Web Management User Manual

Industrial Managed Ethernet Switch

Version 1.1

This document applied to models of
MSM-508,MSM-508FC/FCS/FT



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Managed Switch

Web Management Operation

- Connection
- Basic Setting
- Redundant Setting
- Port configuration
- Relay Alarm
- Email Alarm
- VLAN
- QoS
- Diagnosis
- Authentication

This manual will guide you how to configure ICPDAS Managed Switch through web browser. Web Management support two levels of authentication : administrator level and user level. The administrator level allows you to monitor, configure and control all functions of Web Management, and the user level is for monitor-only. Web Management implements the VLAN, QoS, Port Trunk, SMTP, TELNET ... protocols with an easy-to-use interface. The IP filter and pre port configuration are also supported.

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1. Web Connection

The default network setting (factory default setting) of Managed Switch is :

IP : 192.168.255.1

Mask : 255.255.0.0

Gateway : 192.168.0.1

Before accessing Managed Switch through web browser, please modify above setting to fit your network environment, you can refer「RS-232 Console Operation」manual for more detail.

Following, we will show you how to connect to the Web Management step by step.

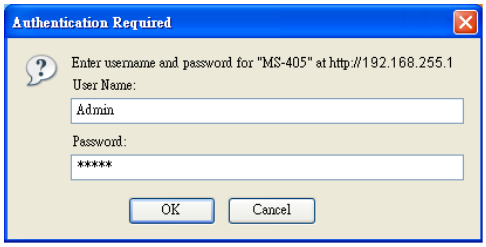
STEP 1 :

Execute web browser application, ex: Internet Explorer, Edge(with IE Tab addon), Chrome(with IE Tab addon), Firefox(with IE View WE addon), MyIE …etc, input the Switch's IP address in the Address field of web browser, and press ENTRY to start web connection.



STEP 2:

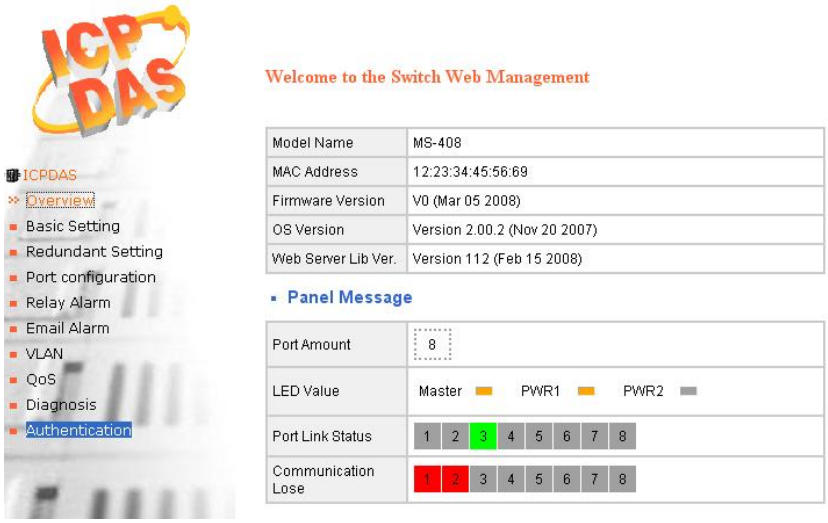
If connection succeeds, a login box will popup as following:



The default account and password of Web Management are **Admin** and **Admin**.

When authentication succeeds, you can see the welcome information display.

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For login to Web Management, your browser must support HTTP authentication. It allows a web browser to provide credentials when making a request.

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2. Basic Setting

This chapter describes how to setting the commonly information on your Managed Switch.

➢ Information



Module Name：

Use to specify the Switch Name, and also displayed as the console prompt. Max. 8 characters.

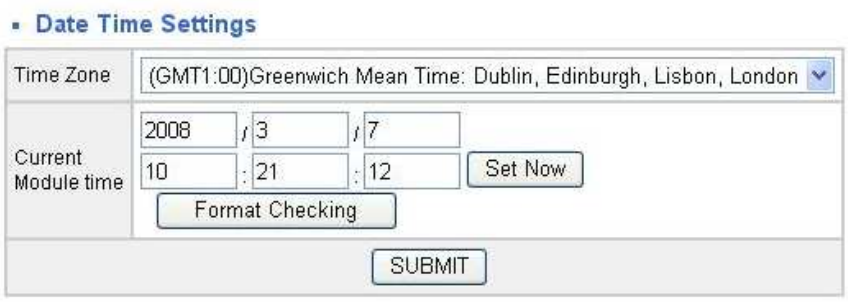
Module Information：

Use to memo the extra description of the Switch Module. 16 characters max..

Web Server TCP Port：

Specify the connection port of the Web Server. Default setting is 80.

Date Time Setting：



This function can specify the Time zone and the current date time information of the Switch.
You can click the <Set Now> button to get the current date time from your browser,
and the <Format Checking> button will help you to verify the setting value.
Date Time value can be appended to the email messages, alarm records…etc.

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Only MS Series Switch supports a real time clock. For RS Series Switch, the <Date Time Setting> function is invalid.

➢ Network

▪ **Ethernet Settings**

Items	Value
IP Address	192.168.255.1
Gateway	192.168.255.254
Mask	255.255.255.0
MAC Address	12-23-34-45-56-69
Modbus Net ID	1
MODIFY_SETTING	

IP Address：

IP address is an identifier for a device on a TCP/IP network. It is a 32-bit numeric address consisted as four numbers separated by three dots. The range of each number is from 0 to 255.

Managed Switch doesn't support dynamic IP assignment, you have to specify the IP address of each Switch manually.

Factory default value is 192.168.255.1

Gateway：

A gateway is a device that passes traffic from the local network to another network or Internet.

Like the IP address, it is consisted as 4 numbers separated by three dost. The range of each number is from 0 to 255.

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Mask：

The (subnet) MASK is used to determine the subnet of an IP address. Same as the IP address, a MASK contains four bytes (32 bits) and it is often expressed in the dotted-decimal notation.

The factory default value is labeled beside the Switch case.

MAC Address：

MAC Address is a hardware address. It's a uniquely identifies the device of MAC layer network.

The standard (IEEE 802) format for human-readable is six groups of two hexadecimal digits, each digit separated by a dash or colon.

The factory default value is labeled on the Switch case.

Modbus Net ID

Specify the device ID for modbus protocol.



When the Network Setting is modified, you have to reboot the Switch to enable the new setting.

➢ Serial Port

▪ **COM port settings**

Port	Baud Rate	Data Bit	Parity Check	Stop Bit
COM1	115200	8	0 (None)	1
COM2	115200	8	0 (None)	1
	SUBMIT			

The Managed Switch supports two interfaces of serial communication. This function enables you to set up the transmission speed(baudrate),data bit(databit), parity check type (parity) and stop bit(stopbit).

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COM1 port is the RS232 standard, use for Console Connection. Factory default setting is:

Baud Rate : 115200
Data Bit : 8
Parity Check : 0 (None)
Stop Bit : 1

COM2 is the RS485 standard, use for Modbus communication. Factory default setting is:

Baud Rate : 115200
Data Bit : 8
Parity Check : 0 (None)
Stop Bit : 1

➢ Digital Input / Output

ICPDAS Managed Switch supports 3 points of digital input / output interface.
User can monitor DI/O status from web management.

▪ **Digital Input/Output**

Digital Input	
Digital Outpute	

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3. Redundant Setting

Redundant LAN topology is a structure to provide the link failure recovery and escaping network loops. It allows you to setup the redundant loops for supporting backup connections.

Managed Switch offers redundancy options for various functions, it is a highly reliability device provides the fast error detection and keeps the non-stop connections 24 hours a day, 365 days a year. To manage the Managed Switch for use in redundant network topology, following configuration options are available.

▪ **Redundant Setting**

ITEM	VALUE	
Ring Pair 1	◉ Disable	○ Enable
Ring Pair 2	◉ Disable	○ Enable
Protocol	◉ Cyber-Ring Protocol	○ STP Protocol
Ring Coupling	◉ Primary Switch	○ Secondary Switch

➢ Redundant Setting

This function enables you to configure the Switch operation modes.

Ring Pair 1：

Enable／Disabled Ring Pair 1, it consists of port 1 and port 2.

Ring Pair 2：

Enable／Disabled Ring Pair 2. it consists of port 3 and port 4.

Protocol：

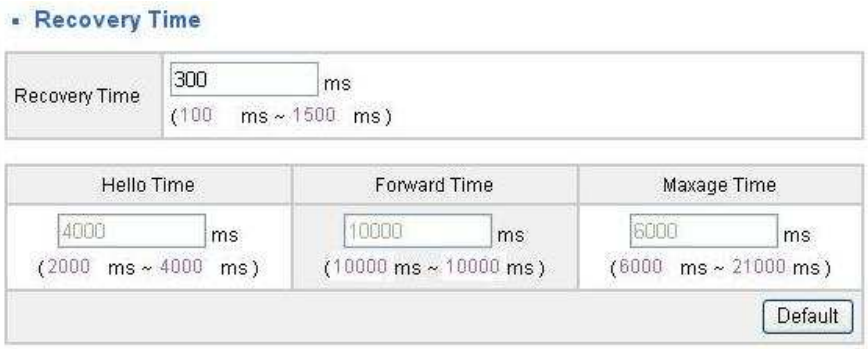
Managed Switch supports two kinds of redundant communication – Cyber-Ring and STP (Spanning Tree Protocol). Compare to the Spanning Tree Protocol, Cyber-Ring provides less fault recovery time, reconfiguration time and fault detected time.

Ring Coupling:

If “Primary Switch “ is selected, Switch will be forced as a Master of the topology.

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➢ Recovery Time Setting



Recovery Time (Cyber-Ring Protocol)：

Recovery time is the duration of connections that from failure occurred to return to normal. This function allows you to assign the recovery time in millisecond (ms), the variable is from 100ms to 1500ms (1.5 sec).

Factory default is 300ms.

On *Cyber-Ring Protocol* Mode, user can specify the recovery time manually, and the Managed Switch will calculate adaptable Hello Time, Forward Time and Max age Time automatically.

An adequate recovery time is depended on how many Managed Switch are consisted in the Ring coupling, the more Managed Switch that you have, the more recovery time that you need.



If the recovery time is not longer enough, the Master LED will keep on flashing to make a warning.

Hello Time (STP Protocol)：

Hello time is the interval time that the Master Switch sends hello messages to Switch nodes on the Ring network, this is for making sure if the Switch nodes and the topology still keeping healthy.

This setting is only available on STP Mode. Factory default is 4000ms.
You can tune the time to be between 1000 and 10000 in millisecond (ms).

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Forward Time (STP Protocol)：

Forward delay is the duration time that packages from pre-forwarding state to forward state. Factory default is 10000ms, the variable is from 4000ms to 30000ms (30 sec). Setting is only available on STP Mode.

Maxage Time (STP Protocol)：

Max age time is the interval that node Switches waiting for hello messages from the Master Switch. It's 6000ms by factory default, and the variable is from 6000ms to 40000ms.

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4. Port configuration

➢ Mirror

Mirror Port setting is commonly used to monitor the network traffic, it can help you to collect and trace abnormal packets of each port without interrupting data transmission.

User can specify a switch port to receive the packet copies which from another port.



STEP 1

Specify a "**Monitor Port**" that you want to get the packet copies.

STEP 2

Specify the ports will be monitored.

There are two type of monitoring options

Egress

Monitor the packets which are sent out the switch port.

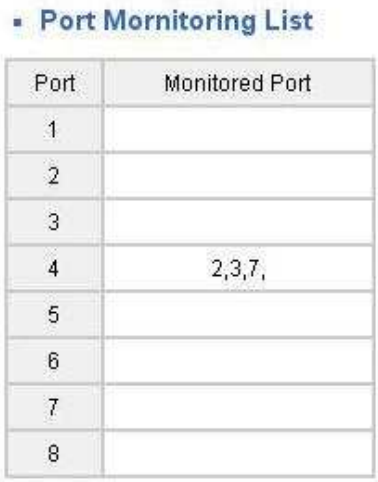
Egress & Ingress

Monitor the packets both entering into and being sent out the switch port.

STEP 3

Click "SUBMIT" button to active mirror setting.

If the setting is succeed. You will see the setting result shown in the **Port Monitoring List** below the setting Table.



NOTE !!

- Lots of mirroring traffic may reduce the performance of Switch. You can tick the "**Clean all Monitoring Setting**" checkbox and press "SUBMIT" button to disable port mirror setting.
- Mirror function will be disabled when the Trunking function is enabled.

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➢ Trunking

This function is used for setting the groups of link aggregation. Port trunking allows user to combine multiple physical ports into a single logical channel. It can increase the link speed and provide the better redundancy availability.

Supported groups depend on the total number of switch ports on the equipment.
508 Series Managed Switch supports up to 4 trunking groups.

NOTE!!

Active trunking function will reset and disable VLAN & Ring Pair settings.

▪ **Trunk Setting**

Group	Member Port							
	1	2	3	4	5	6	7	8
1	☑	☑	☐	☐	☐	☐	☐	☐
2	☐	☐	☑	☑	☐	☐	☐	☐
3	☐	☐	☐	☐	☑	☑	☐	☐
4	☐	☐	☐	☐	☐	☐	☑	☑

Clean All | Submit

➢ Port Status

User can check link status of each port in this function.

▪ **Port Status**

Port	Speed	Duplex	Link
1	100 Mbps	Half-duplex	ON
2	-	-	OFF
3	-	-	OFF
4	-	-	OFF
5	-	-	OFF
6	-	-	OFF
7	100 Mbps	Full-duplex	ON
8	-	-	OFF

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Port	Port Number
Speed	Port transmission speed.（10 Mbps／100 Mbps）
Duplex	Flow Control Mode. Both Half-duplex and Full-duplex modes are supported.
Link	Port Link status. ON : Link is up ;　OFF : Link is down.

➢ Cable Checking

This function provides a useful tool to detect the quality of cables.

Tick the checkbox of Ports and click “Start Check” button, after a moment waiting, system will report the RX and TX status.

▪ **Port Cable Checking**

Port/Chk.	RX Cable		TX Cable	
	Status	Length	Status	Length
1. ☐	Good	Unknow	Good	Unknow
2. ☐	-	-	-	-
3. ☐	Open	0 M	Open	0 M
4. ☐	Open	49 M	Open	47 M
5. ☐	Open	4 M	Open	3 M
6. ☐	-	-	-	-
7. ☐	Good	Unknow	Good	Unknow
8. ☐	-	-	-	-
Start Checking				

There are 4 types of status message can be displayed.

Good	Normal cable
Test Fail	Cable checking fail.
Open	Open in cable.
Short	short in cable

Switch Management also can detect the problem approximate location and shows up in the Length field.

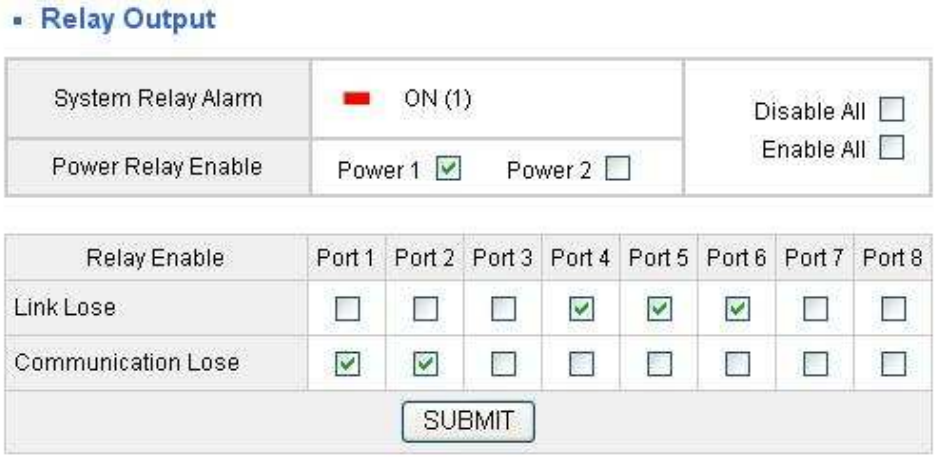
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5. Relay Alarm

Managed Switch offer a relay contact output on Terminal Block of the Switch equipment. It is able to connect to a light, buzzer …etc. warning device and notify system failures immediately.
We also offer the web tool to configure the relay manually. It's convenient for you to enable/disable relay warnings since the Switch equipments are far from you.

➢ Relay Output

This function enables you to configure the relay warnings of Power, Link Lose and Communication Lose.



System Relay Alarm

When alarm occurred, the relay output on the Terminal Block is activated, and System Relay Alarm is turned ON.

Power Relay Enable

Managed Switch support dual power inputs to implement the power redundancy, and also support two relay configurations for those two power inputs.
You can tick the "Power1" or "Power2" checkbox to enable the power relay. If power failures occur, system relay will be activated.

Link Lose

Set relay active if port disconnected, such as, no cable connected; cable break; opposing device fail.

Communication Lose

Set relay active if port of the ring pair disconnected.

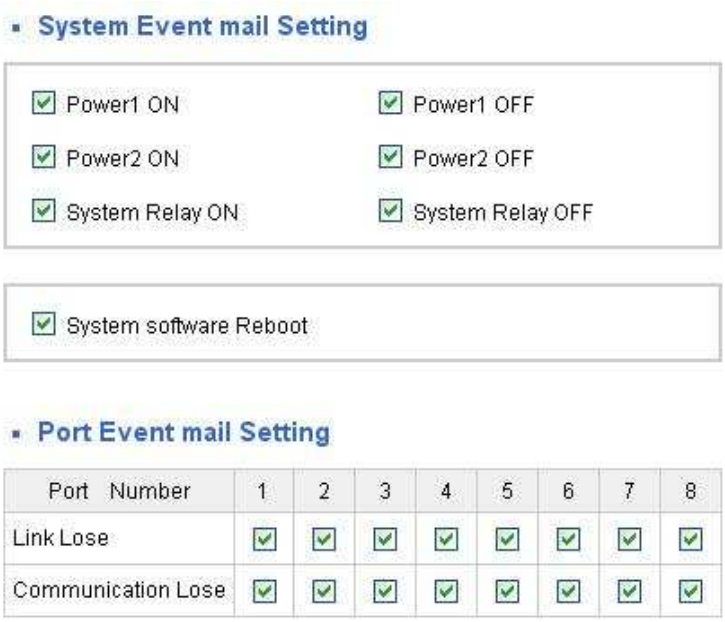
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6. Email Alarm

ICPDAS Managed Switch can notify you by email when the specified event occurred. This chapter will guide you how to setting the related parameters.

➢ Alarm Event setting

User can specify system and port events that warning emails will be sent.

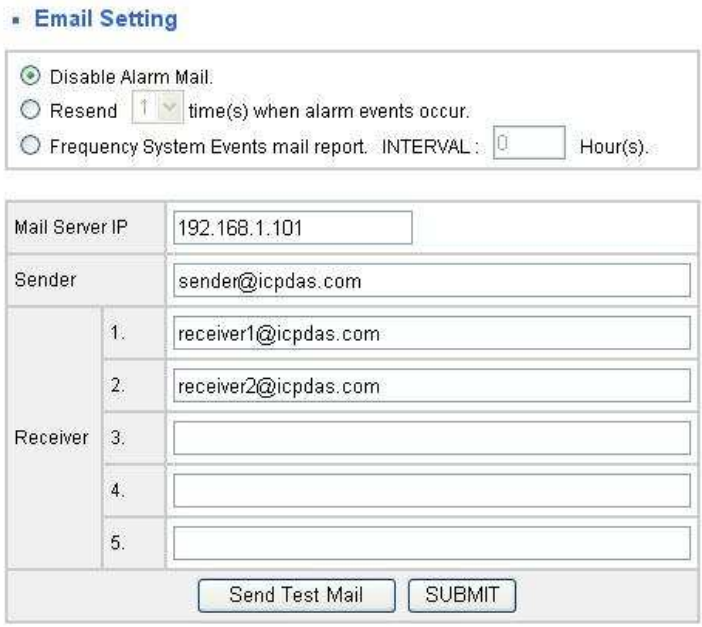


Power1 ON	The status of power1 from OFF turns to ON.
Power2 ON	The status of power2 from OFF turns to ON.
Power1 OFF	The status of power1 from ON turns to OFF.
Power2 OFF	The status of power2 from ON turns to OFF.
System Relay ON	System relay activate.
System Relay OFF	System relay
System software Reboot	User reboots the Switch equipment through Switch Management tool or the console command.
Link Lose	Port disconnected, such as, no cable connected; cable break; opposing device fail.
Communication Lose	Port of the ring pair disconnected

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➢ Email Setting

User can select “Disable Alarm Mail” to stop the email alarm sending (factory default).
If email alarm is enabled, there are two methods of email report for you select.
The first one is: warning mail is sent immediately when events occur.
The second is: user can specify the interval time between 1 to 99 hour(s), and system will sending the system report by email every the specified hour(s).



Before active email sending, you have to finish following settings.

Mail Server IP *IP address* of mail server

Sender Specify the email address of sender.

Receiver. Specify the email address that you wish to notify.

After finishing and activating above setting, the “Send Test Mail” button will show up. You can click the button to check if the settings are correct.

NOTE!!

Please be sure the *MASK* and *GATEWAY* are properly configured. Otherwise, it may cause the email sending fault.

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➢ Email Record

Switch Management can keep the sending date, time and status of each warning emails.

But only the latest 50 sending records will be saved.

User can click the “Clean Record Table” button to delete all the email sending history.



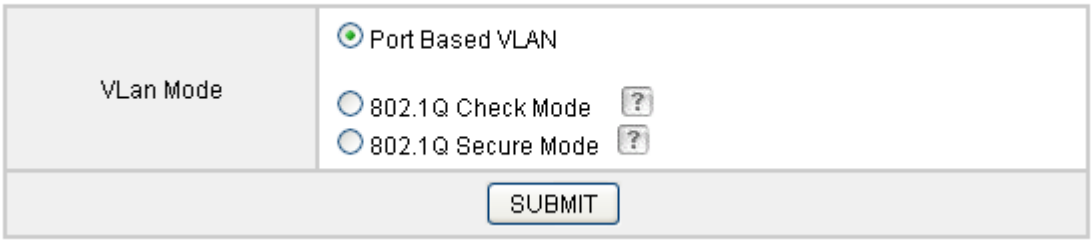
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7. VLAN

Virtual LANs (VLAN) allows you to setting logical groups of devices, even they are not located on the same physical segment. The logical group called a VLAN, all devices belong to the VLAN has the same network attributes, and it's isolated from the other network logically. A VLAN provides higher communication security, and makes you to limit traffic flooding easily.

➢ VLAN Mode

▪ **Virtual LAN Setting**



Port Based VLAN	The frames which arrive at specified ports belong to the same VLAN.
802.1Q Check Mode	Set mode to 802.1Q VLAN. Forward Ingress frames that frames aren't the VLAN member, but discard ingress frame which VID is unrecognized.
802.1Q Secure Mode	Set mode to 802.1Q VLAN. Discard Ingress frames that frames aren't the VLAN member and VID is unrecognized.

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➢ Port based VLANs

In this function, user can determine the output ports which this input port can send frames to.

▪ **Port Based setting**

Port / Egress Enable	1	2	3	4	5	6	7	8
Port 1	☐	☐	☐	☑	☐	☐	☐	☑
Port 2	☑	☐	☑	☑	☑	☑	☑	☑
Port 3	☑	☑	☐	☑	☑	☑	☑	☑
Port 4	☑	☑	☑	☐	☑	☑	☑	☑
Port 5	☑	☑	☑	☑	☐	☑	☑	☑
Port 6	☑	☑	☑	☑	☑	☐	☑	☑
Port 7	☑	☑	☑	☑	☑	☑	☐	☑
Port 8	☑	☑	☑	☑	☑	☑	☑	☐

RESET SUBMIT

For example, in above figure, only the ingress come from Port 4 and Port 8 can be send out from Port 1.

➢ 802.1Q VLANs

If the 802.1Q VLAN Mode is enabled, you have to specify the VLAN groups to restrict the ingress and egress.

Switch Management supports the different VID setting up to 64 in max. If the rules of the setting have conflict, the smaller number of VID has the higher priority.

▪ **Membership and Egress Tagging**

VID	Egress Policy								operation		
	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8	Add	Edit	Del
	unmodified	unmodified	unmodified	unmodified	unmodified	unmodified	unmodified	unmodified			
4	unmodified	Disable	unmodified	Tagged	unmodified	Untagged	unmodified	unmodified			
9	Untagged	unmodified	Disable	unmodified	unmodified	Tagged	unmodified	unmodified			

VID

Specify the VID number, the valid value is from 1 to 4095. Smaller number has the higher priority.

Egress Policy

There are 4 options of egress tagging used to support 802.1Q VLAN.

Unmodified : port is a member of this VLAN and egress frames are unmodified.

Disable : Ingress frames with this VID or the default VID are discarded.

Untagged : port is a member of this VLAN and egress frames are untagged.

Tagged : port is a member of this VLAN and egress frames are tagged.

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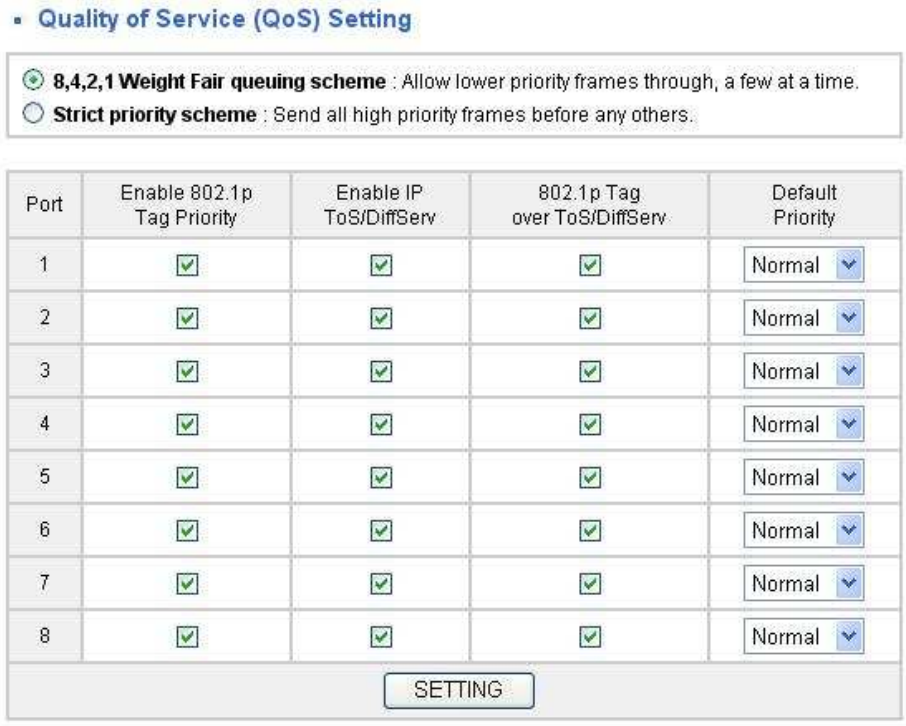
8. QoS

Quality of Service (QoS) provides different priority to different data flow. It can make you to classify and prioritize data frames.

ICPDAS Managed Switch support 4 classes of services priority queues. This function allows you to determine the QoS tag priority and specify the priority processing scheme.

➢ QoS Mode

There are two options supported to classify egress frames.



8,4,2,1 Weight Fair queuing scheme

8,4,2,1 weighting is mapped to 4 priority queues.

In this queuing scheme mode, lower priority frames are transferred only have a slight delay to the higher priority frames.

Strict priority scheme

The frames in the highest priority queue are processed until the queue is empty.

If the highest priority queue occupied all the time, the frames in the lower priority queue may never be served.

802.1p Tag Priority

Enable/Disable specified ports using the 802.1p tag if the frame is tagged.

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IP ToS/DiffServ

Enable/Disable specified ports using the TOS (Type of Service) and/or DiffServ (Differentiated Service) field in IPv4 frame.

802.1p Tag over Tos/DiffServ

If <802.1p Tag Priority> and <IP ToS/DiffServ> are both enabled, you have to decide a priority between those two settings.

Enable : Use tag fields for priority mapping when both field types are present.

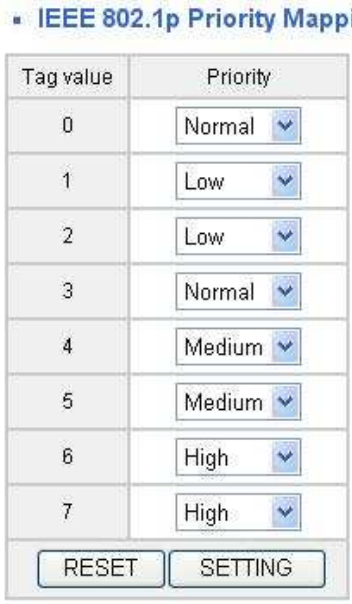
Disable : Use IP fields for priority mapping when both field type are present.

Default Priority

Specify the port priority of the ingress frames to the priority queues.

➢ Tag Priority

Set the tag priority mapping to 4 different egress queues.

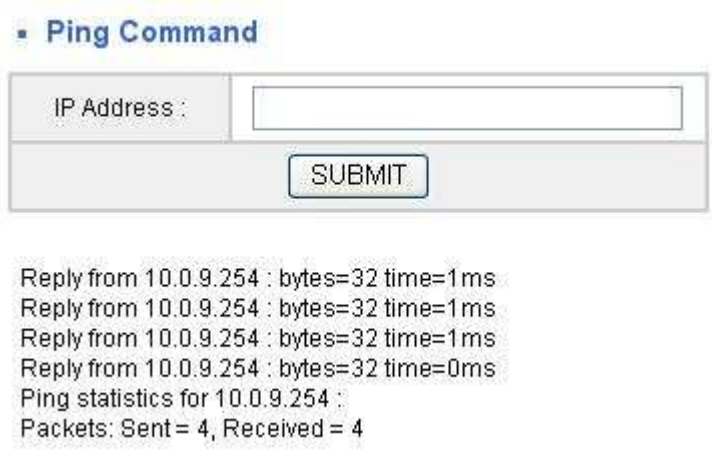


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9. Diagnosis

➢ Ping

In this function, user can input the IP address and click SUMIT button to check if the IP is reachable.



10. Authentication

➢ Account

There are two levels of authentication are provided in Switch Management: administrator level and user level.

Administrator level allows you to monitor and configure all functions of Switch Management, and the user level is for monitor-only.

Switch Management supports 5 accounts for your setting. The account and password are limited to 8 characters max.. Before click SUBMIT, please make sure the Enable checkbox is ticked, otherwise, the setting will be ignored.

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▪ **Account management**

Account : Maximum 8 characters
Password : Maximum 8 characters
[Valid characters can be alphanumeric characters (A-Z,a-Z,0-9)]

No.	Account	Password	Verify	Authority	Enable
1	Admin	••••	••••	Admin	On
2	AAA	•••••	•••••	Admin	☐
3	BBB	•••	•••	User	☐
4				Admin	☐
5				Admin	☐

SUBMIT | Load Account Default Setting

At the system initial, the default account and password are: **Admin and Admin**.

➢ Accessible IP

You can set the remote IP address here to filter the illegal access. Only the IP address in following table can be allowed to access Managed Switch.

▪ **IP filter Settings**

Clean All Setting (You Are From : 10.0.9.35)

No.	Active the rule	From (IP Address)	To (IP Address)
1	☑	192.169.1.5	192.169.1.10
2	☐		
3	☐		
4	☐		
5	☐		
6	☐		
7	☐		
8	☐		
9	☐		
10	☐		

UPDATE

Before UPDATE the setting, you have to tick the <Active the rule> checkbox, otherwise system will ignore the setting data. You also can click the “Clean All Setting” button to reset the IP filter Table. Since the table is empty, system will allows all hosts to access the Switch.

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➢ Default Setting

This function allows you to clean all settings and load the default value to Switch Management.



Current factory default values are：

Network Setting

IP Address : 192.168.255.1
Gateway : 192.168.0.1
Mask : 255.255.0.0
Modbus Net ID : 1

Serial Port Setting

COM1 :baudrate 115200,8bit,none patity check, 1 stopbit
COM2 :baudrate 115200,8bit,none patity check, 1 stopbit

Redundant Setting

Ring Pair 1 : disabled
Ring Pair 2 : disabled
Protocol : Cyber-Ring Protocol
Ring Coupling : Primary Switch
Recovery Time : 300ms

➢ Reboot Setting

When you finish the Network Setting, you have to reboot the Switch to activate the value, you can restart the system by clicking following reboot icon.



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