Command Line Reference

and

RESTful API Quick Reference Guide

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Chapter 1	# CLI Overview

Introduction

This guide is intended for users who are familiar with command-line-based software configuration. It assumes that you are already familiar with common server concepts, and the SeaMicro system feature set. With that in mind, this command line reference is designed to:

- Help you navigate the command line interface.
- Provide a synopsis of the feature each command configures.
- Explain the purpose of each command and keyword.
- Describe the expected input for variables.

You should use this guide in conjunction with the *Server and Network Configuration Guide*. This guide and all of the other documents in the SeaMicro documentation set are available on the SeaMicro Support page at: http://www.seamicro.com/support.

Note: In general, users should follow safe ESD practices, including the use of a grounded ESD strap, when installing, removing, and replacing all active components such as PCBs and power supplies in the system.

This chapter contains the following sections:

Default Login Credentials

The default login credentials are:

- username: **admin**

- password: **seamicro**

CLI Structure

The command line interface has three levels, and each level provides greater control over the system.

- **Unprivileged**: This level has only a small subset of commands that enable you to navigate the CLI and display the system configuration.
- **Privileged**: This level enables you to control system operation, troubleshoot, and perform basic system settings. You may require authorization before accessing this level by configuring a password (from Configuration mode).
- **Configuration**: Configuration-level commands enable you to control the software features which provide the main functionality of the system. From here you can customize the system, the network, and server settings according to your topology and performance requirements.

NOTE: All the examples shown in this document may or may not be valid commands if issued at the CLI prompt. They are here for instructional purposes only.

CLI Sub-levels

Configuration level offers the majority of commands, and all of the commands at this level may be entered in a single line here. However, for greater usability, Configuration level is also further divided into sub-levels, called *contexts*, based on particular configuration tasks. Contexts narrow the command set to only those that are necessary for the task, removing all the unrelated commands.

For example, to configure a gigabitethernet interface, you have to issue the command from the Interface context:

```
seamicro(config)# interface gigabitethernet 0/0 ?
Possible completions:
  description      A character string describing this interface
  gratuitous-arp   Enable sending gratuitous ARP on this interface
  shutdown         Shutdown this interface
  |                Output modifiers
  <cr>
seamicro(config)# interface gigabitethernet 0/0
seamicro(config-gigabitethernet-0/0)# gratuitous-arp
```

Your location in the CLI is indicated by the prompt, which includes the hostname.

. Table 1 shows the frequently accessed CLI levels and contexts, and their respective prompts.

Table 1 Command Line Interface Structure

CLI Level	Context	Example Prompt	Entry Command
Unprivileged		SeaMicro>	
Privileged		SeaMicro#	**enable**
Configuration		SeaMicro(config)#	**config**
	Interface	SeaMicro(config-if)#	**interface**
	Internal Server	SeaMicro(config-id-0)#	**server**
	Authentication Server	SeaMicro(config-host-<ip-address>)#	**radius-server** **tacacs-server**

Navigation Commands

Navigation commands move you up and down command levels.

Table 2 CLI Navigation Commands

Command	Description
enable	Move from Unprivileged level to Privileged level.
end	Move from Configuration level or a Configuration sub-level to Privileged level.
disable	Move from Privileged level to Unprivileged level.
exit	Available in every level, when executed from Configuration level or a Configuration sub-level, this command moves the user one level up in the CLI. When executed from UnPrivileged or Privileged level, the command ends the remote terminal session, or if executed while connected over the console, it returns the user to the login prompt.
quit	Available in Unprivileged and Privileged level, this command ends the remote terminal session. If executed while connected over the console, it returns the user to the login prompt.

Entering Commands

At Configuration level, commands may be entered in a single line, or you may enter a partial command to enter a CLI context, and complete your configuration from there. For example, when you configure a gigabitethernet interface, you may enter:

```
SeaMicro(config)# interface gigabitethernet 0/0
```

or, you may enter multiple commands related to that particular interface when in the gigabitethernet interface configuration context:

```
seamicro(config)# interface gigabitethernet 0/0 ?
Possible completions:
  description      A character string describing this interface
  gratuitous-arp   Enable sending gratuitous ARP on this interface
  shutdown         Shutdown this interface
  |                Output modifiers
  <cr>
seamicro(config)# interface gigabitethernet 0/0
seamicro(config-gigabitethernet-0/0)# gratuitous-arp
seamicro(config-gigabitethernet-0/0)# no shutdown
seamicro(config-gigabitethernet-0/0)# show config
interface gigabitethernet 0/0
 no shutdown
 gratuitous-arp
!
seamicro(config-gigabitethernet-0/0)#
```

While entering a context requires more individual commands, each command is shorter when configuring and removing configurations. In the example above, since **interface gigabitethernet** is already entered once in order to enter interface configuration context, you are not required to enter it again within the context. You configure the gratuitous-arp or no-shutdown entering only **gratuitous-arp** or **no-shutdown**.

Another advantage of CLI contexts, is that you can use **show config** quickly to see the relevant configuration, as shown above.

Command Syntax

Commands are defined in this guide using the conventions in Table 3. For the example, use the command:

---

interface {{gigabitethernet|tengigabitethernet} *slot*/*port*} [**description** *string* ||
gratuitous-arp || **shutdown**]

Table 3 Command Syntax Documentation Conventions

Command Element	Description	Example
Keyword	Enter the word exactly as shown.	You must enter **gigabitethernet**.
Variable	Enter a valid string or value. The CLI help displays the available options.	*slot*/*port* requires you to enter a number.
X | Y	A bar between keywords or variables separated indicates that you may choose only one.	You may enter different types of interfaces, such as **gigabitethernet or tengigabitethernet.**
X || Y	A double bar between keywords indicates that if you enter the first keyword you may then still enter the next option.	You may enter **gratuitous-arp** before you enter **shutdown.**
[X]	Brackets around a keyword or variable indicates that entering the element is optional.	You may enter only **description** *string* and/or **gratuitous-arp** and/or **shutdown**. You may enter one, two or three elements.
{X | Y}	Braces around set of keywords or variables indicates that you must enter one of the elements.	You must enter either **gigabitethernet** or **tengigabitethernet** when issuing this command.

Dashed Ranges and Comma-separated lists

For commands where you are required to enter an interface number, disk number, or
internal server id, you may specify more than one number in same command line so that
the configuration is applied to all those (interfaces, disks, or servers) specified.

You may specify:

- a contiguous set by placing a dash between the lowest and highest numbered items
  (no spaces),
- a non-contiguous set by separating the items with commas (no spaces), or
- a combination of the two formats.

For example, to apply the no shutdown command to many interfaces at once:

```
(config)# interface gigabitethernet 0/0
(config-gigabitethernet-0/0)# no shutdown

(config)# interface gigabitethernet range 0/0-0/2 <-- dashed range
(config-gigabitethernet-0/0-0/1)# no shutdown

(config)# interface gigabitethernet range 0/0,0/2 <-- comma-separated
(config-gigabitethernet-0/0,0/2)# no shutdown

(config)# interface gigabitethernet 0/0-0/2,0/4 <-- dashed and comma-separated
(config-gigabitethernet-0/0-0/1,0/3)#
```

Removing Configurations

Remove configurations by preceding the original command with the keyword **no**. This is true for all commands for which an entry is made into the running-configuration. For example:

```
SeaMicro(config)# interface gigabitethernet 0/0
SeaMicro(config-gigabitethernet-0/0)# show config
interface gigabitethernet 0/0
 description    "Do not shutdown"
 no shutdown
 gratuitous-arp <---- gratuitous-arp in running-configuration
 !
SeaMicro(config-gigabitethernet-0/0)# no gratuitous-arp <---- no command
SeaMicro(config-gigabitethernet-0/0)# show config
interface gigabitethernet 0/0
 description "Do not shutdown" <---- gratuitous-arp config removed
 no shutdown
 !
SeaMicro(config-gigabitethernet-0/0)#
```

The do Keyword

You can use the keyword do before any Privileged level commands (except **exit** and **quit**) to execute the command from Configuration level. The **do** keyword is especially helpful when executing **show** commands.

```
seamicro(config)# do show run
storage assign 0/0 0 volume 1/pool1/nicevol-0
storage assign 0/1 0 volume 1/pool1/nicevol-1
storage assign 0/2 0 volume 1/pool1/nicevol-2
storage assign 0/3 0 volume 1/pool1/nicevol-3
storage assign 1/0 0 volume 1/pool1/nicevol-4
storage assign 1/1 0 volume 1/pool1/nicevol-5
storage assign 1/2 0 volume 1/pool1/nicevol-6
storage assign 1/3 0 volume 1/pool1/nicevol-7
```

```
[...][...]
```

Command Help

The Tab key, Space Bar and **?** display help.

Tab Key and Space Bar

The Tab key and Space Bar are used the same way, and can be used in three ways:

- Press Tab or Space after a partial keyword to display the keywords that match the characters already entered.
  ```
  SeaMicro(config)# s <--- press Tab/Space
  Possible completions:
    server            Configure server parameters
    snmp-server       Configure SNMP engine parameters
    system            Configure system parameters
    ---
    show              Show a parameter
  ```
- Enter the number of characters required to match a single keyword and then press Tab or Space to complete the keyword. For example, in Configuration level the commands there are four commands that begin with the letter "s," as shown below. Two characters then are required to uniquely match the keyword **server**, and so you only need to enter "se" and then press Tab or Space, to auto-complete the keyword.
- Tab or Space-complete a keyword and press Tab or Space again to display the list of options that may follow.
  ```
  SeaMicro(config)# server <---- enter "se" and press Tab/Space twice
  Possible completions:
    boot-count       Configure number of servers to bootup simultaneously
  for
                     staggered boot
    boot-delay       Configure delay in seconds between the number of
  servers for
                     staggered boot
    id               Configure server's parameters
    ip-range         Configure server's IP range - valid mask 255.255.240.0
  (/20)
                     to 255.255.255.240 (/28)
  ```

If the partial or complete keyword is invalid, the CLI returns nothing in response to Tab or Space.

? Command

The **?** displays command help and can be used in three ways:

- Enter **?** after the command prompt to display the available commands in the CLI level.

```
SeaMicro> ?
Possible completions:
  enable     Enable EXEC commands
  exit       Exit from the EXEC
  passwd     Change the user's password
  quit       Exit from the EXEC
  show       Show running system information
  terminal   Set terminal line parameters
```

- Enter **?** after a partial keyword to display a list of matching keywords:

```
SeaMicro(config)# s?
Possible completions:
  server           Configure server parameters
  snmp-server      Configure SNMP engine parameters
  system           Configure system parameters
  ---
  show             Show a parameter
```

- Enter a keyword followed by "(space)**?"** to display the list of keywords and variables that may follow, and their descriptions. Descriptions include the default value in brackets, and the valid range for variables requiring a number.

```
SeaMicro(config)# logging trap ?
Possible completions: <---- List of valid keywords
  [info] <---- Default
  alert     alert
  crit      critical
  debug     debug
  emerg     emergency
  err       error
  info      info
  notice    notice
  warning   warning
SeaMicro(config)# server id ?
Possible completions (first 100):
  srvid:Unsigned Integer, <= 511, >= 0 <---- Range
  0
  1
  2
  3
[...]
```

The CLI rejects both **?** or "(space)**?**" if the preceding keyword does not match any of the valid keyword options. If you enter an invalid keyword or variable value, the CLI returns a syntax error message along with a list of valid entries.

```
SeaMicro(config)# interface null
-------------------------------------
syntax error: expecting
  gigabitethernet - Specify gigabitethernet interface
  mgmteth         - Specify management ethernet interface
  port-channel    - Specify a port channel
SeaMicro(config)# interface gigabitethernet 100/0
```

```
%Invalid range
```

Keyboard Shortcuts

Table 4 CLI Keyboard Shortcuts

Command	Description
Tab key	Use the tab key to complete a keyword entry. When entering commands, you are only required to enter the number of characters necessary to uniquely match a single keyword. Then you may press the Tab key, and the system completes the keyword.
Space Bar	Use the Space bar to complete a keyword entry. When entering commands, you are only required to enter the number of characters necessary to uniquely match a single keyword. Then you may press the Space bar, and the system completes the keyword.
Ctrl+c	Use Ctrl+c to return to the CLI prompt when the CLI is displaying a continuous or paginated output.

Output Modifiers

Output modifiers are supplemental commands available with **show** commands to help you find faster the lines for which you are looking. To use one of the modifiers, enter the command followed by **|** *modifier*, for example: **show running-config | nomore**.

Table 5 show Command Output Modifiers

Command	Description
begin *string*	Begin with the line that matches.
count	Count the number of lines in the output.
exclude *string*	Exclude the lines that match.
include *string*	Include only the lines that match.
linnum	Enumerate the lines in the output.
more	Paginate the output.
nomore	Suppress pagination.
save *filepath*	Save the output to a text file on the system flash.
until *string*	End the output with the matching line.

Other Conventions in this Document

In this document, sample command outputs that have been truncated have been marked with ellipses within brackets as shown:

```
SeaMicro(config)# do show run
hostname SeaMicro
server poweron-delay 20
server poweron-count 6
server poweron-algorithm random
server id 0
 bios hyperthreading off
 bios c-states
 bios boot-order hd0,hd1,hd2,hd3,pxe
[...] <---- ellipses marks a truncated output
```

Server ID

The valid entry for an SM15K *server-id* is **0/0 - 63/7**.

The format for the server-id is as follows: C-card number **/** Server number on the C-card. The C-card number is separated by a slash **'/'** from the server number.

You may enter a single server ID, or multiple servers IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two.

Example:

- On a Spear C-card, there are four servers per C-card, so the four, lowest numbered servers will be 0/0, 0/1, 0/2, and 0/3. The '**0'** that precedes the slash **'/'** indicates that the servers are all on the same C-card.
- On a Sabre C-card, there is only one server per C-card, so the four, lowest numbered servers in an SM15K will be 0/0, 1/0, 2/0, and 3/0.
- On an Estoc C-card, there is only one server per C-card. Note: Downcoring or hyperthreading needs a cold reset of servers (power-off or reset from CLI). This parameter does not take effect if the server is reloaded from the Operating System.
- On a Kabar C-card, there is only one server per C-card, so the four, lowest numbered servers in an SM15K will be 0/0, 1/0, 2/0, and 3/0.

Chapter 2   Unprivileged Level Commands

Generally, commands in Unprivileged level enable you to navigate the CLI and set terminal parameters.

The Unprivileged level commands are:

Unprivileged level commands are also available in Privileged level.

show commands are available from Privileged and Unprivileged mode, and so are defined in a separate chapter.

enable

Function:	Moves the administrator to Privileged mode in the CLI.
Syntax:	**enable** [*level*]
CLI Level:	Unprivileged, Privileged
Options:	*level* Enter the privilege level that the user moves to upon entering this command. Range: 15
Defaults:	Users enter Privileged level 0 by default, and there is no enable password by default.
History:	Version 2.0 Introduced
Example:	

```
login: example
Password:
Copyright (c) 2009-2014 SeaMicro, Inc.
Welcome to SeaMicro OS!
admin connected from 127.0.0.1 using console on seamicro
```

```
seamicro> enable
Password:
seamicro#
```

Notes:
- Only two Privileged levels are available, level 0 and 15; no additional levels may be created.
- You may configure a password to authorize users for this CLI level.

exit

Function: Moves you one level up in the CLI when executed from Configuration level. When connected through the console and executed from Unprivileged or Privileged level, this command moves you to the login prompt. When connected over VTY and executed from Unprivileged or Privileged level, this command terminates your session.

Syntax: **exit**

CLI Level: Unprivileged, Privileged, Configuration

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> enable
seamicro# config
Enter configuration commands, one per line. End with CNTL/Z.
Current configuration users:
admin ssh (cli from 192.168.10.89) on since 2010-04-23 17:10:15
seamicro(config)# exit
seamicro#

seamicro# exit

NetBSD/SeaMicro OS (seamicro) (console)

login: example
Password:
Copyright (c) 2009-2014 SeaMicro, Inc.
Welcome to SeaMicro OS!
admin connected from 127.0.0.1 using console on seamicro
seamicro>
```

Notes: None

passwd

Function: Change the admin password.

Syntax: **passwd**

CLI Level: Unprivileged, Privileged

Options: None

Defaults: "seamicro" is the default password.

History: Version 2.0   Introduced

Example:
```
seamicro# passwd
Are you sure you want to change the password [no,yes] yes
Changing password for admin.
New Password:
Retype New Password:
Please don't use an all-lower case password.
Unusual capitalization, control characters or digits are suggested.
New Password:
Retype New Password:
seamicro#
```

Notes:
- You are prompted to confirm the action after you enter the new password, and then you are prompted for the new password.
- The system initially rejects passwords that are all lowercase, as shown in the example. Upon rejection you are prompted to configure a different password, but at this prompt an all-lowercase password is accepted.

quit

Function: Exit to the login prompt.

Syntax: **quit**

CLI Level: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# quit

NetBSD/SeaMicro OS (seamicro) (console)

login: example
Password:
Copyright (c) 2009-2014 SeaMicro, Inc.
Welcome to SeaMicro OS!
admin connected from 127.0.0.1 using console on seamicro
seamicro>
```

Notes: When connected through the console, entering this command from Unprivileged or Privileged mode returns you to the login prompt. When connected over VTY, your session is terminated.

terminal

Function: Set terminal line parameters.

Syntax: **terminal length** *number*

CLI Mode: Unprivileged

Options: *number*   Enter the number of lines to display on the screen.

Defaults: The default length is 24.

History: Version 2.0   Introduced

Example:
```
seamicro# terminal ?
Possible completions:
  length          Set number of lines on a screen
seamicro# terminal length ?
<number of rows>
seamicro# terminal length 100
seamicro# show terminal
autowizard          false
complete-on-space   true
display-level       99999999
history             100
idle-timeout        3600
ignore-leading-space true
output-file         terminal
paginate            true
screen-length       100
```

```
screen-width          80
service prompt config true
show-defaults         false
terminal              xterm
seamicro#
```

Notes: None

**Related
Commands:**   **show terminal**

Chapter 3 | Privileged Level Commands

The Privileged level commands are:

Unprivileged level commands are also available in Privileged level.

show commands are available from Privileged and Unprivileged mode, and so are defined in a separate chapter.

activate image

Function:	Change the running software version using the In-service Software Upgrade (ISSU) method.	
Syntax:	**activate image flash: {0	1}**	
CLI Mode:	Privileged	
Options:	**flash: {0	1}**	Enter the keyword followed by the number of the flash partition that has the software version to which you are migrating.
Defaults:	None	
History:	Version 2.6	Moved from Configuration level to Privileged level. Syntax changed from **system activate** to **activate image**.
	Version 2.5	Introduced
Example:	None	
Notes:	When the software version change is complete, the system sets the boot partition to the specified flash partition so that whenever the chassis is reloaded, it boots the new version.	
Related Commands:	activate led on page 24 show upgrade-history on page 207	

activate led

Function:	Activate the LED on the disk, the MX-card, the S-card, and the Storage Enclosure.	
Syntax:	**activate led disk** *disk-id* **activate led mxcard** *slot#* **activate led scard** *slot#* **activate led disk** *jbod disk id* **activate led disk external-location**<*physical disk location*>	

CLI Mode:	Privileged	
Options:	*disk-id*	Enter the disk id.
	mxcard *slot #*	Enter the MX-card slot #.
	scard *slot #*	Enter the S-card slot #.
	jbod disk id	Enter the storage enclosure disk id.
	physical disk location	

Enter the disk location in the following format:

<scard slot>/<SAS port#>/<shelf#>/<disk slot>

S-card slot: 0 - 7
SAS port # (MX-card): **1** = Left Port; **0** = Right Port.
Shelf #: 0 = Upper Shelf; **1** = Lower Shelf.
Disk slot in Storage Enclosure:
0-83 (5RU); **0-11** (2RU-12 disks); **0-23** (2RU-24 disks).

Defaults: None

History: Version 3.2   Introduced
Version 3.2.3   **'external-location**' added

Example:
```
seamicro# activate led disk
Possible completions:
  DISK-ID in the format SLOT#/BAY# or DEVICE-NAME/BAY# e.g., 1/
3, JBOD2/3
  external-location   DISK-LOCATION in the format SCARD-SLOT#/
SAS-PORT#/SHELF#/BAY#
Ch770-seamicro# activate led disk 1/1seamicro# activate led
disk 0/0

seamicro# activate led mxcard 0

seamicro# activate led scard 0

seamicro# activate led external-location 1/1/0/9
```

Notes: Once a disk with activated LED is replaced or reinserted, the LED will stop blinking after a few seconds indicating a hotswap.

Component	LED Status	Possible Reasons
Internal Disk	Green	Disk Active.
	Blinking Red	Disk Identification.
	Solid Red	Disk Failed.
S-card (8-disk LEDs)	Off/Green	S-card Active.
	Blinking	S-card Identification.
	Solid Red	S-card Error.
MX-card	Solid Green	MX-card Booting. MX-card has mis-matched version.
	Off	MX-card Active.
External Disk (LED self-managed by storage enclosure.)	Solid Amber	Disk Identification and Disk Failure.

Related Commands: **deactivate led disk** *disk-id*
deactivate led mxcard *slot#*
deactivate led scard *slot#*
deactivate led disk *jbod disk id*
deactivate led external-location *<physical disk location>*

check image

Function: Compare the current software version to another software version to determine if an In-service Software Upgrade (ISSU) software version change is possible.

Syntax: **check image scp:** *ip-address username filename*

CLI Mode: Privileged

Options:	**scp:**	Enter this keyword to use Secure Copy as the file transfer method.
	ip-address	Enter the IP address of the server on which the source file is stored.
	username	Enter the username to authenticate on the server.
	filename	Enter the filename using the complete file path.

Defaults: None

History:	Version 2.6	**tftp:** option removed
	Version 2.5	Introduced

Example: None

Notes:
- This command copies the target image to a temporary location for the purpose of verifying ISSU-eligibility. It does not overwrite the any flash partition.
- ISSU is only supported for upgrades/downgrades to eligible releases that are in the same major release train as the current software version; ISSU is never available for software changes across major release boundaries. In addition to this command, you can check the SeaMicro Support page to see if the software change you intend to perform is ISSU-eligible.

Related Commands: activate image on page 24

clear authorized-key

Function: Delete the SSH key used for key-based authentication.

Syntax: **clear authorized-key**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example: None

Notes: None

Related Commands: copy authorized-key on page 37

---

clear ip igmp snooping

Function: Clear IGMP group cache, router cache, or IGMP statistics.

Syntax: **clear ip igmp snooping** [**group-cache** [[**group** *IP-address*] | [**vlan** *vlan-id*]] | **router-cache** [**vlan** *vlan-id*] | **statistics**]

CLI Mode: Privileged

Options: **group-cache** [[**group** *IP-address*] | [**vlan** *vlan-id*]]
                      Clears the system-wide IGMP snooping group cache, the group cache for the specified group, or the group cache for a specific VLAN.

                router-cache [**vlan** *vlan-id*]
                      Clears the system-wide IGMP snooping router cache or the router cache for the specified VLAN.

                statistics   Clears IGMP snooping statistics.

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro# clear ip igmp snooping group-cache
Clear group cache (yes/no)? yes


seamicro# clear ip igmp snooping group-cache group 225.1.1.1 vlan 1001
Clear group cache (yes/no)? yes


seamicro# clear ip igmp snooping router-cache
Clear router cache (yes/no)?
```

```
seamicro# clear ip igmp snooping statistics
Clear igmp statistics (yes/no)?
```

Notes: None

Related Commands:

clear ip igmp snooping statistics

Function: Clear query statistics for all VLANs.

Syntax: **clear ip igmp snooping statistics**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.3 Introduced

Example:
```
seamicro# clear ip igmp snooping statistics
```

Notes: None

Related Commands: None

clear mac address-table

Function: Clear the MAC address table entries.

Syntax: **clear mac address** [*mac-address*] [**no-confirm**] [**bond | interface | nic | server | vlan**]

CLI Mode: Privileged

Options: *mac-address*   Enter the MAC address to clear information related to that specific address.The typical format is 00:11:22:aa:bb:cc.

no-confirm   Enter the keyword to initiate the clear operation without being prompted.

bond   Enter the keyword to clear the MAC address on the bond.

interface   Enter the keyword to clear the MAC address table on the interface.

nic   Enter the keyword to clear the MAC address table on the NIC.

server   Enter the keyword to clear MAC address table on the server.

vlan   Enter the keyword to clear he MAC address table on the VLAN.

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro# clear mac address-table ?
Possible completions:
  address     MAC Address, e.g. 00:11:22:aa:bb:cc
  no-confirm  No confirmation needed
  ---
  bond        Clear MAC address on the bond
  interface   Clear MAC address on the interface
  nic         Clear MAC address on the NIC
  server      Clear MAC address on the server
  vlan        Clear MAC address on the VLAN
  |           Output modifiers
  <cr>

seamicro# clear mac address-table
Clear MAC addresses (yes/no)? no

seamicro# clear mac address-table interface tengigabitethernet 0/0
Clear MAC addresses (yes/no)? yes
seamicro#

seamicro# clear mac address-table vlan 20
Clear MAC addresses (yes/no)? yes
```

Notes: None

---

clear motd

Function:	Delete the message of the day (motd).
Syntax:	**clear motd**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 2.6 Introduced
Example:	None
Notes:	None

clear secure-keys

Function:	Delete the SCP and SSH public keys (which are cached at first use).
Syntax:	**clear secure-keys**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 2.0 Introduced

Example: None

Notes: None

**Related
Commands:** None

clear session-history

Function: Delete the command history for your session only.

Syntax: **clear session-history**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 2.5   Keyword **history** changed to **session-history**
           Version 2.0   Introduced

Example: None

Notes: None

**Related
Commands:** None

clear startup-config

Function: Delete the startup-config file, which resets the system settings back to the factory default upon the next reboot.

Syntax: **clear startup-config** [**force** [**all**]]

CLI Mode: Privileged

Options: **force** **clear startup-config** executes only when the system is healthy, which is usually defined by "System Ready" status in the output of **show processes summary**; the System Ready status is "yes" when the system is healthy. When the system is not in a healthy state, you must enter the **force** option to delete the startup-config.

all Clear the startup-config from all MX-cards.

Defaults: None

History: Version 2.1 Added **all** option
Version 2.0 Introduced

Example:
```
seamicro# clear startup-config
Are you sure you want to erase the startup-config [no,yes] no
Aborted: by user
seamicro# clear startup-config force
Are you sure you want to erase the startup-config [no,yes] no
Aborted: by user
seamicro# clear startup-config force all
Are you sure you want to erase the startup-config [no,yes] no
Aborted: by user
seamicro#
```

Notes: Entering **write memory** creates a new startup-configuration file that contains the current system configuration, effectively undoing the **clear startup-config**.

Related Commands:

clear storage statistics

Function:	Clears statistics for virtual disks and servers.
Syntax:	**clear storage statistics**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 3.2 Introduced

Example:
```
seamicro# clear storage statistics
seamicro#
```

Notes:

Related Commands:

clock

Function:	Set the system clock.	
Syntax:	**clock set** *time* [*date*]	
CLI Mode:	Privileged	
Options:	*time*	Enter the time in the form HH:MM:SS. You may also enter the time in the form HH:MM:SS.SSS.
	date	Enter the date in the form CCYY-MM-DD.
Defaults:	The default time is non-null, but arbitrary, and should be set to the current time upon first boot.	

History: Version 2.0   Introduced

Example: None

Notes:
- You must reload the system after you execute this command; save your configuration before reloading.
- If **ntp server** is configured and the clock is set manually by the **clock** command, then the NTP server will not sync the time any more.

Related Commands:
- write memory on page 90
- reload on page 60

configure terminal

Function: Move to Configuration mode in the CLI.

Syntax: **configure terminal**

CLI Mode: Privileged

Options: None

Defaults: The user enters Unprivileged mode by default.

History: Version 2.0   Introduced

Example:
```
seamicro# config
Enter configuration commands, one per line. End with CNTL/Z.
Current configuration users:
admin ssh (cli from 192.168.1.146) on since 2010-04-27 15:15:59
admin console (cli from 127.0.0.1) on since 2010-04-27 10:51:26
seamicro(config)#
```

Notes: None

copy

Function:	Copy logs to a remote location.	
Syntax:	**copy** {**console** | **crash** | **logs**} **scp:** *ip-address username dest-path/dest-file*	
CLI Mode:	Privileged	
Options:	**console**	Copy console logs to a remote location.
	crash	Copy crash logs to a remote location.
	logs	Copy the contents of the logging buffer to a remote location.
	scp:	Enter this keyword to use Secure Copy as the file transfer method.
	ip-address	Enter the IP address of the destination server.
	username	Enter the username to authenticate on the server.
	dest-path/dest-file	Enter the name of the destination file using the complete filepath.
Defaults:	None	
History:	Version 2.6	**tftp:** option removed
	Version 2.0	Introduced
Example:	None	
Notes:	For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.	
Related Commands:	**show console** [**reverse**] **show crash** **show logging** [**reverse**]	

copy authorized-key

Function: Enable key-based authentication over SSH.

Syntax: **copy authorized-key scp:** *ip-address username scr-path/src-file* **system:**

CLI Mode: Privileged

Options:

scp: Enter this keyword to use Secure Copy as the file transfer method.

ip-address Enter the IP address of the destination server.

username Enter the username to authenticate on the server.

src-path/src-file Enter the name of the file that contains the SSH key using the complete filepath.

system: Enter this keyword to specify the SeaMicro system as the destination.

Defaults: None

History:
Version 2.6   **tftp:** option removed
Version 2.4   Introduced

Example:
```
seamicro# copy authorized-key scp: 10.11.0.1 techpubs /home/techpubs/.ssh/
id_rsa.pub system:
Are you sure you want to overwrite the authorized key [no,yes] yes
The authenticity of host '10.11.0.1 (10.11.0.1)' can't be established.
RSA key fingerprint is fd:51:2a:f3:fa:42:b0:65:38:2d:6d:4c:37:c8:bb:b8.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.11.0.1' (RSA) to the list of known hosts.
techpubs@10.11.0.1's password:
id_rsa.pub
100%  400     0.4KB/s   00:00
seamicro#
```

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

To enable key-based authentication over SSH:

1. Generate an RSA public/private key pair on the remote host or terminal server using the SSH-Keygen tool (**ssh-keygen**). This will generate *id_rsa* and *is_rsa.pub.*
2. Login to the SeaMicro chassis.
3. Use the SMOS command **copy authorized-key** to save the public key (*id_rsa.pub*) to the system
4. Exit your terminal session, and then you will be able to connect again (from the host with the private key) using **ssh admin@**<hostname>, without having to provide your login credentials.

Related Commands:

copy config

Function:	Copy a configuration file over the startup-configuration.
Syntax:	**copy config** {**scp:** *ip-address username* | **system**:} *src-path/src-file* **startup-config**
CLI Mode:	Privileged

Options:	**scp:**	Enter this keyword to use Secure Copy as the file transfer method.
	ip-address	Enter the IP address of the server on which the source file is stored.
	username	Enter the username to authenticate on the server.
	system:	Enter this keyword to copy a file from the system flash.
	src-path/src-file	Enter the name of the source file using the complete filepath.
	startup-config	Enter this keyword to overwrite the startup-config with the source file.

Defaults:	None
History:	Version 2.6 **tftp:** option removed

	Version 2.0	Introduced

Example: None

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

copy config running-config

Function: Copy the running-configuration file to another location.

Syntax: **copy config running-config** {**startup-config** | {**scp:** *ip-address username* | **system:**} *dest-path/dest-file*}}

CLI Mode: Privileged

Options:

startup-dconfig	Enter this keyword to overwrite the startup-config file with the running-config file.
scp:	Enter this keyword to use Secure Copy as the file transfer method.
ip-address	Enter the IP address of the server on which the source file is stored.
username	Enter the username to authenticate on the server.
system:	Enter this keyword to copy a file to the system flash.
dest-path/dest-file	Enter the name of the new name of the running-config file using the complete filepath.

Defaults: None

History:

Version 2.6	**tftp:** option removed
Version 2.0	Introduced

Example: None

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

copy config startup-config

Function: Copy the startup-configuration file to another location.

Syntax: **copy config startup-config** {**scp:** *ip-address username* | **system:**} *dest-path/dest-file*

CLI Mode: Privileged

Options:

scp: Enter this keyword to use Secure Copy as the file transfer method.

ip-address   Enter the IP address of the server on which the source file is stored.

username   Enter the username to authenticate on the server.

system: Enter this keyword to copy a file to the system flash.

dest-path/dest-file   Enter the name of the new name of the startup-config file.

Defaults: None

History:

Version 2.6	**tftp:** option removed
Version 2.0	Introduced

Example:

```
seamicro# dir | include run
-rw-r--r-- 1 root   users   33200 Sep 23  2010 running-config-test
seamicro# copy config startup-config ?
Possible completions:
  scp:     Scp host information
  system:  System
seamicro# copy config startup-config system: ?
Destination filename
seamicro# copy config startup-config system: running_17-Aug-2011
seamicro# dir | include run
-rw-r--r-- 1 root   users   33200 Sep 23  2010 running-config-test
-rw-r--r-- 1 root   users   42829 Aug 17 20:33 running_17-Aug-2011
seamicro#
```

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

copy file

Function: Copy a file from a remote location to the system flash, or from the system flash to a remote location.

Syntax: **copy file** *src-location src-file dest-location dest-file*

CLI Mode: Privileged

Options: *src-location*   Choose a remote server or the system flash as the source file location:

                                       scp: Enter this keyword to use Secure Copy as the file transfer method.

                                       system: Enter this keyword to copy a file from the system flash.

                                       ip-address: Enter the IP address of the server on which the source file is stored.

                                       username: Enter the username to authenticate on the server.

         dest-location   Choose a remote server or the system flash as the transfer destination:

                                         scp: Enter this keyword to use Secure Copy as the file transfer method.

                                       system: Enter this keyword to copy a file from the system flash.

                                       ip-address: Enter the IP address of the destination server.

                                       username: Enter the username to authenticate on the server.

         src-file   Enter the name of the source file.

         dest-file   Enter the name of the destination file.

Defaults: None

History: Version 2.6 **tftp:** option removed
Version 2.0 Introduced

Example: None

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

copy image

Function: Copy a system image file from one location to another.

Syntax: **copy image** {**flash:** {**0**|**1**} | **scp:** *ip-address username filename*} {**0**|**1**}

CLI Mode: Privileged

Options: **flash:**{**0**|**1**}   Enter the keyword and select the flash partition that has the system image you want to copy.

scp: Enter this keyword to use Secure Copy as the file transfer method.

ip-address   Enter the IP address of the server on which the source file is stored.

username   Enter the username to authenticate on the server.

filename   Enter the filename.

flash:{**0**|**1**}   Enter the keyword and select the flash partition that will be the file transfer destination.

Defaults: None

History: Version 2.6 **tftp:** option removed
Version 2.0 Introduced

Example: None

Notes:
- You will be prompted to confirm the action after entering this command.
- This command should not be executed the SM-card is removed or down.
- For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

copy image mxcard

Function: Copy the system image file from one MX-card to another.

Syntax: **copy image mxcard:** *number* **mxcard:** *number*

CLI Mode: Privileged

Options: **mxcard:** *number*   Enter the keyword followed by the number of an MX-card. Range: 0 - 7.

Defaults: None

History: Version 2.1   Introduced

Example: None

Notes:
- This command should not be executed the SM-card is removed or down.
- This command copies the image on the active flash partition on the source card to both flash partitions on the destination card.

copy motd

Function: Set the message of the day (motd).

Syntax: **copy motd** {**scp:** *ip-address username filename*}

CLI Mode: Privileged

Options:	**scp:**	Enter this keyword to use Secure Copy as the file transfer method.
	ip-address	Enter the IP address of the server on which the source file is stored.
	username	Enter the username to authenticate on the server.
	filename	Enter the filename.
Defaults:	There is no default message of the day.	
History:	Version 2.6 Introduced	
Example:	None	
Notes:	None	
Related Commands:	clear motd on page 31 show motd on page 178	

copy tech-support

Function:	Copy the '**show tech-support'** output to a remote location.	
Syntax:	**copy tech-support** [**cli** | **detail** | **ethernet** | **fabric** | **storage** | **system**] {**scp:** *ip-address username*} *dest-file*	
CLI Mode:	Privileged	
	cli	Restrict the output to CLI related information.
	detail	Display extended tech-support information.
	ethernet	Restrict the output to Ethernet related information.
	fabric	Restrict the output to fabric related information.
	storage	Restrict the output to storage related information.
	system	Restrict the output to system related information.

scp:		Enter this keyword to use Secure Copy as the file transfer method.
ip-address		Enter the IP address of the destination server.
username		Enter the username to authenticate on the server.
dest-file		Enter the name of the destination file.

Defaults: None

History: Version 2.6   **tftp:** option removed
Version 2.0   Introduced

Example: None

Notes: For the **scp** option: if the location is only reachable via the inband interface, you must enable SSH (**allow ssh**) on the interface first.

deactivate led

Function: Deactivate the LED on the disk, the MX-card, the S-card, and the Storage Enclosure.

Syntax: **deactivate led disk** *disk-id*
deactivate led mxcard *slot#*
deactivate led scard *slot#*
deactivate led disk *jbod disk id*
deactivate led disk external-location *<physical disk location>*

CLI Mode: Privileged

Options: *disk-id*   Enter the disk id.

mxcard *slot #*   Enter the MX-card slot #.

scard *slot #*   Enter the S-card slot #.

jbod disk id   Enter the storage enclosure disk id #.

physical disk location

Enter the disk location in the following format:

<scard slot>/<SAS port#>/<shelf#>/<disk slot>

S-card slot: 0 - 7
SAS port # (MX-card): **1** = Left Port; **0** = Right Port.
Shelf #: 0 = Upper Shelf; **1** = Lower Shelf.
Disk slot in Storage Enclosure:
 0-83 (5RU); **0-11** (2RU-12 disks); **0-23** (2RU-24 disks).

Defaults: None

History: Version 3.2   Introduced
Version 3.2.3   **'external-location**' added.

Example:
```
seamicro# deactivate led disk
Possible completions:
  DISK-ID in the format SLOT#/BAY# or DEVICE-NAME/BAY# e.g., 1/
3, JBOD2/3
  external-location   DISK-LOCATION in the format SCARD-SLOT#/
SAS-PORT#/SHELF#/BAY#
seamicro# deactivate led disk 1/1
seamicro#

seamicro# deactivate led mxcard 0

seamicro# deactivate led scard 0

seamicro# deactivate led external-location 1/1/0/9
```

Notes:

Related
Commands: **activate led disk** *disk-id*
activate led mxcard *slot#*
activate led scard *slot#*
activate led disk *jbod disk id*
activate led disk external-location<*physical disk location*>

dir

Function:	Display the contents of the flash.
Syntax:	**dir**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro# dir

Directory of system:/home

-rw-r--r--  1 root  users  14906 Apr 19 16:23 copy_run_file1
-rw-r--r--  1 root  users  14906 Apr 19 16:23 copy_run_file2
-rw-r--r--  1 root  users  14957 Apr 19 13:53 temp-run-config
-rw-r--r--  1 root  users  14906 Apr 19 16:09 test1123
seamicro#
```

Notes: There is only one directory, the home directory, and this commands displays its contents.

disable

Function:	Move from Privileged level to Unprivileged level in the CLI.
Syntax:	**disable**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro> enable
```

```
seamicro# disable
seamicro>
```

Notes: None

enable

enable is also an Unprivileged level command. See enable on page 17.

exit

exit is also an Unprivileged level command. See exit on page 18.

halt

Function	Gracefully stop all processes, and then power down the chassis.
Syntax:	**halt**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro# halt
Are you sure you want to halt the chassis (yes/no):no
seamicro#
```

Notes:
- The system prompts you to confirm the action after entering the command.
- This command should not be executed the SM-card is removed or down.

help command

Function	The help command provides information on CLI Commands.
Syntax:	**help command** *CLI command*
CLI Mode:	Privileged
Options:	*CLI command* Enter a CLI command to display online help for that specific command.
Defaults:	None
History:	Version 3.0.1 Introduced
Notes:	

logout

Function:	For a user connected over VTY, terminate the session. For a user connected through the console, return the user to the login prompt.
Syntax:	**logout** [**user** *username* | **session** *number*]
CLI Mode:	Privileged
Options:	**user** *username* Enter the keyword and a username to terminate the session for a specific user.
	session *number* Enter the keyword and a session number to terminate the session.
Defaults:	None
History:	Version 2.0 Introduced
Example:	

```
seamicro# logout session ?
Possible completions:
   7    admin@192.168.10.168 cli 2010-07-30 (*)
   10   admin@192.168.10.114 cli 09:27:37
```

```
    11   admin@127.0.0.1 cli 10:31:45
seamicro# logout user ?
Possible completions:
  admin   admin@192.168.10.168 cli 2010-07-30 (*)
          admin@192.168.10.114 cli 09:27:37
          admin@127.0.0.1 cli 10:31:45
seamicro#
```

Notes: None

more

Function:	Display the contents of a file with pagination.
Syntax:	**more** *filename*
CLI Mode:	Privileged
Options:	*filename* Enter the name of the file in flash for which you want to display the contents.
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro# more copy_run_file1
hostname seamicro
server ip-range 10.17.0.1  255.255.240.0
interface mgmteth
 no shutdown
 ip address 192.168.1.219  255.255.255.0
 --More--
```

Notes: None

no history

Function:	Sets the command history buffer size to the default number of entries.
Syntax:	**no history**

CLI Mode: Privileged

Options: None

Defaults: 100 entries

History: Version 2.0   Introduced

Example:
```
seamicro# show term
autowizard          false
complete-on-space   true
display-level       99999999
history             100
idle-timeout        2592000
ignore-leading-space true
output-file         terminal
paginate            true
screen-length       24
screen-width        80
service prompt config true
show-defaults       false
terminal            xterm
seamicro#
```

Notes: None

---

passwd

passwd is also an Unprivileged level command. See .

---

ping

Function: Send an ICMP echo request to a node to verify that it is reachable.

Syntax: **ping** {*ip-address* | *hostname*}

CLI Mode: Privileged

Options: *ip-address*   Enter the IP address of node you want to reach.

          hostname   Enter the IP address of node you want to reach.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# ping 192.168.10.168
PING 192.168.10.168 (192.168.10.168): 56 data bytes
64 bytes from 192.168.10.168: icmp_seq=0 ttl=127 time=0.448 ms
64 bytes from 192.168.10.168: icmp_seq=1 ttl=127 time=0.821 ms
64 bytes from 192.168.10.168: icmp_seq=2 ttl=127 time=0.790 ms
64 bytes from 192.168.10.168: icmp_seq=3 ttl=127 time=0.974 ms
seamicro#
```

Notes:
- This command indefinitely sends another Ping after receiving a response. To terminate the reachability test, enter Ctrl+C.
- *hostname* will be resolved by one of the name servers configured under the management interface context.

power-off ccard

Function: Remove power from a C-card gracefully by sending an ACPI signal, or power it down forcefully.

Syntax: **power-off ccard** *location* [**force**] [**no-confirm**]

CLI Mode: Privileged

Options: *location*   Enter a C-card number between 0 - 63.

         force   Powering down normally uses ACPI and is graceful. Alternatively, you may enter this keyword to remove power from the server immediately. Entering this keyword is the functional equivalent of unplugging a power cord.

         no-confirm   Bypass the confirmation dialog.

Defaults: C-cards are powered on during chassis boot-up.

History: Version 2.4   Introduced

Example:
```
seamicro(config)# do show chassis
 --- System ---
        chassis model:SM15000
        chassis id :39
        base ethernet mac address :0021.5311.1300
```

```
           mcarrier :m3v1
           ccard type :ASIC, version 2, 2.5GbpsN570(Spear)
           chassis uptime :16 minutes, 2 seconds

  --- MXCards ---
  Slot    Status         Uptime
  ----------------------------------------------------------------------
  0       active         16 mins, 2 secs

  --- SCards ---
  Slot    Status         Internal Disks  External Disks  Uptime
  ----------------------------------------------------------------------
  1       active         4        0         9 mins,       31 secs

  [...]
```

Notes: • **power-off ccard** should not be executed if any C-card is non-operational (powered off or failed).
• All internal servers on the C-card must be powered off in order to power off the C-card; the command is rejected if any of the internal servers on the C-card are powered on, unless the **force** keyword is included.

Related Commands: power-on ccard on page 56
show chassis | include *location*

power-off disk

Function: Powers off the disk.

Syntax: **power-off disk** *bay | slot/bay*
power-off disk *device-name* **device** *device-id* **slot** *slot*
power-off disk *scard slot / SAS port# / shelf # / disk slot*

CLI Mode: Privileged

Options: *Disk Identification*

The format for an internal disk ID is *bay*, *slot*/*bay*.

The format for external disk ID is as follows:

device-name **device** *device-id* **slot** *slot*
Or
scard slot / SAS port# / shelf # / disk slot

For 2RU12 and 2RU24, the shelf # will be **0**.

For 5RU84, the shelf # will be **0** or **1**.

Defaults: None

History: Version 3.3 Introduced

Example:
```
seamicro# power-off disk 0/6
Disk 0/6 will be powered-off
Are you sure you want to proceed (yes/no): yes
seamicro#
```

Notes: None

power-off scard

Function: Powers off the S-Card CPU.

Syntax: **power-off** {**scard** *number*} [**no-confirm**]

CLI Mode: Privileged

Options: **scard** Powers off the CPU on the corresponding S-card.

number Enter the S-card number. Range: 0 - 7.

no-confirm Bypass the confirmation dialog.

Defaults: None

History: Version 3.0 Introduced

Example:
```
seamicro# power-off scard 0 no-confirm
```

Notes:
- *SeaMicro recommends that you do not execute **reset scard force** while servers are either powered on or while disk traffic is flowing.*

- ***power-off scard** should not be executed if the SM-card or any C-card is non-operational, i.e. powered off or failed.*

power-off server

Function: Power off servers gracefully by sending an ACPI signal, or power them down forcefully.

Syntax: **power-off server** {*server-id* | **all** | **assigned-to** *pool-id*} [**force**] [**no-confirm**]

CLI Mode: Privileged

Options:

server-id	Enter one or more server IDs. You may enter multiple servers IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.
all	Enter this keyword to power off all servers.
pool-id	Power off the servers that are assigned to a specified pool or range of pools. Enter the pool-id in the form of *slot #/pool-name*. You may enter multiple pools as a comma-separated list, hyphenated range, or a combination of the two. Range: 0/0 - 7/7.
force	Powering down normally uses ACPI and is graceful. Alternatively, you may enter this keyword to remove power from the server immediately. Entering this keyword is the functional equivalent of unplugging a power cord.
no-confirm	Bypass the confirmation dialog.

Defaults: None

History:

Version 2.4	Added **no-confirm** option
Version 2.2	Added **assigned-to** option
Version 2.0	Introduced
Version 3.0	Added *pool-id*

Example:
```
seamicro# show server summary
Server   NIC       MAC            #VDisks   Status    CPU TYPE
---------------------------------------------------------------------------
--
 0/0      0    00:22:99:4e:80:02    2        down     Intel Xeon E3-1265L
 0/0      1    00:22:99:4e:80:04    -         -        -
```

```
0/0     2     00:22:99:4e:80:00      -      -         -
0/0     3     00:22:99:4e:80:06      -      -         -
0/0     4     00:22:99:4e:80:07      -      -         -
0/0     5     00:22:99:4e:80:01      -      -         -
0/0     6     00:22:99:4e:80:03      -      -         -
0/0     7     00:22:99:4e:80:05      -      -         -
1/0     0     00:22:99:4e:80:12      2      up        Intel Xeon E3-1265L
1/0     1     00:22:99:4e:80:14      -      -         -
1/0     2     00:22:99:4e:80:10      -      -         -
1/0     3     00:22:99:4e:80:16      -      -         -
1/0     4     00:22:99:4e:80:17      -      -         -
1/0     5     00:22:99:4e:80:11      -      -         -
1/0     6     00:22:99:4e:80:13      -      -         -
1/0     7     00:22:99:4e:80:15      -      -         -

seamicro#
```

Notes:
- The **force** option is the functional equivalent of unplugging a power cord. In particular, if the internal server that is being forced powered off (as opposed to a **power-off** without the **force** option) the drive controller might reset; this would impact all of the other internal servers that are mapped to the same drive.
- When a server is powered on, but is unable to obtain an OS, it will remain in BIOS. In this case, to power-off the server you must use the **force** keyword.
- For **power-off server** to work on internal servers running Windows, the power button action must be set to "shut down" as part of the power scheme selected by the user. To set this action, access Start>Run>type "Powercfg.cpl">Choose what the power buttons do>select "Shut down" from the drop down list>Save changes.

Related Commands:
show server summary [*number*]

power-on ccard

Function: Supply power to a C-card.

Syntax: **power-on ccard** *number* [**no-confirm**]

CLI Mode: Privileged

Options: *number*   Enter a C-card number between 0 - 63.

             no-confirm   Bypass the confirmation dialog.

Defaults: C-cards are powered on during chassis boot-up.

History: Version 2.4   Introduced

Example:
```
seamicro# show chassis | begin CC
 --- CCards ---
Slot           Status         Servers          Active Servers           CPU-Type
-----------------------------------------------------------------------------------
  0            active         0/0-0/3          0        Intel Atom N570
  1            active         1/0-1/3          0        Intel Atom N570
  2            active         2/0-2/3          0        Intel Atom N570
  3            active         3/0-3/3          0        Intel Atom N570
[...]
```

Notes: A console message is displayed when the C-card becomes operational.
After this message is displayed you may power on the internal servers.
The internal servers on the C-card remain powered off until explicitly
powered on; see power-on scard on page 58.

Related   power-off ccard on page 52
Commands: **show chassis | include** *location*

power-on disk

Function: Powers on the specified disk.

Syntax: **power-on disk** *bay | slot/bay*
power-on disk *device-name* **device** *device-id* **slot** *slot*
power-on disk *scard slot / SAS port# / shelf # / disk slot*

CLI Mode: Privileged

Options: *Disk Identification*

The format for an internal disk ID is *bay, slot/bay*.

The format for an external disk ID is as follows:

device-name **device** *device-id* **slot** *slot*
                              Or
scard slot / SAS port# / shelf # / disk slot

For 2RU12 and 2RU24, the shelf # will be **0**.

For 5RU84, the shelf # will be **0** or **1**.

Defaults: None

History: Version 3.3   Introduced

Example:
```
seamicro# power-on disk 0/6
Disk 0/6 will be powered-on
Are you sure you want to proceed (yes/no): yes
seamicro#
```

Notes: None

power-on scard

Function: Powers on the S-Card CPU.

Syntax: **power-on** {**scard** *number*} [**no-confirm**]

CLI Mode: Privileged

Options: **scard**   Powers on the CPU on the corresponding S-card.

                    number   Enter the S-card number. Range: 0 - 7.

                    no-confirm   Bypass the confirmation dialog.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# power-on scard 0 no-confirm
```

Notes: • *SeaMicro recommends that you do not execute **reset scard force** while servers are either powered on or while disk traffic is flowing.*

           • *__reset mxcard__ and __reset scard__ should not be executed if the SM-card or any C-card is non-operational, i.e. powered off or failed.*

power-on server

Function: Supply power to any or all servers.

Syntax: **power-on server** {**assigned-to** *pool-id*} [**using-pxe || no-confirm**]

CLI Mode: Privileged

Options: **all** Enter this keyword to supply power to all servers.

assigned-to *pool-id*

Power on the servers that are assigned to a specified pool or range of pools. Enter the pool-id in the form of *slot #*/*pool-name*. You may enter multiple pools as a comma-separated list, hyphenated range, or a combination of the two. Range: 0/0 - 7/7.

using-pxe Rather than changing the BIOS to include PXE, you can direct internal servers to boot using PXE for this boot only.

no-confirm Usually after entering the **power-on server** command, the system prompt you to confirm the action. You can bypass this confirmation by adding this keyword.

Defaults: None

History:
Version 2.4	Added **using-pxe** and **no-confirm** options
Version 2.2	Added **assigned-to** option
Version 2.0	Introduced

Example:
```
seamicro# show server summary
ccard/Server#   NIC      IP                MAC          #VDisks  Status     CPU-
Type
-----------------------------------------------------------------------------
-----------------
 0/0            0    not assigned    0022.9913.8000      1      down     Intel
Atom N570
 0/0            1    not assigned    0022.9913.8001      -       -          -
 0/1            0    not assigned    0022.9913.8002      1      down     Intel
Atom N570
 0/1            1    not assigned    0022.9913.8003      -       -          -
[...]
```

Notes: When using the **using-pxe** option, the server power-on action is delayed until the system can fetch the BIOS, which is currently more than 1 minute.

Related Commands:
show server summary [*number*]

quit

quit is also an Unprivileged level command. See .

reload

Function: Reload the system.

Syntax: **reload** [**no-confirm**]

CLI Mode: Privileged

Options: **no-confirm**   Bypass the confirmation dialog.

Defaults: None

History:

Version 2.5	If there are unsaved changes to the running-config, the user is prompted to save the configuration before the reload is executed.
Version 2.4	Added **no-confirm** option
Version 2.0	Introduced

Example:
```
seamicro# reload
Do you want to save the running-config (yes/no): yes
Are you sure you want to reboot the chassis (yes/no):no
seamicro#
```

Notes:
- If there are unsaved configurations, you are prompted to save your configuration before the reload is executed. You are also prompted to confirm the reload. **reload no-confirm** bypasses the reload confirmation, but not the save-running-config dialog.

- This command should not be executed the SM-card is removed or down.
- You must power off the internal servers before reloading the chassis. This command will not execute if any of the internal servers are powered on, and the following message is displayed:

```
seamicro# reload
Are you sure you want to reboot the chassis (yes/no):yes
%Some of the internal servers are up. Reload failed.
```

Related Commands: [power-off scard on page 54](#)

reset

Function: Reset MX-cards and S-Card CPU.

Syntax: **reset** {**mxcard** *number* [**force**] | **scard** *number* **force**} [**no-confirm**]

CLI Mode: Privileged

Options:

mxcard	Reset an MX-card.
scard	Reset the CPU on the corresponding S-card.
number	Enter a MX-card slot number. Range: 0 - 7.
force	Reset is normally graceful. For an MX-card, you may optionally enter this keyword to remove power from the card in order to reset it. Entering this keyword is the functional equivalent of unplugging a power cord and then plugging it back in. This keyword is mandatory for the S-card CPU.
no-confirm	Bypass the confirmation dialog.

Defaults: None

History:

Version 2.4	Added **no-confirm** option
Version 2.0	Introduced

Example:

```
seamicro# reset mxcard ?
mxcard number
seamicro# reset mxcard 0 ?
```

```
Possible completions:
  force         Force
  no-confirm    No confirmation needed
  |             Output modifiers
  <cr>
seamicro# reset mxcard 0
Are you sure you want to reset the mxcard (yes/no):no
seamicro#
```

Notes: • *SeaMicro recommends that you do not execute **reset scard force** while servers are either powered on or while disk traffic is flowing.*

  • ***reset mxcard** and **reset scard** should not be executed if the SM-card or any C-card is non-operational, i.e. powered off or failed.*

  • *The following messages might be displayed after executing **reset mxcard**, and they can be safely ignored:*

```
%MX1-P-ROUTED-4-FR_ERROR:
Fabric reliability is in an ERROR state. in apps/routed/link_monitor.c:178

%MX5-S-PMON-3-APPS_READY: All the apps are ready in apps/pmon/pmon_-
main.c:1549
```

reset server

Function: Reset internal servers.

Syntax: **reset server** {*server-id* | **all** | **assigned-to** *pool-id*} [**using-pxe**] [**no-confirm**]

CLI Mode: Privileged

Options: *pool-id* Reset the servers that are assigned to a specified pool or a range of pools. Enter the pool-id in the form of *slot #/pool-name*. You may enter multiple pools as a comma-separated list, hyphenated range, or a combination of the two. Range: 0/0 - 7/7.

  all Enter this keyword to reset all servers.

  server-id Enter one or more server IDs. You may enter multiple server IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range 0/0 - 63/7.

	using-pxe	Enter this command to have the server boot using PXE as part of the reset process.
	no-confirm	Bypass the confirmation dialog.

Defaults: None

History:

	Version 2.4	Added **using-pxe** and **no-confirm** options
	Version 2.2	Added **assigned-to** option
	Version 2.0	Introduced

Example:
```
seamicro# reset server ?
Possible completions:
  server number: e.g. single server ("0/0"), server ranges ("0/0-5/1"),
multiple
 servers/ranges ("0/1,3/2,5/1-7/5"), all
  assigned-to
seamicro# reset server 4/0
Are you sure you want to reset the server(s) (yes/no):yes
seamicro#
```

Notes: When using the **using-pxe** option, the server reset action is delayed until the system can fetch the BIOS, which is currently more than 1 minute.

restart process

Function: Restart an OS process.

Syntax: **restart process** {**bmc-daemon** | **clicmd-helper-service** | **inet-daemon** | **ntp-daemon** | **route-daemon** | **smob-service** | **snmp-proxy** | **ssh-daemon** | **statistic-monitor** | **storage-daemon** | **sync-service** | **syslog-daemon** | **system-manager** | **terminal-server-service**}

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example: None

Notes: Restarting software processes should be undertaken with **extreme caution**!

If you are restarting more than one software process, or the same process more than once, never kick off the restart unless and until the original process indicates as having been successfully restarted based on the console message and the 'show process' command output.

If you have any questions or concerns regarding the 'process restart' command, please contact SeaMicro's Support Team at seamicro-support@amd.com.

restart scard-process

Function: Restart the disk management process on related S-cards.

Syntax: **restart scard-process {config | cpu-temp-writer | dataproc | ntp-daemon | pericom-monitor} slot** *slot number*

CLI Mode: Privileged

Options:

config	Use this option to restart the configuration process.
cpu-temp-writer	Use this option to restart the cpu-temp-writer process.
dataproc	Use this option to restart the dataproc process.
ntp-daemon	Use this option to restart the ntp-daemon process.
pericom-monitor	Use this option to restart the pericom-monitor process.
slot number	Enter the slot number of the disk.

Defaults: None

History: Version 3.4   Introduced

Example:
```
seamicro#  restart scard-process config slot 5
```

Notes: If the disk firmware is not updated through the '**upgrade disk**' command, you will need to restart the disk management process on the related S-card using this command, so that firmware information can be updated on disk and S-card-related 'show' commands.

Related Commands: **upgrade disk on page 88**

server console

Function: Connect to or disconnect from the console of an internal server.

Syntax: **server console {connect | disconnect}** *server-id*

CLI Mode: Privileged

Options: **connect**   Connect to the console of an internal server.

                disconnect   Disconnect from the console of an internal server.

                server-id   Enter a single internal server ID after the keyword **connect**. After the keyword **disconnect**, you may enter one or more server IDs. You may enter multiple servers IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# server console ?
Possible completions:
  connect      Connect to the console of a server
  disconnect   Disconnect an existing console connection
seamicro# server console
```

Notes: Press the Ctrl and "]" keys together, and you are taken to the "telnet>" prompt. Then, enter "quit."

ssh

Function:	Connect to a network node remotely using SSH.
Syntax:	**ssh** *username* {*ip-address* | *hostname*}
CLI Mode:	Privileged

Options:

username	Enter your username to authorize the connection.
ip-address	Enter the IP address of the system to which you want to connect.
hostname	Enter the name of the target device, which can be resolved through DNS.

Defaults: None

History: Version 2.0   Introduced

Example:

```
seamicro# ssh ?
Username to use for connection
seamicro# ssh example ?
IP address or hostname of remote system to connect
seamicro# ssh admin 192.168.1.1
The authenticity of host '192.168.1.1 (192.168.1.1)' can't be established.
RSA key fingerprint is c4:e2:ab:e4:a4:27:97:2f:c4:fd:9a:de:b3:c4:74:00.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.1.1' (RSA) to the list of known hosts.
admin@192.168.1.1's password:
Copyright (c) 2009-2014 SeaMicro, Inc.
Welcome to SeaMicro OS!
admin connected from 192.168.1.1 using ssh on seamicro
seamicro> quit
Connection to 192.168.1.1 closed.
seamicro#
```

Notes: None

storage add disk

Function:	Adds physical disks to a pool. This command is sensitive to a configured RAID level.

Syntax: **storage add disk** *disk-list* **pool** *slot/pool-name* [**no-confirm**]

CLI Mode: Privileged

Options: *disk-list*   Enter a comma-separated list of disk ID or IDs and/or disk ID range.

                                          The format for an individual disk ID is *bay*, *slot*/*bay*, and *external disk device name* or *address*/*bay*.

                                          The format for a disk range is *slot*/*bay-bay* and *external disk device name* or *address*/*bay-bay*.

                                          Note, slot information is not required when specifying an internal disk ID or range, as the slot information is already implied by the pool ID.

      slot/pool-name   Enter the slot #/pool name. The range for the slot is: 0 - 7.

      no-confirm   If no confirm is present, you will not be asked to confirm selected options.

Defaults: None

History:

Version 3.0	Introduced
Version 3.2	Revised
Version 3.4	Added RAID

Example: Example of disk IDs:
```
seamicro# storage add disk 0,1 pool 1/mypool
```

Example of disk ID range:
```
seamicro# storage ad disk JBOD1/0-2 pool 3/yourpool
```

Notes: Starting with Release 3.4, when adding a disk, the RAID level of the existing pool will be used rather than the RAID level of the S-card.
.

storage clear

Function: Removes all pools and volumes.

Syntax: **storage clear**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro# storage clear
seamicro#
```

Notes:

storage clear-metadata disk

Function: Clears storage metadata on a disk.

Syntax: **storage clear-metadata disk** *number* **slot** *number*

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.2.2   Introduced

Example:
```
seamicro# storage clear-metadata disk
seamicro#
```

Notes:

storage create pool

Function:	Creates a new storage pool within a given physical disk or disks.	
Syntax:	Non-RAID:	
	storage create pool *slot/pool-name* **disk** *disk-list*	
	RAID:	
	storage create pool *slot/pool-name* **disk** *disk-list* [raid-level (0|1|5|6|10)]	
CLI Mode:	Privileged	
Options:	*slot/pool-name*	Enter the pool id as slot #/pool name.
	disk-list	Enter a comma-separated list of disk ID or IDs and/or disk ID range.
		The format for an individual disk ID is *bay*, *slot*/*bay*, and *external disk device name* or *address*/*bay*.
		The format for a disk range is *slot*/*bay-bay* and *external disk device name* or *address*/*bay-bay*.
		Note, slot information is not required when specifying an internal disk ID or range, as the slot information is already implied by the pool ID.
	raid-level	Enter the RAID level for the S-card.
		The provided RAID level should be one of the RAID levels supported by the S-card in the slot.
		This command will fail:
		If a RAID level option is provided for a non-RAID S-card.
		If a RAID level option is not provided for a RAID S-card.

If the specified RAID level is not one of the configured RAID levels.

Defaults: None

History:
Version 3.0	Introduced
Version 3.4	Added RAID level.

Example: `seamicro# storage create pool 2/nicepool disk 0-4,7,JBOD/10-12 raid-level 5`

Notes:
- The maximum number of disks for RAID is 128.
- The maximum number of disks for each RAID level is as follows:
  - RAID 1 -- 2
  - RAID 5 -- 32
  - RAID 6 -- 32
  - RAID 10 -- 64

storage create volume

Function: Creates a single volume from the specified pool.

Syntax: **storage create volume** *slot/pool-name/volume-name* **size** {*gigabytes*|**max**} [**background**]

CLI Mode: Privileged

Options: *slot/pool-name/volume-name*

Enter the slot number, pool name, and volume name.

gigabytes   Enter the size of the disk in gigabytes.

max   Enter '**max'** to allocate volume to all of the remaining capacity of the specified pool, 1/nth of the remaining pool capacity, or a percent (%) of the total pool capacity.

	background	If '**background**' is present, this command will be processed in the background.
Defaults:	Foreground	
History:	Version 3.0	Introduced
Example:	`seamicro# storage create volume 1/mypool/myvol size 12`	
Notes:	None.	

storage create volume-prefix

Function:	Creates multiple volumes from the specified pool.
Syntax:	**storage create volume-prefix** *slot/pool-name/volume-name-prefix* **size** {*gigabytes*|**max**} [**start** *volume-start-number*] [**count** *number-of-volumes*] [**background**]
CLI Mode:	Privileged
Options:	*slot/pool-name/volume-name-prefix*

	Enter the *slot #/pool name/volume name.*
gigabytes	Enter the size of the disk in gigabytes.
max	Enter '**max**' to allocate volume to all of the remaining capacity of the specified pool, 1/nth of the remaining pool capacity, or a percent (%) of the total pool capacity.
volume-start-number	Enter the volume start number.
number-of-volumes	Enter the number of volumes.
background	If '**background**' is present, this command will be processed in the background.

Defaults:	Start: 0, count: 1, foreground
History:	Version 3.0 Introduced

Example: `seamicro# storage create volume-prefix 2/nicepool/centos start 8 count 4 size 12`

Notes:
- Fully qualified names of volumes created by the above example are: 2/nicepool/centos-8, 2/nicepool/centos-9, 2/nicepool/centos-10, 2/nicepool/centos-11.
- A progress indication character '*' will be printed on the console whenever a volume is created or deleted, or a pool is created by provisioning.

storage delete pool

Function: Deletes an existing pool.

Syntax: **storage delete pool** *slot/pool-name*

CLI Mode: Privileged

Options: *slot/pool-name*   Enter the slot number and pool name.

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# storage delete pool 2/nicepool`

Notes: For this command to be successful, delete all volumes of the pool first before deleting the existing pool.

storage delete volume

Function: Deletes a single volume from the specified pool.

Syntax: **storage delete volume** *slot/pool-name/volume-name* [**background**]

CLI Mode: Privileged

Options: *slot/pool-name/volume-name*

Enter the slot number, pool name, and volume name.

Defaults: Wait

History: Version 3.0   Introduced

Example: `seamicro# delete volume 1/mypool/myvol`

Notes: If background is present, this command will be processed in the background.

A volume cannot be deleted if it is assigned to a server.

storage delete volume-prefix

Function: Deletes multiple volumes from the specified pool.

Syntax: **storage delete volume-prefix** *slot/pool-name/volume-name-prefix* [**start** *volume-start-number*] [**count** *number-of-volumes*] [**background**]

CLI Mode: Privileged

Options: *slot/pool-name/volume-name-prefix*

Enter the slot number, pool name, and the volume name prefix.

volume-start-number   Enter the volume start number.

number-of-volumes   Enter the number of volumes.

Defaults: Start: 0, Count: 1, Wait

History: Version 3.0   Introduced

Example: `seamicro# delete volume-prefix 2/nicepool/centos start 8 count 4`

Notes: • If background is present, this command will be processed in the background.
• A volume cannot be deleted if it is assigned to a server.

- A progress indication character '*' will be printed on the console whenever a volume is created or deleted, or a pool is created by provisioning.

storage mount pool

Function: Mounts all un-mounted pools.

Syntax: **storage mount pool** [**slot** *slot*]

CLI Mode: Privileged

Options: *slot*   Enter the S-card slot number. Range: 0 - 7.

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# storage mount pool 0`

Notes:
- Discovered pools are mounted by default, but pools can be unmounted manually with this command. Once a pool is un-mounted, disks of a pool can be safely removed from the system.
- If there is at least one assigned volume in a specified pool, this command will fail.
- All pending write operations to the pool's underlying disks will be executed by this command.
- Once a pool is unmounted, a user can re-use the disks from the unmounted pool to create new pools. This will overwrite the existing pool information on the disk with the new pool information.
- There can be only one pool related to a disk in the un-mounted state. And, only this pool will mount the next time the user processes this command.

storage provision

Function:	Provisions storage in a pre-defined manner. This command allows for system-wide or slot-wide provisioning of storage to be completed in one simple step.
Syntax:	**storage provision** *size* {*gigabytes*|*max*} **slot** {*slot-range*|**all**} **disk** {**internal-disks**|**external-disks**|**all**} **method** {*pool-per-disk*|*pool-per-slot*} [**raid-level** {*0*|*1*|*5*|*6*|*10*} [**stripe-size** (16 | 32 | 64 | 256 | 512 | 1024)] || [**hot-spares** *number-of-hot-spare-disks*]] **pool-name** {*pool-name*|*pool-name-prefix*} **volume-name-prefix** *volume-name-prefix* [**no-confirm** [**background**]]
CLI Mode:	Privileged

Options:		
	size	Enter the size in gigabytes or '**max'** to allocate volume to all of the remaining capacity of the specified pool, 1/nth of the remaining pool capacity, or a percent (%) of the total pool capacity.
	slot	Enter the S-card slot number. For example, for a single slot, enter a number such as 0; for a range, enter a range such as 2 - 5; for multiple slots/ranges, enter as follows, 0, 2, 5 - 7, or specify '**all**.'
	disk	Enter the disk option to specify which disks to include in the provisioning. If **'internal-disks'** is specified, free disks among internal ones will be used for the provisioning. If **'external-disks'** is specified, free disks among external ones will be used for provisioning. If **'all'** is specified, free disks among both internal and external ones will be used for provisioning.
	method	If you choose **pool-per-disk**, a separate pool will be created for each disk, and then one or more volume of a specified size will be created from the pool, until the pool reaches maximum capacity.
		If you choose **pool-per-slot**, the biggest pool will be created in each slot, and then one or more volume of a specified size will be created from the pool, until the pool reaches maximum capacity.

stripe-size	A stripe size configured by the '**storage set raid stripe-size**' command will be used for all pools created by the '**storage provision**' command on a RAID S-card.
number-of-hot-spare-disks	
	Hot spares configured by the '**storage set raid hot-spares**' command will be assumed by the '**storage provision'** command.
pool-name	Enter the pool name. The biggest pool will be created in each slot, and then one or more volume of a specified size will be created from the pool, until the pool reaches maximum capacity.
volume-name-prefix	Enter the volume name prefix.
no confirm	If no confirm is present, you will not be asked to confirm selected options.
background	If background is present, this command will be processed in the background.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# storage provision size 32 slot all disk all \
 method pool-per-disk pool-name pool volume-name-prefix volume

seamicro# storage provision size 32 slot all disk all \ method
pool-per-slot raid-level 5  pool-name \ pool volume-name-prefix
volume
```

Notes:
- Currently, the maximum number of volumes that **storage provision** will create per S-card is 384.
- A progress indication character '*' will be printed on the console whenever a volume is created or deleted, or a pool is created by provisioning.
- Starting with Version 3.2, this command can be used many times on the same storage as long as there are free disks that can satisfy specified storage provision parameters.
- If the RAID-level option is not specified but a RAID-capable S-card is found, this command will fail.

- If the RAID-level option is provided but it does not match one of the configured RAID levels, this command will fail.
- Even if a user aborts provisioning midway with Ctrl C, the storage provision command will continue to run in the background.

storage rename pool

Function:	Renames the name of an existing pool.
Syntax:	**storage rename pool** *slot/pool-name* **to** *new-pool-name*
CLI Mode:	Privileged

Options:

slot/pool-name	Enter the S-card slot number and the pool name of the existing pool. Range for the slot number is 0-7.
new-pool-name	Enter t*he new pool name.*

Defaults:	None.
History:	Version 3.2 Introduced
Example:	`seamicro(config)# storage rename pool 2/nicepool to bigpool`
Notes:	For renaming to be successful, there should be no assignment configuration to any volume of the pool.
Related Commands:	**storage create pool** **storage delete pool**

storage set disk-io

Function: Sets disk input/output mode.

Syntax: **storage set disk-io mode {write-through | write-back | nofsync-write-back} slot** *slot*

CLI Mode: Privileged

Options: **write-through**   Enter this option to filter fsync, and disable vdisk write caching.

This mode ensures data is always written to the disk by disabling the write-cache feature on the S-card and disabling write-cache on the physical disks attached to the S-card.

This mode is most suitable for applications that need the S-card to ensure data consistency. Fsync commands are dropped in this mode, since data is always written to the physical disk.

write-back   Enter this option to honor fsync, and enable vdisk write-back.

This mode improves I/O performance by caching write-data on the S-card and by enabling disk write-cache.

This mode is set when applications can manage data consistency at the application layer. In this mode, applications can use the fsync command to flush data in the cache to the physical disk. This mode is the **default mode** of operation.

nofsync-write-back

Enter this option to filter fsync, but enable vdisk write-back.

> This mode improves I/O performance by caching write-data on the S-card and by enabling disk write-cache.
>
> This mode is set when applications need weak data consistency. When the S-card is set in this mode, all fsync commands are ignored. This mode is the same as write-back, except the fsync commands are ignored in this mode.

slot	Enter the S-card slot number. Range for the slot number is 0-7.

Defaults: **write-back**

History: Version 3.4   Introduced

Example: To check the current configured mode, use the '**show storage scard**' command as seen in the example below:

```
seamicro(config)# show storage card
mgmt.status: up
disk io mode: write-back
```

Notes:
- This command will cause the specified S-card to restart.
- A warning message will display, and user confirmation will be required.
- For a RAID S-card, only write-back mode will be allowed, and a disk-I/O mode change to any other will be denied.

Related Commands:

storage set mgmt-mode

Function: Selects a storage management mode.

Syntax: **storage set mgmt-mode** {**disk** | **volume**} **slot** *slot*

CLI Mode: Privileged

Options: *slot*   Enter the S-card slot number. Range for the slot number is 0-7.

Defaults: Volume.

History: Version 3.3   Introduced

Example: `seamicro(config)# storage set mgmt-mode disk slot 1`

Notes: The default is 'volume-based storage management.'
The default is always '**volume**' on a RAID S-card.
It is possible to switch to the disk mode, but only on a non-RAID S-card.
- However, if a pool exists, this command will result in an error unless accompanied by the option '**force**.' Any existing pool, volume, or data may or may not be recoverable.
- Also, there should be no active assignments of disks or volumes on the S-card.
- If the management mode is '**disk**,' raw disks can be assigned to servers, and management of pools and volumes will be disabled.
- If the management mode is '**volume**,' management of pools and volumes will be available, but use of raw disks will not be available.

Related Commands: **storage provision**
storage create pool
storage create volume
storage assign

storage set raid hot-spares

Function: As part of the RAID function, this command specifies one or more disks that can be used as hot spare disks by an S-card in a specified slot.

Syntax: **storage set raid hot-spares none slot** *slot*
storage set raid hot-spares list *disk-list* **slot** *slot*
storage set raid hot-spares count *disk-count* **slot** *slot*
storage set raid hot-spares count auto slot *slot*

CLI Mode: Privileged

Options:

none	Use this option to disable the hot spare function.
slot	Enter the S-card slot number. The range is: 0 - 7.
disk-list	Enter a comma-separated list of disk ID or IDs and/ or disk ID range.
	The format for an individual disk ID is *bay*, *slot*/*bay*, and *external disk device name* or *address*/*bay*.
	The format for a disk range is *slot*/*bay-bay* and *external disk device name* or *address*/*bay-bay*.
	Note: Slot information is not required when specifying an internal disk ID or range, as the slot information is already implied by the pool ID.
disk-count	Enter the number of the largest disks among free disks to be selected and configured as hot spare disks.
auto	Enter this option to authorize a free disk to be automatically selected as a hot spare disk.

Defaults: Hot spares: **None**.

History: Version 3.2   Introduced

Example: `seamicro# storage set raid hot-spares list 5-7,JBOD/10 slot 1`

Notes:

Related Commands:	**storage set raid level** **show storage**

storage set raid level

Function:	Sets the RAID level that will be used by an S-card as identified by the slot.
Syntax:	**storage set raid level** {0|1|5|6|10|1,5|1,6} **slot** *slot*
CLI Mode:	Privileged
Options:	*slot* Enter the S-card slot number. The range is: 0 - 7.
Defaults:	RAID **5** for RAID-capable S-cards.
History:	Version 3.2 Introduced Version 3.4 Added multiple RAID levels (1,5 and 1,6).

Example:
```
seamicro# storage set raid level 4 slot 10

seamicro# storage set raid level 5 slot 1,5

seamicro# show storage scard slot 5
slot 4
        mgmt. status: up
          mgmt. mode: volume
          raid level: 1,5   <-----
         stripe size: 512KB
    firmware version: 19174
        disk-io mode: write-back
```

Notes:	• The RAID level is persistent. • The RAID level is not changeable if there is a defined pool in the S-card. The RAID level you want to change to should be a super set of the RAID level(s) of the configured pool(s). •

- With Release 3.4, mirroring enables the coexistence of multiple RAID levels per S-card. The two configurations supported are:
  - RAID 1 and RAID 5
  - RAID 1 and RAID 6
- Backward and Forward Compatibility of RAID across Releases:
  - If Release 3.3 is replaced with Release 3.4 or newer, the existing RAID level will be inherited.
  - If Release 3.4 is replaced with Release 3.3 or older, the first RAID level of the RAID levels configured in Release 3.4 will be applied.

Related Commands: **storage set raid hot-spares**
show storage

storage umount pool

Function: Un-mounts a specified pool.

Syntax: **storage umount pool** *slot/pool-name*.

CLI Mode: Privileged

Options: *slot/pool-name*   Enter the slot number and the pool name.

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# storage unmount pool 0/nicepool`

Notes:
- Discovered pools are mounted by default, but pools can be unmounted manually with this command. Once a pool is un-mounted, disks of a pool can be safely removed from the system.
- If there is at least one assigned volume in a specified pool, this command will fail.
- All pending write operations to the pool's underlying disks will be executed by this command.
- Once a pool is unmounted, a user can re-use the disks from the unmounted pool to create new pools. This will cause the existing pool information on the disk to be overwritten with the new pool information.

- There can be only one pool related to a disk in the un-mounted state. And, only this pool will mount the next time the user processes this command.

system switchover

Function:	Failover to a secondary MX-card.
Syntax:	**system switchover** *number* [**no-confirm**]
CLI Mode:	Privileged
Options:	*number* Enter the number of a secondary MX-card. Range: 0 - 7.
	no-confirm Bypass the confirmation dialog.
Defaults:	None
History:	Version 2.4 Added **no-confirm** option Version 2.2 Introduced

Example:

```
seamicro# show redundancy
System redundancy information
        Primary slot: 1
        Configured Primary slot:
        Eligible Primary slot(s): 1, 3, 5
        Ineligible Primary slot(s):
        Version mismatched slot(s):
        POST Failure slot(s):
        My slot: 1
        Number of Secondary: 2
        Redundancy enabled
        Switchover Count: 0
        Initial selection: System Selection
seamicro# system switchover
Are you sure you want to activate the switchover (yes/no):yes
[...]
seamicro# show redundancy
System redundancy information
        Primary slot: 3
        Configured Primary slot:
        Eligible Primary slot(s): 1, 3, 5
        Ineligible Primary slot(s):
        Version mismatched slot(s):
        POST Failure slot(s):
        My slot: 3
        Number of Secondary: 2
        Redundancy enabled
        Switchover Count: 1
```

```
              Last switchover time: 2011-08-17 21:02:59
              Last switchover reason: User Selection
seamicro#
```

Notes: This command should not be executed the SM-card is removed or down or if any C-card is non-operational (powered off or failed).

Related Commands: **show redundancy**

---

telnet

Function: Connect to a network node remotely using TELNET.

Syntax: **telnet** {*ip-address* | *hostname*}

CLI Mode: Privileged

Options: *ip-address*   Enter the IP address of the system to which you want to connect.

          hostname   Enter the name of the target device, which can be resolved through DNS.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# telnet 192.168.1.1
Trying 192.168.1.1...
Connected to 192.168.1.1.
Escape character is '^]'.

Linux 2.2.14 (TSx000) (ttyp1)


TSx000 login:
```

Notes: Press the Ctrl and "]" keys together, and you are taken to the "telnet>" prompt. Then, enter "quit."

terminal

Function:	Control how information is displayed on your screen.
Syntax:	**terminal** {**idle-timeout** *seconds* | **length** *rows* | **width** *columns*}
CLI Mode:	Privileged

Options:

length *rows*	Enter the number of lines that are displayed before pagination.
width *columns*	Number of characters that are displayed before text is wrapped to the next line.

Defaults:
idle-timeout = 3600 seconds
length = 24 rows
width = 80 columns

History: Version 2.0   Introduced

Example:

```
seamicro# terminal ?
Possible completions:
  idle-timeout   Configure idle timeout
  length         Set number of lines on a screen
  width          Set width of the display terminal
seamicro# terminal width ?
<number of columns>
seamicro# terminal width 80
seamicro# show terminal
autowizard            false
complete-on-space     true
display-level         99999999
history               100
idle-timeout          3600
ignore-leading-space  true
output-file           terminal
paginate              true
screen-length         24
screen-width          118
service prompt config true
show-defaults         false
terminal              xterm
seamicro#
```

Notes: None

Related Commands: **show terminal**

top

Function: Display system tasks and their current CPU usage.

Syntax: **top**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# top
load averages:  0.00,  0.14,  0.10                     up 0 days,  0:08   17:30:30
54 processes:  1 runnable, 50 sleeping, 2 zombie, 1 on processor
CPU states:  0.0% user,  0.0% nice,  0.0% system,  0.5% interrupt, 99.5% idle
Memory: 125M Act, 48K Inact, 1088K Wired, 9664K Exec, 7616K File, 715M Free
Swap:

  PID USERNAME PRI NICE   SIZE   RES STATE     TIME   WCPU    CPU COMMAND
  225 root       2    0  9456K   12M poll      0:31  0.00%  0.00% sysmgr
  115 root       2    0    15M   18M poll      0:14  0.00%  0.00% confd
 4189 root       2    0    18M   19M poll      0:05  0.00%  0.00% routed
[...]
```

Notes: The output updates every few seconds.

traceroute

Function: Display the hops taken to reach a destination.

Syntax: **traceroute** {*ip-address* | *hostname*}

CLI Mode: Privileged

Options: *ip-address*   Enter the IP address of the destination node.

            hostname   Enter the name of the target device, which can be resolved through DNS.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# traceroute ?
IP address of host to traceroute
seamicro# traceroute 192.168.1.211
traceroute to 192.168.1.211 (192.168.1.211), 64 hops max, 40 byte packets
 1  192.168.1.211 (192.168.1.211)  0.489 ms  0.373 ms  0.313 ms
seamicro#
```

Notes: **traceroute** is intended for use on the out-of-band (OOB) network; you may trace the route to IP addresses on the OOB network only.

upgrade disk

Function: Upgrade disk firmware by disk model.

Syntax: **upgrade disk scp:** *ip-address user fiirmware_file disk_model*

CLI Mode: Privileged

Options: **scp:**   Enter this keyword to copy the firmware from a remote location.

        ip-address   Enter the IP address from where to retrieve the firmware file.

        user   Enter the file owner's user name.

        firmware_file   Enter the name of the firmware file that you wish to copy from a remote location.

        disk_model   Enter the disk model to update specified disks within an S-card.

Defaults: None

History: Version 3.4   Introduced

Example:
```
seamicro# upgrade disk scp: 10.216.136.3 root G4-SL08-32R31-NN-
v2.4.1.BB3-b0785_C20T "STEC S846E2000M2"
```

Notes: • The firmware is a file stored on a remote host. When the upgrade starts, the chassis executes a secure copy of the file from the specified IP address using the user name of the file's owner, and applies it to the target disks.
• When the firmware update is completed, the new firmware version will display in various storage-related '**show**' commands.
• However, if disk firmware is updated using third party tools for specific disk vendors via debug commands, then restart the disk management process on the related S-card, so that firmware information is correctly displayed on disk and S-card-related '**show**' commands.

Related Commands:

upgrade storageEnclosure

Function: Upgrade the storage enclosure firmware. The enclosure will be rebooted if required. This may affect disk operations. This command may take up to 10 minutes to execute completely.

Syntax: **upgrade storageEnclosure scp:** *ip-address user-filename scardID I enclosureID*

CLI Mode: Privileged

Options: *ip-address*   Enter the IP address of the node from which to copy the file.

user-filename   Enter the name of the file that you want to copy.

scardID   Enter the ID of the S-card.

enclosureID   Enter the ID of the enclosure.

Defaults: None

History: Version 3.3   Introduced

Example: ```
seamicro# upgrade storageEnclosure scp: 10.10.10.1 admin testupgrade.tar.gz 0/0
```

**Notes:** None

# write memory

| | |
|---|---|
| **Function:** | Copy the running-configuration over the startup-configuration. |
| **Syntax:** | **write memory** |
| **CLI Mode:** | Privileged |
| **Options:** | None |
| **Defaults:** | None |
| **History:** | Version 2.0        Introduced |

**Example:**
```
seamicro# write mem
seamicro#
```

**Notes:** None

**Related Commands:** **dir**
**show startup-config**

# write lcd-display

| | |
|---|---|
| **Function:** | Configure the text that will be displayed on the first line of the SM-card front panel LCD. |
| **Syntax:** | **write lcd-display** *string* [*duration*] |
| **CLI Mode:** | Privileged |

**Options:**

| | |
|---|---|
| *string* | Text string that will be displayed. |
| *duration* | Indicate the number of seconds that the text message will be displayed on the LCD. This is an optional parameter. If you do not specify this |

duration, then the message will be displayed as long as the chassis remains in an Up state.

**Defaults:**   None

**History:**   Version 3.3          Introduced

**Example:**   `seamicro#` **`write lcd-display`**

**Notes:**   When you configure this text string successfully, CLI will display the following message, "Front panel display is configured successfully," or display an error message instead.

**Related Commands:**

# Chapter 5    Configuration Level Commands

The Configuration level commands are:

# authentication

**Function:**  Specify a user authentication method.

**Syntax:**  **authentication login** [**default** {**local** | **radius** | **tacacs+** | [{**local** || **radius** || **tacacs+** }]}]

**CLI Mode:**  Configuration

**Options:**

[        Enter this keyword followed by a space to indicate a method list will follow.

**local**        Enter this keyword to use the system username and password to authenticate the user.

**radius**        Enter this keyword to use RADIUS to authenticate the user.

**tacacs+**        Enter this keyword to use TACACS+ to authenticate the user.

**]**        Enter this keyword to syntactically end the method list.

**Defaults:**  The default authentication method is **local**.

**History:**  Version 2.0        Introduced

**Example:**
```
seamicro(config)# authentication ?
Possible completions:
  login   login method
seamicro(config)# authentication login ?
Possible completions:
  default   Default login authentication method
  | Output modifiers
```

```
   <cr>
seamicro(config)# authentication login default ?
Possible completions:
  [  local  radius  tacacs+
seamicro(config)# authentication login default [ local radius ?
Possible completions:
  ]  local  radius  tacacs+
seamicro(config)# authentication login default [ local radius ] ?
Possible completions:
  |  <cr>
seamicro(config)# authentication login default [ local radius ]
seamicro(config)# do show authentication

authentication method: local radius
-----------------------------------

seamicro(config)#
```

Notes: None

Related   **show authentication**
Commands: **show running-config authentication**

---

authentication user

Function: Specify the names of the users who should be eligible for authentication. Multiple usernames can be configured. Enter the command once for each username.

Syntax: **authentication user** *username*

CLI Mode: Configuration

Options: *username*   Specify a username that should be eligible for authentication.

Defaults: None

History: Version 2.5   Introduced

Example:
```
seamicro(config)# authentication user ?
Possible completions:
  name:Configure Username
seamicro(config)# authentication user example1 ?
Possible completions:
  |  <cr>
seamicro(config)# authentication user example1
seamicro(config)# authentication user example2
seamicro(config)# do show running-config authentication user
authentication user example1
```

```
authentication user example2
seamicro(config)#
```

Notes: None

Related Commands: **show running-config authentication**

bios

Function: Configure BIOS parameters for the internal servers.

Syntax: **bios** {**boot-order** {**hd0** || **hd1** || **hd2** || **hd3** || **pxe**} | **c-states** | **cpufreq-scaling** | **hide-topmem** | **hyperthreading**}

CLI Mode: Server

Options: **boot-order** *string*   Enter the keyword followed by the list of devices from which the server attempts to boot. The list is order-dependant.

An **Atom-based system** supports up to 4 bootable disks or physical devices and PXE in any order. In such a system, it is possible to configure bios parameters as 'bios boot-order hd0, hd1, hd2, hd3.' If hd0 fails, the system will automatically use the drive that follows hd0.

A **Xeon- or Opteron-based system** supports only 1 bootable disk or physical device and PXE in any order. Therefore, the bios parameter can only be 'bios boot-order hd0,' 'bios boot-order hd1,' 'bios boot-order hd2,' or 'bios boot-order hd3.'

Although, there are no restrictions to configuring up to 4 physical devices and PXE on an Atom, Xeon, or Opteron-based system, the applied boot order will contain only one physical device and PXE.

c-states　　　　　　Enable/disable C-States for internal servers.

cpufreq-scaling　　Enable/disable CPU frequency scaling.

hide-topmem　　　　Enable/disable 1GB of RAM so that some older operating systems can correctly install on the SM15K.

hyperthreading　　Enable or disable hyperthreading.

Defaults:　boot-order=hd0, hd1, hd2, hd3
c-states=enabled
cpufreq-scaling=enabled
hyperthreading=enabled

History:　Version 2.6　　　　　Added **hide-topmem** option
Version 2.4.2.0　　Introduced **cpufreq-scaling** option
Version 2.0　　　　Introduced

Example:
```
seamicro(config)# server id 0/0
seamicro(config-id-0/0)# bios ?
Possible completions:
  boot-order       Set BootOrder for server, default:hd0,hd1,hd2,hd3
  c-states         Enable C-states for server, default:disabled
  cpufreq-scaling  Enable cpu frequency scaling and turbo mode for
server,
                   default:disabled
  hide-topmem      Hide top memory to support old OS's,
default:disabled
  hyperthreading   Configure HyperThreading for server,
default:enabled
seamicro(config-id-0/0)# bios
```

Notes:　• PXE is supported only on the first NIC of multi-NIC internal servers.
　　　　　• When you enter more than one location, the locations must be comma-separated (no spaces). For example, **bios boot-order hd0,hd2,pxe**.
　　　　　• The **bios boot-order** command allows the user to explicitly set the order of methods by which a server will attempt to boot. When configuring the boot order, if you do not enter all of the available devices in some order, the system will implicitly complete the boot order list with the remaining "hd" parameters. For example:
　　　　　• If you explicitly configure '**bios boot-order hd2**,' the resulting configuration will be **bios boot-order hd2, hd0, hd1, hd3**. You can

see the difference by comparing the output of **show config** in the server CLI context to the output of **show server bios**, as shown in the example above.

- If the configuration is hd0, hd1, hd2, hd3, PXE, the boot order in the respective systems will be as follows:
  - Atom-based system - hd0, hd1, hd2, hd3, pxe.
  - Xeon- and Opteron-based systems - hd0, pxe.
- If the configuration is hd1, pxe, hd2, hd3, hd0, the boot order in the respective systems will be as follows:
  - Atom-based system - hd1, pxe, hd3, hd0.
  - Xeon- and Opteron-based systems - hd1, pxe.
- In the SeaMicro system, internal server CPUs have CPU Frequency Scaling disabled in the BIOS by default. CPU frequency scaling is a feature that adjusts the CPU frequency up or down based on usage, in order to conserve power. The **cpufreq-scaling** keyword enables CPU frequency scaling.
  - If this keyword is configured for a server, the CPU will be governed by the server OS through the acpi-CPUfreq scaling_governor. On Xeon internal servers, this command enables "Intel Turbo Boost Technology 2.0."
  - If this keyword is not configured, then the CPU is controlled by the BIOS and set to the CPU's maximum frequency.
- The SM15K supports 4GB of RAM. The CentOS 4.8 installer has addressing issues within the 4GB memory space, and so the OS installs correctly only if the memory available is 3GB or less. To work around this issue, hide 1GB of memory and show only 3GB of RAM using the BIOS configuration command **bios hide-topmem**.

Related Commands:	**show server bios** **show run server id**

boot-at-system-startup

Function:	Configure system at bootup.
Syntax:	**boot-at-system-startup [disable, enable]**
CLI Mode:	Server
Options:	**boot-at-system-startup**

Enable/disable boot at system startup.

Defaults:

History: Version 3.0   Introduced

Example:
```
seamicro(config)# server id 0/0
seamicro(config-id-0/0)# boot-at-system-startup
[disable,enable] (disable): d
seamicro(config-id-0/0)# show config
server id 0/0
 boot-at-system-startup disable
 description           "Xeon Intel Server"
 bios hyperthreading enable
 bios c-states   enable
 bios hide-topmem disable
 bios cpufreq-scaling enable
 bios boot-order hd0,hd1
[...]?
```

Notes: None

Related Commands: **show running-config server id** *number*

clock

Function: Set the clock timezone.

Syntax: **clock timezone** {**CST6CDT** | **China** | **EST5EDT** | **GMT** | **India** | **Japan** | **MST7MDT** | **Mexico** | **PST8PDT**}

CLI Mode: Configuration

Options:

CST6CDT   Enter this keyword to set the timezone to Central Standard Time.

China   Enter this keyword to set the timezone to China Standard Time.

EST5EDT   Enter this keyword to set the timezone to Eastern Standard Time.

GMT   Enter this keyword to set the timezone to Greenwich Mean Time.

India	Enter this keyword to set the timezone to India Standard Time.
Japan	Enter this keyword to set the timezone to Japan Standard Time.
MST7MDT	Enter this keyword to set the timezone to Mountain Standard Time.
Mexico	Enter this keyword to set the timezone to Mexico Standard Time.
PST8PDT	Enter this keyword to set the timezone to Pacific Standard Time.

Defaults: None

History: Version 2.0 Introduced

Example:
```
seamicro(config)# clock ?
Possible completions:
  timezone   Name of time zone
seamicro(config)# clock timezone ?
Possible completions:
  CST6CDT   Central Standard Time
  China     China Standard Time
  EST5EDT   Eastern Standard Time
  GMT       Greenwich Mean Time
  India     India Standard Time
  Japan     Japan Standard Time
  MST7MDT   Mountain Standard Time
  Mexico    Mexico Standard Time
  PST8PDT   Pacific Standard Time
seamicro(config)# clock timezone PST8PDT
seamicro(config)# do show running-config clock
clock timezone PST8PDT
seamicro(config)# do show clock
Sun Aug 14 18:48:56 PDT 2011
seamicro(config)#
```

Notes: None

Related Commands:
show clock
show running-config clock

description

Function: Add a description to a server.

Syntax: **description** *string*

CLI Mode: Server

Options: *string*   Enter a string that describes the server.

Defaults: There is no default description.

History: Version 2.6   Introduced

Example: None

Notes: None

end

Function: Move to Privileged level.

Syntax: **end**

CLI Mode: Configuration

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# config
Enter configuration commands, one per line. End with CNTL/Z.
seamicro(config)# interface mgmteth
seamicro(config-if)# end
seamicro#
```

Notes: None

enable password

Function: Set a password challenge to access Privileged mode.

Syntax: **enable password** *string*

CLI Mode: Configuration

Options: *string*   Enter a password.

Defaults: There is no default enable password.

History: Version 2.0   Introduced

Example:
```
seamicro(config)# enable ?
Possible completions:
  password   Configure enable password
seamicro(config)# enable password ?
Possible completions:
  MD5 digest string
seamicro(config)# enable password seamicro
seamicro(config)# do show running-config enable
enable password $1$dz$5b3eIR7.54sxNdrqmPdQl.
seamicro(config)#
```

Notes: The encrypted password is displayed in the running-configuration.

Related Commands: **show running-config enable**

exit

exit is also an Unprivileged level command. See .

hostname

Function: Create a mnemonic name for the system.

Syntax: **hostname** *string*

CLI Mode: Configuration

Options: *string*   Enter a hostname.

Defaults: The default hostname is "seamicro."

History: Version 2.0   Introduced

Example:

```
seamicro(config)# do show running-config hostname
% No entries found.
seamicro(config)# hostname ?
Possible completions:
  Hostname
seamicro(config)# hostname example
example(config)# do show running-config hostname
hostname example
example(config)# hostname seamicro
seamicro(config)# do show running-config hostname
hostname seamicro
seamicro(config)# no hostname
seamicro(config)# do show running-config hostname
% No entries found.
seamicro(config)#
```

Notes: When the system is using the default hostname, "seamicro" no hostname configuration appears in the running-config, as shown in the example above.

Related Commands: **show running-config hostname**

interface gigabitethernet

Function: Configure an Ethernet port on an MX-card.

Syntax: **interface gigabitethernet** *slot*/*port* [**description** *string* || **gratuitous-arp** || **shutdown || tagged-vlan** [*id* | *range*] **|| untagged-traffic-drop || untagged-vlan** [*id*]]

CLI Mode: Configuration

Options: *slot*/*port*   Enter an MX-card number followed by a port number.

            description *string*   Enter the keyword followed by a description of the port.

            gratuitous-arp   Enter the keyword to enable Gratuitous ARP on the interface.

            shutdown   Shutdown the interface.

tagged-vlan   Assign a tagged VLAN. Use the **tagged VLAN** keyword to tag a VLAN on a specified interface. When a VLAN is tagged, a VLAN-ID tag is appended to the frame. This tag helps identify the VLAN that a frame belongs to.

id   Designate this VLAN for tagged traffic on this interface. All the tagged traffic received on this interface will be classified under this VLAN.

range   Enter the VLAN ID range from 1 to 4094 for information on the specified VLANs.Use a hyphen (-) to specify a range of consecutive numbers, and use a comma (,) to separate numbers that are non-consecutive.

untagged-traffic-drop Disable all untagged traffic on the interface where this command is issued. By default untagged traffic is enabled.

untagged-vlan   Assign an untagged VLAN. Use the **untagged VLAN** keyword to ensure that a VLAN cannot be tagged, so that it is hard to distinguish which VLAN the frame belongs to.

id   Designate this VLAN for untagged traffic on this interface. All the untagged traffic received on this interface will be classified under this VLAN.

Defaults: None

History: Version 2.0   Introduced.
              Version 3.3   Introduced **tagged-vlan**, **untagged-traffic-drop**, and **untagged-vlan**.

Example:
```
seamicro(config)# interface gigabitethernet 0/0 ?
Possible completions:
  description           A character string describing this interface
  gratuitous-arp        Enable sending gratuitous ARP on this interface
  shutdown              Shutdown this interface
  tagged-vlan           VLAN-ID integer value between 1 to 4094
  untagged-traffic-drop Disable all untagged traffic on this interface.By
                        default untagged traffic is enabled.
  untagged-vlan         VLAN-ID integer value between 1 to 4094
  <cr>
seamicro(config)# interface gigabitethernet 0/0
seamicro(config-gigabitethernet-0/0)# gratuitous-arp
seamicro(config-gigabitethernet-0/0)# no shutdown
seamicro(config-gigabitethernet-0/0)# show config
interface gigabitethernet 0/0
```

```
 no shutdown
 gratuitous-arp
 !
```

Example 2: Tagged and Untagged VLAN configuration:

```
seamicro(config-gigabitethernet-1/0)# tagged-vlan 1-4094
seamicro(config-gigabitethernet-1/0)# untagged-vlan 10
```

Notes: Entering **interface gigabitethernet** *slot*/*port* moves you to Interface level, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interfaces gigabitethernet** *number* [**brief**]
show running-config interface gigabitethernet *number*

interface inband allow

Function: Enable management services on the inband interface.

Syntax: **interface inband** [**allow** {**http** || **https** || **ipmi** || **ntp** || **radius** || **snmp** || **ssh** || **tacacs** || **termserv**}]

CLI Mode: Interface

Options: **http || https**   Enable the HTTP or HTTPS service on the inband interface.

ipmi   Enable IPMI over the inband interface.

ntp   Enable NTP clock synchronization over the inband interface.

radius   Enable RADIUS authentication for the inband interface.

snmp   Enable SNMP communication over the inband interface.

ssh   Enable incoming SSH connections on the inband interface.

	tacacs	Enable TACACS+ authentication on the inband interface.
	termserv	Enable the terminal server service to allow remote connections over the inband interface.

Defaults: No management services are enabled.

History: Version 2.5   Added **http**, **https**, **ntp**, **radius**, and **tacacs** options
Version 2.4   Introduced

Example:
```
seamicro(config)# interface inband
seamicro(config-if)# allow ?
Possible completions:
  http       Allow HTTP
  https      Allow HTTPS
  ipmi       Allow IPMI
  ntp        Allow NTP
  radius     Allow RADIUS
  snmp       Allow SNMP
  ssh        Allow SSH
  tacacs     Allow TACACS+
  termserv   Allow terminal-server
seamicro(config-if)# allow ssh http
seamicro(config-if)# show config
interface inband
 ip address 10.11.0.1/24
 ip default-gateway 10.11.0.254
 allow ssh
 allow http
!
seamicro(config-if)#
```

Notes:
- Enable SSH and any other desired management services in order to preserve management access to the chassis via the inband interface in the event of an SM-card failure or hot-swap; this configuration must be entered before an SM-card failure or hot-swap.
- Entering **interface mgmteth** moves you to Interface CLI context, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface inband**
show running-config interface inband

interface inband ip

Function: Configure the IP address and default-gateway for the inband interface.

Syntax: **interface inband** [**ip** {**address** {ip-address/mask | *ip-address subnet-mask*} | **default-gateway** *ip-address*}]

CLI Mode: Configuration

Options: **address** Enter this keyword to specify the inband IP address.

ip-address/mask Enter an IP address in dotted-decimal format, followed by the subnet mask in CIDR (/xx) format.

ip-address Enter an IP address in dotted-decimal format.

subnet-mask Enter the subnet mask in dotted decimal (A.B.C.D) format.

default-gateway Enter this keyword to specify the inband default-gateway.

Defaults: None

History: Version 2.1 Introduced

Example:
```
seamicro(config)# interface inband
seamicro(config-if)# ip ?
Possible completions:
  address          Inband CPP IP address and mask
  default-gateway  IP address of default gateway for DHCP relay agent, DDNS
seamicro(config-if)# ip address ?
Possible completions:
  IP address A.B.C.D/n or [address in A.B.C.D] [mask in A.B.C.D]
seamicro(config-if)# ip address 10.11.0.1/24
seamicro(config-if)# show config
interface inband
 ip address 10.14.0.2/24
!
seamicro(config-if)#
```

Notes: • The inband IP address must be configured first.
• The inband IP address and default-gateway must be configured before any other IP configurations are allowed.
• Entering **interface inband** moves you to Interface CLI context, where the CLI options may be entered as separate commands, and

you may use **show config** to view the configuration for just this interface.

Related Commands:	**show interfaces inband** **show running-config interface inband**

interface mgmteth

Function: Configure the management Ethernet port.

Syntax: **interface mgmteth** [**ip** {**address** {*ip-address/mask* | *ip-address subnet-mask*} || **default-gateway** *ip-address* || **domain-list** *name* || **domain-name** *name* || **name-servers** *ip-address*} | **shutdown**]

interface mgmteth ip dhcp enable

CLI Mode: Configuration

Options:

ip-address/mask   Enter an IP address followed by a subnet mask in CIDR format (/xx).

ip-address   Enter the IP address for the management port IP address, default-gateway, or name-server, depending on the keyword that precedes.

subnet-mask   Enter the subnet mask of the management IP in dotted-decimal format.

name   Enter the name of the domain or domain-list depending on the keyword that precedes.

ip default-gateway   Enter this keyword to assign a default-gateway to the management port.

ip domain-list   Enter this keyword followed by the domain name. The CLI accepts one name at a time, so to create a list, enter the command multiple times. Each entry in the list is used one at a time, in the order configured, to attempt to complete unqualified host names.

ip domain-name   Enter this keyword to complete unqualified host names with a domain name.

ip name-server   Enter the name server the system uses for hostname-to-IP resolution.

ip dhcp enable   Enable Dynamic Host Configurable Protocol (DHCP) on the management interface.

Defaults: The out-of-band management interface is enabled (**no shutdown**) by default.

History: Version 2.0   Introduced

Example:
```
seamicro(config)# interface mgmteth
seamicro(config-if)# ip ?
Possible completions:
  address          Configure IP address for this interface
  default-gateway  Set IP address of default gateway
  domain-list      Domain name to complete unqualified host names
  domain-name      Define the default domain name
  name-servers     Specify address of name server to use
seamicro(config-if)# ip address ?
Possible completions:
  IP address A.B.C.D/n or [address in A.B.C.D] [mask in A.B.C.D]
seamicro(config-if)# ip address 192.168.1.1/24
seamicro(config-if)# show config
interface mgmteth
 no shutdown
 ip address 192.168.1.1/24
!
seamicro(config-if)#
```

Notes: Entering **interface mgmteth** moves you to Interface CLI context, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface mgmteth**
show running-config interface mgmteth

interface mgmteth allow

Function: Enable Telnet on the out-of-band management interface.

Syntax: **interface mgmteth allow telnet**

CLI Mode: Interface

Options: None

Defaults: Telnet is disabled by default.

History: Version 2.4   Introduced

Example:
```
seamicro(config)# interface mgmteth
seamicro(config-if)# allow telnet
seamicro(config-if)# show config
interface mgmteth
 no shutdown
 allow telnet
 ip address 192.168.1.1/24
 ip default-gateway 192.168.1.254
!
seamicro(config-if)#
```

Notes: Entering **interface mgmteth** moves you to Interface CLI context, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface mgmteth**
show running-config interface mgmteth

interface port-channel

Function: Create and configure a port-channel.

Syntax: **interface port-channel** *number* [**channel-member gigabitethernet** *slot*/*port* || **description** *string* || **mode** {**lacp | static**} || **redundant-group** *number* || **shutdown** || **tagged-vlan** [*id* | *range*] || **untagged-traffic-drop** || **untagged-vlan** [*id*]]]

CLI Mode: Configuration

Options: *number*   Assign a number to the port-channel. Range: 0-15.

channel-member gigabitethernet *slot*/*port*
Enter the keywords followed by the MX-card number and port number. Range: 0/0 - 7/7.

description *string*   Enter the keyword followed by a description of the port-channel. To enter a string with a space in it, enclose the string in quotes.

mode {lacp | static}

Set the port-channel mode to either static or lacp. This command can only be issued after the port-channel has been created and before any member are added.

redundant-group *number*

Assign the port-channel to an Interface Redundant Group (IRG). Range: 0 - 7.

shutdown   Enter this keyword to disable the port-channel.

tagged-vlan   Assign a tagged VLAN. Use the **tagged VLAN** keyword to tag a VLAN on a specified interface. When a VLAN is tagged, a VLAN-ID tag is appended to the frame. This tag helps identify the VLAN that a frame belongs to.

id   Designate this VLAN for tagged traffic on this port-channel. All the tagged traffic received on this interface will be classified under this VLAN.

range   Enter the VLAN ID range from 1 to 4094 for information on the specified VLANs.Use a hyphen (-) to specify a range of consecutive numbers, and use a comma (,) to separate numbers that are non-consecutive.

untagged-traffic-drop

Disable all untagged traffic on the interface where this command is issued. By default untagged traffic is enabled.

untagged-vlan   Assign an untagged VLAN. Use the **untagged VLAN** keyword to ensure that a VLAN cannot be tagged, so that it is hard to distinguish which VLAN the frame belongs to.

id   Designate this VLAN for untagged traffic on this port-channel. All the untagged traffic received on this interface will be classified under this VLAN.

Defaults: mode: static
redundant-group number: 7

History: Version 2.0   Introduced

Version 2.1   Added **mode** {**lacp** | **static**}, and **redundant-group** keywords

Version 3.3   Introduced **tagged-vlan**, **untagged-traffic-drop**, and **untagged-vlan**.

Example:
```
seamicro(config)# interface port-channel 0
seamicro(config-if)# channel-member gigabitethernet 0/0
seamicro(config-if)# channel-member gigabitethernet 0/1
seamicro(config-if)# show config
interface port-channel 0
 shutdown
 channel-member gigabitethernet 0/0
 channel-member gigabitethernet 0/1
!
seamicro(config-if)#
```

Notes: Entering **interface port-channel** *number* moves you to Interface level, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface port-channel** *number* [**brief**]
show running-config interface port-channel *number*

interface port-channel lacp-options

Function: Choose the LACP mode and rate of LACPDUs for a port-channel.

Syntax: **interface port-channel** *number* [**lacp-options** {**lacp-mode** {**active** | **passive**} || **periodic** {**fast** | **slow**}}]

CLI Mode: Configuration

Options: *number*   Enter a port-channel number. Range: 0-15.

lacp-mode {**active** | **passive**}

Set the LACP mode to active or passive.

periodic {**fast** | **slow**}

Select the frequency at which LACP-active interfaces send LACPDUs. **fast** sends one every second, **slow** sends one every 30 seconds.

Note: In Version 3.2, slow LACP is the only option supported at the server NICs.

Defaults: lacp-mode: active
periodic: slow

History: Version 2.1   Introduced

Example:
```
seamicro(config)# interface port-channel 0
seamicro(config-if)# lacp-options ?
Possible completions:
  lacp-mode   LACP active or passive mode
  periodic    LACP slow or fast transmission mode
seamicro(config-if)# lacp-options periodic ?
Possible completions:
  fast  slow
seamicro(config-if)# lacp-options periodic fast
seamicro(config-if)# show config
interface port-channel 0
 shutdown
 mode     lacp
 lacp-options periodic fast
!
seamicro(config-if)#
```

Notes: Entering **interface port-channel** *number* moves you to Interface level, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface port-channel** *number* [**brief**]
show running-config interface port-channel *number*

interface port-channel minimum-link

Function: Specify the minimum number of links that must be up for the LAG to be Operationally Up.

Syntax: **interface port-channel** *number* [**minimum-link** *links*]

CLI Mode: Configuration

Options: *number*   Enter a port-channel number. Range: 0-15.

	links	Enter the minimum number of links that must be up. Range: 0-8.

Defaults: The default minimum number of links is 1.

History: Version 2.4   Introduced

Example:
```
seamicro(config)# interface port-channel 0
seamicro(config-if)# minimum-link ?
Possible completions:
  Unsigned Integer, <= 8, >= 1[1]
seamicro(config-if)# minimum-link 3
seamicro(config-if)# show config
interface port-channel 0
 shutdown
 minimum-link 3
!
seamicro(config-if)#
```

Notes:
- The system does not prevent you from entering a minimum link requirement greater than the number of channel-member in the LAG. If minimum-link is greater, then the LAG never becomes Operationally Up.
- Entering **interface port-channel** *number* moves you to Interface level, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interface port-channel** *number* [**brief**]
show running-config interface port-channel *number*

---

interface tengigabitethernet

Function: Configure an Ethernet port on an MX-card.

Syntax: **interface tengigabitethernet** *slot*/*port* [**description** *string* || **gratuitous-arp** || **shutdown** || **tagged-vlan** [*id* | *range*] || **untagged-traffic-drop** || **untagged-vlan** [*id*]]

CLI Mode: Configuration

Options: *slot*/*port*   Enter an MX-card number followed by a port number.

description *string*	Enter the keyword followed by a description of the port.	
gratuitous-arp	Enter the keyword to enable Gratuitous ARP on the interface.	
shutdown	Shutdown the interface.	
tagged-vlan	Assign a tagged VLAN. Use the **tagged VLAN** keyword to tag a VLAN on a specified interface. When a VLAN is tagged, a VLAN-ID tag is appended to the frame. This tag helps identify the VLAN that a frame belongs to.	
id	Designate this VLAN for tagged traffic on this interface. All the tagged traffic received on this interface will be classified under this VLAN.	
range	Enter the VLAN ID range from 1 to 4094 for information on the specified VLANs.Use a hyphen (-) to specify a range of consecutive numbers, and use a comma (,) to separate numbers that are non-consecutive.	
untagged-traffic-drop	Disable all untagged traffic on the interface where this command is issued. By default untagged traffic is enabled.	
untagged-vlan	Assign an untagged VLAN. Use the **untagged VLAN** keyword to ensure that a VLAN cannot be tagged, so that it is hard to distinguish which VLAN the frame belongs to.	
id	Designate this VLAN for untagged traffic on this interface. All the untagged traffic received on this interface will be classified under this VLAN.	

Defaults: None

History: Version 2.6   Introduced
Version 3.3   Introduced **tagged-vlan**, **untagged-traffic-drop**, and **untagged-vlan**.

Example:
```
seamicro(config)#  interface tengigabitethernet 0/0 ?
Possible completions:
  description           A character string describing this interface
  gratuitous-arp        Enable sending gratuitous ARP on this interface
```

```
shutdown               Shutdown this interface
tagged-vlan            VLAN-ID integer value between 1 to 4094
untagged-traffic-drop  Disable all untagged traffic on this interface.By
                       default untagged traffic is enabled.
untagged-vlan          VLAN-ID integer value between 1 to 4094
<cr>
seamicro(config)# interface tengigabitethernet 0/0
seamicro(config-tengigabitethernet-0/0)# gratuitous-arp
seamicro(config-tengigabitethernet-0/0)# no shutdown
seamicro(config-tengigabitethernet-0/0)# show config
interface tengigabitethernet 0/0
 no shutdown
 gratuitous-arp
!
```

Example 2: Tagged and Untagged VLAN configuration:

```
seamicro(config-tengigabitethernet-1/0)# tagged-vlan 1-4094
seamicro(config-tengigabitethernet-1/0)# untagged-vlan 10
```

Notes: Entering **interface tengigabitethernet** *slot*/*port* moves you to Interface level, where the CLI options may be entered as separate commands, and you may use **show config** to view the configuration for just this interface.

Related Commands: **show interfaces tengigabitethernet** *number* [**brief**]
show running-config interface tengigabitethernet *number*

ip igmp snooping

Function: Enables system-wide IGMP snooping, and configures system-wide IGMP group aging time and IGMP mrouter aging time.

Syntax: **ip igmp snooping** [**enable** | **group-aging-time** *time-in-seconds* | **router-aging-time** *time-in-seconds* | **flood**]

CLI Mode: Configuration mode

Options: **enable**   Enables IGMP snooping.

group-aging-time *time-in-seconds*

Enter group cache aging time in seconds. The range is 20 – 1000 seconds.

router-aging-time *time-in-seconds*

Enter router cache aging time in seconds. The range is 20 – 1000 seconds.

flood

Enter flood to enable flooding of unregistered multicast data packets. By default, flooding is disabled.

Defaults:
- IGMP is disabled.
- Group aging-time and router aging time is 260 seconds.
- Flooding is disabled.

History: Version 3.2   Introduced

Example: `seamicro# ip igmp snooping enable`

`seamicro# ip igmp snooping flood`

`seamicro# ip igmp snooping group-aging-time 40`

`seamicro# ip igmp snooping router-aging-time 1000`

Notes: When IGMP snooping is disabled, all control and data multicast packets will be flooded in the VLAN.

Related Commands   **clear ip igmp snooping**
show ip igmp snooping

ip igmp snooping querier query-interval

Function: Configure the query-interval, which is the interval between general queries.

Syntax: **ip igmp snooping querier query-interval** *interval*

CLI Mode: Configuration

Options: *interval*   Enter a range from 10 to 450 seconds.

Defaults: 125 seconds

History: Version 3.3   Introduced

Example: `seamicro# ip igmp snooping querier query-interval 20`

Notes: None

Related Commands: None

ip igmp snooping querier query-response-interval

Function: Configure maximum response time in IGMP general queries.
This interval is used to tune burstiness of IGMP messages.

Syntax: **ip igmp snooping querier query-response-interval** *interval*

CLI Mode: Configuration

Options: *interval*   Enter the number of seconds for the response interval. The response interval range is from 2 to 100 seconds.

Defaults: 10 seconds

History: Version 3.3   Introduced

Example: `seamicro# ip igmp snooping querier query-response-interval 15`

Notes: None

Related Commands: None

ip igmp snooping querier vlan

Function: Enable IGMP queriers for VLANs, if VLANs are configured.

Syntax:	**ip igmp snooping querier vlan** [*vlan-id* [**source-address** *ip-address*]]	
CLI Mode:	Configuration	
Options:	*vlan-id*	Enter the string default for default VLAN or an integer in the range of 1 - 4094.
	ip-address	Enter the querier source address per VLAN at the VLAN ID. If source IP is not configured, the default source IP address will be 0.0.0.0. The source address cannot be accessed using the **ping** command.
Defaults:	None	
History:	Version 3.3	Introduced
Example:	seamicro# **ip igmp snooping querier vlan 10** seamicro(config-vlan-id)# **source-address 10.20.1.10**	
Notes:	The system supports a maximum of 64 IGMP queriers.	
Related Commands:	None	

mac address-table

Function:	Configures the MAC address-table aging time and port limit.	
Syntax:	**mac address-table** [**aging-time** *time* | **port-limit** *limit*]	
CLI Mode:	Configuration	
Options:	*time*	Enter aging time in the range of 30 - 6000 seconds. The default is 300 seconds. Note, any dynamically-learned MAC addresses that are not active during the aging time interval will be removed.
	limit	Enter a port limit in the range of 0 - 6000 to specify the number of MAC addresses that can be learned

dynamically by each MX-card port. The default is 1200 MAC addresses per port.

Use this keyword as a security measure to ensure that MAC addresses do not glut the system.

Defaults:
- Aging time: 300 seconds.
- Port limit: 1200 addresses/MX-card port.

History: Version 3.2   Introduced

Example: The following example shows aging time set to 567 seconds:

```
seamicro(config)# mac address-table aging-time 567
```

The following example shows port limit set to 4500 ports:

```
seamicro(config)# mac address-table port-limit 4500
```

Notes: None

ipmi

Function: Configure a username and password to access IPMI.

Syntax: **ipmi user** *username* **password** *string*

CLI Mode: Configuration

Options: **user** *username*   Enter a username.

     password *string*   Enter a password.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro(config)# ipmi user admin password seamicro
seamicro(config)# do show running-config ipmi
ipmi user admin password seamicro
seamicro(config)#
```

Notes: None

Related Command:	show running-config ipmi

logging

Function:	Change the logging level for the internal buffer or Syslog server.
Syntax:	**logging** *destination minimum-severity*
CLI Mode:	Configuration
Options:	*destination*	Enter the location to which the system sends Syslog messages:

buffered: Enter this keyword to specify the internal buffer.

trap: Enter this keyword to specify Syslog server.

minimum-severity   Enter the minimum severity level. Only Syslog messages of a severity greater than or equal to the specified severity are sent to the specified logging destination.

info: an informational message about an event, condition, or system behavior.

notice: a system event, condition or system behavior of which the user should be aware.

warning: indicates a condition that may lead to an error.

err: indicates an abnormal condition.

crit: a condition exists that might limit system functionality.

alert: immediate action is required to prevent an emergency condition.

emerg: an event occurred that rendered the system unusable.

debug: debug messages describe system events at a granular level for troubleshooting. These messages are for use by SeaMicro only.

Defaults: Logging to the internal buffer is enabled by default. The default severities are:
- buffered: **info**
- trap: **debug**

History: Version 2.0   Introduced

Example:
```
seamicro(config)# logging trap info
seamicro(config)# do show running-config logging
logging trap info
logging console err
logging buffered info
logging host 192.168.1.145
seamicro(config)#
```

Notes: SeaMicro recommends leaving logging at the default level.

Related Commands: **show logging** [**reverse**]
show running-config logging

logging console

Function: Change the logging level for the console.

Syntax: **logging console** *minimum-severity*

CLI Mode: Configuration

Options: *minimum-severity*   Enter the minimum severity level. Only Syslog messages of a severity greater than or equal to the specified severity are sent to the specified logging destination.

warning: indicates a condition that may lead to an error.

err: indicates an abnormal condition.

crit: a condition exists that might limit system functionality.

alert: immediate action is required to prevent an emergency condition.

emerg: an event occurred that rendered the system unusable.

Defaults: Logging to the console is enabled by default. The default severity is **err**.

History: Version 2.0   Introduced

Example:
```
seamicro(config)# logging console err
seamicro(config)# do show running-config logging
logging trap debug
logging console err
logging buffered info
logging host 192.168.1.145
seamicro(config)#
```

Notes: SeaMicro recommends leaving logging at the default level.

Related Commands: **show logging** [**reverse**]
show running-config logging

logging facility

Function: Associate one of the available tags (defined by the Syslog specification) to attach to Syslog messages generated by the SeaMicro.

Syntax: **logging facility** {**local0** | **local1** | **local2** | **local3** | **local4** | **local5** | **local6** | **local7** | **user**}

Options: Choose one of the pre-define Syslog facilities as indicated by the keyword options in CLI syntax.

CLI Mode: Configuration

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro(config)# logging facility local0
```

```
seamicro(config)# do show running-config logging
logging trap info
logging console err
logging buffered debug
logging facility local0
logging host 192.168.1.144
seamicro(config)#
```

Notes: None

Related   **show logging** [**reverse**]
Commands: **show running-config logging**

logging host

Function: Send Syslog messages to a server.

Syntax: **logging host** *ip-address*

Options: *ip-address*   Enter the IP address of a Syslog server in dotted
                                      decimal format.

CLI Mode: Configuration

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro(config)# logging host 192.168.1.145
seamicro(config)# do show running-config logging
logging trap debug
logging console err
logging buffered info
logging host 192.168.1.145
seamicro(config)#
```

Notes: None

Related   **show logging** [**reverse**]
Commands: **show running-config logging**

ntp server

Function:	Specify an NTP server and its parameters.
Syntax:	**ntp server** *ip-address* [**prefer** || **version** *number*]
CLI Mode:	Configuration
Options:	*ip-address* Enter the IP address of an NTP server.
	prefer Enter this keyword for one NTP server to prefer it.
	version *number* Enter the keyword followed by the version number. Range:1-4.
Defaults:	None
History:	Version 2.0 Introduced

Example:

```
seamicro(config)# ntp server 10.11.0.5
seamicro(config-server-10.11.0.5)# exit
seamicro(config)# do show ntp
% NTP is not configured to run.
seamicro(config)# do show running-config ntp
ntp server 10.11.0.5
!
seamicro(config)# seamicro(config)#
```

Notes:
- Entering this command takes you to the CLI context for the specified server, and you may enter **show config** to view the server configuration.
- You must reload the system after you execute this command; save your configuration before reloading.
- If no options were entered for a server, **show config** returns "% No entries found," but the server configuration was accepted, and can be displayed using **show configuration ntp** from Configuration level (after the mandatory reload).

Related Commands:

radius-server

Function: Specify a RADIUS server and RADIUS authentication parameters. Up to 3 servers can be specified, and the first one configured is the primary.

Syntax: **radius-server host** *ip-address* **secret** *string* **auth-port** *number*

CLI Mode: Configuration

Options: *ip-address*   Enter the IP address of a RADIUS server.

secret *string*   Enter the keyword followed by the hash key.

auth-port *number*   Enter the keyword followed by a UDP port number.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro(config)# radius-server host 10.11.0.1 auth-port 1812 secret
example
seamicro(config)# do show authentication

authentication method:
-----------------------
radius-server: 10.11.0.1
port: 1812
shared secret: example
max-retries: 3
```

Notes: Entering this command takes you to the CLI context for the specified server, and you may enter **show config** to view the server configuration.

Related Commands: **show authentication**
show running-config radius-server

restart process dhclient-daemon

Function: Restart the DH client process daemon.

Syntax:	**restart process dhclient-daemon**
CLI Mode:	Configuration mode
Options:	None
Defaults:	None
History:	Version 3.3 Introduced
Example:	seamicro# **restart process dhclient-daemon**
Notes:	None
Related Commands	**None**

restserver enable

Function:	Enables the '**restserverproxy'** task to provide RESTful API services.
Syntax:	**restserver enable**
CLI Mode:	Configuration mode
Options:	None
Defaults:	None
History:	Version 3.3 Introduced
Example:	seamicro# **restserver enable**
Notes:	None
Related Commands	**None**

server id

Function:	Enter server context to access server configuration commands.
Syntax:	**server id** *server-id* [**nic** *nic-id* [**tagged-vlan** [*id*	*range*] **|| untagged-traffic-drop || untagged-vlan** [*id*] **|| vlan-pass-through-mode**]
CLI Mode:	Configuration

Options:

server-id	Enter one or more internal server IDs. You may enter multiple server IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.
nic-id	Enter the NIC ID.
tagged-vlan	Assign a tagged VLAN. Use the **tagged VLAN** keyword to tag a VLAN on a specified interface. When a VLAN is tagged, a VLAN-ID tag is appended to the frame. This tag helps identify the VLAN that a frame belongs to.
id	Designate this VLAN for tagged traffic on this NIC. All the tagged traffic received on this interface will be classified under this VLAN.
range	Enter the VLAN ID range from 1 to 4094 for information on the specified VLANs.Use a hyphen (-) to specify a range of consecutive numbers, and use a comma (,) to separate numbers that are non-consecutive.
untagged-traffic-drop	Disable all untagged traffic on the interface where this command is issued. By default untagged traffic is enabled.
untagged-vlan	Assign an untagged VLAN. Use the **untagged VLAN** keyword to ensure that a VLAN cannot be tagged, so that it is hard to distinguish which VLAN the frame belongs to.

	id	Designate this VLAN for untagged traffic on this NIC. All the untagged traffic received on this interface will be classified under this VLAN.

vlan-pass-through-mode

Configure pass-through mode on a NIC. There is no VLAN pass-through mode support on external gigabitethernet, tengigabitethernet, or port-channel interfaces.

Defaults: None

History:

Version 2.0	Introduced
Version 3.3	Introduced **tagged-vlan**, **untagged-traffic-drop**, **untagged-vlan,** and **vlan-pass-through-mode**.

Example:
```
seamicro(config)# server id 0/0
seamicro(config-id-0/0)# show config
server id 0/0
 boot-at-system-startup disable
 description            "Xeon Intel Server"
 bios hyperthreading enable
 bios c-states    enable
 bios hide-topmem disable
[...]
```

Notes: None

server poweron-algorithm

Function: Configure the system to power on internal servers randomly or sequentially during a staggered boot.

Syntax: **server poweron-algorithm** {**random | sequential**}

CLI Mode: Configuration

Options:

random	Powered on internal servers without regard to their server IDs.
sequential	Power on internal servers in order of server IDs beginning with 0.

Defaults: random

History: Version 2.1   Introduced

Example:
```
seamicro(config)# server poweron-algorithm ?
Possible completions:
  [sequential]
  random        Stagger using random selection of servers
  sequential    Stagger using sequential selection of servers
seamicro(config)# server poweron-algorithm
```

Notes: None

Related Commands: **show running-config server poweron-algorithm**

server poweron-count

Function: Specify the number of servers to be powered on simultaneously in a set.

Syntax: **server poweron-count** *number*

CLI Mode: Configuration

Options: *number*   Enter a number. Range:1-512.

Defaults: Servers are powered in sets of 32.

History: Version 2.0   Introduced

Example:
```
seamicro(config)# server poweron-count 1
seamicro(config)# do show running-config server poweron-count
server poweron-count 1
seamicro(config)#
```

Notes: None

Related Commands: **show running-config server poweron-count**

server poweron-delay

Function:	Specify the number of seconds between server-boot sets.
Syntax:	**server poweron-delay** *seconds*
CLI Mode:	Configuration
Options:	*seconds* Enter the keyword followed by a number. Range: 5-20, in 5 second increments.
Defaults:	5 seconds
History:	Version 2.0 Introduced

Example:

```
seamicro(config)# server poweron-delay 20
seamicro(config)# do show running-config server poweron-delay
server poweron-delay 20
seamicro(config)#
```

Notes:	None
Related Commands:	**show running-config server poweron-delay**

snmp-server

Function:	Specify an SNMP server, host, and SNMP parameters.
Syntax:	**snmp-server** {**community** *name* || **enable** || **host** *ip-address* {**port** *number*} {**version** {**1** | **2c**}}}
CLI Mode:	Configuration
Options:	**community** *name* Enter the keyword followed by the community name.
	enable Enter this keyword to enable SNMP.

	host *ip-address*	Enter the keyword followed by the IP address of the host to which traps are sent.
	port *number*	Enter the keyword followed by the UDP port used for traps.
	version {**1** | **2c**}	Enter the keyword followed by the SNMP version.

Defaults: SNMP is enabled by default.
community: public

History: Version 2.0   Introduced

Example:
```
seamicro(config)# snmp-server host 10.11.0.10 port 1000 version 2c
seamicro(config)# do show snmp
 Agent Status: Enabled
 Agent community string: public

 Trap managers          ports   version
     10.11.0.10         1000    v2c
seamicro(config)#
```

Notes: None

Related Commands:
show snmp
show running-config snmp-server

storage assign

Function: Assigns a single disk or volume to a server.

Syntax: **storage assign** *server-id vdisk-number* **volume** *volume-specifier* [**uuid** *volume-uuid*] [**read-only**]

storage assign *server-id vdisk-number* **disk** *disk-id* [**read-only**]

CLI Mode: Configuration

Options: *server-id*   Enter multiple servers IDs. Use a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

	vdisk-number	Enter a number from 0 to 31, based on the type of system.
	volume-specifier	Assign either a fully-qualified volume name or a volume name prefix.
		If the volume-specifier is a fully-qualified volume, the volume-uuid option will not be accepted.
		If the volume-specifier is a volume name prefix, then volume-uuid option must be provided.
		If volume name prefix is specified among unassigned volumes whose fully-qualified volume name matches a regular expression, such as [0-7]/\w+/<volume name prefix>-\d+, one that has the specified uuid will be selected.
	disk-id	Enter <slot/bay> for an internal disk, or <external disk device ID or name>/<bay> for an external disk.
	read-only	Make the assigned volume read-only to the server so the server cannot write on the assigned volume.

Defaults: None

History:

	Version 3.0	Introduced
	Version 3.3	Introduced disk option.

Example:
```
seamicro(config)# storage assign 1/0 0 volume 1/mypool/myvol

seamicro(config)# storage assign 1/0 1 volume 2/nicepool/centos-8

seamicro(config)# storage assign 2/0 0 volume centos uuid 7M9lNs-hPbM-
z4eH-Nzi0-fbop-PTOU-ZtOmbb

seamicro(config)# storage assign 3/0 0 disk 0/5

seamicro(config)# storage assign 4/0 0 disk 11:22:33:44:55:66:77:88/10

seamicro(config)# storage assign 5/0 0 disk JBOD6/12
```

Notes: None.

Related Commands:
    storage assign-range
    storage assign-clear
    storage external

show storage

storage assign-clear

Function:	Clears disk or volume assignments from servers.	
Syntax:	**storage assign-clear** *server-range vdisk-number*	
CLI Mode:	Configuration	
Options:	*server-range*	Enter one or multiple server identifiers. Use a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Full range: 0/0-63/7.
	vdisk-number	Enter a number from 0 to 31, based on the type of system.
Defaults:	None	
History:	Version 3.0	Introduced
	Version 3.3	Introduced disk option.
Example:	seamicro(config)# storage assign-clear 0/0-31/3 0	
	seamicro(config)# storage assign-clear all all	
Notes:	This command will cause a server to lose its disks, so it should be used only as needed.	

storage assign-range

Function: Assigns disks or volumes to a range of servers.

Syntax: **storage assign-range** *server-range* {*vdisk-number* |**all**} **volume** *range-volume-specifier* [**start** *volume-start-number*] [**share**] [**read-only**]

        storage assign-range *server-range* {*vdisk-number* |**all**} **disk** {*disk-list* | **internal-disks** | **external-disks** | **all**} [**share**] [**read-only**]

CLI Mode: Configuration

Options:

server-range	Enter one or multiple server identifiers. Use a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Full range: 0/0-63/7.
vdisk-number	Enter a number from 0 to 31, based on the type of system.
range-volume-specifier	
	Enter the slot number, pool name and volume name prefix, or just the volume name prefix.
	If the range-volume-specifier is a volume name prefix, the start option will be ignored.
volume-start-number	
	Enter a number for volume-start-number. If a number is not entered, the default is 0.
disk-list	Enter a comma-separated list of disk ID or IDs and/or disk ID range.
	The format for an individual disk ID is *bay*, *slot*/*bay*, and *external disk device name* or *address*/*bay*.
	The format for a disk range is *slot*/*bay-bay* and *external disk device name* or *address*/*bay-bay*.

> Note, slot information is not required when specifying an internal disk ID or range, as the slot information is already implied by the pool ID.

Defaults:
- *Volume-start-number*: 0
- Not shared
- Write

History:

Version 3.0	Introduced
Version 3.3	Introduced disk option.

Example: Example 1:

```
seamicro(config)# storage assign-range all all volume 2/nicepool/
centos
```

This command will produce assignments to volumes 2/nicepool/centos-0, 2/nicepool/centol-1, 2/nicepool/centos-3, etc.

Example 2:

```
seamicro(config)# storage assign-range all all volume ubuntu
```

This command will translate to the following individual assignments:

```
seamicro(config) # storage assign 32/0 0 volume ubuntu uuid QvaJ8S-
bNkR-Gkxj-AEZY-eQjR-qBuR-u3XDkP
```

```
seamicro(config) # storage assign 32/1 0 volume ubuntu uuid TSD0Al-
ecks-1SpP-YETw-FB6R-42Ri-41xifI
```

Example 3:

```
seamicro(config)# storage assign-range all all disk all
```

This command will translate to the following individual assignments:

```
storage assign 0/0 0 disk 0/0
storage assign 0/0 1 disk 0/1
…
```

Notes: Note that volumes assigned using the fully qualified volume specifier can be shared amongst multiple servers. However, if you use only volume prefix as the volume specifier, you cannot share volumes.

Related Commands:
storage assign
storage assign-clear
storage external

---

storage external

Function: Assigns a unique name to an external disk device address, and indicates the slot that is physically connected to the external disk.

Syntax: **storage external** *name* **device** *external-disk-device-address* **slot** *slot*

CLI Mode: Configuration

Options: *name*   Enter a name for the external disk device.

         external-disk-device-address

                 Enter the disk device address. See example below.

         slot   Enter the S-card slot number that is connected to the external disk device. Range: 0 - 7.

Defaults: None.

History: Version 3.0   Introduced

Example:
```
seamicro(config)# storage external JBOD1 device
11:22:33:44:55:66:77:88 slot 1
```

Notes: This command provides the ability to pre-configure external devices. If the user plugs the external device in a slot which is different than the configured slot, it will be considered a mis-configuration, and the external device will not be usable. Therefore, make sure that the configured slot matches the actual slot.

Related Commands: **storage assign-range**
storage assign-clear
show storage

switch system-vlan

Function:	Creates a global VLAN on interfaces, port channels, and server id/NICs.
Syntax:	**switch system-vlan** {*vid*}
CLI Mode:	Configuration
Options:	*vid* Specify a unique ID from 1 - 4095.
Defaults:	0
History:	Version 3.0 Introduced
Example:	`seamicro(config)# switch system-vlan 100` `seamicro(config)#`
Notes:	
Related Commands:	

system acpi

Function:	The stand-by button on the SM-card has three functions: • **system boot**: When the chassis has PSUs that are plugged in into AC facility power, pressing the button boots the chassis. • **graceful shutdown**: When the chassis is operating, depressing the button for 1-2 seconds initiates a graceful system shutdown. • **ungraceful shutdown**: When the chassis operating, depressing the button for 5 seconds or longer shuts down the chassis ungracefully. The graceful shutdown functionality is disabled by default. Issue this command to enable it. Once enabled, an entry is made in the running-config.
Syntax:	**system acpi graceful-poweroff enable**

CLI Mode: Configuration

Options: None

Defaults: The stand-by button is disabled by default.

History: Version 2.4   Introduced

Example:
```
seamicro# show running-config system acpi
% No entries found.
seamicro(config)# system acpi graceful-poweroff enable
seamicro# show running-config system acpi
system acpi graceful-poweroff enable
seamicro(config)#
```

Notes: None

Related Commands: **show running-config system acpi**

---

system boot

Function: Set system boot variables.

Syntax: **system boot** {**master-slot** *number* **| flash:** {**0** | **1**}}

CLI Mode: Configuration

Options: **master-slot** *number* Enter the keyword followed by the number of the MX-card that you prefer to become the master upon the next chassis reboot. Range: 0 - 7.

        flash: {**0** | **1**}   Enter the keyword followed by the number of the flash partition that the system should use to boot.

Defaults: master-slot: 0
flash: 0

History: Version 2.0   Introduced

Example:
```
seamicro(config)# system boot master-slot 5
seamicro(config)# do show running-config system boot
system boot master-slot 5
seamicro(config)# do show redundancy
System redundancy information
```

```
                 Primary slot: 5
                 Configured Primary slot: 5
                 Eligible Primary slot(s): 1, 3, 5
                 Ineligible Primary slot(s):
                 Version mismatched slot(s):
                 POST Failure slot(s):
                 My slot: 5
                 Number of Secondary: 2
                 Redundancy enabled
                 Switchover Count: 0
                 Initial selection: User Selection
seamicro(config)# do show boot
Last boot source is flash partition-1
Retrieving flash image versions:
Next boot source is flash partition-1
     Image version : 2.4.2.0
Backup boot source is flash partition-0
     Image version : 2.3.4.0
seamicro#
```

Notes: This command should not be executed the SM-card is removed or down.

Related Commands:
- Display the flash partition that was last used for system boot, and the flash partition that will be used for the next system boot:
  show boot
- Display the Primary MX-card:
  show redundancy
- Display the running-configuration and restrict the output to the portion that is relevant to this command:
  show running-config system boot

system console-server

Function: You can Telnet directly to an internal server using the management IP and a port number that represents the internal server. The default ports for servers is now PortBase+10*CCardnumber+1*CPU. Hence if base is 2000, the port for server 1/1 will be 2000+10*1+1*1 = 2011. The base number is configurable.

Syntax: **system console-server portbase** *number*

CLI Mode: Configuration

Options: *number*   Enter a number that will be the base for the server port number.

Defaults: The default port base number is 2000.

History: Version 2.1 Introduced

Example:
```
seamicro(config)# system console-server ?
Possible completions:
  portBase   Configure TCP port base
seamicro(config)# system console-server portBase ?
Possible completions:
  Console server portbase between 2000-3999 or 6000-62999
```

Notes: None

Related Commands: **show running-config system console-server portBase**

system console-server key-sequence-reset enable

Function: Enable key sequences.

Syntax: **system console-server key-sequence-reset enable**

CLI Mode: Configuration

Options: None

Defaults: None

History: Version 3.3 Introduced

Example: `seamicro(config)#` **system console-server key-sequence-reset enable**

Notes:
- Once enabled, you will be able to power-on a server by pressing **CTRL + SHIFT + - I**.
- To power off a server, press **CTRL + SHIFT + - O**.

Related Commands: None

system process-restart disable

Function: Disable processes from restarting after a process crash.

Syntax: **system process-restart disable**

CLI Mode: Configuration

Options: None

Defaults: None

History: Version 2.2   Introduced

Example: None

Notes: Use this command only in debug mode because configuring it will prevent normal process restarts. The process restart capability provides the system with a way to automatically recover from software process problems.

system restore-power-state

Function: Automatically restore the system upon power recovery after a configured time delay.

Syntax: **system restore-power-state** *number*

CLI Mode: Configuration

Options: number   Enter time delay between **1 - 60** seconds to automatically power on the chassis upon power recovery. Default time delay is **7** seconds. Setting the number as '**0**' disables this feature.

Defaults: Time delay: 7 seconds.

History: Version 3.2   Introduced

Example: `seamicro(config)# system restore-power-state 47`

`seamicro# show running-config system restore-power-state`
`system restore-power-state 47`

`seamicro(config)# system restore-power-state 7`

`seamicro# show startup-config system restore-power-state`
`system restore-power-state 7`

`seamicro# write memory`

`seamicro# show startup-config system restore-power-state`
`system restore-power-state 47`
`seamicro#`

Notes:

Related Commands: **show startup-configuration system restore-power-state**
show running-configuration system restore-power-state

system switchover

Function: Disable the MX-card failover functionality.

Syntax: **system switchover disable**

CLI Mode: Configuration

Options: None

Defaults: MX-card failover is enabled by default when the following system requirements are met:
- At least two MX-cards must be installed, and two storage-controllers must be installed at the same levels as the MX-cards.
- The CPP/BIOS, eFPGAs, and sFPGA image versions on the secondary MX-card must match the image versions of the primary MX-card, which must also be greater that 1. If there is a version mismatch, the MX-card does not become operational, and the system notifies you of the mismatch.

History: Version 2.2   Introduced

Example: None

Notes: Use this command only in debug mode because configuring it will prevent normal MX-card failover.

system threshold

Function: Define the normal operating range for hardware components.

Syntax: **system threshold** {**asic-sensor temp** *number* || **cpu-usage** *number* || **fan-rpm** *number* || **flash-usage** *number* || **memory-usage** *number* || **sensor-temp** *number*}

CLI Mode: Configuration

Options: **asic-sensor-temp** Enter the keyword followed by an upper temperature limit for system ASICs, which after crossed (in the increasing direction) generates a system message. Range: 70-114.

cpu-usage Enter the keyword followed by an upper MX-card CPU usage in percentage, which after crossed (in the increasing direction) generates a system message. Range: 50-99.

fan-rpm Enter the keyword followed by a lower fan speed in rotations-per-minute, which after crossed (in the decreasing direction) generates a system message. Range: 500-2000.

flash-usage Enter the keyword followed by an upper flash memory usage in percentage, which after crossed (in the increasing direction) generates a system message. Range: 50-99.

memory-usage Enter the keyword followed by an upper memory usage in percentage, which after crossed (in the increasing direction) generates a system message. Range: 50-99.

sensor-temp Enter the keyword followed by an upper CPU usage in degrees Celsius, which after crossed (in increasing direction) generates a system message. Range: 70-89.

	number	Enter a value that is within the valid range for the keyword that precedes.

Defaults: asic-sensor-temp: 105
cpu-usage: 80
fan-rpm: 1000
flash-usage: 80
memory-usage: 80
sensor-temp: 80

History:

Version 2.1	Added **flash-usage**, **memory-usage**, and **asic-sensor-temp**
Version 2.0	Introduced

Example:
```
seamicro(config)# system threshold ?
Possible completions:
  asic-sensor-temp   Configure high sensor temperature threshold for ASIC
                     based CCard
  cpu-usage          Configure high cpu usage threshold for MECard
  fan-rpm            Configure low fan RPM threshold for Chassis
  flash-usage        Configure high flash usage threshold for MECard
  memory-usage       Configure high memory usage threshold for MECard
  sensor-temp        Configure high sensor temperature threshold for Chassis
seamicro(config)# system threshold
seamicro(config)# system threshold fan-rpm 500
seamicro(config)# do show running-config system threshold
system threshold fan-rpm 500
seamicro(config)#
```

Notes: None

Related Commands: **show running-config system threshold**

tacacs-server

Function: Specify a TACACS+ server and TACACS+ authentication parameters. You can specify up to 3 servers, and the first one configured is the primary.

Syntax: **tacacs-server host** *ip-address* **secret** *string* **auth-port** *number*

CLI Mode: Configuration

Options: *ip-address*   Enter the IP address of a TACACS+ server.

secret *string*   Enter the keyword followed by the hash key.

auth-port *number*   Enter the keyword followed by a TCP port number.

Defaults: If no auth-port is specified, port 49 is used by default.

History: Version 2.0   Introduced

Example:
```
seamicro(config)# tacacs-server host 10.11.0.3 secret example
seamicro(config-host-10.11.0.3)# show config
tacacs-server host 10.11.0.3
 secret example
!
seamicro(config)#
```

Notes: • Entering this command takes you to the CLI context for the specified server, and you may enter **show config** to view the server configuration.
   • A null secret indicates that TACACS+ packets are unencrypted.

Related Commands: **show authentication**
show running-config tacacs-server

Chapter 6   Show Commands

Show commands display software configurations and system information so that you can verify your configurations and monitor system status.

show alarms

Function:	Display the current system conditions which require the administrator's attention.
Syntax:	**show alarms** [**critical** | **major** | **minor**] [**detail**]
CLI Level:	Unprivileged, Privileged
Options:	**critical** Display the uncleared events that affect system functionality. These events have a severity greater than major and minor events.
	major Display the uncleared events that affect system functionality. These events have a severity greater than minor events.

minor Display the uncleared events that affect system functionality. These events have a severity similar to an event that triggers a warning Syslog message.

detail Display the reason why an alarm was raised. For alarms that are self-explanatory, the **detail** field will be empty.

Defaults: None

History: Version 2.1 Introduced

Example:
```
seamicro> show alarms
Alarm time            Class          Resource              Description
-----------------------------------------------------------------------------
2013-06-24 00:31:19   critical       MXcard-4              cardDegraded
2013-06-24 00:31:19   critical       MXcard-6              cardDegraded
2013-06-24 00:31:31   critical       System                systemDegraded
ch768-seamicro>

seamicro# show alarms detail
Alarm Resource: Scard-0
        Description: cardDegraded
        Detail: SCard version mismatch with manifest(running ver-
sion:0.5.0.0_37558, manifest version:0.5.0.0_37555)
        Time: 2012-06-15 12:05:57
        Class: critical
Alarm Resource: Scard-7
        Description: cardDown
        Detail:
        Time: 2012-06-15 09:41:42
        Class: major
Alarm Resource: System
        Description: insufficientNumberOfPowersupplies
        Detail: 5 power-supplies are UP
        Time: 2012-06-15 09:39:15
        Class: critical
```

Example 2: **show alarms** with storage enclosure:
```
seamicro# show alarms
Alarm time Class Resource Description
-----------------------------------------------------------------------------
----------------------------------------
2013-01-22 21:04:31 critical Storage Enclosure 0/0 Fan-3 enclosure FanFailure
```

Notes: None

show alerts

Function: Display a list of alerts on the S-card, disks, and storage enclosures.
Note: This command is available in Version 3.2.3 and later releases.

Syntax: **show alerts** [**begin** *date-time*] [**end** *date-time*] [**reverse**]
show alerts scard (*slot-range* | **all)** [**begin** *date-time*] [**end** *date-time*]
[**reverse**]
show alerts disk *slot/(bay* | **all**) [**begin** *date-time*] [**end** *date-time*] [**reverse**]
show alerts disk *external-disk-device-name/(bay* | **all**) [**begin** *date-time*] [**end**
date-time] [**reverse**]
show alerts disk *external-disk-device-id/bay* | **all**) [**begin** *date-time*] [**end**
date-time] [**reverse**]

CLI Level: Privileged

Options: *date-time*   Enter the date and time, or one of the two in the following format:

CCYY-MM-DD HH:MM:SS (Note the space between date and time.) At least one, the date or time is **required**.

Date range: 1970 - 2038. Time range: 00:00:00 - 23:59:59. Any date-time before 03:14:08 UTC on January 19, 2038 will be accepted. Any date will be accepted providing the time does not exceed the above specified limit.

If you specify only **time**, then the current date and the user input time will be considered.

If you specify only **date**, then the user input date and the default time (00:00:00 for begin time and 23:59:59 for end time) will be considered.

reverse   Enter reverse to display alerts in the descending order, i.e. to display the most recent alerts first. By default, alerts are displayed in the ascending order, which means the order in which they occurred.

slot   Enter the S-card slot number.

slot-range   Enter the S-card slot number. The range is 0-7.

bay	Enter the bay number.
all	Enter **all** to display all S-card slots.

external-disk-device-name, device-id, bay

Device name is an alphanumeric string that supports characters such as the underscore(_) and hyphen(-).

Device address is an eight-byte device address in the following format: XX:XX:XX:XX:XX:XX:XX:XX, where X is hex, value 0-F).

For internal-disk, the disk-ID format is slot/bay.

For external-disk, the disk ID format is Device-Name/bay or Device-Address/bay.

Defaults: Alerts are displayed in the ascending order, which means alerts in the order they occurred.

History: Version 3.2.3   Introduced

Example:
```
seamicro# show alerts disk 1/3
      Alert time          Object      Identifier     Alert type      Description
-------------------------------------------------------------------------------
   2013-06-18 02:38:52    Disk         1/3           Module up       Disk is up
   2013-06-18 02:48:51    Disk         1/3           Module up       Disk is up
   2013-06-18 02:59:12    Disk         1/3           Module up       Disk is up
   2013-06-18 03:09:12    Disk         1/3           Module up       Disk is up
   2013-06-18 03:19:37    Disk         1/3           Module up       Disk is up
   2013-06-18 03:29:51    Disk         1/3           Module up       Disk is up
   2013-06-18 03:40:00    Disk         1/3           Module up       Disk is up
   2013-06-18 03:50:15    Disk         1/3           Module up       Disk is up
   2013-06-18 04:00:02    Disk         1/3           Module up       Disk is up
   2013-06-18 04:09:48    Disk         1/3           Module up       Disk is up
   2013-06-18 04:20:25    Disk         1/3           Module up       Disk is up
   2013-06-18 04:30:46    Disk         1/3           Module up       Disk is up
   2013-06-18 04:40:46    Disk         1/3           Module up       Disk is up
   2013-06-18 04:50:40    Disk         1/3           Module up       Disk is up
   2013-06-18 05:01:16    Disk         1/3           Module up       Disk is up
   2013-06-18 05:11:15    Disk         1/3           Module up       Disk is up
   2013-06-18 05:21:22    Disk         1/3           Module up       Disk is up
   2013-06-18 05:31:20    Disk         1/3           Module up       Disk is up
   2013-06-18 05:42:10    Disk         1/3           Module up       Disk is up
   2013-06-18 05:51:46    Disk         1/3           Module up       Disk is up
   2013-06-18 06:02:22    Disk         1/3           Module up       Disk is up
   2013-06-18 06:12:44    Disk         1/3           Module up       Disk is up
   2013-06-18 06:22:41    Disk         1/3           Module up       Disk is up
   2013-06-18 06:33:09    Disk         1/3           Module up       Disk is up
   2013-06-18 06:43:28    Disk         1/3           Module up       Disk is up
   2013-06-18 06:53:07    Disk         1/3           Module up       Disk is up
   2013-06-18 07:03:36    Disk         1/3           Module up       Disk is up
   2013-06-18 07:14:11    Disk         1/3           Module up       Disk is up
   2013-06-18 07:29:12    Disk         1/3           Module up       Disk is up
   2013-06-18 07:38:51    Disk         1/3           Module up       Disk is up
   2013-06-18 07:49:35    Disk         1/3           Module up       Disk is up
   2013-06-18 07:59:57    Disk         1/3           Module up       Disk is up
   2013-06-18 08:09:56    Disk         1/3           Module up       Disk is up
```

```
                   2013-06-18 08:20:02      Disk          1/3          Module up      Disk is up
                   2013-06-18 08:30:18      Disk          1/3          Module up      Disk is up
                   2013-06-18 08:40:28      Disk          1/3          Module up      Disk is up
                   2013-06-18 08:50:45      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:01:12      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:11:13      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:21:20      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:31:32      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:41:12      Disk          1/3          Module up      Disk is up
                   2013-06-18 09:51:56      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:02:15      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:12:12      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:22:30      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:32:35      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:42:55      Disk          1/3          Module up      Disk is up
                   2013-06-18 10:53:11      Disk          1/3          Module up      Disk is up
                   2013-06-18 11:03:34      Disk          1/3          Module up      Disk is up
* 50 entries
seamicro#

seamicro# show alerts
Alert time           Object   Identifier Alert type      Description
--------------------------------------------------------------------------------
2013-02-09 09:41:18  Scard   4     Module degraded Management connection to scard is down
2013-02-09 09:44:50  Scard   4     Module up   Management connection to scard is up
2013-02-09 09:44:50  Scard   1     Module up   Management connection to scard is up
2013-02-13 01:46:41  Disk    4/1   Module missing      Disk missing
2013-02-13 01:46:41  Disk    4/4   Module missing      Disk missing
* 5 entries


seamicro# show alerts begin 2013-02-14 06:49:43 reverse
Alert time           Object     Identifier      Alert type      Description
------------------------------------------------------------------------------------
2013-02-14 06:56:39  Scard    4   Module up       Management connection to scard is up
2013-02-14 06:55:27  Scard    1   Module up       Management connection to scard is up
2013-02-14 06:53:20  Scard    4   Module up       Management connection to scard is up
2013-02-14 06:53:20  Scard    1   Module up       Management connection to scard is up
2013-02-14 06:53:20  Scard    4   Module degraded    Scard is degraded
2013-02-14 06:53:20  Scard    1   Module degraded    Scard is degraded
2013-02-14 06:49:43  Scard    1   Module degraded    Management connection to scard is down
2013-02-14 06:49:43  Scard    2   Module degraded    Management connection to scard is down
2013-02-14 06:49:43  Scard    4   Module degraded    Management connection to scard is down
* 9 entries


seamicro# show alerts scard 1 begin 2013-02-14 06:49:43 reverse
Alert time           Object   Identifier      Alert type      Description
--------------------------------------------------------------------
2013-02-14 06:55:27    Scard   1   Module up   Management connection to scard is up
2013-02-14 06:53:20    Scard   1   Module up   Management connection to scard is up
2013-02-14 06:53:20    Scard   1     Module degraded    Scard is degraded
2013-02-14 06:49:43      Scard 1   Module degraded Management connection to scard is down
* 4 entries


seamicro# show alerts scard all  begin 2013-02-14 06:49:43 reverse
Alert time           Object   Identifier      Alert type      Description
--------------------------------------------------------------------
2013-02-14 06:56:39      Scard        4    Module up        Management connection to
scard is up
2013-02-14 06:55:27      Scard        1      Module up        Management connection to
scard is up
2013-02-14 06:53:20      Scard        4      Module up        Management connection to
scard is up
2013-02-14 06:53:20      Scard        1      Module up        Management connection to
scard is up
2013-02-14 06:53:20    Scard        4    Module degraded    Scard is degraded
2013-02-14 06:53:20    Scard        1    Module degraded    Scard is degraded
2013-02-14 06:49:43      Scard        1    Module degraded    Management connection to
scard is down
2013-02-14 06:49:43      Scard        2    Module degraded    Management connection to
scard is down
2013-02-14 06:49:43      Scard        4    Module degraded    Management connection to
scard is down
* 9 entries


seamicro# show alerts disk 4/1
Alert time           Object   Identifier Alert type      Description
--------------------------------------------------------------------------------
  2013-02-13 01:46:41    Disk   4/1      Module missing   Disk missing
```

```
   2013-02-13 20:42:41    Disk   4/1     Module missing   Disk missing
* 2 entries

seamicro# show alerts disk 4/all
Alert time            Object   Identifier  Alert type     Description
---------------------------------------------------------------------
 2013-02-13 01:46:41   Disk   4/1     Module missing   Disk missing
 2013-02-13 01:46:41   Disk   4/4     Module missing   Disk missing
 2013-02-13 02:47:24   Disk   4/0     Module missing   Disk missing
2013-02-13 02:47:24    Disk    4/5    Module missing   Disk missing
2013-02-13 02:47:24    Disk    4/7    Module missing   Disk missing
2013-02-13 02:47:24    Disk    4/6    Module missing   Disk missing
2013-02-13 02:51:50    Disk    4/0    Module up        Disk up
2013-02-13 02:51:50    Disk    4/5    Module up        Disk up
2013-02-13 02:51:50    Disk    4/7    Module up        Disk up
2013-02-13 02:51:51    Disk    4/6    Module up        Disk up
* 10 entries
```

Notes: For device-name and bay, refer to:
show storage disk external-disk-device-name/{bay|all}

show authentication

Function: Display the system authentication method and the authentication servers that are configured.

Syntax: **show authentication**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example: None

Notes:
```
seamicro> show authentication

authentication method: local radius
------------------------------------
radius-server: 10.11.0.1
port: 1812
shared secret: example
max-retries: 3
seamicro>
```

show boot

Function: Display the boot parameters for the next boot.

Syntax: **show boot** [**mxcard** *string*]

CLI Mode: Unprivileged, Privileged

Options: **mxcard** *string*   Enter the keyword followed by the slot number of an MX-card to show boot information for only the specified card.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show boot mxcard 3
Retrieving flash image versions from slot-3
Last boot source is flash partition-1
Next boot source is flash partition-1
    Image version : 2.4.2.0
Backup boot source is flash partition-0
    Image version : 2.3.4.0
seamicro>
```

Notes: None

show chassis

Function: Display general chassis information.

Syntax: **show chassis**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show chassis
 --- System ---
        chassis model:SM15000
        chassis id :39
        base ethernet mac address :0021.5311.1300
        mcarrier :m3v1
        ccard type :ASIC, version 2, 2.5GbpsN570(Spear)
        chassis uptime :59 minutes, 7 seconds


 --- MXCards ---
Slot     Status          Uptime
-------------------------------------------------------------------------------
-
0        active          59 mins, 7 secs

 --- SCards ---
Slot     Status          Internal Disks  External Disks  Uptime
-------------------------------------------------------------------------------
-
1        active          8               0               23 mins, 32 secs

 --- MXCard-Repeaters ---
Bay     Status
-------------------------------------------------------------------------------
-

 --- SCard-Repeaters ---
Bay     Status
[...]
```

Notes: None

show chassis storageEnclosure

Function: Display storage enclosure component details and physical disk location map. If the disk is Up, this command will indicate that the status is Up.

Syntax: **show chassis storageEnclosure** {*scardID I enclosureID*}

show chassis storageEnclosure {*scardID I enclosureID*} **diskMap**

CLI Mode: Privileged

Options: *scardID*   Enter the ID of the S-card.

enclosureID   Enter the ID of the enclosure.

Defaults: None

History: Version 3.3   Introduced

Example: seamicro# **show chassis storageEnclosure 1/0**
--- Storage Enclosure 1/0 ---
Enclosure model:FS-5084-L1
Enclosure description:Storage Enclosure - 5RU 84x3.5" drives
Enclosure WWN:50050cc10ebac83f
--- Power-supplies ---
ID Status

----
0 down
1 active
--- Fans ---
ID Status

----
0 active
1 active
2 active
3 active
4 active
5 active
6 active
7 active
8 active
9 active
--- Temperature Sensors ---
ID Status

----
0 active
1 active
2 active
3 active
4 active
5 active **STORAGE ENCLOSURE MANAGEMENT FUNCTIONAL SPECIFICATION**
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--- IO Controllers ---
ID Status

----
0 active
1 active

Notes: None

show clock

Function: Display the current date and time according to the system clock.

Syntax: **show clock**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show clock
Thu Aug 18 10:25:06 PDT 2011
seamicro>
```

Notes: None

show console

Function: Display the contents of the console log buffer.

Syntax: **show console** [**reverse**]

CLI Mode: Unprivileged, Privileged

Options: **reverse**   Enter this keyword to display the console log entries in order of newest to oldest.

Defaults: Log entries are displayed in order of oldest the newest by default.

History: Version 2.0   Introduced

Example:
```
seamicro> show console reverse
Aug 17 22:42:47 mcard3 stm[4084]: %ME3-S-STM-3-DISK_INSERTED: Disk 2 inserted.
in apps/stm/stm.c:3491
Aug 17 22:42:47 mcard3 stm[4084]: %ME3-S-STM-3-DISK_INSERTED: Disk 0 inserted.
in apps/stm/stm.c:3491
Aug 17 22:42:47 mcard3 stm[4084]: %ME3-S-STM-3-DISK_INSERTED: Disk 3 inserted.
in apps/stm/stm.c:3491
```

```
Apr 11 14:41:28 SeaMicro sysmgr[25940]: %ME0-P-SYSMGR-3-ALERT_RAISE_WITH_INFO:
Raising highCPUUsage alert on MEcard-0 - additional info 100.00% in apps/sys-
mgr/managedObject.c:252
[...]
seamicro>
```

Notes: None

show crash

Function: Display the contents of the crash directory.

Syntax: **show crash**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show crash

Directory of /disk/crash

drwxr-xr-x  2 root  wheel  512 Jul 22 11:52 2011-07-22-11-52-18-ME1-sshd-clicm-
dHandler-crash
drwxr-xr-x  2 root  wheel  512 Jul 25 09:39 2011-07-25-09-39-21-ME1-sshd-clicm-
dHandler-crash
drwxr-xr-x  2 root  wheel  512 Jul 25 13:58 2011-07-25-13-58-26-ME1-sshd-clicm-
dHandler-crash
[...]
seamicro>
```

Notes: The crash directory is a system-controlled directory that does not allow any file manipulation except for **copy crash**. The contents of the crash log are for SeaMicro use only.

show environment

Function: Display fan speed, voltage readings, temperature values, and shutdown temperature thresholds.

Syntax: **show environment**

CLI Mode: Unprivileged, Privileged

Options:

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show environment
RPM readings:
Fan (0,0) RPM: 4728
Fan (0,1) RPM: 4344
Fan (0,2) RPM: 4671
…
Fan (1,5) RPM: 4430
StorageEnclosure 0/0 Fan-0 RPM: 8030
StorageEnclosure 0/0 Fan-1 RPM: 8040
…
StorageEnclosure 1/1 Fan-n RPM: 8010

Voltage Readings:
PowerSupply 0 Voltage: 12.02 V
PowerSupply 1 Voltage: 12.02 V
PowerSupply 4 Voltage: 12.02 V
StorageEnclosure 0/0 Sensor-0 Voltage: 12.00 V
StorageEnclosure 1/1 Sensor-0 Voltage: 12.00 V

Temperature Readings:
CCard-0 sensor-0 temperature: 35 C
CCard-0 sensor-1 temperature: 36 C
StorageEnclosure 0/0 Sensor-30 temperature: 70 C
StorageEnclosure 1/1 Sensor-41 temperature: 75 C

Shutdown Temperature Thresholds:
CCard shutdown temperature : 90 C
MXCard shutdown temperature : 110 C
MXCard XFPGA shutdown temperature: 90 C
SCard CPU shutdown temperature : 90 C
```

Notes: None

---

show environment storageEnclosure

Function: Display fan speed, voltage readings, temperature values, and shutdown temperature thresholds.

Syntax: **show environment** [**storageEnclosure** *enclosureId*]

CLI Mode: Unprivileged, Privileged

Options: *enclosureID*   Enter the ID of the enclosure.

Defaults: None

History: Version 3.3   Introduced

Example:
```
seamicro> show environment storageEnclosure 1/0
--- Storage Enclosure 1/0 ---
RPM readings:
Fan-0 RPM: 8320
Fan-1 RPM: 8320
Fan-2 RPM: 8320
Fan-3 RPM: 8360
Fan-4 RPM: 8350
Fan-5 RPM: 8360
Fan-6 RPM: 8300
Fan-7 RPM: 8200
Fan-8 RPM: 8300
Fan-9 RPM: 8250

Voltage readings:
Voltage Sensor-2 Voltage: 12.38

Temperature readings:
sensor-0 temperature: 20 C
sensor-1 temperature: 20 C
sensor-2 temperature: 21 C
sensor-3 temperature: 21 C
```

Notes: None

show flash

Function: Display the contents of the flash.

Syntax: **show flash** [**mxcard** *string*] [**detail**]

CLI Mode: Unprivileged, Privileged

Options: **mxcard** *string* Enter the keyword followed by the MX-card number to restrict the output to the contents of the flash on specified MX-card.

    detail Display extended information.

Defaults: If you do not specify the MX-card, the system displays the contents of the primary MX-card flash.

History: Version 2.0 Introduced

Example:
```
seamicro> show flash
Directory of flash:/partition-0

    Retrieving flash image versions...
      Image version: 2.3


Directory of flash:/partition-1

    Retrieving flash image versions...
      Image version: 2.4


Directory of system:/home

-rw-r--r--  1 root   users   15462 Aug 13  2010 Bill-2
-rw-r--r--  1 root   users   30890 Aug 23  2010 CH12-bill-latest
[...]
seamicro>
```

Notes: None

show history

Function: Display the command history of the current user's session.

Syntax: **show history** [*number*]
show history mxcard [slotN*umber*]
show history reverse mxcard [slotN*umber*]

CLI Mode: Unprivileged, Privileged

Options:

number	Restrict the output of the command to the specified number of commands.
slotNumber	Enter the MX-card slot number to display that card's history. Range: **0 - 7**.
reverse	Display entries in the order of newest to oldest.

Defaults: Entries are displayed in order of oldest to newest by default.

History: Version 2.0   Introduced
Version 3.4   Added MX-card

Example:
```
seamicro# show history reverse
18-Aug-2011::10:40:49.331 'show history reverse'
18-Aug-2011::10:38:58.154 'show flash detail'
18-Aug-2011::10:38:40.749 'show flash'
18-Aug-2011::10:37:31.292 'show environment'
[...]
seamicro>

seamicro# show history mxcard 4
9-Jul-2013::18:10:51.462 'storage set raid level 10 slot 4'
9-Jul-2013::18:10:54.199 'storage set raid level 0 slot 4'
9-Jul-2013::18:10:56.817 'storage set raid level 1 slot 4'
9-Jul-2013::18:11:02.409 'storage set raid level 1,5 slot 4'
[...]
seamicro#

eamicro# show history reverse mxcard 4
16-Jul-2013::18:31:04.857 'storage set raid level 6 slot 4'
16-Jul-2013::18:30:49.905 'storage umount pool 4/p2'
16-Jul-2013::18:30:45.638 'storage umount pool 4/p1'
16-Jul-2013::18:30:12.673 'storage create pool 4/p2 disk 3,4,5 raid-level 5'
[...]
seamicro#
```

Notes: The system displays the command history for the CLI level from which this command is executed. For example, when executed from the Privileged level, the system displays the previously executed Privileged level commands for the user executing the command.

show ip igmp snooping

Function: Display the IGMP group cache, parameters, and router cache.

Syntax: **show ip igmp snooping** [**group-cache** [[**group** *IP-address*] | [**vlan** *vlan-id*]] | **params** | **router-cache** [**vlan** *vlan-id*]]

CLI Mode: Unprivileged and Privileged

Options: **group-cache** [[**group** *IP-address*] | [**vlan** *vlan-id*]]
      Shows the system-wide IGMP snooping group cache, the group cache for a specified group, or the group cache for a specified VLAN.

    params   Shows if IGMP snooping is enabled or disabled, and displays information on the group aging time and router aging time.

    router-cache [**vlan** *vlan-id*]
      Shows the system-wide IGMP snooping router cache or the router cache for a specific VLAN.

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro# show ip igmp snooping group-cache
Index VLAN     Group          If Name/NIC     Age    RxV1Reports RxV2Reports
RxLeaves
----- ------- -------------- --------------- ----- ----------- ---------
-- --------
1     default 239.255.255.253
                              srv 49/0/0      960   0              746          0
                              srv 48/0/0      960   0              747          0
                              srv 51/0/0      960   0              732          0
-----------------------------------------------------------------------
2     1001    225.1.1.1
3     1001    225.225.1.1
                              srv 0/0/1       980   0              260          0
                              srv 1/0/1       990   0              259          0
```

```
                              srv 2/0/1      980    0          259        0
       ------------------------------------------------------------------------
       --------------------
       4      1002      225.1.1.2
       5      1003      225.1.1.3
       6      1004      225.1.1.4
       ------------------------------------------------------------------------
       seamicro#


       seamicro# show ip igmp snooping params
       seamicro# show ip igmp snooping params
       igmp enable: ENABLED
       igmp flooding: DISABLED
       igmp group aging time: 1000 seconds
       igmp router aging time: 1000 seconds

       seamicro# show ip igmp snooping router-cache
       VLAN     If Name/NIC       Age    RxQueries   RxPIMs
       -------  ---------------   -----  ---------   -----------
       default
                srv 42/0/bo 224   900    185         0
                srv 43/0/bo 232   890    185         0
                srv 46/0/bo 288   890    185         0
                srv 47/0/bo 296   880    186         0
                srv 44/0/bo 352   930    186         0
                srv 45/0/bo 360   920    187         0
                srv 40/0/bo 416   910    186         0
                srv 41/0/bo 424   910    185         0
       1001
                po 5              960    144         0
       1002
                po 5              970    145         0
       ---------------------------------------------------------------------
```

Notes: None

Related Commands: clear ip igmp snooping on page 28

show ip igmp snooping querier vlan

Function: Displays information on the IGMP querier for VLANs.

Syntax: **show ip igmp snooping querier vlan** [*vlan-id-range* **| default**]

CLI Mode: Privileged

Options:	*vlan-id-range*	Indicate the VLAN range from 1 to 4094.
	default	Indicates the default VLAN.

Defaults: None

History: Version 3.3   Introduced

Example:
```
seamicro# show ip igmp snooping querier vlan
Query Interval: 125 seconds
Query Response Interval: 10 seconds
Version: 2
VLAN        Source IP      TxQueries
10          10.20.0.10     10
11          0.0.0.0        20
Command output will be sorted by VLAN.
```

Notes: None

Related Commands: None

---

show interfaces (Unprivileged)

Function: Display interface information.

Syntax: **show interfaces** [**brief**] [**byte**] [**rate**] [**diff**]

CLI Mode: Unprivileged

Options:	**brief**	Restrict the output of the command to select data in tabular form.
	byte	Display only transmit (Tx) and receive (Rx) statistics measured in byte increments.
	rate	Display only Tx and Rx statistics measured in packet increments.
	diff	Show the byte and rate delta between the two most recent **show interface** command executions.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show interfaces ?
Possible completions:
  brief   Show Interface Information in Tabular Format
  bytes   Show byte counters
  diff    Show counter diff
  rate    Show inferred data rate
  |       Output modifiers
  <cr>
seamicro> show interfaces brief
last run: 29.751 seconds ago
time now: Mon Oct 18 14:48:50 2010
last run: Mon Oct 18 14:48:20 2010
Name   MAC Address     Admin  Oper    PCinfo   IRG  Grat ARP  Rx Pkts  Tx Pkts
-----  --------------  -----  ----    ------   ---  --------  -------  -------
po 3   0021.5311.0943  up     down    down/0   7    n/a             0        0
po 7   0021.5311.0947  up     up      up 4/4   7    n/a         34553    39743
seamicro>
```

Notes: None

show interfaces (Privileged)

Function: Display interface information.

Syntax: **show interfaces** *type* [**brief**] [**byte**] [**rate**] [**diff**]

CLI Mode: Privileged

Options:

type	Enter a type of interface by entering one of the following: **gigabitethernet** *slot/port,* **inband**, **mgmteth** [**dhcp-params**]*,* **port-channel** *number,* or **tengigabitethernet** *slot/port.*
brief	Restrict the output of the command to select data in tabular form.
byte	Display only transmit (Tx) and receive (Rx) statistics bytes increments.
rate	Display only Tx and Rx statistics measured in packet increments.
diff	Show the byte and/or rate delta between the current and most recent **show interface** command execution.

Defaults: None

History: Version 2.0   Introduced
              Version 3.3   **mgmteth dhcp-params** support added.

Example:

```
seamicro# show interfaces port-channel 10
last run: 14.784 seconds ago
time now: Mon Oct 18 14:48:20 2010
last run: Mon Oct 18 14:48:06 2010
port-channel 10 is up, line protocol is up
 Hardware is Gigabit Ethernet, address is 0021.5311.094a
 port-channel 10 has 5 channel-members, 5 channel-members are up
  Channel members: gi 0/2(up), gi 0/3(up), gi 0/4(up), gi 0/5(up), gi 1/2(up)
 Interface redundant group is 0
 MTU 1500 bytes, BW 5000 Mbit/sec
  30727012 packets received, 3659201347 bytes
    39826 64B, 24323376 65-127B, 64700 128-255B
    6299110 256-511B, 0 512-1023B, 0 >1023B
  [...]
seamicro#
```

Example 2: **show interfaces mgmteth** output

```
seamicro# show interfaces mgmteth
mgmteth is up, line protocol is up (connected)
Hardware is Gigabit Ethernet, address is 0021.5391.1300
Internet address is 192.168.1.239/24 (DHCP)
MTU 1500 bytes
Full-duplex, media type is 1000baseT
```

Example 3: **show interfaces mgmteth dhcp-params** output

The dhcp-params option displays the DHCP parameters for the management
Ethernet lease:

```
seamicro# show interfaces mgmteth dhcp-params
DHCP lease time is 3600 seconds
DHCP server IP address is 192.168.2.10
Routers IP address is 192.168.2.10
Domain name servers IP address is 192.168.2.209,192.168.2.10
Domain name is seamicro.local
Config file URL is http://192.168.2.200/config
```

Notes: None

show inventory

Function: Display information about installed system components, including model number and unique id of storage enclosures.

Syntax: **show inventory**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show inventory
NAME: Chassis, DESCR: SM15k
SN : 4512NU003802000847
SERVER BIOS VERSION : 03.72.19_41442
Slot    Item Model      Part# Ver#   Serial#     Description
--------------------------------------------------------------------------
0   MXcard   7402    01    4912NU740201066265   MXcard (2 x 10GbE Eth Line Card
with w/NPU (B2) & SAS, Pericom)
7   MXcard EM-1GE-8T 7391 01    3112NU739101045454   MXcard (8 x 1GbE Eth
LineCard w/NPU B2 & SAS)
0   S & Hcard  SC-8IE-01  7395   01   4512NU739501058472   Storage Controller
(SAS Capable)
2   S & Hcard  SC-8IE-01  7395   01   4512NU739501058465   Storage Controller
(SAS Capable)
...
6   S & Hcard  SC-8D-01   7381   01   2512NU738101035045   Storage controller
    SMcard   SM-SM-01   7382   03   4912NU738203067001   SMcard (System Mgmt
Mod)
    Ucard    SM-OB-01   7383   01   4412NU738301053886   Ucard (Out-of-band
and console mgmt card)
0   Fantray   FT-01    7364   03   4912NU736403067012   Fantray (System Fan
Tray)
1   Fantray FT-01       7364   03   4912NU736403067013   Fantray (System
Fan Tray)
CC 0 Ccard   7411   01   4912NU741101066099   Ccard (4 C AMD CPU w/64GB DDR3)
CC 1 Ccard   7411   01   4912NU741101066098   Ccard (4 C AMD CPU w/64GB DDR3)
...
```

Example 2: **show inventory** with storage enclosure
```
seamicro# show inventory
NAME: Chassis, DESCR: SM15k
SN : 3010NU003802000007
SERVER BIOS VERSION : PineTrail 03.60.31.2070_28192
Slot Item Model Part# Ver# Serial# Description
----------------------------------------------------------------------------
------------------------------------
0 MXcard EM-10GE-2P 7390 01 2912NU739001040739 MXcard (2 x 10GbE Eth LineCard
w/NPU B2 & SAS)
```

```
1 S & Hcard SC-8D-01 7381 01 1812NU738101030725 Storage controller
1/0 Enclosure FS-5084-L1 ---- 3025 SHX0956073G0K37 Storage Enclosure - 5RU
84x3.5" drives
```

Example 3: **show inventory** with brief storage enclosure elements:

```
seamicro# show inventory
...
--- SCards ---
Slot Status Internal Disks External Disks Uptime
--------------------------------------------------------------------------------
------------------------
0 active 1 24 1 days, 6 hrs, 45 mins, 11 secs
6 active 8 0 1 days, 6 hrs, 45 mins, 11 secs
--- Storage Enclosures ---
Slot Bay Disks Status
--------------------------------------------------------------------------------
-
1 0 80 active
```

Notes: None

show lacp counters port-channel

Function: Display the LACPDU statistics for a port-channel.

Syntax: **show lacp counters port-channel** *number*

CLI Mode: Privileged

Options: *number*   Enter the number of a port-channel. Range: 0-15.

Defaults: None.

History: Version 2.1   Introduced

Example:
```
seamicro# show lacp counters port-channel 13
                LACPDUs                 Markers
Port        Sent      Recv       Sent       Recv
-----------------------------------------------
GI0/6       2519      2714         0          0
GI0/7       2519      2715         0          0
-----------------------------------------------
seamicro#
```

Notes: None.

show lacp info port-channel

Function:	Display information about a port-channel and its channel-members.
Syntax:	**show lacp info port-channel** *number*
CLI Mode:	Privileged
Options:	*number* Enter the number of a port-channel. Range: 0-15.
Defaults:	None
History:	Version 2.1 Introduced

Example:

```
seamicro# show lacp info port-channel 13

Flags: S - Device is requesting Slow LACPDUs
       F - Device is requesting Fast LACPDUs
       A - Device is in Active mode   P - Device is in Passive mode

Channel Group 13

                        Port      Partner    Partner
Port     Flags   State  State  Port   State   System
-------------------------------------------------------
Gi0/6    SA      bund   0x3d   07     0x3d    0019:5577:4880
Gi0/7    SA      bund   0x3d   08     0x3d    0019:5577:4880
-------------------------------------------------------
seamicro#
```

Notes:	None

show lacp info bond

Function:	Displays NIC bonding information (slaves, server), which belong to that bond ID.
Syntax:	**show lacp info bond** *bond-id*
CLI Mode:	Privileged
Options:	*bond-id* Enter the bond id number. Range: 0 - 511.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show lacp info bond 64

Bond Id : 64     Server ID : 2/0

Slave ID   Slave-State   Actor-state Partner-state VLAN-id  Bond-MAC
-----------------------------------------------------------------------
0       bundled          3d          3d           0      007b.3652.4b26
1       bundled          3d          3d           0      007b.3652.4b26
2       bundled          3d          3d           0      007b.3652.4b26
3       bundled          3d          3d           0       007b.3652.4b26
4       bundled          3d          3d            0     007b.3652.4b26
5       bundled          3d             3d         0      007b.3652.4b26
6       bundled          3d             3d         0      007b.3652.4b26
7       bundled          3d             3d         0      007b.3652.4b26
```

Notes: None.

show lacp info server

Function: Display the LACPDU statistics for NIC bonds on internal servers.

Syntax: **show lacp info server** {*server-id* | **all**}

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

Defaults: None

History: Version 2.6   Introduced

Example:

Notes: None

show logging

Function:	Display the contents of the system log buffer.
Syntax:	**show logging** [**reverse**]
CLI Mode:	Unprivileged, Privileged
Options:	**reverse** Display the log entries in order of newest to oldest.
Defaults:	Entries are displayed in order of oldest to newest by default.
History:	Version 2.0 Introduced

Example:

```
seamicro# show logging reverse
Syslog logging: enabled
        logging facility: local5
        Console logging: level err
        Buffer logging: level info
        Trap logging: level info
                Logging to 192.168.1.129
                Logging to 192.168.1.172

Log Buffer:
Apr 24 12:56:36 CHASSIS19-seamicro smobhelper[299]: %ME0-P-SYS-6-ADD_SUB: Add-
ing subscription 36226 for connection 3 in apps/smob-
helpe                                              r/eventPubSub.c:72
Apr 24 12:56:36 CHASSIS19-seamicro smobhelper[299]: %ME0-P-SYS-6-GEN_INFO_LOG1:
Too many smob alert interrupts : dampening enforced in
apps/smobhelper/smobAlert.c:523
[...]
seamicro#
```

Notes:	None

show mac address-table

Function:	Display MAC address information.
Syntax:	**show mac address** [*address*] [**aging-time | bond | count | interface | nic | port-limit | server | vlan**]
CLI Mode:	Unprivileged, Privileged

Options:	*address*	Show information on the MAC address you indicate.
	aging-time	Show information on the MAC address aging time.
	bond	Show information on the MAC address on the bond.
	count	Show information on the MAC address table count.
	interface	Show information on the MAC address on the interface.
	nic	Show information on the MAC address on the NIC.
	port-limit	Show information on the MAC address table port limit.
	server	Show information on the MAC address on the server.
	vlan	Show information on the MAC address on the VLAN.

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro# show mac address-table
    MAC address      VLAN   Server/NIC   If Name    Type
------------------ ---- ------------ -------- -------
 00:21:53:11:03:80   -            n/a   inband   static
 00:22:99:04:00:00   -          0/0/2     n/a   static
 00:22:99:04:00:01   -          0/0/5     n/a   static
 00:22:99:04:00:02   -          0/0/0     n/a   static
...
 00:22:99:04:00:74   -          48/0/1    n/a   static
 00:22:99:04:00:75   -          48/0/7    n/a   static
 00:22:99:04:01:00   -   not assigned    n/a   static
 00:22:99:04:01:01   -   not assigned    n/a   static
...
 00:11:22:33:44:04   -        1/0/bo 8    n/a   dynamic
...
 00:11:22:33:44:02   -        1/0/bo 8    n/a   dynamic
Number of addresses: 516

seamicro# show mac address-table
    MAC address      VLAN   Server/NIC   If Name    Type
------------------ ---- ------------ -------- -------
 00:21:53:11:03:80   -            n/a   inband   static
 00:22:99:04:00:00   -          0/0/2     n/a   static
```

```
 00:22:99:04:00:01    -          0/0/5       n/a    static
 00:22:99:04:00:02    -          0/0/0       n/a    static
 00:22:99:04:00:03    -          0/0/6       n/a    static
 ...
 00:22:99:04:01:00    -     not assigned     n/a    static
 00:22:99:04:01:01    -     not assigned     n/a    static
 00:22:99:04:01:02    -     not assigned     n/a    static
 ...
 00:11:22:33:44:04    -        1/0/bo 8      n/a    dynamic
 00:22:99:04:00:17    -        1/0/bo 8      n/a    static
 ...
 00:00:00:11:00:08   20          n/a     te 0/0    dynamic
 00:00:00:11:00:07   20          n/a     te 0/0    dynamic
 00:00:00:11:00:06   20          n/a     te 0/0    dynamic
 00:00:00:11:00:05   20          n/a     te 0/0    dynamic
Number of addresses: 536

seamicro# show mac address-table aging-time
 300 seconds

seamicro# show mac address-table address 00:00:00:11:00:09
    MAC address     VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:00:00:11:00:09   20          n/a     te 0/0    dynamic
Number of addresses: 1

seamicro# show mac address-table bond 8
    MAC address     VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:11:22:33:44:04    -        1/0/bo 8      n/a    dynamic
 00:22:99:04:00:17    -        1/0/bo 8      n/a    static
 00:11:22:33:44:03    -        1/0/bo 8      n/a    dynamic
 00:22:99:04:00:16    -        1/0/bo 8      n/a    static
 00:22:99:04:00:10    -        1/0/bo 8      n/a    static
 00:11:22:33:44:02    -        1/0/bo 8      n/a    dynamic
Number of addresses: 6
seamicro#

seamicro# show mac address-table count
Number of addresses: 516

seamicro# show mac address-table count bond 8
Number of addresses: 6

seamicro# show mac address-table interface tengigabitethernet 0/0
    MAC address     VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:00:00:11:00:18   20          n/a     te 0/0    dynamic
 00:00:00:11:00:17   20          n/a     te 0/0    dynamic
 00:00:00:11:00:16   20          n/a     te 0/0    dynamic
 00:00:00:11:00:15   20          n/a     te 0/0    dynamic
 00:00:00:11:00:14   20          n/a     te 0/0    dynamic
 00:00:00:11:00:13   20          n/a     te 0/0    dynamic
 00:00:00:11:00:12   20          n/a     te 0/0    dynamic
 00:00:00:11:00:11   20          n/a     te 0/0    dynamic
 00:00:00:11:00:10   20          n/a     te 0/0    dynamic
 00:00:00:11:00:0f   20          n/a     te 0/0    dynamic
 00:00:00:11:00:0e   20          n/a     te 0/0    dynamic
 00:00:00:11:00:0d   20          n/a     te 0/0    dynamic
```

```
 00:00:00:11:00:0c   20           n/a   te 0/0   dynamic
 00:00:00:11:00:0b   20           n/a   te 0/0   dynamic
 00:00:00:11:00:0a   20           n/a   te 0/0   dynamic
 00:00:00:11:00:09   20           n/a   te 0/0   dynamic
 00:00:00:11:00:08   20           n/a   te 0/0   dynamic
 00:00:00:11:00:07   20           n/a   te 0/0   dynamic
 00:00:00:11:00:06   20           n/a   te 0/0   dynamic
 00:00:00:11:00:05   20           n/a   te 0/0   dynamic
Number of addresses: 20


seamicro# show mac address-table nic 1/0 6
    MAC address      VLAN   Server/NIC   If Name   Type
------------------   ----   ------------ --------  -------
 00:22:99:04:00:13   -          1/0/6      n/a   static
Number of addresses: 1


seamicro# show mac address-table port-limit
 1200


seamicro# show mac address-table vlan 20
    MAC address      VLAN   Server/NIC   If Name   Type
------------------   ----   ------------ --------  -------
 00:00:00:11:00:18   20           n/a   te 0/0   dynamic
 00:00:00:11:00:17   20           n/a   te 0/0   dynamic
 00:00:00:11:00:16   20           n/a   te 0/0   dynamic
 00:00:00:11:00:15   20           n/a   te 0/0   dynamic
 00:00:00:11:00:14   20           n/a   te 0/0   dynamic
 00:00:00:11:00:13   20           n/a   te 0/0   dynamic
 ...
 00:00:00:11:00:08   20           n/a   te 0/0   dynamic
 00:00:00:11:00:07   20           n/a   te 0/0   dynamic
 00:00:00:11:00:06   20           n/a   te 0/0   dynamic
 00:00:00:11:00:05   20           n/a   te 0/0   dynamic
Number of addresses: 20


seamicro# show mac address-table server 1/0
    MAC address      VLAN   Server/NIC   If Name   Type
------------------   ----   ------------ --------  -------
 00:22:99:04:00:11   -          1/0/5      n/a   static
 00:22:99:04:00:12   -          1/0/0      n/a   static
 00:22:99:04:00:13   -          1/0/6      n/a   static
 00:22:99:04:00:14   -          1/0/1      n/a   static
 00:22:99:04:00:15   -          1/0/7      n/a   static
 00:11:22:33:44:04   -       1/0/bo 8      n/a   dynamic
 00:22:99:04:00:17   -       1/0/bo 8      n/a   static
 00:11:22:33:44:03   -       1/0/bo 8      n/a   dynamic
 00:22:99:04:00:16   -       1/0/bo 8      n/a   static
 00:22:99:04:00:10   -       1/0/bo 8      n/a   static
Number of addresses: 10


seamicro# show mac address-table count vlan 20
Number of addresses: 20


seamicro# show mac address-table interface tengigabitethernet 0/0
    MAC address      VLAN   Server/NIC   If Name   Type
------------------   ----   ------------ --------  -------
 00:00:00:11:00:18   20           n/a   te 0/0   dynamic
 00:00:00:11:00:17   20           n/a   te 0/0   dynamic
```

```
 00:00:00:11:00:16   20          n/a   te 0/0   dynamic
 00:00:00:11:00:15   20          n/a   te 0/0   dynamic
 00:00:00:11:00:14   20          n/a   te 0/0   dynamic
 00:00:00:11:00:13   20          n/a   te 0/0   dynamic
 00:00:00:11:00:12   20          n/a   te 0/0   dynamic
 00:00:00:11:00:11   20          n/a   te 0/0   dynamic
 ...
 00:00:00:11:00:06   20          n/a   te 0/0   dynamic
 00:00:00:11:00:05   20          n/a   te 0/0   dynamic
Number of addresses: 20


seamicro# show mac address-table interface tengigabitethernet 0/0 vlan 20

   MAC address      VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:00:00:11:00:18   20          n/a   te 0/0   dynamic
 00:00:00:11:00:17   20          n/a   te 0/0   dynamic
 00:00:00:11:00:16   20          n/a   te 0/0   dynamic
 00:00:00:11:00:15   20          n/a   te 0/0   dynamic
 00:00:00:11:00:14   20          n/a   te 0/0   dynamic
 00:00:00:11:00:13   20          n/a   te 0/0   dynamic
 ... 00:00:00:11:00:08   20          n/a   te 0/0   dynamic
 00:00:00:11:00:07   20          n/a   te 0/0   dynamic
 00:00:00:11:00:06   20          n/a   te 0/0   dynamic
 00:00:00:11:00:05   20          n/a   te 0/0   dynamic
Number of addresses: 20
seamicro#


seamicro# show mac address-table count interface tengigabitethernet 0/0 vlan 20
Number of addresses: 20



seamicro# show mac address-table server 1/0
   MAC address      VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:22:99:04:00:11   -          1/0/5     n/a   static
 00:22:99:04:00:12   -          1/0/0     n/a   static
 00:22:99:04:00:13   -          1/0/6     n/a   static
 00:22:99:04:00:14   -          1/0/1     n/a   static
 00:22:99:04:00:15   -          1/0/7     n/a   static
 00:11:22:33:44:04   -        1/0/bo 8    n/a   dynamic
 00:22:99:04:00:17   -        1/0/bo 8    n/a   static
 00:11:22:33:44:03   -        1/0/bo 8    n/a   dynamic
 00:22:99:04:00:16   -        1/0/bo 8    n/a   static
 00:22:99:04:00:10   -        1/0/bo 8    n/a   static
Number of addresses: 10
seamicro#

seamicro# show mac address-table nic 1/0 6
   MAC address      VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
 00:22:99:04:00:13   -          1/0/6     n/a   static
Number of addresses: 1
seamicro#

seamicro# show mac address-table address 00:00:00:11:00:09
   MAC address      VLAN   Server/NIC   If Name    Type
------------------- ----  ------------ -------- -------
```

```
    00:00:00:11:00:09   20          n/a   te 0/0   dynamic
Number of addresses: 1
```

Notes: None

Related Commands:

show memory

Function:	Display memory usage statistics.
Syntax:	**show memory** [**mxcard** *number*	**all**]
CLI Mode:	Unprivileged, Privileged

Options: **mxcard** *number*   Enter the keyword followed by the slot number of an MX-card to show memory usage for the specified card. Range: 0 - 7.

   all   Enter '**all**' to see memory utilization for all connected MX-cards.

Defaults: If you do not enter the MX-card number, the system displays information for the primary MX-card.

History: Version 2.0   Introduced
   Version 3.4   Added '**all**'

Example:
```
seamicro# show memory
MEcard - Slot 1
--------------
Memory Utilization: 73%
total: used: free: shared: buffers: cached:
Mem: 604897280 454213632 150683648 0 11091968 400162816
Swap: 0 0 0
MemTotal: 590720 kB
MemFree: 147152 kB
MemShared: 0 kB
Buffers: 10832 kB
Cached: 390784 kB
SwapTotal: 0 kB
SwapFree: 0 kB

seamicro# show memory mxcard all
MXcard - Slot 2
--------------
Memory Utilization: 36%

        total:    used:    free:  shared: buffers: cached:
Mem:  1831215104 731734016 1099481088       0 72089600 669904896
Swap:        0        0        0
MemTotal:  1788296 kB
MemFree:   1073712 kB
```

```
MemShared:         0 kB
Buffers:       70400 kB
Cached:       654204 kB
SwapTotal:         0 kB
SwapFree:          0 kB


MXcard - Slot 4
--------------
Memory Utilization: 20%


         total:     used:     free:   shared: buffers: cached:
Mem:  1831215104 465842176 1365372928        0 84426752 407748608
Swap:         0         0         0
MemTotal:   1788296 kB
MemFree:    1333372 kB
MemShared:         0 kB
Buffers:       82448 kB
Cached:       398192 kB
SwapTotal:         0 kB
SwapFree:          0 kB
```

Notes: Use this command to verify or troubleshoot a high memory usage alert.

show motd

Function: Display the message of the day (motd).

Syntax: **show motd**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: The is no default message of the day.

History: Version 2.6   Introduced

Example: None

Notes: None

Related Commands: copy image mxcard on page 43
clear motd on page 31

show ntp

Function:	Display the configured NTP servers and NTP statistics.
Syntax:	**show ntp**
CLI Mode:	Unprivileged, Privileged
Options:	None
Defaults:	None
History:	Version 2.0 Introduced

Example:

```
seamicro# show ntp
    remote           refid      st t when poll reach   delay   offset
jitter
==============================================================================
========
 10.1.0.10       .INIT.          16 u    -   64   0   0.000   0.000
0.000
seamicro#
```

Notes: None

show processes

Function:	Display active process statistics for troubleshooting.	
Syntax:	**show processes** [**mxcard** *number*]	
CLI Mode:	Unprivileged, Privileged	
Options:	**mxcard** *number*	Enter the keyword followed by the slot number of an MX-card to display the processes running the specified card. Range: 0 - 7.
Defaults:	None	
History:	Version 2.0 Introduction	

Example:
```
seamicro> show processes mxcard 0
Mcard - Slot 0
--------------
  PID STAT    TIME  SL  RE PAGEIN   VSZ   RSS LIM TSIZ %CPU %MEM COMMAND
  485 S    0:12.46   0 127     36 42960 18416   -  432  0.0  1.8 ethernet
 5366 S    0:12.62   0 127      8 18480 19040   -  144  0.0  1.8 routed
   97 Ss   2:32.92   0 127     96 14656 18768   -  848  9.7  1.8 confd
19071 S    0:34.45   0 127      1  9376 11696   -  256  0.1  1.1 sysmgr
[...]
seamicro>
```

Notes: This command will not show all processes for all MX-cards. There are some processes which run only the primary process as in the terminal server service.

show processes memory

Function: Display the memory consumed by each active process.

Syntax: **show processes memory** [**mxcard** *number* || **pid** *number*]

CLI Mode: Privileged

Options: **mxcard** *number*   Restrict the output to the processes running on the specified card. Range: 0 - 7.

pid   Restrict the output to the specified process.

Defaults: None

History: Version 2.1   Introduced

Example:
```
seamicro# show processes memory
MEcard - Slot 1
--------------
  PID    TIME   VSZ    RSS TSIZ %MEM %CPU COMMAND
    0 0:00.05     0 124896    0 11.9  0.0 [swapper]
    1 0:00.13   240   1328   32  0.1  0.0 init
    2 0:00.00     0 124896    0 11.9  0.0 [stdflash0]
    3 0:00.00     0 124896    0 11.9  0.0 [usb0]
    4 0:00.00     0 124896    0 11.9  0.0 [usbtask-hc]
    5 0:00.00     0 124896    0 11.9  0.0 [usbtask-dr]
[...]
```

Notes: None

show processes summary

Function: Display summary information about active processes.

Syntax: **show processes summary** {*process* | **mxcard** *number*}

CLI Mode: Privileged

Options: *process*   Enter the name of a process: **bmc-daemon**, **clicmd-helper-service, dhclient-daemon, enclosure-monitor, ethernet-daemon**, **inet-daemon**, **lacp-daemon**, **ntp-daemon**, **route-daemon**, **smob-service**, **snmp-proxy**, **ssh-daemon**, **statistics-monitor**, **storage-daemon**, **sync-service**, **syslog-daemon**, **system-manager**, **terminal-server-service**.

     mxcard *number*   Display summary information about the processes running on the specified card. Range: 0 - 7.

Defaults: None

History:

Version 2.1	Introduction
Version 3.3	Added dhclient daemon.

Example:
```
seamicro# show processes summary
System Ready :yes
config-daemon
        Executable :confdstarter
        Running :yes
        Process Ready :yes
        Total Restarts :0
        Restarts since last exit :0
        Last Restart time :2010-10-20 15:39:18
        Last Restart Reason :
        Failed heartbeats since last restart :0
        Failed heartbeats high watermark :0
        FDs : 10
[...]
```

Example 2: **show process summary dhclient-daemon** output

```
seamicro# show process summary dhclient-daemon
dhclient-daemon
Executable :dhclient-mgmt
Running :yes
Process Ready :yes
Total Restarts :1
Restarts since last exit :1
Last Restart time :2013-03-04 08:48:23
```

```
Last Restart Reason :Self Restart
Failed heartbeats since the last successful one :0
Failed heartbeats high watermark :0
FDs : 7
```

Notes: None

show redundancy

Function: Display primary/secondary status for MX-cards.

Syntax: **show redundancy**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show redundancy
System redundancy information
        Primary slot: 1
        Configured Primary slot:
        Eligible Primary slot(s): 1, 3, 5
        Ineligible Primary slot(s):
        Version mismatched slot(s):
        POST Failure slot(s):
        My slot: 1
        Number of Secondary: 2
        Redundancy enabled
        Switchover Count: 4
        Last switchover time: 2011-08-17 22:36:39
        Last switchover reason: User Selection
seamicro>
```

Notes: None

show running-config

Function: Display the entire running-configuration file.

Syntax: **show running-config**

CLI Mode: Unprivileged, Privileged

Options: This command has many options that enable you to display specific portions of the file, and they are defined in Additional show run Commands on page 218.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config
seamicro> show running-config
interface inband
 ip address 10.14.0.2/20
 ip default-gateway 10.14.0.10
 allow ssh
 allow snmp
 allow termserv
!
interface mgmteth
 no shutdown
 ip address 192.168.1.212/24
 ip default-gateway 192.168.1.31
!
[...]
seamicro>
```

Notes: None

show running-config storage

Function: Displays all storage-related configurations.

Syntax: **show running-config storage**

CLI Mode: Privileged

Options: Unused

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show running-config storage
```

```
ch712-Acmedata# show running-config storage
storage assign 0/0 0 volume 2/ESXi-0/acme-0
storage assign 0/0 1 volume 2/ESXi-0/acme-1
storage assign 0/0 2 volume 2/ESXi-0/acme-2
storage assign 0/0 3 volume 2/ESXi-0/acme-3
storage assign 1/0 0 volume 0/Acme00/0
storage assign 1/0 1 volume 3/AcmeSSD0/slice5
storage assign 1/0 2 volume 3/AcmeSSD0/slice0
storage assign 1/0 3 volume 3/AcmeSSD0/slice1
-----------------------------------------------------------
storage assign 14/0 0 volume 0/BootDisks/Srv14-0-0
storage assign 14/0 1 volume 0/BootDisks/Srv14-0-1
storage assign 14/0 4 volume 7/AcmeSSD2/slice0
storage assign 14/0 5 volume 7/AcmeSSD2/slice1
-----------------------------------------------------------
storage assign 16/0 0 volume 1/AcmeBoot/Snode16-a
storage assign 16/0 1 volume 1/AcmeBoot/Snode16-b
storage assign 16/0 2 volume 0/jbod0d0/d0
storage assign 16/0 3 volume 0/jbod0d1/d1
storage assign 16/0 4 volume 0/jbod0d2/d2
storage assign 16/0 5 volume 0/jbod0d3/d3
-----------------------------------------------------------
storage assign 2/0 0 volume 0/BootDisks/0
storage assign 2/0 1 volume 6/AcmeSSD4/volume0
storage assign 2/0 2 volume 6/AcmeSSD4/volume1
storage assign 2/0 3 volume 6/AcmeSSD4/volume2
storage assign 2/0 4 volume 6/AcmeSSD4/volume3
-----------------------------------------------------------
storage assign 20/0 0 volume 4/7/a
storage assign 20/0 1 volume 4/7/b
storage assign 20/0 2 volume 4/7/c
-----------------------------------------------------------
storage assign 3/0 0 volume 0/Acme00/1
storage assign 3/0 1 volume 7/AcmeSSD3/slice0
storage assign 3/0 2 volume 7/AcmeSSD3/slice1
-----------------------------------------------------------
storage assign 5/0 0 volume 3/AcmeHDD0-internal/a
storage assign 5/0 1 volume 3/AcmeHDD1-internal/b
storage assign 5/0 2 volume 4/AcmeHDD0-internal/c
storage assign 5/0 3 volume 5/AcmeHDD0-internal/d
storage assign 5/0 4 volume 5/AcmeHDD1-internal/e
-----------------------------------------------------------
storage assign 63/0 0 volume 2/ESXi-7/acme-22
storage assign 63/0 1 volume 2/ESXi-7/acme-21
```

Notes: None

**Related
Commands:**

show running-config system restore-power-state

Function:	Displays the amount of time delay configured to automatically power on the chassis upon power recovery.
Syntax:	**show running-config system restore-power-state**
CLI Mode:	Unprivileged, Privileged
Options:	None
Defaults:	None
History:	Version 3.2 Introduced
| **Example:** | ```
seamicro> show running-config system restore-power-state
system restore-power-state 47
seamicro>
``` |
| **Notes:** | None |

show server bios

Function:	Display the Hyperthreading, C-States, CPU Frequency and Boot-order BIOS configurations for internal servers.
Syntax:	**show server bios** [*server-id* **| all**]
CLI Mode:	Privileged
Options:	*server-id* Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range 0/0 - 63/7.
	all Display the configuration for all servers.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show server bios 0/0
Server   hyperthreading   c-states cpufreq-scaling hide-topmem boot-
order
------------------------------------------------------------------------
-----------
0/0      ON              ON       ON              OFF        hd0 hd1
hd2 hd3
seamicro#
```

Notes: • **show server bios** will show bios for plugged in servers.
          • **show server bios all** will show bios for all servers.

show server console

Function: Display the console connections to internal servers.

Syntax: **show server console** *number*

CLI Mode: Privileged

Options: *server-id*   Enter one or more IDs. You may enter multiple
                                  server numbers using a comma-separated (no
                                  spaces) list, a hyphenated (no spaces) range, or a
                                  combination of the two. Range: 0/0 - 63/7.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show server console ?
Possible completions:
  connections   Show server console connections
  port-map      Show server console tcp port map
seamicro# show server console connections
Server    0/0: connected from 192.168.1.135:54473
Server    0/1: connected from 192.168.1.135:55169
Server    0/2: connected from 192.168.1.135:33460
Server    0/3: connected from 192.168.1.135:41798
Server    1/0: connected from 192.168.1.135:59894
Server    1/1: connected from 192.168.1.135:60975
Server    1/2: connected from 192.168.1.135:38442
Server    1/3: connected from 192.168.1.135:42725
```

```
Server   17/0: connected from 192.168.1.135:57646
Server   17/1: connected from 192.168.1.135:39073
Server   17/2: connected from 192.168.1.135:58837
Server   17/3: connected from 192.168.1.135:53634
Server   16/0: connected from 192.168.1.135:35847
Server   16/1: connected from 192.168.1.135:49217
Server   16/2: connected from 192.168.1.135:52746
[...]
```

Notes: None

show server description

Function: Display the configured description for a server.

Syntax: **show server description** [*server-id* | **all**]

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter
                       multiple server numbers using a comma-separated
                       (no spaces) list, a hyphenated (no spaces) range,
                       or a combination of the two. Range: 0/0 - 63/7.

           all   Display the description for every internal server.

Defaults: Internal server do not have a default description.

History: Version 2.5   Introduced

Example:
```
seamicro# show server description 0/0
Server   Description
--------------------
 0/0       Xeon Intel Server
seamicro#
```

Notes: None

show server detail

Function: Display all possible information for a server.

Syntax:	show server detail [*server-id* | **all**]

CLI Mode:	Privileged

Options:	*server-id*	Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.
	all	Display detailed information for every internal server.

Defaults:	None

History:	Version 2.6	Introduced
	Version 3.3	Introduced disk/volume.

Example:
```
seamicro# show server detail
Server Number 0/0 is down
 CPU Type : Intel Atom N570
 UUID : 7787b70e-d3b1-3f76-ae71-c29a662f9f74
         Description:
         Port80 Code: 0xff
 NIC(s) : 2
         NIC Number: 0
           MAC Address: 00:22:99:03:80:00
         NIC Number: 1
           MAC Address: 00:22:99:03:80:01
 Vdisk(s): 1
         Vdisk: 0 Disk: 0/0 Size: 256GB Serial number: 5VJ2P2J4
Server Number 0/1 is  down
 CPU Type : Intel Atom N570
 UUID : 7afae3e4-9491-3976-adba-b81fd83401a0
         Description:
         Port80 Code: 0xff
 NIC(s) : 2
         NIC Number: 0
           MAC Address: 00:22:99:03:80:02
         NIC Number: 1
           MAC Address: 00:22:99:03:80:03
 Vdisk(s): 1
      Vdisk: 0 Volume: 1/nicepool/vol-2 Size: 256GB Serial number:
tCHrorgKeSR4foKr0qFX
```

Notes: •   If a server is assigned with a volume, 'volume' indicates that a vdisk is mapped to a volume.
•   If a server is assigned with a raw disk, 'disk' indicates that a vdisk is mapped to a raw disk.

show server summary

Function: Display information about all internal servers in tabular form.

Syntax: **show server summary** [*server-id* | **all** | **assigned-to** *disk-number* | **up** | **down**]

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

all   Display information for every internal server.

assigned-to *disk-number*

Display the servers that are assigned a specified disk or range of disks. Enter disk numbers in the form *slot/bay*. Multiple disks may entered as a comma-separated (no spaces) list, hyphenated (no spaces) range, or a combination of the two.

up   Restrict the output to servers that are up.

down   Restrict the output to servers that are down.

Defaults: None

History: Version 2.2   Added **assigned-to** option
Version 2.0   Introduced

Example:
```
seamicro# show server summary
ccard/Server#  NIC      IP                MAC          #VDisks  Status    CPU-
Type
-------------------------------------------------------------------------------
-----------------
```

```
4/0              0    not assigned   0022.9903.8700      0      up      Intel
Atom N570
4/0              1    not assigned   0022.9903.8701      -      -          -
4/1              0    not assigned   0022.9903.8702      0      up      Intel
Atom N570
4/1              1    not assigned   0022.9903.8703      -      -          -
4/2              0    not assigned   0022.9903.8704      0      up      Intel
Atom N570
4/2              1    not assigned   0022.9903.8705      -      -          -
4/3              0    not assigned   0022.9903.8706      0      up      Intel
Atom N570
4/3              1    not assigned   0022.9903.8707      -      -          -
5/0              0    not assigned   0022.9903.8710      0      up      Intel
Atom N570
5/0              1    not assigned   0022.9903.8711      -      -
```

Notes: When a C-card has failed or is removed, the status for the servers on the card will be *not available*.

---

show server uuid

Function: Display internal server UUIDs.

Syntax: **show server uuid** [*server-id* **| all**]

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

all   Display the UUID for every internal server.

Defaults: None

History: Version 2.1   Introduced

Example:
```
seamicro# show server uuid
Server     UUID
---------------------------------------------
12/0    ad1c1f64-2c60-3e3b-829f-9162d918df0a

12/1    f96857fa-ea08-317c-abd0-3a7cfd253c10

12/2    9aa164e8-60f9-31ad-b274-e0840cbdc3d2

12/3    f57db053-a9a6-3370-832f-03adffe0d9e5

13/0    5d7da26a-1aaf-3e9f-b3f4-4fdd6d615fd5

13/1    33f494a3-c2ba-3a7d-872f-3a6b6cf779b8

13/2    9acc6945-c0bb-3047-acb6-1391288f70f7

13/3    2d81193e-404c-3843-9182-f92c3b080b89

14/0    8c1230aa-b51e-3f6b-a78b-cd4f0ee24f4d

14/1    7d26db5b-dd75-382c-bd0d-3209fcc3bf90
[...]
```

Notes: None

show snmp

Function: Display the SNMP configuration.

Syntax: **show snmp**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show snmp
 Agent Status: Enabled
 Agent community string: public

 Trap managers          ports    version
     10.11.0.10          1000    v2c
seamicro#
```

Notes: None

show storage

Function: Displays pool, volume, and disk information.

Syntax: **show storage** [**brief**]

CLI Mode: Privileged

Options: **brief**   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show storage

[disk information]
```

```
***************************************************************************
******
disk 0/0
          pool: Acme00
          size: 465.00GB
         model: ST9500620NS
        serial: 9XF0HRBC
  firmware rev.: BK03
        status:

disk 0/1
          pool: Acme01
          size: 465.00GB
         model: ST9500620NS
        serial: 9XF0KEE3
  firmware rev.: SN01
        status:


-----------------------------------------------------------------------
disk 50:05:0c:c1:0a:fc:0e:7f/25
          pool: jbod0d1
          size: 1863.00GB
         model: SEAGATE ST2000NM0001
        serial: Z1P2HYYF0000924197ZD
  firmware rev.: XQB6
        status:

disk 50:05:0c:c1:0a:fc:0e:7f/26
          pool: jbod0d2
          size: 1863.00GB
         model: SEAGATE ST2000NM0001
        serial: Z1P2GK6C0000C239D9AR
  firmware rev.: XQB6
        status:
-----------------------------------------------------------------------
[pool information]
**************************************************
pool 0/Acme00
    total size: 465.00GB
     free size: 5.00GB
    disk count: 1
         disks: 0
  volume count: 2
          attr: Mounted, Optimal

pool 0/Acme01
    total size: 465.00GB
     free size: 5.00GB
    disk count: 1
         disks: 1
  volume count: 2
          attr: Mounted, Optimal
-----------------------------------------------------------------------
pool 0/jbod0d2
    total size: 1863.00GB
     free size: 0.00GB
    disk count: 1
         disks: 50:05:0c:c1:0a:fc:0e:7f/26
  volume count: 1
          attr: Mounted, Optimal

pool 0/jbod0d3
    total size: 1863.00GB
     free size: 0.00GB
    disk count: 1
```

```
            disks: 50:05:0c:c1:0a:fc:0e:7f/27
  volume count: 1
            attr: Mounted, Optimal


    ------------------------------------------------------------------
[volume information]
************************************************************************
volume 4/p/v-0
  prov. size: 1.00GB
 actual size: 1.00GB
          attr: Assigned, Linear
          uuid: p0AQhI-OtW5-w962-A0xb-C8Ir-xYro-veJuyY


volume 4/p/v-1
  prov. size: 1.00GB
 actual size: 1.00GB
          attr: Unassigned, Linear
          uuid: ROebgV-R9uf-503T-5mUR-hroy-iUYx-qZGq4g


volume 4/p/v-2
  prov. size: 1.00GB
 actual size: 1.00GB
          attr: Unassigned, Linear
          uuid: I4fj2u-wsGk-r9Y4-olY7-w1H2-MWsV-fl3Pcf
    ------------------------------------------------------------------
[volume assignment information]
********************************************************************************
************
server 0/0, vdisk 0
      volume: 2/ESXi-0/acme-0
  assignment: active
    property: RW

server 0/0, vdisk 1
      volume: 2/ESXi-0/acme-1
  assignment: active
    property: RW

server 0/0, vdisk 2
      volume: 2/ESXi-0/acme-2
  assignment: active
    property: RW


    ------------------------------------------------------------------------
    -------------------
```

Notes: None

show storage assign

Function: Displays information on disk and volume assignments of servers and their status.

Syntax: **show storage assign** [**server** *server-id*] [**pool** *slot/pool-name*] [**brief**]

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter one or more server IDs using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range 0/0 - 63/7.

      slot/pool-name Enter the S-card slot number and pool name. Range: 0 - 7.

      brief   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced
     Version R3.3   Replaced volume with type/id.

Example:
```
seamicro# show storage assign
server 0/2, vdisk 0
          type: disk
          id: 1/5
    assignment: active
      property: RW


server 0/3, vdisk 0
          type: disk
          id: JBOD6/10
    assignment: active
      property: RW
```

```
seamicro# show storage assign brief
server       vdisk       type       id      assignment      property
-----------------------------------------------------------------------
0/2          0           disk       1/5         active      RW
0/3          0           disk     JBOD6/10       active      RW
0/4          0           volume   2/pool/vol      active      RW
```

Notes: The '**type**' column indicates if a disk or volume is assigned to the server. The '**id**' column indicates either an internal or external disk id, or a volume id.

The non-brief version of this command displays the uuid if a volume is assigned, or the raw disk signature if one is assigned.

show storage disk

Function: Displays storage disk location and information. Note, disk location information will not display in **show storage disk brief.**

Syntax: **show storage disk**
show storage disk [**brief**]

CLI Mode: Privileged

Options: **brief**   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced
Version 3.3   Introduced disk indication.

Example:
```
seamicro# show storage disk brief
disk pool size   model           serial      firmware rev.    status
----------------------------------------------------------------------
1/0   <raw>   298.00GB      ST9320423AS     5VJ2P2J4        0002SDM1
1/1           298.00GB      ST9320423AS     5VH4RZLX        0002SDM1
1/2            465.00GB      ST9500420AS     5VJ5HATX        0002SDM1
…
seamicro# show storage disk
disk 1/0
            pool: <raw>
            size: 298.00GB
           model: ST9320423AS
          serial: 5VJ2P2J4
       signature: 0b7e7a2fcd08ed0bdc3b1098c2626b7d
    firmware rev.: 0002SDM1
          status:
```

```
disk 1/1

          pool:
          size: 298.00GB
         model: ST9320423AS
        serial: 5VH4RZLX
     signature: d41d8cd98f00b204e9800998ecf8427e
  firmware rev.: 0002SDM1
        status:

…
```

Notes: The disk location will display in the following format:

<scard slot>/<SAS port#>/<shelf#>/<disk slot>

- S-card slot: **0 - 7**
- SAS port # (MX-card): **1** = Left Port; **0** = Right Port.
- Shelf #: **0** = Upper Shelf; **1** = Lower Shelf.
- Disk slot in Storage Enclosure:
  0-83 (5RU); **0-11** (2RU-12 disks); **0-23** (2RU-24 disks).

In the above example, **activate led disk** 50:05:0c:c1:0d:05:de:3f/11 or **activate led disk external-location** 1/1/0/9 will map to the same disk.

RAID: The command, **show storage disk X/all,** displays only the internal disks in the output.

As seen in the example, if a disk is assigned as a raw disk, this command displays '**<raw>**' in the pool column or line. The non-brief version also displays a disk signature.

show storage external

Function: Displays an alias table for external disk device addresses.

Syntax: **show storage external** [**refresh**] [**brief**]

CLI Mode: Privileged

Options: **refresh**   This option will trigger rediscovery of external disk devices.

brief		Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# show storage external`

Notes:
- If the actual slot of the external device is different than the one displayed, use **storage external refresh** to refresh the output.
- This command provides the ability to pre-configure external devices. If the user plugs the external device in a slot which is different than the configured slot, it will be considered a mis-configuration, and the external device will not be usable. Therefore, make sure that the configured slot matches the actual slot.

show storage jobs

Function: Displays a list of CLI commands that are in progress in the background.

Syntax: **show storage jobs**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# show storage jobs`

Notes: None

show storage pool

Function: Displays storage pool information.

Syntax: **show storage pool** [**brief**]
show storage pool *slot/pool-name* [**brief**]
show storage pool *slot/***all** [**brief**]

CLI Mode: Privileged

Options: *slot/pool-name*   Enter the S-card slot number/pool name. Range: 0 - 7.

        all   Show all pools.

        brief   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show storage pool
*****
pool 1/p1
    total size: 596.00GB
     free size: 596.00GB
    disk count: 2
         disks: 1,0
  volume count: 0
          attr: Mounted, Optimal

pool 4/p1
    total size: 464.00GB
     free size: 464.00GB
    disk count: 2
         disks: 1,0
    raid level: 1 <----
  volume count: 0
          attr: Mounted, Optimal

pool 4/p5
    total size: 929.00GB
     free size: 929.00GB
    disk count: 3
```

```
            disks: 3,2,4
        raid level: 5 <----
      volume count: 0
              attr: Mounted, Optimal

seamicro# show storage pool
pool 4/pool
       total size: 929.00GB
        free size: 929.00GB
       disk count: 3
            disks: 3,2,4
       raid level: 5  <---------- here
     volume count: 0
              attr: Mounted, Optimal
```

Notes: None

show storage scard

Function: Displays S-card information and status.

Syntax: **show storage scard** [**slot** *slot*] [**brief**]

CLI Mode: Privileged

Options: *slot*   Enter the S-card slot number. Range: 0 - 7.

              brief   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show storage scard brief
slot    mgmt. status    mgmt. mode    raid level    stripe size    hot-
spare count
--------------------------------------------------------------
   0     not present
   1       up          volume        none
   2       down
   3     not present
   4       up          volume        1,5 <----   512KB
```

```
     5     not present

     6     not present

     7     not present

* 8 entries

seamicro# show storage scard slot 5
slot 5
        mgmt. status: up
          mgmt. mode: volume
          raid level: 1,5        <---------
         stripe size: 512KB
     firmware version: 19174
         disk-io mode: write-back
```

Notes: None

show storage statistics

Function: Displays storage statistics for volumes, servers, and disks.

Syntax: **show storage statistics volume|server|disk**

CLI Mode: Privileged

Options: volume   Enter the volume name.

   server   Enter one server ID. Range 0/0 - 63/7.

   disk   Enter the disk ID in the form of *slot/bay*|all. For the
                         slot, **e**nter the S-card slot number ranging from 0 -
                         7. For *bay*, enter the drive position in the storage-
                         controller. For *external devices*, enter the disk ID in
                         the form of *external-disk-device-name*/{*bay*|**all**}

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show storage statistics disk ?
Possible completions:
  DISK-ID in the format SLOT#/(BAY#|all) or DEVICE-NAME/(BAY#|all). e.g., 1/3,
JBOD2/all
ch712-acmedata# show storage statistics disk    server ?
Possible completions:
  SERVER-ID in the format CCARD#/CPU#. e.g., 0/0
```

```
ch712-acmedata# show storage statistics server 0/0
       read requests: 0
      write requests: 0
       sync requests: 0
          read bytes: 0
         write bytes: 0
         read errors: 0
        write errors: 0
         sync errors: 0
          cache hits: 0
  partial cache hits: 0
        cache misses: 0


seamicro# show storage statistics server 0/0 disk 0/0
*
* statistics of disk 0/0
------------------------------------------------------------------
```

Notes: None

show storage volume

Function: Displays storage volume information.

Syntax: **show storage volume** [**brief**]
show storage volume *slot/***all***/***all** [**brief**]
show storage volume *slot/pool-name/***all** [**brief**]
show storage volume [*slot/pool-name/volume-name*] [**brief**]

CLI Mode: Privileged

Options: *slot*   Enter the S-card slot number. Range: 0 - 7.

            all   Show all pools.

            slot/pool-name/volume-name

                         Enter the slot/pool name/volume name. The range for the slot is: 0 - 7.

            brief   Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show storage volume
*********
volume 4/p/v-0
   prov. size: 1.00GB
  actual size: 1.00GB
          attr: Assigned, Linear
          uuid: p0AQhI-OtW5-w962-A0xb-C8Ir-xYro-veJuyY


volume 4/p/v-1
   prov. size: 1.00GB
  actual size: 1.00GB
          attr: Unassigned, Linear
          uuid: ROebgV-R9uf-503T-5mUR-hroy-iUYx-qZGq4g


volume 4/p/v-2
   prov. size: 1.00GB
  actual size: 1.00GB
          attr: Unassigned, Linear
          uuid: I4fj2u-wsGk-r9Y4-olY7-w1H2-MWsV-fl3Pcf

-------------------------------------------------------------------------
seamicro# show storage volume brief
*********
A = Assigned, U = Unassigned, L = Linear, S = Stripe
   slot        pool name      volume name     prov. size     actual size     attr

---------------------------------------------------------------------------------
--
    4             p             v-0             1GB            1.00GB        AL
    4             p             v-1             1GB            1.00GB        UL
    4             p             v-2             1GB            1.00GB        UL
* 3 entries


---------------------------------------------------------------------
```

Notes: None

show storage volume prefix

Function: Displays storage volume information for multiple volumes.

Syntax: **show storage volume prefix** *slot/pool-name/volume-name-prefix* [**start** *volume-start-number* || **count** *number-of-volumes*] [**brief**]

CLI Mode: Privileged

Options: *slot*   Enter the S-card slot number. Range: 0 - 7.

all	Show all pools.

slot/pool-name/volume-name

Enter the slot number, pool name, and volume name. The range for the slot is: 0 - 7.

volume-start-number Enter the volume start number.

number-of-volumes Enter the number of volumes.

brief	Restrict the output, and display it in tabular format.

Defaults: None

History: Version 3.0   Introduced

Example: `seamicro# show storage volume 2/pool0/volume-0 brief`

Notes: None

show startup-config

Function: Display the startup-configuration file.

Syntax: **show startup-config**

CLI Mode: Unprivileged, Privileged

Options: This command has the same command structure as **show running-config**, and so the options for this command are not defined here. Rather, see Additional show run Commands on page 218 for the recommended commands for displaying the running-configuration, and simply substitute the **running-configuration** keyword with the **startup-configuration** keyword to display the same portion of the startup configuration file.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show startup-config
interface inband
 ip address 10.14.0.2/20
 ip default-gateway 10.14.0.10
 allow ssh
 allow snmp
 allow termserv
!
interface mgmteth
 no shutdown
 ip address 192.168.1.212/24
 ip default-gateway 192.168.1.31
!
[...]
seamicro>
```

Notes: None

show startup-config system restore-power-state

Function: Displays the amount of time delay configured to automatically power on the chassis upon power recovery.

Syntax: **show startup-config system restore-power-state**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 3.2   Introduced

Example:
```
seamicro> show startup-config system restore-power-state
system restore-power-state 7
seamicro>
```

Notes: None

show tech-support

Function:	Display extended system information, which in the case of some keywords, might be the combined output of several other commands. This command is designed to be used with the help of the SeaMicro technical support team.
Syntax:	**show tech-support** [**cli** | **detail** | **ethernet** | **fabric** | **storage** | **system**] {**scp:** *ip-address username*} *dest-file*
CLI Mode:	Privileged

cli	Restrict the output to CLI related information.
detail	Provide extended tech-support information.
ethernet	Restrict the output to Ethernet related information.
fabric	Restrict the output to fabric related information.
storage	Restrict the output to storage related information.
system	Restrict the output to system related information.
scp:	Enter this keyword to use Secure Copy as the file transfer method.
ip-address	Enter the IP address of the destination server.
username	Enter the username to authenticate on the server.
dest-file	Enter the name of the destination file.

Defaults:	None	
History:	Version 2.0	Introduced
Example:	None	
Notes:	None	

show terminal

Function: Display terminal configuration parameters.

Syntax: **show terminal**

CLI Mode: Unprivileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show terminal
autowizard             false
complete-on-space      true
display-level          99999999
history                100
idle-timeout           3600
ignore-leading-space   true
output-file            terminal
paginate               true
screen-length          24
screen-width           112
service prompt config  true
show-defaults          false
terminal               xterm
seamicro>
```

Notes: None

show upgrade-history

Function: Display information about past chassis reloads and In-service Software Upgrade (ISSU) software changes.

Syntax: **show upgrade-history** [**reverse**]

CLI Mode: Unprivileged, Privileged

Options: **reverse**   Display the log beginning with the most recent entry.

Defaults: None

History: Version 2.5   Introduced

Example: None

Notes: None

show users

Function: Display the administrators connected to the system.

Syntax: **show users**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show users
User         Context   Source IP        Login Time  Mode
admin        cli       127.0.0.1        11:36:55    operational
admin        cli       192.168.127.130  10:15:18    operational
seamicro>
```

Notes: None

show version

Function: Display the management software version and code versions of various hardware components.

Syntax: **show version** [**detail**]

CLI Mode: Unprivileged, Privileged

Options: **detail** Enter the keyword to display extended information about the software version.

Defaults: None

History: Version 2.0 Introduced

Example:
```
seamicro# show version
SeaMicro OS, Copyright (c) 2009-2014 by SeaMicro Inc.

Release: 3.1raid !
Chassis id : 7
Base Ethernet Mac Address : 0021.5311.0300
Chassis uptime : 15 minutes, 43 seconds
Last reset: System reset initiated by user
```

Notes: None

show vlan

Function: Display information on configured VLANs.

Syntax: **show vlan** [*id* | *range*]

CLI Mode: Privileged

Options: *id* Enter the unique identifier (integer) for a particular VLAN.

range Enter the VLAN ID range for information on a group of VLANs. The valid range is from 1-4094.

Defaults: None

History: Version 3.3

Example:
```
seamicro# show vlan 1-3
Default Vlan                   : 0
Number of User Configured Vlans : 4094
Number of Default Vlans         : 1
Flags : T = Tagged              U = Untagged
      : I = Incomplete bond state because of difference in the bond member
configuration.
      : D = interface configured for untagged traffic drop
      : P = Vlan pass through enabled
```

```
Vlan   Port Members
-----  ------------------------------------------------------
1      srv 1/0/2      (TP)
2      srv 1/0/2      (TP)
3      srv 1/0/2      (TP)
```

Notes: When untagged-traffic-drop is configured on the interface, a flag shows up as "D." When no untagged-traffic-drop is configured, no flags show up in the "show vlan" display.

Related Commands: None

show vlan count

Function: Displays the total number of configured system VLANs.

Syntax: **show vlan count**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.3

Example:
```
seamicro# show vlan count

Total Vlan(s) Configured:  4094
```

Notes: None

Related Commands: None

show vlan inband

Function:	Displays the VLANs configured on the inband interface.
Syntax:	**show vlan inband**
CLI Mode:	Privileged
Options:	None
Defaults:	None
History:	Version 3.3
Example:	seamicro# **show vlan inband**
	Inband Interface Vlan = Default Vlan
Notes:	None
Related Commands:	None

show vlan interface gigabitethernet

Function:	Displays VLANs configured on a specified gigabitethernet interface.
Syntax:	**show vlan interface gigabitethernet** <>
CLI Mode:	Privileged
Options:	
Defaults:	None
History:	Version 3.0 Introduced
Example:	seamicro# show vlan interface gigabitethernet 4/1

```
Untagged Traffic Drop : Drop
  IfName               Vlan(s)
--------------- -------------------------------------------------
```

```
gi 4/1          default ,10      (T ) ,20      (T )
seamicro#
```

Notes: None.

show vlan interface port-channel

Function: Displays VLANs configured on a specified tengigabitethernet interface.

Syntax: **show vlan interface port-channel <>**

CLI Mode: Privileged

Options:

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show vlan interface port-channel 1
Untagged Traffic Drop : Drop
IfName             Vlan(s)
---------------- -------------------------------------------------
Po 1            default ,10      (T ) ,20      (T )
seamicro#
```

Notes: None.

show vlan interface tengigabitethernet

Function: Displays VLANs configured on a specified tengigabitethernet interface.

Syntax: **show vlan interface tengigabitethernet <>**

CLI Mode: Privileged

Options:

Defaults: None

History: Version 3.0 Introduced

Example:
```
seamicro# show vlan interface ?
Possible completions:
gigabitethernet  Show VLAN membership and configuration information
port-channel     Show VLAN membership and configuration information
tengigabitethernet Show VLAN membership and configuration information

seamicro# show vlan interface tengigabitethernet 1/0
ifName   Vlan(s)
-----------------------------------------------------------------
te0/1    default, 70 , 30 , 40 , 50 , 60
```

Notes: None.

show vlan members

Function: Displays only VLANs that have configured members. VLANs that do not contain any configured port or NIC members will be excluded from this list.

Syntax: **show vlan members**

CLI Mode: Privileged

Options: None

Defaults: None

History: Version 3.3

Example:
```
seamicro# show vlan members
Default Vlan                    : 0
Number of User Configured Vlans : 4094
Number of Default Vlans         : 1
Flags : T = Tagged              U = Untagged
      : I = Incomplete bond state because of difference in the bond member
configuration.
      : D = interface configured for untagged traffic drop
      : P = Vlan pass through enabled
Vlan    Port Members
----- ----------------------------------------------------------------------
------------------------------------
1      gi 0/2          (T ), gi 0/3          (TD), gi 0/4          (TD), gi 0/
6         (TD), gi 0/7         (TD)
       gi 3/5          (T ), gi 3/6          (T ), gi 3/7          (T ), te 6/
0         (T ), te 2/0         (T )
       te 2/1          (T ), po 0          (T ), po 15          (T ), srv 0/0/
2      (TP), srv 0/0/5      (TP)
```

```
                  srv 0/0/0      (TP), srv 0/0/6      (TP), srv 0/0/1      (TP), srv 0/0/
                7      (TP), srv 0/0/3      (TP)
                  srv 0/0/4      (TP), srv 1/0/2      (TP), srv 1/0/5      (TP), srv 1/0/
                0      (TP), srv 1/0/6      (TP)
```

Notes: None

Related Commands: None

show vlan server

Function: Displays Vlans configured on each of the NICs on a specified server.

Syntax: **show vlan server** *<server-id>*

CLI Mode: Privileged

Options: *server-id*   Enter one or more server IDs. You may enter multiple server numbers using a comma-separated (no spaces) list, a hyphenated (no spaces) range, or a combination of the two. Range: 0/0 - 63/7.

Defaults: None

History: Version 3.0   Introduced

Example:
```
seamicro# show vlan server 0/0

 Flag     : D = interface configured for untagged traffic drop
 Server/Nic-        Vlan(s)
 Untagged-Traffic
 Drop
 -----------   -------------------------------------------------------
 srv 0/0/0      2       (U ) ,2121    (T )
 srv 0/0/1      default
 srv 0/0/2(D)   default
 srv 0/0/3      default
 srv 0/0/4      default
 srv 0/0/5      default
 srv 0/0/6      default
 srv 0/0/7      default
 seamicro#
```

Notes: None.

show vlan server all

Function: Displays information on all VLANs or on a specified range of servers.

Syntax: **show vlan server all** [*range*]

CLI Mode: Privileged

Options: *range*   Enter the range of servers for which you want to display information.

Defaults: None

History: Version 3.3

Example:
```
seamicro# show vlan server all

 Flag    : D = Server/nic configured for untagged traffic drop
         : P = Server/nic configured for vlan pass-through mode
 Server/Nic-          Vlan(s)
 Untagged-Traffic
 Drop
 -----------  ---------------------------------------------------------
 srv 0/0/0(P)     default  1-49 (T)
 srv 0/0/1(P)     default  1-49 (T)
 srv 0/0/2(P)     default  1-49 (T)
 srv 0/0/3(P)     default  1-49 (T)
 srv 0/0/4(P)     default  1-49 (T)
 srv 0/0/5(P)     default  1-49 (T)
 srv 0/0/6(P)     default  1-49 (T)
 srv 0/0/7(P)     default  1-49 (T)

 srv 1/0/0(P)     default  1-49 (T)
 srv 1/0/1(P)     default  1-49 (T)
 srv 1/0/2(P)     default  1-49 (T)
 srv 1/0/3(P)     default  1-49 (T)
 srv 1/0/4(P)     default  1-49 (T)
 srv 1/0/5(P)     default  1-49 (T)
 srv 1/0/6(P)     default  1-49 (T)
 srv 1/0/7(P)     default  1-49 (T)

seamicro# show vlan server 1/0-24/0
 Flag    : D = Server/nic configured for untagged traffic drop
         : P = Server/nic configured for vlan pass-through mode
 Server/Nic-          Vlan(s)
 Untagged-Traffic
 Drop
 -----------  ---------------------------------------------------------
 srv 1/0/0        82 (U )
 srv 1/0/1        82 (U )
 srv 1/0/2        82 (U )
 srv 1/0/3        82 (U )
 srv 1/0/4        82 (U )
 srv 1/0/5        82 (U )
```

```
                    srv 1/0/6        82 (U )
                    srv 1/0/7        default

                    srv 2/0/0        82 (U )
                    srv 2/0/1        2 (U )
                    srv 2/0/2        3 (U )
                    ...
                    srv 24/0/0       82 (U )
                    srv 24/0/1       82 (U )
                    srv 24/0/2       82 (U )
                    srv 24/0/3       82 (U )
                    srv 24/0/4       82 (U )
                    srv 24/0/5       82 (U )
                    srv 24/0/6       82 (U )
                    srv 24/0/7       default
```

Notes: None

Related Commands: None

show vlan tagged

Function: Display all tagged members in a VLAN.

Syntax: **show vlan tagged**

CLI Mode: Privileged

Options: Unused

Defaults: None

History: Version 2.7   Introduced

Example:
```
seamicro# show vlan tagged
Default Vlan : 0
Number of User Configured Vlans : 9
Number of Default Vlans : 1
Flags : T = Tagged U = Untagged
Vlan Port Members Flags
2 gi 6/1 ,gi 6/2 ,
4 gi 6/2 ,
5 gi 6/2 ,
```

Notes: None

show vlan untagged

Function: Display all untagged members in a VLAN.

Syntax: **show vlan untagged**

CLI Mode: Privileged

Options: Unused

Defaults: None

History: Version 2.7   Introduced

Example:
```
seamicro# show vlan untagged
Default Vlan : 0
Number of User Configured Vlans : 9
Number of Default Vlans : 1
Flags : T = Tagged U = Untagged
Vlan Port Members Flags
```

Notes: None

Additional show run Commands

show running-config has many options that enable you to display specific portions of the file, and they are defined in this section.

Note: In general, the keywords used to configure features, are offered in the parallel show command as optional output filters. For example, the command **show running-configuration disks** [*slot*/*port*] shows the configuration for a specific disk, while **show running-configuration disks** [*slot*/*port*] [**partition** [*name*]], limits the output to the partition name. In general, first-level filters are sufficient (in this case slot/port), and restricting the output using the second (partition) and third-level filters is often unnecessary. For this reason, they are not defined in the show running-configuration commands. The commands defined in this section are some of the recommended command executions.

show run authentication

Function:	Display the portion of the running-configuration about user authentication.
Syntax:	**show running-config authentication**
CLI Mode:	Unprivileged, Privileged
Options:	Unused
Defaults:	None
History:	Version 2.0 Introduced
| **Example:** | ```
seamicro> show running-config authentication
authentication login default [ local radius ]
seamicro>
``` |
| **Notes:** | This command has options to restrict the output further, but generally they are not necessary. |

show run clock

Function:	Display the timezone setting.
Syntax:	**show running-config clock**
CLI Mode:	Unprivileged, Privileged
Options:	Unused
Defaults:	None
History:	Version 2.0 Introduced
| **Example:** | ```
seamicro> show running-config clock
clock timezone PST8PDT
seamicro>
``` |

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run enable

Function: Display the encrypted enable password.

Syntax: **show running-config enable**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config enable
enable password $1$HZpF$Mgwgf55yzKXjjOeUAb12J.
seamicro>
```

Notes: • The enable password is entered in clear text, but this command displays the encrypted password.
• This command has options to restrict the output further, but generally they are not necessary.

show run hostname

Function: Display the system hostname.

Syntax: **show running-config hostname**

CLI Mode: Unprivileged, Privileged

Options: None

Defaults: SeaMicro

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config hostname
% No entries found.
seamicro>
```

Notes: Then the hostname is the default, no entry appears in the running-config.

show run interface gigabitethernet

Function: Display the interface configuration for an MX-card port.

Syntax: **show running-config interface gigabitethernet** [*slot*/*port*]

CLI Mode: Unprivileged, Privileged

Options: *slot/port*   Enter the MX-card slot number followed by the port number for which you want to display the configuration.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config interface gigabitethernet 4/0
interface gigabitethernet 4/0
 no shutdown
 gratuitous-arp
!
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run interface inband

Function: Display the IP configuration for the CPP.

Syntax: **show running-config interface inband**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.1   Introduced

Example:
```
seamicro> show running-config interface inband
interface inband
 ip address 10.14.0.2/20
 ip default-gateway 10.14.0.10
 allow ssh
 allow snmp
 allow termserv
!
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run interface mgmteth

Function: Display the interface configuration for the management port.

Syntax: **show running-config interface mgmteth**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config interface mgmteth
interface mgmteth
 no shutdown
 ip address 192.168.0.1/24
 ip default-gateway 192.168.0.31
!
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run interface port-channel

Function: Display the interface configuration for a port-channel.

Syntax: **show running-config interface port-channel** [*number*]

CLI Mode: Unprivileged, Privileged

Options: *number*   Enter the port-channel number for which you want to display the configuration.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config interface port-channel 0
interface port-channel 0
 no shutdown
 mode        static
 channel-member gigabitethernet 0/0
 channel-member gigabitethernet 0/1
 channel-member gigabitethernet 0/2
!
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run interface tengigabitethernet

Function: Display the interface configuration for an MX-card port.

Syntax: **show running-config interface tengigabitethernet** [*slot*/*port*]

CLI Mode: Unprivileged, Privileged

Options: *slot/port*   Enter the MX-card slot number followed by the port number for which you want to display the configuration.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config interface tengigabitethernet 4/0
interface tengigabitethernet 4/0
 no shutdown
 gratuitous-arp
!
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run ip

Function: Display various network configurations for the system.

Syntax: **show running-config ip** [**helper-address** | **static-subnet** | **vip-dsr-address**]

CLI Mode: Unprivileged, Privileged

Options: **helper-address**   Display the DHCP relay address.

           static-subnet   Display the configured static-subnets.

           vip-dsr-address   Display the Direct Server Response configuration.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> ip multicast enable
seamicro> show running-config ip
ip multicast enable
ip dhcp pool example
 network 10.11.0.0  255.255.255.0
 default-router 10.11.0.254
 domain-name    example.com
 dns-server     10.11.0.253
[...]
seamicro>
```

Notes: None

show run ipmi

Function:	Display the IPMI configuration.
Syntax:	**show running-config ipmi**
CLI Mode:	Unprivileged, Privileged
Options:	Unused
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro> show running-config ipmi
ipmi user sqa1 password myipmipass
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run logging

Function:	Display logging settings.
Syntax:	**show running-config logging**
CLI Mode:	Unprivileged, Privileged
Options:	Unused
Defaults:	None
History:	Version 2.0 Introduced

Example:
```
seamicro> show running-config logging
logging trap info
logging console err
logging buffered info
logging host 192.168.1.1
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run ntp

Function: Display the configured NTP servers.

Syntax: **show running-config ntp**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.0　　　　Introduced

Example:
```
seamicro# show running-config ntp
ntp server 10.11.0.5
!
seamicro#
```

Notes:
- This command has options to restrict the output further, but generally they are not necessary.
- The servers appear in the order in which they were configured, which is also the order of preference, unless the **prefer** option is used.

show run radius-server

Function: Display the configured RADIUS servers.

Syntax: **show running-config radius-server**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show running-config radius-server
radius-server host 10.11.0.1 secret example auth-port 1812
seamicro#
```

Notes: • This command has options to restrict the output further, but generally they are not necessary.
  • The servers appear in the order in which they were configured, which is also the order of preference.

show run server

Function: Display the server configuration.

Syntax: **show running-config server**

CLI Mode: Unprivileged, Privileged

Options: **poweron-algorithm** Display the algorithm used to power-on internal servers.

poweron-count   Display the number of servers that will power on simultaneously during a staggered boot.

poweron-delay   Display the number of seconds that will elapse between powering on a sets of internal servers during a staggered boot.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro# show running-config server
server poweron-delay 20
server poweron-algorithm sequential
server poweron-count 1
server id 0/0
 boot-at-system-startup disable
 description            "Xeon Intel Server"
 bios hyperthreading enable
 bios c-states    enable
 bios hide-topmem disable
 bios cpufreq-scaling enable
 bios boot-order hd0,hd1
```

```
 nic 0
 !
[...]
```

Notes: None

show run server id

Function: Display the configuration for a specific server

Syntax: **show running-config server** [**id** *server id*]

CLI Mode: Unprivileged, Privileged

Options: **id** *server id*　　　Enter the keyword followed by the server ID to restrict the output to a specific server. Server ID range: see 0/0 - 63/7.

Defaults: None

History: Version 2.0　　　Introduced

Example:
```
seamicro# show running-config server id
server id 0/0
 boot-at-system-startup disable
 description            "Xeon Intel Server"
 bios hyperthreading enable
 bios c-states   enable
 bios hide-topmem disable
 bios cpufreq-scaling enable
 bios boot-order hd0,hd1
 nic 0
 !
[...]
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run snmp-server

Function: Display the configured SNMP servers.

Syntax: **show running-config snmp-server**

CLI Mode: Unprivileged, Privileged

Options: Unused

Defaults: None

History: Version 2.0 Introduced

Example:
```
seamicro# show running-config snmp-server
snmp-server enable
snmp-server community public
snmp-server host 10.11.0.10 port 1000 version 2c
seamicro#
```

Notes:
- This command has options to restrict the output further, but generally they are not necessary.
- The servers appear in the order in which they were configured, which is also the order of preference.

show run switch system-vlan

Function: Display VLANs configured in the system.

Syntax: **show running-config switch system-vlan**

CLI Mode: Privileged

Options: Unused

Defaults: None

History: Version 3.0 Introduced

Example:
```
seamicro# show running-config switch system-vlan
```

Notes: None

show run system threshold

Function: Display the administrator-defined normal operating range for hardware components.

Syntax: **show running-config system** [**acpi** | **boot** | **console-server** | **process-restart** | **switchover** | **threshold**]

CLI Mode: Unprivileged, Privileged

Options:

acpi	Display the status of the graceful shutdown function on the SM-card stand-by button.
boot	Display the system boot parameters.
console-server	Display the console-server settings.
process-restart	Display the status of the process-restart functionality,
switchover	Display the status of the system-switchover functionality.
threshold	Display the configured threshold settings.

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config system acpi
system acpi graceful-poweroff enable
seamicro>
```

Notes: This command has options to restrict the output further, but generally they are not necessary.

show run tacacs-server

Function: Display the configured TACACS+ servers.

Syntax: **show running-config tacacs-server**

CLI Mode: Unprivileged

Options: Unused

Defaults: None

History: Version 2.0   Introduced

Example:
```
seamicro> show running-config tacacs-server
tacacs-server host 10.11.1.2
 secret mytacacssecret
!
seamicro>
```

Notes:
- This command has options to restrict the output further, but generally they are not necessary.
- The servers appear in the order in which they were configured, which is also the order of preference.

CLI Error Responses

This section contains CLI commands and error responses.

CLI Commands	Type	Description of Possible Error Output
delete	Action	Specified file is not found.
more	Action	Specified file is not found.
copy	Action	File transfer failed.
copy	Action	File copy failed.
copy image	Action	Specified image is not valid.
show memory	Action	Specified MX-card is not valid.
restart process	Action	Specified MX-card is not valid.
show memory	Action	Specified MX-card/S-card is not valid.
restart process	Action	Specified MX-card/S-card is not valid.
reset scard	Action	Specified S-card is not valid.
ip dhcp	Config	Specified Subnet/mask combination is not valid.
interface netmask	Config	Specified mask is not valid.
server ip-range	Config	Specified mask is not valid.
server ip-range	Config	Specified mask is not valid.
interface inband ip address	Config	Specified mask is not valid.
server ip-range	Config	Specified IP is not valid.
interface inband ip address	Config	Specified IP is not valid.
show memory	Action	Specified Power Supply is not valid.
show memory	Action	Specified Fan tray is not valid.
show memory	Action	Specified Fan is not valid.
restart process	Action	Specified process is not running.
server	Action	System encountered an internal error.
ip	Action	System encountered an internal error.
interface	Action	System encountered an internal error.
copy image	Action	Specified partitions are not valid.
clock	Action	System encountered an internal error.
server id power-on	Config	Server cannot be powered on because it is configured as spare server.
clock	Action	Specified date format is not valid.
clock	Action	Specified clock format is not valid.
clock	Action	Clock cannot be set when user has configured NTP.
alias	Config	Specified alias name is not valid.
hostname	Config	command specified is invalid

ntp	Config	System reload is required for configuration to take effect.
restart process	Action	System is not ready to process the restart action.
restart process	Action	Process restart functionality is disabled.
restart process	Action	Confirmation timeout
interface port-channel	Config	Specified interface belongs to another port-channel.
interface port-channel	Config	This indicates that channel members run at different speed.
interface port-channel	Config	Trying to put a gigabit interface under a 10G.
interface port-channel	Config	Trying to put a 10G interface under a gigabit.
interface port-channel	Config	Interface speed is not initialized properly.
interface port-channel	Config	Interface does not exist.
interface	Config	Specified interface name is not valid.
interface	Config	Specified interface is not valid.
no interface	Config	One cannot issue a 'no' command on an Ethernet interface to remove it. To disable an interface, issue a 'shutdown' command.
interface mgmteth ip address	Config	Illegal prefix length is specified. Valid prefix length is /1 to /32.
vlans pass-through	Config	VLANs configured are greater than maximum VLANs supported by the system.
vlans pass-through	Config	Format may be incorrect.
vlans passthrough	Config	This indicates that VLAN configuration cannot be modifed since DHCP pool is bound to VLAN.
vlans passthrough	Config	VLAN configuration cannot be modified since DHCP relay is configured for that VLAN.
interface inband ip address	Config	Specified IP address is already configured as external to the system.
server id nic vlan tagged	Config	Failed.maximum configured VLANs. Count exceeded 8.
server id nic vlan tagged	Config	Failed.system supports 7 VLANs per NIC when a non-zero untagged VLAN is configured.
interface gigabit vlan tagged	Config	Failed.maximum configured VLANs. Count exceeded 4094.
vlan	Config	Failed.maximum configured VLANs. Count exceeded 4094.
ip subnet vlan	Config	Failed to associate subnet. VLAN does not exist.
ip subnet vlan	Config	Subnet already configured on another VLAN.
ip subnet vlan	Config	Failed to delete VLAN. The VLAN is attached to subnet.
ip subnet vlan	Config	Failed VLAN not associated with subnet.
interface gigabit vlan tagged	Config	Failed.VLAN input parse error.
vlan name	Config	VLAN name length exceeds 15 characters.
server id nic	Config	Invalid server ID.
interface vlan tagged	Config	Configure a VLAN ID.

interface vlan tagged	Config	Cannot configure a VLAN on an interface that is a channel-member of a port channel.
interface untagged-traffic-drop	Config	Cannot configure this option on an interface that is a channel-member of a port channel.
interface port-channel / channel-member gi	Config	This interface has VLAN configured. Cannot add to the port channel.
interface port-channel / channel-member gi	Config	This interface has untagged-traffic-drop configured . Cannot add to the port channel.
ethernet vlan	Config	Cannot delete a VLAN without VLAN ID.
server id nic 0 vlan tagged	Config	Cannot configure a VLAN on NIC .The NIC is a member of a NIC-bond.
ethernet vlan untagged	Config	Only one untagged VLAN allowed on the interface at a time.
vlan clear	Config	VLAN is not configured globally.
vlan clear	Config	The VLAN cannot be deleted globally if there are interfaces attached to it.
vlan clear	Config	Failed to establish CDB session. Please contact customer support.
vlan	Config	Overlapping VLAN range or existing VLAN configured.
vlan tagged	Config	Same VLAN membership configured on gig and tengig interface.
vlan tagged	Config	To change VLAN type, remove it from the interface and add it back with the new type.
vlan tagged	Config	Trying to remove interface that is not a member of the VLAN.
vlan tagged	Config	If the NIC is a part of an incomplete bond, the VLAN-type should match for all bond members.
no server id nic	Config	VLAN(s) configured for this NIC. Please clear all VLANs on this NIC and then remove the NIC.
no server id nic	Config	untagged-tarffic-drop configured for this NIC. Please clear untagged-tarffic-drop on this NIC and then remove the NIC.
no server id nic	Config	Invalid interface type for the VLAN.
server id nic vlan-passthrough	Config	port-vlan config exists on the NIC. Please unconfigure all port-vlan config before changing VLAN pass through mode.
server id nic vlan-extended-mode	Config	Please unconfigure untagged-traffic-drop and then enable VLAN pass through mode.
server id nic vlan untagged	Config	Cannot configure untagged VLAN when VLAN pass through mode is enabled on the NIC.
tagged-vlan	Config	Cannot configure the same VLAN as both tagged and untagged.
interface port-channel/channel-member gi	Config	This interface has VLAN configured. Cannot delete the port channel.
interface port-channel untagged-traffic-drop / channel-member gi	Config	This interface has VLAN configured. Cannot delete the port channel.

interface inband	Config	Cannot delete. Please remove VLAN on the inband interface.
interface inband	Config	Invalid VLAN ID. Valid range is between 1 and 4094.
ip default-gateway	Config	This indicates the management interface default gateway configured is out of range.
default-gateway	Config	command can not get IP address for default gateway.
default-gateway	Config	IP address of management interface needs to be configured before configuring default gateway IP address.
ip igmp snooping	Config	The IGMP querier is configured on the VLAN. Hence the system VLAN cannot be unconfigured.
no storage-card id nic tagged-vlan	Config	Cannot delete VLAN interface in Scard.
storage-card id nic tagged-vlan	Config	Cannot create VLAN interface in Scard.
interface mgmteth ip dhcp enable	Config	Static configuration is present for management (mgmt) interface. DHCP cannot be enabled.
interface mgmteth ip address	Config	DHCP configuration is present for management (mgmt) interface. Static configuration commands are not allowed.
interface mgmteth ip default-gateway	Config	DHCP configuration is present for management (mgmt) interface. Static configuration commands are not allowed.
interface mgmteth ip	Config	DHCP configuration is present for management (mgmt) interface. Static configuration commands are not allowed.
interface vlan-grp	Config	Cannot configure this option on an interface that is a channel-member of a port channel.
no switch system vlan-grp	Config	Incorrect VLAN group name.
no switch system vlan-grp	Config	Cannot delete the system, VLAN group. VLAN group is configured on the interface.
switch system vlan-grp vlangrp-tagged-vlan	Config	Cannot configure the same VLAN on the interface and VLAN group. This interface is also a part of this VLAN group.
interface vlan-grp vlangrp-tagged-vlan	Config	Cannot configure the same VLAN on the same interface from different VLAN groups.
interface vlan-grp vlangrp-tagged-vlan	Config	Configure VLAN groups to get the optimal resource usage.
switch vlan-grp	Config	Failed to create VLAN group.system that supports a maximum of 16 VLAN groups.
server id nic untagged-traffic-drop	Config	Please unconfigure pass through mode and then configure untagged-traffic-drop.
server id nic tagged-vlan	Config	More than 8 VLANs configured on the NIC. Please make sure there are 8 or less VLANs configured on the NIC to disable VLAN pass-through mode.
server id nic tagged-vlan	Config	C-card is not present.
server id nic tagged-vlan	Config	Unsupported Server or NIC. Please check the NC number.

power-on server	Action	Specified server is not available.
power-off server	Action	Specified server is not available.
reset server	Action	Specified server is not available.
power-on server	Action	Specified server is already in the staggered queue to get booted up.
power-off server	Action	Specified server is already in the staggered queue to get booted up.
reset server	Action	Specified server is already in the staggered queue to get booted up.
reset mxcard	Action	Specified MX-card can not be reset.
reset me-scard	Action	Specified MX-card/S-card cannot be reset.
power-off ccard	Action	C-card operation is in progress.
power-on ccard	Action	C-card operation is in progress.
power-off ccard	Action	C-card operation is in progress.
power-on ccard	Action	This indicates that a C-card operation is in progress.
power-off ccard	Action	Compute fabric is not complete.
reload	Action	Some of the internal servers are up.
halt	Action	This indicates that some of the internal servers are up.
reload	Action	SM-card is not present.
halt	Action	SM-card is not present.
power-on ccard	Action	C-card is not present.
power-off ccard	Action	C-card is not present.
activate led Mxcard	Action	MX-card is not present.
deactivate led Mxcard	Action	MX-card is not present.
system switchover	Action	Specified slot is invalid.
system switchover	Action	Specified slot is ineligible.
system switchover	Action	Redundancy is disabled.
power-on server	Action	Confirmation timeout.
power-off server	Action	This indicates confirmation timeout.
reset server	Action	Confirmation timeout.
power-on server	Action	User aborted.
power-off server	Action	User aborted.
reset server	Action	User aborted.
server id spare	Config	Server cannot be configured as spare because it is powered on.
server id spare	Config	Server cannot be configured as spare because it has disk partition assignment.
server id spare	Config	Server cannot be configured as spare because it has ddnsname or static ip assignment.
server id power-on	Config	Server cannot be powered on because it is configured as spare server.
revert server	Action	Server reversion is not possible.

server id spare	Action	No server ID spare is not possible.
server id bios	Config	Invalid configuration for this processor.
clear ip igmp	Action	Confirmation timeout.
ip igmp snooping querier query-response-interval	Config	Query response time interval configured is greater than the query interval, which is not correct.

RESTful API

Overview

RESTful API commands may be used to get information on individual components in a chassis or system. They are accessible through an external terminal or browser using the http or https protocol via the chassis IP. The chassis IP can be either the inband interface IP or the management ethernet interface IP (chassis id).

Follow the steps outlined below to execute RESTful API commands:

1. In the CLI configuration mode, enable RESTful API with the following command: '**restserver enable**'

2. Save the configuration using the command '**write memory**.'

   Note that the '**restserver proxy'** is disabled by default. Restserver proxy is the interface between the restserver and the rest of the system.

3. Ensure that http and/or https protocol on the inband interface or the management ethernet interface is enabled.

   - By default, https is enabled on the management ethernet interface.
   - By default, http and https are disabled on the inband interface.

   Based on the type of protocol used to access RESTful API, enable http or https at the inband interface or the management ethernet interface.

4. To access RESTful API through an external terminal or a browser, refer to Using a Terminal on page 239 and Using a Browser on page 240 for information on each option.

5. In this release, the server ID is the absolute name of the server, and the index number is the actual server ID that identifies a specific server. For all components, you will need to reference the index number to address the component in a specific server. The index number is noted as "nnnn" in the command tables.

   For example, **'/server/nnnn'** gets information on a specific server, while **'/server/all'** gets information on all servers. Similarly, 'nnnn' is the index number of a specific component, such as disk, fan, fan tray, etc.

   For more information on obtaining index number, refer to Obtaining Index Numbers on page 241.

Using a Terminal

1. Log in to the chassis to receive a token before you begin using RESTful API commands. This token must be used with each and every RESTful API command for authentication purposes.

2. On an external terminal, use the curl tool to log in as follows to receive a token:

   [root@zeus ~]# curl -X GET http://192.167.0.100/v0.9/login?'admin&seamicro ' -H 'Content-type: text/json'

   You will receive an output as follows:

   {"result" : "OpaqueRef:c41b630a-126a-1b04-c5fa-d807d2ba4801", "error" : {"code" : "200", "message" : "Success"}}

3. Make a note of the token: 'OpaqueRef:c41b630a-126a-1b04-c5fa-d807d2ba480 -H 'Content-type: text/json'.

4. Append the token as a parameter to the commands listed in this appendix.

   For example, to view the output for the /cards command, enter the following:

   [root@zeus ~]# curl -X GET http://192.167.0.100/v0.9/cards?"OpaqueRef:c41b630a-126a-1b04-c5fa-d807d2ba4801" -H 'Content-type: text/json'

   You will receive output as follows:

```
{"result" : {"cardId" : {"0" : "Ccard-CCard-0", "1" : "Ccard-CCard-1", "2" : "Ccard-
CCard-10", "3" : "Ccard-CCard-11", "4" : "Ccard-CCard-12", "5" : "Ccard-CCard-13",
"6" : "Ccard-CCard-14", "7" : "Ccard-CCard-15", "8" : "Ccard-CCard-16", "9" :
"Ccard-CCard-17", "10" : "Ccard-CCard-18", "11" : "Ccard-CCard-19", "12" : "Ccard-
CCard-2", "13" : "Ccard-CCard-20", "14" : "Ccard-CCard-21", "15" : "Ccard-CCard-22",
"16" : "Ccard-CCard-23", "17" : "Ccard-CCard-24", "18" : "Ccard-CCard-25", "19" :
"Ccard-CCard-26", "20" : "Ccard-CCard-27", "21" : "Ccard-CCard-28", "22" : "Ccard-
CCard-29", "23" : "Ccard-CCard-3", "24" : "Ccard-CCard-30", "25" : "Ccard-CCard-31",
"26" : "Ccard-CCard-32", "27" : "Ccard-CCard-33", "28" : "Ccard-CCard-34", "29" :
"Ccard-CCard-35", "30" : "Ccard-CCard-36", "31" : "Ccard-CCard-37", "32" : "Ccard-
CCard-38", "33" : "Ccard-CCard-39", "34" : "Ccard-CCard-4", "35" : "Ccard-CCard-40",
"36" : "Ccard-CCard-41", "37" : "Ccard-CCard-42", "38" : "Ccard-CCard-43", "39" :
"Ccard-CCard-44", "40" : "Ccard-CCard-45", "41" : "Ccard-CCard-46", "42" : ------
```

Using a Browser

1. On an external browser, copy and paste the following link to log in and receive a token. This token must be used with each and every RESTful API command for authentication purposes.

   https://192.167.0.100/v0.9/login?admin&seamicro

   Note: There are no single quotes after the question mark(?) or at the end of the URL.

   You will receive an output as follows:

   {"result" : "OpaqueRef:fcd6eee6-d473-e0c4-99b0-2297299f2411", "error" : {"code" : "200", "message" : "Success"}}

2. Make a note of the token: 'OpaqueRef:fcd6eee6-d473-e0c4-99b0-2297299f2411'

3. Append the token as a parameter to the commands listed in this appendix.

4. For example, to view the output for the /cards command:

   http://192.167.0.100/v0.9/cards?OpaqueRef&fcd6eee6-d473-e0c4-99b0-2297299f2411

   You will receive output as follows:

   {"result" : {"cardId" : {"0" : "Ccard-CCard-0", "1" : "Ccard-CCard-1", "2" : "Ccard-CCard-10", "3" : "Ccard-CCard-11", "4" : "Ccard-CCard-12", "5" : "Ccard-CCard-13", "6" : "Ccard-CCard-14", "7" : "Ccard-CCard-15", "8" : "Ccard-CCard-16", "9" : "Ccard-CCard-17", "10" : "Ccard-CCard-18", "11" : "Ccard-CCard-19", "12" : "Ccard-CCard-2", "13" : "Ccard-CCard-20", "14" : "Ccard-CCard-21", "15" : "Ccard-CCard-22", "16" : "Ccard-CCard-23", "17" : "Ccard-CCard-24", "18" : "Ccard-CCard-25", "19" : "Ccard-CCard-26", "20" : "Ccard-CCard-27", "21" : "Ccard-CCard-28", "22" : "Ccard-CCard-29", "23" : "Ccard-CCard-3", "24" : "Ccard-CCard-30", "25" : "Ccard-CCard-31", "26" : "Ccard-CCard-32", "27" : "Ccard-CCard-33", "28" : "Ccard-CCard-34", "29" : "Ccard-CCard-35", "30" : "Ccard-CCard-36", "31" : "Ccard-CCard-37", "32" : "Ccard-CCard-38", "33" : "Ccard-CCard-39", "34" : "Ccard-CCard-4", "35" : "Ccard-CCard-40", "36" : "Ccard-CCard-41", "37" : "Ccard-CCard-42", "38" : "Ccard-CCard-43", "39" : "Ccard-CCard-44", "40" : "Ccard-CCard-45", "41" : "Ccard-CCard-46", "42" : "Ccard-CCard-47", "43" : "Ccard-CCard-48", "44" : "Ccard-CCard-49", "45" : "Ccard-CCard-5", "46" : "Ccard-CCard-50", "47" : "Ccard-CCard-51", "48" : "Ccard-CCard-52", "49" : "Ccard-CCard-53", "50" : "Ccard-CCard-54", "51" : "Ccard-CCard-55", "52" : "Ccard-CCard-56", "53" : "Ccard-CCard-57", "54" :

   ----

5. For example, commands such as /system/history that contain binary or large amounts of data, require a two-step interaction as follows:

   a) When you enter:

   http://192.167.0.100/v0.9/system/history?OpaqueRef:fcd6eee6-d473-e0c4-99b0-2297299f2411

You will receive an output as follows:

{"result":"http://192.167.0.100/dropbox/history_15448713225200e3aa89ac52.tgz",
"error" : {"code" : "200", "message" : "Success"}}

b) As the actual system log contains a large amount of data that will not fit in a single window, a 'URL' will be provided that contains a zipped file.

To download the actual history log data, enter the 'URL' in the result field as follows:

http://192.167.0.100/dropbox/history_15448713225200e3aa89ac52.tgz

Obtaining Index Numbers

1. Obtain the index of an object such as servers, disks, and interfaces.

```
-bash-3.2$ curl -X GET http://10.100.3.100/v0.9/serv-
ers?'OpaqueRef:8669472f-da8c-5f14-59d0-ab19eaaecf2f' -H 'Content-type:
application/json'
```

You will receive an output as follows:

```
{"result" : {"serverId" : {"0" : "0/0", "1" : "1/0", "2" : "10/0", "3" :
"11/0", "4" : "12/0", "5" : "13/0", "6" : "14/0", "7" : "15/0", "8" : "16/
0", "9" : "17/0", "10" : "18/0", "11" : "19/0", "12" : "2/0", "13" : "20/0",
"14" : "21/0", "15" : "22/0", "16" : "23/0", "17" : "24/0", "18" : "25/0",
"19" : "26/0", "20" : "27/0", "21" : "28/0", "22" : "29/0", "23" : "3/0",
"24" : "30/0", "25" : "31/0", "26" : "32/0", "27" : "33/0", "28" : "34/0",
"29" : "35/0", "30" : "36/0", "31" : "37/0", "32" : "38/0", "33" : "39/0",
"34" : "4/0", "35" : "40/0", "36" : "41/0", "37" : "42/0", "38" : "43/0",
"39" : "44/0", "40" : "45/0", "41" : "46/0", "42" : "47/0", "43" : "48/0",
"44" : "49/0", "45" : "5/0", "46" : "50/0", "47" : "51/0", "48" : "52/0",
"49" : "53/0", "50" : "54/0", "51" : "55/0", "52" : "56/0", "53" : "57/0",
"54" : "58/0", "55" : "59/0", "56" : "6/0", "57" : "60/0", "58" : "61/0",
"59" : "62/0", "60" : "63/0", "61" : "7/0", "62" : "8/0", "63" : "9/0"}},
"error" : {"code" : "200", "message" : "Success"}}
-bash-3.2$
```

2. Note that in the above list of servers, there is a corresponding index number before each server. Select that index number to get server details on that specific server.

For example, server "13/0" has an index number of "5." Use this index number to obtain details on server "13/0" as shown below:

```
-bash-3.2$ curl -X GET http://10.100.3.100/v0.9/servers/
5?'OpaqueRef:8669472f-da8c-5f14-59d0-ab19eaaecf2f' -H 'Content-type: appli-
cation/json'
```

You will receive an output as follows:

```
{"result" : {"serverId" : "13/0",  "serverNIC" : ["2", "5", "0", "6", "1",
"7", "3", "4"],  "serverMacAddr" : ["00:22:99:31:85:10",
"00:22:99:31:85:11", "00:22:99:31:85:12", "00:22:99:31:85:13",
"00:22:99:31:85:14", "00:22:99:31:85:15", "00:22:99:31:85:16",
"00:22:99:31:85:17"],  "serverOpStatus" : "Down",  "serverProc" : "Intel
Xeon",  "serverDescription" : " "}, "error" : {"code" : "200", "message" :
"Success"}}
-bash-3.2$
```

3. To get details on any of the fields seen in the output above, such as "serverId," "serverNIC,"
    or "serverOpStatus," use the commands below:

```
-bash-3.2$ curl -X GET http://10.100.3.100/v0.9/servers/server-
NIC?'OpaqueRef:8669472f-da8c-5f14-59d0-ab19eaaecf2f' -H 'Content-type:
application/json'
```

You will receive an output as follows:

```
{"result" : { "serverNIC" : {"0" : "0", "1" : "1", "2" : "2", "3" : "3", "4"
: "4", "5" : "5", "6" : "6", "7" : "7"}}, "error" : {"code" : "200", "mes-
sage" : "Success"}}
-bash-3.2$
```

The index numbers are displayed before the serverNIC numbers. For example, to get more
information on a server with serverNIC "3," use the command below:

```
-bash-3.2$ curl -X GET http://10.100.3.100/v0.9/servers/serverNIC/
3?'OpaqueRef:8669472f-da8c-5f14-59d0-ab19eaaecf2f' -H 'Content-type: appli-
cation/json'
```

You will receive an output as follows:

```
{"result" : {"serverId" : ["34/0", "35/0", "51/0", "50/0", "6/0", "1/0", "7/
0", "23/0", "22/0", "38/0", "39/0", "55/0", "54/0", "10/0", "11/0", "27/0",
"17/0", "26/0", "42/0", "43/0", "59/0", "58/0", "14/0", "15/0", "31/0",
"30/0", "46/0", "16/0", "47/0", "63/0", "62/0", "12/0", "13/0", "29/0",
"28/0", "44/0", "45/0", "61/0", "32/0", "60/0", "8/0", "9/0", "25/0", "24/
0", "40/0", "41/0", "57/0", "56/0", "4/0", "33/0", "5/0", "21/0", "20/0",
"36/0", "37/0", "53/0", "52/0", "49/0", "0/0", "48/0", "2/0", "3/0", "19/
0", "18/0"],  "serverNIC" : "3",  "serverMacAddr" : ["00:22:99:31:81:46",
"00:22:99:31:81:56", "00:22:99:31:81:66", "00:22:99:31:81:76",
"00:22:99:31:82:06", "00:22:99:31:80:16", "00:22:99:31:82:16",
"00:22:99:31:82:26", "00:22:99:31:82:36", "00:22:99:31:82:46",
```

```
    "00:22:99:31:82:56", "00:22:99:31:82:66", "00:22:99:31:82:76",
    "00:22:99:31:83:06", "00:22:99:31:83:16", "00:22:99:31:83:26",
    "00:22:99:31:80:26", "00:22:99:31:83:36", "00:22:99:31:83:46",
    "00:22:99:31:83:56", "00:22:99:31:83:66", "00:22:99:31:83:76",
    "00:22:99:31:84:06", "00:22:99:31:84:16", "00:22:99:31:84:26",
    "00:22:99:31:84:36", "00:22:99:31:84:46", "00:22:99:31:80:36",
    "00:22:99:31:84:56", "00:22:99:31:84:66", "00:22:99:31:84:76",
    "00:22:99:31:85:06", "00:22:99:31:85:16", "00:22:99:31:85:26",
    "00:22:99:31:85:36", "00:22:99:31:85:46", "00:22:99:31:85:56",
    "00:22:99:31:85:66", "00:22:99:31:80:46", "00:22:99:31:85:76",
    "00:22:99:31:86:06", "00:22:99:31:86:16", "00:22:99:31:86:26",
    "00:22:99:31:86:36", "00:22:99:31:86:46", "00:22:99:31:86:56",
    "00:22:99:31:86:66", "00:22:99:31:86:76", "00:22:99:31:87:06",
    "00:22:99:31:80:56", "00:22:99:31:87:16", "00:22:99:31:87:26",
    "00:22:99:31:87:36", "00:22:99:31:87:46", "00:22:99:31:87:56",
    "00:22:99:31:87:66", "00:22:99:31:87:76", "00:22:99:31:80:66",
    "00:22:99:31:80:06", "00:22:99:31:80:76", "00:22:99:31:81:06",
    "00:22:99:31:81:16", "00:22:99:31:81:26", "00:22:99:31:81:36"],  "serverOp-
Status" : "Down",  "serverProc" : "Intel Xeon",  "serverDescription" : " "},
"error" : {"code" : "200", "message" : "Success"}}
```

4. Follow the steps outlined above to retrieve detailed information on all other components in the system.

RESTful API Commands

SeaMicro RESTful API commands are listed below in the following categories:

- Cards and System Commands
- System Logs
- Server Commands
- Disk Storage Commands
- Storage Assignment Commands
- Network Commands
- Power Supply Commands
- Fan and Fan Tray Commands

Return Codes

The following tables include the success and failure responses for all return codes:

Success Response

Code	Status	Description
200	OK	Request was processed.
202	Accepted	Request was accepted and is being processed.
304	Not Modified	Data has not been modified since last request.

Failure Response

Code	Error	Description
400	Bad Request	Invalid request.
401	Unauthorized	The request needs to be authorized.
403	Forbidden	The request is not allowed.
404	Not found	The resource is not found.
500	Internal Server Error	Unexpected error during processing.
501	Internal Server Error	Method not implemented.

Cards and System Commands

Tables below describe supported Universal Resource Identifiers (URIs) and their methods.

The following table lists C-Card, S-Card, and SM-Card commands:

URI	Method	Description
`/login`	GET	Credentials required to obtain access to the system.
`/logout`	GET	close off access to the system.
`/cards`	GET	Get cards overview.
`/cards/all`	GET	Get cards detailed information.
`/cards/NNNN`	GET	List a card details.
`/cards/cardId`	GET	List all card Ids.
`/cards/cardId/NNNN`	GET	List the specifics of a card Id.
`/cards/cardType`	GET	List all card types.
`/cards/cardType/NNNN`	GET	List specific card details.
`/cards/cardStatus`	GET	List all cards status.
`/cards/cardStatus/NNNN`	GET	List details of card's status.
`/cards/cardSensor0Temp`	GET	List temperature of sensor 0 for all cards.
`/cards/cardSensor0Temp/NNNN`	GET	List sensor 0 temperature information for all cards.
`/cards/cardSensor1Temp`	GET	List sensor 1 temperature information for all cards.
`/cards/cardSensor1Temp/NNNN`	GET	List all cards information for a given sensor 1 temperature.
`/system/history`	GET	RESTful API's history.
`/system/logs`	GET	System Logs.
`/system/crashes`	GET	System Crash Information.
`/system/techsupport`	GET	System Tech Support Information. Scope= [brief | Ethernet | storage | system | cli]

System Logs

The following tables present log information, crash-related data, and scope parameter options.

The following objects shown below list log information:

Object Name	Object Identifier
Timestamp	String
Process Name	String
Process ID	Integer
Activity Info	String

The following objects shown below list crash-related information:

Object Name	Object Identifier
Directory attributes	String
Inode attribute	Integer
Owner	String
Group owner	String
Directory Size	Integer
Directory Time Stamp	String
Directory Name	String

Options shown below are available to be used with the technical support scope parameters:

Technical Support Scope Description	Scope Parameter
Lists all technical support information.	brief
Lists CLI-related technical support information.	CLI
Lists technical support information about Ethernet.	Ethernet
Lists technical support information about fabric.	fabric
Lists storage related technical support information.	storage
Provides info related to the system.	system

Server Commands

The following table server commands:

URI	Method	DESCRIPTION
`/servers`	GET	List servers.
`/servers/NNNN`	GET	List server details.
`/servers/all`	GET	List all server details.
`/servers/serverId`	GET	List all server Id's.
`/servers/serverId/NNNN`	GET	List details of a server ID.
`/servers/serverNIC`	GET	List all server NIC's.
`/servers/serverNIC/NNNN`	GET	List details of a server NIC.
`/servers/serverMacAddr`	GET	List all server MAC addresses.
`/servers/serverMacAddr/NNNN`	GET	List details of a MAC address index.
`/servers/serverOpStatus`	GET	List all server operation status.
`/servers/serverOpStatus/NNNN`	GET	List details of an operation index.
`/servers/serverProc`	GET	List all server processors.
`/servers/serverProc/NNNN`	GET	List details of a server processor.
`/servers/serverDescription`	GET	List all servers description.
`/servers/serverDescription/NNNN`	GET	List details of a server description associations.
`/servers/NNNN`	PUT	Power Up/Down/Reset server.

The following table displays the server fields:

Object Name	Object Identifier
`ServerIndex`	`INTEGER`
`ServerId`	`DisplayString`
`ServerNic`	`INTEGER32`
`serverMacStatus`	`MacAddress`
`serverOpStatus`	`INTEGER`
`serevrProc`	`DisplayString`
`serverDescription`	`DisplayString`

Disk Storage Commands

The following table lists Disk Storage commands:

URI	Method	DESCRIPTION
/disks	GET	List disks.
/disks/NNNN	GET	Disk detail.
/disks/all	GET	All disks detail.
/disks/diskName	GET	All disk names.
/disks/diskName/NNNN	GET	Details of a disk.
/disks/diskModel	GET	All disk models.
/disks/diskModel/NNNN	GET	Details of a disk model.
/disks/diskSerial	GET	All disk serial numbers.
/disks/diskSerial/NNNN	GET	Details of a disk serial number.
/disks/diskRevision	GET	All disk revision numbers.
/disks/diskRevision/NNNN	GET	Details of a disk revision number.
/disks/diskSize	GET	All disk sizes.
/disks/diskSize/NNNN	GET	Details of disk sizes.
/disks/diskStatus	GET	All disks status..
/disks/diskStatus/NNNN	GET	Details of a disk status.

Storage Assignment Commands

The following table lists Storage Assignment commands:

URI	Method	DESCRIPTION
`/assigns`	GET	Disk assignment.
`/assigns/NNNN`	GET	Details of an disk assignment.
`/assigns/all`	GET	All disk details.
`/assigns/assignServerId`	GET	All disk assigned server IDs.
`/assigns/assignServerId/NNNN`	GET	Details of a disk assigned server ID.
`/assigns/assignVdiskId`	GET	All disks vDisk IDs.
`/assigns/assignVdiskId/NNNN`	GET	Details of a disk assign vDisk ID.
`/assigns/assignVolumeName`	GET	All disk assign volume names.
`/assigns/assignVolumeName/NNNN`	GET	Details of a disk assign volume name.

The following table shows the disk details:

Object Name	Object Identifier
`Disk Index`	INTEGER
`Disk Name`	`DisplayString`
`Disk Model`	`DisplayString`
`Disk Serial`	`DisplayString`
`Disk Revision`	`DisplayString`
`Disk Size`	`INTEGER32`
`Disk Status`	`INTEGER`

Following table shows the vDisk details:

Object Name	Object Identifier
`assignIndex`	`INTEGER`
`assignServerId`	`DisplayString`
`assignVdiskId`	`INTEGER32`
`assignVolumeName`	`DisplayString`

Network Commands

The following table lists Network commands:

URI	Method	DESCRIPTION
/interfaces	GET	List Network Interfaces.
/interfaces/NNNN	GET	List interface detail of an interface.
/interfaces/all	GET	List all Interface details.
/interfaces/ifIndex	GET	List all interface indexes.
/interfaces/ifIndex/NNNN	GET	List details of an interface.
/interfaces/ifDescr	GET	List available interface descriptions.
/interfaces/ifDecr/NNNN	GET	List all related information of an interface description.
/interfaces/ifType	GET	List all interface types.
/interfaces/ifType/NNNN	GET	List details of an interface type.

The following table displays the network fields:

Object Name	Object Identifier
ifIndex	InterfaceIndex
ifDescr	DisplayString
ifType	IANAifType
ifMtu	Integer32
ifSpeed	Gauge32
ifPhysAddress	Physical Address
ifAdminStatus	INTEGER
ifOperStatus	INTEGER
ifLastChange	TimeTicks
ifInOctats	Counter32
ifInUCastePkts	Counter32
ifInNUCastePkts	Counter32
ifInDiscards	Counter32
ifInErrors	Counter32
ifInUnkownProtos	Counter32

ifOutOctets	Counter32
ifOutUcastPkts	Counter32
ifOutNUcastPkts	Counter32
ifOutDiscards	Counter32
ifOutErrors	Counter32
ifOutQLen	Gauge32
ifSpecific	OBJECT IDENTIFIER

The following table lists network extensions:

Object Name	Object Identifier
ifName	DisplayString
ifInMulticastPkts	Counter32
ifInBroadcastPkts	Counter32
ifOutMulticastPkts	Counter32
ifOutBroadcastPkts	Counter32
ifHCInOctets	Counter64
ifHCInUcastPkts	Counter64
ifHCInMulticastPkts	Counter64
ifHCInBroadcastPkts	Counter64
ifHCOutOctets	Counter64
ifHCOutUcastPkts	Counter64
ifHCOutMulticastPkts	Counter64
ifHCOutBroadcastPkts	Counter64
ifLinkUpDownTrapEnable	INTEGER
ifHighSpeed	Gauge32
ifPromiscuousMode	TruthValue
ifConnectorPresent	TruthValue
ifAlias	DisplayString
ifCounterDiscontinuityTime	TimeStamp

Power Supply Commands

The following table lists Power Supply commands:

URI	Method	DESCRIPTION
`/powersupplies`	GET	Lists power supplies.
`/powersupplies/NNNN`	GET	Lists a specific power supply detail.
`/powersupplies/all`	GET	Lists all power supplies details.
`/powersupplies/NNNN/rpm`	GET	Lists power supply RPM.
`/powersupplies/NNNN/temperature`	GET	Lists power supply temperature.
`/powersupplies/NNNN/voltage`	GET	Lists power supply voltage.
`/powersupplies/NNNN/ampere`	GET	Lists power supply amperage.
`/powersupplies/NNNN/power`	GET	Lists supply power.
`/powersupplies/NNNN/status`	GET	Lists power supply status.

The following fields display the status of the power supply variables:

Object Name	Object Identifier
`psId`	`DisplayString`
`psRpm`	`Integer32`
`psSensor0Temp`	`Integer32`
`psSensor1Temp`	`Integer32`
`psVoltage`	`Integer32`
`psAmp`	`Integer32`
`psPower`	`Integer32`
`psStatus`	`INTEGER`

Fan and Fan Tray Commands

The following table lists Fan and Fan Tray commands:

URI	Method	DESCRIPTION
`/fantrays`	GET	Lists fan trays.
`/fantrays/NNNN`	GET	Lists a specific fan tray detail.
`/fantrays/all`	GET	Lists all fan tray details.
`/fans`	GET	Lists fans.
`/fans/NNNN`	GET	Lists a specific fan.
`/fans/all`	GET	Lists all fans detail.
`/fantrays/fantrayId`	GET	Lists a fan tray index.
`/fantrays/ fantrayId/NNNN`	GET	Lists details of a fan tray.
`/fantrays/fantrayStatus`	GET	Lists all fan trays status.
`/fantrays/fantrayStatus/NNNN`	GET	Lists a fan tray status.
`/fans/fanRpm`	GET	Lists all fans RPM information.
`/fans/fanRpm/NNNN`	GET	Lists a specific fan's RPM information.
`/fans/fanStatus`	GET	Lists all fans status information.
`/fans/fanStatus/NNNN`	GET	Lists a specific fan's status information.

The following table lists detailed information about the fan trays:

Object Name	Object Identifier
`fantrayIndex`	`INTEGER`
`fantrayId`	`DisplayString`
`fantrayStatus`	`INTEGER`

The following table lists fan information:

Object Name	Object Identifier
`fanIndex`	`INTEGER`
`fanId`	`DisplayString`
`fanRpm`	`Integer32`
`fanStatus`	`INTEGER`