**FCC Certifications**

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information. No part of this document can be copied or reproduced in any form without written consent from the company.

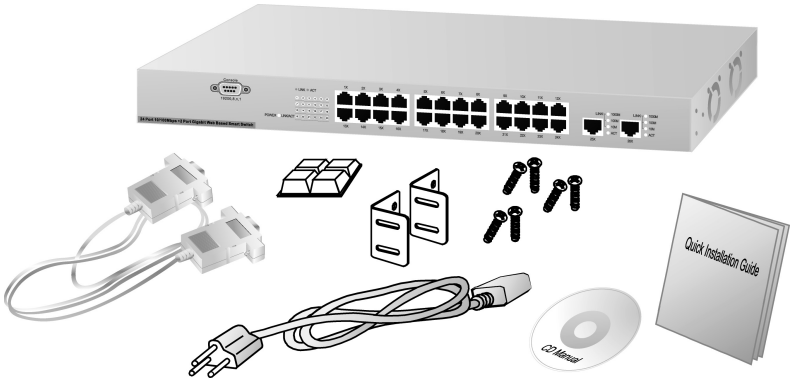
Trademarks:
All trade names and trademarks are the properties of their respective companies.

# Table of Content

# Unpacking Information

Thank you for purchasing the 24+2G Gigabit Ethernet Web Smart Switch. Before you start, please check all the contents of this package.

The product package should include the following:




1. One 24+2G Gigabit Ethernet Web Smart Switch
2. One power cord
3. Rubber foot and screws
4. Rack-mount brackets
5. One RS-232 Cable (Optional)
6. One CD_ROM for user's manual
7. One quick installation guide

# 1. Introduction to 24+2G Gigabit Ethernet Web Smart Switch

## *1.1 General Description*

The device is a 24+2G 10/100Mbps Ethernet Web Smart Switch.

The device is a powerful, high-performance Gigabit Ethernet switch, which provides smart and efficient management functions and support 26 ports connection with 24 ports of 10/100Mbps and 2 ports 10/100/1000Mbps with Full/Half duplex capability. The NWay auto-negotiation operation automatically negotiates with the connected partners on the network speed and duplex mode; that provides an easy way to integrate 10/100Mbps networks with no pain. It is ideal for micro-segmenting large networks into smaller, connected subnets for improved performance, enabling the bandwidth demanding multimedia and imaging applications.

Out of the ordinary dumb switches, the 24+2G Gigabit Ethernet Web Smart Switch embedded advanced management capability; that the device can be managed through console port or web-based UI. This is much useful for system manager to monitor and control the system efficiently.

Store-and-forward switching mode promises the low latency plus eliminates all the network errors, including runt and CRC error packets. To work under full-duplex mode, transmission and reception of the frames can occur simultaneously without causing collisions as well as double the network bandwidth.

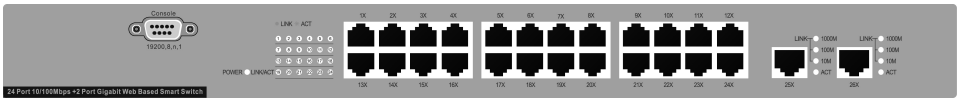
The switch is plug-n-play without any software to configure and also fully compliant with all kinds of network protocols. Moreover, the rich diagnostic LEDs on the front-panel provide the operating status of individual port and whole system.

## 1.2 Key Features

- 24 fixed 10/100Mbps Fast Ethernet ports for easy network connecting application.
- Support 2 fixed 10/100/1000Mbps Gigabit ports
- Provide Auto-discovery Function for easy Network management.
- Provide 8K MAC address entries and 26 groups VLAN table
- Support Port aggregation.
- Supports 3 types of QoS priority for port base, 802.1p & TCP/IP TOS/DiffServ(DS) priority field
- Support full duplex flow control and half duplex back pressure
- Store-and-forward forwarding scheme
- Error packet filtering
- Supports 320K bytes buffer Memory
- Support local Console port or Web-based UI for configuration
- Internal switching power supply (100-240Vac/50-60Hz)

## 1.3 The Front Panel

The front panel of the switch is shown as below




### Port Operation

There are 24 * 100Mbps and 2 * 1000Mbps RJ-45 (copper) ports on the front panel. The auto-negotiation feature of the switch allows each port of the device running at one of the following operation modes:

| Speed | Duplex Mode |
|---|---|
| *10Mbps* | Full Duplex |
| | Half Duplex |
| *100Mbps* | Full Duplex |
| | Half Duplex |
| *1000Mbps* | Full Duplex |

All ports supports MDI/MDI-X **auto crossover** capability that is the port can connect either the PC or hub without crossover cable adjustment.

**Wiring for 10/100/1000Mbps (Copper)**

Following are the summaries of cabling required:

| Media | Speed | Wiring |
|---|---|---|
| *10/100/1000Mbps copper* | *10Mbps* | Category 3,4,5 UTP/STP |
| | *100Mbps* | Category 5 UTP/STP |
| | *1000Mbps* | Category 5,5e UTP/STP |

## LED Definition

The rich diagnostic LEDs on the front panel can provide the operating status of individual port and whole system.

*Power LED*

This indicator lights green when the switch is receiving power; otherwise, it is off.

*Port LEDs*

Every 100Mbps RJ-45 port on the front panel relevant one LED for indicating the data transmit & receive status. And two 1000Mbps RJ-45 ports support four LEDs to indicating the connection speed & data activity status.

Port LED summary table

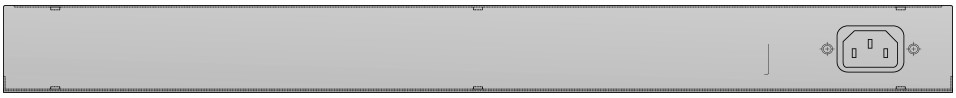
| *10/100M* | | |
|---|---|---|
| **LED** | **Status** | **Statement** |
| *10/100M* | Steady green | Connected as 10/100Mbps |
| | Blinking green | The port is transmitting/receiving data |
| *10/100/1000M* | | |
| **LEDs** | **Status** | **Statement** |
| *1000M* | *Steady green* | *Connected as 1000Mbps* |
| *100M* | *Steady green* | *Connected as 100Mbps* |
| *10M* | *Steady green* | *Connected as 10Mbps* |
| *ACT* | *Blinking green* | The port is transmitting/receiving data |

If the port is connected but the Port LED is dark, check the following items:

- The switch and the connected device's power are on or not.
- The connecting cable is good and with correct type
- The cable is firmly seated in its connectors in the switch and in the associated device

## *1.4 The Rear Panel*

The rear panel of the switch is shown as below



# 2. Installing 24+2G Gigabit Ethernet Web Smart Switch

This switch can be placed directly on your desktop, or mounted in a rack. Users can immediately use most of the features simply by attaching the cables and turning the power on.

## *2.1 Desktop Installation*

For desktop installation, the switch needs to put on a clean, flat desk or table close to a power outlet. Plug in all network cables and the power cord, then the system is ready.

Before installing the switch, you must ensure:

1. It is accessible and cables can be connected easily
2. Cabling is away from:
   - ∗ Sources of electrical noise such as radios, transmitters and broadband amplifiers
   - ∗ Power lines and fluorescent lighting fixtures.
3. Keep water or moisture off
4. Airflow around the unit and through the vents in the side of the case is great for heat radiation (company recommend that you provide a minimum of 25 mm clearance)

To prolong the operational life of your units:

1. Never stack unit more than eight sets high if freestanding
2. Do not place objects on top of any unit or stack
3. Do not obstruct any vents at the sides of the case

## *2.2 Rack-mount Installation*

The switch may standalone, or may be mounted in a standard 19-inch equipment rack. Rack mounting produces an orderly installation when you have a number of related network devices. The switch is supplied with rack mounting brackets and screws. These are used for rack mounting the unit.

Rack Mounting the Switch in the 19-inch rack:

1. Disconnect all cables from the switch before continuing.
2. Place the unit the right way up on a hard, flat surface with the front facing toward you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.

5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the 19" rack and secure with suitable screws (not provided).
7. Reconnect all cables.

## *2.3 Installing Network Cables*

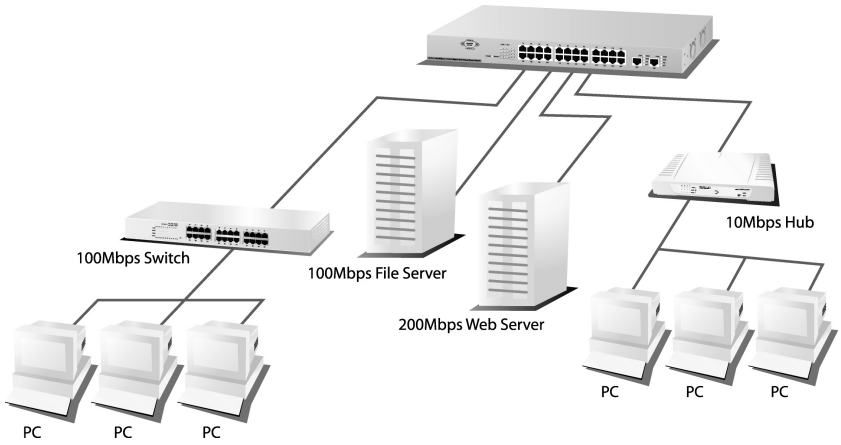
**Station Connections**

Reference to the wiring statement of the previous section; connect each station to the switch with correct type of cables.

**Switch-to-Switch Connections**

In making a switch-to-switch connection, use every port to connect another switch or backbone is strongly recommended. The Gigabit Ethernet ports provide the fat pipe to the server or backbone connectivity for boosting the total system performance. Reference to the wiring statement of the previous section; connect each station to the switch with correct type of cables.

## *2.4 Network Application*



# 3. Management guide

This section instructs you how to enter and set up the configurations, which can be accessed by RS-232 serial port (out-of-band) on the rear panel or by Telnet session / Internet Browser over the network (in-band).

.

Factory Default value:

***IP：*** ***192.168.1.1***
***Subnet Mask：*** ***255.255.255.0***
***Default Gateway：*** ***192.168.1.254***

## *3.1 Access the Switch*

**Console Port (Out-of-band) connection**

The operating mode of the console port is:

- DCE
- 9600 (Fix baud rate)
- n (No parity checking)
- 8 (8 Data bits)
- 1 (1 stop bit)
- None (No flow control)

After attaching a RS-232 cable (Straight-through) to the serial port of a PC running a terminal emulation program, press **"Enter"** key then login screen appears. Enter your username and password to login the management console.

**Note：**

The management functions of console program are exactly the same with web-based management interface but in text mode.

**Attention：** **1.** The factory default value of UserName and Password is **"admin"**
**2.** System configurations via the Console Port only will be allowed by the way of master device

## In-Band Connections (Web Browser / Telnet)

To manage the switch through in-band access, you should configure the management station with an IP address and subnet mask compatible with your switch.

1. Running your Web Browser and enter the IP address “192.168.1.1” as the URL in the “address” field.
2. Key in the User name and password to pass the authentication. The factory default value of User Name and Password is “**admin**”.

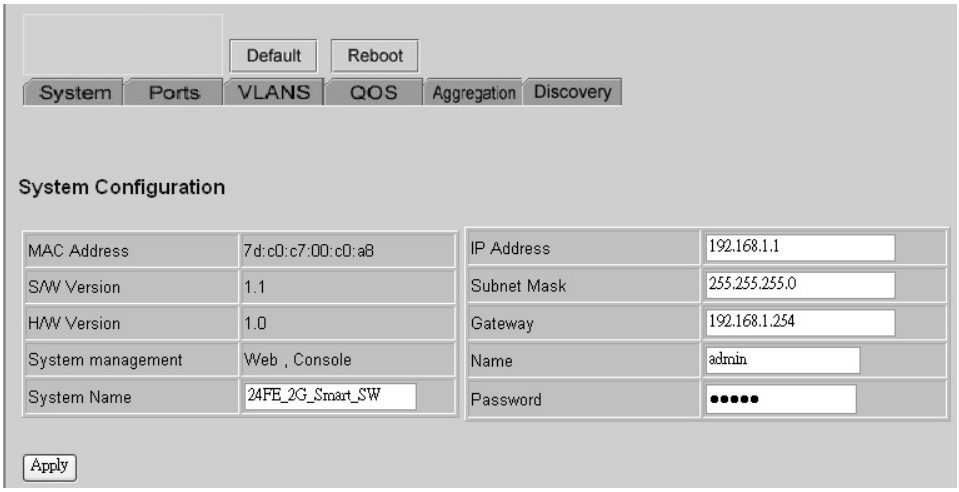

3. After authentication procedure, the home page shows up.

## 3.2 Home Page

On the Home page, you can select the configuration by clicking the menu tabs located on the upside of the UI.

It includes,

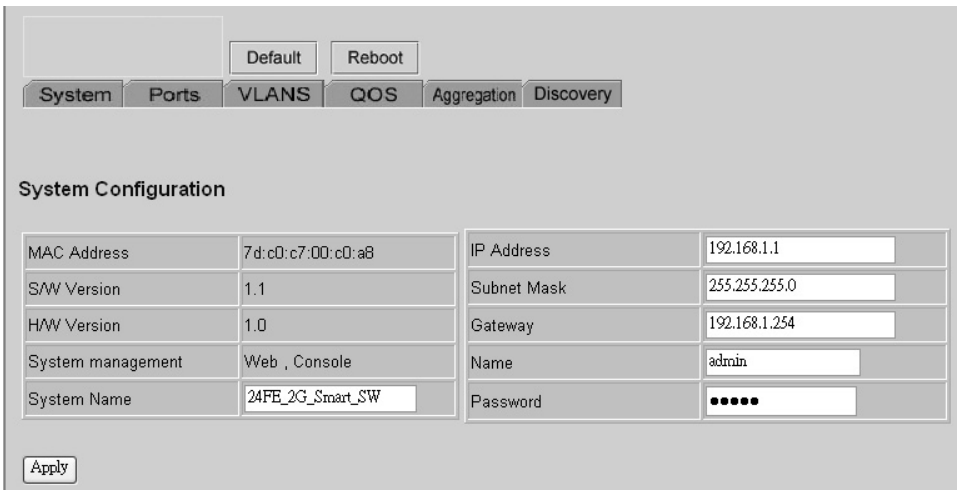
- System
- Ports
- VLANS
- QoS
- Aggregation
- Discovery




To restore the **default** Values of switch, Click the "**Default**" Button. If you want to **reboot** the switch, click the "**Reboot**" Button.

## 3.2.1 System

To set up the system configurations such as login value, system name and IP address.

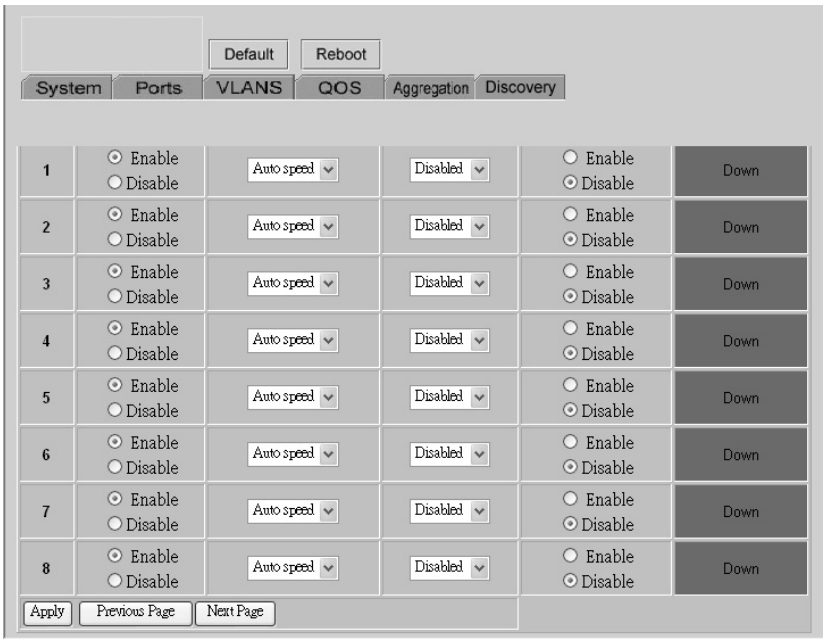



| Items | Functions |
|---|---|
| Mac Address: | The Mac Address of the switch |
| S/W Version: | To check up the Software Version, see this. |
| H/W Version: | The Hardware version |
| System name: | Name of the Switch |
| IP Address: | Set up the IP of Switch |
| Subnet Mask: | Set up the Subnet mask of Switch |
| Gateway: | Set up the Gateway of Switch |
| Name: | The Login name (default admin) |
| Password: | The Login password (default admin) |

To save the configuration of the system, click "**apply**" to save

## 3.2.2 Ports

On the page, you can view the Port status, set up the Speed mode and enable the FDX flow control.




| Items | Functions |
|---|---|
| Admin | Enable or Disable the Admin function |
| Bandwidth | To control the bandwidth, you can select the speed limitation you need in the drop list. (Disable/128K/256K/512K/1M/2M/4M/8Mbps) |
| Operate mode | Choose the Speed mode of port 10/100, Half/Full. If you set to auto speed, it will be auto-negotiation. (Auto Speed, 10M half, 10M full, 100M half, 100M full) |
| Flow Control | Enable or Disable the Flow control |
| Link/Status | To show the status of each port. When it's green, it means the connection is down. Otherwise, it's red. |

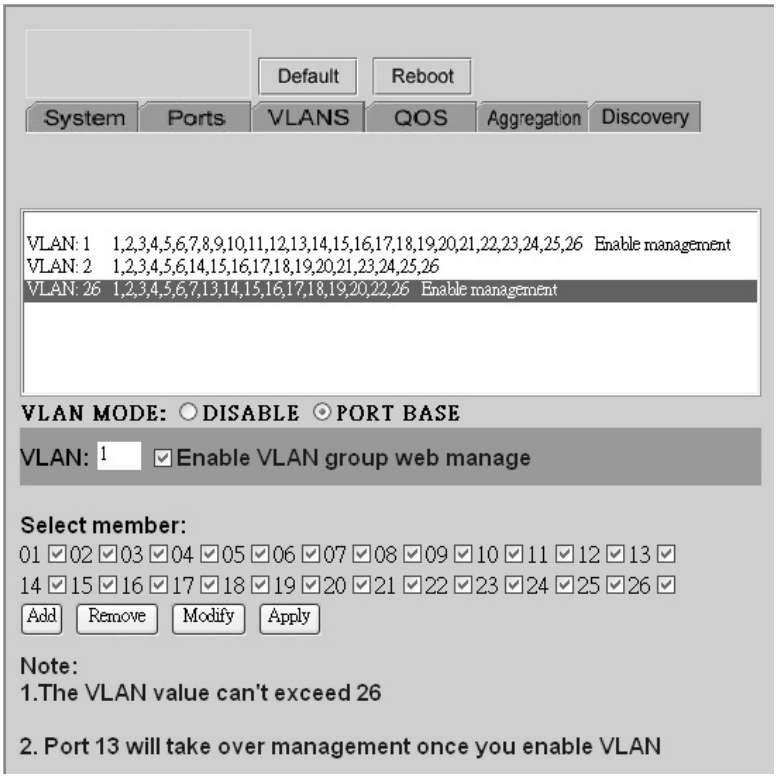
To save the configuration of the system, click "apply" to save. To see the latest status of port, click refresh button.

## 3.2.3 VLANS

VLANS Configuration is for dividing the LAN into subnet groups for better network management. (26 VLAN groups total)
Mode:
1. Disable: Turn off the VLAN function by selecting the mode.
2. Port BASE: Group the port you select by entering the group number (Ex.1) in VLAN textbox and selecting the port numbers (Ex.1, 2,3,4) you want.

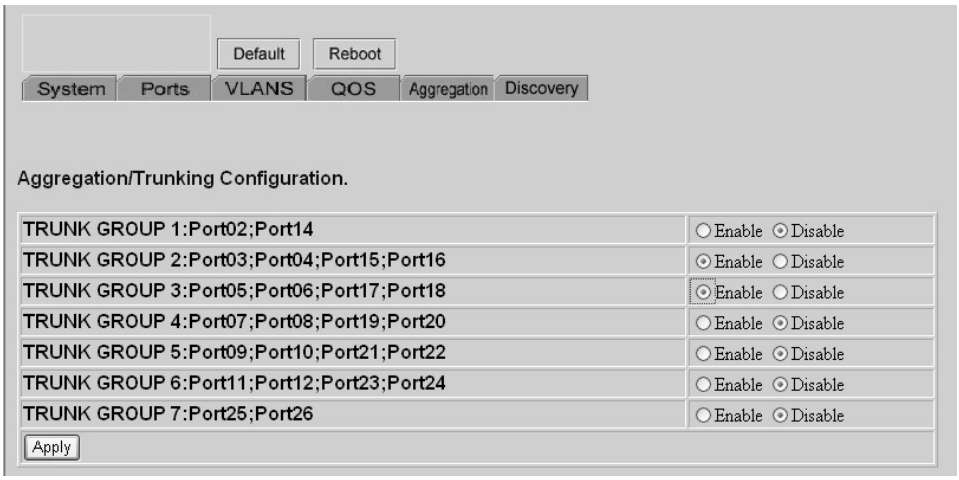
Buttons
Add: Add the entry into the VLAN Table
Remove: Remove the Entry you select
Modify: Modify the Entry you select
Apply: Apply the Mode you select

Provides web manage security function, click enable VLAN group web manage to support web manage function for VLAN group



## 3.2.4 Aggregation/Trunking Configuration

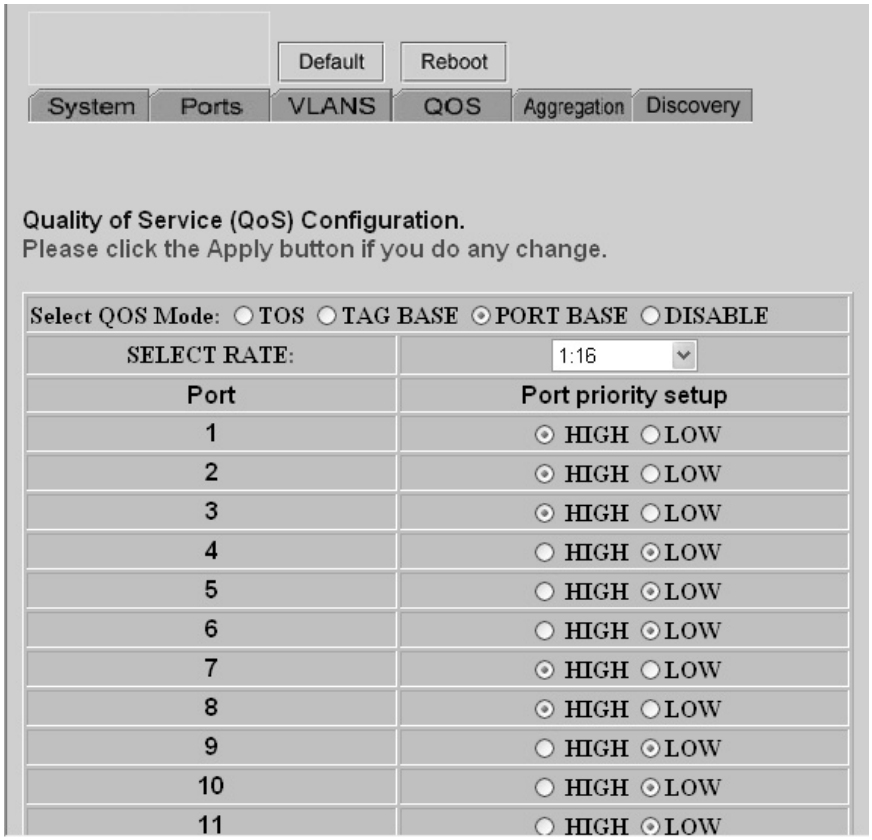
To set up the Port trunk groups, select “Enable” of the group you need. Don’t forget to click the “Apply” to save the setting.
Supports 7 trunk groups for network application.



### 3.2.5 Qos

There are three modes of Quality of Service to choose, TOS, Tag Base, and Port base. To Disable the QOS, click Disable and Click apply to save.
To use the **TOS**, select TOS and click **Apply** to save.
To enable the **Tag Base**, select Tag base and click **Apply** to save.
When you enable **Port Base**, packets from the port you select will have higher priority.
To enable the Port base,

1. Select the port-base
2. Select the port-base ratio (1:4; 1:8; 1:16; Always High) The higher a ratio is, the higher priority the port will get.
3. Select the ports in the table (High means high Priority, and Low means Low priority). The priority depends on the Port Base rate.
4. Click apply to save



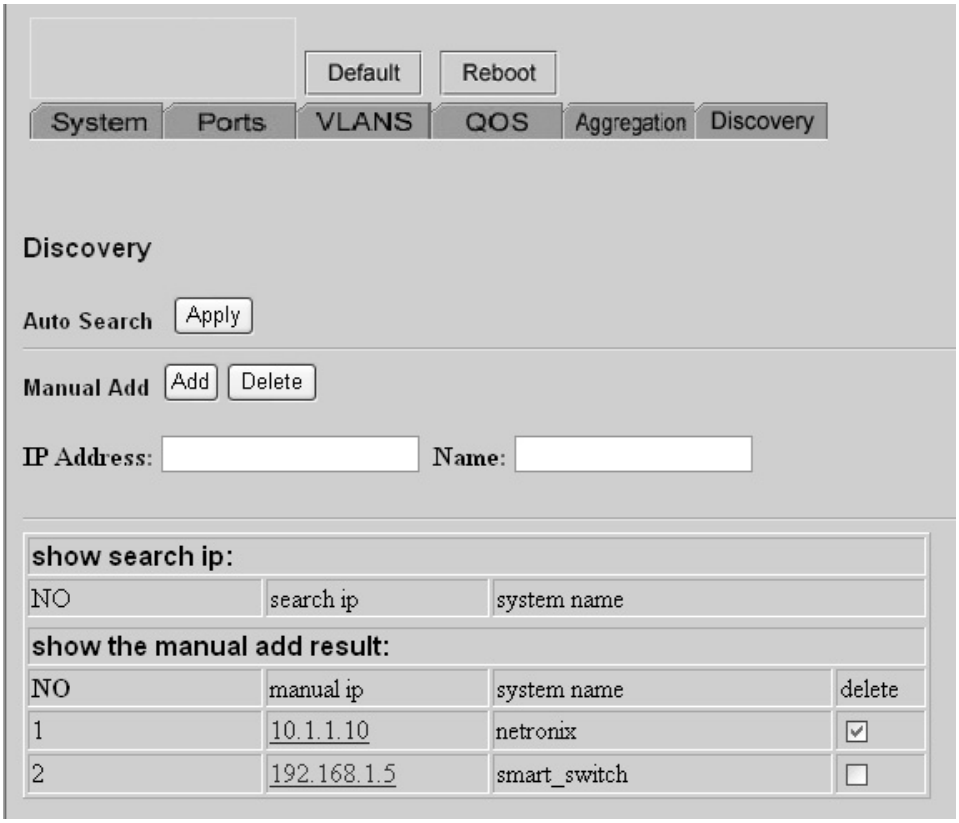
### 3.2.6 Discovery

When you install several 24+2G Gigabit Ethernet web-smart switches, the discovery management tool helps you to search and access those switches on the LAN easily. Therefore you can access any switch on your LAN without memorizing those IP addresses. You can only find switches with the IP Address compatible with the one you access.

**Note. The Maximum number of Address list is 16.**

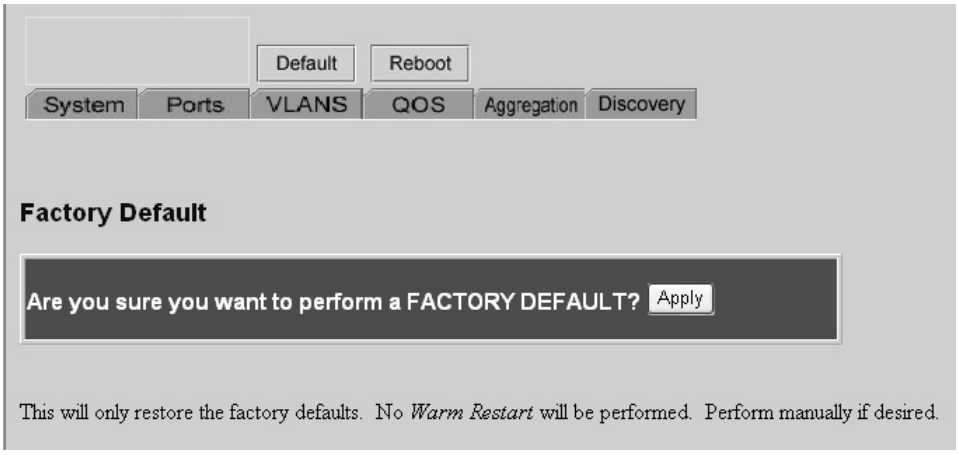
**Auto Search**

1. Click the “Auto search” button to find the switches.
2. The IP address & name of Switch list will appear.
3. Click the one you want to access.



### 3.2.7 Default

To restore to default values,
1. Click the default button on the Howe page
2. Click “Yes” to enact. Don’t power off the switch while it’s work.




### 3.2.8 Reboot

To reboot the switch,
1. Click the Reboot button on the Howe page
2. Click “Yes” to enact. Don’t power off the switch while it’s work.

# 4. Product Specifications

| | |
|---|---|
| **Standard** | IEEE802.3 10BASE-T<br>IEEE802.3u 100BASE-TX<br>IEEE802.3x full-duplex operation and flow control<br>IEEE802.1p Traffic prioritization |
| **Interface** | 24 * 10/100Mbps auto MDI/MDI-X RJ-45 switching ports<br>2*10/100/1000Mbps auto MDI/MDI-X RJ-45 switching ports<br>1 * RS-232 Console port |
| **Cable Connections** | RJ-45 (10BASE-T): Category 3,4,5 UTP/STP<br>RJ-45 (100BASE-TX): Category 5 UTP/STP |
| **Network Data Rate** | 10/100/1000Mbps Auto-negotiation |
| **Transmission Mode** | 10/100/1000Mbps Full-duplex, Half-duplex |
| **LED indications** | System<br>Power<br>10/100M<br>Link/Act<br>10/100/1000M<br>1000M; 100M; 10M, ACT |
| **Memory** | 8K MAC entries<br>320K bytes Buffer Memory |
| **Emission** | FCC Class A<br>CE Mark Class A<br>VCCI-A |
| **Operating Temperature** | $0^0$ ~ $40^0$C ($32^0$ ~ $104^0$F) |
| **Operating Humidity** | 10% - 90% |
| **Power Supply** | Internal power 100-240V/ 50-60Hz |

61NB-64260-207