

Lantech

Software Management Manual

Industrial 3/5 Switches



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Approved by Jacky Chou

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Applied Models

This manual applies to Lantech industrial 3/5 managed switches, except the following models: IPES-3208C, IES-3307C.

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Chapter 1 Web-Based Management

This section introduces the configuration and functions of the Web-Based management.

1.1 About Web-based Management

There is an embedded HTML web site residing in flash memory on CPU board of the switch, which offers advanced management features and allows users to manage the switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer.

The Web-Based Management supports Internet Explorer 6.0 or later version. And, it is applied for Java Applets for reducing network bandwidth consumption, enhance access speed and present an easy viewing screen.

1.2 Preparing for Web Management

Before using the web management, install the industrial switch on the network and make sure that any one of the PCs on the network can connect with the industrial switch through the web browser. The industrial switch default value of IP, subnet mask, username and password are listed as below:

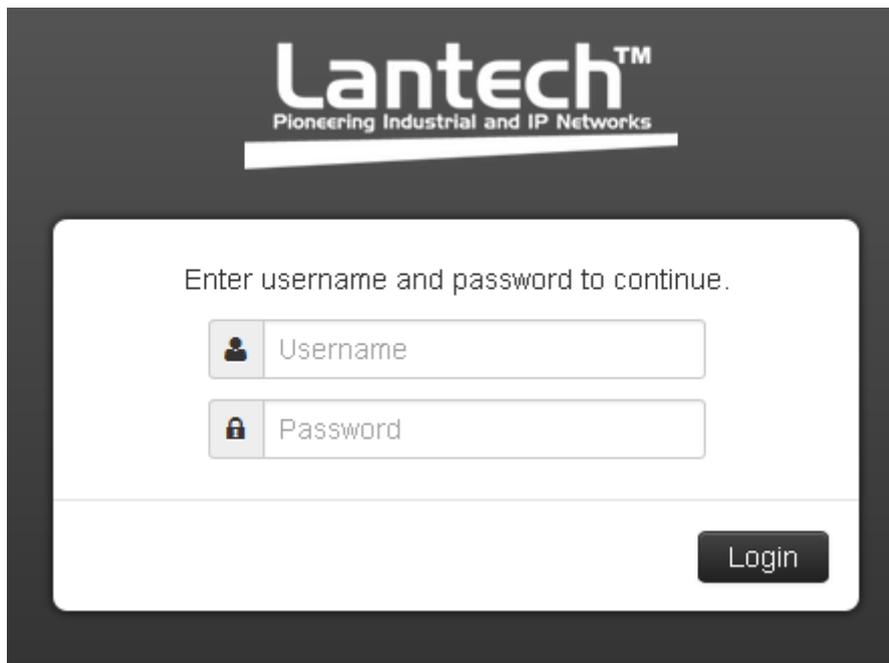
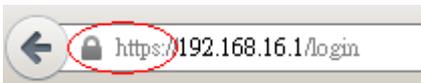
- IP Address: **192.168.16.1**
- Subnet Mask: **255.255.255.0**
- Default Gateway: **192.168.16.254**
- User Name: **admin**
- Password: **admin**

1.3 System Login

1. Launch the Internet Explorer on the PC (the switch also supports Mozilla and Chrome browser).
2. Key in "http:// "+" the IP address of the switch", and then Press "**Enter**".



3. The login screen will appear right after
4. Key in the user name and password. The default user name and password are the same as 'admin'.
5. Press **Enter** or click the **OK** button, and then the home screen of the Web-based management appears.
6. The switch also supports SSL security login, if you need SSL to protect your access account of switch, please key in "https://" + " the IP address of switch ", and press "Enter"



Login screen

1.4 System

1.4.1. System Identification Configuration

Name:

An administratively assigned name for this managed node. By convention, this is the node's fully-qualified domain name. A domain name is a text string drawn from the alphabet (A-Za-z), digits (0-9), minus sign (-). No space characters are permitted as part of a name. The first or last character must not be a minus sign. The allowed string length is 0 to 255.

Description:

Display the description of switch. The allowed string length is 0 to 255.

Location:

The physical location of this node(e.g., telephone closet, 3rd floor). The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 32 to 126.

Contact:

The textual identification of the contact person for this managed node, together with information on how to contact this person. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 32 to 126.

Auto Logout Time:

Define how long the switch has not received any command from end user via web service, switch will cut off the session between web server with the client, 0 means disabling the auto logout service.

System Identification Configuration

Name:

Description:

Location:

Contact:

Auto Logout Time: minutes
0 means disabling auto logout

1.4.2. Switch Information

This function will show you the basic information of switch.

System Information

| Identification | |
|----------------|---------------|
| Name | The Switch |
| Description | Current used |
| Location | Taiwan Taipei |
| Contact | Engineer |

| Information | |
|----------------------|---|
| Device Time | 2013年11月5日 下午 04:38:22 |
| Up Time | 2263 |
| Software Version | V3.34 |
| Kernel Version | 57292a0b |
| MAC Address | 28:60:46:a0:04:f5 |
| Hardware Model | IES-5408DFT |
| Hardware Description | 2 10/100/1000T +2 100/1000 SFP + 8 10/100TX L2+ Industrial Managed Switch |

1.4.3. IP configuration

DHCP client:

Set the switch as DHCP client, it will get the IP address from DHCP server.

IP Address:

Input the IP address of switch

IPV6 Address:

You can input the IP address of IPV6 standard of switch in here.

Network Mask:

The network mask of IP address.

Default Gateway:

The IP address of network gateway, if you need switch to connect with internet, please input correct IP address.

DNS Server IP:

The IP address of DNS server, if you need switch to enable internet service (like SNTP), please input correct IP address.

DHCP client:

IP Address:

IPV6 Address:

Network Mask:

Default Gateway:

DNS Server IP:

[Apply](#)

1.4.4. System Time

Time Zone:

Universal Time Coordinated. Set the switch location time zone. The following table lists the different location time zone for your reference.

| Local Time Zone | Conversion from UTC | Time at 12:00 UTC |
|---|---------------------|-------------------|
| November Time Zone | - 1 hour | 11am |
| Oscar Time Zone | -2 hours | 10 am |
| ADT - Atlantic Daylight | -3 hours | 9 am |
| AST - Atlantic Standard EDT - Eastern Daylight | -4 hours | 8 am |
| EST - Eastern Standard CDT - Central Daylight | -5 hours | 7 am |
| CST - Central Standard MDT - Mountain Daylight | -6 hours | 6 am |
| MST - Mountain | -7 hours | 5 am |

| | | |
|--|-----------|-------|
| Standard | | |
| PDT - Pacific Daylight | | |
| PST - Pacific Standard ADT - Alaskan Daylight | -8 hours | 4 am |
| ALA - Alaskan Standard | -9 hours | 3 am |
| HAW - Hawaiian Standard | -10 hours | 2 am |
| Nome, Alaska | -11 hours | 1 am |
| CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter | +1 hour | 1 pm |
| EET - Eastern European, USSR Zone 1 | +2 hours | 2 pm |
| BT - Baghdad, USSR Zone 2 | +3 hours | 3 pm |
| ZP4 - USSR Zone 3 | +4 hours | 4 pm |
| ZP5 - USSR Zone 4 | +5 hours | 5 pm |
| ZP6 - USSR Zone 5 | +6 hours | 6 pm |
| WAST - West Australian Standard | +7 hours | 7 pm |
| CCT - China Coast, USSR Zone 7 | +8 hours | 8 pm |
| JST - Japan Standard, USSR Zone 8 | +9 hours | 9 pm |
| EAST - East Australian | +10 hours | 10 pm |

| | | |
|--|-----------|----------|
| Standard GST Guam Standard, USSR Zone 9 | | |
| IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand | +12 hours | Midnight |

Clock Source:

You can set the time of switch manually or set SNTP server to let the switch synchro the time with SNTP server via internet.

SNTP server:

The IP address of SNTP server.

Time Zone:

Clock Source:

Device Time: 2013年05月31日 下午 11:59:20

NTP Server:

1.4.5. SNMP Configuration

Community

Agent version:

Choose the SNMP V1 or V2c or V3

String:

Set the community string of SNMP protocol with read only persmission or read/write permission.

| String | Permission | |
|---|---|---|
| public | Read Only | x |
| private | Read/Write | x |
| <input type="text" value="Community String"/> <small>Please enter a valid value.</small> | <input checked="" type="checkbox"/> Read Only | + |

Apply

TRAP

IP address:

The IP address of trap destination (usually will be the PC of manager).

Community:

The community string of SNMP trap.

Version:

Select the SNMP trap version.

| IP Address | Community | Version |
|---|-------------------------------------|---|
| <input type="text" value="IP address"/> | <input type="text" value="public"/> | <input type="text" value="v2c"/> v1 v2c |

V3 User

User name:

Set the user name.

Security Level:

Set up the access level, you can choose Authentication or Privacy or Both.

Authentication Protocol:

Set the authenticated way, the default value was MD5

Authentication Password:

Set the password of authentication.

Privacy protocol:

Set the security way, the default value was DES.

Privacy Password:

Set the password of Privacy.

SNMPV3 Auth/Priv User Accounts

| User Name | Security Level | Authentication Protocol | Authentication Password | Privacy Protocol | Privacy Password |
|-----------|----------------|-------------------------|-------------------------|------------------|------------------|
| admin64 | NoAuth, NoPriv | N/A | N/A | N/A | N/A |

1.4.6. Fault Relay Configuration

Set the condition to trigger Alarm Relay of switch.

Power Failure

When you connect both the PWR1 and PWR2 with switch, if one of them fail, the alarm relay will be triggered.

Port Link Down/Broken.

Choose the port which you want when the connection fail, the alarm relay will be triggered.

Fault Relay Configuration

| |
|--|
|  Power Failure |
| <input type="checkbox"/> Power 1 <input type="checkbox"/> Power 2 |

| |
|---|
|  Port Link Down/Broken |
| <input type="checkbox"/> Port 1 <input type="checkbox"/> Port 2 <input type="checkbox"/> Port 3 <input type="checkbox"/> Port 4 <input type="checkbox"/> Port 5 <input type="checkbox"/> Port 6 <input type="checkbox"/> Port 7 |
| <input type="checkbox"/> Port 8 <input type="checkbox"/> Port 9 <input type="checkbox"/> Port 10 <input type="checkbox"/> Port 11 <input type="checkbox"/> Port 12 |

Apply

1.4.7. Digital Input/Output

This device contains two digital outputs and two digital inputs. Outputs are open-collector transistor switches that may be controlled by the host computer. They provide messages, which can be applied to heaters, pumps, and other electrical equipment. The digital inputs may be read by the host computer and used to sense the state of a remote digital signal.

Digital Input

When First/Second Digital Input function is enabled, First Digital Input/Second Digital Input will then be available respectively. Digital Input: Choose the transition type to trigger DI0/DI1.

Low->High: Having focused this radio button, DI0/DI1 will only report the status when the external device's voltage changes from low to high.

High->Low: Having focused this radio button, DI0/DI1 will only report the status when the external device's voltage changes from high to low.

Event Description: Please fill in the description for the event.

Digital Output

When First/Second Digital Output function is enabled, First Digital Output/Second Digital Output will then be available respectively.

Action: Choose the output type of electrical signal.

Low->High: Having focused this radio button, DO0/DO1 will output an electrical signal of Low-to-High when the condition of the ticked checkbox is met (port/power failure occurs).

High->Low: Having focused this radio button, DO0/DO1 will output an electrical signal of Low-to-High when the condition of the ticked checkbox is met (port/power failure occurs).

Enable/Disable the Digital Input/Output

Digital Input/Output

Digital Input

DIN 1

Digital Output

DOUT 1

1.5 DHCP

Enable DHCP Server:

Enable the DHCP server function of switch

IP Range:

Define the IP range which will assigned to DHCP client from switch.

Subnet Mask:

Define the Subnet Mask which will be assigned to DHCP client.

Gateway:

Define the gateway which will be assigned to DHCP client.

DNS:

Define the DNS which will be assigned to DHCP client.

Lease Time:

Define the effective time of assigned IP address, the DHCP client will apply the IP again from DHCP server when the time is over.

| | |
|--------------------|---|
| Enable DHCP Server | <input checked="" type="checkbox"/> |
| IP Range | <input type="text" value="192.168.16.100"/> |
| | <input type="text" value="192.168.16.200"/> |
| Subnet Mask | <input type="text" value="255.255.255.0"/> |
| Gateway | <input type="text" value="192.168.16.254"/> |
| DNS | <input type="text" value="8.8.8.8"/> |
| Lease Time | <input type="text" value="86400"/> |

MAC-Based

Assign dedicated IP address to the client with dedicated MAC address via DHCP service.

DHCP Server

Basic **MAC-based** Option82 Port-based Status

| MAC Address | IP Address |
|-------------------|----------------|
| 28:60:46:A1:35:2c | 192.168.16.123 |

[Apply](#)

Option82

Assign dedicated IP address under DHCP option82 standard, to deployment this service, you need to assign one switch as option82 server and the other switches as DHCP relay.

Basic MAC-based **Option82** Port-based Status

| Remote ID | Circuit ID | IP Range | Netmask | Gateway | DNS |
|--------------|------------|------------------------------|---------|---------|-----|
| 2860461f2641 | 00010001 | Low IP Range Max IP Range | | | |

⚠ To distribute IP address via DHCP Option 82 service, there must be one stand alone switch acting as server while others being of relay agents role

Port-Based

Assign dedicated IP address to the client which is connected with dedicated switch port.

Basic MAC-based Option82 **Port-based** Status

| Port No. | Desired IP |
|----------|---|
| 1 | IPv4 Address <input type="checkbox"/> Do not offer IP |

Status

It will show you what IP address has been assigned to client.

Basic MAC-based Option82 Port-based **Status**

Clients

| Port No | MAC Address | IP Address | Name | Available Leased Time |
|---------|-------------|------------|------|-----------------------|
|---------|-------------|------------|------|-----------------------|

DHCP Snooping

Set dedicated port can forward all packets about DHCP service or not.

DHCP Snooping

Config **Info** Statistics

Enable DHCP Snooping

| Port No. | Mode |
|----------|-----------|
| 1 | Untrusted |
| 2 | Trusted |
| | Untrusted |

1.6 Event & Log

Logs

Login Boot DDM DIN Link Change Power Clear

| | | |
|--|-------------|--------------------------|
|  22nd, 9:56:02 am | Link Change | Phyport(7).linkChg: down |
|  22nd, 9:47:33 am | Link Change | Phyport(7).linkChg: up |
|  22nd, 9:47:33 am | Link Change | Phyport(2).linkChg: up |
|  22nd, 9:47:31 am | Boot | System Bootup |
|  22nd, 9:47:08 am | Link Change | Phyport(2).linkChg: up |
|  22nd, 9:46:59 am | Link Change | Phyport(2).linkChg: down |
|  22nd, 9:46:43 am | Link Change | Phyport(2).linkChg: up |
|  22nd, 9:46:41 am | Boot | System Bootup |
|  22nd, 9:45:21 am | Link Change | Phyport(2).linkChg: up |

1.6.1. View Logs

Logs

The action of the system log entry. The following action types are supported:

- <0> Login: User Login.
- <1> Boot: System Boot.
- <2> Din: Din Event is triggered.
- <3> Link Change: Link change.

<4> Power: Power conditions.

1.6.2.Events

Env Monitor Best **DOM Best**

Environment Monitoring Event

Enable EnvMon Events:

Voltage

0.00 V 20.00 V 50.00 V 100.0

Range: 30.00 V

Current

0.033 A 1.500 A

Range: 1.467 A

Power

1.0 W 29.8 W 50.0

Range: 28.8 W

Temperature

-50.0 °C -20.0 °C 89.0 °C 100.0 °C

Range: 89.0 °C

Apply

1.6.2.1. Environment Monitoring Event

You can set the trigger range of each event in here, for example, when you set the blue bar in the range from 20V to 50V, if the voltage of power input was over 50VDC or lower than the 20VDC, it will trigger the event system.

Notice: This function only works for the model which has built in environment Monitoring module.

SFP Digital Diagnostic Monitor Event

Enable DDM Events:

Temperature

-45.0 °C 90.0 °C

Range: 135.0 °C

Voltage

2.50 V 3.00 V 3.60 V 4.00 V

Range: 0.61 V

TX Bias

1.0 mA 25.0 mA 30.0 mA

Range: 24.0 mA

TX Power

-20.0 dBm -10.5 dBm -3.0 dBm 1.0 dBm

Range: 7.5 dBm

RX Power

-20.0 dBm -18.0 dBm -2.0 dBm 1.0 dBm

Range: 16.0 dBm

1.6.2.2. SFP Digital Diagnostic Monitor Event

You can set the trigger range of each SFP DDM event in here.

Notice: This function only works for the SFP module which DDM spec.

1.6.3.Actions

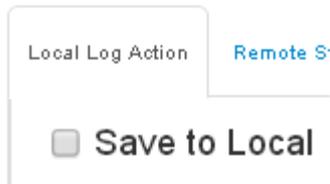
Actions

Local Log Action Remote SysLog Action Email Action SMS Action SNMP Trap Action DOut Action

Save to Local

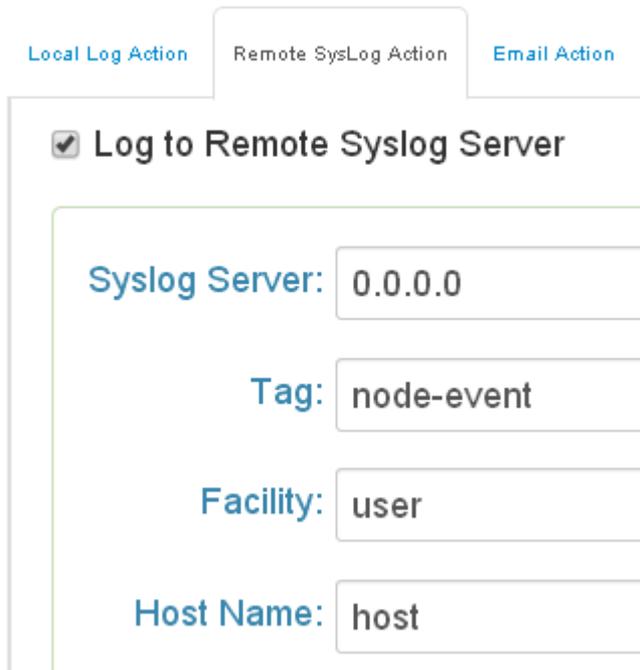
1.6.3.1. Local Log Action

Save to Local: Save log to local file



1.6.3.2. Remote Syslog Action

Log to Remote Syslog Server: Save log to Syslog Server



1.6.3.3. Email Action

Email Alert: Sent log via Email

Local Log Action Remote SysLog Action **Email Action** SMS Action SNMP Trap Action

Email Alert

Subject:

Cloud SMTP:

Receivers:

Please enter at least one receiver

1.6.3.4. SMS Action

SMS Alert: Sent log via SMS service.

(The user must let the switch connect with internet and define the SMS server then the user can use this function)

(Currently the SMS service was offered by Lantech in Taiwan.)

Local Log Action Remote SysLog Action Email Action **SMS Action** SNMP Trap Action

SMS Alert

The SMS alert service may charge usage fee in the future.

User ID:

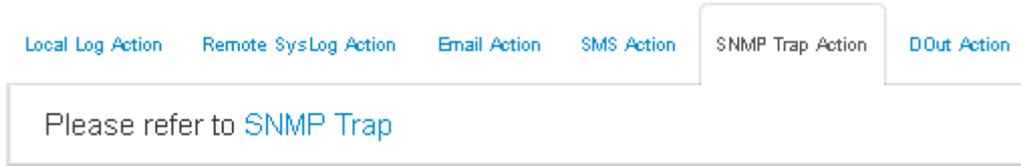
Password:

Sender Text:

Phone Numbers:

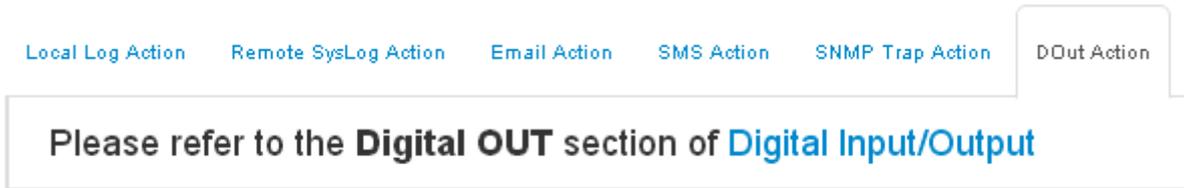
1.6.3.5. SNMP Trap Action

SNMP Trap Action: The setting page of this function will be redirect to SNMP TRAP.



1.6.3.6. SMS Action

DOUT Action: The setting page of this function will be redirect to Digital Input/Output.



1.6.4. Event Action Map

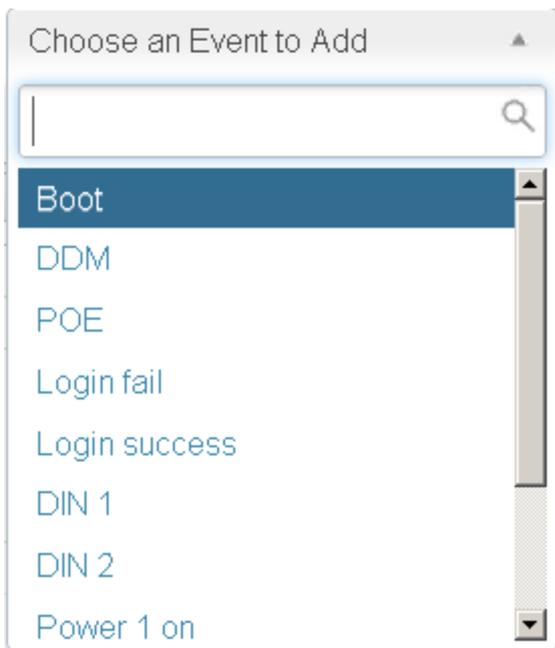
Event Action Map

Event Actions:

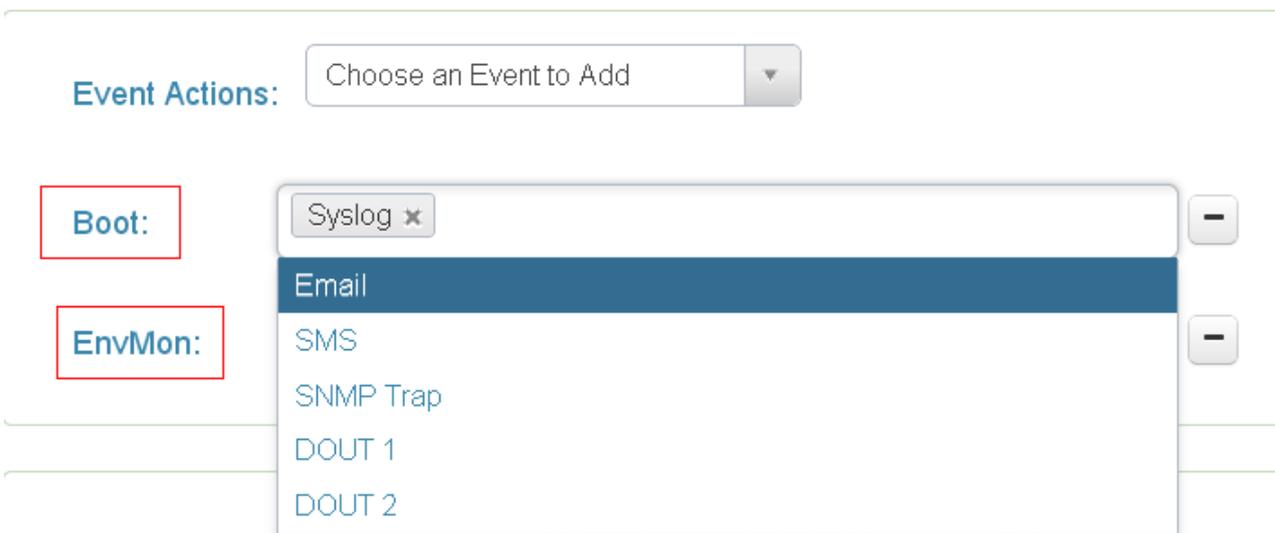
Event Actions for Link Change:

1.6.4.1. Event Actions:

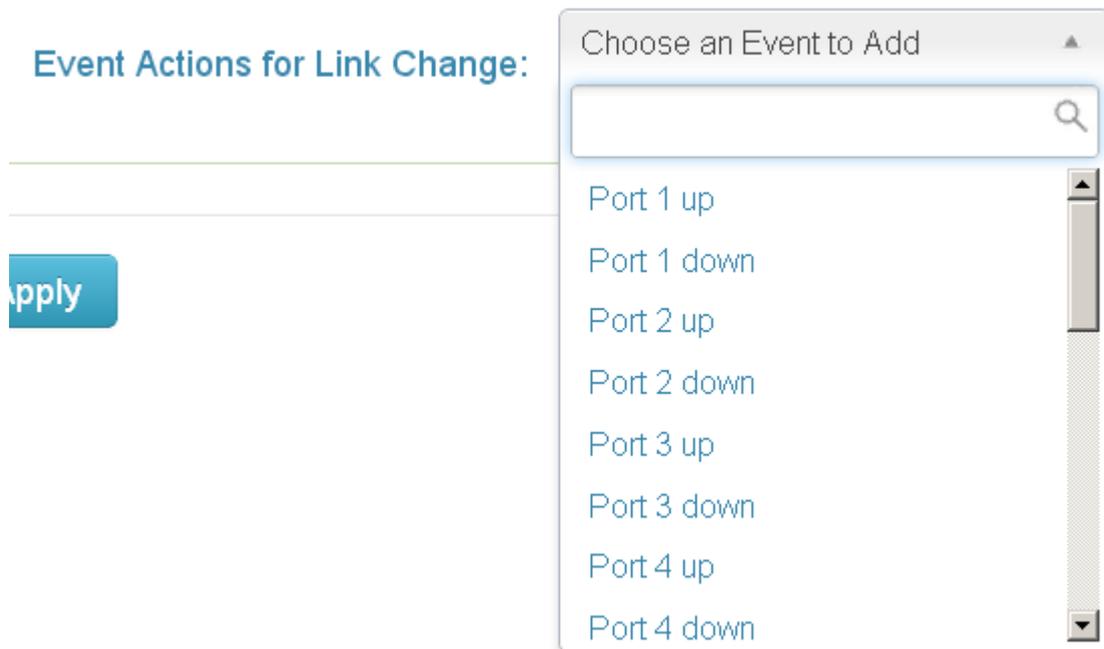
- A. Choose the event which you want to active



B. You will find the event which you select will be display as below, then choose forwarding method to define how to forward this event to manager side.



C. You can set the forwarding method of port break event in here.



1.7 Ports

Device Settings

| Port No. | Type | Description | Enabled | Flow Control | Speed |
|----------|-------|-------------|-------------------------------------|--------------------------|---------------------------------------|
| 1 | 100TX | Port 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Auto <input type="button" value="v"/> |
| 2 | 100TX | Port 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Auto <input type="button" value="v"/> |

1.7.1. Configuration

This page displays current port configurations. Ports can also be configured here.

The port settings relate to the currently selected stack unit, as reflected by the page header.

No:

This is the logical port number for this row.

Description:

Enter up to 47 characters to be descriptive name for identifies this port.

Enabled:

The port can be set to disable or enable mode. If the port setting is disable then will not receive or transmit any packet.

Flow Control:

set flow control function of the port.

Speed:

Selects any available link speed for the given switch port. Only speeds supported by the specific port is shown. Possible speeds are:

Disabled –

Disables the switch port operation.

Auto –

Let switch port auto negotiating speed with the link partner and selects the highest speed that is compatible with the link partner.

10Mbps HDX - Forces the cu port in 10Mbps half duplex mode.

10Mbps FDX - Forces the cu port in 10Mbps full duplex mode.

100Mbps HDX - Forces the cu port in 100Mbps half duplex mode.

100Mbps FDX - Forces the cu port in 100Mbps full duplex mode.

1Gbps FDX - Forces the cu port in 1Gbps full duplex mode.

Port Status

| Port No. | Type | Link | State | Speed | Flow Control |
|----------|-------|------|--------|----------|--------------|
| 1 | 100TX | up | Enable | 100 Full | Disable |
| 2 | 100TX | down | Enable | N/A | N/A |

1.7.2. Status

Port No:

This is the logical port number for this row.

Type:

This is the logical port type.

Link Status:

The current link state is displayed graphically. Green indicates the link is up and red that it is down.

Speed:

Provides the current link speed of the port.

Port Statistic

Help Log Messages admin

| Port | Type | Link | State | Tx Good | Tx Bad | Rx Good | Rx Bad | Tx Abort | Collision | Drop | Rx BCAST | Rx MCAST | Tx MCAST |
|------|------|------|--------|---------|--------|---------|--------|----------|-----------|------|----------|----------|----------|
| 1 | DSFP | Down | Enable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | DSFP | Down | Enable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | DSFP | Down | Enable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | DSFP | Down | Enable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1.7.3. Statistics

Port:

The logical port for the settings contained in the same row.

Type:

Displays the current speed of connection to the port.

Link:

The status of linking - Up or Down.

State:

It's set by Port Control. When the state is disabled, the port will not transmit or receive any packet.

Tx Good Packet:

The counts of transmitting good packets via this port.

Tx Bad Packet:

The counts of transmitting bad packets (including undersize [less than 64 octets], oversize, CRC Align errors, fragments and jabbers packets) via this port.

Rx Good Packet:

The counts of receiving good packets via this port.

Rx Bad Packet:

The counts of receiving good packets (including undersize [less than 64 octets],

oversize, CRC error, fragments and jabbers) via this port.

Tx Abort Packet:

The aborted packet while transmitting.

Packet Collision:

The counts of collision packet.

Packet Dropped:

The counts of dropped packet.

Rx Bcast Packet:

The counts of broadcast packet.

Rx Mcast Packet:

The counts of multicast packet.

Port Mirroring

| Direction | Destination | Mirror From |
|-----------|-------------|--------------|
| RX | Port 1 | Choose ports |
| TX | Port 1 | Choose ports |

Apply

1.7.4. Mirroring

The Port mirroring is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That means traffic goes in or out monitored (source) ports will be duplicated into mirror (destination) port.

Destination Port: There is only one port can be selected to be destination (mirror) port for monitoring both RX and TX traffic which come from source port.

Source Port: The ports that user wants to monitor. All monitored port traffic will be copied to mirror (destination) port.

Rate Limiting

| Port | Ingress | Egress |
|------|--|---|
| 1 | <div style="display: flex; justify-content: space-between; border: 1px solid #ccc; padding: 2px;"> Unicast Multicast Broadcast </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <input style="width: 50px; text-align: right;" type="text" value="0"/> kbps 0% </div> | <input style="width: 50px; text-align: right;" type="text" value="0"/> kbps 0% |
| 2 | <div style="display: flex; justify-content: space-between; border: 1px solid #ccc; padding: 2px;"> Unicast Multicast Broadcast </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <input style="width: 50px; text-align: right;" type="text" value="0"/> kbps </div> | <input style="width: 50px; text-align: right;" type="text" value="0"/> kbps |

1.7.5. Rate Limiting

You can set up every port's bandwidth rate and frame limitation type.

Ingress Limit Frame type: select the frame type that wants to filter. The frame types have 4 options for selecting: All, broadcast/multicast/flooded unicast, broadcast/multicast, and broadcast only. These 4 types are only for ingress packet. The egress rate only supports all type packets.

Band Width: All the ports support port ingress and egress rate control. For example, assume port 1 is 10Mbps, users can set it's effective egress rate is 1Mbps, ingress rate is 500Kbps. The switch performs the ingress rate by packet counter to meet the specified rate

Ingress: Enter the port effective ingress rate(The default value is "0").

Egress: Enter the port effective egress rate(The default value is "0").

1.7.6. Loop Protection

Loop Protection

Config Status

Enable Loop Protection

Interval

Shutdown

[Apply](#)

This function can help you to protect the broadcast storm which generated by loop connection.

Interval(second): How often the switch will check the loop status of each port of switch.

Shutdown(second): How long the switch will block the port which has been detected as loop status.

1.8 Power over Ethernet

For non-48VDC input model with PoE budget limit, please set the PoE budget of each used port and set the idle port PoE budget “0” , otherwise, the PoE budget will be allocated 30W each port in port sequence that could cause the following ports not enough budget and shut down.

1.8.1.Configuration

| System | | | | |
|---|-------------------------------------|--------------------------|----------|---------------------------------------|
| Maximum Power Available: <input type="text" value="250"/> W | | | | |
| Ports | | | | |
| Port No. | Enabled | Scheduling | Priority | Power Limit(<= 36000) |
| 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 3 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 4 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 5 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 6 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 7 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |
| 8 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low | <input type="text" value="36000"/> mW |

Maximum Power Available:

This function can limit the total power consumption, please don't over 250W.

Port No.

The number of each PoE port

Enable

Enable/disable the PoE function of each PoE port

Priority

Set the priority of power supply, if the total power consumption of all PoE ports

was over the value of maximum power available, the switch will offer the power to the high priority PoE port and stop to supply power to the low priority PoE port.

Power Limit

Set the Maximum power of each PoE port

1.8.2. Status

| ⚡ System | | |
|-------------------|--------------|--------------|
| Power Consumption | Main Voltage | Main Current |
| 0W | 23.5V | 0.000A |

| ⚡ Ports | | | | | | | |
|----------|------|---------|------------------|--------------|-------------|-----------|------------------|
| Port No. | Link | State | Temperature (°C) | Current (mA) | Voltage (V) | Power (W) | Determined Class |
| 1 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 2 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 3 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 4 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 5 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 6 | Down | Unknown | 38 | 0 | 0 | 0 | None |
| 7 | Up | Unknown | 38 | 0 | 0 | 0 | None |
| 8 | Down | Unknown | 38 | 0 | 0 | 0 | None |

Power Consumption:

Total power consumption of all PoE ports

Main Voltage:

The output voltage of each PoE port.

Main Current

The output current of each PoE port.

Port No.

The number of each PoE port.

Link

The connection status of each PoE port.

State

The PoE status of the ending device.(Unknown means the ending device was none-PD device)

Temperature

Temperature of PoE chipset

Current

Output current of each PoE port

Voltage

Output Voltage of each PoE port

Power

Power consumption of each PoE port

Detection Class

The PoE class of each PD device which connect with switch.

1.8.3. Detection

Device Detection

| Ports | | | | | | | |
|-------|--------------------------|------------|-----------|------------|------------------|----------------|-------------|
| No. | Enabled | IP address | Interval | Retry Time | Failure Log | Failure Action | Reboot Time |
| 1 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 2 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 3 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 4 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 5 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 6 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 7 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |
| 8 | <input type="checkbox"/> | 0.0.0.0 | 30 sec(s) | 1 | error=0, total=0 | Nothing | 3 sec(s) |

No.

The number of PoE port

Enabled

Enable the PoE port with PoE detection function.

IP address

The IP address of the PD which connected with dedicated port.

Interval

How often the switch will ping the IP address of PD.

Retry Time

How many times of ping failure the switch will define the PD as failure.

Failure Log

Failure times of the PD detecting result.

Failure Action

When the switch judge the PD was fail, set the action of switch to reset the PD



Nothing: No action

Power Down: shutdown the power of the PoE port

Power On: keep the power on with the PoE port

Restart Forever: Reset the power of the PoE port contiously.

Restart Once: only reset once with the PoE Port.

Reboot time

After switch rebooting , the delay time of switch to enable the power of PoE .

1.8.4. Scheduling

| ⚙ Power Schedule | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Hour | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| Sunday | <input type="checkbox"/> |
| Monday | <input type="checkbox"/> |
| Tuesday | <input type="checkbox"/> |
| Wednesday | <input type="checkbox"/> |
| Thursday | <input type="checkbox"/> |
| Friday | <input type="checkbox"/> |
| Saturday | <input type="checkbox"/> |

Set the power on schedule of PoE per week.

For example, if you enable the the option 10 with Sunday, it means the switch will offer the power to PD during the time from AM10:00 to AM10:59 in Sunday.

1.9 Topology

This function can help the user build the network topology drawing of field in switch, please remember to enable **LLDP** function before you using this application.

Topology Status

Warning!
Please [Enable LLDP](#) to see topology status

Topology Status

| Nodes | |
|-------------|----|
| MAC Address | IP |

| Links | | |
|-------|----|------|
| From | To | Stat |

| Rings |
|-------|
|-------|

Topology Status

Text View: Display each switch in your network by text.

The Topology was build with the information from LLDP, this function can let you see the information of LLDP from other switches.

Nodes: show the information of each switch like MAC address and IP address.

Links: show the information of each connection .

Rings: show the information from ITU-Ring function

Topology Status

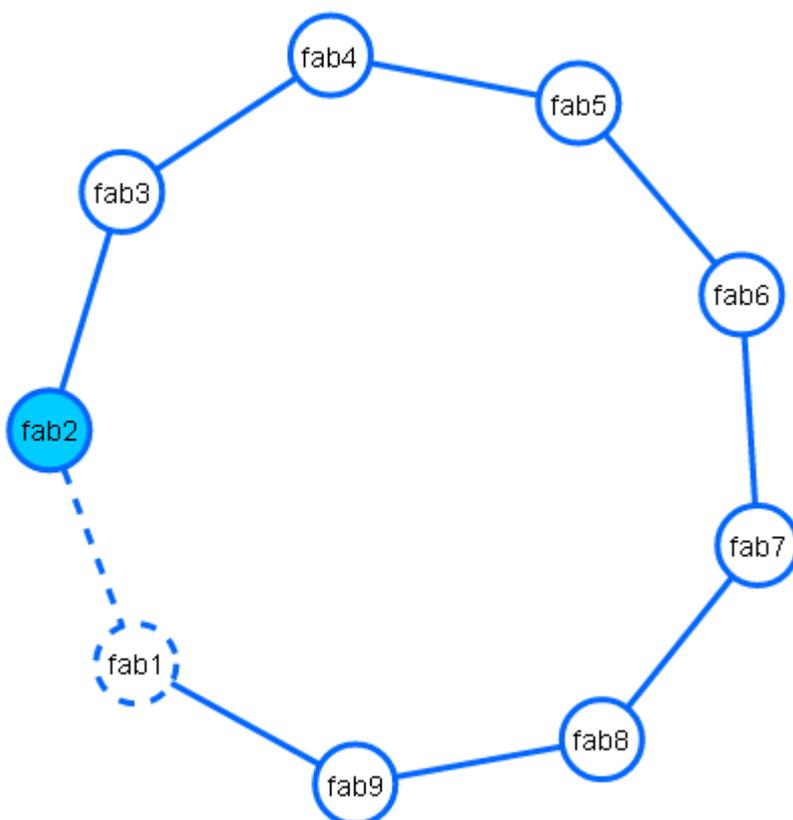


Graphic View: Display each switch in your network by graphic.

You can see the topology diagram which build by the LLDP information in here.

Physical : dispaly the physical connection of network .

Ring : Beside the physical connection, also show the information about ITU-Ring



Demo: Demo display each topology in different application.

1.10 QoS

QoS Configuration

QoS Policy:

Use weighted fair queuing scheme

Priority Type Disabled

Weighted Fair Queue Ratio

| | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Traffic 0 | Traffic 1 | Traffic 2 | Traffic 3 | Traffic 4 | Traffic 5 | Traffic 6 | Traffic 7 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Apply

QoS Policy

Using the weight fair queue scheme

the switch will follow 1:1 rate to process priority queue from High to lowest queue.

Priority Type

Port-base: the port priority will follow the default port priority that you have assigned - High, center, low, or lowest. CoS only: the port priority will only follow the CoS priority that you have assigned. ToS only: the port priority will only follow the ToS priority that you have assigned. CoS first: the port priority will follow the CoS priority first, and then other priority rule. ToS first: the port priority will follow the ToS priority first, and the other priority rule. Port-based: Set the priority of traffic by per port. VLAN: Set the priority of traffic by VLAN.

QoS Policy:

Use weighted fair queuing scheme

Priority Type Disabled

Disabled
 CoS
 ToS-Only
 ToS-First
 Port-Based
 VLAN

Weighted Fair Queue Ratio

| | | | |
|-----------|-----------|-----------|-----------|
| Traffic 0 | Traffic 1 | Traffic 2 | Traffic 3 |
| 1 | 1 | 1 | 1 |

Port Base Priority

Port : it has 8 priority levels - 0~7

Cos

Set the CoS priority level 0~7.

Tos

ToS priority: the system provides 0~63 ToS priority level. Each level has 8 type of priority - 0~7. The default value is "1" priority for each level. When the IP packet is received, the system will check the ToS level value in the IP packet has received. For example: user set the ToS level 25 is 7. The port 1 is following the ToS priority policy only. When the packet received by port 1, the system will check the ToS value of the received IP packet. If the ToS value of received IP packet is 25(priority = 7), and then the packet priority will have highest priority.

1.11 Security

MAC Address Tables

Static MAC Addresses [MAC Filtering](#) [All MAC Addresses](#)

0 static MAC address entries

| MAC Address | VLAN ID | Port No | |
|--|--------------------------------|-------------------------------------|----------------------------------|
| MAC address Please enter a valid MAC address. | <input type="text" value="1"/> | <input type="text" value="Port 1"/> | <input type="button" value="+"/> |

1.11.1. MAC Address Tables

Use the MAC address table to ensure the port security.

Static MAC Address

You can add a static MAC address; it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again. You can add / modify / delete a

static MAC address. MAC Address: Enter the MAC address of the port that should permanently forward traffic, regardless of the device network activity. VLAN ID : Entering the VLAN ID. Port No : pull down the selection menu to select the port number.

MAC Filtering

By filtering MAC address, the switch can easily filter pre-configure MAC address and reduce the un-safety. You can add and delete filtering MAC address. MAC Address: Enter the MAC address that you want to filter.

All MAC Addresses

you can view the port that connected device's MAC address and related device's MAC address.

Radius Server

| | |
|-----------------|--|
| Server IP | <input type="text" value="192.168.12.142"/> |
| Server Port | <input type="text" value="1812"/> |
| Shared Key | <input type="text" value="testing123"/> |
| NAS Identifier | <input type="text" value="superswix"/> |
| Enable on Ports | <input type="text" value="Select Some Options"/> |

1.11.2. Access Control List

You can use ACL feature to deny the access from the specified IP address or MAC address.

1.11.2.1. ACL with Layer2 (MAC)

No: The number of ACL record.

Port: assign the port which you want to enable the ACL function.

Direction: let the switch check the destination address or source address of packet.

Address: assign the MAC address which you want to deny.

Mask: set the mask to filter the MAC range.

| No | Port | Direction | Address | Mask | Action |
|----|--------|-----------|-------------------|-------------------|--------|
| 1 | Port 1 | Source | 00:00:00:00:00:00 | ff:ff:ff:fe:00:00 | Deny |

1.11.2.2. ACL with Layer3 (IP)

No: The number of ACL record.

Port: assign the port which you want to enable the ACL function.

Direction: let the switch check the destination address or source address of packet.

Address: assign the IP address which you want to deny.

Mask: set the mask to filter the IP range.

| No | Port | Direction | Address | Mask | Action |
|----|--------|-----------|--------------|---------------|--------|
| 1 | Port 1 | Source | 192.168.16.1 | 255.255.255.0 | Deny |

1.11.3. IEEE 802.1X Radius Server

802.1X makes use of the physical access characteristics of IEEE802 LAN infrastructures in order to provide a means of authenticating and authorizing devices attached to a LAN port that has point-to-point connection characteristics, and of preventing access to that port in cases in which the authentication and authorization process fails. To enable 802.1X, you still to fill in the authentication server information.

Server IP

The ip address of the authentication server.

Server Port

The UDP port number used by the authentication server to authenticate.

Shared Key

When this check box is checked, the IP addresses among IP permit list will be allowed to access via telnet service.

NAS Identifier

A string used to identify this switch.

Enable on Ports

You can select the specific port and configure the authorization state.

IP Security

Enable IP Security

Apply

1.11.4. IP Security

IP security function allows user to assign 20 specific IP addresses that have permission to access the switch through the web browser for the securing switch management.

Enable IP Security

When this option is in Enable mode, the Enable Web Server and Enable Telnet Server and Enable SSH Server check boxes will then be available.

Enable Web Server

When this check box is checked, the IP addresses among IP permit list will be allowed to access via web service.

Enable Telnet Server

When this check box is checked, the IP addresses among IP permit list will be allowed to access via telnet service.

Enable SSH Server

When this check box is checked, the IP addresses among IP permit list will be allowed to access via ssh service.

IP permit list

Assign up to 20 specific IP address. Only these 10 IP address can access and manage the switch through the Web browser

802.1Q VLAN Config

Help
Log Messages
admin

Management VLAN ID

| Port No. | Link Type | PVID | Tagged VLANs |
|----------|-----------|------|--------------|
| 1 | Access | 1 | |
| 2 | Access | 1 | |
| 3 | Access | 1 | |
| 4 | Access | 1 | |
| 5 | Access | 1 | |

1.12 VLAN

The VLAN membership configuration for the switch can be monitored and modified here. Up to 4094 VLANs are supported. This page allows for adding and deleting VLANs as well as adding and deleting port members of each VLAN.

1.12.1. 802.1Q VLAN Config

802.1Q VLAN Config

Management VLAN ID

| Port No. | Link Type | PVID | Tagged VLANs |
|----------|-----------|------|--------------|
| 1 | Access | 1 | |
| 2 | Access | 1 | |
| 3 | Access | 1 | |
| 4 | Access | 1 | |
| 5 | Access | 1 | |
| 6 | Access | 1 | |
| 7 | Access | 1 | |
| 8 | Access | 1 | |

1.12.2. Management VLAN ID

Define which VLAN group member can access the switch, 0 means all VLAN group

1.12.3. Link Type

There are 3 types of link type

1. Access Link: A segment which provides the link path for one or more stations to

the VLAN-aware device. An Access Port (untagged port), connected to the access link, has an untagged VID (also called PVID). After an untagged frame gets into the access port, the switch will insert a four-byte tag in the frame. The contents of the last 12-bit of the tag is untagged VID. When this frame is sent out through any of the access port of the same PVID, the switch will remove the tag from the frame to recover it to what it was. Those ports of the same untagged VID are regarded as the same VLAN group members.

Note: Because the access port doesn't have an understanding of tagged frame, the column field of Tagged VID is not available.

2. Trunk Link: A segment which provides the link path for one or more VLAN-aware devices (switches). A Trunk Port, connected to the trunk link, has an understanding of tagged frame, which is used for the communication among VLANs across switches. Which frames of the specified VIDs will be forwarded depends on the values filled in the Tagged VID column field. Please insert a comma between two VIDs.

Note:

A trunk port doesn't insert tag into an untagged frame, and therefore the untagged VID column field is not available.

It's not necessary to type '1' in the tagged VID. The trunk port will forward the frames of VLAN 1.

The trunk port has to be connected to a trunk/hybrid port of the other switch. Both the tagged VID of the two ports have to be the same.

3. Hybrid Link: A segment which consists of Access and Trunk links. The hybrid port has both the features of access and trunk ports. A hybrid port has a PVID belonging to a particular VLAN, and it also forwards the specified tagged-frames for the purpose of VLAN communication across switches.

1.12.4. PVID

Indicates the VLAN ID of this particular VLAN.

1.12.5. Tagged VID

This column field is available when Link Type is set as Trunk Link and Hybrid Link. Assign a number in the range between 1 and 4094.

1.12.6. Untagged VID

This function was designed for extend VLAN application, don't change it !!

802.1Q VLAN Status

| VLAN ID | Port Members |
|---------|---|
| 1 | Port 1 U Port 2 U Port 3 U Port 4 U Port 5 U Port 6 U Port 7 U Port 8 U Port 9 U Port 10 U Port 11 T Port 12 T |
| 2 | Port 1 U Port 2 U Port 11 T Port 12 T |
| 3 | Port 1 U Port 11 T Port 12 T |

1.12.7. Status

You can see the status of each VLAN group in here.

Multicast VLAN Registration

New MVR

| VLAN ID | Multicast Address | Port Members | Delete MVR |
|---------|-------------------|--------------|------------|
| | | | |

Apply

1.13 MVR

The MVR feature enables multicast traffic forwarding on the Multicast VLAN. In a multicast television application, a PC or a television with a set-top box can receive the multicast stream. Multiple set-top boxes or PCs can be connected to one subscriber port, which is a switch port configured as an MVR receiver port. When a subscriber selects a channel, the set-top box or PC sends an IGMP join message to Switch A to join the appropriate multicast. Uplink ports that send and receive multicast data to and from the multicast VLAN are called MVR source ports.

VLAN ID

Specify the Multicast VLAN ID.

Multicast Addresses

Multicast Addresses of the group displayed.

Port Members

Ports under this group.

1.14 LLDP

LLDP Configuration

Enabled

TX Interval(secs)

| Port NO | Port ID | Mode |
|---------|---------|---------------------------------------|
| 1 | 1 | Both <input type="button" value="v"/> |
| 2 | 2 | Both <input type="button" value="v"/> |

1.14.1. LLDP Configuration

Enabled

Enabled The switch will send out LLDP information, and will analyze LLDP information received from neighbours.

Tx Interval

The switch periodically transmits LLDP frames to its neighbours for having the network discovery information up-to-date. The interval between each LLDP frame is determined by the **Tx Interval** value. Valid values are restricted to 5 - 32768 seconds. The LLDP port settings relate to the currently selected stack unit, as reflected by the page header.

Port No

The switch port number of the logical LLDP port.

Port Id

Enter characters to be id name for the logical LLDP port.

Mode

Select LLDP mode.

Rx only The switch will not send out LLDP information, but LLDP information from neighbor units is analyzed.

Tx only The switch will drop LLDP information received from neighbors, but will send out **LLDP information**.

Disabled The switch will not send out LLDP information, and will drop LLDP information received from neighbors.

Both The switch will send out LLDP information, and will analyze LLDP information received from neighbors.

LLDP Neighbor Information

| Identification | | | | | | | |
|----------------|------------|---------|------------------|-------------|-------------------|--------------------|--|
| Local Port | Chassis ID | Port ID | Port Description | System Name | System Capability | Management Address | |

1.14.2. LLDP Neighbor

This page provides a status overview for all LLDP neighbors. The displayed table contains a row for each port on which an LLDP neighbor is detected. The columns hold the following information:

Local Port

The port on which the LLDP frame was received.

Chassis ID

The **Chassis ID** is the identification of the neighbor's LLDP frames.

Remote Port ID

The **Remote Port ID** is the identification of the neighbor port.

Port Description

Port Description is the port description advertised by the neighbor unit.

System Name

System Name is the name advertised by the neighbour unit.

System Capabilities

System Capabilities describes the neighbour unit's capabilities. The possible capabilities are:

1. Other
2. Repeater
3. Bridge
4. WLAN Access Point
5. Router

6. Telephone

7. DOCSIS cable device

8. Station only

9. Reserved

When a capability is enabled, the capability is followed by (+). If the capability is disabled, the capability is followed by (-).

Management Address

Management Address is the neighbor unit's address that is used for higher layer entities to assist discovery by the network management. This could for instance hold the neighbor's IP address.

LLDP Neighbor Information

| ☰ Total | | | | | | | | | |
|--------------------|---------------|------------------|------------------|--------------------------|-----------|------------|----------------|--------------------|---|
| Neighbors Aged Out | Neighbors Add | Neighbors Delete | Frames Discarded | Frames Received In Error | Frames In | Frames Out | TLVs Discarded | TLVs Unrecognizeds | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| ☰ Ports | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1.14.3. LLDP Statistics

This page provides an overview of all LLDP traffic.

Two types of counters are shown. **Total** are counters that refer to the whole stack, switch, while **Port** refer to per port counters for the currently selected switch.

1.14.3.1. Total

Neighbors Aged Out

Shows the number of entries deleted due to Time-To-Live expiring.

Neighbors Added

Shows the number of new entries added since switch reboot.

Neighbors Deleted

Shows the number of new entries deleted since switch reboot.

Frames Discarded

If an LLDP frame is received on a port, and the switch's internal table has run full, the LLDP frame is counted and discarded. This situation is known as "Too Many Neighbours" in the LLDP standard. LLDP frames require a new entry in the table when the Chassis ID or Remote Port ID is not already contained within the table. Entries are removed from the table when a given port's link is down, an LLDP shutdown frame is received, or when the entry ages out.

Frames Received In Error

The number of received LLDP frames containing some kind of error.

Frames In

The number of LLDP frames received on the port.

Frames Out

The number of LLDP frames transmitted on the port.

TLVs Discarded

Each LLDP frame can contain multiple pieces of information, known as TLVs (TLV is short for "Type Length Value"). If a TLV is malformed, it is counted and discarded.

TLVs Unrecognized

The number of well-formed TLVs, but with an unknown type value.

1.14.3.2. Ports

The displayed table contains a row for each port. The columns hold the following information:

Port

The port on which LLDP frames are received or transmitted.

Neighbors Aged Out

Shows the number of entries deleted due to Time-To-Live expiring.

Neighbors Added

Shows the number of new entries added since switch reboot.

Neighbors Deleted

Shows the number of new entries deleted since switch reboot.

Frames Discarded

If an LLDP frame is received on a port, and the switch's internal table has run full, the

LLDP frame is counted and discarded. This situation is known as "Too Many Neighbors" in the LLDP standard. LLDP frames require a new entry in the table when the Chassis ID or Remote Port ID is not already contained within the table. Entries are removed from the table when a given port's link is down, an LLDP shutdown frame is received, or when the entry ages out.

Frames Received In Error

The number of received LLDP frames containing some kind of error.

Frames In

The number of LLDP frames received on the port.

Frames Out

The number of LLDP frames transmitted on the port.

TLVs Discarded

Each LLDP frame can contain multiple pieces of information, known as TLVs (TLV is short for "Type Length Value"). If a TLV is malformed, it is counted and discarded.

TLVs Unrecognized

The number of well-formed TLVs, but with an unknown type value.

IGMP Snooping Configuration

Global Configuration

- Enable Querier
- Enable Snooping
- Flood Well-known Multicast Traffic

VLAN Configuration

| ID | Enable Querier | Enable Snooping |
|----|-------------------------------------|--------------------------|
| 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Port Related Configuration

| Port | Router Port | Fast Leave |
|------|--------------------------|-------------------------------------|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

1.15 CDP

CDP Configuration Device Settings

CDP Enable:

CDP timer(secs)

CDP holdtime(secs)

| Port | Enabled |
|------|-------------------------------------|
| 1 | <input checked="" type="checkbox"/> |
| 2 | <input checked="" type="checkbox"/> |
| 3 | <input checked="" type="checkbox"/> |
| 4 | <input checked="" type="checkbox"/> |
| 5 | <input checked="" type="checkbox"/> |
| 6 | <input checked="" type="checkbox"/> |
| 7 | <input checked="" type="checkbox"/> |

1.15.1. CDP Configuration Device Settings

CDP Enabled

Enabled The switch will send out CDP information, and will analyze CDP information received from neighbors.

Tx Interval(secs)

The switch periodically transmits CDP frames to its neighbours for having the network discovery information up-to-date. The interval between each CDP frame is determined by the **Tx Interval** value. Valid values are restricted to 5 - 32768 seconds.

Tx Holdtime(secs)

Each CDP frame contains information about how long the information in the CDP frame shall be considered valid. The holdtime between each CDP frame is determined by the **Tx Holdtime** value. Valid values are restricted to 5 - 32768 seconds.

1.15.2. CDP Port Configuration

The CDP port settings relate to the currently selected stack unit, as reflected by the page header.

Port

The switch port number of the logical CDP port.

Enabled

The switch will send out CDP information, and will analyze CDP information received from neighbors.

CDP Status

The CDP Status interface is divided into two main sections: Statistics and Neighbors.

Statistics Section: This section contains a table with two columns: 'Total Packets Output' and 'Total Packets Input'. Both columns show a value of 0. Below the table is a red 'Clear' button.

| Total Packets Output | Total Packets Input |
|----------------------|---------------------|
| 0 | 0 |

Neighbors Section: This section contains a table with the following columns: Local Port NO, CDP Version, Ageout TTL, Device ID, Platform, Software Version, and Addresses.

| Local Port NO | CDP Version | Ageout TTL | Device ID | Platform | Software Version | Addresses |
|---------------|-------------|------------|-----------|----------|------------------|-----------|
|---------------|-------------|------------|-----------|----------|------------------|-----------|

1.15.3. CDP Status

1.15.3.1. Statistics

Total Packets Output

The number of CDP frames transmitted on the switch.

Total Packets Input

The number of CDP frames received on the switch.

1.15.3.2. Neighbors

The displayed table contains a row for each port on which an CDP neighbour is detected. The columns hold the following information:

Local Port

The port on which the CDP frame was received.

Version

Version is the CDP version advertised by the neighbor unit.

Ageout TTL

Ageout TTL is the ageout Time-To-Live advertised by the neighbor unit.

Device ID

The Device ID is the identification of the neighbor's CDP frames.

Platform

Platform is the description advertised by the neighbor unit.

Software Version

Software Version is the software version advertised by the neighbor unit.

Addresses

Addresses is the neighbour unit's address that is used for higher layer entities to assist discovery by the network management. This could for instance hold the neighbor's IP address.

1.16 IGMP Snooping

This page provides IGMP Snooping related configuration.

Notice1: if the IP-CAM use Multicast format to transfer video stream, make sure there is at least one switch has enabled IGMP Querier function and all switches have enabled IGMP snooping function in field.

Notice2: make sure the IGMP querier switch was in root side of your network, if not, please set IGMP router port to let switch know which uplink connection was dedicate to the path to the IGMP querior switch.

1.16.1. IGMP Snooping Configuration

Global Configuration

Enable Querier

Enable Snooping

Flood Well-known Multicast Traffic

Port Related Configuration

| Port | Router Port | Fast Leave |
|------|--------------------------|-------------------------------------|
| 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

1.16.1.1. Global Configuration

Enabled Querier

Enable the Global IGMP Querier.

Enabled Snooping

Enable the Global IGMP Snooping.

Flood Well-known Multicast Traffic

Make sure you want to let the Multicast stream flooding all ports of switch.

1.16.1.2. Port Related Configuration

Port

The switch port number of the logical port.

Router Port

Specify which ports act as router ports. A router port is a port on the Ethernet switch that leads towards the Layer 3 multicast device or IGMP querier.

If an aggregation member port is selected as a router port, the whole aggregation will

act as a router port.

Fast Leave

Enable the fast leave on the port.

IGMP Snooping Status

Statistics

| VLAN ID | Status Querier | Querier Transmitted | Querier Received | V1 Reports Received | V2 Reports Received | V3 Reports Received | V2 Leave Received |
|---------|----------------|---------------------|------------------|---------------------|---------------------|---------------------|-------------------|
| 0 | true | 0 | 0 | 0 | 0 | 0 | 0 |

IGMP Groups

false

1.16.2. IGMP Snooping Status

This page provides IGMP Snooping status.

The status related to the currently selected stack unit, as reflected by the page header.

1.16.2.1. Statistics

VLAN ID

The VLAN ID of the entry.

Status Querier

Shows the Querier status is "ACTIVE" or "IDLE".

"DISABLE" denotes the specific interface is administratively disabled.

Queries Transmitted

The number of Transmitted Queries.

Queries Received

The number of Received Queries.

V1 Reports Received

The number of Received V1 Reports.

V2 Reports Received

The number of Received V2 Reports.

V3 Reports Received

The number of Received V3 Reports.

V2 Leaves Received

The number of Received V2 Leaves.

1.16.2.2. IGMP Groups

Entries in the IGMP Group Table are shown on this page.

VLAN ID

VLAN ID of the group.

Multicast Addresses

Group address of the group displayed.

Port Members

Ports under this group.

Membership Interval

The group hold aging out TTL

MSTP Global Configuration

| | |
|---------------|--------------------------------------|
| Mode | <input type="text" value="MSTP"/> |
| Name | <input type="text" value="REGION1"/> |
| Revision | <input type="text" value="0"/> |
| Max Age | <input type="text" value="20"/> |
| Forward Delay | <input type="text" value="15"/> |
| Max Hops | <input type="text" value="20"/> |

Apply

1.17 MSTP

1.17.1. MSTP Global Configuration

Mode

You can choose STP or RSTP or MSTP redundancy protocol in here.

Name

The name identifying the VLAN to MSTI mapping. Bridges must share the name and revision (see below), as well as the VLAN-to-MSTI mapping configuration in order to share spanning trees for MSTI's (Intra-region). The name is at most 32 characters.

Revision

The revision of the MSTI configuration named above. This must be an integer between 0 and 65535.

Forward Delay

The delay used by STP Bridges to transit Root and Designated Ports to Forwarding (used in STP compatible mode). Valid values are in the range 4 to 30 seconds.

Max Age

The maximum age of the information transmitted by the Bridge when it is the Root Bridge. Valid values are in the range 6 to 40 seconds, and MaxAge must be $\leq (FwdDelay-1)*2$.

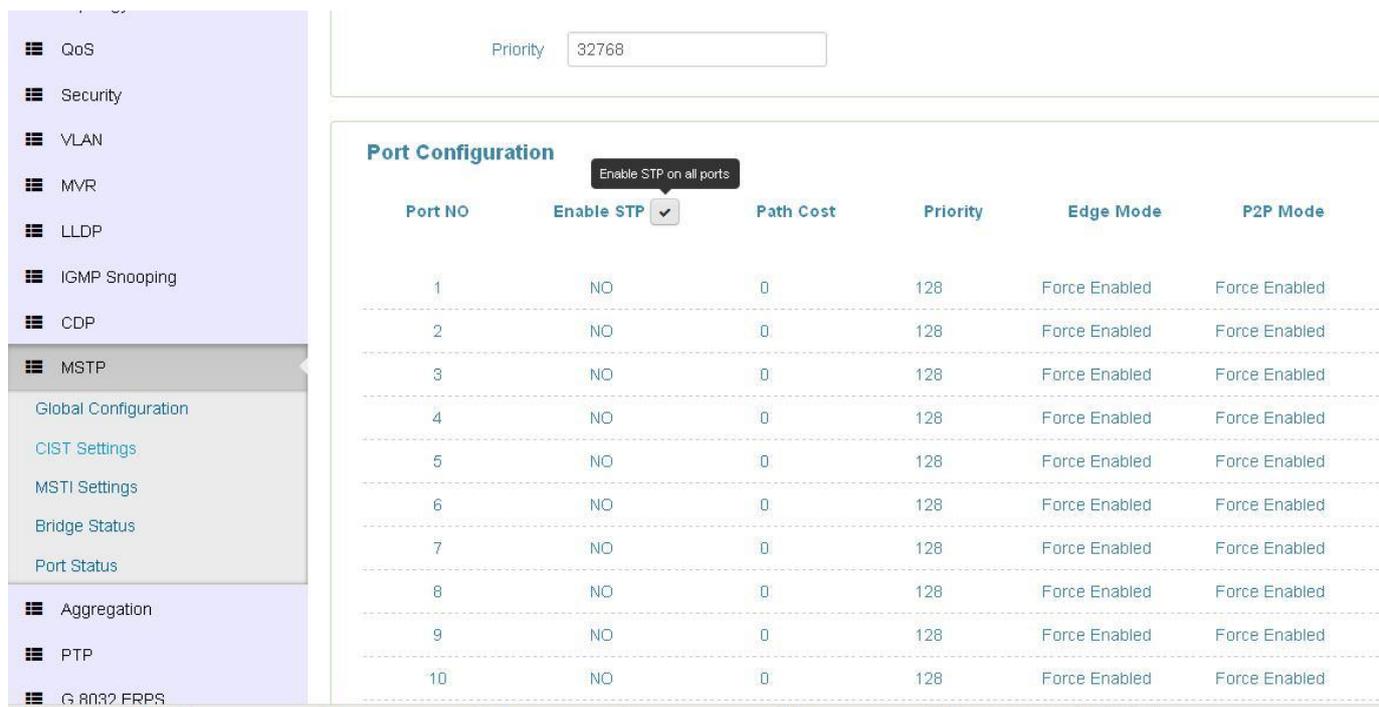
Maximum Hop Count

This defines the initial value of remaining Hops for MSTI information generated at the boundary of an MSTI region. It defines how many bridges a root bridge can distribute its BPDU information to. Valid values are in the range 6 to 40 hops.

How to enable MSTP

Enter MSTP → CIST Settings , press icon to enable MSTP

PS: (The default was disable with all ports)



Check the status of STP, all ports should display “Yes”

- ☰ Security
- ☰ VLAN
- ☰ MVR
- ☰ LLDP
- ☰ IGMP Snooping
- ☰ CDP
- ☰ MSTP
- ☰ Global Configuration
- ☰ CIST Settings
- ☰ MSTI Settings
- ☰ Bridge Status
- ☰ Port Status
- ☰ Aggregation
- ☰ PTP
- ☰ G.8032 ERPS

Port Configuration

Disable STP on all ports

| Port NO | Enable STP ✕ | Path Cost | Priority | Edge Mode | P2P Mode |
|---------|---|-----------|----------|---------------|---------------|
| 1 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 2 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 3 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 4 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 5 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 6 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 7 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 8 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 9 | YES | 0 | 128 | Force Enabled | Force Enabled |
| 10 | YES | 0 | 128 | Force Enabled | Force Enabled |

Remember to press “Apply”

Save setting

CIST Settings

Bridge Configuration

VLANs

Priority

Port Configuration

| Port NO | Enable STP | Path Cost | Priority | Edge Mode | P2P Mode |
|---------|------------|-----------|----------|---------------|---------------|
| Port 1 | YES | 0 | 128 | Force Enabled | Force Enabled |
| Port 2 | YES | 0 | 128 | Force Enabled | Force Enabled |
| Port 3 | YES | 0 | 128 | Force Enabled | Force Enabled |
| Port 4 | YES | 0 | 128 | Force Enabled | Force Enabled |

CIST Settings

1.17.1.1. Bridge configuration VLANs Mapped

The list of VLANs mapped to the MSTI. The VLANs must be separated with comma and/or space. A VLAN can only be mapped to one MSTI. An unused MSTI should just be left empty. (I.e. not having any VLANs mapped to it.)

Unmapped VLANs are mapped to the CIST. (The default bridge instance).

Bridge Priority

Controls the bridge priority. Lower numeric values have better priority. The bridge priority plus the MSTI instance number, concatenated with the 6-byte MAC address of the switch forms a Bridge Identifier.

1.17.1.2.Port

Port No

The switch port number of the logical STP port.

Enabled STP

Controls whether STP is enabled on this switch port.

Path Cost

Controls the path cost incurred by the port. The Auto setting will set the path cost as appropriate by the physical link speed, using the 802.1D recommended values. Using the Specific setting, a user-defined value can be entered. The path cost is used when establishing the active topology of the network. Lower path cost ports are chosen as forwarding ports in favour of higher path cost ports. Valid values are in the range 1 to 200000000.

Priority

Controls the port priority. This can be used to control priority of ports having identical port cost. (See above).

edge_mode

Controls whether the operEdge flag should start as being set or cleared. (The initial operEdge state when a port is initialized). Controls whether the bridge should enable automatic edge detection on the bridge port. This allows operEdge to be derived from whether BPDU's are received on the port or not.

p2p_mode

description: Controls whether the port connects to a point-to-point LAN rather than a shared medium. This can be automatically determined, or forced either true or false. Transition to the forwarding state is faster for point-to-point LANs than for shared media.

MSTP MSTI Settings

| Instance NO | VLANs | Priority |
|-------------|-------|---------------------|
| | | Add |

1.17.2. MSTP MSTI Settings

Instance No

VLANs

The list of VLANs mapped to the MSTI. The VLANs must be separated with comma and/or space. A VLAN can only be mapped to one MSTI. An unused MSTI should just be left empty. (I.e. not having any VLANs mapped to it.) Unmapped VLANs are mapped to the CIST. (The default bridge instance).

Priority

Controls the bridge priority. Lower numeric values have better priority. The bridge priority plus the MSTI instance number, concatenated with the 6-byte MAC address of the switch forms a Bridge Identifier.

MSTP Bridges Status

| NO | Bridge ID | Root ID | Root Port | Root Cost | Topology State |
|--------|-----------|---------|-----------|-----------|----------------|
| CIST 0 | 32768- | 32768- | 0 | 0 | |

1.17.3. MSTP Bridges Status

Instance

The Bridge Instance. ex: CIST, MSTI1, ...

Bridge ID

The Bridge ID of this Bridge instance.

Root ID

The Bridge ID of the currently elected root bridge.

Root Port

The switch port currently assigned the root port role.

Root Cost

Root Path Cost. For the Root Bridge it is zero. For all other Bridges, it is the sum of the Port Path Costs on the least cost path to the Root Bridge.

Topology State

The current state of the Topology Change Flag of this Bridge instance.

Topology Change Last

The time since last Topology Change occurred.

Bridge status of all ports

| | | |
|---|--|--|
| Port 1 as Designated/FORWARDING in CIST | Port 2 as Disabled/BLOCKING in CIST | Port 3 as Disabled/BLOCKING in CIST |
| Port 4 as Disabled/BLOCKING in CIST | Port 5 as Disabled/BLOCKING in CIST | Port 6 as Disabled/BLOCKING in CIST |
| Port 7 as Designated/FORWARDING in CIST | Port 8 as Disabled/BLOCKING in CIST | Port 9 as Disabled/BLOCKING in CIST |
| Port 10 as Disabled/BLOCKING in CIST | Port 11 as Disabled/BLOCKING in CIST | Port 12 as Disabled/BLOCKING in CIST |

1.17.4. Bridge status of all ports

Port

The switch port number of the logical STP port.

Role

The current STP port role of the port. The port role can be one of the following values: AlternatePort BackupPort RootPort DesignatedPort Disabled.

State

The current STP port state of the port. The port state can be one of the following values: Discarding Learning Forwarding.

1.18 Aggregation

Aggregation Configuration

Group Configuration:

| Trunking Group | Enable LACP Dynamic Trunking | Port Members |
|----------------|------------------------------|---------------------|
| 1 | <input type="checkbox"/> | Select Some Options |
| 2 | <input type="checkbox"/> | Select Some Options |
| 3 | <input type="checkbox"/> | Select Some Options |
| 4 | <input type="checkbox"/> | Select Some Options |
| 5 | <input type="checkbox"/> | Select Some Options |
| 6 | <input type="checkbox"/> | Select Some Options |

1.18.1. Aggregation Configuration

Group Configuration

Trunking Group

Number of trunking group

Enable LACP Dynamic Trunking:

Enable Trunking function

Port Members

Each switch port is listed for each group ID. Select a radio button to include a port in an aggregation, or clear the radio button to remove the port from the aggregation. By default, no ports belong to any aggregation group. Only full duplex ports can join an aggregation and ports must be in the same speed in each group.

LACP Group Status

| Trunking Group | LACP | System ID | Port Members |
|----------------|------|-----------|--------------|
|----------------|------|-----------|--------------|

1.18.2. LACP Port Status

Trunking Group

Number of trunking group

LACP

'Yes' means that LACP is enabled and the port link is up. 'No' means that LACP is not enabled or that the port link is down. 'Backup' means that the port could not join the aggregation group but will join if other port leaves. Meanwhile it's LACP status is disabled.

System ID

The ID of each Trunking group

Port Members

Each switch port is listed for each group ID. Select a radio button to include a port in an aggregation, or clear the radio button to remove the port from the aggregation. By default, no ports belong to any aggregation group. Only full duplex ports can join an aggregation and ports must be in the same speed in each group.

G.8032 Ethernet Ring Protection

Auto Configuration

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|----|---------|------|------|-------------|-------------|---|
| | | | | | |  |

Apply

1.19 PTP

Enable on:

Select which port you want to enable PTP function.

Domain:

Set the PTP domain

Priority1:

Specify the **priority1** value to override the default criteria (clock quality, clock class, etc.) for best master clock selection. Lower values take precedence. The range for both is from 0 to 255., The default is 255

Priority2:

Specify a **priority2** value to be used as a tie-breaker between two devices that are otherwise equally matched in the default criteria. For example, you can use priority2 value to give a specific switch priority over other identical switches. The range for both is from 0 to 255. The default is 255.

Announce Interval:

Specify the time for sending announce messages. The range is 0 to 4 seconds. The default is 1 (2 seconds).

Announce Interval Timeout:

specify the time for announcing timeout messages. The range is 2 to 10 seconds. The default is 2 (4 seconds).

Sync Interval:

enter the time for sending synchronization messages. The range is -1 second to 1 second. The default is 1 second.

Delay Request Interval:

specify the time recommended to the member devices to send delay request messages when the port is in the master state. The range is -1 second to 6 seconds. The default is 1 (2 seconds).

PTP Configuration

| | |
|----------------------------|---|
| Enable on | <input type="text" value="select ports to enable PTP"/> |
| Domain: | <input type="text" value="0"/> |
| Priority 1: | <input type="text" value="255"/> |
| Priority 2: | <input type="text" value="255"/> |
| Announce Interval: | <input type="text" value="1"/> |
| Announce Interval Timeout: | <input type="text" value="2"/> |
| Sync Interval: | <input type="text" value="1"/> |
| Delay Request Interval: | <input type="text" value="1"/> |

1.20 G.8032 ERPS

G.8032 Ethernet Ring Protection

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | Node Failure Protection | |
|----|---------|------|------|-------------|-------------|-------------------------|---|
| | | | | | | | + |

1.20.1. G.8032 Ethernet Ring Protection Configuration

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | Node Failure Protection |
|----|----------|------|-------|-------------|-------------|-------------------------|
| 1 | Disabled | None | Major | Port 1 | Port 2 | NO |

The G.8032 Ethernet Ring Protection Switch instances are configured here.

ID

The ID of the created Protection group

Enabled

Enable/Disable the G.8032 ERP.

Role

It can be either RPL owner or RPL Neighbor.

Type

Type of Protecting ring. It can be either major ring or sub-ring.

Ring Port 0

This will create a Port 0 of the switch in the ring.

Ring Port 1

This will create "Ring Port 1" of the switch in the Ring.

Node Failure Protection

This option can prevent the event that all switch in the same ITU ring reboot together then the ITU Ring will fail.

Ring Status

| ID | State | Role | Ring Port 0 | Ring Port 1 |
|----|-------|------|-------------|-------------|
|----|-------|------|-------------|-------------|

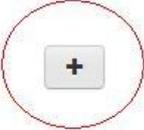
How to set G8032

Make sure you have disabled the MSTP protocol.

Press “+” icon to add one ring with G.8032 protocol.

PS: in this case, we will use the port9 and port10 of each switch to build a ring.

G.8032 Ethernet Ring Protection

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|----|----------|------|------|-------------|-------------|--|
| 1 | Disabled | None | Sub | Port 1 | Port 2 |  |

1. Enter edit mode

G.8032 Ethernet Ring Protection

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|----|----------|------|------|-------------|-------------|---|
| 1 | Disabled | None | Sub | Port 1 | Port 2 |   |

2. There are 3 switches in the ring of G.8032, one play the role of “owner”, one for “neighbour” and one for “none”, remember 3 very import things during the

setting procedure:

- 3. the port0 of “owner” switch must connect with the “neighbour” switch.
- 4. After enable the ring of G8032, the port0 of owner switch will be blocked at first.

For safe issue, we suggest the user to finished all setting G8032 then connect the physical connection if the user was not familiar the ring G8032 function.

- 5. The setting of owner switch
(because we only have single ring, so we set the type as Major)

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|--------------------------------|--------------------------------------|------|------|-------------|-------------|---|
| Editing Ring Instance 0 | | | | | | |
| ID | <input type="text" value="1"/> | | | | | |
| Ring Enabled | <input checked="" type="checkbox"/> | | | | | |
| Role | <input type="text" value="Owner"/> | | | | | |
| Type | <input type="text" value="Major"/> | | | | | |
| Port 0 | <input type="text" value="Port 9"/> | | | | | |
| Port 1 | <input type="text" value="Port 10"/> | | | | | |
| | | | | | | <input type="button" value="Cancel"/> <input type="button" value="Save"/> |

- 6. The setting of neighbour switch

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|--------------------------------|--|------|------|-------------|-------------|---|
| Editing Ring Instance 0 | | | | | | |
| ID | <input type="text" value="1"/> | | | | | |
| Ring Enabled | <input checked="" type="checkbox"/> | | | | | |
| Role | <input type="text" value="Neighbour"/> | | | | | |
| Type | <input type="text" value="Major"/> | | | | | |
| Port 0 | <input type="text" value="Port 9"/> | | | | | |
| Port 1 | <input type="text" value="Port 10"/> | | | | | |
| | | | | | | <input type="button" value="Cancel"/> <input type="button" value="Save"/> |

7. The setting of none switch

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | |
|--------------------------------|--------------------------------------|------|------|-------------|-------------|---|
| Editing Ring Instance 0 | | | | | | |
| ID | <input type="text" value="1"/> | | | | | |
| Ring Enabled | <input checked="" type="checkbox"/> | | | | | |
| Role | <input type="text" value="None"/> | | | | | |
| Type | <input type="text" value="Major"/> | | | | | |
| Port 0 | <input type="text" value="Port 9"/> | | | | | |
| Port 1 | <input type="text" value="Port 10"/> | | | | | |
| | | | | | | <input type="button" value="Cancel"/> <input type="button" value="Save"/> |

1.20.2. Ring mode

G.8032 Ethernet Ring Protection

Ring Mode: Change Mode

- Auto
- Basic
- Enhanced**
- Multiple Train

Auto Ring

The operator only need to assign ring ports with each switch, the other options will be defined automatically by switch, currently the Auto Ring only support single ring topology.

Ring Mode: Change Mode

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | Node Failure Protection | Detect Miswiring |
|----|---------|------|------|-------------|-------------|-------------------------|------------------|
|----|---------|------|------|-------------|-------------|-------------------------|------------------|

Apply

Basic Ring

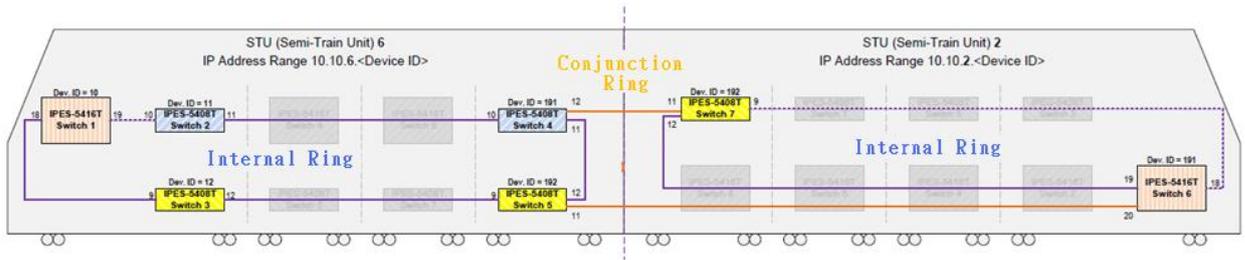
It was designed for the compatibility with other vendor's ERPS.

Ring Mode: Change Mode

| ID | Enabled | Role | Type | Ring Port 0 | Ring Port 1 | Node Failure Protection | Detect Miswiring |
|----|---------|------|------|-------------|-------------|-------------------------|------------------|
|----|---------|------|------|-------------|-------------|-------------------------|------------------|

Apply

Multiple Train Ring

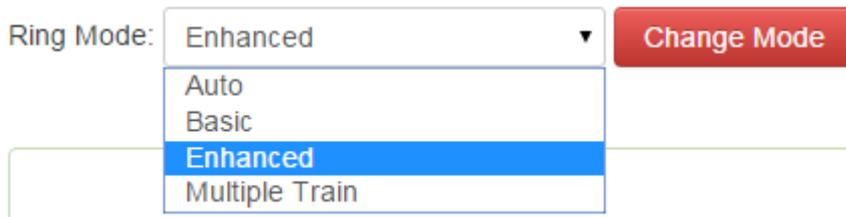


Train Ring is designed for the redundancy network of train application, as above picture, suppose each train will have a ring network and these rings need to be coupled with each other.

How to Configure

Step1: Enable ITU G.8032 to “Multiple Train” mode.

G.8032 Ethernet Ring Protection



Step2: Select ring ports

Example 1: Enable “Coupling Node” (Switch Dev: ID=191)

G.8032 Ethernet Ring Protection

Ring Mode:

Train Ring

Enabled:

Coupling Node:

Internal Ring:

Ports:

Be sure that the first internal ring port is not connected to the shared line

Coupling Ring:

Internal:

External:

Example 2: Disable "Conjunction Node" (Switch Dev: ID=11)

G.8032 Ethernet Ring Protection

Ring Mode:

Train Ring

Enabled:

Coupling Node:

Internal Ring:

Ports:

1.20.3. Ring Status

ID

The ID of the created Protection group

State

ERPS state according to State Transition Tables in G.8032.

Role

It can be either RPL owner or RPL Neighbour.

Ring Port 0

true : ring port 0 is blocking

false : ring port 0 is not blocking

Ring Port 1

true : ring port 0 is blocking

false : ring port 0 is not blocking

1.21 Dual Homing

Dual-Homing

| ID | Enabled | Role | Port | |
|----|---------|------|------|--|
| | | | | <input data-bbox="1219 501 1302 562" type="button" value="+"/> |

This function was designed to connect ITU-Ring with the other redundancy protocol like STP、RSTP、MSTP.

| ID | Enabled | Role | Port | |
|---------------------------------------|--------------------------------|--------------------------------------|-------------------------------------|--|
| Editing Dual-Homing Instance 1 | | | | |
| ID | <input type="text" value="1"/> | | | |
| Enabled | <input type="checkbox"/> | | | |
| Role | | <input type="text" value="Primary"/> | | |
| Port | | | <input type="text" value="Port 1"/> | |

ID: the ID of Dual Homing connection

Enable: enable the Dual Homing function of this port

Role: there should be 2 connections between RSTP with ITU-Ring, one set Primary, the other set Secondary

Port: The port which connects to the switch which is running RSTP protocol.

1.22 Maintenance

1.20.1. Save Configuration



1.20.2. Config backup/restore

Settings Backup

You can download the backup configuration of the switch.

Settings Restore

You can copy the backup configuration of the switch to the startup configuration on this page. The new startup configuration is not available immediately, which means that restarting the switch is necessary.

Reset to default

You can reset the configuration of the switch on this page. Only the IP configuration is retained. The new configuration is available immediately, which means that no restart is necessary.

Config Backup/Restore

Settings Backup

Click button to download current settings

Download settings

Settings Restore

Select the file previously backup to restore

Select File

Reset to default

Click button to reset to default settings

Restore to default

Keep IP & Account



1.20.3. Restart device

Reboot the switch with selected firmware.

Maintaince Reboot

Active Firmware

Firmware 1
Firmware 1
Firmware 2

Restart Device

1.20.4. Firmware Upgrade

Update the switch with the firmware file which on your desktop.

Firmware Upgrade

Select the firmware file to upload

Select File

1.20.5. Diagnostics

PING

Address: Set the IP address which you want to ping

Count: Set the times of Ping

Packet Size: set the size of Ping packet.

Ping ARP Table

Address

Count

Packet Size

```
PING 192.168.9.1 (192.168.9.1): 64 data bytes
72 bytes from 192.168.9.1: seq=0 ttl=255 time=8.048 ms
72 bytes from 192.168.9.1: seq=1 ttl=255 time=0.429 ms
72 bytes from 192.168.9.1: seq=2 ttl=255 time=0.420 ms
72 bytes from 192.168.9.1: seq=3 ttl=255 time=0.417 ms
--- 192.168.9.1 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 0.417/2.328/8.048 ms
```

ARP Table

You can find the MAC addresses of each IP you have ping via this switch in here.

Plug

ARP Table

ARP Table

| | |
|-------------------|--------------|
| 00:1f:c6:3d:7e:be | 192.168.9.47 |
| 00:50:7f:5a:3e:b8 | 192.168.9.1 |

Chapter 2 Troubles shooting

- Verify that is using the right power cord/adapter (DC 24-48V), please don't use the power adapter with DC output higher than 48V, or it may damage this device.
- Select the proper UTP/STP cable to construct the user network. Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ-45 connections that depend on the connector type the switch equipped: 100Ω Category 3, 4 or 5 cable for 10Mbps connections, 100Ω Category 5 cable for 100Mbps connections, or 100Ω Category 5e/above cable for 1000Mbps connections. Also be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).
- **Diagnosing LED Indicators:** To assist in identifying problems, the switch can be easily monitored through panel indicators, which describe common problems the user may encounter and where the user can find possible solutions.
- If the power indicator does not light on when the power cord is plugged in, you may have a problem with power cord. Then check for loose power connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact the local dealer for assistance.
- If the LED indicators are normal and the connected cables are correct but the packets still cannot be transmitted. Please check the user system's Ethernet devices' configuration or status.

Appendix A—RJ-45 Pin Assignment

The UTP/STP ports will automatically sense for Fast Ethernet (10Base-T/100Base-TX connections), or Gigabit Ethernet (10Base-T/100Base-TX/1000Base-T connections). Auto MDI/MDIX means that the switch can connect to another switch or workstation without changing straight through or crossover cabling. See the figures below for straight through and crossover cable schematic.

10 /100BASE-TX Pin outs

With 10/100BASE-TX cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 for receiving data.

RJ-45 Pin Assignments

| Pin Number | Assignment |
|------------|------------|
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 6 | Rx- |

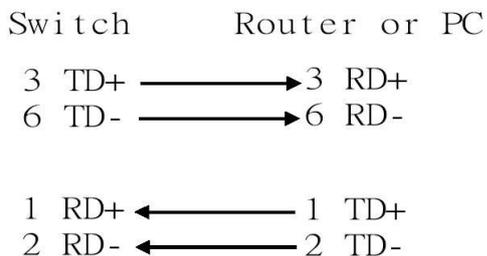
[NOTE] “+” and “-” signs represent the polarity of the wires that make up each wire pair.

The table below shows the 10/100BASE-TX MDI and MDI-X port pin outs.

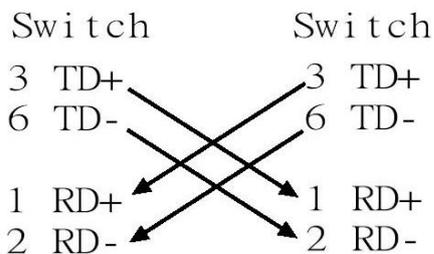
| Pin Number | MDI-X Signal Name | MDI Signal Name |
|------------|---------------------------|---------------------------|
| 1 | Receive Data plus (RD+) | Transmit Data plus (TD+) |
| 2 | Receive Data minus (RD-) | Transmit Data minus (TD-) |
| 3 | Transmit Data plus (TD+) | Receive Data plus (RD+) |
| 6 | Transmit Data minus (TD-) | Receive Data minus (RD-) |

10/100Base-TX Cable Schematic

The following two figures show the 10/100Base-TX cable schematic.



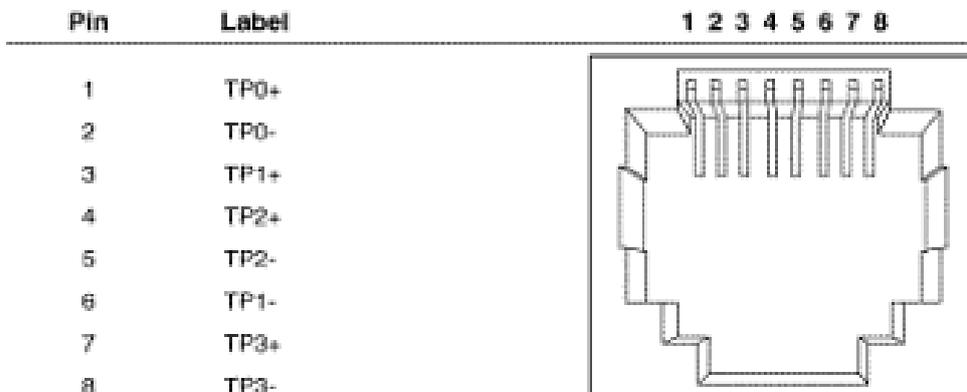
Straight-through cable schematic



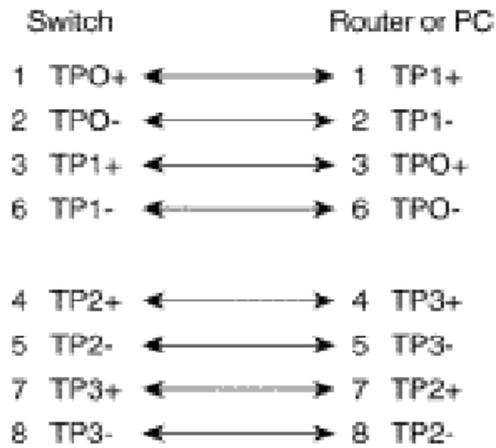
Cross over cable schematic

10/100/1000Base-TX Pin outs

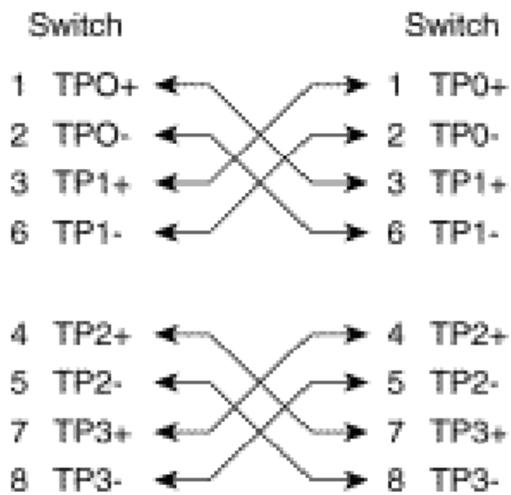
The following figure shows the 10/100/1000 Ethernet RJ-45 pin outs.



10/100/1000Base-TX Cable Schematic



Straight through cables schematic



Cross over cables schematic

Appendix B—Command Line mode

Except the web access mode, the Lantech switch also support Telnet access and console access mode, to compare the web access mode, both the Telnet and console only support command line user interface, all these commands will show as below:

Access via console port

When the connection between Switch and PC is ready, turn on the PC and run a terminal emulation program or **Hyper Terminal** and configure its **communication parameters** to match the following default characteristics of the console port:

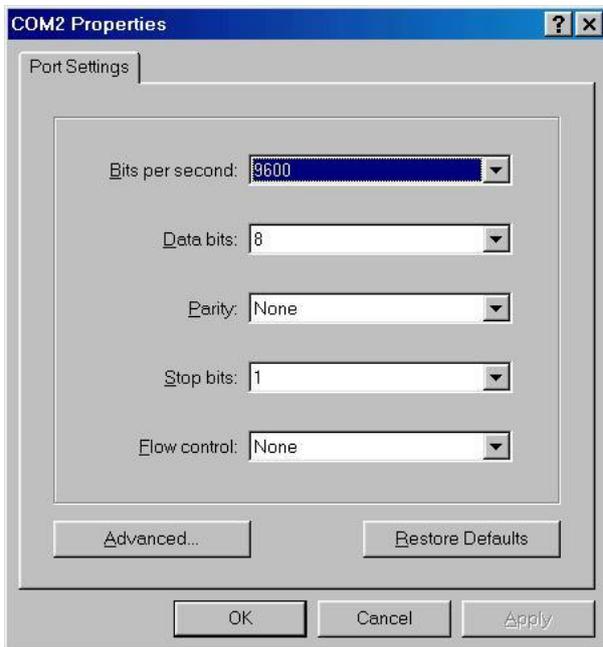
Baud Rate:115200 bps

Data Bits: 8

Parity: none

Stop Bit: 1

Flow control: None



The settings of communication parameters

Having finished the parameter settings, click '**OK**'. When the blank screen shows up, press Enter key to have the login prompt appears. First you need to key in "cli" to enter the command line mode then Key in '**admin**' (default value) for both User name and

Access via Telnet

Use Telnet utility to access switch IP and make sure the socket was set as 23, all the commands under Telnet mode were the same as the Console mode.



The image shows a configuration window for a Telnet connection. At the top, there is a 'Protocol:' dropdown menu set to 'TCP'. Below this is a section titled 'TCP Parameters' which contains several fields: 'Type:' with radio buttons for 'Client' (selected) and 'Server'; 'IP version:' dropdown menu set to 'IPv4'; 'Host name/Dest. IP:' text field containing '192.168.16.1'; 'Dest. port:' text field containing '23'; and 'Local port:' text field containing '0'. Below the 'Local port:' field, there is a note '(0 for any)'.

Commands

System

Command: system

Parameter: N/A

Description: Enter the system mode

Example:

```
>system
Available Commands:
System Configuration
System Contact [<contact>]
System Name [<name>]
System Location [<location>]
System Description [<description>]
System DHCPClient [enable]
System DHCPServer [enable]
System DHCPStatus
System NetStatus
System NetSettingIPv4
System NetSettingIPv6
System Reboot
System RestoreDefault
System Log
System Save
System Ping [<IpAddress>]
System Arp
System Memory
System ConfigAccess [enable]
System Upgrade [URL]
SYSTEM>_
```

Command: system> configuration

Parameter: N/A

Description: show the information of switch

Example:

```
SYSTEM>configuration
SYSTEM>
SystemName : IES-5408DSFP
SystemDescription : 4 1000 SFP +
SystemLocation : 13
SystemContact :
SystemTimeZoneOffset : 0
OID : 1.3.6.1.4.1.37072.302.2.3
MacAddr : 00:11:22:33:44:81
SystemDate : Fri Jun 21 2013 15:
SystemUptime : 77141
SoftwarekernelVersion : 39c48cd6
SoftwareVersion : V3.27
```

Command: system > Contact

Parameter: N/A

Description: display or fix the contact information

Example: if I want to change the contact windows to jacky@lantechcom.tw

```
SYSTEM>contact jacky@lantechcom.tw
SYSTEM>
SystemContact : jacky@lantechcom.tw
```

Command: system > name

Parameter: N/A

Description: display or fix the system name

Example:

```
SYSTEM>name
SYSTEM>
SystemName : IES-5408DSFP
SYSTEM>name IGS-5400-2P
SYSTEM>
SystemName : IGS-5400-2P
```

Command: system > location

Parameter: N/A

Description: display or fix the location

Example:

```
SYSTEM>location
SYSTEM>
SystemLocation : 13
SYSTEM>location Taiwan
SYSTEM>
SystemLocation : Taiwan
```

Command: system > description

Parameter: N/A

Description: display or fix the system description

Example:

```
SYSTEM>
SystemDescription : switch
SYSTEM>description industrial
SYSTEM>
SystemDescription : industrial
```

Command: system > DHCPclient

Parameter: enable/disable

Description: enable or disable DHCP client

Example:

```
SYSTEM>dhcpclient enable
SYSTEM>
DHCP Client enable: 0
SYSTEM>dhcpclient disable
SYSTEM>
DHCP Client enable: 1
```

Command: system > DHCP server

Parameter: [enable/disable]→ enable or disable DHCP server

[<range_low>]/[<range_high>]→ set the IP range

[<netmask>]→ set submask

[<gateway>]→ set gateway

[<dns>]→ set DNS server

[<lease_time>]→ set the lease time of released IP

Example:

```
SYSTEM>DHCPserver
SYSTEM>
DHCP Server enable: true
DHCP Server range_low: 192.168.9.100
DHCP Server range_high: 192.168.9.200
DHCP Server netmask: 255.255.255.0
DHCP Server gateway: 192.168.16.254
DHCP Server dns: 8.8.8.8
DHCP Server lease_time: 86400
```

Command system > DHCPstatus

Parameter: N/A

Description: show the information of DHCP client

Example:

```
SYSTEM>DHCPstatus
SYSTEM>
MacAddress                IpAddress
-----
00:1f:c6:3d:7e:25        192.168.9.101
```

Command: system > netstatus

Parameter: N/A

Description: show the status about IP address

Example:

```
SYSTEM>netstatus
SYSTEM>
IpAddr : 192.168.16.1
Netmask : 255.255.255.0
GatewayIp :
DnsIp : 168.95.1.1
```

Command: system > netsettingIPv4

Parameter: [<IpAddr>]→ set IP address

<netmask>]→ set netmask

<gatewayip>]→ set gateway

<dnsip>]→ set DNS server

Description: set the IP detail of switch

Example:

```
SYSTEM>netsettingIPv4
SYSTEM>
IpAddr : 192.168.16.1
Netmask : 255.255.255.0
GatewayIp : 192.168.9.1
DnsIp : 168.95.1.1
```

Command: system > netsettingIPv6

Parameter: N/A

Description: set the IP address of IPv6

Example:

```
SYSTEM>netsettingIPv6
SYSTEM>
IpAddrv6 : 2001:0db8:0:f101::3
```

Command: system > reboot

Parameter: N/A

Description: reboot the switch

Example:

```
SYSTEM>reboot
SYSTEM>System Reboot after 1 sec

Broadcast message from root (Fri Jun 21 17
The system is going down for reboot NOW!
```

Command: system > restoredefault

Parameter: keep_none → restore all setting

keep_all → restore all but keep original IP address and account

keep_ip → restore all but keep original IP address

keep_account → restore all but keep original account

Description: restore the setting of switch to factory default

Example:

```
SYSTEM>restoredefault ?
Invalid parameter:?
Syntax: System RestoreDefault [keep_none | keep_all | keep_ip | keep_account]
```

Command: system > log

Parameter: N/A

Description: display the event log

Example:

```
Fri, 21 Jun 2013 03:40:27 GMT linkchg
Fri, 21 Jun 2013 05:37:26 GMT linkchg
Fri, 21 Jun 2013 05:37:40 GMT boot
Fri, 21 Jun 2013 06:04:23 GMT auth
Fri, 21 Jun 2013 06:15:20 GMT auth
```

Command: system > save

Parameter: N/A

Description: save the fixed setting

Example:

```
SYSTEM>save
SYSTEM>
System save success!!
```

Command: system > ping

Parameter: N/A

Description: ping the IP address

Example:

```
SYSTEM>ping 192.168.16.1
SYSTEM>host 192.168.16.1 is alive
```

Command: system > arp

Parameter: N/A

Description: resolve the IP address to MAC address

Example:

```
SYSTEM>arp
SYSTEM>
IpAddress                MacAddress
-----
192.168.16.66            00:1f:c6:3d:7e:25
```

Command: system > memory

Parameter: N/A

Description: display the status of used switch memory

Example:

```
SYSTEM>memory
SYSTEM>
Type                Size(kb)
-----
MemTotal            239540
MemFree              173664
```

Command: system > configaccess

Parameter: [export|import] → export or import the setting of switch

[URL] → set the destination which save/load the setting file, support both the TFTP and FTP protocol.

Description: export or import the setting of switch

Example:

```
SYSTEM>configaccess export ftp://192.168.16.66
```

Command: system > upgrade

Parameter: [URL] → set the source of firmware file, support TFTP and FTP and HTTP protocol.

Description: update switch firmware

Example:

```
SYSTEM>upgrade tftp:192.168.16.1
Please wait for upgrade
```

LLDP

Command: LLDP

Parameter: N/A

Description: Enter the LLDP mode

Example:

```
>lldp
Available Commands:
LLDP Configuration [<port_list>]
LLDP Enabled [enable|disable]
LLDP Mode [<port_list>] [enabledRx
LLDP Interval [<interval>]
LLDP Timetolive [<tvl>]
LLDP Info [<port_list>]
LLDP Statistics [clear]
LLDP>_
```

Command: LLDP > configuration

Parameter: N/A

Description: display the LLDP information

Example:

```
LLDP>configuration
LLDP>
Interval: 10
Port      Mode
-----
 1      enabledRxTx
 2      enabledRxTx
 3      enabledRxTx
 4      enabledRxTx
 5      enabledRxTx
 6      enabledRxTx
 7      enabledRxTx
 8      enabledRxTx
 9      enabledRxTx
10      enabledRxTx
11      enabledRxTx
12      enabledRxTx
```

Command: LLDP > enabled

Parameter: N/A

Description: enable LLDP protocol

Example:

```
LLDP>enabled
LLDP>
Enabled: true
```

Command: LLDP > mode

Parameter: [<port_list>]→display LLDP information of the dedicated port

[enabledRxTx]→ enable Tx and Rx of LLDP function with dedicated port

[enabledTxOnly]→ enable Tx only of LLDP function with dedicated port

[enabledRxOnly]→ enable Rx only of LLDP function with dedicated port

[disabled]→ disable LLDP function with dedicated

Description: enable LLDP function of each port

Example:

```
LLDP>mode
LLDP>
Port      Mode
-----
1         enabledRxTx
2         enabledRxTx
3         enabledRxTx
4         enabledRxTx
5         enabledRxTx
6         enabledRxTx
7         enabledRxTx
```

Command: LLDP > interval

Parameter: N/A

Description: set the interval time of LLDP

Example:

```
LLDP>interval 10
LLDP>
Interval: 10
```

Command: LLDP > timetolive

Parameter: N/A

Description: display the alive time of LLDP information.

Example:

```
LLDP>timetolive
LLDP>
Time to live : 15
```

Command: LLDP > info

Parameter: N/A

Description: display the LLDP information of neighbor port

Example:

```
LLDP>info
LLDP>
Localport          ChassisID          PortID  PortDescription  SystemName
-----
```

Command: LLDP > statistics

Parameter: N/A

Description: display the detail information of LLDP settings

Example:

```
LLDP>statistics
LLDP>
Total LLDP traffic statistics
Total entries added : 0
Total entries deleted : 0
Total entries aged : 0
Total frames out : 6127
Total frames in : 0
Total frames received in error : 0
Total frames discarded : 0
Total TLVs discarded : 0
Total TLVs unrecognized : 0
Localport          FramesIn          FramesOut
-----
```

| Localport | FramesIn | FramesOut |
|-----------|----------|-----------|
| 1 | 0 | 557 |
| 2 | 0 | 557 |
| 3 | 0 | 557 |
| 4 | 0 | 557 |

Port

Command: port

Parameter: N/A

Description: Enter the port mode

Example:

```
>port
Available Commands:
Port Configuration [<port_list>]
Port Status [<port_list>]
Port Enabled [<port_list>] [enable|disable]
Port Description [<port_list>] [string]
Port Speed [<port_list>] [10hdx|10fdx|100hdx]
Port FlowControl [<port_list>] [enable|disable]
Port IngressRate [<port_list>] [<rate> kbps]
Port EgressRate [<port_list>] [<rate> kbps]
Port Statistics [clear]
```

Command: port > configuration

Parameter: N/A

Description: display the setting of each port

Example:

```
PORT>configuration
PORT>
Port      enabled Description      Speed Conf      Flow Control Conf
-----
1         true   Port 1           auto          true
2         true   Port 2           auto          true
3         true   Port 3           auto          true
4         true   Port 4           auto          true
5         true   Port 5           auto          true
6         true   Port 6           auto          true
7         true   Port 7           auto          true
8         true   Port 8           auto          true
```

Command: port > status

Parameter: N/A

Description: display the connection status of each port

Example:

```
PORT>status
PORT>
Port      Group ID      Type      Link      State      Speed
-----
1         -1            100TX    down      enable     N/A
2         -1            100TX    down      enable     N/A
3         -1            100TX    down      enable     N/A
4         -1            100TX    up        enable     100
5         -1            100TX    down      enable     N/A
6         -1            100TX    down      enable     N/A
7         -1            100TX    down      enable     N/A
8         -1            100TX    down      enable     N/A
9         -1            DSFP     down      enable     N/A
```

Command: port > enabled

Parameter: [<port_list>]→ choose which port you want to enable or diasble

[enable|disable]→ enable/disable

Description: enable or disable switch port

Example:

```
PORT>enable
PORT>
Port      Enabled
-----
1         true
2         true
3         true
4         true
5         true
6         true
7         true
```

Command: port > description

Parameter: N/A

Description: display the description of each port

Example:

```
PORT>description
PORT>
Port      Description
-----
1         Port 1
2         Port 2
3         Port 3
4         Port 4
5         Port 5
```

Command: port > speed

Parameter: N/A

Description: display the speed of each port

Example:

```
PORT>speed
PORT>
Port      Speed Conf
-----
1         auto
2         auto
3         auto
4         auto
5         auto
```

Command: port > flowcontrol

Parameter: [<port_list>]→ choose which port you want to enable or disable

[enable|disable]→ enable/disable

Description: enable or disable flow control function of each port

Example:

```
PORT>flowcontrol
PORT>
Port      FlowControl Conf
-----
1         true
2         true
3         true
4         true
5         true
6         true
7         true
```

Command: port > Ingressrate

Parameter: [<port_list>]→ choose which port you want to set the ingress rate

[<rate> kbps]→set the ingress rate of these packet as below

broadcast

multicast

unicast

broad_uni

broad_multi

multi_uni

uni_broad_multi

Description: set the ingress rate of the dedicated port with specified packet

Example:

```
PORT>ingressrate
PORT>
Port      Ingress Rate      Ingress Type
-----
1         0
2         0
3         0
4         0
```

Command: port > egressrate

Parameter: [<port_list>]→ choose which port you want to set the ingress rate

[<rate> kbps]→set the ingress rate

Description: set the egress rate of the dedicated port

Example:

```
PORT>egress
PORT>
Port      Egress Rate
-----
1         0
2         0
3         0
4         0
```

Command: port > statistics

Parameter: N/A

Description: display the detail information of port statistics

Example:

```
PORT>statistics
PORT>
ports          :
Txgoodbyte    :
Txgoodpkts    :
Txmcpkts      :
Txbrdepkts    :
Txerr         :
Txucpkts      :
Txmultiplepkts :
Txdeferredpkts :
Rxgoodbyte    :
Rxbadbyte     :
Rxgoodpkts    :
Rxbadpkts     :
Rxbrdepkts    :
Rxmcpkts      :
Rxmacerror    :
Rxbadfc       :
Rxucpkts      :
Rxunrecognt r :
Rxgoodfc      :
64byte_       :
```