



**ALL-SG8524M-10G**

**ALL-SG8548M-10G**

**ALL-SG8524PM-10G**

**ALL-SG8548PM-10G**



**User Manual**

**Default-IP**  
**192.168.1.1**

**Username & Password:**  
**admin**

### **Copyright statement**

©2001-2017

Reserve all copyrights of this document. Any reproduction, excerpt, backup, modification, transmission, translation or commercial use of this document or any portion of this document, in any form or by any means, without the prior written consent is prohibited.

### **Disclaimer**

The contents of this manual was based on existing production information, the content may be modified due to product version upgrade or other reasons. Our company reserve right that modifies the user manual without any notice or hint.

This user manual is only used as a guide, we had tried its best to guarantee the contents accurately when wrote this user manual. But it does not ensure that the contents of this user manual without any error or any omission, all information in this user manual does not constitute any express or implied warranty.

## Preface

Thank you for using our products. This manual will guide you through the installation of the device.

## Range of use

This user manual mainly introduces function of Switch, physical feature and WEB configuration, provides installation steps, trouble removal, technology Specification, use criterion and specification of cable and connector. It's suitable for user who wants to know the above content and has experience in installing and maintaining hardware. It supposes that user know of related terms and concept of Ethernet.

## Document structure

- Chapter one "ALL-SG85XX-10G Switches Specifications" This chapter introduces hardware, technical index and related module.
- Chapter two "Preparation before installing". This chapter makes a list of requirements of safety, power, environment and so on.
- Chapter three " Installation of Product" .This chapter introduces the installation of Switch, the installation of module, power connection and ground lead connection.
- Chapter four "Common Troubleshooting in Installation" mainly describes problem and ways of disposal in installation or use procedure of Switch.
- Chapter five" Connection of Switch "introduces connects computer or load to Switch.
- Chapter six "ALL-SG85XX WEB Configuration Guide". This chapter introduce how to configure ALL-SG85XX L2+ series Switch.
- Appendix " Connectors and Connection Media"

## Related document

Documents	Description
Introduction to Fixed Frame installation	This induction describes the Fixed Frame installation and is furnished with detailed installation examples.

## Document formatting convention

### Symbol Conventions

---

 It means reader take note. Notes contain helpful suggestions or references.

---

 It means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

---

# Table of Contents

1	ALL-SG85XX-10G Switches Specifications.....	1
1.1	ALL-SG85XX NO PoE Switches .....	1
1.1.1	ALL-SG8524M-10G.....	1
1.1.2	ALL-SG8548M-10G.....	4
1.2	ALL-SG85XX PoE Switches.....	7
1.2.1	ALL-SG8524PM-10G.....	7
1.2.2	ALL-SG8548PM-10G.....	11
2	Preparation before installing .....	14
2.1	Safe suggest .....	14
2.1.1	Safety Precaution for Installing System.....	14
2.1.2	Movement Safety .....	14
2.1.3	Electric safety.....	14
2.1.4	Anti-static Discharge Damage.....	15
2.1.5	Fiber Use Safety.....	15
2.2	Installation Site Requirements.....	15
2.2.1	Ventilate Requirement.....	15
2.2.2	Temperature and Humidity Requirements.....	15
2.2.3	Cleanliness requirement .....	16
2.2.4	EMI.....	16
2.2.5	System Grounding Requirements .....	17
2.2.6	Lightning Resistance Considerations .....	18
2.2.7	EMI Consideration.....	18
2.3	Notes on fiber optic connections .....	18
2.4	Installation tools.....	18
3	Installation of Product .....	1
3.1	Installation Process .....	1
3.2	Confirmations before Installation.....	2
3.3	Installation exchange .....	2
3.4	Connect the power cord .....	4
3.5	Checking after Installation .....	4
4	Common Troubleshooting in Installation .....	5
4.1	General installation troubleshooting process.....	5
4.2	Common troubleshooting .....	6
5	Connection of Switch.....	7
5.1	Connect the Computer (NIC) to the Switch.....	7
5.2	Switch connection to the PD .....	7
5.3	How to Login the Switch .....	7
6	ALL-SG85XX WEB Configuration Guide .....	9
6.1	Basic Setting .....	9
6.1.1	System Info .....	10
6.1.2	General Setup.....	12

6.1.3	IP Setup .....	12
6.1.3.1	Vlan interface.....	13
6.1.3.2	Vlan interface Config .....	13
6.1.3.3	Static Routing.....	15
6.1.4	Port Setup .....	16
6.1.5	DHCP Server.....	17
6.1.5.1	DHCP server pool set .....	17
6.1.5.2	DHCP server group set.....	18
6.1.6	DHCP-Relay .....	19
6.1.7	Stacking.....	19
6.1.7.1	Stacking Status.....	19
6.1.7.2	Stacking Configuration .....	20
6.2	Advanced Application.....	21
6.2.1	VLAN.....	22
6.2.1.1	VLAN Status.....	22
6.2.1.2	VLAN Port Settings .....	23
6.2.1.3	Static VLAN.....	25
6.2.2	MAC Address Forwarding.....	26
6.2.3	Spanning Tree Protocol.....	27
6.2.3.1	Spanning Tree Protocol Status.....	28
6.2.3.2	Spanning Tree Configuration .....	29
6.2.3.3	Compatible/Rapid Spanning Tree Protocol.....	30
6.2.3.4	Multiple Spanning Tree Protocol.....	31
6.2.4	ERPS Protocol.....	33
6.2.5	EAPS Protocol .....	35
6.2.5.1	Ethernet Automatic Protection Switching.....	35
6.2.5.2	EAPS Domain.....	37
6.2.6	VRRP Protocol.....	38
6.2.7	Layer 2 Tunneling Protocol.....	39
6.2.8	PPPoE IA .....	40
6.2.8.1	Intermediate Agent.....	40
6.2.8.2	Port .....	41
6.2.9	Bandwidth Control.....	42
6.2.10	Broadcast Storm Control .....	43
6.2.11	Mirroring.....	44
6.2.12	Link Aggregation .....	46
6.2.12.1	Link Aggregation status.....	46
6.2.12.2	Link Aggregation Setting.....	47
6.2.12.3	Link Aggregation Control Protocol.....	49
6.2.13	Port Security .....	50
6.2.14	POE Settings .....	51
6.2.14.1	POE Settings.....	52
6.2.14.2	POE Port Settings.....	53
6.2.15	Classifier.....	54

6.2.16	Policy Rule.....	55
6.2.17	Queuing Method .....	56
6.2.18	Multicast .....	57
6.2.18.1	Multicast Status.....	58
6.2.18.2	Multicast Settings .....	58
6.2.18.3	IGMPSnooping Dney VLAN .....	60
6.2.18.4	IGMP Filtering Profile .....	61
6.2.19	IPv6 Multicast .....	61
6.2.19.1	IPv6 Multicast Status.....	62
6.2.19.2	IPv6 Multicast Setting.....	62
6.2.19.3	MLD Snooping Dney VLAN .....	64
6.2.20	Dos attack protect.....	65
6.2.21	DHCP Snooping Setting .....	67
6.2.21.1	DHCP Snooping Setting.....	68
6.2.21.2	IP Source Guard.....	69
6.2.22	SNTP Setting .....	70
6.2.23	QinQ .....	72
6.2.23.1	Set Up QinQ .....	73
6.2.23.2	Flesible QinQ .....	74
6.2.24	AAA.....	75
6.2.24.1	802.1x.....	75
6.2.24.2	Radius Domain .....	77
6.2.24.3	Remote Authentication.....	78
6.2.24.4	TACACS+ Server Setup.....	79
6.2.24.5	Radius Server Setup .....	80
6.3	Management.....	81
6.3.1	Management &Maintenance .....	81
6.3.2	Access Control.....	82
6.3.2.1	SNMP.....	83
6.3.2.2	User Information.....	84
6.3.2.3	Logins.....	85
6.3.3	Diagnostic .....	87
6.3.4	Syslog.....	88
6.3.4.1	Syslog Setup .....	88
6.3.4.2	Syslog Server Setup.....	90
Appendix: Connectors and Connection Media .....		91

# 1 ALL-SG85XX-10G Switches Specifications

## 1.1 ALL-SG85XX NO PoE Switches

### 1.1.1 ALL-SG8524M-10G

#### Specifications

<b>Product model</b>	ALL-SG8524M-10G	
<b>Standards</b>	IEEE 802.3i,IEEE 802.3u,IEEE 802.3ab,IEEE 802.3az,IEEE802.3ae,IEEE802.3x,IEEE802.3z,IEEE802.3ad ,IEEE802.1P,IEEE802.1Q	
<b>Network Media (Cable)</b>	10BASE-T: UTP category 3,4,5 cable (maximum 100m) 100BASE-Tx: UTP category 5,5e cable (maximum 100m) 1000BASE-T:UTP category 5e,6 cable (maximum 100m) 1000Base-X:MMF,SMF 10GBase-X:MMF,SMF	
<b>Interface</b>	24 x 10/100/1000Mbps Auto-Negotiation ports 4 x 1000/10000Mbps SFP+ ports 1 x RJ45 Console Port	
<b>Transfer Method</b>	Store-and-Forward	
<b>Switching Capacity</b>	128Gbps	
<b>MAC Address Learning</b>	16K	
<b>Packet Forwarding Rate</b>	95.24Mpps	
<b>Packet Buffer</b>	1.5MBytes	
<b>Jumbo Frame</b>	12KBytes	
<b>Indicators</b>	<b>Per Device</b>	PWR:Green
	<b>Per Port</b>	Link/Act:Green
<b>Power Supply</b>	AC input: Rated voltage range:100-240V~ Frequency:50-60Hz 36W, internal power	
<b>PoE</b>	nonsupport	
<b>Power Consumption</b>	18.5W(Max) (220V/50Hz)	
<b>Operating Temperature</b>	0°C~45°C	
<b>Storage Temperature</b>	-40°C~70°C	
<b>Operating Humidity</b>	10%~90% non-condensing	
<b>Storage humidity</b>	5%~90% non-condensing	
<b>Fan</b>	support	
<b>Dimensions (WxDxH)</b>	440x330x44.5mm (19" metal case)	

#### Product appearance

The front panel of ALL-SG8524M-10G Ethernet Switch consists of 24x10/100/1000Mbps RJ45 ports, Four 1000/10000Mbps SFP+ ports, Reset button, One Console port and a series LED indicator, the rear panel provides AC power input interface and grounding terminal. Show as below.

Figure 1-1 ALL-SG8524M-10G Product appearance



Figure 1-1

## Front panel

- 
- 1. 24x10/100/1000Mbps RJ45 ports: Designed to connect to the device with a bandwidth of 10Mbps, 100Mbps, 1000Mbps. Each has a corresponding Link/Act LED indicator.
  - 2. Four SFP+ ports (25S,26S,27S,28S): Designed to install the SFP module and connect to the device with bandwidth 1000/10000Mbps. Each has a corresponding Link/Act LED indicator.
  - 3. Console port: Designed to connect with the serial port of a computer or terminal for monitoring and configuring the Switch.
  - 4. Reset button (Reset): Keep the device powered on and push a paper clip into the hole. Press down the button for 6 seconds to restore the Switch to its original factory default settings.
  - 5. LED indicators: The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.
- 

## Rear panel

Figure 1-2 ALL-SG8524M-10G rear panel show as below.



Figure 1-2

- i** 1. Power is supplied through an external AC power adaptor. It supports AC 100~240V, 50/60Hz, 36W internal power.
- i** 2. Located on the left side of the power supply connector, use wire grounded to lightning protection.

### Power supply

AC input:

Rated voltage range: 100-240V~

Frequency: 50-60Hz

36W, internal power

### Heat dissipation solution

To ensure device work normally in the specified environments, ALL-SG8524M-10G adopts turbine fan to heat dissipation. It should reserve 10cm space for both side of Switch and rear panel of Switch to ventilation.

### LED indicator

The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.



Figure 1-3

The following chart shows the LED indicators of the Switch along with explanation of each indicator.

Indicator	Panel identification	Indicator color	Status	Meaning
Power indicator	PWR	Green	Off	Power Off
			On	Power On
Ethernet ports indicator	1~24 25S-28S	Green	Off	A device is disconnected to the port
			On	A device is connected to the port
			Flashing	Sending or receiving data

## 1.1.2 ALL-SG8548M-10G

### Specifications

Product module	ALL-SG8548M-10G	
Standards	IEEE 802.3i, IEEE 802.3u, IEEE802.3ab, IEEE802.3az, IEEE 802.3ae, IEEE802.3x, IEEE802.3z, IEEE802.3ad, IEEE802.1P, IEEE802.1Q	
Network Media (Cable)	10BASE-T: UTP category 3,4,5 cable (maximum 100m) 100BASE-Tx: UTP category 5,5e cable (maximum 100m) 1000BASE-T: UTP category 5e,6 cable (maximum 100m) 1000Base-X: MMF, SMF 10GBase-X: MMF, SMF	
Interface	48 x 10/100/1000Mbps Auto-Negotiation ports 4 x 1000/10000Mbps SFP+ ports 1 x RJ45 Console Port	
Transfer Method	Store-and-Forward	
Switching Capacity	176Gbps	
MAC Address Learning	16K	
Packet Forwarding Rate	130.944Mpps	
Packet Buffer	1.5MBytes	
Jumbo Frame	12KBytes	
Indicators	Per Device	PWR: Green SYS: Green
	Per Port	Link/Activity/Speed: (10/100Mbps Orange, 1000Mbps Green) 1G(Orange), 10G(Green)
Power Supply	AC input: Rated voltage range: 100-240V~ Frequency: 50-60Hz 48W, internal power	
PoE	nonsupport	
Operating Temperature	0°C ~ 45°C	
Storage Temperature	-40°C ~ 70°C	
Operating Humidity	10%~90% non-condensing	
Storage humidity	5%~90% non-condensing	
Fan	support	
Dimensions (WxDxH)	440x330x44.5mm (19" metal case)	

### Product appearance

The front panel of ALL-SG8548M-10G Ethernet Switch consists of 48x10/100/1000Mbps RJ45 ports, Four 1000/10000Mbps SFP+ ports, Reset button, One Console port and a series LED indicator, the rear panel provides AC power input interface and grounding terminal. Show as below.

Figure 1-3 ALL-SG8548M-10G Product appearance



Figure 1-4

### Front panel

- i** 1.48x10/100/1000Mbps RJ45 ports: Designed to connect to the device with a bandwidth of 10Mbps,100Mbps,1000Mbps.Each has a corresponding Link/Act/Speed LED indicator.
- i** 2.Four SFP+ ports (49S,50S,51S,52S):Designed to install the SFP module and connect to the device with bandwidth 1000/10000Mbps. Each has corresponding LED indicators.
- i** 3.Console port: Designed to connect with the serial port of a computer or terminal for monitoring and configuring the Switch.
- i** 4.Reset button(Reset):Keep the device powered on and push a paper clip into the hole. Press down the button for 6 seconds to restore the Switch to its original factory default settings.
- i** 5.LED indicator: The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.

### Rear panel

Figure1-4 ALL-SG8548M-10G rear panel show as below.



Figure 1-5

- i** 1.Power is supplied through an external AC power adopter. It supports AC 100~240V, 50/60Hz,48W, internal power.
- i** 2.Located on the left side of the power supply connector, use wire grounded to lightning protection.

## Power supply

AC input:

Rated voltage range: 100-240V~

Frequency: 50-60Hz

48W, internal power

## Heat dissipation solution

To ensure device work normally in the specified environments, ALL-SG8548M-10G adopts turbine fan to heat dissipation. It should reserve 10cm space for both side of Switch and rear panel of Switch to ventilation.

## LED indicator

The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.



Figure 1-6

The following chart shows the LED indicators of the Switch along with explanation of each indicator.

Indicator	Panel identification	Indicator color	Status	Meaning
Power indicator	PWR	Green	Off	Power off
			On	Power On
Ethernet port indicators	1~48	Orange	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 10/100Mbps
			Flashing	Sending or receiving data at a speed of 10/100Mbps
		Green	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 1000Mbps
			Flashing	Sending or receiving data at a speed of 1000Mbps
1G SFP+ port indicators	49S-52S	Orange	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 1Gbps
			Flashing	Sending or receiving data at a speed of 1Gbps
10G SFP+ port indicators		Green	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 10Gbps
			Flashing	Sending or receiving data at a speed of 10Gbps
SYS indicator	SYS	Green	Off	System is abnormal or not running
			Flashing	System is normal

## 1.2 ALL-SG85XX PoE Switches

### 1.2.1 ALL-SG8524PM-10G

#### Specifications

<b>Product module</b>	ALL-SG8524PM-10G	
<b>Standards</b>	IEEE802.3i,IEEE802.3u,IEEE802.3ab,IEEE802.3x, IEEE802.3az, IEEE802.3ae,IEEE802.3af,IEEE802.3at	
<b>Network Media (Cable)</b>	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) 100Base-Tx: UTP category 5, 5e cable (maximum 100m) 1000Base-T: UTP category 5e, 6 cable (maximum 100m) 1000Base-X:MMF,SMF 10GBase-X :MMF,SMF	
<b>Interface</b>	24 x 10/100/1000Mbps ports 4 x 1000/10000 Mbps SFP+ ports 1x Console port	
<b>Transfer Method</b>	Store-and-Forward	
<b>Switching Capacity</b>	16K	
<b>MAC Address Learning</b>	128Gbps	
<b>Packet Forwarding Rate</b>	95.232Mpps	
<b>Packet Buffer</b>	1.5Mbytes	
<b>Jumbo Frame</b>	12Kbytes	
<b>Indicators</b>	<b>Per Device</b>	PWR:Green
	<b>Per Port</b>	Link/Act:Green PoE: Orange
<b>Power Supply</b>	AC input: 100~160VAC,50/60HZ,370W 200~240VAC,50/60HZ,450W	
<b>PoE</b>	24x PoE ports compliant with 802.3at/af	
<b>Power Pin Assignment</b>	½(+),3/6(-)	
<b>PoE Budget</b>	320W@100~160VAC,50/60HZ 400W@200~240VAC,50/60HZ (It's adjustable by Web page)	
<b>Power Consumption</b>	468.2W(max) (220V/50Hz)	
<b>Operating Temperature</b>	0°C ~ 45°C	
<b>Storage Temperature</b>	-40°C ~ 70°C	
<b>Operating Humidity</b>	10%~90% non-condensing	
<b>Storage humidity</b>	5%~90% non-condensing	
<b>Fan</b>	support	
<b>Dimensions (WxDxH)</b>	440x330x44.5mm (19" metal case)	

#### Product appearance

The front panel of ALL-SG8524PM-10G Ethernet Switch consists of 24x10/100/1000Mbps RJ45 ports, Four 1000/10000Mbps SFP+ ports, Reset button, One Console port and a series LED indicator, the rear panel provides AC power input interface and grounding terminal. Show as below.

Figure 1-7 ALL-SG8524PM-10G Product appearance



Figure 1-7

### Front panel

- i** 1. 24x10/100/100Mbps RJ45 ports: Designed to connect to the device with a bandwidth of 10Mbps, 100Mbps, 1000Mbps. Each has a corresponding Link/Act LED indicator and a PoE LED indicator.
- i** 2. Four SFP+ ports (25S, 26S, 27S, 28S): Designed to install the SFP module and connect to the device with bandwidth 1000/10000Mbps. Each has a corresponding LED indicator.
- i** 3. Console port: Designed to connect with the serial port of a computer or terminal for monitoring and configuring the Switch.
- i** 4. Reset button (Reset): Keep the device powered on and push a paper clip into the hole. Press down the button for 6 seconds to restore the Switch to its original factory default settings.
- i** 5. LED indicator: The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.

### Rear panel

Figure 1-8 ALL-SG8524PM-10G rear panel show as below.



Figure 1-8

- i** 1. Power is supplied through an external AC power adapter. It supports AC 100~240V, 50/60Hz.
- i** 2. Located on the left side of the power supply connector, use wire grounded to lightning protection.

## Power supply

AC input:

100~160VAC,50/60HZ,370W

200~240VAC,50/60HZ,450W

## Heat dissipation solution

To ensure device work normally in the specified environment ALL-SG8524PM-10G adopts sturbine fan to heat dissipation.It should reserve 10cm space for both side of Switch and rear panel of Switch to ventilation.

## PoE

24x PoE ports compliant with 802.3at/af

## LED indicator

The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.



Figure 1-9

The following chart shows the LED indicators of the Switch along with explanation of each indicator.

Indicator	Panel identification	Indicator color	Status	Meaning
Power indicator	PWR	Green	Off	Power off
			On	Power on
SFP+ port indicators	255-285	Green	Off	A device is disconnected to the port
			On	A device is connected to the port
			Flashing	Sending or receiving data
PoE LED indicators	1~24	Orange	Off	No PD is connected to the corresponding port, or no power is supplied according to the power limits of the port.
			On	A Powered Device is connected to the port, which supply power successfully.
			Flashing	The PoE power circuit may be in short or the power current may be overloaded.
10/100/1000 Mbps Ethernet port indicators	1~24	Green	Off	A device is disconnected to the port
			On	A device is connected to the port
			Flashing	Sending or receiving data

Indicator	Panel identification	Indicator color	Status	Meaning
			g	

## 1.2.2 ALL-SG8548PM-10G

### Specifications

<b>Product module</b>	ALL-SG8548PM-10G	
<b>Standards</b>	IEEE 802.3i, IEEE 802.3u, IEEE802.3ab, IEEE802.3x, IEEE802.3az, IEEE802.3af, IEEE802.3at, IEEE802.3ae	
<b>Network Media (Cable)</b>	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) 100Base-Tx: UTP category 5, 5e cable (maximum 100m) 1000Base-T: UTP category 5e, 6 cable (maximum 100m) 1000Base-X:MMF,SMF 10GBase-X:MMF,SMF	
<b>Interface</b>	48 x 10/100/1000Mbps ports 4 x 10G SFP+ ports 1x Console port	
<b>Transfer Method</b>	Store-and-Forward	
<b>Switching Capacity</b>	176Gbps	
<b>MAC Address Learning</b>	16K	
<b>Packet Forwarding Rate</b>	130.944Mpps	
<b>Packet Buffer</b>	1.5MBytes	
<b>Jumbo Frame</b>	12KBytes	
<b>Indicators</b>	<b>Per Device</b>	PWR:Green, SYS:Green
	<b>Per Port</b>	Link/Activity/Speed
<b>Power Supply</b>	100~240VAC,50/60Hz,450W	
<b>PoE</b>	48x PoE ports compliant with 802.3at/af	
<b>Power Pin Assignment</b>	1/2(+),3/6(-)	
<b>PoE Budget</b>	400W (It's adjustable by Web page)	
<b>Power Consumption</b>	Maximum(PoE on): 473.7W (220V/50Hz)	
<b>Operating Temperature</b>	0°C~45°C	
<b>Storage Temperature</b>	-40°C~70°C	
<b>Operating Humidity</b>	10%~90% non-condensing	
<b>Storage humidity</b>	5%~90% non-condensing	
<b>Fan</b>	Support	
<b>Dimensions (WxDxH)</b>	440x330x44.5mm (19" metal case)	

### Product appearance

The front panel of ALL-SG8548PM-10G Ethernet Switch consists of 48x10/100/1000Mbps RJ45 ports, four 1000/10000Mbps SFP+ ports, Reset button, One Console port and a series LED indicator, the rear panel provides AC power input interface and grounding terminal. Show as below.

Figure 1-10 ALL-SG8548PM-10G Product appearance



Figure 1-10

### Front panel

- i** 1. 48x10/100/100Mbps RJ45 ports: Designed to connect to the device with a bandwidth of 10Mbps, 100Mbps, 1000Mbps. Each has a corresponding indicator .
- i** 2. Four SFP+ ports (49S, 50S, 51S, 52S): Designed to install the SFP module and connect to the device with bandwidth 1000/10000Mbps . Each has two corresponding LED indicators.
- i** 3. Console port: Designed to connect with the serial port of a computer or terminal for monitoring and configuring the Switch.
- i** 4. Reset button(Reset): Keep the device powered on and push a paper clip into the hole. Press down the button for 6 seconds to restore the Switch to its original factory default settings.
- i** 5. LED indicator: The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.

### Rear panel

Figure1-11 ALL-SG8548PM-10G rear panel show as below.



Figure1-11

- i** 1. Power is supplied through an external AC power adopter. It supports AC 100~240V, 50/60Hz, 450W.
- i** 2. Located on the right side of the power supply connector, use wire grounded to lightning protection.

## Power supply

AC input:  
100~240VAC,  
50/60Hz,  
450W

## Heat dissipation solution

To ensure device work normally in the specified environment, ALL-SG8548PM-10G adopts sturbine fan to heat dissipation.It should reserve 10cm space for both side of Switch and rear panel of Switch to ventilation.

## PoE

48x PoE ports compliant with 802.3at/af

## LED indicator

The LED Indicators will allow you to monitor, diagnose and troubleshoot any potential problem with the Switch, connection or attached devices.

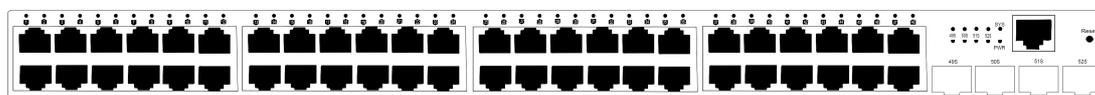


Figure1-12

Indicator	Panel identification	Indicator color	Status	Meaning
Power indicator	PWR	Green	Off	Power off
			On	Power On
Ethernet port indicators	1~48	Orange	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 10/100Mbps
			Flashing	Sending or receiving data at a speed of 10/100Mbps
		Green	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 1000Mbps
			Flashing	Sending or receiving data at a speed of 1000Mbps
1G SFP+ port indicators	49S-52S	Orange	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 1Gbps
			Flashing	Sending or receiving data at a speed of

				1Gbps
10G SFP+ port indicators		Green	Off	A device is disconnected to the port
			On	A device is connected to the port at a speed of 10Gbps
			Flashing	Sending or receiving data at a speed of 10Gbps
SYS indicator	SYS	Green	Off	System is abnormal or not running
			Flashing	System is normal

## 2 Preparation before installing

### 2.1 Safe suggest

- i To avoid personal injury and equipment damage, please carefully read the safety suggestions before you install the Switch.
- i The following safety suggestions do not cover all possible dangers.

#### 2.1.1 Safety Precaution for Installing System

- Keep the chassis clean and free from any dust.
- Do not place the equipment in a walking area.
- Equipment installation and use should be restricted in the contact zone.
- Do not wear loose clothes or accessories that may be hooked or caught by the device during installation and maintenance.
- Turn off all power supplies and remove the power sockets and cables before installing or uninstalling the device.

#### 2.1.2 Movement Safety

- Do not frequently move the device.
- When moving the device, note the balance and avoid hurting legs and feet or straining the back.
- Before moving the device, turn off all power supplies and dismantle all power modules.

#### 2.1.3 Electric safety

- Observe local regulations and specifications when performing electric operations. Relevant operators must be qualified.
- Before installing the device, carefully check any potential danger in the surroundings, such as ungrounded power supply, and damp/wet ground or floor.

- Before installing the device, find out the location of the emergency power supply switch in the room. First cut off the power supply in the case of an accident.
- Try to avoid maintaining the switch that is powered-on alone.
- Be sure to make a careful check before you shut down the power supply.
- Do not place the equipment in a damp location. Do not let any liquid enter the chassis.

---

 Any nonstandard and inaccurate electric operation may cause an accident such as fire or electrical shock, thus causing severe even fatal damages to human bodies and equipment.

 Direct or indirect touch through a wet object on high-voltage and mains supply may bring a fatal danger.

---

### 2.1.4 Anti-static Discharge Damage

To prevent damage from static electricity, pay attention to the following:

- Proper grounding of grounding screws on the back panel of the device.
- Indoor dust prevention.
- Proper humidity conditions.

### 2.1.5 Fiber Use Safety

Notes:

- When a fiber transceiver works, ensure that the port has been connected with an optical fiber or is covered with a dust cap, to keep out dust and avoid burning your eyes.
- When the optical module is working, do not pull out the fiber cable and stare into the transceiver interface or you may hurt your eyes.

---

 Do not stare into any optical port under any circumstances, as this may cause permanent damage to your eyes.

---

## 2.2 Installation Site Requirements

ALL-SG85XX-10G L2+ Series Switches must be used indoor, the installation site must meet the following requirements to ensure the normal work of the equipment and extend the service life.

### 2.2.1 Ventilate Requirement

You must ensure that sufficient space (10 cm distance from both sides and the back panel of the cabinet) is reserved at the ventilation openings to ensure the normal ventilation. During the jumper process of the device, prevent the cables from blocking the air intake.

### 2.2.2 Temperature and Humidity Requirements

In order to ensure the normal work and service life of the equipment, temperature and humidity must be maintained in the machine room. If the machine room is in the environment that does not meet the temperature and humidity requirements for a long time, the equipment will be damaged.

- In an environment with high relative humidity, the insulating material may have bad insulation or even leak electricity. Sometimes the materials may suffer from mechanical performance change and metallic parts may get rusted.

- In an environment with low relative humidity, however, the insulating strip may dry and shrink. Static electricity may occur easily and endanger the circuit on the equipment.
- In a high temperature environment, the greater the harm will greatly reduce the reliability of the equipment; long-term high temperature will also affect the life and accelerate the aging process.

Temperature	Relative Humidity
0°C to 45°C	10% to 90% RH non-condensing

- i** The requirements for the sampling site of the temperature and humidity in the operating environment of the device are as follows:  
 There is no protective plate at the front or back of the equipment rack.  
 The vertical height is 1.5 m above the floor.  
 The distance from the front panel of the equipment is 0.4 m.

### 2.2.3 Cleanliness requirement

Dust poses a severe threat to the running of the equipment. The indoor dust falling on the equipment may be adhered by the static electricity, causing bad contact of the metallic joint. Such electrostatic adherence may occur more easily when the relative humidity is low, not only affecting the useful life of the equipment, but also causing communication faults. Table 2-2 shows the requirements for the dust content and granularity in the equipment room.

Table 2-2 Requirements for the Dust Content and Granularity in the Equipment Room

Maximum diameter( $\mu\text{m}$ )	0.5	1	3	5
Maximum concentration (Particle size / cubic meter)	1.4 $\times$ 10	7 $\times$ 10	2.4 $\times$ 10	1.3 $\times$ 10

Apart from dust, the salt, acid and sulfide in the air in the equipment room must also meet strict requirements; as such poisonous substances may accelerate the corrosion of the metal and the aging of some parts. The equipment room should be protected from the intrusion of harmful gases (for example, SO<sub>2</sub>, H<sub>2</sub>S, NO<sub>2</sub>, NH<sub>3</sub> and Cl<sub>2</sub>), whose requirements are listed in the following table.

Table 2-3 Requirements for Harmful Gases in the Equipment Room

Gas	Average (mg/m <sup>3</sup> )	Maximum (mg/m <sup>3</sup> )
SO <sub>2</sub>	0.2	1.5
H <sub>2</sub> S	0.006	0.03
NO <sub>2</sub>	0.04	0.15
NH <sub>3</sub>	0.05	0.15
Cl <sub>2</sub>	0.01	0.3

### 2.2.4 EMI

During applications, the switch may be subject to external interference that affect the device through conduction manners such as capacitance coupling, inductive coupling, electromagnetic wave emission, common impedance (including grounding

systems), and wires (power cables, signal cables and outgoing transmission cables). For that purpose, note that:

- For the AC power supply system TN, single-phase three-core power socket with protective earthing conductors (PE) should be adopted to effectively filter out interference from the power grid through the filtering circuit.
- The switch should be located at places free from large power radio launch pad, radar launch pad, and high-frequency large-current devices.
- If necessary, electromagnetic shielding should be adopted. For example, use interface cables to shield cables.
- Interface cables should be laid inside the equipment room. Outdoor cabling is prohibited, avoiding damages to device signal interfaces caused by over-voltage or over-current of lightning.

## 2.2.5 System Grounding Requirements

A good grounding system is the basis for the stable and reliable operation of the Switch. It is the chief condition to prevent lightning stroke and resist interference. Please carefully check the grounding conditions on the installation site according to the grounding requirements, and perform grounding operations properly as required.

---

**⚠** Effective grounding of the switch is an important guarantee for lightning protection and interference resistance. Therefore, connect the grounding line of the switch properly.

---

### Safety Grounding

The equipment using AC power supply must be grounded by using the yellow/green safety grounding cable show as Figure 2-1. Otherwise, when the insulating resistance decreases the power supply and the enclosure in the equipment, electric shock may occur.

### Lightning Grounding

The lightning protection system of a facility is an independent system that consists of the lightning rod, downlead conductor and the connector to the grounding system, which usually shares the power reference ground and yellow/green safety cable ground. The lightning discharge ground is for the facility only, irrelevant to the equipment.

### EMC grounding

The grounding required for EMC design includes shielding ground, filter ground, noise and interference suppression, and level reference. All the above constitute the comprehensive grounding requirements. The resistance of earth wires should be less than 1  $\Omega$ . The Switch backplane is reserved with one grounding terminal, as shown in Figure 2-1.

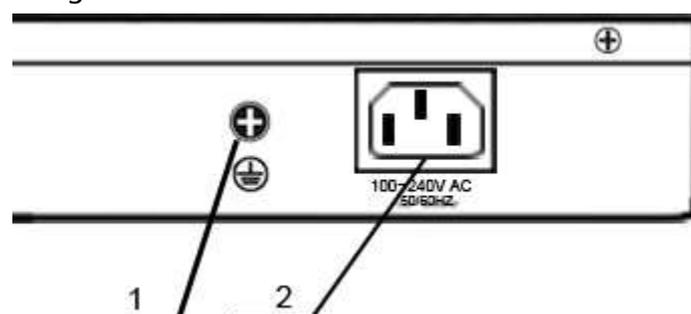


Figure 2-1

## 2.2.6 Lightning Resistance Considerations

When the AC power cable is imported outdoors and directly connected to the power port of the switch, lightning line bank should be adopted to prevent the switch from being hit by lightning shocks. Usage of the lightning line bank: Connect the mains supply AC cable to the lightning line bank. Then, connect the switch to the lightning line bank. This can help to prevent the current of high-voltage lightning from passing the switch directly through the mains supply cable to a certain extent.

- 
- i** The lightning line banks are not provided and should be purchased by users as required. For the usage of lightning line banks, refer to their related manuals.
- 

## 2.2.7 EMI Consideration

Electro-Magnetic Interference (EMI), from either outside or inside the equipment or application system, affects the system in the conductive ways such as capacitive coupling, inductive coupling, and electromagnetic radiation.

There are two types of electromagnetic interferences: radiated interference and conducted interference, depending on the type of the transmission path.

When the energy, often RF energy, from a component arrives at a sensitive component via the space, the energy is known as radiated interference. The interference source can be either a part of the interfered system or a completely electrically isolated unit. Conducted interference results from the electromagnetic wire or signal cable connection between the source and the sensitive component, along which cable the interference conducts from one unit to another. Conducted interference often affects the power supply of the equipment, but can be controlled by a filter. Radiated interference may affect any signal path in the equipment and is difficult to shield.

- Effective measures should be taken for the power system to prevent the interference from the electric grid.
- The grounding device of the switch must not be used as the grounding device of the electrical equipment or anti-lightning grounding device. In addition, the grounding device of the switch must be deployed far away from the grounding device of the electrical equipment and anti-lightning grounding device.
- Keep the equipment away from high-power radio transmitter, radar transmitting station, and high-frequency large-current device.
- Measures must be taken to shield static electricity.

## 2.3 Notes on fiber optic connections

Optical fiber connection, It should pay attention to recognize light connector types and fiber types whether consistent with guiding light for the interface type line, also should pay attention to sending and receiving optical fiber line direction, sending the equipment should be connected with each receiving device, receiving the equipment should be connected with the sending of equipment.

## 2.4 Installation tools

The instrument list

<b>Common tools</b>	Phillips screwdriver, straight screwdriver, Related cables and optical cables, Mounting bolt, diagonal pliers, strapping tape
<b>Special tools</b>	antistatic tool
<b>Meters</b>	multimeter

---

 The tool kit is customer supplied.

---

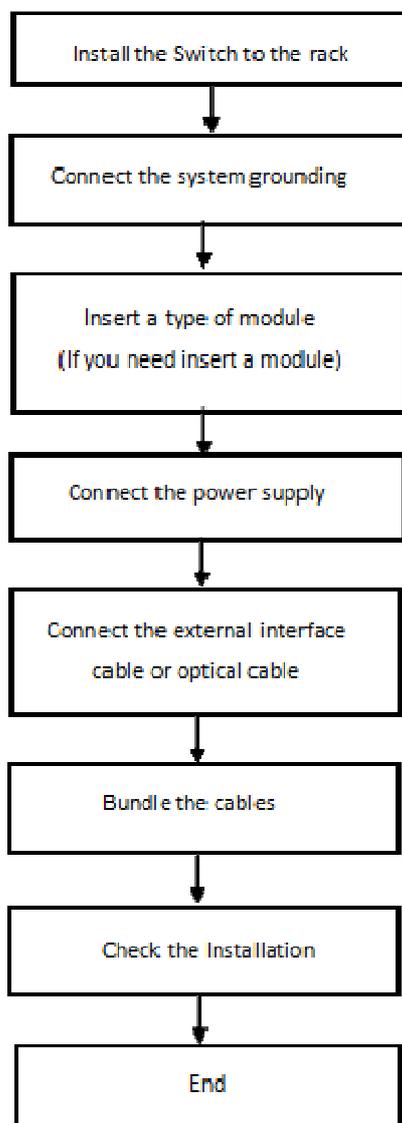
## 3 Installation of Product

**i** Please ensure that you have carefully read the section of "Preparation before Installing".

Make sure that the requirements set forth in section of "Preparation before Installing" has been met.

### 3.1 Installation Process

Only professional technicians are allowed to install the equipment



## 3.2 Confirmations before Installation

Before installation, please confirm the following points:

- Whether ventilation requirements are met for the switch
- Whether the requirements of temperature and humidity are met for the switch
- Whether power cables are already laid out and whether the requirements of electrical current are met
- Whether related network adaption lines are already laid out

## 3.3 Installation exchange

Please note the following points when installing:

- Use the corresponding color of the power line to connect the corresponding grounding terminal.
- Make sure that the power cable after connection is in good contact.
- Don't place heavy objects on the switch.
- Adequate ventilation (10 cm or more) around the equipment to ensure good heat dissipation. Do not stack up.
- The switch work place is far away from the strong power radio transmitter, radio transmitting station, high frequency high current equipment; if necessary, adopt electromagnetic shielding method, such as the interface cable using shielded cable.
- Interface cable line is required in indoor, walking the line was forbidden outdoor to prevent the overvoltage and overcurrent caused by lightning damage device of signal port.

### ALL-SG85XX-10G Switches installed

#### Rack-mountable Installation

ALL-SG85XX-10G a L2+ series of switch can be mounted in an EIA standard-sized, 19-inch rack, which can be placed in a wiring closet with other equipment. To install the Switch, please follow these steps:

- a. Attach the mounting brackets on the Switch's side panels (one on each side) and fix them with the screws provided.

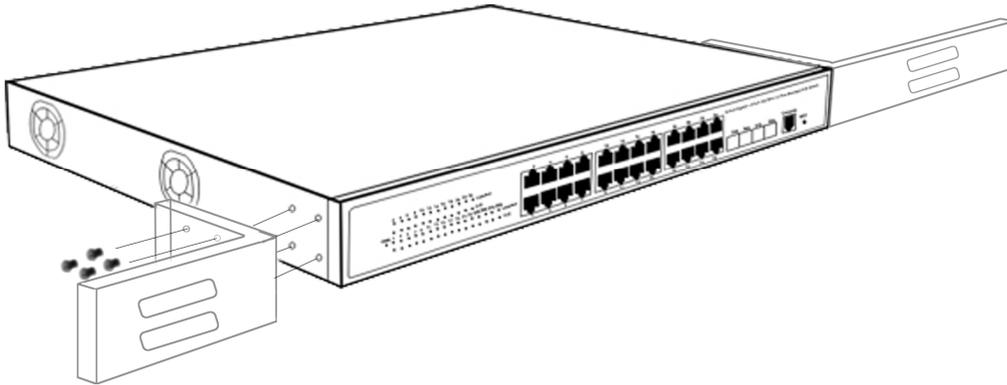


Figure 3-1

b. Use the screws provided with the equipment rack to mount the Switch on the rack and fix it.

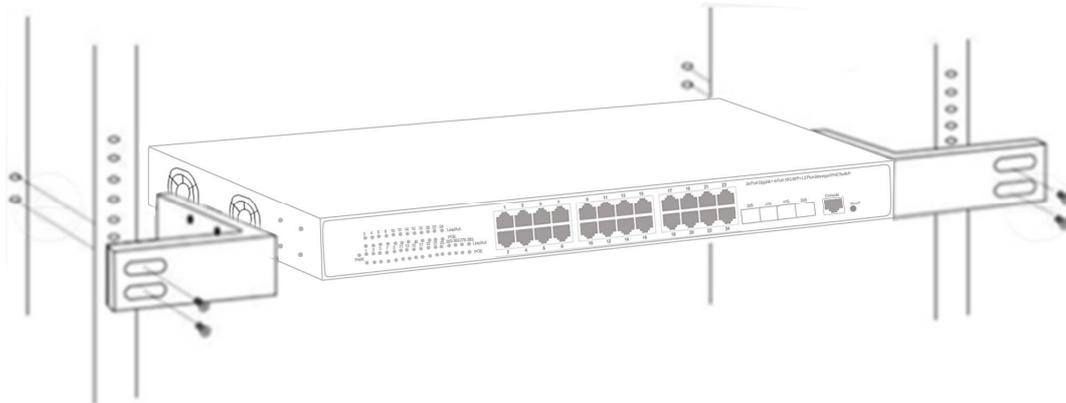


Figure 3-2

### Install the switch on the desktop

In many cases, the users are not equipped with the 19-inch standard cabinet, people often use the method is to place the switch on a clean bench at this moment, this operation is relatively simple, the specific installation process is as follows:

Place the switch on the table steadily to ensure that the air around the switch is well ventilated. As shown in figure

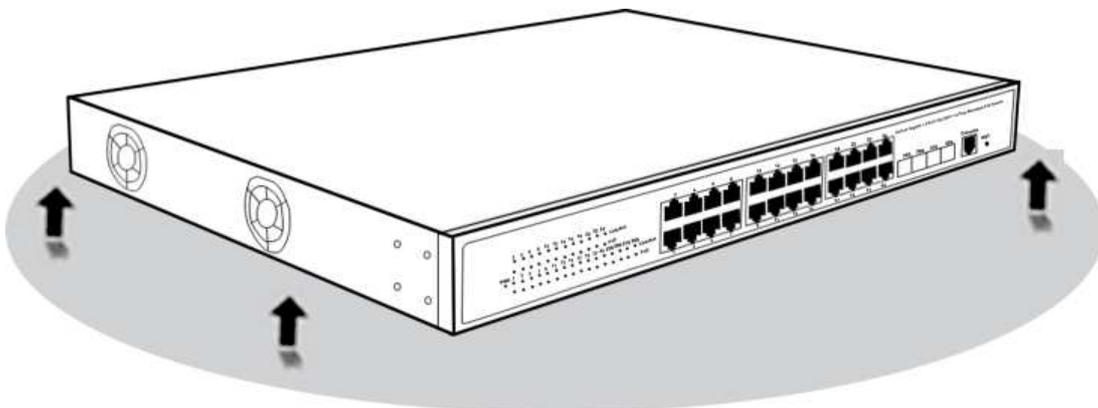


Figure 3-3

## 3.4 Connect the power cord

---

-  Please ensure that the ground wire is connected before connecting the power cord.
- 

### Connect the AC power cord

The AC power cord connection is performed as follows:

- a: Connect one end of the switch to the power socket on the back panel of the switch cabinet;
- b: Plug the other end of the power cord into an external AC power outlet to power the switch
- c: Check whether the status indicator on the front panel of the switch is ON. The indicator is ON to indicate that the power supply is connected properly and the switch is initializing.

## 3.5 Checking after Installation

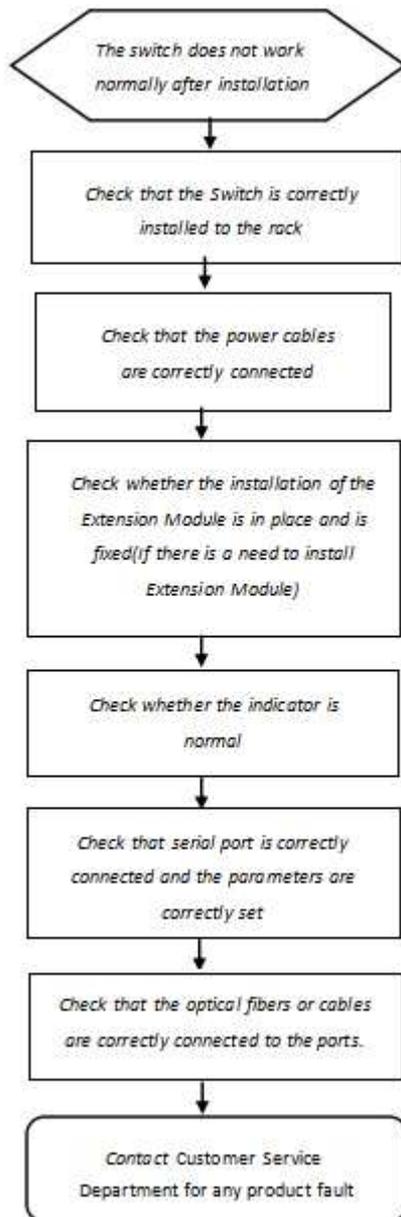
---

-  Before checking the installation, switch off the power supply so as to avoid any personal injury or damage to the component due to connection errors.
- 

- Check that the ground line is connected.
- Check that the cables and power input cables are correctly connected.
- Check that the 100 meter cables are laid out inside the equipment room. In the case of external cabling, check that the lightning resistance socket or network interface lightning protector is connected.
- Check that sufficient ventilation space is available around the device (over 10 cm)

## 4 Common Troubleshooting in Installation

### 4.1 General installation troubleshooting process



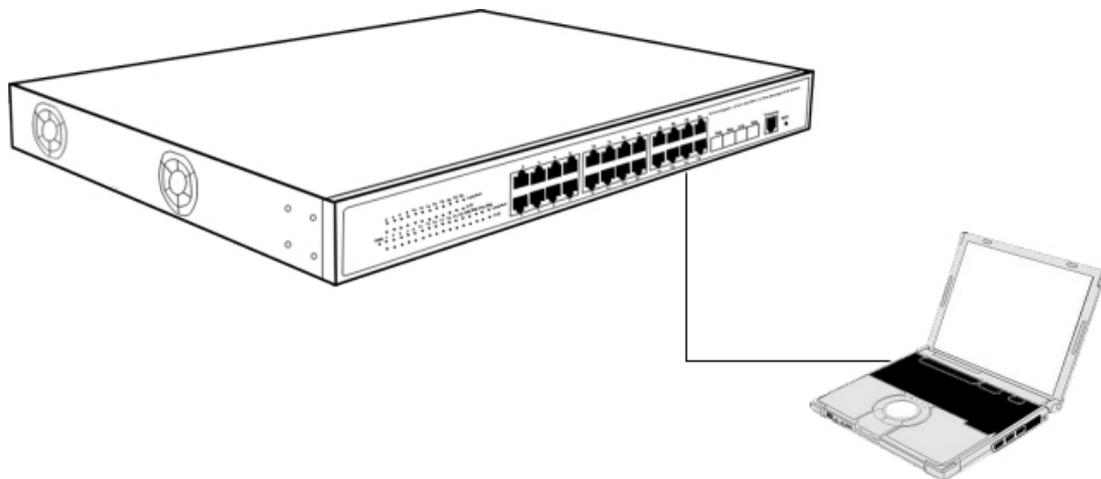
## 4.2 Common troubleshooting

Symptom	Possible Causes	Solution
The status indicator is not on after the switch is started.	The power supply module does not supply power. The power cable is in loose contact.	Check whether the power socket at the equipment room is normal and whether the power cable of the switch is in good contact.
The RJ45 port is not in connectivity or it is erroneous in receiving/transmitting frames.	The connected twisted pair cable is faulty. The length of the cable exceeds 100 m. The port has special configuration that has no common working mode with the connected switch.	Replace the twisted pair cable. Check that the port configuration has the common working mode with the connected switch.
The fiber port cannot be connected.	The Rx and Tx ends are connected reversely. The interconnected optical module type does not match. The fiber type is not correct. The length of the optical fiber exceeds that rated of the optical module.	Switch the Rx and Tx ends of the optical fiber. Replace the optical module with one of the matched type. Replace the optical fiber with one of the appropriate type. Replace the optical fiber with one of the appropriate length.

## 5 Connection of Switch

### 5.1 Connect the Computer (NIC) to the Switch

Use standard Cat.5/5e Ethernet cable (UTP/STP) to connect the Switch to end nodes as described below. Switch ports will automatically adjust to the characteristics (MDI/MDI-X, speed, duplex) of the device to which is connected.



---

**!** ALL-SG85XX WEB Configuration guide takes ALL-SG8524PM-10G as an example.

---

Figure 5-1 Connect PC to Switch

### 5.2 Switch connection to the PD

PoE Switch have PoE power supply function, the maximum output power up to 30W each port, it can make PD devices, such as internet phone, network camera, wireless access point work. You only need to connect the Switch PoE port directly connected to the PD port by network.

---

**!** Only PoE device support PoE function.

---

### 5.3 How to Login the Switch

As the Switch provides Web-based management login, you can configure your computer's IP address manually to log on to the Switch. The default settings of the Switch are shown below.

Parameter	Default Value
-----------	---------------

Parameter	Default Value
Default IP address	192.168.1.1
Default user name	admin
Default password	admin

You can log on to the configuration window of the Switch through following steps:

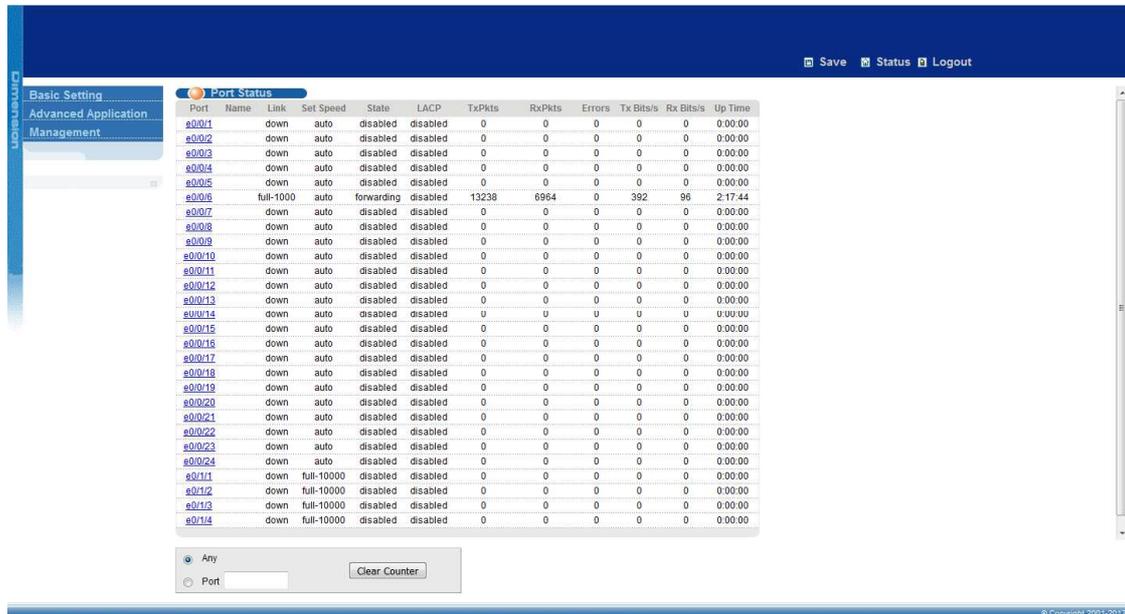
1. Connect the Switch with the computer NIC interface.
2. Power on the Switch.
3. Check whether the IP address of the computer is within this network segment: 192.168.1.xxx ("xxx" ranges 2~254), for example, 192.168.1.100.
4. Open the browser, and enter http://192.168.1.1 and then press "Enter". The Switch login window appears, as shown below.

5. Switching language to English. Enter the Username and Password (The factory default Username is admin and Password is admin), and then click "Login" to log in to the Switch configuration window as below.

Port	Name	Link	Set Speed	State	LACP	TxPkts	RxPkts	Errors	Tx Bytes	Rx Bytes	Up Time
e0/0/0		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/1		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/2		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/3		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/4		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/5		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/6		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/7		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/8		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/9		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/10		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/11		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/12		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/13		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/14		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/15		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/16		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/17		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/18		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/19		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/20		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/21		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/22		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/23		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/24		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/25		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/26		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/27		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/28		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/29		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/30		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/31		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/32		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/33		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/34		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/35		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/36		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/37		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/38		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/39		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/40		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/41		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/42		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/43		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/44		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/45		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/46		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/47		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/48		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/49		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/50		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/51		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/52		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/53		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/54		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/55		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/56		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/57		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/58		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/59		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/60		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/61		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/62		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/63		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/64		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/65		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/66		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/67		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/68		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/69		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/70		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/71		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/72		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/73		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/74		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/75		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/76		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/77		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/78		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/79		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/80		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/81		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/82		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/83		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/84		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/85		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/86		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/87		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/88		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/89		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/90		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/91		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/92		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/93		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/94		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/95		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/96		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/97		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/98		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/99		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/100		down	auto	disabled	disabled	0	0	0	0	0	0:00:00

## 6 ALL-SG85XX WEB Configuration Guide

Switch configuration interface consists of 3 main areas, areas for the status bar at the top, the area on the left menu bar, right the main configuration window. Select the different functions in the function menu bar, you can modify all settings in the main configuration window.

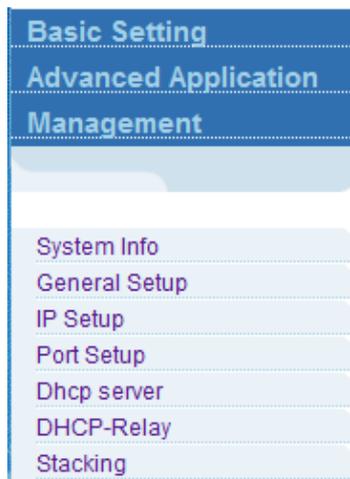


The screenshot shows the web configuration interface with a blue header bar containing 'Save', 'Status', and 'Logout' buttons. On the left, there is a vertical menu with 'Basic Setting', 'Advanced Application', and 'Management' options. The main area displays a 'Port Status' table with the following columns: Port, Name, Link, Set Speed, State, LACP, TxPkts, RxPkts, Errors, Tx Bits/s, Rx Bits/s, and Up Time. The table lists ports e0/0/1 through e0/14, with e0/0/6 being the only one in a 'forwarding' state. Below the table, there are radio buttons for 'Any' and 'Port', and a 'Clear Counter' button.

Port	Name	Link	Set Speed	State	LACP	TxPkts	RxPkts	Errors	Tx Bits/s	Rx Bits/s	Up Time
e0/0/1		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/2		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/3		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/4		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/5		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/6		full-1000	auto	forwarding	disabled	13238	6964	0	392	96	2:17:44
e0/0/7		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/8		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/9		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/10		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/11		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/12		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/13		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/14		down	auto	disabled	disabled	u	u	u	u	u	u:u:u:u
e0/0/15		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/16		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/17		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/18		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/19		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/20		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/21		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/22		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/23		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/0/24		down	auto	disabled	disabled	0	0	0	0	0	0:00:00
e0/1/1		down	full-10000	disabled	disabled	0	0	0	0	0	0:00:00
e0/1/2		down	full-10000	disabled	disabled	0	0	0	0	0	0:00:00
e0/1/3		down	full-10000	disabled	disabled	0	0	0	0	0	0:00:00
e0/1/4		down	full-10000	disabled	disabled	0	0	0	0	0	0:00:00

### 6.1 Basic Setting

Choose Basic Setting, and the following page appears. There are "System Info", "General Setup", "IP Setup", "Port Setup", "Dhcp server", "DHCP-Relay", "Stacking", configuration web pages.



## 6.1.1 System Info

Selecting "**Basic Setting>System Info**" in the navigation bar, you can view the basic information of System and configure the IP address and System name.

System information settings	
Product description	S3028PETF-D
bootrom version	1.5
Software version	S3028PETF-D V01D01P02SP10
MAC address	00:0a:6a:00:03:ee
IP address	192.168.1.1 <a href="#">Setting</a>
Subnet mask	255.0.0.0
Default gateway	0.0.0.0
System startup time	0-Days 6-Hours 8-Minutes 12-Seconds
System application	running default application
Switch temperature	37.4 °C
System name	S3028PETF-D <a href="#">Setting</a>
System location	sample sysLocation factory default
Web page timeout (in minute)	20

### 【Parameter Description】

Parameter	Description
IP Address	The management IP of Switch
System name	System name

### 【Instructions】

You can view and configure Running System status.

### 【Configuration example】

Such as: Setting IP address as 192.168.2.1 and System name as Switch.

❖ Configuring IP address as 192.168.2.1

## Vlan Interface

**Creat:**

Interface	vlan-interface
Vlan ID	1

[Add](#) [Cancel](#) [Clear](#)

**List:**

Index	Name	Primary ipaddress	VLAN	Status	Delete
1	VLAN-IF1	192.168.1.1	1	Up	<input type="checkbox"/>

[Delete](#) [Cancel](#)

**Interface:** You can select the way of interface, including vlan-interface and supervlan-interface .

**Vlan ID:** You can choose the Vlan ID.

## Vlan Interface Config

Set IP address as 192.168.2.1 and mask as 255.255.255.0, and then selecting override.

**Vlan Interface Config** [VlanInterface](#) [StaticRoute](#)

**Interface:**

Interface name	VLAN-IF1
Vlan ID	1
Active	<input checked="" type="checkbox"/>

Apply Cancel

**IP Add:**

Ip Address	192.168.2.1
Mask	255.255.255.0
Override	<input checked="" type="checkbox"/>

Add Cancel Clear

**IP List:**

Index	Ip	Mask	Primary	Delete
1	192.168.1.1	255.0.0.0	<input checked="" type="radio"/>	<input type="checkbox"/>

Apply Delete Cancel

**Override:** You can override or not override original main ip address.

## Static Routing

**Static Routing** [VlanInterface](#) [VlanInterfaceConf](#)

**Add:**

Destination IP Address	0.0.0.0
IP Subnet Mask	0.0.0.0
Gateway IP Address	0.0.0.0

Add Cancel Clear

**List:**

Index	DestIp	Mask	Proto	Metric	NextHop	Interface	Active	Delete
-------	--------	------	-------	--------	---------	-----------	--------	--------

Delete Cancel

**Destination IP Address:** Setting destination IP Address of Static Routing.

**IP Subnet Mask:** Setting IP Subnet Mask.

**Gateway IP Address:** Setting IP Address.

❖ Setting System name as Switch.

General Setup	
System description	Switch
System object ID	1.3.6.1.4.1.13868.1.3.38.1
System port quantity	28
System startup time	0-Days 6-Hours 9-Minutes 36-Seconds
System name	Switch
System location	sample sysLocation factory default
System contact	admin
Product description	S3028PETF-D

Refresh Modify

### 6.1.2 General Setup

Selecting "**Basic Setting>General Setup**" in the navigation bar, you can view the basic information of Switch, Such as System description and so on. You can also modify System name, System contact and System location.

Basic Setting

Advanced Application Management

---

System Info

General Setup

IP Setup

Port Setup

Dhcp server

DHCP-Relay

Stacking

General Setup	
System description	Switch
System object ID	1.3.6.1.4.1.13868.1.3.38.1
System port quantity	28
System startup time	0-Days 6-Hours 10-Minutes 41-Seconds
System name	S3028PETF-D
System location	sample sysLocation factory default
System contact	admin
Product description	S3028PETF-D

Refresh Modify

#### 【Parameter Description】

Parameter	Description
System name	System name
System contact	Including company or related URL

#### 【Configuration example】

Such as: Setting System name as Switch.

General Setup	
System description	Switch
System object ID	1.3.6.1.4.1.13868.1.3.38.1
System port quantity	28
System startup time	0-Days 6-Hours 10-Minutes 41-Seconds
System name	Switch
System location	sample sysLocation factory default
System contact	admin
Product description	S3028PETF-D

Refresh Modify

### 6.1.3 IP Setup

Selecting "**Basic Setting>IP Setup**" in the navigation bar, you can configure IP.

Basic Setting | Vlan Interface | VlanInterfaceConf | StaticRoute

Management

System Info  
General Setup  
**IP Setup**  
Port Setup  
Dhcp server  
DHCP-Relay  
Stacking

Create:

Interface: vlan-interface  
Vlan ID: 1

Add Cancel Clear

List:

Index	Name	Primary ipaddress	VLAN	Status	Delete
1	VLAN-IF1	192.168.1.1	1	Up	<input type="checkbox"/>

Delete Cancel

### 6.1.3.1 Vlan interface

Selecting "**Basic Setting>IP Setup>Vlan interface**" in the navigation bar, you can configure Vlan interface.

Vlan Interface | VlanInterfaceConf | StaticRoute

Create:

Interface: vlan-interface  
Vlan ID: 1

Add Cancel Clear

List:

Index	Name	Primary ipaddress	VLAN	Status	Delete
1	VLAN-IF1	192.168.1.1	1	Up	<input type="checkbox"/>

Delete Cancel

#### 【Parameter Description】

Parameter	Description
Interface	Selecting the interface: vlan-interface Supervlan-interface
Vlan ID	You can specify the vlan ID
Name	The name of interface

### 6.1.3.2 Vlan interface Config

Selecting "**Basic Setting>IP Setup>Vlan interface Config**" in the navigation bar, you can configure Vlan interface Config.

Interface:

Interface name	VLAN-IF1
Vlan ID	1
Active	<input checked="" type="checkbox"/>

Apply Cancel

IP Add:

Ip Address	
Mask	
Override	<input type="checkbox"/>

Add Cancel Clear

IP List:

Index	Ip	Mask	Primary	Delete
1	192.168.1.1	255.0.0.0	<input checked="" type="radio"/>	<input type="checkbox"/>

Apply Delete Cancel

【Parameter Description】

Parameter	Description
Interface name	Name of interface
Vlan ID	You can specify the vlan ID
IP Address	User login in Switch using the IP Address
Override	You can override former original primary IP or not

【Configuration example】

Such as: Setting IP address as 192.168.2.1.

Vlan Interface

Creat:

Interface	vlan-interface
Vlan ID	1

Add Cancel Clear

List:

Index	Name	Primary ipaddress	VLAN	Status	Delete
1	<a href="#">VLAN-IF1</a>	192.168.1.1	1	Up	<input type="checkbox"/>

Delete Cancel

## Vlan Interface Config

Setting IP address as 192.168.2.1 and mask as 255.255.255.0. And then selecting override.

**Vlan Interface Config** [VlanInterface](#) [StaticRoute](#)

**Interface:**

Interface name	VLAN-IF1
Vlan ID	1
Active	<input checked="" type="checkbox"/>

Apply Cancel

**IP Add:**

Ip Address	192.168.2.1
Mask	255.255.255.0
Override	<input checked="" type="checkbox"/>

Add Cancel Clear

**IP List:**

Index	Ip	Mask	Primary	Delete
1	192.168.1.1	255.0.0.0	<input checked="" type="radio"/>	<input type="checkbox"/>

Apply Delete Cancel

### 6.1.3.3 Static Routing

Selecting "**Basic Setting>IP Setup>Static Routing**" in the navigation bar, you can specify some routing manually.

**Static Routing** [VlanInterface](#) [VlanInterfaceConf](#)

**Add:**

Destination IP Address	0.0.0.0
IP Subnet Mask	0.0.0.0
Gateway IP Address	0.0.0.0

Add Cancel Clear

**List:**

Index	DestIp	Mask	Proto	Metric	NextHop	Interface	Active	Delete
-------	--------	------	-------	--------	---------	-----------	--------	--------

Delete Cancel

## 【Parameter Description】

Parameter	Description
Destination IP Address	Setting destination IP Address of Static Routing.
IP Subnet Mask	Setting IP Subnet Mask.
Gateway IP Address	Setting IP Address.

### 6.1.4 Port Setup

Selecting "**Basic Setting>Port Setup**" in the navigation bar, you can configure the related parameter of port.

The screenshot shows the 'Port Setup' configuration page. The navigation menu on the left includes 'Basic Setting', 'Advanced Application', and 'Management'. Under 'Basic Setting', 'Port Setup' is highlighted with a red circle. The main content area shows 'Port basic settings' for 'Ethernet 1000M Port[1]'. A grid of port numbers (2-28) is displayed, with port 8 selected. Below the grid, a table lists the configuration for each port:

Port	Status	Link	Priority	Set speed	Mode	Actual speed	Port description (0-128 chars)
e0/0/1	enable	down	0	auto	auto	unknown	
e0/0/1	enable	down	0	auto	auto	unknown	
e0/0/2	enable	down	0	auto	auto	unknown	
e0/0/3	enable	down	0	auto	auto	unknown	
e0/0/4	enable	down	0	auto	auto	unknown	
e0/0/5	enable	down	0	auto	auto	unknown	
e0/0/6	enable	up	0	auto	auto	full-1000	
e0/0/7	enable	down	0	auto	auto	unknown	
e0/0/8	enable	down	0	auto	auto	unknown	
e0/0/9	enable	down	0	auto	auto	unknown	
e0/0/10	enable	down	0	auto	auto	unknown	
e0/0/11	enable	down	0	auto	auto	unknown	
e0/0/12	enable	down	0	auto	auto	unknown	
e0/0/13	enable	down	0	auto	auto	unknown	
e0/0/14	enable	down	0	auto	auto	unknown	
e0/0/15	enable	down	0	auto	auto	unknown	
e0/0/16	enable	down	0	auto	auto	unknown	
e0/0/17	enable	down	0	auto	auto	unknown	
e0/0/18	enable	down	0	auto	auto	unknown	
e0/0/19	enable	down	0	auto	auto	unknown	

## 【Parameter Description】

Parameter	Description
Port	Port number
status	Choose whether to close link port
link	Status: Down up
priority	Set port priority, the range of 0-7
Set speed	Choose the following modes: auto half-100 full-100 half-1000

Parameter	Description
	full-1000 Port 25-28 can choose the following modes(10 Gigabit fiber equipment has this function module): Full-1000 Full-10000
Mode	Choose the following kinds: auto slave master
Actual speed	The actual speed of the port
Port description	The port is described

### 【Configuration example】

Such as: Configure the related parameters for port 1, Status is "enable", Priority is "1", Set speed is "auto", Mode is "auto", Port description is "port 1".

Port basic settings [Ethernet 1000M Port\[1\]](#)

Port	Status	Link	Priority	Set speed	Mode	Actual speed	Port description (0-128 chars)
e0/0/1	<input type="text" value="enable"/>	down	<input type="text" value="1"/>	<input type="text" value="auto"/>	<input type="text" value="auto"/>	unknown	<input type="text" value="Port 1"/>

Refresh

## 6.1.5 DHCP Server

Selecting "**Basic Setting>DHCP Server**" in the navigation bar, you can configure DHCP server pool and DHCP server group.

Basic Setting | **DHCP server pool set** | DHCP server group set

ip pool				hire time	0	day 0	hour 0	minute
name			Gate Address			Ip Mask		
First DNS					Secondary DNS			

ip pool list:

number	start address	end address	
0			<input type="button" value="delete"/>
1			<input type="button" value="delete"/>
2			<input type="button" value="delete"/>
3			<input type="button" value="delete"/>
4			<input type="button" value="delete"/>
5			<input type="button" value="delete"/>
6			<input type="button" value="delete"/>
7			<input type="button" value="delete"/>

### 6.1.5.1 DHCP server pool set

Selecting "**Basic Setting>DHCP server>DHCP server pool set**" in the navigation bar, you can configure DHCP Server pool set.

**DHCP server pool set** [DHCP server group set](#)

ip pool

name  hire time  day  hour  minute

Gate Address  Ip Mask

First DNS  Secondary DNS

**ip pool list:**

number	start address	end address	
0	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
1	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
2	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
3	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
4	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
5	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
6	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>
7	<input type="text"/>	<input type="text"/>	<input type="button" value="delete"/>

**【Parameter Description】**

Parameter	Description
ip pool	ip pool ID
name	Set the name of ip pool
hire time	Set hire time
Gate Address	Set Gate Address
Ip Mask	Set Ip Mask
First DNS	Set First DNS
Secondary DNS	Set Secondary DNS

**6.1.5.2 DHCP server group set**

Selecting "**Basic Setting>DHCP server>DHCP server group set**" in the navigation bar, you can configure DHCP Server group.

**DHCP server group set** [DHCP server ip pool set](#)

all group

group id

IP address

interface name

Vlan id

**list:**

index	intf name	group id

**【Parameter Description】**

Parameter	Description
group id	DHCP server group id
IP address	DHCP server IP address

## 6.1.6 DHCP-Relay

Selecting "**Basic Setting>DHCP-Relay**" in the navigation bar, you can turn on the DHCP relay function, Hidden DHCP Server. Set the source IP used.

**Basic Setting**  
Advanced Application  
Management

System Info  
General Setup  
IP Setup  
Port Setup  
Dhcp server  
**DHCP-Relay**  
Stacking

**DHCP-Relay Setting**

DHCP-Relay Enable  Close  Open  
Hide DHCP Parameter  Close  Open  
Source IP Set  ingress  egress

Apply

**Port Table**

Port	Relay Enable
*	<input type="checkbox"/>

Modify Cancel

## 6.1.7 Stacking

Selecting "**Basic Setting>Stacking**" in the navigation bar, you can view the stack interface information, neighbor interface information, start the stack function and set system priority.

**Basic Setting**  
Advanced Application  
Management

System Info  
General Setup  
IP Setup  
Port Setup  
Dhcp server  
DHCP-Relay  
**Stacking**

**Stacking Status** [Configuration](#)

Slot	Priority	Status	MAC address	Role
------	----------	--------	-------------	------

**StackingTopology : Chain**

Slot No.	Stacking Channel 1 Neighbor	Stacking Channel 1 Speed	Stacking Channel 2 Neighbor	Stacking Channel 2 Speed
----------	-----------------------------	--------------------------	-----------------------------	--------------------------

### 6.1.7.1 Stacking Status

Selecting "**Basic Setting>Stacking>Stacking Status**" in the navigation bar, you can view the stack interface information, neighbor interface information.

**Stacking Status** [Configuration](#)

Slot	Priority	Status	MAC address	Role
------	----------	--------	-------------	------

**StackingTopology : Chain**

Slot No.	Stacking Channel 1 Neighbor	Stacking Channel 1 Speed	Stacking Channel 2 Neighbor	Stacking Channel 2 Speed
----------	-----------------------------	--------------------------	-----------------------------	--------------------------

**【Parameter Description】**

Parameter	Description
Slot	Each device in the system must manually specify an unrepeatable ID number to unique identify
Status	Two different working modes: Single-machine mode: this mode is the same as the general switch, not to provide the stack function. Stack mode: this mode opens the stack function, can make up a stack system with other devices.
Priority	Each device in the system can be assigned a priority, devices with higher-priority more likely to be elected as main device.

**6.1.7.2 Stacking Configuration**

Selecting "**Basic Setting>Stacking>Stacking Configuration**" in the navigation bar, you can open stack and set System Priority.

**Stacking Configuration**
[Stacking Status](#)

---

Active

---

System Priority

---

**Slot ID :**

Slot ID Freeze

---

Slot	MAC Address	Priority	Slot ID After Reboot

**【Parameter Description】**

Parameter	Description
Active	Select open or close stack
System Priority	Set system priority, the default is 0

Parameter	Description
Slot id Freeze	Freeze slot ID
Slot id After Reboot	Device number after the device is rebooted

Note:

- Some related configuration, only to restart equipment ,can only take effect;

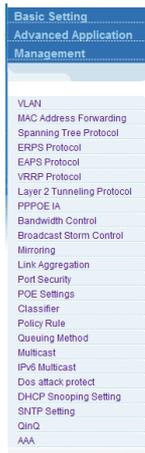
**【Configuration example】**

1. Activate the Stacking Configuration and configure "System Priority" as 3.

2. Click the "Freeze" button to restore the Slot ID.

## 6.2 Advanced Application

Choose Advanced Application, and the following page appears. There are "VLAN", "MAC Address Forwarding", "Spanning Tree Protocol", "ERPS Protocol", "EAPS Protocol", "VRRP Protocol", "Layer 2 Tunneling Protocol", "PPPOE IA", "Bandwidth Control", "Broadcast Storm Control", "Mirroring", "Link Aggregation", "Port Security", "PoE Settings", "Classifier", "Policy Rule", "Queuing Method", "Multicast", "IPv6 Multicast", "Dos attack protect", "DHCP Snooping Setting", "SNTP Setting", "QinQ", "AAA", configuration web pages.



## 6.2.1 VLAN

Selecting "**Advanced Application>VLAN**" in the navigation bar, you can configure VLAN.

The screenshot shows the 'VLAN Status' page. The left sidebar has 'VLAN' selected. The main area includes a search bar for VLAN by VID and a table showing the status of VLAN 1. The table indicates that VLAN 1 is 'Static' and has an 'Elapsed Time' of '0:00:00'. Below this, a detailed table shows the status of ports 1 through 28, with all ports marked as 'U' (Up).

Index	VID	Elapsed Time	Status
1	1	0:00:00	Static

VID	Port Number														Elapsed Time	Status
	2	4	6	8	10	12	14	16	18	20	22	24	26	28		
1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:00	Static

VID	Port Number														Elapsed Time	Status
1	3	5	7	9	11	13	15	17	19	21	23	25	27			
1	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:00	Static	

### 6.2.1.1 VLAN Status

Selecting "**Advanced Application>VLAN>VLAN Status**", in the navigation bar, you can view VLAN status.

The Number of VLAN: 1. Current Page: 1 of 1.

Index	VID	Elapsed Time	Status
1	1	0:00:00	Static

VID	Port Number														Elapsed Time	Status
	2	4	6	8	10	12	14	16	18	20	22	24	26	28		
1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:00	Static
	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
VID	Port Number														Elapsed Time	Status
	1	3	5	7	9	11	13	15	17	19	21	23	25	27		

**【Parameter Description】**

Parameter	Description
VLAN Status	View all vlans configured in the device
VLAN Search by VID	Enter VID to view the specified VLAN

**【Configuration example】**

Such as: View the VLAN of VID as "1".

The Number of VLAN: 1. Current Page: 1 of 1.

Index	VID	Elapsed Time	Status
1	1	0:00:00	Static

VID	Port Number														Elapsed Time	Status
	2	4	6	8	10	12	14	16	18	20	22	24	26	28		
1	U	U	U	U	U	U	U	U	U	U	U	U	U	U	0:00:00	Static
	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
VID	Port Number														Elapsed Time	Status
	1	3	5	7	9	11	13	15	17	19	21	23	25	27		

**6.2.1.2 VLAN Port Settings**

Selecting "**Advanced Application>VLAN>VLAN Port Settings**", in the navigation bar, you can set VLAN port.

Global GVRP

Port	PVID	Acceptable Frame	Port Mode	Port GVRP	Ingress Check
*		All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ethernet 1000M Port					
e0/0/1	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/2	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/3	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/4	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/5	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/6	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/7	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/8	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/9	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/10	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/11	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/12	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e0/0/13	1	All	Hybrid	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**【Parameter Description】**

Parameter	Description
PVID	The PVID of the port can be modified, the default port PVID is "1"
Acceptable Frame	Choose the following kinds: All Tagged only Untagged only
Port Mode	Choose the following modes: Hybrid: The port can be either a tag member or untag member in a VLAN and can be a member port for multiple vlans. Trunk: The port can only be an tag member in a VLAN and can be a member port for multiple vlans Access: The port can only be a member of untag in VLAN and the port can only be in a VLAN.
Port GVRP	Select open or close GVRP, dynamic VLAN learning function, port mode must be Trunk mode
Ingress Check	Open port filtering function. If the port settings only receive the Tagged type of message, if the Ingress Check function is opened, the Untagged type of message will be discarded when the port

Parameter	Description
	receives the message of the untagged type of message, otherwise it can be forwarded. The default port filtering function opens.

**【Instructions】**

Hybrid port to packet:

Receives a packet, judge whether there is a VLAN information: if there is no play in port PVID, exchanged and forwarding, if have, whether the Hybrid port allows the VLAN data into: if can be forwarded, or discarded (untag on port configuration is not considered, untag configuration only work when to send it a message).

Hybrid port to send packet:

1. Determine the VLAN in this port attributes (disp interface can see the port to which VLAN untag, which VLAN tag).
2. If it is untag stripping VLAN information, send again, if the tag is sent directly.

**【Configuration example】**

Such as: The PVID of port 1 is set to "1", the frame type is set to "All", the port mode is set to "Hybrid", and the port GVRP is not turned on and the entry inspection function is opened.



**6.2.1.3 Static VLAN**

Selecting "Advanced Application>Static VLAN" in the navigation bar, you can configure Static VLAN.

Static VLAN [VLAN Status](#)

Current static VLAN

0001

Port Number [Click for changing or selecting]													
2	4	6	8	10	12	14	16	18	20	22	24	26	28
U	U	U	U	U	U	U	U	U	U	U	U	U	U
U	U	U	U	U	U	U	U	U	U	U	U	U	U
1	3	5	7	9	11	13	15	17	19	21	23	25	27

Port Number[Select all: - [None] T [Tagged] U [Untagged]]

VLAN Group ID:

Name:

Refresh Add Modify Delete Cancel

Total 1 records

VID	Name	Delete
1		<input type="checkbox"/>

### 【Parameter Description】

Parameter	Description
VLAN Group ID	VLAN Group ID
Name	VLAN Group name

### 【Configuration example】

Add and delete VLAN members

Such as: Adding a new VLAN, VLAN Group ID 120 contains non-untag member port 6, 8. Tag member port 18, 20. The user can modify the port member by clicking on the white area below the port number.

## 6.2.2 MAC Address Forwarding

Selecting "**Advanced Application>MAC Address Forwarding**" in the navigation bar, you can configure MAC Address Forwarding.

Index	Active	MAC Address	VID	Port	Status	Delete
1	Yes	00:0a:6a:00:03:ee	1	cpu	static	Delete
2	Yes	00:0e:c6:d6:21:5c	1	e0/0/6	dynamic	Delete

### 【Parameter Description】

Parameter	Description
MAC Type	MAC Type: Static MAC Dynamic MAC Blackhole MAC Permanent MAC

### 【Instructions】

Blackhole MAC: If a PC's MAC address is configured on a switch to be a blackhole MAC, then the PC's package will be discarded by the switch and not forwarded to the network.

### 【Configuration example】

#### 1. MAC Address Forwarding

**MAC Address Forwarding**

MAC Address	00 : 01 : 33 : jt : dc : aq
VID	1
MAC Type	Static Mac
Port (No Blackhole Mac)	8

#### 2. Unknown source mac packet drop settings.

Port Number [unknown source mac packet drop settings]

2	4	6	8	10	12	14	16	18	20	22	24	26	28
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
1	3	5	7	9	11	13	15	17	19	21	23	25	27

Port Number[Apply all: ]

## 6.2.3 Spanning Tree Protocol

Selecting "**Advanced Application>Spanning Tree Protocol**", in the navigation bar, you can configure spanning tree protocol.

Basic Setting  
 Advanced Application  
 Management

VLAN  
 MAC Address Forwarding  
 Spanning Tree Protocol  
 ERPS Protocol  
 EAPS Protocol  
 VRRP Protocol  
 Layer 2 Tunneling Protocol  
 PPPOE IA  
 Bandwidth Control  
 Broadcast Storm Control  
 Mirroring  
 Link Aggregation  
 Port Security  
 POE Settings  
 Classifier  
 Policy Rule  
 Queuing Method  
 Multicast  
 IPv6 Multicast  
 Dos attack protect  
 DHCP Snooping Setting  
 SNTP Setting  
 QinQ  
 AAA

Spanning Tree Protocol: RSTP

Global Spanning Tree		Enable				
Our Bridge ID		32768-000a6a.0003ee				
Root Bridge ID		32768-000a6a.0003ee				
Root Path Cost		0				
Hello Time (second)		2				
Max Age (second)		20				
Forwarding Delay (second)		15				
Topology Changed Times		0				

Port	Active	Pathcost	Priority	Role	State
e0/0/1	enable	20000	128	designatedPort	disabled
e0/0/2	enable	20000	128	designatedPort	disabled
e0/0/3	enable	20000	128	designatedPort	disabled
e0/0/4	enable	20000	128	designatedPort	disabled
e0/0/5	enable	20000	128	designatedPort	disabled
e0/0/6	enable	20000	128	designatedPort	forwarding
e0/0/7	enable	20000	128	designatedPort	disabled
e0/0/8	enable	20000	128	designatedPort	disabled
e0/0/9	enable	20000	128	designatedPort	disabled
e0/0/10	enable	20000	128	designatedPort	disabled
e0/0/11	enable	20000	128	designatedPort	disabled
e0/0/12	enable	20000	128	designatedPort	disabled
e0/0/13	enable	20000	128	designatedPort	disabled
e0/0/14	enable	20000	128	designatedPort	disabled
e0/0/15	enable	20000	128	designatedPort	disabled
e0/0/16	enable	20000	128	designatedPort	disabled
e0/0/17	enable	20000	128	designatedPort	disabled

### 6.2.3.1 Spanning Tree Protocol Status

Selecting "**Advanced Application>Spanning Tree Protocol>Spanning Tree Protocol status**"; in the navigation bar, you can view spanning tree protocol status.

Spanning Tree Protocol: RSTP

Global Spanning Tree		Enable				
Our Bridge ID		32768-000a6a.0003ee				
Root Bridge ID		32768-000a6a.0003ee				
Root Path Cost		0				
Hello Time (second)		2				
Max Age (second)		20				
Forwarding Delay (second)		15				
Topology Changed Times		0				

Port	Active	Pathcost	Priority	Role	State
e0/0/1	enable	20000	128	designatedPort	disabled
e0/0/2	enable	20000	128	designatedPort	disabled
e0/0/3	enable	20000	128	designatedPort	forwarding
e0/0/4	enable	20000	128	designatedPort	disabled
e0/0/5	enable	20000	128	designatedPort	disabled
e0/0/6	enable	20000	128	designatedPort	disabled
e0/0/7	enable	20000	128	designatedPort	disabled
e0/0/8	enable	20000	128	designatedPort	disabled

**【Parameter Description】**

Parameter	Description
Root Path Cost	Configure Root Path Cost
Hello time(second)	Switches sends bpdu in packet interval
Max age(second)	Ports are not yet received a message in the time, will initiate topology changes
Forwarding delay(second)	The state of the port switch time
Topology changed times	The number of topology changes

**6.2.3.2 Spanning Tree Configuration**

Selecting "**Advanced Application>Spanning Tree Protocol>Spanning Tree configuration**", in the navigation bar, you can configure spanning tree.

**【Parameter Description】**

Parameter	Description
Spanning Tree Mode	Spanning tree mode: IEEE Compatible Spanning Tree Rapid Spanning Tree Multiple Spanning Tree
Global Spanning Tree Status	Select open or close Global Spanning

**【Configuration example】**

Such as: Spanning Tree Mode as "Rapid Spanning Tree", open Global Spanning.

**Spanning Tree Configuration** Status

Spanning Tree Mode

- IEEE compatible Spanning Tree
- Rapid Spanning Tree
- Multiple Spanning Tree

Global Spanning Tree status

- Enable
- Disable

### 6.2.3.3 Compatible/Rapid Spanning Tree Protocol

Selecting "**Advanced Application>Spanning Tree Protocol>Compatible/Rapid Spanning Tree Protocol**", in the navigation bar, you can configure Compatible/Rapid Spanning Tree Protocol.

**Compatible/Rapid Spanning Tree Protocol** Status

Bridge Priority	32768	▼
Hello Time	2	Seconds
MAX Age	20	Seconds
Forwarding Delay	15	Seconds

Port	Active	Priority	Path Cost
*	<input type="checkbox"/>		
e0/0/1	<input checked="" type="checkbox"/>	128	20000
e0/0/2	<input checked="" type="checkbox"/>	128	20000
e0/0/3	<input checked="" type="checkbox"/>	128	20000
e0/0/4	<input checked="" type="checkbox"/>	128	20000
e0/0/5	<input checked="" type="checkbox"/>	128	20000
e0/0/6	<input checked="" type="checkbox"/>	128	20000
e0/0/7	<input checked="" type="checkbox"/>	128	20000
e0/0/8	<input checked="" type="checkbox"/>	128	20000
e0/0/9	<input checked="" type="checkbox"/>	128	20000
e0/0/10	<input checked="" type="checkbox"/>	128	20000
e0/0/11	<input checked="" type="checkbox"/>	128	20000

#### 【Parameter Description】

Parameter	Description
Bridge Priority	Set bridge priority, the default instance bridge

Parameter	Description
	priority for 32768
Hello Time	Switches sends bpdu in packet interval
Max Age	Ports are not yet received a message in the time, will initiate topology changes
Forwarding Delay	The state of the port switch time
Port Priority	Set port instance priority, defaults to 128
Path Cost	Configure port costs

**【Configuration example】**

Such as:

1. Configure the bridge priority as 32768, the Hello Time is 2 seconds, the MAX Age is 20 seconds, and the Forwarding Delay is 15 seconds.

Compatible/Rapid Spanning Tree Protocol
Status

Bridge Priority	32768 ▼
Hello Time	2 Seconds
MAX Age	20 Seconds
Forwarding Delay	15 Seconds

2. The priority of port 24 is 64, and the path cost is 20000.

e0/0/24	<input checked="" type="checkbox"/>	64	20000
e0/1/1	<input checked="" type="checkbox"/>	128	2000
e0/1/2	<input checked="" type="checkbox"/>	128	2000
e0/1/3	<input checked="" type="checkbox"/>	128	2000
e0/1/4	<input checked="" type="checkbox"/>	128	2000

#### 6.2.3.4 Multiple Spanning Tree Protocol

Selecting "**Advanced Application>Spanning Tree Protocol>Multiple Spanning Tree Protocol**", in the navigation bar, you can configure Multiple Spanning Tree Protocol.

Bridge:

Hello Time	<input type="text" value="2"/>	seconds
MAX Age	<input type="text" value="20"/>	seconds
Forwarding Delay	<input type="text" value="15"/>	seconds
Maximum hops	<input type="text" value="20"/>	
Configuration Name	<input type="text"/>	
Revision Number	<input type="text" value="0"/>	

Apply Cancel

Instance:

Instance	<input type="text" value="0"/>
Bridge Priority	<input type="text" value="32768"/>
VLAN Range	<input type="text"/>

Add Remove Clear

Instance : 0

Port	Active	Priority	Path Cost
------	--------	----------	-----------

【Parameter Description】

Parameter	Description
Hello Time	Switches sends bpd in packet interval
Max age	Ports are not yet received a message in the time, will initiate topology changes
Forwarding Delay	The state of the port switch time
Maximum Hops	Set the maximum number of hops that BPDUs can support in the spanning tree
Configuration Name	Fill in configuration name
Revision Number	Set revision number
Instance	Instance number
Bridge Priority	Priority setting bridge example, the default instance bridge priority for 32768
VLAN Range	Set VLAN range
Port Priority	Set port instance priority, defaults to 128
Path Cost	Configure port costs

## 【Configuration example】

### 1. Bridge

**Multiple Spanning Tree Protocol** [Status](#)

Bridge:

Hello Time	2	seconds
MAX Age	20	seconds
Forwarding Delay	15	seconds
Maximum hops	20	
Configuration Name	1	
Revision Number	0	

### 2. Instance

Instance:

Instance	1
Bridge Priority	32768
VLAN Range	1-8

3. The priority of port 24 is 64, and the path cost is 20000.

e0/0/24	<input checked="" type="checkbox"/>	64	20000
e0/1/1	<input checked="" type="checkbox"/>	128	2000
e0/1/2	<input checked="" type="checkbox"/>	128	2000
e0/1/3	<input checked="" type="checkbox"/>	128	2000
e0/1/4	<input checked="" type="checkbox"/>	128	2000

## 6.2.4 ERPS Protocol

Selecting "**Advanced Application>ERPS Protocol**", in the navigation bar, you can configure ERPS protocol.

**【Parameter Description】**

Parameter	Description
Global ERPS status	Select open or close ERPS
Instance	The range of 0-15, active instance.
Meg level	The range of 0-7
Ring Id	The range of 1-239
Ring Level	Master Ring and Sub Ring
Control VLAN	You must configure the VLAN before configuring the ERRP ring
Protected-instance List	Application of MST instance
Ring port1	Configurable ports are common, owner, neighbor, next-neighbor
Ring port2	Configurable ports are common, owner, neighbor, next-neighbor

**【Configuration example】**

Such as: Open Global ERPS

## 6.2.5 EAPS Protocol

Selecting "**Advanced Application>EAPS Protocol**", in the navigation bar, you can configure EAPS protocol.

The screenshot shows the configuration page for EAPS Protocol. On the left is a navigation menu with 'EAPS Protocol' highlighted. The main content area is titled 'Ethernet Automatic Protection Switching' and includes a 'Domain' link. The 'EAPS:' section contains a table of settings: Active (checkbox), Hello Time (1 seconds), Fail Timer (6 seconds), Major Fault (5 seconds), Pre Forward (6 seconds), and Pre Up (0 seconds). Below this is an 'Apply' and 'Cancel' button. The 'Domain:' section has fields for Domain ID (0), Control VLAN, Work Mode (standard), and Topo Collect (checkbox), with 'Add', 'Cancel', and 'Clear' buttons. At the bottom, a table lists columns: Domain ID, Control VLAN, Work Mode, Topo Collect, Ring List, and Delete, with 'Delete' and 'Cancel' buttons.

### 6.2.5.1 Ethernet Automatic Protection Switching

Selecting "**Advanced Application>EAPS Protocol>Ethernet automatic protection switching**", in the navigation bar, you can configure Ethernet automatic protection switching.

The screenshot shows the configuration page for Ethernet Automatic Protection Switching. The navigation bar is titled 'Ethernet Automatic Protection Switching' with a 'Domain' link. The 'EAPS:' section contains a table of settings: Active (checkbox), Hello Time (1 seconds), Fail Timer (6 seconds), Major Fault (5 seconds), Pre Forward (6 seconds), and Pre Up (0 seconds). Below this is an 'Apply' and 'Cancel' button. The 'Domain:' section has fields for Domain ID (0), Control VLAN, Work Mode (standard), and Topo Collect (checkbox), with 'Add', 'Cancel', and 'Clear' buttons.

**【Parameter Description】**

Parameter	Description
Active	Select open or close EAPS
Hello time	Switches sends bpdu in packet interval
Fail Timer	Configure the information timeout
Major Fault	The Major Fault timer will be automatically updated by the system
Pre Forward	The Pre forward timer will be automatically updated by the system
Pre Up	Loop recovery wait time
Domain ID	You need to specify the Domain ID when creating the EAPS Domain
Control VLAN	You must configure the VLAN before configuring the EAPS Ring
Work mode	Work mode: standard huawei eips-subring
Topo Collect	Select open or close Topo Collect

**【Configuration example】**

1. EAPS

EAPS:

Active	<input checked="" type="checkbox"/>	
Hello Time	1	seconds
Fail Timer	6	seconds
Major Fault	5	seconds
Pre Forward	6	seconds
Pre Up	0	seconds

2. Domain

Domain:

Domain ID	0	
Control VLAN	5	
Work Mode	huawei	
Topo Collect	<input checked="" type="checkbox"/>	

### 6.2.5.2 EAPS Domain

Selecting “**Advanced Application>EAPS Protocol>EAPS Domain**”, in the navigation bar, you can configure EAPS Domain.

#### Domain:

Domain ID	0 ▼
Control VLAN	5 (sub: 6)
Work Mode	standard ▼
Topo Collect	<input checked="" type="checkbox"/>

#### Ring:

Active	<input type="checkbox"/>
Ring ID	0 ▼
Query Solicit	<input checked="" type="checkbox"/>
Bridge Role	master ▼
Primary Port	
Secondary Port	
Level	0 ▼

Add Cancel Clear

Ring ID	Active	Role	Level	Stm	Query Solicit	Primary/Common Port: state	Secondary/Edge Port: state	Delete
---------	--------	------	-------	-----	---------------	----------------------------	----------------------------	--------

#### 【Parameter Description】

Parameter	Description
Domain ID	Select Domain ID
Control VLAN	You must configure the VLAN before configuring the EAPS Ring
Work mode	Work mode: standard huawei eips-subring
Topo Collect	Select open or close Topo Collect
Active	Select open or close Ring
Ring ID	Select ring ID
Query Solicit	Select open or close Query Solicit
Bridge Role	Bridge Role: mastesr transit edge assistant-edge
Level	Level:

Parameter	Description
	0, 1

### 【Configuration example】

#### 1. Configure Domain

##### Domain:

Domain ID	0 ▾	
Control VLAN	5	(sub: 6)
Work Mode	standard ▾	
Topo Collect	<input checked="" type="checkbox"/>	

#### 2. Configure Ring

##### Ring:

Active	<input checked="" type="checkbox"/>
Ring ID	11 ▾
Query Solicit	<input checked="" type="checkbox"/>
Bridge Role	master ▾
Primary Port	8
Secondary Port	7
Level	1 ▾

## 6.2.6 VRRP Protocol

Selecting "**Advanced Application>VRRP Protocol**"; in the navigation bar, you can configure the VRRP Protocol.

- Basic Setting
- Advanced Application
- Management
- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol**
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule
- Queuing Method
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting
- SNTP Setting
- QinQ
- AAA

vrrp setting

VRRP ID list	▾
VRRP ID	<input type="text"/>
interface name	▾
virtual ip	<input type="text"/>
preempt	<input checked="" type="checkbox"/>
priority	<input type="text"/>
interval	<input type="text"/>

**virtual ip list:**

index	virtual IP	delete

## 【Parameter Description】

Parameter	Description
VRRP ID list	You select VRRP ID
VRRP ID	VRRP ID
Interface name	Specify vlan
virtual ip	Set virtual ip
preempt	Enable or disable preempt
priority	VRRP priority
interval	Set VRRP timer interval

## 6.2.7 Layer 2 Tunneling Protocol

Selecting "**Advanced Application>EAPS Protocol Layer 2 Tunneling Protocol**"; in the navigation bar, you can configure the specified protocol message that enters the port to perform a tunnel operation.

Port	CDP	STP	VTP	Point to Point		
				PAGP	LACP	UDLD
*	<input type="checkbox"/>					
e0/0/1	<input type="checkbox"/>					
e0/0/2	<input type="checkbox"/>					
e0/0/3	<input type="checkbox"/>					
e0/0/4	<input type="checkbox"/>					
e0/0/5	<input type="checkbox"/>					
e0/0/6	<input type="checkbox"/>					
e0/0/7	<input type="checkbox"/>					
e0/0/8	<input type="checkbox"/>					
e0/0/9	<input type="checkbox"/>					
e0/0/10	<input type="checkbox"/>					
e0/0/11	<input type="checkbox"/>					
e0/0/12	<input type="checkbox"/>					
e0/0/13	<input type="checkbox"/>					
e0/0/14	<input type="checkbox"/>					
e0/0/15	<input type="checkbox"/>					
e0/0/16	<input type="checkbox"/>					
e0/0/17	<input type="checkbox"/>					
e0/0/18	<input type="checkbox"/>					
e0/0/19	<input type="checkbox"/>					
e0/0/20	<input type="checkbox"/>					
e0/0/21	<input type="checkbox"/>					
e0/0/22	<input type="checkbox"/>					
e0/0/23	<input type="checkbox"/>					
e0/0/24	<input type="checkbox"/>					
e0/1/1	<input type="checkbox"/>					
e0/1/2	<input type="checkbox"/>					
e0/1/3	<input type="checkbox"/>					
e0/1/4	<input type="checkbox"/>					

## 【Configuration example】

e0/0/21	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
e0/0/22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/0/23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/0/24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/1/1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/1/2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/1/3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e0/1/4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 6.2.8 PPPoE IA

Selecting "**Advanced Application>PPPoE IA**", in the navigation bar, you can configure PPPoE IA.

Basic Setting Intermediate Agent Port

delimiter	space
format	binary
Type	standard

Apply Cancel

### 6.2.8.1 Intermediate Agent

Selecting "**Advanced Application>PPPoE IA>Intermediate Agent**", in the navigation bar, you can configure Intermediate Agent.

Intermediate Agent Port

delimiter	space
format	binary
Type	standard

Apply Cancel

#### 【Parameter Description】

Parameter	Description
delimiter	Configure delimiter, choose "space", ":", ".", "#", "/"
format	Configure format, choose binary, ascii
type	Configure the message type, choose standard,

Parameter	Description
	Huawei, self-defined

**【Configuration example】**

Such as: Configure Intermediate Agent.

**Intermediate Agent** [Port](#)

delimiter	space ▼
format	binary ▼
Type	standard ▼

**Apply** Cancel

**6.2.8.2 Port**

Selecting "**Advanced Application>PPPoE IA>Port**", in the navigation bar, you can configure port.

**Port** [Intermediate Agent](#)

Port	Active	Server Trusted State	Drop	strategy	Circuit-id
*	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/1	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/2	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/3	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/4	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/5	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/6	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/7	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/8	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/9	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/10	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/11	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/12	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/13	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/14	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/15	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	
e0/0/16	<input type="checkbox"/>	Untrusted ▼	None ▼	Replace ▼	

**【Parameter Description】**

Parameter	Description
active	Select open or close port PPPOE IA

Parameter	Description
Server Trusted State	Configure the upstream port to be Trusted or Untrusted
Drop	Configure the pppoe padi/pado packets received by the port
Strategy	Configuration options to handle policies, choose Drop, Keep, Replace

### 【Configuration example】

Such As: Configure port.

e0/0/24	<input checked="" type="checkbox"/>	Trusted	None	Replace	
e0/1/1	<input type="checkbox"/>	Untrusted	None	Replace	
e0/1/2	<input type="checkbox"/>	Untrusted	None	Replace	
e0/1/3	<input type="checkbox"/>	Untrusted	None	Replace	
e0/1/4	<input type="checkbox"/>	Untrusted	None	Replace	

## 6.2.9 Bandwidth Control

Selecting "**Advanced Application>Bandwidth Control**", in the navigation bar, you can configure Bandwidth Control.

Port	Ingress Rate(unit:64kpbs)	Egress Rate(unit:64kpbs)
*	Kbps	Kbps
e0/0/1	0 Kbps	0 Kbps
e0/0/2	0 Kbps	0 Kbps
e0/0/3	0 Kbps	0 Kbps
e0/0/4	0 Kbps	0 Kbps
e0/0/5	0 Kbps	0 Kbps
e0/0/6	0 Kbps	0 Kbps
e0/0/7	0 Kbps	0 Kbps
e0/0/8	0 Kbps	0 Kbps
e0/0/9	0 Kbps	0 Kbps
e0/0/10	0 Kbps	0 Kbps
e0/0/11	0 Kbps	0 Kbps
e0/0/12	0 Kbps	0 Kbps
e0/0/13	0 Kbps	0 Kbps
e0/0/14	0 Kbps	0 Kbps
e0/0/15	0 Kbps	0 Kbps
e0/0/16	0 Kbps	0 Kbps
e0/0/17	0 Kbps	0 Kbps
e0/0/18	0 Kbps	0 Kbps
e0/0/19	0 Kbps	0 Kbps
e0/0/20	0 Kbps	0 Kbps
e0/0/21	0 Kbps	0 Kbps
e0/0/22	0 Kbps	0 Kbps
e0/0/23	0 Kbps	0 Kbps
e0/0/24	0 Kbps	0 Kbps
e0/1/1	0 Kbps	0 Kbps

### 【Instructions】

1 Mbit/s = 1000 Kbit/s = 1000 / 8 KB/s = 125 KB/s. That is, the theoretical rate of 1M bandwidth is 125 KB/s.

**【Configuration example】**

Such as: Configure port-24 Ingress Rate is 64kbps, Egress Rate is 128kbps.

e0/0/24	64	Kbps	128	Kbps
e0/1/1		Kbps		Kbps
e0/1/2		Kbps		Kbps
e0/1/3		Kbps		Kbps
e0/1/4		Kbps		Kbps

**6.2.10 Broadcast Storm Control**

Selecting "**Advanced Application>Broadcast Storm Control**"; in the navigation bar, you can configure Broadcast Storm Control.

Basic Setting		Broadcast Storm Control						
Advanced Application		Port	Broadcast(unit:64pps)	Multicast(unit:64pps)	Unicast(unit:64pps)			
Management		*				pps		
VLAN		e0/0/1	49984	pps	0	pps	0	pps
MAC Address Forwarding		e0/0/2	49984	pps	0	pps	0	pps
Spanning Tree Protocol		e0/0/3	49984	pps	0	pps	0	pps
ERPS Protocol		e0/0/4	49984	pps	0	pps	0	pps
EAPS Protocol		e0/0/5	49984	pps	0	pps	0	pps
VRRP Protocol		e0/0/6	49984	pps	0	pps	0	pps
Layer 2 Tunneling Protocol		e0/0/7	49984	pps	0	pps	0	pps
PPPOE IA		e0/0/8	49984	pps	0	pps	0	pps
Bandwidth Control		e0/0/9	49984	pps	0	pps	0	pps
<b>Broadcast Storm Control</b>		e0/0/10	49984	pps	0	pps	0	pps
Mirroring		e0/0/11	49984	pps	0	pps	0	pps
Link Aggregation		e0/0/12	49984	pps	0	pps	0	pps
Port Security		e0/0/13	49984	pps	0	pps	0	pps
POE Settings		e0/0/14	49984	pps	0	pps	0	pps
Classifier		e0/0/15	49984	pps	0	pps	0	pps
Policy Rule		e0/0/16	49984	pps	0	pps	0	pps
Queuing Method		e0/0/17	49984	pps	0	pps	0	pps
Multicast		e0/0/18	49984	pps	0	pps	0	pps
IPv6 Multicast		e0/0/19	49984	pps	0	pps	0	pps
Dos attack protect		e0/0/20	49984	pps	0	pps	0	pps
DHCP Snooping Setting		e0/0/21	49984	pps	0	pps	0	pps
SNTP Setting		e0/0/22	49984	pps	0	pps	0	pps
QinQ		e0/0/23	49984	pps	0	pps	0	pps
AAA		e0/0/24	49984	pps	0	pps	0	pps
		e0/1/1	49984	pps	0	pps	0	pps

**【Parameter Description】**

Parameter	Description
Broadcast	Broadcast rate limitation(the range of: 64-32000000, unit: pps, you must enter multiple of 64, default to 49984)
Multicast	Multicast rate limitation(the range of: 64-32000000, unit: pps, you must enter multiple of 64, default to 49984)
Unicast	Unicast rate limitation(the range of: 64-32000000, unit: pps, you must enter multiple of 64, default to 49984)

### 【Instructions】

1 Mbit/s = 1000 Kbit/s = 1000 / 8 KB/s = 125 KB/s. That is, the theoretical rate of 1M bandwidth is 125 KB/s.

### 【Configuration example】

Such as: Set Port1 broadcast as 6400 pps, multicast as 3200 pps, unicast as 3200 pps.

Broadcast Storm Control			
Port	Broadcast(unit:64pps)	Multicast(unit:64pps)	Unicast(unit:64pps)
*	<input type="text"/> pps	<input type="text"/> pps	<input type="text"/> pps
e0/0/1	<input type="text" value="6400"/> pps	<input type="text" value="3200"/> pps	<input type="text" value="3200"/> pps

## 6.2.11 Mirroring

Selecting "**Advanced Application>Mirroring**", in the navigation bar, you can configure mirroring.

**Basic Setting**

Advanced Application Management

- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring**
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule
- Queueing Method
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting
- SNTP Setting
- QinQ
- AAA

**Mirroring**

Active

Monitor Port

Port	Mirrored	Direction
*	<input type="checkbox"/>	Ingress ▼
e0/0/1	<input type="checkbox"/>	Ingress ▼
e0/0/2	<input type="checkbox"/>	Ingress ▼
e0/0/3	<input type="checkbox"/>	Ingress ▼
e0/0/4	<input type="checkbox"/>	Ingress ▼
e0/0/5	<input type="checkbox"/>	Ingress ▼
e0/0/6	<input type="checkbox"/>	Ingress ▼
e0/0/7	<input type="checkbox"/>	Ingress ▼
e0/0/8	<input type="checkbox"/>	Ingress ▼
e0/0/9	<input type="checkbox"/>	Ingress ▼
e0/0/10	<input type="checkbox"/>	Ingress ▼
e0/0/11	<input type="checkbox"/>	Ingress ▼
e0/0/12	<input type="checkbox"/>	Ingress ▼
e0/0/13	<input type="checkbox"/>	Ingress ▼
e0/0/14	<input type="checkbox"/>	Ingress ▼
e0/0/15	<input type="checkbox"/>	Ingress ▼
e0/0/16	<input type="checkbox"/>	Ingress ▼
e0/0/17	<input type="checkbox"/>	Ingress ▼
e0/0/18	<input type="checkbox"/>	Ingress ▼
e0/0/19	<input type="checkbox"/>	Ingress ▼
e0/0/20	<input type="checkbox"/>	Ingress ▼
e0/0/21	<input type="checkbox"/>	Ingress ▼
e0/0/22	<input type="checkbox"/>	Ingress ▼
e0/0/23	<input type="checkbox"/>	Ingress ▼
e0/0/24	<input type="checkbox"/>	Ingress ▼

**【Parameter Description】**

Parameter	Description
Active	Select open or close Mirroring
Monitor Port	Set up the monitoring port and forward the flow data of the source port to the message analyzer to analyze the message and then forward to the monitoring port
Mirrored	Check the box to configure the mirror source port
Direction	Configure the direction of the mirror message, choose: Ingress, Egress, Both

**【Configuration example】**

Such as: Open mirroring, configure monitoring port is port 8, the source port is port 7, and the mirror message is in both direction.

**Mirroring**

Active

Monitor Port

---

e0/0/7

## 6.2.12 Link Aggregation

Selecting "**Advanced Application>Link Aggregation**", in the navigation bar, you can configure link aggregation.

Basic Setting	Link Aggregation Status	Link Aggregation Setting				
Advanced Application Management	Group ID	Enabled Ports	Synchronized Ports	Aggregator ID	Criteria	Status
VLAN	T0	-	-	-	-	-
MAC Address Forwarding	T1	-	-	-	-	-
Spanning Tree Protocol	T2	-	-	-	-	-
ERPS Protocol	T3	-	-	-	-	-
EAPS Protocol	T4	-	-	-	-	-
VRRP Protocol	T5	-	-	-	-	-
Layer 2 Tunneling Protocol	T6	-	-	-	-	-
PPPOE IA	T7	-	-	-	-	-
Bandwidth Control	T8	-	-	-	-	-
Broadcast Storm Control	T9	-	-	-	-	-
Mirroring	T10	-	-	-	-	-
Link Aggregation	T11	-	-	-	-	-
Port Security	T12	-	-	-	-	-
POE Settings	T13	-	-	-	-	-
Classifier	T14	-	-	-	-	-
Policy Rule	T15	-	-	-	-	-
Queueing Method	T16	-	-	-	-	-
Multicast	T17	-	-	-	-	-
IPv6 Multicast	T18	-	-	-	-	-
Dos attack protect	T19	-	-	-	-	-
DHCP Snooping Setting	T20	-	-	-	-	-
SNTP Setting	T21	-	-	-	-	-
QinQ	T22	-	-	-	-	-
AAA	T23	-	-	-	-	-
	T24	-	-	-	-	-
	T25	-	-	-	-	-
	T26	-	-	-	-	-
	T27	-	-	-	-	-
	T28	-	-	-	-	-
	T29	-	-	-	-	-
	T30	-	-	-	-	-

### 6.2.12.1 Link Aggregation status

Selecting "**Advanced Application>Link Aggregation>Link Aggregation Status**", in the navigation bar, you can view link aggregation status, you can view Group ID, Enabled Ports, Synchronized Ports, Aggregator ID, Criteria, Status.

Link Aggregation Status				Link Aggregation Setting	
Group ID	Enabled Ports	Synchronized Ports	Aggregator ID	Criteria	Status
T0	-	-	-	-	-
T1	-	-	-	-	-
T2	-	-	-	-	-
T3	-	-	-	-	-
T4	-	-	-	-	-
T5	-	-	-	-	-
T6	-	-	-	-	-
T7	-	-	-	-	-
T8	-	-	-	-	-
T9	-	-	-	-	-
T10	-	-	-	-	-
T11	-	-	-	-	-
T12	-	-	-	-	-
T13	-	-	-	-	-
T14	-	-	-	-	-
T15	-	-	-	-	-
T16	-	-	-	-	-
T17	-	-	-	-	-
T18	-	-	-	-	-
T19	-	-	-	-	-
T20	-	-	-	-	-
T21	-	-	-	-	-
T22	-	-	-	-	-

### 6.2.12.2 Link Aggregation Setting

Selecting "**Advanced Application>Link Aggregation>Link Aggregation Setting**", in the navigation bar, you can set Link Aggregation.

Port	Group ID	LACP Mode	CRITERIA
e0/0/1	none ▼	none ▼	none ▼
e0/0/2	none ▼	none ▼	none ▼
e0/0/3	none ▼	none ▼	none ▼
e0/0/4	none ▼	none ▼	none ▼
e0/0/5	none ▼	none ▼	none ▼
e0/0/6	none ▼	none ▼	none ▼
e0/0/7	none ▼	none ▼	none ▼
e0/0/8	none ▼	none ▼	none ▼
e0/0/9	none ▼	none ▼	none ▼
e0/0/10	none ▼	none ▼	none ▼
e0/0/11	none ▼	none ▼	none ▼
e0/0/12	none ▼	none ▼	none ▼
e0/0/13	none ▼	none ▼	none ▼
e0/0/14	none ▼	none ▼	none ▼
e0/0/15	none ▼	none ▼	none ▼
e0/0/16	none ▼	none ▼	none ▼
e0/0/17	none ▼	none ▼	none ▼
e0/0/18	none ▼	none ▼	none ▼

**【Parameter Description】**

Parameter	Description
Group ID	Add the port to the specified Aggregation Group ID
LACP mode	Configure port aggregation(static/active/passive)
Criteria	Configure the Aggregation Group load balancing (src-mac/dst-mac/src-dst-mac/src-ip/dst-ip/src-dst-ip )

**【Configuration example】**

Such as: configure parameter of Aggregation Group port-8.

e0/0/8      T1 ▼      active ▼      src-mac ▼

### 6.2.12.3 Link Aggregation Control Protocol

Selecting "**Advanced Application>Link Aggregation>Link Aggregation Control Protocol**", in the navigation bar, you can configure Link Aggregation Control Protocol.

**Link Aggregation Control Protocol** [Link Aggregation Setting](#)

System Priority

Group ID	LACP Active
T0	<input type="checkbox"/>
T1	<input type="checkbox"/>
T2	<input type="checkbox"/>
T3	<input type="checkbox"/>
T4	<input type="checkbox"/>
T5	<input type="checkbox"/>
T6	<input type="checkbox"/>
T7	<input type="checkbox"/>
T8	<input type="checkbox"/>
T9	<input type="checkbox"/>
T10	<input type="checkbox"/>
T11	<input type="checkbox"/>
T12	<input type="checkbox"/>
T13	<input type="checkbox"/>
T14	<input type="checkbox"/>
T15	<input type="checkbox"/>
T16	<input type="checkbox"/>
T17	<input type="checkbox"/>

#### 【Parameter Description】

Parameter	Description
System priority	Aggregation group system priority, the default is 32768( the range of 1-65535)

#### 【Configuration example】

Such as:

- 1.Open aggregation group T1 LACP.

Group ID	LACP Active
T0	<input type="checkbox"/>
T1	<input checked="" type="checkbox"/>

2.The priority for configuring port 8 is 64.



### 6.2.13 Port Security

Selecting "**Advanced Application>Port Security**", in the navigation bar, you can configure port address learn control.

#### 【Parameter Description】

Parameter	Description
Age-Enable	Open age-enable
Age-Time	Set Age Time(the range of 10-1000000, unit: second)
Max Mac Limit Number (Global)	Set the global Max MAC Limit Number(0-16384)
Address Learning	The MAC address learning function of port enables the power switch (the default port MAC learning function opens)
Max Mac Limit Number (Port)	Set the port Max MAC Limit Number( 0-16384)

### 【Configuration example】

1. Configure mac Age Time, open Age-Time, Age-Time (second) is 100.

#### Mac Age Time:

Age-Enable <input checked="" type="checkbox"/>	Age-Time(unit:second) <input type="text" value="100"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

2. Configure Address Learn Global Control, set max mac limit number is 2000.

#### Address Learn Global Control:

Global	Max Mac Limit Number	Users Number
Switch All	<input type="text" value="2000"/>	1

3. Port 8 address learn control, Max Mac Limit Number is 1800.

e0/0/8	<input checked="" type="checkbox"/>	<input type="text" value="1800"/>	0
--------	-------------------------------------	-----------------------------------	---

4. Configure Address Learn Channel Control, set max mac limit number (channel) is 1500.

#### Address Learn Channel Control:

Group ID	Max Mac Limit Number	Users Number
*	<input type="text" value="1500"/>	

5. Configure Address Learn Vlan Control, set Max Mac Limit Number (Vlan) is 1900.

#### Address Learn Vlan Control:

Vlan	Max Mac Limit Number	Users Number
*	<input type="text" value=""/>	
1	<input type="text" value="1900"/>	1

## 6.2.14 POE Settings

Selecting "**Advanced Application>POE Settings**", in the navigation bar, you can

configure POE.

**i** Only POE devices have this function

power supply	internal power supply
power limit (1-400)	380 W
power consumption	0W

Apply Cancel

### 6.2.14.1 POE Settings

Selecting "**Advanced Application>POE Settings>POE Settings**", in the navigation bar, you can configure POE.

power supply	internal power supply
power limit (1-400)	380 W
power consumption	0W

Apply Cancel

#### 【Parameter Description】

Parameter	Description
power limit (1-400)	The power of switch POE can be limited

#### 【Configuration example】

Such as: set power limit is 390 W.

power supply	internal power supply
power limit (1-400)	390 W
power consumption	0W

### 6.2.14.2 POE Port Settings

Selecting "**Advanced Application>POE Settings>POE Port Settings**", in the navigation bar, you can configure POE Port.

Port Number <a href="#">[Click for selecting]</a>													
2	4	6	8	10	12	14	16	18	20	22	24	26	28
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	○	-	-	-	-	-	-	-	-	-	-	-	-
1	3	5	7	9	11	13	15	17	19	21	23	25	27
Port Number													

POE Port Settings **Ethernet 1000M Port[1]**

Port No.	Enable	Standard	Priority	Class	Power Limit(1-32):W	Power Consumption:W	Voltage:V	Status
e0/0/1	<input type="button" value="enable"/>	<input type="button" value="ieee802.3at"/>	<input type="button" value="low"/>	0	<input type="text" value="30"/>	0	13.0	status: Port is off - Detection is in process
<input type="button" value="Refresh"/> <input type="button" value="Modify"/>								
Ethernet 1000M Port								
1	enable	ieee802.3at	low	0	30	0	13.0	status: Port is off - Detection is in process
2	enable	ieee802.3at	low	0	30	0	13.0	status: Port is off - Detection is in process
3	enable	ieee802.3at	low	0	30	0	13.0	status: Port is off - Detection is in process
4	enable	ieee802.3at	low	0	30	0	13.0	status: Port is off - Detection is in process

**【Parameter Description】**

Parameter	Description
Enable	Turn the port POE power on and off and the default is open
Standard	Configure ieee802.3af, ieee802.3at mode, default to ieee802.3at
Priority	Configure port Priority low, critical, high, the default priority is low
Power limit	The power of switch POE can be limited

**【Configuration example】**

Such as: Configure the POE for port 1.

POE Port Settings Ethernet 1000M Port[1]

Port No.	Enable	Standard	Priority	Class	Power Limit(1-32):W	Power Consumption:W	Voltage:V	Status
e0/0/1	enable	ieee802.3af	high	0	28	0	0.0	status: Port is on - Valid capacitor detected

Refresh Modify

**6.2.15 Classifier**

Selecting “**Advanced Application>Classifier**”, in the navigation bar, you can configure Classifier.

**【Parameter Description】**

Parameter	Description
Active	Active Classifier
Layer2	Set VLAN, Priority, Ethernet type, Source Mac Address, DSCP, IP Protocol
Layer3	Set Source IP

**【Configuration example】**

Active	<input checked="" type="checkbox"/>		
Name	C1		
<hr/>			
Layer 2	VLAN	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/>	
	Priority	<input checked="" type="radio"/> Any <input checked="" type="radio"/> 5 ▾	
	Ethernet Type	<input checked="" type="radio"/> All ▾ <input type="radio"/> Others <input type="text"/> (Hex)	
	Source	MAC Address	<input type="radio"/> Any <input checked="" type="radio"/> MAC 00 : 01 : 02 : 03 : 04 : 22
		Port	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/>
	Destination	MAC Address	<input type="radio"/> Any <input checked="" type="radio"/> MAC 00 : 01 : 02 : 03 : 04 : 77
		Port	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/> <input type="radio"/> CPU
	DSCP	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/>	
	IP Protocol		<input checked="" type="radio"/> UDP ▾ <input type="checkbox"/> Establish Only
			<input type="radio"/> Others <input type="text"/> (Dec)
<hr/>			
Layer 3	Source	IP Address / Address Prefix	192.168.2.0 / 24
		Socket Number	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/>
<hr/>			
Destination	Destination	IP Address / Address Prefix	192.168.2.0 / 24
		Socket Number	<input checked="" type="radio"/> Any <input type="radio"/> <input type="text"/>

## 6.2.16 Policy Rule

Selecting "**Advanced Application>Policy Rule**", in the navigation bar, you can configure Policy Rule.

**Basic Setting**

**Advanced Application Management**

- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule**
- Queuing Method
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting
- SNTP Setting
- QinQ
- AAA

**Policy**

Active

Name

Classifier(s)

---

General Rate Limit

Egress Port  Bandwidth  Kbps

Priority

DSCP

TOS

---

**Action**

Forwarding

No change

Discard the packet

Priority

No change

Set the packet's 802.1p priority and send the packet to priority queue

Diffserv

No change

Set the packet's TOS field

Set the Diffserv Codepoint field in the frame

Outgoing

Send the packet to the egress port.

Rate Limit

Enable

**【Parameter Description】**

Parameter	Description
Active	Active Policy Rule
Classifier(s)	You need to match the set of classification rules
Parameter	Set Bandwidth, Egress Port, Priority, DSCP, TOS

**6.2.17 Queuing Method**

Selecting "**Advanced Application>Queuing Method**", in the navigation bar, you can configure queuing method.

**Basic Setting**  
**Advanced Application**  
**Management**

- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule
- Queuing Method**
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting
- SNTP Setting
- QinQ
- AAA

**Queuing Method**

Method	Weight							
	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
SPQ ▼								

Apply Cancel

**【Parameter Description】**

Parameter	Description
Method	Five method: SPQ,WRR,SP+WRR,WFQ,SP+WFQ

**【Configuration Example】**

**Queuing Method**

Method	Weight							
	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
WRR ▼	10	20	30	40	50	6	7	8

Apply Cancel

**6.2.18 Multicast**

Selecting "**Advanced Application>Multicast**", in the navigation bar, you can configure Multicast.



### 6.2.18.1 Multicast Status

Selecting “**Advanced Application>Multicast>Multicast Status**”, in the navigation bar, you can view all multicast. This includes the static configuration and the multicast that is learned through the IGMP-Snooping protocol.



### 6.2.18.2 Multicast Settings

Selecting “**Advanced Application>Multicast>Multicast Settings**”, in the navigation bar, you can set multicast.

Active	<input type="checkbox"/>
Querier	<input type="checkbox"/>
Host Timeout	300 seconds
IGMP Route Port Forward	<input type="checkbox"/>

**Port Information:**

Port	Max Group Limit	Fast Leave	Multicast Vlan	IGMP Filtering Profile
*		<input type="checkbox"/>		
e0/0/1	1020	<input type="checkbox"/>	0	
e0/0/2	1020	<input type="checkbox"/>	0	
e0/0/3	1020	<input type="checkbox"/>	0	
e0/0/4	1020	<input type="checkbox"/>	0	
e0/0/5	1020	<input type="checkbox"/>	0	
e0/0/6	1020	<input type="checkbox"/>	0	
e0/0/7	1020	<input type="checkbox"/>	0	
e0/0/8	1020	<input type="checkbox"/>	0	
e0/0/9	1020	<input type="checkbox"/>	0	
e0/0/10	1020	<input type="checkbox"/>	0	
e0/0/11	1020	<input type="checkbox"/>	0	

**【Parameter Description】**

Parameter	Description
Active	Open IGMP-snooping
Querier	Open IGMP-snooping timed query function
Host Timeout	Configure the dynamic group sowing time (default 300s)
IGMP Route Port Forward	Open IGMP Route Port Forward
Max Group Limit	Max learning group of configuration port ( default 1020)
Fast Leave	Open port quick exit function (i.e., when the port receives the IGMP and leaves the message, immediately remove the port from the reshuffle group)
Multicast Vlan	The configuration group multicast the default VLAN
IGMP Filtering Profile	The configuration port refers to the multicast preview, which can only be learned to the group broadcast group that is allowed in the group

Parameter	Description
	broadcast preview, and cannot be learned to the multicast group which is forbidden by the group broadcast preview

**【Configuration Example】**

[Multicast Setting](#)     [Multicast Status](#)     [Deny VLAN](#)     [IGMP Filtering Profile](#)  
**IGMP Snooping:**

Active	<input checked="" type="checkbox"/>
Querier	<input checked="" type="checkbox"/>
Host Timeout	300 seconds
IGMP Route Port Forward	<input checked="" type="checkbox"/>

**Port Information:**

Port	Max Group Limit	Fast Leave	Multicast Vlan	IGMP Filtering Profile
*		<input type="checkbox"/>		
e0/0/1	1020	<input checked="" type="checkbox"/>	1	1
e0/0/2	1020	<input type="checkbox"/>	0	

**6.2.18.3 IGMP Snooping Deny VLAN**

Selecting “**Advanced Application>Multicast>IGMP Snooping Deny VLAN**”, in the navigation bar, you can preview the banned group broadcast group, unable to learn the multicast group that is prohibited by the group preview.

[IGMP Snooping Deny VLAN](#)     [Multicast Setting](#)

Vid	<input type="text"/>	Add	Del	Clear
Deny VLAN(s)	<div style="border: 1px solid gray; height: 100px;"></div>			

**【Parameter Description】**

Parameter	Description
Vid	Vlan’s ID

## 6.2.18.4 IGMP Filtering Profile

Selecting "**Advanced Application>Multicast>IGMP Filtering Profile**", in the navigation bar, you can add and remove the preview feature of the modified group.

**IGMP Filtering Profile** [Multicast Setting](#)

Profile Setup

Profile ID	<input type="text"/>
Profile Description	<input type="text"/>
Profile Limit	<input checked="" type="radio"/> permit <input type="radio"/> deny

Index	Profile ID	Profile Description	Profile Limit	Referred Port
-------	------------	---------------------	---------------	---------------

Profile ID	<input type="text"/>
Input Format	<input checked="" type="radio"/> IP <input type="radio"/> MAC
Start Address	<input type="text"/>
End Address	<input type="text"/>
VLAN	<input type="text"/>

### 【Parameter Description】

Parameter	Description
Profile ID	The range of 1-128
Profile Limit	Profile rules can be permit or deny
Input Format	The preview address can be configured to be either IP or MAC

## 6.2.19 IPv6 Multicast

Selecting "**Advanced Application>IPv6 Multicast**", in the navigation bar, you can configure IPv6 Multicast.

Basic Setting
Advanced Application
Management
VLAN
MAC Address Forwarding
Spanning Tree Protocol
ERPS Protocol
EAPS Protocol
VRRP Protocol
Layer 2 Tunneling Protocol
PPPOE IA
Bandwidth Control
Broadcast Storm Control
Mirroring
Link Aggregation
Port Security
POE Settings
Classifier
Policy Rule
Queuing Method
Multicast
IPv6 Multicast
Dos attack protect
DHCP Snooping Setting
SNTP Setting
QinQ
AAA

IPv6 Multicast Status			<a href="#">IPv6 Multicast Setting</a>
Index	VID	Port	IPv6 Multicast Group

### 6.2.19.1 IPv6 Multicast Status

Selecting "**Advanced Application>IPv6 Multicast>IPv6 Multicast Status**", in the navigation bar, you can view all IPv6 Multicast groups.

IPv6 Multicast Status			<a href="#">IPv6 Multicast Setting</a>
Index	VID	Port	IPv6 Multicast Group

### 6.2.19.2 IPv6 Multicast Setting

Selecting "**Advanced Application>IPv6 Multicast>IPv6 Multicast Setting**", in the navigation bar, you can configure IPv6 Multicast.

Active	<input type="checkbox"/>
Querier	<input type="checkbox"/>
Host Timeout	300 seconds
MLD Route Port Forward	<input type="checkbox"/>

**Port Information:**

Port	Max Group Limit	Fast Leave	IPv6 Multicast Vlan
*		<input type="checkbox"/>	
e0/0/1	1020	<input type="checkbox"/>	0
e0/0/2	1020	<input type="checkbox"/>	0
e0/0/3	1020	<input type="checkbox"/>	0
e0/0/4	1020	<input type="checkbox"/>	0
e0/0/5	1020	<input type="checkbox"/>	0
e0/0/6	1020	<input type="checkbox"/>	0
e0/0/7	1020	<input type="checkbox"/>	0
e0/0/8	1020	<input type="checkbox"/>	0
e0/0/9	1020	<input type="checkbox"/>	0
e0/0/10	1020	<input type="checkbox"/>	0
e0/0/11	1020	<input type="checkbox"/>	0
e0/0/12	1020	<input type="checkbox"/>	0
e0/0/13	1020	<input type="checkbox"/>	0
e0/0/14	1020	<input type="checkbox"/>	0
e0/0/15	1020	<input type="checkbox"/>	0
e0/0/16	1020	<input type="checkbox"/>	0
e0/0/17	1020	<input type="checkbox"/>	0
e0/0/18	1020	<input type="checkbox"/>	0

**【Parameter Description】**

Parameter	Description
Active	Enable or disable MLD snooping
Querier	Enable or disable MLD snooping timed Querier
Host Timeout	Configure Dynamic IPv6 multicast aging time (default 300s)
MLD Route Port Forward	Enable or disable MLD Route Port Forward
Max Group Limit	Configure maximum learning IPv6 Multicast message of port(default 1020)

Parameter	Description
Fast Leave	Enable or disable Fast Leave (That is, when the port receives IGMP leave message, the port is deleted immediately from the IPv6 multicast group)
IPv6 Multicast VLAN	Configure IPv6 multicast default VLAN

### 【Configuration Example】

[IPv6 Multicast Setting](#)
[IPv6 Multicast Status](#)
[Deny VLAN](#)

MLD Snooping:

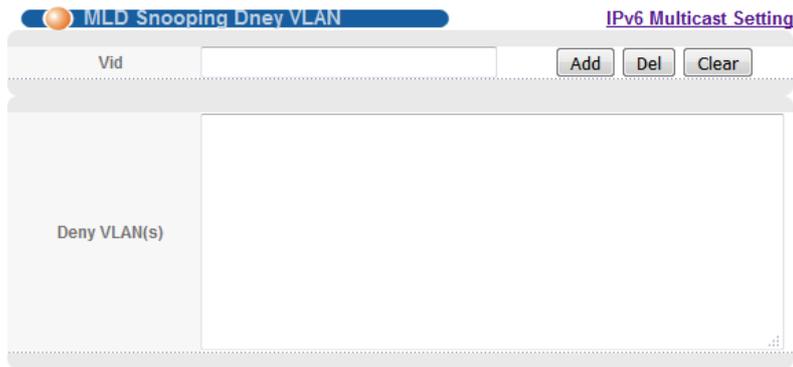
Active	<input checked="" type="checkbox"/>
Querier	<input checked="" type="checkbox"/>
Host Timeout	300 seconds
MLD Route Port Forward	<input checked="" type="checkbox"/>

Port Information:

Port	Max Group Limit	Fast Leave	IPv6 Multicast Vlan
*		<input type="checkbox"/>	
e0/0/1	1020	<input checked="" type="checkbox"/>	1
e0/0/2	1020	<input type="checkbox"/>	0
e0/0/3	1020	<input type="checkbox"/>	0
e0/0/4	1020	<input type="checkbox"/>	0
e0/0/5	1020	<input type="checkbox"/>	0
e0/0/6	1020	<input type="checkbox"/>	0
e0/0/7	1020	<input type="checkbox"/>	0
e0/0/8	1020	<input type="checkbox"/>	0
e0/0/9	1020	<input type="checkbox"/>	0
e0/0/10	1020	<input type="checkbox"/>	0
e0/0/11	1020	<input type="checkbox"/>	0
e0/0/12	1020	<input type="checkbox"/>	0
e0/0/13	1020	<input type="checkbox"/>	0
e0/0/14	1020	<input type="checkbox"/>	0
e0/0/15	1020	<input type="checkbox"/>	0
e0/0/16	1020	<input type="checkbox"/>	0
e0/0/17	1020	<input type="checkbox"/>	0
e0/0/18	1020	<input type="checkbox"/>	0

### 6.2.19.3 MLD Snooping Dney VLAN

Selecting "**Advanced Application>IPv6 Multicast>MLD Snooping Dney VLAN**", in the navigation bar, you can configure MLD Snooping Dney VLAN.

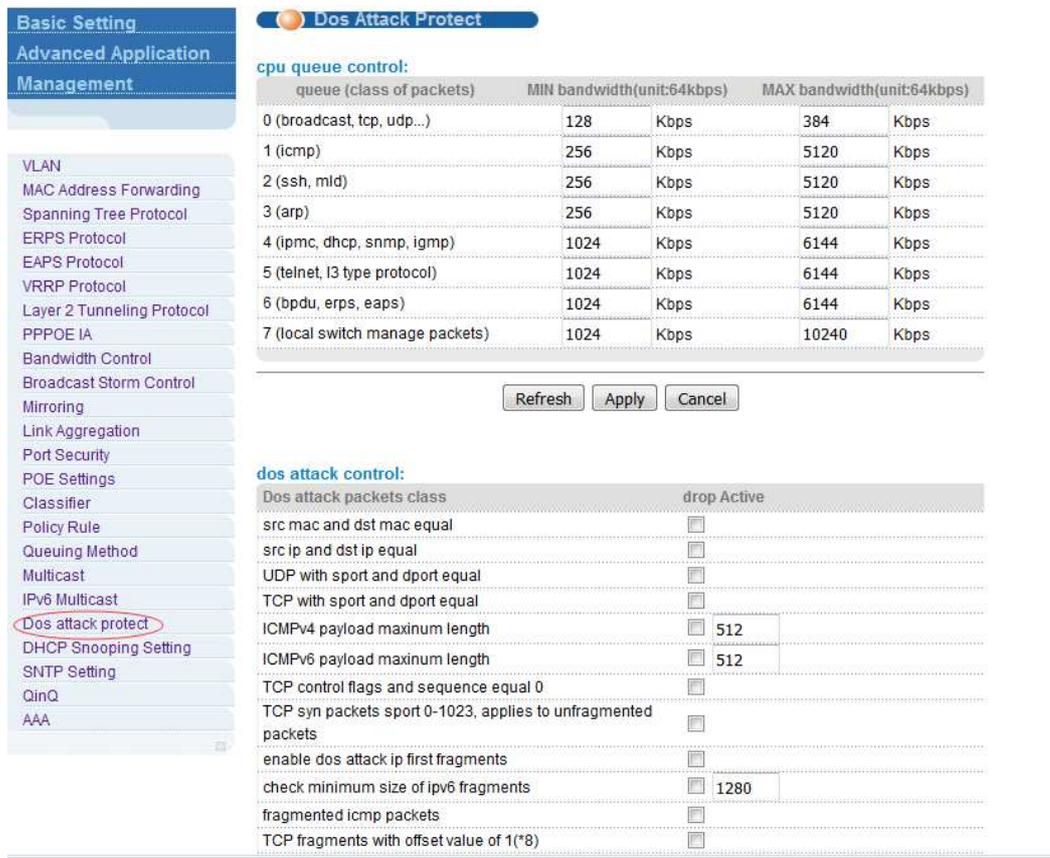


**【Parameter Description】**

Parameter	Description
Vid	Vlan ID

**6.2.20 Dos attack protect**

Selecting "**Advanced Application>Dos attack protect**", in the navigation bar, you can configure dos attack protect.



**【Parameter Description】**

Parameter	Description
cpu queue control	The CPU queue is controlled by setting minimum bandwidth and maximum bandwidth (minimum value is 64kbps)
dos attack control	The DOS attack is controlled by the discarding behavior of the corresponding message

### 【Configuration Example】

#### 1.cpu queue control

##### cpu queue control:

queue (class of packets)	MIN bandwidth(unit:64kbps)		MAX bandwidth(unit:64kbps)	
0 (broadcast, tcp, udp...)	64	Kbps	640	Kbps
1 (icmp)	1024	Kbps	5120	Kbps
2 (ssh, mld)	1024	Kbps	5120	Kbps
3 (arp)	1024	Kbps	5120	Kbps
4 (ipmc, dhcp, snmp, igmp)	2048	Kbps	6144	Kbps
5 (telnet, I3 type protocol)	2048	Kbps	6144	Kbps
6 (bpdu, erps, eaps)	2048	Kbps	6144	Kbps
7 (local switch manage packets)	5120	Kbps	10240	Kbps

Refresh  Cancel

#### 2.dos attack control

### dos attack control:

Dos attack packets class	drop Active
src mac and dst mac equal	<input type="checkbox"/>
src ip and dst ip equal	<input type="checkbox"/>
UDP with sport and dport equal	<input type="checkbox"/>
TCP with sport and dport equal	<input type="checkbox"/>
ICMPv4 payload maximum length	<input type="checkbox"/> 512
ICMPv6 payload maximum length	<input type="checkbox"/> 512
TCP control flags and sequence equal 0	<input type="checkbox"/>
TCP syn packets sport 0-1023, applies to unfragmented packets	<input type="checkbox"/>
enable dos attack ip first fragments	<input type="checkbox"/>
check minimum size of ipv6 fragments	<input checked="" type="checkbox"/> 1280
fragmented icmp packets	<input type="checkbox"/>
TCP fragments with offset value of 1(*8)	<input type="checkbox"/>
TCP with SYN & FIN bits	<input type="checkbox"/>
TCP with FIN,URG and PSH bits,and sequence equal 0	<input type="checkbox"/>
TCP first fragments with minimum tcp header length	<input type="checkbox"/> 20

## 6.2.21 DHCP Snooping Setting

Selecting "**Advanced Application>DHCP Snooping Setting**", in the navigation bar, you can configure DHCP Snooping.

**Basic Setting**

**Advanced Application Management**

- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule
- Queuing Method
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting**
- SNTP Setting
- QinQ
- AAA

**DHCP Snooping Setting**
[IP Source Guard](#)

DHCP Snooping Enable  Close  Open

Port	Trust	Maxclients
*	<input type="checkbox"/>	
1	<input type="checkbox"/>	2048
2	<input type="checkbox"/>	2048
3	<input type="checkbox"/>	2048
4	<input type="checkbox"/>	2048
5	<input type="checkbox"/>	2048
6	<input type="checkbox"/>	2048
7	<input type="checkbox"/>	2048
8	<input type="checkbox"/>	2048
9	<input type="checkbox"/>	2048
10	<input type="checkbox"/>	2048
11	<input type="checkbox"/>	2048
12	<input type="checkbox"/>	2048
13	<input type="checkbox"/>	2048
14	<input type="checkbox"/>	2048
15	<input type="checkbox"/>	2048
16	<input type="checkbox"/>	2048
17	<input type="checkbox"/>	2048
18	<input type="checkbox"/>	2048
19	<input type="checkbox"/>	2048
20	<input type="checkbox"/>	2048
21	<input type="checkbox"/>	2048
22	<input type="checkbox"/>	2048
23	<input type="checkbox"/>	2048

### 6.2.21.1 DHCP Snooping Setting

Selecting "**Advanced Application>DHCP Snooping Setting>DHCP Snooping Setting**", in the navigation bar, you can configure DHCP Snooping.

**DHCP Snooping Setting**
[IP Source Guard](#)

DHCP Snooping Enable  Close  Open

Port	Trust	Maxclients
*	<input type="checkbox"/>	
1	<input type="checkbox"/>	2048
2	<input type="checkbox"/>	2048
3	<input type="checkbox"/>	2048
4	<input type="checkbox"/>	2048
5	<input type="checkbox"/>	2048
6	<input type="checkbox"/>	2048
7	<input type="checkbox"/>	2048
8	<input type="checkbox"/>	2048
9	<input type="checkbox"/>	2048
10	<input type="checkbox"/>	2048
11	<input type="checkbox"/>	2048
12	<input type="checkbox"/>	2048
13	<input type="checkbox"/>	2048
14	<input type="checkbox"/>	2048
15	<input type="checkbox"/>	2048
16	<input type="checkbox"/>	2048
17	<input type="checkbox"/>	2048
18	<input type="checkbox"/>	2048
19	<input type="checkbox"/>	2048
20	<input type="checkbox"/>	2048
21	<input type="checkbox"/>	2048
22	<input type="checkbox"/>	2048
23	<input type="checkbox"/>	2048

**【Parameter Description】**

Parameter	Description
DHCP Snooping Enable	Enable or disable DHCP Snooping serve
Trust	Enable or disable the DHCP Snooping port trust property state
Maxclients	Set Maxclients

**【Configuration Example】**

**6.2.21.2 IP Source Guard**

Selecting “**Advanced Application>DHCP Snooping Setting>IP Source Guard**”, in the navigation bar, you can configure IP Source Guard.

**【Parameter Description】**

Parameter	Description
Disable unbinding entry to access network	Enable or Disable unbinding entry to access network

## 【Instructions】

If you want to access shall be binding and switch the IP address of the same network segment.

## 【Configuration Example】

**IP-Source-Guard** [DHCP Snooping Setting](#)  
System security settings

Disable unbinding entry to access network  Modify

Add IP-MAC-PORT-VLAN binding entry Add-entry-by-manual ▾

IP Address	192.168.1.101
MAC Address (H:H:H:H:H:H)	00 : 30 : 67 : 2F : B8 : 86
Port	1
VLAN ID	1

Add Cancel

**Binding table** One Click Binding One Click Unbinding

IP Address	MAC Address	Port	VLAN ID	Binding status	Delete
------------	-------------	------	---------	----------------	--------

Refresh

## 6.2.22 SNTP Setting

Selecting "**Advanced Application>SNTP Setting**", in the navigation bar, you can configure SNTP.

**Basic Setting**  
**Advanced Application**  
**Management**

- VLAN
- MAC Address Forwarding
- Spanning Tree Protocol
- ERPS Protocol
- EAPS Protocol
- VRRP Protocol
- Layer 2 Tunneling Protocol
- PPPOE IA
- Bandwidth Control
- Broadcast Storm Control
- Mirroring
- Link Aggregation
- Port Security
- POE Settings
- Classifier
- Policy Rule
- Queueing Method
- Multicast
- IPv6 Multicast
- Dos attack protect
- DHCP Snooping Setting
- SNTP Setting**
- QinQ
- AAA

**SNTP Setup**

SNTP Client Enable

SNTP Client Mode broadcast ▾

SNTP Client Poll Interval 1000 (64~1024)

SNTP Client Retransmit Times 3 (1~10)

SNTP Client Retransmit Interval 30 (3~30)

SNTP Server IP Address 0.0.0.0 (X.X.X.X)

Apply Refresh

Valid Server List

Server IP  Wildcard

No Valid server configured.

Add Del DelAll

### 【Parameter Description】

Parameter	Description
SNTP Client Enable	Enable or disable SNTP Client
SNTP Client Mode	SNTP Client Mode: broadcast, anycast multicast unicast
SNTP Client Poll Interval	It's interval that SNTP Client sends requests to SNTP Server
SNTP Client Retransmit Times	If SNTP Client does not receive a response within a certain period of time after sending a request, it will resend the request until the number of retransmissions exceeds the set value
SNTP Client Retransmit Interval	It's interval that SNTP Client resends requests to SNTP Server
SNTP Server IP Address	Set SNTP Server IP Address
Valid Server List Server IP	SNTP only receives the messages from Valid Server List Server IP configured

### 【Instructions】

SNTP Client receives and transmits messages from any SNTP Server when work mode of SNTP Client is broadcast or multicast. Local time cannot be synchronized to standard time if there is a malicious attack server (which provides incorrect time)

### 【Configuration Example】

**SNTP Setup**

SNTP Client Enable	<input checked="" type="checkbox"/>	
SNTP Client Mode	broadcast	
SNTP Client Poll Interval	1000	(64-1024)
SNTP Client Retransmit Times	3	(1-10)
SNTP Client Retransmit Interval	30	(3-30)
SNTP Server IP Address	192.168.1.99	(X.X.X.X)

---

Valid Server List

Server IP	Wildcard
192.168.1.99	

No Valid server configured.

### 6.2.23 QinQ

Selecting "**Advanced Application>QinQ**", in the navigation bar, you can configure QinQ.

**Basic Setting** | **QinQ** | [Set Flexible QinQ](#)

Set Up QinQ:

Active

Port	QinQ	Port Mode
*	<input type="checkbox"/>	uplink
e0/0/1	<input type="checkbox"/>	uplink
e0/0/2	<input type="checkbox"/>	uplink
e0/0/3	<input type="checkbox"/>	uplink
e0/0/4	<input type="checkbox"/>	uplink
e0/0/5	<input type="checkbox"/>	uplink
e0/0/6	<input type="checkbox"/>	uplink
e0/0/7	<input type="checkbox"/>	uplink
e0/0/8	<input type="checkbox"/>	uplink
e0/0/9	<input type="checkbox"/>	uplink
e0/0/10	<input type="checkbox"/>	uplink
e0/0/11	<input type="checkbox"/>	uplink
e0/0/12	<input type="checkbox"/>	uplink
e0/0/13	<input type="checkbox"/>	uplink
e0/0/14	<input type="checkbox"/>	uplink
e0/0/15	<input type="checkbox"/>	uplink
e0/0/16	<input type="checkbox"/>	uplink
e0/0/17	<input type="checkbox"/>	uplink
e0/0/18	<input type="checkbox"/>	uplink
e0/0/19	<input type="checkbox"/>	uplink
e0/0/20	<input type="checkbox"/>	uplink
e0/0/21	<input type="checkbox"/>	uplink
e0/0/22	<input type="checkbox"/>	uplink
e0/0/23	<input type="checkbox"/>	uplink

### 6.2.23.1 Set Up QinQ

Selecting "**Advanced Application>QinQ>Set up QinQ**", in the navigation bar, you can configure QinQ.

**QinQ** [Set Flexible QinQ](#)  
Set Up QinQ:

Active

Port	QinQ	Port Mode
*	<input type="checkbox"/>	uplink ▼
e0/0/1	<input type="checkbox"/>	uplink ▼
e0/0/2	<input type="checkbox"/>	uplink ▼
e0/0/3	<input type="checkbox"/>	uplink ▼
e0/0/4	<input type="checkbox"/>	uplink ▼
e0/0/5	<input type="checkbox"/>	uplink ▼
e0/0/6	<input type="checkbox"/>	uplink ▼
e0/0/7	<input type="checkbox"/>	uplink ▼
e0/0/8	<input type="checkbox"/>	uplink ▼
e0/0/9	<input type="checkbox"/>	uplink ▼
e0/0/10	<input type="checkbox"/>	uplink ▼
e0/0/11	<input type="checkbox"/>	uplink ▼
e0/0/12	<input type="checkbox"/>	uplink ▼
e0/0/13	<input type="checkbox"/>	uplink ▼
e0/0/14	<input type="checkbox"/>	uplink ▼
e0/0/15	<input type="checkbox"/>	uplink ▼
e0/0/16	<input type="checkbox"/>	uplink ▼
e0/0/17	<input type="checkbox"/>	uplink ▼
e0/0/18	<input type="checkbox"/>	uplink ▼
e0/0/19	<input type="checkbox"/>	uplink ▼
e0/0/20	<input type="checkbox"/>	uplink ▼
e0/0/21	<input type="checkbox"/>	uplink ▼
e0/0/22	<input type="checkbox"/>	uplink ▼
e0/0/23	<input type="checkbox"/>	uplink ▼

#### 【Parameter Description】

Parameter	Description
Active	Enable or disable global QinQ
QinQ	Enable or disable QinQ of ports
Port Mode	Port Mode: uplink, customer

### 【Configuration Example】

**QinQ** [Set Flexible QinQ](#)  
Set Up QinQ:

Active

Port	QinQ	Port Mode
*	<input type="checkbox"/>	uplink
e0/0/1	<input checked="" type="checkbox"/>	uplink

#### 6.2.23.2 Flesible QinQ

Selecting "**Advanced Application>QinQ>Flesible QinQ**", in the navigation bar, you can configure Flesible QinQ.

**Flesible QinQ** [Set Static QinQ](#)  
Set Up:

Port ID	<input type="text"/>
Start VLAN	<input type="text"/>
End VLAN	<input type="text"/>
Target VLAN	<input type="text"/>

List:

Port	Start VLAN	End VLAN	TargetVLAN	Delete
------	------------	----------	------------	--------

### 【Configuration Example】

**Flexible QinQ** [Set Static QinQ](#)

Set Up:

Port ID	e0/0/1
Start VLAN	20
End VLAN	60
Target VLAN	1000

## 6.2.24 AAA

Selecting "**Advanced Application>AAA**", in the navigation bar, you can configure AAA.

**802.1x** [AAA](#) [MUSER](#)

EAP Forwarding Mode: eap-finish  
 Quiet Period: 0 seconds(0-600)

Port	Active	Port Control	Reauthentication	Reauthentication Timer	Max User(s)
*	disable	auto	Off	seconds	
e0/0/1	disable	auto	Off	3600 seconds	100
e0/0/2	disable	auto	Off	3600 seconds	100
e0/0/3	disable	auto	Off	3600 seconds	100
e0/0/4	disable	auto	Off	3600 seconds	100
e0/0/5	disable	auto	Off	3600 seconds	100
e0/0/6	disable	auto	Off	3600 seconds	100
e0/0/7	disable	auto	Off	3600 seconds	100
e0/0/8	disable	auto	Off	3600 seconds	100
e0/0/9	disable	auto	Off	3600 seconds	100
e0/0/10	disable	auto	Off	3600 seconds	100
e0/0/11	disable	auto	Off	3600 seconds	100
e0/0/12	disable	auto	Off	3600 seconds	100
e0/0/13	disable	auto	Off	3600 seconds	100
e0/0/14	disable	auto	Off	3600 seconds	100
e0/0/15	disable	auto	Off	3600 seconds	100
e0/0/16	disable	auto	Off	3600 seconds	100
e0/0/17	disable	auto	Off	3600 seconds	100
e0/0/18	disable	auto	Off	3600 seconds	100
e0/0/19	disable	auto	Off	3600 seconds	100
e0/0/20	disable	auto	Off	3600 seconds	100

### 6.2.24.1 802.1x

Selecting "**Advanced Application>AAA>802.1x**", in the navigation bar, you can configure 802.1x.

EAP Forwarding Mode: eap-finish  
 Quiet Period: 0 seconds(0-600)

Port	Active	Port Control	Reauthentication	Reauthentication Timer		Max User(s)
*	disable	auto	Off		seconds	
e0/0/1	disable	auto	Off	3600	seconds	100
e0/0/2	disable	auto	Off	3600	seconds	100
e0/0/3	disable	auto	Off	3600	seconds	100
e0/0/4	disable	auto	Off	3600	seconds	100
e0/0/5	disable	auto	Off	3600	seconds	100
e0/0/6	disable	auto	Off	3600	seconds	100
e0/0/7	disable	auto	Off	3600	seconds	100
e0/0/8	disable	auto	Off	3600	seconds	100
e0/0/9	disable	auto	Off	3600	seconds	100
e0/0/10	disable	auto	Off	3600	seconds	100
e0/0/11	disable	auto	Off	3600	seconds	100
e0/0/12	disable	auto	Off	3600	seconds	100
e0/0/13	disable	auto	Off	3600	seconds	100
e0/0/14	disable	auto	Off	3600	seconds	100
e0/0/15	disable	auto	Off	3600	seconds	100
e0/0/16	disable	auto	Off	3600	seconds	100
e0/0/17	disable	auto	Off	3600	seconds	100
e0/0/18	disable	auto	Off	3600	seconds	100
e0/0/19	disable	auto	Off	3600	seconds	100
e0/0/20	disable	auto	Off	3600	seconds	100

【Parameter Description】

Parameter	Description
EAP Forwarding Mode	EAP Forwarding Mode : eap-finish, Eap-tansfer
Quiet Period	If the same user fails to log in more than the allowed value, he or she will not be allowed to try to log in at a certain time
Active	Active: disable portbased(multi) portbased(single) macbased
Port Control	Port Control: auto forceauthorized forceunauthorized
Reauthentication	After user authentication is passed, the port can be configured to reauthenticate or periodically re-authenticate
Reauthentication Timer	Time range of Reauthentication Timer: 10-3600 seconds
Max user(s)	The maximum number of users: 1-100

### 【Configuration Example】

802.1x AAA [MUSER](#)

EAP Forwarding Mode: eap-finish

Quiet Period: 0 seconds(0-600)

Port	Active	Port Control	Reauthentication	Reauthentication Timer	Max User(s)
*	disable	auto	Off	seconds	
e0/0/1	disable	auto	Off	3600 seconds	100

### 6.2.24.2 Radius Domain

Selecting "**Advanced Application>AAA>Radius Domain**", in the navigation bar, you can configure Radius Domain.

[Domain](#)      [802.1x](#)      [MUSER](#)      [Radius](#)      [TACACS+](#)

Radius Domain:

Active	<input type="checkbox"/>
Domain Name	<input type="text"/>
Radius Service Name	<input type="text"/>
Force Max Number	<input checked="" type="radio"/> Disable <input type="radio"/> 1 (1-640)

Domain Name	Radius Service Name	Active	Delete

### 【Parameter Description】

Parameter	Description
Active	Enable or disable radius domain
Domain Name	Set domain name
Radius Server Name	Set Radius Server name
Force Max Number	Maximum number of user connections range: 1-640

### 【Instructions】

It needs to provide user name and password when the client is authenticated. The user name information generally includes the ISP information of user, domain and the ISP one-to-one correspondence, the main information domain is the domain of the user is authenticated and accounted by which RADIUS server.

### 6.2.24.3 Remote Authentication

Selecting "**Advanced Application>AAA>Remote Authentication**", in the navigation bar, you can configure Remote Authentication.

[Remote Authentication](#)    [802.1x](#)    [AAA](#)    [Radius](#)    [TACACS+](#)

Authentication Mode:

**【Parameter Description】**

Parameter	Description
Authentication Mode	Authentication Mode: Local, Radius, Tacacs+

**6.2.24.4 TACACS+ Server Setup**

Selecting "**Advanced Application>AAA>TACACS+ Server Setup**", in the navigation bar, you can configure TACACS+ Server Setup.

[TACACS+ Server Setup](#)    [AAA](#)    [MUSER](#)

Authentication Server

Authentication Type:

Encrypt Key:

Preemption Time:  min (0-1440)

Index	IP Address	TCP Port	Shared Secret	Delete
1	0.0.0.0	49		<input type="checkbox"/>
2	0.0.0.0	49		<input type="checkbox"/>

**【Parameter Description】**

Parameter	Description
Authentication Type	Authentication Mode: ascii, Chap, pap
Preemption Time	The time range of Preemption Time: 0-1440 minutes

### 6.2.24.5 Radius Server Setup

Selecting "**Advanced Application>AAA>Radius Server Setup**", in the navigation bar, you can configure Radius Server Setup.

**RADIUS Server Setup** AAA MUSER

8021P Priority	<input type="checkbox"/>
H3C Cams	<input type="checkbox"/>
Bandwidth Limit	<input type="checkbox"/>

#### Radius Host:

Host Name	<input type="text"/>
Preemption Time	<input type="text" value="0"/> min (0-1440)

Server	Index	IP Address	UDP Port	Shared Secret
Authentication Server	1	<input type="text" value="0.0.0.0"/>	<input type="text" value="1812"/>	<input type="text" value="Switch"/>
	2	<input type="text" value="0.0.0.0"/>	<input type="text" value="1812"/>	<input type="text"/>
Accounting Server	1	<input type="text" value="0.0.0.0"/>	<input type="text" value="1813"/>	<input type="text" value="Switch"/>
	2	<input type="text" value="0.0.0.0"/>	<input type="text" value="1813"/>	<input type="text"/>

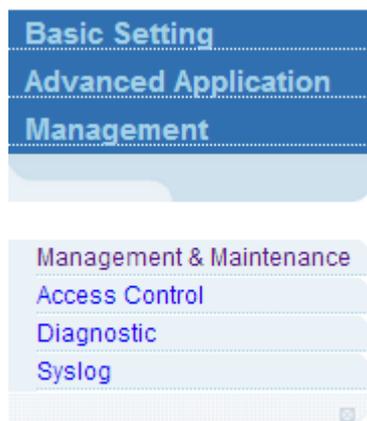
Host	Authentication IP Address	Accounting IP Address	Delete

## 【Parameter Description】

Parameter	Description
8021P Priority	After this function is turned on, if the user authentication is pass, it will modify the PVID of the user's port.
H3C Cams	In this feature, you can configure the version information of transmitting clients to the radius server through the radius attribute client-version.
Bandwidth limit	After this function is turned on, if the user authentication is pass, it will modify the Bandwidth of the user's port.

## 6.3 Management

Choose Management, and the following page appears. There are "**Management & Maintenance**", "**Access Control**", "**Diagnostic**", "**Syslog**", configuration web pages.



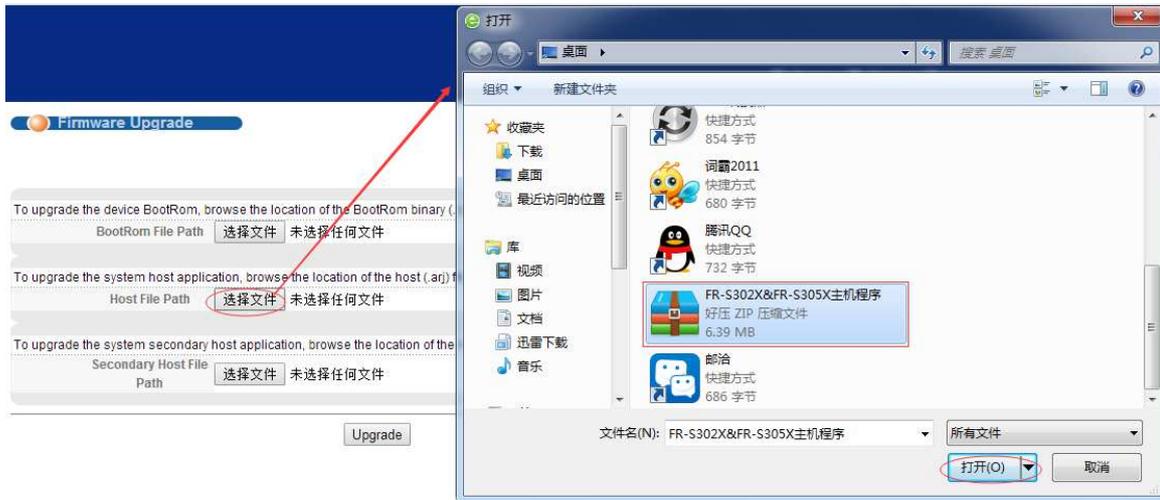
### 6.3.1 Management & Maintenance

Selecting "**Management**> **Management & Maintenance**", in the navigation bar, you can Upgrade Firmware , Restart System and Maintenance switch.



## 【Configuration Example】

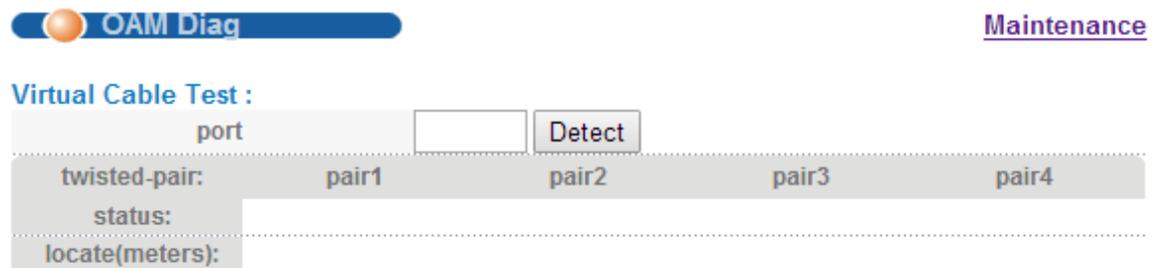
### 1. Firmware Upgrade



### 2. Restart system. Restart type: Restart, Restart with Factory Defaults.



### 3. OAM Diag, Virtual cable can be tested.



## 6.3.2 Access Control

Selecting "**Management**> **Access Control**", in the navigation bar, you can set

## SNMP and Logins.

The screenshot shows a navigation menu on the left with the following items: Basic Setting, Advanced Application, Management, Management & Maintenance, Access Control (highlighted with a red circle), Diagnostic, and Syslog. On the right, the 'Access Control' section is active, displaying a table with two rows: 'SNMP' with a 'Click Here' link, and 'Logins' with a 'Click Here' link.

### 6.3.2.1 SNMP

Selecting "**Management> Access Control>SNMP**", in the navigation bar, you can configure SNMP.

The screenshot shows the 'SNMP' configuration page. The 'General Setting' section includes a 'Community Name' text input field and an 'Access privilege' dropdown menu set to 'Read-write'. The 'Trap Destination' section contains a table with four columns: Version, IP, Port, and Username. Below the table are 'Apply' and 'Cancel' buttons.

Version	IP	Port	Username
v2c ▼	0.0.0.0	162	public
v2c ▼	0.0.0.0	162	public
v2c ▼	0.0.0.0	162	public
v2c ▼	0.0.0.0	162	public

#### 【Parameter Description】

Parameter	Description
Community Name	Community string, is equal to the NMS and Snmp agent communication between the password
Access privilege	Read-only: specify the NMS (Snmp host) of MIB variables can only be read, cannot be modified Read- write: specify the NMS (Snmp host) of MIB variables can only read, can also be modified
Version	Set version: v1, v2c, v3
IP	Set the IP address of the trap host

**【Configuration Example】**

Such as: Add a group name public community, access to Read-Write. Set host 192.168.1.100 to receive trap messages. The specified version is v2c.

**SNMP** [Access Control](#) [User](#)

**General Setting**

Community Name	public
Access privilege	Read-write ▼

**Trap Destination**

Version	IP	Port	Username
v2c ▼	192.168.1.100	162	public
v2c ▼	0.0.0.0	162	public
v2c ▼	0.0.0.0	162	public
v2c ▼	0.0.0.0	162	public

**6.3.2.2 User Information**

Selecting "**Management> Access Control>User Information**", in the navigation bar, you can add user, set Security Level, Authentication, Privacy, Group, Password.

**User Information** [SNMP Setting](#)

Username	<input type="text"/>
Security Level	noauth ▼
Authentication	MD5 ▼
Privacy	DES ▼
Group	initial ▼
Password	<input type="text"/>
Password	<input type="text"/>

Index	Username	SecurityLevel	Authentication	Privacy	Group	Delete
1	initialmd5	pri	MD5	DES	initial	<input type="checkbox"/>
2	initialsha	pri	SHA	DES	initial	<input type="checkbox"/>
3	initialnone	noauth	noauth	nopri	initial	<input type="checkbox"/>

### 【Parameter Description】

Parameter	Description
Username	Snmp username
Security Level	noauth auth pri
Authentication	MD5 SHA
Privacy	DES Privacy
Group	User group name
Password	Encrypted password

### 【Configuration Example】

Such as: Add group initial, add username user1.

The screenshot shows a configuration window titled "User Information" with a "SNMP Setting" link. The form contains the following fields:

- Username: user1
- Security Level: noauth
- Authentication: MD5
- Privacy: DES
- Group: initial
- Password: admin
- Password: admin

At the bottom, there are three buttons: "Add" (circled in red), "Cancel", and "Clear".

### 6.3.2.3 Logins

Selecting "**Management>Access Control>Logins**", in the navigation bar, you can modify admin password, configurable ordinary users.

**Logins** [Access Control](#)

**Edit admin**

Old Password (1-16 characters)	<input type="text"/>	
New Password (1-16 characters)	<input type="text"/>	
Retype to confirm	<input type="text"/>	
User privilege (0-1:Normal 2-15:Administrator)	15 Administrator	

Please record your new password whenever you change it. The system will lock you out if you have forgotten your password.

**Edit Other Logins**

Login	User Name	New Password	Retype to confirm	User privilege
1				0 Normal ▼
2				0 Normal ▼
3				0 Normal ▼
4				0 Normal ▼
5				0 Normal ▼
6				0 Normal ▼
7				0 Normal ▼

**【Parameter Description】**

Parameter	Description
User privilege	0-1: Normal 2-15: administrator

**【Configuration Example】**

**Logins** [Access Control](#)

**Edit admin**

Old Password (1-16 characters)	.....	
New Password (1-16 characters)	....	
Retype to confirm	....	
User privilege (0-1:Normal 2-15:Administrator)	15 Administrator	

### Edit Other Logins

Login	User Name	New Password	Retype to confirm	User privilege
1	anne	*****	*****	0 Normal ▼
2				0 Normal ▼
3				0 Normal ▼
4				0 Normal ▼
5				0 Normal ▼
6				0 Normal ▼
7				0 Normal ▼
8				0 Normal ▼
9				0 Normal ▼
10				0 Normal ▼
11				0 Normal ▼
12				0 Normal ▼
13				0 Normal ▼
14				0 Normal ▼
15				0 Normal ▼

### 6.3.3 Diagnostic

Selecting "**Management > Diagnostic**", in the navigation bar, you can Display or Clear System Log.

The screenshot shows a web interface for system configuration. On the left, a navigation menu is visible with the following items: 'Basic Setting', 'Advanced Application', 'Management', 'Management & Maintenance', 'Access Control', 'Diagnostic' (circled in red), and 'Syslog'. The main content area is titled 'Diagnostic' and contains a large empty box with '- Info -' at the top. At the bottom of the page, there are three buttons: 'System Log', 'Display', and 'Clear'.

#### 【Configuration Example】

Such as: Display System Log.

**Diagnostic**

```

2014/01/01 02:22:35: %OAM-5-LOGIN: The remote client
192.168.1.100 (admin) has logged in at web 1.
2014/01/01 02:22:28: %OAM-5-LOGOUT: The remote client
192.168.1.100 (admin) has logged out at web 1.
2014/01/01 02:21:47: %OAM-5-LOGIN: The remote client
192.168.1.100 (admin) has logged in at web 1.
2014/01/01 02:21:42: %OAM-5-LOGOUT: The remote client
192.168.1.100 (admin) has logged out at web 1.
2014/01/01 02:14:01: %OAM-5-LOGIN: The remote client
192.168.1.100 (admin) has logged in at web 1.
2014/01/01 02:13:52: %OAM-5-LOGOUT: The remote client
192.168.1.100 (admin) has logged out at web 1.
2014/01/01 02:11:40: %OAM-5-LOGIN: The remote client
192.168.1.100 (admin) has logged in at web 1.
2014/01/01 02:11:32: %OAM-5-LOGOUT: The remote client

```

System Log

### 6.3.4 Syslog

Selecting "**Management> Syslog**", in the navigation bar, you can configure syslog.

**Basic Setting** | **Syslog Setup** | [Syslog Server Setup](#)

Syslog  Active

Logging type	Active	Facility
System	<input type="checkbox"/>	local use 7

#### 6.3.4.1 Syslog Setup

Selecting "**Management>Syslog>Syslog Setup**", in the navigation bar, you can start the logging function globally and the logging function of the corresponding module.

Syslog  Active

Logging type	Active	Facility
System	<input type="checkbox"/>	local use 7 ▼

**【Parameter Description】**

Parameter	Description
Facility	local use 0-7
	kernel
	userlevel
	mail
	system
	security_1-2
	sysogd
	lineprinter
	Networknews
	uucp
	clock_1-2
	ftp
	logaudit
	logalert

**【Configuration Example】**

Such as:

**Syslog Setup** [Syslog Server Setup](#)

Syslog Active

---

Logging type Active Facility

System  local use 7 ▼

---

### 6.3.4.2 Syslog Server Setup

Selecting "**Management>Syslog>Syslog Server Setup**", in the navigation bar, you can set syslog server.

**Syslog Server Setup** [Syslog Setup](#)

Active

Server Address

Log Level

---

Index	Active	IP Address	Log Level	Delete

---

#### 【Parameter Description】

Parameter	Description
Server Address	Syslog Server Address
Log Level	Level 0 Level 0-1 Level 0-2 Level 0-3 Level 0-4 Level 0-5 Level 0-6 Level 0-7

### 【Instructions】

Open the log switch, set up the syslog server, and the system log will be automatically pushed to the server.

### 【Configuration Example】

Such as: 1)set server address is 192.168.1.100.

#### Syslog Server Setup [Syslog Setup](#)

Active	<input checked="" type="checkbox"/>
Server Address	192.168.1.100
Log Level	Level 0 ▼

Index	Active	IP Address	Log Level	Delete
<a href="#">1</a>	Yes	192.168.1.100	0	<input type="checkbox"/>

## Appendix: Connectors and Connection Media

### 1000BASE-T/100BASE-TX/10BASE-T Ports

The 1000BASE-T/100BASE-TX/10BASE-T is a port that supports adaptation of three rates, and automatic MDI/MDIX Crossover at these three rates.

The 1000BASE-T complies with IEEE 802.3ab, and uses the cable of 100-ohm Category-5 or Supper Category-5 UTP or STP, which can be up to 100 m.

The 1000BASE-T port uses four pairs of wires for transmission, all of which must be connected. Figure A-1 shows the connections of the twisted pairs used by the 1000BASE-T port.

Figure A-1 Four Twisted Pairs of the 100BASE-T

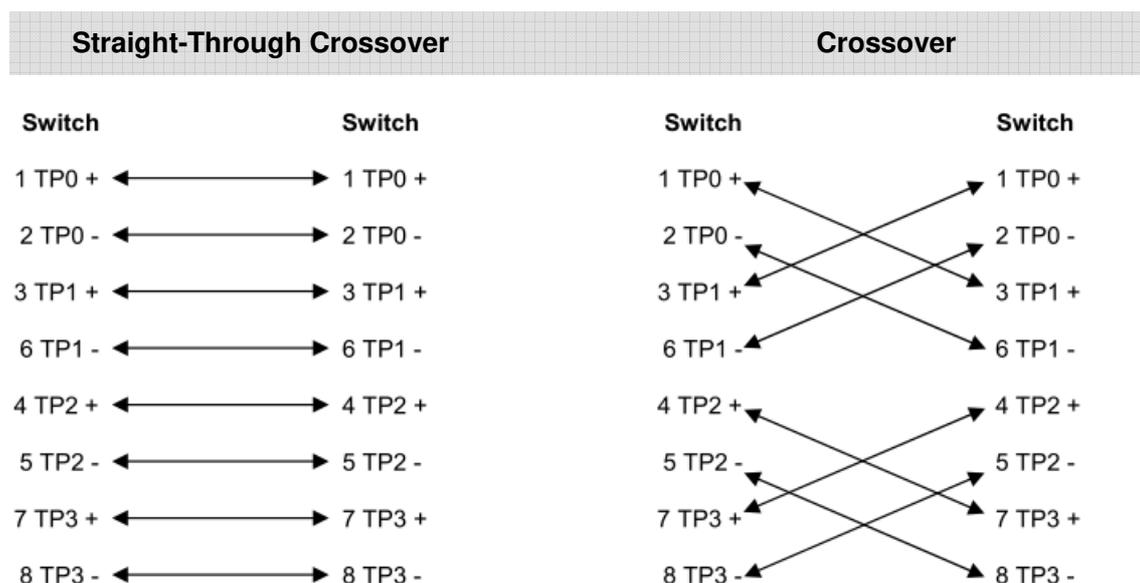


Figure A-1

In addition to the above cables, the 100BASE-TX/10BASE-T can also use 100-ohm Category-3, 4, 5 cables for 10 Mbps, and 100-ohm Category-5 cables for 100 Mbps, both of which can be up to 100 m. Figure A-2 shows the pinouts of the 100BASE-TX/10BASE-T.

Figure A-2 Pinouts of the 100BASE-TX/10BASE-T

Pin	Socket	Plug
1	Input Receive Data+	Output Transmit Data+
2	Input Receive Data-	Output Transmit Data-
3	Output Transmit Data+	Input Receive Data+
6	Output Transmit Data-	Input Receive Data-
4,5,7,8	Not Used	Not Used

Figure A-2

The following is 100BASE-TX / 10BASE-T feasible direct twisted pair and cross twisted pair connection.

Figure A-3.



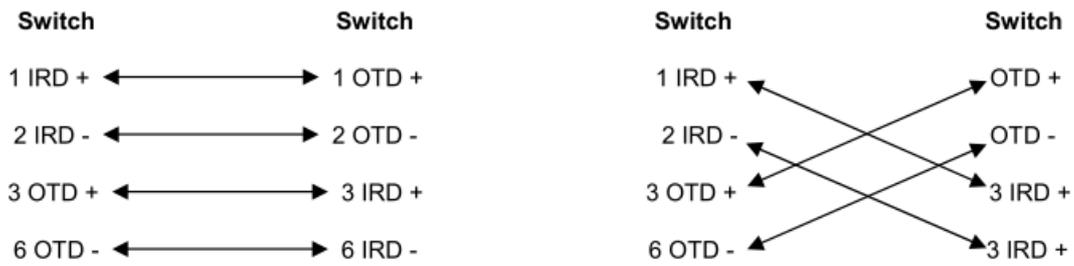
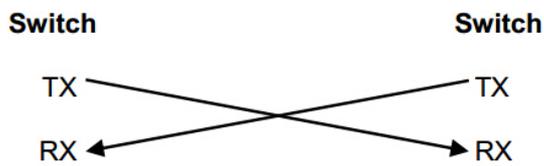


Figure A-3

### Optical Fiber Connection

For the optical fiber ports, select single-mode or multiple-mode optical fibers for connection according to the fiber module connected. The connection schematic diagram is shown in Figure A-4:

Figure A-4 Optical Fiber Connections



ALLNET GmbH Computersysteme declares that the device **ALL-SG8524M-10G** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link:  
[www.allnet.de/downloads.html](http://www.allnet.de/downloads.html)

ALLNET GmbH Computersysteme declares that the device **ALL-SG8548M-10G** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link:  
[www.allnet.de/downloads.html](http://www.allnet.de/downloads.html)

ALLNET GmbH Computersysteme declares that the device **ALL-SG8524PM-10G** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link:  
[www.allnet.de/downloads.html](http://www.allnet.de/downloads.html)

ALLNET GmbH Computersysteme declares that the device **ALL-SG8548PM-10G** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link:  
[www.allnet.de/downloads.html](http://www.allnet.de/downloads.html)

ALLNET GmbH Computersysteme  
Maistrasse 2  
82110 Germering

Tel.: +49 (0)89 894 222 - 22  
Fax: +49 (0)89 894 222 - 33  
Email: [info@allnet.de](mailto:info@allnet.de)

## **GPL Declaration for ALLNET products**

### **DISCLAIMER OF WARRANTY**

This Program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; version 2 of the License.

This Program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this Program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA.

The full text of the GNU General Public License version 2 is included with the software distribution in the file LICENSE.GPLv2

### **NO WARRANTY**

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

### **Written Offer for Source Code**

For binaries that you receive from ALLNET GmbH Computersysteme on physical media or within the download of the offered firmware that are licensed under any version of the GNU General Public License (GPL) or the GNU LGPL, you can receive a complete machine-readable copy of the source code by sending a written request to:

ALLNET GmbH Computersysteme  
Maistrasse 2  
82110 Germering

Your request should include: (i) the name of the covered binary, (ii) the version number of the ALLNET product containing the covered binary, (iii) your name, (iv) your company name (if applicable) and (v) your return mailing and email address (if available). We may charge you a nominal fee to cover the cost of the media and distribution. Your request must be sent within three (3) years of the date you received the GPL or LGPL covered code. For your convenience, some or all of the source code may also be found at:

<http://www.allnet.de/gpl.html>

**LICENSE.GPLv2**  
**GNU GENERAL PUBLIC LICENSE**

**Version 2, June 1991**

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

**Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

**GNU GENERAL PUBLIC LICENSE**

**TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the

Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language.

(Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
  - a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
  - b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
  - c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
  - b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
  - c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions

of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### **NO WARRANTY**

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD

THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## **END OF TERMS AND CONDITIONS**

### **How to Apply These Terms to Your New Programs**

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.> Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Also add information on how to contact you by electronic and paper mail. If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.

This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program  
'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989  
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

**LICENSE.LGPLv2.1**  
**GNU LESSER GENERAL PUBLIC LICENSE**  
**Version 2.1, February 1999**

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. [This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

**Preamble**

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have

is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

## **GNU LESSER GENERAL PUBLIC LICENSE**

### **TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or

translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
  - a) The modified work must itself be a software library.
  - b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
  - c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
  - d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a

work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

- 7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:
  - a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
  - b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- 8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- 9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the

Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

## **NO WARRANTY**

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## **END OF TERMS AND CONDITIONS**

### **How to Apply These Terms to Your New Libraries**

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.> Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990 Ty Coon, President of Vice

That's all there is to it!