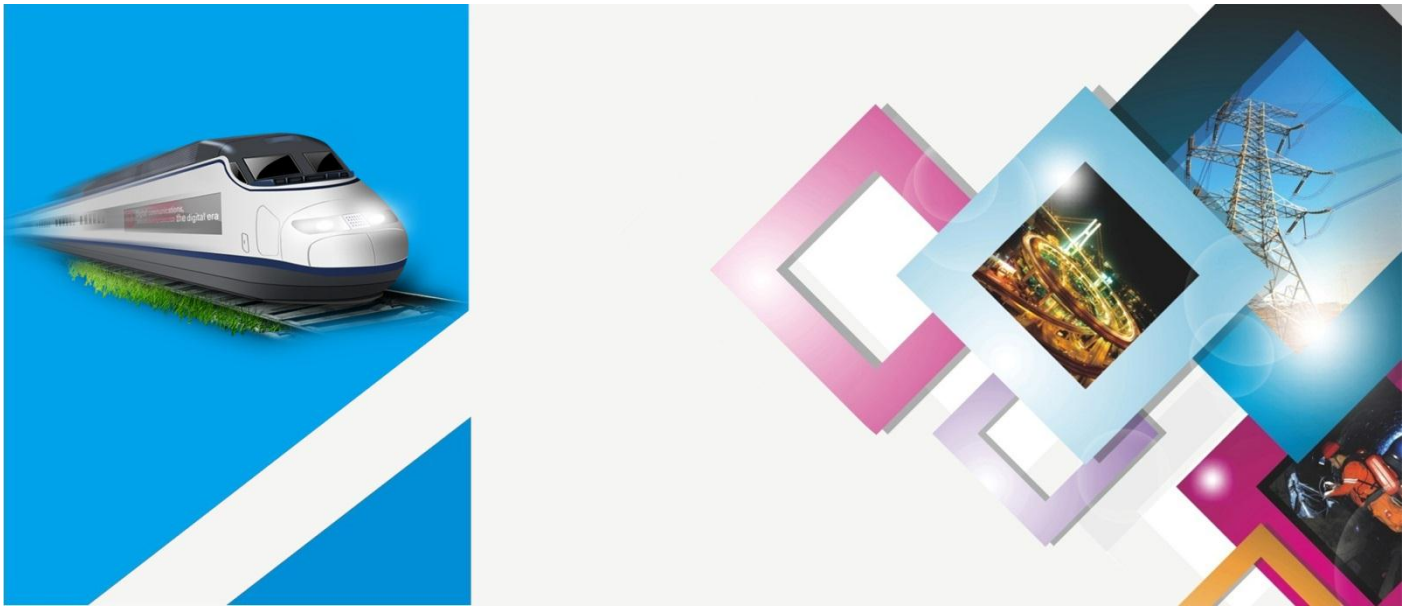
3onedata
Make network communication more reliable



IMC100-2T1F-1D

Industrial Media Converter

User Manual

Version 01

Issue Date: 2019-01-28

Copyright © 2019 3onedata Co., Ltd. All rights reserved.

No company or individual is allowed to duplicate or transmit this manual in any forms without written permission issued by 3onedata Co., Ltd.

Trademark statement

3onedata, 3onedata® and

are the registered trademark owned by 3onedata Co., Ltd. And other trademarks mentioned in this manual belong to their corresponding companies.

Notes

Purchased product, service or features should be constrained by 3ondedata commercial contracts and clauses. The whole or part product, service or features described in this document may beyond purchasing or using range. 3onedata won't make any statement or warranty for this document content unless any other appointment exists.

Due to product version upgrading or other reason, this document content will be upgraded periodically. Unless other appointment exists, this document only for usage guide, all statement, information and suggestion in this document won't constitute any warranty.

3onedata Co., Ltd.

Headquarter address:	3/B, Zone 1, Baiwangxin High Technology Industrial Park, Song Bai Road, Nanshan District, Shenzhen, 518108, China
Technology support:	tech-support@3onedata.com
Service hotline:	+86-400-880-4496
E-mail:	sales@3onedata.com
Fax:	+86-0755-26703485
Website:	http://www.3onedata.com

Preface

Managed Industrial Ethernet Switch User Manual has introduced this series of switches:

- Product feature
- Network management method
- Network management relative principle overview

Readers

This manual mainly suits for engineers as follows:

- Network administrator responsible for network configuration and maintenance
- On-site technical support and maintenance staff
- Hardware engineer

Text Format Convention

Format	Description
“”	Words with "" represent the interface words. e.g.: "The 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	Represent the words click to achieve hyperlink. Font color as: "Light blue".
About This Chapter	The "About This Chapter" section provides links to each section and corresponding principles / operating chapters in this chapter.

Icon Convention

Format	Description

Copyright © 3onedata Co., Ltd.

Format	Description
Notice	Reminder the announcements in the operation, improper operation may result in data loss or equipment damage.
Warning	Pay attention to the notes on the mark, improper operation may cause personal injury.
Note	Make a necessary supplementary instruction for operation description.
Key	Configuration, operation, or tips for device usage.
Tips	Pay attention to the operation or information to ensure success device configuration or normal working.

Revision Record

Version NO.	Revision Date	Revision Description
01	2019-01-18	Product release

Copyright © 3onedata Co., Ltd.

Content

PREFACE 1
CONTENT I
1 LOG IN THE WEB INTERFACE 1
1.1 WEB BROWSING SYSTEM REQUIREMENTS 1
1.2 SETTING IP ADDRESS OF PC 1
1.3 LOG IN THE WEB CONFIGURATION INTERFACE 3
2 SYSTEM STATUS 4
2.1 BASE INFOR 4
2.2 PORT INFOR 6
3 SYSTEM CONFIG 8
3.1 PORT SETTING 8
3.2 VLAN 10
3.3 COM SETTINGS 10
3.4 IP FILTERING 13
3.5 MAC FILTERING 14
3.6 RELAY WARNING 16
3.7 STORM 17
4 SYSTEM TOOLS 19
4.1 SYSTEM FILE UPDATE 19
4.2 LOGIN SETTINGS 20
5 FAQ 22
5.1 SIGN IN PROBLEMS 22
5.2 CONFIGURATION PROBLEM 22
5.3 INDICATOR PROBLEM 23
6 MAINTENANCE AND SERVICE 25
6.1 INTERNET SERVICE 25
6.2 SERVICE HOTLINE 25
6.3 PRODUCT REPAIR OR REPLACEMENT 26

Copyright © 3onedata Co., Ltd.

1 Log in the Web Interface

1.1 WEB Browsing System Requirements

While using managed industrial Ethernet switches, the system should meet the following conditions.

Hardware and Software	System Requirements
CPU	Above Pentium 586
Memory	Above 128MB
Resolution	Above 1024x768
Color	Above 256 color
Browser	Above Internet Explorer 6.0
Operating System	Windows XP Windows 7

1.2 Setting IP Address of PC

The switch default management as follows:

IP Setting	Default Value
IP Address	192.168.1.254
Subnet Mask	255.255.255.0

While configuring the switch via Web:

- Before remote configuration, please make sure the route between computer and

Copyright © 3onedata Co., Ltd.

switch is reachable.

- Before local configuration, please make sure the computer IP address is on the same subnet as the one of switch.

Notes:
While first configuring the switch, if it is a local configuration mode, please make sure that the network segment of current PC is 1.

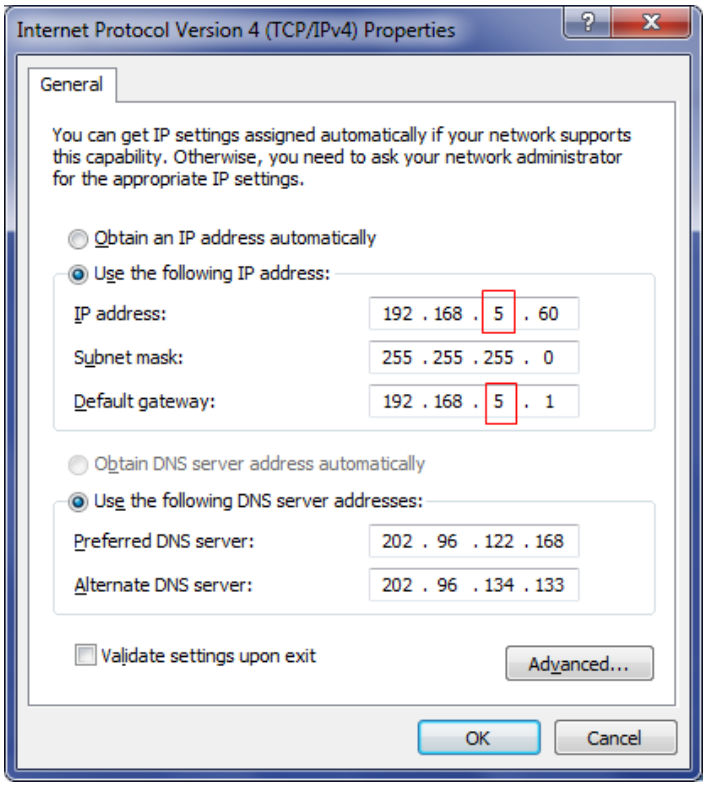
E.g.: Assume that the IP address of the current PC is 192.168.5.60, change the network segment "5" of the IP address to "1".

Operation Steps

Amendment steps as follows:

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 modifies successfully.

Step 4 End.

Notice
In windows system, if user adopts the advanced configuration function of IP address and accesses the switch device via setting IP dummy address, the following managed functions can't be achieved: IEEE 802.1x polling.

Copyright © 3onedata Co., Ltd.

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 On the browser's address bar, type in the switch addresses "http://192.168.1.254 ".

Step 3 Click the “Enter” key.

Step 4 Pop-up a window as the figure below, enter the user name and password on the login window.

Notes:

- The default username and password are “admin”, please strictly distinguish capital and small letter while entering.
- Default username and password have the administrator privileges.
- WebServer will provide 3 times opportunities to enter username and password. If enter the error information for 3 times, the browser will display a "Access denied" to reject access message. Refresh the page and try again.

Step 5 Click "OK".

Step 6 End.

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

Notes:

After login in the device, modify the switch IP address for usage convenience.

Copyright © 3onedata Co., Ltd.

2 System Status

2.1 Base Infor

Function Description

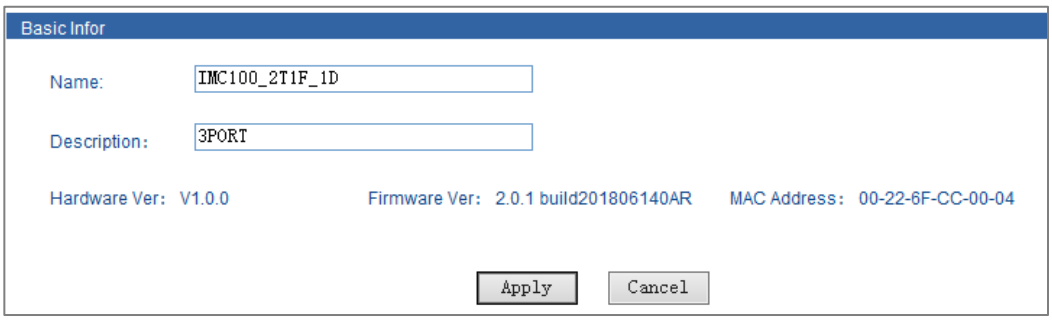
On the “Basic Infor” page, user can check and set device name and description, check information such as hardware version, firmware version and MAC address, etc., as well as network settings.

Operation Path

Open in order: "Main Menu > System Config > System Information".

Interface Description 1：Basic Infor

Basic Infor interface as follows:



The main element configuration description of Basic Infor interface:

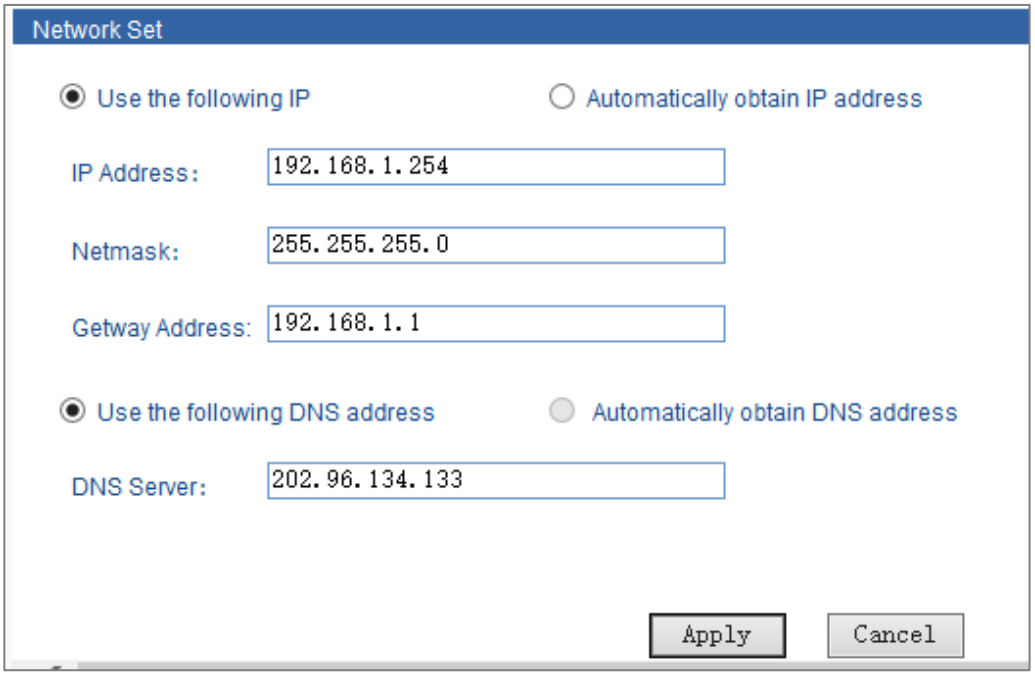
Interface Element	Description
Name	The device name. Note: This item can be modified and input up to 30 characters.

Copyright © 3onedata Co., Ltd.

Interface Element	Description
Description	The device description. Note: This item can be modified and input up to 30 characters.
Hardware Ver	Device hardware version.
Firmware Ver	Device firmware version.
MAC Address	Device MAC address.

Interface Description 2：Network Set

Network Set interface as follows:



Main elements configuration description of Network Set interface:

Interface Elements	Description
Use the following IP address	It represents that enabling manually configured IP address, netmask and gateway address.
Automatically obtain DNS server address	It represents that enabling the system automatical acquisition for the device IP address.
IP Address	Configure IP address of the device. Notes: Default configured IP address is 192.168.1.254.
Subnet Mask	Configure subnet mask of the device.

Copyright © 3onedata Co., Ltd.

Interface Elements	Description
	Notes: Default configured subnet mask is 255.255.255.0.
Gateway	Configure gateway address of the device. Notes: Default configured gateway address is 192.168.1.1.
Use the following DNS server address	Configure the acquisition form of DNS server address as manual configuration. Notes: Default configured DNS server address is 202.96.134.133.
Automatically obtain DNS server address	Configure the acquisition form of DNS server address as automatic acquisition. Notes: When IP address is manual configuration, this option becomes gray and is not optional.
DNS Server	Configure DNS server address.

2.2 Port Infor

Function Description

On the “Port Information” page, user can check port number, port mode, connection status, speed/duplex and flow control, etc.

Operation Path

Open in order: "Main Menu > System Config > Port Infor".

Interface Description

Port Infor interface as follows:

Port	FX/TX	Port State	Link State	Rate/duplex	Flow Control	Jumbo Frame
1	TX	Enable	UN-link	10M half-duplex	Enable	Disable
2	TX	Enable	Link	100M full duplex	Disable	Disable
3	FX	Enable	UN-link	100M full duplex	Enable	Disable

The main element configuration description of Port Infor interface:

Interface Element	Description
Port	Display the device port number.

Copyright © 3onedata Co., Ltd.

Interface Element	Description
FX/TX	Support two kinds of interface types: • Copper port; • Fiber port.
Port State	Support two kinds of Port State: • Enable • Disable
Link State	Support two kinds of Link State: • Link • UN-link
Rate/duplex	Rate/duplex： • Auto • 10M half-duplex • 10M full-duplex • 100M half-duplex • 100M full-duplex Note : When the speed/duplex is self-adaption mode, the port would adapt to port speed/duplex mode automatically.
Flow Control	Support two kinds of Flow Control State: • Enable • Disable

Copyright © 3onedata Co., Ltd.

3 System Config

3.1 Port Setting

Function Description

The “Port Setting” page mainly includes:

- Check port type: copper port or fiber port
- Port enablement
- Set speed/duplex mode
- Flow control
- Jumbo frame status

Note

- The speed/duplex and flow control aimed at this port only works when the port is enabled.
- The speed and duplex would be acquired via automatic negotiation when choosing automatic negotiation.
- The port status doesn’t support disabling two copper ports at the same time.

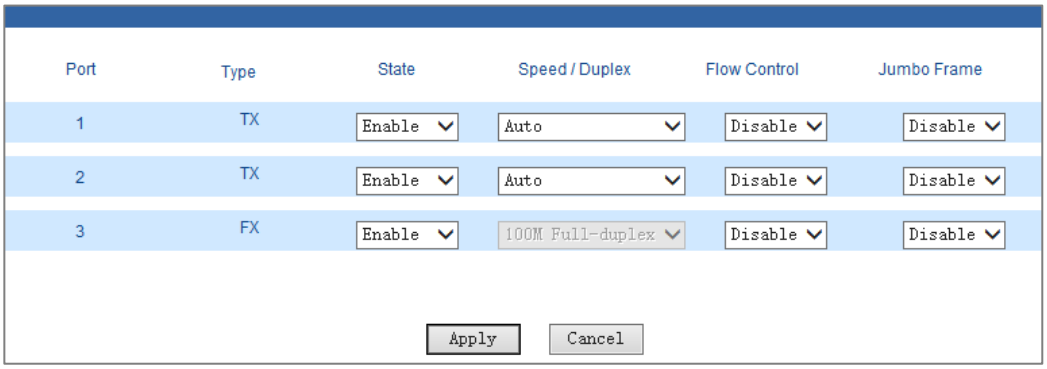
Operation Path

Open in order: "Main Menu > System Config > Port Setting".

Interface Description

Port setting interface as follows:

Copyright © 3onedata Co., Ltd.



The main element configuration description of port setting interface:

Interface Element	Description
Port	Display the device port number.
Type	Support two kinds of interface types: • Copper port; • Fiber port.
Port State:	Support two kinds of Port State: • Enable • Disable Note: • When the port state is enable, it means this port is enabled, which is no data forwarding, and other options of this port would gray out and be unable to choose.
Speed / Duplex	Click the drop-down list of “Speed/Duplex” to choose port speed/duplex mode. • Auto • 10M half-duplex • 10M full-duplex • 100M half-duplex • 100M full-duplex Note: When the speed/duplex is “Auto”, the port would adapt to port speed/duplex automatically.
Flow Control	Support two kinds of Flow Control State: • Enable • Disable
Jumbo Frame	Support two kinds of Jumbo Frame State: • Enable • Disable

Copyright © 3onedata Co., Ltd.

3.2 VLAN

Function Description

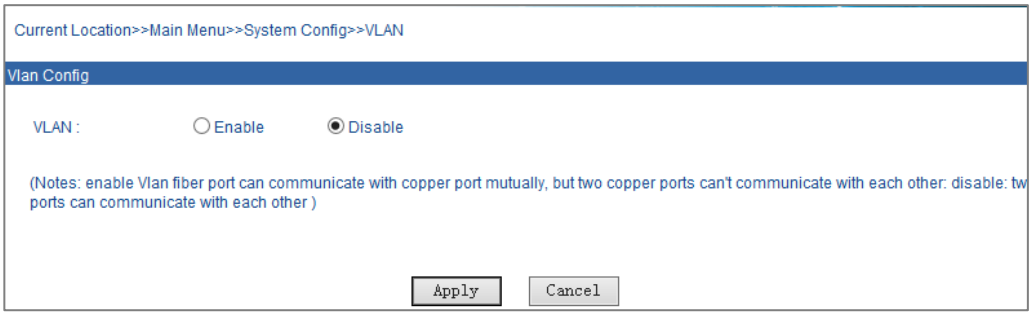
On the “VLAN” page, user can implement one-click VLAN enablement.

Operation Path

Open in order: "Main Menu > System Config > Vlan".

Interface Description：VLAN

VLAN interface as follows:



The main element configuration description of Vlan interface:

Interface Element	Description
VLAN Config	**VLAN Config column**
VLAN	Support two kinds of State: • Enable • Disable Notes: Enable Vlan fiber port can communicate with copper port mutually, but two copper ports can't communicate with each other: disable: two ports can communicate with each other.

3.3 COM Settings

Function Description

On the page of "COM Settings", user can implement serial port parameter configuration and work mode configuration.

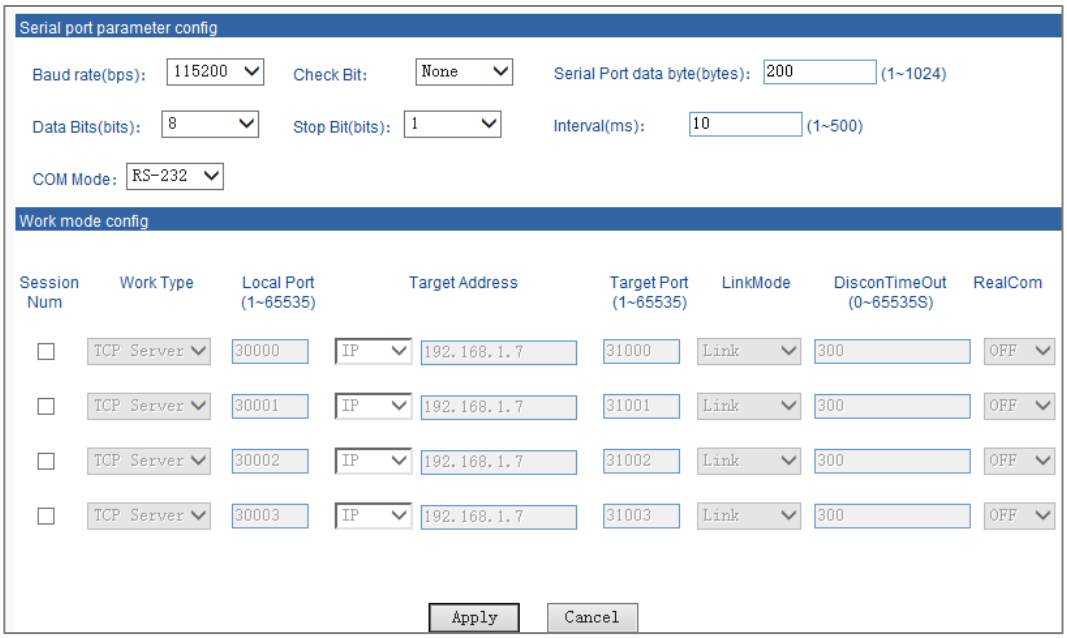
Operation Path

Open in order: " Main Menu > System Config > COM Settings".

Copyright © 3onedata Co., Ltd.

Interface Description

COM settings interface as follows:



Main elements configuration description of COM settings interface:

Interface Element	Description
Serial port Parameter config	**Serial port Parameter config column**
Baud Rate(bps)	Select baud rate of corresponding serial number. Options include: 600/1200/2400/4800/9600/19200/38400/57600/115200
Check Bit	Select parity bits of corresponding serial number. Options include: • None; • Odd; • Even.
Serial Port data byte(bytes)	The length of serial port data frame. Its value range is 1~1024
Data Bits (bits)	Select data bits of corresponding serial number. Options include: • 7 bits; • 8 bits.

Copyright © 3onedata Co., Ltd.

Interface Element	Description
Stop Bits (bits)	Select stop bits of corresponding serial number. Options include: • 1bits; • 2 bits.
Interval (ms)	Interval time of serial data to Ethernet data, value range is 1-500ms.
COM Mode	It's decided by software and hardware, there are RS232, RS485, RS422 three modes.
Work Mode Settings	**Work Mode Settings Column**
Sessions	1-4, each serial port of serial server supports 1-4 sessions. Session refers to the process serial server transmits data received from serial port to Ethernet via socket connection.
Work Type	Choose the work type of serial port. Options are: • TCP Server • TCPClient • UDP • TcpAuto
Local Port	1-65535, it refers to TCP port that is provided by serial server and can be connected by other TCP/IP nodes. The port is connected to relative serial ports of serial server. System will automatically distribute local port number when it's "0", fixed local port number will be used when it's not "0".
Target Address	IP address or domain name address to be connected to serial server, both can be corresponding to the host address in Internet.
Target Port	1-65535, TCP port number to be connected to serial port.
LinkMode	Choose the link mode of serial port. Options are: • Link: it means this device would connect when it is powered on. It would reconnect immediately even it is disconnected; • Data Trigger: it means the corresponding port of this device would connect once it receives data.
DisconTimeOut	If no activity happens within the specified time, the system would send connection detection message to check whether the connection is valid. If it has sent successive probe packet

Copyright © 3onedata Co., Ltd.

Interface Element	Description
	for 3 times and receive no reply packet from the other side, it would assume that the other side has lost connection and close communication connection proactively. The value range of keep-alive connection is 0~65535 Note: If the keep-alive connection is set to "0", it means this function is disabled.
RealCom	Choose whether to turn on RealCom function. Options are: • Off • On

3.4 IP Filtering

Function Description

On the "IP Filtering" page, user can limit the host IP address and subnet mask that user wants to access or connect via setting access rule.

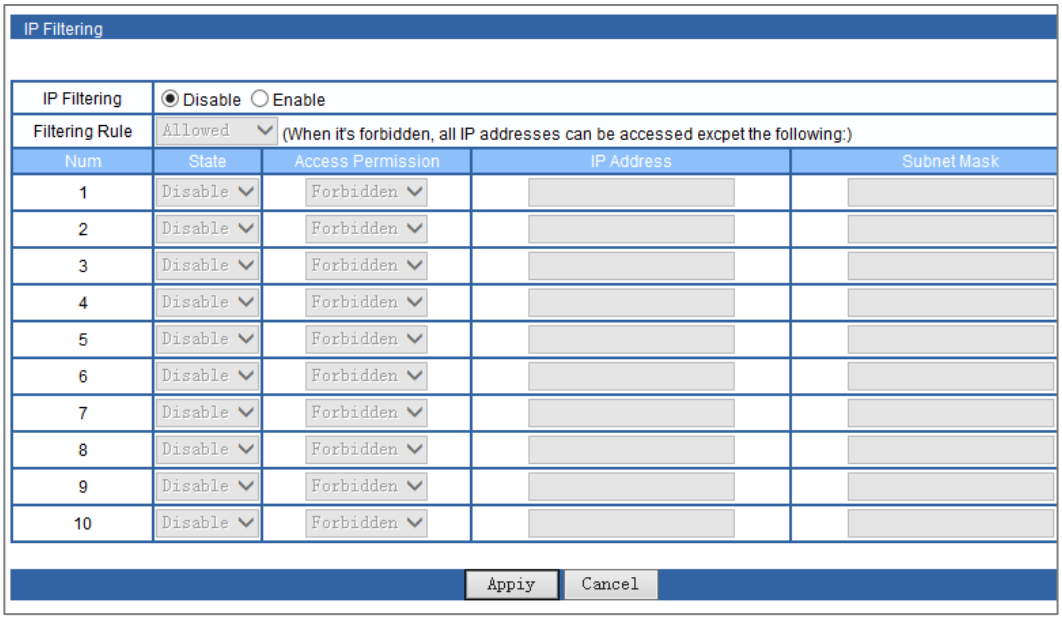
Operation Path

Open in order: "Main Menu > Safety Management > IP Filter".

Interface Description

IP filter interface as follows:

Copyright © 3onedata Co., Ltd.



The main element configuration description of IP filter interface:

Interface Element	Description
IP Filtering	Disable or enable IP address filtering rule.
Filtering Rule	Set access permission for other IP address to access this system outside of filtering rule 1～10.
Num	Display the number of IP address filtering rules.
state	Enable and disable filtering rule.
Access Permission	Set access permission, options are: • Allow: allow to access the IP address and subnet mask that user has set. • Forbidden: forbid to access the IP address and subnet mask that user has set.
IP Address	Set decimal IP address in filtering rules, for example “192.168.1.61”.
Subnet Mask	Set decimal subnet mask in filtering rules, for example “255.255.255.0”.

3.5 MAC Filtering

Function Description

Copyright © 3onedata Co., Ltd.

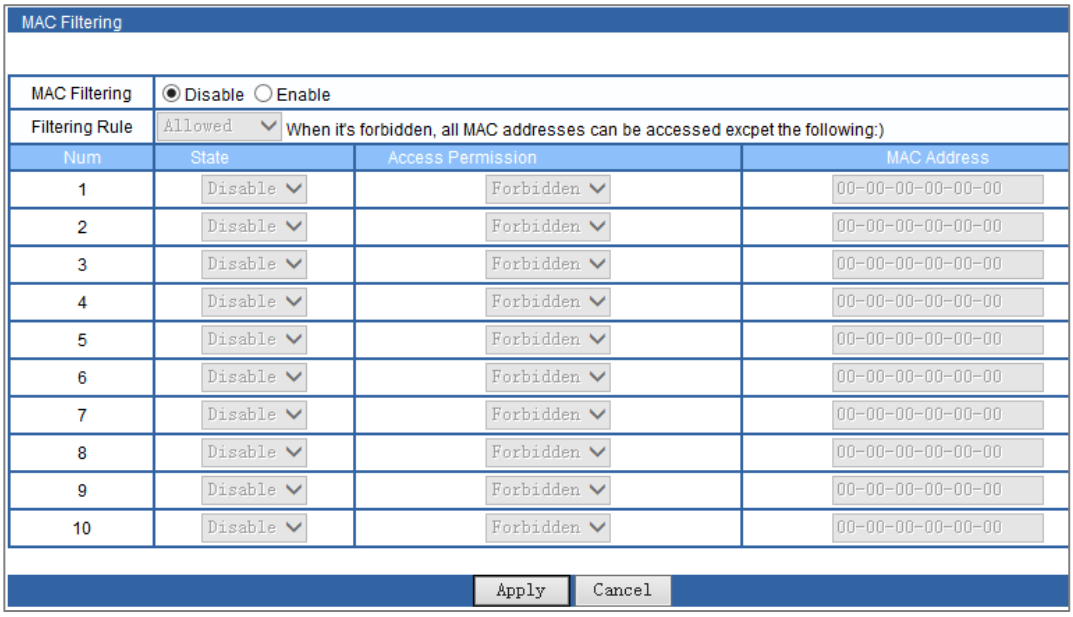
On the page of “MAC Filtering”, user can limit the host MAC address and subnet mask that user wants to access or connect via setting access rule.

Operation Path

Open in order: “Main Menu > Safety Management > MAC Filtering”.

Interface Description

MAC filtering interface as follows:



The main element configuration description of MAC filter interface:

Interface Element	Description
MAC Filtering	Enable or disable MAC address filtering rules.
Filtering Rule	Set access permission for other MAC address to access this system outside of filtering rule 1～10.
Num	Display the number of MAC address filtering rules.
State	Enable and disable filtering rule.
Access Permission	Set access permission, options are: • Allow: allow to access the MAC address and subnet mask that user has set. • Forbidden: forbid to access the MAC address and subnet mask that user has set.
MAC Address	Set the six-byte, hexadecimal MAC address in filtering rules, for example “00-22-6F-03-BD-52”.

Copyright © 3onedata Co., Ltd.

3.6 Relay Warning

Function Description

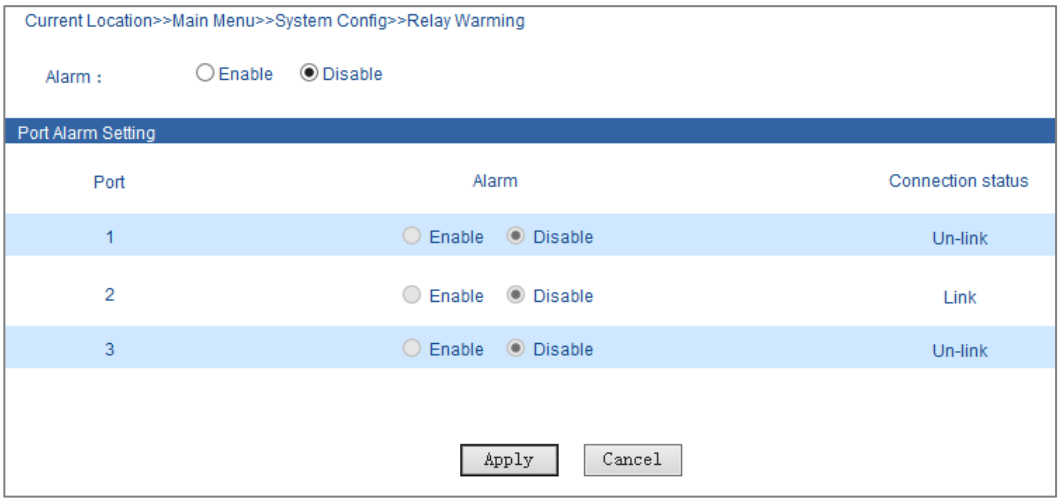
On the page of "Relay Warning", user can set power supply alarm, port alarm function; when the equipment is in abnormal state, it can promptly notify the administrator, and quickly repair the equipment status to avoid excessive losses.

Operation Path

Open in order: "Main Menu > System Config > Relay Warning".

Interface Description

Relay warning interface as follows:



Main elements configuration description of relay warning interface:

Interface Element	Description
Alarm Setting	Configure the power supply alarm function. Options as follows: • Enable; • Disable.
Port Events	**Port events column**
Port	Display the device port number.
Alarm Setting	Configure the port alarm function. Options as follows: • Enable; • Disable. Note After enabling port alarm, when port is in abnormal status, such as connection or disconnection, the device will output a signal to hint

Copyright © 3onedata Co., Ltd.

Interface Element	Description
	the abnormal operation of device.
Connection	Display port connection status of the device: • Unlink; • Link.

3.7 Storm

Function Description

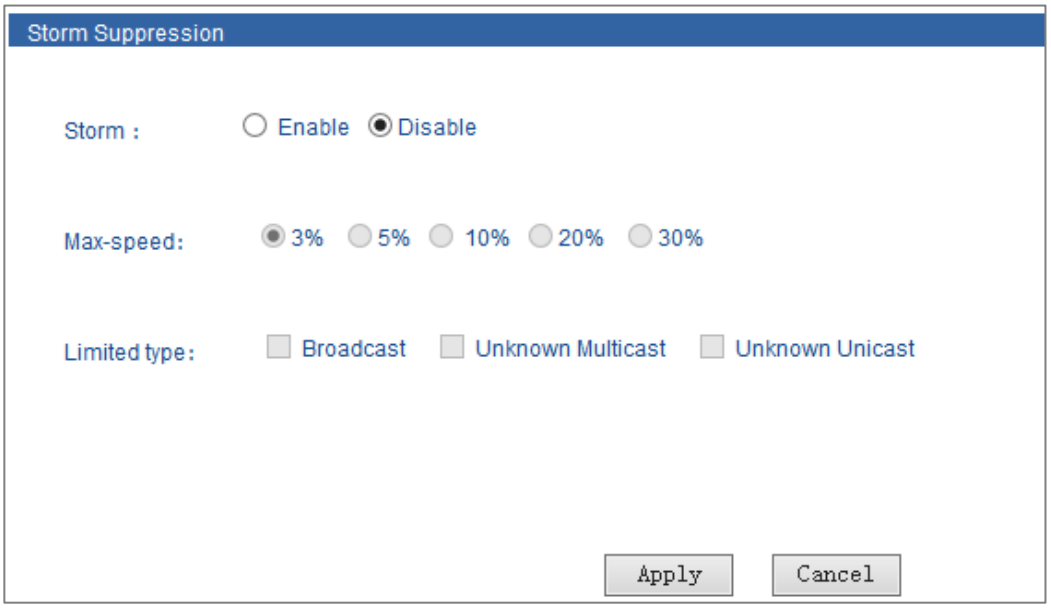
On the page of "Storm Suppression", user can achieve suppression of port broadcast storm.

Operation Path

Open in order: "Main Menu > System Config > Storm ".

Interface Description

Storm interface as follows:



Main elements configuration description of storm interface:

Interface Element	Description
Storm	Enable or disable storm suppression function.
Max-speed	Choose the largest speed of the port. Options are:

Copyright © 3onedata Co., Ltd.

	• 3% • 5% • 10% • 20% • 30%
Limited type	Choose limit type. Options are: • Broadcast • Unknown Multicast • Unknown Unicast

Copyright © 3onedata Co., Ltd.

4 System Tools

4.1 System File Update

Function Description

On the page of "System File Management", user can conduct following operations:

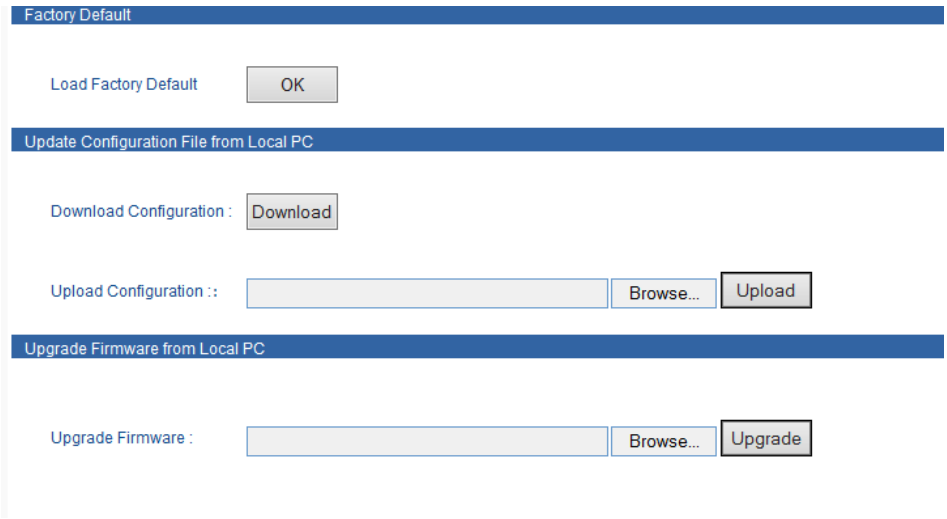
- Restore factory defaults;
- Upload and download configuration files;
- System upgrading.

Operation Path

Open in order: "Main Menu > System Tools >System File Management".

Interface Description

System File management interface as follows:



Copyright © 3onedata Co., Ltd.

Main elements configuration description of System file update interface:

Interface Element	Description
Factory Default	**Configuration column of restore factory defaults**
Load Factory Default	Restore factory defaults of the switch. Notes: Restore factory defaults will cause all devices status to be in the factory status, default IP address is "192.168.1.254".
Update Configuration File from Local PC	**Configuration column of configuration files**
Download Configuration	Download the configuration information files of current switch. Tips: Downloaded configuration files can be uploaded to other homogeneous devices, achieving repeated usage after one-time configuration.
Upload Configuration	Configure the switch via uploading configuration files information.
Upgrade Firmware from Local PC	**Configuration column of system upgrade**
Upgrade Firmware	Upgrade operating system of the switch.

Warning

In the process of uploading configuration files or upgrading software, please don't click or configure other WEB page of the switch, or reboot the switch; otherwise, it will lead to failure of configuration files uploading or software upgrading, or even cause system breakdown of the switch.

4.2 Login Settings

Function Description

On the “Login Settings” page, user can configure the login name and password of logging in to WEB configuration page and other parameter information.

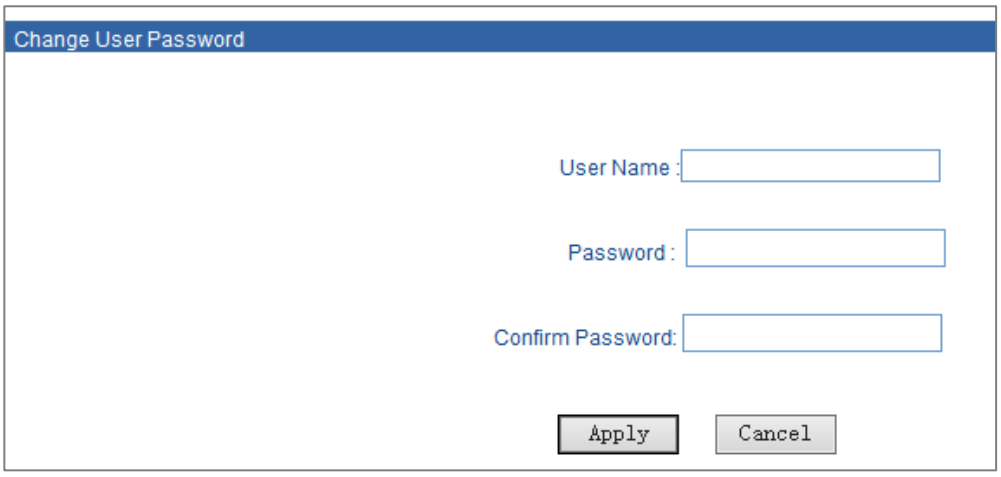
Operation Path

Open in order: “Main Menu > System tools > User Password”.

Copyright © 3onedata Co., Ltd.

Interface Description

User Password interface as follows:



The main element configuration description of User Password interface:

Interface Element	Description
User name	Login name setting of WEB configuration interface.
Password	Login password setting of WEB configuration interface. Note: The password should a combination of letters that less than 16 bytes.
Confirm password	Confirm password.

Copyright © 3onedata Co., Ltd.

5 FAQ

5.1 Sign in Problems

1. **Why the webpage display abnormally when browsing the configuration via WEB?**

   Before access the WEB, please eliminate IE cache buffer and cookies. Otherwise, the webpage will display abnormally.

2. **How about forget the login password?**

   For forgetting the login password, the password can be initialized by restoring factory setting, specific method is adopt BlueEyes_Ⅱ software to search and use restore factory setting function to initialize the password. Both of the initial user name and password are "admin".

3. **Is configuring via WEB browser same to configuring via BlueEyes_Ⅱ software?**

   Both configurations are the same, without conflict.

5.2 Configuration Problem

1. **How to deal with the problem that part of switch ports are impassable?**

   When some ports on the switch are impassable, it may be network cable, network adapter and switch port faults. User can locate the faults via following tests:

   - Connected computer and switch ports keep invariant, change other network cable;

Copyright © 3onedata Co., Ltd.

- Connected network cable and switch port keep invariant, change other computers;
- Connected network cable and computer keep invariant, change other switch port;
- If the switch port faults are confirmed, please contact supplier for maintenance.

2. **How about the order of port self-adaption state detection?**

   The port self-adaption state detection is conducted according to following order: 1000Mbps full duplex, 100Mbps full duplex, 100Mbps half-duplex, 10Mbps full duplex, 10Mbps half-duplex, detect in order from high to low, connect automatically in supported highest speed.

5.3 Indicator Problem

1. **Power indicator isn't bright, what's the reason?**

   Possible reasons include:

   - Not connected to the power socket; troubleshooting, connected to the power socket.
   - Power supply or indicators faults; troubleshooting, change the power supply or device test.
   - Power supply voltage can't meet the device requirements; troubleshooting, configure the power supply voltage according to the device manual.

2. **Link/Act indicator isn't bright, what's the reason?**

   Possible reasons include:

   - The network cable portion of Ethernet copper port is disconnected or bad contact; troubleshooting, connect the network cable again.
   - Ethernet terminal device or network card works abnormally; troubleshooting, eliminate the terminal device fault.
   - Not connected to the power socket; troubleshooting, connected to the power socket.
   - Interface rate doesn't match the pattern; troubleshooting, examine whether the device transmission speed matches the duplex mode.

Copyright © 3onedata Co., Ltd.

3. **Ethernet copper port and fiber port indicator are connected normally, but can't transmit data, what's the reason?**

   When the system is power on or network configuration changes, the device and switch configuration in the network will need some time. Troubleshooting, after the device and switch configuration are completed, Ethernet data can be transmitted; if it's impassable, power off the system, and power on again.

4. **The switch halts after communicate for a period time, and returns to normal after reboot, what's the reason?**

   Reasons may include:

   - Surrounding environment disturbs the product; troubleshooting, product grounding adopts shielding line or shields the interference source.
   - Site wiring is not normative; Troubleshooting, optical fiber, network cable, optical cable cannot be arranged with power line and high-voltage line.
   - Network cable is disturbed by static electricity or surge; Troubleshooting, change the shielded cable or install a lightning protector.
   - High and low temperature influence; troubleshooting, check the device temperature usage range.

Copyright © 3onedata Co., Ltd.

6 Maintenance and Service

Since the date of product delivery, our company provides five-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 be free to repair or replace the product. 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;
- Call technical support office;
- Product repair or replacement;

6.1 Internet Service

More useful information and tips are available via our company website. Website: http://www.3onedata.com

6.2 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: **+86-400-880-4496**

Copyright © 3onedata Co., Ltd.

6.3 Product Repair or Replacement

As for the product repair, replacement or return, customers should firstly confirm with the company technical staff, and then contact the company salesmen and 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.

Copyright © 3onedata Co., Ltd.

3onedata
Make network communication more reliable

3onedata Co., Ltd.

Headquarter address: 3/B, Zone 1, Baiwangxin High Technology Industrial Park, Song Bai Road, Nanshan District, Shenzhen

Technology support: tech-support@3onedata.com

Service hotline: +86-400-880-4496

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

Copyright © 3onedata Co., Ltd.