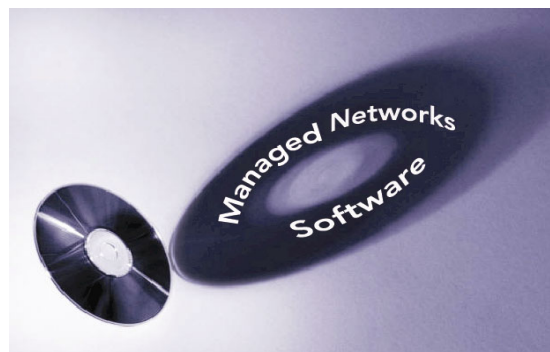




Magnum mP62 Switches



MNS-mP Software User Guide

Corporate Headquarters

GarrettCom, Inc.
47823 Westinghouse Drive
Fremont, CA 94539
Phone (510) 438-9071
Fax (510) 438-9072
Website: <http://www.GarrettCom.com>

email support@garrettcom.com

Preface

Use of This Guide

This guide describes how to use the console management interface (CMI), for the Magnum mP62 Switches.

If you need further information on GarrettCom switch technology, refer to the GarrettCom website at: <http://www.garrettcom.com>

Magnum™ mP62 Series MNS-mP Software User Guide

Part #: 84-00128

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Printed in the United States of America.

Contacting GarrettCom, Inc

Please use the mailing address, phone and fax numbers and email address listed below:

GarrettCom, Inc.
213 Hammond Ave.
Fremont, CA 94539
Phone (510) 438-9071
Fax (510) 438-9072
Website: <http://www.GarrettCom.com>

Email: support@garrettcom.com

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Revisions

Rel 1.3 05/06: Build STP vs L3 validation check.

Rel 1.3 05/13: STP disable by default

1.0 Getting Started with Switch Configuration

This section gives a quick overview and procedure to get the mP62 switch up and running. It is targeted to Systems Administrators familiar with similar products.

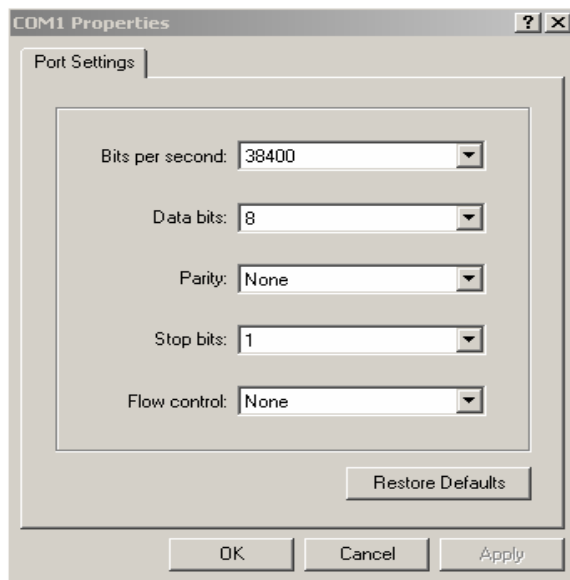
The procedure for assigning IP addresses and other vital configuration information required for basic operation of the switch is provided here. For detailed functions and procedures, please refer to the appropriate chapter of this manual.

By default, the switch does not have a configured IP Address and all management access through the network is disabled. In this condition, you can use the Console Management Interface (CMI) placed at the front right to manage all functions of the switch. The CMI is available through the console port (RS-232C standard 9 position D-Sub Connector).

1.1 Equipment Required

1. Null Modem Cable, 9 Position D-Sub, Female to female
2. Computer with a functional RS-232C port (COMx: in PCs)
3. Terminal emulation program (e.g. HyperTerminal in Windows® platforms, Minicom in Linux ® platforms, or any other emulation software). Configure it for 38400 Baud, 8bit, No parity, and 1 stop bit (38400,8,N,1). If a flow control selection is available, select “No Flow control”

Note: The baud speed is 9600 for version 1.0.



1.2 Brief Overview of the Console Management Interface

The Console Management Interface (CMI) is a hierarchical menu based interface optimized for managing a switch with low port count. Each menu level provides a number of selections chosen by a single digit number entered at the keyboard to use that option or feature of the switch for configuration.

When a CMI session is started, the login screen is displayed. You have to enter a valid username and password combination to gain access to the CMI. There are two pre-defined user names, *manager* (*password:manager*) and *operator* (*password:operator*). The former allows access to all configuration options, while the latter allows only read access to the CMI.

If a CMI session is idle for long durations, it will be reset and the Login screen will be displayed.

```
GarrettCom Inc.
213 Hammond Ave.
Fremont CA 94539
Tel: 510 438 9071
E-Mail: support@GarrettCom.com
www.GarrettCom.com

Magnum mP62 Hardened Switch Version 1.1
*****WARNING: NO IP ADDRESS. NETWORK ACCESS DISABLED.*****

Login: _
```

If IP address is not configured, the console shows the Warning Message.

1.3 Recommended Minimal Configuration

If you don't intend to use the management features of the mP62 over the network connection, no special configuration steps are necessary. After the login, you can navigate through the menu structure and access all management features available through the CMI

1.4 IP Address Configuration for Network Access

You have to configure the IP Address and associated parameters in order to enable access of the management functions through the network. The IP Address Configuration menu is available by selection **5** from the main menu

```
Main Menu
  1. System Configuration
  2. Port Menu
  3. Switch Configuration
  4. User/Password Administration
  5. IP Parameters Configuration
  6. Log Out
  0. Close Connection

Enter Selection by number: _

IP Parameters Configuration
  1. Enable/Disable DHCP/Bootp          DISABLED
  2. IP Address in Use                  NO IP CONFIGURED
  3. IP Address                         0.0.0.0
  4. NetMask                            255.255.255.0
  5. Default Gateway                    0.0.0.0
  6. Save Values and Reset Switch
  0. Discard Values and Exit this Menu


Enter Selection by number: _
```


1.5 IP Address Configuration Using DHCP

The mP62 supports Dynamic Host Configuration Protocol (DHCP) to obtain the IP Address from a server automatically. You will need a functional DHCP server in the network and the mP62 hooked up to the network for this protocol to work successfully. The DHCP function is DISABLED by default. You will have to enable it in order to use it.

Select **1** from the IP Configuration menu to enable DHCP. Then select **5** to save the changes and reset the switch. The switch will go through the reset sequence and you will return to the login prompt.

Login again and go to the IP Configuration menu. Make a note of the IP Address in use. This will be needed to access the switch from the network.

 **Note:** If Spanning Tree Protocol is enabled, the DHCP system will wait till the initial configuration of the Spanning Tree is complete before attempting to get an IP Address from the DHCP Server. The Login screen will alert on this status. Wait (30 to 60 seconds typically) till the alert goes away to look for the IP Address.

 **Note:** If the lease to the IP Address could not be renewed after the expiry time, the system will disable the DHCP protocol and disable network access. No attempt will be made to look for DHCP servers after the expiration. You will have to reset the switch in order to restart the DHCP discovery.

1.6 Manual IP Address Configuration

If you are not using DHCP, you will have to configure the IP Address manually. Please use the following procedure to configure the IP Address Parameters manually.

```
IP Parameters Configuration
  1. Enable/Disable DHCP/Bootp          DISABLED
  2. IP Address in Use                   NO IP CONFIGURED
  3. IP Address                          0.0.0.0
  4. NetMask                             255.255.255.0
  5. Default Gateway                     0.0.0.0
  6. Save Values and Reset Switch
  0. Discard Values and Exit this Menu

Enter Selection by number: _
```


Select **2** to enter the IP Address. The IP Address must be entered in the well known dotted quad format (like 192.168.1.1). The displayed IP Address will immediately change to the new value. However, the network stack will not use the new IP Address till the changes are saved and the switch reset.

Select **3** to enter the Netmask. The notation is similar to the IP Address

Select **4** to enter the default gateway, if you will be accessing the switch from another network through a gateway.

Select **5** to save the changes and reset the switch. The switch will go through the reset sequence and you will return to the login prompt.

It is a good idea to go to the IP Configuration screen to make sure that the parameters are correct and the IP Address in use is the same as the IP Address you have configured. Please make note of the IP Address for future use.

 **Note:** If DHCP is ENABLED, the switch will first try to obtain an IP Address through DHCP. If the attempt is unsuccessful, the manually configured IP Address will be used. Disable DHCP if you want only the manually configured IP Address to be used.

The mP62 will now be ready for use.

2.0 Managing the mP62

The mP62 has two management interfaces. The Console Management Interface (CMI) is accessible through a terminal attached to the RS-232C (serial) interface, and through the Telnet protocol over the network. In either case, the user interface is exactly the same. Standards based Simple Network Management Protocol (SNMP) is available over the network. Appropriate client software is required to use this feature. Several software suites are available for this purpose. GarrettCom has developed a GUI application to work with the SNMPc suite by CastleRock (SNMPc 5.x or higher) software. The application package (evaluation copy) is available for free download at the GarrettCom website.

2.1 Using the CMI


The CMI provides a simple hierarchical menu based interface for managing the mP62. The CMI session is initiated by either connecting a VT-100 compatible character terminal to the RS-232C port, or invoking a telnet session to the mP62 from a host on the network. Once the session is initiated, the Login screen is displayed.

```
GarrettCom Inc.  
213 Hammond Ave.  
Fremont, CA 94539  
Tel: 510 438 9071  
E-Mail: support@GarrettCom.com  
www.GarrettCom.com  
  
Magnum mP62 Hardened Switch Version 1.1  
  
Login: manager  
Password: *****
```

Enter username and password to login. The main menu is displayed.

```
Main Menu  
  
1. System Configuration  
2. Port Menu  
3. Switch Configuration  
4. User/Password Administration  
5. IP Parameters Configuration  
6. Log Out  
0. Close Connection  
  
Enter Selection by number: _
```

Figure : Main Menu

 **Note:** If Spanning Tree Protocol is enabled, the network access will not be available until the initial configuration is complete. This can take up to 30 seconds.

The menu items are selected by typing the appropriate selection number. The menu action initiates when the number key is pressed. It is not required to press the Enter Key.

2.2 System Configuration Menu

The System Configuration menu allows the user to configure the system name, location and contact information. This information is used by the SNMP protocol to identify the managed device. It also allows the user to configure the community names to be used to access the SNMP agent. SNMP Traps can be configured by the Trap Configuration submenu. The resident software in the mP62 can be upgraded from this menu.

```
GarrettCom Inc.  
Magnum mP62 Hardened Switch  
System Configuration Menu  
  
MAC Address 00 20 06 25 50 08  
1. System Name  
2. System Location  
3. System Contact  
4. Enable/Disable SNMP Access ENABLED  
5. SNMP Public Comm. Name public  
6. SNMP Private Comm. Name private  
7. Traps Configuration  
8. Upgrade Software (Serial/TFTP)  
0. Exit This Menu  
  
Enter Selection by number: _
```

Figure : System Configuration Menu

The following parameters, which are used by the SNMP management system, may be configured at this stage. These are not mandatory for the operation of the switch, but provide identification for individual switches.

- Select option **1** to enter system name
- Select option **2** to enter system location
- Select option **3** to enter system contact

The information entered here will be reported in the management information base of SNMP.

If required, the community names (like passwords) to be used for accessing the management through SNMP can also be modified at this stage.

2.3 SNMP

You can manage the switch via SNMP from a network management station.

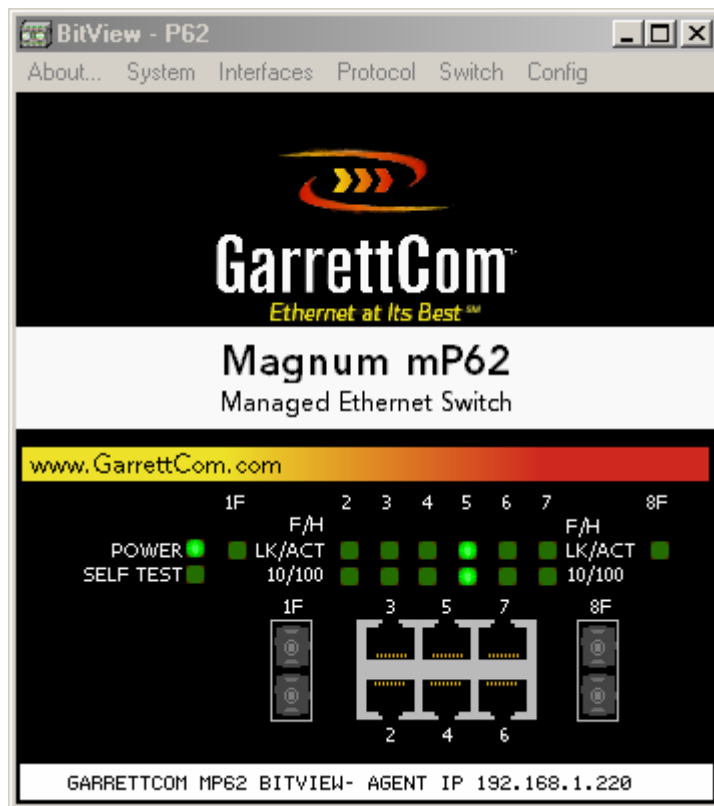
For this purpose, GarrettCom recommends the **SNMPc**, an easy-to-install and use network management platform that runs on Windows based PC's. It uses the SNMP agent statistical sampling software that is included in the switch to provide powerful, but easy-to-use traffic monitoring and network activity analysis tools.

2.3.1 Bitview and Hubview

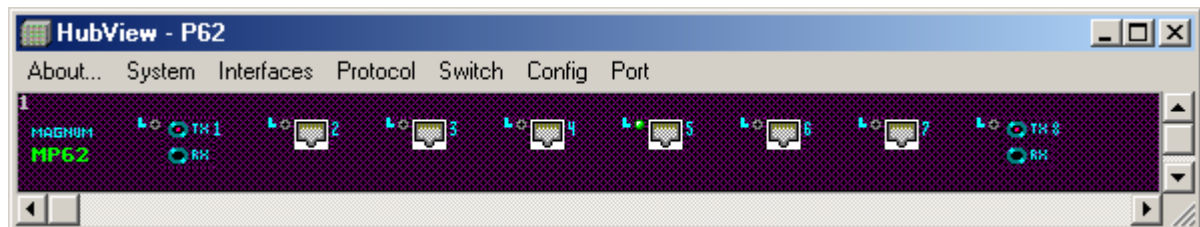
The BitView and HubView can be seen through SNMPc (Management PC Software).

Magnum **mP62**'s that have BitView and HubView definitions can be managed graphically. BitView displays a bitmap image that matches the faceplate of the device, whereas HubView is a more generic view that shows the layout of the device, but always uses the same picture elements. BitView is functionally similar to HubView, but displays a more realistic image of supported devices.

Generally, all the LEDs and other graphical elements available on the device front panel can be displayed with BitView. As with HubView, you can select a device slot or port, and then a menu to operate on the selected item.



mP62: Bitview



mP62: Hubview

2.3.2 SNMP Management Features

SNMP management features on the switch include:

SNMP version 1

Security via configuration of SNMP communities


Event reporting via SNMP

Supported *Standard* MIBs include:

- SNMP MIB-II (RFC 1213)
- Bridge MIB (RFC 1493)
- Version 1 traps (Warm Start, Cold Start, Link Up, Link Down, Authentication Failure,)
- *GarrettCom Proprietary* MIB

3.0 Upgrading the mP62 Software

The mP62 switch allows the software to be upgraded in the field. The software is available in the form of a binary file. It must be downloaded into the switch through the network connection or through the Serial Port Interface.

 **Note:** You must have the network parameters setup properly and telnet access enabled in order to use the network to upgrade the software.

Upgrading the software will not affect the device configuration.

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
System Configuration Menu
      MAC Address                00 20 06 25 50 08
1. System Name
2. System Location
3. System Contact
4. Enable/Disable SNMP Access  ENABLED
5. SNMP Public Comm. Name      public
6. SNMP Private Comm. Name     private
7. Traps Configuration
8. Upgrade Software (Serial/TFTP)
0. Exit This Menu

Enter Selection by number: _
```

3.1 Upgrading through Serial Console

Use the following procedure to upgrade mP62 software through the Serial Console.

Select option **1** to go to The System Configuration screen.

Select option **8** to upgrade software

Answer **Y** to confirm upgrade action.

The switch will prompt to send the binary file through XMODEM protocol (By default through Serial Console). Initiate XMODEM download from your terminal program (e.g. Hyper Terminal or other emulation).

An example of accessing an emulation follows: For *Hyper Terminal*: From the *Menu*, Select **Transfer -> Send File** -> a small popup window opens... use **Browse** button to locate your path to the MNS Software file (e.g. Rel1.0.bin) location, and select the protocol as **Xmodem** from the drop down list, then **click Ok**. (For other emulations, please check your Operating System Software user guide).

The download should start and proceed to download the file. The System will reboot after successful upgrade and will come back to the Login prompt.

NOTE: Please do not interrupt the Magnum mP62 unit or the Desktop PC during the download process. Although you can safely terminate the download anytime and the existing version of the software will continue to be used.

Once download is complete, the switch will check the integrity and signature of the binary file. If it is found to be a certified mP62 binary file with no errors, it will be copied to the Flash memory. The switch will then be reset to start the newly upgraded software.

3.2 Upgrading through Network

Use the following procedure to upgrade mP62 software through the Network

Use a telnet client to connect to the switch. You will need the IP address of the switch to do this. The telnet session exactly resembles the CMI session in all respects. Login using the username *manager* and the appropriate password (Default password is *manager*).

Use the following procedure to upgrade mP62 software through the Network (Remote upgrade).

Select option **1** to go to The System Configuration screen.

Select option **8** to upgrade software

Answer **Y** to confirm upgrade action.

The switch will prompt to send the binary file through TFTP protocol. You have to use the PUT method of TFTP protocol (on TFTP Client) to send the file to the switch.

You can safely terminate the download anytime, and the existing version of the software will continue to be used.

Once download is complete, the switch will check the integrity and signature of the binary file. If it is found to be a certified mP62 binary file with no errors, it will be copied to the Flash memory. The switch will then be reset to start the newly upgraded software.

4.0 Configuration of the software

4.1 Port Menu

The Port menu displays the status of the ports. You can enter the port number for detailed information on the port in another screen. Various port parameters can be configured from the port configuration screen.

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Port Menu

  Port #  Interface  Speed  Duplex  Status
  ----  -
  1      Fiber      100    FDX     DOWN
  2      RJ-45      10     HDX     DOWN
  3      RJ-45      10     HDX     DOWN
  4      RJ-45      10     HDX     DOWN
  5      RJ-45      10     HDX     DOWN
  6      RJ-45      10     HDX     DOWN
  7      RJ-45      10     HDX     DOWN
  8      Fiber      100    FDX     DOWN

Enter Port Number to View/Config or 0 to Exit: _
```

Figure : Port Configuration Menu



Note: All configurations are stored in non-volatile memory, so that the switch boots up with the configurations enabled. This can sometimes lead to confusion, when ports are accidentally disabled. Always check the configuration of the ports and the VLAN configuration if a port appears to be not communicating.

4.2 Switch Configuration Menu

The Switch Configuration Menu allows the user to set various parameters associated with the switch engine. The Spanning Tree Protocol configuration and VLAN configuration are available through their own submenu. The port map for the Link-Loss Learn facility is configured from this menu

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration

  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization          ENABLED
  4. Enable/Disable Telnet Access         DISABLED
  5. Enable/Disable AUTO-MDIX             ENABLED
  6. Address Aging Time                   300
  7. Link-Loss Learn
     Enable on Port Number(s)
  8. Broadcast Filter Percentage          50
  0. Exit this Menu

Enter Selection by number: _
```

Figure : Switch Parameters Menu

4.3 Spanning Tree Protocol Configuration

The mP62 implements the Spanning Tree Protocol (STP) as defined in IEEE802.1D standard. STP ensures that only one network path is active between any two nodes. If more than one physical path exist between any two nodes, the STP will ensure a single active path by blocking all redundant paths. Having more than one active path between nodes will result in loops. A packet getting into the loop will pass around the loop infinitely, resulting in what

is termed as a “broadcast storm” which will bring the network down. STP is necessary in such situations to avoid loops.

When the switch is powered ON, all ports are set to *disabled* state. The STP then arrives at an active configuration by passing messages around the network. The configuration is continuously monitored and updated by passing messages. STP will take 30 seconds to finish the initial configuration. The switch will not pass traffic during this time period.

Note: By default STP disabled.

```

GarrettCom Inc.
Magnum mP62 Hardened Switch
STP Configuration
1. Enable/Disable STP          ENABLED
2. Hello Time                  2
3. Forward Delay               15
4. Max Age                     20
5. Bridge Priority              32768
   Hold Time                   1
   Bridge Id                   00 00 00 20 06 25 50 08
   Designated Root              00 00 00 20 06 25 50 08
   Root Path Cost               0
   Root Port                    0
   Topology Change Count       0
0. Exit This Menu

Enter Selection by number: _
    
```

Figure : STP Configuration

Note: If *Link Loss Learn* feature enabled (See section 4.9), then STP cannot be enabled.

STP has the following parameters for configuration

System parameters that affecting the whole switch. The following system parameters are available for the mP62 switch

Parameter	Default	Range	Description
priority	32768	0 - 65535	Specifies the priority value used along with the switch MAC address to determine which device is root. The lower a priority value, the higher the priority.
maximum-age	20 seconds	6 – 40 seconds	Maximum received message age the switch allows for STP information before discarding the message,
hello-time	2 seconds	1 - 10	Time between messages transmitted when the switch is the root.
forward-delay	15 seconds	4 – 30 seconds	Time the switch waits before transitioning from the listening to the learning state, and between the learning state to the forwarding state.

Port Parameters affect individual ports. The following are the port parameters available for the mP62 switch

Parameter	Default	Range	Description
path-cost	100	1 - 65535	Assigns an individual port cost that the switch uses to determine which ports are the forwarding ports.
priority	128	0 - 255	Used by STP to determine the port(s) to use for forwarding. The port with the lowest number has the highest priority.

4.3.1 Menu Configuring STP from CMI

The values of the parameters, both currently set and the actual value in use, are displayed in the menu screen. All the switches participating in the Spanning Tree use the parameters offered by the root node. The root node is elected by comparing the priority value and the MAC address of all the nodes participating in the Spanning Tree.

The port parameters are configured from the appropriate port menu.

4.4 VLAN Configuration

4.4.1 Port-Based Virtual LANs (Static VLANs)

A VLAN is a group of ports designated by the switch as belonging to the same broadcast domain. (That is, all ports carrying traffic for a particular subnet address would normally belong to the same VLAN.)

The VLAN Configuration submenu allows configuration of up to four port based Virtual LANs. When VLAN is enabled, a port can communicate with another port only if both are member of the same VLAN.

The VLAN membership is entered as a port map as a string containing the port numbers. The system will scan the string and create a port map using the numbers found in the string. The map can be deleted by entering an empty string.

For example 13567, in this case 2,4 and 8 ports have been deleted.

All ports will return to normal mode of operation when the VLAN operation is disabled. The VLAN port maps are, however, remembered and can be brought to effect when the VLAN operation is enabled later.

```

GarrettCom Inc.
Magnum mP62 Hardened Switch
VLAN Configuration Menu

  1. Enable/Disable VLAN
  2. VLAN 1 Member Ports
  3. VLAN 2 Member Ports
  4. VLAN 3 Member Ports
  5. VLAN 4 Member Ports
  0. Exit This Menu

Enter Selection by number: _

ENABLED
12345678 ←

```

Figure: VLAN Configuration Menu

Note: Maximum four VLANs can be configured.

4.5 Quality of Service Configuration

The mP62 switch offers Quality of Service (QoS) as specified in IEEE802.1p standard. Each port of the mP62 has a packet buffer into which the packets destined for that port are placed. The packets in the buffer are then transmitted in a first-in first-out basis. This can create problems by ‘delaying critical’ traffic like audio and video streaming.

When QoS functionality is enabled, the packet buffer for the ports are divided into two. One is treated as high priority and the other as low priority. Packets placed in the high priority buffer will be given preference over those in the low priority buffer for transmission. The switching engine prioritizes each packet and places it in the appropriate buffer.

The priority of a packet can be decided in two ways. The user can specify a particular port to be of high/low priority or a particular packet can be marked as high/low priority using a special tag field inserted into it. The mP62 switch engine will identify the priority from these and place the packet in the appropriate buffer.

4.5.1 QoS Configuration from CMI

The CMI provides two controls for QoS. The QoS functionality can be enabled or disabled from the Switch Parameters menu. The priorities associated with the individual ports are configured from the individual port menu.

```

GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration

  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization
  4. Enable/Disable Telnet Access
  5. Enable/Disable AUTO-MDIX
  6. Address Aging Time
  7. Link-Loss Learn
  8. Broadcast Filter Percentage
  0. Exit this Menu

Enter Selection by number: _

ENABLED
DISABLED
ENABLED
300
50
←
QOS Enable/Disable: '1' to ENABLE '2' to DISABLE: _

```

4.6 Telnet

The Telnet protocol is often thought of simply as a provider for remote logins to computer via the Internet. This was its original purpose although it can be used for many other purposes.

It is best understood in the context of a user with a local computer accessing the local telnet program (known as the client program) to run a login session on a remote computer where his communication needs are handled by a telnet server program running on the remote computer. It should be emphasized that the telnet server can pass on the data it has received

from the client to many other types of processes including a remote login server.

User can disable or enable the Telnet access though CMI.

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration
  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization      ENABLED
  4. Enable/Disable Telnet Access     ENABLED ←
  5. Enable/Disable AUTO-MDIX        ENABLED
  6. Address Aging Time               300
  7. Link-Loss Learn
    Enable on Port Number(s)
  8. Broadcast Filter Percentage      50
  0. Exit this Menu

Telnet Access Enable/Disable: '1' to ENABLE '2' to DISABLE: .
```

4.7 Auto-MDIX Support

mP62 supports auto-MDIX for all the RJ45 Ports globally.

MDI/MDIX is a type of **Ethernet port** connection using **twisted pair** cabling. The MDI (for *medium dependent interface*) is the component of the media attachment unit (**MAU**) that provides the physical and electrical connection to the cabling medium. An MDIX (for *MDI crossover*) is a version of MDI that enables a connection between like devices. MDI ports connect to MDIX ports via straight-through twisted pair cabling; both MDI-to-MDI and MDIX-to-MDIX connections use crossover twisted pair cabling.

User can disable or enable the Auto-MDIX support though CMI for RJ45 Ports.

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration
  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization      ENABLED
  4. Enable/Disable Telnet Access     ENABLED
  5. Enable/Disable AUTO-MDIX        ENABLED ←
  6. Address Aging Time               300
  7. Link-Loss Learn
    Enable on Port Number(s)
  8. Broadcast Filter Percentage      50
  0. Exit this Menu

AUTO-MDIX Enable/Disable: '1' to ENABLE '2' to DISABLE: _
```

4.8 Ageing Time

Users can select the Address table Ageing Time between 10–1000000. The default value is 300.

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration
  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization      ENABLED
  4. Enable/Disable Telnet Access     ENABLED
  5. Enable/Disable AUTO-MDIX        ENABLED
  6. Address Aging Time               300 ←
  7. Link-Loss Learn
    Enable on Port Number(s)
  8. Broadcast Filter Percentage      50
  0. Exit this Menu

Address Aging Time <10..1000000> :
```

4.9 Link-Loss Learn Feature Configuration

The Link-Loss Learn is a unique feature of the mP62. When the link is lost on any port on

which this function is enabled, the address table is reset and the address learning process is re-initiated. This will allow rapid recovery of traffic.

The Link-Loss-Learn feature of the Magnum mP62 Ethernet Switch addresses issues that can occur when mP62's are used in redundant network configurations, such as when Spanning Tree Protocol (STP) is in use. With Link-Loss-Learn, Magnum mP62s are better able to handle some fault recovery situations and they may improve network reliability and provide faster fault recovery accordingly. Without a redundant network topology, the Link-Loss-Learn feature has no significant benefit and should be turned off via the applicable MNS-mP software command. The factory default setting is "off".

For more information on Link-Loss feature, please visit www.garrettcom.com.

The ports on which this capability is to be enabled are entered as a port map. The port numbers are entered in a string. The system will scan the string and collect all valid port numbers in the string and create a port map. If no port numbers are entered in the map, the Link-Loss Learn feature will be disabled.

Examples of input strings:

12345678

87654321

13527864

```
GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration
  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization          ENABLED
  4. Enable/Disable Telnet Access         ENABLED
  5. Enable/Disable AUTO-MDIX            ENABLED
  6. Address Aging Time                   300
  7. Link-Loss Learn
     Enable on Port Number(s)             12345678 ←
  8. Broadcast Filter Percentage          50
  0. Exit this Menu
Port Map (Refer Manual for Format) : 12345678_
```

Note: If STP is enabled, Link Loss Learn cannot be enabled.

4.10 Broadcast Protection

One of the best features of the Magnum mP62 is its ability to keep broadcast storms from spreading throughout a network. Network storms are characterized by an excessive number of broadcast packets being sent over the network. These storms can occur if network equipment is configured incorrectly, network software is not properly functioning, or poorly designed programs (including some network games) are used. Storms can reduce network performance and cause bridges, routers, workstations, servers and PC's to slow down or even crash.

A User can set the Broadcast Filter Percentage (0-100, 0 to Disable). The default value is 50%.

```

GarrettCom Inc.
Magnum mP62 Hardened Switch
Switch Parameters Configuration
  1. STP Configuration
  2. VLAN Configuration
  3. Enable/Disable Prioritization      ENABLED
  4. Enable/Disable Telnet Access     ENABLED
  5. Enable/Disable AUTO-MDIX        ENABLED
  6. Address Aging Time              300
  7. Link-Loss Learn
  8. Broadcast Filter Percentage     1234567
                                     50 ←
  0. Exit this Menu
Broadcast Filter % (0 to Disable) :

```

4.11 IP Address Configuration

The IP Address configuration menu allows the user to configure the network address of the mP62. This is required to enable network access to the device. The values are entered in dotted quad notation. Null IP Address (0.0.0.0) cannot be entered as a value.

Only in this menu, the entered values do not take effect until the values are saved and the switch reset by menu selection **5**. You can discard the values by choosing **0**.



Note: If you are accessing the CMI through the network, and if the IP Address is changed, your connection will be terminated and you will have to initiate another telnet session to the new IP Address.

```

IP Parameters Configuration
  1. Enable/Disable DHCP/Bootp      DISABLED
  2. IP Address in Use              NO IP CONFIGURED
  3. IP Address                    0.0.0.0
  4. NetMask                       255.255.255.0
  5. Default Gateway               0.0.0.0
  6. Save Values and Reset Switch
  7. Discard Values and Exit this Menu
Enter Selection by number: _

```

4.11.1 IP Address and Subnet Mask.

By default, the switch is set to manual IP addressing. To arrange the manual IP addressing, use the CLI to configure the initial IP values. If you want to configure the IP automatically, then enable the DHCP/Bootp server that has been set correctly with information to support the switch and it will auto configure the IP

4.11.2 Default Gateway Operation.

The default gateway is required for tasks such as reaching off-subnet destinations or forwarding traffic across multiple VLANs. The gateway value is the IP address of the next-hop gateway node for the switch, which is used if the requested destination address is not on a local subnet/VLAN. If the switch does not have a manually-configured default gateway and DHCP/Bootp is configured, then the default gateway value provided by the DHCP or Bootp server will be used. If the switch has a manually configured default gateway, then the switch uses this gateway.

4.11.3 Configuring IP Address, Gateway, DHCP

Do one of the following:

_ To manually enter an IP address and subnet mask, set the IP Config parameter to Manual and then manually enter the IP address and subnet mask values you want for the switch.

_ To use DHCP or Bootp, Enable it by choosing option 1 then **restart** the switch. Magnum mP62 will fetch an IP address from the DHCP server.

5.0 Security Features

5.1 Manager and Operator passwords:

You can gain access and privileges for the menu interfaces through either the console port or through the network by using Telnet.

5.2 Console access interface and the CLI.

There are two levels of console access: *Manager* and *Operator*. For security, you can set a password on each of these levels.

5.2.1 Manager

This level allows access to all console interface areas.

Please change the default Manager Password (Default password is *manager*) to limit access of unauthorized people to the configuration area of the console interface.

5.2.2 Operator

This level allows access to the Status but does not allow Configuration capabilities.

On the Operator level, the Configuration Context, Download Application, and Reboot Switch option are not accessible.

5.3 To use password security:

1. Set a Manager password (and an Operator password, if applicable for your system).
2. Exit from the current console session. A Manager password will now be needed for full access to the console. Assuming that both a Manager password and an Operator password have been set, the level of access to the console interface will be determined by which password is entered in response to the prompt. The manager and operator passwords control access to the CMI.

Note: Passwords are case-sensitive.

5.4 CMI: Setting Manager and Operator Passwords

```
Main Menu
  1. System Configuration
  2. Port Menu
  3. Switch Configuration
  4. User/Password Administration ←
  5. IP Parameters Configuration
  6. Log Out
  0. Close Connection

Enter Selection by number: _
```

Users can change or reset the Administrator (Manager) and user passwords through option 4.

5.4.1 Configuring Manager and Operator Passwords

```
GarrettCom Inc.  
Magnum mP62 Hardened Switch  
User/Password Administration  
    1. Administrator Password ←  
    2. User Password  
    0. Exit This Menu  
Enter Selection by number: _
```

This procedure prompts you to enter a password twice to help verify that you have correctly entered the desired characters.

```
GarrettCom Inc.  
Magnum mP62 Hardened Switch  
User/Password Administration  
    1. Administrator Password  
    2. User Password  
    0. Exit This Menu  
Enter New Password: ***** ←  
Re Enter Password: *****
```

User can modify the Administrator password (Option 1) or User Password (Option 2) through this menu.