Trademarks

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FCC Warning

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 in-terference 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.

CE Mark Warning

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 16-port + 2-slot Smart Fast Ethernet Switch User's Manual

FOR MODEL: FNSW-1602S

Part No.: 2010-000017-000

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Chapter 1
INTRODUCTION

1.1 Package Contents

Check the contents of your package for following parts:

- Smart Fast Ethernet Switch x1
- User's manual x1
- Power cord x1
- Two Rack-Mounting Brackets with Attachment Screws x1
- RS-232 cable x1

If any of these are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original pack-ing material, and use them against to repack the product in case there is a need return to it to us for repairing.

1.2 How to Use

This Smart Fast Ethernet Switch User's Manual is structured as follows: This Manual

- Section 2, Installation

  It explains the functions of FNSW-1602S and how to physically install the FNSW-1602S.

- Section 3, Configuration

  It contains information about the smart function of FNSW-1602S.

- Section 4 Switch operation

  It explains the Switch operation of FNSW-1602S.

- Section 5 Troubleshooting

  It contains troubleshooting guide of FNSW-1602S.

- Appendix A

  It contains cable information of FNSW-1602S.

1.3 Product Features

- Complies with IEEE802.3 and 802.3u standards for 100Base-TX/FX
- 16-port 10/100 Mbps Fast Ethernet Switch
- Each Switching ports support auto-negotiation-10/20, 100/200Mbps sup-

ported

- 2 open slots for 100Base-FX fiber-optic interface with various connection media and distances
- Auto-MDI/MDI-X detection on each RJ-45 port
- Prevents packet loss with back pressure (half-duplex) and 802.3x PAUSE frame flow control (full-duplex)
- High performance Store and Forward architecture, broadcast storm control, runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- 2K MAC address table, automatic source address learning and ageing
- 256K bytes shared data memory buffering
- Console interface for Switch basic management and setup
- Support 18-group port-based VLAN
- Support port trunking
- Support broadcast storm control
- Two priority queues ensure critical ports have higher transmit priority

1.4 Product Specifications

Model	FNSW-1602S
Hardware Specification	
Network ports	16 10/100Base-T RJ-45 MDI/MDI-X ports
Module slot	2 open slot for 100Base-FX fiber-optic interface
Console port	1 RS-232 DB-9 male
Dimensions	440 x 200 x 44 mm (1U height)
Weight	2.6 kg
Power Requirement	100~240 (±10%) VAC, 50-60 (±3) Hz
Power Consumption	30 Watts maximum / 100 BTU/hr maximum
Switch Specification	
Switch architecture	Store-and-forward
Address Table	2K entries, auto learning/ageing
Shared data Buffer	256K bytes

Flow Control	Back pressure for half duplex, IEEE 802.3x for full duplex
Packet Control	Runt & CRC filtering, Broadcast storm control
Switching Fabric	4.5Gbps
Switch Management	
Port Configuration	Port disable/enable Auto-negotiation / Nway_FORCE / FORCE mode selection 10/100Mbps full and half duplex mode selection Flow control disable/enable
Port Status	Display each port's link status, disable / enable status, speed duplex mode and flow control status
Aging Time	30-765 seconds, disable
Broadcast Storm Control	Disable/Enable
VLAN	Up to 18 port-based VLAN groups
Port Trunking	2 groups of 2-port trunk support
Port Priority	High or low priority for each port and 802.1p tag priority mapping
Standards Conformance	
Network Standards	IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet) IEEE8023x (flow control) IEEE 802.1p QoS
Operating Temperature	0~50°C
Storage Temperature	-40~70°C
Humidity	5% to 95% (Non-condensing)
Regulation Compliance	FCC Class A, VCCI Class A, CISPR 22 Class A

Chapter 2
INSTALLATION

This section describes the functionalities of FNSW-1602S compo-nents and guides how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Please read this chapter com-pletely before continuing.

2.1 Product Description

The PLANET FNSW-1602S provides 16 10/100Mbps Fast Ethernet Switch ports with 2 open slots for available for 100Base-FX Ethernet fiber modules. The optional modules can be multi-mode fiber using either SC or ST connectors. The PLANET FNSW-1602S with non-blocking backplane and simplifies the task of upgrading your LAN to cater for increased bandwidth demand. Equipped with a console in-terface, the FNSW-1602S Smart Switch can be programmed for basic switch management functions such as port speed configuration, VLAN, Port Trunking, Port Priority and Broadcast Storm Control.

2.1.1 Product Overview

PLANET FNSW-1602S is a Smart Fast Ethernet switch with 16 RJ-45 10/100Mbps ports and up to two 100Mbps fiber ports for cost effective high-performance network connectivity. With it's 4.5Gbps non-blocking switch fabric, the PLANET FNSW-1602S can also pro-vide a local, high bandwidth, Fast Ethernet network for your departmental backbone plus the ability to trunk two ports (200Mbps) to enable switch-to-switch backbone. The advanced functionality of the FNSW-1602S eliminates traditional problems associated with the use of Ethernet. Users can be segregated using built-in VLAN functionality. This, coupled with the flexible fiber module options make the FNSW-1602S one of the best and most cost-effective MTU switch solutions for Multi-tenant service providers.

This product also supports store-and-forward forwarding scheme to ensure low latency and high data integrity, eliminates unnecessary traffic and relieves congestion on critical network paths. With an in-telligent address recognition algorithm, FNSW-1620S could recognize up to 2K different MAC address and enables filtering and forwarding at full wire speed.

2.1.2 FNSW-1602S Front Panel

Figure 2-1 shows front panel of FNSW-1602S.

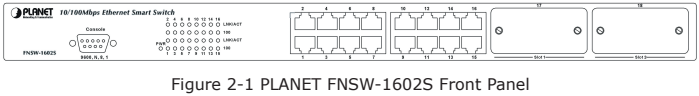


Figure 2-1 PLANET FNSW-1602S Front Panel

2.1.3 LED Indicators

LED	Color	Function
PWR	Green	Lit: Power on
LNK/ACT	Green	Lit: indicate the link through that port is successfully established Blink: indicate that the switch is actively sending or receiving data over that port
100	Orange	Lit: indicate that the port is operating at 100Mbps. Off: indicate that the port is operating at 10Mbps.

2.1.4 Extension Slots

The Switch extension slots #17 and #18 can be a 100Base-FX switching port as the extension module installed.

Please refer to the section 3.2.3.1 Port Configuration for the detailed installation and settings.

The rear panel of the Switch indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz.

2.1.5 FNSW-1602S Rear Panel

Figure 2-2 shows Rear panel of FNSW-1602S.

Figure 2-2 Rear Panel of FNSW-1602S

Power Notice:

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

2. In some area, installing a surge suppression device may also help to protect your switch from being damaged by unregulated surge or current to the Switch or the power adapter.

2.2 Installing a FNSW-1602S

This part describes how to install your FNSW-1602S Smart Fast Ethernet Switch and make connections to the switch. Please read the following topics and perform the procedures in the order being pre-sented.

To install your FNSW-1602S on a desktop or shelf, simply complete the following steps.

2.2.1 Desktop Installation

To install a FNSW-1602S on a desktop or shelf, simply complete the following steps:

Step 1: Attach the rubber feet to the recessed areas on the bottom of the switch.

Step 2: Place the FNSW-1602S on a desktop or shelf near an AC power source.

Step 3: Keep enough ventilation space between the switch and the surrounding objects

Note: When choosing a location, please keep in mind the environ-mental restrictions discussed in Chapter 1, Section 4, Specification.

Step 4: Connect your FNSW-1602S to network devices

A. Connect one end of a standard network cable to the 10/100 RJ-45 ports on the front of the FNSW-1602S.

B. Connect the other end of the cable to the network devices such as printer servers, workstations or routers…etc.

Note: Connection to the Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specification in Section 4, Specification.

Step 5: Supply power to the Switch.

A. Connect one end of the power cable to the FNSW-1602S

B. Connect the power plug of the power cable to a standard wall outlet then power on the FNSW-1602S.

When the FNSW-1602S receives power, the Power LED should re-main solid Green.

2.2.2 Rack Mounting

To install the switch in a 19-inch standard rack, follow the instructions described below.

Step 1: Place your FNSW-1602S on a hard flat surface, with the front panel positioned towards your front side.

Step 2: Attach a rack-mount bracket to each side of the switch with supplied screws attached to the package. Figure 2-3 shows how to attach brackets to one side of the switch.

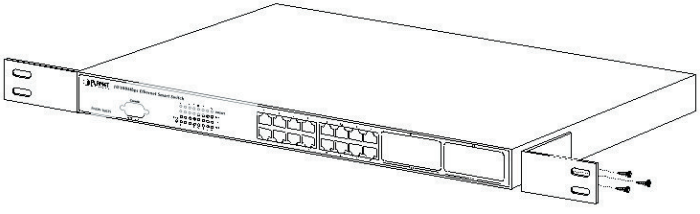


Figure 2-3 Attaching the brackets to the FNSW-1602S

Caution:

You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

Step 3: Secure the brackets tightly.

Step 4: Follow the same steps to attach the second bracket to the opposite side.

Step 5: After the brackets are attached to the switch, use suitable screws to securely attach the brackets to the rack, as shown in Figure 2-4.

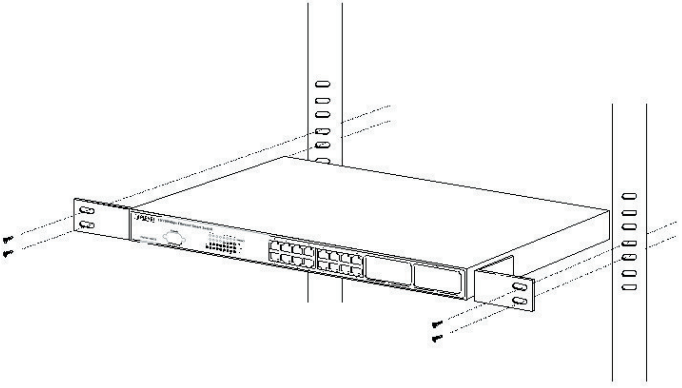


Figure 2-4 Mounting the Switch in a Rack

Step 6: Proceed with the steps 4 and steps 5 of section 2.2.1 Desktop Installation to connect the network cabling and supply power to your switch.

Chapter 3
CONFIGURATION

Unlike the unmanaged switch, FNSW-1602S performs series smart functions that make the switch operate more effectively. This section will describe the common usage of the Switch Smart Configuration.

3.1 Preparing for configuration

3.1.1 Connecting a PC or Terminal to the RS-232 Port

When you are ready to configure the smart functions of the switch, make sure you had connected the supplied RS-232 serial cable to the RS-232 port at the front panel of your FNSW-1602S Switch and your PC.

3.1.2 Terminal Emulation Setup Program

In Windows 98/2000/XP, launch "HyperTerminal", create a new con-nection, and adjust settings as below:

- Emulation: VT-100 compatible
- Baud per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow Control: None

Please see the Figure 3-1 for the setup example using Windows Terminal program.

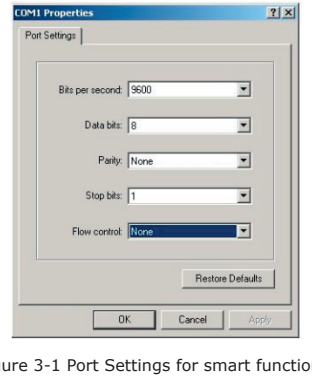


Figure 3-1 Port Settings for smart functions

3.1.3 Power-up Self-test Status

As the switch powers on, it goes through a self-test process to ensure proper operations of the FNSW-1602S hardware. The messages will be displayed to show the test progress. When the test completes successfully, the system will display a login screen. If any of the components fails during the test, you may need to contact your local dealer and have the switch replaced. Figure 3-2 shows a successful Self-test menu of the Power-up System Self-diagnostic Process.

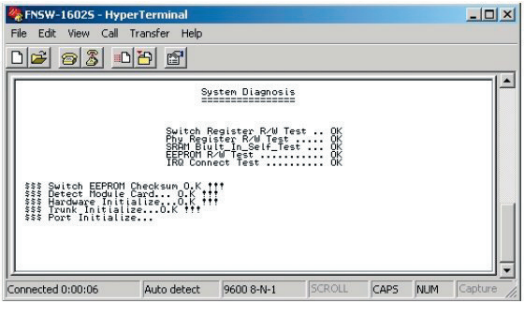


Figure 3-2 Power-up System Self-diagnostic screen

3.1.4 Login

Login is required to access the command console after the self-test completes successfully. The factory default Username is "admin" without password. You may change it in the Account Configuration.

To access to the Main Menu, please always enter the correct user-name and password. The screen in figure 3-3 appears.

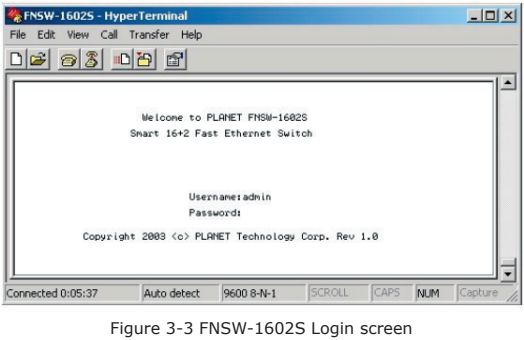


Figure 3-3 FNSW-1602S Login screen

3.2 Getting Started

3.2.1 General Guidelines

FNSW-1602S allows users to configure the device via menu screens.

To work within the menu, please follow the guidelines shown in Table 3-1.

Item	Description
TAB KEY	Choose next item from the console screen.
BACKSPACE	Back to previous item from the console screen.
ENTER KEY	Access the highlighted item from the console screen.
SPACE KEY	When a List item is performed, the Space key startsthe selection and scrolls through the available choices.
CTRL+A	Return to the actions menu.

Table 3-1 General Guideline within the Menu

3.2.2 Main Menu Screen

The main menu enables you to view and manage the FNSW-1602S settings. Use the "Tab" keys to move the highlight over a selection. Press " Enter" key for chooses Smart function of FNSW-1602S. After entering into any smart function screen, choose <Edit> for configuring. Then Press the "Space Bar" to toggle back and forth between the options. After setup completed, press "Ctrl-A" key to return to Actions menu and use the "TAB" key to choose the <Save> for save the current configuration. Please see Figure 3-4 for available options on main menu.

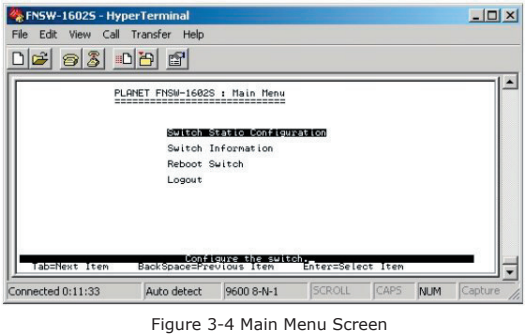


Figure 3-4 Main Menu Screen

Switch Static Configuration

Provide the Port Configuration, Trunk Configuration, VLAN Configuration, Misc Configuration and account Configura-tion of FNSW-1602S. Explained in section 3.2.3.

Switch Information

Displays the System Information and Port Status, which allows you to see the system information and current link status of each port, port disable/enable status, speed/duplex mode and flow control status of each port. Explained in section 3.2.4.

Reboot Switch

Provide resetting the FNSW-1602S to factory default and restart the FNSW-1602S. Explained in section 3.2.5.

Logout

Allow user to logout the FNSW-1602S. Explained in section 3.2.6.

3.2.3 Switch Static Configuration

Press "Enter" to access the screen of Switch Static Configuration from the main menu screen (please see the figure 3-4). The following screen in Figure 3-5 appears. Table 3-2 describes the objects that shown in this screen.

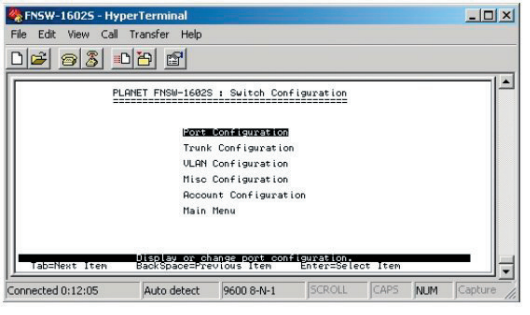


Figure 3-5 Switch Configuration Screen

Object	Description
Port Configuration	Allow user to disable or enable each port. Set each port to run at Auto-negotiation and NWAY-FORCE or FORCE mode. Modify the speed duplex mode and disable or enable flow control on each port. Please refer to section 3.2.3.1 for detail configuration.
Trunk Configuration	Provide two groups of 2-port trunk and supports fail-over feature. Please refer to section 3.2.3.2 for detail configuration.
VLAN Configuration	Provide 18 port-based VLAN groups and supports overlapping. Please refer to section 3.2.3.3 for detail configuration.

Misc Configuration	Provide user to set aging time, port static priority and 802.1p priority mapping. Disable or enable broadcast storm control and collision retry forever function. Set the auto-log off time of FNSW-1602S. Please refer to section 3.2.3.4 for detail configuration.
Account Configuration	Allow user to modify the username and password for FNSW-1602S. Please refer to section 3.2.3.5 for detail configuration.
Main Menu	Return to the main menu. Please refer to section 3.2.3.6 for detail configuration.

Table 3-2 Descriptions of the Switch Configuration screen Objects

3.2.3.1 Port Configuration

Use the "TAB" key to move the highlight to the Port Configuration and press "Enter" to access the screen of Port Configuration from the Switch Configuration screen (please see the figure 3-5). The screen of Port Configuration in Figure 3-6 appears. Table 3-3 describes the Port Configuration objects of FNSW-1602S. This menu allows you to view or change the port configuration of FNSW-1602S. The user can determine port disable/enable, each port run at Auto-negotiation mode, NWAY-FORCE mode or FORCE mode, Speed/Dpx and Flow control on/off.

Use the "TAB" key to choose the <Edit> press "Enter". Then start to modify these settings, use the "TAB" key to move the highlight to the object and press the "Space Bar" key to toggle back and forth between the options. After setup completed, press "Ctrl-A" key to return to Actions menu and use the "TAB" key to choose the <Save> for saving the current configuration.

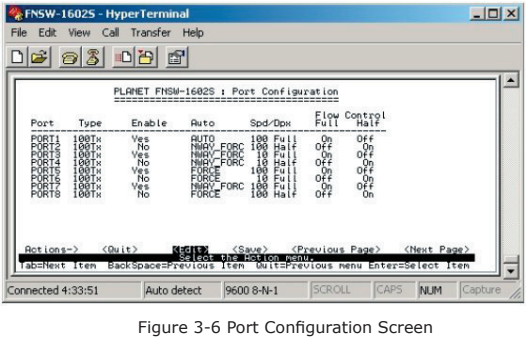


Figure 3-6 Port Configuration Screen

Object	Description
Enable	Allow user to disable or enable each port. The descriptions of options are shown as below: No: disable specific port. Yes: enable specific port.
Auto	Provide three various negotiation modes. The descriptions of three various negotiation modes are: AUTO: auto-negotiation mode NWAY_FORCE: auto-negotiate to fixed speed and duplex mode. FORCE: fixed speed and duplex mode.
Spd/Dpx*	Allow user to modify the 4 various speed and duplex mode on each port of FNSW-1602S. The descriptions of 4 various speed and duplex mode are shown as below: 10 Half: 10Mbps half-duplex mode. 10 Full: 10Mbps full-duplex mode. 100 Half: 100Mbps half-duplex mode. 100 Full: 100Mbps full-duplex mode.
Flow Control	Provide disable or enable flow control on full-duplex mode and half-duplex mode. The descriptions of options are shown as below: On: enable flow control. Off: disable flow control.

Table 3-3 Descriptions of the Port Configuration screen Objects

Remark:

1. This option will turned off if set the negotiation mode in "AUTO" mode.
2. The FNSW-1602S's port#17, #18 can be 100Base-FX switch port. The 100Base-FX module provide half and full-duplex mode selection.

Note: Please configure the 100Base-FX module in the same duplex mode between the module DIP switch and port #17, #18's duplex mode from the console interface. The screen in Figure 3-7 appears. Table 3-4 shows the settings for working under 100Mbps full-duplex mode and half-duplex mode.

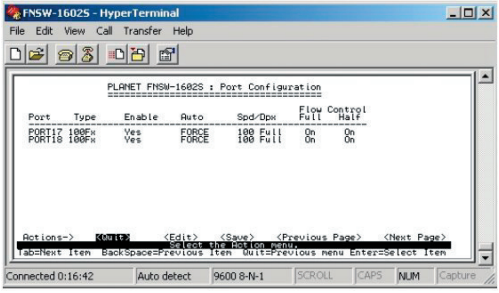


Figure 3-7 Port Configuration Screen

Speed/duplex	100Full-duplex mode	100Half-duplex mode
Hardware (module)	Full-duplex mode	Half-duplex mode
Software (firmware)	100 Full	100 Half

Table 3-4 Settings of 100Base-FX module

3.2.3.2 Trunk Configuration

Use the "TAB" key to move the highlight to the Trunk Configuration and press "Enter" to access the screen of Trunk Configuration from the Switch Configuration screen (please see the figure 3-5). The screen of Trunk Configuration in Figure 3-8 appears. Table 3-5 shows the descriptions of the Trunk Configuration screen Objects. The Port Trunking Configuration menu controls the port trunking or the so-called Link Aggregation function. Port 1 and Port 2 or Port 9 and Port 10 in the FNSW-1602S Smart Fast Ethernet Switch can be bundled together to form a high-speed trunk. Use the "TAB" key to choose the <Edit> and press "Enter". Then start to modify these settings. Use the "TAB" key to move the highlight to the selection and press the "Space Bar" key to toggle back and forth between the options. After setup completed, press "Ctrl-A" key to return to Actions menu and use the "TAB" key to choose the <Save> for saving the current configuration.

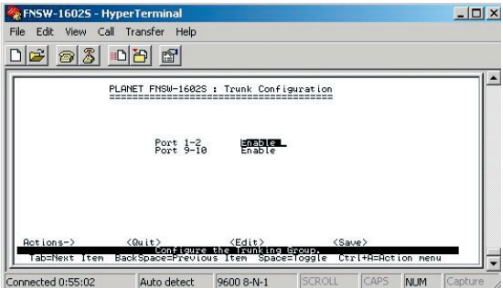


Figure 3-8 Trunk configuration Screen

Object	Description
Trunk [Port 1~2]	Allow user to disable or enable Trunk function on port 1 and port 2.
Trunk [Port 9~10]	Allow user to disable or enable Trunk function on port 9 and port 10

Table 3-5 Descriptions of the Trunk Configuration screen Objects

3.2.3.3 VLAN Configuration

Use the "TAB" key to move the highlight to the VLAN Configuration and press "Enter" to access the screen of VLAN Configuration from the Switch Configuration screen (please see the figure 3-5). The screen of VLAN Configuration in Figure 3-9 appears. Table 3-6 shows the descriptions of the VLAN Configuration Menu Objects. The FNSW-1602S support up to 18 port-based VLAN groups. Each port can be assigned to different group at the same time.

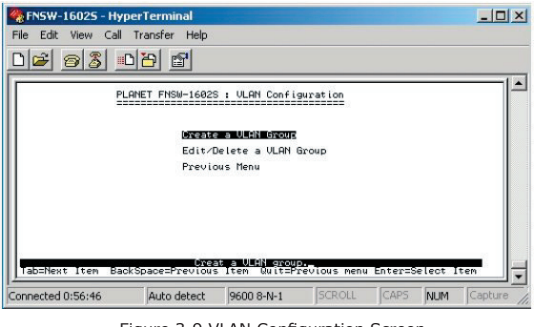


Figure 3-9 VLAN Configuration Screen

Object	Description
Create a VLAN Group	Allow user to create new VLAN group. Maximum up to 18 port-based VLAN groups.
Edit/Delete a VLAN Group	Allow user to edit the existing VLAN group or delete existing VLAN group.
Previous Menu	Back to Switch Configuration screen.

Table 3-6 Descriptions of the VLAN Configuration screen Objects

3.2.3.3.1 Create a VLAN Group

Use the "TAB" key to move the highlight to the Create a VLAN Group and press "Enter" to access the screen of Create a VLAN Group. The screen of Create a VLAN Group in Figure 3-10 appears. Use the "TAB" key to move the highlight to the <Edit> and press "Enter" to modify these settings. Use the "TAB" key to move the highlight to the selection and press the "Space Bar" key to toggle back and forth between the options.

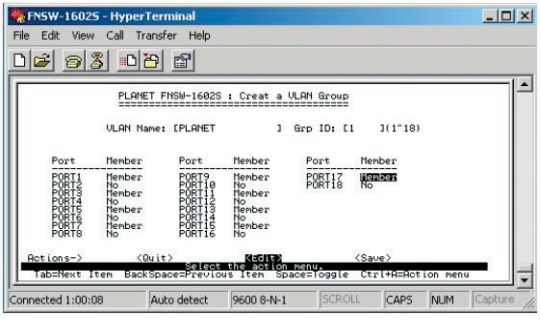


Figure 3-10 Create a VLAN Group screen

After setup completed, press "Ctrl-A" key to return to Actions menu and use the "TAB" key to choose the <Save> for saving the current configuration. The screen in figure 3-11 appears with message "Save successfully! Press any key to return!".

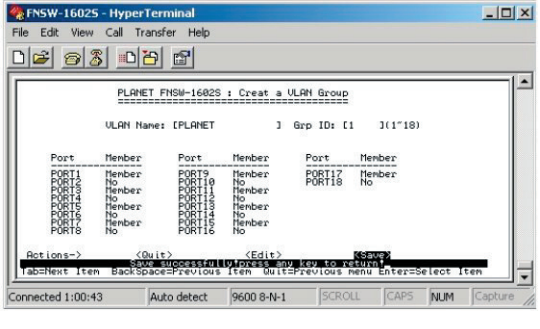


Figure 3-11 Save VLAN Configuration successfully screen

3.2.3.3.2 Edit / Delete a VLAN Group

Use the "TAB" key to move the highlight to the Edit/Delete a VLAN Group (Figure 3-12) and press "Enter" to access the screen of Edit/Delete a VLAN Group. The screen of Edit/ Delete a VLAN Group appears.

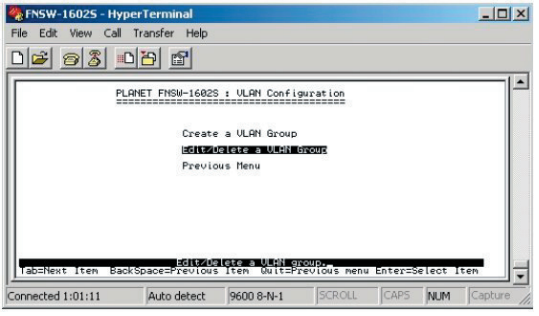


Figure 3-12 Edit/Delete a VLAN Group screen

3.2.3.3.2.1 Edit a VLAN Group

Use the "TAB" key to move the highlight to the <Edit> and press "Enter" to start editing the existing VLAN group. The screen in figure 3-13 appears.

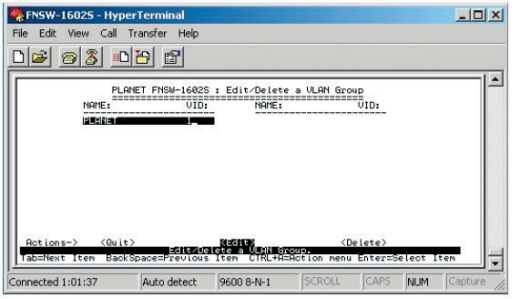


Figure 3-13 Edit existing VLAN Group Configuration Screen

Use the "Tab" and "Back space" to move forth and back between VLAN and press "Enter" to select the VLAN you want to edit. The screen in figure 3-14 appears. Please follow the same procedure as section 3.2.3.3.1 Create a VLAN Group to edit the VLAN group.

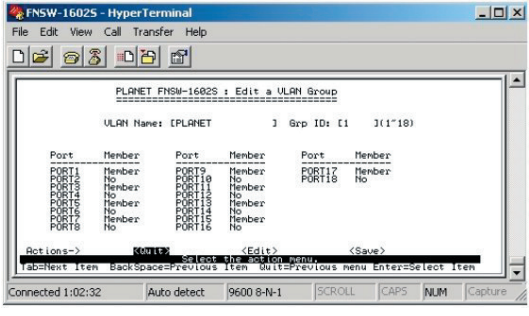


Figure 3-14 Edit existing VLAN Group Configuration Screen

After editing is completed, press "Ctrl-A" key to return to Actions menu and use the "TAB" key to choose the <Save> for saving the current configuration. The screen in figure 3-15 appears with message "Save successfully! Press any key to return!"

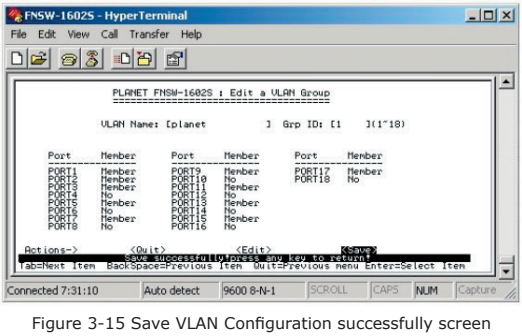


Figure 3-15 Save VLAN Configuration successfully screen

3.2.3.3.2.1 Delete a VLAN Group

On "Edit / Delete a VLAN group" menu, use the "TAB" key to move the highlight to the <Delete> and press "Enter" to start the deleting of existing VLAN group. The screen of Delete a VLAN Group in Figure 3-16 appears.

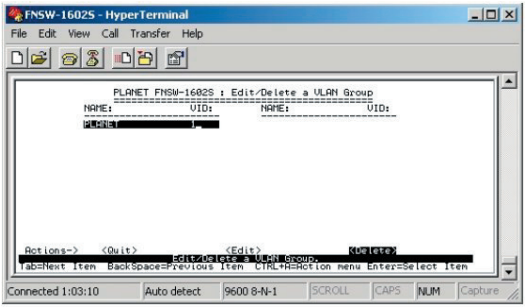


Figure 3-16 Delete existing VLAN group Screen

Use "TAB" or "Backspace" key to move the highlight to the VLAN you want to delete and press "Enter" to delete the VLAN. The screen similar to Figure 3.17 appears with message "Delete operation save successfully!"

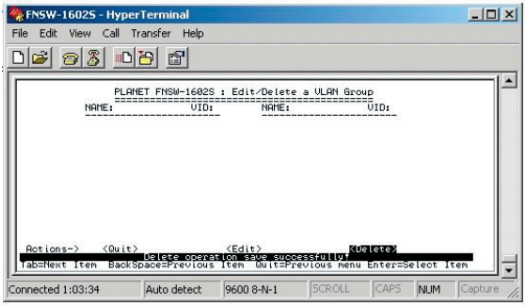


Figure 3-17 Delete existing VLAN Group successfully Screen

3.2.3.3.3 Previous Menu

Choose "Previous Menu" to return to Switch Configuration screen of FNSW-1602S.

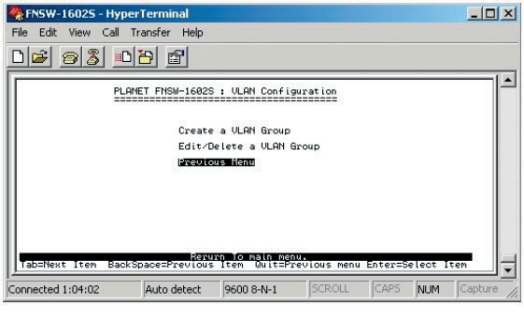


Figure 3-18 Previous Menu Screen

3.2.3.4 Misc Configuration

Use the "TAB" key to move the highlight to the Misc Configuration and press "Enter" to access the screen of Misc Configuration from the Switch Configuration screen (please see the figure 3-5). The screen of Misc Configuration in Figure 3-19 appears. Table 3-7 shows the descriptions of the Misc Configuration screen Objects. The Misc Configuration menu includes the Aging time setting, Port Static Priority and 802.1p Priority Mapping. Disable and Enable the Broadcast Storm Control and Collision Retry Forever function. And also the Auto Log Off Time setting. Use the "TAB" key to choose the <Edit>. Then start to modify these settings, use the "TAB" key to move the highlight to the selection and press the "Space Bar" key to toggle back and forth between the options. After setup completed. Pressing "Ctrl-A" key return to Actions menu and use the "TAB" key to choose the <Save> for save the current configuration.

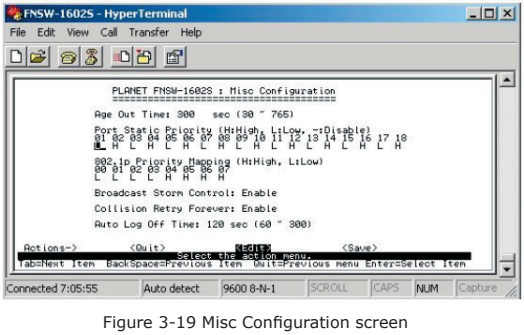


Figure 3-19 Misc Configuration screen

Object	Description
Age Out Time	Allow user to set the aging time of the MAC address table on FNSW-1602S. The available range is from 30 sec to 765 sec. The default value is 300 sec.
Port Static Priority	Allow user to set priority on each port. There are two queues on the switch, Low priority queue and high priority queue. Packets on high priority queue always process first. The switch will process packets on low priority queue only when high priority queue is empty. The available options are shown as below: -: Disable, If the packets is with 802.1p priority tag, use the settings on 802.1p Priority Mapping to assign to low or high priority queue. Otherwise, assign to low priority queue. L: Low, assign all packets from the port to low priority queue. H: High, assign all packets from the port to high priority queue.
802.1p Priority Mapping	Allow user to process packets according to 802.1p priority tag on the packets. This function is applicable when Port Static Priority is set to Disable. The available options are shown as below: L: Low, assign all packets with the priority settings to low priority queue. H: High, assign all packets with the priority settings to high priority queue.
Broadcast Storm Control	Allow user to disable or enable broadcast storm control. When broadcast storm control is enabled, broadcast packets can not occupy more than 20% of the queue buffer. The available options are shown as below: Disable: Disable broadcast storm control. Enable: Enable broadcast storm control.
Collision Retry Forever	If this function is disabled, when packets meet collision, the switch will retry 6 times before discard the packets. Otherwise, the switch will retry until the packets are successfully sent.
Auto Log Off Time	Allow user to set the auto-logout time of FNSW-1602S. The available range is 60 sec to 300 sec. The default value is 120 sec.

Table 3-7 Descriptions of the Misc Configuration screen Objects

3.2.3.5 Account Configuration

Use the "TAB" key to move the highlight to the Account Configuration and press "Enter" to access the screen of Account Configuration from the Switch Configuration screen (please see the figure 3-5). The screen of Account Configuration in Figure 3-20 appears. Table 3-8 shows the descriptions of the Account Configuration screen Objects.

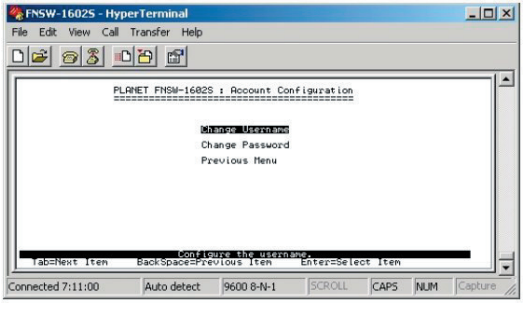


Figure 3-20 Account Configuration Screen

Object	Description
Change Username	Allow user to set the login username for FNSW-1602S. The default username is admin.
Change Password	Allow user to modify the password for FNSW-1602S. The default is without password.
Previous Menu	Back to pervious Menu.

Table 3-8 Descriptions of the Account Configuration screen Objects

3.2.3.5.1 Change Username

Use the "TAB" key to move the highlight to the Change Username and press "Enter" to access the screen of change Username. Use the "TAB" key to move the highlight to the <Edit> and press " Enter" to set the new username. The screen in figure 3-21 appears.

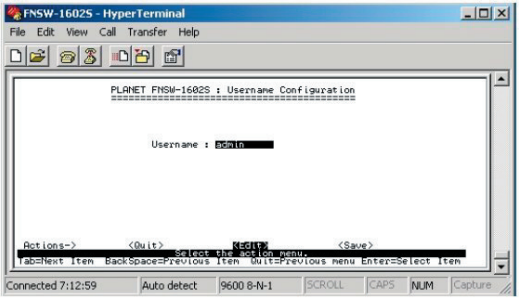


Figure 3-21 Username Configuration Screen

Up to 10 characters is allowed for the user name. After setup completed, press, "Enter" and use the "TAB" key to choose the <Save> for saving the current configuration. The screen in figure 3-22 appears with message "Save successfully! Press any key to return!"

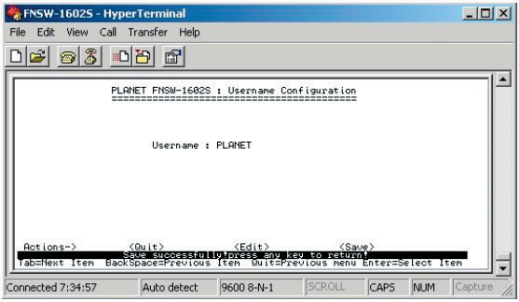


Figure 3-22 Save new username successfully Screen

3.2.3.5.2 Change Password

Use the "TAB" key to move the highlight to the Change Password and press "Enter" to access the screen of Change Password. The screen in figure 3-23 appears. Up to 10 characters is allowed for the password.

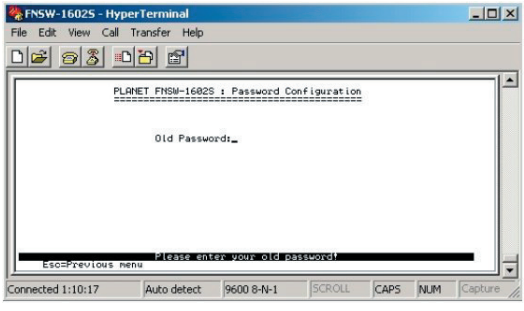


Figure 3-23 Password Configuration Screen

Please enter the current old password, and then enter the new password twice. After setup completed, press "Enter" to save the new password. Then Press any key return to the previous menu. The screen in figure 3-24 appears.

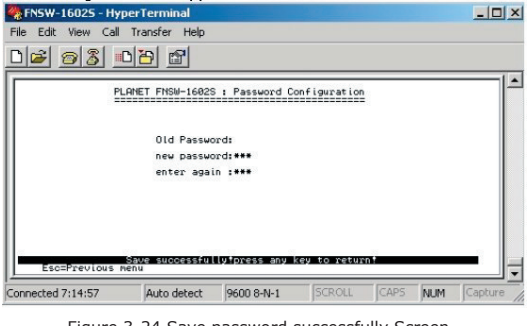


Figure 3-24 Save password successfully Screen

3.2.3.5.3 Previous Menu

Choose "Previous Menu " to return to Switch Configuration screen of FNSW-1602S.

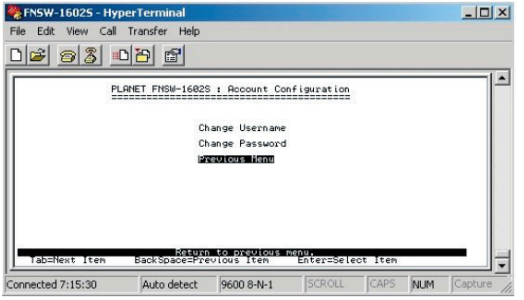


Figure 3-25 Previous Menu Screen

3.2.3.6 Main Menu

This function allows user to return to the main menu of FNSW-1602S. The screen in figure 3-26 appears.

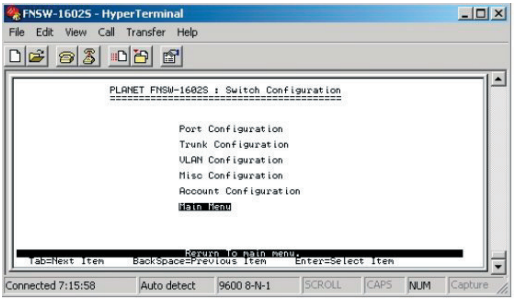


Figure 3-26 Main Menu Screen

3.2.4 Switch Information

Press "Enter" to access the screen of Switch Information from the main menu screen (please see the figure3-4). The following screen in Figure 3-27 appears. Table 3-9 describes the objects that shown in this screen.

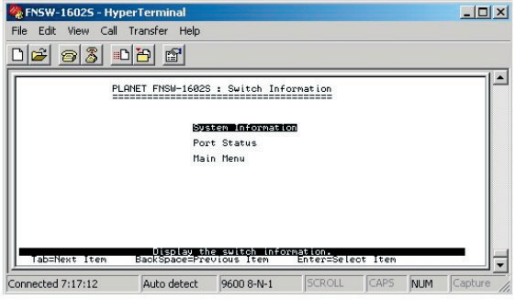


Figure 3-27 Switch Information Screen

Object	Description
System Information	Display the firmware version and EEPROM version of FNSW-1602S. Please refer to chapter 3.2.4.1 for detail information.
Port Status	Display the current status of each port from FNSW-1602S. Please refer to chapter 3.2.4.2 for detail information.
Main Menu	Back to Main Menu of FNSW-1602S. Please refer to chapter 3.2.4.3 for detail information.

Table 3-9 Descriptions of the Switch Information screen Obje

3.2.4.1 System Information

Use the "TAB" key to move the highlight to the System Information and press "Enter" to access the screen of System Information from the Switch Information screen (please see the figure 3-27). The screen in figure 3-28 appears. Press "Esc" to return to the Switch Information screen.

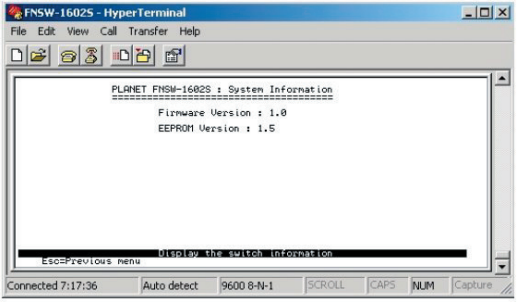


Figure 3-28 System Information Screen

3.2.4.2 Port Status

Use the "TAB" key to move the highlight to the Port Status and press "Enter" to access the screen of Port Status from the Switch Information screen (please see the figure 3-27). This screen allows user to view the current status of each port from FNSW-1602S. The screen in figure 3-29 appears. Choose < Next Page> to go to next page of Port Status and choose < Previous Page> to return to previous page of Port Status. Choose <Quit> to return to the Switch Information screen.

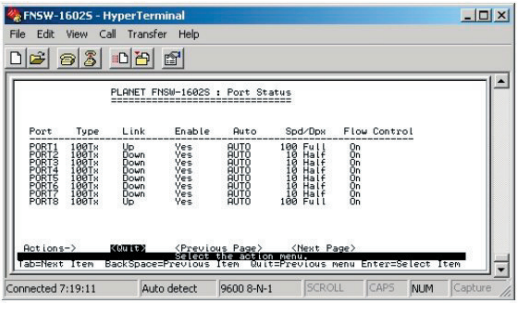


Figure 3-29 Port Status Screen

3.2.4.3 Main Menu

This function allows user to return to the main menu of FNSW-1602S. The screen in figure 3-30 appears, press "Enter" to return to the main menu screen.

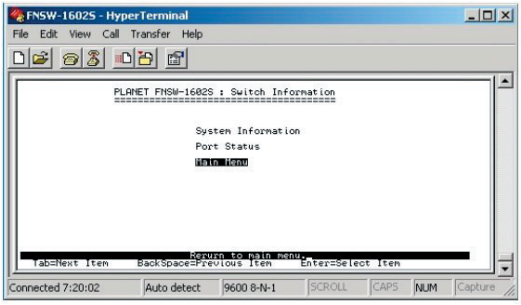


Figure 3-30 Main Menu Screen

3.2.5 Reboot Switch

Press "Enter" to access the screen of Reboot Switch from the main menu screen (please see the figure3-4). The screen in Figure 3-31 appears. Table 3-10 describes the objects that shown in this screen.

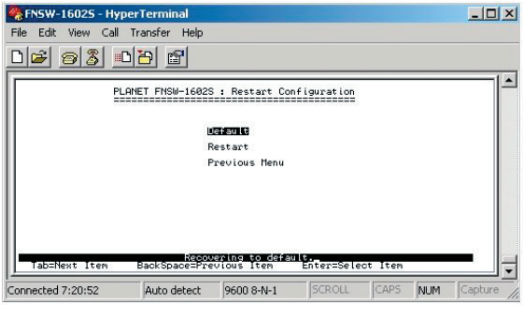


Figure 3-31 Restart Configuration Screen

Object	Description
Default	This function allows user to reset the FNSW-1602S back to factory default settings. Please refer to chapter 3.2.5.1 for detail information.
Restart	This function allows user to reboot the FNSW-1602S. Please refer to chapter 3.2.5.2 for detail information.

Previous Menu	Back to Main Menu of FNSW-1602S. Please refer to chapter 3.2.5.3 for detail information.

Table 3-10 Descriptions of the Switch Information screen Objects

3.2.5.1 Default

Use the "TAB" key to move the highlight to the Default and press "Enter" from the Restart Configuration screen (please see the figure 3-31). The following screen in figure 3-32 appears.

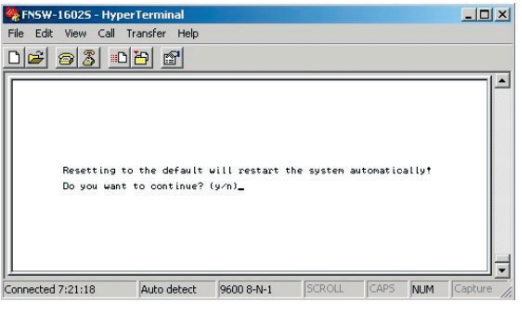


Figure 3-32 Reset the Switch to default mode Screen

Press " Y". The following screen in figure 3-33 appears.

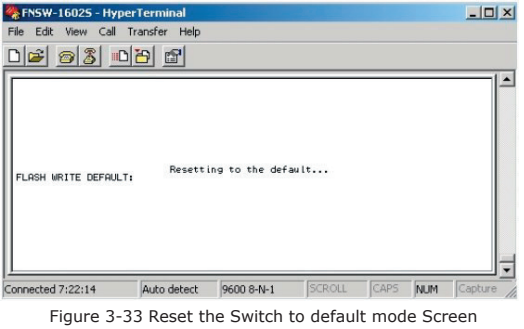


Figure 3-33 Reset the Switch to default mode Screen

Then the FNSW-1602S will reboot and go to the login screen. The screen in figure 3-34 & 3-35 appears.

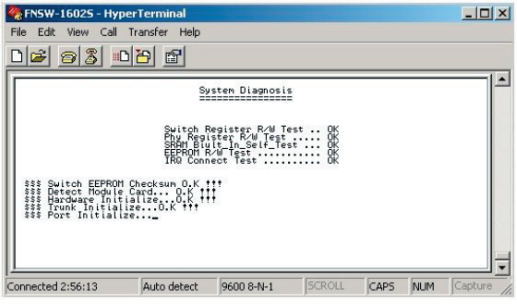


Figure 3-34 Reboot the FNSW-1602S Screen

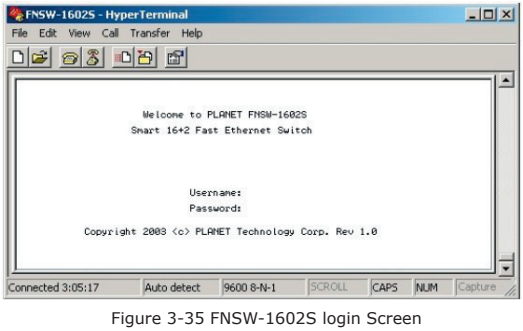


Figure 3-35 FNSW-1602S login Screen

3.2.5.2 Restart

Use the "TAB" key to move the highlight to the Restart and press "Enter" from the Restart Configuration screen (please see the figure 3-31). The following screen in figure 3-36 & 3-37 appears. Please note all unsaved settings will be gone after restart.

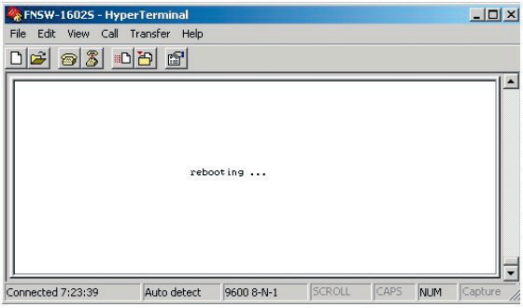


Figure 3-36 Rebooting FNSW-1602S Screen

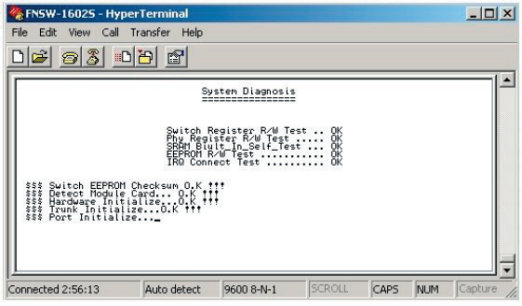


Figure 3-37 Rebooting FNSW-1602S Screen

Then the FNSW-1602S's login screen in figure 3-38 appears.

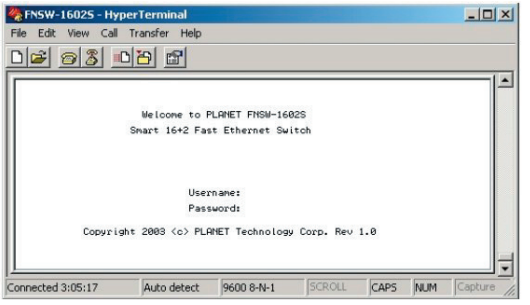


Figure 3-38 FNSW-1602S login Screen

3.2.5.3 Previous Menu

This function allows user to return to the main menu of FNSW-1602S. The screen in figure 3-39 appears.

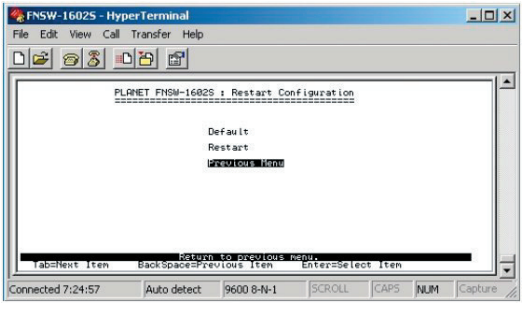


Figure 3-39 Previous Menu Screen

3.2.6 Logout

Press "Enter" to access the screen of Logout from the main menu screen (please see the figure 3-4). Then users will logout from the FNSW-1602S. The screen in Figure 3-40 appears.

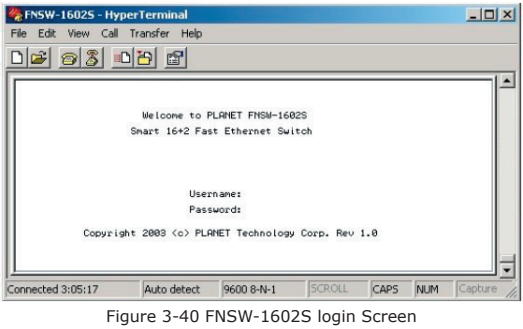


Figure 3-40 FNSW-1602S login Screen

Chapter 4
SWITCH OPERATION

4.1 Address Table

The Switch is implemented with an address table. This address table composed of many entries. Each entry is used to store the address information of some node in network, including MAC address, port no, etc. This information comes from the learning process of Ethernet Switch.

4.2 Learning

When one packet comes in from any port, the Switch will record the source address, port no. and the other related information in address table. This information will be used to decide either forwarding or filtering for future packets.

4.3 Forwarding & Filtering

When one packet comes from some port of the Ethernet Switching, it will also check the destination address besides the source address learning. The Ethernet Switching will lookup the address-table for the destination address. If not found, this packet will be forwarded to all the other ports except the port which this packet comes in. And these ports will transmit this packet to the network it connected. If found, and the destination address is located at different port from this packet comes in, the Ethernet Switching will forward this packet to the port where this destination address is located according to the information from address table. But, if the destination address is located at the same port with this packet comes in, then this packet will be filtered. Thereby increasing the network throughput and availability

4.4 Store-and-Forward

Store-and-Forward is one type of packet-forwarding techniques. A Store-and-Forward Ethernet Switching stores the incoming frame in an internal buffer, do the complete error checking before transmission. Therefore, no error packets occurrence, it is the best choice when a network needs efficiency and stability.

The Ethernet Switch scans the destination address from the packet-header, searches the routing table provided for the incoming port and forwards the packet, only if required. The fast forwarding makes the switch attractive for connecting servers directly to the network, thereby increasing throughput and availability. However, the switch is most commonly used to segment existing hubs, which nearly always improves overall performance. An Ethernet Switching can be easily configured in any Ethernet network environment to significantly boost bandwidth using conventional cabling and adapters.

Due to the learning function of the Ethernet switching, the source address and corresponding port number of each incoming and outgoing packet are stored in a routing table. This information is subsequently used to filter packets whose destination address is on the same segment as the source address. This confines network traffic to its respective domain, reducing the overall load on the network.

The Switch performs "Store and forward" therefore, no error packets occur. More reliably, it reduces the re-transmission rate. No packet loss will occur.

4.5 Auto-Negotiation

The STP ports on the Switch have built-in "Auto-negotiation". This technology automatically sets the best possible bandwidth when a connection is established with another network device (usually at Power On or Reset). This is done by detect the modes and speeds at the second of both device is connected and capable of, Both 10Base-T and 100Base-TX devices can connect with the port in either Half- or Full-Duplex mode.

If attached device is:	100Base-TX port will set to:
·10Mbps, no auto-negotiation	10Mbps
·10Mbps, with auto-negotiation	10/20Mbps (10Base-T/Full-Duplex)
·100Mbps, no auto-negotiation	100Mbps
·100Mbps, with auto-negotiation	100/200Mbps (100Base-TX/Full-Duplex)

Chapter 5
TROUBLESHOOTING

This chapter contains information to help you solve problems. If Giga Switch is not functioning properly, make sure the Ethernet Switch was set up according to instructions in this manual.

The Link LED is not lit

Solution:

Check the cable connection and remove duplex mode of the Giga Switch

Some stations cannot talk to other stations located on The other port

Solution:

The address table may contain older information than of the address table of that node. Please power down to refresh the address information, please also check VLAN configuration.

Performance is bad

Solution:

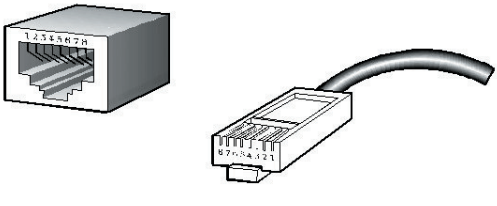
Check the full duplex status of the Ethernet Switch. If the Ethernet Switch is set to full duplex and the partner is set to half duplex, then the performance will be poor or fix the speed settings of both end.

A.1 Switch's RJ-45 Pin Assignments

When connecting your 10/100Mbps Ethernet Switch to another switch, a bridge or a hub, a straight or crossover cable is necessary. Each port of the Switch supports auto-MDI/ MDI-X detection. That means you can directly connect the Switch to any Ethernet devices without making a crossover cable. The following table and diagram show the standard RJ-45 receptacle/ connector and their pin assignments:

RJ-45 Connector pin assignment		
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface -Cross
1	TX + (transmit)	Rx + (receive)
2	TX - (transmit)	Rx - (receive)
3	Rx + (receive)	TX + (transmit)
4,5*	Not used	
6	Rx - (receive)	TX - (transmit)
7,8*	Not used	

The standard cable, RJ-45 pin assignment



The standard RJ-45 receptacle/connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

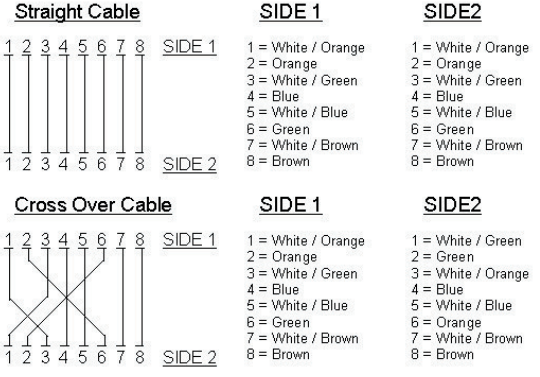


Figure A-1: Straight-Through and Crossover Cable

Please make sure your connected cables are with same pin assignment and color as above picture before deploying the cables into your network.

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