



## 24 Ports + 1 slot Managed Ethernet Switch

**WSW-2401**

**User's Manual**



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his 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.

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This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

## **Revision**

PLANET 24-port + 1-slot Managed Ethernet Switch User's Manual

FOR MODELS: WSW-2401

Part No.: EM-WSW2401

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# Chapter 1 Introduction

## 1.1 Checklist

Thank you for purchasing Planet's WSW-2401 Managed Ethernet Switches. Before continuing, please check the contents of your package for following parts:

- Ø WSW-2401 Managed Ethernet Switch
- Ø Power Cord
- Ø RS-232 cable
- Ø CD-ROM
- Ø Quick installation Guide
- Ø Rock-mounting blackest

**Note:** if any of these pieces are missing or damage please contact your dialer immediately.

## 1.2 About the Switch

Planet's WSW-2401 is a 24 port 10/100 mbps switch with 1 slot available for a 100FX module. The WSW-2401 is a high performance switch that provides users with high-speed network connections with a store-and-forward architecture that is able to eliminate faulty packets. The switch is managed through telnet, web and console. SNMP MIBII is also supported for maximum management functionality.

The WSW-2401 supports IEEE802.1X user authentication with RADIUS client functionality, preventing unauthorized clients from gaining access to the network. MAC address filtering and static MAC address are also provided for improved network security.

The capabilities of the WSW-2401 include auto learning and storage of up to 8K of MAC addresses, as well a non-blocking 8.8Gbps back plane for packet transmission. The switch also supports IEEE802.1Q VLAN up to 256 groups. IEEE802.1D Spanning Tree Protocol is used to maintain a loop-free network, and IGMP to limit the flow of IP multicast traffic. IEEE802.3ad Trunking with LACP function is supported to increase the bandwidth between switches. In addition, bandwidth control is provided on a per-port basis (100K per level).

### **1.3 Product Feature**

- Ø 24 ports 10/100TX and 1 slot for option 1 or 2 ports 100FX module
- Ø Telnet, console and web manageable
- Ø 8K MAC address, auto-ageing
- Ø Support IGMP
- Ø Provide 8.8Gbps switch fabric
- Ø IEEE802.d Spanning tree protocol
- Ø IEEE802.1Q Tag VLAN with GVRP
- Ø IEEE802.3ad Link aggregation with LACP
- Ø Provide 24 auto-sensing 10/100Mbps Ethernet RJ-45 ports
- Ø IEEE802.1x user authentication with RADIUS client function
- Ø IEEE802.1p Priority, IEEE802.3x Flow control and Back pressure
- Ø Port mirror support for dedicated port monitoring
- Ø Port security support
- Ø Store-and-forward architecture
- Ø Rate control function support (100k per level)
- Ø Auto-MDI/MDI-X on each 10base-T and 100Base-TX port

# Chapter 2 HARDWARE INSTALLATION

This section describes the hardware features and installation of 24 ports + 1 slot Managed Ethernet Switch. Before using WSW2401, read the user's manual carefully.

WSW2400 has four different modules for expansion:

- Ø WSW-1ST - 1port 100BaseFX Fast Ethernet Module (ST, MM, 2km)
- Ø WSW-1SC - 1port 100BaseFX Fast Ethernet Module (SC, MM, 2km)
- Ø WSW-2ST - 2 port 100BaseFX Fast Ethernet Module (SC, MM, 2km)
- Ø WSW-2SC - 2port 100BaseFX Fast Ethernet Module (ST, MM, 2km)

## 2.1 Front Panel

The front panel of the WSW-2401 Managed Ethernet Switch consist LED indicators, console port, 24 10/100BaseTX RJ45 ports and one expansion slot.

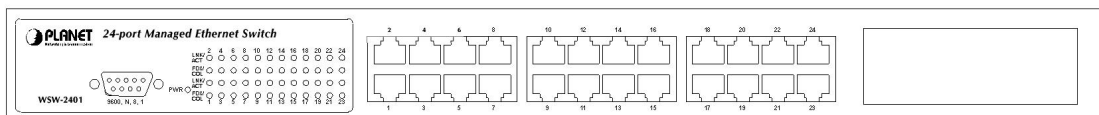


Figure 2-1 The Front Panel of WSW-2401

### LED Indicators

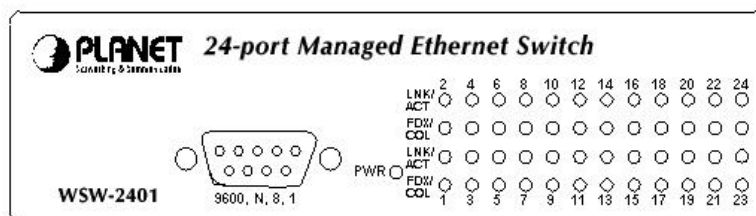


Figure 2-2 LED Indicators

LED	Status	Description
Power	Green	Power On
	Off	Power is not connected
LNK/ACT	Green	The port is connecting with the device.
	Blinks	The port is receiving or transmitting data.



	Off	No device attached.
<b>FDX/COL</b>	Orange	The port is operating in Full-duplex mode.
	Blinks	Collision of Packets occurs in the port.
	Off	The operating in half-duplex mode

**10/100Mbps Ethernet ports**

There are 24 10/100Mbps R-J45 ports with 1 slot for 1 or 2-port 100Base-FX fiber module. The RJ-45 ports are auto sense for 10Base-T or 100Base-TX connection and supports MDI/MDIX automatically crossover capability, which means the user, is able to connect to another switch or workstation without change the crossover cable.

Media	Speed	Wiring	Maximum Distance
10/100Mbps RJ-45 ports	10Mbps	Category 3,4,5 UTP/STP	100m
	100Mbps	Category 5 UTP/STP	100m

**100Base-FX Module (Optional)**

The optional module is 1 or 2 port 100Base-FX fiber module

Media	Speed	Wiring	Maximum Distance
WSW-1SC, WSW-1ST WSW-2SC WSW-2ST	100Mbps	multi-mode fiber optic	2km

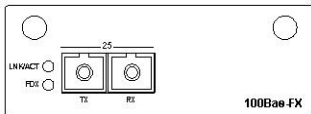


Figure 2-3 WSW-1S Module

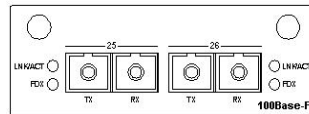


Figure2-4 WSW-2S Module

**Console ports**

The RS-232 console port is an interface that directly connects to the PC. When the connection between the PC and switch is ready, run the **Hyper Terminal** and configure its **communication parameters**. The operating mode of the console port is:

- Ø Baud rate: 9600
- Ø Data bits: 8
- Ø Parity: none
- Ø Stop bits: 1

Ø Flow control: none

After finished the setting, click **OK**.

## 2.2 Rear Panel

The Rear Panel of the switch is indicates an AC 3 pronged power socket and Ventilation fan.

This switch will work with AC in the range 100-240V AC, 50-60Hz.



Figure 2-5 Rear Panel of WSW-2401

### **Power Receptacle**

For the compatibility with electric service in most of areas, WSW-2401's power supply can automatically adjust line power in the range 100-240V AC, 50-60Hz.

### **Power On**

Connect the power cord to the power socket on the Rear Panel of the Switch. The other side of power cord connects to the power outlet.

## 2.3 Hardware installation

WSW-2401 can be placed on desktop or mounted on rock. If this switch is used as standalone standard, the user can immediately use most of the features simply by attaching the cables and turning the power on.

### **Desktop installation**

For desktop installation, make sure the desk is flat and clean. Plug all the network cables and the power cord then the system is ready.

**Note:** Do not obstruct any vents at the sides of the case and keep water off.

### **Rock-mount installation**

WSW-2401 can be mounted in a standard 19-inch rack. The following steps is teaching user how to Rack Mounting the Switch in the 19-inch rack:

1. Disconnect all cables from the switch.
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.

### ***Module installation***

The slot on the front panel is purposed for installing optional modules. Following steps is described how to install a module.

1. Power off the switch.
2. Removing the two screws on the faceplate of slot with a flat-head screwdriver.
3. Push the module gently into the slot along the slide tracks.
4. Ensuring that it firmly engages with the connector then tighten the screws to secure the module.

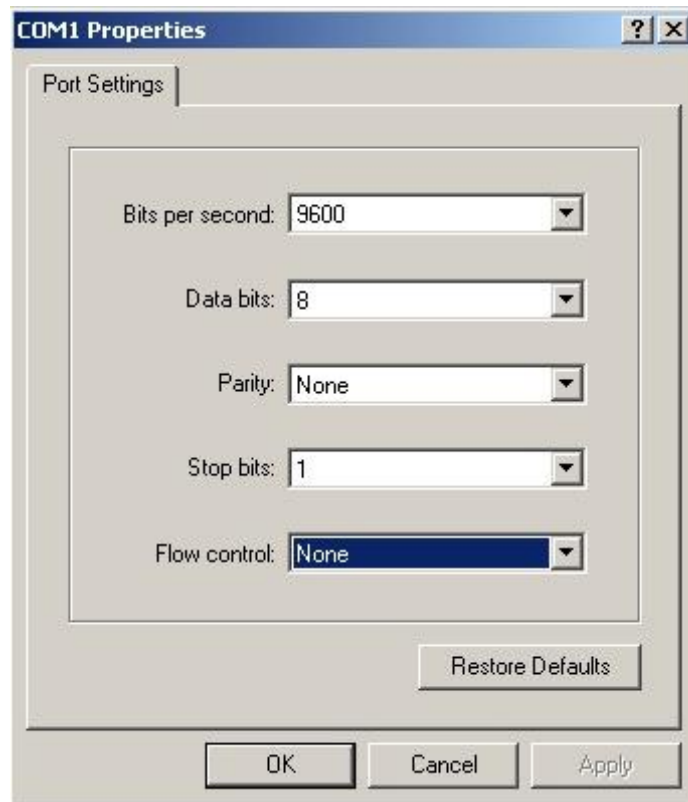
# Chapter 3 Console and Telnet Management

## 3.1 connect To PC by RS-232 cable

The RS-232 console port is an interface that directly connects to the PC. When the connection between the PC and switch is ready, run the **Hyper Terminal** and configure its **communication parameters**. The operating mode of the console port is:

- Ø Baud rate: 9600
- Ø Data bits: 8
- Ø Parity: none
- Ø Stop bits: 1
- Ø Flow control: none

After finished the setting, click **OK**.



## 3.2 Telnet

To access the switch through Telnet

1. Make sure switch is configure with an IP address and switch is reachable from PC.
2. Start telnet program from PC and connect to the switch. The management interface is exactly same with RS-232 console.

### 3.3 Main Menu

Control key describe:

**Tab/Backspace:** Move the vernier to configure item.

**Enter:** Select item.

**Space:** Toggle selected item to next configure or change the value.

**Esc:** to exit the current action

There are five selections as follow.

- Ø **Status and Counters:** Show the status of the switch.
- Ø **Switch Static Configuration:** Configure the switch.
- Ø **Protocol Related Configuration:** Configure the protocol function.
- Ø **System Reset Configuration:** Restart the system or reset switch to default configuration
- Ø **Logout:** Exit the menu line program.



### 3.4 Status and Counters

In Status and Counters, you can view Port status, Port counters, and System Information parameter.

```

PLANET WSW-2401 : Status and Counters
=====

Port Status
Port Counters
System Information
Main Menu

Display current status of all the switch ports.
[Tab/BKSPC] Move Item      [Enter] Select Item

```

### 3.4-1 Port Status

In this function, it displays the status of each port. Select the <Previous Page> or <Next Page> to display the previous page or next page.

```

PLANET WSW-2401 : Port Status
=====

Port  Type  Link  State Negotiation  Speed Duplex FC BP Band Width Security
-----
Port.01 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable ON
Port.02 100TX Up Enable Auto 100 Full OFF OFF OFF OFF OFF Disable OFF
Port.03 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable ON
Port.04 100TX Up Enable Auto 100 Full ON OFF OFF OFF OFF Disable OFF
Port.05 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable OFF
Port.06 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable OFF
Port.07 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable OFF
Port.08 100TX Down Enable Auto 100 Full ON OFF OFF OFF OFF Disable ON

Actions-> <Previous Page> <Next Page> <Quit>
          Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.4-2 Port Counters

In this function is display current port counter information. Select <Clear> to set all ports counter to 0. Select <Refresh> to get news information.

```

PLANET WSW-2401 : Port Counters
=====

Port  Type  Tx Good Tx Bad Rx Good Rx Bad Tx Abort Packet
      Type Packet Packet Packet Packet Packet Packet Collision
-----
Port.01 100TX 0 0 0 0 0 0
Port.02 100TX 72858 0 37427 0 0 0
Port.03 100TX 0 0 0 0 0 0
Port.04 100TX 52651 0 55679 0 0 0
Port.05 100TX 0 0 0 0 0 0
Port.06 100TX 0 0 0 0 0 0
Port.07 100TX 0 0 0 0 0 0
Port.08 100TX 0 0 0 0 0 0

Actions-> <Refresh> <Clear> <Previous Page> <Next Page> <Quit>
          Configure the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.4-3 System Information

The information displays in this function are system name, system location, System Description, Firmware Version, Kernel Version, Hardware Version, Mac Address and

## Module.

```
PLANET WSW-2401 : System Information
=====
System Name      :
System Location  :
System Description : PLANET WSW-2401 24 ports + 1 slot Managed Ethernet Switch
Firmware Version : v1.01
Kernel Version   : v2.05
Hardware Version : A7.00
MAC Address      : 00001C0504BF
-----
Module  Type  Description
-----
Port 25 100FX 100BASE-FX Single Mode
Port 26 100FX 100BASE-FX Single Mode
-----
Actions-> <Quit>
          Display the switch system information.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.5 Switch Configuration

There are 9 main functions in Switch configuration, which is **Administration configuration**, **Port configuration**, **Trunk Configuration**, **Port Mirroring Configuration**, **VLAN Configuration**, **Priority Configuration**, **MAC Address Configuration**, **Misc Configuration** and **Main Menu**. There are more sub-functions under the main functions.

```
PLANET WSW-2401 : Switch Configuration
=====
Administration Configuration
Port Configuration
Trunk Configuration
Port Mirroring Configuration
VLAN Configuration
Priority Configuration
MAC Address Configuration
Misc Configuration
Main Menu
-----
Configure the system, IP, and password.
[Tab/BKSPC] Move Item      [Enter] Select Item
```

#### 3.5-1 Administration Configuration

In Administration Configuration, you can configuration system parameter, IP address, login name and password

```
PLANET WSW-2401 : Administration Configuration
=====
Device Information
IP Configuration
User Name Configuration
Password Configuration
Previous Menu
-----
Configure the device information.
[Tab/BKSPC] Move Item      [Enter] Select Item
```

### 3.5-1-1 Device Information

You can configure the device information

- Ø Select the **<Edit>** to modify the Name, Description, Location and Contact
- Ø After setup complete press **ESC** goes back to action menu
- Ø After configuration press **<Save>** to save configuration

```
PLANET WSW-2401 : Device Information
=====
Name      :
Description : PLANET WSW-2401 24 ports + 1 slot Managed Ethernet Switch
Location  :
Contact   :

Actions-> [Edit] <Save> <Quit>
          Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.5-1-2 IP Configuration

Press the **<Edit>** to modify the DHCP, IP Address, Subnet mask and Gateway

- Ø After setup complete press **ESC** goes back to action menu
- Ø Press **<Save>** to save the configuration

```
PLANET WSW-2401 : IP Configuration
=====
DHCP Client : Disable
IP Address  : 192.168.99.62
Subnet Mask : 255.255.255.0
Gateway     : 192.168.99.254

Actions-> [Edit] <Save> <Quit>
          Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.5-1-3 User Name Configuration

Presses **<Edit>** to input the new User name and choose the **<Save>** to save the current configure.



PLANET WSJ-2401 : User Name Configuration

User Name : admin

Actions-> **[Edit]** <Save> <Quit>  
Select the action menu.  
[TAB/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

### 3.5-1-4 Password Configuration

Allow user to modify the password

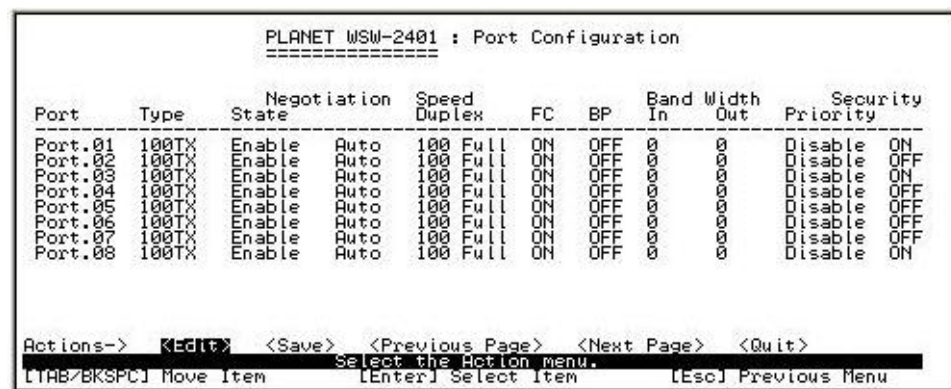
- Ø Select the <Edit>
- Ø **Old password:** enter the old password
- Ø **New password:** enter the new password
- Ø **Enter again:** re-enter the new password again
- Ø Press<Save>to save the configuration



### 3.5-2 Port configuration

In this function, user can setup every port status.

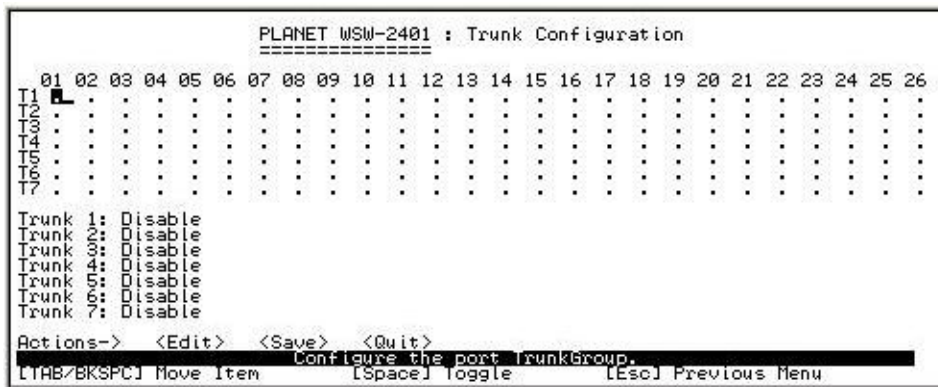
- Ø Select <Edit>
- Ø Use **TAB /Backspace** key to move between items
- Ø **State:** The port can be set enable or disable mode. If the port status is in disable then this port will not receive or transmit any packet.
- Ø **Negotiation:** set the negotiation status of port. The port can be set auto or force mode.
- Ø **Speed/Duplex:** set the port link speed and duplex mode
- Ø **FC:** enable or disable flow control function (flow control for full duplex mode)
- Ø **BP:** enable or disable back pressure function (back pressure for half duplex mode)
- Ø **Bandwidth In/Out:** per port packet transmission rate control. Per level is 100Kbps.
- Ø **Priority:** set port to high or low priority
- Ø **Security:** enable or disable security function



### 3.5-3 Trunk Configuration

You can configure port trunk group

- Ø Select <Edit>
- Ø Use **TAB** key move to the port that you want to add as trunk group
- Ø Use **Space** key to mark the port
- Ø Use **TAB** key move to trunk# (eg trunk 1, trunk 2...etc) to change the trunk# value to **Static** or **LACP**
- Ø Press<**Save**> to save the configuration



### 3.5-4 Port Mirroring Configuration

You can configure Port mirroring function

- Ø Select<Edit>
- Ø **Mirroring State:** The default value is “disable”. To enable port mirroring you must select one of port mirror:
  - I **RX:** RX packet only
  - I **TX:** TX packet only
  - I **Both:** RX and TX packet
- Ø **Analysis Port:** All of the packets of mirroring port will be duplicated and sent to Analysis port
- Ø **Port State:** select the ports that want to mirrored
- Ø Use **Space** key to mark the port that want to mirrored
- Ø Press<**Save**> to save the configuration

```

PLANET WSW-2401 : Port Mirroring
=====
Mirroring State : Both
Analysis Port : Port.01

Port State      Port State      Port State      Port State
-----
Port.01 -      Port.09 -      Port.17 -      Port.25 -
Port.02 -      Port.10 -      Port.18 -      Port.26 -
Port.03 -      Port.11 -      Port.19 -
Port.04 -      Port.12 -      Port.20 -
Port.05 -      Port.13 -      Port.21 -
Port.06 -      Port.14 -      Port.22 -
Port.07 -      Port.15 -      Port.23 -
Port.08 -      Port.16 -      Port.24 -

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Space] toggle      [Esc] Previous Menu

```

### 3.5-5 VLAN Configuration

There are five sub-menus in VLAN Configuration, which is **VLAN Configuration, Create a VLAN Group, Edit/Delete VLAN Group ,Group Sorted Mode and Previous Menu**

```

PLANET WSW-2401 : Port Mirroring
=====
Mirroring State : Both
Analysis Port : Port.01

Port State      Port State      Port State      Port State
-----
Port.01 -      Port.09 -      Port.17 -      Port.25 -
Port.02 -      Port.10 -      Port.18 -      Port.26 -
Port.03 -      Port.11 -      Port.19 -
Port.04 -      Port.12 -      Port.20 -
Port.05 -      Port.13 -      Port.21 -
Port.06 -      Port.14 -      Port.22 -
Port.07 -      Port.15 -      Port.23 -
Port.08 -      Port.16 -      Port.24 -

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Space] toggle      [Esc] Previous Menu

```

#### 3.5-5-1 VLAN configure

You must enable VLAN mode in VLAN configure function before you start to configure VLAN.

- Ø Select <Edit>
- Ø Select the VLAN mode through the **Space** key
- Ø Press **Space** key to choice 802.1Q mode

```

PLANET WSW-2401 : VLAN Configure
=====
VLAN Mode : 802.1Q

Port      VLAN ID      Ingress Filter      Acceptable Frame Type
-----
Port.01  1            Enable              All
Port.02  1            Enable              All
Port.03  1            Enable              All
Port.04  1            Enable              All
Port.05  1            Enable              All
Port.06  1            Enable              All
Port.07  1            Enable              All
Port.08  1            Enable              All

Actions->  <Edit>  <Save>  <Previous Page>  <Next Page>  <Quit>
Select the Action menu.
[Tab/BKSPC] Move Item      [Space] toggle      [Esc] Previous Menu

```

- Ø Press **Space** key to choice **Port Based** mode

```

PLANET WSW-2401 : VLAN Configure
=====
VLAN Mode : Port Based

Actions-> <Edit> <Save> <Previous Page> <Next Page> <Quit>
Select the Action menu.
[Tab/BKSPC] Move Item [Space] Toggle [Esc] Previous Menu

```

### 3.5-5-2 Create VLAN Group

#### Create VLAN

- Ø Select <Edit>
- Ø Type a name for new VLAN
- Ø Use **TAB** key move to **VLAN ID** and give a new ID number
- Ø Choice different VLAN protocol through the **Space** key
- Ø Set Tagged, Untagged or no of each port
- Ø Press **ESC** and choice <Save> to save configuration

```

PLANET WSW-2401 : Create VLAN Group
=====
VLAN Name :          VLAN ID : 1
Protocol VLAN : None
Port      Member
-----
Port.01   No
Port.02   No
Port.03   No
Port.04   No
Port.05   No
Port.06   No
Port.07   No
Port.08   No

Actions-> <Edit> <Save> <Previous Page> <Next Page> <Quit>
Select the Action menu.
[Tab/BKSPC] Move Item [Space] Toggle [Esc] Previous Menu

```

### 3.5-5-3 Edit/Delete VLAN Group

In this function allow you to edit or delete VLAN Group

- Ø Select <Edit> or <Delete> action
- Ø Select the VLAN Group that you want to edit or delete, then press enter
- Ø Select<Edit> user can modify the member port
- Ø After edit or delete press <Save> to save to configuration

**Note:** In Post Based VLAN Mode, there is no default VLAN

In 802.1Q VLAN Mode, default VLAN can't be deleting

```

Name ----- VLAN ID      Name ----- VLAN ID
vlan2 ----- 2

```

---

```

Actions->  <Edit>  <Delete>  <Previous Page>  <Next Page>  <Quit>
Edit/Delete a VLAN Group.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.5-5-4 Group Stored Mode

You can select VLAN Groups sorted mode: 1) **Name** 2) **VLAN ID**

- Ø Select **<Edit>**
- Ø Use **Space** key to select the sorted mode
- Ø Press **<Save>** to save to configuration

```

PLANET WSW-2401 : Group Sorted Mode
=====

VLAN Group Sorted by : VLAN ID

```

---

```

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.5-5-5 Previous Menu

Return to previous menu

### 3.5-6 Priority Configuration

In this function you can configure priority level to each port.

- Ø Select **<Edit>**
- Ø Use **Space** key to select the priority level
- Ø Use **TAB** key move to **Qos mode** then Select the ratio of priority
- Ø Press **ESC** goes back action menu line
- Ø Press **<Save>** to save the configuration

```

PLANET WSW-2401 : Priority Configuration
=====
Level 0 : Low
Level 1 : Low
Level 2 : Low
Level 3 : Low
Level 4 : High
Level 5 : High
Level 6 : High
Level 7 : High
QoS Mode : All High Before Low

Actions-> <Edit> <Save> <Quit>
Select the action menu.
[Tab/BKSPC] Move Item [Space] toggle [Esc] Previous Menu

```

### 3.5-7 MAC Address Configuration

There are three sub-menus in MAC Address Configuration, which is **Static MAC Address**, **Filtering MAC Address** and **Previous Menu**

```

PLANET WSW-2401 : MAC Address Configuration
=====
Static MAC Address
Filtering MAC Address
Previous Menu

Configure the MAC address.
[Tab/BKSPC] Move Item [Enter] Select Item

```

#### 3.5-7-1 Static MAC Address

- Ø Select <Add> to add a Static MAC Address
- Ø After setup complete press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

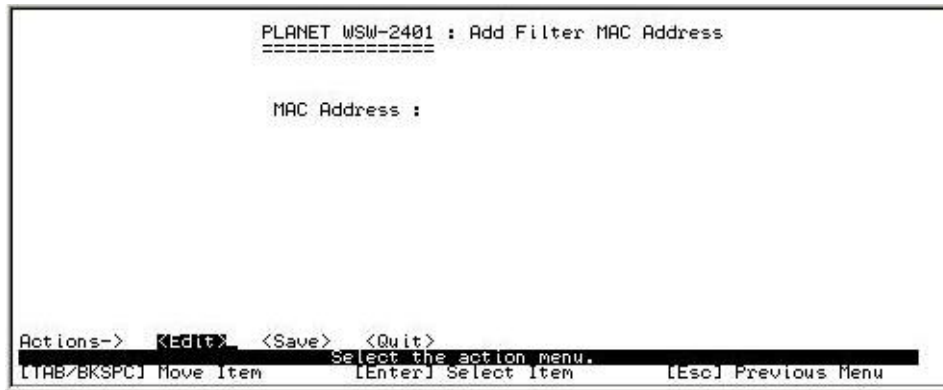
PLANET WSW-2401 : Add Static MAC Address
=====
MAC Address :
Port No.   :

Actions-> <Edit> <Save> <Quit>
Select the action menu.
[Tab/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

```

#### 3.5-7-2 Filtering MAC Address

- Ø Select <Add> to add a Filtering MAC Address
- Ø After setup complete press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration



### 3.5-7-3 Previous Menu

Return to previous menu

### 3.5-8 Misc Configuration

You can configure the switch parameter

- Ø **MAC Address Ageing Time:** MAC address table refresh time setting. The valid range is 0, 300~765 seconds. Default is 300 seconds
- Ø **Broadcast Storm Filter mode:** configure the broadcast storm filter mode. Use **Space** key to select the values. The valid threshold values are 5%, 10%, 15%, 20%, 25%, and N/A.
- Ø **Max Bridge Transmit Delay Bound:** Limit the packets queuing time in switch. Press **Space** key to set the time. This valid value are 1sec, 2sec, 4sec and off. Default is off
- Ø **Low Queue Delay Bound:** Limit the low priority packets queuing time in switch. Press **Space** key to enable or disable this function
- Ø **Low Queue Max Delay Time:** To set the time that low priority packets queuing in switch. The valid range is 1~255 ms.
- Ø **Collisions Retry Forever:** Disable In half duplex, if happen collision will retry 48 times and then drop frame. Enable – In half duplex, if happen collision will retry forever. Press **Space** key to enable or disable this function
- Ø **Hash Algorithm:** This Hash Algorithm is for hardware maintain on MAC table calculation. Provide CRC or Direct Map
- Ø **IFG compensation:** Press **Space** key to enable or disable



```

PLANET WSW-2401 : Misc Configuration
=====

MAC Address Ageing Time (0, 300..765) : 300
Broadcast Storm Filter Mode           : 5%
Max Bridge Transmit Delay Bound       : OFF
Low Queue Delay Bound                 : Disable
Low Queue Max Delay Time (1..255)    : 255
Collisions Retry Forever               : Enable
Hash Algorithm                        : CRC Hash
IFG Compensation                      : Enable

Actions->  [Edit]  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.5-9 Main Menu

Return to main menu

## 3.6 Protocol Related Configuration

There are six main functions in Protocol Related Configuration, which is **STP**, **SNMP**, **LACP**, **IGMP/GVRP**, **802.1X Configuration** and **Previous Menu**

```

PLANET WSW-2401 : Protocol Related Configuration
=====

STP Configuration
SNMP Configuration
LACP Configuration
IGMP/GVRP Configuration
802.1x Configuration
Previous Menu

Configure the Spanning Tree Protocol.
[Tab/BKSPC] Move Item      [Enter] Select Item

```

### 3.6-1 STP Configuration

This sub-menu contains four items, which is **STP Setup**, **System Configuration**, **Per Port setting** and **Previous Menu**

```

PLANET WSW-2401 : STP Configuration
=====

STP Setup
System Configuration
Per Port Setting
Previous Menu

Enable or disable Spanning Tree Protocol function. Configure system information.
[Tab/BKSPC] Move Item      [Enter] Select Item

```

### 3.6-1-1 STP setup

Provide enable or disable STP function

- Ø Select<Edit>
- Ø Use <Space> key to choice option
- Ø After complete press<Save> to save the configuration

```
PLANET WSW-2401 : STP Setup
=====

STP : Enable

Actions->  [F5] Edit  <Save>  <Quit>
           Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.6-1-2 System Configuration

In this function allow modifying the STP system configuration

- Ø Select<Edit> to modify Spanning Tree Parameters
- Ø After modify complete Press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```
PLANET WSW-2401 : STP System Configuration
=====

Root Bridge Information          Configure Spanning Tree Parameters
-----
Priority           : 32768          Priority (0-65535)      : 32768
Mac Address       : 00001C0504BF    Max Age (6-40)         : 20
Root Path Cost   : 0                Hello Time (1-10)      : 2
Root Port        : Root             Forward Delay Time (4-30) : 15
Max Age           : 20
Hello Time        : 2
Forward Delay     : 15

Actions->  [F5] Edit  <Save>  <Quit>
           Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.6-1-3 Per Port Setting

In this function allow edit per port STP configuration.

- Ø Select<Edit> to modify the path cost and priority of each port
- Ø After modify complete press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : STP Per Port Setting
=====

```

Port	State	Path Cost	Priority
Port.01	Forwarding	65535	200
Port.02	Forwarding	1	200
Port.03	Forwarding	10	128
Port.04	Forwarding	10	128
Port.05	Forwarding	10	128
Port.06	Forwarding	10	128
Port.07	Forwarding	10	128
Port.08	Forwarding	10	128

```

Actions-> <Edit> <Save> <Previous Page> <Next Page> <Quit>
Select the Action Menu.
[Tab/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

```

### 3.6-1-4 Previous Menu

Return to previous menu

### 3.6-2 SNMP Configuration

This sub-menu contains four items, which is **System Options**, **Community Strings**, **Trap managers** and **Previous Menu**

```

PLANET WSW-2401 : SNMP Configuration
=====

```

- System Options
- Community Strings
- Trap Managers
- Previous Menu

```

Configure the system information.
[Tab/BKSPC] Move Item [Enter] Select Item

```

#### 3.6-2-1 System Options

In this function allow to input Name, Contact and Location

- Ø Select<Edit> to input name, system contact and location
- Ø After setup complete press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : SNMP System Options
=====

```

Name : WSW-2401  
Contact : someone  
Location : Planet

```

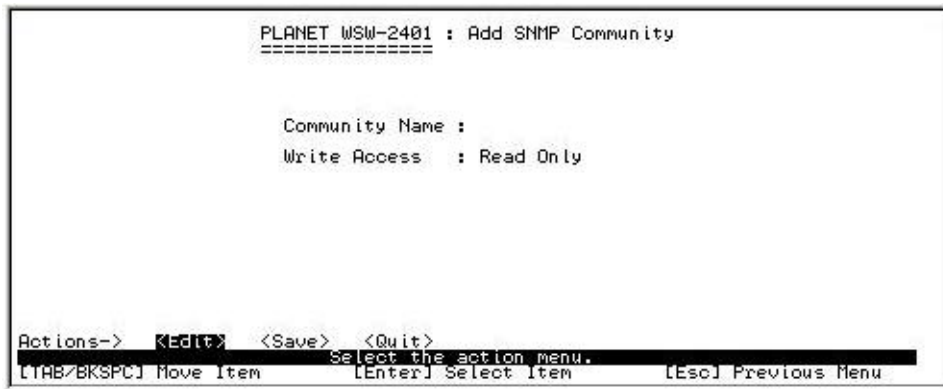
Actions-> <Edit> <Save> <Quit>
Select the action menu.
[Tab/BKSPC] Move Item [Enter] Select Item [Esc] Previous Menu

```

### 3.6-2-2 Community Strings

In this function allow add community name

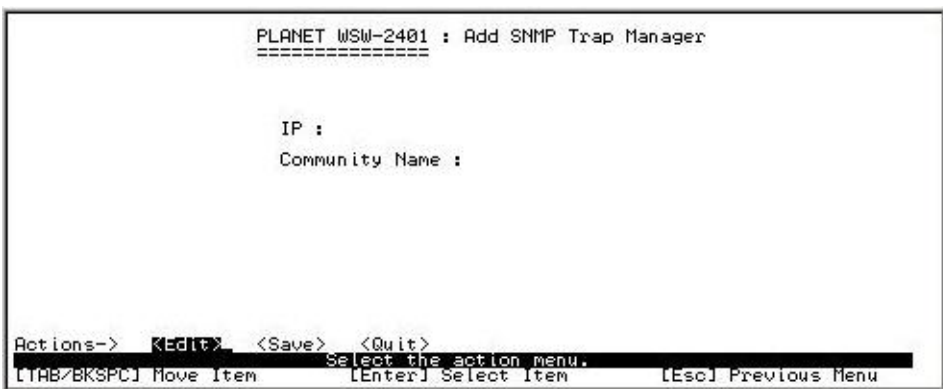
- Ø Select “Add” to enter into “Add SNMP community” screen, then press **Edit**
- Ø After input the community name use **TAB** key to move to the **Write access** mode
- Ø Use the **Space** key to change the access mode
- Ø After setup complete press **ESC** goes back to action menu
- Ø Press **<Save>** to save the configuration



### 3.6-2-3 Trap Managers

In this function allow adding trap managers

- Ø Select “Add” to enter into “Add SNMP Trap Managers” screen, then press **Edit**
- Ø After input the IP use **TAB** key to move to the **Community Name** and input the name
- Ø After setup complete press **ESC** goes back to action menu
- Ø Press **<Save>** to save the configuration



### 3.6-3 LACP Configuration

This sub-menu contains four items, which is **Working ports**, **State Activity**, **Group Status** and **Previous Menu**

```

PLANET WSW-2401 : LACP Configuration
=====

Working Ports
State Activity
Group Status
Previous Menu

Working ports setting.
[Enter] Select Item
[Tab/BKSPC] Move Item

```

### 3.6-3-1 Working Ports

In this function allow to set LACP port state activity of each port

- Ø Select<Edit>
- Ø Press **Space** key to enable or disable LACP support
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : LACP Working Ports
=====

Group      Work Ports
-----

Actions->  [Edit]  <Save>  <Quit>
Select the action menu.
[Enter] Select Item
[Tab/BKSPC] Move Item
[Esc] Previous Menu

```

### 3.6-3-2 State Activity

In this function allow to set LACP port state activity

- Ø Select<Edit>
- Ø Press **Space** key to choice **Active** or **Passive**
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : LACP State Activity
=====

Port      State Activity      Port      State Activity
-----

Actions->  [Edit]  <Save>  <Quit>
Select the action menu.
[Enter] Select Item
[Tab/BKSPC] Move Item
[Esc] Previous Menu

```

### 3.6-3-3 Group Status

Display the LACP groups status

```
PLANET WSW-2401 : LACP Group Status
=====

NO GROUP ACTIVE

Actions->  <Previous Page>  <Next Page>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.6-3-4 Previous Menu

Return to previous menu

### 3.6-4 IGMP/GVRP Configuration

In this function allow you to enable or disable IGMP/GVRP

- Ø Select<Edit>
- Ø Use **Space** key to change value
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```
PLANET WSW-2401 : IGMP/GVRP Configuration
=====

IGMP      : Disable
Query Mode : Auto
GVRP      : Disable

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu
```

### 3.6-5 802.1X Configuration

This sub-menu contains five items, which is **802.1X Setup**, **System Configuration**, **Per Port Setting**, **Misc Configuration** and **Previous Menu**. For how to setup the 802.1x environment, please refer to Append B 802.1X RADIUS Server setup for the details.



### 3.6-5-1 802.1x Setup

In this function allow you to enable IEEE802.1x

- Ø Select<Edit>
- Ø Use **Space** key to enable or disable 802.1x
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration



**Note:** Please be sure the RADIUS server is correctly configured before turn on this option!  
Refer to Appendix B for the details about how to setup a RADIUS.

### 3.6-5-2 System Configuration

In this function allow setup 802.1x System Configuration

- Ø Select<Edit> to input the RADIUS server IP, Share key, NAS, Identifier, server port and Accounting port
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : 802.1x System Configuration
=====

Radius Server IP : 192.168.99.65
Shared Key       : 12345
NAS, Identifier  : NAS_L2_SWITCH
Server Port      : 1812
Accounting Port  : 1813

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

**Note:** Please check with the network administrator about the parameter settings, or the switch client may failed in getting connected due to the incorrect parameters.

### 3.6-5-3 Per Port Setting

In this function allow you to change 802.1x authentication of each port

- Ø Select<Edit>
- Ø Use **Space** key change the state value.
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration

```

PLANET WSW-2401 : 802.1x Per Port Setting
=====

Port      State
-----
Port.01   Reject
Port.02   Accept
Port.03   Authorize
Port.04   Disable
Port.05   Disable
Port.06   Disable
Port.07   Disable
Port.08   Accept

Actions->  <Edit>  <Save>  <Previous Page>  <Next Page>  <Quit>
Select the Action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

The state value each port are with four options: Reject, Accept, Authorize and Disable.

**Reject:** To reject any 802.1x protocols

**Accept:** The specified port is required to be held in the Authorized state

**Authorize:** The specified port is set to the Authorized state in accordance with the outcome of an authentication exchange between the Supplicant and the authentication server.

**Disable:** Turn off 802.1x authentication

### 3.6-5-4 Misc Configuration

- Ø Select<Edit>
- Ø Use **TAB** key to move and input the values
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration



```

PLANET WSW-2401 : 802.1x Misc Configuration
=====

Quiet Period (0..65535, Default=60)      : 60
Tx Period (0..65535, Default=30)        : 30
Supplicant Timeout (1..300, Default=30)  : 30
Server Timeout (1..300, Default=30)     : 30
Reauthorize Maximum (1..10, Default=2)   : 2
Reauth Period (1..999999, Default=3600) : 3600

Actions->  <Edit>  <Save>  <Quit>
Select the action menu.
[Tab/BKSPC] Move Item      [Enter] Select Item      [Esc] Previous Menu

```

### 3.6-5-5 Previous Menu

Return to previous menu

## 3.7 System Reset Configuration

This sub-menu contains four items, which is **Factory Default**, **System Reboot**, **TFTP Configuration** and **Previous Menu**

```

PLANET WSW-2401 : System Reset Configuration
=====

Factory Default
System Reboot
TFTP Configuration
Previous Menu

Restore to factory default setting.
[Tab/BKSPC] Move Item      [Enter] Select Item

```

### 3.7-1 Factory Default

In this function allow you to reset the switch to the factory default mode

- Ø Press **Enter**
- Ø Press **Y**, switch will load default setting and reboot automatically

```

Do you want to restore factory default setting? (y/N)_

```

### 3.7-2 System Reboot

Provide restart switch



### 3.7-3 TFTP Configuration

This sub-menu contains four items **Update firmware**, **Restore configuration**, **backup configuration** and **Previous menu**



#### 3.7-3-1 Update Firmware

In this function allow you to use TFTP to update firmware

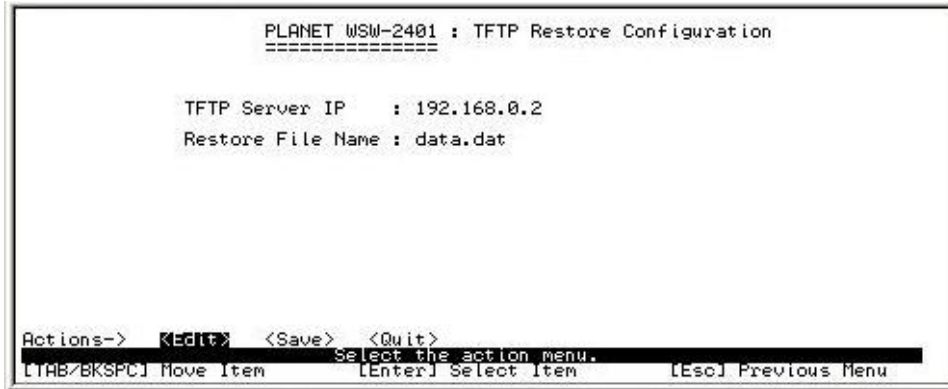
- Ø Select **<Edit>** to input the TFTP Server IP and Firmware file name
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press **<Save>** to save the configuration



### 3.7-3-2 Restore Configuration

In this function allow you to restore file from TFTP server

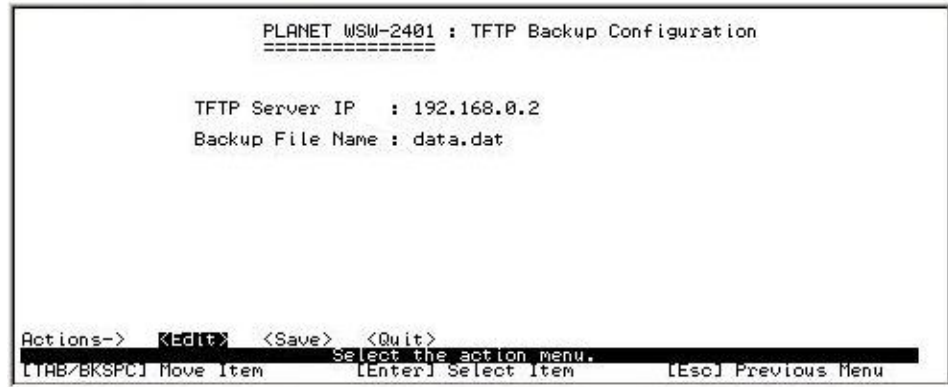
- Ø Select<Edit> to input the TFTP Server IP and Restore file name
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration



### 3.7-3-3 Backup Configuration

In this function allow you to Backup file to TFTP server

- Ø Select<Edit> to input the TFTP Server IP and Backup file name
- Ø After complete setup press **ESC** goes back to action menu
- Ø Press<Save> to save the configuration



### 3.7-3-4 Previous Menu

Return to Previous Menu

## 3.8 Logout

Provide logout the switch

# Chapter 4 WEB MANAGEMENT

WSW-2401 is support web management therefore in this section will introduce the configuration and functions of the web-based management.

Before to use web management, please setup the IP Address with the console port (RS-232) and use this IP address to configure WSW-2401 through the web interface or modify your PC's IP domain to the same with WSW-2401 then use the default IP address to remote configure WSW-2401 through the Web interface.

## 4.1 login into switch

- Ø Use Internet Explorer
- Ø Type in IP Address of the WSW-2401 switch then press enter
- Ø Key in user name and password. The default user name and password will be “admin”
- Ø The click ok



After user name and password is entered, you will see following screen



## 4.2 Port Status

This section is provide detail status of each port from WSW-2401

Port	Type	Link	State	Negotiation		Speed Duplex		Flow Control		Back Pressure		Band Width		Priority	Security
				Config	Actual	Config	Actual	Config	Actual	Config	Actual	In	Out		
Port.01	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	ON
Port.02	100TX	Up	Enable	Auto	Auto	100 Full	100 Full	ON	OFF	ON	OFF	OFF	OFF	Disable	OFF
Port.03	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	ON
Port.04	100TX	Up	Enable	Auto	Auto	100 Full	100 Full	ON	ON	ON	OFF	OFF	OFF	Disable	OFF
Port.05	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.06	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.07	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.08	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	ON
Port.09	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.10	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	ON
Port.11	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.12	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.13	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.14	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.15	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.16	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.17	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.18	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.19	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.20	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.21	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.22	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF
Port.23	100TX	Down	Enable	Auto	N/A	100 Full	N/A	ON	N/A	ON	N/A	OFF	OFF	Disable	OFF

- Ø **Link:** indicate the port status. UP means the device is connected to the port Down means the device is not connected to the port
- Ø **State:** display the status of each port.
- Ø **Negotiation:** display auto-negotiation or Force mode
- Ø **Speed Duplex:** display port connection speed
- Ø **Flow Control:** display flow control state of each port
- Ø **Back Pressure:** display back pressure status
- Ø **Bandwidth:** display the bandwidth of each port

- Ø **Priority:** display the priority status of each port
- Ø **Security:** display the port security is on or off
- Ø **Config:** display the current configuration of each port.
- Ø **Actual:** display the current state of each port on WGSD-1020.

### 4.3 Port Statistics

This function is provides the detail statistics of each port. Press the **Clear** button to clean all counts.

The screenshot shows the PLANET WSW-2401 web interface. At the top, there is a port status indicator showing 24 ports with green lights. Below this is a 'MENU' sidebar with options: Home, Port Status, Port Statistics (selected), Administrator, TFTP Update Firmware, Configuration Backup, Factory Default, and System Reboot. The main content area is titled 'Port Statistics' and contains a table with the following data:

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	Up	Enable	44084	0	38566	0	0	0
Port.03	100TX	Down	Enable	0	0	0	0	0	0
Port.04	100TX	Up	Enable	7479	0	9321	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
Port.07	100TX	Down	Enable	0	0	0	0	0	0
Port.08	100TX	Down	Enable	0	0	0	0	0	0
Port.09	100TX	Down	Enable	0	0	0	0	0	0
Port.10	100TX	Down	Enable	0	0	0	0	0	0
Port.11	100TX	Down	Enable	0	0	0	0	0	0
Port.12	100TX	Down	Enable	0	0	0	0	0	0
Port.13	100TX	Down	Enable	0	0	0	0	0	0
Port.14	100TX	Down	Enable	0	0	0	0	0	0
Port.15	100TX	Down	Enable	0	0	0	0	0	0
Port.16	100TX	Down	Enable	0	0	0	0	0	0
Port.17	100TX	Down	Enable	0	0	0	0	0	0
Port.18	100TX	Down	Enable	0	0	0	0	0	0
Port.19	100TX	Down	Enable	0	0	0	0	0	0
Port.20	100TX	Down	Enable	0	0	0	0	0	0
Port.21	100TX	Down	Enable	0	0	0	0	0	0
Port.22	100TX	Down	Enable	0	0	0	0	0	0
Port.23	100TX	Down	Enable	0	0	0	0	0	0
Port.24	100TX	Down	Enable	0	0	0	0	0	0

Below the table is a 'Clear' button.

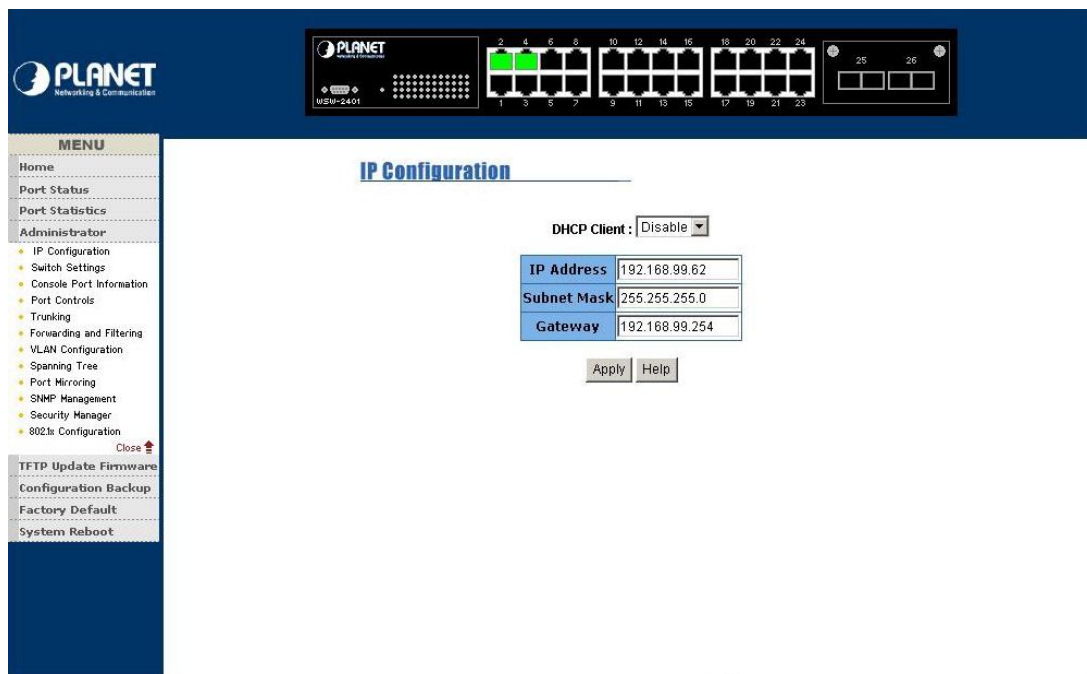
### 4.4 Administrator

This section contains management function on WSW-2401. The management function that includes in this section is **IP Configuration, Switch setting, Console Port Information, Port Controls, Trunking, Forwarding and Filtering, VLAN Configuration, Spanning Tree, Port Mirroring, SNMP Management, Security Manager, and 802.1x Configuration.**



#### 4.4-1 IP Configuration

This section allows modify the DHCP Client, IP Address, Subnet mask and Gateway.



After modify the DHCP client, IP Address, Subnet mask and Gateway, click **Apply**. Click **System reboot**. WSW-2401 will reboot to take effect for the new setting.

## 4.4-2 Switch Settings

This section is provide basic information and allows modify the switch setting

**Switch Settings**

Basic    Advanced    Misc Config

System Name	
System Location	
System Description	PLANET WSW-2401 24-ports + 1 slot Managed Ethernet Switch
Firmware Version	v1.01
Kernel Version	v2.05
Hardware Version	A7.00
MAC Address	00001C0504BF

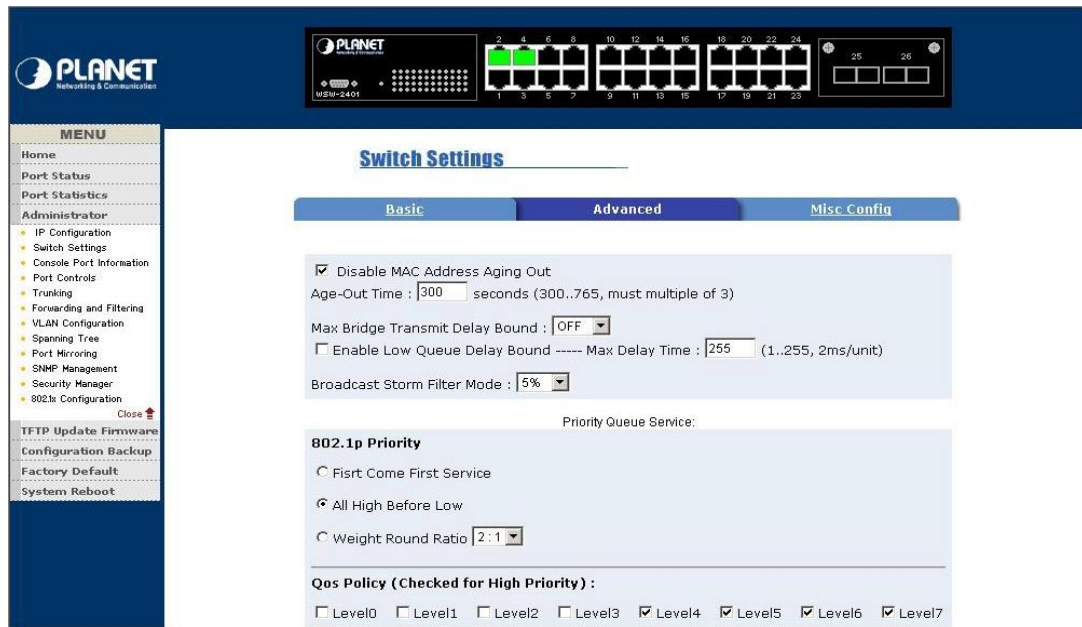
Module	Type	Description
Port 25	100FX	100BASE-FX Single Mode
Port 26	100FX	100BASE-FX Single Mode

### 4.4-2-1 Basic

- Ø **System Name:** the name of switch
- Ø **System Location:** the switch physical location.
- Ø **System Description:** the description of switch
- Ø **Firmware Version:** the switch current firmware version
- Ø **Kernel Version:** the switch current kernel software version
- Ø **Hardware version:** the switch current hardware version
- Ø **MAC Address:** display the switch MAC Address
- Ø **Module:** the module information



## 4.4-2-2 Advanced



There are two section includes in Advanced setting which is **Disable MAC Address Aging out** and **Priority Queue Service** After setup complete click **Apply** button.

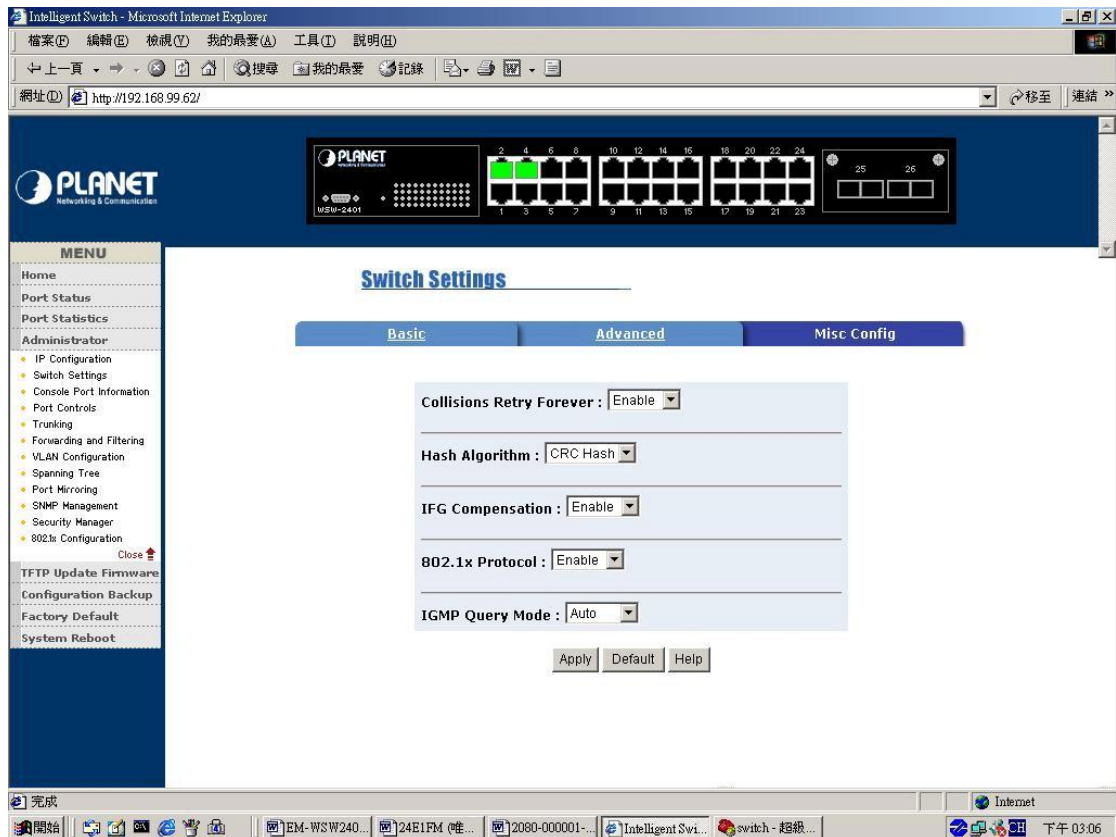
### Disable MAC Address Aging out

- Ø **Age-out Time:** the number of seconds that an inactive MAC address remains in the Switch's address table. The valid range is 300-765 seconds. The default value is 300 sec.
- Ø **Max Bridge Transmit Delay Bound:** limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. This valid value are 1sec, 2 sec, 4 sec and off
- Ø **Enable Low Queue Delay Bound:** limit the low priority packets queuing time in switch. If the low priority packet stays in switch exceed Max Delay Time, it will be sent. The valid range is 1~255 ms. before enable this function the Max Bridge Transmit Delay Bound must be enable.
- Ø **Broadcast Storm Filter Mode:** provide off, 5%, 10%, 15%, 20% and 25% for broadcast storm control.

### Priority Queue Service

- Ø **First come First Service:** the sequence of packets sent is depend on arrive order
- Ø **All high before low:** the high priority packets sent before the low priority packets
- Ø **Weight Round Ratio:** select the preference given to packets in the Switch's high-priority queue. These options represent the number of high priority packets sent before one low priority packet. For example: High weight: 5 and Low weight 2. It means WSW-2401 sends 5 high priority packets before sending 2 low priority packets.
- Ø **Qos Policy:** provide 0~7 priority level

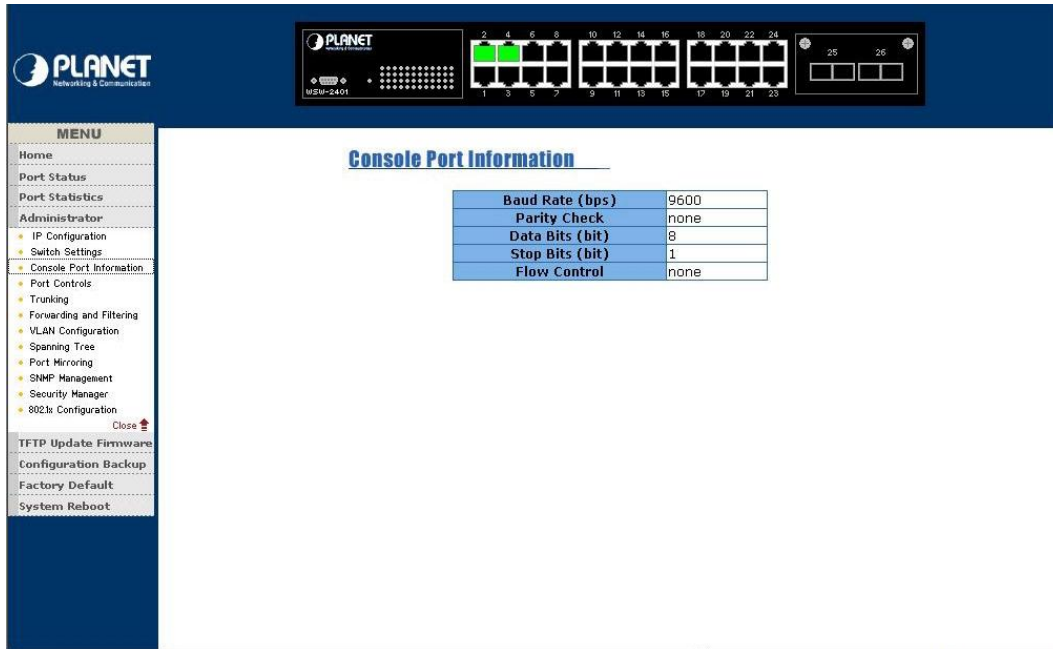
### 4.4-2-3 Misc Config



- Ø **Collisions Retry Forever:** disable is in half duplex. If happen collision will retry 48 times and then drop frame. Enable is in half duplex. If happen collision will retry forever
- Ø **Hash Algorithm:** CRC Hash or Direct Map for MAC address learning algorithm
- Ø **IFG Compensation:** Internal Packet Gap time compensation configure. Select to Enable or Disable
- Ø **802.1X Protocol:** enable or disable 802.1x protocol
- Ø **IGMP Query Mode:** provide auto, enable and disable mode
- Ø After setup complete press **Apply** button

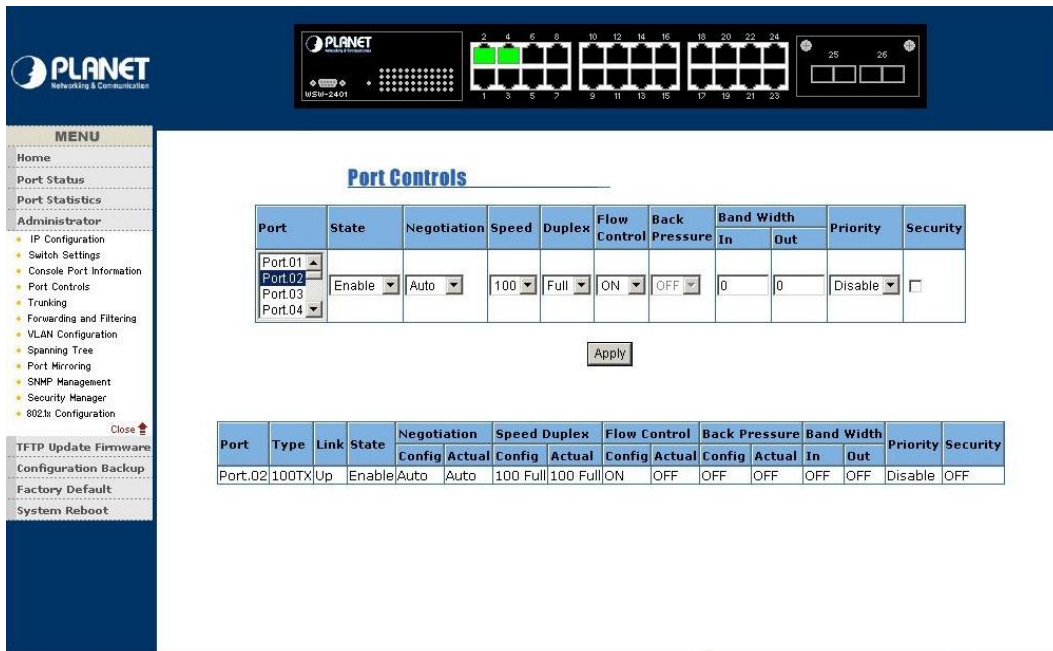
### 4.4-3 Console port Information

Display WSW-2401 console port information



#### 4.4-4 Port Controls

This section introduces detail status of each port on WSW-2401



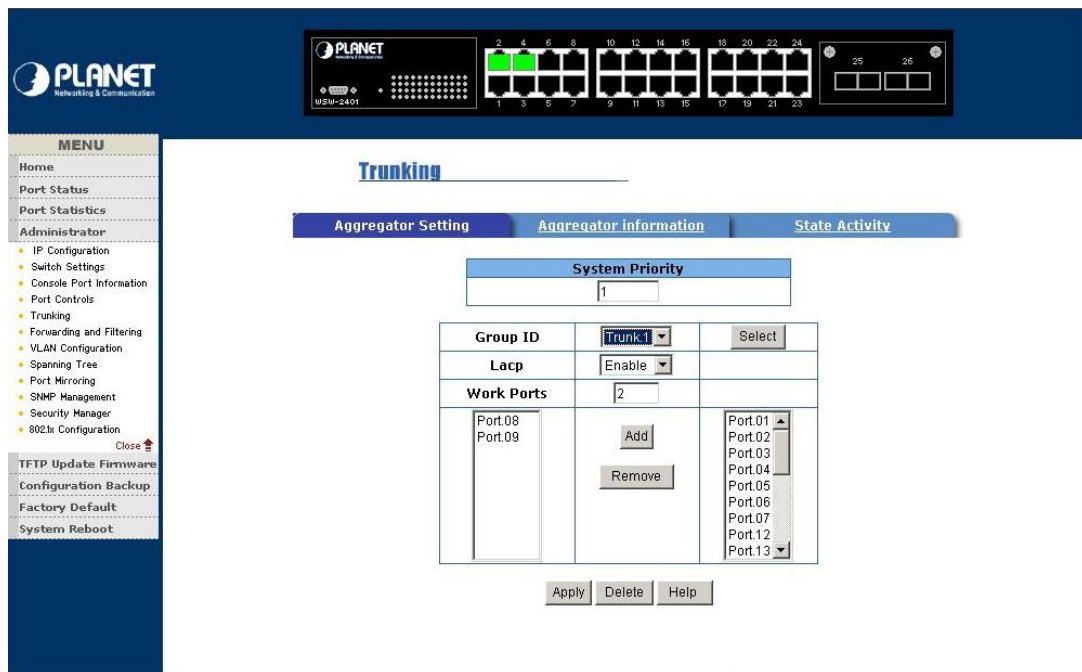
- Ø **State:** user can enable or disable any port
- Ø **Negotiation:** user can set auto or force mode.
- Ø **Speed:** set speed of each port
- Ø **Duplex:** allow to set full or half duplex mode
- Ø **Flow Control:** provide on or off flow control function for full duplex
- Ø **Back Pressure:** provide on or off flow control function for half duplex
- Ø **Bandwidth:** allow user to set up rate control. This function is provide 100K per unit for

each port

- Ø **Priority:** allow to set high, low and disable priority function
- Ø **Security:** allow user to enable security function. When this function is enabling, the port will locked without permission of address learning.
- Ø After setup complete, click **Apply** button

#### 4.4-5 Trunking

This section display the detail status of trunking

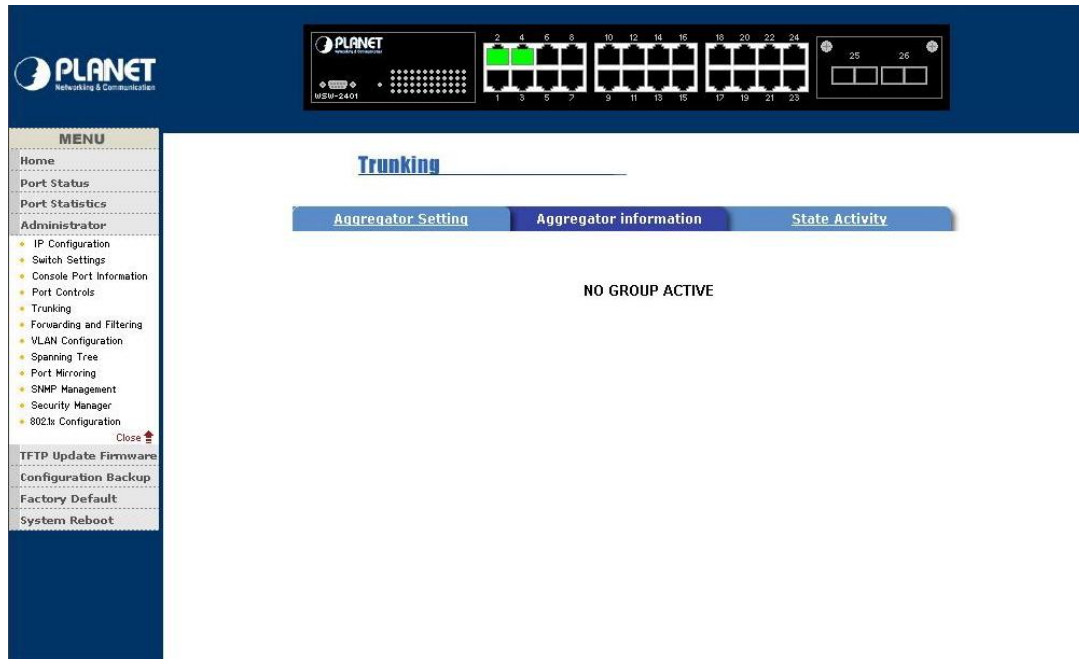


##### 4.4-5-1 Aggregator Setting

- Ø **System priority:** A value used to identify the active LACP. The Switch with lowest value has the highest priority and is selected as the active LACP
- Ø **Group ID:** there are provide seven trunk groups, choose the Group ID and click **Select** button
- Ø **LACP:** allow user enable or disable LACP function. If enable, the group is LACP static trunk group. If disable, the group is local static trunk group. All port support LACP dynamic trunking group, if connecting the device that also support LACP, the LACP dynamic trunking group will be create automatically
- Ø **Works port:** allow max four ports can be aggregated at the same time. If LACP static trunk group, the exceed ports are standby and able to aggregate if work ports fail. If it is local static trunk group, the number must be as same as the group member ports.
- Ø Select the ports to join the trunk group. Click **Add** button to add ports.
- Ø Click **Remove** button to remove unwanted ports
- Ø Click **Apply** button to take effect and use **Delete** button to delete trunk group

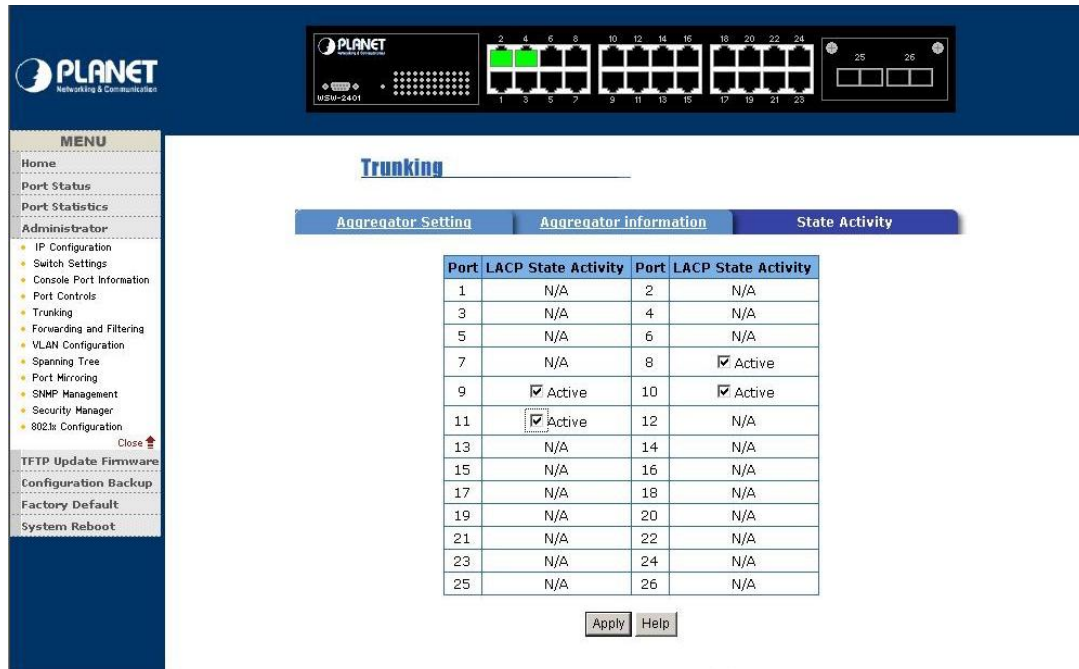
### 4.4-5-2 Aggregator Information

Provide the Aggregator Setting information



### 4.4-5-3 State Activity

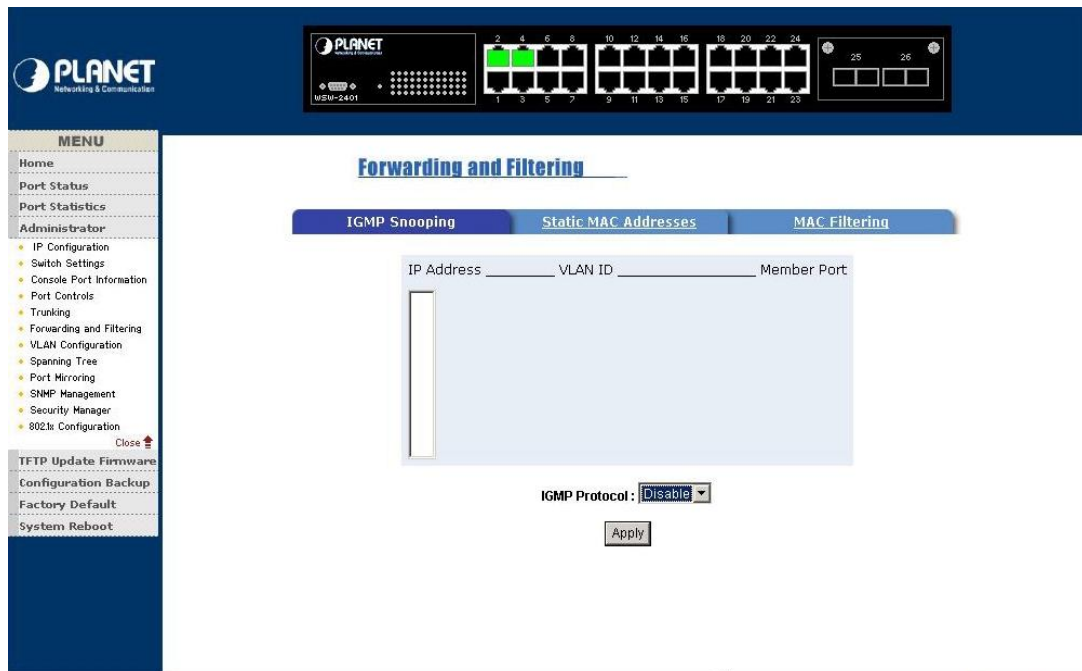
After you setup LACP Aggregator, you can configure port state activity



- Ø **Active (enable):**. The port automatically sends LACP protocol packets
- Ø **Passive (not enable active):** the port does not automatically sends LACP protocol packets and only respond when it receives LACP protocol packets from the opposite device.
- Ø After setup complete click **Apply** button

## 4.4-6 Forwarding and Filtering

WSW-2401 is support IP multicast and allows enable IGMP Protocol on Switch setting advantaged page from web interface.

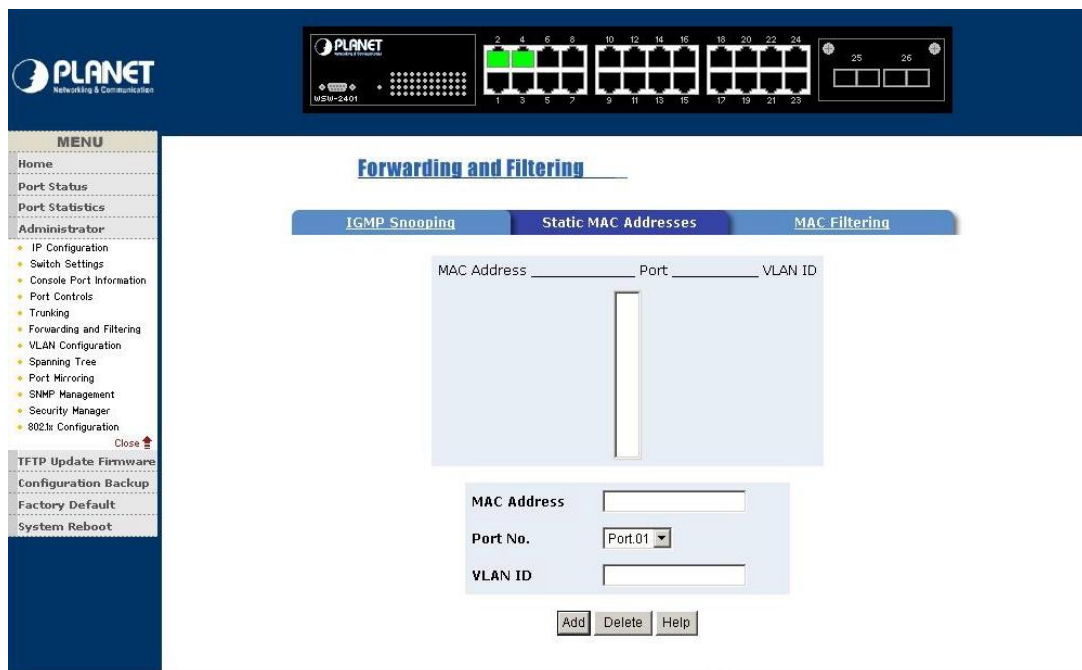


### 4.4-6-1 IGMP Snooping

- Ø Select enable on IGMP Protocol
- Ø After setup complete click **Apply** button

### 4.4-6-2 Static MAC Addresses

This section is allow user to modify MAC Address, Port NO and VLAN ID

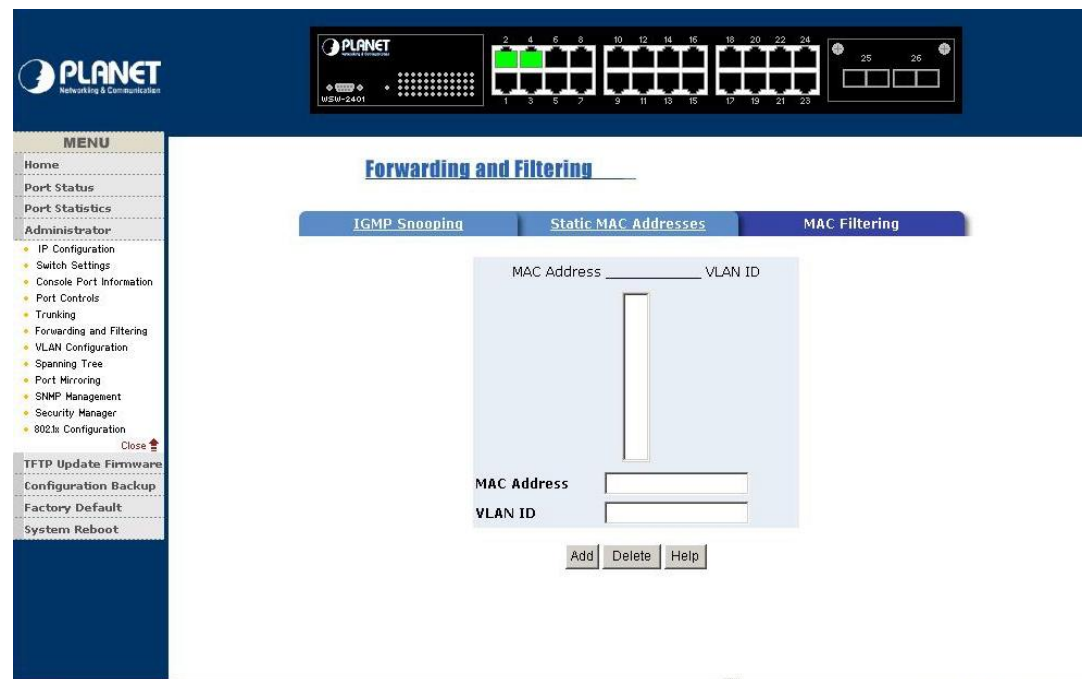


- Ø In **MAC Address** column enter MAC Address
- Ø In **Port No** box select a port number

- Ø In **VLAN ID** type a VLAN ID
- Ø Click **Apply** button to take effect
- Ø Use **Delete** button to delete unwanted MAC Address

### 4.4-6-3 MAC Filtering

This section allow user to block unwanted traffic



- Ø In **MAC Address** column enter MAC Address that want to filter
- Ø In **VLAN ID** type a VLAN ID
- Ø Click **Add** button
- Ø Use **Delete** button to delete unwanted MAC Address

### 4.4-7 VLAN Configuration

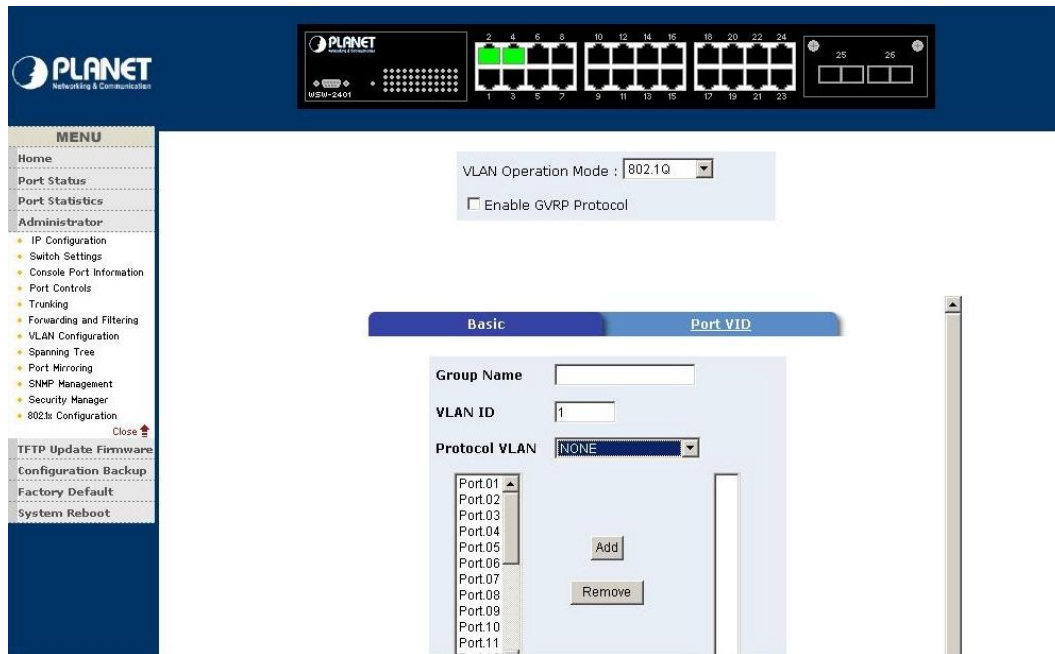
A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain. It allows you to isolate network traffic so only members of the VLAN receive traffic from the same VLAN members. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices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

WSW-2401 supports port-based and Protocol-based VLAN in web management page.

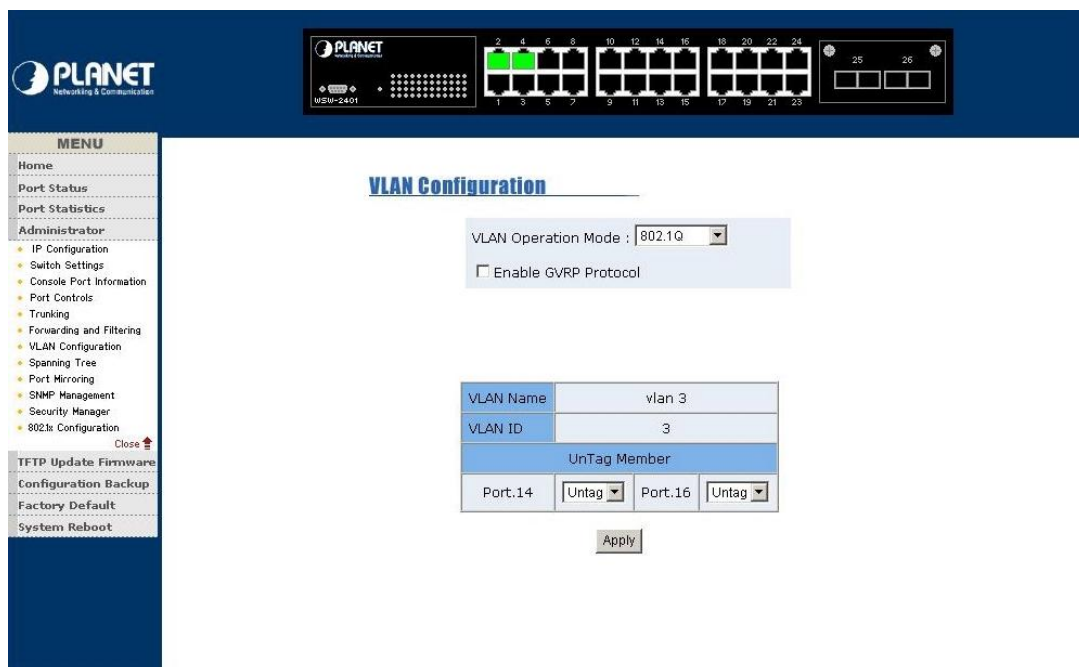
In the default configuration VLAN is disable

#### 4.4-7-1 IEEE802.1Q

Tagged-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch vendors. 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.



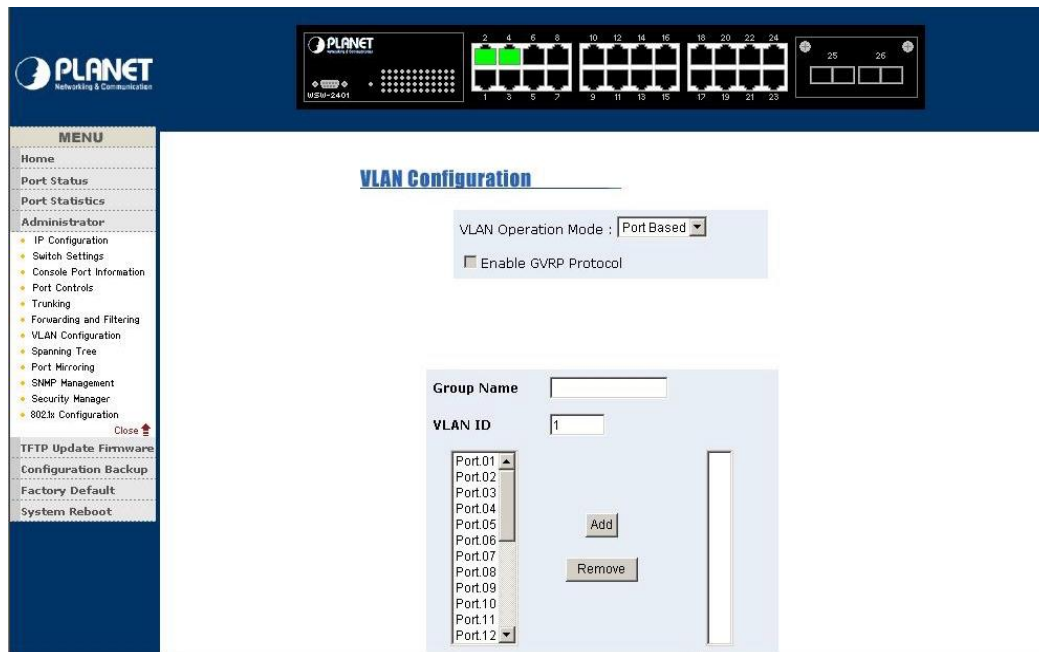
- Ø Select **802.1Q** mode from **VLAN Operation Mode**
- Ø Click the **Enable GVRP Protocol** box to enable
- Ø Click **Add** button to create new VLAN group
- Ø Type a name for new VLAN and VLAN ID
- Ø Choose a Protocol type
- Ø From the available ports box, select ports to add to the Switch and click **Add**
- Ø Click **Next** button will see the page as follow



- Ø Set the frames are Tagged frames or Untagged
- Ø Click **Apply** button

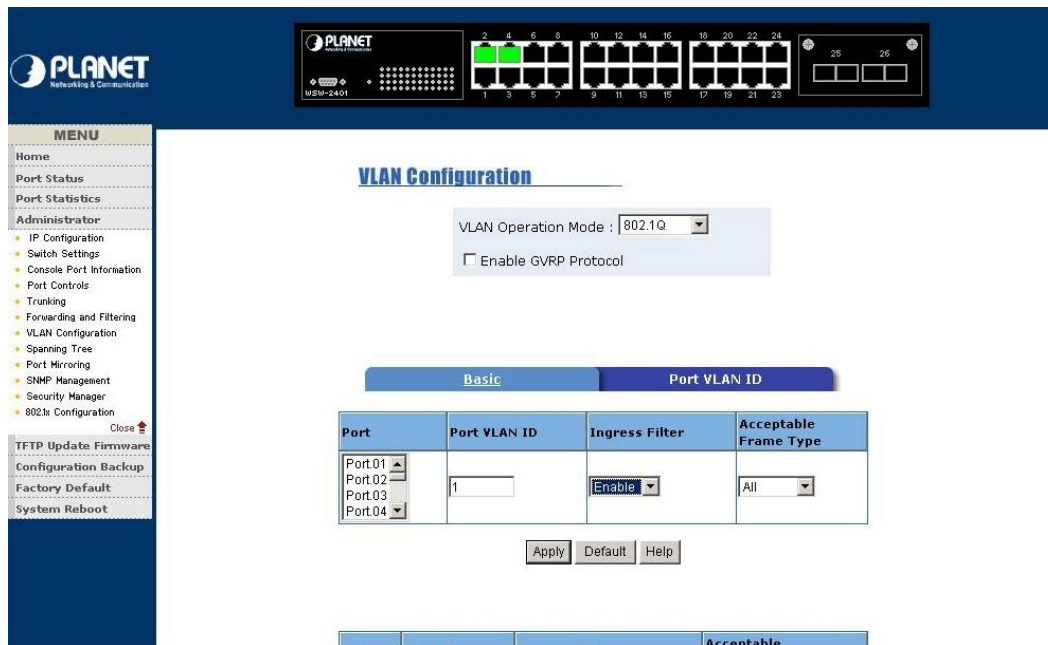


## 4.4-7-2 Port-based VLAN



- Ø Select **802.1Q** mode from **VLAN Operation Mode**
- Ø Click **Add** button to create new VLAN group
- Ø Type a name for new VLAN and VLAN ID
- Ø From the available ports box, select ports to add to the Switch and click **Add**
- Ø Click **Apply** button after complete setup

## 4.4-7-3 Port VLAN ID



Configure Port VID setting

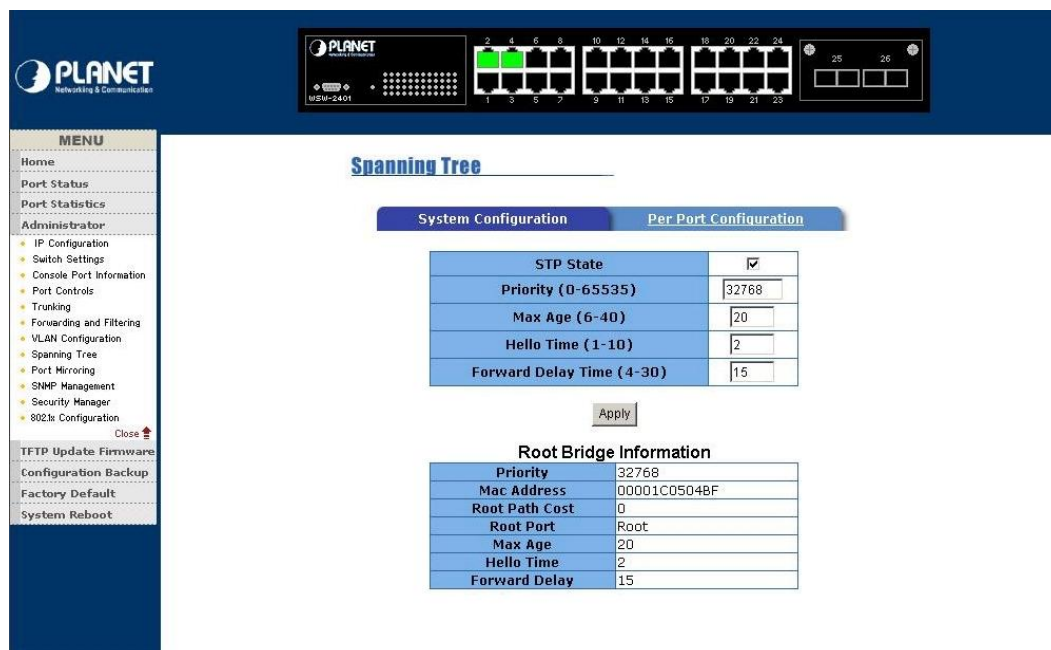
- Ø **Port VLAN ID:** set the port VLAN ID that will be assigned to untagged traffic on a given

port

- Ø **Ingress Filtering:** Ingress filtering lets frames belonging to a specific VLAN to be forwarded if the port belongs to that VLAN. The user allow to enable or disable this function
- Ø **Acceptable Frame Type:** allow user to select different frame type which is **All** or **Tag only**
- Ø Click **Apply** after setup complete

### 4.4-8 Spanning Tree

The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1d) for avoiding loops in switched networks. When STP enabled, to ensure that only one path at a time is active between any two nodes on the network. We are recommended that you enable STP on all switches ensures a single active path on the network



#### 4.4-8-1 System Configuration

- Ø You can modify new value for STP state, then click **Apply** button to modify
- Ø You can view the Spanning tree information about Root Bridge

Parameter	Description
Priority	Allow changing priority value. The priority range is 1 to 65535
Max Age,	Allow changing the Max Age value. The Max Age range is 6 to 40
Hello Time	Allow changing the Hello Time. The Hello Time range is 1 to 10.
Forward Delay Time	Allow changing the forward delay time. The Forward Delay Time range is 4 to 30.

## 4.4-8-2 Per Port configuration

**Spanning Tree**

System Configuration | Per Port Configuration

Port	Path Cost (1-65535)	Priority (0-255)
Port.01		
Port.02		
Port.03	10	128
Port.04		
Port.05		

Apply Help

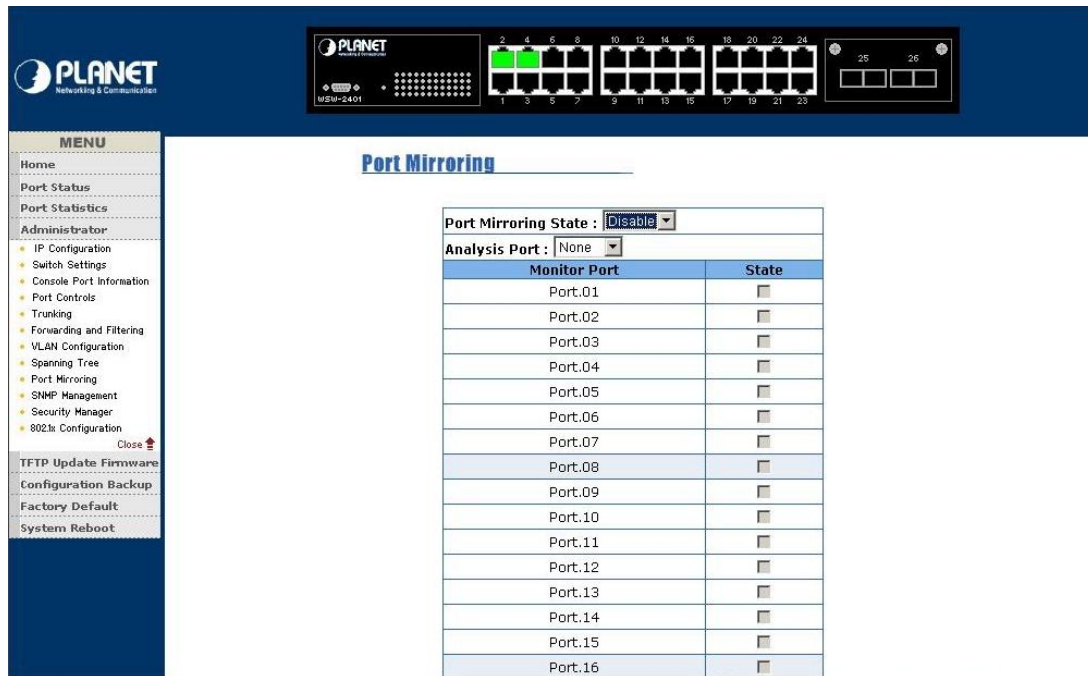
**STP Port Status**

Port	Path Cost	Priority	State
Port.01	65535	200	Forwarding
Port.02	1	200	Forwarding
Port.03	10	128	Forwarding
Port.04	10	128	Forwarding
Port.05	10	128	Forwarding
Port.06	10	128	Forwarding
Port.07	10	128	Forwarding
Port.08	10	128	Forwarding
Port.09	10	128	Forwarding
Port.10	10	128	Forwarding

- Ø You can view spanning tree status about switch
- Ø Select the port in Port column.
- Ø Assign the Path Cost. The value range is from 1 to 65535.
- Ø Assign the port priority value. The value range is from 0 to 255. The lowest value has higher priority.
- Ø Click **Apply** button

## 4.4-9 Port Mirroring

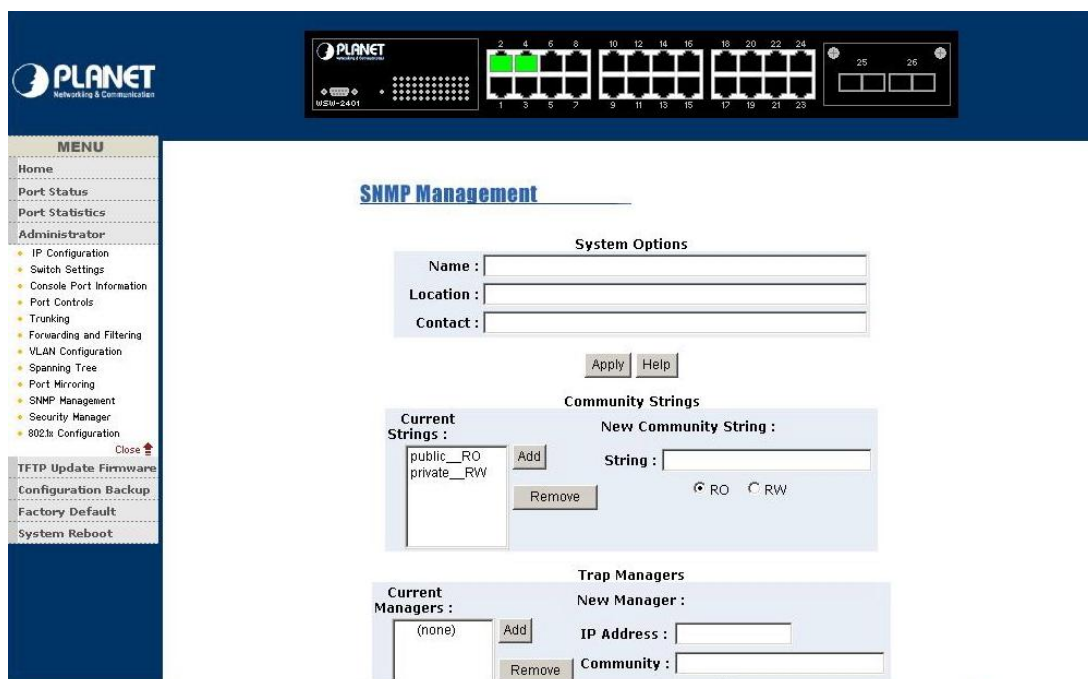
Port Mirroring is a method for monitor traffic in WSW-2401 network. Traffic through ports can be monitored by one specific port. That is, traffic goes in or out monitored ports will be duplicated into mirror port.



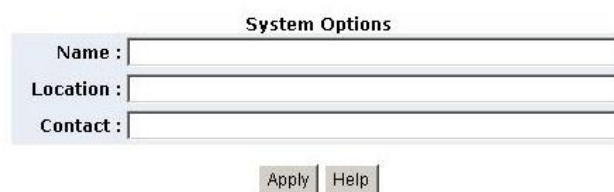
- Ø **Port Mirroring State:** provide disable, RX, TX and Both port Mirroring function
- Ø **Analysis Port:** allow seeing all monitor port traffic. You can connect mirror port to LAN analyzer or netxray
- Ø **Monitor Port:** the ports that you want to monitor.

#### 4.4-10 SNMP Management

Allow to management the WSW-2401 through the Simple Network Management Protocol (SNMP). It provides protocol that governs the transfer of information between management stations (PC with SNMP software) and switches



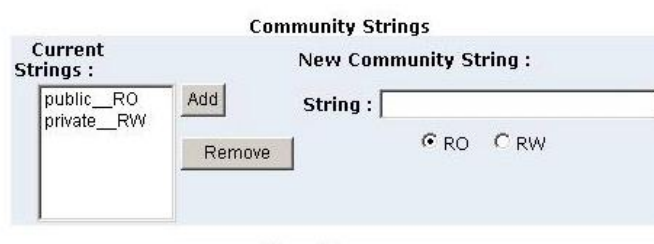
## System Options



The 'System Options' form contains three text input fields: 'Name', 'Location', and 'Contact'. Below these fields are two buttons: 'Apply' and 'Help'.

- Ø **Name:** enter the system name for this switch
- Ø **Location:** enter the location for this switch
- Ø **Contact:** enter the name of contact person or company
- Ø Click **Apply** button after finish setup

## Community strings



The 'Community Strings' form is divided into two sections. The 'Current Strings' section on the left contains a list box with 'public\_RO' and 'private\_RW', and 'Add' and 'Remove' buttons. The 'New Community String' section on the right has a 'String' text input field and two radio buttons labeled 'RO' and 'RW'.

- Ø **String:** fill the name of string
- Ø **RO/ Read Only:** Enable requests accompanied by this string to display MIB-object information
- Ø **RW/ Ready Write:** Enable requests accompanied by this string to display MIB-object information and set MIB objects.
- Ø Click **Add** button after finish setup

## Trap Managers

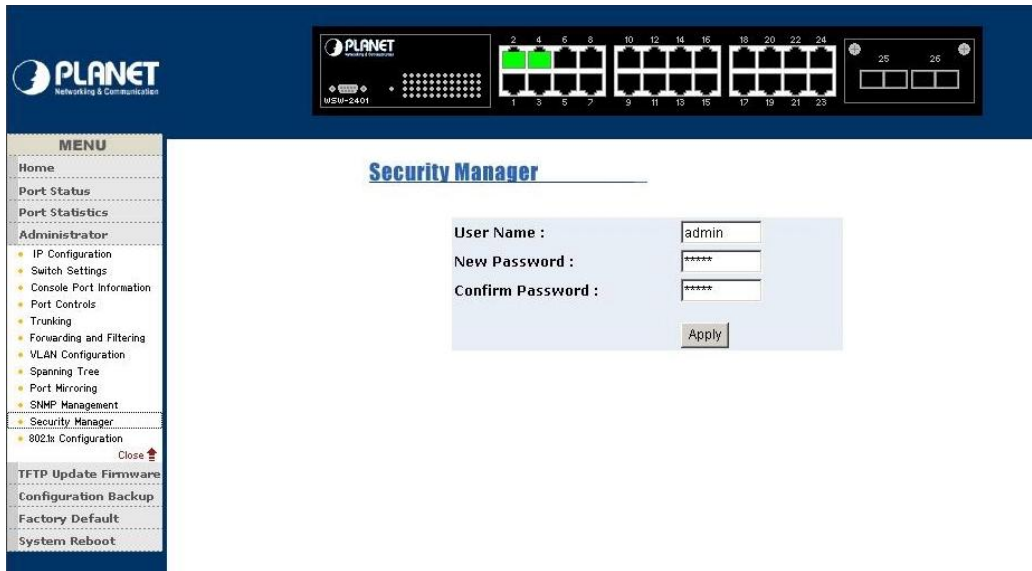
A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps will issue.



The 'Trap Managers' form has two sections. The 'Current Managers' section on the left shows a list box with '(none)' and 'Add' and 'Remove' buttons. The 'New Manager' section on the right includes an 'IP Address' text input field and a 'Community' text input field.

## 4.4-11 Security Manager

This section allow you to modify the username and password

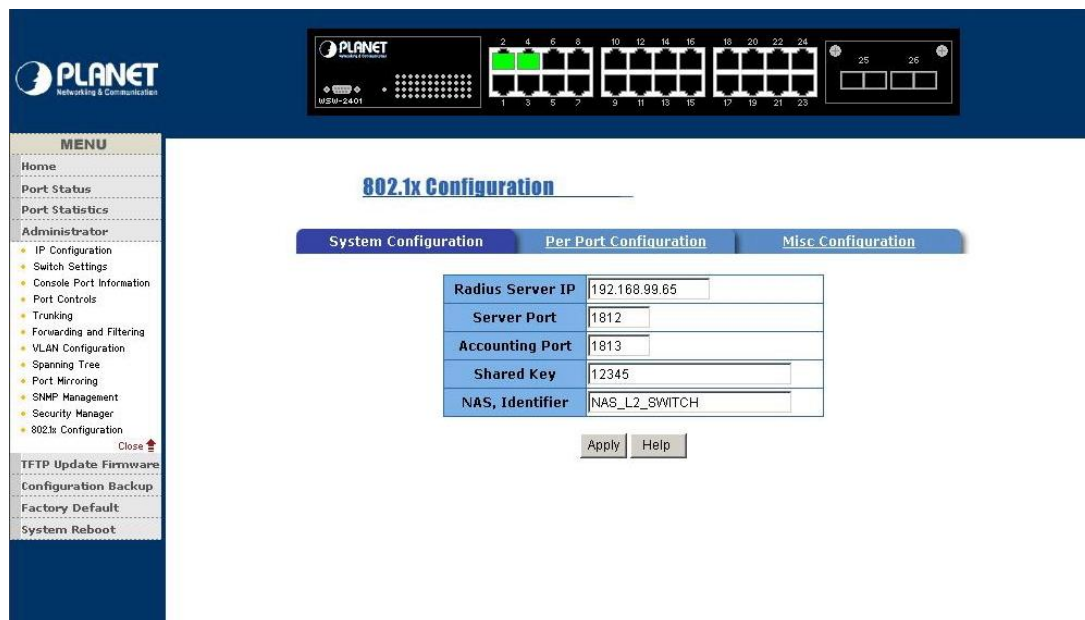


- Ø Input the new user name.
- Ø Input the new password.
- Ø Re-input the new password.
- Ø Click “Apply” button to modify

#### 4.4-12 802.1x configuration

This section you can enable and configure the parameters of 802.1x function

#### 4.4-12-1 System Configuration



- Ø **Radius Server IP:** set the Radius Server IP address
- Ø **Server Port:** set the UDP destination port for authentication requests to the specified Radius Server
- Ø **Accounting Port:** set the UDP destination port for accounting requests to the specified

## Radius Server

- Ø **Shared Key:** set an encryption key for use during authentication sessions with the specified radius server.
- Ø **NAS, Identifier:** set the identifier for the radius client.
- Ø Click **Apply** button

### 4.4-12-2 Per Port Configuration

**802.1x Configuration**

System Configuration | **Per Port Configuration** | Misc Configuration

Port	State
Port.01	Reject
Port.02	Accept
Port.03	Authorize
Port.04	Disable
Port.05	Disable
Port.06	Disable
Port.07	Disable
Port.08	Accept
Port.09	Disable
Port.10	Authorize

- Ø Select port column
- Ø Select the state of port. There are four states which is **disable, Authorized, Reject** and **Accept**
- Ø Click **Apply** button

### 4.4-12-3 Misc Configuration

**802.1x Configuration**

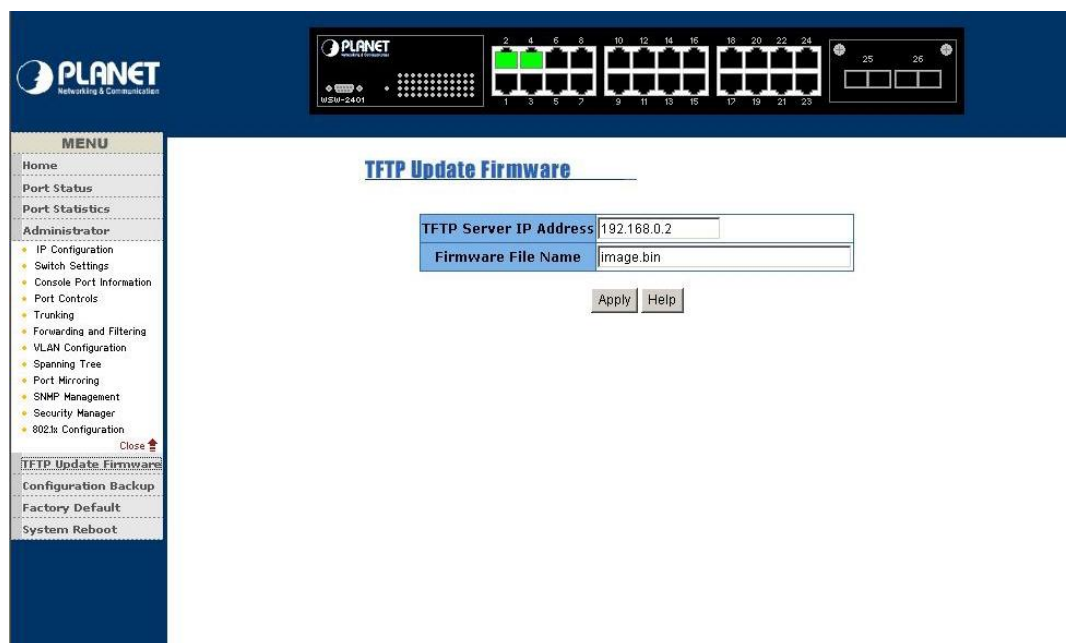
System Configuration | Per Port Configuration | **Misc Configuration**

Quiet Period	60
Tx Period	30
Supplicant Timeout	30
Server Timeout	30
Max Requests	2
Reauth Period	3600

- Ø **Quiet Period:** used to define periods of time during which it will not attempt to acquire a supplicant(Default time is 60 seconds).
- Ø **Tx Period:** used to determine when an EAPOL PDU is to be transmitted(Default value is 30 seconds).
- Ø **Supplicant Timeout:** used to determine timeout conditions in the exchanges between the supplicant and authentication server(Default value is 30 seconds).
- Ø **Server Timeout:** used to determine timeout conditions in the exchanges between the authenticator and authentication server(Default value is 30 seconds).
- Ø **ReAuthMax:** used to determine the number of reauthentication attempts that are permitted before the specific port becomes unauthorized(Default value is 2 times).
- Ø **Reauth Period:** used to determine a nonzero number of seconds between periodic reauthentication of the supplications(Default value is 3600 seconds).

#### 4.4-13 TFTP Update Firmware

The following option menu allow user to update latest firmware



#### Firmware update requirements

- Ø WSW-2401 switch
- Ø TFTP server
- Ø Latest firmware version

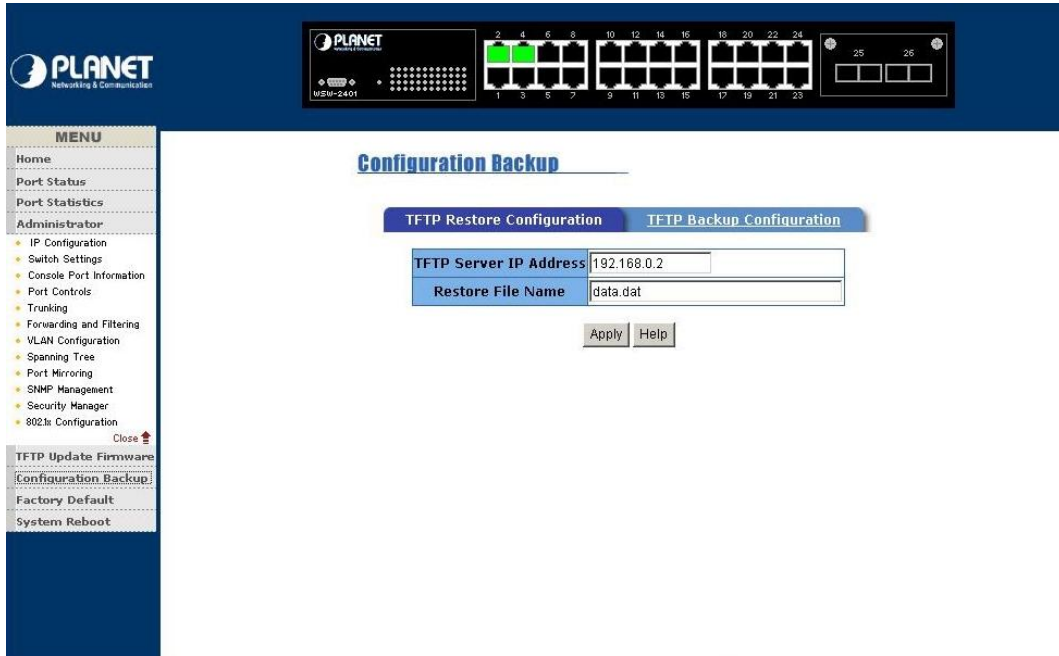
#### TFTP Update Firmware

- Ø **TFTP Server IP Address:** enter the IP address of TFTP server
- Ø **Firmware File Name:** enter the name of latest firmware version
- Ø Click **Apply** button



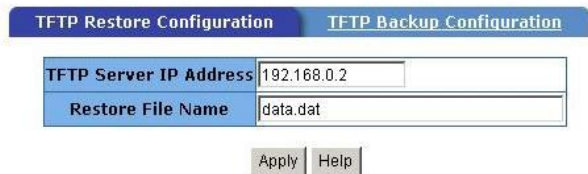
## 4.4-14 Configuration Backup

This section allow user to Restore and Backup into WSW-2401



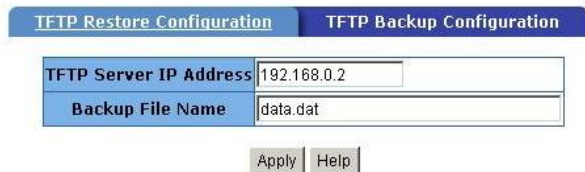
### 4.4-14-1 TFTP Restore Configuration

- Ø **TFTP Server IP Address:** enter the IP address of TFTP server
- Ø **Restore File Name:** enter the file name that want to restore
- Ø Click **Apply** button



### 4.4-14-2 TFTP Backup Configuration

- Ø **TFTP Server IP Address:** enter the IP address of TFTP server
- Ø **Backup File Name:** enter the file name that want to backup
- Ø Click **Apply** button



#### **4.4-15 Factory Default**

##### **Factory Default**

---

Please click **[Default]** button to restore factory default setting.

Default

This function provides reset the Switch to factory default mode

#### **4.4-16 System Reboot**

##### **System Reboot**

---

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

Reboot

This function provides reboot the WSW-2401

# Chapter 5 TROUBLESHOOTING

This chapter contains some information to help you to solve most command problems on the WSW-2401

## **The LED is not lit**

Solution

Check the cable connection

## **Port cannot communication to other stations located on other port**

Solution

Please check VLAN, and port Trunk function, which may indicate this kind of problem

## **Bad Performance**

Solution

Please check the duplex status on switch; if the switch is set full duplex and the partner is set half duplex then performance poor will occur.

## Chapter 6 TECHNICAL SPECIFICATION

<b>Model</b>	<b>WSW2401</b>
Ports	24 10/100Base-TX RJ-45 Auto-MDI/MDI-X ports 1 open slot 1 RS-232 DB-9 male
Dimensions	440mm(W)*225mm(D)*44.5mm(H) 1U height
Weight	3 kg
Power Requirement	100-240 VAC 50-60Hz
Switch architecture	Store-and-forward, Back-plane 8.8 Gbps
MAC Address table	8K entries, auto learning/ageing
Memory	384KB for packet buffer
Auto-MDI/MDI-X	Support on all RJ-45 ports
Flow Control	Back pressure for half duplex, IEEE 802.3x for full duplex
EMI	FCC Class A, CE Mark
Safety	UL, cUL, CE
Standards	IEEE IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX/100BASE-FX IEEE802.3x Flow Control IEEE802.3ad Link Aggregation IEEE802.1D Spanning Tree Protocol IEEE802.1p Class of service IEEE802.1Q VLAN Tagging ANSI/IEEE 802.3 N-Way Auto-negotiation IEEE802.1x User Authentication RFC RFC 1157 SNMP RFC 1213 MIB II RFC 1643 ETHERNET LIKE RFC 1493 BRIDGE MIB RFC 1751 RMON 2 RFC 1215 Trap

# APPENDIX A

## A.1 Switch's RJ-45 Pin Assignments

1000Mbps, 1000Base T

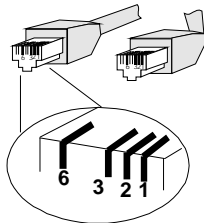
Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

## A.2 10/100Mbps, 10/100Base-TX

Contact	MDI	MDI-X
1	1	3
2	2	6
3	3	1
6	6	2

## A.3 RJ-45 cable pin assignment



# APPENDIX B

WSW-2401 is with IEEE802.1x authentication capability, before you turn on the 802.1x function, the following sections shows the required environment for 802.1.

Section B.1 describes the infrastructure of the IEEE802.1x

Section B.2 describes how to setup the IEEE802.1x server base on Windows 2000 server.

Section B.3. shows how to setup and enable the IEEE802.1x client in your workstation, example on Windows XP.

## ***B.1 802.1X Infrastructure***

1. An 802.1X Infrastructure is composed of three major components: Authenticator, Authentication server, and Supplicant.

**Authentication server:** An entity that provides an authentication service to an authenticator. This service determines, from the credentials provided by the supplicant, whether the supplicant is authorized to access the services provided by the authenticator.

**Authenticator:** An entity at one end of a point-to-point LAN segment that facilitates authentication of the entity attached to the other end of that link.

**Supplicant:** An entity at one end of a point-to-point LAN segment that is being authenticated by an authenticator attached to the other end of that link.

2. In the following sections, we will guide you to build an 802.1X Infrastructure step by step.

**RADIUS Server Setup:** Microsoft Windows 2000 server.

**Authenticator Setup:** WSW-2401 (see 3.6.5 or 4.4-12)

**Switch Client Setup:** Microsoft Windows XP.

## ***B.2 RADIUS Server Setup***

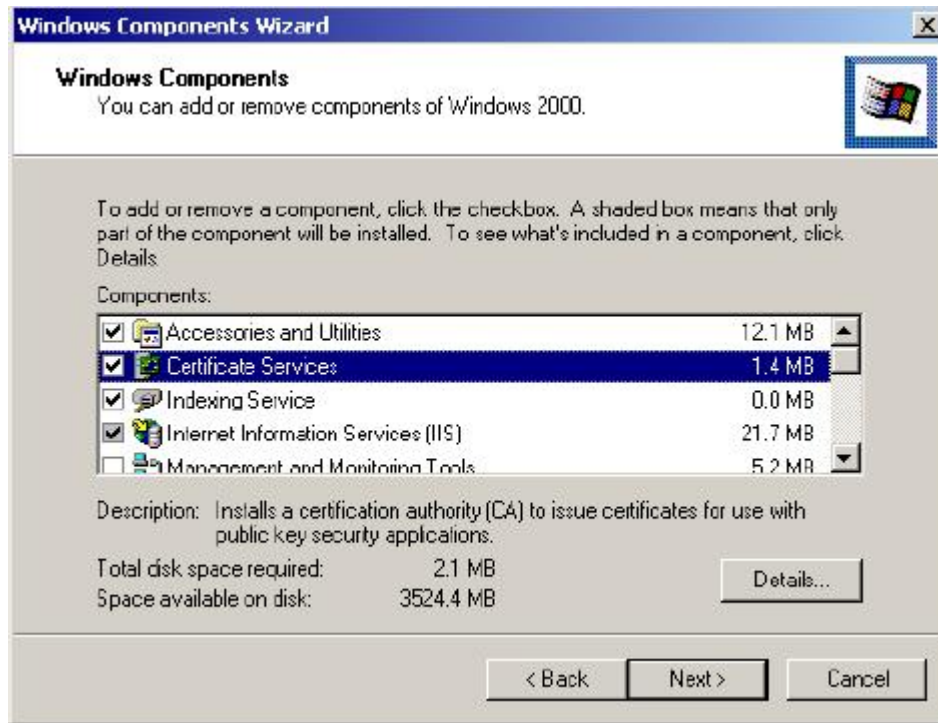
### **B.2.1 Required Services**

1. After Windows 2000 server has been installed, please install Service Pack 2 also and other latest security patch.
2. Furthermore, the following service components are needed:
3. Active Directory (Please consult with your network administrator or an engineer who is familiar with Windows 2000 server to install Active Directory; otherwise your system or network might be unstable.)
4. IAS (Internet Authentication Service)
5. Web Server (IIS)
6. Certificate Service

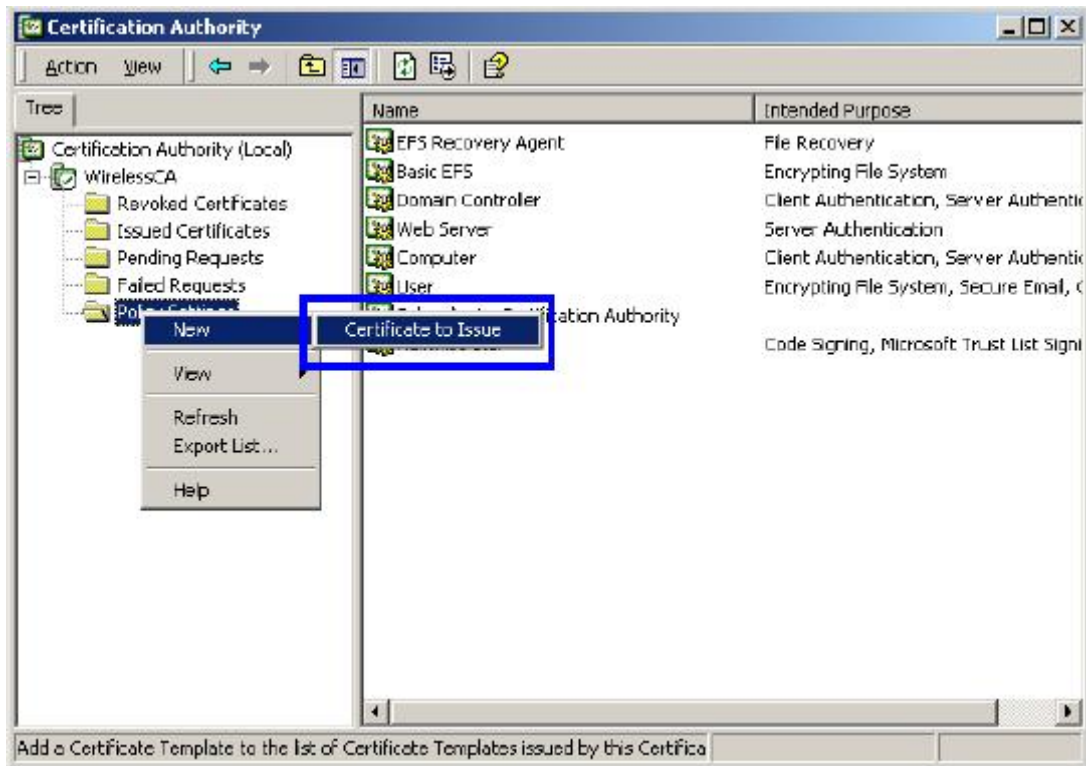
### **B.2.2 Setup Procedure**

1. Login into Windows 2000 Server as Administrator, or account that has Administrator authority.
2. Go to **Start > Control Panel**, and double-click "**Add or Remove Programs**".

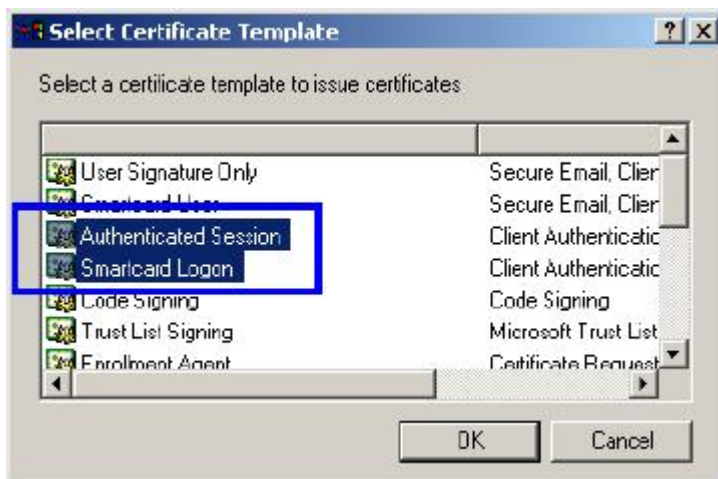
3. Click on “**Add/Remove Windows components**”.
4. Check “**Certificate Services**”, and click “**Next**” to continue.



5. Select “**Enterprise root CA**”, and click “**Next**” to continue.
6. Enter the information that you want for your Certificate Service, and click “**Next**” to continue.
7. Go to **Start > Program > Administrative Tools > Certificate Authority**.
8. Right-click on the “**Policy Setting**”, select “**new**”.
9. Select “**Certificate to Issue**”.



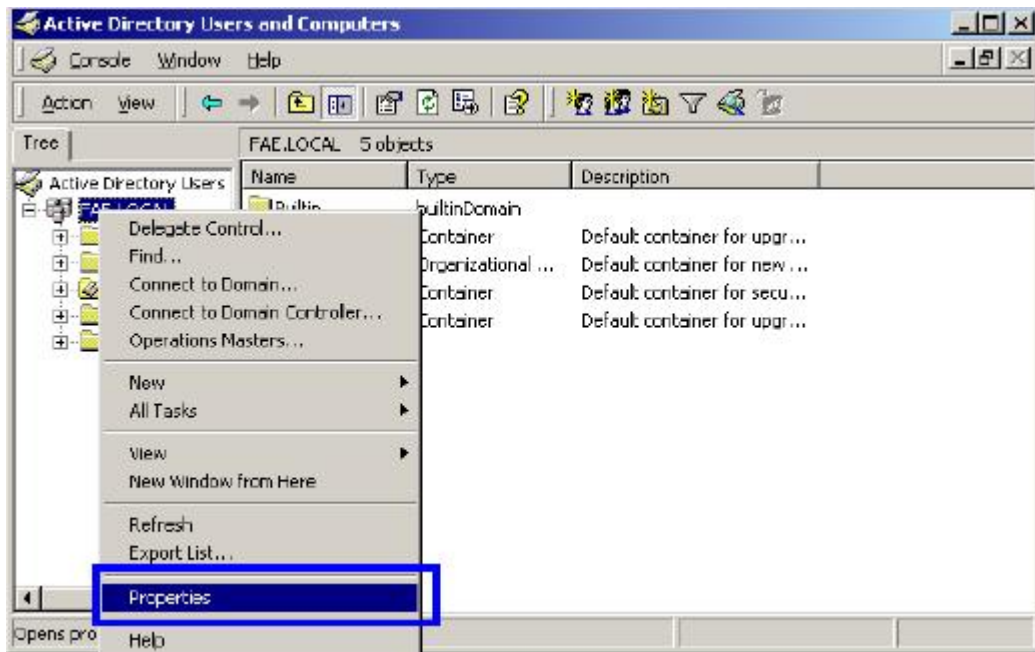
10. Select **“Authenticated Session”** and **“Smartcard Logon”** by holding down to the Ctrl key, and click **“OK”** to continue.



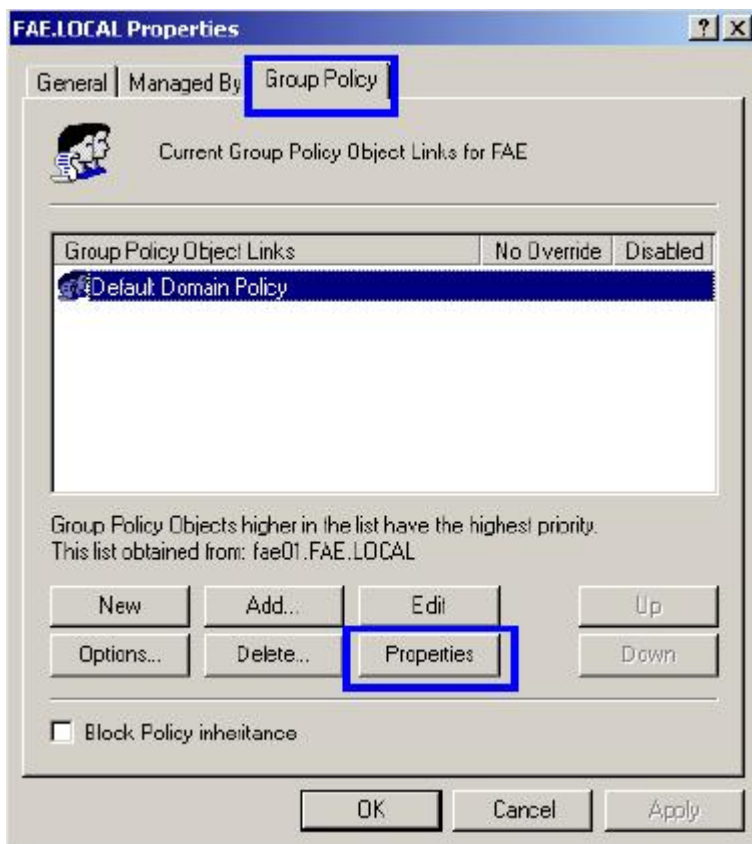
11. Go to **Start > Program > Administrative Tools > Active Directory Users and Computers**.

12. Right-click on domain, and select **“Properties”** to continue.





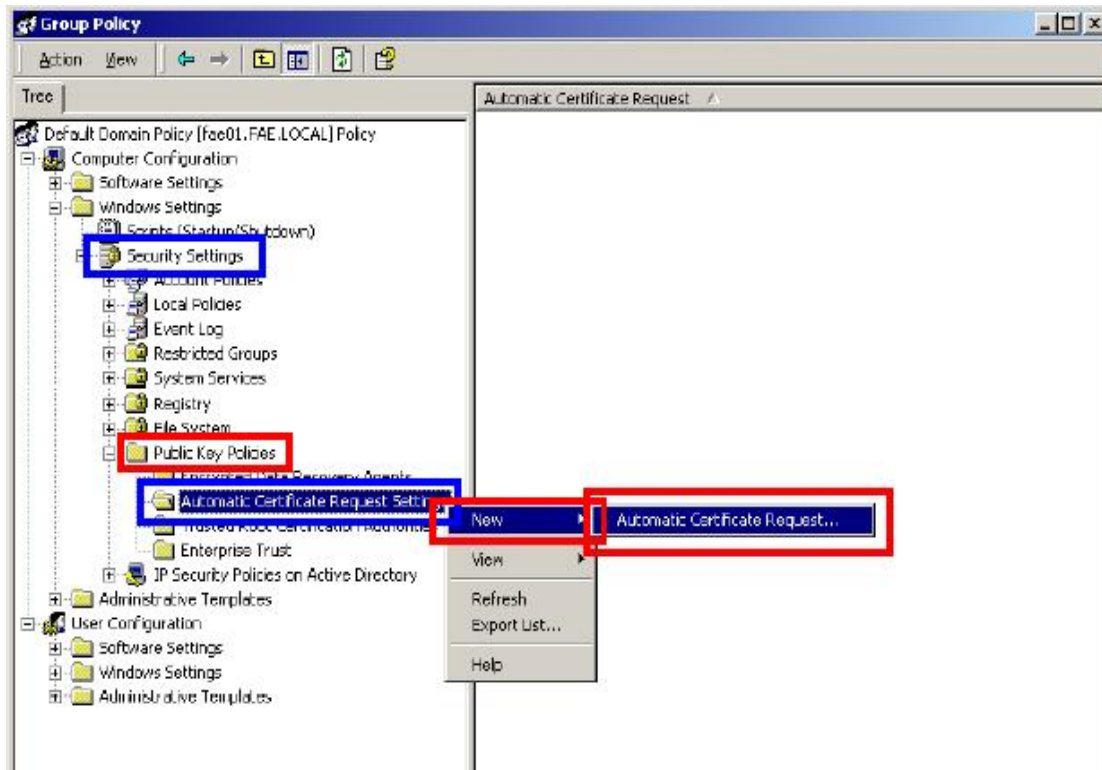
13. Select “Group Policy” tab and click “Properties” to continue.



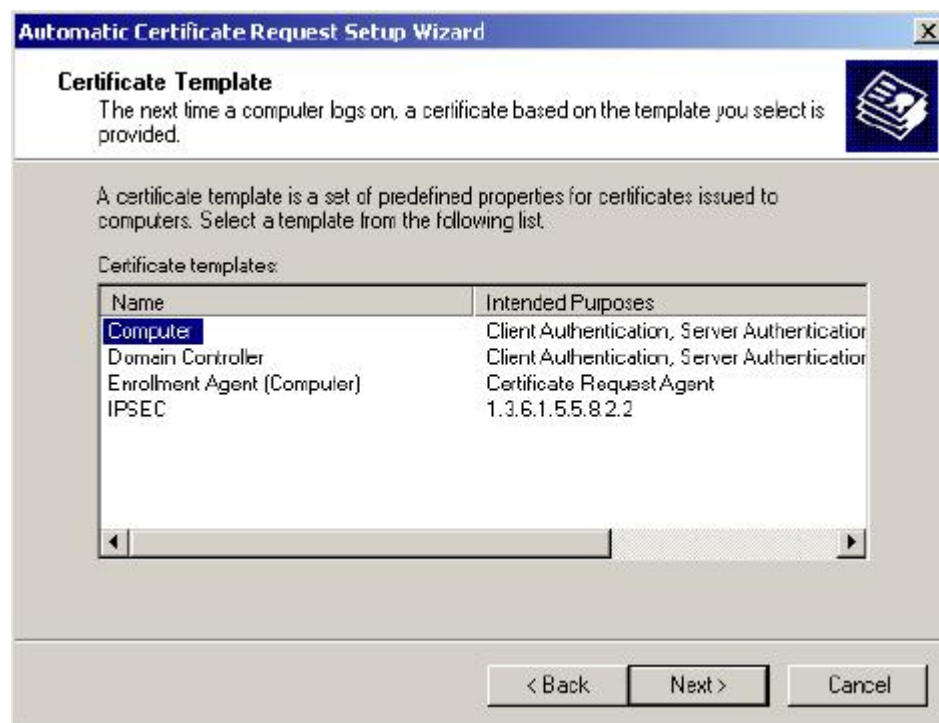
14. Go to “Computer Configuration” > “Security Settings” > “Public Key Policies”

15. Right-click “Automatic Certificate Request Setting”, and select “New”

16. Click “Automatic Certificate Request ..”



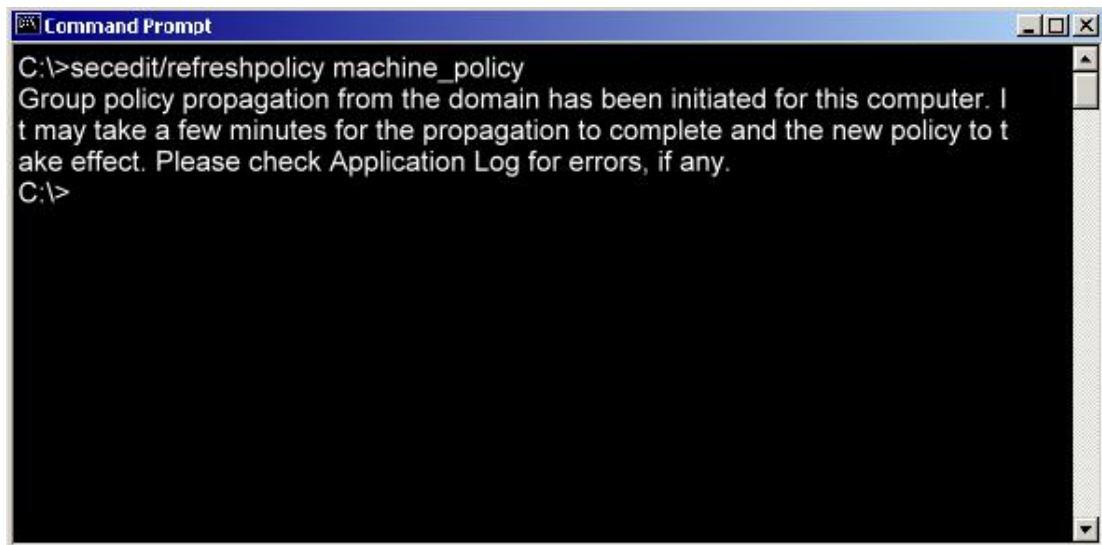
17. The Automatic Certificate Request Setup Wizard will guide you through the Automatic Certificate Request setup, simply click “**Next**” through to the last step.



18. Click “**Finish**” to complete the Automatic Certificate Request Setup

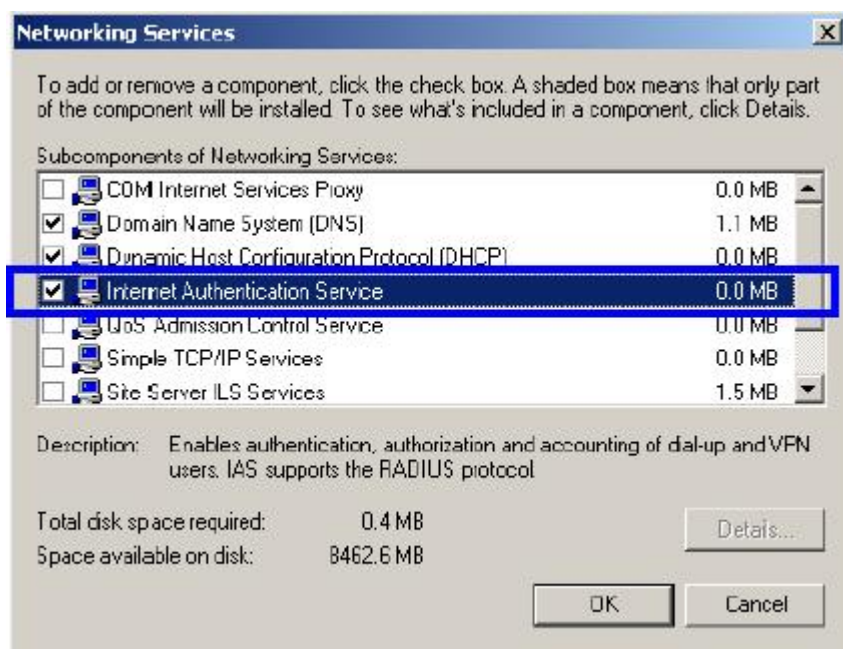
19. Go to **Start > Run**, and type “**command**” and click “**Enter**” to open Command Prompt.

20. Type “**secdit/refreshpolicy machine\_policy**” to refresh policy



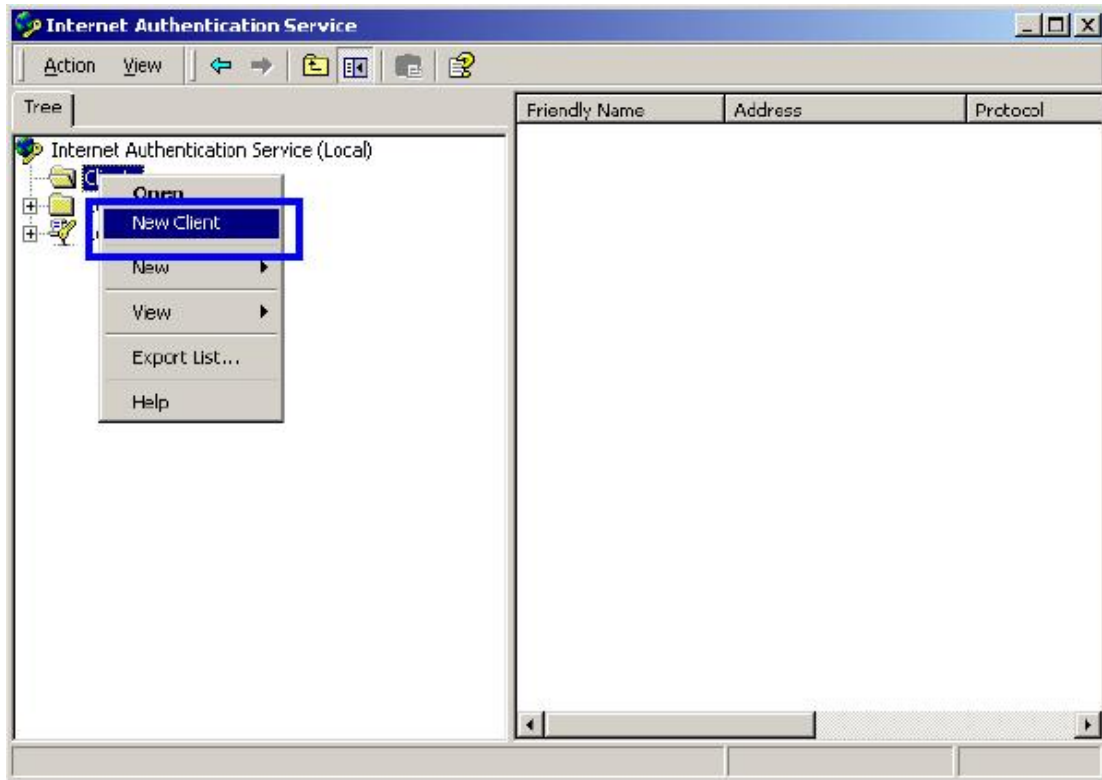
### ***Adding Internet Authentication Service***

21. Go to **Start > Control Panel > Add or Remove Programs**.
22. Select **“Add/Remove Windows Components”** from the panel on the left.
23. Select **“Internet Authentication Service”**, and click **“OK”** to install

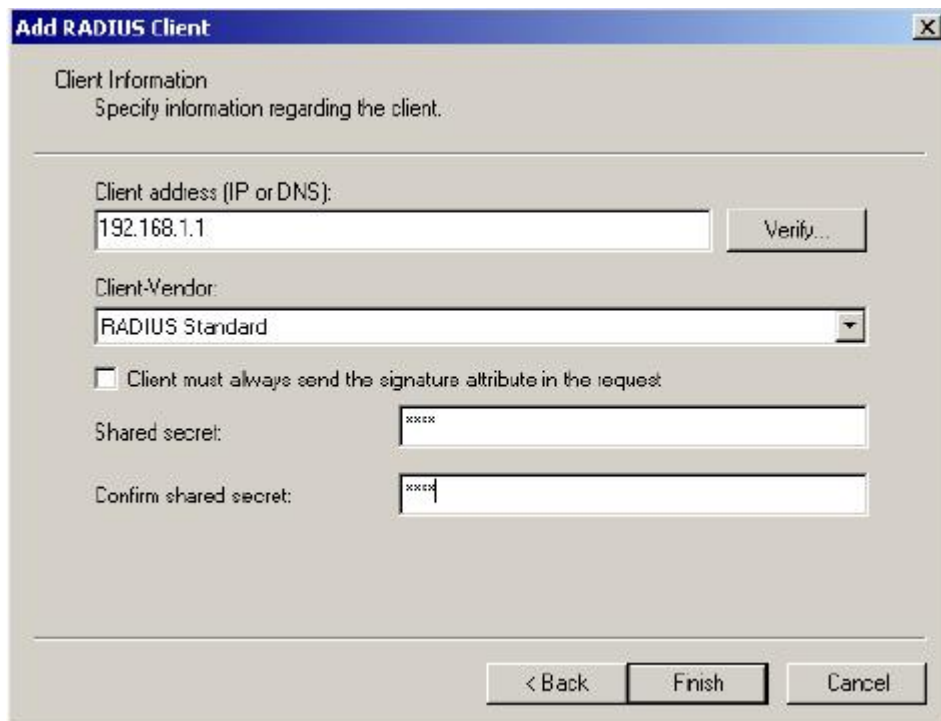


### ***Setting Internet Authentication Service***

24. Go to **Start > Program > Administrative Tools > Internet Authentication Service**.
25. Right-click **“Client”**, and select **“New Client”**

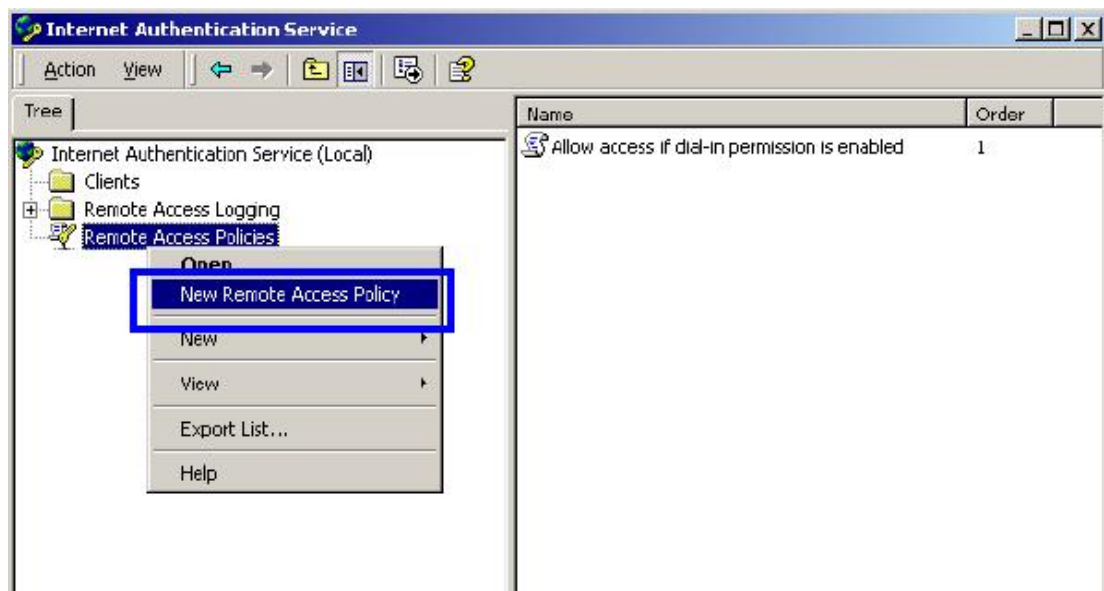


26. Enter the IP address of WSW-2401 in the **Client address** text field, a memorable name for WSW-2401 in the **Client-Vendor** text field, the access password used by WSW-2401 in the **Shared secret** text field. Re-type the password in the **Confirmed shared secret** text field.
27. Click **“Finish”**.

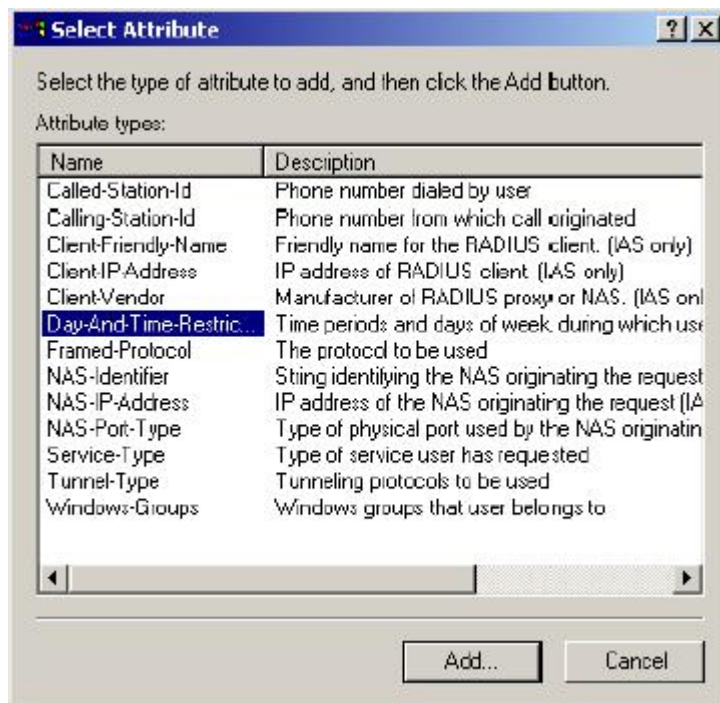


28. In the Internet Authentication Service, right-click **“Remote Access Policies”**

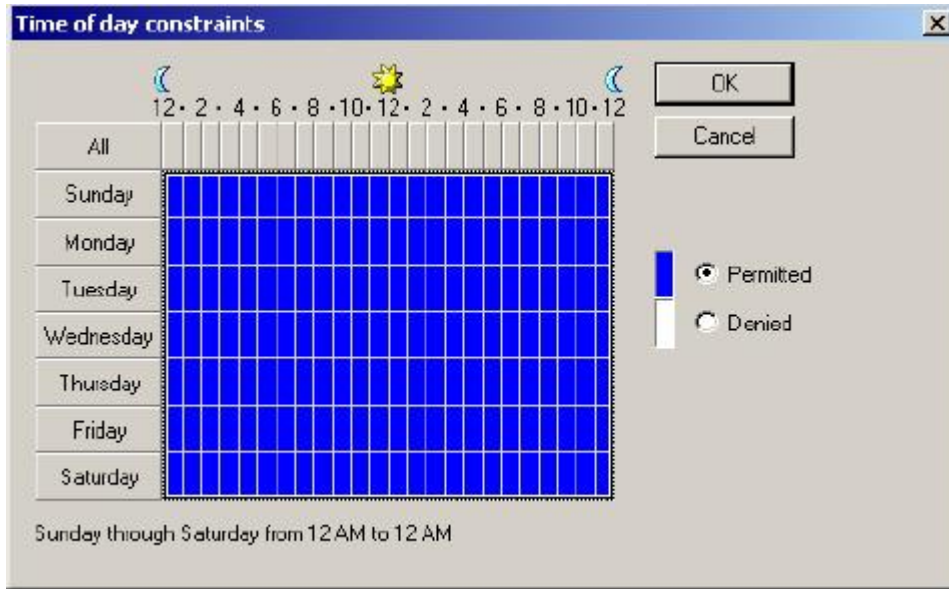
29. Select “New Remote Access Policy”



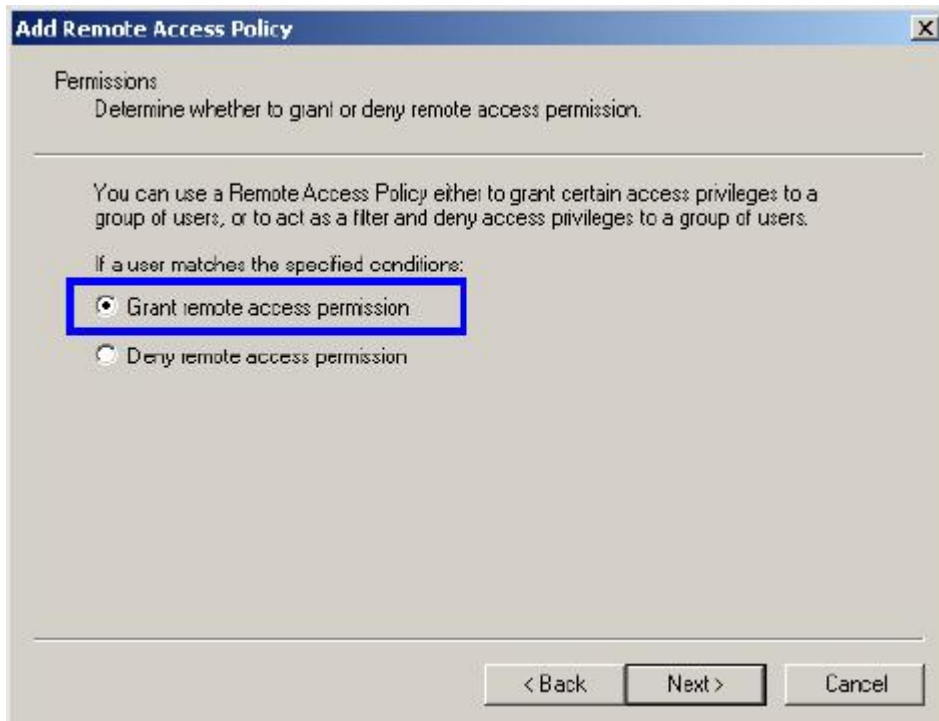
30. Select “Day-And-Time-Restriction”, and click “Add” to continue.



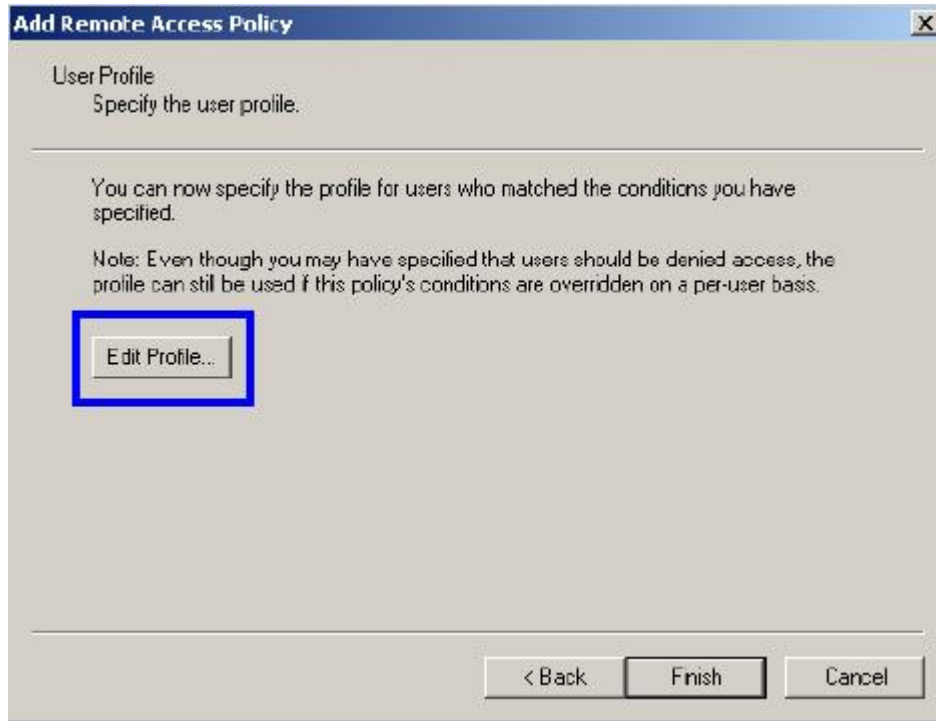
31. Unless you want to specify the active duration for 802.1X authentication, click “OK” to accept for having 802.1x authentication enabled at all times.



32. Select **“Grant remote access permission”**, and click **“Next”** to continue.



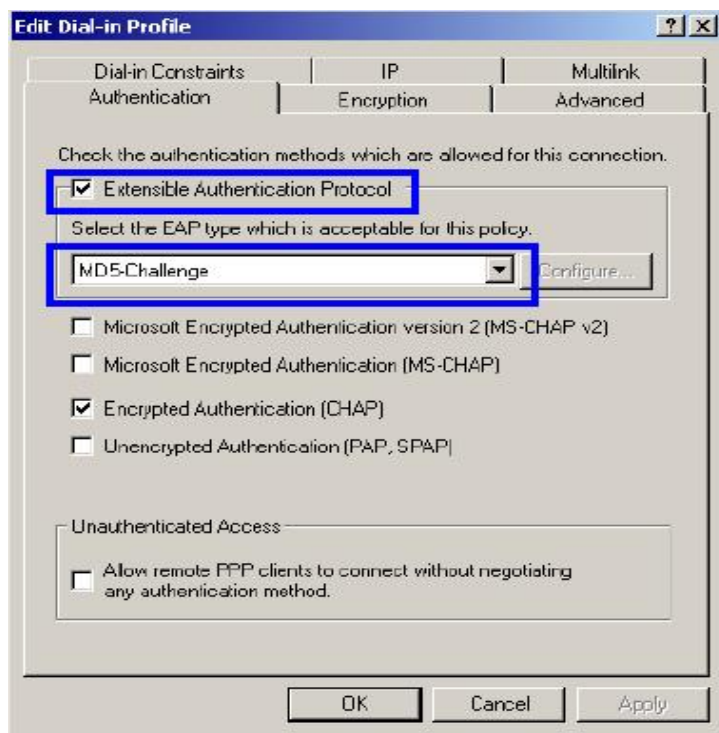
33. Click **“Edit Profile”**.



**For MD5 Authentication Setup (Steps 34 ~ 35)**

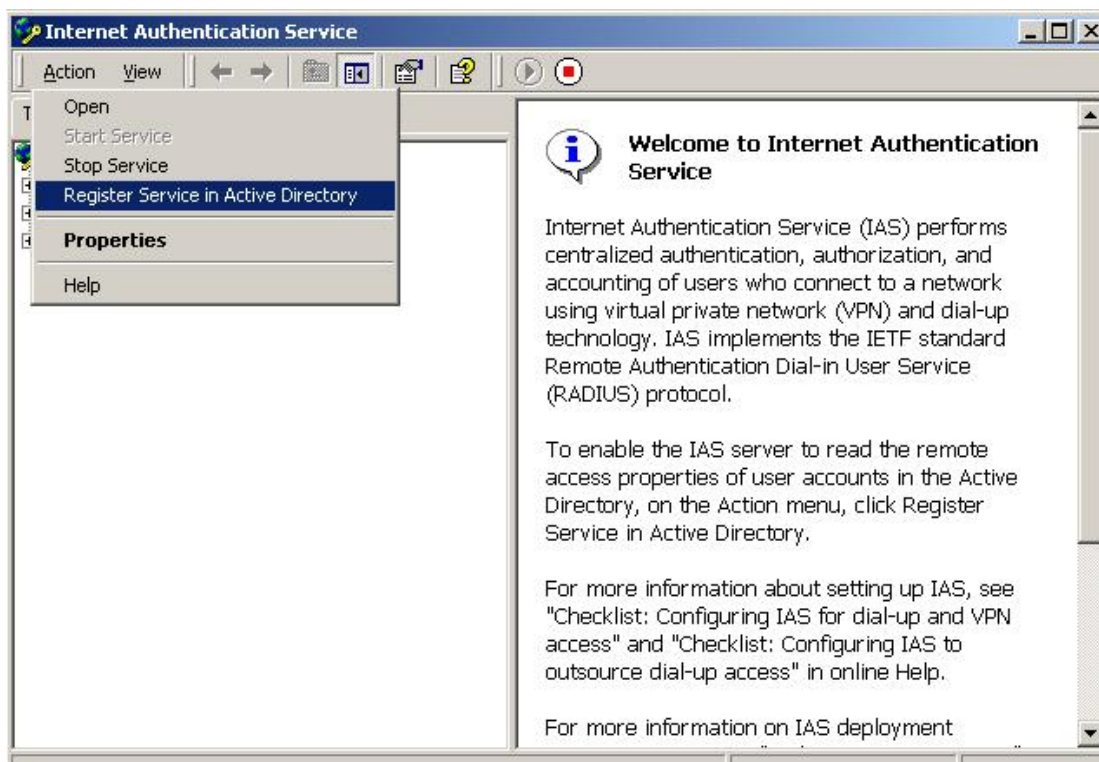
34. Select “**Authentication**” Tab.

35. Enable “**Extensible Authentication Protocol**”. Select “**MD5-Challenge**” and enable “**Encrypted Authentication (CHAP)**” for MD5 authentication. Click “**OK**”



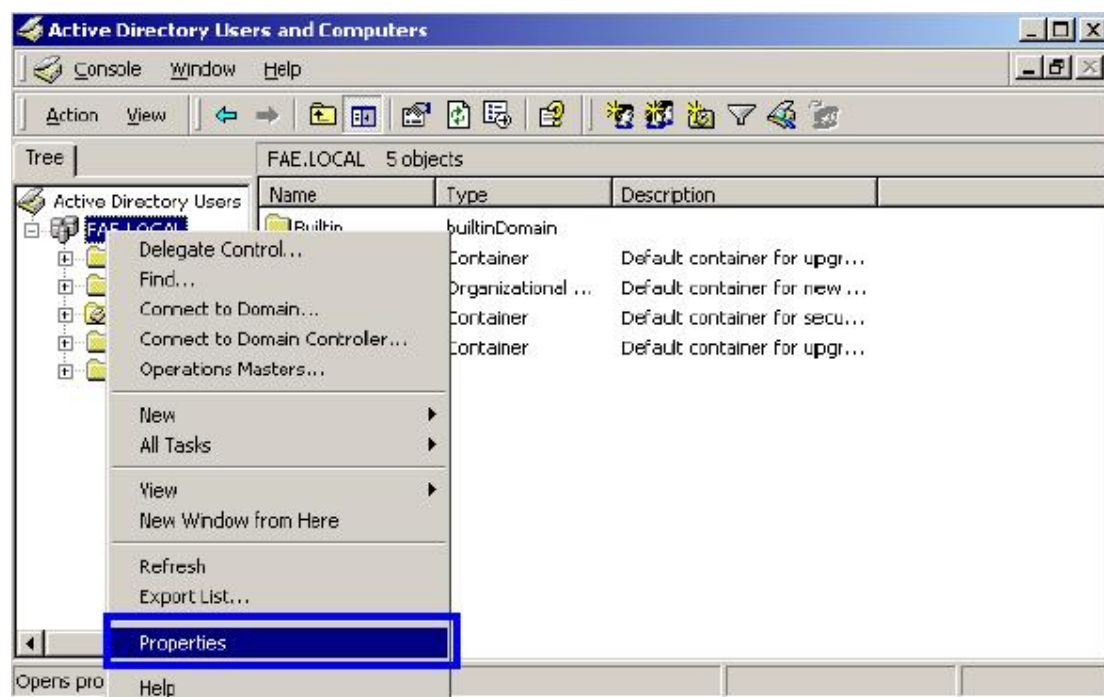
36. Select “**Internet Authentication Service (Local)**”, click on “**Action**” from top panel. Then

click “Register Service in Active Directory”.



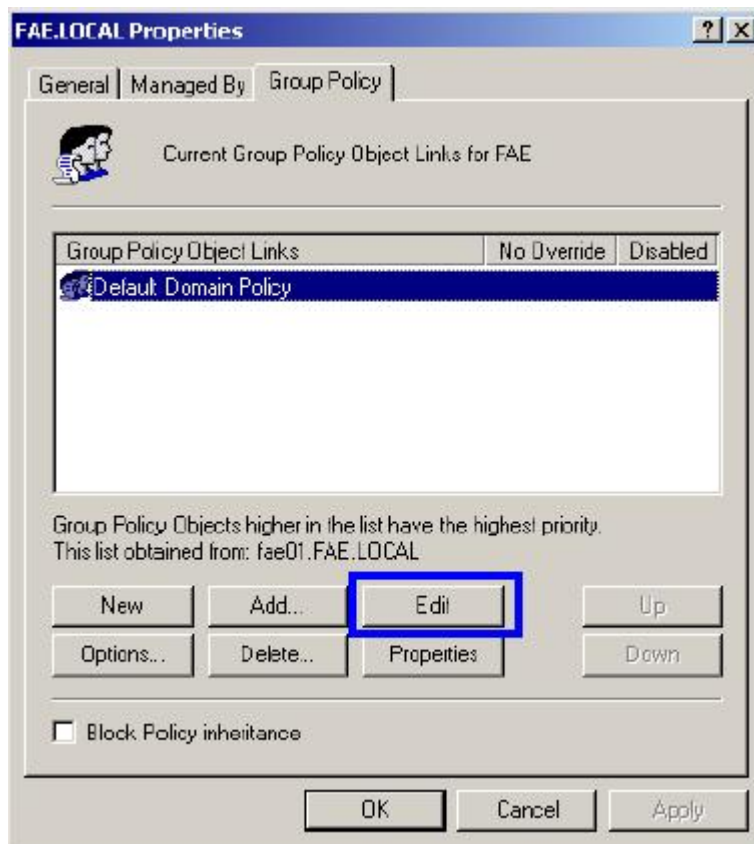
37. Go to **Start > Program > Administrative Tools > Active Directory Users and Computers**.

38. Right click on the domain, and select “**Properties**”

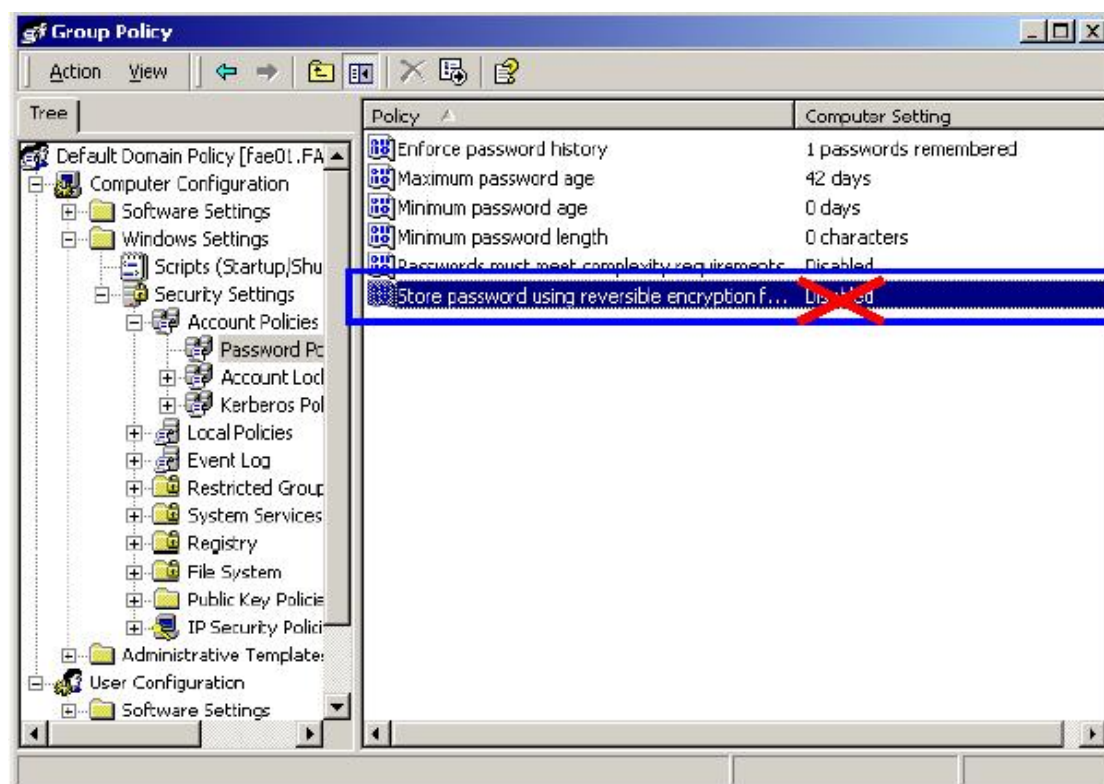


39. Select “**Group Policy**” tab, and click “**Edit**” to edit the Group Polic

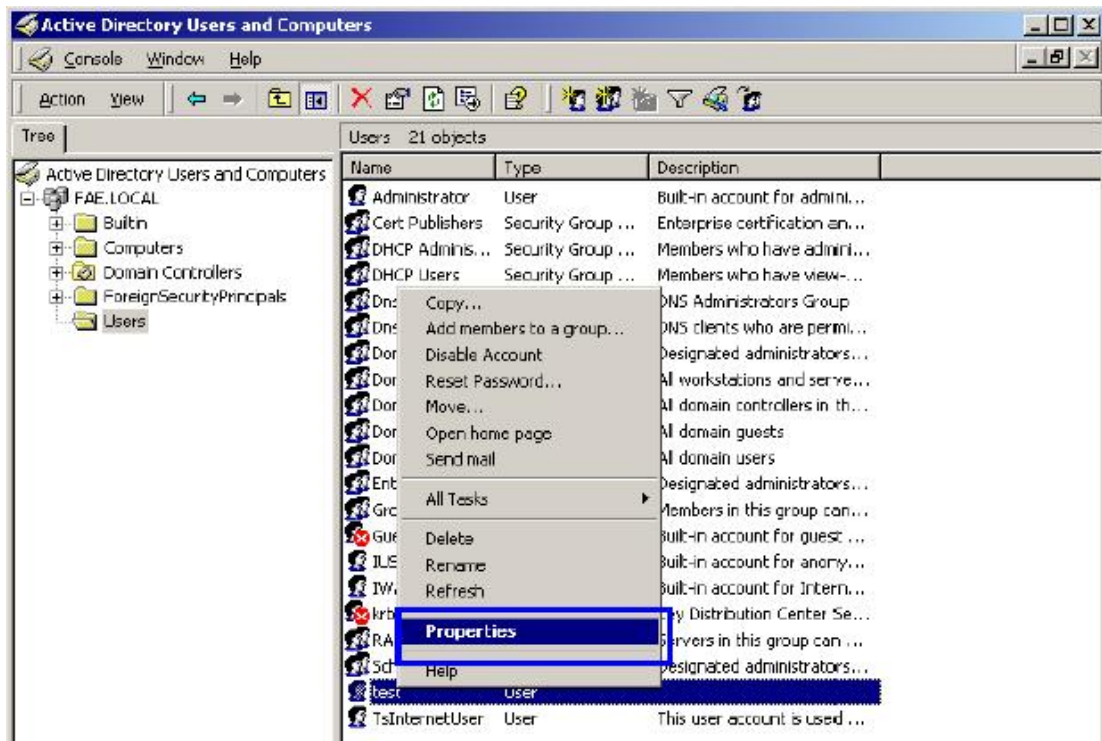




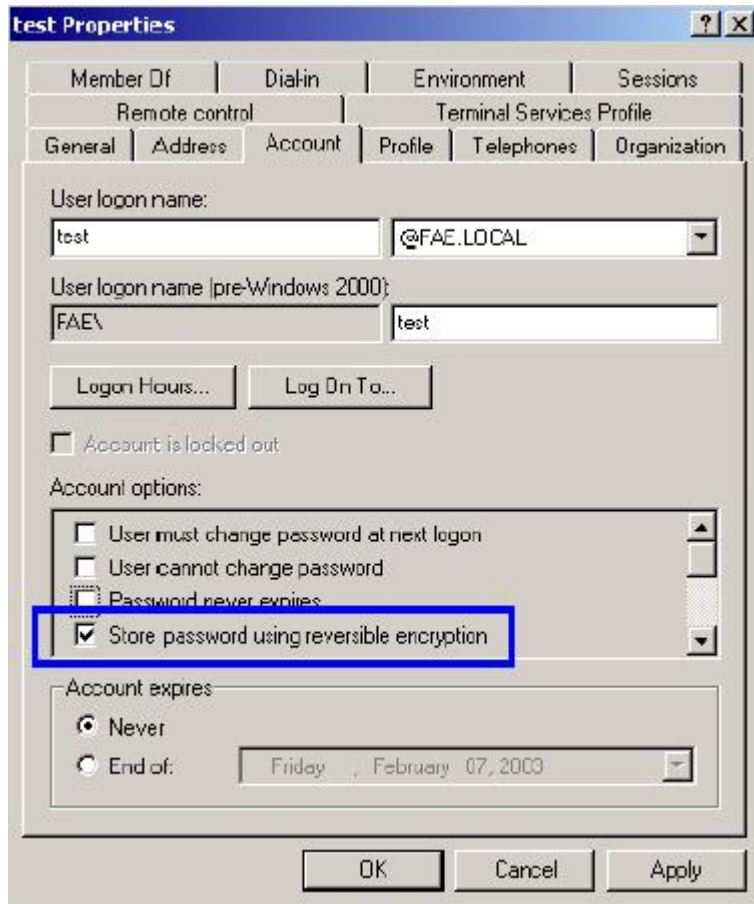
40. Go to “Computer Configuration” > “Windows Settings” > “Security Settings” > “Account Policies” > “Password Policies”. Double click on “Store password using reversible encryption for all users in the domain”.



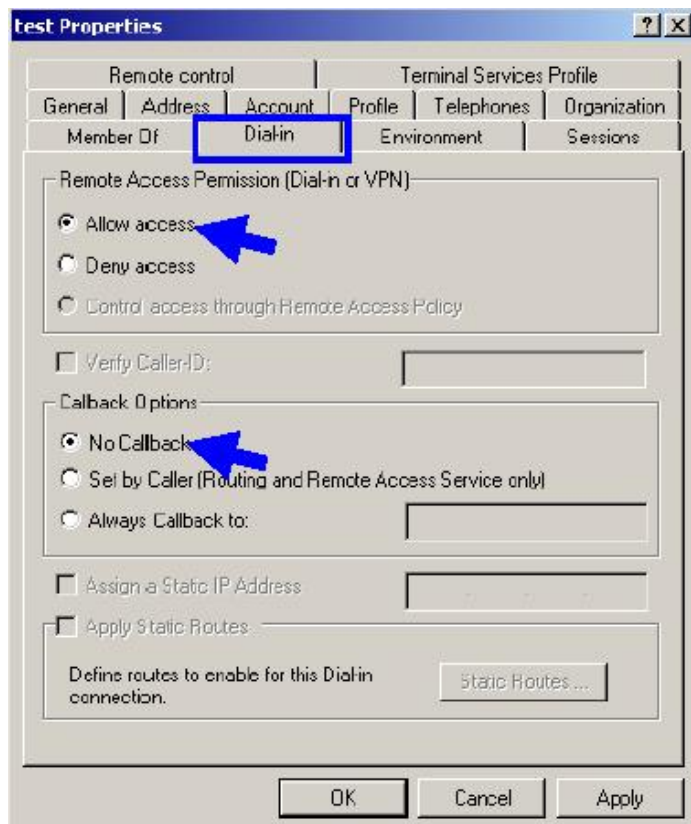
41. Click **“Define this policy setting”**, select **“Enabled”**, and click **“OK”** to continue
42. Go to **Start > Program > Administrative Tools > Active Directory Users and Computers**.
43. Go to **Users**. Right-click on the user that you are granting access, and select **“Properties”**.



44. Go to **“Account”** tab, and enable **“Store password using reversible encryption”**.
45. Click **“Apply”** to continue



46. Go to the “Dial-in” tab, and check “Allow access” option for Remote Access Permission and “No Call-back” for Callback Options. Then click “OK”.

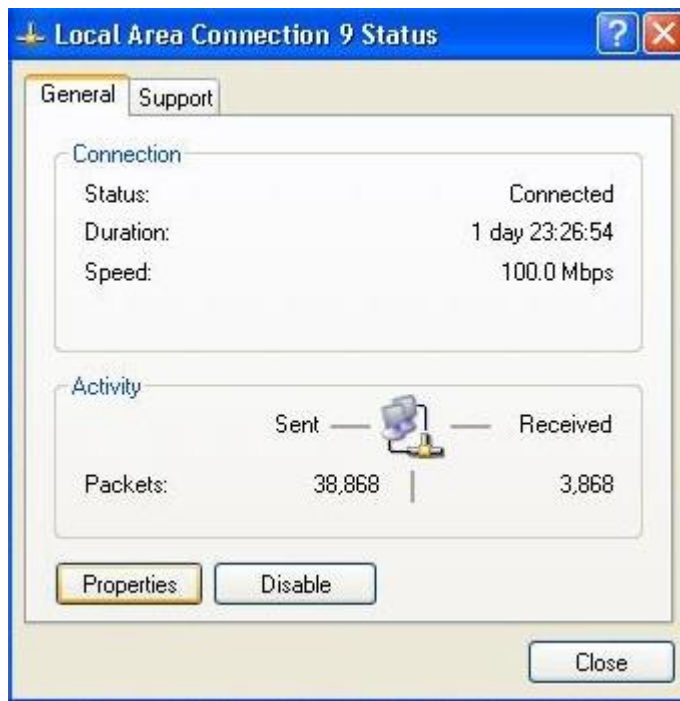


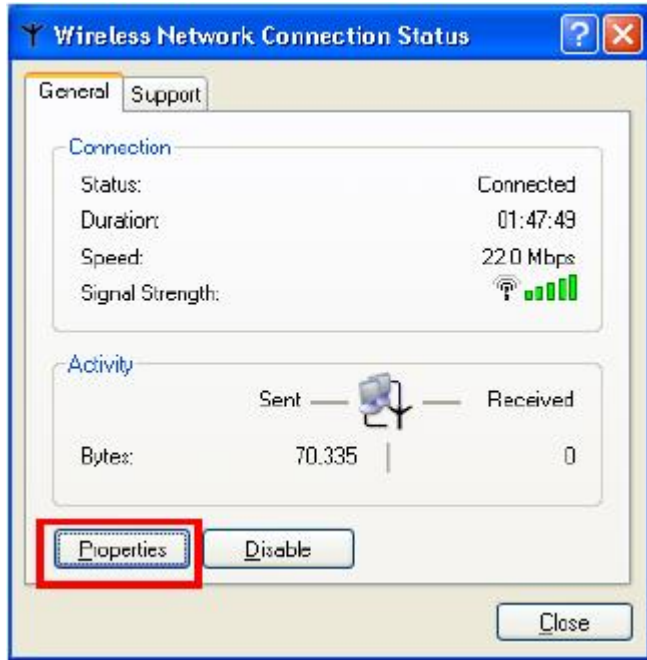
### ***B.3 Switch client setup***

Windows XP is originally 802.1X support. As to other operating systems (windows 98SE, ME, 2000), an 802.1X client utility is needed. The following procedures show how to configure 802.1X Authentication in Windows XP

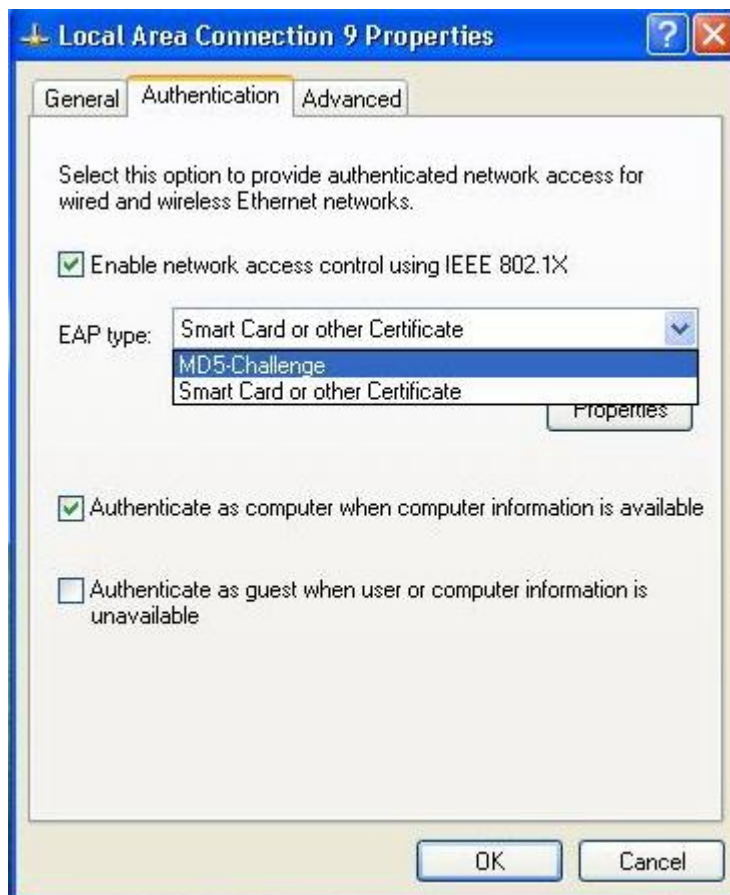
#### **B.3.1 EAP-MD5 Authentication**

1. Go to **Start > Control Panel**, double-click on “**Network Connections**”.
2. Right-click on the Network Connection that connect with WSW-2401.
3. Click “**Properties**” to open up the Properties setting window.





4. Select on the “**Authentication**” tab.



5. Select “**Enable network access control using IEEE 802.1X**” to enable 802.1x authentication.
6. Select “**MD-5 Challenge**” from the drop-down list box for EAP type.

- 7 Click **“OK”**
- 8 When Switch client has associated with WSW-2401, a user authentication notice appears in system tray. Click on the notice to continue and get the authentication from your Windows 2000 server.

