LevelOne

GSW-2490TXM

24-Port + 2 Slide-in Slots SNMP Switch

1. Introduction

Welcome to the World of Switching-Network.

In modern society, communication and information sharing are fundamental to our lifestyle. Computer networks are one of the fastest means of communication.

As your company grows, your network demands will increase. ...

The LevelOne GSW-2490TXM SNMP Switch are designed to provide your network with Ethernet, Fast Ethernet, Gigabit Ethernet connectivity over twisted pair and fiber optic cabling. Two expansion slots on the front panel of the LevelOne GSW-2490TXM SNMP Switches further add to the flexibility of the systems.

Figure 1-1. The 24TP+2Exp-Slot Switch



The LevelOne GSW-2490TXM SNMP is a managed Fast Ethernet switch, that provides a number of exceptional features with extremely flexible configuration expansions without compromising the wire speed performance.

The LevelOne GSW-2490TXM SNMP switch provide wire-speed switching with advanced bridging functions like VLAN, priority, multicast filtering, link aggregation and port mirroring. It can also support two different GBIC type as Mini GBIC LC and standard GBIC SC.

Many comprehensive network management functions are provided, such as Spanning Tree protocol for loop prevention and full recovery, VLAN configuration and IGMP snooping for multicast grouping configuration. VT100 console, remote telnet login, SNMP, and Web Interfaces are all standard management features.

Features

Conforms to IEEE802.3,IEEE802.3u,IEEE802.3z ,IEEE802.3x
 IEEE802.1p, IEEE802.3ac, IEEE802.1D, IEEE802.1Q

• 24 auto-sensing 10/100Mbps Ethernet RJ-45 ports

2 Expansion slots for optional modules: 1-port Duplex SC Gigabit (SX/LX), 100Mbps Fiber (SC/MT-RJ/VF-45), 1 RJ-45 for UTP or STP Gigabit 1000T Module with Automatic MDI/MDIX support, Mini GBIC LC type and Standard GBIC SC type.

- One Console-connecting port for communication parameter configuration
- Auto-negotiation & Full-duplex/half-duplex supported
- Store-and- Forward error free packet forwarding scheme
- 9.6 GB Backplane Bandwidth
- 8K-entry MAC address table
- 6Mbits share memory
- Full wire speed forwarding rate

LED-indicators for Power, per port Link/Active, FDX/COL 10/100M Gigabit Module LK/ACT, FDX/ COL statuses

Intelligent Management Features

- Console and Telnet Configuration
- Web-based management

SNMP network management

- IEEE 802.1Q Tagging VLAN and Port Based VLAN. supported
- IEEE802.3x Flow Control Mechanism is used in Full-Duplex mode and back-pressure is used in half-duplex
- IEEE 802.1D Blocking, Learning, and Forwarding state are supported for Spanning Tree Protocol
- IEEE 802.3ac Extends the maximum Ethernet Length to 1522 to Add the 4-Byte VLAN Tag
- IEEE802.1p, provides four levels priority per port, packets are prioritized according to the source port or the 802.1p priority tag
- Security Functions Supported
- IGMP Snooping and GMRP protocol supported
- Link Aggregation function supported
- Port Priority 802.1p & TOS (Type of Service) supported.
- TFTP support for firmware on network upgrade
- Port Mirror supported

Package Contents

Unpack the carton of the LevelOne GSW-2490TXM SNMP Switch and verify them against the checklist below.





LevelOne GSW-2490TXM SNMP Switch

Rubber Feet



Figure 1-2. Package Contents

Compare the contents of your LevelOne GSW-2490TXM SNMP Switch package with the standard checklist above. If any item is missing or damaged, please contact your local dealer for service.

Management Methods

The LevelOne GSW-2490TXM SNMP Switch supports following management methods:



Console and Telnet Management

Web-based Management

SNMP Network Management

Console and Telnet Management

Console Management is done through the RS-232 Console Port. Managing the LevelOne GSW-2490TXM SNMP Switch in this method requires a direct connection between PC and the LevelOne GSW-2490TXM SNMP Switch. While Telnet management is done over the network. Once the LevelOne GSW-2490TXM SNMP Switch is on the network, you can use Telnet to Log in and change the configuration.

SNMP Network Management

SNMP (Simple Network Management Protocol) provides a means to monitor and control network device, and to manage configurations, statistic collection, performance, and security. Data is passed from SNMP agents, which are hardware & software processes reporting activity in each network device to the workstation console used to oversee the network. The agent return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled.

2. Hardware Description

This section mainly describes the hardware of the LevelOne GSW-2490TXM SNMP Switch, and gives a functional overview of the Switch.

The physical dimensions of the LevelOne GSW-2490TXM SNMP Switch are: 440mmx 225mmx 44.5mm (Lx Wx H)

Hardware Description

The LevelOne GSW-2490TXM SNMP Switch is a fixed 24-port auto-sensing Ethernet RJ-45 connectors, and its chassis contains two expansion slots. The optional modules come with the built-in CPU module.

The Front Panel

The Front Panel of the LevelOne GSW-2490TXM SNMP Switch consists of 24x auto-sensing 10/100Mbps Ethernet RJ-45 Ports, two optional expansion slots, and Console port. The LED Indicators are also located on the front panel of the Switch.



Figure 2-1. The Front Panel of LevelO

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10/100Base-TX RJ-45 ports (Auto MDI/MDIX):

24x 10/100Mbps auto-sensing port for 10Base-T or 100Base-TX devices connection. Note: [MDI/MDIX means that you can connect

to another Switch or workstation without changing non-crossover or crossover cabling.]

Expansion Slots :

For two of the following Optional modules : 1 Port Gigabit 1000Base-T Intelligent Switch Modules, 1 Port Gigabit 1000Base-SX/LX Intelligent Fiber Modules. 1 Port 100Base-FX Intelligent Fiber Module

Console Port :

Console Management can be done through the Console Port. It requires a direct connection between the LevelOne GSW-2490TXM SNMP Switch and an end station (PC) via a RS-232 cable.

LED Indicators



Figure 2-2 The LED Indicators

All LED indicators are located on the front panel of the LevelOne GSW-2490TXM SNMP Switch. They provide a real-time indication of system and operational status. The following table gives descriptions of the LED status and their meanings.

LED	Status	Description
Green		Power On
PVK	Off	Power is Off.
Green		The port is operating at the speed of 100Mbps.
100	Off	No device attached or in 10Mbps mode

	Green	The port is connecting with the device.
LK/ACT	Blinks	The port is receiving or transmitting data.
	Off	No device attached.
	Yellow	The port is operating in Full-duplex mode.
FD/COL	Blinks	Collision of Packets occurs in the port.
	Off	No device attached or in half-duplex mode .

Table 2-1. The Descriptions of LED Indicators

Rear Panel

The 3-pronged power plug, On/off Switch are located at the Rear Panel of the LevelOne GSW-2490TXM SNMP Switch. (The Ventilation fan is located on the side of the Switch). The Switch will work with AC in the range 100-240V AC, 50-60Hz.





Power On

After all network cables are connected, plug the power cord into the power socket on the back panel and the other end into a power outlet. Turn the power On using the power Switch on the back panel.

Check the front panel Power indicator to see if power is properly supplied. The Switch uses a universal power supply that requires no additional adjustment.

Diagnostic Test

After the installation is completed and AC power is applied to the Switch, the system will automatically perform a diagnostic test. When the Power LED is on within 5 seconds, the Diagnostic status LEDs will soon flash red.

When the Switch passes the self-test within 15 seconds, the Link /ACT LED turns on.

Note : If the Switch fails the self-test, the Diag LED will blink.

3. Connecting to the Network

This section provides the installation procedure and instructions for assigning IP address.

Pre-Installation Requirements

Before you start hardware installation, make sure your installation environment has below items:

- PCs with 10/100Mbps Ethernet NICs/ 100Mbps Fiber NICs: Your PC must have a standard Ethernet interface to connect to the Switch.
- UTP cable with RJ45 connectors/ Fiber cable with MT-RJ/ VF-45 connectors: Check if the cable and connectors work properly.
- A power outlet: 100 to 240V AC at 50 to 60 Hz: Make sure that the Switch power is accessible and cables can be connected easily.

- Dedicated power supply: Use dedicated power circuits or power conditioners to supply reliable electrical power to the network devices.
- A dry cool place: Keep the Switch away from moisture. Avoid direct sunlight, heat source, and high amount of electromagnetic interference around.
- Mounting tools: If you intend to mount the Switch on a rack, make sure you have all the tools, mounting brackets, screws etc.

Caution:

- Cabling must be away from sources of electrical noise such as radio, computers, transmitters, broadband amplifiers, power lines and keep away from TVs, hair dryers, and microwave.
- Air flow around the Switch and through its vents on the rear cannot be restricted.

Mounting the Switch

The LevelOne GSW-2490TXM SNMP Switch is suitable for use in an office environment where it can be rack-mounted in standard EIA 19-inch racks or standalone.

Desktop Mounting

- 1. Set the Switch on a sufficiently large flat space with a power outlet nearby, and about the center of all networked devices.
- 2. Make sure mounting surface on the bottom of the Switch is grease dust free.
- 3. Remove adhesive backing from your Rubber Feet.



Figure 3-1. Attaching Rubber Feet to each corner on the bottom of the Switch

4. Apply the Rubber Feet to each corner on the bottom of the Switch. These footpads can prevent the Switch from shock/vibrations.

Caution: Do not place objects on top of the Switch.

Rack-mounted Installation

The <u>LevelOne GSW-2490TXM SNMP Switch</u> come with a rackmounted kid and can be mounted in an EIA standard size, 19-inch Rack. The Switch can be placed in a wiring closet with other equipment.

Perform the following steps to rack mount the Switch:

A. Position one bracket to align with the holes on one side of the Switch and secure it with the smaller bracket screws. Then attach the remaining bracket to the other side of the Switch.



Figure 3-2. Attach mounting brackets with screws

<u>B.</u> After attached both mounting brackets, position the <u>LevelOne</u> <u>GSW-2490TXM SNMP Switch (UTP/MT-RJ/VF-45) Switch</u> in the rack by lining up the holes in the brackets with the appropriate holes on the rack. Secure the Switch to the rack with a screwdriver and the rack-mounting screws.



Figure 3-3. Mount the 24TP+1Fiber Module Switch in an EIA standard 19-inch Rack

Note: For proper ventilation, allow about at least 4 inches (10 cm) of clearance on the front and 3.4 inches (8 cm) on the back of the Switch. This is especially important for enclosed rack installation.

Connecting to the Switch

The Console port is a male DB-9 connector that enables a connection to a PC or terminal for monitoring and configuring the LevelOne GSW-2490TXM SNMP Switch. Use the supplied RS-232 cable with a female DB-9 connector to connect a terminal or PC to the Console port.

The Console configuration (out of band) allow you to set your Switch to enable a user at a remote console terminal to communicate with the LevelOne GSW-2490TXM SNMP Switch as if the console terminal were directly connected to it.



Figure 3-4. Connecting the LevelOne GSW-2490TXM SNMP Switch to a terminal via RS-232 cable

Login in the Console Interface

When the connection between Switch and PC is finished, turn on the PC and run a terminal emulation program or **Hyper Terminal** and configure its **communication parameters** to match the following default characteristics of the console port:



Cancel

	10/100/1000Nbps Management Switch							
инизооски хих хихоосси хи хихоооски	*** *** ** **	*** **** ** ** ** **	XXX XXX XX XX XX	X000X X000X X000X X000X	инизорожини 30000 30000 30000 30000	хоккниних хок хок хок хоккниних	XXXX XXXX XXXXXX XXXX XXXX XXXX	**** **** **** ****
			User M Passwo	lane:[ord :[admin			
Use <tab> K</tab>	ey to	nove	betwee	en User	Name and Pa	issword, then	o press ≺8	Enter>

After you have finished parameter settings, click "**OK**". When the screen shows above, press "**admin**" Key for the User name, then the Main Menu of console management appears.

Main Menu

	10/100/1000Mbps Management Switch - Main Nenu -
	System Information
	Management Setup
	Device Control
	User Authentication
	System Utility
Use <	LOGOFF HELP Tab> key to select the item, then press <enter></enter>

Figure 3-6. The screen of Main Menu

After login you will see the main menu screen as illustrated in the picture. The main menu displays all the sub-menu and pages that are available in the console interface.

1. System Information

	10/100/100 - System	00Mbps Management Switch Information Menu -	
System Description	: ACD83524 10	3/100/1000Mbps Management	Switch
BOOT ROM Versi System Softwar Web-pages Vers Switch Hardwar	on: e Version: ion: e Version:	1.10 1.12 1.01 1.00	
System Object ID: System Up Time: System Contact: System Name: System Location: System Manager:	1.3.6.1.4.3 8 day 0 1 1 acci 1 5 NMP, Telno	1.888.201.2.2 nr 20 min 23 sec nt and Web	1
SAVE	EXIT	NRIN MENU	HELP

Figure 3-7. The System Information Menu

The system information screen displays information such as hardware, software versions, and system up time. You can also enter specific information about you and your organization here.

2. Management Setup

10/100/1000Mbps Management Switch - Management Setup Menu -
Network Configuration
Serial Port Configuration
SNMP Community Setup
Trap Receiver
Management Capability Setup
Trap Filter Setup
EXII HAIN MENU HELP Use <tab> key to select the item, then press <enter></enter></tab>

Figure 3-8. The Management Setup Menu

The management setup menu contains 6 submenus and are discussed in the section in the following pages.

2.1. Network Configuration

Network Interface In	дем 1801		
Interface Type:	Ethernet		
MAC Address:	08-E0-95-01-48-I	16	
Configuration:	Current	New	
IP Address:	192.168.1.165	192.168.1.165	1
Subnet Mask:	255.255.255.0	1255.255.255.0	1
Default Gateway:	0.0.0.0	10.0.0	1
SAVE EXIT	MAIN	ENU	HELP

Figure 3-9. The Network Configuration Men

This screen is provided to change the IP setting of your switch according to your network configuration. After changing the setting you need to save it so that whatever changes you made can take effect. Also note that the value under Current column will not reflect the changes you made until next time you login after resetting the switch.

2.2. Serial Port Configuration

	Curr	ent	New	Se	tting
Baud Rate:	9688	Bps	<9688	>	Bps
Character Size:	8	Bits			
Parity:	NO	Parity			
Stop Bits:	1	Bits			
Send Initial Stri	ng: (No >				
Modem Initial Str	ing:1				1
Serial Port Mode:	Conso	le			

Figure 3-10. The Serial Port Configuration

You can change the serial port setting through this screen to suit you environment, however, we recommend you to keep the default setting.

2.3. SNMP Community Setup

10/100/1008Mbps Management Switch - SNMP Community Menu -							
Index	SNNP Communi	ty Name	Access Right	Status			
1	public	1	<read only=""></read>	(Enable)			
2	[private	1	<read write=""></read>	<enable></enable>			
Э	I.	1	<read only=""></read>	<disable></disable>			
4	t	1	<read only=""></read>	<disable></disable>			
5	T.	1	<read only=""></read>	<disable></disable>			
6	t	1	<read only=""></read>	(Disable)			
SAVE	EXIT		MAIN MENU	HELP			

Figure 3-11. The SNMP Community Menu

In the SNMP Community Menu, you can create different communities and customize their access right. Use <TAB> key to move the highlight bar and select desired community to modify or add a new community (use space bar to toggle the access right and status)

2.4. Trap Receiver

Index	Communit	y Name	IP Addres	s	Status
1	T .	1	10.0.0.0	1	<disable></disable>
2	t	1	0.8.8.01	1	<disable></disable>
з	t	1	0.0.0.01	1	<pre>(Disable ></pre>
4	t	1	0.0.0.01	1	<pre>(Disable ></pre>
5	t	1	10.0.0.0	1	<disable></disable>
6	ſ	1	10.0.0.0	1	<disable></disable>



Use trap receiver screen to designate certain community to receive trap(s) generated by the system.

2.5. Management Capability Setup

	18/180/1 - Management	1000Mbps Mana t Capability	gement Sø Setup Mer	uitch m -
Web-Based	Management (Control:		∉nable_⊅
SRVE	EXIT	MAI	n henu	HELP

Figure 3-13. The Management Capability setup Menu

This is where you can enable / disable Web-Based management capability which in turn allow or disallow the access to management function through the use of a web browser such as Microsoft IE.

2.6. Trap Filter Setup



Figure 3-14. The Trap Filter Setup menu

The system can generate a set of SNMP traps upon the occurrence of those events. By checking a filter event, you are turning off the filter and enabling the trap associated with that event.

3. Device Control Menu



Figure 3-15. The Device Control menu

Device control menu contains 15 submenus where you get to maneuver most of the functions and features.

3.1. Switch Device Configuration



Figure 3-16. The Switch Device Configuration menu

Use <Space Bar> key to toggle the Enable / Disable field and type in appropriate value in the Time and Priority field.

•Broadcast Storm Prevention can be set to 6% 0r 20% beside Disable. The percentage indicates the allowance against the capacity. When its disable there will be no limitation on the incoming rate of broadcast / multicast traffic, otherwise limitation on those traffics will be set to the percentage accordingly.

•When QoS is enabled you can map the Type of Service of your

choice (according to IEEE 802.1p) to the four priority levels provided.

•There are three different mode of VLAN supported in this system – 802.1Q, Port Base VLAN, MTU/MDU. The choice you made here will ultimately decide the VLAN mode and function for entire system (the configuration of the other two VLAN mode will have no effect to the system behavior).

10/100/1000Mbps Management Switch - Switch Port Configuration Nenu Unit ID: Group ID: (D Operational Link Auto Port Duplex Speed ID Status Status Partitioned Mode Status 12345 No Link No No Link No No Link No No Link No No Link 67 No Link No No No Link 89 No No Link No No Link 10 No No Link 11 12 No No Link No Link No PREV PAGE NEXT PAGE EXIT MAIN MENU HELP Use (Tab) or arrow keys to select index; (Enter) to EDIT

3.2. Switch Port Configuration

Figure 3-17. The Switch Port Configuration menu

The Ports (24+2) of the system are divided and displayed in three separated pages. Use PREV PAGE, NEXT PAGE to list desired port range and select the port with navigation key.

In the port configuration screen (display in next page) you can configure the common characteristics such as speed negotiation, flow control, and VLAN ID as well as the following special features provided with the system:

• Per-Port Priority – Four levels of priority (High, Medium, Low and Lowest) can be set to each individual port. However, the priority level set through QoS / Type of Service configuration in the device configuration menu will have higher precedence.

• Local IP Forwarding – A policy instrument that provides a way for local IP traffic to cross the local VLAN boundary set force in a typical (secure) access environment.

• Bandwidth provisioning - 8 levels of speed control facilitate the provisioning control for access provider.

3.3. Permanent Address Configuration



Figure 3-18. The Permanent Address Configuration menu

There are 128 static unicast groups and 32 multicast supported by the system. Two submenus contains in this section.

3.3.1. Static Unicast Address Configuration

You can creat, modify, or delete Static Unicast Address by selecting entries from the following screen.

Enter the MAC address of a system you wish to set as static unicast address the port associated with the system. Use<Space Bar> to toggle the status field between Disable, Forwarding, Filter-In, and Filter-Out.

• Disable – This Unicast Address entry has no effect to the switch system.

• Forwarding – All packets designated to this MAC address will be forward (and only to) the designated port.

Filter-in – Only packets originated to from this MAC address will be permitted to enter this port, in other words, packets originated from other MAC address will be dropped at this port automatically.
Filter-out – All packets designated to this MAC address will be blocked (the port is disregard here).

3.3.2. Static Multicast Address Configuration

In the Static Multicast Configuration Menu screen, besides the MAC Address and Status field (Enable/Disable), you add member(s) to the group by checking the port(s) with <Space Bar> key.

3.4. Port Statistics

10/100/1000Hbps Management Switch - Port Statistics Menu -							
	Port ID: [
Total Frames Received: 0 Total Bytes Received: 0 Broadcast Frames Rx: 0 Multicast Frames Rx: 0 Frames Sent: 0 Bytes Sent: 0 Dut Broadcast Frames: 0 Out Multicast Frames: 0	In Dropped Frames: 0 CRC Errors: 0 Undersize Frames: 0 Oversize Frames: 0 Fragments: 0 Jabbers: 0 Collisions: 0 Late Collisions: 0						
REFRESH RESET COUNTERS PREV	PORT NEXT PORT EXIT MAIN MENU HELP						

Figure 3-19. The Port Statistics menu

You can view the statistics information display in this screen regarding a certain port by entering the port number in the port id field. You can also refresh or reset the counter as you wish.





Figure 3-20. The Spanning Tree Protocol Configuration menu

You can alter the Spanning Tree status with <Space Bar> key. If you enable the spanning tree protocol, you must complete the Priority and Time fields with appropriate value. Also note that you

can choose to leave a menu screen without applying any changes you had made at any time by pressing <Esc> key and then confirm with <Enter> key.

10/100/1000	bps Management Switch
- Spanning Tree Protoco	l Port Configuration Menu -
	Port ID:[
Port Administrative Status	Enable
STP Port ID	88:01
STP Port Designated Root:	8000:00E0950140D6
STP Port Designated Cost:	0
STP Port Designated Bridge:	8000:00E0950140D6
STP Port Designated Port:	80:01
STP Port Forward Transitions Count	: 0 (Can be reset by CLRCNT)
STP Port State:	Forwarding
Role of STP Port:	STP Disable
STP Port Priority:	[128] (0255)
STP Port Path Cost:	[19]] (165535)
STP Port Topology Change Detection	a:≪Enable >
PREV PORT NEXT PORT CLRCNT	SAVE EXIT MAIN MENU HELP
Use <tab> key to select</tab>	the item, then press (Enter)

3.

Figure 3-21. The Spanning Tree Protocol port Configuration menu

In this screen you can assign spanning priority and path cost to any port(s). A port with higher priority, lower path cost is less likely to be blocked if Spanning Tree Protocol is detecting network loop.

3.7. Post-Based VLAN Configuration

		- Port	/100/100 Based VL	0Mbps Managemen AN Configuratio	nt Switc on Menu	h -		
Page Nur	nber: (Port	Based VL	AN: Disabled				
Index	VLAN	Name	1	Port Map	2	6 3	Status	ē.,
23456								
8 9 10	o Dort VI	ON Group		Otherwise	Long	Doet#	UI ON	Group
u: 301	n FOFT VL	ne oroup		otherwise :	Leave	Fort	vLnn	oroup
								and the second

Figure 3-22. The Port Based VLAN Configuration menu

Assigning physical ports within workgroup is simple, and is a common method of defining a virtual workgroup - VLAN. It delivers the benefit of broadcast control and simplifies configuration for the network manager.

One advantage of the Port-Based VLAN is its simplicity and easy to configure, however, limited security is its drawback – anyone can plug into the port and gain access to the VLAN.



Select the VLAN entry to create, modifies, or deletes the VLAN group. Use <Space Bar> to check (join) port(s) to the VLAN group.

3.8. 802.1Q VLAN Configuration

Only as 802.1Q VLAN mode was chosen then the settings of the following submenus would be meaningful and therefore need to be configured carefully.

3.8.1. 802.1Q VLAN Configuration

This screen shows the currently set VLAN sorted by index number. Select the entry to create, modify, or delete and proceed to the next screen.

	_	- 18/ - Sta	100/1000 tic VLAN	Mbps Manager Configurat	ment Swite ion Menu	ch		
Page N	unber:[]]	Stat	ic VLAN:	Enabled				
Index	VLAN ID	VLAN	Name	1	Port Map		26	Status
1 2 3 4 5 6 7 8 9 10	1	Default	VLAN	SSSSSSS	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	SS	Enable
S: St C: Bo	atic Config th Static P	auration S Dynamic		D: Dynam	ic VLAN R	egistratio	on	
PR	EV PAGE	NEXT	PAGE	EXIT	MOTH	MENU	HEL	P

Figure 3-23. The Port Based VLAN Configuration menu



() – Port(s) is not set as static (fixed) member of the VLAN but it can become a member through Dynamic VLAN Registration.
(F) – Port(s) is set as static (fixed) member of the VLAN and can be registered as a dynamic VLAN member as well.
(B) – Port(s) is being forbidden to be neither a static member nor a dynamic member of the VLAN.

3.8.2. Dynamic VLAN Table

	10/10 - Dy	80/10000 /namic \	lbps Mana /LAN Tabl	pement Swi e -	tch	
Page Num	ber:[]]	Dynar	ic VLAN:	Disabled		
Index	VLAN ID	1	Port	Мар	26	
1 2 3 4 5 6 7 8 9 10						
D: Dyna	wic VLAN Regis	stration				
REV PACE	NEXT PO	ICF.	EVIT	NOT	N MENIL	HELD.

Figure 3-24. The Dynamic VLAN Table menu

This screen displays the VLAN mapping for port(s) that join the VLAN(s) through Dynamic VLAN Registration.

3.8.3. VLAN Untagged Configuration



Figure 3-25. The Port Untag Configuration menu

All ports are set by default as <Untagged> in this switch system, to change port(s) to <Tagged> just use <Space Bar> to uncheck - () the port(s) from the Port Map.

3.8.4 GARP Configuration

Unit ID: 1 Port ID: [1]
GARP Join Time: [20] (20100) centisecond
GARP Leave Time: 160 1 (60300) centisecond
GRRP Leave R11 Time:[1000] (10005000) centisecond
Port Join GVRP: <enable></enable>

Figure 3-26. The GARP Configuration menu

GARP (Generic Attribute Registration Protocol) defines the architecture, rules of operation, state machines and variables for the registration and de-registration of attribute values. It allows dynamic filter entries for

VLAN membership to be distributed among the Forwarding Databases of VLAN-aware switches. By joining GVRP (GARP VLAN Registration Protocol), it helps maintaining VLAN information. The rule of the aging scheme is:

GARP Leave All Time > GARP Leave Time > GARP Join Time

3.9. MTU/MDU Per-Port VLAN Table

Unit ID: 1	NTU/N	DU: Disabl	ed		
Tenant Port ID	Uplink Port ID	Tenant Port ID	Uplink Port ID	Tenant Port ID	Uplink Port ID
$\begin{array}{c} \mbox{Port 1} < \rightarrow \\ \mbox{Port 2} < \rightarrow \\ \mbox{Port 3} < \rightarrow \\ \mbox{Port 4} < \rightarrow \\ \mbox{Port 5} < \rightarrow \\ \mbox{Port 5} < \rightarrow \\ \mbox{Port 7} < \rightarrow \\ \mbox{Port 8} < \rightarrow \\ \mbox{Port 8} < \rightarrow \\ \mbox{Port 10} < \rightarrow \\ \mbox{Port 11} < \rightarrow \\ \mbox{Port 12} < \rightarrow \end{array}$	Port(No) Port(No) Port(No) Port(No) Port(No) Port(No) Port(No) Port(No) Port(No) Port(No) Port(No)	Port13 Port14 Port15 Port16 Port17 Port18 Port28 Port22 Port22 Port23 Port23 Port24	<pre><-> Port(No) <-> Port(No) <-> Port(No) (-> Port(No)</pre>	Port25 < Port26 <	-> Port(No) -> Port(No)

Figure 3-27. The MTU/MDU Per-Port VLAN Table menu

This screen only reflects the setting you made in Switch Device Configuration menu - there is no change can be made here. Should you set the VLAN Mode to <MTU/MDU> mode and <one Uplink> port then

port 1 ~ 25 will be mapped to port 26 - the uplink port, otherwise, port 1 ~ 12 and port 13 ~ 24 will be mapped to uplink port 25 and port 26 accordingly.

3.10. IGMP Snooping Table

	10/100/1000Mbps Management Switch - IGMP Snooping Table -									
Page	Number :	(1)								
Idx	Multicast	Group		AC Address		VID	1	Port	Мар	26
1										
î.										
5										
7										
9										
10										
1	PREV PAGE		EXT	POCE	EXIT		MOTH	NEND	HELP.	
- 3	net mue		n.n.r	r that			antu	in the	TALL	

Figure 3-28. The IGMP Snooping Table

By supporting IGMP (Internet Group Management Protocol) Snooping, the switch can forward multicast traffic intelligently. Packets are forwarded to the ports that belong to the multicast group instead of being broadcast to all ports and possibly disrupting network performance. This lookup table reflects the multicast group(s) (up to 32) configuration of your system and provides an overview of the port(s) map to each multicast group.

3.11. Trunk Group Configuration



Figure 3-29. The Trunk Configuration Menu

Multiple links between switches can be grouped (trunk) to work as one virtual, aggregate link. You can create 4 trunks at a time; each trunk can hold up to 8 ports - only ports of the same speed can belong to a single trunk.

3.12. Port Mirroring Configuration



Figure 3-30. The Port Mirroring Configuration Menu

By enabling port mirroring, traffic to and from the source port will be forwarded to the target port. You can select any of the 26 port as either the Source port or the Target port by using <Space Bar> to scroll though the desired port number.

Index	User Nane	Password	Privilege
1	admin		Read/Write
8	guest		Read Only
3			Read Only
4			Read Only

4. User Authentication

Figure 3-31. The User Authentication Menu

You can change the password setting as in the user authentication menu. You can also create user and assign different privilege to suit your needs.

User Name	Password	Confirm	Privilege	
lauest	[]	[]	<read only<="" th=""><th>></th></read>	>
	те с у		-	HELD.

After selecting an entry to add or modify, type in user name and password, toggle the user privilege with <Space Bar> and then update the changes.

5. System Utility

5.1 System Restart



Figure 3-32. The System Restart Menu

As mention earlier, you need to perform either a <Cold Start> or <Warm Star> to have the changes you made written into the NVRAM so that changes are really saved and keep in effect until you make change to them again.

5.2 Factory Reset

	10/100/1000M - Factory	bps Nanagem Reset Menu	ent Switch	
Network Config	guration:		<not reset<="" td=""><td>2</td></not>	2
User Authentic	ation Configur	<not reset<="" td=""><td>></td></not>	>	
SNMP Community	Configuration	c.	Not Reset	3
Static Unicast	t Address Confi	<not reset<="" td=""><td>2</td></not>	2	
Static Multica	ast Address Con	(Not Reset	2	
VLAN Configura	ation:		<reset td="" to<=""><td>Factory Default</td></reset>	Factory Default
VLAN Configura	ation:		∢Reset ta	Factory Defau
EXECUTE	EXIT	MAIN M	ENU	HELP

Figure 3-33. The Factory Reset Menu

The system can let you to reset all configurations as you wish anytime.

5.3 Login Timeout Interval



Figure 3-34. The Login Timeout Interval

You can set up the time you need for the automatic log-out in anytime.

5.4 System Download



Figure 3-35. The System Download Menu

Use TFTP download the code you need, and two code as Boot code and System Software code for upgrading.

4. Web-Based Management

This section introduces the configuration and functions of the Web-Based management.

About Web-based Management

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

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

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

System Login

- 1. Start Internet Explorer.
- Type http:// and the IP address of the Modular Switch (for example, the default is 192.168.16.1) in the Location or Address field. Press Enter.

Enter Net	work Password		? ×
?	Please type y	our user name and password.	
	Sile	192. 168. 16. 1	
	Realm	24TP+2EXP-Slot	
	<u>U</u> ser Nome	admin	
	Eassword		_
	E Soverhisp	assword in your password list	
		CK	Cancel

Figure 4-1: The Password Window

- 3. The Password screen appears.
- 4. Type user name and password. The default is " **admin** " for both.
- 5. Press "Enter" or Click "OK", then the Home Screen of the Webbased management appear.

System Information

Hetwork Configuration Bortal Part Configuration Share Constructly Setup Trace Reserved	System Information Menu					
- Management Capability Setup	System Name					
- The Edecasta Device Conteni	System Contact	act				
- Switch Configuration - Switch Port Configuration	System Location					
Permanent Address	Description	24-Port with 2 Slide-in Slots SNMP Switch				
- Several Tree Protocial	System Object ID	13614188820122				
Configuration Sciences Tree Produced	Pre-Load Firmware Version	1.02				
PortConfiguration	BOOT ROM Version	1.10				
VLAN Configuration	System Software Version	1.15				
GARP Carrigunation	Web-Pages Version	1.00				
User Authentication	System Up Time	0 day 0 hr 30 min 23 sec				
System Littley	System Manager	SNMP, Teihot and Web				

Figure 4-2 The System Information Menu

You can manage the Switch using third-party's SNMP (Simple Network Management Protocol) agent. Access rights to the SNMP agent are controlled by community strings.

To set system name, system location and system contact, you can type the desired text string in the corresponding edit box.

Management Setup

Network Configuration Geral Part Cardigutation **Network Configuration Menu** INF Company Setup sent Capability Belup Network Interface Index: 1001 lansae Trap Filter Setup Interface Type: Ethernet MAC Address: 00-80-95-01-40-59 Svitch Cardgeration with Port Configuration Configuration: Current New CONTRACT ADDRESS IP Address: 192.168.1.186 192.188.1.196 Configuration Subnet Mask: 255 255 0 255 255 0 envirg Tree Hyptocal of Configuration Default Gateway: 192 168 1 185 192 168 1 196 eleptore a ri Distatuta AV Configuration Sabrait Reset Configuration M² Shoreing Table Jeer Authentication

Figure 4-3. The Network Configuration Menu

You can change the IP address, subnet mask and default gateway of the managed node. (You can also do that from RS232 console). Enter the IP address, subnet mask and default gateway in the corresponding edit box.

If you want to change the user name or password for the managed node, the following steps is needed:

- Click the "Change Password" checkbox
- Enter the user name in "Username" edit box
- Enter the same password in "Password" and "Confirm Password" edit box
- Press the "Apply" button

You should reboot system to let your settings take effect if you have changed one of the IP address, subnet mask and default gateway.

Serial Port Configuration

Top Facesor Management Capability Solury Top Film Solury Top Film Solury	Serial Port Configur	ation Menu	
Gerich Configuration		Current	New Setting
Switch Part Cantiguestion Partnamed Address	Baud Rate:	9600 bps	9600 🔯 bps
Configuration	Character Size:	8 bits	
ConAgeration	Parity:	No parity	
Calamining Tree Produced Polit Califiqueador	Stop Bits:	1.bit	
Fort Database	Send Initial String:	No El	
+ GNRP Configuration	Modern Initial String:	-	
User Authentication	Serial Port Mode:	Console	
Bystylen Utility • Sector: Restart • Factory Hosat • Lock Thread Intensi	Submit Proof		

Figure 4-4. The Serial Port Configuration Menu

You can change the serial port setting through this screen to suit you environment, however, using the default setting is recommended.

SNMP Community Setup

Index	PLANT Community Manage	Annual Printer	Phila
Index	shine Community Name	Access Highe	atatus
1	public	Pead Only	Enable 🔮
2	appear in the second	ReadWite 🔤	Erable 🔓
3		Read Only 🔄	Disable 🔛
-		Read Only	Disable 🔛
5		Read Drily	Disable 🔤
6		Read Only 📓	Deattle 🗋
bon (Suby	T Real		

Figure 4-5. The SNMP Community Setup Menu

Public Community (Read-only access right) means that member of community can view the information but can not make changes to the configuration.

Private Community (Read/Write access right) allow the member of the community to view and make change to the configuration.

To set the "Public" and "Private" community name, you can type the desired text string in the corresponding edit box.

Trap Receiver

Figure 4-6. The Trap Receiver Menu

Use trap receiver screen to designate certain community to receive trap(s) generated by the system.

Management Capability Setup



Figure 4-7. The Management Capability Setup Menu

This is where you can enable / disable Web-Based management capability which in turn allow or disallow the access to management function through the use of a web browser such as Microsoft IE.



Figure 4-8. The Trap Filter Setup Menu

The system can generate a set of SNMP traps upon the occurrence of those events. By checking a filter event, you are turning off the filter and enabling the trap associated with that event.

Device Control Switch Configuration

- Macagement Caustraly Secal - Trac Filter Secal Devolve Countrol - Stylet Configuration	Switch Conf	iguration M	enu		
Switch Port Configuration Permanent Address	The second state	Operational	H/W Ver.		
Configuration	Bass Board	Yes	4		
Contgrantion	Slot 1	Yes	1		
- Spanning Tree Protocol Port Configuration	Slot 2	Yes			
Port Battabox WAN Configuration GARP Configuration HOMP Streaming Texas	Learning Da	tabase Capal	8000 Entries		
User Authentication	Static Unica	st Address C	apability:	128 Entries	
Bystem Dility	Static Mutica	ast Address C	apability:	32 Entries	
Epilem Restart Factory Record	Maximum VL	AN Groups:		128	
Login Time out Informal	Maximum Tr	unk Groups:	4		
 Optern Download Update Getting 	Maximum Po	art Mirror Set	12	1.	
	Description To	the Deside size F	the state of the s	and the second se	

Figure 4-9. The Switch Configuration upper Menu

1. There are three different mode of VLAN supported in this system – 802.1Q, Port Base VLAN, MTU/MDU. The choice you made here will ultimately decide the VLAN mode and function for entire system (the configuration of the other two VLAN mode will have no effect to the system behavior).

2. Broadcast Storm Prevention can be set to 6% 0r 20% beside Disable. The percentage indicates the allowance against the capacity. When its disable there will be no limitation on the incoming rate of broadcast / multicast traffic, otherwise limitation on those traffics will be set to the percentage accordingly.

3. When QoS is enabled you can map the Type of Service of your choice (according to IEEE 802.1p) to the four priority levels provided.

Management Capatility Setue Trap Fater Initia Deviling Capating Setue Sector Sectors	Spanning Tree Protocol Enable State:	Disate D			
	Dynamic Entry Aging Time:	300	seconds (10.440)		
Switch Part Cantiguration	Broadcast Storm Prevention:	Diretie			
Configuration Sparrying Tree Protocol Configuration	Ingress Filtering:	Disable	H 🖸		
	VLAN Mode Configuration:	EEE 0	2 10 VLAN		
Part Cutting analian	Per-Port Priority:	Deaths	Ċ,		
+ VLAN Configuration	Head-of Line Blocking Prevention:	Disable	G		
OMP Cardge alon OMP Cardge alon	Type of Service(QoS):	Droates	D		
User Authentication	GVRP Enable State:	Disable	Ø.		
- materia Unity	IGMP Snooping:	Disable	0		
+ Factory Reset	IGMP Snoop Table Aging Time:	125	seconds (60. 900)		
Login I mend mered Solari Doversial Update Betting	Sident Rest				

Figure 4-10. The Switch Configuration lower Menu

Management Capability Selas Trap Files Selap Device Control Selam Configuration Selam Configuration Personnet Address Configuration Configuration Configuration Configuration	Port/ Port/ Unit I Group	Administration Administrative Co D : 1 p A:	<u>Trunk G</u>	roup Port M Menu	irror	
Clarifiguradore	Port	Operational Status	Link Status	Auto Partitioned	Duplex Mode	Speed Status
Pot Configuration	1	No	No Link	No		
Polt Statistics VEAN Configuration	2	Yes	Link	No	Full	100 Mbps
OARP Contiguistics	1	No	No Link	No		
4 IOMP Scoreing Table	4	No	No Link	No		
System Utility.	5	No	No Link	No		
+ System Rectifit	5	No	No Linki	No		
+ Lago Trived Interval	7	No	No Link	No		
Sortem Download the testing	8	No	No Link	No		
	. 9	No	No Link	No		

Figure 4-11. The Port Administration in Switch Port Configuration Menu

The Ports (24+2) of the system are divided and displayed in three separated pages. In the port Administration menu, select a port that you can configure the common characteristics such as speed negotiation, flow control, and VLAN ID as well as the following special features provided with the system:

• Per-Port Priority – Four levels of priority (High, Medium, Low and Lowest) can be set to each individual port. However, the priority level set through QoS / Type of Service configuration in the device configuration menu will have higher precedence.

• Local IP Forwarding – A policy instrument that provides a way for local IP traffic to cross the local VLAN boundary set force in a typical (secure) access environment.

• Bandwidth provisioning - 8 levels of speed control facilitate the provisioning control for access provider.

Management Capability Setup Trap Filter Setup Device: Conferni Switch Configuration Switch Configuration Switch Post Configuration Configuration Spanning Tree Protocol Configuration Spanning Tree Protocol	Port Administration Trunk Group Port Mirror Trunk Group Configuration Check port numbers to make a trunk group. Unit ID: 1 Trunk ID: 1									
Post Statution Post Statution VLAN Configuration OAEE Configuration	Trunk Name Trunk Memb	e:	ť							
10MP Encoring Table User Authentication System Utility	Port ID:	1	2	3	4	5	6	7	8	
System Restart Factory Reset Login Timeout interval System Driveload Update Setting	Status: Oisa Submit Rese	6 ie (1							



Figure 4-12. The Trunk Group in Switch Port Configuration Menu

Port trunking is the ability to group several ports to increase the bandwidth between this switch and another compatible switch. This is an inexpensive way to increase bandwidth. We define port trunking as the ability to group set of ports (up to 4 groups).

Nanagement Capability Setup Trap Filter Setup Device: Construit Switch Configuration Switch Port Configuration Permanent Address	Port Administration Port Mirror Confi	<u>Trunk Gra</u> guration	oup	Port Mirror
Configuration	Source Port	Target Port	Status	
Configuration	Unit: 1 Port: 2	Unit 1 Port: 1	Disable 🔤	
 Spanning Tree Protocol Port Configuration 	1			
+ Port Blatistics	Submit Reset]);		
+ VLAN Configuration				
+ IOMP Shooping Table				
User Authentication				
System Utility				
System Restart				
Factory Reset:				
System Download				
Update Betting				

Figure 4-13. The Port Mirror in Switch Port Configuration Menu

Port Mirror is to mirror traffic (all frames) from a specific resource port to a target port. This help tracking down network errors or erroneous packet transfers without interrupting the flow of data across the network.

If you want to monitor all receive and transmit packets of one port. You can do the following:

Choose the monitored port in " Source Port "

Choose the corresponding target module, port in "Target Port" choice box.

- Click the corresponding "Enabled" check box.
- Press "Submit" button

Permanent Address Configuration

Management Capability Delas Trap Filer Solus Device Construit Note: Configuration Note: Configuration Device Post Configuration Exemption Absolut	Static Unicast Address Static Unicast Address Sort By Inter	Static Hultice Configuration	st. Address
Scienting Tree Protocol Configuration Spanning Tree Protocol Port Configuration Port Dialogue Port Dialogue VLAN Configuration SNOP Configuration NOP Configuration User Authentication Systems Utility	Index MAC Address Empty	Port D Status	Description
Endern Riestart Factory Reset Lagin Tireasut Interval System Download Uodate Retting	Add Vody Deep	Part ID Statue 1 Disable D Repart	Description

Figure 4-14. The Static Unicast Address in Permanent Address Configuration Menu

You can Add, modify, or delete Static Unicast Address by selecting entries from the following screen.

Enter the MAC address of a system you wish to set as static unicast address the port associated with the system. Select the status field between Disable, Forwarding, Filter-In, and Filter-Out. • Disable – This Unicast Address entry has no effect to the switch system.

• Forwarding – All packets designated to this MAC address will be forward (and only to) the designated port.

Filter-in – Only packets originated to from this MAC address will be permitted to enter this port, in other words, packets originated from other MAC address will be dropped at this port automatically.
Filter-out – All packets designated to this MAC address will be

blocked (the port is disregard here).

• Managament Capability Balup • Trap Filter Setup De vice: Controls	Static Multicast Addr	ess Configu	ration	
Beitch Cardiguration Switch Port Configuration Permanent Address Configuration Spanning Tree Protocol Configuration Boarning Tree Protocol Port Configuration Post Statistics VLAN Configuration OARP Configuration	Sort By Index Index Multicast Address Employ	Status .	Description	
User Authentication Bystem Helter • System Reset • Farlos Roset • Logis Timeout Interna • System Downland • Update Soting	Port Map Index 12345678 Repty	1 1981231	2	1 1 3 6

40

Figure 4-15. The Static Multicast Address Configuration in Permanent Address Configuration Menu

In the Static Multicast Configuration Menu screen, you can add member(s) to the group by checking the port(s).

Spanning Tree Protocol Configuration

Spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network. For Layer 2 Ethernet network to function properly, only one active path must exist between two stations.

The spanning-tree algorithm calculates the best loop-free path throughout a switched network. STP forces redundant data paths into a standby (blocked) state. If a network segment in the spanning tree fails and a redundant path exists, the spanning-tree algorithm recalculates the spanning tree topology and activates the standby path.

Management Capability Setup Trap Filler Debip	Spanning Tree Protocol Configur	ation Menu
- Dwitch Cunfiguration	STP Enable State:	Disabled
Switch Port Configuration Entropret Address	STP Specification:	IEEE 802.1D
Configuration	STP Base MAC Address:	00-80-95-01-40-59
 Beanning Tree Protocal Configuration 	STP Designated Root:	8000-008095014059
Beanning Tree Protocol Port Configuration	STP Root Port:	0
Port diabatica	STP Root Cost:	0
VLAN Configuration GARP Configuration	STP Max. Age:	2000 (1/100 seconds)
< IOMP Encoping Table	STP Hello Time:	200 (1/100 seconds)
User Authentication	STP Forward Delay:	1500 (1/100 seconds)
Bystem Restart	STP Hold Time:	100 (1/100 seconds)
Factory Repet Logis Timport Internal	STP Topology Change Count:	0
System Download	STP Time Since Topology Changed:	0 day 0 hr 0 min 0 sec
 Updale Betting: 	Role of STP Bridge:	STP Disabled

Figure 4-16. The Spanning Tree Protocol Configuration upper Menu

If you enable the spanning tree protocol, you must complete the Priority and Time fields with appropriate value.

Management Capability Satup	-				
Trap Filter Betup	STP Hello Time:	200 (1/100 seconds)			
+ Switch Configuration	STP Forward Delay:	STP Forward Delay:			
Switch Port Configuration	STP Hold Time:		100 (1/100 seconds)		
Configuration	STP Topology Change Cou	STP Topology Change Count:			
Seaming Tree Protocol Configuration	STP Time Since Topology C	hanged	: 0 day 0 hr 0 min 0 sec		
Epaining Tree Protocol Port Configuration	Role of STP Bridge:		STP Disabled		
Port Statistics VLAN Configuration	STP Bridge Priority:	32768	(0.65535)		
OARP Configuration IGMP Strooping Tailet	STP Bridge Max. Age:	20	(6.40) seconds		
User Authentication	STP Bridge Hello Time:	2	(110) seconds		
System Restart	STP Bridge Forward Delay:	15	(430) seconds		
Factory Result Login Timeout Interval System Download Update Betting	Submit Reset				

Figure 4-17. The Spanning Tree Protocol Configuration lower Menu

Spanning Tree Protocol Port Configuration

Management Gapability Setup Trap Filter Setup Device Constrol	Spanning Tree Protocol Po	rt Configuration Menu
Bwitch Configuration	Unit ID: 1 Port ID: 1	
Permanent Address	Port Join STP: Ena	ble 🖸
Bearing Tree Protocol	STP Port Enable Status: Ena	bled
Seanning Tree Phylogel	STP Port ID:	80.01
Port Statistics	STP Port Designated Root:	8000/008095014059
VLAN Configuration	STP Port Designated Cost:	0
GATP Configuration IOMP Shooping Table	STP Port Designated Bridge:	8000.008095014059
User Authentication	STP Port Designated Port:	80.01
System Unity	STP Port Forward Transitions	Count: 0
Factory Reset	STP Port State:	Forwarding
Login Timeoul Interval System Download	Role of STP Port:	Disabled
Update Setting	STP Port Priority:	128 (0.255)

Figure 4-18. The Spanning Tree Protocol Port Configuration upper Menu

In this upper and lower menu, you can assign spanning priority and path cost to any port(s). A port with higher priority, lower path cost is less likely\to be blocked if Spanning Tree Protocol is detecting network loop.

Management Capability Balap Trace Extension	our roll besignated Root.	0000.0080800.14008
Device Control	STP Port Designated Cost:	0
Switch Configuration	STP Port Designated Bridge:	8000:008095014059
 Event in Port Configuration Permanent Address 	STP Port Designated Port:	80.01
Configuration Relations Tree Personnel	STP Port Forward Transitions Count:	0
Configuration	STP Port State:	Forwarding
Estational Tree Protocol Exit.Configuration	Role of STP Port:	Disabled
VLAN Configuration	STP Port Priority:	128 (0.255)
GARP Configuration IGMP Snooping Table	STP Port Path Cost:	19 (1.65535)
Jser Authentication	STP Port Topology Change Detection	Eroble 🔛
· System Restan	STP Port Fast Connection Mode:	Enable 🔛
• Factory Report • Login Timeout Internal • Syntem Downlass: • Updale Setting	[Submit] Reset] Clear STP P	ort Forward Transitions Count

Figure 4-19. The Spanning Tree Protocol Port Configuration lower Menu

Port Statistics				
Hanagement Capability B +Trap Filter Satus Devices Control	Port Statistics Menu			
· Switch Configuration	Unit ID: 1 Port Number: 1			
Permanent Address Configuration	Update Interval: Paped • Stim	E	Reset Counters	I
+ Spanning Tree Protocol Configuration	Total Frames Received:	0	In Dropped Frames:	0
Spanning Tree Protocol Ped Conference	Total Bytes Received:	0	CRC Errora:	0
· CALIMAN	Broadcast Frames Rx:	0	Undersize Frames:	0
VLAN Configuration GARP Configuration	Multicast Frames Rx:	0	Oversize Frames:	0
+ 1048 ² Dramping Table	Frames Sent:	0	Fragments:	0
User Authentication	Bytes Sent:	0	Jabben:	0
+ System Restort	Out Broadcast Frames:	0	Collisions:	0
Factory Robot Login Timecat Interval Bystein Download	Out Multicast Frames:	0	Late Collisions:	0

Figure 4-20. The Port Statistics Menu

You can view the statistics information display in this screen regarding a certain port by entering the port number in the port id field. You can also refresh or reset the counter as you wish.

VLAN Configuration



Figure 4-21. The Static VLAN Configuration Menu

(S) – Port(s) is set as static (fixed) member of the VLAN.
(D) – Port(s) is set as static (fixed) member of the VLAN and can be registered as a dynamic VLAN member as well.
(C) – Port(s) is being both a static member and a dynamic member of the VLAN.



Figure 4-22. The Dynamic VLAN Table Menu

This screen displays the VLAN mapping for port(s) that join the VLAN(s) through Dynamic VLAN Registration.

Network Configuration Senal Port Configuration SNMP Community Setup Trap Receiver Management Capability Setup Trap Filter Setup Device, Constrol Switch Configuration	IEEE 9 - Static - Dynan - Unitag	92.10 VLAN VLAN Configu dic VLAN Tab god Configur gged Set	ation to ation ting	МТ	U.MDI	l Port VLAN Tabl	•
Switch Port Configuration	Part	Untagged	Post	Untagged	Port	Untagged	
Configuration	1	Yes 🗢	13	Yes	25	Yes 🗢	
Spanning Tree Protocol Configuration	2	Yes	14	Yes C	26	Yes M	
Spanning Tree Protocol Rod Confouration		Therease	10000	No. Con	1.000		
Port Statistics	3	Yes 🔛	15	Yes 🔛			
VLAN Configuration GARP Configuration		Yes 🔤	- 16	Yes 🖬			
+ IGMP Shooping Table	5	Yes 🐸	17	Yes 🖬			
System Utility		Yes 🜌	18	Yes 🖻			

Figure 4-23. The Untagged Configuration Menu

All ports are set by default as Untagged in this switch system, to change port(s) to Tagged just pick the port number you need and select "No" from the Port Map.

Management Councility Selas This File Centre Device Control Selas File Contgrates Selas File Contgrates Selas File Contgrates Personal Address Contgrates	IEEE 002.10 \	VLAN MTU MT	MDU Port VLA FUMDU Por p	NTable Pr Nort VLAN Ta DU Disable Po	ort Based VLA) ble	N Configuration
- Eparwarg Tree Protocal Configuration - Eparwarg Tree Protocal	Tenant Port ID	Uplink Port ID	Tenant Port ID	Uplink Port ID	Tenant Port ID	Uplink Port ID
Fot Configurations	Port 1	port(No)	Port 13	port(No)	Port 25	port(No)
VLAN Configuration	Port2	port(No)	Port 14	port(No)	Port 26	Port(No)
ENEP Sharping Table	Port 3	port(No)	Port 15	port(No)		
Jeer Authentication	Port 4	port(No)	Port 16	port(No)		
Dystem Restart	Port 5	port(No)	Port 17	port(No)		
Login Timesutintensi	Port 6	port(No)	Port 18	port(No)		
Bettern Download Update Setting	Port7	port(No)	Port 19	port(No)		

Figure 4-24. The MTU/MDU Per Port VLAN Table in The VLAN Configuration Menu

This screen as above only reflects the setting you made in Switch Device Configuration menu - there is no change can be made here. Should you set the VLAN Mode to <MTU/MDU> mode and <one Uplink> port then

port 1 ~ 25 will be mapped to port 26 - the uplink port, otherwise, port 1 ~ 12 and port 13 ~ 24 will be mapped to uplink port 25 and port 26 accordingly.



Figure 4-25. The Port Based VLAN Configuration in The VLAN Configuration Menu

Select the VLAN entry to create, modifies, or deletes the VLAN group. Choose the port(s) to the VLAN group

Management Capability Setup Tray Filter Setup Derivices Cloints of Switch Configuration Switch Configuration	GARP Port Configur	ation	Port ID: 1
+ PermanentAddress Configuration	Port ID	1	
+ Spanning Tree Protocol Configuration	GARP Join Time	20	(20. 100) centiseconds
Spanning Tree Protocol Port Centiguration	GARP Leave Time	60	(60.300) centiseconds
Port Statistics VLAN Configuration	GARP Leave All Time	1000	(1000.5000) centiseconds
GARP Configuration	Notes: Leave At Time > Le	ave Time	i > 2 x Jun Time
User Authentication	Port Join GVRP	Enable	
System Utility • Sector Restart • Factory Reset • Login Timeout Interval • Sentem Download • Update Setting	Eubmit Reset		

Figure 4-26. The GARP Configuration Menu

GARP (Generic Attribute Registration Protocol) defines the architecture, rules of operation, state machines and variables for the registration and de-registration of attribute values. It allows dynamic filter entries for

VLAN membership to be distributed among the Forwarding Databases of VLAN-aware switches. By joining GVRP (GARP VLAN Registration Protocol), it helps maintaining VLAN information. The rule of the aging scheme is:

GARP Leave All Time > GARP Leave Time > GARP Join Time

IGMP Configuration

Management Capability Betup Tripe Filter Detup Devices Contention Sectin Configuration Device Foot Configuration	IGMP S	nooping' Inter	Table				
+ Percarent Addess Configuration	Inlex 1	alticart (icesp	MAC Address	VLAS 1D	Port Map 1 12345678(901234	2 56178901234156
+ Epanning Tree Pictocol Configuration	Espty						
+ Spanning Tree Pictopi Pod Configuration							
+ Put Statistics							
+ VLAN Configuration							
OARP Configuration							
 IONE Stocestru Table 							
User Authentication							

Figure 4-27. The IGMP Configuration Menu

Multicasting is used to support real-time applications such as video conferencing or streaming audio. IGMP (Internet Group Multicast Protocol) allows you to query for any attached hosts who want to receive a specific multicast service. The switch looks up the IP Multicast Group used for this service and adds any port, which received a similar request to that group. It then propagates the service request on to any neighboring multicast switch to ensure that it will continue to receive the multicast service.

By supporting IGMP (Internet Group Management Protocol) Snooping, the switch can forward multicast traffic intelligently. Packets are forwarded to the ports that belong to the multicast group instead of being

broadcast to all ports and possibly disrupting network performance. This lookup table reflects the multicast group(s) (up to 32) configuration of your system and provides an overview of the port(s) map to each multicast group.

User Authentication

• Management Capability Setup • Trap Filter Setup Device Control	User /	Authentica	tion Menu			
Switch Configuration Switch Post Configuration	Index	user	Pit	vilege		
Permanent Address Configuration	1 2 2	edmin guest	Rea	d/Write d Only		
 Spanning Tree Protocol Configuration 	4		Red	d Only		
Spanning Tree Protocol Port Configuration				102		
Port Statistics	Index	User Name	Password	Confirm	Privilege.	
VLAN Configuration	101				Read Only	10
 GARP Configuration 	in the second day				Tuess and	-
 IGMP Snooping Table 						
User Authentication	Asc	5 Modify	Delete	Reset		
System Utility						
System Restart	Control	Front Panel F	Password			
Factory Reset	New Pa	ssword Confin	an Password			
Login Timeout Interval						
System Download	and the second					
Undate Setting	Subry	if. Reset				

Figure 4-28. The User Authentication Menu

You can change the password setting as in the user authentication menu. You can also create user and assign different privilege to suit your needs. After selecting an entry to add or modify, type in user name and password, toggle the user privilege and then update the changes



Figure 4-29. The System Restart Menu

As mention earlier, you need to perform either a Cold Start or Warm Star to have the changes you made so that changes are really saved and keep in effect until you make change to them again.

• Managament Capatrilly Betap • Trap Filter Betap Derwicke Country II • Redth Country II	Factory Reset Menu			
Bwitch Part Configuration	Network Configuration:	Not Reset		
 ParmanentAddress Costiguration 	User Authentication Configuration:	Not Report.	122	
 Spanning Tree Protocol Configuration 	SNMP Community Configuration:	Not Report	12	
Boarning Triss Protocol Port Configuration Port Bistologie VLAN Configuration GARP Configuration HOMP Snoosing Table User Authentication Bystem Finalian English Finalian English Finalian English Finalian English Finalian English Finalian English Finalian English Finalian	Static Unicast Address Configuration Static Multicast Address Configuration VLAN Configuration: Not Reset	in: Net Reset		10

Figure 4-30. The Factory Reset Menu

All selections in this menu are separate to be setup their own default.

Login Timeout Interval



Figure 4-31. The Login Timeout Interval Menu

You can set up the time you need for the automatic log-out in anytime.

System Download	
Management Capability Setup Trap Filter Setup Device Control Switch Configuration Switch Configuration Permanent Address Configuration Spanning Tree Protocol Configuration Spanning Tree Protocol Pert Configuration Pert Distances VLAN Configuration OARP Configuration	System Download Menu File Download Request: TFTP Server IP Address: 0000 Boot ROM Code Download File Name: System Software and Web Pages Database Download File Name:
TOMP Snooping Table User Authentication Bystem Utility System Restart Factory Reset Login Timeout Interval System Download Update Setting	Save and Download Save Reset

Figure 4-31. The System Download Menu

Use TFTP download the code you need, and two code as Boot code and System Software code for upgrading.

Update Setting



Figure 4-32. The Update Setting Menu

You can save current settings by click the "Submit" checkbox .You should reboot the system so that your current settings will take effect.

5. Network Configuration

This section provides you a few samples of network topology in which LevelOne GSW-2490TXM SNMP Switch (UTP/MT-RJ/VF-45, Intelligent) is used.

The Switch provides versatile configuration options for the network. It is ideally suited as a workgroup or segment Switch in a network; it has the flexibility to provide Switched 10Mbps to the desktop or shared hubs, aggregate traffic from workgroup Switches, or provide dedicated 100Mbps or 1000Mbps (Gigabit) to servers with bandwidth-intensive applications. And because all Fast Ethernet ports auto-negotiate for operation at 100 Mbps the Switch is perfectly suited to an evolving network environment where demand for network speed is increasing.

Collapsed Backbone Application

For small network where rapid growth can be expected in the near future, this Switch is an ideal solution supporting backbone connectivity.

The Switch can be used as a standalone Switch for a group of heavy traffic users. Switching is brought to the desktop either through a single end-station per Switch port or through a multi-port Switch.

A 1000 Mbps server is connected to the Switch, providing end stations high-speed accessibility to its applications. This configuration provides dedicated 100 Mbps connections to the network center, to the server, and up to 40 users (while 2 Optional 8-port module are installed).

When the network needs expansion, you can simply connect the Switch to any IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet) and 802.3ab (Gigabit Ethernet) compliant Switch utilizing the Auto MDI/MDIX function. This Switch can also cooperate with a wide range of networking devices (e.g., firewall routers and printer servers) added to the network.



Figure 5-1. Collapsed Backbone Application

Departmental Bridge

For enterprise networks where large data broadcasts are constantly processed, this Switch is an ideal solution for department users to connect to the corporate backbone. The LevelOne GSW-2490TXM SNMP Switch used as segment Switch can alleviate user contention for bandwidth and eliminate server and network bottlenecks. All ports can connect to high-speed department servers that need high bandwidth. This Switch provides parallel communications within it's Gigabit port, which can run up to 2000 Mbps at Full-duplex.

The Switch makes key servers available to more users by allowing multiple conversations to occur concurrently, thereby significantly expanding overall network throughput. Moreover, this Switch eases supervision and maintenance by allowing network manager centralize multiple servers in a single location.



Figure 5-2: Departmental Bridge Application

NOTE: Full-duplex operation only applies to point-to-point access (for example, when attaching the Switch to a workstation, server, or another Switch). When connecting to hubs, use a standard cascaded connection set for half-duplex operation.

High Performance Switched Workgroup

This Switch is also a good solution for connecting two workgroups, supporting the throughput, for example, of 800Mbps. This application is useful for power groups that need high bandwidth.

The most common LAN implementations use a combination of standard switches, bridges and routers. The bridges and routers quickly become bottlenecks, reducing overall network throughput. Switching to higher-speed LANs such as FDDI or ATM is not a good choice for most people.

However, such broadband equipment is still extremely expensive and hard to maintain. Besides, you have to replace all existing Ethernet cable and adapter cards, restructure your network, and implement more expensive administration procedures.

The Switch can provide the same bandwidth of FDDI and ATM at much lower costs. In addition, all current adapters and network devices can still be used. The Switching cross-domain connection is better than bridge and router because users can retain LAN structure in which any node can freely communicate with any other node.



Figure 5-3: High Performance Switched Workgroup Application IEEE 802.1Q VLAN Application

The Switch supports up to 128 Group, IEEE 802.1Q-compatible virtual LAN (VLANs).

Port-based VLAN Workgroup

You can group the Switch ports into broadcast domains by assigning them to the same VLAN to increase network capacity and performance. With network segmentation, each Switch port connects to a segment that is a single broadcast domain. Packets received in one VLAN can only be forwarded within that VLAN.

VLAN allows the grouping of end stations logically, based not on physical location but on business policies such as job function or department. Members of a group can be dispersed throughout a facility - they do not have to be connected in close physical locations.

Hence, group members can coordinate their data communication requirements regardless of the actual working locations; and the logical network can extend to any point you want it to. Moreover, VLAN groups can be modified at any time to add, move or change users without any re-cabling.



Figure 5-4: VLAN Workgroup Application **Shared Server**

The Switch compliant to the IEEE802.1Q tagging VLAN standard allows ports to exist in multiple VLANs for shared resources, such as servers, printers, and Switch-to-Switch connections. It is also possible to have resources exist in multiple VLANs on one Switch as shown in the following figure.





In this example, stations on different VLANs share resources. As a result, VLAN 1 and VLAN 2 can access VLAN 3 for printing. The broadcasts from ports configured in VLAN3 can be seen by all

VLAN port members of VLAN3.

6. Product Specifications

This section provides the specifications of LevelOne GSW-2490TXM SNMP Switch, and the following table lists them.

Standards Compliance	IEEE802.3 10BASE-T
	IEEE802.3u 100BASE-TX and 100BASE-FX
	IEEE802.3ab 1000BASE-T
	IEEE802.3z 1000BASE-SX
	IEEE802.3x Flow Control
	IEEE802.1p Priority Support
	IEEE802.3ac Frame Extension for VLAN Tagging
	IEEE802.1D spanning tree
	IEEE802.1Q VLAN tagging
Protocol	CSMA/CD
Media connector	100M FX, SC, MTRJ, VF45
	Basic unit: 24 RJ-45 for STP or UTP,
	Auto MDI/MDI-X Support
	Gigabit SX/LX Module: 1 Duplex SC
	Gigabit 1000T Module: 1 RJ-45 for UTP or STP,
	Auto MDI/MDI-X Support
	GBIC: Mini GBIC LC type, Standard GBIC SC type
Transfer Rate	14880 Packets per second for 10Mbps
	148800 packets per second for 100Mbps
	1488000 packets per second for 1000Mbps
Backplane Bandwidth	9.6Gb
Switch Technology	Store-and-Forward Error Free Packet Forwarding
	Scheme
	Supports Hardware Level Broadcast Storm
	Prevention without Consuming System CPU
	Utilization

MAC Address	8K MAC address with auto learning function
Data Buffer	6Mb share memory
LED	System Power, per port Link/active, FDX/Col,10/100Mbps
	Gigabit Module Link/active, FDX/Col
Dimension	440mm(W)*225mm(D)*44.5mm(H)
Power	100~240 VAC 50/60HZ
EMI & Safety	FCC Class A, CE, UL

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