

Managed Switch User Guide

For 8 and 24-port Razberi ServerSwitches

August 30, 2013





Purpose

This guide provides the configuration instructions for the Razberi Managed Switch, including Port Management, VLAN setting, Per Port Counters, QoS setting, Security, Spanning Tree, Trunking, DHCP Relay Agent, Backup/Recovery, Miscellaneous, SNMP Settings, and Logout.

The Razberi Managed Switch supports all mainstream browsers, such as IE 6.0~9.0, Firefox 2.0~3.0 and Chrome, to configure Switch functions listed below.

Prepare to enter the managed switch

Enter the correct administrator name and password after the login page shows up.

Default IP address: 192.168.2.1

Default administrator name: admin

Default password: system

Press "OK" to login.

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🚖 Favorites 🛛 🍘 SmartSwitch Web-Base Controller				
	USER	LOG IN		
	Site:	192.168.50.1		
	ID:	admin		
	Password:	•••••		
		ОК		
				() - (0.100%)
Done		😝 Int	ernet Protected Mode: Off	

Tip: The administrator name and password fields are **case-sensitive**. For example: "ADMIN" will not be recognized as "admin".



If you input the **incorrect administrator name or password**, the following warning message will show up and **you must click "OK" to go back** to the login page.





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Administrator

Authentication Configuration

This page allows the administrator to **change the administrator name and the password**. You can input up to 15 characters for each field.

Setting		Value
Username	admin	max:15
Password		max:15
Confirm		
		Update

Tip: The legal characters for these fields are "a-z," "A-Z," "0-9," "_," "+," "-," and "=."

System IP Configuration

This page shows **system configuration** including the current IP address and sub-net mask and Gateway. IP address, Subnet Mask, and Gateway at system IP Configuration can be configured by the administrator. The managed switch also **supports DHCP** to allow the dynamic IP address allocated by a network DHCP server.

Setting	Value
IP Address	192 . 168 . 2 . 1
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 2 . 254
IP Configure	● Static ○ DHCP
10 1 -	Update

System Status

This page allows the administrator to **check the general switch status**, including Switch MAC address and software version.

MAC Address	10:f0:13:f0:18:26
Number of Ports	24+2
Comment	switch MAX:15
System Version	IP1826D_WebCtrl_IP210L3.95_v105
□ Idle Time Security	Idle Time: D (1~30 Minutes) Auto Logout(Default). Back to the last display.
	Update

Tip: The legal characters for these fields are "a-z," "A-Z," "0-9," "_," "+," "-," and "=."



The comment field allows the network administrator to **input an easy-to-remember nickname for this switch**.

The Idle time field **allows the administrator to set a timer for auto logout**. When the system detects no web page activity for a pre-defined time, the system will auto-logout.

Load default setting Clicking the "Load" button will **make the switch go back to the original configuration**. After Load Default is executed, all settings will be restored to the default setting.

Load Default Setting

recover switch default setting excluding the IP address, User name and Password

Load

Tip: This change only concerns the switch behavior, excluding the change for IP address, Username, and password. To reset all settings, see the Load Default Settings – Hardware section.

Firmware Update

Before the firmware update procedure is executed, you must **enter the login password twice and press the "Update" button**. There is a self-protection mechanism in the BootLoader, so the BootLoader will keep intact. Even if the power is turned off or the cable link fails during the firmware update procedure, the BootLoader will restore the code to firmware update page.

	Firmware Update
Please input the password Password ReConfirm	vord to continue the Firmware Update process.
	Update

Notice:

After clicking the "UPDATE" button, IF the firmware update webpage is not redirected correctly or is shown as "Webpage not found". Please connect to http://192.168.2.1



After you press "Update" button, the current firmware will be erased. Once erased, **select the new**

image file and press the "Update" button in order for changes to take effect.

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If this webpa	age doesn't refresh sn	noothly, please connect to	http://192.168.50.1 to continue.		
Done				Internet Protected Mode: Off	🖓 🔻 🔍 100% 👻 🖉
100 mm					
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Note: The update process can take anywhere from 3 – 5 minutes to complete.



Reboot Device

This page is used to **reboot the device**. **No hardware reset is executed** by means of executing "Reboot Device".

Reboot Device:

Click "Confirm" to Reboot the Device Confirm

PoE

PoE Status

Max available Power	180 Watt Update	
System operation status	On	
Main Power consumption	7.8(Watt)	

Field	Description
	Enter a value to update the total power budget of the POE switch.
Max Available Power	If user plug in a PD to switch that makes POE switch power consumption
	over this value, then the PD will no longer get powered.
System operation	Status of oustom
status	
Main Power	Current newer consumption on POE civitsh
consumption	

PoE Setting

From at la se	Status	Mode	Power Budget
Function	•	•	(0.1W) Max: 154 for AF, 300 for AT
Port No.	01 02 03 04 05 06 07 08		
Update			

In PoE Setting, users can change each port status, PoE mode, and Power Budget.

Field	Description
Status	Port enable or disable
	PoE mode can be set as AF/AT mode.
Mode	AF mode : 15 W
	AT mode : 30 W
	If PD consumes power above the Power Budget value, the PoE port will be
Power Budget	shut down automatically and switch will repeat to power up PD if the port
	power consumption still over Power Budget.



For example, if ports 1 and 2 are to have a power budget of 16 watts, while all other ports have a budget of 31 W, the user may set the configuration as:

	Status	Mode	Power Budget	
Function	Enable 👻	AF 👻	16 (0.1W) Max: 154 for AF, 300 for AT	
Port No.		01 🔽	02 🔽 03 🔲 04 🗐 05 🗐 06 🗐 07 🗐 08 🗐	
			Update	

Click Refresh and check each port status setting.

	Port Status Refresh										
Port	Status	Mode	Class	Power Consumption(Watt)	Power Budget(Watt)						
1	Enable	AF			16						
2	Enable	AF			16						
3	Enable	AT			31						
4	Enable	AT			31						
5	Enable	AT			31						
6	Enable	AT			31						
7	Enable	AT			31						
8	Enable	AT			31						

Port Management

Port Configuration

This page allows the administrator to **configure operating mode of the physical port**.

After **selecting the settings**, you should **press the "Update" button** in order for changes to take effect.

The setting will be reflected in the current status window.

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etting t Counter tting y ng Tree <u>p</u> ig	Port	Link	Curr	ent Status Duplex	FlowCtrl	Tx/Rx Ability	Auto-Nego	Set Speed	ting Status Duplex	Pause	Backpro	essure	Addr Learni					
etting t Counter tting y ng Tree p ig selay Agent	Port	Link	Curr Speed	ent Status Duplex	FlowCtrl	Tx/Rx Ability ON	Auto-Nego AUTO	Set Speed 100M	ting Status Duplex FULL	Pause ON	Backpro	essure N	Addr Learnii OFF					
etting t Counter tting y ng Tree g g lefay Agent lerver Setting Recovery	Port	Link 	Curr Speed	Duplex	FlowCtrl	Tx/Rx Ability ON ON	Auto-Nego AUTO AUTO	Seed Speed 100M 100M	ting Status Duplex FULL FULL	Pause ON ON	Backpro	essure N	Addr Learnin OFF OFF					





Field	Description						
Ty/Dy Ability	Enable: Set this port normal operating mode.						
	Disable: Shut down this port.						
Auto-Negotiation	Enable/Disable Auto-negotiation.						
Speed	Select 1Gbps, 100Mbps or 10Mbps						
Duplex	Select Half duplex or Full duplex						
Pause	Enable/Disable symmetric pause ability						
Backpressure	Enable/Disable backpressure flow control in half duplex mode						
Addr. Learning	Enable/Disable MAC address learning ability						

Port Mirroring

The port mirroring function is accomplished by setting the following items.

- (a) Destination port: Theoretically it's possible to set more than one destination port in a network. Actually the port mirroring function will lower the network throughput, and therefore it's recommended to set "only one" destination port in a network.
- (b) **Source port:** the traffic source that will be copied to the destination port.
- (c) Monitored method:
 - Disable: means this function is disabled.
 - Rx: copy the incoming packets of the selected source port to the selected destination port.
 - Tx: copy the outgoing packets of the selected source port to the selected destination port.
 - Tx & Rx: the combination of Tx and Rx.

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Administrator	Port Mirroring	9						
Port Management Port Configuration Port Mirroring	Dest Port	1 2	3 4	5	6	7 8	9 10	
 Bandwidth Control Broadcast Storm Control 	Monitored Packets	Disable - Disable						
 VLAN Setting Per Port Counter 	Source Port	Rx Tx Tx & Rx	3 4	5	6	7 8	9 10	
QoS Setting				L	Jpdate			
Security Spanning Tree Trunking	Multi to Multi Sniffer fun	action						
DHCP Relay Agent								
Done				😜 Inte	rnet Protected	Mode: Off	4 v 3 100)% 👻

Take the following configuration as an example.

- (a) Destination Port: Port 9 Port 12
- (b) Source port: Port 1 ~ Port 4
- (c) Mirrored method: Rx

This means that all packets received at ports 1 - 4 will be copied to ports 9 - 12.

Tip: The more source and destination ports that are set, the less network throughput is available for normal traffic.

Bandwidth Control

This page allows the **setting of the bandwidth for each port**. The Tx rate and Rx rate can be filled with the number ranging from 1 to 255. This number should be multiplied by the selected bandwidth resolution to get the actual bandwidth.

In the "Low" mode, the Tx/Rx bandwidth resolution is 32Kbps for port 1~ port 26. In the "High" mode, the Tx/Rx bandwidth resolution is 256Kbps for port 1~ port 24, and 2048Kbps for port 25, port 26.



(a) Low bandwidth for TX

Example 1: The TX number of the port1~4 is set to 10, 20, 30, 40 respectively, and Speed base is set to "Low". The real bandwidth comes from the formula of 32Kbps*10, 32Kbps*20, 32Kbps*30 and 32Kbps*40 respectively. After the "Update" button is executed, the real bandwidth will show up in TX fields.

(b) High bandwidth for TX

Example 2: The TX number of the port1~4 is set to 10, 20, 30, 40 respectively, and Speed base is set to "High". The real bandwidth comes from the formula of 256Kbps*10, 256Kbps*20, 256Kbps*30 and 256Kbps*40 respectively. After the "Update" button is executed, the real bandwidth will show up in TX fields.



(c) Low bandwidth for Rx

Example 3: The RX bandwidth number of the port 5~ port 8 is set to 50, 60, 70, 80 respectively, and Speed base is set to "Low". The real bandwidth comes from the formula of 32Kbps*50, 32Kbps*60, 32Kbps*70 and 32Kbps*80 respectively. After the "Update" button is executed, the real bandwidth will show up in RX fields.

(d) High bandwidth for RX

Example 4: The RX bandwidth number of the port 5~ port 8 is set to 50, 60, 70, 80 respectively, and Speed base is set to "High". The real bandwidth comes from the formula of 256Kbps*50, 256Kbps*60, 256Kbps*70 and 256Kbps*80 respectively. After the "Update" button is executed, the real bandwidth will show up in RX fields.

The limitation of the bandwidth control

- The actual bandwidth should be less than link speed of the port. 100Mbps link speed for port 25 and port 26, the bandwidth setting should be less than 48 if the bandwidth is set to "High". 10Mbps link speed for port 25 and port 26, the bandwidth setting should be less than 4 if the bandwidth base is set to "High". 10Mbps link speed for port 1 ~ port 24, the bandwidth setting should be less than 39 if the bandwidth base is set to "High".
- Setting the bandwidth to "0" will make the switch running at the "Full Speed".

Broadcast Storm Control

The broadcast storm control is used to **block excessive broadcast packets** received during the specified time unit. The valid number ranges from 1 to 63.

The broadcast packet is only checked at the selected port and the number of broadcast packets is counted in every time unit.





There are **3 options for the selection of the time unit**, as the figure shown above. Once the broadcast storm protection is enabled, the excessive broadcast packet will be discarded. For those broadcast packets incoming from the un-selected port, the switch treats it as the normal traffic.

VLAN Setting

VLAN mode

The managed switch supports **two VLAN modes, tag based and port based**. Only one VLAN mode can be enabled at one time.

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QoS Setting	
Security	
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DHCP Relay Agent	
DHCP Server Setting	
Backup/Recovery	
Miscellaneous	
SNMP Settings	
🔍 Logout	
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When the tag based VLAN is selected, **the administrator can define the handling method of a VLAN tag to the specified port**, including "Add Tag", "Don't care" or "Remove Tag".

- (a) "Add Tag" means the outgoing packet should contain a 802.1Q tag.
 - The 802.1Q tag will be inserted to the outgoing packet of the selected port if the packet received at the source port does not contain 802.1Q tag.
 - The original 802.1Q tag will be kept if the source port received a packet with 802.1Q tag.
- (b) "Don't Care" means the outgoing packet of the selected port keep the original packet format of the source port.
- (c) "Remove Tag" means the outgoing packet should not contain a 802.1Q tag.
 - The 802.1Q tag of the outgoing packet of the selected port will be removed if the incoming packet received at the source packet contains 802.1Q tag.
 - The packet format of the source port will be kept if the packet does not contain the 802.1Q tag.

Tip: In tag-based VLAN mode, adding a tag on the port that is being used to configure the switch is not allowed because some NICs cannot recognize the 802.1Q tag.



Example:

Port 1: The 802.1Q tag of every packet outgoing from this port will be removed. Port 4: The 802.1Q tag of every packet outgoing from this port should be included. Other ports: keep every outgoing packet intact

other ports.	heep et	ici y out							
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 PoE Port Management VLAN Setting 	VLAN N	lode							
 VLAN mode VLAN Member 	VLAN Mode	Tag Based VLA	N Change \	/LAN mode					
 Multi to 1 Setting Per Port Counter QoS Setting 	Tag Mode	Port 01 O AddTag O don't care RemoveTag	Port 02 O AddTag O don't care O RemoveTag	Port 03 AddTag don't care RemoveTag	Port 04 ● AddTag ○ don't care ○ RemoveTag	Port 05 AddTag don't care RemoveTag	Port 06 AddTag don't care RemoveTag	Port 07 O AddTag O don't care O RemoveTag	P
Security Spanning Tree						Upo	date		
* Trunking • DHCP Relay Agent DHCP Relay Agent DHCP Server Setting * Backup/Recovery * Miscellaneous * SNMP Settings * Logout	Note: If the lini In this ca	k partner is a ne ise, it is strongly	twork interface recommended	card, it probably the network adn	7 cannot recogni inistrator to rer	ze the VLAN ta nove the VLAN	g. tag of the corre	sponding port.	
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Done					😜 Internet	Protected Mode: Off	4	🚡 🔻 🔍 100% 🔻	•

VLAN Member Setting – Port Based

This web page is designed based on the VLAN member of each port. The following examples illustrate how to configure VLAN in this mode. The Table is configuring the port-base VLAN member of each port. When the port receives the packets it allows forwarding only to the VLAN member of this port.

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VLAN Setting	D	est PC	RT		0	1	0	2	03		04		05		06		07	(08	11
VLAN mode		selec	t		5	7	5	7	V		V		V		V		V		v	1
VLAN Member	D	est PC	RT		0	9	1	0	11		12		13		14		15		16	1
Multi to 1 Setting Per Port Counter		selec	t		5	J	8	/	V		V		V		V		V		7	Ξ
QoS Setting	D	est PC	RT		0	9	1	0												
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SNMP Settings	Port	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	
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Field	Description
Read	Select the ports of which you want this port to read VLAN member
Redu	Press "Read" button
Undata	• Select the VLAN member which you want to update.
Opuale	Press "Update"
LoadDefault	Press this button to load default VLAN setting.

Example:

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Port Management											1	1	1	1	1	1	1	1	1	
VLAN Setting	Port	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	
VLAN mode	1	v	v	v	v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
 VLAN Member Multi to 1 Setting 	2	v	v	v	v	v	-	-	-	-	-	-	-	-	-	-	-	-	-	
Per Port Counter	3	v	v	v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
QoS Setting																				-
Security	-	v	v	v	v	v	•	v	, v	v	v	·	v	v	v	•	v	•	v	-
Spanning Tree	5	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	-
O Trunking	6	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
DHCP Relay Agent	7	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	E
DHCP Server Setting	8	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
Backup/Recovery	9	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	1
Miscellaneous	10	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	1
									-		1	1	1	1	1	1	1	1	1	- 🗆
	Port	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	-
Done										6) Intern	et Prot	ected N	Iode: Of	ff		-	•	100%	•

- (a) Port 1 received packets can only forward to port 2, port 3, and port 4.
- (b) Port 2 received packets, can only forward to port 1, port 3, port 4, and port 5.
- (c) Port 3 received packets, can only forward to port 1 and port 2.



VLAN Member Setting – Tag Based

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• PoE	VLAN Member Setting (Tag E	Based)						2 3	4			*
Port Management												_
VLAN Setting	VID: (1~4094) Add				- D	elete	Update					
 VLAN mode VLAN Member Multi to 1 Setting 	Add: Enter a VID, select the VLAN men Del: Select a VID in the table and then p Update:Modify the existing VID entry,se	mber for thi ress this but lect VID ar	s entry an tton to rer id then pro	d then pr nove a V ess the b	ess this ID entry utton.	button to from the	add a VLA table.	AN entry	to the t	able.		E
Per Port Counter OoS Setting	VLAN Member Port	t		01	02	03	04	05	06	07	08	
 Security 	select			V	V		V		1	V		
Spanning Tree	VLAN Member Port	t		09	10	11	12	13	14	15	16	-
Trunking	select			V	V	V	V	V	V			
DHCP Relay Agent	VLAN Member Port	t		09	10							-
DHCP Server Setting	select					-	_	-	-	-		
Miscellaneous	NI-ter IG	711D		- VD			2 10 +	-	-	-	-	-
SNMP Settings	Note: if you do not select any port, this	v ID will be	treated as	savide	embedd	ed in a st	12.1Q tag.					-
D Logout	VID Source port	01	02	03 04		05	06	07		08	-	
	select				1							-
Done					😜 Inter	net Protec	ted Mode: C	Off			🔍 100%	• .d

Field	Description
	Enter a VID, select the VLAN member and click the VID source port and then
Add a VLAN	enter a group name. Finally press "Add" button to send this command. The
	VLAN will be added to the list.
Delete a VLAN	Select a VID and press "Delete" to remove a VLAN.
Modify a VI AN	Select a VID which you want to modify. After the web page shows up, select
Moully a VLAN	the VLAN member and VID source port and then press "Update".

Add a VLAN Group

- Step 1: Enter VID. The following example shows VID=45
- Step 2: Select VLAN member
- Step 3: Select the source port corresponding to this VID. You can select more than one port.
- Step 4: Press "Add" to add a VLAN group.

Modify A VLAN Group

- Step 1: Select/De-select the VLAN ID
- Step 2: Select/De-select VID source corresponding to this VID
- Step 3: Press "Update"



Multi-to-1 Setting

Multi-to-1 VLAN is used in CPE side of Ethernet-to-the-Home and is exclusive to VLAN setting on "VLAN member setting". In the other words, once multi-to-1 is set, the previous VLAN setting will be overridden. The "disable port" refers to the port which will be excluded in this setting. All ports excluded in this setting are treated as the same VLAN group.

In the following example, ports 3 and 4 are excluded in this VLAN. Furthermore these ports are treated as members of other VLAN. All ports that are not specified in this table communicate only with port 1.

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 PoE Port Management ■ VLAN Setting 	Multi to 1 Setting						01	1 2				-
VLAN mode VLAN Member	Destination PortNo.					01	-					
 Multi to 1 Setting 	Current Setting					Pc	rt1					-
 Per Port Counter QoS Setting 	Disable	01	02	03 V	04 V	05	06	07	08	09	10	
 Security Spanning Tree Trunking 	Port		Not	te: "Disabl	ed port" d	lefines the	switch phy date	vsical port	which is di	sabled.		
DHCP Relay Agent	1.A example for Multi-to-1 s	structure										
 DHCP Server Setting Backup/Recovery 				Ports	V	LAN G	roups					
Miscellaneous SNMP Settings				(01		1						
Logout				<u>. (02)</u>		n O Internet	Destacted	Mada: Off			100%	



Per Port Counter

This page provides a **port counter for each port**. There are 4 groups of statistics in total. These 4 categories cannot work simultaneously. Once you change the counter category, the counter will be cleared automatically.



Field	Description
Transmit Packet &	This category shows both the received packet count (excluding the
Receive Packet	incorrect packet) and the transmitted packet count.
Collision Count &	This category shows the packets outgoing from the switch and the count
Transmit Packet	of collision.
Drop Packet &	This category shows the number of received valid packet and the number
Receive Packet	of dropped packet.
CRC error Packet &	This estagery shows the received correct period and received CDC error
Receive Packet	This category shows the received correct packet and received CKC error.
Defrech	Press "Refresh" button will aggregate the number of the counter for all
Reflesh	ports.
Clear	Press "Clear" button will clear all counters.



QoS setting

Priority Mode

This page allows the administrator to **set the scheduling mode** for the TX packets at each port.



Field	Description			
First-In-First-Out	All output packet are queued to one queue, first comes first out			
(FIFO)				
All-High-before-Low	All packets will be assigned to either high priority queue or low			
All-High-Derore-Low	priority queue. The low priority packet will not forwarded until			
	the high priority queue is empty.			
	There are 2 priority queues for Weighted-and-round-robin			
Weight-Round-Robin	(WRR) mode. When this mode is selected, the traffic will be			
(WRR)	forwarded according to the number set in each queue. The			
	queue ID has nothing to do with the priority.			

Example:

If High, Low queue are set to 5, 3, then the traffic at the specific port will go out in the following sequence: 5 packets stored in High queue, 3 packets stored in Low queue, 5 packets stored in High queue, 3 packets stored in Low queue, etc.



Class of Service Configuration

There are 4 types of CoS for this setting: **TCP/UDP port number**, **IP TOS/DS**, **802.1p priority tag**, and **physical port**. The administrator can select more than one item for each port.

Tip: If more than one type of CoS is selected the switch will arrange the packet to the assigned queue according to the following priority: TCP/UDP Port Number, IP ToS/DS, 802.1p Priority Tag, Physical Port. TCP/UDP Port Number will override all other CoS settings.

For 802.1p priority tag, the following table is used to map the 802.1p field to the priory queue.

Priory Field	Priority Queue
4,5,6,7	High
0,1,2,3	Low

For IP TOS/DS priority, there are 7 kinds of TOS field can be assigned to High or Low queues. i.e; 6'b101110, 6'b001010, 6'b010010, 6'b011010, 6'b100010, 6'b110000 and 6'b111000.

Class of Service

The administrator can select **the protocol that will be forwarded as the specified mode**. There are 3 administrator-defined UDP/TCP port groups and many well-known TCP/UDP ports. The administrator-defined port number may be a range or a specific number, depending on the mask.

The operating theory for all 4 CoS types can be illustrated by the following figure and table.

TCP/UDP CoS, IP TOS/DS, 802.1p are global setting for all ports and has no relation with the physical port. **Example:**

- (a) **Priority Mode:** WRR. High weight=4; Low weight=2
- (b) **TCP/UDP CoS:** P2 FTP =>High queue; P5 SMTP => Low queue
- (c) TOS/DS setting: P5 TOS 6'b010010=High queue; P2 TOS 6'b100010=Low queue
- (d) 802.1p: P2 802.1p = 6(High queue); P5 802.1p =1(Low queue)
- (e) Physical port: P5=High queue; P2=Low queue

According to the rule described above, the CoS will be executed in the following sequence:

TCP/UDP > TOS/DS > 802.1p > Physical





The actual CoS will behave like this table.

Switch Behavior Observed on P3	Comment
4 packets coming from P2;	If TCP/UDP CoS is enabled, the other CoS
2 packets coming from P5;	setting will be ignored.
4 packets coming from P2;	
2 packets coming from P2;	If TCP/UDP CoS is disabled, the switch will
4 packets coming from P5;	check TOS/DS CoS.
2 packets coming from P2;	
4 packet coming from P2;	If TOS/DS CoS is disabled, the switch will
2 packets coming from P5;	check the 802.1p field.
4 packets coming from P2;	
2 packet coming from P2;	If only physical port CoS is enabled, the
4 packets coming from P5;	switch only check the physical port CoS.
2 packet coming from P2;	



Security

MAC Address Binding

This function provides a method for the administrator to **specify the relationship between the physical port and the MAC address**. Only the packet with specified source MAC address can communicate with other port. By specifying the MAC address to each port, the network administrator can prevent the unauthorized administrator from accessing the switch. Each port can bind up to 3 MAC addresses.

To activate the port binding function, you should **enter the correct MAC address**, select **the port number**, **set the port binding to "Enable**," and **press "Update**".

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Administrator	MAC Address	Binding	01 1	
Poe Poe				
	Port No.		MAC Address	
 Per Port Counter QoS Setting Security 	1			
 MAC Address Binding TCP/UDP Filter 		Select Port 01 - Bind	ling Disable - Update	=
 Spanning Tree Trunking 	Note: If you enable the MA	C address binding function, the addres	s leaning function will be disab	ed automatically.
DHCP Relay Agent	Port No.	Binding Status	Port No.	Binding Status
DHCP Server Setting	1	Disable	6	Disable
Backup/Recovery	2	Disable	7	Dirabla
Miscellaneous	2	Disable	/	Disable
SNMP Settings	3	Disable	8	Disable
	4	Disable	9	Disable -
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Tip: Setting the multicast address to these fields is **not** allowed. A warning message will appear if you attempt to do so.

TCP/UDP Filter

By selecting the TCP/UDP port, the network administrator can **optionally block some specific applications**. There are two kinds of protocol filter functions. The "**positive**" function makes the switch forward the selected protocol and drop other protocols. The "**negative**" function makes the switch drop the selected protocol and forward other protocols. The protocol is checked at the secure WAN port. And it should be set at the server side.



Example:

- (a) Enable TCP/UDP Filter function.
- (b) Select "positive" rule.
- (c) Set port 5 as secure WAN port and select FTP and TELNET as the filtering protocol.
- (d) Place the server of the selected protocol at the secure WAN port.

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Administrator	TCP_UDP Fi	lter Config	uration		U1 1 2	3 4		_
Port Management	Function Enable	Enable 🝷						
VLAN Setting Per Port Counter QoS Setting Security NO Address	Port Filtering Rule	Positive Note: (1)The outgoing pa (2)"negative" mean "positive" mean	acket with selected p is the selected protoc s the selected protoc	rotocol will be either ol will be dropped a ol will be forwarded	forwarded or dropp nd other protocols w and other protocol v	ed at secure ill be forwar vill be dropp	WAN port a ded. ed.	s the fi [≡]
Binding TCP/UDP Filter		FTP(20,21)	SSH(22)	TELNET(23)	SMTP(25)	DNS (53)	TFTP (69)	■H (80,8
 Spanning Tree Trunking 	Protocol	NEWS(119)	SNTP(123)	NetBIOS (137~139)	IMAP (143,220)	SNMP (161,162)	HTTPS (443)	X (338!
DHCP Relay Agent DHCP Server Setting		User_Define_a	User_Define_b	User_Define_c	User_Define_d			
 DHCP Server Setting Backup/Recovery 	Coouro MAN port	Port01	Port02	Port03	Port04	Port05	Port06	P.
9 Miscellaneous	Secure wAiv port	Port9	Port10					
SNMP Settings				Up	date			-
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Result:

Physical Port	The Behavior of Switch						
Port 5	TELNET and FTP will be forwarded. Other protocol will be discarded.						
Other ports	All protocol will be forwarded as the normal packet.						
TELNET Client, FTP Client, HTTP Client	2 Check TCP/UDP detination port at the selected physical port. FTP Server, HTTP Server FTP Server, FTP Server, HTTP Server, HTTP Server, HTTP Server Don't care the protocol at these physical ports						

A Brief Description for Secure TCP/UDP Port



Spanning Tree

STP Bridge Settings



Field	Description					
	Disable: Disable RSTP/STP.					
STP Mode	• STP: Enable STP function.					
	RSTP: Enable RSTP function, including STP.					
	This field in conjunction with the MAC address forms the Bridge ID.					
Bridge Priority	The lowest number of the Bridge ID in a Spanning Tree domain will					
	be selected as the root. Enter a multiple of 4096 this field.					
Hello Time, Max Age and	These fields control how this device handles BPDU. The relationship					
Forwarding Delay	of these fields is listed below.					

Tip: 2*(Forward Delay-1) >= Max Age, Max Age >= 2*(Hello Time+1)



STP Port Settings

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Administrator PoF	STP Brid	lge Settings				2 3 7		^
Port Management			•		1			
VLAN Setting		Spanning Tree Set	May A go	Forward Dalay				
Per Port Counter	STP Mode	Bridge Priority Freito Time	Max Age	Forward Delay				
QoS Setting		(0~61440) (1~10 Sec)	(6~40 Sec)	(4~30 Sec)				
Security								=
Spanning Tree		Submit						
STP Bridge Settings	Note: 2*(Forw	ard Delay-1) >= Max Age,			1			
 STP Port Settings Loopback Detection 	Max Age >= 2	*(Hello Time+1)						
Trunking	Bridge Priority	must be multiplies of 4096						
DHCP Relay Agent								
DHCP Server Setting	Note: If you enal RSTP/STP and	ble the MAC address binding fun address learning will be affected	ction, the addre	s leaning function	1 will be disabled a	utomatically. Then b	oth	
Backup/Recovery	R511/51F and	address icarining will be affected.						
Miscellaneous		Bridge	Status					
SNMP Settings	STP Mode	Bridge ID	Hello Time	Max Age	Forward Delay			
	RSTP	32768:00 D0 89 0E 57 E1	2	20	15			-
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Field	Description
	To configure the parameters of RSTP/STP port, the administrator should
Port No.	select a physical port number, assign a priory number, enter the RPC and
	then press "Submit" button.
	Priority field defines the priority of the RSTP/STP port. The lower the
Priority (0~240)	number is, the higher possibility it will become a root port. There is a
	default value for each port.
	RPC stands for "Root Path Cost". The higher the cost is, the lower possibility
RFC (0~20000000)	it become a root path. In the general case, the physical port with the higher
	bandwidth will be assigned a lower cost.



Loopback Detection Settings

This web page provides loopback detection function. When loopback detection function is enabled and a port received it's own BPDU, the detection agent drops the loopback BPDU and places the interface in discarding mode. This loopback status can be released automatically, if auto wake up function is enabled.

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VLAN Setting		Auto Wake Up	Disable -	
Per Port Counter	Wak	e-Up Time Interval	10 sec 👻	
QoS Setting		Su	bmit	
Security				
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STP Bridge Settings	Deast All Dart			
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Trunking	Port No.	Status		
DHCP Relay Agent	1			
DHCP Server Setting	2			
Backup/Recovery	3		-	
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SNMP Settings	5			
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Field	Description
Loopback Detect Function	Enable/Disable the loopback detect function.
Auto Wake Up	Enable/Disable auto wake up for loopback detection of each
Auto wake op	ports.
Wake-Up Time Interval	Set auto wake up time value.

Trunking

This page is used to **set trunk group** for load balance and cable link auto-backup.

There are 2 methods to set a trunk: Static and LACP.

The meaning of each field shown in the following table is explained as following.

The managed switch supports three trunk groups, which can set port 1 - port 8, port25 and port 26, and trunk 1 consists of port 1 - port 4, trunk 2 consists of port 5 - port 8, trunk 3 consists of port 25, port 26. Trunk hash algorithm can be selected according to 2 different methods.



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Administrator	Trunking										
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Port Management	System Priori	tv		1 (1~65535)							
VLAN Setting	I ink Aggregation A	Igorithn	•	MAC Stre&Dat V							
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QoS Setting			Ju	Dillit							
Security											
Spanning Tree											
Trunking	Refresh										
Link Aggregation Settings			Link G	roup 1			Link G	roup 2		Link	Group 3
DHCP Relay Agent		P1	P2	P3	P4	P5	P6	P 7	P8	P9	P10
DHCP Server Setting	Member	1	V	V	V	V	V	V	V	V	
Backup/Recovery											
Miscellaneous	State		Disab	le 🔻			Disal	ole 🔻		Dis	able 👻
SNMP Settings	Туре		LAC	•			LAC	Р 🕶		LA	CP 👻
9 Logout	Operation Key	1		(1~655	535)	2		(1~655	35)	3	(1~65535)
	Time Out		Short Tim	e Out 🤜	•		Short Tin	ne Out 👻	•	Short T	ime Out 👻
Done						0	Internet	Protected	d Mode: C	Off	🖓 🕶 🔍 100% 👻

Link Aggregation Algorithm	Description
SA	Among the trunk member ports, the packet will be distributed based on the source MAC address.
DA XOR SA	Among the trunk member ports, the packet will be distributed based on the XOR calculation result of the source MAC address and the destination MAC address.

Field	Description
	There are three configurable trunk groups.
Member	"" means the trunk has not been built on the corresponding port. "A" means trunk has been built on the corresponding port
State	Administrator can enable/disable the function of this trunk.
	Static: Static setting by manual.
Туре	 LACP: Setting by ACP.
Operation Key	Assign an operation key for this device
Time out	Short Time Out: Re-configure LACP trunk every 1 second.
Time out	• Long Time Out: Re-configure LACP trunk every 30 second.
	You should set at least one side of each trunk to "Active" state. If both sides of
ACTIVITY	a trunk are all set to "Passive", LACP trunk will never be built up.





DHCP Relay Agent

Relay Agent Configuration

This web page allows the administrator to **enable/disable DHCP Relay Agent function**. In addition, option 82 message is selectable by setting.

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Port Management	DHCP Relay Agent			
VLAN Setting	Brief Kelay Agent			
Per Port Counter				
QoS Setting	DHCP Relay State :		Disable 💌	
Security	DHCP Relay Hops Count Limit	(1-16):	16	
Spanning Tree	DHCP Relay Option 82 Sta	te ·	Disable 💌	
Trunking				
DHCP Relay Agent		Update		
DHCP Relay Agent				
 Relay Server VLAN MAP Relay Agent 				
DHCP Server Setting				
Backup/Recovery				
Miscellaneous				
SNMP Settings				
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Field	Description
DHCP Relay State	Allow the administrator to enable/disable Relay Agent function.
DHCP Relay Hops Count	Specify the maximum number of Relay Agent traveling from DHCP agent
Limit	to DHCP server.
	The pre-condition for enabling/disabling this function is that DHCP Relay
DHCP Relay Option 82	State is set to "enable". Once the Relay State is set to "enable", the
State	administrator can enable/disable Option 82, depending on whether the
	Option 82 information is required.

Server IP List

The IP address of DHCP server, which can be relayed by this Relay Agent, should be specified on this web page.



VLAN to Server IP Map

This web page defines the relationship between the VLAN group and the server IP address.

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Port Management	DHCP Relay Ad	nent			
VLAN Setting		Joint			
Per Port Counter					
QoS Setting	VLAN ID	1-4	094	Map Server IP 🔹	Add
Security					
Spanning Tree					
9 Trunking					
DHCP Relay Agent	VLAN	ID		Server IP	Action
DHCP Relay Agent Relay Server					
 VLAN MAP Relay Agent 					
DHCP Server Setting					
Backup/Recovery					
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DHCP Server Setting

This page allows enabling or disabling of the DHCP Server and the viewing of the IP address of each port.

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ministrator E	DHC	P Server Se	etting			
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AN Setting	Sei	rver State	O D15	able O Enable		
Port Counter		онсе пе	192	.168.50.11		
S Setting			Update			
curity						
anning Tree	Port	DHCP IP	Port	DHCP IP		
inking	01	192.168.50.11	06	192.168.50.16		
CP Relay Agent	02	192.168.50.12	0/	192.168.50.17		
CP Server Setting	03	192.108.50.15	08	192.108.50.18		
kup/Recovery	04	192.108.30.14	10	102 168 50 10		
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Tip: Each server can belong to only one VLAN ID. A warning message will appear if you attempt to set one server address to multiple VLAN IDs.



Backup/Recovery

This function provides the administrator with a method to **backup/recover** the switch configuration. The administrator can save configuration file to a specified file. If the administrator wants to recover the original configuration, which is saved at the specified path, just enter the password and press the "Upload" button. The backup configuration of the switch will then be recovered.

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Tip: The switch will check that the uploaded file is correct. If the content of the file is incorrect, the switch will show a warning message.

Miscellaneous Settings

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SNMP Settings		VLAN Uplink Setting							
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Output Queue Aging Time

This function is used to **avoid the poor utilization of the switch**. When a packet is stored in a switch for a long time, the time slot defined by the protocol will expire and this packet becomes useless. To prevent these useless packets from wasting the bandwidth, this switch provides an option to enable the queue aging function. Once enabled, the switch will monitor the aging timer for each packet before it is sent out. A packet that stays in a queue for a long time will be discarded.

VLAN Striding

By selecting this function, the switch will **forward uni-cast packets to the destination port**, no matter whether destination port is in the same VLAN.

IGMP Snooping

When this function is enabled, the switch will **execute IGMP snooping version 1 and version 2 without the intervention of CPU**. The switch automatically handles IGMP report packets. When the user enables "Leave packet will be forwarded to IGMP router ports" function. If members want to leave this multicast group, the IGMP leave packet will be forwarded to the router ports.

VLAN Uplink

In the VLAN, the user can **define the "Uplink port"**. This is normally the port that attached to the uplink router. This feature is similar to the "Router port". After that is set, any frame transferred to the other VLAN member is forwarded only out the uplink port.

	VLAN Uplink Setting											
Port 01 Uplink1 Uplink2	Port 02 O Uplink1 O Uplink2	Port 03 Uplink1 Uplink2	Port 04 O Uplink1 O Uplink2	Port 05 Uplink1 Uplink2	Port 06 Uplink1 Uplink2	Port 07 O Uplink1 O Uplink2	Port 08 O Uplink1 O Uplink2	Port 09 O Uplink1 O Uplink2	Port 10 O Uplink1 O Uplink2	Port 11 O Uplink1 O Uplink2	Port 12 Uplink1 Uplink2	Port 13 O Uplink1 O Uplink2
Port 14 OUplink1 OUplink2	Port 15 O Uplink1 O Uplink2	Port 16 O Uplink1 O Uplink2	Port 17 O Uplink1 O Uplink2	Port 18 O Uplink1 O Uplink2	Port 19 O Uplink1 O Uplink2	Port 20 Uplink1	Port 21 O Uplink1 O Uplink2	Port 22 Uplink1 Uplink2	Port 23 Uplink1 Uplink2	Port 24 O Uplink1 O Uplink2	Port 25 Uplink1 Uplink2	Port 26 Uplink1 Uplink2
⊖ Clear Uplink1 ⊖ Clear Uplink2												
					[Update						

For example:

- Step 1: set port 1, 2 and 3 are the same VLAN; set port 4, 5 and 6 are the same VLAN.
- **Step 2:** set port 1 is uplink port of Uplink 1, set port 4 is uplink port of Uplink 2, and press "Update" button.
- **Step 3:** If port 2 wants to send a uni-case packet to port 5, the packet will be transferred to port 1.



SNMP Settings

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	System Location	ICPlus	
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Done		🌍 Internet Protected Mode: Off 🛛 🍕 🔻 🍕 100	% 👻 🔐

Field	Description	
Community Name	This field allows the administrator to enter the community name.	
Access Right	This filed defines the access attribute. "Read only" means the	
	administrator can view this community only. "Read/Write" means the	
	administrator can view and modify this community.	

Field	Description	
System Description	The administrator can enter a device name for the identification in the	
	network.	
System Contact	The contact person responsible for maintaining network.	
System Location	The location of this device.	
Trap State	Enable/Disable trapped event. The trapped event are:	
	Power up event.	
	Physical port status change event.	



Logout

This is the administrator logout page. Press the "Accept" button to logout. Press the "Back" button to browse the previous web page.

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Load Default Settings – Hardware Based

The purpose of this function is to provide a method for the network administrator to restore all configurations to the default value. To activate this function, the administrator should follow the following procedures.

- (a) Press the "Load Default" button for 3 seconds until you see the LoadDefault LED blinking.
- (b) When LED starts blinking, it means the CPU is executing the "load default" procedure. You can release the button now.

After completing this procedure, **all the factory default value will be restored**. This includes the IP address, administrator name, password, and all switch configurations.