STATUS	RW	8	1bit
12	Clear Watchdog Alarm	4144	01:COIL STATUS	RW	1	1bit
13	DO PulseCount	36	03:HOLDING REGISTER	RW	8	1WORD
14	DO PulseOnWidth	52	03:HOLDING REGISTER	RW	8	1WORD
15	DO PulseOffWidth	68	03:HOLDING REGISTER	RW	8	1WORD
16	DI Counter Overflow Flag	1000	02:INPUT STATUS	R	8	1bit
17	Model Name	5000	04:INPUT REGISTER	R	10	1WORD
18	Device Name	5040	04:INPUT REGISTER	R	30	1WORD
19	Device Up Time	5020	04:INPUT REGISTER	R	2	1WORD
20	Firmware Version	5029	04:INPUT REGISTER	R	2	1WORD
21	Firmware Build Date	5031	04:INPUT REGISTER	R	2	1WORD
22	Mac Address	5024	04:INPUT REGISTER	R	3	1WORD
23	IP Address	5027	04:INPUT REGISTER	R	2	1WORD

The main elements configuration description of Customize Address interface:

Interface Element	Description

Interface Element	Description
Enable Modbus/TCP Slave Protocol	When the Modbus/TCP Slave protocol is enabled, the device will act as a Modbus TCP slave station, and the DI/DO, system information and other parameters of the device can be read or configured through the Modbus TCP master station.
SN.	Serial number.
Description	DI/DO and system information parameter name of the device.
User-Defined Start Address (DEC)	The starting address of the parameter in the device register is the slave station address, and the value range is 0-65535.
Function Code	The category of Modbus slave function code has the following options: ● 01: COIL STATUS. Read/write coil, support Modbus function codes 01, 05 and 15. ● 02: INPUT STATUS. Read input discrete quantity, support Modbus function code 02. ● 03: HOLDING REGISTER. Read/write holding register, support Modbus function codes 03, 06 and 16. ● 04: INPUT REGISTER. Read input register, support Modbus function code 04.
Read/write	Read and write privileges of the slave coil/register.
Total Channels	The number of channels occupied by the slave station address.
Data Type	The unit size of the data type of the slave station.
Load Default	The slave station address will load the factory configuration in the "Default Address" page.

The default address information table of Modbus slave station register:

Parameter name	Description	Start Address	Function Code	Privilege	Length	Unit
DO Value	DO channel status: ● 0: OFF ● 1: ON Status	0	01	Read/write	8	1 bit
DO Pulse Status	DO pulse status: ● 0: stop ● 1: Enable	16	01	Read/write	8	1 bit
DO Value All Channel (Ch0-Ch7)	DO channel status, 8bit corresponds to 8 channels:	32	03	Read/write	1	1WORD

Parameter name	Description	Start Address	Function Code	Privilege	Length	Unit
	● 0: OFF ● 1: ON Status					
DI Value	DI channel status: ● 0: OFF ● 1: ON Status	0	02	Read	8	1 bit
DI Counter Value (Double Word)	DI counter value, double word (high/low word).	16	04	Read	8	2WORD
DI Value All Channel (Ch0-Ch7)	DI channel status, 8bit corresponds to 8 channels: ● 0: OFF ● 1: ON Status	48	04	Read	1	1WORD
DI Counter Start/Stop	DI counter status: ● 0: stop ● 1: enable	256	01	Read/write	8	1 bit
DI Counter Reset	1: recount and clear overflow.	272	01	Read/write	8	1 bit
Clear Watchdog Alarm	● 1: Watchdog alarm triggered ● 0: clear watchdog alarm	4144	01	Read/write	1	1 bit
DO PulseCount	DO pulse counting.	36	03	Read/write	8	1WORD
DO PulseOnWidth	DO pulse ON width, unit: ms.	52	03	Read/write	8	1WORD
DO PulseOffWidth	DO pulse OFF width, unit: ms.	68	03	Read/write	8	1WORD
DI Counter Overflow Flag	DI Counter Overflow identification: ● 0: normal ● 1: overflow	1000	02	Read	8	1 bit
Model Name	Device model, ASCII code display.	5000	04	Read	10	1WORD
Device Name	Device name, ASCII code display.	5040	04	Read	30	1WORD

Parameter name	Description	Start Address	Function Code	Privilege	Length	Unit
Device Up Time	Running time, unit: seconds.	5020	04	Read	2	1WORD
Firmware Version	Software Version	5029	04	Read	2	1WORD
Firmware Build Date	Software date, such as B20210526, the first word is 2021, and the last two bytes are 5 and 26.	5031	04	Read	2	1WORD
Mac Address	MAC Address, HEX display.	5024	04	Read	3	1WORD
IP Address	IP Address	5027	04	Read	2	1WORD

5.2   Default Address

Function Description

On the "Default Address" page, you can view the default address information of Modbus TCP Slave register.

Operation Path

Open in order: "Address Configuration > Default Address".

Interface Description

The default address interface is as follow:

Default Modbus Address

Refresh

No.	Description	User-defined Start Address(DEC)	Function Code	Read/Write	Total Channels	Data Type
1	DO Value	0	1	RW	8	1bit
2	DO Pulse Status	16	1	RW	8	1bit
3	DO Value All Channel	32	3	RW	1	1WORD
4	DI Value	0	2	R	8	1bit
5	DI Counter Value (Double Word)	16	4	R	8	2WORD
6	DI Value All Channel	48	4	R	1	1WORD
7	DI Counter Start/Stop	256	1	RW	8	1bit
8	DI Counter Reset	272	1	RW	8	1bit
9	P2P Connect Status	4096	2	R	8	1bit
10	P2P Output Safe Flag	4112	2	R	8	1bit
11	Clear P2P Output Safe Flag	4128	1	RW	8	1bit
12	Clear Watchdog Alarm	4144	1	RW	1	1bit
13	DO PulseCount	36	3	RW	8	1WORD
14	DO PulseOnWidth	52	3	RW	8	1WORD
15	DO PulseOffWidth	68	3	RW	8	1WORD
16	DI Counter Overflow Flag	1000	2	R	8	1bit
17	Model Name	5000	4	R	10	1WORD
18	Device Name	5040	4	R	30	1WORD
19	Device Up Time	5020	4	R	2	1WORD
20	Firmware Version	5029	4	R	2	1WORD
21	Firmware Build Date	5031	4	R	2	1WORD
22	Mac Address	5024	4	R	3	1WORD
23	IP Address	5027	4	R	2	1WORD

6 I/O Configuration

6.1   DI Settings

Function Description

On the "DI Settings" page, you can configure the working mode and view the status of DI channel.

Operation Path

Open in order: "I/O Configuration > DI Settings".

Interface Description

DI configuration interface as follows:

DI Channel	Mode	Status	Filter	Counter Trigger	Operate
DI-00	DI	OFF	100.0 ms	--	Edit
DI-01	DI	OFF	100.0 ms	--	Edit
DI-02	DI	OFF	100.0 ms	--	Edit
DI-03	DI	OFF	100.0 ms	--	Edit
DI-04	DI	OFF	100.0 ms	--	Edit
DI-05	DI	OFF	100.0 ms	--	Edit
DI-06	DI	OFF	100.0 ms	--	Edit
DI-07	DI	OFF	100.0 ms	--	Edit

The main element configuration description of DI configuration interface:

Interface Element	Description

Interface Element	Description
DI Channel	DI channel name.
Mode	The current operation mode of DI channel displays as follows: ● DI: DI mode, it detects the status of DI channel. ● Counter: Counter mode, it detects the change of DI channel status.
Status	The current status of DI channel is shown as follows: ● OFF (OFF alias): DI mode status; ● ON (ON alias): DI mode status; ● STOP: Counter mode status; ● In Counter mode, trigger counting. Note: DI channel supports dry contact and wet contact (NPN or PNP) and other connection modes: ● When used as a dry contact, OFF indicates open circuit and ON indicates short circuit with GND; ● When used as a wet contact NPN, OFF indicates 10~30V and ON indicates 0~3V; ● When used as wet contact PNP, OFF indicates 0~3V and ON indicates 10~30V.
Filter	The filtering time of DI channel, unit: Ms. Within the specified filtering time, the DI channel state changes and recovers, and the generated trigger count or state change will be filtered out.
Counter Trigger	Trigger mode of DI counter, as shown below: ● Lo to Hi: DI channel changes from high level to low level; ● Hi to Lo: DI channel changes from low level to high level; ● Both: "Lo to Hi"和"Hi to Lo".
Operate	Click "Edit" button to modify the mode and parameter of current DI channel.

On the DI settings page, click "Edit" to enter the mode settings page.

Interface description: Edit-DI Mode

The Edit-DI mode interface is as follows:

The configuration description of main elements of the Edit-DI Mode interface:

Interface Element	Description
Current setting	**The configuration bar of mode settings.**
Model	The drop-down list of DI channel work mode, the options are as follows: ● DI ● Counter
Filter	The filtering time of DI channel, unit: Ms. Within the specified filtering time, the DI channel state changes and recovers, and the generated trigger count or state change will be filtered out.
Apply to all DI channels	Check the "Apply to all" check box to apply the mode setting parameters to all DI channels.
Alias Name	**The configuration bar of alias settings.**
Alias Name of Channel	DI channel name, which can be customized. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of OFF Status	DI channel OFF status name. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of ON Status	DI channel ON status name. Note: Aliases do not support Chinese and characters as "&";' / \:".

On the mode setting page, select the "Counter" mode.

Interface Description: Edit—Counter Mode

The Edit-Counter mode interface is as follows:

The configuration description of main elements of the Edit—Counter interface:

Interface Element	Description
Current Setting	**The configuration bar of mode settings.**
Model	The drop-down list of DI channel work mode, the options are as follows: • DI • Counter
Filter	The filtering time of DI channel, unit: Ms. Within the specified filtering time, the DI channel state changes and recovers, and the generated trigger count or state change will be filtered out.
Counter Trigger	The drop-down list of DI counter trigger method, the options are as follows: • Lo to Hi: DI channel changes from high level to low level; • Hi to Lo: DI channel changes from low level to high level; • Both: "Lo to Hi"和"Hi to Lo".
Counter Start/Enable	The start counting check box, check it to start the DI channel trigger counting.

Interface Element	Description
Power On Settings	The boot setting check box, check it to start counting immediately after the device is powered on. If unchecked, after the device is powered on again, the DI count will be cleared and the count will be turned off by default.
Initial Counter Value Setting	The initial setting check box, check it to define the initial count value.
Value	When counting is started, the count value starts counting on the initial value.
Reset Counter	The recount check box. When checked, the count will be cleared and the count will start again on the initial value.
Count Transformation	**The configuration bar of count conversion**
Enable Counter Scaling	The start count conversion check box. Check it to start the count value conversion function. The transformation formula is: Result=Count Difference * Gain + Offset. Count Difference is the difference of the collected count value during the update time. The value range of gain and offset is 0-4294967294.
Update time	The update time of count conversion, value range: 0-4294967294, unit: s.
Apply to all DI Channels	Check the "Apply to all" check box to apply the mode setting parameters to all DI channels.
Alias Name	**The configuration bar of alias settings.**
Alias Name of Channel	DI channel name, which can be customized. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of OFF Status	DI channel OFF status name. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of ON Status	DI channel ON status name. Note: Aliases do not support Chinese and characters as "&";' / \:".

6.2   DO Settings

Function Description

On the "DO Settings" page, you can configure the working mode and control the status of DO channel.

Operation Path

Open in order: "I/O Configuration > DO Settings".

Interface Description

DO configuration interface is as follows:

The main element configuration description of DO configuration interface:

Interface Element	Description
DO channel	DO channel name.
Mode	The current operation mode of DO channel displays as follows: • DO: DO mode, it controls the status of DO channel. • Pulse Output: Pulse Output mode, pulse signal output.
Status	The current status of DO channel is shown as follows: • OFF (OFF alias): DO mode status; • ON (ON alias): DO mode status; • STOP: Pulse Output mode status; • Pulse signal frequency under Pulse Output mode.
ON Width	Time width of ON state under pulse mode, unit:ms.
OFF Width	Time width of OFF state under pulse mode, unit:ms.
Operate	Click "Edit" button to modify the mode and parameter of current DO channel.

On the DO settings page, click "Edit" to enter the mode settings page.

Interface Description: DO Mode

The Edit-DO mode interface is as follows:

The configuration description of main elements of the Edit-DO Mode interface:

Interface Element	Description
Current setting	**The configuration bar of current settings.**
Model	The drop-down list of DO channel work mode, the options are as follows: • DO • Pulse Output
DO Status	The drop-down list of DO status. The options are as follows: • ON Status • OFF
Power On Settings	The drop-down list of boot settings, options as follows: • ON: after the device is powered on, restore the DO state or pulse count. • OFF
Safe Status Setting	The drop-down list of Security Status of DO channel. The options are as follows: • ON: after entering the safe mode, the state of DO channel is ON. • OFF: after entering the safe mode, the state of DO channel is OFF. • Hold LAST: after entering the safe mode, the state of DO channel is the last hold state. Note:

Interface Element	Description
	The "Communication Watchdog Time" needs to be enabled in the safe mode.
Power On Delay	After the device is powered on, the delay time of DO channel status, with a value range of 0-65535, unit: seconds.
Apply to all DO Channels	Check the "Apply to all" check box to apply the mode setting parameters to all DO channels.
Alias Name	**The configuration bar of alias settings.**
Alias Name of Channel	DO channel name, which can be customized. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of OFF Status	DO channel OFF status name. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of ON Status	DO channel ON status name. Note: Aliases do not support Chinese and characters as "&";' / \:".

On the mode setting page, select the "Pulse Output" mode.

Interface Description: Edit-Pulse Output Mode

The Edit-Pulse Output mode interface is as follows:

The configuration description of main elements of the Edit-Pulse Output interface:

Interface Element	Description
Current Settings	**The configuration bar of mode settings.**
Model	In the drop-down list of DO channel work mode, the options are as follows: ● DO ● Pulse Output
ON Width	ON state time width, value range: 1-65535, unit: ms.
OFF Width	OFF state time width, value range: 1-65535, unit: ms.
Pulse Count	Pulse number, the value range is 1-65535.
Pulse Start	The start pulse check box, check it to start pulse counting.
Power On Settings	The boot settings check box. After checking it, the device is powered on to start pulse counting. If not checked, the pulse counting will be turned off by default after the device is powered on again.
Safe Status Setting	The safe state check box. After checking it, if you enter the safe mode, the DO channel will restart pulse counting. If unchecked, there is no safe mode status. Note: The "Communication Watchdog Time" needs to be enabled in safe mode.
Power On Delay	After the device is powered on, the delay time of pulse counting, with a value range of 0-65535, unit: seconds.
Apply to all DO channels	Check the "Apply to all" check box to apply the mode setting parameters to all DO channels.
Alias Name	**The configuration bar of alias settings.**
Alias Name of Channel	DO channel name, which can be customized. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of OFF Status	DO channel OFF status name. Note: Aliases do not support Chinese and characters as "&";' / \:".
Alias Name of ON Status	DO channel ON status name. Note: Aliases do not support Chinese and characters as "&";' / \:".

7 Point-to-Point Configuration

In some remote automation implementations, the control room and field sensors may be far away from each other, and usually only one remote I/O module collects data from all sensors. Point-to-point communication is almost unlimited, because it transmits input to output control by integrating multiple I/O signals on one network line, without the help of PLC or controller. This device has point-to-point communication and channel-to-channel mapping support, allowing simultaneous transmission of multiple targets. In addition, this device supports up to 16 channels of Ethernet transmission (based on transmitter and receiver I/O pair).

7.1 Rule Table

Function Description

In the rule table, I/O pairs for point-to-point communication can be configured.

Operation Path

Open in turn: "Address Configuration > Point-to-Point Configuration > Rule Table".

Interface Description

The configuration description of main elements of the Edit-DI Mode interface:

Interface Element	Description
Enable	If checked, a channel rule is enabled.
Num	The serial number of the channel, which supports editing up to 50 channel rules.
Local channel	Configure local channel, DI or DO channel can be chosen. After point-to-point configuration, the DO channel device will act as a server and the DI channel device as a client.
Destination Address	Address of peer device of point-to-point connection.
Destination Port	Communication port set by the peer device.
Destination channel	Connection channel of peer device. • This item needs to be configured only when the local channel is configured as a DO channel; • When the local channel is configured as DI channel, this item cannot be configured.
Interval Elapsed	Inform the peer device of the connection status of DI at intervals.
Change synapse	When checked, the peer device will be informed when the connection status of DI changes.
Direction	Display communication control direction.

Interface Element	Description
	• DO <- DI (Peer From)； • DI -> DO (Peer to)。

7.2　DO Safe Mode Settings

Function Description

Configure the security sign of DO port, and display the connection status and security status.

Operation Path

Open in turn: "Address Configuration > Point-to-Point Configuration > DO Security Mode Settings".

Interface Description

The main element configuration description of DO safe mode interface:

Interface Element	Description
DO channel	DO channel No.
Mode	According to DO channel working mode, DO or Plusoutput.
Safety sign	Safety sign is the output state of DO channel after triggering safety state. Note: Whether DO is ON or OFF before triggering the safety state, after triggering the safety state, the safety state will change according to the value ON/OFF/HOLDLAST configured by DO.
Connection status	Is there a DI to control the DO? • ONLINE means connecting to the peer DI through TCP; • OFFLINE indicates that the TCP connection is disconnected, and there is no DI to control the DO.

Interface Element	Description
Security Status	It is a flag, which is determined by the "connection status". It is OFF by default, and turns to ON when TCP connection is successful and unexpected disconnection occurs. ON means that the security state is triggered. If the flag is not cleared, the security state will remain ON, indicating that the TCP connection was accidentally disconnected.
Apply	Click "Apply" to save current configuration.
Clear mark	Reset all ON of the safe state to OFF.
Refresh	Refresh the interface display.

8 SNMP

SNMP (Simple Network Management Protocol) is a network management standard protocol widely used in TCP/IP networks. SNMP provides a way to manage devices by running network management software on a central computer (or network management workstation).

SNMP System consists of NMS (Network Management System), Agent Process, Management Object and MIB (Management Information Base) four parts. Agent: Agent is an agent process in the managed device, which is used to maintain the information data of the managed device and respond to the request from the NMS, and report the administration data to the NMS that sending the request.

8.1   SNMP Agent Settings

Function Description

In the "SNMP Agent Settings" page, the SNMP function can be enabled and disabled, and other related parameters such as SNMP community name, version and user information can be configured.

Operation Path

Open in order: "SNMP > SNMP Agent Settings".

Interface Description

SNMP agent settings interface as follows:

Main elements configuration description of SNMP agent settings interface:

Interface Element	Description
SNMP	The radio box of enable/disable SNMP function, the options are as follows: • Enable • Disable
Read Community String	The text box of readable community name, supporting 0-32bit character string input. The readable community name is used for authentication of Get operation between Agent and NMS.
Write Community String	The text box of writable community name, supporting 0-32bit character string input. The writable community name is used to complete Set operation authentication between Agent and NMS.
Contact Name	The text box of SNMP contact information, supporting 0-32bit character string input.
Location	The text box of position information, supporting 0-32bit

Interface Element	Description
	character string input.
SNMP Agent Version	The check box of the SNMP agent version, which supports optional v1, v2 and v3 versions. Compared with v1/v2, version v3 mainly adds authentication and encryption.
Read-only User Name	The text box of read-only user name, supporting 0-32bit character string input.
Read-only Authentication Mode	The drop-down list of read-only user authentication mode, the options are as follows: ● Disable ● MD5: message digest algorithm 5; ● SHA: Secure Hash Standard.
Read-only Password	The text box of read-only user authentication key, supporting 0-32bit character string input.
Read-only Privacy Mode	The drop-down list of read-only user data encryption mode, the options are as follows: ● Disable ● DES_CBC: The system encrypts the data by using the cipher group link code of the data encryption standard.
Read-only Privacy	Read-only user data encryption key text box, supporting 0-32bit character string input.
Read/Write User Name	The text box of read/write user name, supporting 0-32bit character string input.
Read/Write Authentication Mode	The drop-down list of read/write user authentication mode, the options are as follows: ● Disable ● MD5 (message digest algorithm 5); ● SHA: Secure Hash Standard.
Read/Write Password	The text box of read/write user authentication key, supporting 0-32bit character string input.
Read/Write Privacy Mode	The drop-down list of read/write user data encryption mode, the options are as follows: ● Disable ● DES_CBC: The system encrypts the data by using the cipher group link code of the data encryption standard.
Read/Write Privacy	The text box of read/write user data encryption key, supporting 0-32bit character string input.

9 Alarm Settings

9.1 E-Mail Alert Configuration
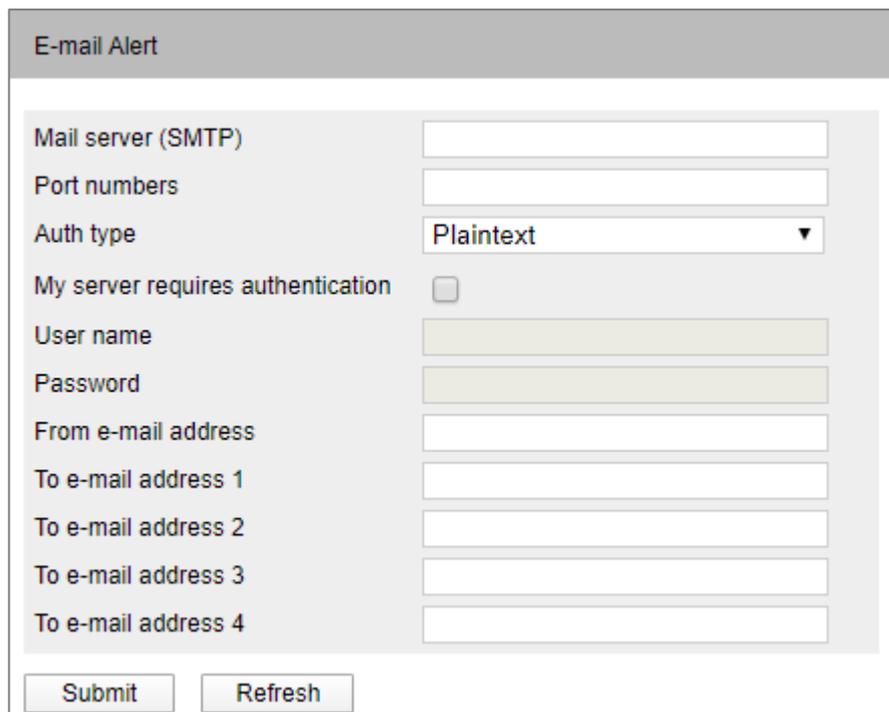
Function Description

On the " E-Mail Alert configuration" page, user can configure the sender, recipient, mailbox server and other parameters. The system can inform the change information of power connection, warm start, cold start, LAN port connection, serial DCD and DSR signals of the device by mail.

Operation Path

Open in order: "Alarm Configuration > E-Mail Alert Settings".

Interface Description

Mail Alarm Settings configuration interface is as follows:

Main element configuration instructions in Disable Mode interface

Interface Element	Description
Mail Server (SMTP)	Mailbox server address using SMTP simple mail transfer protocol provided by mailbox service provider, and mailbox server address used by sender when sending mail.
Port number	Port number of mailbox server.
Auth type	The drop-down list of authentication method, the options are as follows: ● Plaintext; ● SSL: encryption protocol of Secure Sockets Layer; ● TLS: encryption protocol of Transport Layer Security.
My server requires authentication	The check box of mailbox server authentication. Check the configuration according to the authentication requirements of mailbox server.
User name	The user name of the sender's mailbox server.
Password	Login password or authorization code of sender's mailbox server.
From E-mail address	The email address from which the sender sends a warning message.
To e-mail address 1	The input text box of Address 1, which is used to fill in the email address of receiving alarm mails.
To e-mail address 2	The input text box of Address 2, which is used to fill in the email address of receiving alarm mails.
To e-mail address 3	The input text box of Address 3, which is used to fill in the email address of receiving alarm mails.
To e-mail address 4	The input text box of Address 4, which is used to fill in the email address of receiving alarm mails.

9.2　SNMP Trap Alarm Configuration

Function Description

In the SNMP Trap Alarm page, you can configure the IP address or domain name of the server that receives SNMP Trap information.

Operation Path

Open in order: "Advanced Config > SNMP Trap Alarm Configuration".

Interface Description

The SNMP Trap Alarm Configuration interface as follows:

The main elements configuration description of   SNMP Trap alarm interface:

Interface Element	Description
SNMP Trap server IP or domain name	The text box of IP address or domain name of SNMP Trap server. The server is used to receive SNMP Trap information sent by devices.
Trap version	The radio box of SNMP Trap version, which supports optional v1 and v2c versions.
Trap community	The text box of SNMP Trap community name, which specifies SNMP community name.

9.3   IO Trap Settings

Function Description

On the "IO Trap Settings" page, IO Trap alarms can be configured.

Operation Path

Open in order: "Alarm Settings > IO Trap Settings".

Interface Description

The IO Trap settings interface as follows:

The main element configuration description of IO Trap Settings interface:

Interface Element	Description
Channel	The name of DI and DO channels.
Mode	The working modes of DI and do channels are shown as follows: ● DI ● Counter ● DO ● Pulse Output
SNMP Trap	The enable Trap check box. After checking it, when the DI or DO status changes, the device sends Trap information to the SNMP server through SNMP. Note: The Counter and Pulse Output modes do not support Trap alarms.
Special ID (1-20)	Trap special ID, the value range is 1-20, and different ID event types can be customized.
Trigger	Trap trigger mode, as shown below: ● On Change: when the channel status changes, the Trap message will be triggered. ● --: no trigger mode.

9.4 System Alert Settings

Function Description

In the "System Alert Settings" page, the alarm type of system events can be configured.

Operation Path

Open in order: "Alarm Configuration >System Alarm Settings".

Interface Description

System Alert Settings interface is as follows:

Main elements configuration description of system alarm interface:

Interface Element	Description
System Event	**System event alert configuration bar**
Event	System event alert types, shown as follows: • Cold start: device will send alarm after it is powered off and restarted.

Interface Element	Description
	• Warm start: In the case of uninterrupted power supply, the device will send alarm after restarting the device via the Web or CLI configuration. • Network card1: device will send alarm when lan1 loses connection. • Network card2: device will send alarm when lan2 loses connection. • Login Failed: device will send alarm when web login password authentication fails. • Modify Static IP: device will send alarm when "Network Configuration" is modified. • Modify Password: device will send alarm when "User Configuration" is modified. • Timing: device will send alarm when "Time Setting" is modified. • NTP Connection Failed: device will send alarm when NTP sever connection fails. • E-mail Sending Failed: device will send alarm when mail sending fails due to network or other problems. • Firmware Upgrade: device will send alarm when the firmware is upgraded. • Modify Configuration: device will send alarm when part of webpage configuration is modified. • Import Configuration: device will send alarm when configuration file is imported. • Export Configuration: device will send alarm when configuration file is exported.
System Event Alarm	System alert mode check box, the options are as follows: • Trap: after checked, device will send SNMP Trap message for alarm according to "SNMP Trap Alarm Configuration" information when the corresponding system event sends an alarm. • Mail: after checked, device will send mail for alarm according to "Mail Alarm Configuration" information when the corresponding system event sends an alarm. • Sys log: after checked, device will record alarm message in "System Log" information when the corresponding system event sends an alarm; device will send log message for alarm to remote syslog if it is enabled.

10 System Status

10.1 Routing Table

Function Description

In "Routing" page, you can see the current route information.

Operation Path

Open in order: "System Status > Routing".

Interface Description

Route Table Interface Screenshot:

The main elements configuration description of routing interface:

Interface Element	Description
Iface	Display the interface name of physical network.
Destination	Display the IP address of destination host or the network address of destination routing.
Gateway	Display gateway IP address or next hop router IP address of.
Netmask	Display destination network subnet mask.
Metric	Display the router hops from source terminal to destination terminal.
Flags	Display routing status, valid status is: • U: UP

Interface Element	Description
	• D: DOWN
	• G: Route to gateway
	• H: Route to host computer
	• T: Routing settings
	• R: RIP is dynamic
Use	The quantity of data packet which is sent correctly via the router.

10.2 System Network Status

Function Description

On the page of "System Network Status", user can check TCP connection informationof the device.

Operation Path

Open in order: "System Status > System Network Status".

Interface Description

The system network status interface is as follows:

The main element configuration description of system network status interface:

Interface Element	Description
Protocol	Network protocol type.
Receiv-Q	Number of network receiving queues.
Send-Q	Number of network sending queues.

Interface Element	Description
Local IP address	Device IP address and network port number.
Foreign Address	IP address and network port number of remote host.
State	The status of the network socket is as follows: • LISTEN: listening state. • ESTABLISHEN: the connection has been established.

10.3 System Log

Function Description

On the "System log" page, you can view the log information of the device and upload the log information to the syslog server. During the operation of the device, the system will record all kinds of situations in operation, thus forming log information. The log information is mainly used to check the running status of device, analyze the status of network and locate the causes of problems, and provide basis for system diagnosis and maintenance. The generated log information can be saved on the device, and the log information can be output to the log server by using syslog protocol.

Operation Path

Open in order: "System Management > System Log".

Interface Description

System log interface as follows:

The main elements configuration description of system log interface:

Interface Element	Description
Model	System log server configuration type, which can be checked as follows: • Enable: when enabled, the system log will be saved to the remote system log server. • Disable: Disable the syslog server function.
Message Type	System log information transmission protocol, which can be selected as follows: • TCP: system log information is sent to the log server by TCP protocol. TCP (transmission control protocol), connection-oriented and reliable transmission-layer communication protocol;

Interface Element	Description
	• UDP: the system log information is sent to the log server by UDP protocol. UDP (user datagram protocol), connectionless-oriented transmission-layer communication protocol.
IP	IP address of the syslog server.
Port	The port number of syslog server, and the default port of syslog protocol is 514.
Syslog Severity	The level of system log can be selected as follows: • LOG_EMERG: extremely urgent error; • LOG_ALERT: an error that needs to be corrected immediately; • LOG_CRIT: a more serious error; • LOG_ERR: An error occurred; • LOG_WARNING: warning, there may be some error; • LOG_NOTICE: information to be noticed; • LOG_INFO: general prompt information; • LOG_DEBUG: debug information.

Configuration Instance

"Visual Sys log Server" is a free open source software for receiving and viewing syslog messages. At present, the host with "Visual Sys log Server" installed is used as the system log server, and the IP address of the host is 192.168.1.101. The device transmits log information to the host server through TCP protocol. The configuration steps are as follows:

Step 1 Log in to the device WEB interface.

Step 2 On the "System log" page, configure relevant parameters, as shown in the following figure:

1　Check "Enable" in the "Model" checkbox;

2   Check "TCP" protocol in "Message Type" checkbox;

3   In the IP text box, enter the IP address "192.168.1.101" of the server.

4   In the "Port" text box, enter the port number of the server, and the default port of syslog protocol is 514;

5   In the "Log Level" drop-down list, select "LOG_INFO";

6   Click "Apply" button.

Step 3 Run "Visual Sys log Server" on the host to complete the configuration of relevant parameters, as shown below.
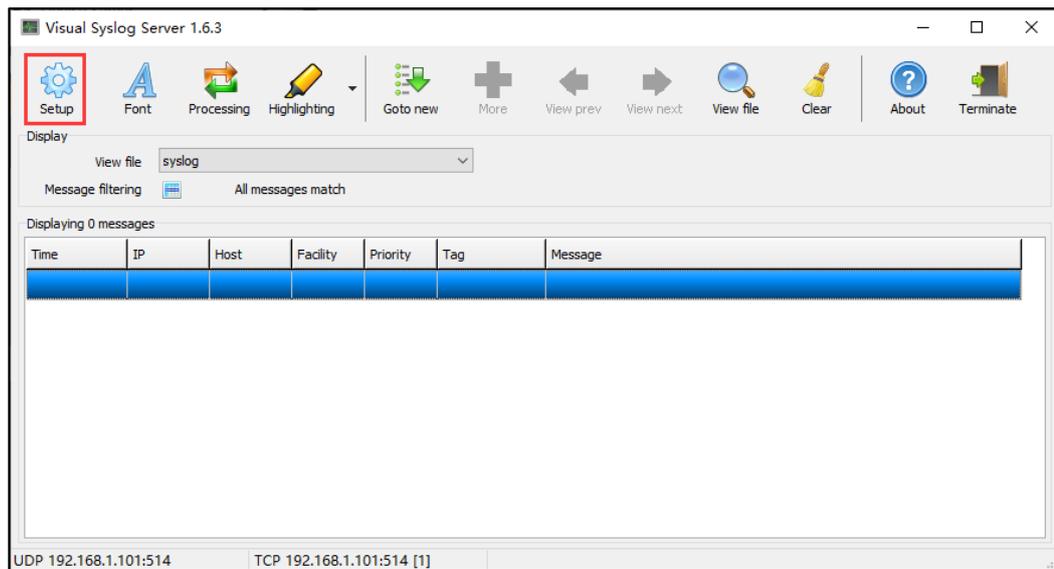
1   Click the "Setup" button, as shown in the above figure;
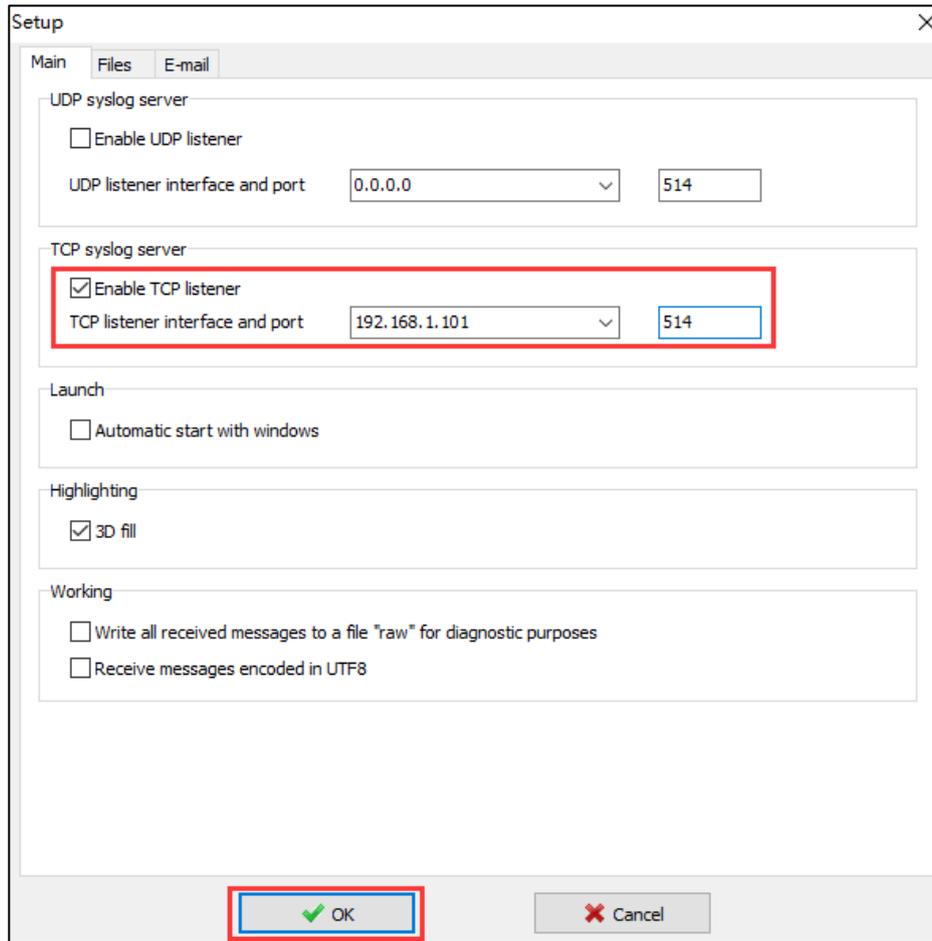
2   On the "Setup" page, in the Main configuration area, check "Enable TCP Listener", as shown in the above figure;

3   Select the IP address "192.168.1.101" and port number "514" of the server from the "TCP listener interface and port" drop-down list;

4   Click "OK" button.

Step 4 Check the log information in the "Visual Sys log Server" configuration interface, as shown in the following figure.
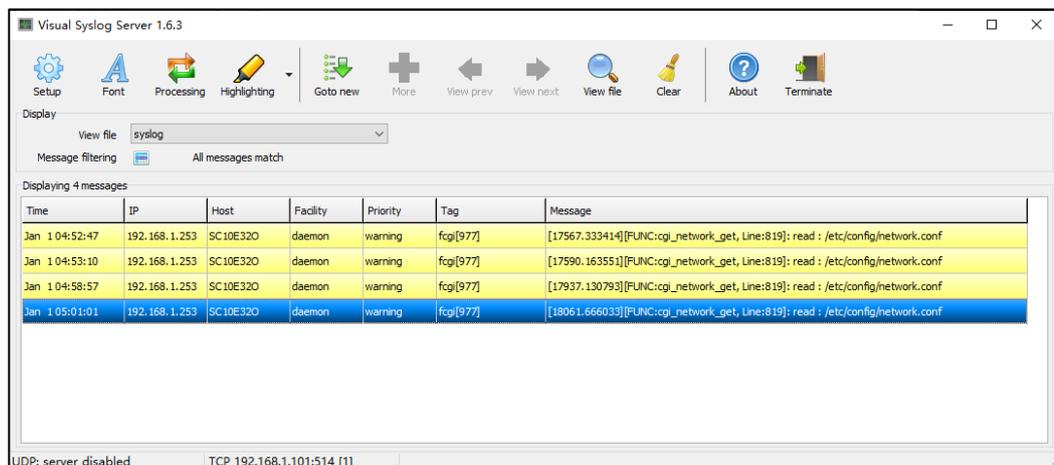
Step 5 End.

11 System Management

11.1 Device Information Configuration

Function Description

In the "Device Information Configuration" page, you can configure the device name, device description, and maintenance contact information.

Operation Path

Open in order: "System Management > Device Information Settings".

Interface Description

The screenshot of device information configuration interface:

The main elements configuration description of device information interface:

Interface Element	Description
Device model	Device model information, the input box is grayed and cannot be entered by default.
Device name	Enter the device name in the "Name" text box. To identify each device in the network, give the device a different name.
Description	Enter the device description in the "Description" text box.

Interface Element	Description
Serial no.	Device serial information, the input box is grayed and cannot be entered by default.
Contact	Enter the contact information of the equipment maintenance personnel in the "Contact information" text box.

11.2 Time Setting

The full name of NTP protocol is Network Time Protocol. Its destination is to transmit uniform and standard time in international Internet. Specific implementation scheme is appointing several clock source websites in the network to provide user with timing service, and these websites should be able to mutually compare to improve the accuracy. It can provide millisecond time correction, and is confirmed by the encrypted way to prevent malicious protocol attacks.

Function Description

On the "Time Settings" page, user can configure the device time and NTP server information.

Operation Path

Open in order: "System manage > Time setting".

Interface Description

Time setting interface as follows:

The main elements configuration description of time settings interface:

Interface Element	Description
Time Zone	Time standard of different global regions.
local Time	The device's own time. Click the "Change" button to manually modify the device time or synchronize it to the current computer time.
Time Server	IP address or domain name of NTP server. The device will

Interface Element	Description
	automatically synchronize NTP server time.

11.3 Remote Management

HTTPS (full name: Hypertext Transfer Protocol over Secure Socket Layer) is an HTTP channel targeted for security, which in short is a Secure version of HTTP. HTTPS provides data encryption services to prevent the attacker to intercept the transmitted message between the Web browser and web server, obtain some sensitive information, such as credit card numbers, passwords, etc.

The full English name of SSH is Secure Shell. SSH is a security protocol based on application layer and transmission layer. Telnet is transmitted in plaintext, while SSH is transmitted in ciphertext, which is more secure. SSH is a reliable protocol which provides security for remote login sessions and other network services. Using SSH protocol can effectively prevent information leakage in the process of remote management, and can also prevent DNS and IP spoofing. In addition, the transmitted data is compressed so that the transmission speed can be increased.

Function Description

On the "Remote Administration" page, access methods such as TELNET, HTTP, HTTPS and SSHD can be restricted.

Operation Path

Open in order: "System Management > Remote Management".

Interface Description

The Remote management interface is as follows:

The main elements configuration description of Remote management interface:

Interface Element	Description
TELNET Service	TELNET service function status, the options are as follows: • Enable;

Interface Element	Description
	• Disable. Note: When enabled, the TELNET client can access the CLI interface of the device.
HTTP	Device HTTP protocol function status, options are as follows: • Enable; • Disable. Note: When enabled, when using HTTP to access the WEB interface, the format is HTTP://192.168.1.254, and the address is the IP address of the corresponding device.
HTTPS	Device HTTPS protocol function status, options are as follows: • Enable; • Disable. Note: When enabled, when using HTTPS to access the WEB interface, the format is HTTPS://192.168.1.254, and the address is the IP address of the corresponding device.
SSHD service	SSH service function status, the options are as follows: • Enable; • Disable. Note: When enabled, the SSH client can access the CLI interface of the device.

11.4 User Configuration

Function Description

In the "user configuration" page, users can add and delete users freely. Users need to access the device by login with user name and password. The initial user name and password are both: admin.

Operation Path

Open in order: "System Management > User Configuration".

Interface Description

User configuration interface as follows:
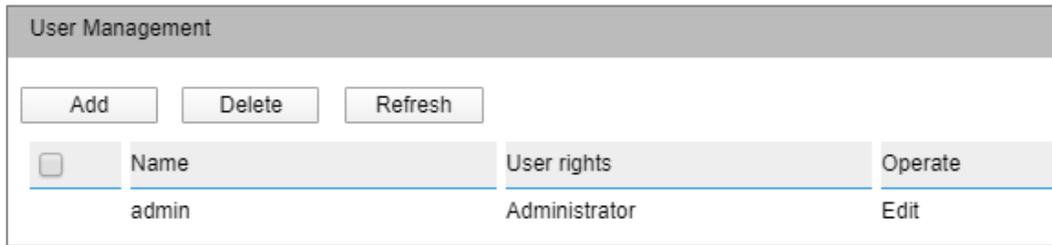
The main elements configuration description of user configuration interface:

Interface Element	Description
Name	Identification of the visitor. Note: User names and passwords can support up to 32 characters.
User Rights	The user's access rights are shown as follows: ● Administrator: has administrator authority and can configure parameters of device; ● General user: has viewing authority, and can view device configuration parameters and network diagnosis operations.
Operate	Click Edit to modify the password and user rights of the current user.

11.5 IP Address Filtering

Function Description

Users can limit the ongoing access or connected host IP address and subnet mask via setting access rules on the "IP Filter" page.

Operation Path

Open in order: "System Management> IP Address Filtering".

Interface Description

IP filter interface shown as follows:

3onedata

User Manual

Main element configuration instructions in IP Filtering interface

Interface Element	Description
IP Address Filtering	Enable or disable IP filtering rules. ● Enable ● Disable
Operation Mode	Set filtering rules for IP addresses. ● White list: the IP address set in the filtering rule is allowed to access the device. ● Blacklist: IP addresses set in filtering rules are prohibited from accessing devices. Notice: ● When the white list is enabled, IP addresses outside the white list will not be able to access the device. ● If the IP address in the white list cannot access the device, please clean the browser cache and access it again. ● When the blacklist is enabled, the IP addresses covered by the

Interface Element	Description
	blacklist will not be able to access the device.
Number	Displays the IP address filtering rule number.
Status	Enable or disable Filtering rules. ● Enable ● Disable
IP Address	Set the IP address in dotted decimal format in the filter rule, such as "192.168.1.61".
Subnet Mask	Set the subnet mask in dotted decimal format in the filter rule, such as "255.255.255.0".

11.6 MAC Filtering

Function Description

On the "MAC Filter" page, user can restrict the host MAC address to access or connect by setting access rules.

Operation Path

Open in order: "System Management > MAC Address Filtering".

Interface Description

MAC filter interface shown as follows:

The main elements configuration description of MAC Filter interface:

Interface Element	Description
MAC Address Filtering	Enables or disables MAC address filtering rules. ● Enable ● Disable
Operation Mode	Set filtering rules for MAC addresses. ● White list: the MAC address set in the filtering rule is allowed to access the device. ● Blacklist: MAC addresses set in filtering rules are prohibited from accessing devices. Notice: ● When the white list is enabled, MAC addresses outside the white list will not be able to access the device. ● When the blacklist is enabled, the MAC addresses covered by the blacklist will not be able to access the device.

Interface Element	Description
Number	Display MAC address of the filtering rule
Status	Enable or disable Filtering rules. ● Enable ● Disable
MAC Address	Set the six-byte hexadecimal format MAC address in the filter rule, such as "00-22-6F-03-BD-52".

11.7 Static Routing Configuration

Function Description

In "Static Routing Configuration" page, you can configure how to connect device with external network. In the dual IP mode, the data egress interface can be specified via static routing configuration when device is communicating across network segment. Device supports up to 32 routing entries, every entry must provide gateway, destination address, subnet mask, egress interface and other information.

Operation Path

Open in order: "System Management > Static Routing Configuration".

Interface Description

The static routing configuration interface as follows:

```
Route Table
No    Gateway              Destination          Netmask              Metric    Iface
1     [          ]         [          ]         [          ]         1         [lan1 ▼]
2     [          ]         [          ]         [          ]         1         [lan1 ▼]
3     [          ]         [          ]         [          ]         1         [lan1 ▼]
4     [          ]         [          ]         [          ]         1         [lan1 ▼]
5     [          ]         [          ]         [          ]         1         [lan1 ▼]
6     [          ]         [          ]         [          ]         1         [lan1 ▼]
7     [          ]         [          ]         [          ]         1         [lan1 ▼]
8     [          ]         [          ]         [          ]         1         [lan1 ▼]
9     [          ]         [          ]         [          ]         1         [lan1 ▼]
10    [          ]         [          ]         [          ]         1         [lan1 ▼]
11    [          ]         [          ]         [          ]         1         [lan1 ▼]
12    [          ]         [          ]         [          ]         1         [lan1 ▼]
13    [          ]         [          ]         [          ]         1         [lan1 ▼]
14    [          ]         [          ]         [          ]         1         [lan1 ▼]
15    [          ]         [          ]         [          ]         1         [lan1 ▼]
16    [          ]         [          ]         [          ]         1         [lan1 ▼]
17    [          ]         [          ]         [          ]         1         [lan1 ▼]
18    [          ]         [          ]         [          ]         1         [lan1 ▼]
19    [          ]         [          ]         [          ]         1         [lan1 ▼]
20    [          ]         [          ]         [          ]         1         [lan1 ▼]
21    [          ]         [          ]         [          ]         1         [lan1 ▼]
22    [          ]         [          ]         [          ]         1         [lan1 ▼]
23    [          ]         [          ]         [          ]         1         [lan1 ▼]
24    [          ]         [          ]         [          ]         1         [lan1 ▼]
25    [          ]         [          ]         [          ]         1         [lan1 ▼]
26    [          ]         [          ]         [          ]         1         [lan1 ▼]
27    [          ]         [          ]         [          ]         1         [lan1 ▼]
28    [          ]         [          ]         [          ]         1         [lan1 ▼]
29    [          ]         [          ]         [          ]         1         [lan1 ▼]
30    [          ]         [          ]         [          ]         1         [lan1 ▼]
31    [          ]         [          ]         [          ]         1         [lan1 ▼]
32    [          ]         [          ]         [          ]         1         [lan1 ▼]
[Submit]   [Refresh]
```

The main elements configuration description of static routing configuration interface:

Interface Element	Description
No	The entry number of static routing table.
Gateway	Gateway IP address or IP address of next hop router.
Destination	The IP address of destination host or the network address of destination routing.
Netmask	Subnet mask of destination network.
Metric	The number of routers from source terminal to destination terminal is hop. Device will prioritize the routing of data packets if more than one router is available to reach a given destination.
Iface	Network data egress, options are as follows: ● lan1

Interface Element	Description
	● lan2

Configuration Instance

Configure the static routing of the device to communicate with PC A, PC B and PC C. Suppose device LAN1 connects to router1, and communicates with PC A; device LNA2 connects to router2, and communicates with PC B/PC C via router3, as the picture below.
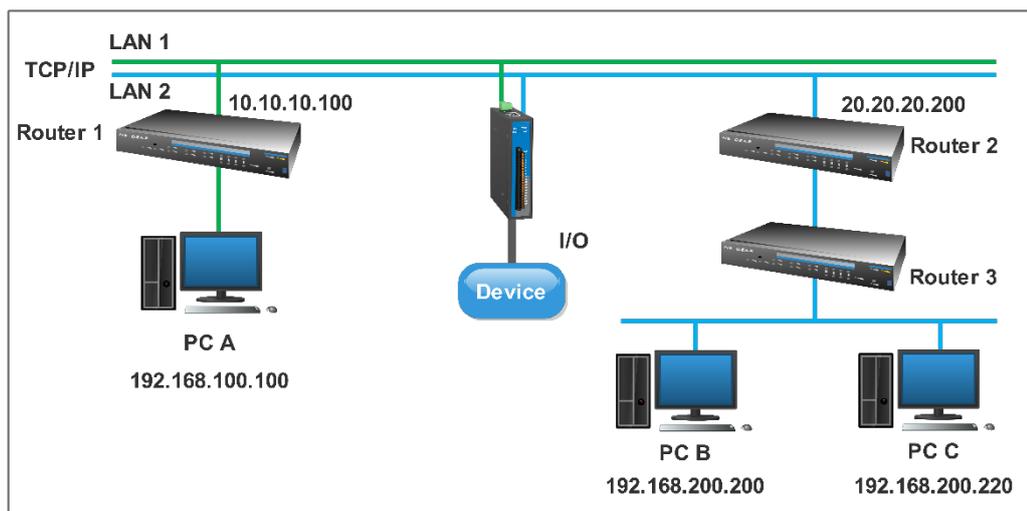
Note:

The device picture mentioned in above figure is only an example , and the actual appearance of the device is subject to the device obtained.

The device communicates with PC A, the network parameters are as follows:
● IP address of device network port 1(LAN 1) : 10.10.10.10
● Router1 IP address (LAN 1) : 10.10.10.100
● PC A IP address: 192.168.100.100

The device communicates with PC B/C, and the network parameters are as follows:
● IP address of device network port 2(LAN 2) : 20.20.20.20
● Router2 IP address (LAN 2) : 20.20.20.200
● PC B IP address 192.168.200.200
● PC C IP address 192.168.200.200

When the device communicates with PC A, it passes through a router, and the hop count is 1, so a static routing table needs to be added, as shown in item 1 in the following figure. When the device communicates with PC B or PC C, it passes through two routers with a hop count of 2, so a static routing table needs to be added, as shown in item 2 in the following figure.

Route Table					
No	Gateway	Destination	Netmask	Metric	Iface
1	10.10.10.100	192.168.100.100	255.255.255.255	1	lan1 ▼
2	20.20.20.200	192.168.200.0	255.255.255.0	2	lan2 ▼
3				1	lan1 ▼
4				1	lan1 ▼
5				1	lan1 ▼
6				1	lan1 ▼

11.8 Diagnostic Test

11.8.1 Ping

Function Description

On the "Ping" page, users can use the Ping command to check whether the network is clear or the network connection speed. Ping utilizes the uniqueness of network machine IP address to send a data packet to the target IP address, and then ask the other side to return a similarly sized packet to determine whether two network machines are connected and communicated, and confirm the time delay.

Operation Path

Open in order: "System Management > Diagnosis > Ping".

Interface Description

Ping information interface as follows:

Diagnosis >	Ping	Traceroute	Capture

IP address [   ]

[Start]

The main elements configuration description of Ping configuration interface:

Interface Element	Description
IP Address	The IP address of the detected device, that is, the destination address. The device can check the network intercommunity to other devices via the ping command.

Ping Configuration:

Step 1 Fill in the IP address that needs ping in the IP address text box;

Step 2 Click the "Start" button to check the ping results;
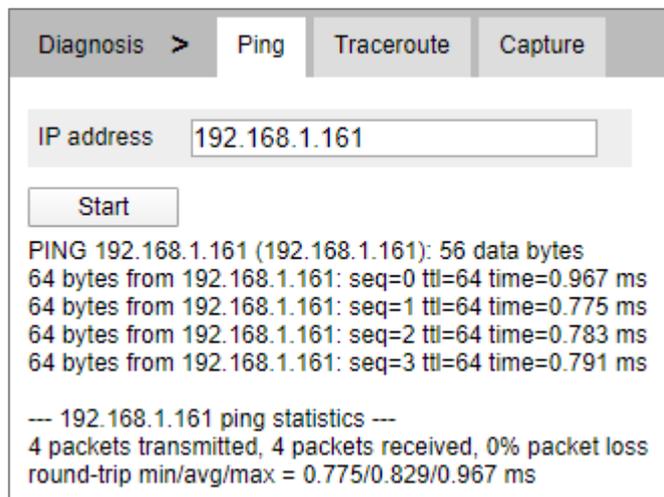
Step 3 End.

11.8.2 Traceroute

Function Description

On the "Traceroute" page, users can test the network conditions between the device and the target host. Traceroute measures how long it takes by sending small packets to the destination device until they return. Each device on a path Traceroute returns three test results. Output result includes each test time (ms), device name (if exists) and the IP address.

Operation Path

Open in order: "System Management > Diagnose Test > Traceroute".

Interface Description

TRACEROUTE interface as follows:
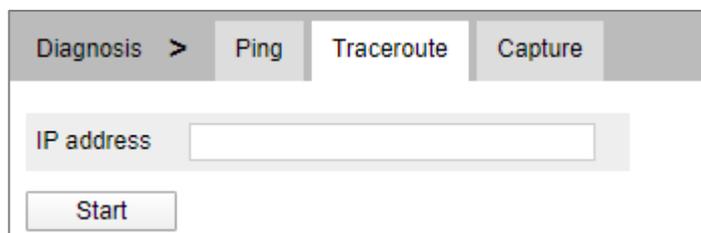
The main element configuration description of Traceroute interfaces:

Interface Element	Description
IP Address	IP address of the destination device, fill in the IP address of the opposite device that needs to be detected.

TRACEROUTE Configuration Steps:

Step 1 Fill in the destination IP address in the "IP address" text box;

Step 2 Click the "Start" button to check the results, as the picture below.
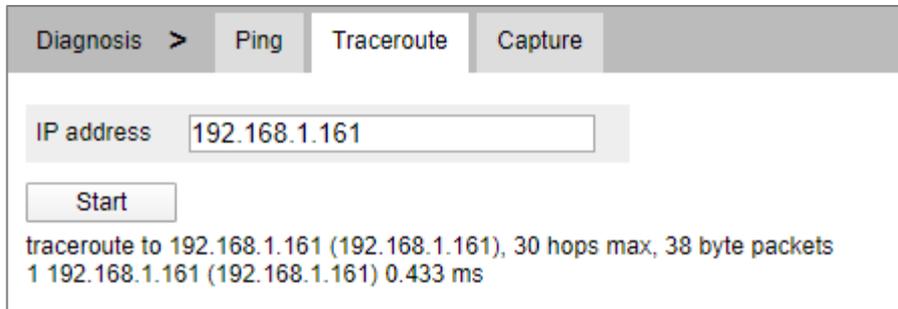

Step 3 End.

11.8.3 Packet Capture Diagnosis

Function Description

On the "Packet Capture Diagnosis" page, the user can obtain the data packets sent and received by the Ethernet port of the device for network debugging and data analysis.

Operation Path

Open in order: "System Management > Diagnose Test > Packet Capture Diagnosis".

Interface Description

The Packet Capture Diagnosis interface screenshot is as follows:
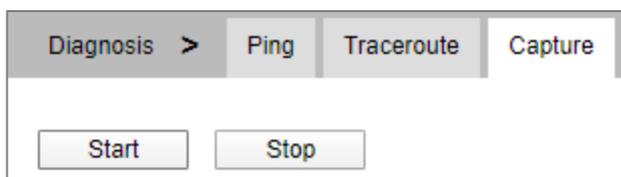
Main elements configuration description of Packet Capture Diagnosis interface:

Interface Element	Description
Start	Click the "Start" button, and the device will start capturing network packets.
Stop	Click the "Stop" button, the device stops capturing network packets, and saves the network packets captured during this period to the local client in ".pcap" format. Note:

Interface Element	Description
	Users can use Wireshark or other third-party software to open the captured packets.

11.9 System Maintenance

11.9.1 Configure File Management

Function Description

On the "Management File" page, user can download and upload configuration file.

Operation Path

Open in order: "System Management > System Maintenance > Configuration File Management".

Interface Description

Configuration file management interface is as follows:
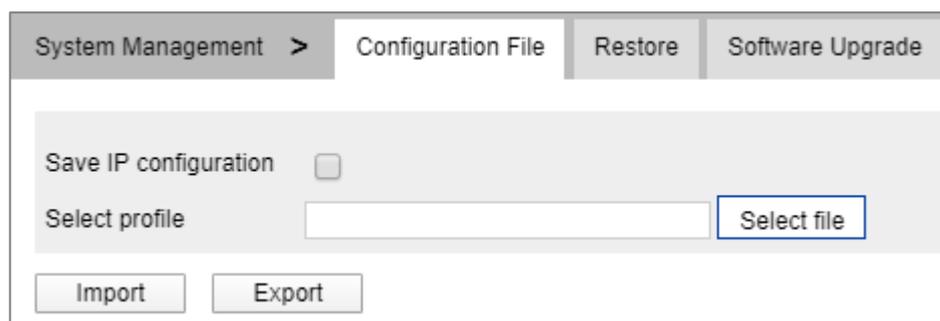
The main elements configuration description of configure file management interface:

Interface Element	Description
Save IP configuration	When checked, the device can keep the current IP address after importing the configuration file.
Select profile	Select the path to uploadconfiguration file locally , click "Select File" to select required configuration file. Note: Uploaded configuration files need to be exported by devices of the same model.
Export	Download the configuration file of the current device in the format of. tar. Note: The downloaded configuration file will be saved in the format of ".tar", which is encrypted, so please do not decompress or modify it.

Interface Element	Description
Import	Upload configuration file.

![Note icon] Note

- After finishing update, the device will automatically open a new page to "System Information", and the uploaded configuration file will be valid after the device is reset.
- After uploading the configuration file, if the static IP in the configuration file and the computer IP are not in the same network segment, the webpage cannot be opened.
- While uploading configuration file, if dynamic IP is used in the configuration file and there is no DHCP server in the network segment, relative IP portion won't be updated.
- Do not click on or configure other WEB pages of the device or restart the device when uploading configuration files or upgrading software. Otherwise, the configuration file upload or software update will fail, or the device system will crash.

11.9.2 Restore Default Settings

Function Description

On the "Restore Factory Settings" page, user can restore the device to default setting.

Operation Path

Open in order: "System management > System Maintenance > Restore".

Interface Description

Restore Factory Settings interface is as follows:

The main elements configuration description of Restore Factory settings interface:

Interface Element	Description
Save IP configuration	When checked, the device can keep the current IP address after restoring the factory settings.
Restore	Click this button and the device will lose all existing configurations and reverts to factory settings.

> **Note**
> Restoring factory value settings will cause all configurations to be in the factory state, where the IP address is the static IP address "192.168.1.254", and the user name and password default to "admin".

11.9.3 Software Upgrade

Function Description

On the Software Upgrade page, you can update and upgrade the device program.

Operation Path

Open in order: "System management > System Maintenance > Software Upgrade".

Interface Description

The software update interface as follows:

The main elements configuration description of software update interface:

Interface Element	Description
Restore	When checked, the device will be restored to the factory settings after upgrading. After unchecking, the configuration parameters will be kept after the device software is upgraded.
Save IP configuration	After the software upgrade is checked to restore the factory configuration, the IP configuration can be checked to keep the current IP address and other parameters will be restored to the factory configuration.
Select file	Select the path of the local upgrade file, and click "Select file" to select the required configuration file.
Upgrade	Click "Upgrade" button to start the program upgrade.

📄Note

- Do not click on or configure other WEB pages of the device or restart the device or power off the device when upgrading software. Otherwise, the software update will fail, or the device system will crash.
- Maintain a reliable wired connection when upgrading.
- When the online upgrade is complete, the device will restart automatically.

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12 Maintenance and Service

Since the date of product delivery, our company provides 3-year product warranty. According to our company's product specification, during the warranty period, if the product exists any failure or functional operation fails, our company will repair or replace the product for users free of charge. However, the commitments above do not cover damage caused by improper usage, accident, natural disaster, incorrect operation or improper installation.

In order to ensure that consumers benefit from our company's managed switch products, consumers can get help and solutions in the following ways:

- Internet Service;
- Service Hotline;
- Product repair or replacement;

12.1 Internet Service

More useful information and tips are available via our company website.

Website: http://www.3onedata.com

12.2 Service Hotline

Users using our company products can call technical support office. Our company has professional technical engineers to answer the questions and help solve the products or usage problems ASAP. Free service hotline: +86-4008804496

12.3 Product Repair or Replacement

As for the product repair, replacement or return, customers should firstly confirm with the company's technical staff, and then contact the salesmen to solve the problem. According to the company's handling procedure, customers should negotiate with our

company's technical staff and salesmen to complete the product maintenance, replacement or return.

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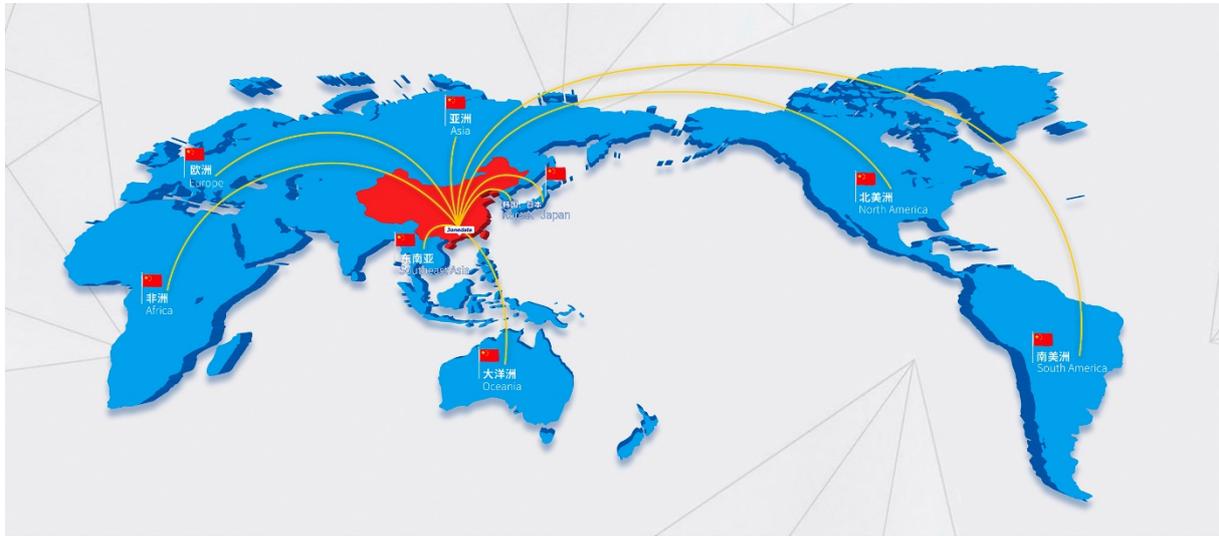
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