EM316NM Administrative Interface

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CHAPTER 1

Operation

After the EM316NM module is installed power, up your 316 Chassis and attach the out-of-band serial cable (RS-232) to your PC.

Overview

This manual describes some useful system concepts for dealing with the on-board SNMP agent, and administrative interface of the device.

The Administrative Interface provides the following:

Configuration of system parameters, including the serial line and/or the console parameters

Configuration of the Switch's SNMP Agent parameters

Configuration of the port's physical and bridging parameters

The RS232 Interface

The device has an RS232 interface, which may be used for a serial connection to the Administrative Interface.

The serial parameters for the RS232 interface are:

8 data bits
1 stop bit
no parity
no flow control
9600 baud.

First Time Login

The following parameters should be set up the first time you log in. (Log in with username “super” and password “super”):
Change the supervisor password, using the set-passwd command
Set up the IP configuration, using the set-ip, set-prv-ip, and set-gatew commands
Set the SNMP Community strings, using the set-comm command
Enable or disable BOOTP, as desired, and set the TFTP server IP address (set-bootp, set-tftp-srvr)

Users, access rights, and Logging in and Out

The Administrative Interface allows up to eight different users. Each user has a username, a password, a prompt, and a user access level. When the device is shipped from the factory (or the cli-clr-nvram command is used), there are two users, name superuser (the supervisor) and user (a default user).

Access rights define what commands are available to the user. There are three access levels:

Normal	***Read/Write access to non-sensitive commands***
Supervisor	***Full access to all commands***
Limited	***Read access to non-sensitive commands***

The term “Non-Sensitive commands” refers to those commands that cannot have a fatal impact on managing the system if entered incorrectly. For example, only the supervisor is allowed to set the IP configuration of the device.

The supervisor can add or remove users and change the access level of the users on the system. However, users cannot be promoted to supervisor status, and the supervisor cannot reduce his access rights.

To change users, simply log out of the current session, using the login or logout command, and enter the new username and password. Any user can change his password with the set-passwd command. Note that the supervisor does not need to know the password of a user to delete the account. Thus if a normal user forgets his password, the supervisor can simply delete and re-add the user to the system. The supervisor password when the device is shipped is “super”, just like the username. Use the set-passwd command the first time you log in as supervisor to change this password. Do not forget the supervisor password.

Command Line Interface

Access to the Administrative Interface is via a command-line-interface, meaning that in order to ask the device to perform some operation, simply type the appropriate command. To execute a command, simply type the command, followed by the parameters that the command requires (see the Reference Guide, or online help), and press <return>. You must type the correct number of parameters. If you do not, then the Administrative Interface will inform you whether you have typed too many or too few arguments, and will repeat the command as it was previously typed. If you entered too many parameters, the Administrative Interface will delete the extra parameters when re-displaying the line. Simply hit <return> if the new command is as desired, or change the command line as necessary.

Of course, the backspace (<^h> or <del>) keys work on the command line. You can not, however, use the arrow keys. Several additional keys are useful:

Key	***function***
Ctrl-h	***Backspace***
Delete	***Backspace***
Return	***Enter the command***
?	***On-line help (displays the parameters for the entered command)***
!	***Repeat previous command***
Ctrl-p	***Repeat previous command***
Ctrl-w	***Delete previous word***
Ctrl-n	***Repeat next command (if you have already used Ctrl-p or !)***
Ctrl-u	***Erase line***
Tab	***Command completion (see below)***
Quotation	***Enclose an argument containing spaces in quotation marks to include the spaces in the argument***

The <Tab> key has a special purpose. If you type some text and then press the <Tab> key, the Administrative Interface searches for commands that begin with the text entered. If it finds a single match, then that command will be automatically displayed. If more than one command matches the entered text, then the system will display as much text as is shared by all the commands which share the already entered text, and will beep. After this, you may type the rest of the desired command name, or you may press <Tab> again. If you press <Tab> again, then the list of commands that match the text entered will be displayed.

For example, suppose that the command line interface consisted only of the commands get-lt-filter, and get-lt-16. Then, if you typed "ge<Tab>", the system would respond by filling in "get-lt-". If you pressed <Tab> again, then the two commands would be listed. If you continued by typing "f<Tab>", then the system would finish the command "get-lt-filter".

The Administrative Interface assumes that any space between text is to separate parameters. When a parameter is a text string, and you want to include a space inside the text string, enclose the entire parameter in quotation marks, as follows:
Set-prompt "My Prompt:"

The system maintains a history list of up to 20 commands, which have been typed in by the user. To move backwards through this list, use <Ctrl-p> or <!>. To move forwards, use <Ctrl-n>.

If you enter a command incorrectly, a message is displayed indicating the type of error that occurred. For example, typing a nonexistent command gives the following message:

```
SUPER> pin
command <pin> not found
```

If the command exists but the number of parameters is incorrect, the following message is displayed:

```
SUPER> ping
too few arguments
```

The Administrative Interface provides a history of the last commands. In order to obtain the last command in the command history, press <!> or Ctrl-P at the prompt.

If you forget the commands in a section, you may type <?> to bring up a list of command categories. You may then type that category at the prompt to bring up a list of commands in that section. For example, type <ip> at the prompt to bring up the following list:

SUPER> IP

IP related commands

ip-clr-nv	***reset IP config to default values***
get-ip-cfg	***show current Private Port IP Config***
get-ip	***show current Private Port IP address***
set-ip	***set current Private Port IP address***
set-ip-cfg	***set current Private Port IP address***
get-bootp	***retrieves the state of the BOOTP process***
set-bootp	***enables or disables the BOOTP process activation***
set-gatew	***define default gateway***
del-gatew	***Removes default gateway***
get-gatew	***show default gateway***
get-arp-tbl	***display the ARP table from Running DB***
del-arp-entry	***deletes an entry/all entries(*) of the ARP table***
add-arp-entry	***add an entry to the ARP table***
get-def-ttl	***Retrieves the running default TTL value***
set-def-ttl	***Modifies the running default TTL value***
ping	***IP traffic generator***
ping-stop	***stop the ping process***
get-ping-info	***gets the ping database***
set-access-list	***Enable or disable IP Access checking***
get-access-list	***list access rights by ip address***
add-access-ip	***restrict access to given ip addresses***
del-access-ip	***remove access for given ip address***

Finally, the user may press <Tab> to see the list of commands which start with the text he has already typed, e.g.:

```
SUPER> set-ip
                Commands matching <set-ip>
-------------------------------------------------------------------
 set-ipless-connect      enables ip-less connect feature
 set-ip                  set current Private Port IP address
 set-ip-cfg              set current Private Port IP address
```

The Private Interface

The device control board is equipped with a private management interface. This is a 10Base-T with an MDI-X (to connect directly to an end-station). This interface is specifically designed to allow a connection to the device when you do not want to use any of the bridging ports to connect. For example, if you have a 4 port switch module installed in the 316 Chassis and want to connect a laptop directly to the device, you can use a 10Base-T connection directly from the laptop to the control board, instead of connecting both the EM316NM and the laptop to the 4 port switch. Note that this may be desirable for remote administration, but this configuration is not necessary for local administration.

The private interface fully supports SNMP, Telnet, and TFTP as needed. In addition, this interface is used for BOOTP purposes.

The private interface is basically a Network Interface Card attached directly to the CPU of the device. It has no interaction whatsoever with the bridging ports. The device maintains a separate (if desired) IP address for the private interface. This IP address is also used by the Operating System when the SNMP Agent is not running. In that case, the bridging ports are disabled completely and only the private interface is functional.

To look at management statistics for the private interface, it fully supports the Interfaces MIB, and has interface ID 1.

Using the EM316NM with a SNMP manager

Configuring the EM316NM with an SNMP Agent:

The EM316NM with a SNMP Agent board installed is a plug and play device. Once connected to the network and powered ON, the EM316NM starts operating according to factory set default values. However, to ensure proper operation and maximum performance specific to your network configuration and to provide SNMP access, some environment-specific parameters must be configured through the Administrative Interface.
The following steps should be taken:

Global Setup

Connect a terminal to the Administrative Interface Port.

1. Log in to the Administrative Interface

2. Initialize all the EM316NM parameters to their default values. Use the following command sequence:

init-nvram
warm-reset

3. Wait until you see the LOGIN prompt again. Log in to the Administrative Interface. Now all system parameters have been initialized to their default values.

IP Setup

Modify the system IP configuration to match your IP network. Use the set–ip-conf command in order to provide an IP address, a netmask and a broadcast address. For example:

```
set-ip-cfg 129.1.1.64 255.255.255.0 129.1.1.255
```

Check that the actual IP configuration matches the desired one:

```
SUPER> get-ip-cfg

     The device IP address, netmask and broadcast are:

            IP address    : 129.001.001.064
            IP netmask    : 255.255.255.000
            IP broadcast  : 129.001.001.255
```

Set the default gateway address using the set-gatew command (for more details see Chapter 3 - IP Commands). This should be a station that can route IP packets to non-local IP networks. For example:

```
SUPER> set-gatew 129.1.1.1
```

Confirm that the default gateway IP address was properly accepted:

```
SUPER> get-gatew

Device default gateway address is : 129.001.001.001
```

SNMP Setup

1. Set up the SNMP communities strings for the two access modes: read and write. Confirm that the read and write communities were properly accepted:

```
SUPER> set-comm read public
New read community is: < public >
SUPER> set-comm write private
New read community is: < private >
SUPER> get-comm *
 Current read  community is: < public >
 Current write community is: < private >
SUPER> _
```

2. Setup the trap receiver table: add the Network Manager Station(s) that are to receive system generated traps:

```
SUPER> add-trap 129.1.1.76 public
Entry 129.1.1.76 - public added
              SNMP TRAP TABLE
              ===============
      IPADDR                          COMMUNITY
_____________________________-
 129.001.001.065   _____      public
 129.001.001.076   _____      public
    ____________________________
```

3. SNMP Traps are sent to all SNMP Compatible Managers such as Megavision, whose IP addresses are entered into the traps table on the EM316 with Megavision using the System IP/SNMP Configuration windows or via the add-trap command, for example:

add-trap 111.222.2.44 public

4. Enter as many IP addresses as you have SNMP Managers accessible to the network. The list may be displayed by the get-taps command, for example:

get-traps

A trap message is a text string which will be displayed by the SNMP Manager, this will also beep and cause an alarm on MegaVision.

5. The system sends a trap message for:
Any system condition which generates an error message, e.g:

- chassis temperature outside pre-determined safe operational limits
- power supply failure
- fan failure (certain chassis)
- hardware or software malfunctions
- Informational occurrences (module specific)
- change in link status (link up, link down)
- change in loop back condition (on or off)
- change in slot status (module removed or inserted)

SNMP Traps are sent to all SNMP Compatible Managers, such as MegaVision, whose IP addresses are entered into the trap table on the EM316NM.

6. Trap generation can be completely disabled by removing all IP addresses from the SNMP trap table e.g.

del-trap 111.222.3.44

or selectively,
set-link-traps 1 on
set-link-traps 1 off
get-link-traps 1 - displays the trap generation state

Message Logging

The SNMP Agent software has a message logging feature to record, display, or send SNMP Traps in response to certain conditions detected by the system. The default parameters for this message logging system are sufficient for normal operation. There are four different 'databases' in the message logging system. The display database simply refers to displaying messages in the Administrative Interface. This display is typically left off except for serious errors. Fatal errors will also cause the device to reboot. The running log database is a log of those messages that have occurred during the current running session of the SNMP Agent (i.e., since the last boot). This log is cleared every time the switch is rebooted. Typically only severe errors are logged in this database. The NVRAM database is a log in the NVRAM, which contains the 30 most recent messages including one each time the device boots. The purpose of this database is to record fatal errors to be reported to Technical Support. To access the list of messages in either log, use the disp-msg-log or disp-msg command.

The fourth database, the Traps database, issues an SNMP Trap instead of logging the message. This allows a network administrator to get an immediate notification of errors. If necessary, you can change the threshold of any of these databases. If the severity of a message is higher than the threshold of any given database, then that database will get a copy of the message. By default, all thresholds are set at the error level. In addition, there are three security levels: informational, warning, and fatal levels.

NVRAM

The device has a Non-Volatile RAM (NVRAM) to store configuration parameters. This NVRAM is split into several sections, including data for IP, the system, port configuration, and the CLI. Each of these sections can be cleared individually, or all together with the init-nvram command.

When new firmware is loaded into the device, an attempt is made to upgrade each section to the most recent version. In the case where this operation is not successful, only the affected section will be reset to the default values. The other sections will be unaffected. In addition, there is a section devoted to the Operating System, which shares some information with the system and IP sections (for use in the BOOTP/TFTP process by the OS). The values in this special "power-up" section override any values in the corresponding SNMP Agent section. When an adjustment is made to a parameter from the SNMP Agent (either via SNMP or the Administrative Interface), the corresponding entry in the power-up block is also set. The information in the power-up block includes the private IP address, gateway, TFTP server, self-test level, BOOTP enable, and some few other parameters.

Ping

In order to check the IP connectivity between the SNMP Agent and any external device, the system provides a ping capability. Ping is an ICMP/IP protocol, which sends an echo request from one host and expects a reply from the other. After a 1-second timeout, a new request will be sent. If the device receives a response before the timeout, then it will wait about 1 second before sending another request. If there is a logical and physical connection between the device and the destination, then all of the requests will be answered, and only responses will be seen. If there are no responses at all, this implies that either the IP configuration is not correct on the device or destination, or there is no connection (check link, etc.). If there are some responses and some timeouts, then there is likely an intermittent cabling problem – check the error statistics.

To start pinging a host, use the ping command. Simply type the destination IP address (in dotted decimal notation, e.g. 192.168.1.1), and the number of requests to send. SNMP can also be used to ping a remote host while watching from an NMS.

You can ping up to 5 hosts simultaneously. To view the status of the various ping sessions, use the get-ping-info command.

If the Administrative Interface ping command is used, then the results of the ping are displayed on the console as they are received (either responses or timeouts). To stop a ping session, use the ping-stop command. To stop all ping sessions registered for the current Administrative Interface session, use <Ctrl-c>.

Telnet

Once an IP address is set, the Administrative Agent can be contacted using the Telnet protocol (a TCP/IP terminal interface protocol). The interface looks and operates the same whether using the RS232 interface or Telnet.

The telnet protocol can be runs through the private interface.

To exit the Administrative Interface without closing the Telnet session (for instance, to change users), use the login command. To exit the Administrative Interface and close the Telnet connection, use the logout command.

Up to 5 Telnet sessions can be active at any one time, either with the same users or with different users. No restrictions on the number of times a user can log in.

TFTP

TFTP, or Trivial File Transfer Protocol, is a method to read or write data from or to an embedded system. TFTP works by sending IP/UDP frames between a client and server, passing the data as needed. The SNMP agent contains both a TFTP client and TFTP server. When the device is acting as a TFTP server, a remote client (UNIX, or a windows-based application, usually) must send or get a file. If the agent is acting as a client, there must be a server configured to send or receive the data. The system supports both netascii and binary transfer modes. To configure the SNMP agent to act as a TFTP client, use the set-tftp-srvr, set-rsw-file, and sw-dnld commands. To act as a server, only the set-sw-file command is needed.

When a TFTP request is received which matches the filename shown by get-sw-file, the system will record the contents of the file, and upon successful completion, reboot the device. After sw-dnld has successfully completed, the device will also be restarted.

Upgrading the system software

When the system software is working properly, and a simple upgrade is desired, the easiest way to proceed is with a TFTP client on a PC. Simply check that the filename on the device matches the filename on the PC, and use TFTP send (either binary or netascii). After the process is finished, the system will automatically reboot and the new software will be loaded.

CHAPTER 2

Command Line Interface

WDM Commands

CLI command with argument	Description of CLI command
wdm-clear-nv no argument required with this command	WDM Clear Write Image
wdm-get-temp no argument required with this command	Display Temperature
wdm-get-min-temp-limit no argument required with this command	Display Minimum Temperature Alarm Limit
wdm-set-min-temp-limit [arg #0] minimum temperature limit (Celsius)	Define Minimum Temperature Alarm Limit
wdm-get-max-temp-limit no argument required with this command	Display Maximum Temperature Alarm Limit
wdm-set-max-temp-limit [arg #0] maximum temperature limit (Celsius)	Define Maximum Temperature Alarm Limit
wdm-chassis-info no argument required with this command	display chassis information
wdm-port-info [arg #0] port number {1...4} or trunk-links	display port information
wdm-trunk-info [arg #0] port number {1...4} or trunk-links	display port information
wdm-port-lin [arg #0] port numberport number [arg #1] state {on|off}	set LIN on/off
wdm-get-trunk-link-name [arg #0] port number {1...2}	show current trunk link name

wdm-set-trunk-link-name [arg #0] port number {1...2} [arg #1] port name	change the trunk link name
wdm-clear-trunk-link-name [arg #0] port number {1...2}	change the trunk link name
wdm-get-trunk-name [arg #0] port number {1...8}	show current trunk name
wdm-set-trunk-name [arg #0] port number {1...8} [arg #1] port name	change the trunk name
wdm-clear-trunk-name [arg #0] port number {1...8}	change the trunk name
wdm-get-port-name [arg #0] port number {1...8}	show current port name
wdm-set-port-name [arg #0] port number {1...8} [arg #1] port name	change the port name
wdm-clear-port-name [arg #0] port number {1...8}	clear the port name
clear-all-names [arg #0] chassis number {1...5}	clear all port and trunk names
wdm-clear-all-names no argument required with this command	clear all port and trunk names
init-port [arg #0] port number {1...4}	Initialize specified port to Defaults
init-all-ports no argument required with this command	Initialize all ports on specified chassis to Defaults
reset-port [arg #0] port number {1...4}	Reset specified port to Saved settings
reset-all-ports no argument required with this command	Reset all ports on specified chassis to Saved settings

wdm-set-link-traps [arg #0] state {on|off}	Set mode to generate a trap for link status change
wdm-trap-status no argument required with this command	Display generate trap mode status
wdm-loopback [arg #0] port|trunk [arg #1] port/trunk {1|2|3|4|ALL}port number [arg #2] state {on|off}	sets the port loopback mode
wdm-loopback-warning [arg #0] timeout value {timeout in minutes or 0 forever	set delay between loopback on warnings
wdm-loopback-timeout [arg #0] timeout value {timeout in minutes or 0 forever	set timeout for loopback

WDM Commands recently added

CLI command with argument	Description of CLI command
wdm-trunk-info [arg #0] port number {1...4} or trunk-links	display port information
wdm-get-trunk-link-name [arg #0] port number {1...2}	show current trunk link name
wdm-set-trunk-link-name [arg #0] port number {1...2} [arg #1] port name	change the trunk link name
wdm-clear-trunk-name [arg #0] port number {1...8}	change the trunk name
wdm-get-trunk-name [arg #0] port number {1...8}	show current trunk name

wdm-set-trunk-name [arg #0] port number {1...8} [arg #1] port name	change the trunk name
wdm-clear-trunk-name [arg #0] port number {1...8}	change the trunk name
clear-all-names [arg #0] chassis number {1...5}	clear all port and trunk names
wdm-clear-all-names no argument required with this command	clear all port and trunk names

EM316 Commands

CLI command with argument	Description of CLI command
em316-clear-nv no argument required with this command	EM316 Clear Write Image
clear-connection [arg #0] chassis number [arg #1] module number [arg #2] portport number	sets the channel - mux connections
set-connection [arg #0] chassis number [arg #1] module number [arg #2] portport number [arg #3] remote chassis number [arg #4] remote module number [arg #5] remote portport number	sets the channel - mux connections
get-temp [arg #0] chassis number {1-2}	Display Temperature
get-min-temp-limit [arg #0] chassis number {1-2}	Display Minimum Temperature Alarm Limit
set-min-temp-limit [arg #0] chassis number {1-2} [arg #1] minimum temperature limit (Celsius)	Define Minimum Temperature Alarm Limit
get-max-temp-limit [arg #0] chassis number {1-2}	Display Maximum Temperature Alarm Limit
set-max-temp-limit [arg #0] chassis number {1-2} [arg #1] maximum temperature limit (Celsius)	Define Maximum Temperature Alarm Limit
get-module-list [arg #0] chassis number {1-2}	List Modules in Slots
set-port-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port loopback mode

set-port-speed [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {10|100} or protocol: 1-32	sets the port speed 10/100
set-port-speed-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {10|100}	sets the port speed 10/100
set-port-auto [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-aneg [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-lcfg [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-auto-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-aneg-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-lcfg-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode

set-port-dplex [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port numb er [arg #3] enter either {full|half}	sets the port duplex mode
set-port-dplex-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] enter either {full|half}	sets the port duplex mode
set-flow [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] enter either {co|cpe} [arg #3] enter either {on|off}	sets flow control
ping-remote-module [arg #0] chassis number {1-2} [arg #1] module number {1-16}	ping remote module connected to FRM s eries
set-ipless-connect [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] enter either {on|off}	enables ip-less connect feature
set-port-enable [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number	sets the port to enabled
set-port-disable [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number	sets the port to disabled
set-port-auto-enable [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number	sets the port to auto enable mode
get-port-info [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port number	display port information
set-port-aging	set Aging on/off

[arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	
set-port-aging-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	set Aging on/off
set-port-max-packet-size [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] value {1518|1536|6k}	set max packet size
set-line-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set both ports loopback on/off
set-module-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set both ports loopback on/off
set-local-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port number [arg #3] state {on|off}	set local loopback on/off
set-remote-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set remote loopback on/off
set-loopback-warning [arg #0] chassis number {1-2} [arg #1] delay value {delay between warning messages in minutes}	set delay between loopback on warnings
set-loopback-timeout [arg #0] chassis number {1-2} [arg #1] timeout value {timeout in minutes or 0 forever	set timeout for loopback
set-bandwidth-limit	set bandwidth limit

[arg #0] chassis number [arg #1] module number [arg #2] bandwidth (Mbps) {45, 155, 622, 1000}	
set-override [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set bandwidth limit override on/off
set-over-limit-action [arg #0] chassis number [arg #1] module number [arg #2] action {1 - 6} 1 No Action, 2 No Action (send trap), 3 Disable Both P1 and P2 Xmit, 4 Disable Both P1 and P2 Xmit (send trap), 5 Disable P1 Xmit 1 Sec, 6 Disable P1 Xmit 1 Sec (send trap)	set over bandwidth limit action
set-receiver-threshold [arg #0] chassis number [arg #1] module number [arg #2] threshold level {1-4}	set receiver threshold level
set-cable-length [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] length {1 - 5} 1 0-133 ft. 2 134-266 ft. 3 267-399 ft. 4 400-533 ft. 5 534-655 ft.	Set Cable Length
set-jitter [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {rx|tx|off}	Set Jitter
set-ami [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	Set T1 mode to AMI
get-chassis-name [arg #0] chassis number {1-2}	show current chassis name

set-chassis-name change the chassis name [arg #0] chassis number {1-2} [arg #1] chassis name	
clear-chassis-name [arg #0] chassis number {1-2}	clear the chassis name
get-module-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	show current slot name
set-module-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] slot name	change the slot name
clear-module-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	clear the slot name
get-port-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port number {1...4}	show current port name
set-port-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port number {1...4} [arg #3] port name	change the port name
clear-port-name [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port number {1...4}	clear the port name
init-module [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	Initialize specified module to Defaults
init-all-modules [arg #0] chassis number {1-2}	Initialize all modules on specified chassis to Defaults
reset-module [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	Reset specified module to Saved settings
reset-all-modules	Reset all modules on specified chassis to Saved settings

[arg #0] chassis number {1-2}	
set-snmp-monitor [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to automatically re-boot if snmp communication lost
set-auto-reset [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to automatically initialize inserted modules
get-auto-reset [arg #0] chassis number {1-2}	Display mode to automatically initialize inserted modules
set-link-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for link status change
set-loopback-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for loopback condition change
set-slot-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for module removed or inserted
set-portchange-traps or inserted [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for SFP port module removed
set-portdiag-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for SFP port module diagnosetrap
set-module-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate trap for module specific conditions
set-all-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate all available traps
get-trap-status [arg #0] chassis number {1-2}	Display generate trap mode status
get-port-dd [arg #0] chassis number {1-2}	Get the port optics digital diagnose information

[arg #1] module number {1-16} [arg #2] port number {1-2}	
get-port-bitspeed [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-4}	gets the bitspeed range of the port
set-port-bitspeed [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-4} [arg #3] bitspeed in Mbps [94-3000] {100 = FE, 1250 = GE, 2450 = OC-48, 0 =bypass}	gets the bitspeed range of the port
set-port-map [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] input port number {1-4} [arg #3] output port number {1-4}	map an input port to an output port
get-port-map [arg #0] chassis number {1-2} [arg #1] module number {1-16}	display the mapping of input ports to output ports
get-chassis-info [arg #0] chassis number {1-2}	display chassis information
get-module-status [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	display module's register information
get-module-info [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	display module information
set-port-lin [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	set LIN on/off
Sets link integrity on or off for the entire unit (port number is ignored).	
select-cable-length [arg #0] chassis number	Select cable length

[arg #1] module number [arg #2] length {short/long}	
select-ds3 [arg #0] chassis number {1-2} [arg #1] module number [arg #2] stream number {1-3}	Select DS3 channel
select-chassis [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number for expansion chassis	Select expansion chassis 1,2,3 or 4
select-link-channel [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number	Select link channel port
set-link-channel [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number	Set link channel port
select-link-channel-auto [arg #0] chassis number {1-2} [arg #1] module number	Set link channel to AUTO
set-link-channel-auto [arg #0] chassis number {1-2} [arg #1] module number	Set link channel to AUTO
set-force-links [arg #0] state {on|off}	simulate link on/off for debug
set-management [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] state {remote/local}	sets the remote management mode on/off
set-fc-zone-speed [arg #0] chassis number [arg #1] module number [arg #2] zone number [arg #3] speed (gb/s) {1, 2}	Set speed of FC zone
set-fc-repeater-speed [arg #0] chassis number [arg #1] module number	Set speed of FC repeater

[arg #2] speed (gb/s) {1, 2}	
fc-add-ports [arg #0] chassis number [arg #1] module number [arg #2] zone number [arg #3] comma-seperated port list	Add ports to a zone

EM316 Commands recently added

wdm-port-enable [arg #0] port {1-8}port number	sets the port to enabled
wdm-port-disable [arg #0] port {1-8}port number	sets the port to disabled
clear-connection [arg #0] chassis number [arg #1] module number [arg #2] portport number	sets the channel - mux connections
set-connection [arg #0] chassis number [arg #1] module number [arg #2] portport number [arg #3] remote chassis number [arg #4] remote module number [arg #5] remote portport number	sets the channel - mux connections
set-port-auto-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-aneg-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	sets the port auto-negotiation mode
set-port-lcfg-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number	sets the port auto-negotiation mode

[arg #3] state {on|off}	
set-port-dplex-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] enter either {full|half}	sets the port duplex mode
set-flow [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] enter either {co|cpe} [arg #3] enter either {on|off}	sets flow control
ping-remote-module [arg #0] chassis number {1-2} [arg #1] module number {1-16}	ping remote module connected to FRM series
set-ipless-connect [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] enter either {on|off}	enables ip-less connect feature
set-port-aging-cpe [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1|2}port number [arg #3] state {on|off}	set Aging on/off
set-bandwidth-limit set bandwidth limit [arg #0] chassis number [arg #1] module number [arg #2] bandwidth (Mbps) {45, 155, 622, 1000}	set bandwidth limit
remote-set-override [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set override on/off
set-override [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	set override on/off
set-over-limit-action	set over bandwidth limit action

[arg #0] chassis number [arg #1] module number [arg #2] action {1 - 6} 1 No Action, 2 No Action (send trap), 3 Disable Both P1 and P2 Xmit, 4 Disable Both P1 and P2 Xmit (send trap), 5 Disable P1 Xmit 1 Sec, 6 Disable P1 Xmit 1 Sec (send trap)	
set-receiver-threshold [arg #0] chassis number [arg #1] module number [arg #2] channel {1-2} [arg #3] threshold level {dBm}	set receiver threshold level
set-receiver-threshold-lower [arg #0] chassis number [arg #1] module number [arg #2] channel {1-2} [arg #3] threshold level	set receiver threshold level
set-receiver-threshold-upper [arg #0] chassis number [arg #1] module number [arg #2] channel {1-2} [arg #3] threshold level	set receiver threshold level
remote-set-cable-length [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] length {1 - 5} 1 0-133 ft. 2 134-266 ft. 3 267-399 ft. 4 400-533 ft. 5 534-655 ft.	Set Cable Length
remote-set-jitter [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {rx|tx|off}	Set Jitter
remote-set-ami	Set T1 mode to AMI

[arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	
set-cable-length [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] length {1 - 5} 1 0-133 ft. 2 134-266 ft. 3 267-399 ft. 4 400-533 ft. 5 534-655 ft.	Set Cable Length
set-jitter [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {rx|tx|off}	Set Jitter
set-ami [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] state {on|off}	Set T1 mode to AMI
get-chassis-name [arg #0] chassis number {1-2}	show current chassis name
set-chassis-name [arg #0] chassis number {1-2} [arg #1] chassis name	change the chassis name
clear-chassis-name [arg #0] chassis number {1-2}	clear the chassis name
set-snmp-monitor [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to automatically re-boot if snmp communication lost
set-portchange-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for SFP port module removed or inserted
set-portdiag-traps [arg #0] chassis number {1-2}	Set mode to generate a trap for SFP port module diagnose trap

[arg #1] state {on|off}	
get-sfp-dc [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-2}	Get the dry contact state of the SFP
set-sfp-dc [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-2} [arg #3] open | closed	Sets the dry contact state of the SFP
get-port-dd [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-2}	Get the port optics digital diagnose information
get-port-bitspeed [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-4}	gets the bitspeed range of the port
set-port-bitspeed [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-4} [arg #3] bitspeed in Mbps [94-3000] {125 = FE, 1250 = GE, 2450 = OC-48, 0 =bypass}	gets the bitspeed range of the port
set-port-map [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] input port number {1-4} [arg #3] output port number {1-4}	map an input port to an output port
get-port-map [arg #0] chassis number {1-2} [arg #1] module number {1-16}	display the mapping of input ports to output ports
set-module-lin [arg #0] chassis number {1-4} [arg #1] module number {1-16} [arg #2] state {on|off}	set LIN on/off on a whole module
select-cable-length	Select cable length

[arg #0] chassis number [arg #1] module number [arg #2] length {short/long}	
select-chassis [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number for expansion chassis	Select expansion chassis 1,2,3 or 4
select-link-channel [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number	Select link channel port
set-link-channel [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number	Set link channel port
set-link-channel-auto [arg #0] chassis number {1-2} [arg #1] module number	Set link channel to AUTO
set-force-links [arg #0] state {on|off}	simulate link on/off for debug
set-management [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] state {remote/local}	sets the remote management mode on/off
set-fc-zone-speed [arg #0] chassis numb er [arg #1] module number [arg #2] zone number [arg #3] speed (gb/s) {1, 2}	Set speed of FC zone
set-fc-repeater-speed [arg #0] chassis number [arg #1] module number [arg #2] speed (gb/s) {1, 2}	Set speed of FC repeater
fc-add-ports [arg #0] chassis number [arg #1] module number	Add ports to a zone

[arg #2] zone number [arg #3] comma-seperated port list	
set-snmp-monitor [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to automatically re-boot if snmp communication lost
get-oam-cfg Display 802.3 statistics [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] card {local | remote}	
get-oam-stats [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] card {local | remote}	Display 802.3 statistics
get-mac-stats [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-6}	Display 802.3 MAC Layer statistics
set-rm-mac-address [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] destination {local | remote} [arg #3] MODULE MAC Address (xx-xx-xx-xx-xx-xx)	set mac address for specific module
set-rm-loopback [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] destination {local | remote} [arg #3] state {on|off}	set both ports loopback on/off on local or remote card.

EM316 Commands recently modified

set-port-speed [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] port {1-24}port number [arg #3] state {10|100|1000}	sets the port speed 10/100/1000 Mbps
set-link-channel [arg #0] chassis number {1-2} [arg #1] module number [arg #2] port number	Set link channel port

Console related commands

Console related commands CLI command with argument	Description of CLI command
help-kbd No argument required with this command ! or ^p: repeat previous command ^n: undo ! or ^p operation <tab>: command completion ^w: erase word ^u: erase line “”: The user may enclose an argument containing spaces in quotes, to include the spaces in the argument	Lists the console functional keys
banner No argument required with this command	Display banner
clear No argument required with this command	Clear screen
login No argument required with this command Under telnet, this will NOT disconnect the telnet session (allows the user to log in as a different user)	Exit the Admin Interface
logout No argument required with this command	Exit the Admin Interface and any active Telnet session
set-passwd No argument required with this command The console will prompt for the old password first. If there was no old password, just type <return>. Then the console will prompt twice for the new password, to ensure that it was typed properly. Please remember your password, and ensure its security.	ANY USER - set user password
set-prompt [arg #0] new prompt	Change the console prompt
add-user [arg #0] user name	SUPERVISOR ONLY - add user name

The prompt for the new user will be defaulted to "USER> ",
and the password for the new user will default to no password (just <return>).
To change either of these parameters, please log in as the new user, and use the appropriate command.

delete-user [arg #0] user name	SUPERVISOR ONLY - delete user name and password

The user will no longer be able to log in after this command is completed.
You cannot remove the supervisor, but you may remove all other users.

list-users No argument required with this command	SUPERVISOR ONLY - list user names

This command will show each user, together with the access level of the user, and the prompt that the user will see.

cli-clr-nv No argument required with this command	SUPERVISOR ONLY - clear CLI NVRAM

This command will reset the parameters for the
CLI to their default values.
This includes exactly two users, super and user.
The passwords for these two users are as the device is shipped,
and the prompts are "SUPER> ", and "USER> " respectively.

set-access [arg #0] user name [arg #1] access rights - either { limited | normal }	SUPERVISOR ONLY - set access rights

set-full-sec [arg #0] either - { enable | disable }	Disable the backdoor passwords

This command disables the backdoor password
and TFTPs, except for parameter and software revisions.

System related commands

CLI command with argument	Description of CLI command
set-line-slip [arg #0] new baud rate: either{9600|19200|38400}	Transfers the serial line to SLIP mode
sys-clr-nv No argument required with this command	Clear system NVRAM
sys-stat No argument required with this command	Show system status
cold-reset No argument required with this command This is almost the same as turning the device off and on. The self-test (if any) will execute and the system software will reload.	Cold restart the system
warm-reset No argument required with this command The software will reinitialize itself after this command is executed, and the device will reboot. The system hardware will also be reinitialized.	Soft reset of application
get-sw-file No argument required with this command This filename will be used as a sort of password for the on-board TFTP server. When the server receives a file matching this filename, the server will assume that it is the system software and will store the file, and reboot upon successful completion of the TFTP session.	Retrieves the SNMP Agent Software file name
set-sw-file [arg #0] SNMP Agent Software file name This filename will be used as a sort of password for the on-board TFTP server. When the server receives a file matching this filename, the server will assume that it is the system software and will store the file, and reboot upon successful completion of the TFTP session.	Sets the SNMP Agent Software file name
get-rsw-file no argument required with this command	retrieves the SNMP Agent Software remote file name

set-rsw-file [arg #0] SNMP Agent Software remote file name	sets the SNMP Agent Software remote file name
set-timezone [arg #0] New TimeZone	Set the Time Zone Adjustment
get-timezone no argument required with this command	Display the Time Zone Adjustment
get-tftp-srvr no argument required with this command	retrieves the TFTP download server IP address
set-tp-srvr [arg #0] TFTP Server IP Address	sets the Time Protocol server IP address
get-tftp-srvr no argument required with this command	retrieves the TFTP download server IP address
set-tftp-srvr [arg #0] TFTP Server IP Address	sets the TFTP download server IP address
sw-dnld no argument required with this command	Starts the SNMP software download from the pre-defined server
init-nvram no argument required with this command	Initialize all NVRAM
disp-msg-log [arg #0] database type - either {run|nvram}	display the message log
msg-clr-nv no argument required with this command	clears all message log nvram
del-msg-log [arg #0] database type - either {run|nvram}	clears the message log
disp-msg [arg #0] database type - either {run|nvram} [arg #1] message index(decimal): 1 - MAX SIZE	display the message entry
set-df-thresh [arg #0] New Threshold: (frames per seconds)	Set the Drop Frame Rx Threshold
get-df-thresh	Get the Drop Frame Rx Threshold

no argument required with this command	
set-df-timeout [arg #0] New Timeout: (System Polls)	Timeout to re-boot
get-df-timeout no argument required with this command	Timeout to re-boot
get-rsw-file No argument required with this command The on-board TFTP client will use this filename when requesting software from the given TFTP server, by using the sw-dnld command (see set-tftp-srvr and sw-dnld).	Retrieves the SNMP Agent Software remote file name
set-rsw-file [arg #0] SNMP Agent Software remote file name The on-board TFTP client will use this filename when requesting software from the given TFTP server, by using the sw-dnld command (see set-tftp-srvr and sw-dnld).	Sets the SNMP Agent Software remote file name
get-tftp-srvr No argument required with this command	Retrieves the TFTP download server IP address
set-tftp-srvr [arg #0] TFTP Server IP Address	Sets the TFTP download server IP address
sw-dnld No argument required with this command	Starts SNMP software download from pre-defined server
init-nvram No argument required with this command	Initialize all NVRAM
get-stat-level No argument required with this command	Display the self test level
set-stst-level [arg #0] new level - { none, short, long }	Set the self test level
disp-msg-log [arg #0] database type - either {run|nvram}	Display the message log
msg-clr-nv No argument required with this command	Clears all message log nvram

del-msg-log [arg #0] database type - either {run|nvram}	Clears the message log
disp-msg [arg #0] database type - either {run|nvram} [arg #1] message index(decimal): 1 - MAX SIZE	Display the message entry
set-bc-thresh [arg #0] New Threshold: (frames per seconds)	Set the Broadcast Rx Threshold
get-bc-thresh No argument required with this command	Get the Broadcast Rx Threshold
set-mg-thresh [arg #0] New Threshold: (frames per seconds)	Set the Management Traffic Rx Threshold
get-mg-thresh No argument required with this command	Get the Management Traffic Rx Threshold

System related commands recently added

CLI command with argument	Description of CLI command
mib-dnld no argument required with this command	MIB Configuration Parameters download
mib-upld no argument required with this command	MIB Configuration Parameters upload
set-timezone [arg #0] New TimeZone	Set the Time Zone Adjustment
get-timezone no argument required with this command	Display the Time Zone Adjustment
get-tp-srvr no argument required with this command	retrieves the Time Protocol server IP address
set-tp-srvr [arg #0] TFTP Server IP Address	sets the Time Protocol server IP address
set-df-thresh [arg #0] New Threshold: (frames per seconds)	Set the Drop Frame Rx Threshold

get-df-thresh no argument required with this command	Get the Drop Frame Rx Threshold
set-df-timeout [arg #0] New Timeout: (System Polls)	Timeout to re-boot
get-df-timeout no argument required with this command	Timeout to re-boot

System related commands recently removed

CLI command with argument	Description of CLI command
set-bc-thresh	Set the Broadcast Rx Threshold
get-bc-thresh	Get the Broadcast Rx Threshold
set-mg-thresh	Set the Management Traffic Rx Threshold
get-mg-thresh	Get the Management Traffic Rx Threshold

IP related commands

CLI command with argument	Description of CLI command
get-slip No argument required with this command	Get slip IP address
set-slip [arg #0] SLIP IP address	Set slip IP address
get-slip-cfg No argument required with this command	Show current IP configuration
set-slip-cfg [arg #0] IP address [arg #1] Netmask [arg #2] Broadcast	Set IP address , netmask and broadcast
ip-clr-nv No argument required with this command	Reset IP configuration to default values
get-ip-cfg No argument required with this command	Show current Private Port IP configuration
get-ip No argument required with this command	Show current Private Port IP address
set-ip [arg #0] Ip Address	Set current Private Port IP address
set-ip-cfg [arg #0] Ip Address [arg #1] Netmask [arg #2] Broadcast	Set current Private Port IP address
get-bootp No argument required with this command	Retrieves the state of the BOOTP process
set-bootp [arg #0] either {enable|disable}	Enables or disables the BOOTP process activation
set-gatew [arg #0] Ip Address	Define default gateway
del-gatew	Removes default gateway

No argument required with this command	
get-gatew No argument required with this command	Show default gateway
get-arp-tbl [arg #0] database - { run | nvram }	Display the ARP table from Running Data Base
del-arp-entry [arg #0] database - { run | nvram | all } [arg #1] IP address - either {IP address|*}	Deletes an entry/all entries(*) of the ARP table
add-arp-entry [arg #0] database - { run | nvram | all } [arg #1] IP address [arg #2] physical address [arg #3] port number or "prv" [arg #4] entry type - either { dynamic | static }	Add an entry to the ARP table
get-def-ttl No argument required with this command	Retrieves the running default TTL value
set-def-ttl [arg #0] default TTL value : 1-255	Modifies the running default TTL value
ping [arg #0] destination IP address [arg #1] number of packets to send or 0 for endless ping	IP traffic generator
ping-stop [arg #0] destination IP address	Stop the ping process
get-ping-info No argument required with this command	Gets the ping database

IP related commands recently added

CLI command with argument	Description of CLI command
set-access-list [arg #0] either {enable|disable}	Enable or disable IP Access checking
get-access-list no argument required with this command	list access rights by ip address

add-access-ip [arg #0] IP address or subnet [arg #1] Netmask (eg. 255.255.255.255 for single IP Address) [arg #2] access grants seprated by '|' - tftp|telnet|snmpr|snmpw or all	restrict access to given ip addresses
del-access-ip [arg #0] IP address	remove access for given ip address

SNMP related commands

CLI command with argument	Description of CLI command
snmp-clr-nv No argument required with this command	Clear SNMP NVRAM
get-traps No argument required with this command	Show destination stations in the trap list
add-trap [arg #0] IP address [arg #1] community	Add a destination station to the trap list
del-trap [arg #0] IP address	Delete a destination station from the trap list
get-comm [arg #0] either {read|write|*}	Show current read or/and write community
set-comm [arg #0] either {read|write} [arg #1] new comm	Change the read or write community
get-auth No argument required with this command	Shows the authentication traps mode
set-auth [arg #0] trap auth mode: either {enable|disable}	Modifies the authentication traps mode
set-loopback-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for loopback condition change
set-slot-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for module removed or inserted

set-module-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate trap for module specific conditions
set-all-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate all available traps
get-trap-status [arg #0] chassis number {1-2}	Display generate trap mode status
set-link-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for link status change

SNMP related commands recently added

CLI command with argument	Description of CLI command
set-legacy-traps [arg #0] enter either {on|off}	Issue legacy traps for compatibility
get-legacy-traps no argument required with this command	Get legacy trap setting
set-link-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for link status change
set-loopback-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for loopback condition change
set-slot-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for module removed or inserted
set-portchange-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate a trap for SFP port module removed or inserted
set-portdiag-traps	Set mode to generate a trap for SFP port module diagnose trap

[arg #0] chassis number {1-2} [arg #1] state {on|off}	
set-module-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate trap for module specific conditions
set-all-traps [arg #0] chassis number {1-2} [arg #1] state {on|off}	Set mode to generate all available traps
get-trap-status [arg #0] chassis number {1-2}	Display generate trap mode status

Email related commands

CLI command with argument	Description of CLI command
add-email [arg #0] email address	SUPERVISOR ONLY - add Email Recipient
delete-email [arg #0] email address	SUPERVISOR ONLY - delete Email Recipient
get-email-cfg No argument required with this command	SUPERVISOR ONLY - Show Email configuration
set-email-local [arg #0] Local Name (e.g. stuff.company.com)	SUPERVISOR ONLY - Set Email Local Name
set-email-srvr [arg #0] Ip Address	SUPERVISOR ONLY - Set Email Server IP address
email-clr-nv No argument required with this command	SUPERVISOR ONLY - Clear NVRAM for Email

Common Commands

CLI command with argument	Description of CLI command
set-line-slip [arg #0] new baud rate:either{9600|19200|38400}	transfers the serial line to SLIP mode
get-slip no argument required with this command	get slip IP address

set-slip [arg #0] SLIP IP address	set slip IP address
get-slip-cfg no argument required with this command	show current IP configuration
set-slip-cfg [arg #0] IP address [arg #1] Netmask [arg #2] Broadcast	set IP address , netmask and broadcast
get-mac-address no argument required with this command	Display mac address for managemnet card

Common Commands recently added

CLI command with argument	Description of CLI command
set-module-mac-address [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] MODULE MAC Address (xx-xx-xx-xx-xx-xx)	set mac address for specific module
set-module-gateway [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] Ip Address	set gateway address for module
save-module-cfg [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	save existing configuration for module
set-module-ip-cfg [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16} [arg #2] Ip Address [arg #3] Netmask [arg #4] Broadcast	set ip configuration for module
get-module-ip-cfg [arg #0] chassis number {1-2} [arg #1] module number {1...4, 5, or 16}	display ip configuration for module

Common Commands recently removed

CLI command with argument	Description of CLI command
enable-redundant	Enable Redunant Mode
set-management	sets the remote management mode on/off
set-remote-access	makes remote access available on/off
get-tx-status	display laser status for AstroTerra T1000G Transmit board
set-laser	set laser on/off for AstroTerra T1000G Transmit board
get-rx-status	display receiver status for AstroTerra T1000G Receive board
set-hv	set high voltage for AstroTerra T1000G Receive board
set-ilimit	set current limit for AstroTerra T1000G Receive board

RM related commands

CLI command with argument	Description of CLI command
rm-get-gen-sts [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] card {local | remote}	Display general status of the RM boards
rm-get-if-sts [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-6}	Display interface status of the RM boards
rm-get-oam-cfg [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] card {local | remote}	Display 802.3 statistics
rm-get-oam-stats [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] card {local | remote}	Display 802.3 statistics

rm-get-mac-stats [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] port number {1-6}	Display 802.3 MAC Layer statistics
rm-clr-mac-stats [arg #0] chassis number {1-2} [arg #1] module number {1-16}	Clear the 802.3 MAC Layer statistics
rm-set-mac-addr [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] destination {local | remote} [arg #3] MODULE MAC Address (xx-xx-xx-xx-xx-xx)	Sets the MAC address - for RM cards only.
rm-set-rate-limit [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] either {on | off} [arg #3] rate in Mbps (GRMAHSH31) or Kbps (EFRMAH_NEW)	Sets the speed rate limit
rm-set-lpbk [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] destination {local | remote} [arg #3] state {on|off}	Set both ports loopback on/off on local or remote card
rm-download [arg #0] chassis number {1-2} [arg #1] module number {1-16} [arg #2] destination {local | remote} [arg #3] file type {app | fpga | both}	Downloads firmware to the RM boards

CHAPTER 3

Troubleshooting

This section provides troubleshooting hints for problems you may encounter when trying to manage the EM316NM using an SNMP Management System.

If your SNMP Manager has trouble communicating with the SNMP Agent in the switch, check your SNMP configuration parameters.

Your Network Administrator can help determine if your IP configuration (IP Address. netmask, and broadcast address) is correct. If the SNMP management workstation is on a different network, be sure that you defined an appropriate Default Gateway IP Address (see Chapter 3 - IP Commands).

Check the community string configuration by using the get-comm * command.
If you are not receiving any traps, check that you entered the Network Management Workstation address in the trap receiver table correctly. Display the table using the get-trap-tbl command. Check that both the IP Address and the community string are correct.
If the network management station does not receive authentication failure traps, check for the Authentication Mode using the get-auth command.

Check that you have a correct physical connection to the switch. Test that the switch port is configured with the desired speed.

Test the connection to the Network Management Station by pinging it.
If the network's physical topology has changed recently (e.g. a Network Management Station has been moved from one segment to another), the ARP cache may be out of date. You can use the del-arp-entry command to flush the cache.

CHAPTER4

TECHNICAL SPECIFICATIONS

Electrical
5VDC @ 2 Amps Max
Hot Swappable

Operating Temperature Range
0°C - +50 °C (32°F – 122°F)

Storage temp
-10°C - +60°C (14°F – 140°F)

Relative Humidity
85% maximum non-condensing

Emissions Compliance
FCC Part 15, Subpart B, 1999 Class A
CE Mark
EN 50081-1: 1992
EN 50082-1: 1997
EN 55024: 1998
EN 55022: 1998
AS/NZS 3548: 1995

Physical Dimensions
1” high x 3” wide x 7” deep (2.54cm x 7.62cm x 12.78cm)

Weight
9.6 oz (0.36 kg)

Color
Black

CHAPTER 5

CUSTOMER SUPPORT

Contact Information

If you have any questions, please do not hesitate to contact us at:

Americas Support		International Support
MRV (East Coast USA) 295 Foster Street Littleton, MA 01460-2016 Tech Support: (800) 338-5316 Tech Support: (978) 952-4700 E-mail: support@fiberdriver.com Fax: (978) 952-4880 URL: http://www.fiberdriver.com	MRV (West Coast USA) 20415 Nordhoff St. Chatsworth, CA 91311 Tel. (800) 338-5316 Tel. (818) 773-0900	Europe – Asia – Africa Industrial Zone P.O Box 614 Yokneam, 20682 Israel Tel: 972-4-993-6200 Fax: 972-4-989-2743 Email: sales@mrv.com International Support: support@mrv.com

International Field Offices		
UK Tel: 011-44-20-8564-0562 **South Africa** Tel: 011-27-11-664-6963 **Israel** Tel: 972-4-9936221 **Australia & New Zealand** Email: sales@mrv.com **Asia (excluding China)** Email: sales@mrv.com **Benelux** Hof van den Houte 77 4873 AZ Etten Leur The Netherlands Tel: (31) 76-508-3525 Fax: (31) 76-508-3535 Email: sales@mrv.com **China** COFCO PLAZA, room B1020 Tower B, 8 Jianguomennei Ave. Beijing 100005 China Tel: (86) 10-652-77-539 Fax: (86) 10-652-69-921 Email: sales@mrv.com	**France** 11 Avenue de l'Isle St. Martin 92737 Nanterre Cedex France Tel: (33) 01 - 47 84 78 66 Fax: (33) 01 - 47 84 78 67 Email: sales@mrv.com **Germany** Business Park Moerfelden Waldeckerstrasse 13 64546 Moerfelden-Walldorf Germany Tel: (49) 6105/207-0 Fax: (49) 6105/207-100 Email: sales@mrv.com **Italy** Via Carlo Borromeo, 8 20059 Vimercate (MI) Italy Tel: (39) 039-661-2908 Fax: (39) 039-661-2943 Email: sales@mrv.com	**Latin America** Av. Alicia Moreau de Just 1050 - P.2 Buenos Aires 1107, Capital Federal Argentina Tel/Fax: (541) 14 345 6456 Email: sales@mrv.com **Russia** Trubnaya str., 12 Moscow 103045 Russia Tel: (007) 095-787-2783 Fax: (007) 095-787-2759 Email: sales@mrv.com **Scandinavia** Email: sales@mrv.com **UK** 2 Manor Court, High Street Harmondsworth, Middlessex UB7 OAQ United Kingdom Tel: (44) 0208 - 564 0564 Fax: (44) 0208 - 564 0501 Email: sales@mrv.com

Manual Information:

The most recent version of this manual may be found on our ftp site: **ftp://ftp.mrv.com/pub/doc/manuals/**

GLOSSARY

Complete definition of networking terms (jargon) used in this manual, may be found on our ftp site:

ftp://ftp.mrv.com/pub/doc/Glossary.pdf

CHAPTER 6

ORDERING INFORMATION

Please visit us at http://www.fiberdriver.com for the latest updates on our products.

Fiber Driver Division of MRV

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Phone:(818) 772-6235 or (800) 966-4444
Fax: (818) 772-0576
Fiber Driver Inquiries: info@fiberdriver.com
Marketing: marketing@fiberdriver.com
Repair Services: rma@fiberdriver.com

*Note: For dB budget see: ftp://ftp.mrv.com/pub/doc/spec/fiberdriver

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