User's Manual

iES8G

Intelligent 8 Port Managed & Unmanaged Ethernet Switch

Version 2.30-2, Nov 2022

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Table of Contents

FCC STATEMENT AND CAUTIONS 1
Federal Communications Commission Radio Frequency Interference Statement 1
Caution: LASER 1
Caution: Service 1
Caution: Physical Access 1

1. Getting Started 2
1.1 About iES8(G) 2
1.2 Software Features 2
1.3 Hardware Features 2

2. Hardware Installation 4
2.1 Installing the Switch on a DIN-Rail 4
2.1.1 Mounting the iES8(G) on a DIN-Rail 4
2.2 Wall Mount Installation 4
2.2.1 Mounting the iES8(G) on a Wall or Panel 5
2.3 Chassis Ground Connection 6
2.4 Power Connections 6
2.4.1 LV: Dual Input 10-48VDC 7
2.4.2 MV: Dual Input 36-75VDC 7
2.4.3 HV: Single Input 85-264VAC or 88-370VDC with a Single 10-48VDC Backup 8
2.5 Console Connection 8

3. Hardware Overview 9
3.1 Front Panel 9
3.2 Bottom Panel 11
3.3 Rear Panel 12
3.4 Side Panel 12

4. Cables 13
4.1 Ethernet Cables 13
4.1.1 Cable Types and Specifications: 13
4.1.2 100BASE-TX/10BASE-T Pin Assignements 13
4.2 Fiber Optics 14
4.3 Console Cable 14
4.3.1 Console Cable pin assignments: 14

5. WEB Management 15
5.1 Basic setting 17
5.1.1 Switch Setting 17
5.1.2 Admin Password 17
5.1.3 IP Setting 18
5.1.4 Time Setting) 18

5.1.5 LLDP 20
5.1.6 Modbus TCP (iES8G Only) 21
5.1.7 Auto Provision 21
5.1.8 Backup & Restore 22
5.1.9 Upgrade Firmware 22
5.2 DHCP Server 23
5.2.1 DHCP Server – Setting 23
5.2.2 DHCP Server – Client List 24
5.2.3 DHCP Server – DHCP Relay Agent (iES8G only) 24
5.3 Port Setting 25
5.3.1 Port Control 25
5.3.2 Port Status 26
5.3.3 Rate Limit 26
5.3.4 Port Trunk 27
5.3.5 Loop Guard (iES8G only) 28
5.4 Redundancy 28
5.4.1 iRing 28
5.4.2 iChain 29
5.4.3 iBridge 30
5.4.4 RSTP-Repeater (iES8G only) 31
5.4.5 Fast Recovery 31
5.4.6 Dual Port Recovery 32
5.4.7 RSTP 34
5.4.8 MSTP 36
5.4.9 MRP 39
5.5 VLAN 39
5.5.1 VLAN Setting 39
5.5.2 VLAN Table 40
5.6 SNMP 41
5.6.1 SNMP – Agent Setting 41
5.6.2 SNMP – Trap Setting 42
5.6.3 SNMP – SNMPv3 Setting 43
5.7 Traffic Prioritization 45
5.7.1 Policy 45
5.7.2 Port-based Priority 46
5.7.3 COS/802.1p 47
5.7.4 TOS/DSCP 48
5.8 Multicast 49
5.8.1 IGMP Snooping 49
5.8.2 MVR 50
5.8.3 Multicast Filter 50
5.9 Security 51
5.9.1 IP Security 51
5.9.2 Port Security 52
5.9.3 MAC Blacklist 53
5.9.4 802.1x 53
5.9.5 IP Guard (iES8G only) 55
5.10 Warning 58
5.10.1 Fault Alarm 58
5.10.2 System Alarm 58

5.11 Monitor and Diagnostics 61
5.11.1 MAC Address Table 61
5.11.2 MAC Address Aging 61
5.11.3 Port Statistics 62
5.11.4 Port Counters (iES8G only) 62
5.11.5 Port Monitoring 64
5.11.6 Traffic Monitor (iES8G only) 65
5.11.7 System Event Log 66
5.11.8 Ping 67
5.12 Save Configuration 67
5.13 Factory Default 68
5.14 System Reboot 68

6. Command Line Interface Management (CLI) 69
6.1 About CLI Management 69
6.2 CLI Management by Telnet 72
6.3 Commands Set List—System Commands Set 73
6.4 Commands Set List—Port Commands Set 75
6.5 Commands Set List—Trunk command set 76
6.6 Commands Set List—VLAN command set 77
6.7 Commands Set List— RSTP command set 78
6.8 Commands Set List—QoS command set 79
6.9 Commands Set List—IGMP command set 80
6.10 Commands Set List—MAC/Filter Table command set 80
6.11 Commands Set List—SNMP command set 81
6.12 Commands Set List—Port Mirroring command set 81
6.13 Commands Set List—802.1x command set 82
6.14 Commands Set List—TFTP command set 83
6.15 Commands Set List—SYSLOG, SMTP, EVENT command set 83
6.16 Commands Set List—SNTP command set 84
6.17 Commands Set List—iRing command set 85
6.18 Commands Set List—MRP command set 86

Appendix A: iES10G(F) Modbus Information 87

Table of Figures

Figure 1 - DIN-Rail Bracket 4
Figure 2 - DIN-Rail Bracket and Rail 4
Figure 3 – Side View of the Switch 5
Figure 4 – Side View of the Switch with bracket and screws 5
Figure 5 – Chassis Ground Connection 6
Figure 6 – Power Connections 6
Figure 7 – Bottom Panel View 11
Figure 8 – Rear Panel View 12
Figure 9 – Side Panel View 12
Figure 10 – Fiber Optics 14

Figure 11 - RJ45 Cable 14
Figure 12 - Login screen 15
Figure 13 – Main and System Information Interface 16
Figure 14 – Front Panel 16
Figure 15 – Switch Setting Interface 17
Figure 16 – Admin Password Interface 17
Figure 17 – IP Configuration interface 18
Figure 18 – System Clock Interface 18
Figure 19 – LLDP configuration Interface 20
Figure 20 – MODBUS Configuration 21
Figure 21 – Auto Provision Interface 21
Figure 22 – Backup & Restore interface 22
Figure 23 – Backup & Restore interface 23
Figure 24 – DHCP Server Configuration interface 23
Figure 25 – DHCP Server Client Entries interface 24
Figure 26 – DHCP Server Port and IP Binding interface 24
Figure 27 – Port Control interface 25
Figure 28 – Auto Detect interface 26
Figure 29 – Port Status interface 26
Figure 30 – Rate Limit interface 26
Figure 31 – Port Trunk - Setting interface 27
Figure 32 – Port Trunk - LACP 28
Figure 33 – Port Trunk – Status interface 28
Figure 34 – iRing interface 29
Figure 35 – iChain interface 29
Figure 36 – Typical iChain Application 30
Figure 37 – iBridge Interface 30
Figure 38 – Typical iBridge Application 31
Figure 39 – RSTP - Repeater 31
Figure 40 – Fast Recovery Mode interface 32
Figure 41 – Dual Port Recovery interface 33
Figure 42 – RSTP Setting interface 34
Figure 43 – RSTP Information interface 35
Figure 44 – MSTP Setting 36
Figure 45 – MSTP Port 37
Figure 46 – MSTP Instance 38
Figure 47 – MSTP Instance Port 38
Figure 48 – MRP 39
Figure 49 – VLAN Configuration – 802.1Q interface 40
Figure 50 – VLAN TAble 41
Figure 51 – SNMP Agent Setting interface 41
Figure 52 – SNMP Trap Setting interface 42
Figure 53 – SNMPv3p Setting interface 43
Figure 54 – Policy Setting interface 45
Figure 55 – Port-based Priority interface 46
Figure 56 – COS/802.1p interface 47
Figure 57 – TOS/DSCP interface 48
Figure 58 – IGMP Snooping interface 49
Figure 59 – MVR interface 50
Figure 60 – Multicast Filtering interface 50
Figure 61 – IP Security interface 51
Figure 62 – Port Security interface 52
Figure 63 – MAC Blacklist interface 53
Figure 64 – 802.1x Radius Server interface 53
Figure 65 – 802.1x Port Authorize interface 54
Figure 66 – 802.1x Port Authorize State interface 55
Figure 67 – IP Guard – Port Setting State interface 55
Figure 68 – IP Guard – Allow List State interface 56
Figure 69 – IP Guard – Super-IP List State interface 56
Figure 70 – IP Guard – Monitor List interface 57

Figure 71 – Fault Alarm interface 58
Figure 72 – System Warning – SYSLOG Setting interface 58
Figure 73 – System Warning – SMTP Setting interface 59
Figure 74 – System Warning – Event Selection interface 60
Figure 75 – MAC Address Table interface 61
Figure 76 – MAC Address Aging interface 61
Figure 77 – Port Statistics interface 62
Figure 78 – Port Counters interface 63
Figure 79 – Port Monitoring interface 65
Figure 80 – Traffic Monitor interface 65
Figure 81 – System Event Log interface 66
Figure 82 – Ping interface 67
Figure 83 – System Configuration interface 67
Figure 84 – Factory Default interface 68
Figure 85 – System Reboot interface 68
Figure 86 – Programs -> Accessories -> Communications -> Hyper Terminal 69
Figure 87 –New Connection 70
Figure 88 –Connect To 70
Figure 89 –COM1 Properties 71
Figure 90 –Terminal – Hyper Terminal 71

FCC STATEMENT AND CAUTIONS

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This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment cangenerate, use, and radiate radio frequency energy. If not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will at his/her own expense, be required to correct the interference.

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Caution: LASER

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Should this device require service, please contact support@iS5Com.com.

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This product should be installed in a restricted access location. Access should only be gained by qualified service personnel or users who have been instructed on the reasons for the restrictions applied at the location, and any precautions that have been taken. Access must only be via the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

1. GETTING STARTED

1.1 About iES8(G)

The iES8(G) series switches are powerful, managed industrial grade switches with numerous features. These switches can operate under a wide temperature range, dusty environments, and in humid conditions. The switches can be managed either by using the WEB, TELNET, directly using the Console port on the switch, or any third-party SNMP software. The switch can also be managed by our own Network Management Suite called "iManage". iManage has a friendly and powerful interface which can be easily used to configure multiple switches at the same time, and also monitor their status..

1.2 Software Features

- World's fastest Rapid Redundant Ethernet Ring (Recovery time < 30ms with up to 250 units)
- Supports Ring Linking, Dual Homing over iRing, and standard STP/RSTP
- Supports SNMPv1/v2c/v3 & RMON & Port base/802.1Q VLAN Network Management
- Event notification by Email, SNMP trap and Relay Output
- Web-based ,Telnet, Console, CLI configuration
- Enable/disable ports, MAC based port security
- Port based network access control (802.1x)
- VLAN (802.1Q) to segregate and secure network traffic
- Radius centralized password management
- SNMPv3 encrypted authentication and access security
- RSTP (802.1w)
- Quality of Service (802.1p) for real-time traffic
- VLAN (802.1Q) with double tagging and GVRP supported
- IGMP Snooping for multicast filtering
- Port configuration, status, statistics, mirroring, security
- Remote Monitoring (RMON)
- MRP Implementation

1.3 Hardware Features

- Dual Input low-voltage (LV) DC (10-48VDC)
- Dual Input medium-voltage (MV) DC (36-75VDC)
- Single Input Hi-voltage (HV) AC/DC input (85-264VAC, 88-300VDC) with Single (10-48VDC) backup
- Wide Operating Temperature: -40°C to +85°C
- Storage Temperature: -40°C to 85°C
- Operating Humidity: 5% to 95%, non-condensing
- Chassis: IP-40 Galvanized Steel

- 7 x 10/100Base-T(X) Ethernet ports
- 1 x 10/100/1000Base-T(X) Ethernet ports
- Up to 3 x 100/1000Base-(X) SFP ports (Optional)
- Console Port
- iES10G Dimensions(W x D x H) : IES10G - 101.6 mm(W)x 109.2 mm(D)x 153.8 mm(H) (4x4.3 x 6.05 inch)
- iES10GF Dimensions (W x D x H): iES10GF – 101.8(W)x163.2(D)x153.6(H) mm (4 x 6.43 x 6.05 inch)
- Complies with: iEC 61850 -3; IEC 61800-3 (variable speed drive systems); IEC 61000-6-2 (generic industrial) (iES10GF only)

2. Hardware Installation

2.1 Installing the Switch on a DIN-Rail

Each switch has a DIN-Rail bracket on the rear panel. The DIN-Rail bracket helps secure the switch on to the DIN-Rail.

2.1.1 Mounting the iES8(G) on a DIN-Rail

Step 1: Slant the switch and hook the top 2 catches of the metal bracket onto the top of the DIN-Rail.

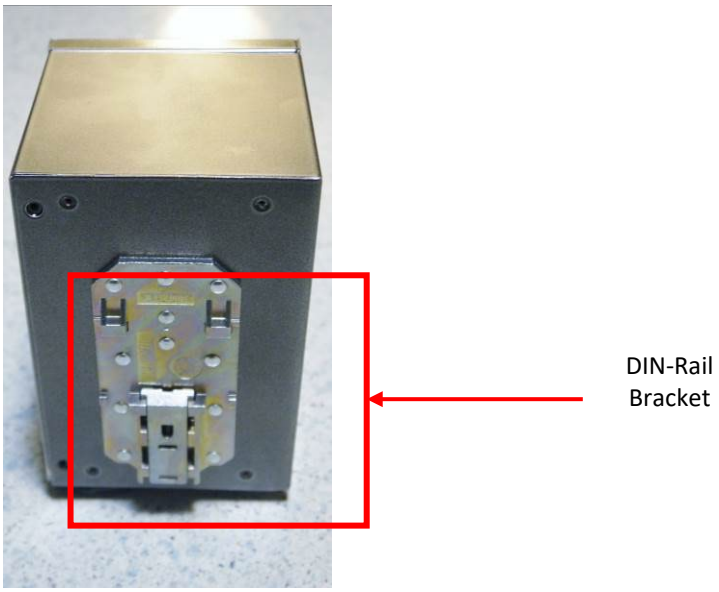


Figure 1 - DIN-Rail Bracket

Step 2: Push the bottom of the switch toward the DIN-Rail until the bracket snaps in place.

Figure 2 - DIN-Rail Bracket and Rail

2.2 Wall Mount Installation

The switch can also be panel or wall-mounted. The following steps show how to mount the switch on a panel or wall.

2.2.1 Mounting the iES8(G) on a Wall or Panel

Option 1: Fix mounting brackets to the side of switch using the 4 screws included in the package.

Figure 3 – Side View of the Switch

Option 2: Fix mounting brackets to back of switch using 4 screws included in the package.

Figure 4 – Side View of the Switch with bracket and screws

Note: To avoid damage to the unit please use the screws provided to mount the panel mount brackets to the unit.

2.3 Chassis Ground Connection

The iES8(G) chassis ground connection uses a #6-32 Screw. We recommend terminating the ground connection using a #6 ring lug, and a torque setting of 15 in.lbs (1.7Nm). The red outline indicates the location of the chassis ground.

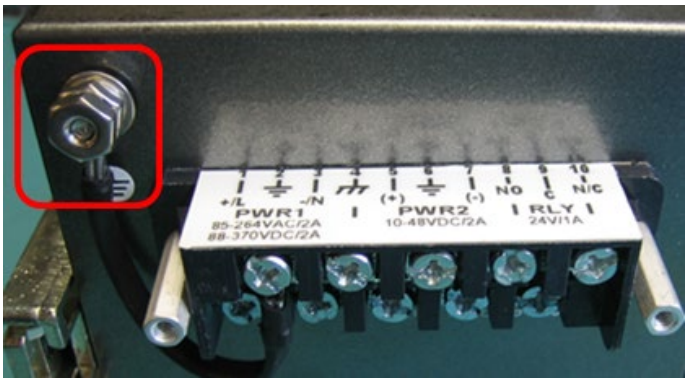


Figure 5 – Chassis Ground Connection

2.4 Power Connections

The iES8(G) Series Ethernet switch supports 3 different dual redundant power supplies (PWR1 and PWR2):

1. LV: Dual Input 10-48VDC
2. MV: Dual Input 36-75VDC
3. HV: Single Input 85-264VAC or 88-370VDC with a Single 10-48VDC Backup.

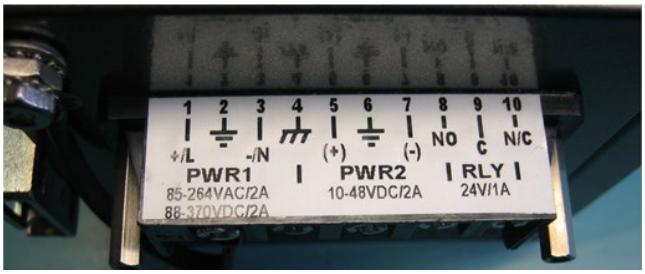


Figure 6 – Power Connections

The label on the terminal block will indicate the accepted voltage range for PWR1 and PWR2. Positions 2, 4 and 6 are all for ground connections (connected via a removable jumper) and can be used for any ground connection. The 3 tables below list the power connections for each type of input power.

The Phillips Screw Terminal Block has Phillips screws with compression plates, allowing either bare wire connections or crimped terminal lugs. The use of #6 size ring lugs is recommended to ensure secure and reliable connections under severe shock or vibration. The terminal block comes with a safety cover which must be removed before connecting any wires. This cover must be re-attached after wiring to ensure personnel safety.

2.4.1 LV: Dual Input 10-48VDC

Terminal Number	**Description**	**Connection**
1	PWR1 (+) : Positive	Connected to the positive of the 1st 10-48VDC power source.
2	PWR1  : Ground	Power supply 1 ground connection.
3	PWR1 (-) : Negative	Connected to the negative of the 1st 10-48VDC power source.
4	 : Chassis Ground	Connected to the safety ground terminal for AC Units or the ground bus for DC inputs. Chassis Ground connects to both power supply surge grounds via a removable jumper.
5	PWR2 (+) : Positive	Connected to the positive terminal of the 2nd 10-48VDC power source.
6	PWR2  : Ground	Power supply 2 ground connection.
7	PWR2 (-) : Negative	Connected to the negative terminal of the 2nd 10-48VDC power source.
8	RLY NO	Failsafe relay, normally open contact.
9	RLY CM	Failsafe relay, common contact.
10	N/C	No connection

2.4.2 MV: Dual Input 36-75VDC

Terminal Number	**Description**	**Connection**
1	PWR1 (+): Positive	Connected to the positive of the 1st 36-75VDC power source.
2	PWR1  : Ground	Power supply 1 ground connection.
3	PWR1 (-) : Negative	Connected to the negative of the 1st 36-75VDC power source.
4	 : Chassis Ground	Connected to the safety ground terminal for AC Units or the ground bus for DC inputs. Chassis ground connects to both power supply surge grounds via a removable jumper.
5	PWR2 (+) : Positive	Connected to the positive terminal of the 2nd 36-75VDC power source.
6	PWR2  : Ground	Power supply 2 ground connection.
7	PWR2 (-) : Negative	Connected to the negative terminal of the 2nd 36-75VDC power source.
8	RLY NO	Failsafe relay, normally open contact.
9	RLY CM	Failsafe relay, common contact.
10	N/C	No connection

2.4.3 HV: Single Input 85-264VAC or 88-370VDC with a Single 10-48VDC Backup

Terminal Number	**Description**	**Connection**
1	PWR1 (+/L) – Line or Positive	Connected to the line terminal of the 85-264VAC power source or the positive terminal of the 88-370VDC power source.
2	PWR1 – Ground	Power supply 1 ground connection.
3	PWR1 (-/N) – Neutral or Negative	Connected to the neutral terminal of the 85-264VAC power source or the negative terminal of the 88-370VDC power source.
4	– Chassis Ground	Connected to the safety ground terminal for AC units or the ground bus for DC inputs. Chassis ground connects to both power supply surge grounds via a removable jumper.
5	PWR2 (+) - Positive	Connected to the positive terminal of the 10-48VDC backup power source.
6	PWR2 – Ground	Power supply 2 ground connection.
7	PWR2 (-) – Negative	Connected to the negative terminal of the 10-48VDC backup power source.
8	RLY NO	Failsafe relay, normally open contact.
9	RLY CM	Failsafe relay, common contact.
10	N/C	No connection

- *100-240VAC rated equipment: A 250VAC appropriately rated circuit breaker must be installed.*
- *Equipment must be installed according to the applicable country wiring codes.*
- *When equipped with a HI voltage power supply and DC backup,*

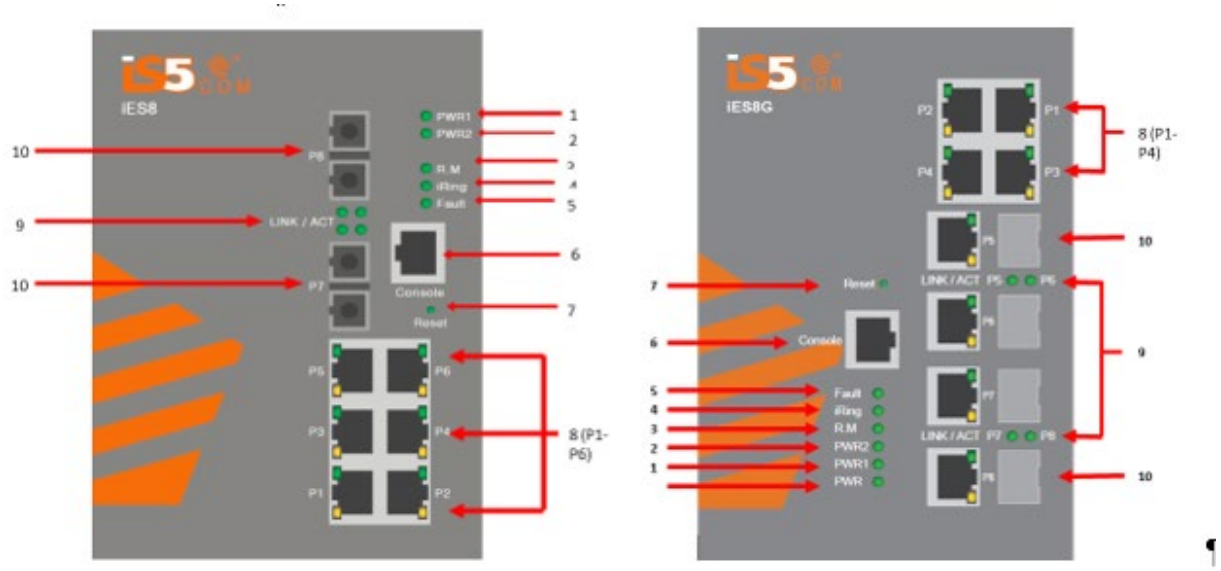
- *88-300VDC rated equipment: A 300VDC appropriately rated circuit breaker must be installed.*
- *A circuit breaker is not required for DC power supply voltages of 10-48VDC.*
- *For Dual DC power supplies, separate circuit breakers must be installed and separately identified.*
- *Equipment must be installed according to the applicable country wiring*

2.5 Console Connection

To manage the switch via console port, connect the console cable (provided with the switch) from a PC serial port (DB9) to the Console port on the front of the switch (RJ45).

3. HARDWARE OVERVIEW

3.1 Front Panel



iES8 Product description

Port	Description
Ports 1-6 10/100 RJ45 fast Ethernet ports (8)	6 x 10/100Base-T(X) RJ45 fast Ethernet ports support auto-negotiation. Default Setting : Speed: auto Duplex: auto Flow control : disable
Ports 7 -8 (10)	2 x 10/100Base-T(X) RJ45 fast Ethernet ports (Optional, iES8 model) 2 x 100Base-F(X) SC or ST ports (Optional, iES8 model) 2 x 1000Base-X SC or ST ports (Optional, iES8G model)
Console (6)	Use a RS232 to RJ45 cable to manage switch.
Reset (7)	Push and hold the reset button for 2 to 3 seconds to reset the switch.Push and hold the reset button for 5 seconds to reset the switch into Factory Default.

Note: Ports 7 and 8 (Ref 10) Fiber option shown for reference only. Ports are also available as RJ45.

iES8G Product description

Port	Description
Ports 1-4 10/100/1000 RJ45 fast Ethernet ports	4 x 10/100/1000Base-T(X) RJ45 Ethernet ports support auto-negotiation.

Port	Description
(8)	Default Setting : Speed: auto Duplex: auto Flow control : disable
Ports 4 -8 (10)	4 x 10/100/1000Base-T(X) RJ45 Ethernet ports (Optional, iES8G model) 4 x 100/1000Base-F(X) SFP ports (Optional, iES8G model) 4 x Combo Port 10/100/1000Base TX RJ45 and 4x 100/1000 (X) (Optional, iES8G model)
Console (6)	Use a RS232 to RJ45 cable to manage switch.
Reset (7)	Push and hold the reset button for 2 to 3 seconds to reset the switch. Push and hold the reset button for 5 seconds to reset the switch into Factory Default.

Front Panel LED's:

Item	Description	Color	Status	Function
1	PWR1	Green	On	Power supply 1 operational.
2	PWR2	Green	On	Power Supply 2 operational.
3	R.M	Green	On	Switch operating as iRIng Master.
4	iRing	Green	On	iRing enabled.
			Slowly blinking	iRing topology broken.
			Fast blinking	iRing working normally.
5	Fault	Amber	On	Fault relay. Power failure or Port down/fail.
Ports 1 to 6 - 10/100Base-T(X) Fast Ethernet ports				
8	LNK / ACT	Green	On	Port link up.
			Blinking	Data transmitted.
	Full Duplex	Amber	On	Port works under full duplex.

Ports 7 – 8 Optional 10/100Base-T(X) or 100Base-F(X) or 1000Base-X				
9	ACT	Green	On	Port link up.
			Blinking	Data transmitted.
	LNK	Amber	On	Port link up.

3.2 Bottom Panel

The below shows the 10 position terminal block and ground lug of the iES8(G) switch.

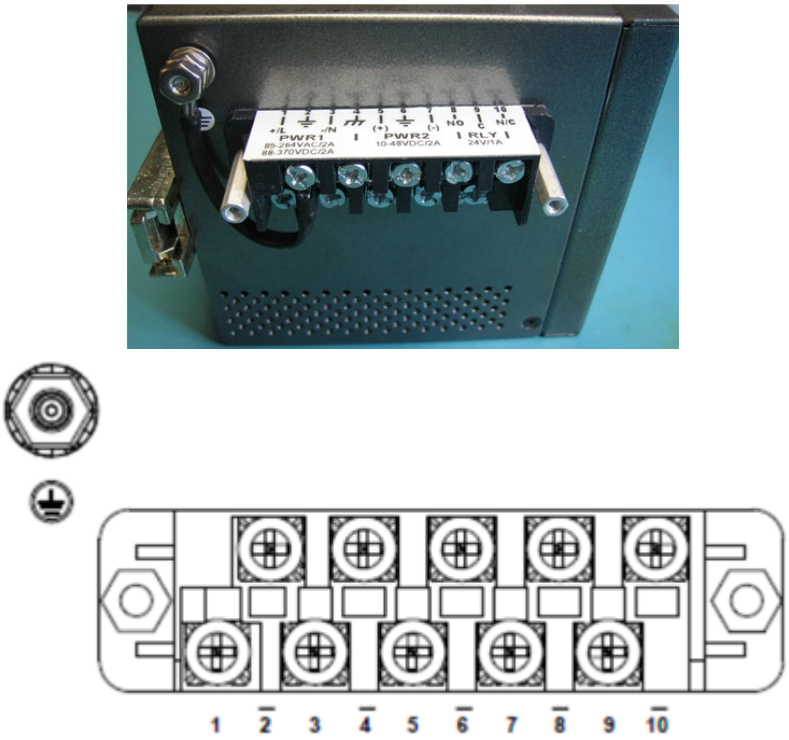


Figure 7 – Bottom Panel View

Terminal Number	Description	Connection
1	PWR1 (L) – Live	Connect to the (Live) of DC power supply 1 or (Live) terminal of an AC power source.
2	PWR1 (G) – Ground	DC Power supply 1 ground connection or AC power round connection.
3	PWR1 (N) – Neutral	Connect to the Neutral of the DC power supply 1 or (Neutral) terminal of an AC power source.
4	G – Chassis Ground	Connected to the ground bus for DC inputs or Safety Ground terminal for AC Units. Chassis Ground connects to both power supply surge grounds via a removable jumper.
5	PWR2 (L) – Live	Connect to the (Live) terminal of Power supply 2 or backup DC power source.

Terminal Number	Description	Connection
6	PWR2 (G) – Ground	Power supply 2 or backup DC power source ground connection.
7	PWR2 (N) – Neutral	Connect to the (Neutral) terminal of Power supply 2 the second or backup DC power source.
8	RLY NO	Failsafe Relay, (Normally Open) contact.
9	RLY CM	Failsafe Relay (Common) contact.
10	RLY NC	Failsafe Relay (Normally Closed) contact.

3.3 Rear Panel

The image below shows the DIN bracket on the back of the switch. Circled in red are the mounting holes for the Panel bracket mounting option. The components on the rear of the iES8(G) are shown below:

1. Screw holes (4) for wall mount kit.
2. DIN-Rail mount

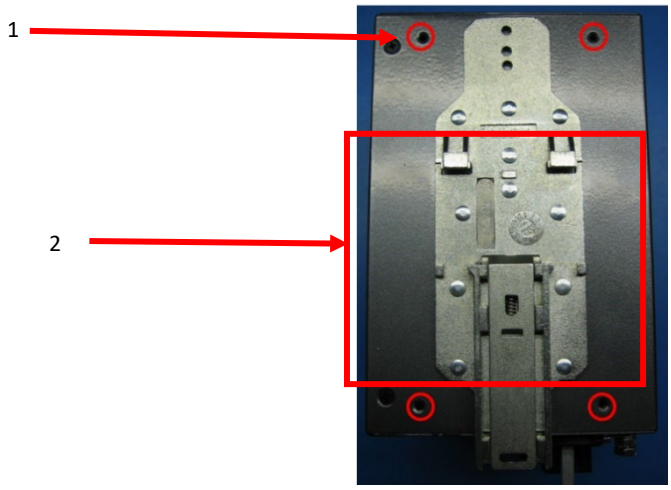


Figure 8 – Rear Panel View

3.4 Side Panel

The image below shows the side if the switch with the product label displaying switch information. Circled in red are the side mounting holes for the Panel bracket mounting option Screw holes (4) for wall mount kit.

Figure 9 – Side Panel View

4. CABLES

4.1 Ethernet Cables

The iES8(G) switch uses standard Ethernet ports, hence enabling use of CAT 3, 4, 5, 5e UTP cables to connect to any network device i.e. PC's, server's, switch's, router's, and hub's. Please refer to the following table for cable specifications.

4.1.1 Cable Types and Specifications:

Cable	Type	Max. Length	Connector
10BASE-T	Cat.3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ45
100BASE-TX	Cat.5 100-ohm UTP	UTP 100 m (328 ft)	RJ45
1000BASE-TX	Cat.5/Cat.5e 100-ohm UTP	UTP 100 m (328ft)	RJ45

4.1.2 100BASE-TX/10BASE-T Pin Assignements

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

4.1.2.1 RJ45 Pin Assignments:

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

The iES8(G)) switch supports auto MDI/MDI-X operation. Use a straight-through cable to connect a PC to the switch. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

4.1.2.2 MDI/MDI-X pins assignment:

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

4.2 Fiber Optics

The iES8(G) Series Switch is available with optional fiber ports. The fiber optical ports are available in either Multimode or Singlemode, and with either SC or ST type connectors. The transceivers are also available for longer distances as required.
Note: T(X) port of Switch A should be connected to the R(X) port of Switch B.

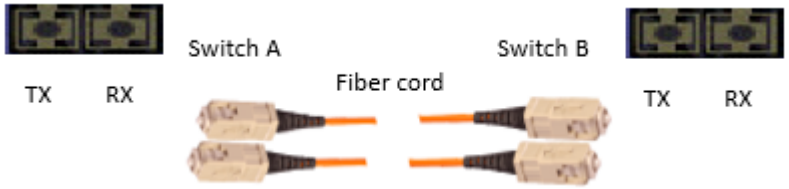


Figure 10 – Fiber Optics

4.3 Console Cable

The iES8(G) Series switches can be managed via the console port on the front face using the RS-232 cable provided, and a local PC.

4.3.1 Console Cable pin assignments:

PC pin out (male) assignment	DB9 to RJ 45
Pin #2 RD	Pin #2 TD
Pin #3 TD	Pin #3 RD
Pin #5 GD	Pin #5 GD

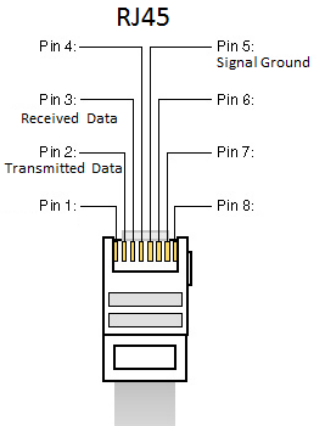
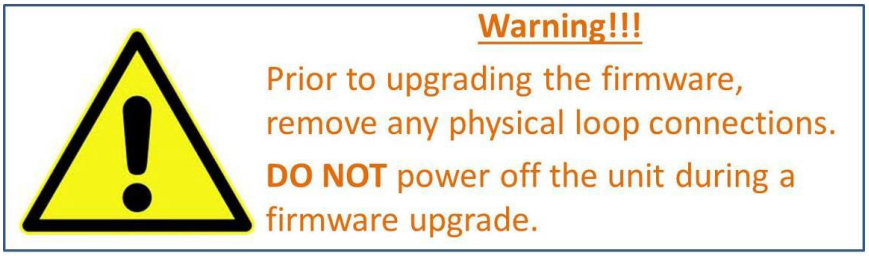


Figure 11 - RJ45 Cable

5. WEB MANAGEMENT



This section introduces the configuration by Web browser.

An embedded HTML website resides in the flash memory of the CPU board. It contains advanced management features that allows management of the switch from anywhere on the network through a standard web browser such as Microsoft Internet Explorer.
The Web-Based Management function supports Internet Explorer 5.0 or later. It is based on Java Applets with an aim to reduce network bandwidth consumption and enhance access speed in an easy viewing screen.

Note: By default, IE5.0 or later versions do not allow Java Applets to open sockets. The browser settings need to be explicitly modified in order to enable Java Applets to use the network ports.

The default value is as below:

- IP Address: **192.168.10.1**
- Subnet Mask: **255.255.255.0**
- Default Gateway: **192.168.10.254**
- User Name: **admin**
- Password: **admin**

For System Login, perform the following:

1. Launch the Internet Explorer.
2. Type http:// and the switch's IP address (default is 192.168.10.1), then press **Enter**.

3. The login screen appears (see).
4. Enter username and password. The default username and password are "admin".
5. Click **OK**. Then the main interface of the Web-based management appears (see).

Figure 12 - Login screen

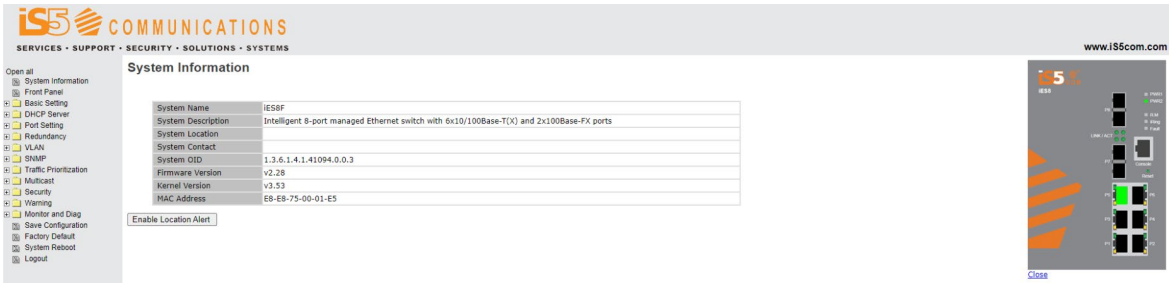


Figure 13 – Main and System Information Interface

System Information

The system information will display the configuration of Basic Setting/Switch Setting page.

Enable Location Alert

Click Enable Location Alert, PWR1 and PWR2 LED's of the switch will start to flash together;

Click Disable Location Alert, the LED's stop flashing.

Displays the front panel of the iES10G(F). Click "**Close**" to hide the image.

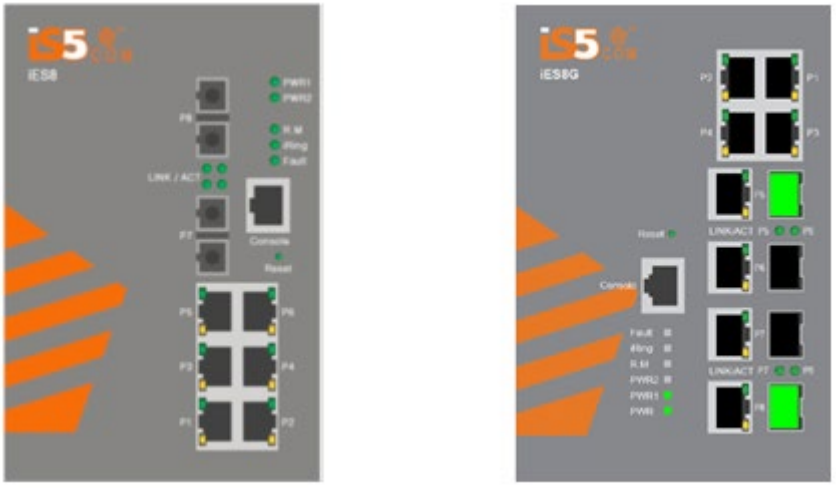


Figure 14 – Front Panel

5.1 Basic setting

5.1.1 Switch Setting

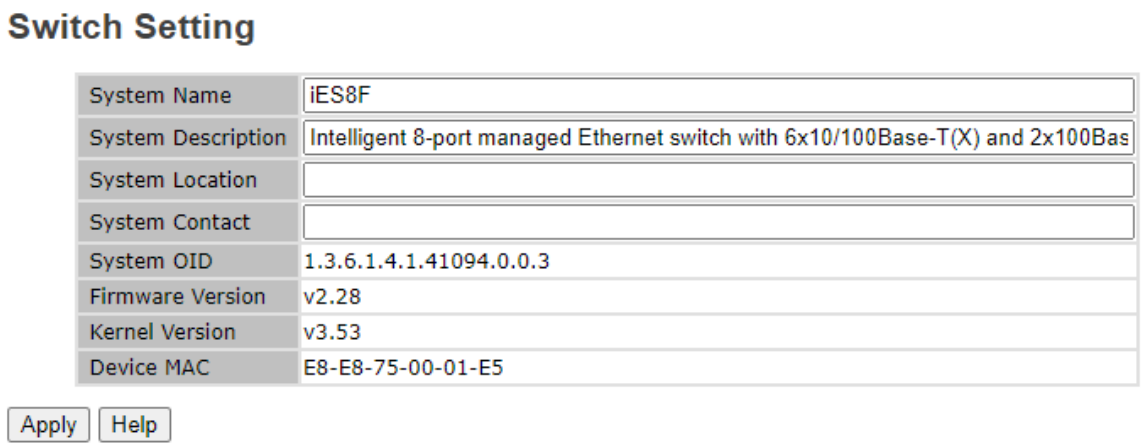


Figure 15 – Switch Setting Interface

The following table describes the Switch setting interface page.

Label	Description
System Name	Assign a name to the switch. The maximum length is 64 bytes
System Description	Displays the description of the switch.
System Location	Assign the switch a physical location. The maximum length is 64 bytes
System Contact	Enter the name of contact person or organization
System OID	Displays the switch's OID information
Firmware Version	Displays the switch's firmware version
Kernel Version	Displays the kernel software version
MAC Address	Displays the unique hardware address assigned by manufacturer (default)

5.1.2 Admin Password

Change the web management login username and password for management security. The maximum length of the admin password is 10 characters.

Figure 16 – Admin Password Interface

The following table describes the Admin Password interface page.

Label	Description
User name	Key in the new username (The default is "**admin**")
New Password	Key in the new password (The default is "**admin**")
Confirm password	Re-type the new password.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.1.3 IP Setting

Configuring the IP Settings and DHCP client function through IP configuration interface.

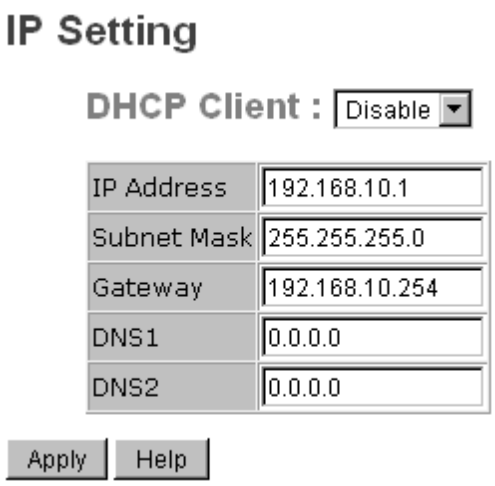


Figure 17 – IP Configuration interface

The following table describes the labels in IP configuration interface page.

Label	**Description**
DHCP Client	
IP Address	Assign the IP address that the network is using. If DHCP client function is enabled, there is no need to assign an IP address. The network DHCP server will assign the IP address for the switch and it will be displayed in this column. The default IP address is 192.168.10.1.
Subnet Mask	Assign the subnet mask of the IP address. If the DHCP client function is enabled, there is no need to assign a subnet mask.
Gateway	Assign the network gateway for the switch. The default gateway is 192.168.10.254.
DNS1	Assign the primary DNS IP address
DNS2	Assign the secondary DNS IP address
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.1.4 Time Setting)

This page includes configurations of SNTP and system clock.

5.1.4.1 System Clock

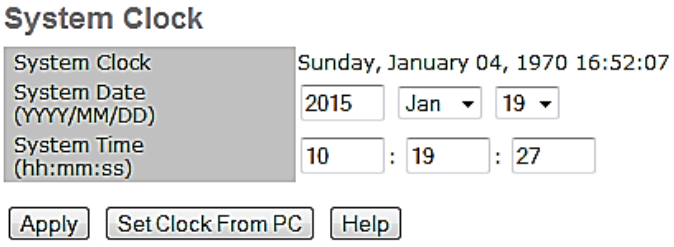


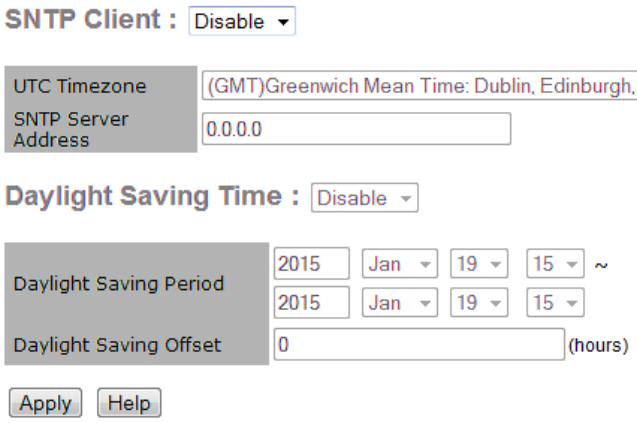
Figure 18 – System Clock Interface

The following table describes the System Clock Configuration interface page.

Label	Description
System clock	This field shows the current system timer. The time stamp could be assigned by manual configuration or by SNTP server.
System Date	Specify the year, month and day of system clock(YYYY/MM/DD). Year:2006-2015. Month: Jan-Dec. Day:1-31(28)
System Time	Specify the hour, minute and second of system clock(hh:mm:ss). Hour:0-24, Minute:0-59, Second:0-59

5.1.4.2 SNTP

The SNTP (Simple Network Time Protocol) settings allow you to synchronize switch clocks over the Internet.



The following table describes the SNTP Configuration interface page.

Label	Description
SNTP Client	Enables or disables the SNTP function to get the time from the SNTP server.
UTC Time zone	Set the switch location time zone. The following table lists the different time zones for reference.
SNTP Sever Address	Set the SNTP server IP address.
Current System Time	Display the switch current time.
Daylight Saving Period	Set up the Daylight Saving beginning time and Daylight Saving ending time. Both will be different each year.
Daylight Saving Offset	Set up the offset time.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
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 Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
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 Standard GST Guam Standard, USSR Zone 9	+10 hours	10 pm
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight

5.1.5 LLDP

The LLDP (Link Layer Discovery Protocol) function allows the switch to advertise its information to other nodes on the network and store the information it discovers.

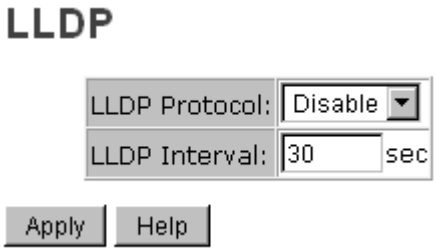


Figure 19 – LLDP configuration Interface

The following table describes the LLDP configuration interface page.

Label	Description
LLDP Protocol	"**Enable**" or "**Disable**" LLDP function.
LLDP Interval	The interval of resend LLDP (by default at 30 seconds)
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.1.6 Modbus TCP (iES8G Only)

This page shows Modbus TCP support of the switch. (For more information regarding Modbus, please visit http://www.modbus.org/)

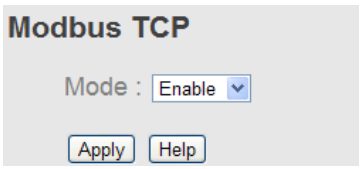


Figure 20 – MODBUS Configuration

The following table describes the MODBUS configuration interface page.

Label	Description
Mode	Shows the existing status of the Modbus TCP function
Apply	Click to apply changes
Help	Click to access Help menu.

Note: For Modbus commands please see Appendix A.

5.1.7 Auto Provision

Auto Provision allows the system administrator to update the switch firmware automatically. Firmware and/or the configuration file can be stored on the TFTP server. When the switch is rebooted, the switch will upgrade automatically. Before updating, make sure the TFTP server is ready and the firmware image and configuration file stored on the TFTP server.

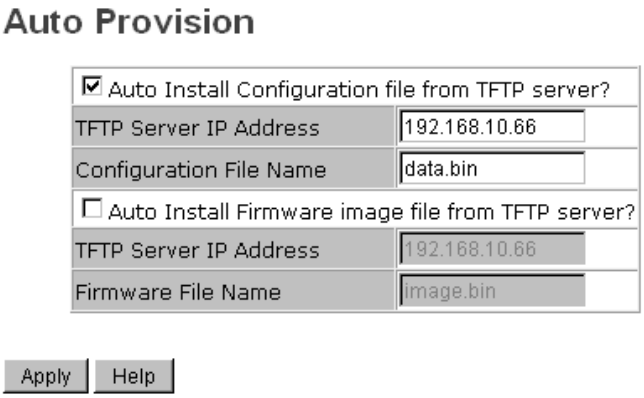


Figure 21 – Auto Provision Interface

The following table describes the labels for the Auto Provision interface page.

Label	Description
Auto Install Configuration file from TFTP server?	When selected, this option is enabled.
Auto Install Firmware image file from TFTP server?	When selected, this option is enabled.
TFTP Server IP Address	TFTP Server IP Address where firmware and configuration files are located.
File name	File name of the Configuration or Firmware file.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.1.8 Backup & Restore

The current configuration from the switch can either be saved to the TFTP server, or it can be restored from the TFTP server on this page. The configuration can also be saved to and restored from a file on the local PC.

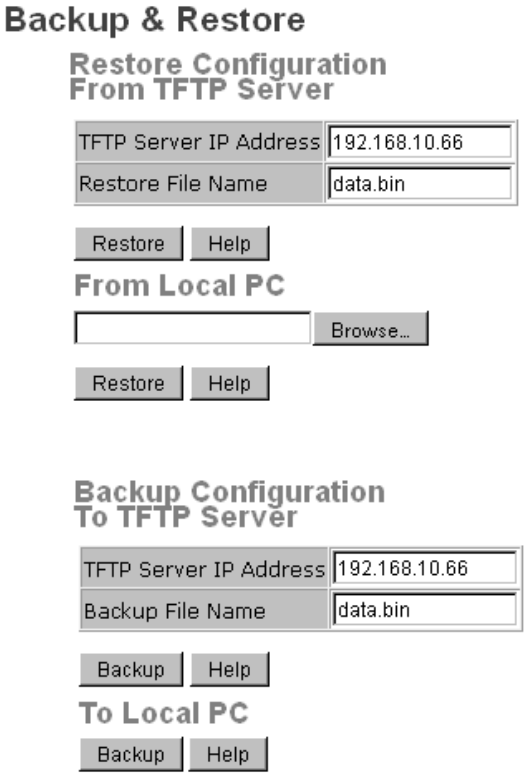


Figure 22 – Backup & Restore interface

The following table describes the Backup & Restore interface page.

Label	Description
TFTP Server IP Address	Enter the TFTP server IP address.
Restore File Name	Enter the file name.
Restore	Click "**restore**" to restore the configurations.
Backup File Name	Enter the file name.
Backup	Click "**backup**" to back up the configurations.
Help	Show help file.

5.1.9 Upgrade Firmware

Upgrade Firmware allows you to update the firmware of the switch via TFTP or from your local PC. Before updating by TFTP, make sure you have your TFTP server ready, and the firmware image is on the TFTP server. The firmware can also be updated from a file on the local PC.

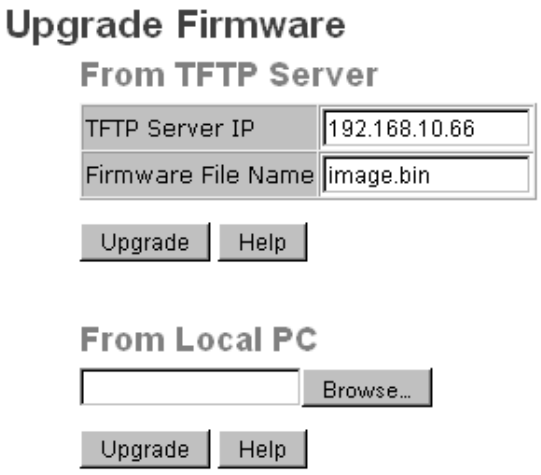


Figure 23 – Backup & Restore interface

5.2 DHCP Server

5.2.1 DHCP Server – Setting

The Switch had a DHCP server function. Enabling the DHCP server function will allow the switch to act as a DHCP server.

Figure 24 – DHCP Server Configuration interface

The following table describes the DHCP Server Configuration interface page.

Label	Description
DHCP Server	Enable or Disable the DHCP Server function. Enable – the switch will act as the DHCP server on your local network.
Start IP Address	The dynamic IP assign range. The lowest IP address is the starting of the dynamic IP assigned range. For example: dynamic IP assigned range is from 192.168.1.100 to 192.168.1.200. 192.168.1.100 will be the starting IP address.
End IP Address	The dynamic IP assign range. The highest IP address is the end of the dynamic IP assigned range. For example: dynamic IP assign range is from 192.168.1.100 to 192.168.1.200. 192.168.1.200 will be the End IP address.
Subnet Mask	The dynamic IP assigned range subnet mask.
Gateway	The gateway in the network.

Label	Description
DNS	Domain Name Server IP Address in the network.
Lease Time (Hour)	It is the period that the system will reset the assigned dynamic IP address to ensure the IP address is in use.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.2.2 DHCP Server – Client List

When the DHCP server function is activated, the system will collect the DHCP client information and displays it here.

Figure 25 – DHCP Server Client Entries interface

5.2.3 DHCP Server – DHCP Relay Agent (iES8G only)

The DHCP relay agent relays DHCP messages between clients and servers for DHCP on different subnet domain. DHCP relay agent use Option 82 to insert specific information into a request that is being forwarded to a DHCP server, and according to Option 82 to remove the specific information from reply packets when forwarding server DHCP packets to a DHCP client.

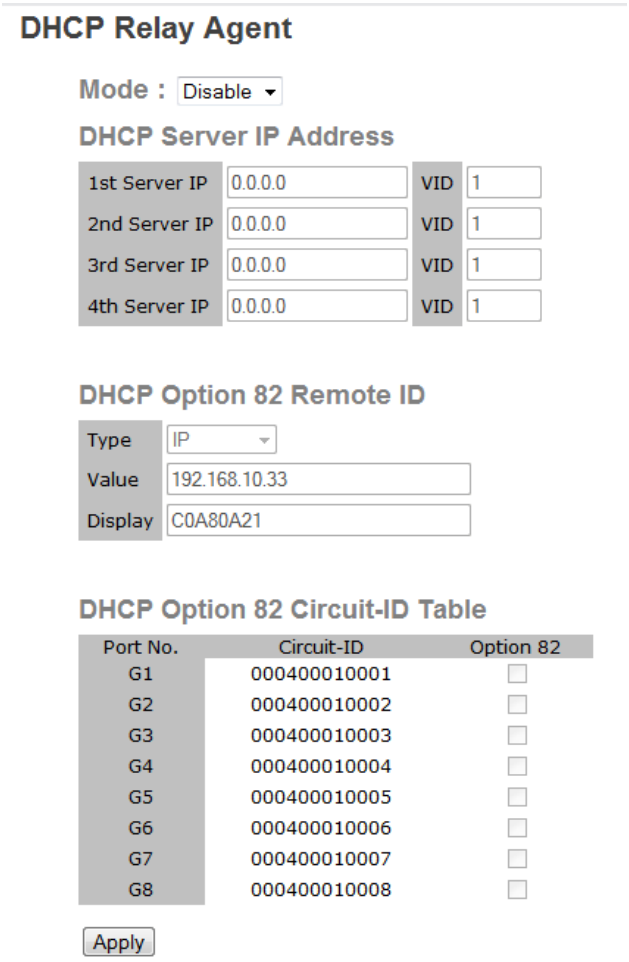


Figure 26 – DHCP Server Port and IP Binding interface

The following table describes the DHCP Relay Agent Configuration interface page.

Label	Description
DHCP Relay	Enable/Disable DHCP Relay Agent.
DHCP Server IP Address and VID	Specify the IP address and VID of DHCP server. Keep "0.0.0.0" means server is inactive.
DHCP Option 82 Remote ID	"Option 82 Remote ID" provides a identifier for the remote server. There are 4 types supported: IP, MAC, Client-ID, and Other.
DHCP Option 82 Circuit-ID Table	"Option 82 Circuit-ID" encodes an agent-local identifier of the circuit from which a DHCP client-to-server packet was received. It is intended for use by agents in relaying DHCP responses back to the proper circuit.
Apply	Click **"Apply"** to set the configurations.

5.3 Port Setting

5.3.1 Port Control

With this function, the system administrator can set the state, speed/duplex, flow control, and security of the port.

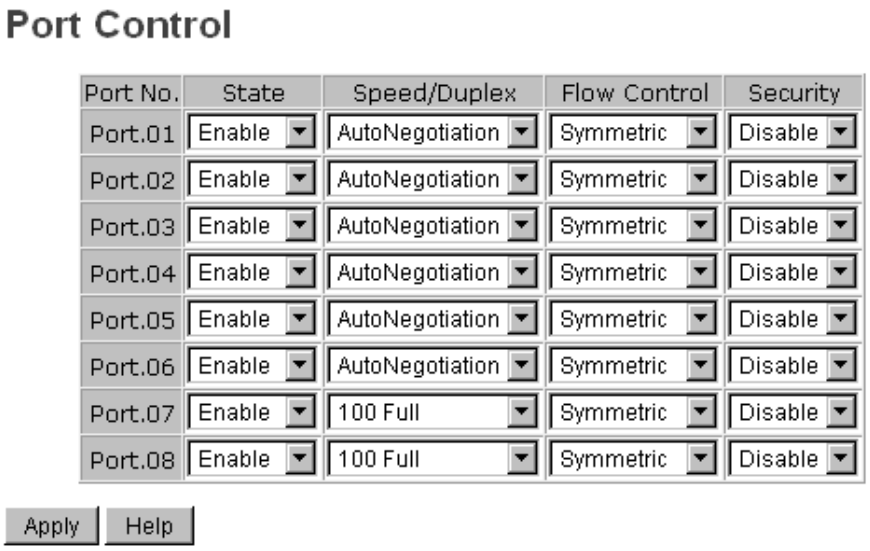


Figure 27 – Port Control interface

The following table describes the Port Control interface page.

Label	Description
Port No.	Port number for setting.
State	Enables/Disables Port Control.
Speed/Duplex	Sets Auto-negotiation, 100 full, 100 half, 10 full or 10 half
Flow Control	Supports symmetrical and asymmetrical mode to avoid packet loss when congestion occurs.
Security	Supports port security function. When enabled, the port will **STOP** learning the MAC address dynamically.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.3.1.1 Auto Detect option (iES8G only)

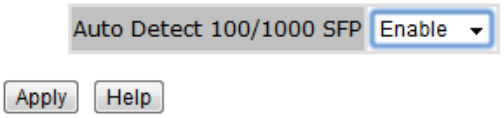


Figure 28 – Auto Detect interface

The following table describes the Auto Detect interface page

Label	Description
Auto Detect 100/1000	Auto Detect SFP port SFP Module speed (100M / 1000M)

5.3.2 Port Status

The following information provides the current port status information:

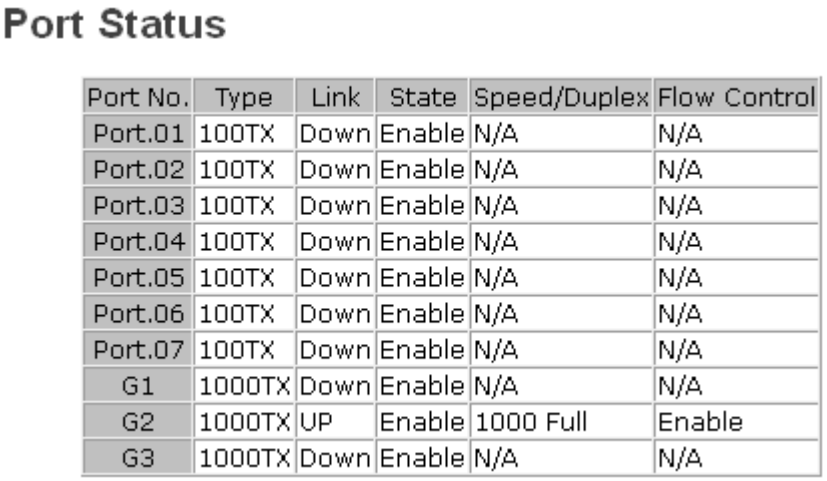


Figure 29 – Port Status interface

5.3.3 Rate Limit

This function allows the system administrator to limit the traffic on all ports, including broadcast, multicast and flooded Unicast. It can also set "Ingress" or "Egress" to limit traffic received or transmitted.

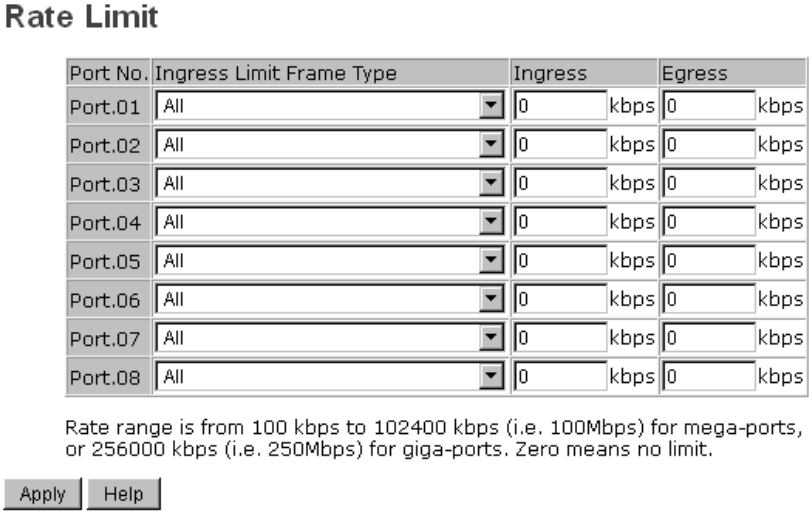


Figure 30 – Rate Limit interface

The following table describes the Rate Limit interface page.

Label	Description
Ingress Limit Frame Type	Can be set to: "**All**", "**Broadcast only**", "**Broadcast/Multicast**" or "**Broadcast/Multicast/Flooded Unicast**" mode.
Ingress	The switch port received traffic.
Egress	The switch port transmitted traffic.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.3.4 Port Trunk

5.3.4.1 Port Trunk – Setting

Static trunk or 802.3ad LACP can be selected to combine several physical links within a logical link to increase the bandwidth.

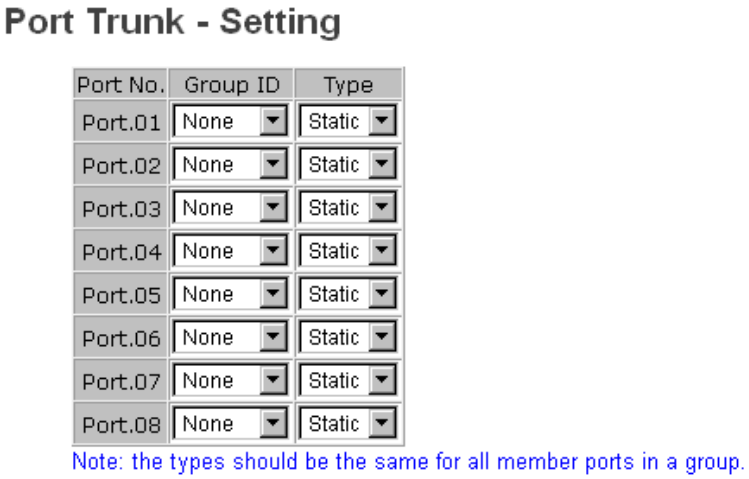


Figure 31 – Port Trunk - Setting interface

The following table describes the Port Trunk Setting interface page.

Label	Description
Group ID	Select port to join a trunk group.
Type	Support static trunk and 802.3ad LACP.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.3.4.2 Port Trunk – LACP

LACP is part of the IEEE standard 802.3ad that allows you to bundle several physical ports to form a single logical channel. When you change the number of active bundled ports on a port channel, traffic patterns will reflect the rebalanced state of the port channel.

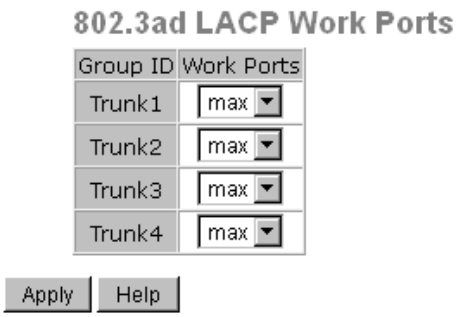


Figure 32 – Port Trunk - LACP

The following table describes the Port Trunk LACP interface page.

Label	Description
Work Ports	Work ports counted (max:4 ports)
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.3.4.3 Port Trunk – Status

You can check the configuration of a port trunk.

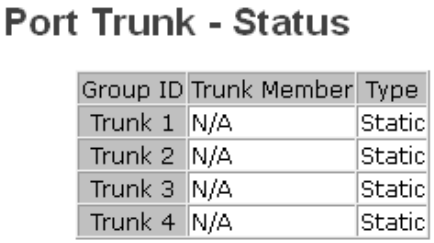


Figure 33 – Port Trunk – Status interface

5.3.5 Loop Guard (iES8G only)

This feature prevents the loop attack, when the port receives loop packet. This port will be automatically disabled to prevent the "loop attack" affecting other network devices.

Label	Description
Active	Loop Guard Enable or Disable
Port Status	Port work status.

5.4 Redundancy

5.4.1 iRing

iRing is one of the most powerful rapid redundant ring technologies in the world. The recovery time of iRing is < 30ms with up to 250 units. It can reduce any unexpected malfunction caused by a network topology change. iRing technology supports a three Ring topology for network redundancy: iRing, Ring Linking and Dual Homing.

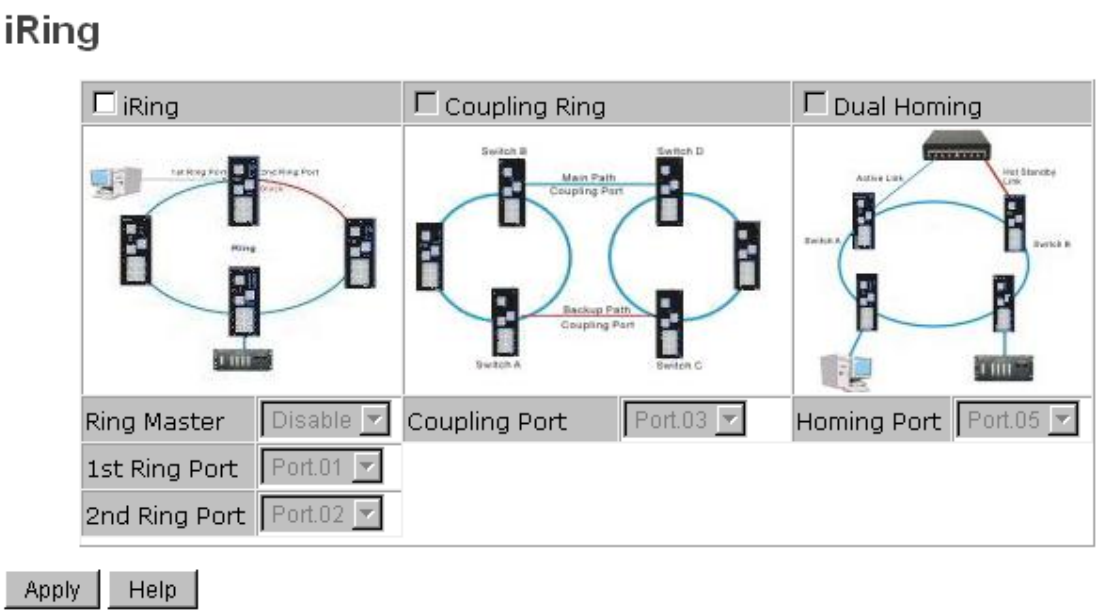


Figure 34 – iRing interface

The following table describes the iRing interface page.

Label	Description
iRing	To enable iRing.
Ring Master	There should only be one Ring Master in a ring. However, if there are two or more switches with Ring Master set to enabled; the switch with the lowest MAC address will be the actual Ring Master and the others will become Backup Masters.
1st Ring Port	The primary port; when this switch is configured in iRing.
2nd Ring Port	The backup port; when this switch is configured in iRing.
Coupling Ring	Enables Coupling Ring. Coupling Ring can be used to divide a big ring into two smaller Rings to avoid affecting all switches when a network topology change has been made. It is a good application when connecting two Rings.
Coupling Port	Set a port as the coupling port to link to the Coupling Port of the switch in another ring. Coupling Ring needs four switches to construct an active and a backup link. The coupled four ports of four switches will be operated in active/backup mode.
Dual Homing	To enable Dual Homing. Select Dual Homing mode, iRing will be connected to normal switches through two RSTP links (i.e., backbone Switch). The two links will act in active/backup mode and connect each ring to normal switches in RSTP mode.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

Note: It is not recommended to set one switch as a Ring Master and a Coupling Ring at the same time. This will burden the system.

5.4.2 iChain

iChain can be enabled to provide network redundancy and maximize fault recovery speed by creating multiple redundant networks.

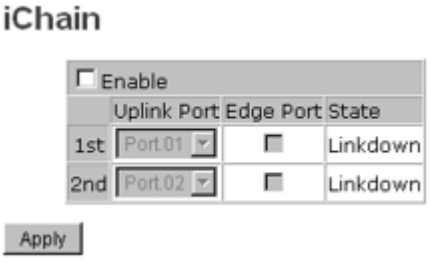


Figure 35 – iChain interface

The following table describes the labels for the iChain interface page..

Label	Description
Enable	Enables the iChain function.
Uplink Port	Select the port (1 - 8) to be the Uplink Port.
Edge Port	Defines the port as an Edge Port. Only one Edge Port of the Edge Switch needs to be defined. Other switches beside them just need to have iChain enabled.
State	Status is Forwarding or Linkdown.

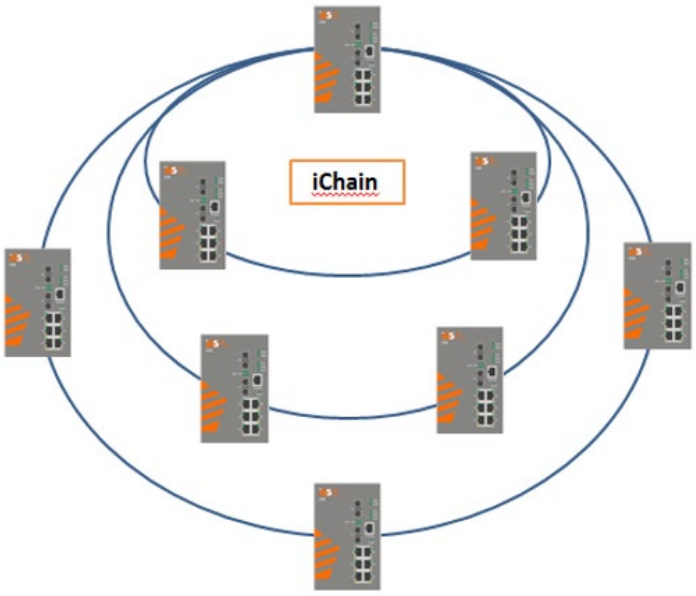


Figure 36 – Typical iChain Application

5.4.3 iBridge

iBridge technology can be enabled allowing the addition of iS5Com switches into a network constructed by another vendor's proprietary ring technology. This allows the interoperability between managed switches.

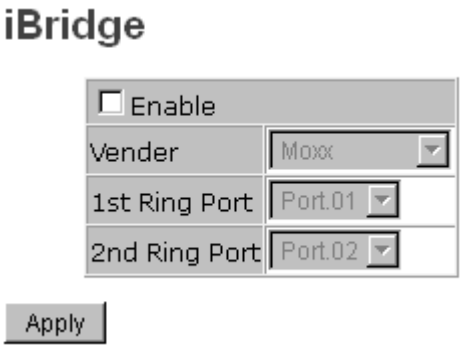


Figure 37 – iBridge Interface

The following table describes the labels for the iBridge screen.

Label	Description
Enable	Enables the iBridge function
Vendor	Choose the vendors that you want to interoperate with.
1st Ring Port	Choose the port that will connect to the ring.
2nd Ring Port	Choose the port that will connect to the ring.

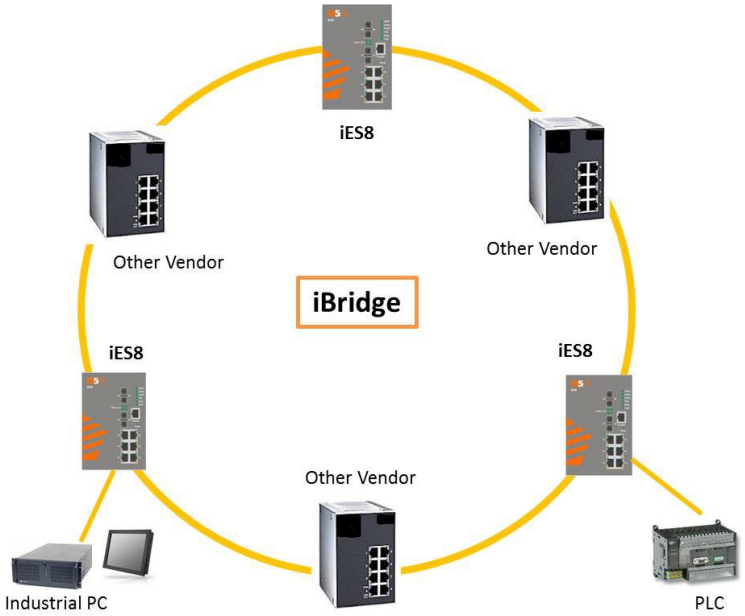


Figure 38 – Typical iBridge Application

5.4.4 RSTP-Repeater (iES8G only)

RSTP-Repeater is a simple function, this function can direct pass RSTP BPDU packet, like two RSTP devices connected through iES10G switch.

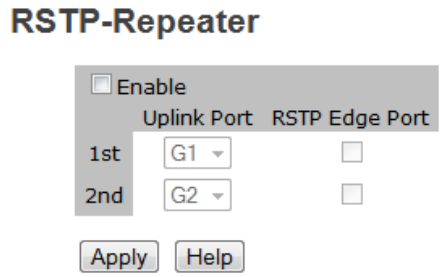


Figure 39 – RSTP - Repeater

The following table describes the labels for the RSTP-Repeater screen.

Label	Description
Enable	Check this box to enable RSTP-Repeater.
1stRing Port	Choosing the port which connect to the RSTP
2ndRing Port	Choosing the port which connect to the RSTP
Edge Port	Only the edge device (connected to RSTP device) needs to specify edge port. The user must specify the edge port according to topology of network.

5.4.5 Fast Recovery

The Fast Recovery Mode can be set to connect multiple ports to one or more switches. The iES8G with its fast recovery mode will provide redundant links. Fast Recovery mode supports 5 priorities, only the first priority will be the act port, the other ports configured with other priority will be the backup ports.

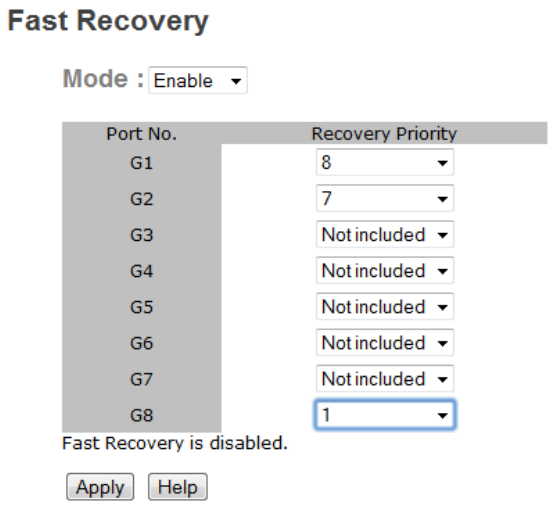


Figure 40 – Fast Recovery Mode interface

The following table describes the labels for the Fast Recovery screen.

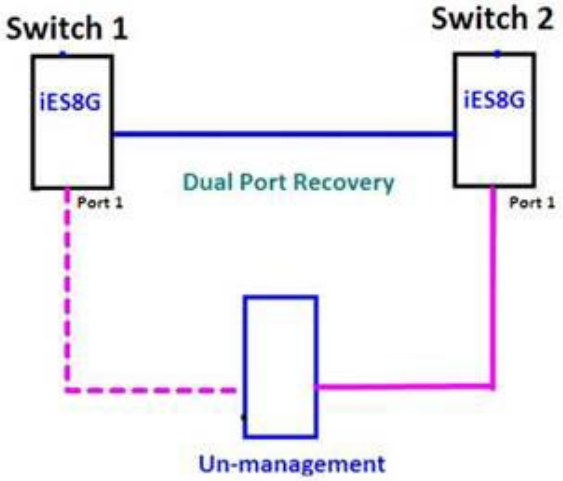
Label	Description
Active	Activate the fast recovery mode.
Port	Port can be configured as 5 priorities. Only the port with highest priority will be the active port. 1st Priority is the highest.
Apply	Click **"Apply"** to activate the configurations.

5.4.6 Dual Port Recovery

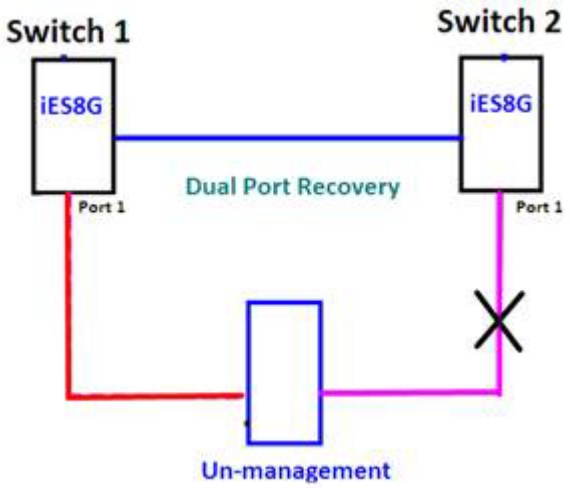
The Dual Port Recovery mechanism is the mechanism that allows execution of recovery protocol over the unmanaged devices/switches (ring of switches) that don't support other recovery protocols.
This protocols based on sending specific messages (BPDU format) from each port on both sides of unmanaged chain. The Dual Port Recovery feature can be executed with other redundancy protocols on same device.

5.4.6.1 Dual Port Recovery- Concept

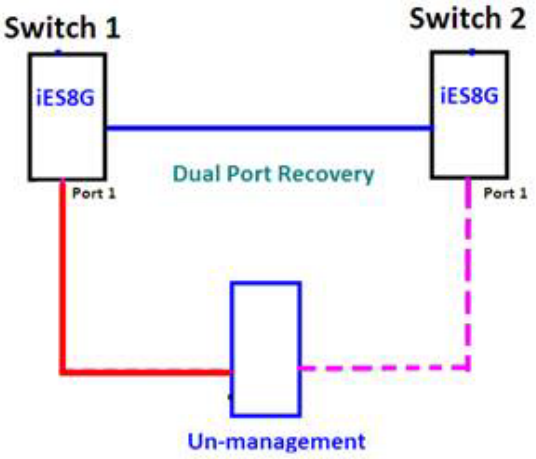
Dual Port Recovery allows connection to un-managed switch/ring of switches.



In Dual Port Recovery function if link of port in "Forwarding" state goes down, the "backup" port is changing its state to be forwarding, like in picture below. The disconnected port changes its status to "No Link"



When link of port 1 on switch 2 returns back to be link up, the switch 1 port 1 is in "forwarding" state and in this case the "No Link" port is changing its status to be "Blocking" port.



5.4.6.2 Dual Port Recovery-Configuration

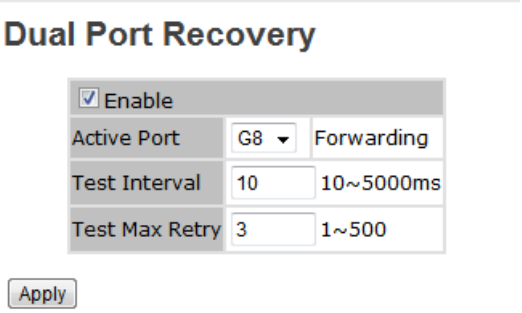


Figure 41 – Dual Port Recovery interface

The following table describes the labels for the Dual Port Recovery interface page.

Label	Description
Enable	Activate the Dual Port Recovery mode.
Active Port	Choosing the port which connects to the unmanaged switch/ring of switches. Note: User need to select one port to be Active Port on each of two devices of each side.
Test Interval	Setting Interval time for sending keep alive messages (10-5000ms default 10)

Label	Description
	Note: Test interval should be the same on both sides.
Test Max Retry	Set the maximum number of lost frames to start Dual Port Recovery mechanism (1-500 retries default 3) Note: Test Max Retry should be the same on both sides.
Apply	Click **"Apply"** to activate the configurations.

Recovery time is Test Max Retry x Test Interval + 10ms. Default Recovery time is 30ms<recovery time<40ms.

5.4.7 RSTP

The Rapid Spanning Tree Protocol (RSTP) is an evolution of the Spanning Tree Protocol (STP). It provides faster convergence of spanning tree after a topology change. The system also supports STP and will detect a connected device that is running STP or RSTP protocol automatically.

5.4.7.1 RSTP Setting

The RSTP function can be enabled or disabled and parameters set for each port via the RSTP Setting interface.

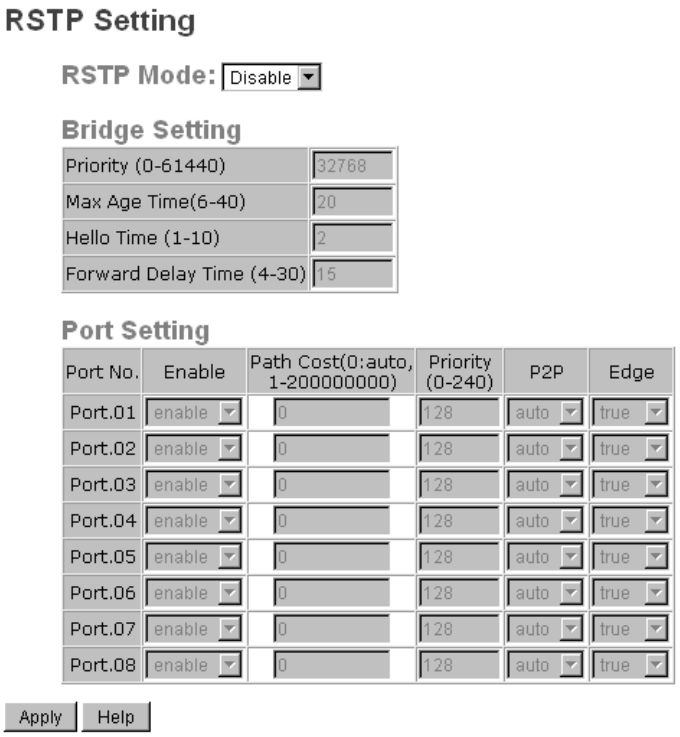


Figure 42 – RSTP Setting interface

The following table describes the labels for the RSTP Setting interface page.

Label	Description
RSTP mode	The RSTP function must be enabled or disabled before configuring any of the related parameters.
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value (highest priority) is selected as the root. If the value changes, the switch must be rebooted. The value must be a multiple of 4096 according to the protocol standard.
Max Age (6-40)	The number of seconds for a bridge to wait without receiving Spanning Tree Protocol configuration messages before reconfiguration. Enter a value between 6 and 40.
Hello Time (1-10)	The time that the Control Switch sends out the BPDU (Bridge Protocol Data Unit) packet to verify the current status of RSTP. Enter a value

Label	Description
	between 1 and 10.
Forwarding Delay Time (4-30)	The number of seconds a port has to wait before changing from learning/listening state to forwarding state. Enter a value between 4 and 30.
Path Cost (1-200000000)	The Path Cost to the other bridge from the transmitting bridge at a specified port. Enter a number 1 to 200000000.
Priority (0-240)	Enter which port should be blocked by setting the priority on the LAN. Enter a number between 0 and 240. The value of priority must be a multiple of 16.
P2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to one other bridge (i.e., It is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e., It is served by a shared medium LAN segment). This function allows the P2P status of the link to be manipulated administratively. True means P2P is enabled. False means P2P is disabled.
Edge	Admin Edge is the port which is directly connected to end stations. It cannot create a bridging loop on the network. To configure the port as an edge port, set the port to "**True**".
Apply	Click "**Apply**" to activate the configurations.

NOTE: Follow this rule to configure the MAX Age, Hello Time, and Forward Delay Time:

2 x (Forward Delay Time value –1) ≥ Max Age value ≥ 2 x (Hello Time value +1)

5.4.7.2 RSTP Information

Show RSTP algorithm result at this table.

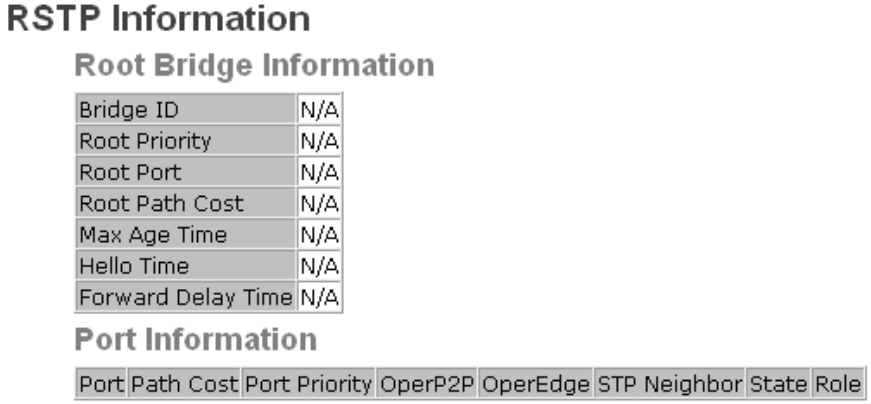


Figure 43 – RSTP Information interface

The following table describes the labels for the RSTP Information interface page.

Label	Description
Root Priority	A value used to identify the root bridge. The bridge with the lowest value and with the highest priority is selected as the root.
Root Path Cost	The Path Cost to the other bridge from the transmitting bridge at a specified port.
Max Age Time	The number of seconds a bridge waits without receiving Spanning-tree Protocol configuration messages before attempting a reconfiguration.
Hello Time (1-10)	The time that the Control Switch sends out the BPDU (Bridge Protocol Data Unit) packet to verify the current status of RSTP. **2 x (Forward Delay Time value –1) ≥ Max Age value ≥ 2 x (Hello Time value +1)**
Forwarding Delay Time (4-30)	The number of seconds a port waits before changing from its Rapid Spanning Tree Protocol learning/listening states to the forwarding state.
Path Cost	The cost of the path to the other bridge from this transmitting bridge at

Label	Description
	the specified port. A number 1 through 200000000.
Port Priority	Which ports should be blocked by priority in LAN. A number 0 through 240. The value of priority must be the multiple of 16.
OperP2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to exactly one other bridge (i.e. It is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e. It is served by a shared medium LAN segment). OperP2P shows the P2P status of the link to be manipulated administratively. True means P2P enabling. False means P2P disabling.
OperEdge	When True, OperEdge is enabled, the port is configured as an edge port and directly connected to an end station and cannot create a bridging loop. False means OperEdge disabled.
STP Neighbor	The port includes the STP mathematic calculation. True is not including STP mathematic calculation. False is including the STP mathematic calculation.
State	The State of each port is Disabled or Forwarding.
Role	The Role of each port is Disabled or Designated.

5.4.8 MSTP

Multiple Spanning Tree Protocol (MSTP) is a standard protocol based on IEEE 802.1s. The function is that several VLANs can be mapped to a reduced number of spanning tree instances because most networks do not need more than a few logical topologies. It supports load balancing scheme and the CPU is sparer than PVST (Cisco proprietary technology).

5.4.8.1 MSTP Setting

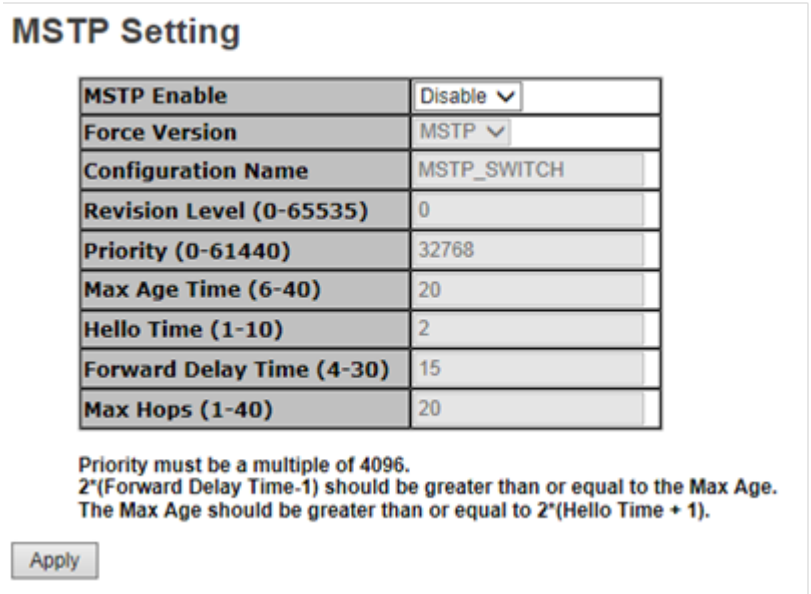


Figure 44 – MSTP Setting

The following table describes the MSTP Setting interface page.

Label	Description
MSTP Enable	You must enable or disable MSTP function before configuring the related parameters.
Force Version	The Force Version parameter can be used to force a VLAN Bridge that supports RSTP to operate in an STP-compatible manner.
Configuration Name	The same MST Region must have the same MST configuration name.

Label	Description
Revision Level (0-65535)	The same MST Region must have the same revision level.
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the value changes, You must reboot the switch. The value must be a multiple of 4096 according to the protocol standard rule.
Max Age Time(6-40)	The number of seconds a bridge waits without receiving Spanning-tree Protocol configuration messages before attempting a reconfiguration. Enter a value between 6 and 40.
Hello Time (1-10)	This setting follows the rule below to configure the MAX Age, Hello Time, and Forward Delay Time that a controlled switch sends out the BPDU packet to check RSTP current status. Enter a value between 1 and 10. **2 x (Forward Delay Time value –1) ≥ Max Age value ≥ 2 x (Hello Time value +1)**
Forwarding Delay Time (4-30)	The number of seconds a port waits before changing from its Rapid Spanning-Tree Protocol learning and listening states to the forwarding state. Enter a value between 4 and 30.
Max Hops (1-40)	This parameter is additional to those specified for RSTP. A single value applies to all Spanning Trees within an MST Region (the CIST and all MSTIs) for which the Bridge is the Regional Root.
Apply	Click "**Apply**" to activate the configurations.

5.4.8.2 MSTP Port

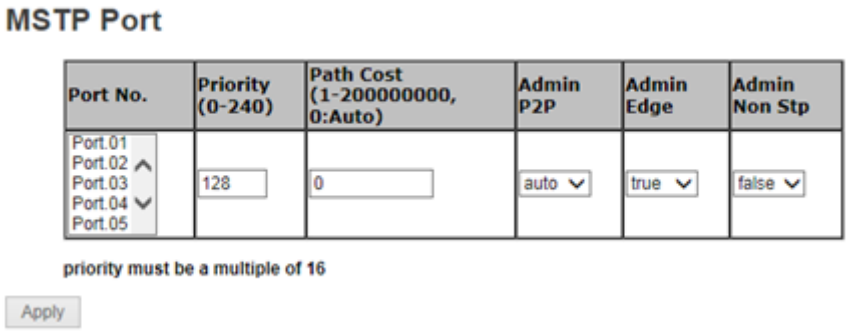


Figure 45 – MSTP Port

The following table describes the MSTP Port interface page.

Label	Description
Port No.	Select the port that you want to configure.
Priority (0-240)	Decide which port should be blocked by priority in LAN. Enter a number 0 through 240. The value of priority must be the multiple of 16
Path Cost (1-200000000)	The cost of the path to the other bridge from this transmitting bridge at the specified port. Enter a number 1 through 200000000.
Admin P2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to exactly one other bridge (i.e. It is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e. It is served by a shared medium LAN segment). This function allows the P2P status of the link to be manipulated administratively. True means P2P enabled. False means P2P disabled.
Admin Edge	Label
Admin Non STP	Label
Apply	Click "**Apply**" to activate the configurations.

5.4.8.3 MSTP Instance

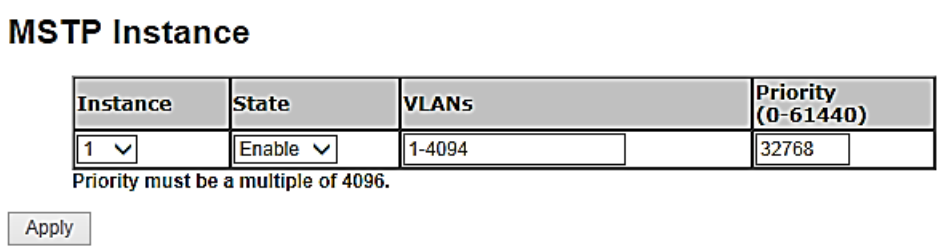


Figure 46 – MSTP Instance

The following table describes the MSTP Instance interface page.

Label	Description
Instance	Set the instance from 1 to 15
State	Enable or disable the instance
VLANs	Set which VLAN will belong which instance
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the value changes, You must reboot the switch. The value must be multiple of 4096 according to the protocol standard rule.
Apply	Click "**Apply**" to activate the configurations.

5.4.8.4 MSPT Instance Port

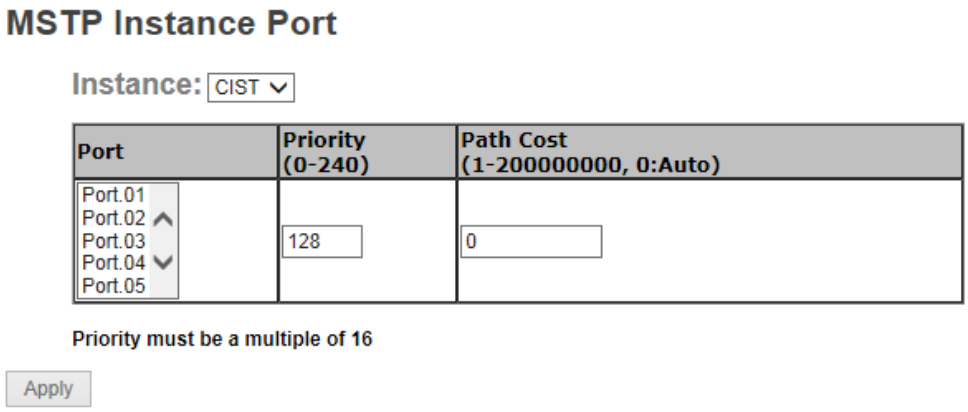


Figure 47 – MSTP Instance Port

The following table describes the MSTP Instance Port interface page.

Label	Description
Instance	Set the instance's information except CIST
Port	Select the port that you want to configure.
Priority (0-240)	Decide which port should be blocked by priority in LAN. Enter a number 0 through 240. The value of priority must be the multiple of 16
Path Cost (1-200000000)	The cost of the path to the other bridge from this transmitting bridge at the specified port. Enter a number 1 through 200000000.
Apply	Click "**Apply**" to activate the configurations.

5.4.9 MRP

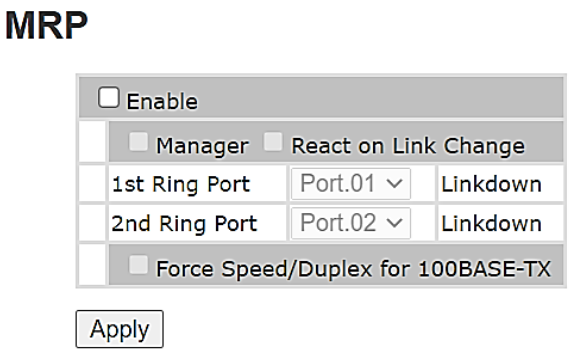


Figure 48 – MRP

The following table describes the labels in this screen.

Label	Description
Enable	Enables the MRP function.
Manager	Every MRP topology needs a MRP manager, and can only have one manager. If two or more switches are set to be Managers at the same time, the MRP topology will fail.
React on Link Change (Advanced mode)	Faster mode. Enabling this function will ensure MRP topology a more rapid converge. This function only can be set by the MRP manager switch.
1st Ring Port	Chooses the port that connects to the MRP ring.
2nd Ring Port	Chooses the port that connects to the MRP ring.
Force Speed / Duplex for 100 Base-TX	Add a checkmark to activate Force Speed/Duplex for 100 Base-TX.

5.5 VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, and allows the network traffic to be isolated. Only the members of the same VLAN will receive the traffic from the other members. Basically, to create a VLAN from a switch is the equivalent of separating a group of network devices. However, all the network devices are still plugged into the same switch physically.
The iES10G(F) switch supports port-based and 802.1Q (tagged-based) VLAN. The default configuration for VLAN operation mode is "**802.1Q**".

5.5.1 VLAN Setting

Tagged-based VLAN is an IEEE 802.1Q specification standard. It allows the creation of VLAN's across devices from different switch venders. IEEE 802.1Q VLAN uses a technique to insert a "tag" into the Ethernet frames. This tag contains a VLAN Identifier (VID) that indicates the VLAN numbers.
Tag-based VLAN's can be created the GVRP protocol can either be enabled or disabled. There are 256 VLAN groups available. Enabling 802.1Q VLAN, and all ports on the switch belong to the default VLAN, VID is 1. The default VLAN cannot be deleted.
GVRP allows automatic VLAN configuration between the switch and nodes. If the switch is connected to a device with GVRP enabled; a GVRP request can be sent by using the VID of a VLAN defined on the switch. The switch will automatically add that device to the existing VLAN.

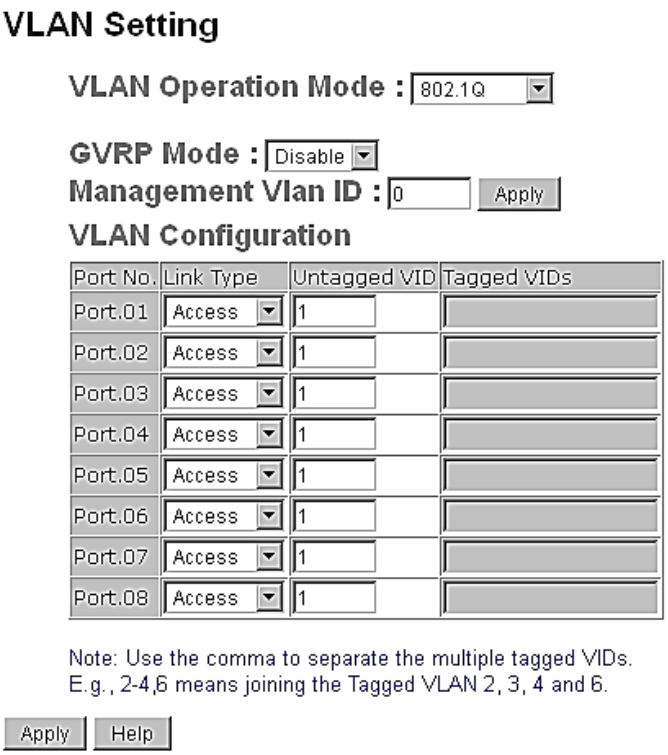


Figure 49 – VLAN Configuration – 802.1Q interface

The following table describes the VLAN Configuration – 802.1Q interface page.

Label	Description
VLAN Operation Mode	Configure VLAN Operation Mode: disable, Port Base, 802.1Q.
GVRP Mode	Enable/Disable GVRP function.
Management VLAN ID	Management VLAN provides the network administrator a secure VLAN to manage the switch. Only the devices in the management VLAN can access the switch.
Link type	There are 3 link types: **Access Link:** single switch only, allows the grouping of ports by setting the same VID. **Trunk Link:** extended application of **Access Link**, allows the grouping of ports by setting the same VID with 2 or more switches. **Hybrid Link:** Both **Access Link** and **Trunk Link** are available. **Hybrid (QinQ) Link:** enable QinQ mode, allows the insertion of one more VLAN tag in an original VLAN frame.
Untagged VID	Set the port default VLAN ID for untagged devices that connect to the port. The range is 1 to 4094.
Tagged VIDs	Set the tagged VIDs to carry different VLAN frames to other switches.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.5.2 VLAN Table

Traffic is forwarded to the member ports of the same VLAN group (Tagged Ports). VLAN ports started in the same group can be transmitted as normal packets without any restrictions. The current VLANs and Tagged Ports are shown here.

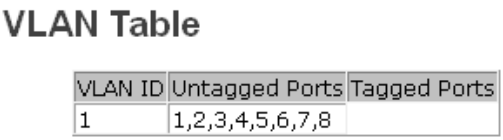


Figure 50 – VLAN TAble

The following table describes the VLAN Table Interface page.

Label	Description
VLAN ID	It displays the VLAN ID
Untagged Ports	It displays the untagged ports.
Tagged Ports	It displays the untagged ports.

5.6 SNMP

Simple Network Management Protocol (SNMP) is the protocol developed to manage nodes (servers, workstations, routers, switches and hubs etc.) on an IP network. SNMP enables network administrators to manage network performance, resolve network issues, and plan for network growth. Network management systems learn of problems by receiving traps or change notices from network devices implementing SNMP.

5.6.1 SNMP – Agent Setting

SNMP agent related information can be set using the Agent Setting Function.

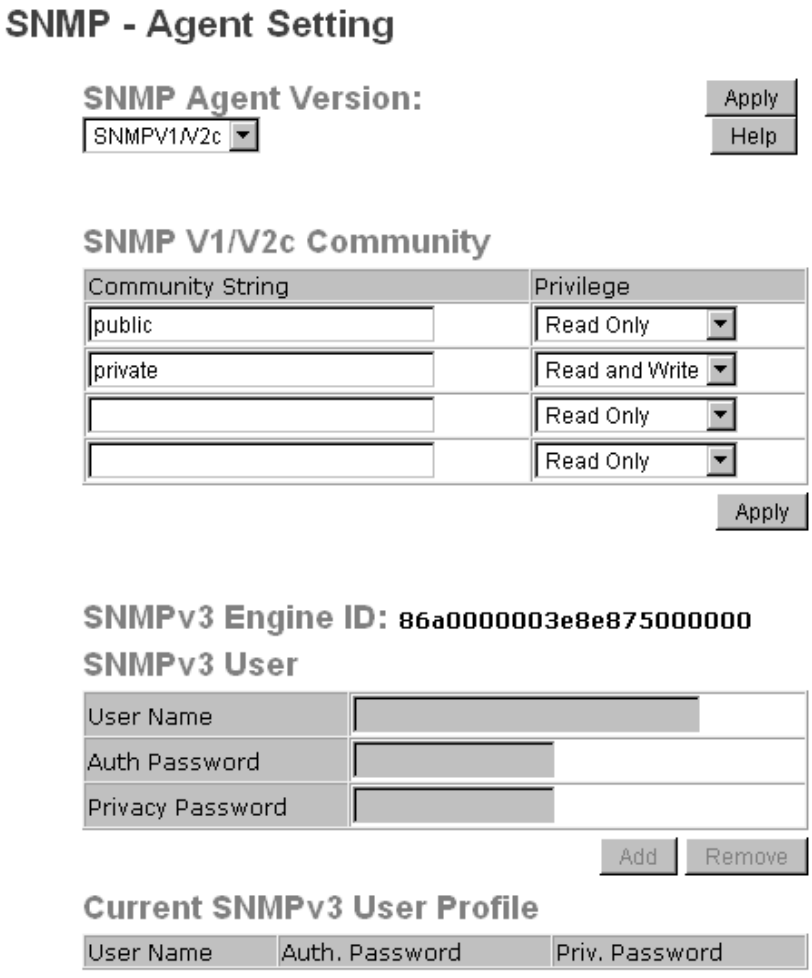


Figure 51 – SNMP Agent Setting interface

The following table describes the SNMP Agent Setting interface page.

Label	Description
SNMP agent Version	Three SNMP versions are supported such as SNMP V1/SNMP V2c, and SNMP V3. SNMP V1/SNMP V2c agent use a community string match for authentication, which means SNMP server's access objects with read-only or read/write permissions with the community default string public/private. SNMP V3 requires an authentication level of MD5 or DES to encrypt data to enhance data security.
SNMP V1/V2c Community	SNMP Community should be set for SNMP V1/V2c. Four sets of "Community String/Privilege" are supported. Each Community String is a maximum of 32 characters. Keep empty to remove this Community string.
SNMPv3User	If SNMP V3 agent is selected, the SNMPv3 profiled should be set for authentication. The Username is necessary. The Auth. Password is encrypted by MD5 and the Privacy Password which is encrypted by DES. There are maximum 8 sets of SNMPv3 User's and maximum 16 characters in username, and password.When SNMP V3 agent is selected, it is possible to: 1. Input SNMPv3 username only. 2. Input SNMPv3 username and Auth Password. 3. Input SNMPv3 username, Auth Password and Privacy Password, which can be different with Auth Password. To remove a current user profile: 1. Input SNMPv3 user name to be removed. 2. Click "**Remove**" button
Current SNMPv3 User Profile	Show all SNMPv3 user profiles.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.6.2 SNMP – Trap Setting

A trap manager is a management station that receives traps which are system alerts generated by the switch. If no trap manager is defined, no traps will issued. Create a trap manager by entering the IP address of the station and a community string. To define management stations as trap managers, enter the SNMP community string and select the SNMP version.

Figure 52 – SNMP Trap Setting interface

5.6.3 SNMP – SNMPv3 Setting

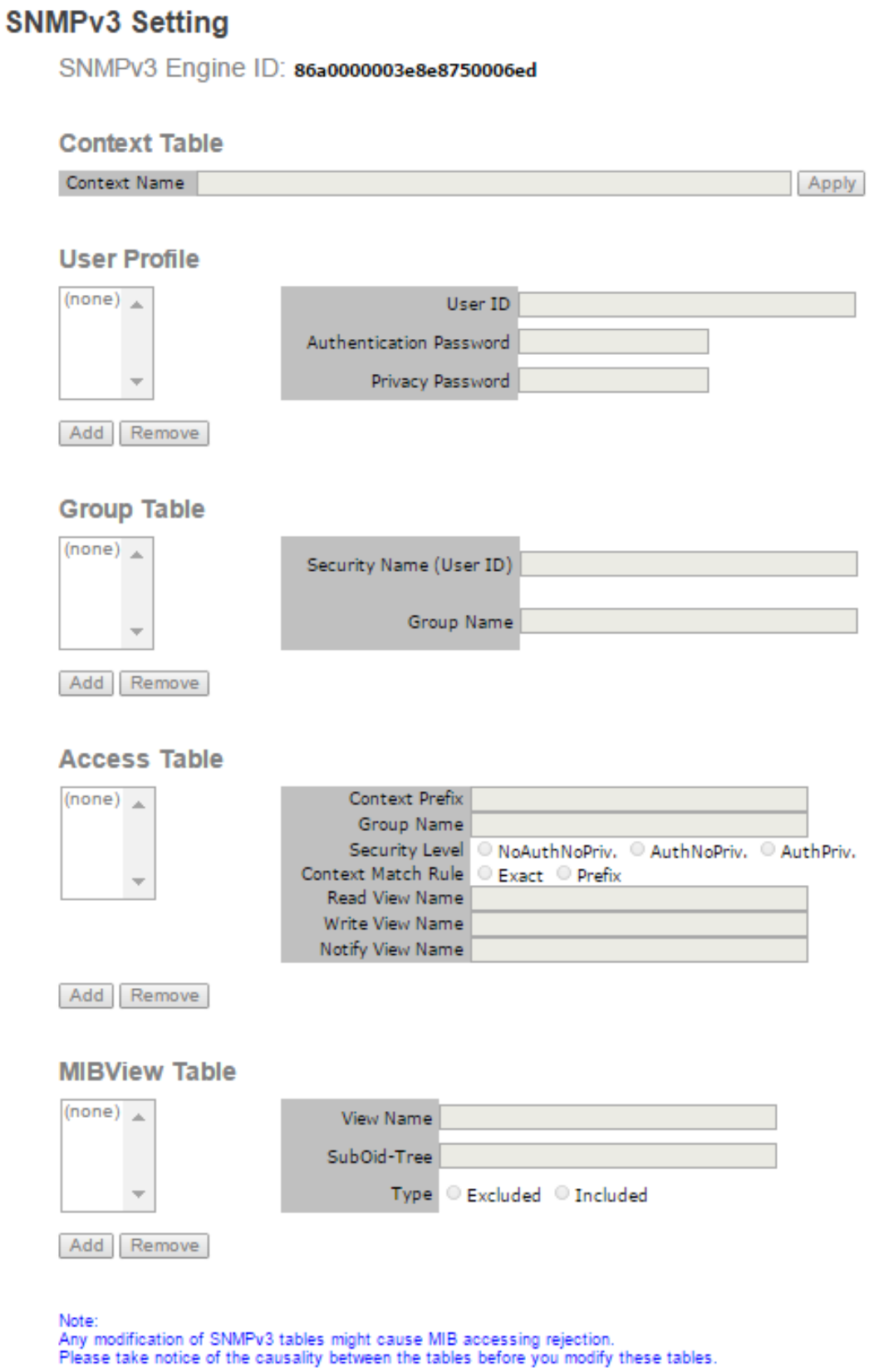


Figure 53 – SNMPv3p Setting interface

The following table describes the SNMP Agent Setting interface page.

Label	Description
Context Table	Configure SNMP v3 context table. Assign the context name of context table. Click "Apply" to change context name
Context Table	1. Configure SNMP v3 user table. 2. **User ID:** set up the user name. 3. **Authentication Password:** set up the authentication password. 4. **Privacy Password:** set up the private password. 5. Click "Add" to add context name. 6. 6. Click "Remove" to remove unwanted context name.
Group Table	1. Configure SNMP v3 group table. 2. **Security Name (User ID):** assign the user name that you have set up in user table. 3. **Group Name:** set up the group name. 4. Click "Add" to add context name. 5. 5. Click "Remove" to remove unwanted context name.
Access Table	1. Configure SNMP v3 access table. 2. **Context Prefix:** set up the context name. 3. **Group Name:** set up the group. 4. **Security Level:** select the access level. 5. **Context Match Rule:** select the context match rule. 6. **Read View Name:** set up the read view. 7. **Write View Name**: set up the write view. 8. **Notify View Name:** set up the notify view. 9. Click "Add" to add context name. 10. Click "Remove" to remove unwanted context name.
MIBview Table	1. Configure MIB view table. 2. **ViewName:** set up the name. 3. **Sub-Oid Tree:** fill the Sub OID. 4. **Type:** select the type – exclude or included. 5. Click "Add" to add context name. 6. Click "Remove" to remove unwanted context name.
Help	Show help file.

The following table describes the SNMP Trap Setting interface page.

Label	Description
Server IP	The server IP address to receive Trap.
Community	Community for authentication.
Trap Version	Trap Version supports V1 and V2c.
Add	Add trap server profile.
Remove	Remove trap server profile.
Help	Show help file.

5.7 Traffic Prioritization

Traffic Prioritization includes 3 modes: port base, 802.1p/COS, and TOS/DSCP. With the traffic prioritization function, traffic can be classified into four classes for differential network applications. The iES10G(F) supports 4 priority queues.

5.7.1 Policy

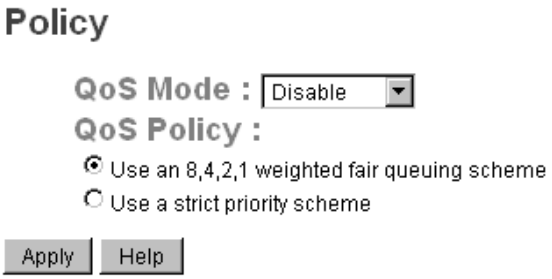


Figure 54 – Policy Setting interface

The following table describes the Traffic Prioritization Policy interface page.

Label	Description
QoS Mode	■ **Port-base:** the output priority is determined by ingress port. ■ **COS only:** the output priority is determined by COS only. ■ **TOS only:** the output priority is determined by TOS only. ■ **COS first:** the output priority is determined first by COS and then by TOS. ■ **TOS first:** the output priority is determined first by TOS and then by COS.
QoS policy	■ **Using the 8,4,2,1 weight fair queue scheme:** the output queues will follow 8:4:2:1 ratio to transmit packets from the highest to lowest queue. For example: 8 high queue packets, 4 middle queue packets, 2 low queue packets, and the one lowest queue packet are transmitted in one turn. ■ **Use the strict priority scheme:** the packets in higher queue will always be transmitted first until a higher queue is empty.
Help	Show help file.
Apply	Click "**Apply**" to activate the configurations.

5.7.2 Port-based Priority

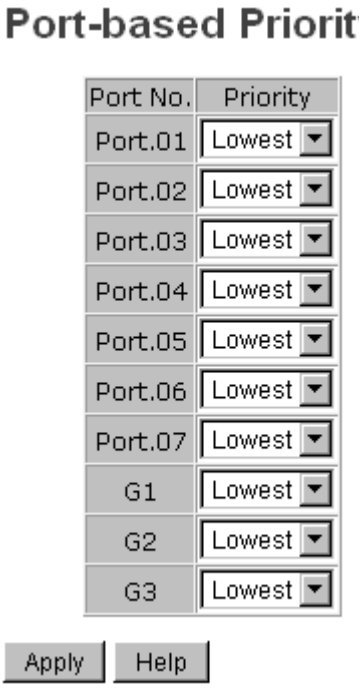


Figure 55 – Port-based Priority interface

The following table describes the Port-based Priority interface page.

Label	Description
Port base Priority	Assign Port with a priority queue. 4 priority queues can be assigned: High, Middle, Low, and Lowest.
Help	Show help file.
Apply	Click "**Apply**" to activate the configurations.

5.7.3 COS/802.1p

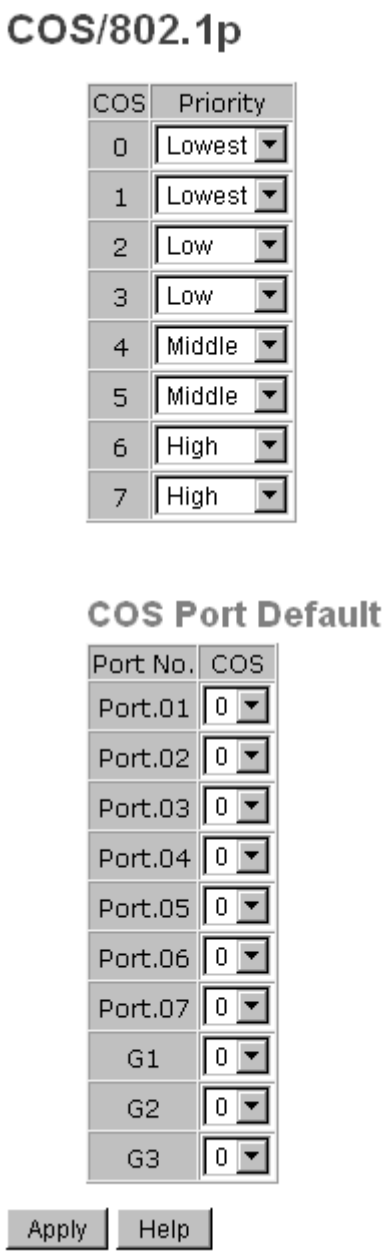


Figure 56 – COS/802.1p interface

The following table describes the COS/802.1p interface page.

Label	Description
COS/802.1p	COS (Class Of Service) is well known as 802.1p. It describes that the output priority of a packet is determined by the user priority field in 802.1Q VLAN tag. The priority value is supported 0-7. COS value map to 4 priority queues: High, Middle, Low, and Lowest.
COS Port Default	When an ingress packet does not have a VLAN tag, a default priority value is considered and determined by the ingress port.
Help	Show help file.
Apply	Click "**Apply**" to activate the configurations.

5.7.4 TOS/DSCP

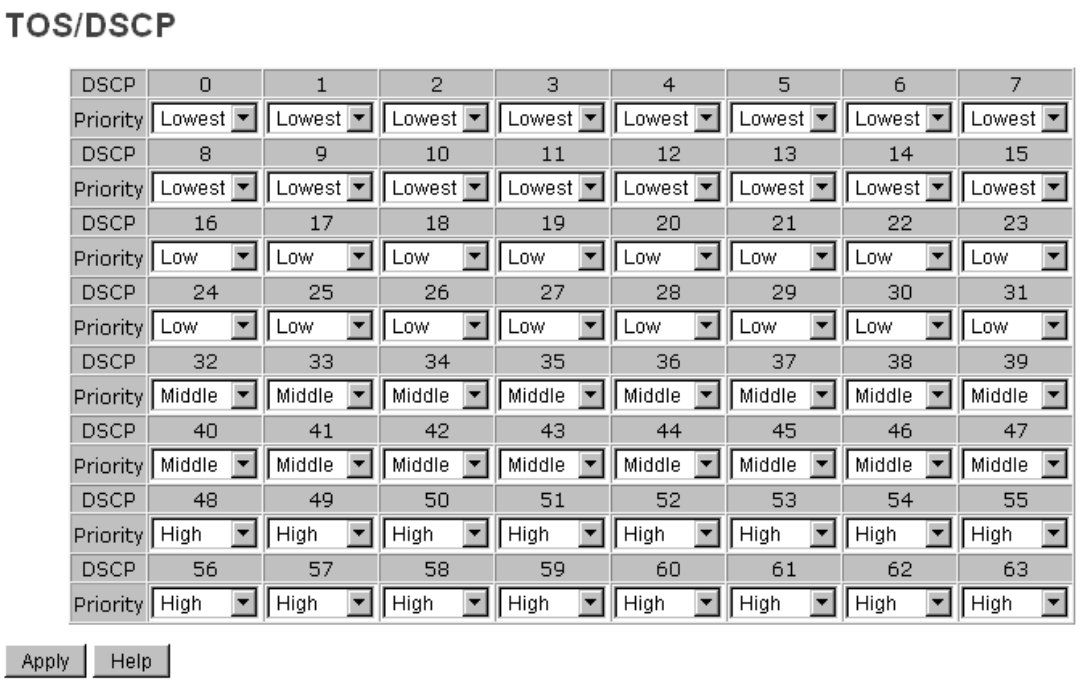


Figure 57 – TOS/DSCP interface

The following table describes the TOS/DSCP interface page.

Label	Description
TOS/DSCP	TOS (Type of Service) is a field in the IP header of a packet. This TOS field is also used by Differentiated Services, and is called the Differentiated Services Code Point (DSCP). The output priority of a packet can be determined by this field and the priority value is supported 0 to 63. DSCP value maps to 4 priority queues: High, Middle, Low, and Lowest.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.8 Multicast

5.8.1 IGMP Snooping

Internet Group Management Protocol (IGMP) is used by IP hosts to register their dynamic multicast group membership. IGMP has 3 versions, IGMP v1, v2 and v3. Please refer to RFC 1112, 2236 and 3376. IGMP snooping monitors the Internet Group Management Protocol (IGMP) traffic between hosts and multicast routers. The switch uses what IGMP snooping learns to forward multicast traffic only to interfaces that are connected to interested receivers. This conserves bandwidth by allowing the switch to send multicast traffic to only those interfaces that are connected to hosts that want to receive the traffic, instead of flooding the traffic to all interfaces in the VLAN.

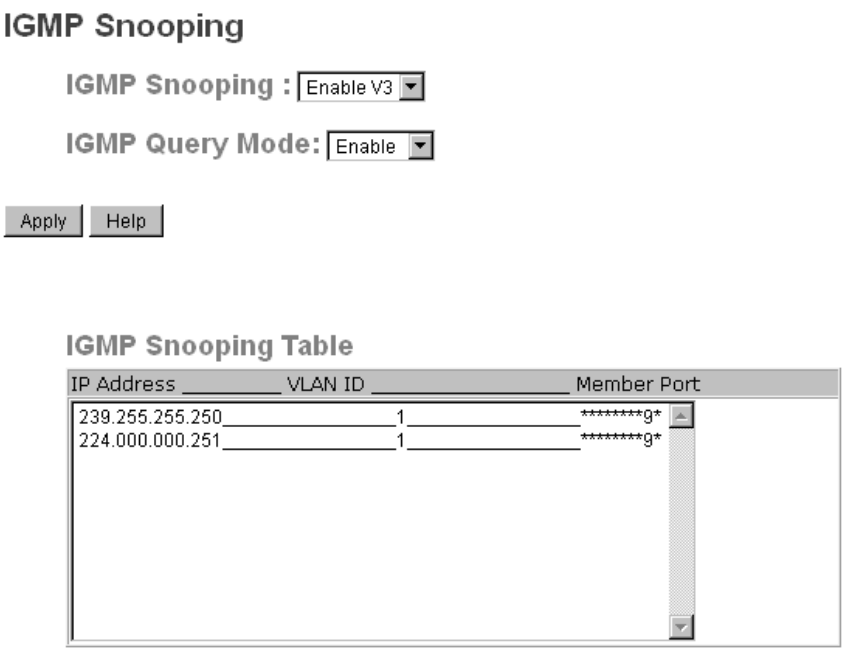


Figure 58 – IGMP Snooping interface

The following table describes the IGMP Snooping interface page.

Label	Description
IGMP Snooping	Enable (V2 or V3) or Disable IGMP snooping.
IGMP Query Mode	Switch will receive IGMP queries or not. There should only be one switch receiving IGMP queries in an IGMP application. The "Auto" mode means that the switch receiving the IGMP query is the one with lower IP address.
IGMP Snooping Table	Show current IP multicast list
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.8.2 MVR

MVR Function can provide a different VLAN user to receive MVR Mode VLAN Multicast Packet.

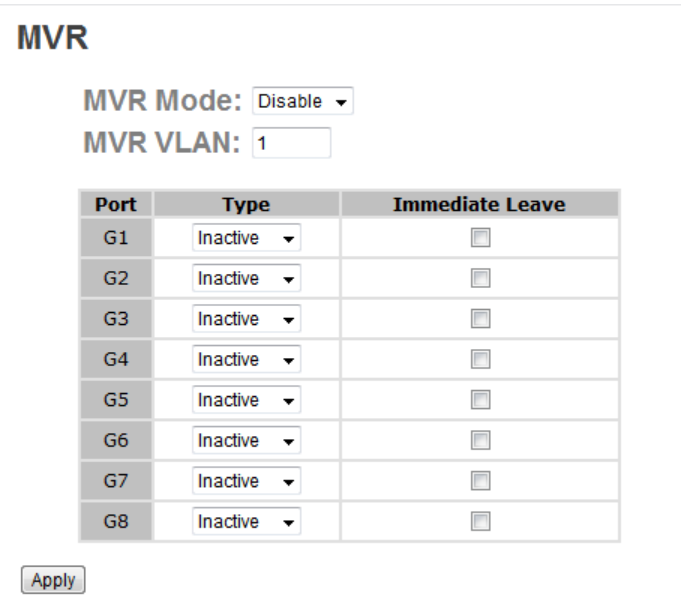


Figure 59 – MVR interface

The following table describes the MVR interface page.

Label	Description
MVR Mode	Enable or Disable MVR Mode
MVR VLAN	Setting MVR VLAN
TYPE	Setting Port Type to inactive Receiver Source
Immediate Leave	Enable or disable Immediate leave

5.8.3 Multicast Filter

Multicast filtering is the system by which end stations can only receive multicast traffic if they register to join specific multicast groups. With multicast filtering, network devices can only forward multicast traffic to the ports that are connected to registered end stations.

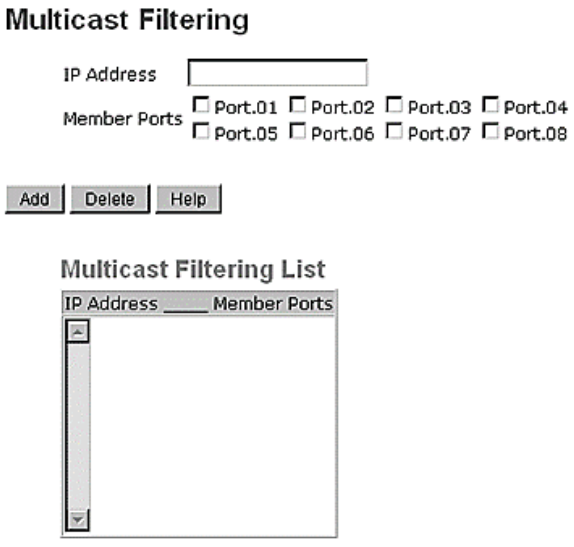


Figure 60 – Multicast Filtering interface

The following table describes the Multicast Filtering interface page.

Label	Description
IP Address	Assign a multicast group IP address in the range of 224.0.0.0 ~ 239.255.255.255.
Member Ports	Tick the check box beside the port number to include them as the member ports in the specific multicast group IP address.
Add	Show current IP multicast list.
Delete	Delete an entry from table.
Help	Show help file.

5.9 Security

There are 5 useful functions that can enhance the security of a switch: IP Security, Port Security, MAC Blacklist, and MAC address Aging 802.1 x protocols.

5.9.1 IP Security

IP security can be enabled or disabled via remote management from the WEB, Telnet or SNMP. Additionally, IP security can be restricted via remote management to some specific IP addresses. Only these secure IP addresses can manage this switch remotely.

Figure 61 – IP Security interface

The following table describes the IP Security interface page.

Label	Description
IP security MODE	Enable/Disable the IP security function.
Enable WEB Management	Check the blank to enable WEB Management.
Enable Telnet Management	Check the blank to enable Telnet Management.
Enable SNMP Management	Check the blank to enable SNMP Management.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.9.2 Port Security

Port security adds static MAC addresses to hardware forwarding databases. If port security is enabled at **Port Control** page, only the frames with MAC addresses in this list will be forwarded, otherwise they will be discarded.

Figure 62 – Port Security interface

The following table describes the Port Security interface page.

Label	Description
MAC Address	Input MAC Address of a specific port.
Port No.	Select switch port.
Add	Add MAC and port information to the Port Security List.
Delete	Delete the entry.
Help	Show help file.

5.9.3 MAC Blacklist

MAC Blacklist can eliminate the forwarding traffic to specific MAC addresses on the list. Any frames being forwarded to MAC addresses on this list will be discarded. Thus the target device will never receive any frames.

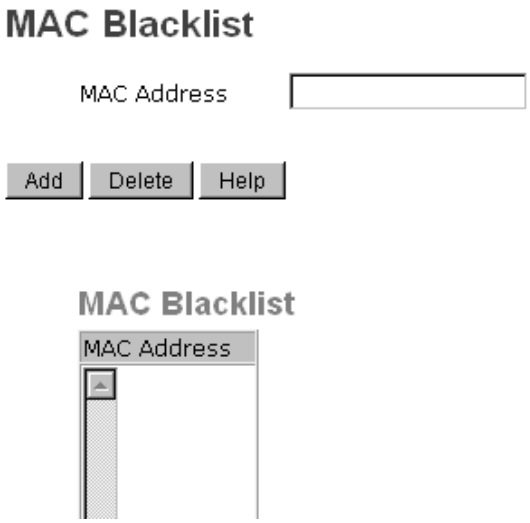


Figure 63 – MAC Blacklist interface

The following table describes the MAC Blacklist interface page.

Label	Description
MAC Address	Input MAC Address to MAC Blacklist.
Add	Add an entry to Blacklist table.
Delete	Delete the entry.
Help	Show help file.

5.9.4 802.1x

5.9.4.1 802.1x - Radius Server

802.1x makes the use of the physical access characteristics of IEEE802 LAN infrastructure in order to provide an authenticated and authorized device attached to a LAN port. Please refer to IEEE 802.1X - Port Based Network Access Control.

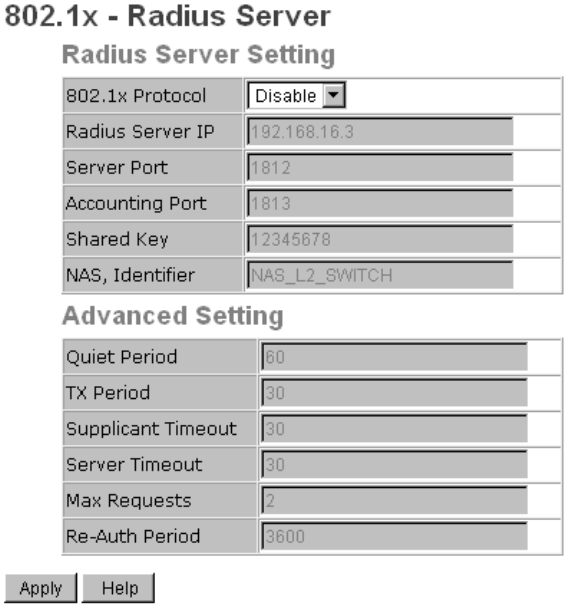


Figure 64 – 802.1x Radius Server interface

The following table describes the 802.1x Radius Server interface page.

Label	Description
Radius Server Setting	
Radius Server IP	The IP address of the authentication server.
Server port	Set the UDP port number used by the authentication server to authenticate.
Accounting port	Set the UDP destination port for accounting requests to the specified Radius Server.
Shared Key	A key shared between this switch and authentication server.
NAS, Identifier	A string used to identify this switch.
Advanced Setting	
Quiet Period	Set the time interval between authentication failure and the start of a new authentication attempt.
Tx Period	Set the time that the switch can wait for response to an EAP request/identity frame from the client before resending the request.
Supplicant Timeout	Set the period of time the switch waits for a supplicant response to an EAP request.
Server Timeout	Set the period of time the switch waits for a Radius server response to an authentication request.
Max Requests	Set the maximum number of times to retry sending packets to the supplicant.
Re-Auth Period	Set the period of time after which clients connected must be re-authenticated.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.9.4.2 802.1x - Port Authorized Mode

Set the 802.1x authorized mode of each port.

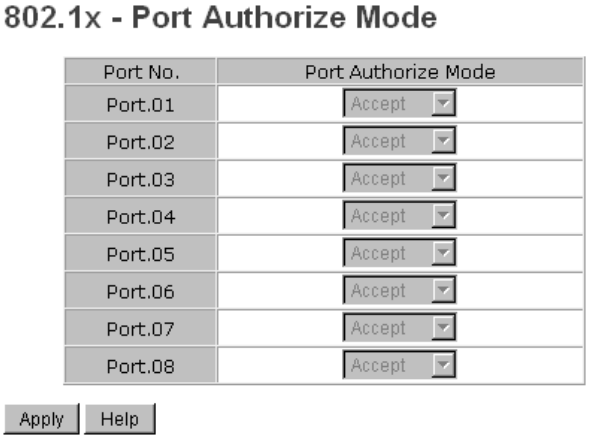


Figure 65 – 802.1x Port Authorize interface

The following table describes the 802.1x Port Authorize interface page.

Label	Description
Port Authorized Mode	■ **Reject:** force this port to be unauthorized. ■ **Accept:** force this port to be authorized. ■ **Authorize:** the state of this port was determined by the outcome of the 802.1x authentication. ■ **Disable:** this port will not participate in 802.1x.
Apply	Click "**Apply**" to activate the configurations.
Help	Shows help file.

5.9.4.3 802.1x - Port Authorized State

It shows 802.1x port authorized state.

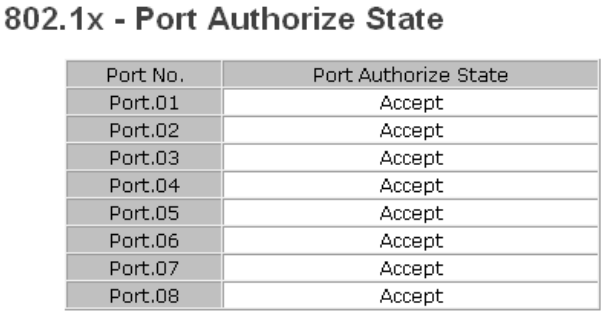


Figure 66 – 802.1x Port Authorize State interface

5.9.5 IP Guard (iES8G only)

5.9.5.1 IP Guard – Port Setting

This page allows you to configure port configuration of IP Guard. IP Guard is an intelligent and easy use function for IP security. It could protect the network from unknown IP (the IP not in allowed list) attack. The illegal IP traffic will be blocked.

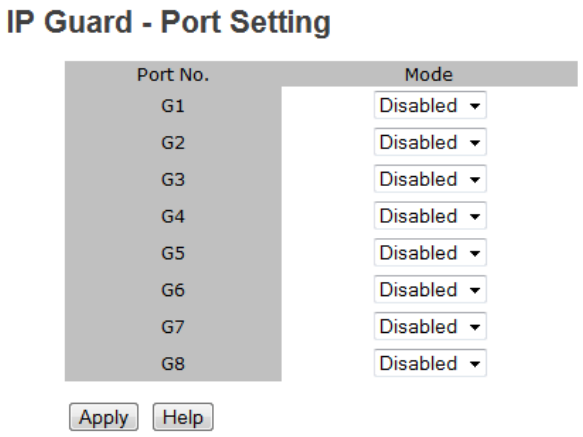


Figure 67 – IP Guard – Port Setting State interface

The following table describes the IP Guard – Port Setting State interface page.

Label	Description
Mode	• Disable mode: function is totally disabled. • Monitor mode: function is disabled, but keeps monitor the IP traffic. • Security mode: function is enabled, the illegal IP traffic will be blocked.
Apply	Click "**Apply**" to set the configurations.
Help	Shows help file.

5.9.5.2 IP Guard – Allow List

IP Guard is an intelligent and easy use function for IP security. It could protect the network from unknown IP (the IP not in allowed list) attack. The illegal IP traffic will be blocked.
This page allows configuration IP Guard allowed list. The IP traffic will be blocked, if it was not in allowed list.

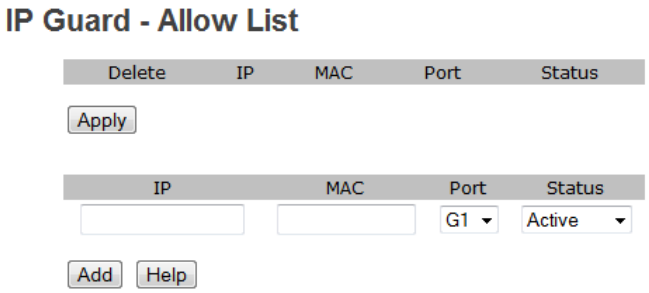


Figure 68 – IP Guard – Allow List State interface

The following table describes the IP Guard – Allow List State interface page.

Label	Description
IP	IP address of the allowed entry.
MAC	MAC address of the allowed entry.
Port	Port number of the allowed entry.
Status	If you doubt some allowed IP traffic are abnormal, block the traffic the following options from the drop down menu: • Active: Allow the IP traffic. • Suspend: Block the IP traffic.
Delete	To delete the entry, check this box and apply it.

5.9.5.3 IP Guard – Super-IP List

IP Guard is an intelligent and easy use function for IP security. It could protect the network from unknown IP (the IP not in allowed list) attack. The illegal IP traffic will be blocked.
This page allows configuring IP Guard Super-IP list. Super-IP entry has a special priority; the IP has no limited of MAC address and port binding. Any IP traffic is allowed when the IP is in the Super-IP list.

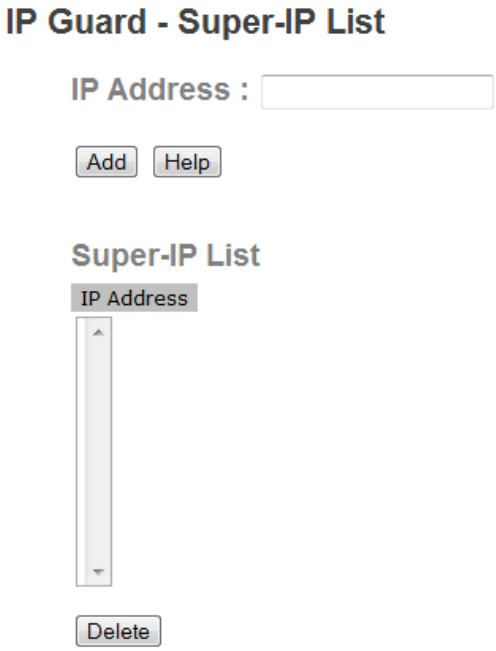


Figure 69 – IP Guard – Super-IP List State interface

5.9.5.4 IP Guard – Monitor List

IP Guard Monitor List is an intelligent and easy use function to see IP security. It could protect the network from unknown IP (the IP not in allowed list) attack by adding the entry to allow list. The IP traffic from the edge device will be added to allow list.

Figure 70 – IP Guard – Monitor List interface

The following table describes the IP Guard – Monitor List interface page.

Label	Description
IP	IP address of entry.
MAC	MAC address of entry.
Port	Port number of entry.
Time	The logged time .
Add to Allow List	To allow the IP traffic, please check this box and apply it.

5.10 Warning

The Warning function is very important for managing the switch. It can be managed by SYSLOG, E-MAIL, and Fault Relay. It also helps monitor the switch status on remote sites. When events occur, a warning message will be send to the appointed server, E-MAIL, or relay fault on a switch panel.

5.10.1 Fault Alarm

When any selected fault event occurs, the Fault LED on the switch panel will light up and the electric relay will signal at the same time.

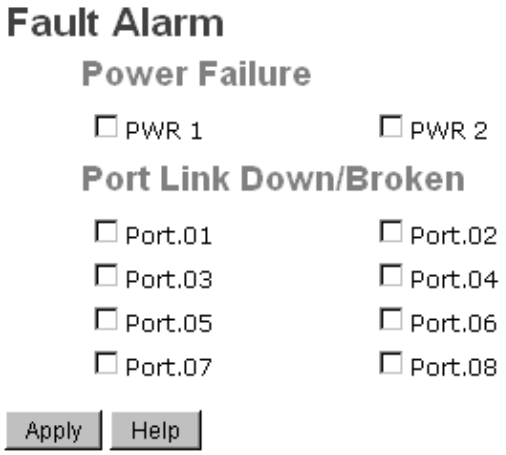


Figure 71 – Fault Alarm interface

The following table describes the Fault Alarm interface page.

Label	Description
Power Failure	Check the box of PWR 1 or PWR 2 to monitor.
Port Link Down/Broken	Check the box of port 1 to port 10 to monitor.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.10.2 System Alarm

System alarm supports two warning modes: 1. SYSLOG. 2. E-MAIL. The switch can be monitored through selected system events.

5.10.2.1 System Warning – SYSLOG Setting

The SYSLOG is a protocol to transmit event notification messages across networks. Please refer to RFC 3164 - The BSD SYSLOG Protocol

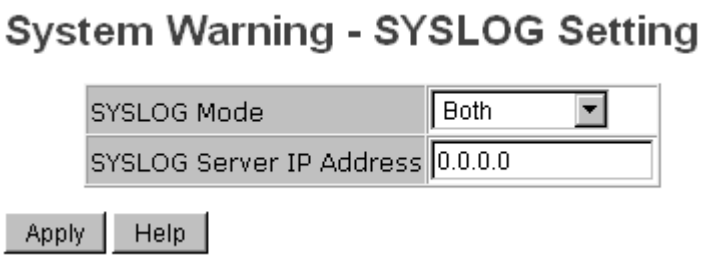


Figure 72 – System Warning – SYSLOG Setting interface

The following table describes the SYSLOG Setting interface page.

Label	Description
SYSLOG Mode	■ **Disable:** disable SYSLOG. ■ **Client Only:** log to local system. ■ **Server Only:** log to a remote SYSLOG server. ■ **Both:** log to both, local and remote server.
SYSLOG Server IP Address	The remote SYSLOG Server IP address.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.10.2.2 System Warning – SMTP Setting

SMTP is Short for Simple Mail Transfer Protocol. It is a protocol for e-mail transmission across the Internet. Please refer to RFC 821 - Simple Mail Transfer Protocol.

Figure 73 – System Warning – SMTP Setting interface

The following table describes the System Warning – SMTP Setting interface page.

Label	Description
E-mail Alarm	Enable/Disable transmission system warning events by e-mail.
SMTP Server Address	The SMTP server IP address.
Sender E-mail Address	Email address that the mail will be sent from.
Mail Subject	The Subject of the mail.
Authentication	■ **Username:** the authentication username. ■ **Password:** the authentication password. ■ **Confirm Password:** re-enter password.
Recipient E-mail Address	The recipient's E-mail address. It supports up to 6 recipients.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.10.2.3 System Warning – Event Selection

SYSLOG and SMTP are the two warning methods that are supported by the system. Check the corresponding box to enable the system event warning method. Please note that the checkbox cannot be checked when SYSLOG or SMTP is disabled.

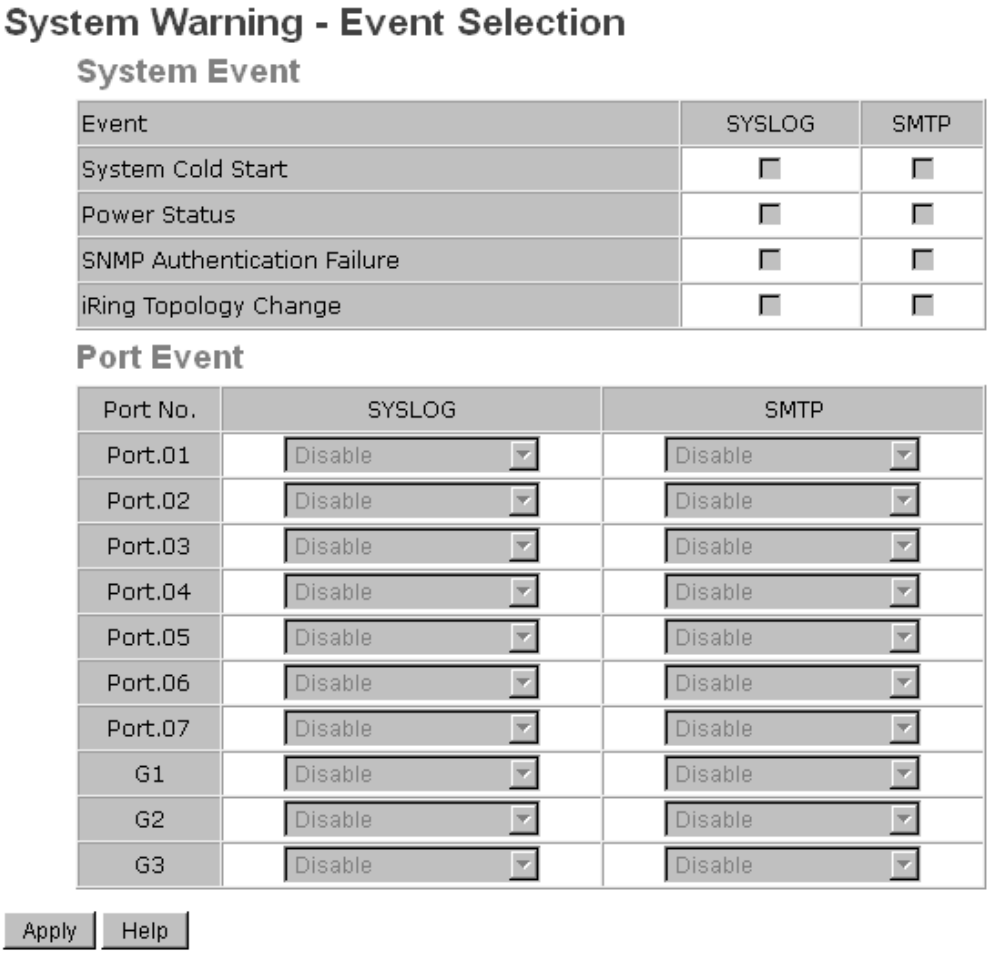


Figure 74 – System Warning – Event Selection interface

The following table describes the System Warning – Event Selection interface page.

Label	Description
System Event	
System Cold Start	Alert when system restarts.
Power Status	Alert when power is up or down.
SNMP Authentication Failure	Alert when SNMP authentication fails.
iRing Topology Change	Alert when the iRing topology changes.
Port Event SYSLOG / SMTP event	■ Disable ■ Link Up ■ Link Down ■ Link Up & Link Down
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.11 Monitor and Diagnostics

5.11.1 MAC Address Table

Refer to IEEE 802.1 D Sections 7.9. The MAC Address Table that is Filtering Database, supports queries by the Forwarding Process, as to whether a frame received by a given port with a given destination MAC address is to be forwarded through a given potential transmission port.

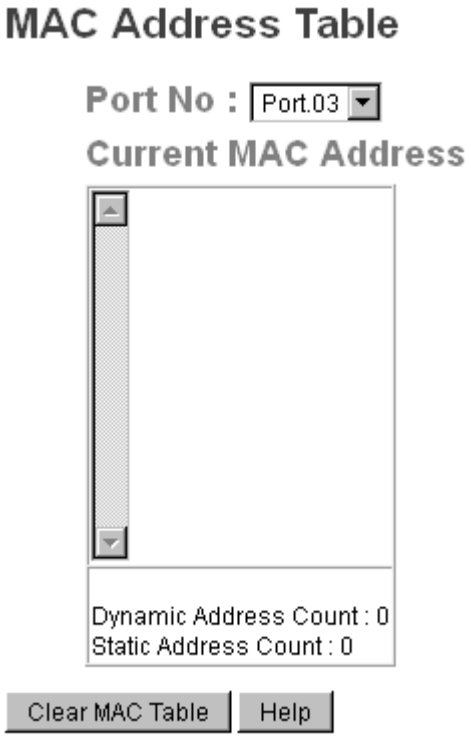


Figure 75 – MAC Address Table interface

The following table describes the MAC Address Table interface page.

Label	Description
Port No.:	Show all MAC addresses mapping to a selected port.
Clear MAC Table	Clear all MAC addresses in a table.
Help	Show help file.

5.11.2 MAC Address Aging

The MAC Address aging time can be set between 0 and 3825 seconds. When the time expires, the unused MAC address will be cleared from MAC table. The iES10G(F) also supports "Auto Flush MAC Address Table When Ports Link Down".

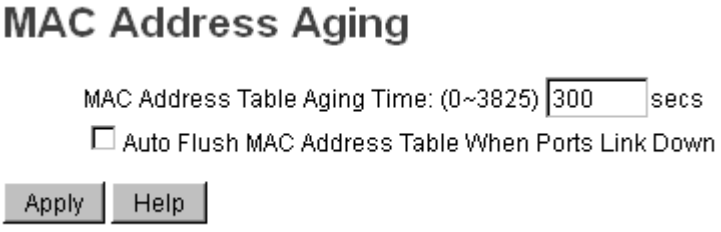


Figure 76 – MAC Address Aging interface

The following table describes the MAC Address Aging interface page.

Label	Description
MAC Address Table Aging Time	Set the aging time for MAC Address table. The value is between 0 and 3825. Default setting is 300 seconds.
Auto Flush MAC Address Table When ports Link Down	Enable this function.
Apply	Click "**Apply**" to activate the configurations.
Help	Show help file.

5.11.3 Port Statistics

Port statistics show several statistics counters for all ports

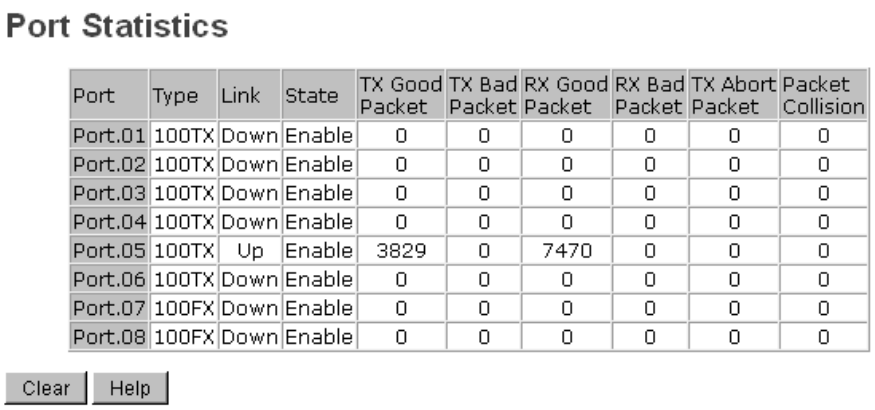


Figure 77 – Port Statistics interface

The following table describes the Port Statistics interface page.

Label	Description
Type	Shows port speed and media type.
Link	Shows port link status.
State	Shows port enabled or disabled.
TX GOOD Packet	The number of good packets sent by this port.
TX Bad Packet	The number of bad packets sent by this port.
RX GOOD Packet	The number of good packets received by this port.
RX Bad Packet	The number of bad packets received by this port.
TX Abort Packet	The number of packets aborted by this port.
Packet Collision	The number of times a collision detected by this port.
Clear	Clear all counters.
Help	Show help file.

5.11.4 Port Counters (iES8G only)

This page shows statistic counters for the port. Click **Clear** to reset all counters to zero for all ports.

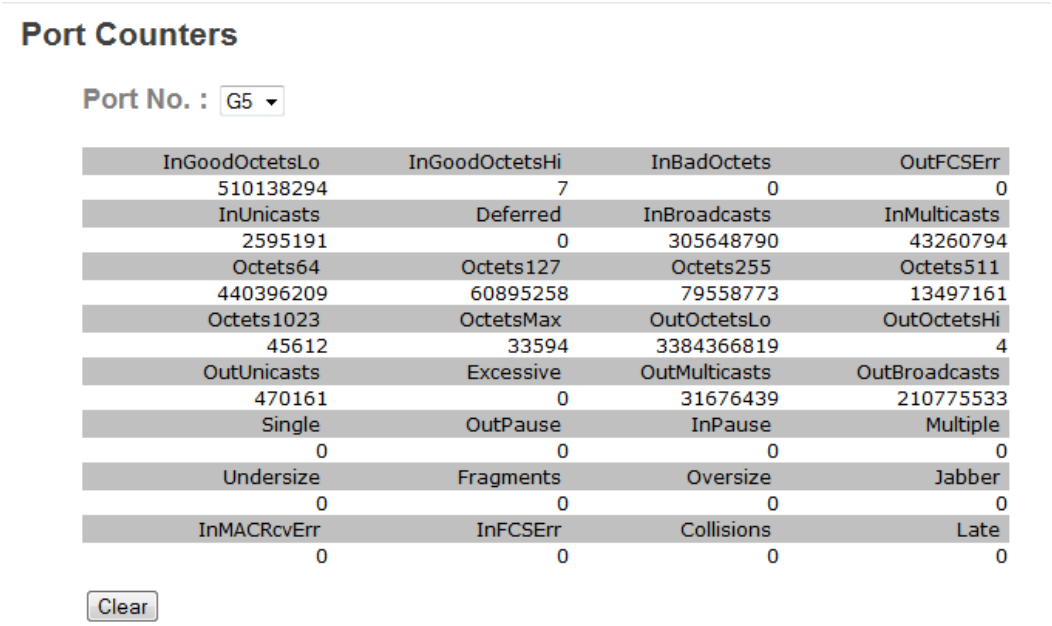


Figure 78 – Port Counters interface

The following table describes the Port Counters interface page.

Label	Description
InGoodOctetsLo	The lower 32-bits of the 64-bit InGoodOctets counter. The sum of lengths of all good Ethernet frames received, that is frames that are not bad frames.
InGoodOctetsHi	The upper 32-bits of the 64-bit InGoodOctets counter. The sum of lengths of all good Ethernet frames received, that is frames that are not bad frames.
InBadOctets	The sum of lengths of all bad Ethernet frames received.
OutFCSErr	The number of frames transmitted with a invalid FCS. Whenever a frame is modified during transmission (e.g., to add or remove a tag) the frames's original FCS is inspected before a new FCS is added to a modified frame. If the original FCS is invalid, the new FCS is made invalid too and this counter is incremented.
InUnicasts	The number of good frames received that have a Unicast destination MAC address.
Deferred	The total number of successfully transmitted frames that experienced no collisions but are delayed because the medium was busy during the first attempt. This counter is applicable in half-duplex only.
InBroadcasts	The number of good frames received that have a Broadcast destination MAC address.
InMulticasts	The number of good frames received that have a Multicast destnation MAC address.
Octets64	Total frames received (and/or transmitted) with a length of exactly 64 octets, include those with errors.
Octets127	Total frames received (and/or transmitted) with a length of between 65 and 127 octets inclusive, including those with error.
Octets255	Total frames received (and/or transmitted) with a length of between 128 and 255 octets inclusive, including those with error.
Octets511	Total frames received (and/or transmitted) with a length of between 256 and 511 octets inclusive, including those with error.
Octets1023	Total frames received (and/or transmitted) with a length of between 512 and 1023 octets inclusive, including those with error.
OctetsMax	Total frames received (and/or transmitted) with a length of between 1024 and MaxSize octets inclusive, including those with error.

Label	Description
OutOctetsLo	The lower 32-bit of the 64-bit OutOctets counter. The sum of lengths of all Ethernet frames sent from this MAC.
OutOctetsHi	The upper 32-bit of the 64-bit OutOctets counter. The sum of lengths of all Ethernet frames sent from this MAC.
OutUnicasts	The number of frames sent that have an Unicast destination MAC address.
Excessive	The number frames dropped in the transmit MAC because the frame experienced 16 consecutive collisions. This counter is applicable in half-duplex only and only of DiscardExcessive is one.
OutBroadcasts	The number of good frames sent that have a Broadcast destination MAC address.
Single	The total number of successfully transmitted frames that experienced exactly one collision. This counter is applicable in half-duplex only.
OutPause	The number of good Flow Control frames sent.
InPause	The number of good Flow Control frames received.
Multiple	The total number of successfully transmitted frames that experienced more than one collision. This counter is applicable in half-duplex only.
Undersize	Total frames received with a length of less than 64 octets but with a valid FCS.
Fragments	Total frames received with a length of more than 64 octets and with a invalid FCS.
Oversize	Total frames received with a length of more than MaxSize octets but with a valid FCS.
Jabber	Total frames received with a length of more than MaxSize octets but with an invalid FCS.
InMACRcvErr	Total frames received with an RxErr signal from the PHY.
InFCSErr	Total frames received with a CRC error not counted in Fragments, Jabber or RxErr.
Collisions	The number of collision events seen by MAC not including those counted in Single, Multiple, Excessive or Late. This counter is applicable in half-duplex only.
Late	The number of times a collision is detected later than 512 bits-times into the transmission of a frame. This counter is applicable in half-duplex only.

5.11.5 Port Monitoring

The port monitoring function supports TX (egress) only, RX (ingress) only, and both TX/RX monitoring. TX monitoring sends any data that egresses out of the Source Port to another port for monitoring. Check TX Source Ports to a selected TX destination port. RX monitoring sends any data that ingress in to the Source Port to another port for monitoring. Check RX Source Ports out to a selected RX destination port. It also sends the frame where it normally would have gone. Note: keep all source ports unchecked to disable Port Monitoring.

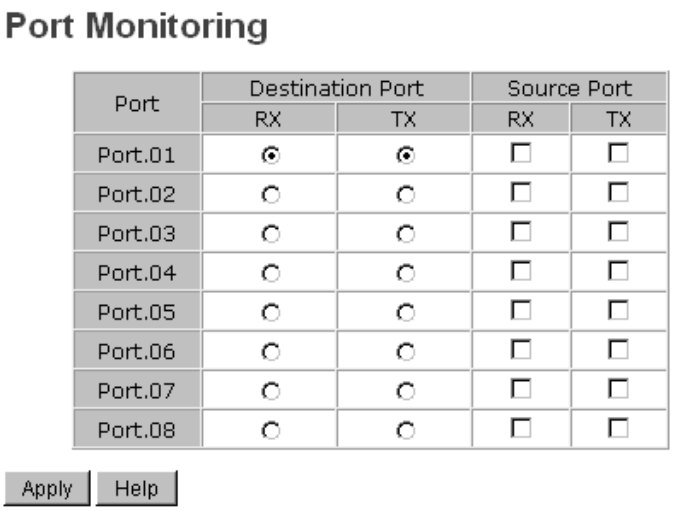


Figure 79 – Port Monitoring interface

The following table describes the Port Monitoring interface page

Label	Description
Destination Port	The port will receive a copied frame from the source port for monitoring purpose.
Source Port	The port will be monitored. Check the TX or RX to be monitored.
TX	The frames leave the switch port and proceed somewhere outside of the network.
RX	The frames originate from outside the network and are received by the switch port within the network.
Apply	Click "**Apply**" to activate the configurations.
Clear	Clear all marked blank.(disable the function)
Help	Show help file.

5.11.6 Traffic Monitor (iES8G only)

The function can monitor switch Traffic. If traffic is too large, the switch will sent SYSLOG Event or SMTP Mail.

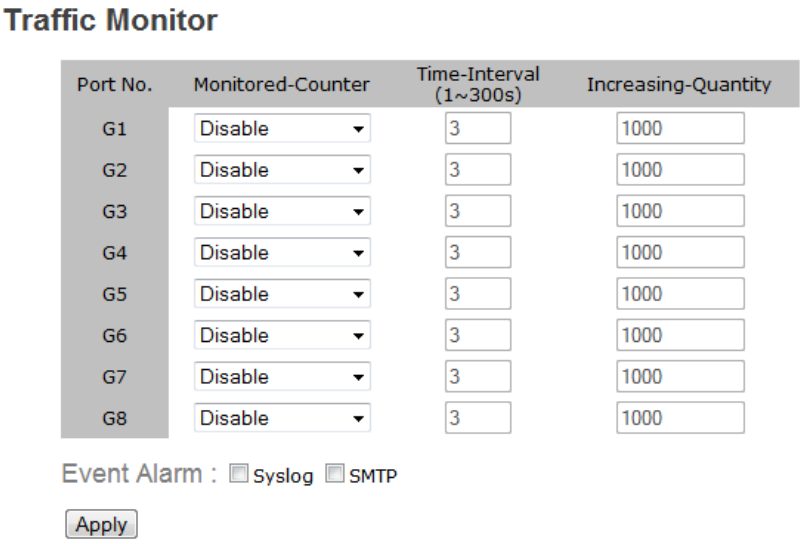


Figure 80 – Traffic Monitor interface

The following table describes the Traffic Monitor interface page.

Label	Description
Monitored –Counter	Select monitor type
Time-Interval	Setting Interval time
Increasing – Quantity	Setting alarm Quantity
Event Alarm	Select alarm function (SYSLOG or SMTP)

5.11.7 System Event Log

If a system log client is enabled, the system event logs will be shown in this table.

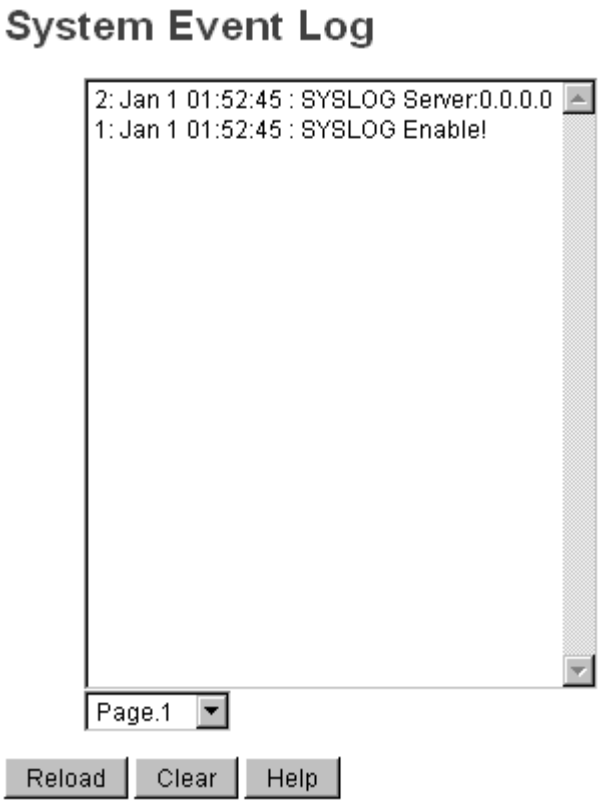


Figure 81 – System Event Log interface

The following table describes the System Event Log interface page.

Label	Description
Page	Select LOG page.
Reload	Gets the newest event logs and refreshes the page.
Clear	Clear log.
Help	Show help file.

5.11.8 Ping

Ping function allows the switch to send ICMP packets to detect the remote notes.

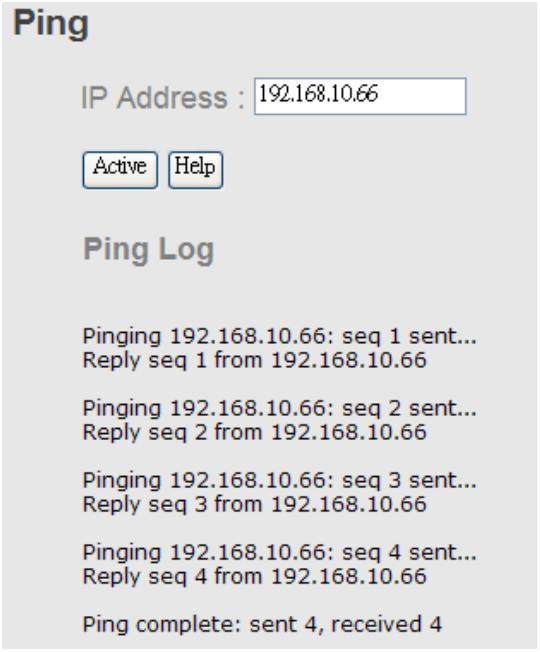


Figure 82 – Ping interface

The following table describes the Ping interface page

Label	Description
IP Address	Enter the IP address that you want to detect.
Active	Click "Active" to send ICMP packets

5.12 Save Configuration

If any configuration has been changed, "**Save Configuration**" should be clicked to save current configuration data to the permanent flash memory. Otherwise, the current configuration will be lost when power off or system reset.

Figure 83 – System Configuration interface

The following table describes the System Configuration interface page.

Label	Description
Save	Save all configurations.
Help	Show help file.

5.13 Factory Default

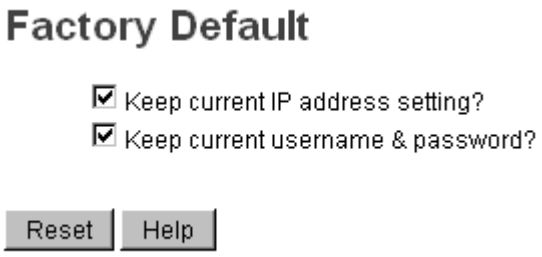


Figure 84 – Factory Default interface

The following table describes the labels for the Factory Default interface page.

Label	Description
Keep current IP address setting?	When selected the IP address will be retained when the switch is reset to the factory default.

Reset switch to default configuration. Click Reset to reset all configurations to the default value. Select "**Keep current IP address setting**" and "**Keep current username & password**" to keep current IP address, username, and password.

5.14 System Reboot

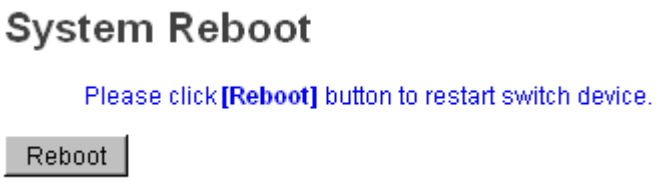


Figure 85 – System Reboot interface

6. COMMAND LINE INTERFACE MANAGEMENT (CLI)

6.1 About CLI Management

Besides WEB-based management, the iES10G(F) also supports CLI management. The console port or telnet can be used to configure the switch by the CLI.

CLI Management by RS-232 Serial Console (9600, 8, none, 1, none)
Use the RJ45 to DB9-F cable provided to connect the Switches RS-232 Console port to a PC's COM port.

Follow the steps below to access the console via RS-232 serial cable.

Step 1) From the Windows desktop, click on Start -> Programs -> Accessories -> Communications -> Hyper Terminal.

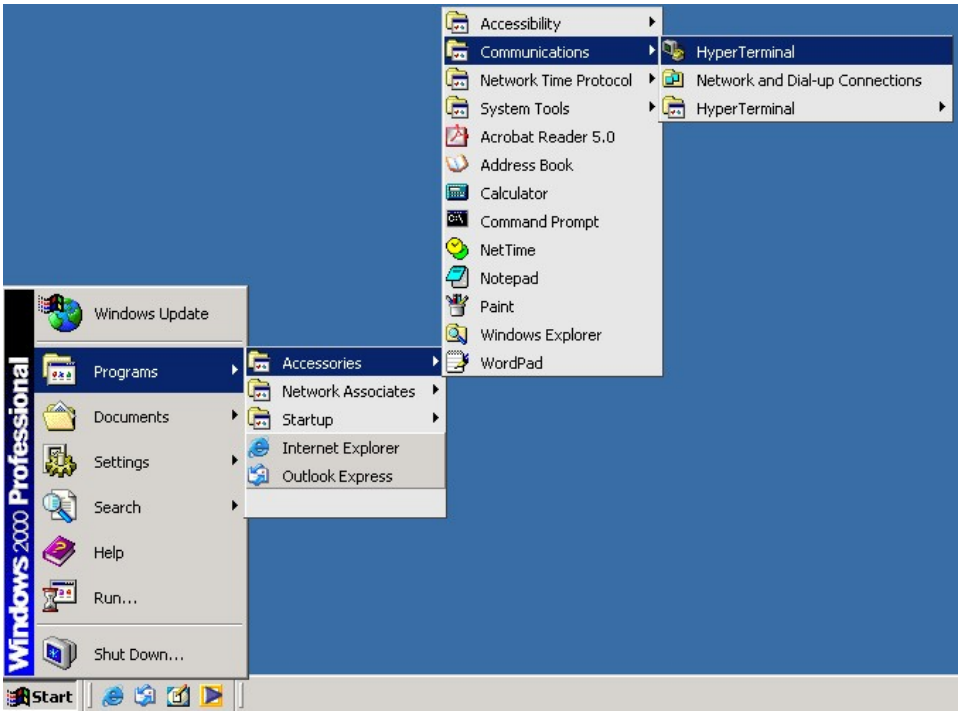


Figure 86 – Programs -> Accessories -> Communications -> Hyper Terminal

Step 2) Enter a name for the new connection.

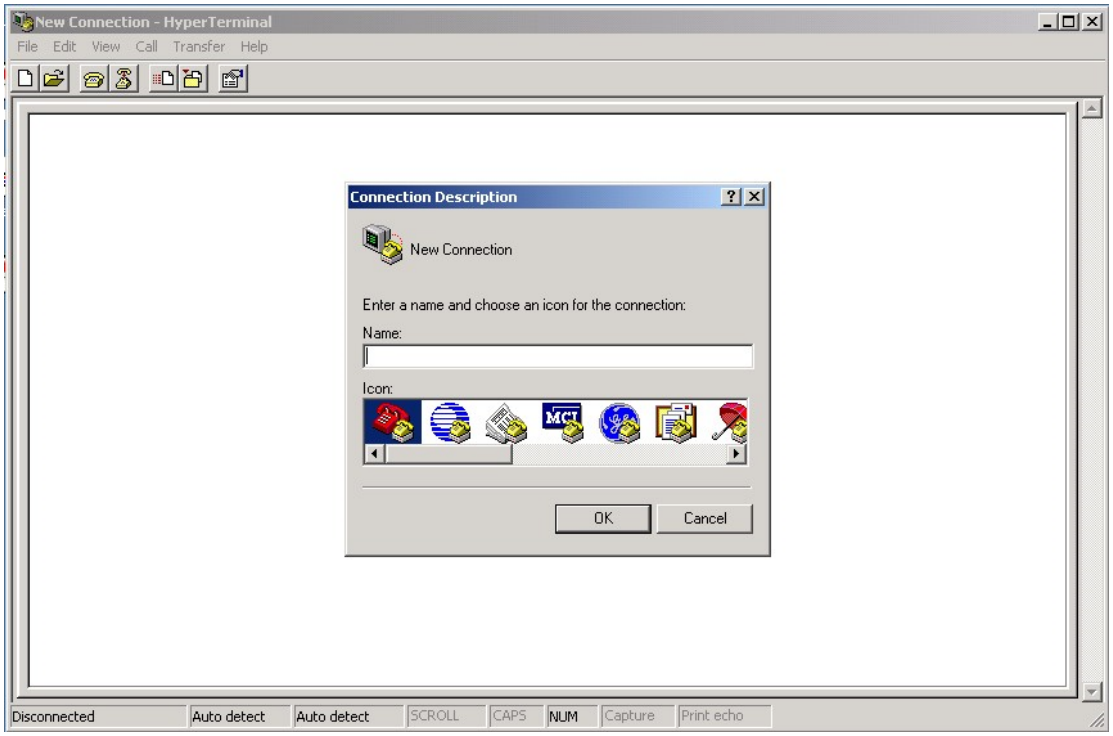


Figure 87 –New Connection

Step 3) Select appropriate COM port number

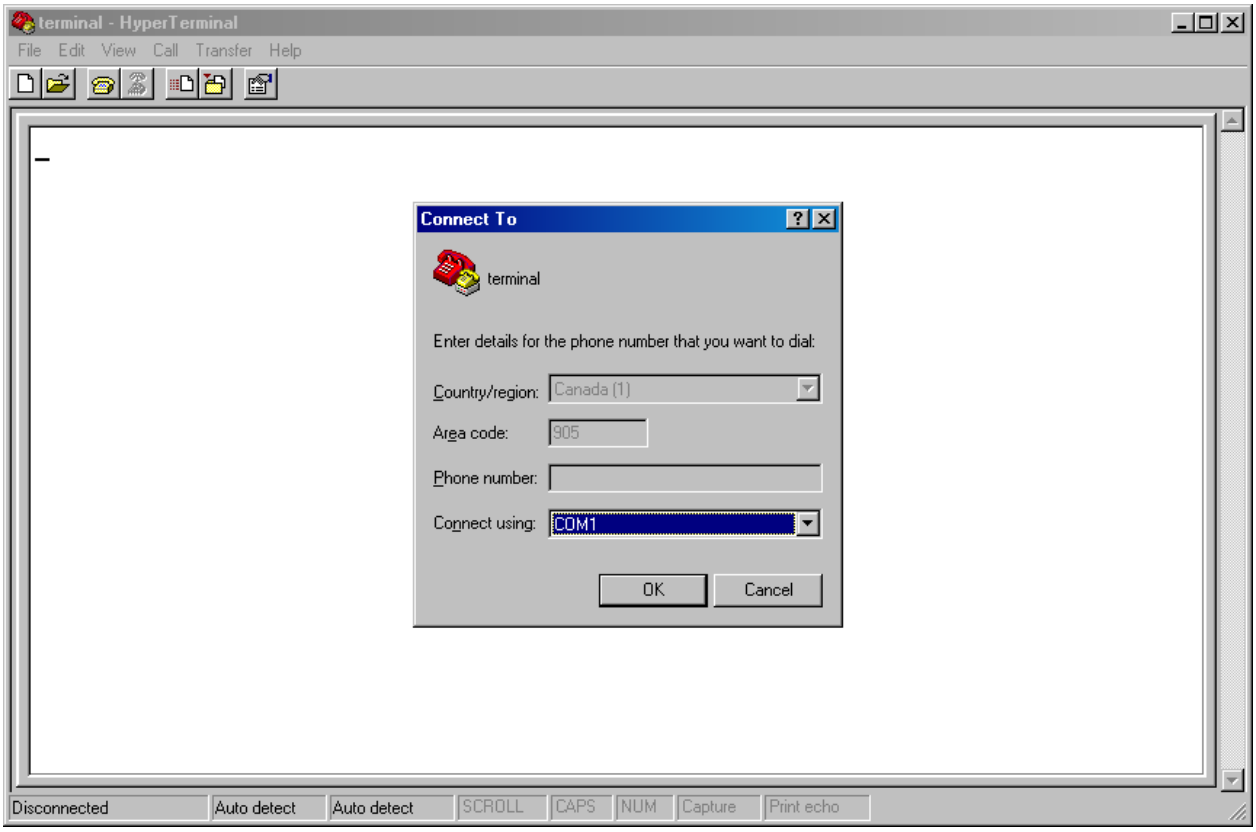


Figure 88 –Connect To

Step 4) Set the COM port properties to the following: 9600 Bits per second, 8 Data bits, No Parity, 1 Stop bit and no Flow control.

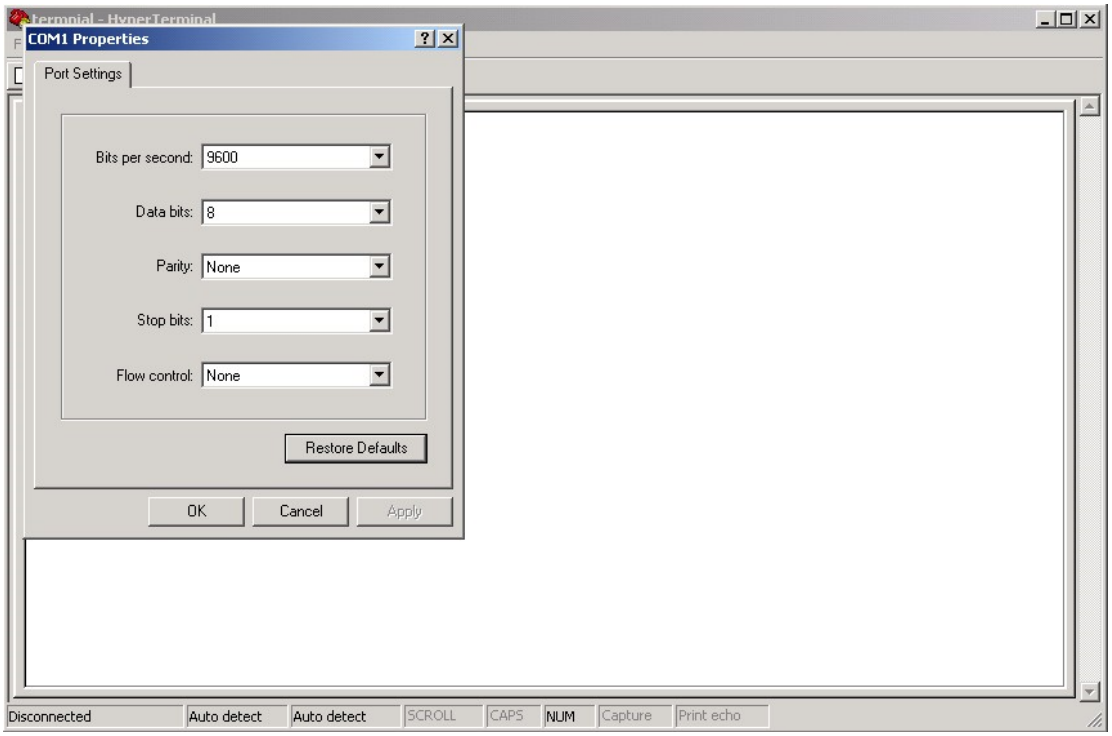


Figure 89 –COM1 Properties

Step 5) The Console login screen will appear. Enter the Username and Password (same as the password for the Web Browser), then press "**Enter**".

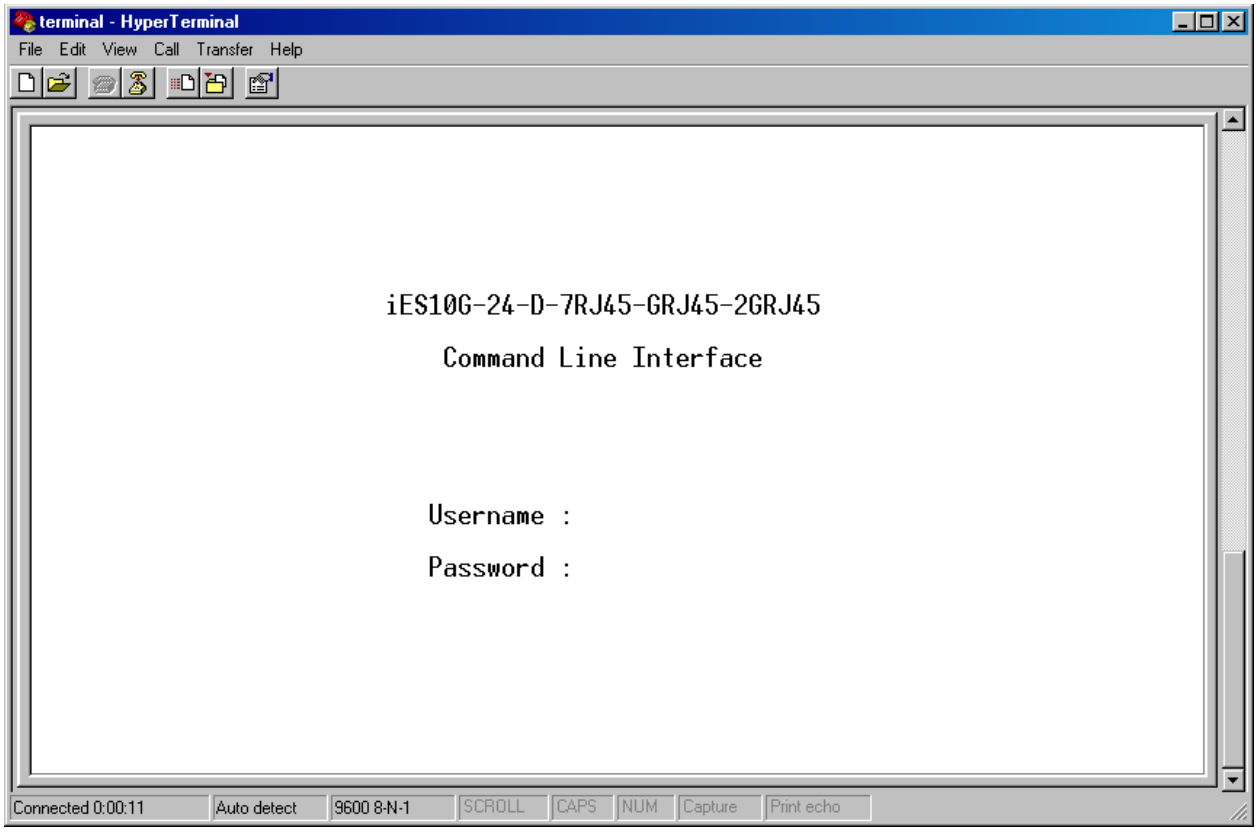


Figure 90 –Terminal – Hyper Terminal

6.2 CLI Management by Telnet

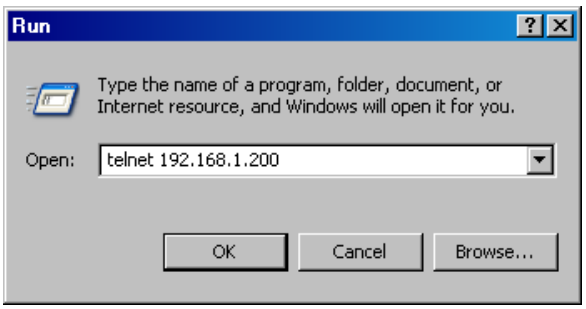
Users can use "**TELNET**" to configure the switches.

The default values are as below:

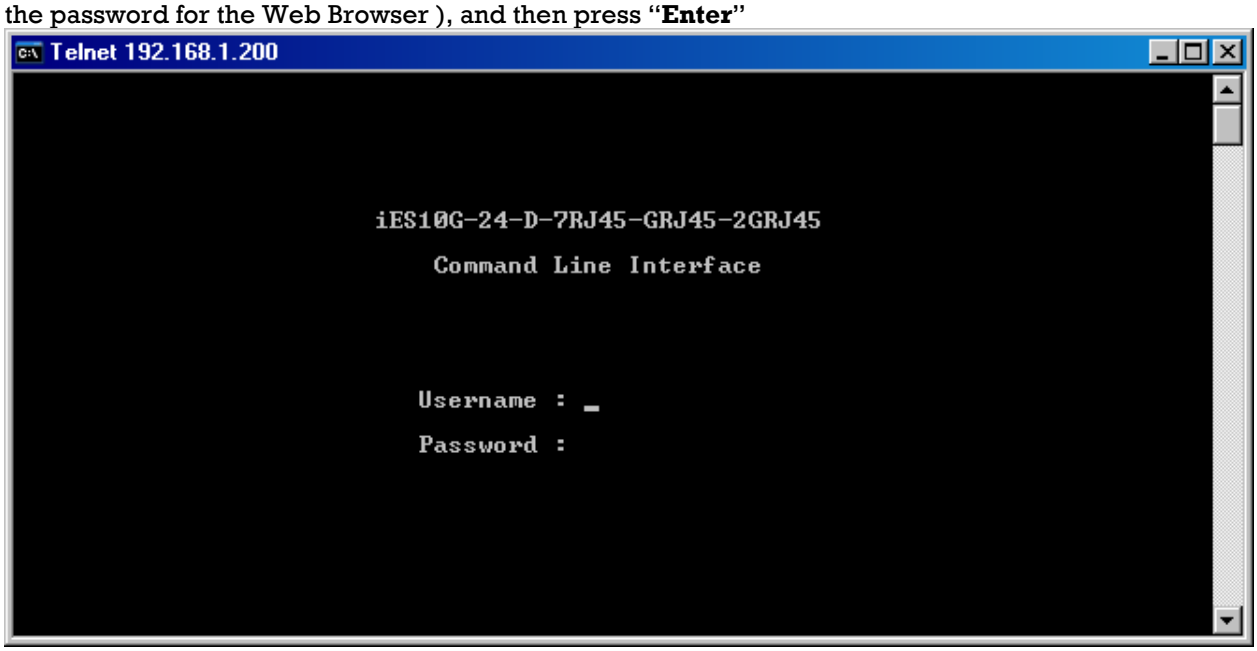
IP Address: **192.168.10.1**
Subnet Mask: **255.255.255.0**
Default Gateway: **192.168.10.254**
User Name: **admin**
Password: **admin**

Follow the steps below to access the console via Telnet.

Step 1) Telnet to the IP address of the switch from the Windows "**Run**" command (or from the MS-DOS prompt) as below.



Step 2) The Login screen will appear. Use the keyboard to enter the Username and Password (same as the password for the Web Browser), and then press "**Enter**"



Commands Level

Modes	Access Method	Prompt	Exit Method	About This Model
User EXEC	Begin a session with your switch.	switch>	Enter **logout** or **quit**.	The user command available at the level of user is the subset of those available at the privileged level. Use this mode to: • Enter menu mode. • Display system information.
Privileged EXEC	Enter the **enable** command while in user EXEC mode.	switch#	Enter **disable** to exit.	The privileged command is in advance mode. Privileged this mode to: • Display advance function status • save configures
Global configuration	Enter the **configure** command while in privileged EXEC mode.	switch(config)#	To exit to privileged EXEC mode, enter **exit** or **end**	Use this mode to configure parameters that apply to the Switch as a whole.
VLAN database	Enter the **vlan database** command while in privileged EXEC mode.	switch(vlan)#	To exit to user EXEC mode, enter **exit**.	Use this mode to configure VLAN-specific parameters.
Interface configuration	Enter the **interface** command (with a specific interface)while in global configuration mode	switch(config-if)#	To exit to global configuration mode, enter **exit**. To exist privileged EXEC mode or **end.**	Use this mode to configure parameters for the switch and Ethernet ports.

Symbols for Command Level

Mode	Symbol of Command Level
User EXEC	E
Privileged EXEC	P
Global configuration	G
VLAN database	V
Interface configuration	I

6.3 Commands Set List—System Commands Set

iES10G(F) Commands	Level	Description	Example
show config	**E**	Show switch configuration	switch>show config
show terminal	**P**	Show console information	switch#show terminal
write memory	**P**	Save your configuration into permanent memory (flash rom)	switch#write memory
system name	**G**	Configure system name	switch(config)#system name xxx

iES10G(F) Commands	Level	Description	Example
[System Name]			
system location [System Location]	G	Set switch system location string	switch(config)#system location xxx
system description [System Description]	G	Set switch system description string	switch(config)#system description xxx
system contact [System Contact]	G	Set switch system contact window string	switch(config)#system contact xxx
show system-info	E	Show system information	switch>show system-info
ip address [Ip-address] [Subnet-mask] [Gateway]	G	Configure the IP address of switch	switch(config)#ip address 192.168.1.1 255.255.255.0 192.168.1.254
ip dhcp	G	Enable DHCP client function of switch	switch(config)#ip dhcp
show ip	P	Show IP information of switch	switch#show ip
no ip dhcp	G	Disable DHCP client function of switch	switch(config)#no ip dhcp
reload	G	Halt and perform a cold restart	switch(config)#reload
default	G	Restore to default	Switch(config)#default
admin username [Username]	G	Changes a login username. (maximum 10 characters)	switch(config)#admin username xxxxxx
admin password [Password]	G	Specifies a password (maximum 10 characters)	switch(config)#admin password xxxxxx
show admin	P	Show administrator information	switch#show admin
dhcpserver enable	G	Enable DHCP Server	switch(config)#dhcpserver enable
dhcpserver lowip [Low IP]	G	Configure low IP address for IP pool	switch(config)# dhcpserver lowip 192.168.1.1
dhcpserver highip [High IP]	G	Configure high IP address for IP pool	switch(config)# dhcpserver highip 192.168.1.50
dhcpserver subnetmask [Subnet mask]	G	Configure subnet mask for DHCP clients	switch(config)#dhcpserver subnetmask 255.255.255.0
dhcpserver gateway [Gateway]	G	Configure gateway for DHCP clients	switch(config)#dhcpserver gateway 192.168.1.254
dhcpserver dnsip [DNS IP]	G	Configure DNS IP for DHCP clients	switch(config)# dhcpserver dnsip 192.168.1.1
dhcpserver leasetime [Hours]	G	Configure lease time (in hour)	switch(config)#dhcpserver leasetime 1
dhcpserver ipbinding [IP address]	I	Set static IP for DHCP clients by port	switch(config)#interface fastEthernet 2 switch(config-if)#dhcpserver ipbinding 192.168.1.1
show dhcpserver configuration	P	Show configuration of DHCP server	switch#show dhcpserver configuration
show dhcpserver clients	P	Show client entries of DHCP server	switch#show dhcpserver clinets
show dhcpserver ip-binding	P	Show IP-Binding information of DHCP server	switch#show dhcpserver ip-binding
no dhcpserver	G	Disable DHCP server function	switch(config)#no dhcpserver

iES10G(F) Commands	Level	Description	Example
security enable	G	Enable IP security function	switch(config)#security enable
security http	G	Enable IP security of HTTP server	switch(config)#security http
security telnet	G	Enable IP security of telnet server	switch(config)#security telnet
security ip [Index(1..10)] [IP Address]	G	Set the IP security list	switch(config)#security ip 1 192.168.1.55
show security	P	Show the information of IP security	switch#show security
no security	G	Disable IP security function	switch(config)#no security
no security http	G	Disable IP security of HTTP server	switch(config)#no security http
no security telnet	G	Disable IP security of telnet server	switch(config)#no security telnet

6.4 Commands Set List—Port Commands Set

iES10G(F) Commands	Level	Description	Example
interface fastEthernet [Portid]	G	Choose the port for modification.	switch(config)#interface fastEthernet 2
duplex [full | half]	I	Use the duplex configuration command to specify the duplex mode of operation for Fast Ethernet.	switch(config)#interface fastEthernet 2 switch(config-if)#duplex full
speed [10|100|1000|auto]	I	Use the speed configuration command to specify the speed mode of operation for Fast Ethernet., the speed can't be set to 1000 if the port isn't a Giga port.	switch(config)#interface fastEthernet 2 switch(config-if)#speed 100
flowcontrol mode [Symmetric|Asymmetric]	I	Use the flowcontrol configuration command on Ethernet ports to control traffic rates during congestion.	switch(config)#interface fastEthernet 2 switch(config-if)#flowcontrol mode Asymmetric
no flowcontrol	I	Disable flow control of interface	switch(config-if)#no flowcontrol
security enable	I	Enable security of interface	switch(config)#interface fastEthernet 2 switch(config-if)#security enable
no security	I	Disable security of interface	switch(config)#interface fastEthernet 2 switch(config-if)#no security
bandwidth type all	I	Set interface ingress limit frame type to "accept all frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type all
bandwidth type broadcast-multicast-flooded-unicast	I	Set interface ingress limit frame type to "accept broadcast, multicast, and flooded unicast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-multicast-flooded-unicast

iES10G(F) Commands	Level	Description	Example
bandwidth type broadcast-multicast	I	Set interface ingress limit frame type to "accept broadcast and multicast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-multicast
bandwidth type broadcast-only	I	Set interface ingress limit frame type to "only accept broadcast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-only
bandwidth in [Value]	I	Set interface input bandwidth. Rate Range is from 100 kbps to 102400 kbps or to 256000 kbps for Giga ports, and zero means no limit.	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth in 100
bandwidth out [Value]	I	Set interface output bandwidth. Rate Range is from 100 kbps to 102400 kbps or to 256000 kbps for Giga ports, and zero means no limit.	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth out 100
show bandwidth	I	Show interfaces bandwidth control	switch(config)#interface fastEthernet 2 switch(config-if)#show bandwidth
state [Enable | Disable]	I	Use the state interface configuration command to specify the state mode of operation for Ethernet ports. Use the disable form of this command to disable the port.	switch(config)#interface fastEthernet 2 switch(config-if)#state Disable
show interface configuration	I	show interface configuration status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface configuration
show interface status	I	show interface actual status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface status
show interface accounting	I	show interface statistic counter	switch(config)#interface fastEthernet 2 switch(config-if)#show interface accounting
no accounting	I	Clear interface accounting information	switch(config)#interface fastEthernet 2 switch(config-if)#no accounting

6.5 Commands Set List—Trunk command set

iES10G(F) Commands	Level	Description	Example
aggregator priority [1to65535]	G	Set port group system priority	switch(config)#aggregator priority 22
aggregator activityport [Port Numbers]	G	Set activity port	switch(config)#aggregator activityport 2
aggregator group [GroupID] [Port-list] **lacp workp** [Workport]	G	Assign a trunk group with LACP active. [GroupID] :1to3 [Port-list]:Member port list, This parameter	switch(config)#aggregator group 1 1-4 lacp workp 2 or switch(config)#aggregator group 2 1,4,3 lacp workp 3

iES10G(F) Commands	Level	Description	Example
		could be a port range(ex.1-4) or a port list separate by a comma(ex.2, 3, 6) [Workport]: The amount of work ports, this value could not be less than zero or be large than the amount of member ports.	
aggregator group [GroupID] [Port-list] **nolacp**	G	Assign a static trunk group. [GroupID] :1to3 [Port-list]:Member port list, This parameter could be a port range(ex.1-4) or a port list separate by a comma(ex.2, 3, 6)	switch(config)#aggregator group 1 2-4 nolacp or switch(config)#aggreator group 1 3,1,2 nolacp
show aggregator	P	Show the information of trunk group	switch#show aggregator
no aggregator lacp [GroupID]	G	Disable the LACP function of trunk group	switch(config)#no aggreator lacp 1
no aggregator group [GroupID]	G	Remove a trunk group	switch(config)#no aggreator group 2

6.6 Commands Set List—VLAN command set

iES10G(F) Commands	Level	Description	Example
vlan database	P	Enter VLAN configure mode	switch#vlan database
vlan [8021q | gvrp]	V	To set switch VLAN mode.	switch(vlan)# vlanmode 802.1q or switch(vlan)# vlanmode gvrp
no vlan [VID]	V	Disable vlan group(by VID)	switch(vlan)#no vlan 2
no gvrp	V	Disable GVRP	switch(vlan)#no gvrp
IEEE 802.1Q VLAN			
vlan 8021q port [PortNumber] **access-link untag** [UntaggedVID]	V	Assign an access link for VLAN by port; if the port belongs to a trunk group, this command can't be applied.	switch(vlan)#vlan 802.1q port 3 access-link untag 33
vlan 8021q port [PortNumber] **trunk-link tag** [TaggedVID List]	V	Assign a trunk link for VLAN by port; if the port belongs to a trunk group, this command can't be applied.	switch(vlan)#vlan 8021q port 3 trunk-link tag 2,3,6,99 or switch(vlan)#vlan 8021q port 3 trunk-link tag 3-20
vlan 8021q port [PortNumber] **hybrid-link untag** [UntaggedVID] **tag** [TaggedVID List]	V	Assign a hybrid link for VLAN by port; if the port belongs to a trunk group, this command can't be applied.	switch(vlan)# vlan 8021q port 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q port 3 hybrid-link untag 5 tag 6-8
vlan 8021q aggreator	V	Assign a access link for	switch(vlan)#vlan 8021q aggreator 3

iES10G(F) Commands	Level	Description	Example
[TrunkID] **access-link untag** [UntaggedVID]		VLAN by trunk group	access-link untag 33
vlan 8021q aggreator [TrunkID] **trunk-link tag** [TaggedVID List]	**V**	Assign a trunk link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 2,3,6,99 or switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 3-20
vlan 8021q aggreator [PortNumber] **hybrid-link untag** [UntaggedVID] **tag** [TaggedVID List]	**V**	Assign a hybrid link for VLAN by trunk group	switch(vlan)# vlan 8021q aggreator 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q aggreator 3 hybrid-link untag 5 tag 6-8
show vlan [VID] or **show vlan**	**V**	Show VLAN information	switch(vlan)#show vlan 23

6.7 Commands Set List— RSTP command set

iES8(G) series Commands	Level	Description	Example
RSTP enable	**G**	Enable RSTP	switch(config)#RSTP enable
RSTP priority [0to61440]	**G**	Configure RSTP priority parameter	switch(config)# RSTP priority 32768
RSTP max-age [seconds]	**G**	Use the RSTP max-age global configuration command to change the interval between messages the RSTP receives from the root switch. If a switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, the RSTP topology is recomputed.	switch(config)# RSTP max-age 15
RSTP hello-time [seconds]	**G**	Use the RSTP hello-time global configuration command to specify the interval (1-10) between hello bridge protocol data units (BPDUs).	switch(config)# RSTP hello-time 3
RSTP forward-time [seconds]	**G**	Use the RSTP forward-time global configuration command to set the forwarding-time for the specified RSTP instances. The forwarding time (4-30)	switch(config)# RSTP forward-time 20

iES8(G) series Commands	Level	Description	Example
		determines how long each of the listening and learning states last before the port begins forwarding.	
RSTP max-age [seconds]	**G**	Configure RSTP max age parameter	switch(config)# RSTP max-age 25
RSTP path-cost [1to200000000]	**I**	Use the RSTP cost interface configuration command to set the path cost for RSTP calculations. In the event of a loop, RSTP considers the path cost when selecting an interface to place into the forwarding state.	switch(config)#interface fastEthernet 2 switch(config-if)# rstp path-cost 2
RSTP port-priority [Port Priority]	**I**	Use the RSTP port-priority interface configuration command to configure a port priority that is used when two switches tie for position as the root switch.	switch(config)#interface fastEthernet 2 switch(config-if)# rstp port-priority 128
RSTP admin-p2p [Auto | True | False]	**I**	Admin P2P of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# rstp admin-p2p Auto
RSTP admin-edge [True | False]	**I**	Admin Edge of RSTP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# rstp admin-edge False
RSTP admin-non-stp [True | False]	**I**	Admin Non STP of RSTP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# rstp admin-non-stp True
Show RSTP	**E**	Display a summary of the RSTP states.	switch>show rstp
no RSTP	**G**	Disable RSTP.	switch(config)#no rstp

6.8 Commands Set List—QoS command set

iES10G(F) Commands	Level	Description	Example
qos policy [weighted-fair | strict]	**G**	Select QOS policy scheduling	switch(config)#qos policy weighted-fair
qos prioritytype [port-based | cos-only | tos-only | cos-first | tos-first]	**G**	Setting of QOS priority type	switch(config)#qos prioritytype
qos priority portbased [Port] [lowest | low | middle | high]	**G**	Configure Port-based Priority	switch(config)#qos priority portbased 1 low
qos priority cos [Priority][lowest | low | middle | high]	**G**	Configure COS Priority	switch(config)#qos priority cos 22 middle
qos priority tos [Priority][lowest | low | mid	**G**	Configure TOS Priority	switch(config)#qos priority tos 3 high

iES10G(F) Commands	Level	Description	Example
dle | high]			
show qos	**P**	Display the information of QoS configuration	switch#show qos
no qos	**G**	Disable QoS function	switch(config)#no qos

6.9 Commands Set List—IGMP command set

iES10G(F) Commands	Level	Description	Example
igmp enable	**G**	Enable IGMP snooping function	switch(config)#igmp enable
Igmp-query auto	**G**	Set IGMP query to auto mode	switch(config)#Igmp-query auto
Igmp-query force	**G**	Set IGMP query to force mode	switch(config)#Igmp-query force
show igmp configuration	**P**	Displays the details of an IGMP configuration.	switch#show igmp configuration
show igmp multi	**P**	Displays the details of an IGMP snooping entries.	switch#show igmp multi
no igmp	**G**	Disable IGMP snooping function	switch(config)#no igmp
no igmp-query	**G**	Disable IGMP query	switch#no igmp-query

6.10 Commands Set List—MAC/Filter Table command set

iES10G(F) Commands	Level	Description	Example
mac-address-table static hwaddr [MAC]	**I**	Configure MAC address table of interface (static).	switch(config)#interface fastEthernet 2 switch(config-if)#mac-address-table static hwaddr 000012345678
mac-address-table filter hwaddr [MAC]	**G**	Configure MAC address table(filter)	switch(config)#mac-address-table filter hwaddr 000012348678
show mac-address-table	**P**	Show all MAC address table	switch#show mac-address-table
show mac-address-table static	**P**	Show static MAC address table	switch#show mac-address-table static
show mac-address-table filter	**P**	Show filter MAC address table.	switch#show mac-address-table filter
no mac-address-table static hwaddr [MAC]	**I**	Remove an entry of MAC address table of interface (static)	switch(config)#interface fastEthernet 2 switch(config-if)#no mac-address-table static hwaddr 000012345678
no mac-address-table filter hwaddr [MAC]	**G**	Remove an entry of MAC address table (filter)	switch(config)#no mac-address-table filter hwaddr 000012348678
no mac-address-table	**G**	Remove dynamic entry of MAC address table	switch(config)#no mac-address-table

6.11 Commands Set List—SNMP command set

iES10G(F) Commands	Level	Description	Example
snmp agent-mode [v1v2c | v3]	G	Select the agent mode of SNMP	switch(config)#snmp agent-mode v1v2c
snmp-server host [IP address] **community** [Community-string] **trap-version** [v1|v2c]	G	Configure SNMP server host information and community string	switch(config)#snmp-server host 192.168.10.50 community public trap-version v1 (remove) Switch(config)# no snmp-server host 192.168.10.50
snmp community-strings [Community-string] **right** [RO|RW]	G	Configure the community string right	switch(config)#snmp community-strings public right RO or switch(config)#snmp community-strings public right RW
snmp snmpv3-user [User Name] **password** [Authentication Password] [Privacy Password]	G	Configure the userprofile for SNMPV3 agent. Privacy password could be empty.	switch(config)#snmp snmpv3-user test01 password AuthPW PrivPW
show snmp	P	Show SNMP configuration	switch#show snmp
show snmp-server	P	Show specified trap server information	switch#show snmp-server
no snmp community-strings [Community]	G	Remove the specified community.	switch(config)#no snmp community-strings public
no snmp snmpv3-user [User Name] **password** [Authentication Password] [Privacy Password]	G	Remove specified user of SNMPv3 agent. Privacy password could be empty.	switch(config)# no snmp snmpv3-user test01 password AuthPW PrivPW
no snmp-server host [Host-address]	G	Remove the SNMP server host.	switch(config)#no snmp-server 192.168.10.50

6.12 Commands Set List—Port Mirroring command set

iES10G(F) Commands	Level	Description	Example
monitor rx	G	Set RX destination port of monitor function	switch(config)#monitor rx
monitor tx	G	Set TX destination port of monitor function	switch(config)#monitor tx
show monitor	P	Show port monitor information	switch#show monitor
monitor [RX|TX|Both]	I	Configure source port of monitor function	switch(config)#interface fastEthernet 2 switch(config-if)#monitor RX
show monitor	I	Show port monitor information	switch(config)#interface fastEthernet 2 switch(config-if)#show monitor
no monitor	I	Disable source port of monitor function	switch(config)#interface fastEthernet 2 switch(config-if)#no monitor

6.13 Commands Set List—802.1x command set

iES10G(F) Commands	Level	Description	Example
8021x enable	G	Use the 802.1x global configuration command to enable 802.1x protocols.	switch(config)# 8021x enable
8021x system radiousip [IP address]	G	Use the 802.1x system radius IP global configuration command to change the radius server IP.	switch(config)# 8021x system radiusip 192.168.1.1
8021x system serverport [port ID]	G	Use the 802.1x system server port global configuration command to change the radius server port	switch(config)# 8021x system serverport 1815
8021x system accountport [port ID]	G	Use the 802.1x system account port global configuration command to change the accounting port	switch(config)# 8021x system accountport 1816
8021x system sharekey [ID]	G	Use the 802.1x system share key global configuration command to change the shared key value.	switch(config)# 8021x system sharekey 123456
8021x system nasid [words]	G	Use the 802.1x system nasid global configuration command to change the NAS ID	switch(config)# 8021x system nasid test1
8021x misc quietperiod [sec.]	G	Use the 802.1x misc quiet period global configuration command to specify the quiet period value of the switch.	switch(config)# 8021x misc quietperiod 10
8021x misc txperiod [sec.]	G	Use the 802.1x misc TX period global configuration command to set the TX period.	switch(config)# 8021x misc txperiod 5
8021x misc supportimeout [sec.]	G	Use the 802.1x misc supp timeout global configuration command to set the supplicant timeout.	switch(config)# 8021x misc supportimeout 20
8021x misc servertimeout [sec.]	G	Use the 802.1x misc server timeout global configuration command to set the server timeout.	switch(config)#8021x misc servertimeout 20
8021x misc maxrequest [number]	G	Use the 802.1x misc max request global configuration command to set the MAX requests.	switch(config)# 8021x misc maxrequest 3

iES10G(F) Commands	Level	Description	Example
8021x misc reauthperiod [sec.]	G	Use the 802.1x misc reauth period global configuration command to set the reauth period.	switch(config)# 8021x misc reauthperiod 3000
8021x portstate [disable | reject | accept | authorize]	I	Use the 802.1x port state interface configuration command to set the state of the selected port.	switch(config)#interface fastethernet 3 switch(config-if)#8021x portstate accept
show 8021x	P	Display a summary of the 802.1x properties and also the port sates.	switch#show 8021x
no 8021x	G	Disable 802.1x function	switch(config)#no 8021x

6.14 Commands Set List—TFTP command set

iES10G(F) Commands	Level	Description	Defaults Example
backup flash:backup_cfg	G	Save configuration to TFTP and need to specify the IP of TFTP server and the file name of image.	switch(config)#backup flash:backup_cfg
restore flash:restore_cfg	G	Get configuration from TFTP server and need to specify the IP of TFTP server and the file name of image.	switch(config)#restore flash:restore_cfg
upgrade flash:upgrade_fw	G	Upgrade firmware by TFTP and need to specify the IP of TFTP server and the file name of image.	switch(config)#upgrade lash:upgrade_fw

6.15 Commands Set List—SYSLOG, SMTP, EVENT command set

iES10G(F) Commands	Level	Description	Example
systemlog ip [IP address]	G	Set System log server IP address.	switch(config)# systemlog ip 192.168.1.100
systemlog mode [client | server | both]	G	Specified the log mode	switch(config)# systemlog mode both
show systemlog	E	Display system log.	Switch>show systemlog
show systemlog	P	Show system log client & server information	switch#show systemlog
no systemlog	G	Disable systemlog function	switch(config)#no systemlog
smtp enable	G	Enable SMTP function	switch(config)#smtp enable
smtp serverip [IP address]	G	Configure SMTP server IP	switch(config)#smtp serverip 192.168.1.5

iES10G(F) Commands	Level	Description	Example
smtp authentication	G	Enable SMTP authentication	switch(config)#smtp authentication
smtp account [account]	G	Configure authentication account	switch(config)#smtp account User
smtp password [password]	G	Configure authentication password	switch(config)#smtp password
smtp rcptemail [Index] [Email address]	G	Configure Rcpt e-mail Address	switch(config)#smtp rcptemail 1 Alert@test.com
show smtp	P	Show the information of SMTP	switch#show smtp
no smtp	G	Disable SMTP function	switch(config)#no smtp
event device-cold-start [Systemlog | SMTP | Both]	G	Set cold start event type	switch(config)#event device-cold-start both
event authentication-failure [Systemlog | SMTP | Both]	G	Set Authentication failure event type	switch(config)#event authentication-failure both
event iRing-topology-change [Systemlog | SMTP | Both]	G	Set s ring topology changed event type	switch(config)#event ring-topology-change both
event systemlog [Link-UP | Link-Down | Both]	I	Set port event for system log	switch(config)#interface fastethernet 3 switch(config-if)#event systemlog both
event smtp [Link-UP | Link-Down | Both]	I	Set port event for SMTP	switch(config)#interface fastethernet 3 switch(config-if)#event smtp both
show event	P	Show event selection	switch#show event
no event device-cold-start	G	Disable cold start event type	switch(config)#no event device-cold-start
no event authentication-failure	G	Disable Authentication failure event type	switch(config)#no event authentication-failure
no event iRing-topology-change	G	Disable iRing topology changed event type	switch(config)#no event ring-topology-change
no event systemlog	I	Disable port event for system log	switch(config)#interface fastethernet 3 switch(config-if)#no event systemlog
no event smpt	I	Disable port event for SMTP	switch(config)#interface fastethernet 3 switch(config-if)#no event smtp
show systemlog	P	Show system log client & server information	switch#show systemlog

6.16 Commands Set List—SNTP command set

iES10G(F) Commands	Level	Description	Example
sntp enable	G	Enable SNTP function	switch(config)#sntp enable
sntp daylight	G	Enable daylight saving time, if SNTP function is inactive, this command can't be applied.	switch(config)#sntp daylight
sntp daylight-period [Start time] [End time]	G	Set period of daylight saving time, if SNTP function is inactive, this command can't be applied. Parameter format: [yyyymmdd-hh:mm]	switch(config)# sntp daylight-period 20060101-01:01 20060202-01-01

iES10G(F) Commands	Level	Description	Example
sntp daylight-offset [Minute]	G	Set offset of daylight saving time, if SNTP function is inactive, this command can't be applied.	switch(config)#sntp daylight-offset 3
sntp ip [IP]	G	Set SNTP server IP, if SNTP function is inactive, this command can't be applied.	switch(config)#sntp ip 192.169.1.1
sntp timezone [Timezone]	G	Set timezone index, use "show sntp timezone" command to get more information of index number	switch(config)#sntp timezone 22
show sntp	P	Show SNTP information	switch#show sntp
show sntp timezone	P	Show index number of time zone list	switch#show sntp timezone
no sntp	G	Disable SNTP function	switch(config)#no sntp
no sntp daylight	G	Disable daylight saving time	switch(config)#no sntp daylight

6.17 Commands Set List—iRing command set

iES10G(F) Commands	Level	Description	Example
Ring enable	G	Enable iRing	switch(config)# ring enable
Ring master	G	Enable ring master	switch(config)# ring master
Ring couplering	G	Enable couple ring	switch(config)# ring couplering
Ring dualhoming	G	Enable dual homing	switch(config)# ring dualhoming
Ring ringport [1st Ring Port] [2nd Ring Port]	G	Configure 1st/2nd Ring Port	switch(config)# ring ringport 7 8
Ring couplingport [Coupling Port]	G	Configure Coupling Port	switch(config)# ring couplingport 1
Ring controlport [Control Port]	G	Configure Control Port	switch(config)# ring controlport 2
Ring homingport [Dual Homing Port]	G	Configure Dual Homing Port	switch(config)# ring homingport 3
show Ring	P	Show the information of iRing	switch#show ring
no Ring	G	Disable iRing	switch(config)#no ring
no Ring master	G	Disable ring master	switch(config)# no ring master
no Ring couplering	G	Disable couple ring	switch(config)# no ring couplering
no Ring dualhoming	G	Disable dual homing	switch(config)# no ring dualhoming

6.18 Commands Set List—MRP command set

MRP	Status
	MRP Mode [enable|disable]
	MRP Manager [enable|disable] MRP React [enable|disable] MRP 1stRingPort [<mrp_port>] MRP 2ndRingPort [<mrp_port>] MRP Parameter MRP_TOPchgT [<value>] MRP Parameter MRP_TOPNRmax [<value>] MRP Parameter MRP_TSTshortT [<value>] MRP Parameter MRP_TSTdefaultT [<value>] MRP Parameter MRP_TSTNRmax [<value>] MRP Parameter MRP_LNKdownT [<value>] MRP Parameter MRP_LNKupT [<value>] MRP Parameter MRP_LNKNRmax [<value>]

APPENDIX A: IES10G(F) MODBUS INFORMATION

*Device ID/PLC is 1
*04 Read Input Register (3x) should be used.
*The returned values are in hex format

Address	Description
16	VendorName
48	ProductName
81	Version
85	MacAddress
256	SysName
512	SysDescription
768	SysLocation
1024	SysContact
4096	PortStatus: Port :1~VTSS_PORTS Value :0x0000 Link down 0x0001 Link up 0x0002 Disable 0xffff NoPort
4352	PortSpeed: Port :1~VTSS_PORTS Value :0x0000 10M-Half 0x0001 10M-Full 0x0002 100M-Half 0x0003 100M-Full 0x0004 1G-Half 0x0005 1G-Full 0xffff NoPort
4608	PortFlowCtrl : Port :1~VTSS_PORTS Value :0x0000 Off 0x0001 On 0xffff NoPort