



SATYRN M SERIES

COMTROL GmbH Unit 2 | Stoplehurst | Weston on the Green Bicester | OX25 3QU | UK

T: +44 (0)1869 352740 F: +44 (0)1869 351848 E: support@comtrol.co.uk



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Comtrol GmbH Staplehurst Weston on the Green Bicester OX25 3QU

UK

TELEPHONE

Switchboard	+44 (0) 1869 352740
Fax	+44 (0) 1869 351848
Support	+44 (0) 1869 352743

E-MAILS

Sales	sales@comtrol.co.uk
Support	support@comtrol.co.uk
Enquiries	enquiries@comtrol.co.uk
General	info@comtrol.co.uk



1 Getting to Know Your Switch

1.1 About the Satyrn M Series Industrial Switch

The Satyrn M Series are powerful managed industrial switches with many features. These switches can work under wide range of temperatures, in dusty environments and in humid conditions. They can be managed by WEB, TELNET, Console or other third-party SNMP software as well. These switches can also be managed by a useful utility included with Comtrol's Satyrn switches called Satyrn View, a powerful network management software. With Satyrn View's easy-to-use interface, you can easily configure multiple switches at once and then monitor their status.

1.2 Software Features

- The world's fastest Redundant Ethernet Ring (Recovery time < 10ms with up to 250 units)
- Ring Coupling, Dual Homing using Satyrn Ring and standard STP/RSTP/MSTP
- Support for SNMPv1/v2c/v3 & RMON as well as Port base/802.1Q VLAN Network Management
- Event notification by email, SNMP trap and Relay Output
- o Web-based, Telnet, Console, and CLI configuration
- Enable/disable ports, MAC based port security
- Port based network access control (802.1x)
- VLAN (802.1Q) to segregate and secure network traffic
- o Radius centralized password management
- o SNMPv3 encrypted authentication and access security
- Quality of Service (802.1p) for real-time traffic
- VLAN (802.1Q) with double tagging and GVRP supported
- IGMP Snooping for multicast filtering
- o Port configuration, status, statistics, mirroring, security
- Remote Monitoring (RMON)

1.3 Hardware Features

- Three redundant DC power inputs (two on terminal block & one on power jack)
- Wide operating temperature range: -40 to 70°C
- Storage temperature: -40 to 85°C



- o Operating humidity: 5% to 95%, non-condensing
- Casing: IP-30
- o 10/100Base-T(X) Ethernet port (all models)
- o 10/100/1000Base-T(X) Gigabit Ethernet port (M062-EG)
- 100Base-FX Fibre port (M062-EM & M062-ES)
- o 10/100/1000Base-X Fibre port (M062-EL & M062-ET)
- o 10/100/1000Base-X on SFP port (M062-EQ)
- o 10/100/1000BaseX Combo port (M073-EC)
- o Console port

2 Hardware Installation

2.1 Installing Switch on DIN-Rail

Each switch has a DIN-Rail kit on its rear panel. The DIN-Rail kit permits the switch to be fixed on a DIN-Rail without difficulty. Note the dimensions of the switch may vary but the principle of fixing remains the same.

2.2 Mounting M Series switches on to a DIN-Rail

Step 1: Tilt the switch upwards and mount the metal spring on to the DIN-Rail.



Step 2: Push the switch downwards toward the DIN-Rail until you hear an audible "click".



3.1 Wall Mounting Installation

Each switch has an alternative installation option. A wall mount panel is included in the package. The following steps show how to mount the switch on the wall. Note the dimensions of the switch may vary but the principle of fixing remains the same.

2.2.1 Mount L Series switches on to a wall

Step 1: Remove the DIN-Rail kit.



Step 2: Take the 6 screws that are included in the package and use them to attach the included wall mount to the switch as the picture shows below:





The screw specifications are shown below in case replacements are needed. In order to avoid damaging the switches, screws that are larger than those included with the M series switches should not be used.



Step 3: Mount the switch with the attached wall mount unit to the wall.



3 Hardware Overview

3.1 Front Panel

3.1.1 Satyrn M080-EN



- 1. Solid green LED when DC power module 1 active
- 2. Solid green LED when DC power module 2 active
- 3. Solid green LED when DC power jack active
- 4. Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6. Solid amber LED if there is a power failure or port failure.
- 7. Console port (RS-232, RJ45)
- 8. Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.
- 9. 10/100Base-T(X) Ethernet ports.



- 10. LED for Ethernet ports status.
- 11. 10/100Base-T(X) Ethernet port.
- 12. LED for Ethernet port status
- 13. 10/100Base-T(X) Ethernet port.
- 14. Model name
- 3.1.2 Satyrn M062-EM & M062-ES



- 1 Solid green LED when DC power module 1 active
- 2 Solid green LED when DC power module 2 active
- 3 Solid green LED when DC power jack active
- 4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- 5 Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6 Solid amber LED if there is a power failure or port failure.



- 7 Console port (RS-232, RJ45)
- 8 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.
- 9 10/100Base-T(X) Ethernet ports.
- 10 LED for Ethernet ports status.
- 11 100BaseFX fibre port.
- 12 LNK/ACT LED for fibre port.s
- 13 100BaseFX fibre port.
- 14 Model name

3.1.3 Satyrn M062-EG



- 1. Solid green LED when DC power module 1 active
- 2. Solid green LED when DC power module 2 active
- 3. Solid green LED when DC power jack active



- 4. Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- 5. Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6. Solid amber LED if there is a power failure or port failure. Console port (RS-232, RJ45)
- 7. Console port (RS-232, RJ45)
- 8. Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.
- 9. 10/100Base-T(X) Ethernet ports.
- 10. LED for Ethernet ports status.
- 11. 10/100/1000Base-T(X) Ethernet port.
- 12. LED for 10/100/1000Base-T(X) Ethernet port status
- 13. 10/100/1000Base-T(X) Ethernet port.
- 14. Model name

3.1.4 Satyrn M062-EL & M062-ET





- 1. Solid green LED when DC power module 1 active
- 2. Solid green LED when DC power module 2 active
- 3. Solid green LED when DC power jack active
- 4. Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- 5. Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6. Solid amber LED if there is a power failure or port failure.
- 7. Console port (RS-232, RJ45)
- 8. Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.
- 9. 10/100Base-T(X) Ethernet ports.
- 10. LED for Ethernet ports status.
- 11. 1000BaseLX/SX Ethernet port.
- 12. LED for Fibre port status
- 13. 1000BaseLX/SX Ethernet port
- 14. Model name



3.1.5 Satyrn M082-EQ



- 1. Solid green LED when DC power module 1 active
- 2. Solid green LED when DC power module 2 active
- 3. Solid green LED when DC power jack active
- 4. Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6. Solid amber LED if there is a power failure or port failure.
- 7. 10/100Base-T(X) Ethernet ports.
- 8. LED for Ethernet ports status.
- 9. LED for SFP Fibre port status
- 10. 10/100/1000BaseX SFP port.
- 11. LED for SFP Fibre port status
- 12. 10/100/1000BaseX SFP port.
- 13. Model name



3.1.6 Satyrn M073 EC



- 1. Solid green LED when DC power module 1 active
- 2. Solid green LED when DC power module 2 active
- 3. Solid green LED when DC power jack active
- 4. Solid green LED when this switch is the Ring Master of the Satyrn-Ring.
- Solid green LED when the Satyrn Ring is enabled Slow blinking green LED when there is a problem with the Satyrn-Ring topology Fast blinking green LED when the Satyrn-Ring is working properly
- 6. Solid amber LED if there is a power failure or port failure.
- 7. Console port (RS-232, RJ45)
- 8. Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.
- 9. Model name
- 10. LED for Ethernet port status
- 11. Gigabit combo ports with SFP and RJ-45 connectors



- 12. LED for Ethernet ports status.
- 13. Gigabit combo ports with SFP and RJ-45 connectors
- 14. 10/100Base-T(X) Ethernet port.
- 15. LED for Ethernet status

3.2 Bottom Panel

3.2.1 M062 Series and M080

The bottom panel components of M062 Series & M080 are shown below:

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

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



3.2.2 M082-EQ

The bottom panel components of the M082-EQ are shown below:

- 1. Terminal block includes: PWR1, PWR2 (12-48V DC) and Relay output (1A@24VDC).
- 2. Power jack for PWR3 (12-45VDC).
- 3. Console port (RS-232, RJ45)
- 4. Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.





3.2.3 M073-EC

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





3.3 Rear Panel

The components in the rear of Satyrn M Series are shown below:

- 1. Screw holes for wall mount kit.
- 2. Screw holes for DIN-Rail kit

Note the dimensions of the switch may vary but the principle of fixing remains the same.



4 Cables

4.1 Ethernet Cables

All of the M Series Satyrn switches have standard Ethernet ports. Depending on the link type, the switches use CAT 3, 4, 5,5e UTP cables to connect to any other network device. Please refer to the following table for cable specifications.

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



4.1.1 100BASE-TX/10BASE-T RJ-45 Pin Assignments

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

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

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

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

4.2 Fibres

The following models, M062-EM, M062-ES, M062-EL and M062-ET have fibre optic ports. The fibre optic ports are in multi-mode (0 to 2 km, 1310 nm in 50/125 μ m, 62.5/125 μ m) and single-mode (9/125 μ m) with an SC connector. Note that the TX port of Switch A should be connected to the RX port of Switch B.





4.3 SFP

The M073-EC model has fibre optic ports with SFP connectors.

Note that the TX port of Switch A should be connected to the RX port of Switch B.



4.4 Console Cable

M Series switches can be managed via a console port. The DB-9 to RJ-45 cable is found in the product box. They can be connected to a PC via a RS-232 cable with a DB-9 female connector and the other end (RJ-45 connector) connected to the switch's console port.



5 Browser based Management

WARNING! – It is important that, whilst setting up or during firmware upgrade, you do NOT power off the switch.

5.1 Configuring the M Series Satyrn switches using a Browser

This section applies to all of the M Series Satyrn switches. If there is additional information for specific models, this will be clearly stated.

5.1.1 About Browser-based Management

An embedded HTML web site resides in flash memory on the CPU board. It contains advanced management features and allows you to manage the switch from anywhere on the network through a standard web browser such as Microsoft Internet Explorer. The browser-based management function supports Internet Explorer 5.0 or higher. It is based on Java applets with an aim to reduce network bandwidth consumption, enhance access speed and provide an easy, useful interface.

Note: By default, version IE5.0 or later does not allow Java Applets to open sockets. You will need to explicitly modify the browser settings in order to enable Java applets to use network port.

Preparing for Browser Management

The default settings are as follows:

IP Address	192.168.250.250
Subnet Mask	255.255.255.0
Default Gateway	192.168.250.1
User Name	comtrol
Password	satyrn

System Login

Launch Internet Explorer or another Internet browser.

Type http:// followed by the IP address of the switch (the default IP address is 192.168.250.250) into the address field and then press "Enter".

When the login screen appears, enter the User name and Password (the default User name is comtrol and the default Password is satyrn) into the fields and then press "Enter" or click the OK button.

The main interface of the Browser-based management will appear.



	WWW COM	TROL CO LIK
Terr d' Perchange Pe	Managed Industrial & port switch, DIN rail/wall mounted, with 6 x 10/100 Ethernet, RJ45 ports & 2 10/100 multimode fibre, SC connector	

5.1.2 System Information

This contains the basic information about the switch, click here from any part of the document to return here.

5.1.2.1 Location Alert

This function helps you physically locate a specific switch by flashing the PWR and Fault lights.

Enable Location Alert switches on the flashing the PWR and Fault lights.

Disable Location Alert switches off the flashing the PWR and Fault lights

5.1.3 Basic settings

This section allows you to set the basic switch settings, IP address as well as perform various backup, restore, factory default and reboot operations.

5.1.3.1 Front Panel

This returns the switch schematic to view.

5.1.3.2 Switch Setting

This is the standard switch setting interface.

Basic Setting		-3
Switch Setting	System Name	SATYRN M062-EM
Admin Password	System Description	Managed Industrial 8 port switch, DIN rail/wall mounted, with 6 x
SNTP(Time)	System Location	Support Rack
LLDP	System Contact	Tim Jones
Auto Provision	System OID	1.3.6.1.4.1.25972.108.0.0.3
Backup & Restore	Firmware Version	v1.02
Upgrade Exmware	Kernel Version	v2.48
Factory Detault	Device MAC	00-1E-94-23-02-84

The following table describes the options available.



Option	Description	
System Name	Assign the switch name here. Maximum length is 64 characters.	
System Description	Displays the switch description.	
System Location	Assign the switch's physical location here. The maximum length is 64 characters.	
System Contact	Enter the name of a contact person or organization.	
System OID	Displays the switch's OID information.	
Firmware Version	Displays the switch's firmware version.	
Kernel Version	Displays the software version of the kernel.	
MAC Address	Displays the default hardware address assigned by the manufacturer.	

5.1.3.3 <u>Admin Password</u>

You can change the Browser management login in user name and pass word here.

Open all System Information	Admin Pass	word	
E Front Panel			
Switch Setting	User Name	comtrol	
Admin Password	New Password		
IP Setting			
SNTP(Time)	Confirm Password		
E LLDP			
Auto Provision	Apply Help		
Backup & Restore			
Upgrade Firmware			

The following table describes the options available.

Option	Description
User name	Enter the new username. (The default is "comtrol")
New Password	Enter the new password. (The default is "satyrn")
Confirm password	Re-type the new password.
Apply	Click "Apply" to save changed configuration settings

5.1.3.4 IP Setting

You can configure the IP Settings and DHCP client function here.



 System Information Basic Setting Front Panel 	IP Setting	
Switch Setting Admin Password	DHCP Clie	ent : Disable 💌
😩 P Setting	IP Address	10.0.0.103
SNTP(Time)	Subnet Mask	255.255.0.0
Auto Provision	Gateway	10.0.0.1
Backup & Restore	DNS1	0.0.0.0
Upgrade Firmware	DNS2	0.0.0.0
System Reboot	Apply Help	, <u>,,,,,,,,</u> ,

The following table describes the options available.

Option	Description
DHCP Client	Enable or disable the DHCP client function. When the DHCP
	client function is enabled, the switch will be assigned the IP
	address from the network DHCP server and the default IP
	address will be replaced by the IP address which the DHCP
	server has assigned. After clicking the "Apply" button, a pop-up
	dialog will show up to inform you that the DHCP client is enabled.
	. The current IP will be replaced by the new IP address on the
	DHCP server.
	Assign the ID address used by the network. If the DHCD alignt
IP Address	Assign the IP address used by the network. If the DHCP client
	function is enabled, you do not need to assign an IP address.
	The network DHCP server will assign the switch's IP address and
	it will be displayed in this column. The default IP address is:
	192.168.10.1
Subnet Mask	Assign the subnet mask of the IP address If DHCP client
Sublict Mask	
	function is enabled, you do not need to assign the subnet mask
Gateway	Assign the switch's network gateway. The default gateway is:
	192.168.250.250
DNS1	Assign the primary DNS IP address
DNS2	Assign the secondary DNS IP address
Apply	Click " Apply " to activate the changed configuration.



5.1.3.5 SNTP Configuration

The SNTP (Simple Network Time Protocol) settings allow you to synchronize the switch's clocks over the network.

System Information Jeasic Setting Foot Panel	Time Setting		
Switch Setting	System Clock		
N IP Setting	System Clock	24 June 2011 14:33:35	
SNTP(Time)	System Date (YYYY/MM/DD)	2011 💌 / Jun 💌 / 24	×
Auto Provision	System Time (hh:mm:ss)	14 } 29 44	
Upgrade Firmware	Apply Set Clock From PC		
System Reboot DHCP Server Port Setting	SNTP Client : Disa	ble 💙	
Redundancy	UTC Timezone	CART Kireowich Mean Time	Trunhn Einnburgh Lisnen London 👻
VLAN	SNTP Server Address	0.0 0 0	
Traffic Prioritization Multicast Security Warning Monitor and Diag Security	Daylight Saving 1 Daylight Saving Period	Time : Denter	* 10 * * * 11 =
(A) care construction	Daylight Saving Offset	U u	(hours)
	Apply Help PTP Client : Disable	e 🖌	

The following table describes the options available.

Option	Description
SNTP Client	Enable or disable SNTP function to obtain the time from the specified SNTP server.
Daylight Saving Time	Enable or disable the daylight saving time function. When daylight saving time is enabled you need to specify the dates it applies.
UTC Time zone	Set the switch's time zone. The table at the end of this section lists the different time zones for your reference.
SNTP Server IP Address	Set the SNTP server's IP address.
Daylight Saving Period	Set up the Daylight Saving start time and Daylight Saving end time. Note that both will be different every year.
Daylight Saving Offset	Set up the offset time.
PTP Client	The Precision Time Protocol (PTP) is a time-transfer protocol that allows precise synchronization of networks. Accuracy within the nanosecond range can be achieved with this protocol when using hardware-generated timestamps.
Apply	Click "Apply " to save the changed configuration settings.



Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am
CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter	+1 hour	1 pm
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, USSR Zone 7	+8 hours	8 pm
JST - Japan Standard, USSR Zone 8	+9 hours	9 pm
EAST - East Australian Standard GST Guam Standard, USSR Zone 9	+10 hours	10 pm
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight



5.1.3.6 <u>LLDP</u>

The LLDP (Link Layer Discovery Protocol) function allows the switch to advertise its information to other nodes on the network and store the information it receives.

LLDP Protoc	ol: Enable	•		
LLDP Interva	al: 30	sec	2	
900				
Sync Time: Help ghbour li	Disable	• ole		
Sync Time: Help ghbour li Port Syst	Disable 1fo Tal em Name	• ble	1AC Address	IP Address

The following table describes the options available.

Option	Description
LLDP Protocol	"Enable" or "Disable" LLDP function.
LLDP Interval	The interval for resending LLDP frames (default is 30 seconds)
Neighbour Info	Identifies the switches directly connected to the current switch
Apply	Click " Apply " to save the changed configuration.
Help	Show the help file.

5.1.3.7 <u>Auto Provision</u>

Auto Provision allows you to automatically update the switch firmware. You can put the firmware or a configuration file on a TFTP server. When you subsequently reboot the switch, it will upgrade automatically. Before updating, make sure you have your TFTP server ready and that both the firmware image and configuration file is on the TFTP server.



System Information Basic Setting	Auto Provision	
Switch Setting	Auto Install Configuratio	on file from TFTP server?
Admin Password	TFTP Server IP Address	192168.10.66
SNTP(Time)	Configuration File Name	data bin
LLDP	Auto Install Firmware im	age file from TFTP server?
Backup & Restore	TFTP Server IP Address	192.168.10.66
📓 Upgrade Firmware	Firmware File Name	image bin
Factory Default System Reboot DHCP Server Port Setting	Apply Help	

The following table describes the options available.

Options	Description
Auto Install Configuration	Check this box to auto install configuration file on reboot
TFTP Server IP Address	Enter the TFTP server IP address.
Configuration File Name	Enter the switch configuration file name
Auto install Firmware	Check this box to auto install Firmware Image on reboot
Firmware File Name	Enter the switch file name

5.1.3.8 Backup & Restore

The switch configuration is stored on an EEPROM. This can be backed up to the TFTP server, and then later restored.

Open all System Information Basic Setting Front Panel Switch Setting Udmic Descended	Backup & Rest Restore Configura From TFTP Serve	ore ation
IP Setting	TFTP Server IP Address	192.168.10.66
SNTP(Time)	Restore File Name	data.bin
Auto Provision Backup & Restore Upgrade Firmware Factory Default System Reboot DHCP Server Port Setting	Backup Configura To TFTP Server	Restore Help
Redundancy	TFTP Server IP Address	192.168.10.66
	Backup File Name	data.bin
Traffic Prioritization Multicast		Backup Help



Options	Description
TFTP Server IP Address	Enter the TFTP server IP address.
Restore File Name	Enter the switch configuration file name
Restore	Click " restore " to restore the saved configuration.
Backup File Name	Enter the backup file name
Backup	Click " backup " to backup the current configuration.

The following table describes the options available.

5.1.3.9 <u>Upgrade Firmware</u>

Upgrade Firmware allows you to update the switch's firmware. Before updating, be sure to have your TFTP server ready and the firmware image available on the TFTP server.

System Information Basic Setting Score Record	Upgrade Firm	nware
Switch Setting	TFTP Server IP	192.168.10.66
Admin Password	Firmware File Name	image.bin
SNTP(Time)	Upgrade Help	
Auto Provision		
Backup & Restore		
Upgrade Firmware		
Factory Default		
System Rehoot		

The following table describes the labels in this screen.

Label	Description
TFTP Server IP	Enter the TFTP server IP address.
Firmware File Name	Enter the firmware file name
Upgrade	Click "upgrade" to upgrade the firmware.



5.1.3.10 Factory Default



Use this function to reset the switch to default configuration. Click the Reset button to restore all configurations to their default values. You can select "**Keep current IP** address setting" and "**Keep current username & password**" to save the current IP and username and password whilst resetting everything else to the factory defaults.

5.1.3.11 System Reboot

Onen ell	
System Information	System Reboot
Switch Setting	Please click [Reboot] button to restart switch device.
Admin Password IP Setting	Reboot
SNTP(Time)	
Auto Provision	
 Datable Reside Upgrade Firmware 	
System Reboot	

5.1.4 DHCP Server

The M Series switches can operate as a DHCP server. This sections allows you to select this mode and select various parameters.



5.1.4.1 <u>Setting</u>

Open all S System Information Basic Setting DHCP Server S Setting C Client List	DHCP Server	er - Settin	ng
Port and IP Binding	Start IP Address	192,168,250.2	
E Port Setting	End IP Address	192.168.250.200	
	Subnet Mask	255.255.255.0	
	Gateway	192.168-250.254	
Multicast	DNS	0.0.0.0	
Security	Lease Time (Hour)	168	
Marning Monitor and Diag Save Configuration	Apply Help	4	

The following table describes the options available.

Option	Description
DHCP Server	Enable or Disable the DHCP Server function. When enabled, the switch will act as the DHCP server on the local network
Start IP Address	The lower limit of the dynamic IP address range. The lower IP address is the beginning of the dynamic IP address range. For example, if the dynamic IP address range is from 192.168.1.100 to 192.168.1.200, then 192.168.1.100 will be the start IP address.
End IP Address	The upper limit of the dynamic IP address range. The highest IP address is the end of the dynamic IP address range. For example, if the dynamic IP address range is from 192.168.1.100 to 192.168.1.200, then 192.168.1.200 will be the End IP address
Subnet Mask	The subnet mask for the dynamic IP address range.
Gateway	The network gateway.
DNS	The Domain Name Server.
Lease Time (Hour)	The time at which the system will reset the assigned dynamic IP to ensure the IP address is in use.
Apply	Click " Apply " to save the changed configuration.

5.1.4.2 Client List

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



System Information	DHCP Server - Client List
Setting Setting Client List Ordend JP Binding Port Setting Port Setting	IP Address MAC Address Type Status Lease

5.1.4.3 Port and IP binding

You can assign a specific IP address in the assigned dynamic IP range to a specific port. When a device is connecting to the port and requests a dynamic IP assignment, the system will assign the specific IP address allocated to that port.

Open all System Information Basic Setting DHCP Server	DHCP Server -	Port and IP Binding
(X) Setting	Port No. IP Address	
(S) Client List	Port.01 0.0.0.0	
Port and IP Binding Port Setting	Port.02 0.0.0.0	
E _ Redundancy	Port.03 0.0.0.0	
🗉 🛄 VLAN	Port.04 0.0.0.0	
SNMP Traffic Prioritization	Port.05 0.0.0	
🖲 🛄 Multicast	Port.06 0.0.0.0	
E Security	Port.07 0.0.0.0	
Warning Monitor and Diag	Port.68 0.0.0.0	
Save Configuration	Apply Help	

5.1.5 Port Setting

This section enables you to assign specific parameters to each individual port.

5.1.5.1 Port Control

The Port Control function allows you to set the state, speed/duplex, flow control, and security of the individual ports.

System Information Basic Setting DiaCP Senier	Port Co	ontrol			
Port Setting	Port No.	State	Speed/Duplex	Flow Control	Security
Port Control	Port.01	Enable 👻	AutoNegotiation 👻	Symmetric 💌	Disable 👻
Port Status	Port.02	Enable 💌	AutoNegotiation 💌	Symmetric 💌	Disable 💌
Rate Limit	Port.03	Enable 👻	AutoNegotation 😒	Symmetric 💌	Disable 💌
Redundancy	Port.04	Enable 💌	AutoNegotiation 👻	Symmetric 💌	Disable 💌
w.	Port.05	Enable 👻	AutoNegotiation 👻	Symmetric 💌	Disable 💌
P	Port.06	Enable 💌	AutoNegotiation 💌	Symmetric 👻	Disable 💉
ic Priontization	Port.07	Enable 💌	100 Fufi 😪	Symmetric 💌	Disable 💌
carity	Port.08	Enable 💌	100 Full 😪	Symmetric 💌	Disable 👻



Option	Description
Port No.	Port identification number.
State	Enable or Disable the port.
Speed/Duplex	Options: Auto-negotiation, 100 full, 100 half, 10 full, 10 half mode.
Flow Control	Support symmetric and asymmetric mode to avoid packet loss when congestion occurs.
Apply	Click " Apply " to save the changed configuration settings.

The following table describes the options available.

5.1.5.2 Port Status

Once the Port Control settings have been made they can then be seen in the Port Status.

Open all System Information Basic Setting	Port Status						
Port Setting	Port No.	Type	Link	State	Speed/Duplex	Flow Control	
(%) Port Control	Port.01	100TX	UP	Enable	100 Full	Enable	
Port Status	Port.02	100TX	Down	Enable	N/A	N/A	
Rate Limit	Port.03	100TX	Down	Enable	N/A	N/A	
Port Trunk	Port.04	100TX	UP	Enable	100 Full	Disable	
Redundancy	Port.05	100TX	UP	Enable	100 Full	Disable	
VLAN	Port.06	100TX	Down	Enable	N/A	N/A	
SNMP	Port.07	100FX	Down	Enable	N/A	N/A	
Traffic Prioritization	Port.08	100FX	Down	Enable	N/A	N/A	
Multicast							

5.1.5.3 <u>Rate Limit</u>

You can set a limit on the traffic of all ports, including broadcast, multicast and flooded Unicast using this function. You can distinguish between transmitted and received data and permit different limits to be set on incoming and outgoing traffic.

art Setting	Port No. Ingress Limit Frame Type		Ingress		Egress	
Port Control	Port.01	Al 👻	0	kbps	0	kbps
Port Status Rate Limit	Port.02	Al	0	kbps	0	kbps
Port Trunk	Port.03	48	0	kbps	0	kbps
dundancy	Port.04	Al	0	kbps	0	kbps
N UP	Port.05	44	0	kbps	0	kbps
fic Prioritization	Port.06	All	0	kbps	0	kbps
licast	Port.07	All	0	kbps	0	kbps
ming	Port.08	All	0	kbps	0	kbps


Option	Description
Ingress Limit Frame Type	Options:
	o "all"
	○ "Broadcast only"
	 "Broadcast/Multicast"
	 "Broadcast/Multicast/Flooded Unicast"
Ingress	The limit on traffic received through the switch port.
Egress	The limit on traffic transmitted through the switch port.
Apply	Click " Apply " to save the configuration.

5.1.5.4 Port Trunk

Port Trunk setting

Static trunk or 802.3ad LACP can be selected to combine several physical links with a logical link in order to increase the bandwidth.

a second submitted	Port No.	Group I	D	Type	
S Port Control	Port.01	None	¥ 5	tatic 👻	
🔞 Port Status	Port.02	None	v 19	itatic 👻	
Rate Limit	Port.03	None	v 18	itatic 👻	
(N) Setting	Port.04	None	* 8	itatic 👻	
Status	Port.05	None	¥ 8	itatic 👻	
Redundancy	Port.06	None	¥ 8	itatic 💌	
ALAN SNMP	Port.07	None	* 8	itatic 💌	
Traffic Prioritization	Port.08	None	v (8	itatic 👻	
Security Warning Monitor and Diag	802.3a	d LACF	> W	ork Po	orts
Save Configuration	Group II	Work Po	rts		
	Trunk1	max	<u> </u>		
	Trunk2	max			
	Trunk3	max			

Option	Description
Group ID	Select the port to join a trunk group.



Туре	Choose between static trunk and 802.3ad LACP.
Apply	Click " Apply " to save the changed configuration.

Port Trunk – Status

You can check the configuration of port trunk here.

Open all System Information Size Basic Setting DHCP Server	Port Tru	ınk - Statu	IS	
C Port Setting	Group ID	Trunk Member Type	1	
Port Control	Trunk 1	Statio		
Port Status	Trunk 2	Statio		
🛐 Rate Limit	Trunk 3	Statio		
E S Port Trunk	Trunk 4	Statio		
Setting Status Redundancy				

5.1.6 Redundancy

5.1.6.1 Satyrn-Ring

Satyrn-Ring features one of the most powerful redundant ring technologies in the world. The recovery time of Satyrn-Ring is less than 10 mS over 250 units of connections. This redundancy can reduce unexpected malfunctions caused by changes to the network topology. Satyrn-Ring technology supports three ring topologies for network redundancy: Satyrn-Ring, Coupling Ring and Dual Homing.



Option	Description
Satyrn-Ring	Check box to enable Satyrn-Ring.



Ring Master	There should be only one Ring Master in a ring. However if there are two or more switches for which Ring Master is enabled, the switch with the lowest MAC address will serve as the Ring Master and others will serve as Backup Masters.
1 st Ring Port	The Ring Master's primary port.
2 nd Ring Port	The Ring-Master's secondary port.
Coupling Ring	Check box to enable Coupling Ring. Coupling Ring can be used to divide a big ring into two smaller rings to prevent network topology changes from affecting all the switches It is useful for connecting two Satyrn-Rings.
Coupling Port	Link to Coupling Port of the switch in another ring. A Coupling Ring needs four switches to build active and backup links. Set a port as coupling port. The coupled four ports of four switches will be run in active/backup mode.
Control Port	Link to Control Port of the switch of the same ring. Control Port used to transmit control signals.
Dual Homing	Check box to enable Dual Homing. By selecting Dual Homing mode, Satyrn-Ring will be connected to normal switches through two RSTP links (ex: backbone Switch). The two links work in active/backup mode and connect each Satyrn-Ring to the normal switches in RSTP mode.
Арріу	Click " Apply " to save the changed configuration settings.

Note: Do not set one switch as both a Ring Master and a Coupling Ring at the same time as this will place a heavy load on the network.

5.1.6.2 <u>Satyrn-Open</u>

Satyrn-Open technology can be utilized with proprietary rings from other vendors. Satyrn switches can be added to networks based on other ring technologies and will cooperate with managed switches from other vendors.

🗹 Enable		
Vender	Moxe	•
1st Ring Port	Port.01 👻	
2nd Ring Port	Port.02 🔻	



Further vendors are being added all the time. Contact Technical Support for an up to date list.

The following table describes the options available.

Option	Description
Enable	Enable the Satyrn-Open function.
Vendor	Select the appropriate vendor for the ring you want to join.
1 st Ring Port	Select the port to connect to the ring
2 nd Ring Port	Select the port to connect to the ring

An example of a Satyrn-Open connection is shown below.



5.1.6.3 Satyrn Link

Satyrn Link allows you to add on network redundancy topology for any backbone network. This enables multiple redundant network rings to combine together and function as a larger more robust network.

Satyrn Link only requires the edge port of the edge switch to be identified with other switches in the ring with Satyrn Link enabled.

System Information Basic Setting DHCP Server	Satyrn-Link
Port Setting	Enable
E Redundancy	Uplink Port Edge Port State
Satyrn-Ring	1st Port.01 V Forwarding
Satyrn-RSTP	2nd Port.01 💌 📃 Linkdown
C RSTP	
MSTP	Apply



Option	Description
Enable	Enable the Satyrn-Link function.
Uplink Port	Select the appropriate port for 1 st or 2 nd uplink port
Edge Port	Select the port connected to the main riing
Apply	Apply the selected settings

5.1.6.4 Satyrn-RSTP

Satyrn-RSTP is Comtrol's proprietary redundant ring technology. It is an improvement upon standard STP/RSTP, as the recovery time of Satyrn-RSTP is less than 20ms. Satyrn-RSTP also supports more connection nodes in a ring topology. The key feature is that the individual switches can be set up as either master and backup devices.

The Satyrn-RSTP configuration page is shown below.

System Information System Information Satisfy and the setting Children Setting Satisfy and the setting Satisfy and	ROOT switch: Disable V				
Satym-Ring	Port No.	Active	State		
Satym-Link	Port.01		INACTIVE		
€ _ RSTP	Port.02		INACTIVE		
🖸 📃 MSTP	Port.03		INACTIVE		
SNMP	Port.04		INACTIVE		
Traffic Prioritization	Port.05		INACTIVE		
Multicast	Port.06		INACTIVE		
Warning	Port.07		INACTIVE		
Monitor and Diag	Port.08		INACTIVE		

Option	Description
ROOT switch	The switch can be assigned to be the master or backup device.
Port Active	Select the port
Status	 INACTIVE - If the check box is unticked, the port is not involved in the Satyrn-RSTP structure.



	0	LINKDOWN: If the check box is ticked, and the cable is disconnected or the connection is inactive, the state will show as "LINKDOWN".
	0	BLOCKING: The port state is in this state if a switching loop is created.
	0	FORWARDING: The port receives and sends data in normal operation.
Apply	Apply t	he selected settings

An example of Satyrn-RSTP is shown below.



5.1.6.5 <u>RSTP</u>

The Rapid Spanning Tree Protocol (RSTP) is an improved variant of the Spanning Tree Protocol. It provides faster spanning tree convergence after a change to the network topology. The system also supports STP and will auto detect connected devices that are running STP or RSTP protocol.

RSTP Settings

You can enable or disable the RSTP function, and set the parameters for each port.



Basic Setting	RSTPS	etting	1						
DHCP Server Dect Setting	RSTP								
Redundancy	and the second								
(iii) Salym-Ring	Bridge	Setting	-						
Satym-Link	Priority (0-61440) 32768								
E RSTP	Max Age	Time(6-40)		20					
X RSTP Setting	Hello Tim	e (1-10)		2					
RSTP Information	Forward	Delay Time	(4-30)	15					
U ULAN	Ensemplement								
SHMP	Port S	etting						71:	-
Traffic Prioritization	Port No.	Enable	Path C 1-20	ost(0:auto,	Priority (0-240)	P2	P	Ed	ge
E Security	Port.01	enable 😽	0	1	128	auto	~	true	
Warning	Port.02	enable 💌	0	10	128	auto	*	true	*
Monitor and Diag	Port.03	enable 👻	0	100	128	auto	*	true	*
Of care coungerators	Port.04	enable 😽	0		128	auto	\$	true	¥
	Port.05	enable 💌	0		128	auto	~	true	~
	and the second sec		0		128	auto	-	true	4
	Port.06	enable 💌							
	Port.06 Port.07	enable 💌	0		128	auto	*	true	(**)

Option	Description
RSTP mode	The RSTP function must be enabled before configuring the related parameters.
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value with the highest priority and is selected as the root. If the value is changed, you must restart the switch. The value must be between 0 and 61440 and be a multiple of 4096.
Max Age (6-40)	The number of seconds a bridge will wait without receiving Spanning-Tree Protocol configuration messages before reconfiguring. Select a value between 6 and 40.
Hello Time (1-10)	The time in which the switch sends out a BPDU (Bridge Protocol Data Unit) packet to check current RSTP status. Enter a value between 1 through 10.
Forwarding Delay Time (4-30)	The number of seconds a port waits before changing from its Rapid Spanning Tree Protocol learning and listening states to the forwarding state. Enter a value between 4 and 30.
Path Cost (1- 20000000)	The cost of the path from the transmitting bridge to the receiving bridge at the specified port. The value must be between 1 and 200000000.
Priority (0-240)	Select which port should be blocked by setting the LAN priority. The priority must be a value between 0 and 240 and be a multiple of 16.
Admin P2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to exactly one other bridge (i.e., it is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e., it is served by a shared medium LAN segment). This function allows the P2P status of the link to be



	administratively controlled.
	True means P2P is enabled. False means P2P is disabled.
Admin Edge	The port directly connected to end stations that does not create bridging loop in the network. To configure the port as an edge port, set the port to " True ".
Admin Non STP	The port includes the STP mathematic calculation. True does not include the STP mathematic calculation. False includes the STP mathematic calculation.
Apply	Click "Apply " to save the changed configuration.

NOTE: Use the following formula to configure the MAX Age, Hello Time, and Forward Delay Time:

2 x (Forward Delay Time value -1) \geq Max Age value \geq 2 x (Hello Time value +1)

RSTP Information

Once the RSTP settings have been made they can then be seen in the RSTP Information.

System Information	RSTP II	nforr	nation	í.				
DHCP Server	Root B	Iridge I	nformatio	n				
Bedundtany	Bridge 10	5	80000016	9423028	4			
Satura Ring	Root Pric	ority	128		-			
D Satural ink	Root Por	t	ROOT		3			
S Saturn-BSTF	Root Pat	h Cost	0					
RSTP	Max Age	Time	20					
SI RSTP Setting	Hello Tim	19	2		3			
RSTP Information	Forward	Delay Tin	15					
MSTP	Port In	format	ion					
U VLAN	Port	Path Cost	Port Priority	OperP2P	OperEdge	STP Neighbor	State	Role
- State	Port.01	200000	128	True	True	False	Forwarding	Designate
I tranc Phomeanon	Port.02	2000000	128	True	True	False	Disabled	Disabled
Multicast	Port.03	2000000	128	True	True	False	Disabled	Disabled
Security	Port.04	200000	128	True	True	False	Forwarding	Designate
I Mender and Dian	Port.05	200000	128	True	True	False	Forwarding	Designate
Contraction	Port.06	2000000	128	True	True	False	Disabled	Disabled
an odre ovringeranon	Port.07	200000	128	True	True	False	Disabled	Disabled
	10 and 10 10	00000	1100	Teran	Testa	Falco	Disphied	Displad

5.1.6.6 <u>MSTP</u>

Multiple Spanning Tree Protocol (MSTP) is a standard protocol base on IEEE 802.1s. The function permits several VLANs to be mapped to a reduced number of spanning tree instances because most networks do not require more than a few logical topologies. It supports a load balancing scheme and puts less stress on the CPU than PVST (a proprietary Cisco protocol).





MSTP Settings

Open all System Information Basic Setting	MSTP Setting	
DHCP Server Dert Setting	MSTP Enable	Enable V
Redundancy	Force Version	MSTP V
Satym-Ring	Configuration Name	MSTP_SWITCH
Satym-RSTP	Revision Level (0-65535)	0
B RSTP	Priority (0-61440)	32768
(S) MSTP Setting	Max Age Time (6-40)	20
MSTP Port	Hello Time (1-10)	2
MSTP Instance	Forward Delay Time (4-30)	15
VLAN	Max Hops (1-40)	20
SNMP Traffic Prioritization Multicast Security Warning Monitor and Diag	Priority must be a multiple of 4096. 2*(Forward Delay Time-1) should be The Max Age should be greater tha	e greater than or equal to the Max Age. In or equal to 2*(Hello Time + 1).

Option	Description
MSTP Enable	The MSTP function must be enabled before configuring the related parameters.
Force Version	The Force Version function can be used to force a VLAN bridge utilising RSTP to operate in an MSTP-compatible manner.
Configuration Name	An MST Region must have the same MST configuration name.
Revision Level (0-	An MST Region must have the same revision level.



65535)	
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the value is changed, you must restart the switch. The value must be between 0 and 61440 and be a multiple of 4096.
Max Age(6-40)	The number of seconds a bridge will wait without receiving Spanning-Tree Protocol configuration messages before reconfiguring. The value must be between 6 and 40.
Hello Time (1-10)	How often the switch sends out the BPDU (Bridge Protocol Data Unit) packet in order to check RSTP current status. The value must be between 1 and 10.
Forwarding Delay Time (4-30)	The number of seconds a port must wait before changing from a learning/listening state to a forwarding state. The value must be between 4 and 30.
Max Hops (1-40)	This parameter is in addition to those specified for RSTP. A single value will apply to all Spanning Trees within an MST Region (the CIST and all MSTIs) for which the Bridge is the Regional Root.
Apply	Click " Apply " to save the changed configuration.

When the information has been entered, details are confirmed in the CIST Root Bridge Information which appears.

MSTP Port

System Information Basic Setting	MSTP P	ort							
Port Setting Redundancy	Port No.	Priori (0-24	ity Pa 40) (1 0;	th Cost -20000000 Auto)	00, Ap	dmin 2P	Admin Edge	n	Admin Non Stp
😥 Satym-King 🔟 Satym-Link	Port.01								
Satym-RSTP RSTP () RSTP Setting	Port.03 Port.04 Port.05	128	0	<u>. </u>	1	v otus	tue	¥	faise 💌
RSTP Information	priority mus	t be a multi	ple of 16						
IN MSTP Setting	Apply								
MSTP Setting MSTP Port MSTP Instance MSTP Instance MSTP Instance	Acoty Port Info	orma	tion						
MSTP Setting MSTP Port MSTP Instance MSTP Instance Port VLNI	Port Info	ormat	tion						
MSTP Setting MSTP Port MSTP Instance MSTP Instance Port NSTP Instance Port LNI state	Acoty Port Info	orma	tion	h Cost	P2	p	Edg	je	Admin
MSTP Setting MSTP Port MSTP Instance MSTP Instance Port MSTP Instance Port MSTP MSTP Instance Port MSTP MSTP MSTP MSTP MSTP	Port Info	orma Priority	tion Pat Admin	h Cost Oper	P2 Admin	p Oper	Edg	pe Oper	Admin Non Stp
MSTP Setting MSTP Port MSTP Port MSTP Instance MSTP Instance Port MSTP Instance Port AN naap raffic PhoreEcation W6cast ecuth	Apply Port Info Port Port.01	Priority	Pat Admin Auto	h Cost Oper 200000	P2 Admin Auto	Oper True	Edg Admin True	oper True	Admin Non Stp Faise
MSTP Setting MSTP Port MSTP Instance MSTP Instance MSTP Instance MSTP Instance Port ANI matP rafic Pnontization uticast county county	Apply Port Info Port Port.01 Port.02	Priority 128 128	Pat Admin Auto Auto	h Cost Oper 200000 2000000	P2 Admin Auto Auto	P Oper True False	Edg Admin True True	pe Oper True True	Admin Non Stp False False
MSTP Setting MSTP Port MSTP Instance MSTP Instance Port MSTP Instance Port MI MI Printization Miccast southy aming modes and Dias	Apply Port Info Port.01 Port.02 Port.03	Priority 128 128 128	Pat Admin Auto Auto Auto	h Cost Oper 200000 2000000 2000000	P2 Admin Auto Auto Auto	Oper True False False	Edg Admin True True True	pe Oper True True True	Admin Non Stp False False False
MSTP Setting MSTP Port MSTP Instance MSTP Instance Port MSTP Instance Port MSTP Instance Port MSTP MStP	Apply Port Info Port.01 Port.03 Port.03 Port.04	Priority 128 128 128 128	Pat Admin Auto Auto Auto Auto	h Cost Oper 200000 2000000 2000000 2000000	P2 Admin Auto Auto Auto	p Oper True False False True	Edg Admin True True True True	De Oper True True True True	Admin Non Stp False False False False
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MSTP Setting MSTP Port MSTP Instance MSTP Instance Port M MP fic Prontization ficast surfly ming toor and Diag e Configuration	Apply Port Info Port.01 Port.02 Port.03 Port.03 Port.05 Port.06	Priority 128 128 128 128 128 128	Pat Admin Auto Auto Auto Auto Auto Auto	h Cost Oper 200000 2000000 200000 200000 200000	P2 Admin Auto Auto Auto Auto Auto Auto	P Oper True False False True False	Edg Admin True True True True True	pe Oper True True True True True True	Admin Non Stp False False False False False False
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Option	Description
Port No.	Selects the port you want to configure.
Priority (0-240)	Select which port should be blocked by setting the LAN priority. The priority must be a value between 0 and 240 and be a multiple of 16.
Path Cost (1- 200000000)	The cost of the path from the transmitting bridge to the receiving bridge at the specified port. The value must be between 1 and 200000000.
Admin P2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to exactly one other bridge (i.e., it is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e., it is served by a shared medium LAN segment). This function allows the P2P status of the link to be administratively controlled. P2P-enabled equals " True ". P2P-disabled equals " False ".
Admin Edge	The port is directly connected to end stations and cannot create bridging loop in the network. To configure the port as an edge port, set the port to " True ".
Admin Non STP	The port includes the STP mathematic calculation. True does not include the STP mathematic calculation. False includes the STP mathematic calculation.
Apply	Click "Apply " to save the changed configuration.

MSTP Instance

Open all System Information Basic Setting DIACE Senses	MSTP Ins	stan	ce			
Port Setting Port Setting	Instance	State		VLANS	Priority (0-61440)	
Sahm-Ring	1 .	Enab	10 4	1-4094	32758	
S Satim-RSTP RSTP RSTP RSTP Setting RSTP Information MSTP MSTP Setting	Apply Instance	Info	rmati	on		
S MSTP Port	Instance	VLANS	Priority	Regional Root Bridge ID	Path Cost	Root Port
MSTP Instance MSTP Instance Port	1	1-4094	32769	8001001E94230284	0	N/A

Option	Description
Instance	Set the instance from 1 to 15



State	Enable or disable the instance
VLANs	Set which VLAN will belong to which instance
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the value is changed, you must restart the switch. The value must be between 0 and 61440 and be a multiple of 4096.
Apply	Click "Apply " to save the changed configuration.

MSTP Instance Port

System Information	METP Inc	tanco	Port	6		
Basic Setting	NO IF IIIS	lance	FUIL	6		
DHCP Server Port Setting	Instance:	CIST 🗸				
Satim-Ring	Port	Pr (0	iority -240)	Path Cos (1-2000	st 100000, 0:Auto)
RSTP RSTP RSTP Setting RSTP Information	Port.01 Port.02 Port.03 Port.04 Port.05	12	8	0		
MSTP Setting	Priority must b	e a multiple	of 16			
MSTP Port MSTP Instance MSTP Instance Port VLAN SNUP Traffic Prioritization	nstance I	Port I	nforn	nation	1	
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast	Apply Instance I	Port I	nforn Pat	nation	State	Role
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast Security	Port No.	Port I	nforn Pat Admin	nation	State	Role
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast Security Warning	Port No. Port 02	Port I	Pat Admin Auto	h Cost Oper 2000000	State Forwarding Discibled	Role DesignatedPort
MSTP Port MSTP Instance MSTP Instance Port VLNN SNMP Traffic Prioritization Mutticast Security Warning Monitor and Diag	Port No. Port 01 Port 02 Port 03	Port I Priority 128 128	Pat Admin Auto Auto	h Cost Oper 200000 2000000	State Forwarding Disabled	Role DesignatedPort DisabledPort
MSTP Port MSTP Instance MSTP Instance Port VLNN SNMP Traffic Prioritization Mutticast Security Warning Monitor and Diag Save Configuration	Port No. Port.01 Port.02 Port.04	Port I Priority 128 128 128	Pat Admin Auto Auto Auto Auto	nation h Cost 200000 2000000 2000000 2000000	State Forwarding Disabled Disabled Eorwarding	Role DesignatedPort DisabledPort DesignatedPort
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast Security Warning Monitor and Diag Save Configuration	Port No. Port.01 Port.02 Port.03 Port.03 Port.05	Priority 126 128 128 128 128	Pat Admin Auto Auto Auto Auto Auto	nation h Cost 200000 200000 200000 200000 200000	State Forwarding Disabled Disabled Forwarding Forwarding	Role DesignatedPort DisabledPort DesignatedPort DesignatedPort
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast Security Warning Monitor and Diag Save Configuration	Port No. Port.01 Port.03 Port.04 Port.05	Priority 128 128 128 128 128 128	Pat Admin Auto Auto Auto Auto Auto Auto	h Cost Oper 200000 200000 200000 200000 200000 200000	State Forwarding Disabled Disabled Forwarding Forwarding Disabled	Role DesignatedPort DisabledPort DesignatedPort DesignatedPort DisabledPort
MSTP Port MSTP Instance MSTP Instance Port VLAN SNMP Traffic Prioritization Multicast Security Warning Monitor and Diag Save Configuration	Port No. Port.01 Port.02 Port.03 Port.04 Port.05 Port.07	Priority 126 128 128 128 128 128 128 128	Pat Admin Auto Auto Auto Auto Auto	h Cost Oper 200000 200000 200000 200000 200000 200000 200000 200000	State Forwarding Disabled Disabled Forwarding Forwarding Disabled Disabled	Role DesignatedPort DisabledPort DisabledPort DesignatedPort DisabledPort DisabledPort

Option	Description
Instance	Set the instance's information except when CIST is selected.
Port	Select the port you want to configure.
Priority (0-240)	Select which port should be blocked by setting the LAN priority. The priority must be a value between 0 and 240 and be a multiple of 16.
Path Cost (1- 20000000)	The cost of the path from the transmitting bridge to the receiving bridge at the specified port. The value must be between 1 and 200000000.
Apply	Click " Apply " to save the changed configuration.



5.1.7 VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain and allows you to isolate network traffic. Only the members of the same VLAN will receive traffic from the other members. Creating a VLAN from a switch is the logical equivalent of separating a group of network devices. However, all the network devices are still physically plugged into the same switch.

Satyrn M series switches support both port-based and 802.1Q (tagged-based) VLAN. The default configuration of VLAN operation mode is "802.1Q".

5.1.7.1 VLAN Setting

Tagged-based VLAN is an IEEE 802.1Q specification standard and permits the creation of a VLAN across devices from different switch vendors. IEEE 802.1Q VLAN inserts an identification tag into the Ethernet frames. Each tag contains a VLAN Identifier (VID) that identifies the VLAN to which it belongs.

You can create tag-based VLAN with GVRP protocol either enabled or disabled. There are 256 VLAN groups available. With 802.1Q VLAN enabled, all ports on the switch belong to the default VLAN with a VID number 1. The default VLAN cannot be deleted.

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

Open all S System Information Basic Setting DHCP Server Port Setting Redundancy VLAN MLAN Setting StAMP	VLAN Setting VLAN Operation GVRP Mode : Di Management VL VLAN Configura	Mode : 802.10 💌 able 💌 AN ID : 0 Apply ion
Traffic Prioritization	Port No. Link Type	Untagged VID Tagged VIDs
🕀 🛄 Multicast	Port.01 Access	v 1
Security	Port.02 Access	4
Warning Monitor and Diag	Porti03 Access	1
Save Configuration	Port.04 Access	1
	Port.05 Access	× 1
	Port.06 Access	¥ 1
	Port.07 Access	* 1
	Port.08 Access	¥ 1
	Note: Use the comma to E.g., 2-4.6 means joining Apply Help	separate the multiple tagged VIDs. the Tagged VLAN 2, 3, 4 and 6



Option	Description
VLAN Operation Mode	Configures the VLAN Operation Mode:
	o Disable
	 Port Base
	o 802.1Q
GVRP Mode	Enable/Disable GVRP function.
Management VLAN ID	Management VLAN provides the network administrator with a secured VLAN to the management switch. Only the devices in the management VLAN can access the switch.
Link type	Configures the link type:
	• Access Link: single switch only, permits grouping ports by setting the same VID.
	• Trunk Link: extended application of Access Link , permits grouping ports by setting the same VID with 2 or more switches.
	• Hybrid Link: Both Access Link and Trunk Link are available.
	• Hybrid(QinQ) Link: enable QinQ mode permits the
	insertion of one more VLAN tag in a original VLAN
	frame.
Untagged VID	Sets the port default VLAN ID for untagged devices that connect to the port. The range is 1 to 4094.
Tagged VIDs	Sets the tagged VIDs to carry different VLAN frames to other switch.
Apply	Click " Apply " to save the configuration.

5.1.7.2 VLAN Setting – Port Based

Traffic is forwarded to the member ports of the same VLAN group.

Initial Setup

Use this to set up the VLAN.



Open all System Information Basic Setting OHCP Server Port Setting Redundancy VLAN VLAN Setting VLAN Table SNIMP Traffic Prioritization Multicast Security Multicast Multicast Multicast Multicast Multicast	VLAN Operation Mode : PortBased Port Based VLAN List Comtrol 2_2 Comtrol 1_1
Save Configuration	Add Edit Delete Help

Option	Description
Add	Click "add" to enter the VLAN add interface.
Edit	Edit existing VLAN
Delete	Delete existing VLAN
Help	Show help file.

VLAN Interface

Use this for details of the VLAN.

Open all System Information Basic Setting DHCP Server Port Setting Redundancy VLAN Setting VLAN Setting ULAN Setting	VLAN Operation Mode : Port Based Group Name Comtrol 3 VLAN ID 3
 VLAN Table SNMP Traffic Prioritization Multicast Security Warning Monitor and Diag Save Configuration 	Port.01 Port.02 Port.05 Port.05 Port.07 Port.08 Port.06 Remove



Option	Description
Group Name	VLAN name.
VLAN ID	Specify the VLAN ID
Add	Select a port to join the VLAN group.
Remove	Remove a port from the VLAN group
Apply	Click " Apply " to save the changed configuration.
Help	Show help file.

5.1.7.3 <u>VLAN Table</u>

This table shows the results of the settings set in VLAN Setting.

System Information Basic Setting DHCP Server	VLAN Table
Port Setting	VLAN ID Untagged Ports Tagged Ports
Redundancy	1 1,2,3,4,5,6,7,8
E VLAN	
VLAN Setting	
(S) MLAN Table	

5.1.8 SNMP Configuration

Simple Network Management Protocol (SNMP) is the protocol developed to manage nodes (servers, workstations, routers, switches and hubs etc.) on an IP network. SNMP allows network administrators to manage network performance, find and solve network problems, and accommodate for network growth. Network management systems are informed of problems by receiving traps or change notices from network devices that implement SNMP.

5.1.8.1 Agent Setting

You can set SNMP agent-related information with the Agent Setting function.



DHCP Server	SNMP - Agent Set	ting
Port Setting Redundancy VLAN SNMP	SNMP Agent Version	Apply Help
Agent Setting	SNMP V1/V2c Comm	unity
Multicast	public	Read Only
Security	private	Read and Write 💙
Warning Monitor and Diag		Read Only
Save Configuration		Read Only
		Appl
	SNMPv3 Engine ID: f4 SNMPv3 User	165000003001e94230284
	SNMPv3 Engine ID: f4 SNMPv3 User User Name	165000003001e94230284
	SNMPv3 Engine ID: f4 SNMPv3 User User Name Auth Password	165000003001e94230284
	SNMPv3 Engine ID: f4 SNMPv3 User User Name Auth Password Privacy Password	165000003001e94230284

Option	Description
SNMP agent Version	 Three SNMP versions are supported SNMPv1 SNMPv2c SNMPv3 The SNMPv1 and SNMPv2c agents use a community string match for authentication, which means SNMP servers will access objects with read-only or read/write permissions with the community default string public/private. SNMPv3 requires an authentication level of MD5 or DES to encrypt data for enhanced data security.
SNMPv1/v2c Community	SNMP Community should be set for SNMPv1 or SNMPv2c. Four sets of "Community String/Privilege" are supported. Each Community String has a maximum of 32 characters. Leave this box empty to remove the Community String.
SNMPv3User	If SNMPv3 agent is selected, the SNMPv3 user profile should be set for authentication. The Username is required The Auth Password is encrypted by MD5 and the Privacy Password is encrypted by DES. There are a maximum 8 sets of SNMPv3 User and a maximum of 16 characters for both the Username and Password.



	When SNMPv3 agent is selected, you can:	
	 Input SNMPv3 username only 	
	 Input SNMPv3 username and Auth Password 	
	 Input SNMPv3 username, Auth Password and Privacy Password, which can be different from Auth Password. 	
	To remove a current user profile	
	 Enter SNMPv3 user name you want to remove 	
	 Click "Remove" button 	
Current SNMPv3 User Profile	Shows all the SNMPv3 user profiles.	
Apply	Click "Apply" to save the changed configuration.	
Help	Show help file.	

5.1.8.2 <u>SNMP – Trap Setting</u>

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

Open all System Information Basic Setting DHCP Server Port Setting	SNMP - Trap Setting Trap Server Setting
Redundancy IN AN	Server IP
	Community
Agent Setting Trap Setting Traffic Prioritization Multicast	Trap Version V1 Ov2c Add Trap Server Profile
Security Warning Monitor and Diag Save Configuration	Server IP Community Trap Version
	Remove Help



Option	Description
Server IP	The server IP address to receive traps
Community	Community for authentication
Trap Version	Trap Version supports V1 and V2c.
Add	Add trap server profile.
Remove	Remove trap server profile.
Help	Show help file.

5.1.8.3 SNMPv3 Setting

SNMPv3 adds security and remote configuration enhancements to SNMP. Use this section to set the SNMPv3 features.

NMPv3 Engine ID: 146500003000	Lee070042				
ontext Table					
Cortest Name	tane				100
Jser Profile					
Current Line: Profiles	New Over Profile 100	- History			
(mma)	User ID:				
	Authentication Passwort	ê.			
	Privacy Passwurd:				
Ironn Tabla					
Surroup 1 store	New Course Tables	Dirty- Di			
(*s=0)			10		
	Security Name (User ID)				
	Group Name				
9	Constant of the second				
Access Table					
Letty US CONVERTING AND		Have Arrays Turks	Ray Tisesary		
Lunent Aucess Tables :		THE PARTY AND A DESCRIPTION OF THE PARTY OF			
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Lurrent Auceus Tables : DefaultCanteriniante DefaultOreus, 3 AuftPre Esan DefaultCanteriniante DefaultOreus, 1 AuftAuftre D DefaultCanteriniante DefaultOreus, 6 NoAuftre Pre	Detactives(.) Detactives(.) Detactives(.) air Detactives(.) Detactives(.) Detactives(.) Eact Detactives(.)	Contaut Profile Group Names		WATERNASS -	
Lumpet Auxeen Tableet : Default: Contention Behalt Orings, 3 Auto Priv Each Default: Contention Behalt Oring, 1 Auto Artiv B Default: contention Default oring, 0 Manuti no Wo Default: contention of Default oring, 0 Manuti no Wo	Detaut/News(.) Detaut/News(.) Detaut/News(.) art Detaut/News(.) Detaut/News(.) Exait Detaut/News(.)	Contaut Profile Group Name Security Level		NoAuthikoPriv, A	uth/ksPnw.
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Lunget August Talliet Default anderland Defaulting auf Anthen East Relations teachiere belauting auf Anthene te Cetautons teachiere Defaulting (Chaoliotheole	DetextNees(3 DetextNees(3 DetextNees(3 art DetextNees(3 DetextNees(3 DetextNees(3 Exact DetextNees(3 Exact DetextNees(3	Contaxt Profile: Oroug Name: Security Level Contaxt Match Rule Read View Name:		koauthkofini, á Authfini, Esait Profis	uthtisPre.
Lunget August Talliet Default anderland Defaulting und Anthen East Relations technisten Defaulting und Anthen East Default anderland Defaulting (hitedrichedric Default anderland Defaulting (hitedrichedric	DetextNees(3 DetextNees(3) DetextNees(3) art DetextNees(3) DetextNees(3) Eval DetextNees(3) Eval DetextNees(3)	Contact Profile Group Name Security Level Contact Match Rule Read View Name Write View Name		kokuthkoPriv A AuthPriv Exatt Prefix	othesPre-
Lunget August Tallier : Default andellann Defaulting al. 1 Auf New Dar Default an kolli and Defaulting al. 1 Auf New Dar Default an kolli and Defaulting al. 1 Auf New De Cafa at an entropy of the atting all the atting at	DetextNees(.) DetextNees(.) DetextNees(.) art DetextNees(.) DetextNees(.) DetextNees(.) Evail DetextNees(.) Evail DetextNees(.)	Contaxt Profile Group Name Security Level Contaxt Match Rule Read View Name Write View Name Notify View Name		hoauthioPre, á AuthPre, Esait Profe	uttéksPriv.
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unner Anzeis Tatter Defadicasietiane Defadicinada Anthen Dar Defadicasietiane Defadicinada Anthen Dar Defadicasietiane Defadicinada Anthen Dar Defadicasietiane Defadicinada AlBVIew Tabliet Derivit Mibi Albe	Detectives.) Detectives.) Detectives.) an Detective Detectives Exat Detectives Exat Detectives	Contant Profile Group Name Security Level Contact Match Rule Read View Name Webs View Name Notify View Name		koauthkoPriv A AuthPriv Exaut Profix	uttrio Priv.
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Option	Description		
Context Table	Configure SNMP v3 context table. Assign the context name		
	of context table. Click "Apply" to change context name		
User Table	1. Configure SNMP v3 user table.		
	2. User ID: set up the user name.		
	 Authentication Password: set up the authentication password. 		
	4. Privacy Password: set up the private password.		
	5. Click "Add" to add context name.		
	6. Click "Remove" to remove context name.		
Group Table	1. Configure SNMP v3 group table.		
	 Security Name (User ID): assign the user name that you have set up in user table. 		
	3. Group Name: set up the group name.		
	4. Click "Add" to add context name.		
	5. Click "Remove" to remove context name.		
Access Table	1. Configure SNMP v3 access table.		
	2. Context Prefix: set up the context name.		
	3. Group Name: set up the group.		
	4. Security Level: select the access level.		
	 Context Match Rule: select the context match rule. 		
	6. Read View Name: set up the read view.		
	7. Write View Name: set up the write view.		
	8. Notify View Name: set up the notify view.		
	9. Click "Add" to add context name.		
	10. Click "Remove" to remove context name.		
MIBview Table	1. Configure MIB view table.		
	2. ViewName: set up the name.		
	3. Sub-Oid Tree: fill the Sub OID.		
	4. Type: select the type – exclude or included.		
	5. Click "Add" to add context name.		



	6. Click "Remove" to remove context name.
Help	Show help file.

5.1.9 Traffic Prioritisation

Traffic Prioritisation includes 3 modes: port base, 802.1p/COS, and TOS/DSCP. Using the traffic prioritisation function, you can classify the traffic into four classes for different network applications. The Satyrn M series supports 4 priority queues.

5.1.9.1 <u>Traffic Prioritisation Policy</u>

Select the traffic prioritisation policy using this function.

Open all	
System Information	Policy
Basic Setting DHCP Server Port Setting Redundancy VLAN SNMP SNMP Policy Policy Port-based Priority COS/802.1p	QoS Mode : Disable QoS Policy : Use an 8,4,2,1 weighted fair queuing scheme Use a strict priority scheme
IN TOS/DSCP	

Option	Description	
QoS Mode	• Port-base: the output priority is determined by the entry port	
	• COS only: the output priority is determined by COS only	
	• TOS only: the output priority is determined by TOS only	
	 COS first: the output priority is determined by COS and TOS, but COS first 	
	 TOS first: the output priority is determined by COS and TOS, but TOS first. 	
QoS policy	 Using the 8,4,2,1 weight fair queue scheme: the output queues will follow a 8:4:2:1 ratio to transmit packets from the highest to the lowest queue. For example: 8 high queue packets, 4 middle queue packets, 2 low queue packets, and the one lowest queue packets are transmitted in one turn. 	
	• Use the strict priority scheme: the packets in the higher queue will always be transmitted first until the higher queue is empty.	



Help	Show help file.
Apply	Click " Apply " to save the changed configuration.

5.1.9.2 Port Based Priority

Selecting port based priority will provide four levels of priority which can be set here.

Open all System Information Salaria Setting DHCP Server	Port-based Priority	
Port Setting	Port No. Priority	
🕀 🛄 Redundancy	Port.01 High 💌	
	Port.02 Middle 💌	
SNMP Traffic Prioritization	Port.03 Low	
Policy	Port.04 Lowest 💙	
Port-based Priority	Port.05 Lowest 💌	
COS/802.1p	Port.06 Lowest 🗸	
Multicast	Port.07 Lowest V	
🗊 🛄 Security	Port.08 Lowest 💌	
Warning Monitor and Diag Save Configuration	Apply Help	

The following table describes the options available.

Option	Description
Port base Priority	Assign the Port with a priority queue. Four priority queues can be assigned High Middle Low Lowest
Help	Show help file.
Apply	Click "Apply" to activate the configurations.

5.1.9.3 COS Based Priority

COS (Class Of Service) is also known as 802.1p. It describes the way in which the output priority of a packet is determined by a user priority field in 802.1Q VLAN tag. Priority values range from 0 to 7. There are four COS priority queue settings: High, Middle, Low, and Lowest.



Open all	
System Information	COS/802.1p
DHCP Server	
🕑 🛄 Port Setting	COS Priority
Redundancy	0 Lowest 🛩
U VLAN	1 Lowest 🗸
Traffic Drianitization	2 Low 👻
R Policy	3 Low 👻
Port-based Priority	4 Middle 🗸
COS/802.1p	5 Middle 🗸
I TOS/DSCP	6 High v
+ Security	7 High v
🕒 🛄 Warning	
Monitor and Diag	
Save Configuration	COS Port Default
	Port No. COS
	Port.01 3 V
	Port.02 3 ×
	Port.03 5 V
	Port.04 5 V
	Port.05 6 V
	Port.06 6 ×
	Port 07 6
	Port.08 6 ~
	Apply Help

Option	Description
COS/802.1p	Four priority queues can be assigned o High o Middle o Low Lowest
COS Port Default	When an entry packet does not have a VLAN tag, a default priority value is assigned on the basis of the entry port.
Help	Show help file.
Apply	Click " Apply " to save the changed configuration.



5.1.9.4 <u>TOS based Priority</u>

TOS (Type of Service) is a field in the IP header of a packet. This TOS field is also used by Differentiated Services and is called the Differentiated Services Code Point (DSCP). The output priority of a packet can be determined by this field.

Port Setting	DSCP	.0		1	1	2		3		4		5		6.		7	
Redundancy VLAN	Priority	Lowest	٠	Lowest	190	Lowest	*	Lowest		Lowest	¥	Lowest	¥	Lowest	Ψ.	Lowest	¥
	DSCP	8		9		10		11		12		13		14		15	
SMMP	Priority	Lowest	÷	Lowest	1	Lowest	*	Lowest		Lowest	м	Lowest	¥	Lowest	*	Lowest	×
Traffic Prioritization	OSCP	16		17		10		19		20		21		22		23	
Post-based Printly	Priority	Low'	4	Low	4	Low	*	LOW	.*	Low	.*	Low.	4	Low	*	LOW	4
CO5/802.16	DSCP	24		25		26		27		28		29		30		31	
TOS/DSCP	Priority	Low -	.4	Low		Low	4	Low	141	Low	4	Low		Low		Low	×
Multicast	DSCP	37		33		34		35		36		37		38		29	
Warring Monitor and Diag	Priority	Middle	×	Middle	1	Middle		Middle	19	Middle	14	Middle	*	Middle	a.	Middle	*
	DSCP/	40		41		42		43		- 44		45		46		.47	
	Priority.	Middle	*	Middle	*	Middle	¥	Middle	*	Middle	.*	Middle	*	Middle		Middle	*
Save Cooligoration	DSCP	48		49		50		51		52		53		54		55	
	Priority	High	٣	High		High	*	High	*	High	۲	High	*	High	*	High	×
	DSCP	56		57		58		59		60		61		62		.63	
	Priority	High		High		High		High	100	High		High	\mathcal{H}	High	\mathcal{K}	High	×

Option	Description
TOS/DSCP	The priority values range from 0 to 63. There are four DSCP priority queues: High, Middle, Low, and Lowest.
Apply	Click " Apply " to save the changed configuration.
Help	Show help file.



5.1.10 Multicast

5.1.10.1 IGMP Snooping

Internet Group Management Protocol (IGMP) is used by IP hosts to register their dynamic multicast group membership. IGMP has 3 versions, IGMP v1, v2 and v3. Please refer to RFC 1112, 2236 and 3376. IGMP Snooping improves the performance of networks that carry multicast traffic. It provides the ability to prune multicast traffic so that it travels only to the end destinations that require that traffic and reduces the overall amount of traffic on the Ethernet LAN.

Only one switch should be selected to carry out queries in an IGMP application.

Deen all System Information Basic Setting DHCP Server Port Setting Redundancy Redundancy SNMP Traffic Prioritization Multicast SIGMP Snooping SIMVR Multicast Filtering Security Municast Filtering Municast Security Municast Secur	IGMP Snoo IGMP Snoo IGMP Query Apply Help	ping : Enable V2 💌 / Mode: Enable 💌		
	tomr anoo	ping rante		
Warning Monitor and Diag Save Configuration	IP Address	VLAN ID	Member Port	

Option	Description
IGMP Snooping	Enable/Disable IGMP snooping.
IGMP Query Mode	Identifies whether this Switch will make IGMP queries. In "Auto" mode the Switch with the lowest IP address will make queries.
IGMP Snooping Table	Show current IP multicast list
Apply	Click " Apply " to save the changed configuration.
Help	Show help file.



5.1.10.2 Multicast VLAN Registration

Multicast VLAN Registration (MVR) allows a port to be a receiver or source of a multicast stream on the network-wide multicast VLAN. A single multicast VLAN can be shared in the network while subscribers remain in separate VLANs. MVR allows multicast streams to be sent to the multicast VLAN with certain VLANs excluded for bandwidth and security reasons.

System Information Subscription Subscription Port Setting Subscription Redundancy Subscription Subscriptio	MVR MVR MO	de: Enable 💌	
	MVR VL	AN: 1	
	Port	Type	Immediate Leave
Multicast	Port.01	Inactive	
IGMP Snooping	Port.02	Inactive 💌	
Multicast Filtering	Port.03	Inactive 💌	
Security Warning Monitor and Diag	Port.04	Inactive 💌	
	Port.05	Inactive 💌	
3 Save Configuration	Port.06	Inactive 💌	
	Port.07	Inactive 🖌	
	Port.08	Inactive 💌	

Option	Description	
MVR Mode	Enable or disable this feature	
MVR VLAN	The VLAN number	
Port	The port connecting to the VLAN	
Туре	 Inactive – MVR not in use Source – Multicast source Receiver – Port received Multicast 	
Apply	Show help file.	



5.1.10.3 <u>Multicast Filter</u>

Multicast filtering is the system by which end stations will only receive multicast traffic if they are registered to join specific multicast groups. With multicast filtering, network devices will only forward multicast traffic to the ports that are connected to the registered end stations.

1000	
Open all System Information Basic Setting	Multicast Filtering
OHCP Server Port Setting Redundance	IP Address 224.0.0.104
VLAN	Member Ports Port.01 Port.02 Port.03 Port.04
Iranc Profitzation Multicast IGMP Snooping MVR	Add Delete Help
Multicast Filtering Security Warning Monitor and Diag	Multicast Filtering List
Save Configuration	IP Address Member Ports
	224.000.000.103*****6**

The following table describes the options available.

Option	Description
IP Address	Assign a multicast group IP address in the range of 224.0.0.0 ~ 239.255.255.255
Member Ports	Tick the check box beside the port number to include them as the member ports in the specific multicast group IP address.
Add	Show current IP multicast list
Delete	Delete an entry from table
Help	Show help file.

5.1.11 Security

The Satyrn M Series products have up to six useful functions (depending on the switch) which can enhance the security of the switch. These are Access Control List, IP Security, Port Security, MAC Blacklist, MAC Address Aging, and 802.1x protocol.



5.1.11.1 IP Security

Using IP security you can enable or disable remote management using WEB, Telnet, or SNMP. IP security can also restrict remote management to a list of specific IP addresses. Only these secure IP addresses are permitted to remotely manage the switch.

Open all System Information	IP Security				
DHCP Server Port Setting Redundancy VLAN StriMP Traffic Prioritization Multicast Security Nullicast Security Nort Security MAC Blacklist B02.1x Warning Monitor and Diag Save Configuration	IP Security Mode: Disable Enable WEB Management Enable Telnet Management Enable SNMP Management				
	Secure IP List				
	Secure IP1 0000				
	Secure IP2 000.0				
	Secure IP3 0000				
	Secure IP4 0000				
	Secure IP5 0.00.0				
	Secure IP6 0.0.0				
	Secure IP7 0000				
	Secure IP8 0000				
	Secure IP9 0000				
	Secure IP10 0.000				
	Apply Help				

The following table describes the options available.

Option	Description
IP security MODE	Enable or Disable the IP security function.
Enable WEB Management	Check the box to enable WEB Management.
Enable Telnet Management	Check the box to enable Telnet Management.
Enable SNMP Management	Check the box to enable MPSN Management.
Apply	Click " Apply " to save the changed configuration.
Неір	Show help file.

5.1.11.2 Port Security

Port Security allows the addition of static MAC addresses to a hardware forwarding database so that if Port Security is enabled on the **Port Control** page, only the frames with MAC addresses in this list will be forwarded, otherwise they will be discarded.



Open all System information Setting Open Set	MAC Address Port No. Port 01
Security Security Port Security MAC Blacklist Solution Monitor and Diag Save Configuration	Port Security List

Option	Description
MAC Address	Assign MAC Address to a specific port.
Port No.	Select the switch port.
Add	Add a MAC Address and port information.
Delete	Delete the entry.
Help	Show help file.

5.1.11.3 MAC Blacklist

MAC Blacklist can prevent traffic being forwarding to a list of specified MAC addresses. Any frames forwarded to MAC addresses in this list will be discarded, so the blacklisted devices will not receive any frames.



Open all System Information Basic Setting DHCP Server Fort Setting Defendence	MAC Blacklist
VLAN SNMP Traffic Prioritization Multicast Security	Add Delete Help
IP Security Port Security MAC Blacklist Bo2.1x Warning	MAC Address
 Monitor and Diag Save Configuration 	

Option	Description
MAC Address	Enter MAC Address to add to the MAC Blacklist.
Port No.	Select the switch port.
Add	Add a device to the Blacklist table.
Delete	Delete the entry.
Help	Show help file.

5.1.11.4 <u>802.1x</u>

802.1x makes use of the physical access characteristics of IEEE802 LAN infrastructures in order to provide authentication and authorization of devices attached to a LAN port. Please refer to IEEE 802.1X - Port Based Network Access Control.



802.1x - Radius Server

DUCD County			
Port Setting	Radius Server	Setting	
Redundancy	802.1x Protocol	Disable 💌	
J VLAN	Radius Server IP	192.158.16.3	
J SNMP Traffic Prioritization	Server Port	1812	
Multicast	Accounting Port	1813	
E 3 Security	Shared Key	12345678	
Port Security	NAS, Identifier	NAS_L2_SWITCH	
MAC Blacklist	Advanced Set	ting	
Radius Server	Quiet Period	60	
N Port Auth Setting	TX Period	30	
Port Auth State Warning Monitor and Diag	Supplicant Timeout	30	
	Server Timeout	30:	
Save Configuration	Max Requests	2	
	Re-Auth Period	3600	

Option	Description
Radius Server Setting	
Radius Server IP	The IP address of the authentication server.
Server port	The UDP port number used by the authentication server to authenticate.
Account port	The UDP destination port for accounting requests to the specified Radius Server.
Shared Key	The key shared between this switch and authentication server.
NAS, Identifier	The string used to identify this switch.
Advanced Setting	
Quiet Period	The time interval between the last authentication failure and the start of the next authentication attempt.
Tx Period	The time that the switch must wait for response to an EAP request/identity frame from the client before resending the request.
Supplicant Timeout	The period of time the switch waits for a supplicant response to an EAP request.
Server Timeout	The period of time the switch waits for a Radius server response to an authentication request.
Max Requests	The maximum number of times to retry sending packets to the supplicant.
Re-Auth Period	The period of time after which connected clients must be re-



	authenticated.
Apply	Click " Apply " to save the changed configuration.
Help	Show help file.

802.1x-Port Authorized Mode

Use this section to set the 802.1x authorized mode for each port.

DHCP Server	Port No	Port Authorize Mode
Redundancy	Port.01	Accept
AN .	Port.02	Accept ×
IP Se Driarifization	Port.03	Accept ×
ast	Port.04	Abcept V
ity	Port.05	Accept V
Security	Port.06	Accept
AC Blacklist	Port.07	Accept V
2.1x	Port.08	Accept V

Label	Description
Port Authorized Mode	• Reject: force this port to be unauthorized
	• Accept. force this port to be authorized
	• Authorize: the state of this port is determined by
	the outcome of the 802.1x authentication.
	 Disable: this port will not participate in 802.1x.
Apply	Click "Apply" to save the changed configuration.
Help	Show help file.



802.1x-Port Authorized State

This section shows 802.1x port authorized state set in the previous section.

Basic Setting	802.1X - Por	t Authorize State
Port Setting	Port No.	Port Authorize State
Redundancy	Port.01	Accept
U VLAN	Port.02	Accept
SNMP	Port.03	Accept
Traffic Prioritization	Port.04	Accept
Multicast	Port.05	Accept
Security	Port.06	Accept
N IP Security	Port.07	Accept
	Dort 09	Accent

5.1.12 Warning

The warning function is very important for managing a switch. You can receive warnings by SYSLOG, email, and Fault Relay. This is used for monitoring the switch status on remote locations. When problems occur, the warning message will be sent to your appointed server, email, or relay fault on the switch panel.

5.1.12.1 Fault Alarm

When any selected fault event has taken place, the Fault LED in the switch panel will light up and the electric relay will signal at the same time.

Open all System Information Solution DHCP Server	Fault Alarm	e	
Port Setting Redundancy VLAN SNMP	Pwr 1 Port Link Dov	□PWR 2 wn/Broken	
Traffic Prioritization Multicast Security Yaung Fault Alarm Security Event Selection SySLOG Setting	Port.01 Port.03 Port.05 Port.07 Apply Help	Port.02 Port.04 Port.06 Port.08	

Option	Description
Power Failure	Check the box to monitor PWR 1 or PWR 2.
Port Link Down/Broken	Check the box to monitor port 1 to port 8.



Apply	Click "Apply" to save the changed configuration.
Help	Show help file.

5.1.12.2 Event Selection

SYSLOG and SMTP are the two warning methods that are supported by the system. Check the corresponding box to enable the system event warning method you wish to activate. Please note that the checkbox cannot be checked when SYSLOG or SMTP are disabled.

DHCP Server	System E	vent					
Redundancy	Event	Event					
J VLAN	System Resta	System Restart					
Traffic Prioritization	Power Status	Power Status					
Mullicast	SNMP Authen	tication Failure		10			
J Security Warning	Satym Topolo	ogy Change			1		
Fault Alarm Event Selection SYSLOG Setting	Port Even	Port Event					
	Port No.	SYSLOG		SMTP	SMTP		
System Event Log	Port.01	Duradill	1.0	Distable	194. 1943		
Monitor and Diag	Port.02	Dinabiw	19	Disable	1340		
Save Configuration	Port.03	Desiable		Disable	199) 1		
	Port.04	Disable		Disable	58.		
	Port.05	Discolu		Disable	196		
	Port.06	Distant	1.00	Disable	36		
	Port.07	Dillacite	M	Dissble	36		
	Port.08	Disabile		Disable:	1.42		

Option	Descri	ption				
System Event						
System Cold Start		Alert at system restart				
Power Status		Alert at power up or down				
SNMP Authentication Failure		Alert at SNMP authentication failure.				
O-Ring Topology Change		Alert when O-Ring topology changes.				
Port Event SYSLOG / SMTP event		 Disable Link Up Link Down Link Up & Link Down 				
Apply		Click "Apply" to save the changed configuration.				
Help		Show help file.				



5.1.12.3 SYSLOG Setting

The SYSLOG is a protocol to transmit event notification messages across networks. Please refer to RFC 3164 - The BSD SYSLOG Protocol for more detail.

Open all System Information	System Warning	- SY	SLO	G Se	tting
Port Setting	SYSLOG Mode	Disable	*		
Redundancy	SYSLOG Server IP Address	0000			
Style Style Traffic Prioritization Multicast Security	Apply Help				
S Sault Alarm					

The following table shows the options available.

Option	Description
SYSLOG Mode	 Disable: disable SYSLOG Client Only: log to local system
	 Server Only: log to local system Server Only: log to a remote SYSLOG
	• Both: log to both local and remote servers.
SYSLOG Server IP Address	The remote SYSLOG Server IP address.
Apply	Click " Apply " to save the changed configuration.
Help	Show help file.



5.1.12.4 System Event Log

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

Open all System Information Basic Setting	System Event Log
DHCP Server Port Setting Redundancy VLAN SNMP Traffic Prioritization Multicast Security Security Security Security Security Security System Event Log System Event Log System Event Log System Configuration Save Configuration	4: Jan 1 03:21:42: SYSLOG Server 10:0.0 199 3: Jan 1 03:21:42: SYSLOG Enable! 2: Jan 1 03:13:30: SYSLOG Server:0:0:0:0 1: Jan 1 03:13:30: SYSLOG Enable!
	Reload Clear Help

Option	Description
Page	Select the log page.
Reload	Refresh this page and display the newest event logs.
Clear	Clear the log.
Help	Show help file.


5.1.12.5 SMTP Setting

SMTP is a protocol for email transmission across the Internet. Please refer to RFC 821 - Simple Mail Transfer Protocol for details.

System Information Basic Setting OHCP Server Port Setting	E-mail Alert : Enable	g - SMTP S	etting
U VLAN	SMTP Server Address	0.0.0.0	
SNMP	Sender E-mail Address	administrator	
Multicast	Mail Subject	Automated Email Alert	
Security	Authentication	00	
Warning (%) Esuit Alarm	Recipient E-mail Address	1	
Event Selection	Recipient E-mail Address	2	
SYSLOG Setting	Recipient E-mail Address	3	
SISTER Event Log	Reopient E-mail Address	4	
Monitor and Diag	Recipient E-mail Address	5	
Save Configuration	Recipient E-mail Address	6	

The following table shows the options available.

Option	Description			
E-mail Alarm	Enable or Disable system warning events sent by email.			
Sender E-mail Address	The SMTP server IP address			
Mail Subject	The Subject of the mail			
Authentication	 Username: the authentication username Password: the authentication password Confirm Password: re-enter password. 			
Recipient E-mail Address	The recipient's E-mail address. Up to 6 recipients can be defined.			
Apply	Click " Apply " to save the changed configuration.			
Help	Show help file.			

5.1.13 Monitoring and Diagnostics

5.1.13.1 MAC Address Table

The MAC Address Table is a filtering database that supports queries by the Forwarding Process as to whether a frame received by a specified port with a specified MAC address is to be forwarded through a specific transmission port. Refer to IEEE 802.1 D Sections 7.9 for further details.





You can set the MAC Address aging timer and when the time expires, unused MAC addresses will be cleared from the MAC table.

The following table describes the options available.

Option	Description
Port No.	Show all MAC addresses mapped to a selected port
Clear MAC Table	Clear all MAC addresses in table
Help	Show help file.
MAC Address Table Aging Time	Sets the aging time for the MAC table in seconds. Value must be between 0 and 3825. The default setting is 300 (5 minutes).
Auto Flush MAC Address Table When ports Link Down	Enable this function to flush the MAC addresses when the ports Link Down
Apply	Click "Apply " to save the changed configuration.
Help	Show help file.

5.1.13.2 Port Statistics

Port statistics show several statistics counters for all ports. This could prove useful for initial diagnostics of any problem.



System Information Basic Setting DHCP Server	Port St	atis	tic	s						
Port Setting	Port	Туре	Link	State	TX Good Packet	TX Bad Packet	RX Good Packet	RX Bad Packet	TX Abort Packet	Packet Collision
U M AN	Port.01	100TX	Up	Enable	19869	0	52206	0	0	0
SNMP	Port.02	100TX	Down	Enable	0	0	0	0	0	0
Traffic Prioritzation	Port.03	100TX	Down	Enable	0	0	0	0	0	0
Multicast	Port.04	100TX	Up	Enable	12748	0	13160	0	0	0
Security	Port.05	100TX	Up	Enable	12748	0	13159	0	0	0
Warning	Port.06	100TX	Down	Enable	0	0	0	0	0	0
Ni Fault Atarm	Port.07	100FX	Down	Enable	0	0	0	0	0	0
System Event Log	Port.08 Clear Hel	100FX	Down	Enable	0	0	0	0	0	0

The following table describes the options available.

Option	Description			
Туре	The port speed and media type.			
Link	The port link status.			
State	Shows ports enabled or disabled, set by Port Control			
TX Good Packet	The number of good packets sent by this port.			
TX Bad Packet	The number of bad packets sent by this port including undersize (less than 64 octets), oversize, CRC Align errors, fragments and jabber.			
RX Good Packet	The number of good packets received by this port.			
RX Bad Packet	The number of bad packets received by this port including undersize (less than 64 octets), oversize, CRC Align errors, fragments and jabber.			
TX Abort Packet	The number of packets aborted by this port whilst transmitting.			
Packet Collision	The number of times a collision was detected by this port			
Packet Dropped	The number of dropped packets			
RX Bcast Packet	The number of broadcast packets			
Rx Mcast packet	The number of multicast packets			
Clear	Clear all counters.			
Help	Show help file.			

A subset of this information can be obtained from the initial System Information page and clicking on the appropriate port.

5.1.13.3 Port Monitoring

The port monitoring function supports TX only, RX only, and both TX/RX monitoring. TX monitoring sends any data that leaves from the checked TX source ports to a selected TX destination port as well. RX monitoring sends any data that arrives at a checked RX



source ports to a selected RX destination port as well as sending the frame where on to its normal destination. If all source ports are unchecked no port monitoring will take place.

Basic Setting	Port Mon	itoring	g		
Port Setting	Dect	Destination Port		Source Port	
Redundancy	Porc	RX	TX	RX	TX
UVLAN	Port.01	۲	۲		
SNMP	Port.02	0	0		
Multicast	Port.03	0	0		
Security	Port.04	0	0		
S Fault Alarm	Port.05	0	0		
Event Selection	Port.06	0	0		
System Event Log	Port.07	0	0		
SMTP Setting	Port.08	0	0		

The following table describes the options available.

Option	Description			
Destination Port	This port will receive a copied frame from the source port for monitoring purpose.			
Source Port	The port will be monitored. Check the TX or RX box to monitor it.			
тх	Transmitted frames.			
RX	Received frames.			
Apply	Click "Apply " to save the changed configuration.			
Clear	Clear all checked boxes. This disables the port monitoring function.			
Help	Show help file.			

5.1.13.4 <u>Ping</u>

The Ping function allows the switch to send ICMP packets in order to detect the remote nodes.





The following table describes the options available.

Option	Description
IP Address	Enter the IP address that you want to detect.
Active	Click the Active button to send ICMP packets

5.1.14 Save Configuration

If any configuration changes, "**Save Configuration**" should be clicked to save the current configuration data to the permanent flash memory. Otherwise, the modified configuration will be lost when power is turned off or the system is reset.



The following table describes the options available.

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





6 Command Line Interface Management

6.1 About CLI Management

The Satyrn M Series switches can not only be managed through a browser based system described in the preceding sections but also via a Command Line Interface (CLI). Either the Serial Console port or Telnet can be used to manage the switch by CLI.

6.1.1 RS-232 Serial Console port

An RJ45 to DB9-F serial cable is used to connect the switch's RS-232 port to your computer's COM port. Follow the steps below to access the console via RS-232 serial cable.

<u>Step 1</u> From the Windows desktop, click on Start -> Programs -> Accessories -> Communications -> Hyper Terminal



<u>Step 2</u> Enter a name for the new connection



	Convection Description	
Disconnected Auto detect	Auto detect SCHCLL SCHCL PLAN Factors Part etc.	

<u>Step 3</u> Select the COM port number.

Connect To	
Comtrol	
Enter details for the phone number that you want to diat.	
Country/region: United Kingdom (H4)	
Arga code:	
Phone number	
Cognect using COM1	
OK Cancel	

Step 4 The COM port properties setting should be set as follows: 9600 bits per second, 8 data bits, no parity, 1 stop bit, and no flow control.



COM1 Properties	<u>71×1</u>	اللاني ا
Port Settings		
Bits per second 9600	<u> </u>	
Data bits: [8	3	
Party: None		
Stop bits 1	2	
Flow control None	Z	
	Restore Defaults	
06. Car	(i) (ii) (ii) (ii) (ii) (ii) (ii) (ii) (
onnected Auto detect A	An detect SCHOLL CAPS MAM Capture Part edu	are la

<u>Step 5</u> The console login screen will appear.

Enter the Username and Password. Default is

User name	comtrol
Password	satyrn

then press "Enter".

6.1.2 CLI Management by Telnet

Telnet can be used to configure the switch.

The default values are as follows:

IP Address	192.168.250.250
Subnet Mask	255.255.255.0
Default Gateway	192.168.250.1
User Name	comtrol
Password	satyrn



Follow the steps below to access the console via Telnet.

- <u>Step 1</u> Telnet to the IP address of the switch from the Windows "**Run**" command, or from the MS-DOS prompt.
- **<u>Step 2</u>** The console login screen will appear.
- **<u>Step 3</u>** Enter the Username and Password. Default is

User name comtrol

Password satyrn

then press "Enter".

6.2 Commands Level

Modes	Access Method	Prompt	Exit Method	About This Model
User EXEC	Begin a session with your switch.	switch>	Type logout or quit .	The user command available at the level of user is a subset of those available at the privileged level. Use this mode to • Enter menu mode. • Display system information
Privileged	Enter the enable command while in user EXEC mode.	switch#	Type disable to exit.	The privileged command is an advanced mode Use this mode to • Display advanced function status • Save configurations
Global configuration	Enter the configure command while in privileged EXEC mode.	switch(co nfig)#	To exit to privileged EXEC mode, enter exit or end	Use this mode to configure the parameters that apply to your switch as a whole.
VLAN database	Enter the vlan database command while in privileged EXEC mode.	switch(vla n)#	To exit to user EXEC mode, enter exit.	Use this mode to configure VLAN-specific parameters.
Interface	Enter the interface command (with a	switch(co	To exit to global	Use this mode to configure parameters for



configuration	specific interface) while in global configuration mode	nfig-if)#	configuration mode, enter exit .	the switch and Ethernet ports.
			To exit privileged EXEC mode or end.	

6.3 Command Level Indicators

Mode	Command Level
User EXEC	E
Privileged EXEC	Ρ
Global configuration	G
VLAN database	V
Interface configuration	1

6.4 Commands Set List—System Commands Set

Satyrn M series Commands	Level	Description	Example
show config	E	Show switch configuration	switch>show config
show terminal	Р	Show console information	switch#show terminal
write memory	P	Save the current configuration into permanent memory (flash rom)	switch#write memory
system name [System Name]	G	Configure system name	switch(config)#system name xxx
system location [System Location]	G	Set switch system location string	switch(config)#system location xxx
system description [System Description]	G	Set switch system description string	switch(config)#system description xxx
system contact [System Contact]	G	Set switch system contact window string	switch(config)#system contact xxx
show system-info	E	Show system information	switch>show system-info



ip address [Ip-address] [Subnet- mask] [Gateway]	G	Configure the switch's IP address.	switch(config)#ip address 192.168.1.1 255.255.255.0 192.168.1.254
ip dhcp	G	Enable DHCP client function of switch	switch(config)#ip dhcp
show ip	Р	Show IP information of switch	switch#show ip
no ip dhcp	G	Disable DHCP client function of switch	switch(config)#no ip dhcp
reload	G	Halt and perform a cold restart	switch(config)#reload
default	G	Restore to default	Switch(config)#default
admin username [Username]	G	Changes a login username. (maximum 10 words)	switch(config)#admin username xxxxxx
admin password [Password]	G	Specifies a password (maximum 10 words)	switch(config)#admin password xxxxxx
show admin	Р	Show administrator information	switch#show admin
dhcpserver enable	G	Enable DHCP Server	switch(config)#dhcpserver enable
dhcpserver lowip [Low IP]	G	Configure low IP address for IP pool	switch(config)# dhcpserver lowip 192.168.1.1
dhcpserver highip [High IP]	G	Configure high IP address for IP pool	switch(config)# dhcpserver highip 192.168.1.50
dhcpserver subnetmask [Subnet mask]	G	Configure subnet mask for DHCP clients	switch(config)#dhcpserver subnetmask 255.255.255.0
dhcpserver gateway [Gateway]	G	Configure gateway for DHCP clients	switch(config)#dhcpserver gateway 192.168.1.254
dhcpserver dnsip [DNS IP]	G	Configure DNS IP for DHCP clients	switch(config)# dhcpserver dnsip 192.168.1.1
dhcpserver leasetime [Hours]	G	Configure lease time (in hours)	switch(config)#dhcpserver leasetime 1
dhcpserver ipbinding [IP address]	I	Set the static IP for DHCP clients by port	switch(config)#interface fastEthernet 2 switch(config-if)#dhcpserver



			ipbinding 192.168.1.1
show dhcpserver	Ρ	Show configuration of	switch#show dhcpserver
configuration		the DHCP server	configuration
show dhcpserver clients	Ρ	Show client entries of DHCP server	switch#show dhcpserver clinets
show dhcpserver ip- binding	Ρ	Show IP-Binding information of DHCP server	switch#show dhcpserver ip-binding
no dhcpserver	G	Disable the DHCP server function	switch(config)#no dhcpserver
security enable	G	Enable IP security function	switch(config)#security enable
security http	G	Enable the IP security of the HTTP server	switch(config)#security http
security telnet	G	Enable the IP security of the telnet server	switch(config)#security telnet
security ip [Index(110)] [IP Address]	G	Set the IP security list	switch(config)#security ip 1 192.168.1.55
show security	Р	Show the IP security information.	switch#show security
no security	G	Disable the IP security function	switch(config)#no security
no security http	G	Disable the IP security of the HTTP server	switch(config)#no security http
no security telnet	G	Disable the IP security of the telnet server	switch(config)#no security telnet

6.5 Commands Set List—Port Commands Set

Satyrn M series Commands	Level	Description	Example
interface fastEthernet	G	Choose the port	switch(config)#interface fastEthernet 2
[Portid]		for modification.	
duplex	I	Use the duplex	switch(config)#interface fastEthernet 2
[full half]		configuration command to specify the duplex mode of operation	switch(config-if)#duplex full
		for Fast Ethernet.	



speed [10 100 1000 auto] flowcontrol mode	1	Use the speed configuration command to specify the speed mode of operation for Fast Ethernet. The speed cannot be set to 1000 if the port is not a gigabit port.	switch(config)#interface fastEthernet 2 switch(config-if)#speed 100 switch(config)#interface fastEthernet 2
[Symmetric Asymmetric]		control configuration command on Ethernet ports to control traffic rates during periods of congestion.	switch(config-if)#flowcontrol mode Asymmetric
no flowcontrol	I	Disable flow control of interface	switch(config-if)#no flowcontrol
security enable	Ι	Enable security of	switch(config)#interface fastEthernet 2
		internace	switch(config-if)#security enable
no security	I	Disable security of	switch(config)#interface fastEthernet 2
		internace	switch(config-if)#no security
bandwidth type all	I	Set interface ingress limit frame type to "accept all frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type all
bandwidth type broadcast-multicast- flooded-unicast	I	Set interface ingress limit frame type to "accept broadcast, multicast, and flooded unicast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-multicast-flooded-unicast
bandwidth type broadcast-multicast	I	Set interface ingress limit frame type to "accept broadcast and multicast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-multicast
bandwidth type broadcast-only	I	Set interface ingress limit frame type to "only accept broadcast frame"	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth type broadcast-only
bandwidth in	I	Set interface input	switch(config)#interface fastEthernet 2
[Value]		Range is from 100 kbps to 102400	switch(config-if)#bandwidth in 100



		kbps or to 256000 kbps for giga ports, and zero means no limit.	
bandwidth out [Value]	I	Set interface output bandwidth. Rate Range is from 100 kbps to 102400 kbps or to 256000 kbps for giga ports, and zero means no limit.	switch(config)#interface fastEthernet 2 switch(config-if)#bandwidth out 100
show bandwidth	I	Show interface bandwidth control	switch(config)#interface fastEthernet 2 switch(config-if)#show bandwidth
state [Enable Disable]	1	Use the state interface configuration command to specify the state mode of operation for Ethernet ports. Use the disable form of this command to disable the port.	switch(config)#interface fastEthernet 2 switch(config-if)#state Disable
show interface configuration	I	show the interface configuration status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface configuration
show interface status	I	show interface actual status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface status
show interface accounting	I	show interface statistic counter	switch(config)#interface fastEthernet 2 switch(config-if)#show interface accounting
no accounting	I	Clear interface accounting information	switch(config)#interface fastEthernet 2 switch(config-if)#no accounting



6.6 Commands Set List—Trunk command set

Satyrn M series Commands	Level	Description	Example
aggregator priority	G	Set port group system	switch(config)#aggregator priority 22
[1to65535]		phoney	
aggregator activityport	G	Set activity port	switch(config)#aggregator
[Port Numbers]			
aggregator group	G	Assign a trunk group	switch(config)#aggregator group 1 1-
[GroupID] [Port-list]		[GroupID] :1to3	or
lacp		[Port-list]:Member port	cwitch(config)#aggregator group 2
workp		list, This parameter could be a port	1,4,3 lacp workp 3
[Workport]		range(ex.1-4) or a port list separate by a comma(ex.2, 3, 6)	
		[Workport]: The amount of work ports, this value could not be less than zero or be large than the amount of member ports.	
aggregator group	G	Assign a static trunk	switch(config)#aggregator group 1 2-
[GroupID] [Port-list]		[GroupID] :1to3	or
nolacp		[Port-list]:Member port list, This parameter could be a port range(ex.1-4) or a port list separate by a comma(ex.2, 3, 6)	switch(config)#aggreator group 1 3,1,2 nolacp
show aggregator	Р	Show the information of trunk group	switch#show aggregator
no aggregator lacp	G	Disable the LACP	switch(config)#no aggreator lacp 1
[GroupID]		TUNCTION OF TRUNK GROUP	
no aggregator group	G	Remove a trunk group	switch(config)#no aggreator group 2
[GroupID]			



Satyrn M series Commands	Level	Description	Example
vlan database	Р	Enter VLAN configure mode	switch#vlan database
vlan [8021q gvrp]	V	Set switch VLAN mode.	switch(vlan)# vlanmode 802.1q or switch(vlan)# vlanmode gvrp
no vlan [VID]	V	Disable VLAN group (by VID)	switch(vlan)#no vlan 2
no gvrp	V	Disable GVRP	switch(vlan)#no gvrp
IEEE 802.1Q VLAN			
vlan 8021q port [PortNumber] access-link untag [UntaggedVID]	V	Assign an access link for VLAN by port. Note: if the port belongs to a trunk group, this command cannot be used.	switch(vlan)#vlan 802.1q port 3 access-link untag 33
vlan 8021q port [PortNumber] trunk-link tag [TaggedVID List]	V	Assign a trunk link for VLAN by port. Note: if the port belong to a trunk group, this command cannot be used.	switch(vlan)#vlan 8021q port 3 trunk- link tag 2,3,6,99 or switch(vlan)#vlan 8021q port 3 trunk- link tag 3-20
vlan 8021q port [PortNumber] hybrid-link untag [UntaggedVID] tag [TaggedVID List]	V	Assign a hybrid link for VLAN by port. Note: if the port belong to a trunk group, this command cannot be used.	switch(vlan)# vlan 8021q port 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q port 3 hybrid-link untag 5 tag 6-8
vlan 8021q aggreator [TrunkID] access-link untag [UntaggedVID]	V	Assign an access link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 access-link untag 33
vlan 8021q aggreator [TrunkID] trunk-link tag [TaggedVID List]	V	Assign a trunk link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 2,3,6,99 or switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 3-20
vlan 8021q aggreator [PortNumber] hybrid-link untag [UntaggedVID] tag	V	Assign a hybrid link for VLAN by trunk group	switch(vlan)# vlan 8021q aggreator 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q aggreator 3

6.7 Commands Set List—VLAN command set



[TaggedVID List]				hybrid-link untag 5 tag 6-8
show vlan [VID] or show vlan	v	Show information	VLAN	switch(vlan)#show vlan 23

6.8 Commands Set List—Spanning Tree command set

Satyrn M Commands	series	Level	Description	Example
spanning-tree e	nable	G	Enable spanning tree	switch(config)#spanning-tree enable
spanning-tree [0to61440]	priority	G	Configure spanning tree priority parameter	switch(config)#spanning-tree priority 32767
spanning-tree [seconds]	max-age	G	Use the spanning-tree max-age global configuration command to change the interval between messages the spanning tree receives from the root switch. If a switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, it will recompute the Spanning Tree Protocol (STP) topology.	switch(config)# spanning-tree max- age 15
spanning-tree time [seconds]	hello-	G	Use the spanning-tree hello-time global configuration command to specify the interval between hello bridge protocol data units (BPDUs).	switch(config)#spanning-tree hello- time 3
spanning-tree time [seconds]	forward-	G	Use the spanning-tree forward-time global configuration command to set the forwarding-time for the specified spanning-tree instances. The forwarding time	switch(config)# spanning-tree forward-time 20



		determines how long each of the listening and learning states last before the port begins forwarding.	
stp-path-cost [1to20000000]	I	Use the spanning-tree cost interface configuration command to set the path cost for Spanning Tree Protocol (STP) calculations. In the	switch(config)#interface fastEthernet 2 switch(config-if)#stp-path-cost 20
		event of a loop, the spanning tree will consider the path cost when selecting	
		an interface to place into the forwarding state.	
stp-path-priority	I	Use the spanning-tree	switch(config)#interface fastEthernet
[Port Priority]		configuration command to configure a port priority that is used when two switches are both positioned as the root switch.	z switch(config-if)# stp-path-priority 127
stp-admin-p2p	I	Admin P2P of STP	switch(config)#interface fastEthernet
[Auto True False]		interface.	switch(config-if)# stp-admin-p2p Auto
stp-admin-edge	I	Admin Edge of STP	switch(config)#interface fastEthernet
[True False]		interface.	z switch(config-if)# stp-admin-edge True
stp-admin-non-stp	I	Admin NonSTP of	switch(config)#interface fastEthernet
[True False]		interface.	<pre> switch(config-if)# stp-admin-non-stp False </pre>
Show spanning-tree	E	Display a summary of the spanning-tree states.	switch>show spanning-tree
no spanning-tree	G	Disable spanning- tree.	switch(config)#no spanning-tree



6.9 Commands Set List—QoS command set

Satyrn M series Commands	Level	Description	Example
qos policy	G	Select QOS policy scheduling	switch(config)#qos policy weighted- fair
qos prioritytype	G	Set QOS priority type	switch(config)#qos prioritytype
[port-based cos- only tos-only cos- first tos-first]			
qos priority portbased [Port] [lowest low middle high]	G	Configure Port-based Priority	switch(config)#qos priority portbased 1 low
qos priority cos [Priority][lowest low mid dle high]	G	Configure COS Priority	switch(config)#qos priority cos 22 middle
qos priority tos [Priority][lowest low mid dle high]	G	Configure TOS Priority	switch(config)#qos priority tos 3 high
show qos	Ρ	Display the information of QoS configuration	switch>show qos
no qos	G	Disable QoS function	switch(config)#no qos

6.10 Commands Set List—IGMP command set

Satyrn M Commands	series	Level	Description	Example
igmp enable		G	Enable IGMP snooping function	switch(config)#igmp enable
Igmp-query auto		G	Set IGMP query to auto mode	switch(config)#Igmp-query auto
Igmp-query force		G	Set IGMP query to force mode	switch(config)#Igmp-query force
show configuration	igmp	Р	Displays the details of an IGMP configuration.	switch#show igmp configuration
show igmp multi		Р	Displays the details of an IGMP snooping entry.	switch#show igmp multi
no igmp		G	Disable IGMP snooping function	switch(config)#no igmp
no igmp-query		G	Disable IGMP query	switch#no igmp-query



6.11 Commands Set List—MAC/Filter Table command set

Satyrn M series Commands	Level	Description	Example
mac-address-table static hwaddr	Ι	Configure MAC address table of interface (static)	switch(config)#interface fastEthernet 2
[MAC]			switch(config-if)#mac-address-table static hwaddr 000012345678
mac-address-table filter hwaddr	G	Configure MAC address table(filter)	switch(config)#mac-address-table filter hwaddr 000012348678
[MAC]			
show mac-address-table	Ρ	Show all MAC address table	switch#show mac-address-table
show mac-address-table static	Ρ	Show static MAC address table	switch#show mac-address-table static
show mac-address-table filter	Ρ	Show filter MAC address table.	switch#show mac-address-table filter
no mac-address-table static hwaddr	Ι	Remove an entry of MAC address table of	switch(config)#interface_fastEthernet 2
[MAC]			switch(config-if)#no mac-address- table static hwaddr 000012345678
no mac-address-table filter hwaddr	G	Remove an entry of MAC address table (filter)	switch(config)#no mac-address-table filter hwaddr 000012348678
[MAC]		()	
no mac-address-table	G	Remove dynamic entry of MAC address table	switch(config)#no mac-address-table

6.12 Commands Set List—SNMP command set

Satyrn M series Commands	Level	Description		Example
snmp agent-mode [v1v2c v3]	G	Select the a mode of SNMP	igent	switch(config)#snmp agent-mode v1v2c
snmp-server host	G	Configure SI	NMP	switch(config)#snmp-server host
[IP address]		server information	host and	192.168.10.50 community public trap-version v1
community		community string		(remove)
[Community-string]				Switch(config)#



trap-version			no snmp-server host
[v1 v2c]			192.168.10.50
snmp community- strings	G	Configure the community string right	switch(config)#snmp community- strings public right RO
[Community-string]			or
right			switch(config)#snmp community-
[RO RW]			Istrings public right RW
snmp snmpv3-user	G	Configure the	switch(config)#snmp snmpv3-user
[User Name]		SNMPv3 agent.	lesion password Adine w Enverw
password		Privacy password can be left empty.	
[Authentication Password] [Privacy Password]			
show snmp	Ρ	Show SNMP configuration	switch#show snmp
show snmp show snmp-server	P	Show SNMP configuration Show specified trap server information	switch#show snmp switch#show snmp-server
show snmp show snmp-server no snmp community- strings [Community]	P P G	Show SNMP configuration Show specified trap server information Remove the specified community.	switch#show snmp switch#show snmp-server switch(config)#no snmp community- strings public
show snmp show snmp-server no snmp community- strings [Community] no snmp snmpv3-user	P P G G	Show SNMP configuration Show specified trap server information Remove the specified community. Remove specified user of SNMPv3	switch#show snmp switch#show snmp-server switch(config)#no snmp community- strings public switch(config)# no snmp snmpv3- user_test01_password_AuthPW/
show snmp show snmp-server no snmp community- strings [Community] no snmp snmpv3-user [User Name]	P P G G	Show SNMP configuration Show specified trap server information Remove the specified community. Remove specified user of SNMPv3 agent. Privacy	switch#show snmp switch#show snmp-server switch(config)#no snmp community- strings public switch(config)# no snmp snmpv3- user test01 password AuthPW PrivPW
show snmp show snmp-server no snmp community- strings [Community] no snmp snmpv3-user [User Name] password	P P G	Show SNMP configuration Show specified trap server information Remove the specified community. Remove specified user of SNMPv3 agent. Privacy password can be left empty.	switch#show snmp switch#show snmp-server switch(config)#no snmp community- strings public switch(config)# no snmp snmpv3- user test01 password AuthPW PrivPW
show snmp show snmp-server no snmp community- strings [Community] no snmp snmpv3-user [User Name] password [Authentication Password] [Privacy Password]	P G G	Show SNMP configuration Show specified trap server information Remove the specified community. Remove specified user of SNMPv3 agent. Privacy password can be left empty.	switch#show snmp switch#show snmp-server switch(config)#no snmp community- strings public switch(config)# no snmp snmpv3- user test01 password AuthPW PrivPW

6.13 Commands Set List—Port Mirroring command set

Satyrn M series Commands	Level	Description	Example
monitor rx	G	Set RX destination port of monitor function	switch(config)#monitor rx
monitor tx	G	Set TX destination port of monitor	switch(config)#monitor tx



		function	
show monitor	Р	Show port monitor information	switch#show monitor
monitor [RX TX Both]	I	Configure source port of monitor function	switch(config)#interface fastEthernet 2 switch(config-if)#monitor RX
show monitor	I	Show port monitor information	switch(config)#interface fastEthernet 2 switch(config-if)#show monitor
no monitor	1	Disable source port of monitor function	switch(config)#interface_fastEthernet 2 switch(config-if)#no monitor

6.14 Commands Set List—802.1x command set

Satyrn M series Commands	Level	Description	Example
8021x enable	G	Use the 802.1x global configuration command to enable 802.1x protocols.	switch(config)# 8021x enable
8021x system radiousip [IP address]	G	Use the 802.1x system radious IP global configuration command to change the radious server IP.	switch(config)# 8021x system radiousip 192.168.1.1
8021x system serverport [port ID]	G	Use the 802.1x system server port global configuration command to change the radious server port	switch(config)# 8021x system serverport 1815
8021x system accountport [port ID]	G	Use the 802.1x system account port global configuration command to change the accounting port	switch(config)# 8021x system accountport 1816
8021x system sharekey [ID]	G	Use the 802.1x system share key global configuration command to change the shared key value.	switch(config)# 8021x system sharekey 123456



8021x system nasid [words]	G	Use the 802.1x system nasid global configuration command to change the NAS ID	switch(config)# 8021x system nasid test1
8021x misc quietperiod [sec.]	G	Use the 802.1x misc quiet period global configuration command to specify the quiet period value of the switch.	switch(config)# 8021x misc quietperiod 10
8021x misc txperiod [sec.]	G	Use the 802.1x misc TX period global configuration command to set the TX period.	switch(config)# 8021x misc txperiod 5
8021x misc supportimeout [sec.]	G	Use the 802.1x misc supp timeout global configuration command to set the supplicant timeout.	switch(config)# 8021x misc supportimeout 20
8021x misc servertimeout [sec.]	G	Use the 802.1x misc server timeout global configuration command to set the server timeout.	switch(config)#8021x misc servertimeout 20
8021x misc maxrequest [number]	G	Use the 802.1x misc max request global configuration command to set the MAX requests.	switch(config)# 8021x misc maxrequest 3
8021x misc reauthperiod [sec.]	G	Use the 802.1x misc reauth period global configuration command to set the reauth period.	switch(config)# 8021x misc reauthperiod 3000
8021x portstate [disable reject accept authorize]	Ι	Use the 802.1x port state interface configuration command to set the state of the selected port.	switch(config)#interface fastethernet 3 switch(config-if)#8021x portstate accept



show 8021x	E	Display a summary of the 802.1x properties and also the port sates.	switch>show 8021x
no 8021x	G	Disable 802.1x function	switch(config)#no 8021x

6.15 Commands Set List—TFTP command set

Satyrn M series Commands	Level	Description	Defaults Example
backup flash:backup_cfg	G	Save configuration to TFTP. The IP of TFTP server and the file name of image must be specified.	switch(config)#backup flash:backup_cfg
restore flash:restore_cfg	G	Get configuration from TFTP server. The IP of TFTP server and the file name of image must be specified.	switch(config)#restore flash:restore_cfg
upgrade flash:upgrade_fw	G	Upgrade firmware by TFTP. The IP of TFTP server and the file name of image must be specified.	switch(config)#upgrade lash:upgrade_fw

6.16 Commands Set List—SYSLOG, SMTP, EVENT command set

Satyrn M series Commands	Level	Description	Example
systemlog ip	G	Set System log server	switch(config)# systemlog ip
[IP address]		IP address.	192.168.1.100
systemlog mode	G	Specified the log	switch(config)# systemlog mode both
[client server both]		mode.	
show systemlog	Е	Display system log.	Switch>show systemlog
show systemlog	Р	Show system log client and server information.	switch#show systemlog



no systemlog	G	Disable system log functon.	switch(config)#no systemlog
smtp enable	G	Enable SMTP function.	switch(config)#smtp enable
smtp serverip	G	Configure SMTP	switch(config)#smtp serverip
[IP address]		Server IF.	192.100.1.3
smtp authentication	G	Enable SMTP authentication.	switch(config)#smtp authentication
smtp account	G	Configure	switch(config)#smtp account User
[account]		account.	
smtp password	G	Configure	switch(config)#smtp password
[password]		password.	
smtp rcptemail	G	Configure reciever's	switch(config)#smtp rcptemail 1
[Index] [Email address]			Alert@test.com
show smtp	Р	DisplaySMTP information.	switch#show smtp
no smtp	G	Disable SMTP function	switch(config)#no smtp
event device-cold-start	G	Set cold start event	switch(config)#event device-cold-
[Systemlog SMTP Both]		type.	Start Dott
event authentication- failure	G	Set authentication failure event type.	switch(config)#event authentication- failure both
[Systemlog SMTP Both]			
event O-Ring-topology- change	G	Set ring topology changed event type.	switch(config)#event ring-topology- change both
[Systemlog SMTP Both]			
event systemlog	I	Set port event for	switch(config)#interface fastethernet
[Link-UP Link-		system log.	o switch/config.if)#ovont systemlog
Downipouni			both
event smtp	I	Set port event for SMTP.	switch(config)#interface fastethernet
[Link-UP Link- Down Both]			switch(config-if)#event smtp both
show event	Р	Show event selection.	switch#show event
no event device-cold- start	G	Disable cold start event type.	switch(config)#no event device-cold- start
no event authentication-	G	Disable authentication	switch(config)#no event



failure		failure event type.	authentication-failure
no event O-Ring- topology-change	G	Disable O-Ring topology changed event type.	switch(config)#no event ring- topology-change
no event systemlog	I	Disable port event for system log.	switch(config)#interface fastethernet 3 switch(config-if)#no event systemlog
no event smpt	I	Disable port event for SMTP.	switch(config)#interface fastethernet 3 switch(config-if)#no event smtp
show systemlog	Ρ	Show system log client and server information.	switch#show systemlog

6.17 Commands Set List—SNTP command set

Satyrn M series Commands	Level	Description	Example
sntp enable	G	Enable SNTP function.	switch(config)#sntp enable
sntp daylight	G	Enable daylight saving time. This command can't be applied if SNTP function is inactive.	switch(config)#sntp daylight
sntp daylight-period [Start time] [End time]	G	Set period of daylight saving time. This command can't be applied if SNTP function is inactive. Parameter format: [yyyymmdd-hh:mm]	switch(config)# sntp daylight-period 20060101-01:01 20060202-01-01
sntp daylight-offset [Minute]	G	Set offset of daylight saving time. This command can't be applied if SNTP function is inactive.	switch(config)#sntp daylight-offset 3
sntp ip [IP]	G	Set SNTP server IP. This command can't be applied if SNTP function is inactive.	switch(config)#sntp ip 192.169.1.1
sntp timezone	G	Set timezone index. Use "show sntp timzezone" command	switch(config)#sntp timezone 22



[Timezone]		to obtain information index number.	more about	
show sntp	Ρ	Show information.	SNTP	switch#show sntp
show sntp timezone	Р	Show index nur time zone list.	mber of	switch#show sntp timezone
no sntp	G	Disable function.	SNTP	switch(config)#no sntp
no sntp daylight	G	Disable c saving time.	daylight	switch(config)#no sntp daylight

6.18 Commands Set List—Satyrn-Ring command set

IES-3000 series Commands	Level	Description	Example
Ring enable	G	Enable Satyrn-Ring.	switch(config)# ring enable
Ring master	G	Enable ring master.	switch(config)# ring master
Ring couplering	G	Enable couple ring.	switch(config)# ring couplering
Ring dualhoming	G	Enable dual homing.	switch(config)# ring dualhoming
Ring ringport	G	Configure 1st/2nd Ring Port	switch(config)# ring ringport 7 8
[1st Ring Port] [2nd Ring Port]			
Ring couplingport	G	Configure Coupling	switch(config)# ring couplingport 1
[Coupling Port]		Folt.	
Ring controlport	G	Configure Control	switch(config)# ring controlport 2
[Control Port]		r on.	
Ring homingport	G	Configure Dual	switch(config)# ring homingport 3
[Dual Homing Port]		Homing Fort.	
show Ring	Р	Show Satyrn-Ring information.	switch#show ring
no Ring	G	Disable Satyrn-Ring.	switch(config)#no ring
no Ring master	G	Disable ring master.	switch(config)# no ring master
no Ring couplering	G	Disable couple ring.	switch(config)# no ring couplering
no Ring dualhoming	G	Disable dual homing.	switch(config)# no ring dualhoming



Technical Specifications

Technology	
Ethernet Standards	802.3 - 10Base-T,
	802.3u - 100Base-TX, 100Base-FX,
	802.3z - 1000Base-LX/SX
	802.3ab - 1000Base-TX,
	802.3ad - Link Aggregation Control Protocol
	802.3x - Flow Control
	802.1D - Spanning Tree Protocol
	802.1p - Class of Service,
	802.1Q - VLAN Tagging
	802.1w - Rapid Spanning Tree Protocol,
	802.1X - Authentication
	802.1ad - VLAN QinQ
	802.1AB - LLDP
	802.1s - MSTP
MAC addresses	8192
Priority Queues	4
Flow Control	IEEE 802.3x Flow Control and Back-pressure
Processing	Store-and-Forward
Interface	
RJ45 Ports	10/100Base-T(X), Auto MDI/MDI-X
Giga Fibre Ports	1000 Base-X (SC Connector)
	Multi-Mode:
	0 to 550m, 850 nm (50/125 μm to 62.5/125 μm)
	Single-Mode:
	0 to 10km, 1310 nm (9/125 μm)
Giga Ports	10/100/1000 Base-T(X), Auto MDI/MDIX
Fibre Ports	100 Base-FX (SC Connector)
	Multi-Mode:



	0 to 2 km, 1310 nm (50/125 μm to 62.5/125 μm)
	Single-Mode:
	0 to 30km, 1310 nm (9/125 μm)
SFP	2 x 100/1000 Base-X(LC Connector)
LED Indicators	Per Unit : Power x 3(Green)
	RJ45 Ports:
	Per Port : Link/Activity(Green/Blinking Green), Full duplex(Amber)
	Giga/Fibre Ports:
	Per Port : Activity(Green), Link (Amber)
	SFP Ports:
	Per Port : Link/Activity (Green)
Power Requirements	
Power Input Voltage	PWR1/2: 12 to 48VDC in 7-pin Terminal Block
Reverse Polarity Protection	Present at terminal block
Power Consumption	M073-EC – 12 Watts
	M082-EQ – 9 Watts
	M062-EM – 9 Watts
	M062-ES – 9 Watts
	M080-EN – 5 Watts
	M062-EG – 8 Watts
	M062-EL – 7 Watts
	M062-ET – 7 Watts
Environmental	
Operating Temperature	-40 to 70 °C
Storage Temperature	-40 to 85 °C
Operating Humidity	5% to 95%, non-condensing
Mechanical	
Dimensions(W x D x H)	52 mm(W) x 106 mm(D) x 144 mm(H)
	M082-EQ, M062-EM, M062-ES, M080-EN, M062-EG, M062-EL, M062-ET
	74 mm(W) x 109 mm(D) x 154 mm(H) M073-EC



Casing	IP-30 protection
Regulatory Approvals	
Regulatory Approvals	FCC Part 15, CISPER (EN55022) class A
EMS	EN61000-4-2 (ESD)
	EN61000-4-3 (RS)
	EN61000-4-4 (EFT)
	EN61000-4-5 (Surge)
	EN61000-4-6 (CS)
	EN61000-4-8
	EN61000-4-11
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Warranty	5 years



Comtrol GmbH Staplehurst Weston on the Green Bicester OX25 3QU

UK

TELEPHONE

Switchboard	+44 (0) 1869 352740
Fax	+44 (0) 1869 351848
Support	+44 (0) 1869 352743

E-MAILS

Sales	sales@comtrol.co.uk
Support	support@comtrol.co.uk
Enquiries	enquiries@comtrol.co.uk
General	info@comtrol.co.uk