ABLELink®
EH6508 Industrial Switch Series

User Manual

Version 1.0

Updated on November, 2007

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Important Announcement

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Getting to Know your Switch

1.1 About the EH Switch

The EH switch is a powerful industrial management switch. The switch has many switch functions and it can work under high temperature, dusty environment.

The EH switch can be managed by WEB, TELNET, Consol or other third-party SNMP software. Besides, EH switch can be managed by a useful utility that we called EtherManger. EtherManager provide user a very friendly, powerful interface. It can help user to configure multiple switches at the same time. AIVIEW also provide user to monitor switches' status, in other words, AIVIEW is a power network management software,

1.2 Software Features

Features:

- Worldwide fastest Redundant Ethernet Ring (Recovery time < 10ms over 50 units connection)
- Supports Ring Coupling, Dual Homing, RSTP over EH Ring
- Supports SNMPv1/v2/v3 & RMON & Port base/802.1Q VLAN Network Management
- Event notification by Email, SNMP trap and Relay Output
- Web-based ,Telnet, Console, CLI configuration
- Redundant three DC power inputs (terminal block & power jack)
- 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)

1.3 Hardware Features

- Dual low-voltage DC inputs (24 or 48VDC)

- Redundant three DC power inputs (terminal block & power jack)

- Operating Temperature: -40 to75 ℃

- Storage Temperature: -20 to 85℃

- Operating Humidity: 5% to 95%；Non-condensing

- Casing:IP-30

- Gigabit Ethernet port

- 10/100M Ethernet port

- Fiber port

- Console Port

- Dimensions(W x D x H) : 52 mm(W)x 106 mm(D)x 144 mm(H)

Hardware Installation

1.1 Installation Switch on din rail.

EH Switch has a din rail kit on rear panel. The din rail kit can help switch to fix on the din rail.

It is easy to install the switch on the din rail:

Step 1: Slant the switch to mount the metal spring to din rail.

Metal Spring

Step 2: Push the switch to the din rail direction until you heard "click".
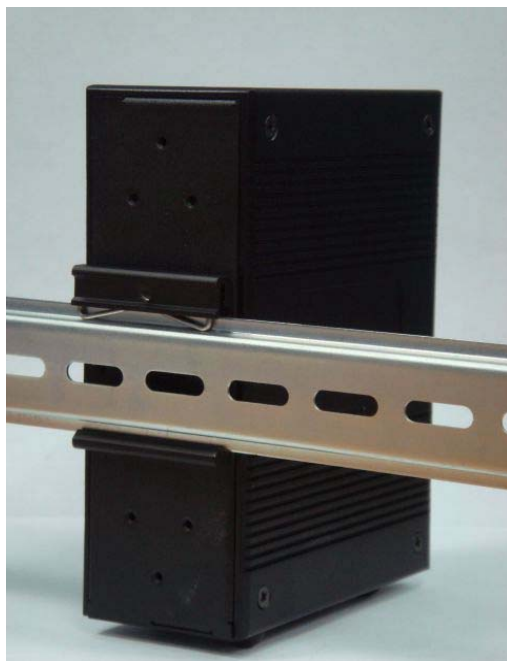
1.2 Wall Mounting Installation

EH Series Switch decided another installation method for user fixing the switch. User can find a wall mount planet in the package. The following steps show how to mount the switch on the wall:

Step 1: Remove din rail kit.
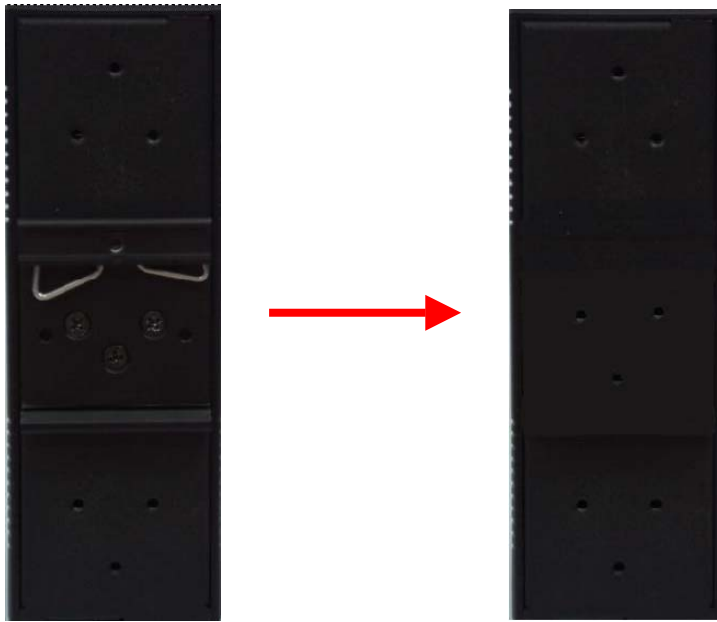
Step 2: Use 6 screws in the package to combine the wall mount plant and the switch like the picture below:

The screws spec. shows as the following two pictures. The screws should not larger than the size used in EH switches to prevent switches from damage.

Pozidrive
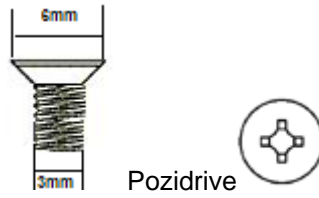
Step 3: Mount the combined switch on the wall.

Hardware Overview

1.1 Front Panel

EH6508G-Fm/Fs
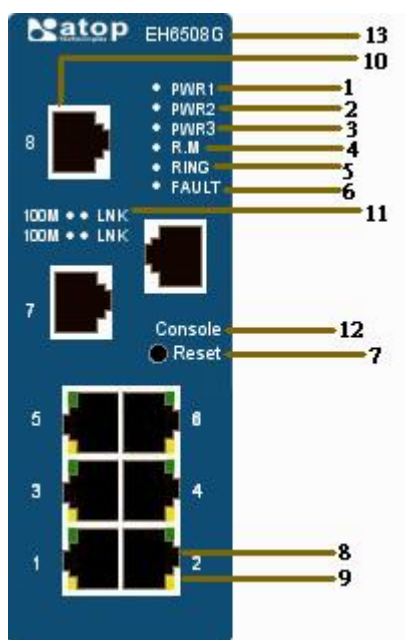
1. LED for PWR1.When PWR1 links, the green led will be light on.

2. LED for PWR2.When the PWR2 links, the green led will be light on.

3. LED for PWR3.When the PWR3 links, the green led will be light on.

4. LED for R.M (Ring master).When the LED light on, it means the switch is the ring master of IA-Ring.

5. LED for Ring. When the led light on, it means the IA-Ring is active.

6. LED for Fault Relay. When the fault occurs, the amber LED will be light on.

7. Reset bottom. Push the bottom 3 seconds for reset, 5 seconds for factory default.

8. 10/100Base-T Ethernet ports..

9. LED for Ethernet ports status.

10. 100BaseX fiber port.

11. LED for fiber port.
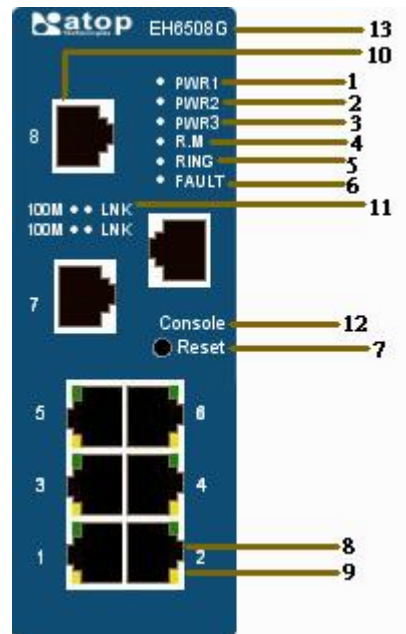
12. Console port (RJ-45).

13. Model name

EH6508G

1. LED for PWR1.When PWR1 links, the green led will be light on.

2. LED for PWR2.When the PWR2 links, the green led will be light on.

3. LED for PWR3.When the PWR3 links, the green led will be light on.

4. LED for R.M (Ring master).When the LED light on, it means the switch is the ring master of IA-Ring.

5. LED for Ring. When the led light on, it means the IA-Ring is active.

6. LED for Fault Relay. When the fault occurs, the amber LED will be light on.

7. Reset bottom. Push the bottom 3 seconds for reset, 5 seconds for factory default.

8. 10/100Base-T Ethernet ports..

9. LED for Ethernet ports status.

10. 1000BaseT gigabits Ethernet port.

11. LED for gigabits Ethernet port.

12. Console port (RJ-45).

13. Model name

EH6508G-Fm/Fs
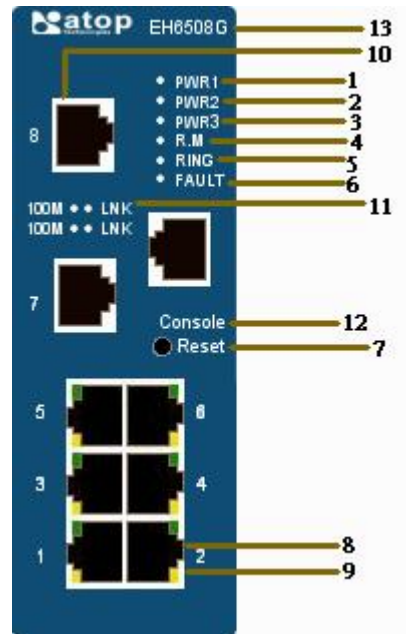
1. LED for PWR1.When PWR1 links, the green led will be light on.

2. LED for PWR2.When the PWR2 links, the green led will be light on.

3. LED for PWR3.When the PWR3 links, the green led will be light on.

4. LED for R.M (Ring master).When the LED light on, it means the switch is the ring master of IA-Ring.

5. LED for Ring. When the led light on, it means the IA-Ring is active.

6. LED for Fault Relay. When the fault occurs, the amber LED will be light on.

7. Reset bottom. Push the bottom 3 seconds for reset, 5 seconds for factory default.

8. 10/100Base-T Ethernet ports..

9. LED for Ethernet ports status.

10. 1000BaseSX fiber port.

11. LED for fiber port.

12. Console port (RJ-45).

13. Model name

The following table describes the labels in this screen.

Port	Description
10/100 RJ-45 fast Ethernet ports	6 10/100 RJ-45 fast Ethernet ports support auto-negotiation. Default Setting : Speed: auto Duplex: auto Flow control : disable
Gigabit port	2 1000bastT Giga ports.(EH -6508G)
Fiber port	1000baseX for EH -6508GF 100baseFX for EH -6508F
Console	Use RS-232 with RJ-45 connecter to manage switch.
Reset	Push reset bottom 2~3 seconds to reset switch. Push reset bottom 5 second to reset switch to **Factory Default.**

1.2 Front Panel LEDs

LED	Color	Status	Description
PW1	Green	On	DC power module 1 active.
PW2	Green	On	DC power module 2 active.
PW3	Green	On	Power jack active.
R.M	Green	On	iA-Ring Master.
Ring	Green	On	iA-Ring enabled.
		Slowly blinking	iA-Ring has only One link.(lack of one link to build the ring.)
		Fast blinking	iA-Ring work normally.
Fault	Amber	On	Fault relay. Power failure or Port down/fail.
10/100 Fast Ethernet ports			
LNK	Green	On	Port link up.
ACT	Green	Blinking	Data transmitted.
Full Duplex	Amber	On	Port works under full duplex.
Gigabit Ethernet ports			
ACT	Green	Blinking	Data transmitted.
LNK	Amber	On	Port link up.
Fiber ports			

ACT	Green	Blinking	Data transmitted.
LNK	Amber	On	Port link up.

1.3 Bottom Panel

EH 6508 Series bottom panel components show as below:

1. Terminal block includes: PWR1, PWR2 (12-48V DC) and Relay output (24VDC).

2. Power jack for PWR3 (12-45VDC)

1 PWR1, PWR2 (12-48V DC) and Relay output (24VDC).

2 2. Power jack for PWR3 (12-45VDC).
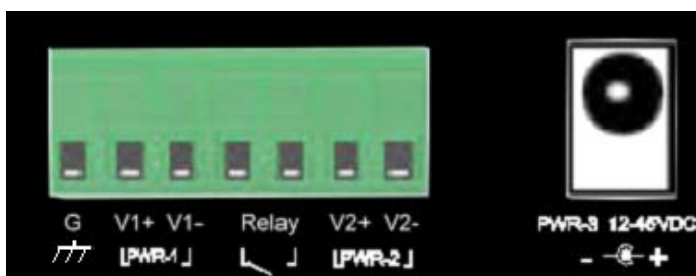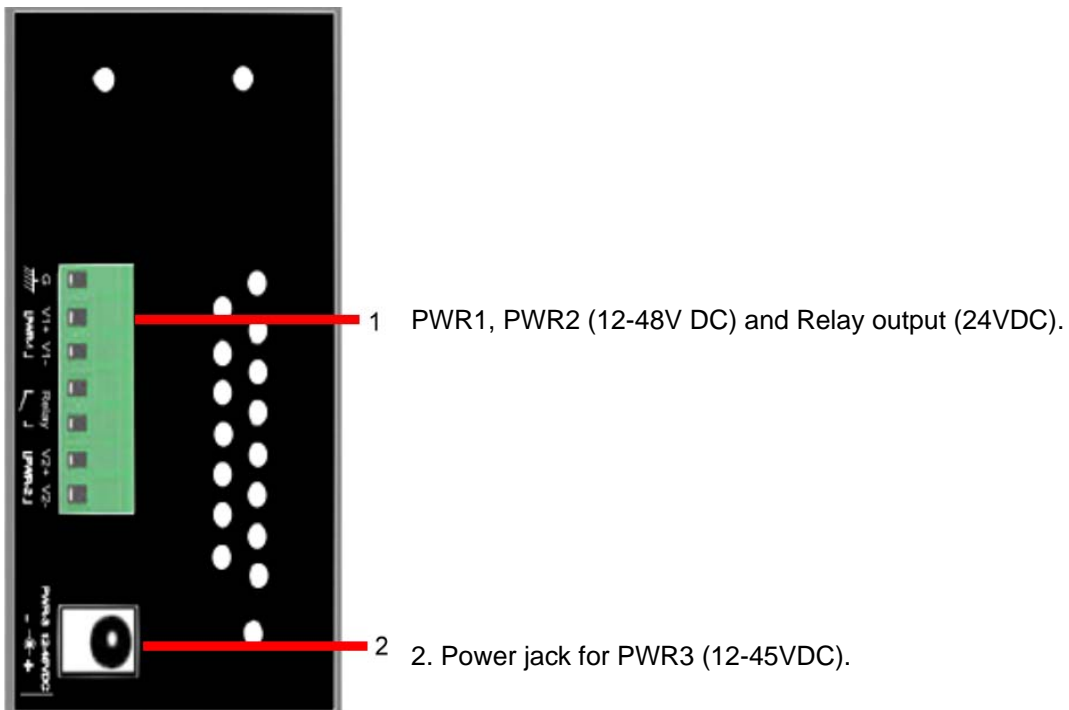
1.4 Rear Panel

EH 6508 Series rear panel components show as below:

1. Screw holes for wall mount kit.

2. Din-Rail kit
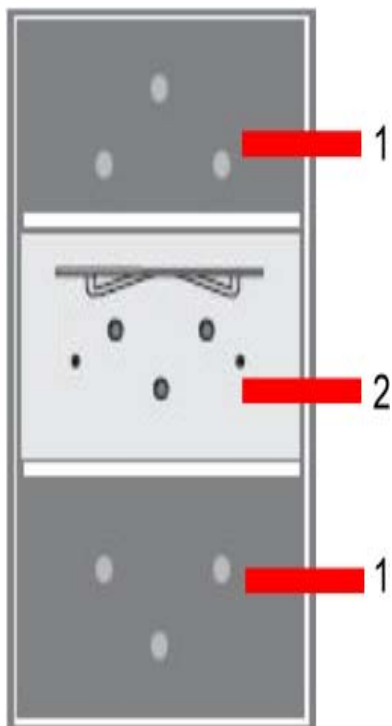
Cables

Chapter 1

Console port pins assignment

EH series switches can be management by console port. Please refer the RJ-45 connector pin assignment as below.

Signal description	RJ 45
TxD	Pin #2
RxD	Pin #3
GND	Pin #5

Chapter 2

Ethernet Cables

The EH switches have standard Ethernet ports. According to the link type, the switches
use CAT 3, 4, 5,5e UTP cables to connect to any other network device (PCs, servers,
switches, routers, or hubs). Please refer to the following table for cable specifications.

■ **Cable Types and Specifications**

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45
1000BASE-TX	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328ft)	RJ-45

Cable specification table

100BASE-TX/10BASE-T Pin Assignments

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

■ **RJ-45 Pin Assignments**

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

The EH switches support auto MDI/MDI-X operation, user can user a straight-through cable to connect PC to switch. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

■ **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.

Chapter 3

Fibers

EH -6508F and EH -6508GF have two fiber optical ports. The fiber optical ports are multi-mode (0 to 2 km, 1310 nm (50/125 µm to 62.5/125 µm) with SC connector. User need to remember the TX port of Switch A should be connected to the RX port of Switch B.

Switch A

TX   RX

Multi-mode fiber patch cord.

RX   TX
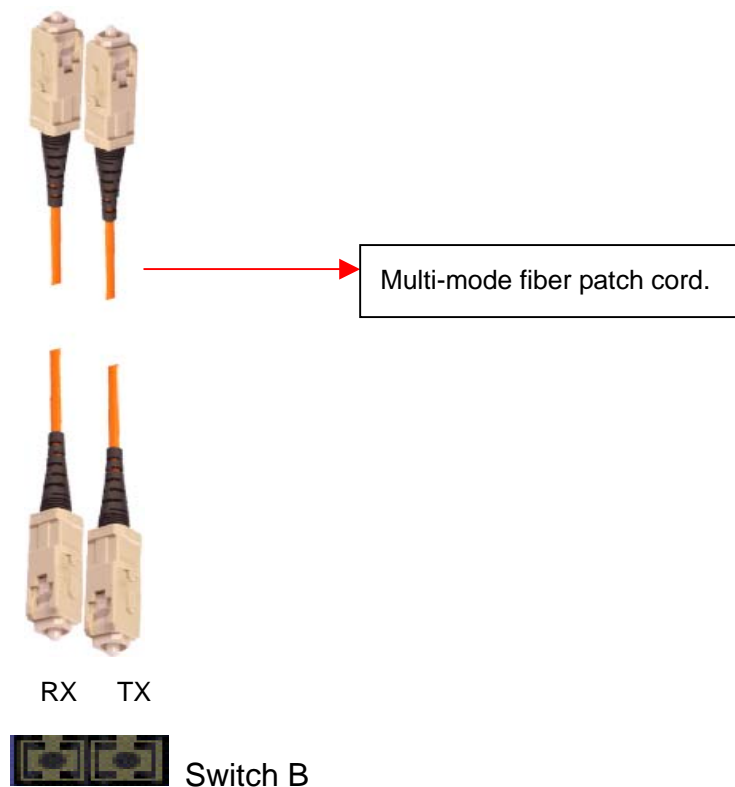
Switch B

WEB Management

Chapter 1

Configuration by Web Browser

This section introduces the configuration by Web browser.

1.1 About Web-based Management

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

The Web-Based Management supports Internet Explorer 5.0. It is based on Java Applets with an aim to reduce network bandwidth consumption, enhance access speed and present an easy viewing screen.

Note: By default, IE5.0 or later version does not allow Java Applets to open sockets. The user has to explicitly modify the browser setting to enable Java Applets to use network ports.

1.2 Preparing for Web Management

The default value is as below:

IP Address: **10.0.50.100**

Subnet Mask: **255.255.0.0**

Default Gateway: **10.0.0.254**

User Name: **admin**

Password: **"NULL"(Leave it blank)**

1.3 System Login

1. Launch the Internet Explorer.

2. Type http:// and the IP address of the switch. Press "**Enter**".
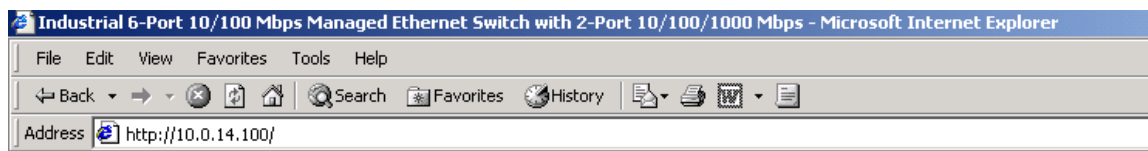
3. The login screen appears.

4. Key in the user name and password.

5. Click "**Enter**" or "**OK**" button, then the home screen of the Web-based management appears.
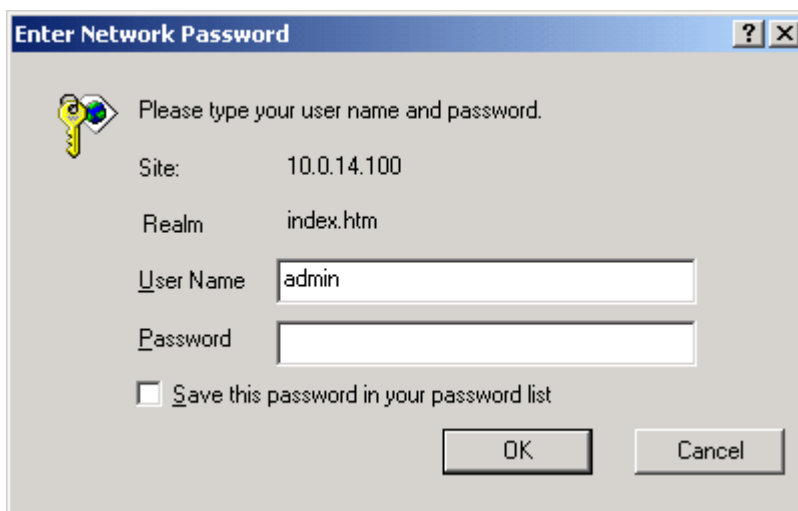
Login screen

1.4 Main Interface

Main interface

Chapter 2

Basic Setting

1.1 Switch Setting
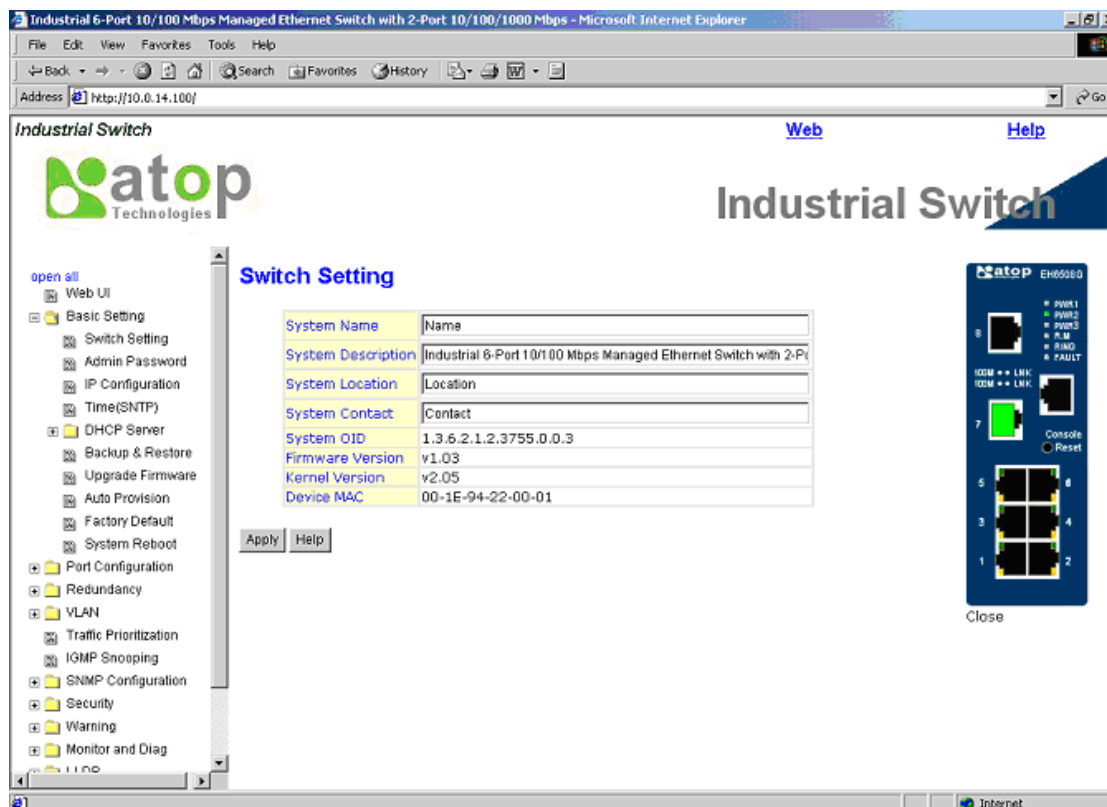
Switch setting interface

The following table describes the labels in this screen.

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

1.2 Admin Password

Change web management login user name and password for the management security issue

Admin Password

User Name :	admin
New Password :	
Confirm Password :	

Apply Help

Admin Password interface

The following table describes the labels in this screen.

Label	Description
User name	Key in the new user name(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 set the configurations.

1.3 IP configuration

User can configure the IP Settings and DHCP client function.

IP Configuration

DHCP Client : Disable

IP Address	10.0.14.100
Subnet Mask	255.255.0.0
Gateway	10.0.50.254
DNS1	0.0.0.0
DNS2	0.0.0.0

Apply Help

IP Configuration interface

The following table describes the labels in this screen.

Label	Description
DHCP Client	To enable or disable the DHCP client function. When DHCP client function is enabling, the industrial switch will be assigned the IP address from the network DHCP server. The default IP address will be replace by the DHCP server assigned IP address. After user click "Apply" button, a popup dialog show up. It is to inform the user that when the DHCP client is enabling, the current IP will lose and user should find the new IP on the DHCP server.
IP Address	Assign the IP address that the network is using. If DHCP client function is enabling, and then user don't need to assign the IP address. And, the network DHCP server will assign the IP address for the industrial switch and display in this column. The default IP is 192.168.10.1
Subnet Mask	Assign the subnet mask of the IP address. If DHCP client function is enabling, and then user do not need to assign the subnet mask
Gateway	Assign the network gateway for the industrial 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 set the configurations.

1.4 SNTP Configuration

User can configure the SNTP (Simple Network Time Protocol) settings. The SNTP allows you to synchronize switch clocks in the Internet.

SNTP Configuration **interface**

The following table describes the labels in this screen.

Label	Description
SNTP Client	Enable or disable SNTP function to get the time from the SNTP server.
Daylight Saving Time	Enable or disable daylight saving time function. When daylight saving time is enabling, you need to configure the daylight saving time period..
UTC Time zone	set the switch location time zone. The following table lists the different location time zone for your reference.

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am

CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter	+1 hour	1 pm
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, USSR Zone 7	+8 hours	8 pm
JST - Japan Standard, USSR Zone 8	+9 hours	9 pm
EAST - East Australian 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

Label	Description
SNTP Sever IP Address	Set the SNTP server IP address.
Daylight Saving Period	Set up the Daylight Saving beginning time and Daylight Saving ending time. Both will be different in every year.
Daylight Saving	Set up the offset time.

Offset	
Switch Timer	Display the switch current time.
Apply	Click Apply to set the configurations.

1.5 DHCP Server

1.5.1 DHCP Server – Configuration

The system provides the DHCP server function. Enable the DHCP server function, the switch system will be a DHCP server.

DHCP Server Configuration **interface**

The following table describes the labels in this screen.

Label	Description
DHCP Server	Enable or Disable the DHCP Server function. Enable – the switch will be the DHCP server on your local network
Start IP Address	The dynamic IP assign range. Low IP address is the beginning of the dynamic IP assigns range. For example: dynamic IP assign range is from 192.168.1.100 ~ 192.168.1.200. 192.168.1.100 will be the Start IP address.
End IP Address	The dynamic IP assign range. High IP address is the end of the dynamic IP assigns range. For example: dynamic IP assign range is from 192.168.1.100 ~ 192.168.1.200. 192.168.1.200 will be the End IP address

Subnet Mask	The dynamic IP assign range subnet mask
Gateway	The gateway in your network.
DNS	Domain Name Server IP Address in your network.
Lease Time (Hour)	It is the time period that system will reset the dynamic IP assignment to ensure the dynamic IP will not been occupied for a long time or the server doesn't know that the dynamic IP is idle.
Apply	Click Apply to set the configurations.

1.5.2 DHCP Server – Client Entries

When the DHCP server function is active, the system will collect the DHCP client information and display in here.

DHCP Server Client Entries **interface**

1.5.3 DHCP Server – Port and IP bindings

User can assign the specific IP address that is the IP in dynamic IP assign range to the specific port. When the device is connecting to the port and asks for dynamic IP assigning, the system will assign the IP address that has been assigned before to the connected device.

DHCP Server Port and IP Binding **interface**

1.6 Backup & Restore

User can save current EEPROM value from the switch to TFTP server, then go to the TFTP
restore configuration page to restore the EEPROM value.

Backup & Restore

Restore Configuration

TFTP Server IP Address	0.0.0.0
Restore File Name	data.bin

[Restore] [Help]

Backup Configuration

TFTP Server IP Address	0.0.0.0
Backup File Name	data.bin

[Backup] [Help]

Backup & Restore **interface**

The following table describes the labels in this screen.

Label	Description
TFTP Server IP Address	Fill in the TFTP server IP
Restore File Name	Fill the file name.
Restore	Click restore to restore the configurations.
Restore File Name	Fill the file name.
Restore	Click restore to restore the configurations.
Backup	Click backup to backup the configurations.

1.7 Upgrade Firmware

It provides the functions to allow a user to update the switch firmware. Before updating, make
sure you have your TFTP server ready and the firmware image is on the TFTP server.

Upgrade Firmware

| TFTP Server IP | 0.0.0.0 |
| Firmware File Name | image.bin |

Upgrade | Help

Update Firmware **interface**

1.8 Auto Provision

It provides the functions to allow a user to update the switch firmware automatically. User can put firmware or configuration file on TFTP server, then when you reboot the switch, it will upgrade automatically. Before updating, make sure you have your TFTP server ready and the firmware image and configuration file is on the TFTP server.

Auto Provision

☐ Auto Install Configuration file from TFTP server?	
TFTP Server IP Address	0.0.0.0
Configuration File Name	data.bin
☐ Auto Install Firmware image file from TFTP server?	
TFTP Server IP Address	0.0.0.0
Firmware File Name	image.bin

Apply | Help

Auto Provision **interface**

1.9 Factory Default

Factory Default

☑ Keep current IP address setting?
☑ Keep current username & password?

Reset | Help

Factory Default **interface**
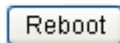
Reset switch to default configuration. Click [Reset] to reset all configurations to the default value. User can select Keep current IP address setting and Keep current username & password to prevent IP, username and password form setting to default.

1.10 System Reboot

System Reboot

Please click **[Reboot]** button to restart switch device.

[Reboot]

System Reboot **interface**

Chapter 3

Port Configuration

1.1 Port Control

By this function, user can set state, speed/duplex, flow control, and security of the port.

Port Control

Port No.	State	Speed/Duplex	Flow Control	Security
Port.01	Enable	AutoNegotiation	Disable	Disable
Port.02	Enable	AutoNegotiation	Disable	Disable
Port.03	Enable	AutoNegotiation	Disable	Disable
Port.04	Enable	AutoNegotiation	Disable	Disable
Port.05	Enable	AutoNegotiation	Disable	Disable
Port.06	Enable	AutoNegotiation	Disable	Disable
G1	Enable	AutoNegotiation	Disable	Disable
G2	Enable	AutoNegotiation	Disable	Disable

[Apply] [Help]

Port Control **interface**

The following table describes the labels in this screen.

Label	Description
Port NO.	Port number for setting.
Speed/Duplex	User can set Autonigotiation,100 full ,100 half,10 full,10 half mode.
Flow Control	Support symmetric and asymmetric mode to avoid packet loss when congestion occurred.
Security	Support port security function. When enable the function, the port will STOP learning MAC address dynamically.
Apply	Click Apply to set the configurations.

1.2 Port Status

The following information provides the current port status information

Port Status

Port No.	Type	Link	State	Speed/Duplex	Flow Control
Port.01	100TX	Down	Enable	N/A	N/A
Port.02	100TX	Down	Enable	N/A	N/A
Port.03	100TX	Down	Enable	N/A	N/A
Port.04	100TX	Down	Enable	N/A	N/A
Port.05	100TX	Down	Enable	N/A	N/A
Port.06	100TX	Down	Enable	N/A	N/A
G1	1000TX	UP	Enable	100 Full	Disable
G2	1000TX	Down	Enable	N/A	N/A

Port Status **interface**

1.3 Rate Limit

By the function, user can limit traffic of all ports; include broadcast, multicast, flooded unicast.

User can set "Ingress" or "Egress" to limit traffic received or transmitted bandwidth.

Rate Limiting

	Ingress Limit Frame Type	Ingress	Egress
Port.01	Broadcast only	8192 kbps	0 kbps
Port.02	Broadcast only	8192 kbps	0 kbps
Port.03	Broadcast only	8192 kbps	0 kbps
Port.04	Broadcast only	8192 kbps	0 kbps
Port.05	Broadcast only	8192 kbps	0 kbps
Port.06	Broadcast only	8192 kbps	0 kbps
G1	Broadcast only	8192 kbps	0 kbps
G2	Broadcast only	8192 kbps	0 kbps

Rate range is from 100 kbps to 102400 kbps (i.e. 100Mbps) for mega-ports, or 256000 kbps (i.e. 250Mbps) for giga-ports. Zero means no limit.

Apply Help

Rate Limit **interface**

The following table describes the labels in this screen.

Label	Description
Ingress Limit Frame Type	User can set "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 set the configurations.

1.4 Port Trunk

1.4.1 Port Trunk – Setting

User can select static trunk or 802.3ad LACP to combine several physical link to a logical link to increase the bandwidth.

Port Trunk -- Setting **interface**

The following table describes the labels in this screen.

Label	Description
Group ID	Select port to join a trunk group.
Type	Support static trunk and 802.3ad LACP
Apply	Click Apply to set the configurations.

1.4.2 Port Trunk – Status

Port Trunk - Status

Group ID	Trunk Member	Type
Trunk 1		Static
Trunk 2		Static
Trunk 3		Static
Trunk 4		Static

Port Trunk -- Status **interface**
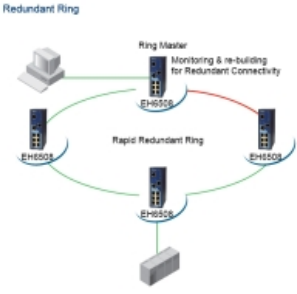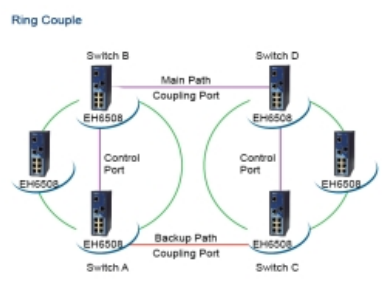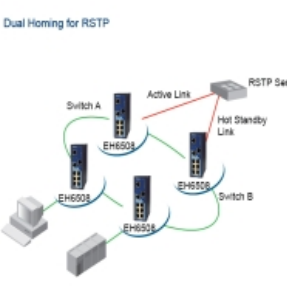
Chapter 4

Redundancy

1.1 iA-Ring

iA-Ring is most powerful Ring in the world. The recovery time of iA-Ring less than 10 ms .It
can reduce unexpected damage cause of network topology change. iA-Ring
Support 3 Ring topology: iA-Ring, Coupling Ring, and Dual Homing.

Rapid iA-Ring **interface**

The following table describes the labels in this screen.

Label	Description
iA-Ring	Mark to enable iA-Ring.
Ring Master	There should be one and only one Ring Master in a ring. However if there are two or more switches which set Ring Master to enable, the switch with the lowest MAC address will be the actual Ring Master and others will be Backup Masters.
1st Ring Port	The primary port if this switch is Ring Master.
2nd Ring Port	The backup port if this switch is Ring Master.
Coupling Ring	Mark to enable Coupling Ring. Coupling Ring can be used to divide a big ring into two smaller rings to avoid effecting all switches when network topology change. It is a good application for connecting two iA-Rings.
Coupling Port	Link to Coupling Port of the switch in another ring. Coupling

	Ring need four switch to build an active and a backup link. Set a port as coupling port. The coupled four ports of four switches will be run at active/backup mode.
Control Port	Link to Control Port of the switch in the same ring. Control Port used to transmit control signals.
Dual Homing	Mark to enable Dual Homing. Dual Homing topology let iA-Ring has two links to connect to a normal switch running RSTP (ex: backbone Switch).The two links work as active/backup mode to provide iA-Ring has redundant link to other switch.
Apply	Click Apply to set the configurations.

[Note]: We don't suggest user set one switch as a Ring Master and a Coupling Ring at the same time; it will make switch under a heavy loading status.

1.2 RSTP

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

1.2.1 RSTP setting

User can enable/disable RSTP function, and set parameters for each port.

RSTP Setting

RSTP Setting **interface**

The following table describes the labels in this screen.

Label	Description
RSTP mode	user must enable or disable RSTP function before configuring the related parameters
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, user must reboot the switch. The value must be multiple of 4096 according to the protocol standard rule
Max Age (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 through 40
Hello Time (1-10)	The time that controls switch sends out the BPDU packet to check RSTP current status. Enter a value between 1 through 10
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 through 30
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.
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
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 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 is P2P enabling. False is P2P disabling.
Admin Edge	The port directly connected to end stations cannot create bridging loop in the network. To configure the port as an edge port, set the port to "**True**" status.
Admin Non STP	The port includes the STP mathematic calculation. **True** is not including STP mathematic calculation. **False** is including the STP mathematic calculation.
Apply	Click Apply to set the configurations.

[NOTE] Follow the 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)

1.2.2 RSTP Information

Show RSTP algorithm result at this table.

RSTP Information

Root Bridge Information

Bridge ID	N/A
Root Priority	N/A
Root Port	N/A
Root Path Cost	N/A
Max Age Time	N/A
Hello Time	N/A
Forward Delay Time	N/A

Port Information

Port	Path Cost	Port Priority	OperP2P	OperEdge	STP Neighbor	State	Role

RSTP Information **interface**

Chapter 5

VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic, so only the members of the VLAN will receive traffic from the same members of VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

The industrial switch supports port-based and 802.1Q (tagged-based) VLAN. The default configuration of VLAN operation mode is at "**802.1Q**".

1.1 VLAN Configuration – 802.1Q

Tagged-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch venders. IEEE 802.1Q VLAN uses a technique to insert a "tag" into the Ethernet frames. Tag contains a VLAN Identifier (VID) that indicates the VLAN numbers.

You can create Tag-based VLAN, and enable or disable GVRP protocol. There are 256 VLAN groups to provide configure. Enable 802.1Q VLAN, the all ports on the switch belong to default VLAN, VID is 1. The default VLAN can't be deleting.

GVRP allows automatic VLAN configuration between the switch and nodes. If the switch is connected to a device with GVRP enabled, you can send a GVRP request using the VID of a VLAN defined on the switch; the switch will automatically add that device to the existing VLAN.

VLAN Configuration

VLAN Operation Mode : 802.1Q

GVRP Mode : Disable
Management Vlan ID : 0   Apply

VLAN Configuration

Port No.	Link Type	Untagged VID	Tagged VIDs
Port.01	Access	1	
Port.02	Access	1	
Port.03	Access	1	
Port.04	Access	1	
Port.05	Access	1	
Port.06	Access	1	
G1	Access	1	
G2	Access	1	

Note: Use the comma to separate the multiple tagged VIDs.
E.g., 2,3,4 means joining the Tagged VLAN 2,3 and 4.

Apply Help

VLAN Configuration – 802.1Q **interface**

The following table describes the labels in this screen.

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 can provide network administrator a secure VLAN to management Switch. Only the devices in the management VLAN can access the switch.
Link type	There are 3 types of link type: **Access Link:** single switch only, allow user to group ports by setting the same VID. **Trunk Link:** extended application of **Access Link**, allow user to group ports by setting the same VID with 2 or more switches.

	Hybrid Link: Both **Access Link** and **Trunk Link** are available.
Untagged VID	Set the port default VLAN ID for untagged devices that connect to the port. The range is 1 ~ 4094.
Tagged VIDs	Set the tagged VIDs to carry different VLAN frames to other switch.
Apply	Click Apply to set the configurations.

1.2 VLAN Configuration – Port Based

Packets can go among only members of the same VLAN group. Note all unselected ports are treated as belonging to another single VLAN. If the port-based VLAN enabled, the VLAN-tagging is ignored.

In order for an end station to send packets to different VLAN groups, it itself has to be either capable of tagging packets it sends with VLAN tags or attached to a VLAN-aware bridge that is capable of classifying and tagging the packet with different VLAN ID based on not only default PVID but also other information about the packet, such as the protocol.
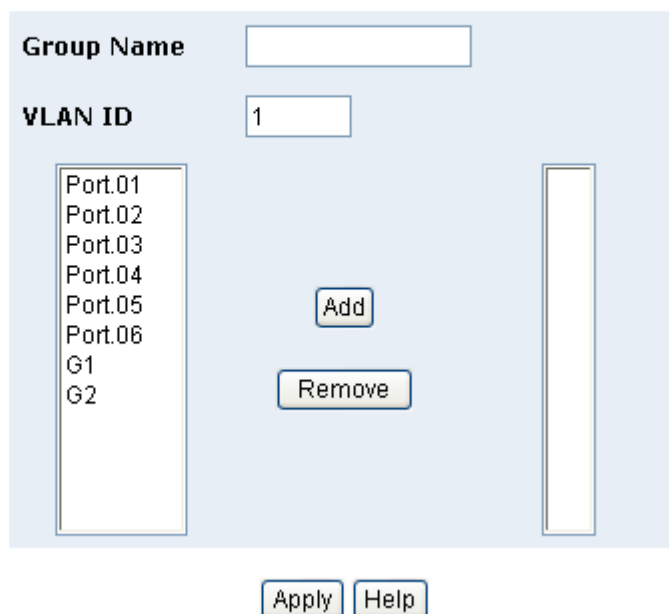
VLAN Configuration – Port Base **interface-1**

The following table describes the labels in this screen.

Label	Description
Add	Click add to enter VLAN add interface.
Edit	Edit exist VLAN
Delete	Delete exist VLAN
Help	Show help file.

VLAN Configuration – Port Base interface-2

The following table describes the labels in this screen.

Label	Description
Group Name	VLAN name.
VLAN ID	Specify the VLAN ID
Add	Select port to join the VLAN group.
Remove	Remove port of the VLAN group
Apply	Click Apply to set the configurations.
Help	Show help file.

Chapter 6

Traffic Prioritization

Traffic Prioritization includes 3 modes: port base, 802.1p/COS, and TOS/DSCP. By traffic prioritization function, user can classify the traffic into four classes for differential network application. Ai-NET series support 4 priority queue.

Traffic Prioritization interface

The following table describes the labels in this screen.

Label	Description
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 packets are transmitted in one turn. ■ **Use the strict priority scheme:** always the packets in higher queue will be transmitted first until higher queue is empty.
Priority Type	■ **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 by COS and TOS, but COS first. ■ **TOS first:** the output priority is determined by COS and TOS, but TOS first.
Port base Priority	Assign Port with a priority queue.4 priority queues can be assigned: High, Middle, Low, and Lowest.
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 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 has not VLAN tag, a default priority value is considered and determined by ingress port.
TOS/DSCP	TOS (Type of Service) is a field in IP header of a packet. This TOS field is also used by Differentiated Services and is called the Diff Serv Code Point (DSCP). The output priority of a packet can be determined by this field and the priority value is supported 0~63. DSCP value map to 4 priority queues: High, Middle, Low, and Lowest.
Apply	Click Apply to set the configurations.
Help	Show help file.

Chapter 7

IGMP Snooping

Internet Group Management Protocol (IGMP) is used by IP hosts to register their dynamic multicast group membership. IGMP has versions IGMP v1, v2 and v3. Please refer to RFC 1112, 2236 and 3376. IGMP Snooping improves the performance of networks that carry multicast traffic. It provides the ability to prune multicast traffic so that it travels only to those end destinations that require that traffic and reduces the amount of traffic on the Ethernet LAN.

IGMP Snooping **interface**

The following table describes the labels in this screen.

Label	Description
IGMP Snooping	Enable/Disable IGMP snooping.
IGMP Query Mode	Switch will be IGMP querier or not. There should exist one and only one IGMP querier in an IGMP application. The "Auto" mode means that the querier is the one with lower IP address.
IGMP Snooping Table	Show current IP multicast list

Apply	Click Apply to set the configurations.
Help	Show help file.

Chapter 8

SNMP Configuration

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, find and solve network problems, and plan for network growth. Network management systems learn of problems by receiving traps or change notices from network devices implementing SNMP.

1.1 SNMP –Agent Setting

User can set SNMP agent related information by Agent Setting Function.

SNMP Agent Setting **interface**

The following table describes the labels in this screen.

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, that means SNMP servers 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 maximum 32 characters. Keep empty to remove this Community string.
SNMPv3User	If SNMP V3 agent is selected, the SNMPv3 user profile should be set for authentication. The User Name 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 and maximum 16 characters in user name, and password. When SNMP V3 agent is selected, you can: 1. Input SNMPv3 user name only. 2. Input SNMPv3 user name and Auth Password. 3. Input SNMPv3 user name, Auth Password and Privacy Password, which can be different with Auth Password. To remove a current user profile: 1. Input SNMPv3 user name you want to remove. 2. Click "Remove" button
Current SNMPv3 User Profile	Show all SNMPv3 user profiles.

Apply	Click Apply to set the configurations.
Help	Show help file.

1.2 SNMP –Trap Setting

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

SNMP Trap Setting **interface**

The following table describes the labels in this screen.

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.

Chapter 9

Security

Five useful functions can enhance security of switch: IP Security, Port Security, MAC Blacklist, and MAC address Aging and 802.1x protocol.

1.1 IP Security

Only IP in the Secure IP List can manage the switch through user defined management mode. (WEB,Telnet,SNMP)

IP Security

IP Security Mode: Disable

☐ Enable WEB Management
☐ Enable Telnet Management
☐ Enable SNMP Management

Secure IP List

Secure IP1	0.0.0.0
Secure IP2	0.0.0.0
Secure IP3	0.0.0.0
Secure IP4	0.0.0.0
Secure IP5	0.0.0.0
Secure IP6	0.0.0.0
Secure IP7	0.0.0.0
Secure IP8	0.0.0.0
Secure IP9	0.0.0.0
Secure IP10	0.0.0.0

Apply   Help

IP Security **interface**

The following table describes the labels in this screen.

Label	Description
IP security MODE	Enable/Disable the IP security function.
Enable WEB Management	Mark the blank to enable WEB Management.
Enable Telnet Management	Mark the blank to enable Telnet Management.
Enable SNMP Management	Mark the blank to enable MPSN Management.
Apply	Click Apply to set the configurations.
Help	Show help file.

1.2 Port Security

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

Port Security **interface**

The following table describes the labels in this screen.

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

1.3 MAC Blacklist

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

MAC Blacklist **interface**

The following table describes the labels in this screen.
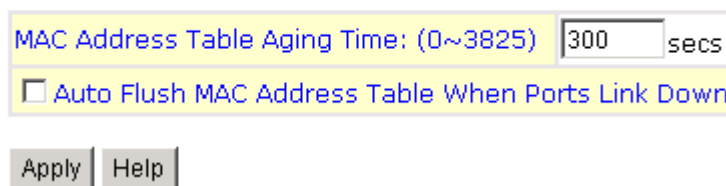
Label	Description
MAC Address	Input MAC Address to add to MAC Blacklist.
Port NO.	Select port of switch.
Add	Add an entry to Blacklist table.

Delete	Delete the entry
Help	Show help file.

1.4 MAC Address Aging.

User can set MAC Address aging timer, as time expired, the unused MAC will be cleared from MAC table. It can main a correct MAC table. Ai-NET series also support Auto Flush MAC Address Table When ports Link Down.

MAC Address Aging

MAC Address Table Aging Time: (0~3825) 300 secs
☐ Auto Flush MAC Address Table When Ports Link Down

Apply   Help

MAC Address Aging **interface**

The following table describes the labels in this screen.

Label	Description
MAC Address Table Aging Time: (0~3825)	Set the timer.
Auto Flush MAC Address Table When ports Link Down.	Mark the blank to enable the function,
Apply	Click Apply to set the configurations.
Help	Show help file.

1.5 802.1x

1.5.1 802.1x-Radius Server

802.1x makes use of the physical access characteristics of IEEE802 LAN infrastructures in order to provide a means of authenticating and authorizing devices attached to a LAN port that has point-to-point connection characteristics, and of preventing access to that port in cases in which the authentication and authorization process fails. Please refer to IEEE 802.1X - Port Based Network Access Control.

802.1x - Radius Server

Radius Server Setting

802.1x Protocol	Disable
Radius Server IP	192.168.16.3
Server Port	1812
Accounting Port	1813
Shared Key	12345678
NAS, Identifier	NAS_L2_SWITCH

Advanced Setting

Quiet Period	60
TX Period	30
Supplicant Timeout	30
Server Timeout	30
Max Requests	2
Re-Auth Period	3600

Apply   Help

802.1x Radius Server **interface**

The following table describes the labels in this screen.

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
Account 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 should 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 set the configurations.
Help	Show help file.

1.5.2 802.1x-Port Authorized Mode

Set the 802.1x authorized mode of each port.

802.1x - Port Authorize Mode

Port	Port Authorize Mode
Port.01	Accept
Port.02	Accept
Port.03	Accept
Port.04	Accept
Port.05	Accept
Port.06	Accept
G1	Accept
G2	Accept

Apply   Help

802.1x Port Authorize **interface**

The following table describes the labels in this screen.

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 set the configurations.
Help	Show help file.

1.5.3 802.1x-Port Authorized Mode

Show 802.1x port authorized state.

802.1x - Port Authorize State

Port	Port Authorize State
Port.01	Accept
Port.02	Accept
Port.03	Accept
Port.04	Accept
Port.05	Accept
Port.06	Accept
G1	Accept
G2	Accept

802.1x Port Authorize State **interface**

Chapter 10

Warning

Warning function is very important for managing switch. User can manage switch by SYSLOG, E-MAIL, and Fault Relay that provided by EH series. It can help user to monitor the switch status on remote site. When events occurred, the warning message will send to user appointed server, E-MAIL, or relay fault to switch panel.

1.1 Fault Alarm

When any selected fault event is happened, the Fault LED in switch panel will be lighted up and the electric relay will be signaled at the same time.

Fault Alarm

Power Failure

☐ PWR 1   ☐ PWR 2

Port Link Down/Broken

☐ Port 1   ☐ Port 2
☐ Port 3   ☐ Port 4
☐ Port 5   ☐ Port 6
☐ Port 7   ☐ Port 8

Apply   Help

Fault Alarm **interface**

The following table describes the labels in this screen.

Label	Description
Power Failure	Mark the blank of PWR 1 or PWR 2 to monitor.
Port Link Down/Broken	Mark the blank of port 1 ~ port 8 to monitor.
Apply	Click Apply to set the configurations.
Help	Show help file.

1.2 System Alarm

System alarm support two warning mode: 1. SYSLOG. 2. E-MAIL. User can monitor switch through user selected system events.

1.2.1 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

System Warning - SYSLOG Setting

SYSLOG Mode	Disable ▼
SYSLOG Server IP Address	0.0.0.0

Apply   Help

System Warning – SYSLOG Setting **interface**

The following table describes the labels in this screen.

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 of local and remote server.
SYSLOG Server IP Address	The remote SYSLOG Server IP address
Apply	Click Apply to set the configurations.
Help	Show help file.

1.2.2 System Warning – SMTP Setting.

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

System Warning – SMTP Setting **interface**

The following table describes the labels in this screen.

Label	Description
E-mail Alarm	Enable/Disable transmission system warning events by e-mail.
Sender E-mail Address	The SMTP server IP address
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 6 recipients for a mail.
Apply	Click Apply to set the configurations.
Help	Show help file.

1.2.3 System Warning – Event Selection

There are two warning ways supported by system that are SYSLOG and SMTP. Check corresponding box will enable specific system event warning to SYSLOG or SMTP. Note that the checkbox can not be checked when SYSLOG or SMTP is disabled.

System Warning - Event Selection

System Event

Event	SYSLOG	SMTP
System Cold Start	☐	☐
Power Status	☐	☐
SNMP Authentication Failure	☐	☐
Rapid R-Ring Topology Change	☐	☐

Port Event

Port No.	SYSLOG	SMTP
Port.01	Disable	Disable
Port.02	Disable	Disable
Port.03	Disable	Disable
Port.04	Disable	Disable
Port.05	Disable	Disable
Port.06	Disable	Disable
G1	Disable	Disable
G2	Disable	Disable

Apply   Help

System Warning – Event Selection interface

The following table describes the labels in this screen.

Label	Description
System Event	
System Cold Start	Alert when system restart
Power Status	Alert when a power up or down
SNMP Authentication Failure	Alert when SNMP authentication failure.
iA-Ring Topology Change	Alert when iA-Ring topology change.
Port Event	■ **Disable** ■ **Link Up** ■ **Link Down** ■ **Link Up & Link Down**

Apply	Click Apply to set the configurations.
Help	Show help file.

Chapter 11

Monitor and Diag

1.1 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.

MAC Address Table

Port No : Port.01

Current MAC Address

Dynamic Address Count : 0
Static Address Count : 0

Clear MAC Table   Help

MAC Address Table **interface**

The following table describes the labels in this screen.

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

1.2 Port Statistics

Port statistics show several statistics counters for all ports

Port Statistics

Port	Type	Link	State	TX Good Packet	TX Bad Packet	RX Good Packet	RX Bad Packet	TX Abort Packet	Packet Collision
Port.01	100TX	Down	Enable	0	0	0	0	0	0
Port.02	100TX	Down	Enable	0	0	0	0	0	0
Port.03	100TX	Down	Enable	0	0	0	0	0	0
Port.04	100TX	Down	Enable	0	0	0	0	0	0
Port.05	100TX	Down	Enable	0	0	0	0	0	0
Port.06	100TX	Down	Enable	0	0	0	0	0	0
G1	1000TX	Up	Enable	5358	0	10001	0	0	0
G2	1000TX	Down	Enable	0	0	0	0	0	0

Clear | Help

Port Statistics **interface**

The following table describes the labels in this screen.

Label	Description
Type	Show port speed and media type.
Link	Show port link status.
State	Show ports enable or disable.
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.

1.3 Port Monitoring

Port monitoring supports TX (egress) only, RX (ingress), and TX and RX monitoring .TX monitoring sends any data that egress out checked TX source ports to a selected TX destination port as well. RX monitoring sends any data that ingress in checked RX source ports out to a selected RX destination port as well as sending the frame where it normally would have gone. Note that keep all source ports unchecked in order to disable port monitoring.

Port Monitoring

Port	Destination Port		Source Port	
	RX	TX	RX	TX
Port.01	●	●	☐	☐
Port.02	○	○	☐	☐
Port.03	○	○	☐	☐
Port.04	○	○	☐	☐
Port.05	○	○	☐	☐
Port.06	○	○	☐	☐
G1	○	○	☐	☐
G2	○	○	☐	☐

Apply   Clear   Help

Port monitoring **interface**

The following table describes the labels in this screen.

Label	Description
Destination Port	The port will receive a copied frame from source port for monitoring purpose.
Source Port	The port will be monitored. Mark the blank of TX or RX to be monitored.
TX	The frames come into switch port.
RX	The frames receive by switch port.
Apply	Click Apply to set the configurations.
Clear	Clear all marked blank.(disable the function)
Help	Show help file.

1.4 System Event Log

If system log client is enabled, the system event logs will show in this table.

System Event Log

System event log **interface**

The following table describes the labels in this screen.

Label	Description
Page	Select LOG page.
Reload	To get the newest event logs and refresh this page.
Clear	Clear log.
Help	Show help file.

Chapter 12

Front Panel

Show EH panel. Click Close to close panel on web.
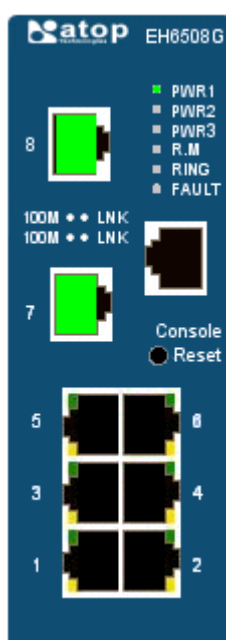
Front Panel interface

Chapter 13

Save Configuration

If any configuration changed, Save Configuration should be done in order to save current
configuration data to the permanent flash memory. Otherwise current configuration will be
lost when power off or system reset.

System Configuration **interface**

The following table describes the labels in this screen.

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

Command Line Interface Management

Chapter 1

Configuration by command line interface. (CLI)

1.1 About CLI Management

Besides WEB-base management, EH Series also support CLI management. User can use console or telnet to management switch by CLI.

1.2 CLI Management by RS-232 Serial Console (9600, 8, none, 1, none)

Before Configuring by RS-232 serial console, use an RJ45 to DB9-F cable to connect EH Switch's RS-232 Console port to your PC's COM port.

Follow the steps below to access the console via RS-232 serial cable.
(1) From the Windows desktop, click on Start -> Programs -> Accessories -> Communications -> Hyper Terminal
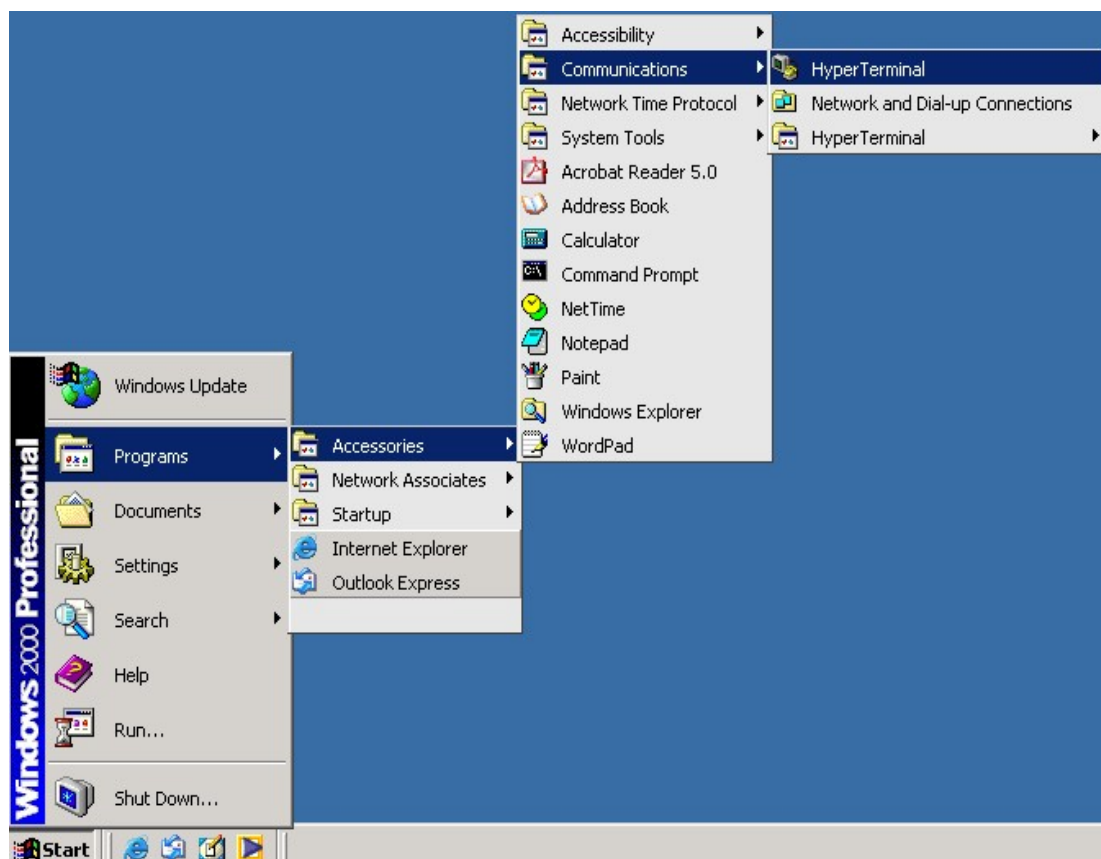
(2)Input a name for new connection
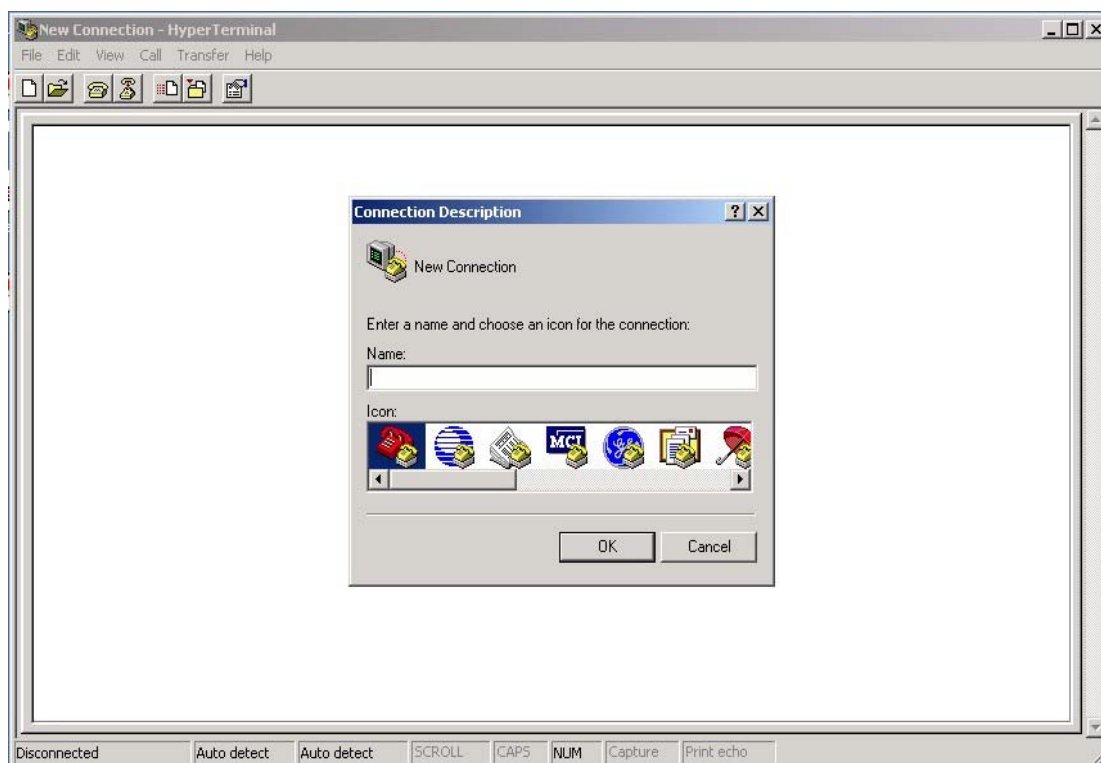
(3)Select using COM port number
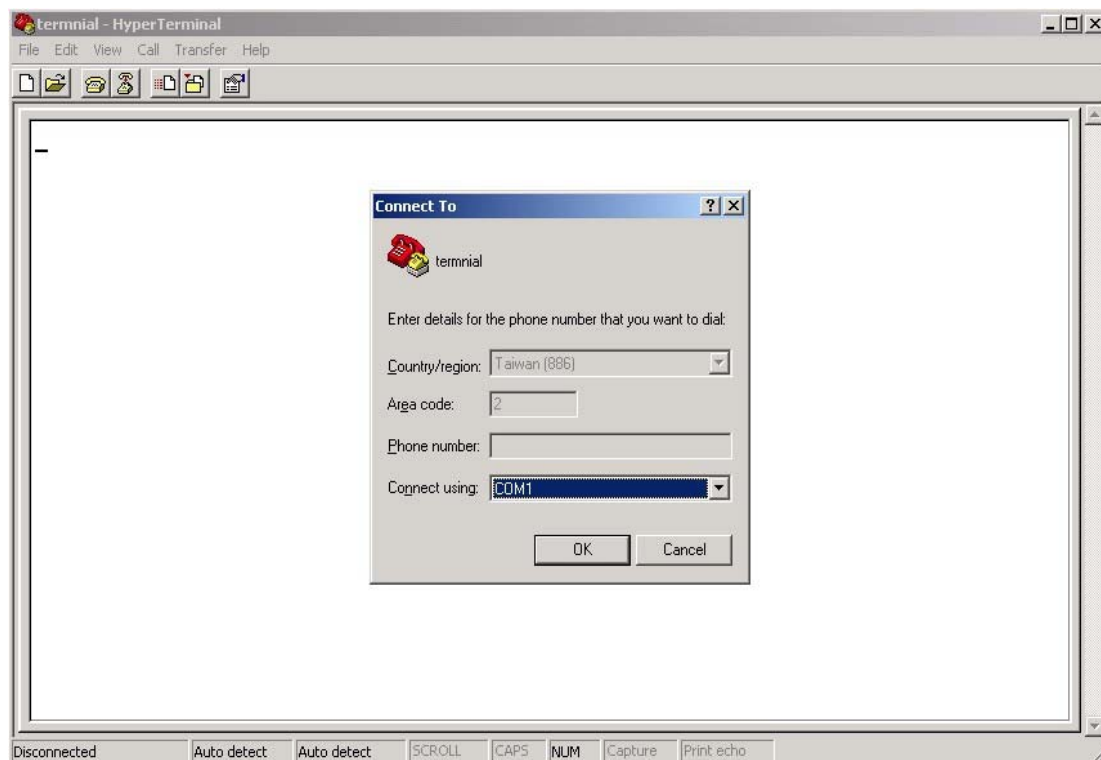
(4) The COM port properties setting, 9600 for Bits per second, 8 for Data bits, None for Parity, 1 for Stop bits and none for Flow control.
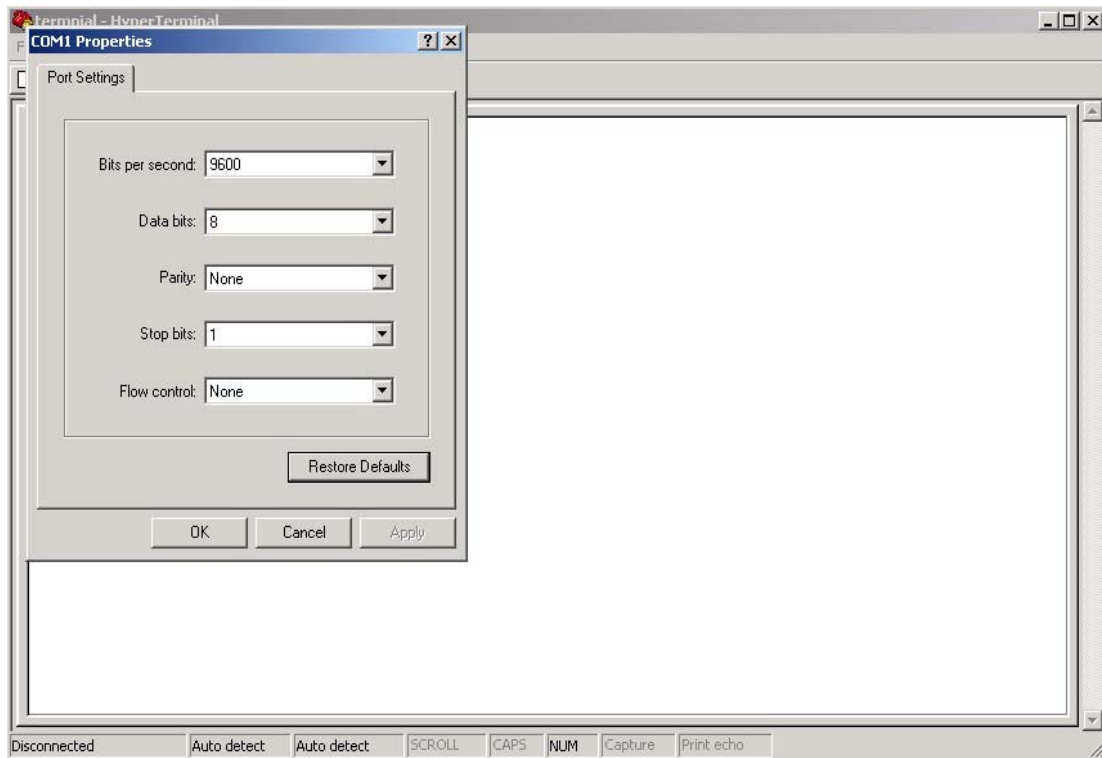
(5) The Console login screen will appear. Use the keyboard enter the Console Username and Password that is the same as the Web Browser password), and then press Enter.
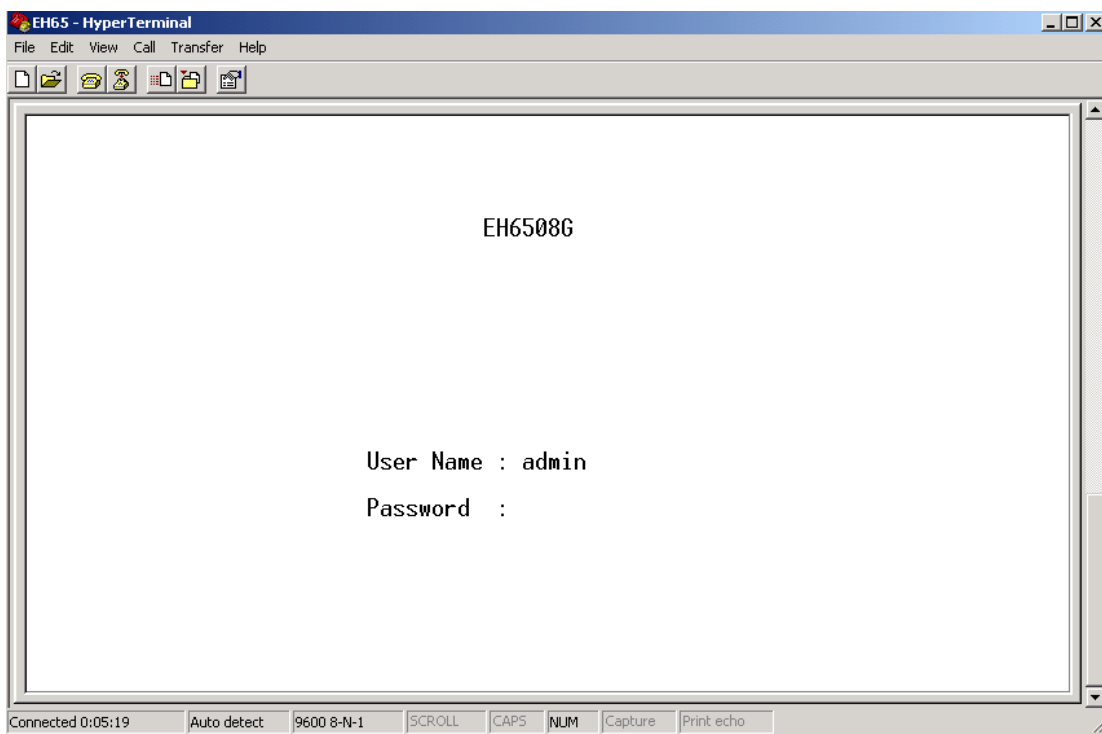
1.3 CLI Management by Telnet.

User can use telnet to configure EH switch.

The default value is as below:

IP Address: **10.0.50.100**

Subnet Mask: **255.255.0.0**

Default Gateway: **10.0.0.254**

User Name: **admin**

Password: **"NULL"(Leave it blank)**

Follow the steps below to access the console via Telnet.

  (1) Telnet to EH Switch's IP address from the Windows **Run** window (or from the MS-DOS prompt).
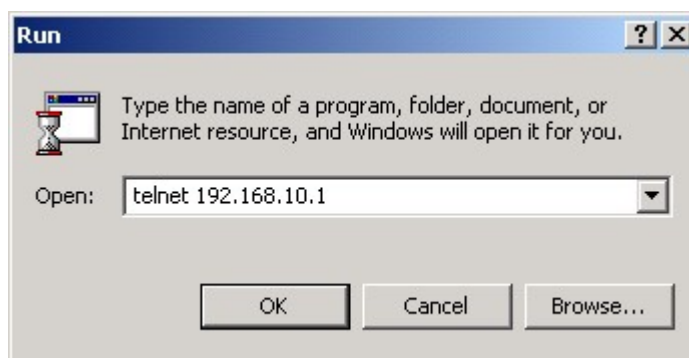
(2) The Console login screen will appear. Use the keyboard enter the Console Username and Password that is the same as the Web Browser password), and then press Enter

- 73 -
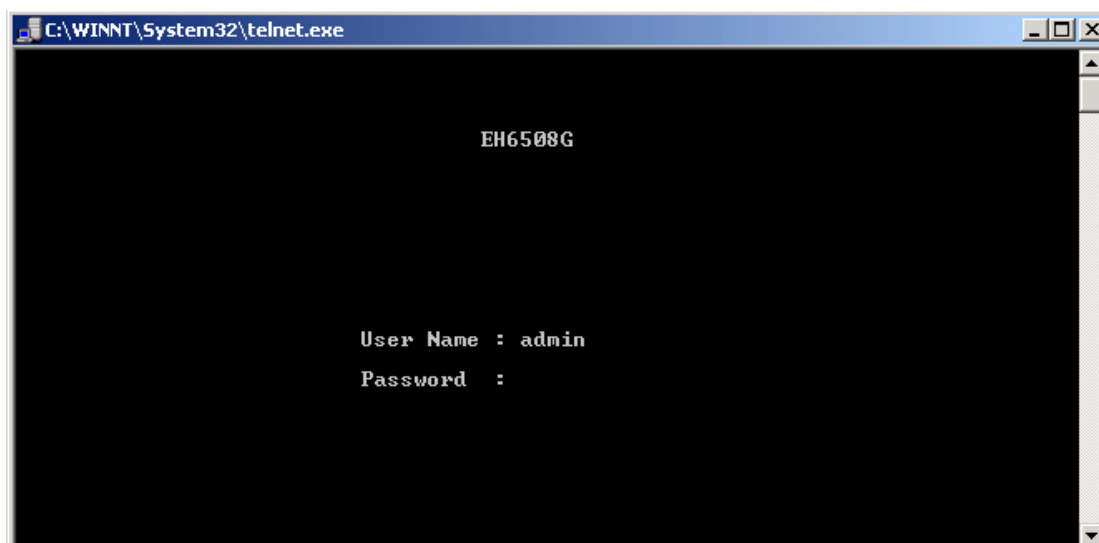
1.4 Commands Level.

Modes	Access Method	Prompt	Exit Method	About This Model
User EXEC	Begin a session with your switch.	switch>	Enter **logout** or **quit**.	The user commands available at the user level are a 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 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 your 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.

1.5 Symbol of Command Level.

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

Chapter 2

Commands Set List—System Commands Set

EH Commands	Level	Description	Example
show config	E	Show switch configuration	switch>show config
show terminal	P	Show console information	switch#show terminal
menu	E	Enter MENU mode	switch>menu
write memory	P	Save user configuration into permanent memory (flash rom)	switch#write memory
system name [System Name]	G	Configure system name	switch(config)#system name xxx
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 words)	switch(config)#admin username xxxxxx
admin password [Password]	G	Specifies a password (maximum 10 words)	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
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

Chapter 3

Commands Set List—Port Commands Set

EH 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	switch(config)#interface fastEthernet 2 switch(config-if)#flowcontrol mode Asymmetric

		control traffic rates during congestion.	
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
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	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type

		to "only accept broadcast frame"	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]**		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	switch(config)#interface fastEthernet 2 switch(config-if)#state Disable

		configuration command to specify the state mode of operation for Ethernet ports. Use the disable form of this command to disable the port.	
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

Chapter 4

Commands Set List—Trunk command set

EH Commands	Level	Description	Example
aggregator priority [1~65535]	**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] :1~3 [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) [Workport]: The amount of work ports, this value could not be less than zero or be large than the amount of member ports.	switch(config)#aggregator group 1 1-4 lacp workp 2 or switch(config)#aggregator group 2 1,4,3 lacp workp 3
aggregator group [GroupID] [Port-list] nolacp	**G**	Assign a static trunk group. [GroupID] :1~3 [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

Chapter 5

Commands Set List—VLAN command set

EH 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 8021q 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 a access link for VLAN by port, if the port belong to a trunk group, this command can't be applied.	switch(vlan)#vlan 8021q 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 belong 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]	**V**	Assign a hybrid link for VLAN by port, if the port belong to a trunk group, this command	switch(vlan)# vlan 8021q port 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q port 3

tag [TaggedVID List]		can't be applied.	hybrid-link untag 5 tag 6-8
vlan 8021q aggreator [TrunkID] access-link untag [UntaggedVID]	**V**	Assign a access link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 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

Chapter 6

Commands Set List—Spanning Tree command set

EH Commands	Level	Description	Example
spanning-tree enable	**G**	Enable spanning tree	switch(config)#spanning-tree enable
spanning-tree priority [0~61440]	**G**	Configure spanning tree priority parameter	switch(config)#spanning-tree priority 32767
spanning-tree max-age [seconds]	**G**	Use the spanning-tree max-age global configuration command to change the interval between messages the	switch(config)# spanning-tree max-age 15

		spanning tree 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, it recomputed the Spanning Tree Protocol (STP) topology.	
spanning-tree hello-time [seconds]	**G**	Use the spanning-tree hello-time global configuration command to specify the interval between hello bridge protocol data units (BPDUs).	switch(config)#spanning-tree hello-time 3
spanning-tree forward-time [seconds]	**G**	Use the spanning-tree forward-time global configuration command to set the forwarding-time for the specified spanning-tree instances. The forwarding time determines how long each of the listening and learning states last before the port begins forwarding.	switch(config)# spanning-tree forward-time 20
stp-path-cost [1~200000000]	**I**	Use the spanning-tree cost interface configuration	switch(config)#interface fastEthernet 2 switch(config-if)#stp-path-cost 20

		command to set the path cost for Spanning Tree Protocol (STP) calculations. In the event of a loop, spanning tree considers the path cost when selecting an interface to place into the forwarding state.	
stp-path-priority [Port Priority]	I	Use the spanning-tree 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)# stp-path-priority 127
stp-admin-p2p [Auto|True|False]	I	Admin P2P of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-p2p Auto
stp-admin-edge [True|False]	I	Admin Edge of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-edge True
stp-admin-non-stp [True|False]	I	Admin NonSTP of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-non-stp False
Show spanning-tree	E	Display a summary of the spanning-tree states.	switch>show spanning-tree

Chapter 7

Commands Set List—QoS command set

EH 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|middle|high]**	**G**	Configure TOS Priority	switch(config)#qos priority tos 3 high
show qos	**P**	Display the information of QoS configuration	switch>show qos
no qos	**G**	Disable QoS function	switch(config)#no qos

Chapter 8

Commands Set List—IGMP command set

EH 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	switch#show igmp configuration

		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

Chapter 9

Commands Set List—MAC/Filter Table command set

EH 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

Chapter 10

Commands Set List—SNMP command set

EH 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	G	Remove specified user of SNMPv3 agent. Privacy password could be empty.	switch(config)# no snmp snmpv3-user test01 password AuthPW PrivPW

Password]			
no snmp-server host [Host-address]	G	Remove the SNMP server host.	switch(config)#no snmp-server 192.168.10.50

Chapter 11

Commands Set List—Port Mirroring command set

EH 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

Chapter 12

Commands Set List—802.1x command set

EH 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	G	Use the 802.1x	switch(config)# 8021x system

[IP address]		system radious IP global configuration command to change the radious server IP.	radiousip 192.168.1.1
8021x system serverport [port ID]	G	Use the 802.1x system server port global configuration command to change the radious 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	switch(config)# 8021x misc supportimeout 20

		configuration command to set the supplicant timeout.	
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
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	E	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

Chapter 13

Commands Set List—TFTP command set

EH 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

Chapter 14

Commands Set List—SYSLOG, SMTP, EVENT command set

EH 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 functon	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
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 iA-ring-topology-change [Systemlog|SMTP|Both]	G	Set iA-ring topology changed event type	switch(config)#event iA-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	switch(config)#no event

		event type	device-cold-start
no event authentication-failure	G	Disable Authentication failure event typ	switch(config)#no event authentication-failure
no event iA-Ring-topology-change	G	Disable super ring topology changed event type	switch(config)#no event iA-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

Chapter 15

Commands Set List—SNTP command set

EH 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

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 timzezone" 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

Chapter 16

Commands Set List—iA-Ring command set

EH Commands	Level	Description	Example
iA-Ring enable	G	Enable iA-Ring	switch(config)#iA-Ring enable
iA-Ring master	G	Enable ring master	switch(config)# iA-Ring master
iA-Ring couplering	G	Enable couple ring	switch(config)# iA-Ring couplering
iA-Ring dualhoming	G	Enable dual homing	switch(config)# iA-Ring dualhoming
iA-Ring ringport [1st Ring Port] [2nd Ring Port]	G	Configure 1st/2nd Ring Port	switch(config)# iA-Ring ringport 7 8
iA-Ring couplingport	G	Configure Coupling	switch(config)# iA-Ring couplingport

[Coupling Port]		Port	1
iA-Ring controlport **[Control Port]**	**G**	Configure Control Port	switch(config)# iA-Ring controlport 2
iA-Ring homingport **[Dual Homing Port]**	**G**	Configure Dual Homing Port	switch(config)# iA-Ring homingport 3
show iA-Ring	**P**	Show the information of Super Ring	switch#show iA-Ring
no iA-Ring	**G**	Disable iA-Ring	switch(config)#no iA-Ring
no iA-Ring master	**G**	Disable ring master	switch(config)# no iA-Ring master
no iA-Ring couplering	**G**	Disable couple ring	switch(config)# no iA-Ring couplering
no iA-Ring dualhoming	**G**	Disable dual homing	switch(config)# no iA-Ring dualhoming

EtherManager (Utility) Interface

Chapter 1

Configuration by EtherManager

1.1 About the EH Switch

The EH switches can be management by a powerful utility –AiVIEW. With EtherManager, user can set parameters to multiple switches at the same time. I-VIEW provides a powerful interface for user managing all switches in the network.

AiVIEW is not only a powerful utility for configuring but also a useful utility for monitoring. User can monitor switches' status via AiVIEW. When the monitored switches fail, the failure information will be displayed on AiVIEW interface.
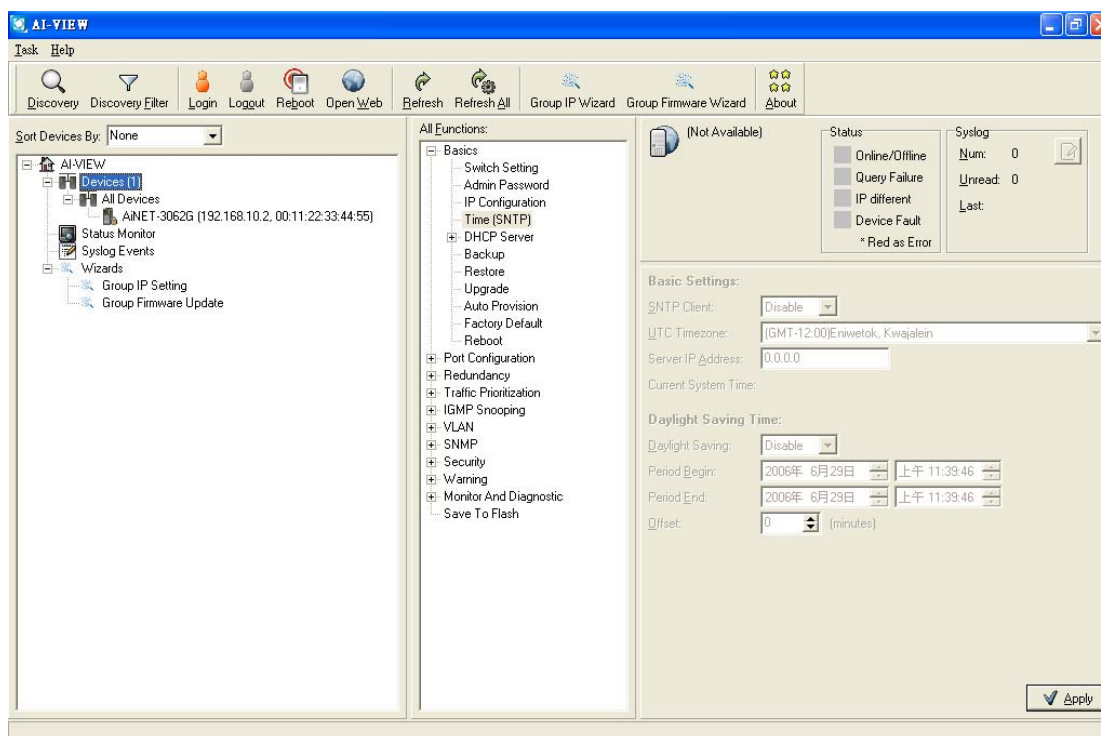
EtherManager **interface**

1.2 Prepare to use EtherManager

Before using EtherManager, user needs to install the utility first.

Click [Next] to continue setup process.
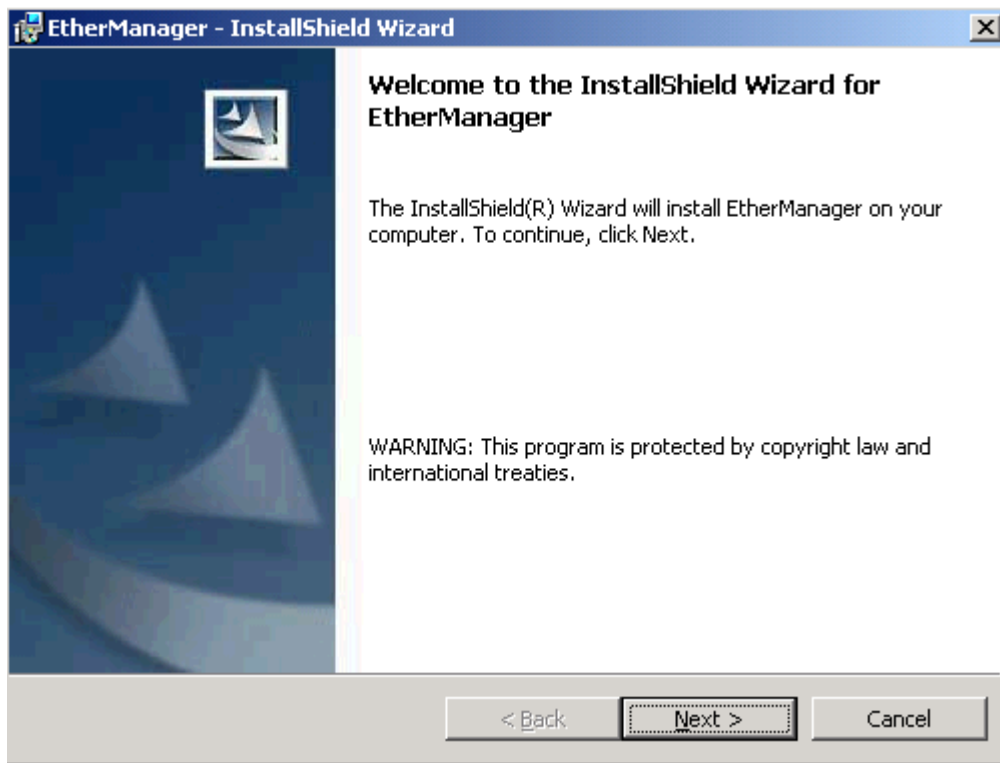
Select the path that user wants to install in. then click [Next]
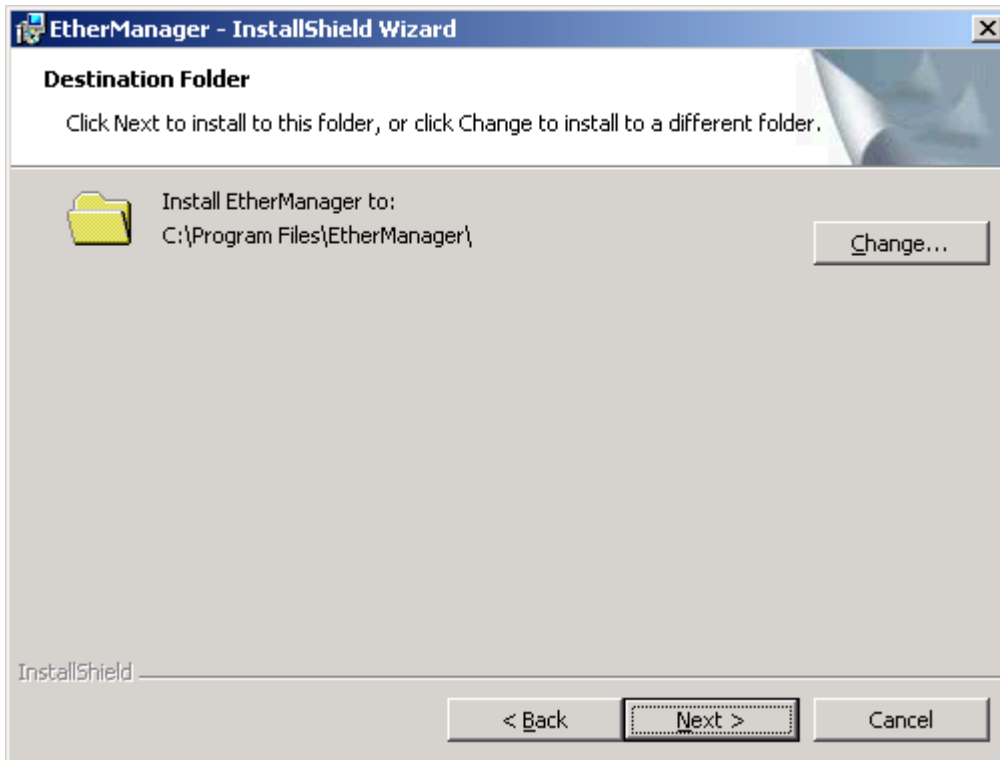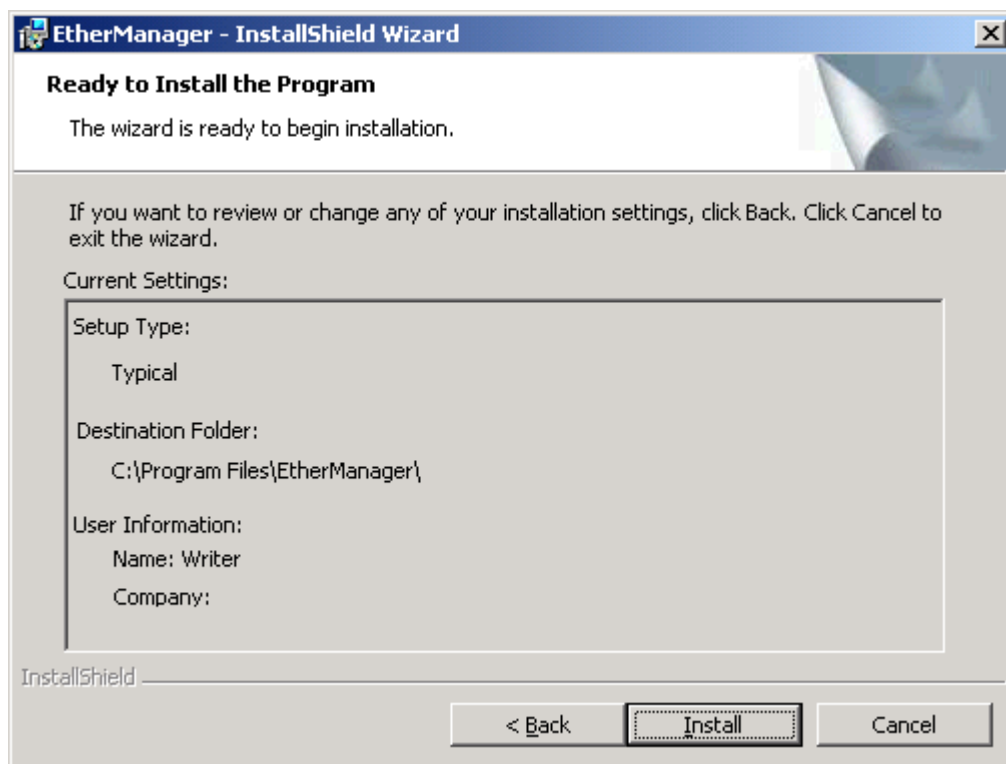
Make sure to install EtherManager then click [install].
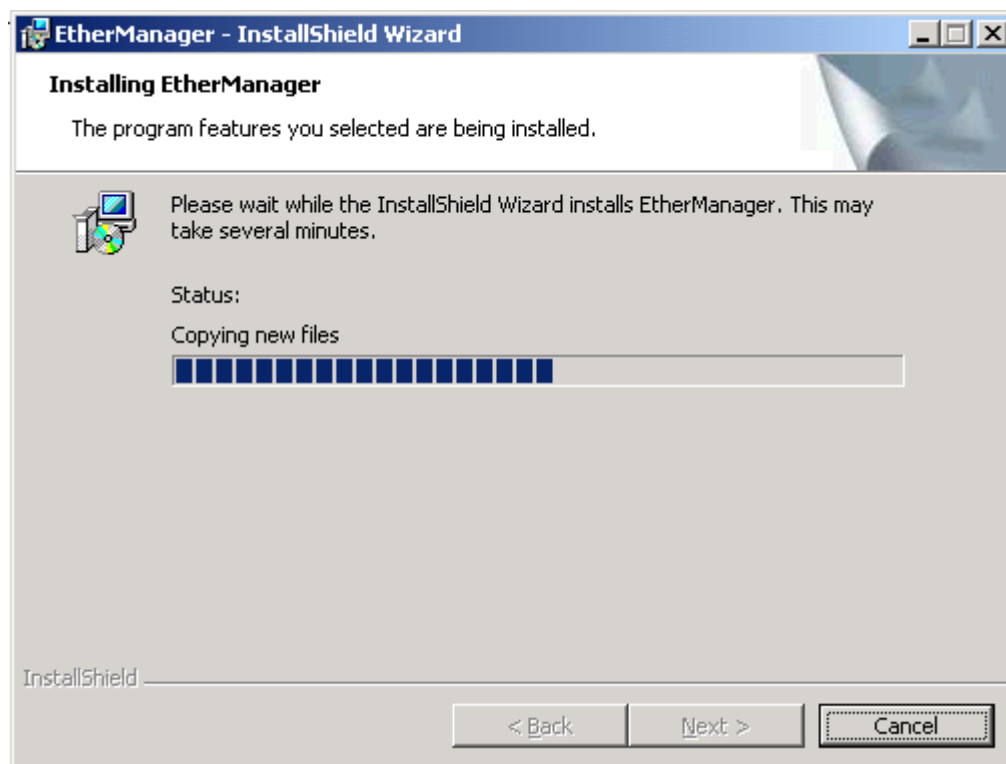
Configure the IP Address of the PC that has installed the utility. It should be the same subnet mask with the switches that user wants to manage.
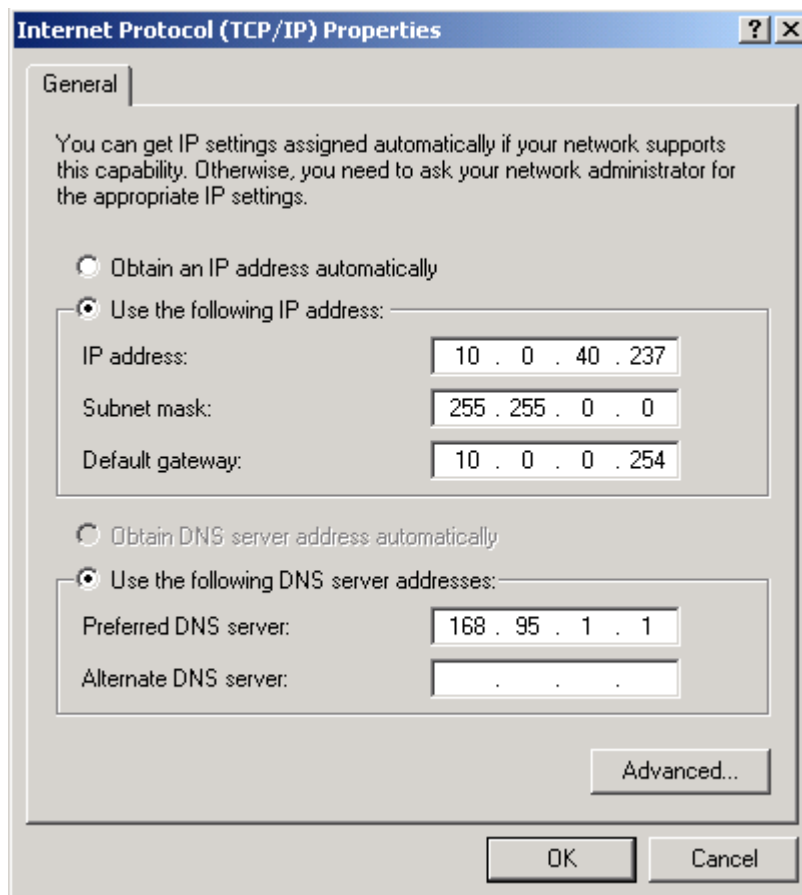
Select the shortcut to execute. EtherManager

1.3 EtherManager Main interface

The EtherManager main interface shows as below:

System Bar

Function Bar

Switch Management Interface

Switch Function Interface

Switch Status Interface

Switch Configuration Interface
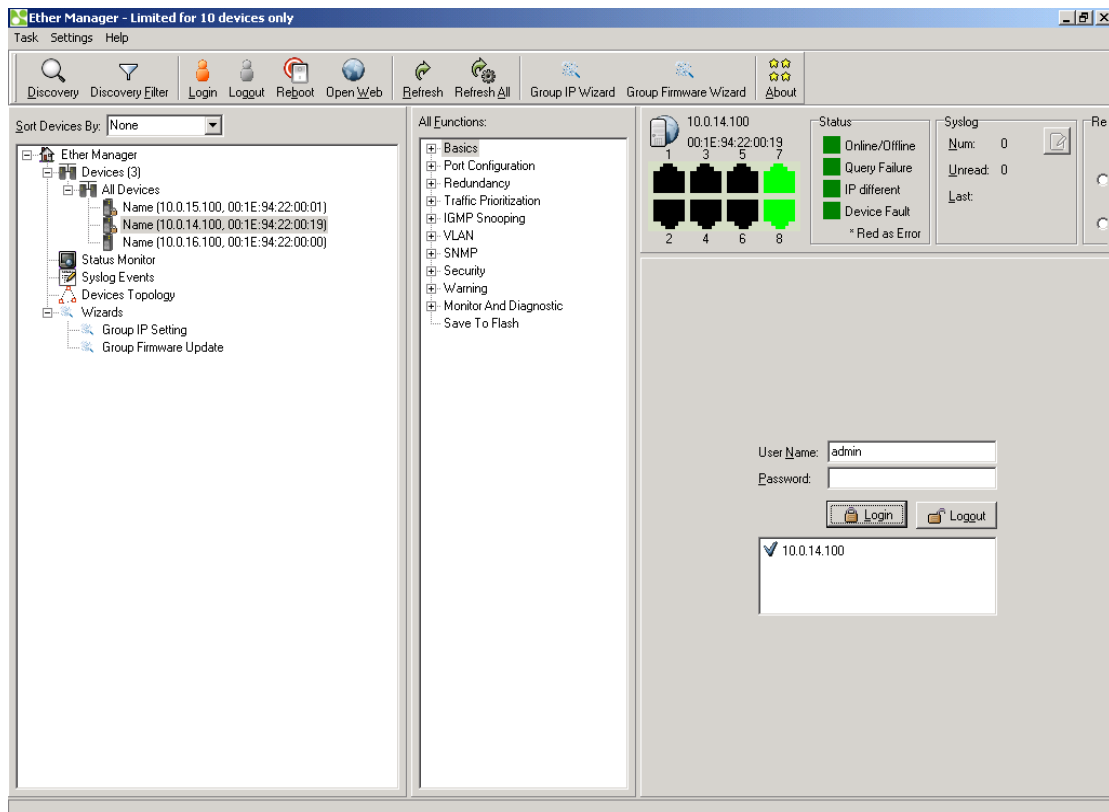
Chapter 2

System Bar

1.1 Task

User can select task to show EtherManager tasks menu.

Task	Hotkey	Description
Discovery	Ctrl + D	Click Discovery or Ctrl + D to discover the switches on the same subnet. EtherManager will display all discovered switches on the management interface. I-VIEW discovers switched depend on discovery filter shows as next task. Note: all switches can be the same IP address. EtherManager can discover and change IP by the Group IP Setting function.
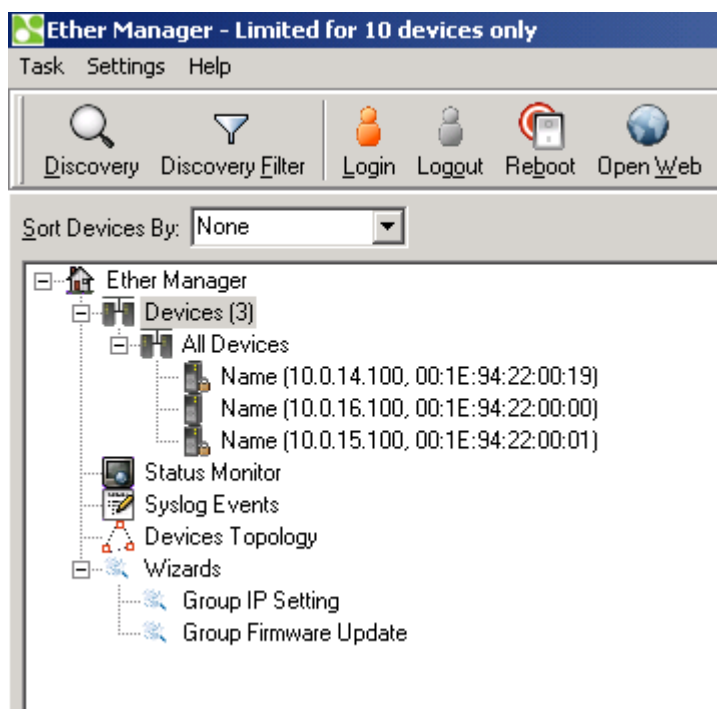
Discovered switches displayed on management interface.

Task	Hotkey	Description
Discovery Filter	Ctrl + F	■ Local Subnets: EtherManager will only discover all switches connect to the specific IP of NIC that user select. ■ Primary Interface/Gateway/Default Route: EtherManager will select a primary interface to discover switches. ■ Customize: Set up the subnet to discover, user also can define a smaller rage in the subnet.
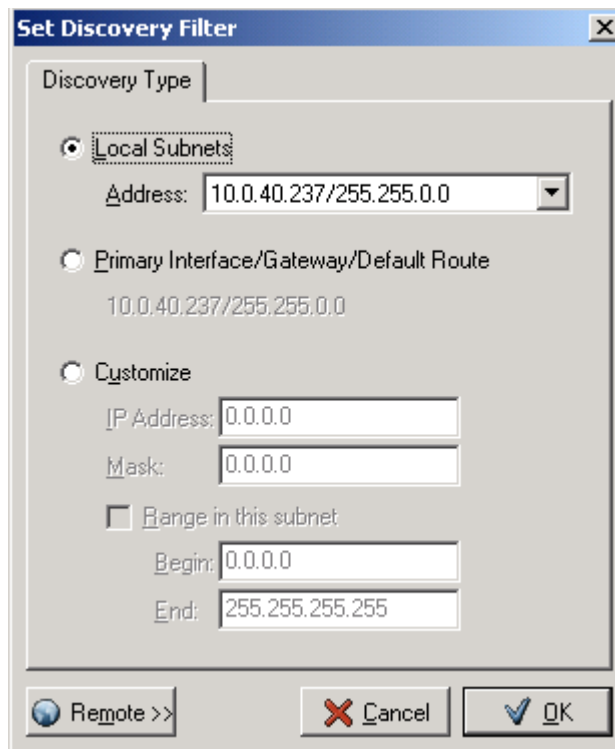
Discovery Filter interface

Task	Hotkey	Description
Login	Ctrl + L	Select switch to login to configure. EtherManager can login to multiple switches that user selected. Enter account and password to login (the same with web management). Note: When user login and idle about 300 seconds, EtherManager will logout automatically. When login success, the switch icon will change from 📱 to 📱.

Login Interface

Task	Hotkey	Description
Logout	Ctrl + L	Select switch to logout. EtherManager can logout from multiple switches that user selected. When logout success, the switch icon will change from 🖥️to.🖥️.

Task	Hotkey	Description
Reboot	Ctrl + B	Select switch to reboot. EtherManager can reboot multiple switches that user selected. When user click reboot, a dialog window will be displayed on screen for confirming.
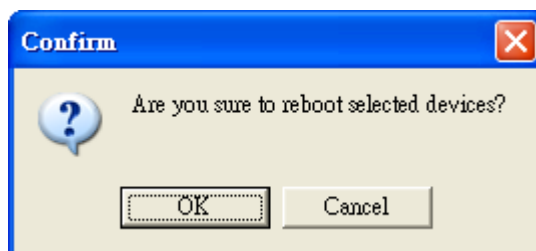
Reboot confirm interface

Task	Hotkey	Description
Open Web	Ctrl + W	Select switch to open web UI management. EtherManager will open browser of your OS automatically.
Monitor Status	Ctrl + M	Manually select switch to monitor status The monitored switches will be displayed on status monitor page. Status Monitor will be introduced in switch management interface chapter.
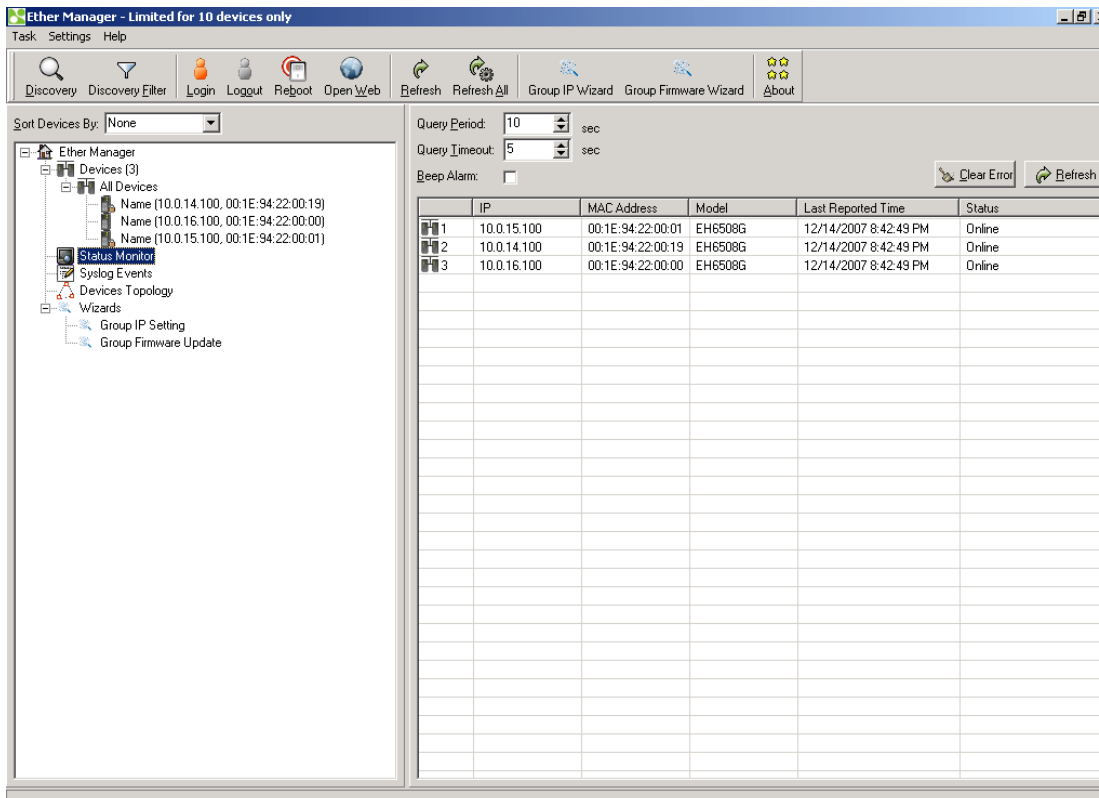
Status Monitor Interface

Task	Description
Refresh	Refresh the specific switch function management interface and switch configuration interface.
Refresh All	Refresh all switch function management interfaces and switch configuration interfaces

1.2 Help

Label	Hotkey	Description
About	F1	Show EtherManager version information.

Chapter 3

Function Bar

1.1 icons introduction

There are many icons on function bar. The functions of the icons are the same with Tasks
that we introduce in previous chapter.

Icon	Description
Discovery	The same with task "Discovery".
Discovery Filter	The same with task "Discovery Filter".
Login	The same with task "Login".
Logout	The same with task "Logout".
Reboot	The same with task "Reboot".
Open Web	The same with task "Open Web".
Refresh	The same with task "Refresh".
Refresh All	The same with task "Refresh All".
Group IP Wizard	One of EtherManager powerful functions. EtherManager Group IP Wizard can configure multiple switches' IP Address. The function will be introduced more detail in Switch Management Interface chapter.

Group Firmware Wizard	One of EtherManager powerful functions. EtherManager Group IP Wizard can update multiple switches' firmware. The function will be introduced more detail in Switch Management Interface chapter.
About	The same with task "about".

Chapter 4

Switch Management Interface

1.1 Devices

User can see and manage all discovered switches by the device function. User can select wanted switch to execute tasks.
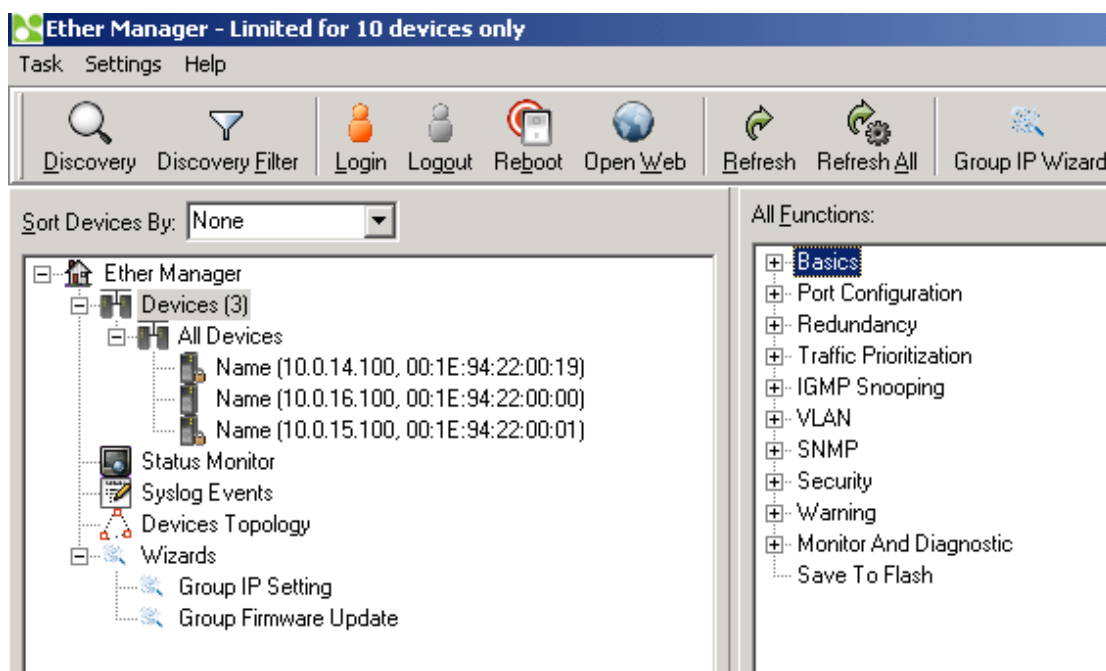

Switch Management Interface

Label	Description
Devices	Show the amount of discovered switches.
All Devices	Show all discovered switches' detail information.
Sort Device By	Model: Sorting by Model name. IP Address: Sorting by IP address.

1.2 Status Monitor

Status Monitor provides user to monitor multi switches in a page. Through the color changes, user can know something happened to switches, then tack action to repair the situation.
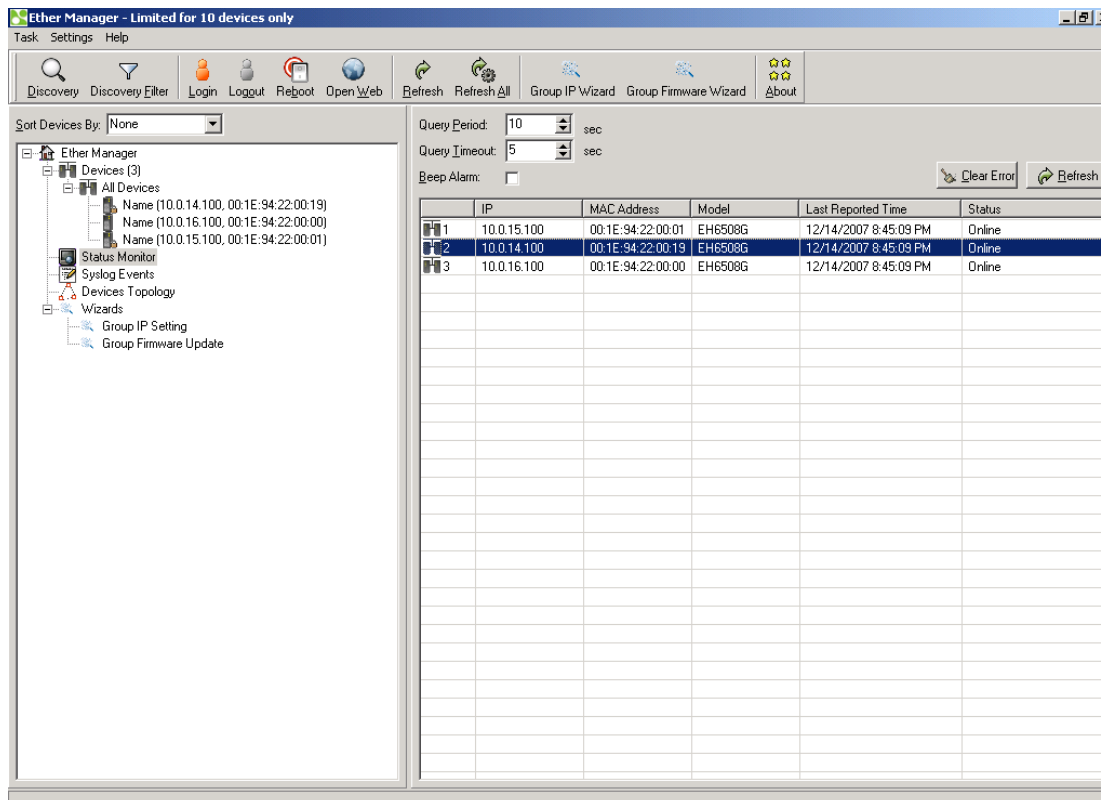
Status Monitor Interface

Label	Description
Query Period	The period that EtherManager will send a packet to device to query status.
Query Timeout	Set the timeout period. After the period, EtherManager does not receive reply from device, warning message will be displayed.
Beep Alarm	Mark the blank for beep alarm. EtherManager will let your PC make sound to inform user that some events happen.
Remove	Remove monitored device entry.
Refresh	Refresh the status.
IP	Show the IP Address of discovered switch.
MAC Address	Show the MAC Address of discovered switch.
Model	Show the Model name of discovered switch.
Last Reported Time	Show the last time that EtherManager receives report from switch.
Status	Show switch online/offline and show events alarm.

1.3 Syslog Events

EtherManager has a built-in syslog server. User does not need to use other syslog software. In syslog event window, the events will be record and user can know what event happened to the switches.
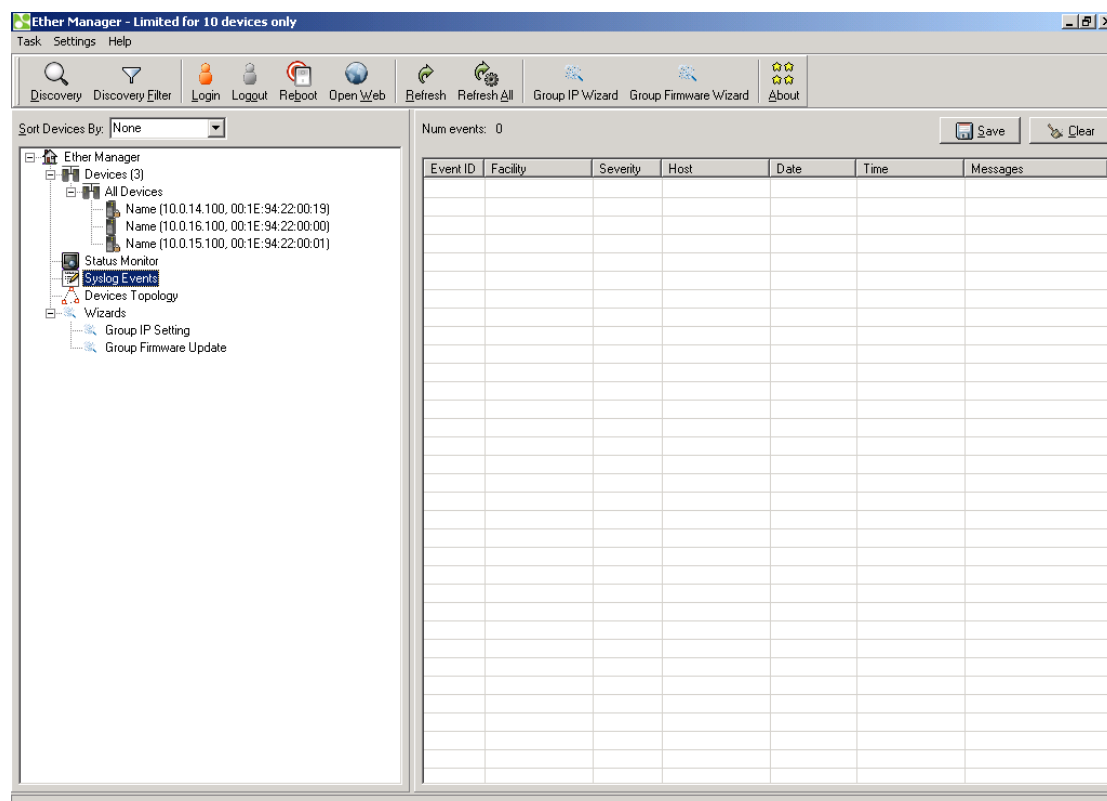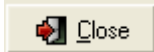

Syslog events Interface

Label	Description
Event ID	The number of the happened event.
Facility	Class of the event.
Severity	Show the event urgent degree.
Host	Show the event source address.
Date	Show the date of the happened event.
Time	Show detail time of the happened event.

User can see the detail event information be double click the event entry. A dialog window will be displayed.
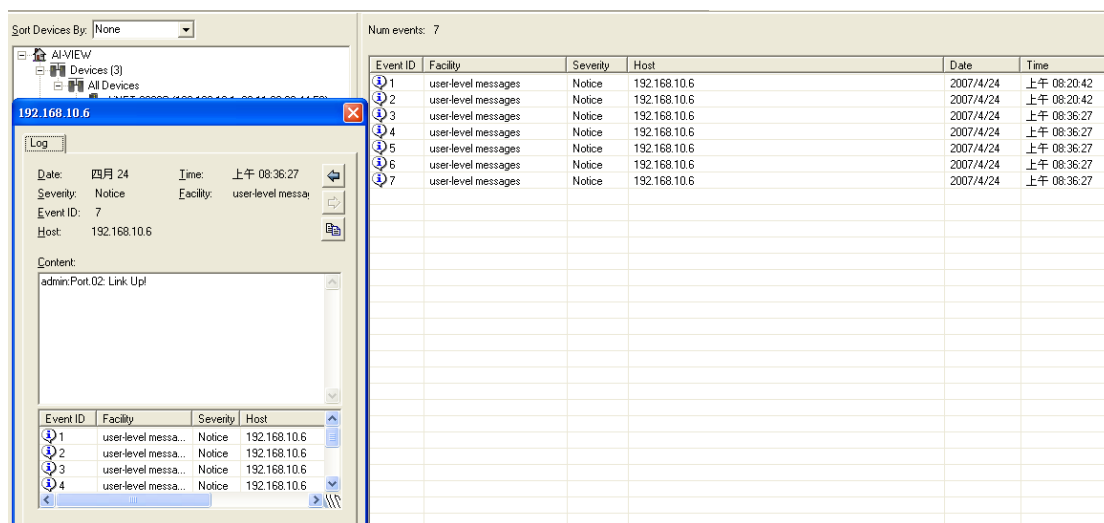
Detail events Interface

Icon	Description
	Show previous event.
	Show next event.
	Copy event content to RAM. User can paste on clipboard or other documents.
Close	Click close to leave the window.

1.3 Wizards

A friendly UI of EtherManager to help user set IP address of a group of switch or update

firmware of the group. The wizard let user step by step to do the jobs. It is very convenient for

network administrator to save time for configuring IP and updating firmware. Besides saving

time, It can also reduce the mistakes made by user.
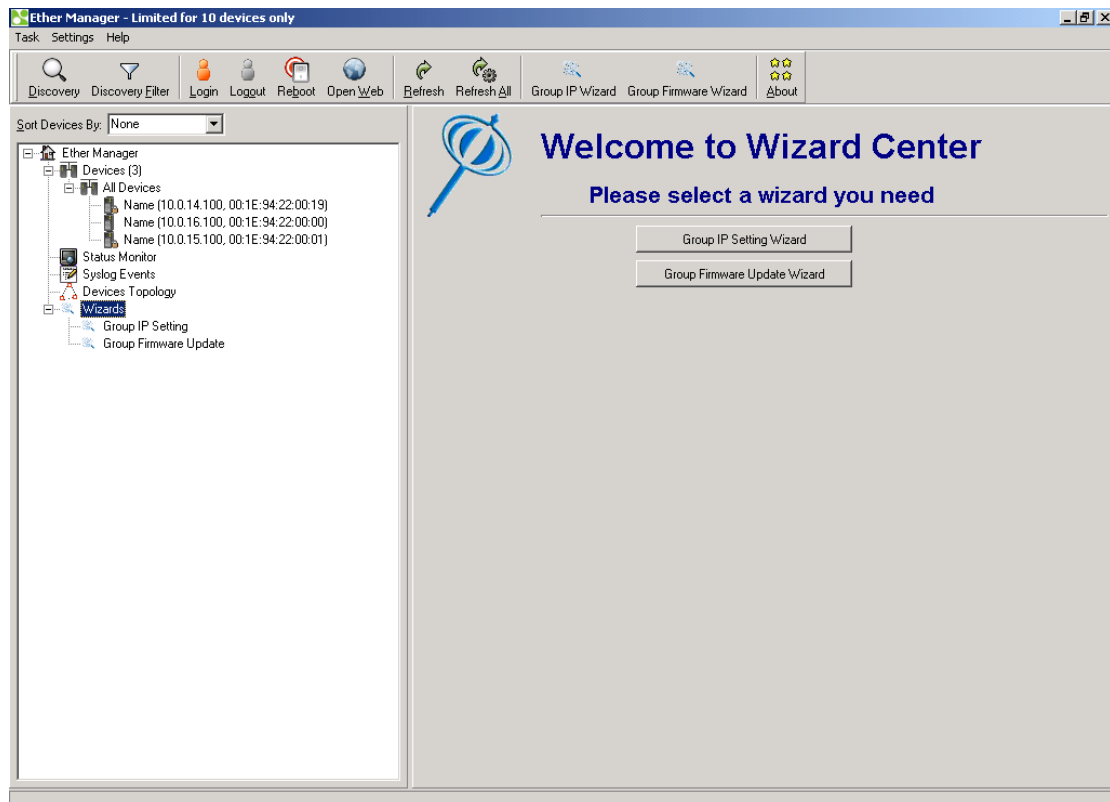
Wizard Interface

1.3.1 Group IP Setting Wizard

Group IP Setting Wizard helps you walk through whole IP address configure process of a

group of devices. A few steps would be taken during this process:

Group IP Setting Wizard Interface

STEP: 1. Select one or more devices to be configured.

STEP: 2. Configure the IP address range or DHCP IP address
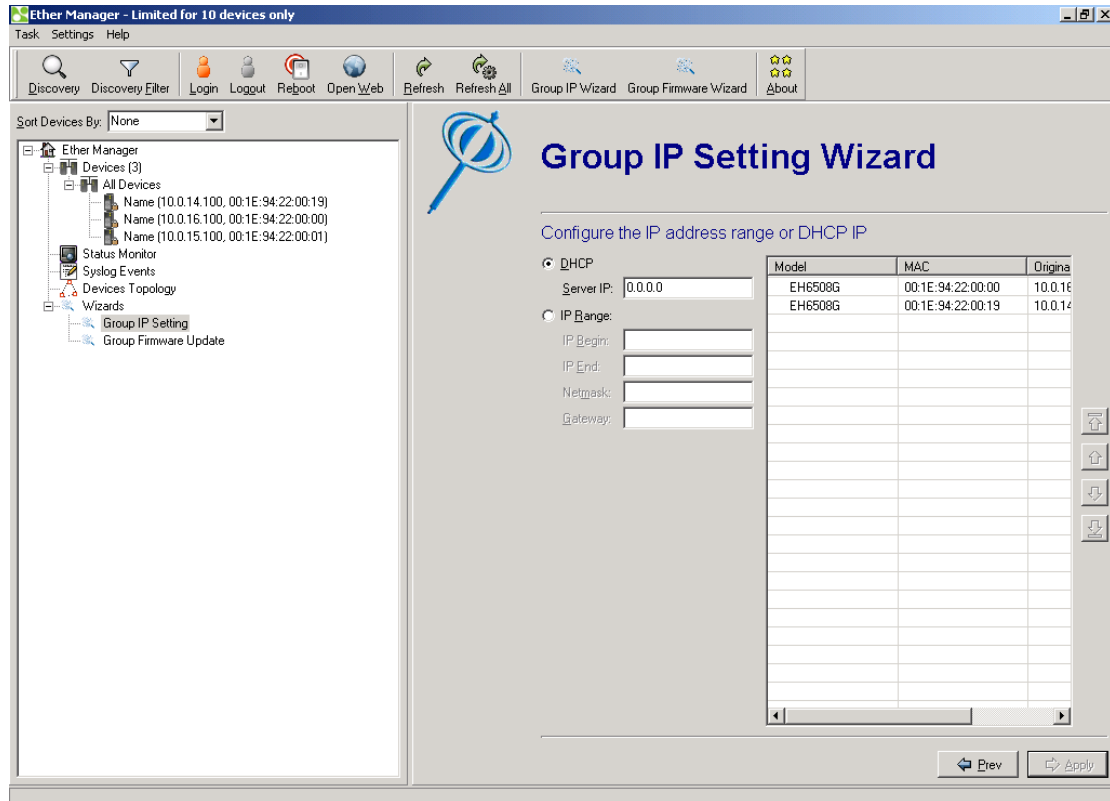
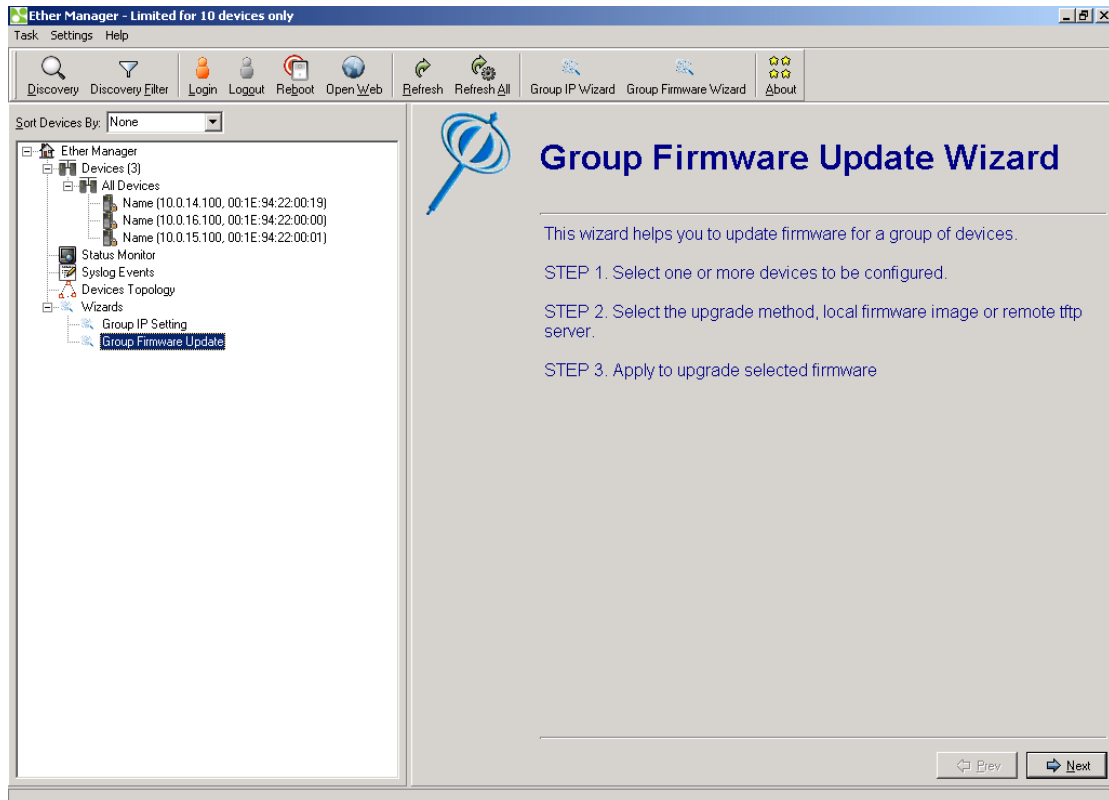
STEP: 3. Apply settings
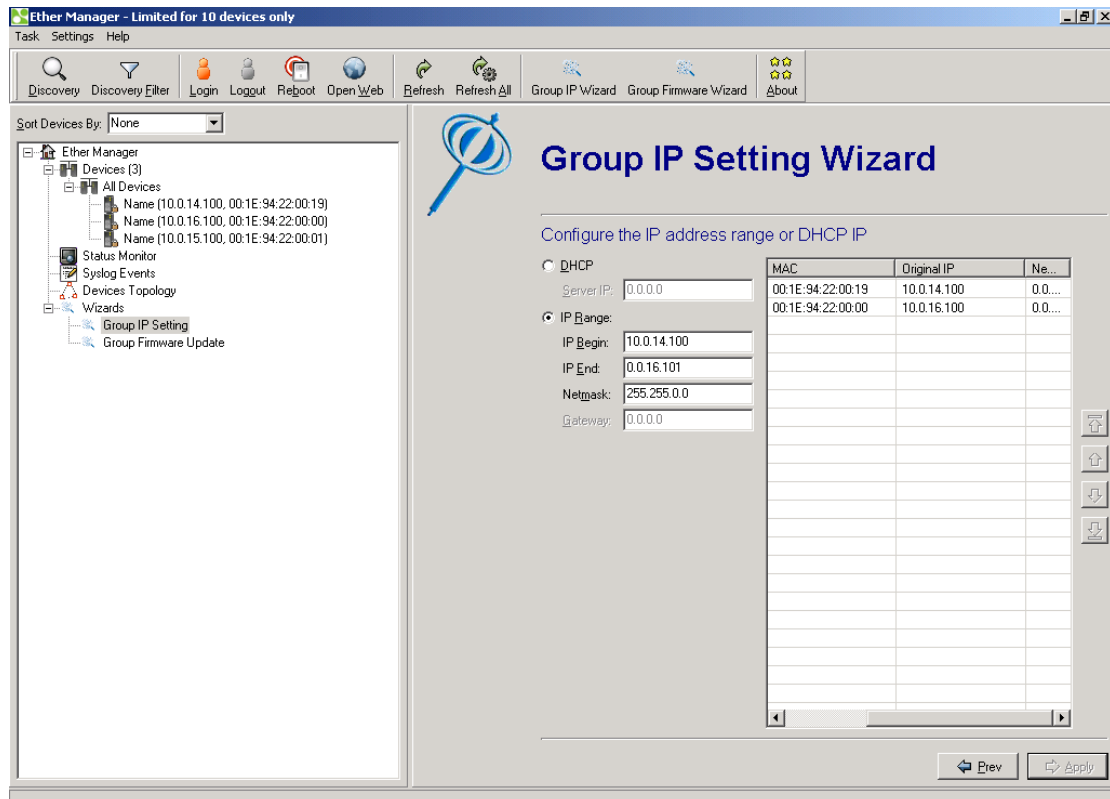
1.3.2 Group Firmware Update Wizard

This wizard helps you to update firmware for a group of devices.
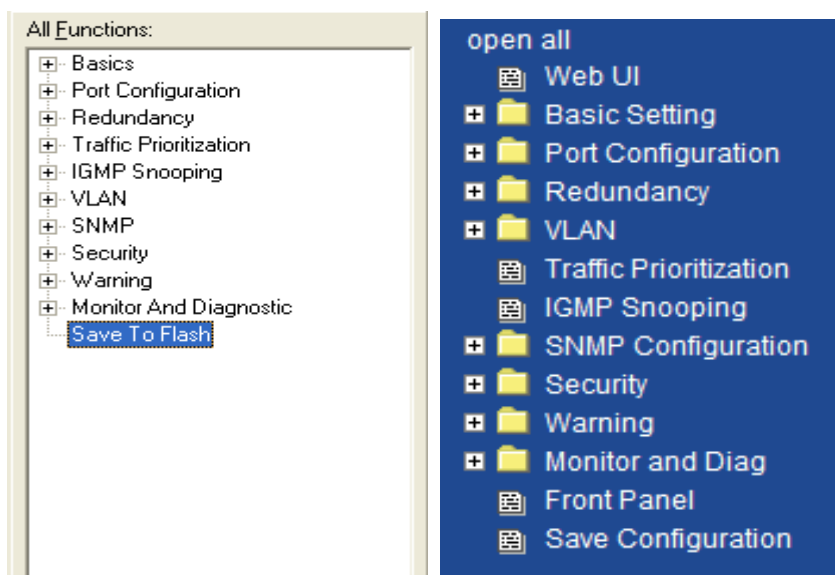

Group Firmware Update Wizard Interface

The procedural same as IP setting wizard

Chapter 5

Switch Function Interface

## 1.1 About the functions interface and functions tree on WEB.

The function interface is the same with function tree on web UI. That means: all functions can be configure on web; they can also configured by EtherManager.

The functions interface and functions tree on WEB.

1.2 The relationship of function interface and the configuration interfaces

When user selects the function to configure, the related parameters will be displayed on configuration interface for user to set detail configurations. An example shows below:
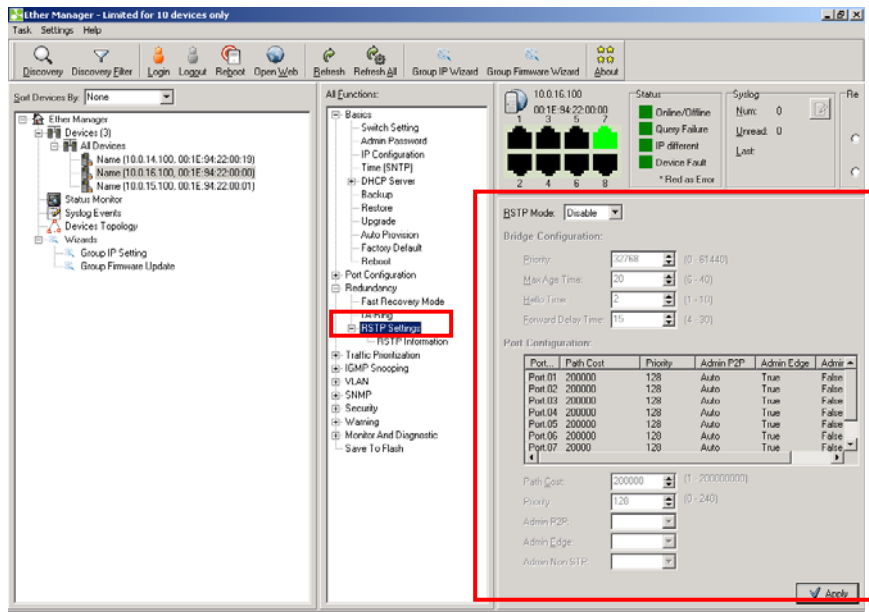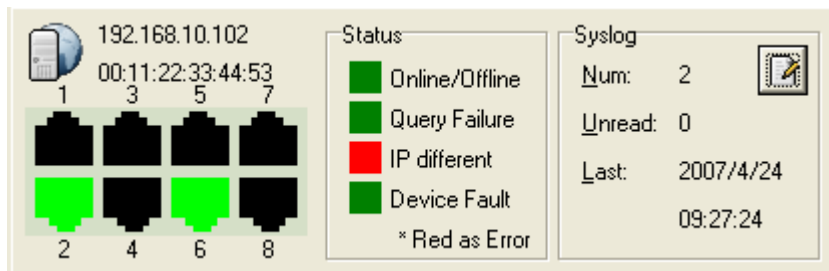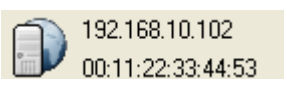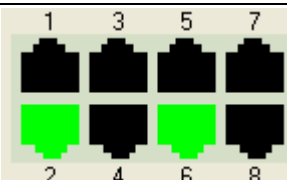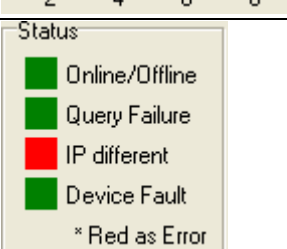
Chapter 6

Switch Status Interface

1.1 The GUI for user to get switch status.

User can get switch information by the simple interface.

| Icon	Description
	Show the IP and MAC Address of the switch.
	Show the port link status of the switch.
	Show switch status: Online/Offline: Show switches status. Query Failure: When EtherManager can not query. It is the problem of PC. It maybe the wrong configuration or etc. IP different: When IP changed, the light will from green change to red to inform user the IP had been changed. Device Fault: When fault alarm event occurred, the light will from green change to red to inform user.

Syslog Num: 2 [icon] Unread: 0 Last: 2007/4/24 09:27:24	EtherManager can notice user that SYSLOG event status. User can know unread event and click [icon] to show the detail event log window.

Chapter 7

Switch Configuration Interface

1.1 The relationship of function interface and the configuration interfaces

When user selects the function to configure, the related parameters will be displayed on configuration interface for user to set detail configurations. An example shows below:
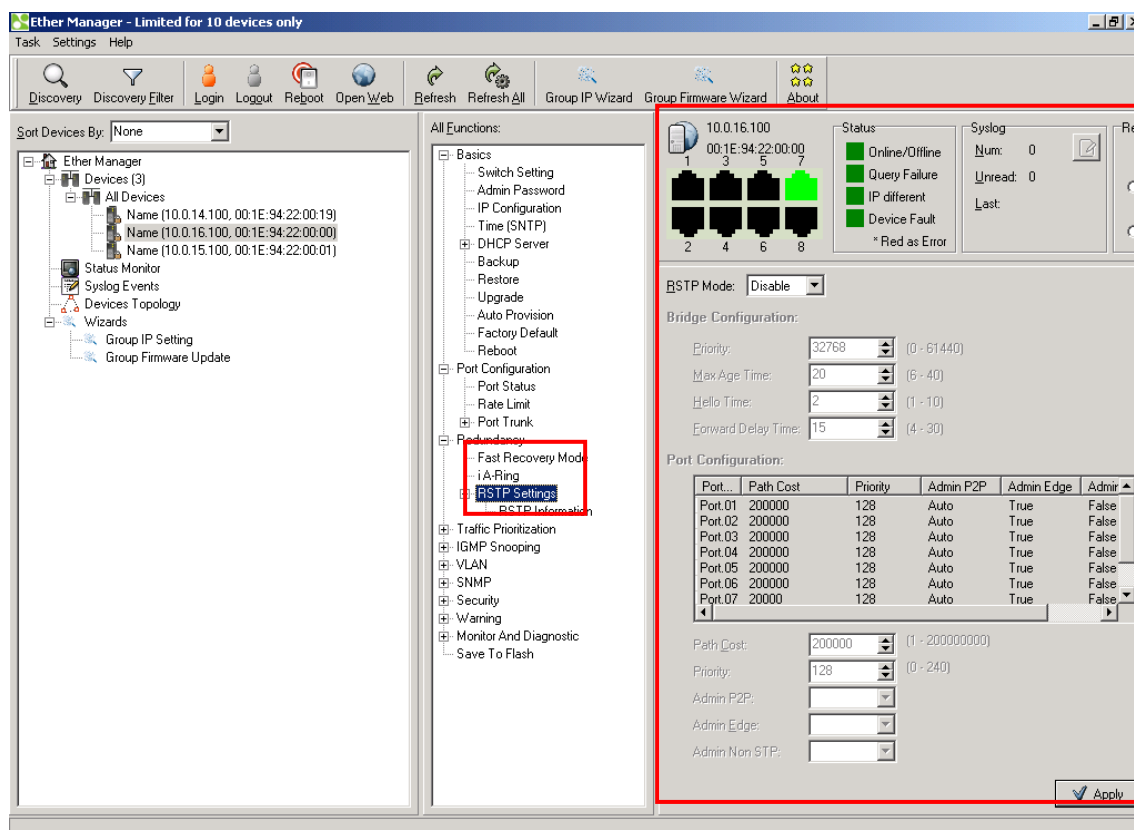
Technical Specifications

Technology	
Ethernet Standards	802.3-10BaseT, 802.3u-100BaseTX, 100BaseFX, 802.3x- 802.3z-1000BaseLX, 802.3ab-1000BaseTX, 802.3ad-, 802.1d-MAC Bridges, 802.1d-, 802.1p-Class of Service, 802.1q-, 802.1w-Rapid Spanning Tree Protocol, 802.1x-Port Based Network Access Control
MAC addresses	8192
Priority Queues	4
Flow Control	IEEE 802.3x Flow Control and Back-pressure
Processing	Store-and-Forward
Interface	
RJ45 Ports	6 x 10/100 Base-T(X), Auto MDI/MDI-X
Giga Fiber Ports	2 x 1000 Base-X(SC Connector) Multi-Mode: 0 to 550m, 850 nm (50/125 µm to 62.5/125 µm)
Giga Ports	2 x 10/100/1000 Base-T(X), Auto MDI/MDIX
Fiber Ports	2 x 100 Base-FX(SC Connector) Multi-Mode: 0 to 2 km, 1310 nm (50/125 µm to 62.5/125 µm)
LED Indicators	Per Unit : Power x 3(Green) RJ45 Ports: Per Port : Link/Activity(Green/Blinking Green), Full duplex(Amber) Giga Ports: Per Port : Activity(Green),Link (Amber)

Power Requirements	
Power Input Voltage	PWR1/2: 12~48VDC in 6-pin Terminal Block PWR3: 12~45VDC in Power Jack
Reverse Polarity Protection	Present
Power Consumption	9 Watts Max
Environmental	
Operating Temperature	-40 to 75℃
Storage Temperature	-20 to 85℃
Operating Humidity	5% to 95%；Non-condensing
Mechanical	
Dimensions(W x D x H)	52 mm(W)x 106 mm(D)x 144 mm(H)
Casing	IP-30 protection
Regulatory Approvals	
Regulatory Approvals	CE class A RoHS
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), Level 3, EN61000-4-6 (CS), Level 3
Shock	IEC60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6