

SATA & SAS RAID Controller Command Line Interface

USER Guide

Version: 3.10

Issue Date: July, 2010

WARRANTY

Copyright and Trademarks

The information of the products in this manual is subject to change without prior notice and does not represent a commitment on the part of the vendor, who assumes no liability or responsibility for any errors that may appear in this manual. All brands and trademarks are the properties of their respective owners. This manual contains materials protected under International Copyright Conventions. All rights reserved. No part of this manual may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the manufacturer and the author. All inquiries should be addressed to Areca Technology Corporation.

Contents

| | |
|---|-----------|
| 1. Introduction | 6 |
| 1.1 Overview | 6 |
| 1.2 Supported Operating Systems..... | 7 |
| 2. Installing the Areca CLI..... | 8 |
| 2.1 CLI Installation | 8 |
| 2.1.1 For Windows..... | 8 |
| 2.1.2 For Linux, FreeBSD, Mac and Solaris | 9 |
| 2.2 Accessing CLI | 10 |
| 2.2.1 For Windows..... | 10 |
| 2.2.2 For Linux, FreeBSD, Mac and Solaris | 10 |
| 3. CLI Command Line Configuration | 11 |
| 3.1 Configuring Raid Sets and Volume Sets | 11 |
| 3.2 Conventions | 11 |
| 3.3 Working Mode..... | 12 |
| 3.3.1 Interactive Mode | 12 |
| 3.3.2 Non-interactive Mode..... | 12 |
| 3.4 Command Categories | 14 |
| Main Command | 14 |
| Set Commands..... | 15 |
| Rsf Commands..... | 15 |
| Vsf Commands..... | 15 |
| Disk Commands | 15 |
| Sys Commands | 15 |
| Net Commands | 16 |
| Hw Commands..... | 16 |
| Mail Commands..... | 16 |
| SNMP Commands | 16 |
| Exit Command | 17 |
| Syntax | 17 |
| Help Command | 17 |
| Syntax | 17 |
| 3.4.1 Main Commands | 17 |
| 3.4.2 Set Commands | 18 |
| 3.4.3 Rsf Commands..... | 20 |
| 3.4.3.1 Create Raid Set | 21 |
| 3.4.3.2 Delete Raid Set | 21 |
| 3.4.3.3 Expand Raid Set..... | 22 |

| | |
|---|----|
| 3.4.3.4 Activate Incomplete Raid Set..... | 23 |
| 3.4.3.5 Create Hot Spare..... | 24 |
| 3.4.3.6 Delete Hot Spare..... | 24 |
| 3.4.3.7 Offline Raid Set | 25 |
| 3.4.3.8 Raid Set Information | 25 |
| 3.4.4 Vsf Commands..... | 26 |
| 3.4.4.1 Create Volume Set..... | 27 |
| 3.4.4.2 Create Raid50/60 (SAS Only) | 30 |
| 3.4.4.3 Delete Volume Set | 33 |
| 3.4.4.4 Modify Volume Set..... | 33 |
| 3.4.4.5 Check Volume Set..... | 34 |
| 3.4.4.6 Stop Volume Set Check | 34 |
| 3.4.4.7 Display Volume Set Info. | 35 |
| 3.4.5 Disk Commands | 36 |
| 3.4.5.1 Create Pass-Through Disk | 36 |
| 3.4.5.2 Delete Pass-Through Disk | 38 |
| 3.4.5.3 Modify Pass-Through Disk | 38 |
| 3.4.5.4 Identify Selected Drive | 39 |
| 3.4.5.5 View Drive Information | 39 |
| 3.4.5.6 Display SATA SMART information | 40 |
| 3.4.5.7 SMART Off-line Data Collection | 40 |
| 3.4.5.8 Self Test | 41 |
| 3.4.5.9 Read/Write Test..... | 42 |
| 3.4.5.10 Abort Read/Write Test..... | 42 |
| 3.4.6 Raid System Function | 43 |
| 3.4.6.1 Mute The Alert Beeper | 44 |
| 3.4.6.2 Alert Beeper Setting | 44 |
| 3.4.6.3 Change Password | 45 |
| 3.4.6.4 RAID/JBOD Function | 45 |
| 3.4.6.5 Raid Rebuild Priority..... | 46 |
| 3.4.6.6 Maximum SATA Mode (SATA Only) | 46 |
| 3.4.6.7 Update Firmware | 47 |
| 3.4.6.8 Disk Cache | 48 |
| 3.4.6.9 HDD Read Ahead..... | 48 |
| 3.4.6.10 Stagger Power On..... | 49 |
| 3.4.6.11 Capacity Truncation..... | 49 |
| 3.4.6.12 Auto Activate Raid Set..... | 50 |
| 3.4.6.13 HDD SMART Status Polling (SATA only) | 50 |
| 3.4.6.14 Spin Down Idle HDD..... | 51 |
| 3.4.6.15 NCQ Support..... | 52 |
| 3.4.6.16 Empty HDD slot HDD | 52 |
| 3.4.6.17 Volume Data Read Ahead..... | 53 |

| | |
|--|----|
| 3.4.6.18 HDD Queue Depth | 53 |
| 3.4.6.19 Show System Configuration..... | 54 |
| 3.4.6.20 Synchronize the time (SAS Only) | 54 |
| 3.4.6.21 Get Real Time Click (SAS Only)..... | 55 |
| 3.4.6.22 Save Bin (SAS Only)..... | 55 |
| 3.4.6.23 Restore Bin (SAS Only)..... | 55 |
| 3.4.6.24 System Information | 56 |
| 3.4.7 Ethernet Configuration | 56 |
| 3.4.8 View System Events | 57 |
| 3.4.9 Hardware Monitor..... | 59 |
| 3.4.10 Mail (Alert by Mail) Configuration: | 60 |
| 3.4.11 SNMP Configuration | 62 |

INTRODUCTION

1. Introduction

This user guide provides SATA or SAS RAID controller Command Line Interface (CLI) instructions for configuring and maintaining your SATA or SAS RAID controller.

Before using this CLI, we assume that you have already installed your controller in your system. If you have not yet installed SATA or SAS RAID controller, see ARECA SATA or SAS RAID controller installation user manual for instructions.

1.1 Overview

This Command Line Interface (CLI) is provided for you to configure and manage the Areca SATA or SAS RAID controller components in Windows, Linux and FreeBSD or more environments. The CLI is useful in environments where a graphical user interface (GUI) is not available. Through the CLI, you perform most of the storage management tasks that you can perform with the McRAID storage manager GUI. With CLI, you can also use the CLI commands in both interactive and non-interactive (script) mode, providing higher level API functionalities.

There are often multiple ways to accomplish the same storage management for your Areca controller. While this manual includes instructions for performing configurations using the command line interface, four additional configuration methods are also available:

- McBIOS RAID manager
- Firmware-embed web browser McRAID storage manager through ArchHttp proxy server
- Firmware-embed web browser McRAID storage manager through on-controller LAN port
- Push Button and LCD display panel

The CLI contains the same functionality offered by Areca McRAID Storage Manager – Browser Edition.

CLI commands enable you to:

- Create RAID set
- Expand RAID set

- Define volume set
- Add physical drive
- Modify volume set
- Modify RAID level/stripe size
- Define pass-through disk drives
- Modify system function
- Designate drives as hot spares

1.2 Supported Operating Systems

- Windows: Windows 2000, Windows XP, and Windows Server 2003, Windows Vista, Windows 2008 and Windows 7.
- Linux: RedHat, SuSE,etc.
- FreeBSD
- Solaris 10/11
- Mac OS

CLI supports both 32-bit and 64-bit versions. Be sure you are installing the correct version.

SOFTWARE INSTALLATION

2. Installing the Areca CLI

This section describes the procedures for installing Command Line Interface (CLI).

2.1 CLI Installation

2.1.1 For Windows

Below screen in this section are taken from a Windows/XP installation. If you are running other Windows, your installing screen may look different, but the CLI installation is essentially the same.

1. Insert the RAID controller CD in the CD-ROM drive. You also can download the CLI from the website: www.areca.com.tw
2. Run the setup.exe file that resides at: <CD-ROM>\http\windows\setup.exe on the CD-ROM.

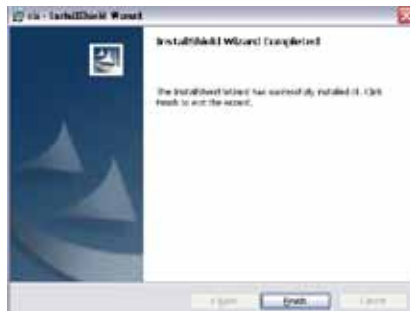


3. Click on the "Setup" file then the Welcome screen appears. Follow the on-screen prompts to complete CLI installation.
4. A program bar appears that measures the progress of the CLI.

SOFTWARE INSTALLATION



5. When this screen complete, you have completed the CLI software setup.
6. After a successful installation, the "Setup Complete" dialog box of the installation program is displayed.



Click the "Finish" button to complete the installation.

2.1.2 For Linux, FreeBSD, Mac and Solaris

Areca CLI can be installed from the Areca shipping software CD, or downloaded from the web site: www.areca.com.tw

The following is the CLI installation procedure in the Linux, FreeBSD, Mac and Solaris.

1. Insert the SATA or SAS RAID controller CD in the CD-ROM drive.
2. Copy the file CLI to the installation directory from which you want to run the program.

SOFTWARE INSTALLATION

2.2 Accessing CLI

2.2.1 For Windows

This section discusses the methods for accessing the CLI in Windows.

To access the CLI:

1. Click on the "Start" button in the Windows 2000/XP/2003/Vista/2008/7 task bar and then click "Program".
2. CLI screen appears.

The CLI prompt is displayed in a DOS console window.

2.2.2 For Linux, FreeBSD, Mac and Solaris

To access the CLI from the Linux/FreeBSD/Mac/Solaris prompt, display a window and type CLI in the directory. When the system displays the CLI> prompt, which indicates that you can start to use CLI commands.

For the commands to work in any directory, the path in the start-up, please see your Linux/FreeBSD/Mac/Solaris documentation for information on setting up directory paths.

3. CLI Command Line Configuration

3.1 Configuring Raid Sets and Volume Sets

You can configure RAID sets and volume sets with CLI function using Raid Set/Volume Set Function manually configuration method. The configuration method requires a different level of user input. The general flow of operations for RAID set and volume set configuration is:

| Step | Action |
|------|---|
| 1 | Designate hot spares/pass-through (optional). |
| 2 | Create RAID sets using the available physical drives. |
| 3 | Define volume sets using the space in the RAID set. |
| 4 | Initialize the volume sets (logical drives) and use volume sets in the host OS. |

3.2 Conventions

You can enter only valid CLI commands at the command line prompt.

All commands use the following syntax:

<CMD> [sub-command] [parameters]

The CLI syntax uses the following conventions for parameter:

<text> indicates items that you must specify.

[text] The text item within brackets is optional.

< | > indicates an 'or' situation where the user has a choice between more than one option, but only one can be specified.

< ~ > indicates a range values where the user has a choice between these two values, but only one can be specified.

< , > Comma, indicates a separation between integer value.

CLI CONFIGURATION

3.3 Working Mode

You can also use the CLI commands in both interactive and non-interactive (script) mode.

- Interactive Mode: Entering CLI commands at the main prompt
- Non-interactive Mode: As a series of single commands or creating a script file (a multiple commands input)

3.3.1 Interactive Mode

You can run CLI in interactive mode, entering commands at the main prompt and observing the results on the screen. The examples shown in this CLI manual reflect this interactive mode.

To run the CLI in the interactive mode

1. To enter interactive mode, type CLI and press Enter.
The main prompt (CLI>) is displayed. This indicates that the CLI program is waiting for a command input.
2. At the CLI prompt, you can input the commands.

Syntax

Set <curctrl=xx | password=xxxx>

Parameters

curctrl=xx

Example: CLI > set curctrl=1 password=0000 [Enter]
Set the selected controller 1 password as 0000.

3.3.2 Non-interactive Mode

To run the CLI in a single command

You can use CLI with syntax and parameters, processing a single command at a time. To process it, simply enter the command with syntax and parameters.

Syntax

CLI <command line with syntax and parameters>

CLI Set <curctrl=xx | password=xxxx>

Example: CLI set curctrl=1 password=0000

Set the selected controller 1 password as 0000.

To run the CLI using automated script

This part describes how to write batch files and CLI command scripts to perform the controller details task. You can run CLI scripts by executing a batch file. The batch file is a text file containing a valid list of CLI commands which you have included in the file. A carriage return linefeed follows each command.

You can use the CLI commands alone in CLI command scripts or in DOS batch files. You should already understand how to write DOS batch files and be familiar with Windows-related backup commands.

To execute a CLI command script, type the file name that contains the CLI commands,

Syntax

<filename>

Where <filename> is the name of the text file you want to execute.

Creating an Automated Script example

In its simplest example form, a text file contains two valid CLI commands. A carriage return linefeed follows each command. The setpass is the file included the following two commands:

CLI set curctrl=1 password=0000 -->set controller 0 password to 0000.

CLI set curctrl=2 password=1111 -->set controller 1 password to 1111.

To run the automated script, enter: setpass

CLI CONFIGURATION

The CLI command script sets the password 0000 on controller 1 and 1111 on controller 2.

3.4 Command Categories

This chapter provides detailed information about the SATA or SAS RAID controller CLI commands. From a functional point of view, command can be grouped into the following functional categories. This list may vary depending upon the SATA or SAS RAID controller model and the installed features.

The following table is the CLI command summary:

| CMD | Description |
|------------|--|
| main | Show command categories |
| set | Open the controller to accept the CLI. It includes the controller assignment and password check |
| rsf | RAID set Functions, create, modify or delete a customized RAID set |
| vsf | Volume Set Functions, create modify or delete a customized volume set. It also includes the create and delete the Hot-Spare function |
| disk | Physical Drive Functions, view individual disk information |
| sys | RAID System Function, setting the RAID system configurations |
| net | Ethernet Function, setting Ethernet configurations |
| event | System Events records or clears all system events in the buffer |
| hw | Hardware Monitor information shows all system environment status |
| mail | To configure mail notification |
| snmp | SNMP information |
| exit | Exit CLI |

Main Command

Main command in this category allows you to display main command in the SATA or SAS RAID controller. For details, see "Main Command" on section 3.4.1.

Set Commands

To prepare a SATA or SAS RAID controller to receive a CLI command, you first need to select the controller. The set commands select controller and prepare it to receive more CLI Commands. Typical operations include: select the controller, and key in the password from the SATA or SAS RAID controllers. For details, see "Set Commands" on section 3.4.2.

Rsf Commands

The rsf commands perform all RAID set operations on the drives and RAID sets connect to the SATA or SAS RAID controller. Typical operations include: create RAID set, delete RAID set, create hot spare, and delete hot spare from the SATA or SAS RAID controller. For details, see "Raid Set Function" on section 3.4.3.

Vsf Commands

The vsf commands perform all volume set operations on the RAID sets connect to the SATA or SAS RAID controller. Typical operations include: create volume set, delete volume set, modify volume set, and migrate volume set from the SATA or SAS RAID controller. For details, see "Volume Set Function" on section 3.4.4.

Disk Commands

The disk commands perform all pass-through operations on the drives connect to the SATA or SAS RAID controller. Typical operations include: create pass-through, delete pass-through, modify pass-through, and view disk information from the SATA or SAS RAID controller. For details, see "Disk Function" on section 3.4.5.

Sys Commands

The sys commands perform the tuning of the SATA or SAS RAID controller setting. Typical operations include: mute the controller, JBOD/RAID, modify password, rebuild priority and view controller information from the SATA or SAS RAID controller. For details, see "Raid System Function" on section 3.4.6.

CLI CONFIGURATION

Net Commands

The net commands allows you to display Ethernet setting. For details, see “Ethernet configuration” on section 3.4.7.

Event Commands

The event command allows you to display system event notification that have been generated events by the SATA or SAS RAID controller. Typical operations include: create pass-through, delete pass-through, modify pass-through, and view disk information from the SATA or SAS RAID controller. For details, see “Event Function” on section 3.4.8.

Hw Commands

The hw command allows you to display hardware information that have been collected by controllers. The “Hardware Monitor Information” provides the temperature and fan speed (chassis fan) of the SATA or SAS RAID controller. For details, see “Hardware Monitor Function” on section 3.4.9.

Mail Commands

The mail command allows you to display e-mail information. The firmware contains a SMTP manager monitoring all system events. Single or multiple user notifications can be sent via “Plain English” e-mails with no software required.

SNMP Commands

The SNMP command allows you to display SNMP information. The firmware SNMP agent manager monitors all system events and the SNMP function becomes functional with no agent software required.

CLI CONFIGURATION

Exit Command

To close the currently selected controller and exit the CLI, use the exit command.

Syntax

CLI> exit

Help Command

This command provides an on-line table of contents, providing brief descriptions of the help sub-commands. You can use the <CMD> -h or -help to get detail information about the sub-command.

Syntax

<CMD> -h or help

CMD: set, rsf, vsf, disk, sys, net, event or hw.

3.4.1 Main Commands

The main command shows the currently selected controller and all controllers installed in the system.

This command provides a table of contents, providing brief descriptions of the commands and controller installed in the system. Typical output looks like:

```
Copyright (c) 2004-2009 Aruba, Inc. All Rights Reserved.
Aruba CLI, Version: 1.83, Build: 290, Date: Nov  2 2009< Windows >

  S # Name      Type      Interface
-----
(=) 1 ARC-1000  Raid Controller  PCI
-----

CMD      Description
-----
main     Show Command Categories.
set      General Settings.
rsf      RaidSet Functions.
vsf      VolumeSet Functions.
disk     Physical Drive Functions.
sys      System Functions.
net      Ethernet Functions.
event    Event Functions.
hw       Hardware Monitor Functions.
mail     Mail Notification Functions.
nmp      SNMP Functions.
ntp      NTP Functions.
exit     Exit CLI.
-----
```

CLI CONFIGURATION

3.4.2 Set Commands

If there is more than one RAID controller in the system (up to four are supported), use this command to select the appropriate controller on which to perform an action. All actions or commands will be performed only on the currently selected controller.

To prepare a controller to receive a CLI command, you first need to select the controller. To select the controller and prepare it to receive CLI commands:

- **None**

Syntax

set <curctrl=xx : password=xxxx>

Parameters

<curctrl=xx>

Description:

To prepare a RAID controller to receive a CLI command, you first need to select the controller. You can select one RAID controller at any time. To select controller and prepare it to receive more CLI Commands.

Example:

CLI > set curctrl=1 [Enter]

Select the controller 1 to receive the CLI command.

<password=xxxx>

Description:

The password option allows user to set or clear the RAID controller's password protection feature. Once the password has been set, the user can only monitor and configure the RAID controller by providing the correct password. The password is used to protect the RAID controller from unauthorized entry. The controller will check the password only when entering the rsf, vsf and disk function from the initial screen. The RAID controller will automatically go back to the initial screen when it does not receive any command in twenty seconds. The RAID controller password is default setting at 0000 by the manufacture.

CLI CONFIGURATION

If the password of the RAID controller is already disabled you do not need to specify it again when selecting the RAID controller.

Example

```
CLI > set password=0000 [Enter]
```

Enter the controller 1 password as 0000.

● Save All Controller Information

Syntax

```
set savecfg <path=<xxx>>
```

Parameters

```
<path=<xxx>
```

Description:

To save all controller information into disk. If you would like to record these settings, such as RAID set/volume set configurations, system configuration event log, system information and drive information, you can use the this command to record them to a text file

Example:

```
CLI > set savecfg path=/cfg [Enter]
```

Save all information into folder "/cfg". If you just specify a path without file name, CLI will automatically specify file name as "controller<xx>": <xx> is the controller#.

```
CLI> set -h
Sub-Command & Parameters Of [ set ]
Sub-Command Description
=====
None.      Parameter: <curctrl=xx | password=xxxx>
           Fn: Set the controller# of currently using.
           Ex: Set the controller 1 to use.
           Command: set curctrl=1 [Enter]
           Fn: Set the password if password required.
           Ex: Set the password "0000".
           Command: set password=0000 [Enter]
savecfg    Parameter: <path=<xxx>>.
           Fn: Save All Controller Information Into Disk.
           Ex: Save Information Into Folder "/cfg".
           Command: set savecfg path=/cfg [Enter]
           Note: Just Specify A Path Without File Name.
           CLI Will Automatically Specify The File
           Name, Named 'Controller<xx>.txt Where
           <xx> Is The Controller#.
=====
CLI>
```

CLI CONFIGURATION

3.4.3 Rsf Commands

User manual configuration can complete control of the RAID set setting. Select the RAID set function to manually configure the RAID set for the first time or deletes existing RAID set and reconfigures the RAID set.

This command provides an on-line table of contents, providing brief descriptions of the help sub-commands. You can use the <CMD> -h or -help to get detail information about the command.

The help command rsf -h provides a table of contents, providing brief descriptions of the sub-commands. Typical output looks like:

```
CLI> rsf -h
Sub-Command & Parameters Of [ rsf ]
Sub-Command Description
=====
create      Parameter: <drv=xx> {name=xxx}
            Fn: Create A RaidSet.
            Ex: Create A RaidSet With Drive1,2,3,5,7 name=RaidSet1.
            Command: rsf create drv=1^3,5,7 name=RaidSet1 [Enter]

delete      Parameter: <raid=xx>.
            Fn: Delete A RaidSet.
            Ex: Delete RaidSet#1.
            Command: rsf delete raid=1 [Enter]

expand      Parameter: <raid=xx> <drv=xx> [vol=xx] [newlevel=<011131516>]
            [newstripe=<4181161221641120>]
            Fn1: Expand RaidSet Without VolumeSet Modification.
            Ex1: Expand Drive 3 To RaidSet#1.
            Command1: rsf expand raid=1 drv=3 [Enter]
            Fn2: Expand RaidSet With VolumeSet Modification.
            Ex2: Expand Drive 3 To RaidSet#1 And Modify VolumeSet#1
                  From Raid1 To Raid5.
                  (Assuming VolumeSet#1 Is Currently Raid1).
            Command2: rsf expand raid=1 drv=3 vol=1 newlevel=5 [Enter]

activate     Parameter: <raid=xx>
            Fn: Activate A RaidSet.
            Ex: Activate RaidSet#1.
            Command: rsf activate raid=1 [Enter]

createshs   Parameter: <drv=xx>
            Fn: Create HotSpare Disk.
            Ex: Set Disk#3 To HotSpare Disk.
            Command: rsf createshs drv=3 [Enter]

deleteshs   Parameter: <drv=xx>
            Fn: Delete HotSpare Disk.
            Ex: Delete HotSpare Disk#3.
            Command: rsf deleteshs drv=3 [Enter]

offline     Parameter: <raid=xx>.
            Fn: Offline A RaidSet.
            Ex: Offline RaidSet#1.
            Command: rsf offline raid=1 [Enter]

info        Parameter: [raid=<xxx>].
            Fn: Display RaidSets Info.
            Command: rsf info [Enter]
            Ex: Display RaidSet#1 Info.
            Command: rsf info raid=1 [Enter]
=====
CLI> _
```

3.4.3.1 Create Raid Set

To define RAID set, follow the procedure below:

Syntax

```
rsf create <drive=xxx> [ name =xxx]
```

Parameter

<drive=xxx>

Description:

The drv=xxx selects the specified the SAS/SATA drive connected to the current controller that user wants to add in a single RAID set.

[name =xxx]

Description:

Enter 1 to 15 alphanumeric characters to define a unique identifier for a RAID set. The default RAID set name will always assign as Raidset # if the command doesn't specify the name parameter.

Example:

To create a RAID set, use the create RAID set command.

In the following example, RAID set is created from disk 1,2,3,5, and 7. The RAID set's name is raidset1.

```
CLI > rsf create drv=1~3,5,7 name=raidset1 [Enter]
```

3.4.3.2 Delete Raid Set

To delete RAID set, follow the procedure below:

Syntax

```
rsf delete <raid=xx>
```

Parameter

<raid=xx>

Description:

To change a RAID set, you should first delete it and recreate the RAID set. To delete a RAID set, specify the RAID set number that user want to delete. it will free the associated disk occupied by the RAID set.

CLI CONFIGURATION

Example:

```
CLI > rsf delete raid=1 [Enter]
```

The raidset1 will delete and the associated disk no. 1, 2, 3, 5, and 7 will free.

3.4.3.3 Expand Raid Set

To expand RAID set, follow the procedure below:

Syntax

```
rsf expand <raid=xx> [ drive =xx]
```

Parameter

<raid=xxx>

This parameter specifies the target RAID set number that user wants to expand.

[drive=xxxx]

This parameter specifies the available disk drives that user wants to expand the RAID set.

Description:

Instead of deleting a RAID set and recreating it with additional disk drives, the Expand RAID set function allows the users to add disk drive to the RAID set that was created.

The new add capacity will be define one or more volume sets. Follow the instruction presented in the volume set Function to create the volume sets.

Example:

In the following example, raid set#1 is expand by adding the disk drive 3.

```
CLI > rsf expand raid=1 drv=3[Enter]
```

NOTE:

1. Once the Expand RAID set process has started, user cannot stop it. The process must be completed.
2. If a disk drive fails during RAID set expansion and a hot spare is available, an auto rebuild operation will occur after the RAID set expansion completes.
3. Migrating occurs when a disk is added to a RAID Set. Migration status is displayed in the RAID status area of the RAID set information when a disk is added to a RAID set. Migrating status is also displayed in the associated volume status area of the Volume Set Information when a disk is added to a RAID set.

3.4.3.4 Activate Incomplete Raid Set

The following screen is the RAID Set Information after one of its disk drive has removed in the power off state.

When one of the disk drive is removed in power off state, the RAID set state will change to "Incomplete" state. After the RAID controller is power on in "Incomplete" state, user still wants to continue to work. User can use the "Activate Incomplete Raid Set" command to active the RAID set. After user complete the function, the RAID set state will change to "Degraded" mode. To activate incomplete RAID set, follow the procedure below:

Syntax

rsf activate <raid=xx>

Parameter

<raid=xxx>

Description:

This parameter specifies the incomplete RAID set number that user wants to activate it.

Example:

In the following example, raid set#1 is in the incomplete state.

CLI CONFIGURATION

CLI > rsf expand raid=1 [Enter]

After user complete the command, the RAID state will change to "Degraded" mode.

3.4.3.5 Create Hot Spare

To assign one or more spare disks for all RAID sets, use this command. This command enables you to configure the drive as a global hot spare prior to a drive failure so that the RAID sets contains the resources it needs to survive a failure.

"Create Hot Spare" option gives you the ability to define a global hot spare. When creating a hot spare, be sure to select a drive with an equal or larger size than the smallest drive in your RAID set. Otherwise it can't be used in a rebuild.

The controller automatically assigns the new disk as the Hot-spare without your having to first assign it using this command.

To create hot spare, follow the procedure below:

Syntax

rsf createhs <drv =xx>

Parameter

<drv=xx>

Description:

This parameter specifies the disk drive that user wants to create as Hot-Spare.

Example:

CLI > rsf createhs drv=3 [Enter]

Assign the drive no. 3 as the global Hot-Spare disk.

3.4.3.6 Delete Hot Spare

This command deletes the create hot spare command defined hot spare disk.

To delete hot spare, follow the procedure below:

Syntax

rsf deletehs <drv =xx>

Parameter

<drv=xx>

Description:

This parameter specifies the hot spare disk drive that user wants to delete.

Example:

CLI > rsf deletehs drv=1 [Enter]

Free the Hot-Spare drive 1.

3.4.3.7 Offline Raid Set

This command is for customer being able to unmount and remount a multi-disk volume.

To unmount and remount a multi-disk volume, follow the procedure below:

Syntax

rsf offline <raid =xx>

Parameter

<raid=xx>

Description:

This parameter specifies the RAID set number that user wants to offline it.

Example:

CLI > rsf offline raid=1 [Enter]

After user complete the command, the RAID state will change to offline mode.

3.4.3.8 Raid Set Information

After creating a RAID set, use this command to display information about the RAID sets. To display all RAID sets information, please follow the procedure below:

CLI CONFIGURATION

Syntax
rsf info

Description:

Use this command to display all RAID sets information. The RAID set information will show as following. You can only view the information of all RAID sets.

Example:

CLI > rsf info [Enter]

Display all RAID sets information, which belongs to the currently selected RAID controller.

```
CLI> rsf info
# Name                               Disks TotalCap  FreeCap DiskChannels  State
-----
1  Raid Set # 00                      12 30000.0GB 2328.2GB 123456789ABC  Normal
=====
GetRsfMsg(Rb000): Success.

CLI> rsf info raid-1
Raid Set Information
=====
Raid Set Name       : Raid Set # 00
Member Disks        : 12
Total Raw Capacity  : 30000.0GB
Free Raw Capacity   : 2328.2GB
Min Member Disk Size : 250.0GB
Raid Set State      : Normal
=====
GetRsfMsg(Rb000): Success.

CLI>
```

3.4.4 Vsf Commands

A volume set is seen by the host system as a single logical device. It is organized in a RAID level with one or more physical disks. RAID level refers to the level of data performance and protection of a Volume Set. A volume set capacity can consume all or a portion of the disk capacity available in a RAID set. Multiple volume sets can exist on a group of disks in a RAID set. Additional volume sets created in a specified RAID set will reside on all the physical disks in the RAID set. Thus each volume set on the RAID set will have its data spread evenly across all the disks in the RAID set.

The RAID controller has the following restrictions with regard to CLI terminology and nomenclature:

1. SCSI Channel—SCSI Channel always equals 0.
2. SCSI LUN /SCSI ID—"SCSI LUN /SCSI ID" always means "Volume Set".

CLI CONFIGURATION

```

CLI> vsf -h
Sub-Command & Parameters Of [ vsf ]
Sub-Command Description
=====
create      Parameter: <raid>xx< <level><011131516>> [capacity=xxx] [ch=<0>]
            [id=<0-15>] [lun=<0-7>] [name=xxx] [tag=<VIN>]
            [cache=<VIN>] [stripe=<4181161321641128>]
            [pbit=<VIN>] [gt2tb=<64BIT1MIN>]
            Fn: Create A VolumeSet.
            Ex: Create A VolumeSet Belongs To RaidSet#1, Capacity=10.5G,
            RaidLevel=5, name=MyVol, Others Default.
            Command: vsf create raid-1 capacity=10.5 level=5 name=MyVol[Enter]
            Note: The Greater Two TB Volume Support Can Be 64BitLBA or
            4KByte For Windows, 64BitLBA Default.
            If No Capacity Assignment The CLI Will Automatically Use The
            Maximum Free Space

create5060 Parameter: <raid>xx< <capacity=xxx> <level><30150160>> [ch=<0>]
            [id=<0-15>] [lun=<0-7>] [name=xxx] [tag=<VIN>]
            [cache=<VIN>] [stripe=<4181161321641128>]
            [pbit=<VIN>] [gt2tb=<64BIT1MIN>]
            Fn: Create A VolumeSet.
            Ex: Use RaidSet#1 To Create A VolumeSet, Capacity=10G,
            RaidLevel=50, name=MyVol, Others Default.
            Command: vsf create5060 raid-1.2 capacity=10 level=50
            name=MyVol[Enter]
            Note: The Greater Two TB Volume Support Can Be 64BitLBA or
            4KByte For Windows, 64BitLBA Default.
            If No Capacity Assignment The CLI Will Automatically Use The
            Maximum Free Space

delete      Parameter: <vol>xx<
            Fn: Delete A VolumeSet.
            Ex: Delete VolumeSet#1.
            Command: vsf delete vol-1 [Enter]

modify      Parameter: <vol>xx< [capacity=xxx] [level=<011131516>] [ch=<0>]
            [id=<0-15>] [lun=<0-7>] [name=xx] [tag=<VIN>]
            [cache=<VIN>] [stripe=<4181161321641128>]
            Fn: Modify VolumeSet.
            Ex: Suppose VolumeSet#1 Is Raid1, Modify It From Raid1 To Raid5.
            Command: vsf modify vol-1 level=5 [Enter]

check       Parameter: <vol>xx<
            Fn: Check Consistency Of VolumeSet.
            Ex: Check VolumeSet#1 Consistency.
            Command: vsf check vol-1 [Enter]

stopcheck   Parameter: None.
            Fn: Stop Consistency Check.
            Command: vsf stopcheck [Enter]

info        Parameter: <vol>xx<|.
            Fn: Display VolumeSet Info.
            Command: vsf info [Enter]
            Ex: Display VolumeSet#1 Info.
            Command: vsf info vol-1 [Enter]
=====
CLI>

```

3.4.4.1 Create Volume Set

The following is the volume set features for the RAID controller.

1. Volume sets of different RAID levels may coexist on the same RAID set.
 2. Up to 16 volume sets can be created in a RAID set for RAID controller and 128 volume sets for SAS RAID controller.
- The "Create Volume Set " command allows user to create the volume attribute values. The attribute column headings are:

- The Raid Level,
- The Stripe Size,
- The SCSI HOST/SCSI ID/SCSI LUN/,
- The Cache Mode,
- The Tagged Queuing, and
- The Volume Name (number).

CLI CONFIGURATION

To create volume set, follow the procedure below:

Syntax

```
vsf create <raid=xx> <capacity=xxx> <level=<0:1:3:5:6>>
          [ch=<0>] [id=<0~15>] [lun=<0~7>] <name=xxx>
          [tag=<Y:N>] [cache=<Y:N>]
          [stripe=<4:8:16:32:64:128>] [fginit=<Y:N>]
```

Parameters

- **Raid Set Number**

<raid=xx>

Description;

Select the RAID set number for creating the volume set.

- **Volume Name**

<name=xxx>

Description:

The default volume name will always appear as Volume Set#. You can rename the volume set name providing it does not exceed the 15 characters limit.

- **Capacity**

<capacity=xxx>

Description:

The maximum volume size is default in the first setting. Each volume set has a selected capacity which is less than or equal to the total capacity of the RAID set on which it resides.

- **Raid Level**

[level=<0:1:3:5:6>]

Description:

Set the RAID level for the volume set.

- **Strip Size**

[stripe=<4:8:16:32:64:126>]

Description:

This parameter sets the size of the segment written to each disk

CLI CONFIGURATION

in a RAID 0, 1, 1E, 5 or 6 logical drive. You can set the stripe size to 4 KB, 8 KB, 16 KB, 32 KB, 64 KB, or 128 KB.

- **SCSI Channel**

[ch=<0>]

Description:

ch represents channel, which is always zero on the RAID controller.

- **SCSI ID**

[id=<0~15>]

- **SCSI LUN**

[lun=<0~7>]

Description:

SCSI LUN /SCSI ID—"SCSI LUN /SCSI ID" always means "Volume Set"

- **Cache Mode**

[cache=<Y:N>]

Description:

This command allows you to turn on or off the write-back cache on a specified unit.

User can set the cache mode to: Write-Through Cache (N) or Write-Back Cache (Y).

- **Tag Queuing**

[tag=<Y:N>]

Description:

The "Enabled" option is useful for enhancing overall system performance under multi-tasking operating systems. The Command Tag (Drive Channel) function controls the SAS command tag queuing support for each drive channel. This function should normally remain enabled. Disable this function only when using older SAS drives that do not support command tag queuing.

CLI CONFIGURATION

- **Initialization**

[fginit=<Y:N>]

Description:

In the Background Initialization (N), the initialization proceeds as a background task, the volume set is fully accessible for system reads and writes. The operating system can instantly access to the newly created arrays without requiring a reboot and waiting the initialization complete. In Foreground Initialization (Y), the initialization proceeds must be completed before the volume set ready for system accesses.

Example:

To create a volume set, use the create volume set command. In the following example, Volume 0 is created from RAID set 1 on device ch:0 id:01 lun:0 from 1.5GB of available space. The volume set's cache and tag are enabled, and the name is areca. The volume set sets in RAID level 5 and "Foreground Initialization" mode.

```
CLI>vsf create raid=1 capacity=1.5 level= 5 ch=0 id=1 lun=0  
name=areca tag=Y cache=Y stripe=16 fginit=Y
```

3.4.4.2 Create Raid50/60 (SAS Only)

The new create volume set attribute allows user to select the Volume Name, RAID Level , Capacity, Greater Two TB Volume Support, Initialization Mode, Strip Size, Cache Mode, Tagged Command Queuing, SCSI Channel/SCSI ID/SCSI Lun. Please refer to above section for details description of each item.

Syntax

```
vsf create5060 <raid=xx> <capacity=xxx><level=<30:50:60  
>>[ch=<0>] [id=<0-15>][lun=<0-7>][name=xxxx][tag=<Y:  
N>][cacah=<Y:N>][stripe=<4:8:16:32:64:128>][fginit=<Y:  
N>][gt2tb=<64BIN:WIN>]
```

Parameters

- **Raid Set Number**

<raid=xx>

CLI CONFIGURATION

Description:

Select the RAID set number for creating the volume set.

- **Volume Name**

<name=xxx>

Description:

The default volume name will always appear as Volume Set#. You can rename the volume set name providing it does not exceed the 15 characters limit.

- **Capacity**

<capacity=xxx>

Description:

The maximum volume size is default in the first setting. Each volume set has a selected capacity which is less than or equal to the total capacity of the RAID set on which it resides.

- **Raid Level**

[level=<30:50:60>]

- **SCSI Channel**

[ch=<0>]

Description:

ch represents Channel, which is always zero on the SATA/SAS RAID controller.

- **SCSI ID**

[id=<0~15>]

- **SCSI LUN**

[lun=<0~7>]

Description:

SCSI LUN /SCSI ID—"SCSI LUN /SCSI ID" always means "Volume Set"

- **Tag Queuing**

[tag=<Y:N>]

CLI CONFIGURATION

Description:

The enabled option is useful for enhancing overall system performance under multi-tasking operating systems. The command tag (Drive Channel) function controls the SAS command tag queuing support for each drive channel. This function should normally remain enabled. Disable this function only when using older SAS drives that do not support command tag queuing.

• **Cache Mode**

[cache=<Y:N>]

Description:

This command allows you to turn on or off the write-back cache on a specified unit.

User can set the cache mode to: Write-Through Cache (N) or Write-Back Cache (Y).

Description:

Set the RAID level for the volume set.

• **Strip Size**

[stripe=<4:8:16:32:64:126>]

Description:

This parameter sets the size of the segment written to each disk in a RAID 0, 1, 1E, 5 or 6 logical drive. You can set the stripe size to 4 KB, 8 KB, 16 KB, 32 KB, 64 KB, or 128 KB.

• **Initialization**

[fginit=<Y:N>]

Description:

In the "Background Initialization (N)", the initialization proceeds as a background task, the volume set is fully accessible for system reads and writes. The operating system can instantly access to the newly created arrays without requiring a reboot and waiting the initialization complete. In "Foreground Initialization (Y)", the initialization proceeds must be completed before the volume set ready for system accesses.

Example:

To create a volume set, use the create volume set command. In the following example, Volume 0 is created from RAID set

1on device ch:0 id:01 lun:0 from 1.5GB of available space. The volume set's cache and tag are enabled, and the name is areca. The volume set sets in RAID level 5 and Foreground Initialization mode.

```
CLI>vsf create5060 capacity=10G level= 50 ch=0 id=1 lun=0  
name=areca tag=Y cache=Y stripe=16 fginit=Y
```

Note:

RAID level 50 and 60 can support up to eight sub-volumes (RAID set).

3.4.4.3 Delete Volume Set

To delete volume set, follow the procedure below:

Syntax

```
vsf delete <vol=xx>
```

Parameters

<vol=xx>

Description:

Use this command to delete volume set from RAID set system function.

Example:

```
CLI > vsf delete vol=1 [Enter]
```

Delete the VolumeSet#1.

3.4.4.4 Modify Volume Set

To modify volume set, follow the procedure below:

Syntax

```
vsf create <vol=xx> [level=<0:1:3:5:6>] [ch=<0>]  
[id=<0~15>] [lun=<0~7>] [name=xxx] [tag=<Y:  
N>] [cache=<Y:N>] [stripe=<4:8:16:32:64:128>]
```

Parameters

```
<vol=xx> [level=<0:1:3:5:6>] [ch=<0>] [id=<0~15>]  
[lun=<0~7>] [name=xxx] [tag=<Y:N>] [cache=<Y:N>]  
[stripe=<4:8:16:32:64:128>]
```

CLI CONFIGURATION

Description:

The user can use the modify volume set command to change the current selected volume set attributes are defined by the volume set create command. The attribute column headings are:

- The Raid Level,
- The Stripe Size,
- The SCSI ID/SCSI LUN/,
- The Cache Mode,
- The Tagged Queuing, and
- The Volume Name (number).

NOTE:

Migrating occurs when a volume set is migrating from one RAID level to another, a volume set strip size changes, or when a disk is added to a RAID set. Migration status is displayed in the volume status area of the Volume Set Information when one RAID level to another, a volume set strip size changes or when a disk is added to a RAID set.

3.4.4.5 Check Volume Set

Syntax

`vsf check <vol=xx>`

Parameters

`<vol=xx>`

Description:

Use this option to verify the correctness of the redundant data in a volume set. For example, in a system with dedicated parity, volume set check means computing the parity of the data disk drives and comparing the results to the contents of the dedicated parity disk drive.

3.3.4.6 Stop Volume Set Check

To display volume set information, follow the procedure below:

CLI CONFIGURATION

Syntax
vsf stopcheck

Description:
Use this option to stop all the "Check Volume Set" function.

3.4.4.7 Display Volume Set Info.

After creating all volume sets, use the command to display information about the selected RAID controller.

To display volume set information, follow the procedure below:

Syntax
vsf info <vol =xx>

Parameter
<vol=xx>

Description:
Use this command to display all "Volume Sets Information". The "Volume Set Information" will show as following. You can only view the information of all volume sets.

Example:

CLI > vsf info [Enter]

Display all volume sets information, which belong to the currently selected RAID controller.

```
CLI> vsf info
=====
# Name                               RAID# Level Capacity Ch/Id/Lun State
=====
1 ARC-1230-VOL000                    1   Raid0    500.0GB 000/000/000 Normal
2 ARC-1230-VOL001                    1   Raid5    100.0GB 000/000/001 Normal
3 ARC-1230-VOL002                    1   Raid0    10.0GB 000/000/002 Normal
4 ARC-1230-VOL003                    1   Raid0    10.0GB 000/000/003 Normal
5 ARC-1230-VOL004                    1   Raid5    10.0GB 000/000/004 Normal
6 ARC-1230-VOL005                    1   Raid0    10.0GB 000/000/005 Normal
=====
GuiErrMay(0x000): Success.

CLI> vsf info vol=1
=====
Volume Set Information
=====
Volume Set Name : ARC-1230-VOL000
Raid Set Name   : Raid Set # 00
Volume Capacity : 500.0GB
ECCE Ch/Id/Lun  : 000/000/000
Raid Level      : Raid00
Stripe Size    : 64K
Block Size      : 512Bytes
Member Disks    : 12
Cache Mode      : Write Back
Tagged Queuing  : Enabled
Volume State    : Normal
=====
GuiErrMay(0x000): Success.

CLI>
```

CLI CONFIGURATION

3.4.5 Disk Commands

Use the disk commands to manage disks connected to the RAID controller. The CLI enables you to create, delete and modify the pass through disk characteristics.

```
CLI> disk -h
Sub-Command & Parameters Of [ disk ]
Sub-Command Description
=====
create      Parameter: <drv>xx [ch=<0>] [id=<0~15>] [lun=<0~7>] [tag=<Y:N>]
              [cache=<Y:N>]
            Pn: Create A PassThrough Disk.
            Ex: Create A PassThrough Disk With Disk#1.
            Command: disk create drv=1 [Enter]

delete      Parameter: <drv>xx
            Pn: Delete A PassThrough Disk.
            Ex: Delete PassThrough Disk#1.
            Command: disk delete drv=1 [Enter]

modify      Parameter: <drv>xx [ch=<0>] [id=<0~15>] [lun=<0~7>] [tag=<Y:N>]
              [cache=<Y:N>]
            Pn: Modify A PassThrough Disk.
            Ex: Suppose The Disk#1 Lun=0, Change Lun To 3.
            Command: disk modify drv=1 lun=3 [Enter]

identify     Parameter: <drv>xx.
            Pn: Identify Selected Drive.
            Ex: Identify Disk#5.
            Command: disk identify drv=5 [Enter]
            Note: End Of Identification
            Command: disk identify drv=0 [Enter]

info         Parameter: [drv>xx].
            Pn: Display Disks Info.
            Command: disk info [Enter]
            Ex: Display Disk#1 Info.
            Command: disk info drv=1 [Enter]

smart        Parameter: <drv>xx.
            Pn: Display Disk S.M.A.R.T Data.
            Ex: Display Disk#1 S.M.A.R.T Data.
            Command: disk smart drv=1 [Enter]

dctest       Parameter: <drv>xx.
            Pn: Perform A S.M.A.R.T Off-Line Data Collection.
            Ex: Perform A Test On Disk#1~4.
            Command: disk dctest drv=1~4 [Enter]

sttest       Parameter: <drv>xx [mode=<short|extended>].
            Pn: Perform A S.M.A.R.T Off-Line Short or Extended Self-Test.
            Ex: Perform A Short Self-Test On Disk#1~4.
            Command: disk sttest drv=1~4 mode=short [Enter]
            Note: Default Mode=Short.

rptest       Parameter: <drv>xx [p=<1~100>].
            Pn: Perform A Vendor Specific Read/Write Test.
            Ex: Perform A 20% Read/Write Test On Disk#1~4.
            Command: disk rptest drv=1~4 p=20 [Enter]
            Note: Default Percentage=10%.

abortrptest  Parameter: <drv>xx.
            Pn: Abort Read/Write Test.
            Ex: Abort Read/Write Test On Disk#1~4.
            Command: disk abortrptest drv=1~4 [Enter]

checkrptest  Parameter: <drv>xx.
            Pn: Check The Result Of Read/Write Test.
            Ex: Check The Result Of Read/Write Test On Disk#1~4.
            Command: disk checkrptest drv=1~4 [Enter]
=====
CLI> _
```

3.4.5.1 Create Pass-Through Disk

To create pass-through disk, follow the procedure below:

Syntax

```
disk create <drive=xx> [ch=<0>] [id=<0~15>] [lun=<0~7>]
            [tag=<Y:N>] [cache=<Y:N>]
```

Parameters

- **Drive Number**

<drive=xx>

Description:

Select the disk number for creating the pass-through disk.

- **SCSI Channel**

[ch=<0>]

Description:

ch represents Channel, which is always zero on the RAID controller.

- **SCSI ID**

[id=<0~15>]

- **SCSI LUN**

[lun=<0~7>]

Description:

SCSI LUN /SCSI ID—"SCSI LUN /SCSI ID" always means "Pass-Through disk"

- **Tag Queuing**

[tag=<Y:N>]

Description:

The Enabled option is useful for enhancing overall system performance under multi-tasking operating systems. The Command Tag (Drive Channel) function controls the SAS command tag queuing support for each drive channel. This function should normally remain enabled. Disable this function only when using older SAS drives that do not support command tag queuing.

- **Cache Mode**

[cache=<Y:N>]

Description:

This command allows you to turn on or off the write-back cache on a specified unit.

CLI CONFIGURATION

User can set the cache mode to: Write-Through Cache (N) or Write-Back Cache (Y).

- **Speed**

[speed=<150:300>]

Description:

The RAID controller supports ATA150, ATA133, ATA100, ATA66, and ATA33 Mode.

3.4.5.2 Delete Pass-Through Disk

To delete pass-through disk, follow the procedure below:

Syntax

disk delete [parameters]

Parameters:

<drive=xx> - pass-through disk drive for which to delete.

Description:

Use this command to delete Pass-through drive from the Pass-through drive pool.

3.4.5.3 Modify Pass-Through Disk

To create pass-through disk, follow the procedure below:

Syntax

disk modify <drive=xx> [ch=<0>] [id=<0~15>]
[lun=<0~7>] [tag=<Y:N>] [cache=<Y:N>]

Parameters :

<drive=xx> [ch=<0>] [id=<0~15>] [lun=<0~7>] [tag=<Y:N>] [cache=<Y:N>]

Description:

Use this option to modify the "Pass-Through Disk Attribute". The "Disk Attributes" are defined by the "Create Pass-Through Disk" command.

3.4.5.4 Identify Selected Drive

You can use the "Identify Selected Drive" feature to prevent removing the wrong drive, the selected drive fault LED will blink.

Syntax

disk identify <drive=xx>

Parameters :

<drive=xx>

Description:

Use this option to prevent removing the wrong drive.

3.4.5.5 View Drive Information

After connecting all disks, use this command to display drive information about the selected RAID controller.

To view all disks information, please follow the procedure below:

Syntax

disk info

Description:

When you choose this option, the physical disks connected to the RAID controllers are listed.

Syntax

disk info <drv=xx>

The selected disk Information will show as following.

Example:

CLI> disk info drv=1

Display the disk number=1 detail information.

CLI CONFIGURATION

```
CLI> disk info
#      ModelName      Serial#      Firmware      Capacity      State
-----
1      ST3250620HG     5QE1CP8E     3.0EE         250.1GB       RaidSet Member(1)
2      ST3250620HG     3QE1P8NC     3.0EE         250.1GB       RaidSet Member(1)
3      ST3250620HG     5QE1CP6W     3.0EE         250.1GB       RaidSet Member(1)
4      ST3250620HG     5QE1CH7X     3.0EE         250.1GB       RaidSet Member(1)
5      ST3250620HG     5QE1CHPT     3.0EE         250.1GB       RaidSet Member(1)
6      ST3500630HG     3QGMQPD      3.0EE         500.1GB       RaidSet Member(1)
7      ST3250620HG     3QE1B1YB     3.0EE         250.1GB       RaidSet Member(1)
8      ST3250620HG     5QE1CP7P     3.0EE         250.1GB       RaidSet Member(1)
9      ST3250620HG     5QE1CP7V     3.0EE         250.1GB       RaidSet Member(1)
10     ST3250620HG     5QE1CP0S     3.0EE         250.1GB       RaidSet Member(1)
11     ST3250620HG     5QE1CHQP     3.0EE         250.1GB       RaidSet Member(1)
12     ST3250620HG     5QE1CHQC     3.0EE         250.1GB       RaidSet Member(1)
-----
GetErrMsg(0x00): Success.

CLI> disk info drv=1
Drive Information
-----
ID# Channel      : 1
Model Name      : ST3250620HG
Serial Number    : 5QE1CP8E
Firmware Rev.   : 3.0EE
Disk Capacity    : 250.1
Device State     : RaidSet Member(1)
Timeout Count    : 0
Media Error Count : 0
-----
GetErrMsg(0x00): Success.

CLI>
```

3.4.5.6 Display SATA SMART information

Use this command to show disk HDD SMART information.

Syntax

disk smart <drv=xx>

Description:

When you choose this option, the specify physical disks connected to the RAID controller SMART informations are listed.

CLI > disk SMART drv=1 [Enter]

Display drive number=1 disks SMART information, which belong to the currently selected RAID controller.

3.4.5.7 SMART Off-line Data Collection

To perform a S.M.A.R.T off-line data collection follow the procedure below:

Syntax

disk dctest <drive=xx>

Parameters :

<drive=xx> drive number

Description:

Current S.M.A.R.T selective self-tests provides for a short self-test and an extended self-test option. The short self-test does read scan of a small area of the media in a short time. The area of the media scanned is vendor specific. The extended self-test does read scan of the entire media. As the capacity of disk drives increases, the time to complete the extended self-test becomes exceedingly long.

3.4.5.8 Self Test

To perform a S.M.A.R.T off-line short or extended self-test follow the procedure below:

Syntax

disk sttest <drive=xx> [mode=<short:extended>]

Parameters :

<drive=xx> [mode=<short:extended>]

Description:

Current S.M.A.R.T selective self-tests provides for a short self-test and an extended self-test option. The short self-test does read scan of a small area of the media in a short time. The area of the media scanned is vendor specific. The extended self-test does read scan of the entire media. As the capacity of disk drives increases, the time to complete the extended selftest becomes exceedingly long.

Example:

CLI > disk sttest drv=1~4 mode=short [Enter]

Perform a self test on drive number=1 to 4 disks and mode=short, which belong to the currently selected RAID controller.

CLI CONFIGURATION

3.4.5.9 Read/Write Test

To perform a vendor specific read/write test follow the procedure below:

Syntax

disk rwtest <drive=xx>

Parameters

<drive=xx> [p=<1-100>]

Description:

Select Percentage to Test - Allow you to change the percentage of the disk drive for utility to test. Enter the zero in this option means without needing read/write test the target.

Example:

CLI > disk sttest drv=1~4 p=20 [Enter]

Perform 20% read/write test on drive number=1 to 4 disks, which belong to the currently selected RAID controller.

3.4.5.10 Abort Read/Write Test

To abort read/write test follow the procedure below:

Syntax

disk abortrwtest <drive=xx>

Parameters

<drive=xx>

3.4.5.11 Check Read/Write Test

To check the result of read/write test follow the procedure below:

Syntax

disk checkrwtest <drive=xx>

Parameters :

<drive=xx>

3.4.6 Raid System Function

To facilitate tuning of the RAID controller for its operation, a number of controller settings can be changed.

The `sys -h` command can view the sub-command and parameters of the [`sys`] function.

```
cli> sys -h
Sub-Command & Parameters Of [ sys ]
Sub-Command Description
=====
beeper Parameter: <p><CR(auto)>|1<(disabled)>|2<(enabled)>>>
      Fn: Beeper Settings.
      Ex: Mute Beeper.
      Command: sys beeper p=0 [Enter]

changepwd Parameter: <p><xxx>
      Fn: Change Password. The Valid Characters [0-9][a-zA-z].
      Ex: Change Password To "11111".
      Command: sys changepwd p=11111 [Enter]

mode Parameter: <p><CR(BI0)>|1<(JBOD)>>>
      Fn: Change The Host Mode.
      Ex: Suppress The Current Host Mode Is 'RAID'.
           Change The Host Mode To JBOD.
      Command: sys mode p=1 [Enter]

changepri Parameter: <p><CR(Low)>|1<(Low)>|2<(Medium)>|3<(High)>>>
      Fn: Change The Background Task Priority.
      Ex: Change The Background Task Priority To High(3).
      Command: sys changepri p=3 [Enter]

updatefw Parameter: <path><C:\PATH_OF_FIRMWARE_FILE>>>
      Fn: Firmware Updating.
      Ex: Update Firmware And File Path Is In [C:\FS-SARC110F10M.BIN].
      Command: sys updatefw path=c:\fs\sarc110f10m.bin [Enter]

diskcache Parameter: <p><CR(auto)>|1<(enabled)>|2<(disabled)>>>
      Fn: Disk Write Cache Mode.
      Ex: Configure The Disk Cache As AUTO.
      Command: sys diskcache p=0 [Enter]

hddreadahead Parameter: <p><CR(enabled)>|1<(disabled-MIXTOR)>|2<(disabled)>>>
      Fn: HDD Read Ahead Cache.
      Ex: Configure The HDD Read Ahead Cache As ENABLED.
      Command: sys hddreadahead p=0 [Enter]

spousover Parameter: <p><CR(0,4)>|1<(0,7)>|2<(1,8)>|3<(1,5)>|4<(2,8)>|5<(2,5)>|
      6<(3,8)>|7<(3,5)>|8<(4,8)>|9<(4,5)>|10<(5,8)>|11<(5,5)>|
      12<(6,8)>>>
      Fn: Stagger Power On Control.
      Ex: Configure Stagger Power On Control As "0,7".
      Command: sys spousover p=1 [Enter]

truncation Parameter: <p><CR(100)>|1<(1G)>|2<(disabled)>>>
      Fn: Disk Capacity Truncation Mode.
      Ex: Configure Disk Capacity Truncation Mode As Multiples Of 100.
      Command: sys truncation p=0 [Enter]

autoact Parameter: <p><CR(disabled)>|1<(enabled)>>>
      Fn: Auto Activate Incomplete Raid.
      Ex: Configure Auto Activate Incomplete Raid As DISABLED.
      Command: sys autoact p=0 [Enter]

spindown Parameter: <p><CR(disabled)>|1<(1min)>|2<(3min)>|3<(5min)>|4<(10min)>|
      5<(15min)>|6<(20min)>|7<(30min)>|8<(40min)>|9<(60min)>>>
      Fn: Spin Down Idle HDD (Minutes).
      Ex: Configure Spin Down Idle HDD As 5 Minutes.
      Command: sys spindown p=3 [Enter]

mcq Parameter: <p><CR(enabled)>|1<(disabled)>>>
      Fn: SATA MCQ Support Configuration.
      Ex: Configure SATA MCQ Support As ENABLED.
      Command: sys mcq p=0 [Enter]

wolvreadahead Parameter: <p><CR(normal)>|1<(aggressive)>|2<(conservative)>|
      3<(disabled)>>>
      Fn: VoluneSet Read-ahead Configuration.
      Ex: Configure VoluneSet Read-ahead As NORMAL.
      Command: sys wolvreadahead p=0 [Enter]

hddqdepth Parameter: <p><CR(1)>|1<(2)>|2<(4)>|3<(8)>|4<(16)>|5<(32)>>>
      Fn: HDD Queue Depth Configuration.
      Ex: Configure HDD Queue Depth As 1.
      Command: sys hddqdepth p=0 [Enter]

showcfg Parameter: None.
      Fn: Display System Configuration.
      Command: sys showcfg [Enter]
```

CLI CONFIGURATION

```
synctime      Parameter: <p=<0(LocallTime)>1(UTC)>>
               Fn: Synchronize The Time Of Controller With LocalTime or UTC Time.
               Ex: Synchronize With LocalTime.
               Command: sys synctime p=0 [Enter]

getrctime     Parameter: None.
               Fn: Display RTC(Real Time Clock) Info.
               Command: sys getrctime [Enter]

savebin       Parameter: <path=<PATH_OF_FILE>>
               Fn: Save Individual Controller Configuration Into File.
               Ex: File Path is in (C:\ctrlr1.bin).
               Command: sys savebin path=c:\ctrlr1.bin [Enter]

restorabin    Parameter: <path=<PATH_OF_FILE>>
               Fn: Restore Individual Controller Configuration From a File.
               Ex: File Path is in (C:\ctrlr1.bin).
               Command: sys restorabin path=c:\ctrlr1.bin [Enter]

info          Parameter: None.
               Fn: Display System Info.
               Command: sys info [Enter]

=====
CLI> _
```

3.4.6.1 Mute The Alert Beeper

To view the disk drive information, follow the procedure below:

Syntax

sys beeper <p=<0<mute>:1<disable>:2<enable>>>

Parameter

p=<0<mute>>

Description:

The Mute The Alert Beeper command is used to control the RAID controller beeper function. This command turns the beeper off temporarily. The beeper will still activate on the next event.

Example:

CLI > sys beeper p=0 [Enter]

This command turns the selected RAID controller beeper off temporarily. The beeper will still activate on the next event.

3.4.6.2 Alert Beeper Setting

Syntax

sys beeper <p=<0<mute>:1<disable>:2<enable>>>

Parameter

<p=<0<mute>:1<disable>:2<enable>>>

Description:

The Alert Beeper function item is used to "Disabled" or "Enable" the RAID controller alarm tone generator. Set the parameter to 2 to turn the beeper off.

Example:

CLI > sys beeper p=2 [Enter]

The Alert Beeper function command enables the RAID controller alarm tone generator

3.4.6.3 Change Password

To change the password, follow the procedure below:

Syntax

sys changepwd <p=xxx>

Parameter

<P=xxx>

Description:

The password option allows user to set or clear the RAID controller password protection feature. Once the password has been set, the user can only monitor and configure the RAID controller by providing the correct password. The password is used to protect the internal RAID controller from unauthorized entry. The controller will check the password only when entering the Main menu from the initial screen. The RAID controller will automatically go back to the initial screen when it does not receive any command in twenty seconds.

To disable the password, leave the parameter column blank. The existing password will be cleared. No password checking will occur when entering the main menu from the starting screen.

Example:

CLI > sys changepwd p=11111 [Enter]

The selected RAID controller password will change to new password:11111.

3.4.6.4 RAID/JBOD Function

To change the password, follow the procedure below:

Syntax

sys mode <p=<0<JBOD>:1<RAID>>

CLI CONFIGURATION

Parameter

<p=<0<JBOD>:1<RAID>>

Description:

The RAID/JBOD command is used to set the RAID controller working at the JBOD or RAID mode. JBOD is an acronym for "Just a Bunch Of Disk". It represents a volume set that is created by the concatenation of partitions on the disks. It can see all individual disks, when you select the JBOD option. User needs to delete the RAID set, when you want to change the option from the RAID to the JBOD function.

Example:

CLI > sys mode p=JBOD [Enter]

Set the controller works at JBOD mode.

3.4.6.5 Raid Rebuild Priority

To change the password, follow the procedure below:

Syntax

sys rebuildpt <p=<0<ulow>:1<low>:2<medium>:3<high>>

Parameter

<p=<0<ulow>:1<low>:2<medium>:3<high>>

Description:

The "Raid Rebuild Priority" is a relative indication of how much time the controller devotes to a rebuild operation. The RAID controller allows user to define the rebuild priority (ulow, low, normal, high) to balance volume set access and rebuild tasks appropriately.

Example:

CLI > sys rebuildpt p=0 [Enter]

Set the controller works at ultra low rebuild rate. It will provide more computing resources for the system activity.

3.4.6.6 Maximum SATA Mode (SATA Only)

To change the max speed following the procedure below:

CLI CONFIGURATION

Syntax

sys maxspeed <p=<0<SATA150>:1<SATA150+NCQ>:2<SATA300>:3<SATA300+NCQ>>>

Parameter

<p=<0<SATA150>:1<SATA150+NCQ>:2<SATA300>:3<SATA300+NCQ>>>

Description:

The RAID controller can support up to SATA II, which runs up to 300MB/s, twice as fast as SATA150. NCQ is a command protocol in Serial ATA that can only be implemented on native Serial ATA hard drives. It allows multiple commands to be outstanding within a drive at the same time. Drives that support NCQ have an internal queue where outstanding commands can be dynamically rescheduled or re-ordered, along with the necessary tracking mechanisms for outstanding and completed portions of the workload. The RAID controller allows the user to choose the SATA Mode: SATA150, SATA150+NCQ, SATA300, SATA300+NCQ.

Example:

CLI > sys maxspeed=p=3 [Enter]

The selected RAID controller maxspeed will change to SATA300+NCQ.

3.4.6.7 Update Firmware

To update firmware following the procedure below:

Syntax

sys updatefw <path=<PATH_OF_FIRMWARE_FILE>>

Parameter

<path=<PATH_OF_FIRMWARE_FILE>>

Description:

Since the RAID controller features flash firmware, it is not necessary to change the hardware flash chip in order to upgrade the RAID controller firmware. The user can simply re-program the old firmware through this command. New releases of the firmware are available in the form of a DOS file at shipping CD, website or FTP.

CLI CONFIGURATION

Example:

CLI > sys updatefw path=c:\fw\ARC1110firm [Enter]
Update firmware and file path is [C:\FW\ARC1110FORM.BIN] to the currently selected RAID controller.

3.4.6.8 Disk Cache

Use this command to show disk write cache mode.

Syntax

sys diskcache <p=<0<auto>:1<enable>:2<disabled>

Parameter

<p=<p=<0<auto>:1<enable>:2<disabled>

Description:

User can set the "Disk Write Cache Mode" to Auto, Enabled, or Disabled. "Enabled" increases speed, "Disabled" increases reliability.

Example:

CLI > sys diskcache p=0 [Enter]
Set the controller works at auto mode.

3.4.6.9 HDD Read Ahead

Use this command to change hdd read ahead mode, follow the procedure below:

Syntax

sys hddreadahead <p=<0<enabled>:1<disabled-MAXTOR>:2<disabled>

Parameter

<p=<0<enabled>:1<disabled-MAXTOR>:2<disabled>

Description:

Allow Read Ahead (Default: Enabled)—When Enabled, the drive's read ahead cache algorithm is used, providing maximum performance under most circumstances.

Example:

```
CLI > sys hddreadahead p=0 [Enter]
```

Set the controller works at enabled mode.

3.4.6.10 Stagger Power On

Use this command to change stagger power on control, follow the procedure below:

Syntax

```
sys spowerson <p=<0<0.4>:1<0.7>:2<1.0>:3<1.5>:4<2.0>:  
5<2.5>:6<3.0>:7<3.5>:8<4.0>:9<4.5>:10<5.0>:11<5.5>:1  
2<6.0>>
```

Parameter

```
<p=<0<0.4>:1<0.7>:2<1.0>:3<1.5>:4<2.0>:5<2.5>:6<3.0  
>:7<3.5>:8<4.0>:9<4.5>:10<5.0>:11<5.5>:12<6.0>>
```

Description:

Areca RAID controller has included the option for customer to select the disk drives sequentially stagger power up value. The values can be selected from 0.4s to 6s per step which powers up one drive.

Example:

```
CLI > sys spowerson p=1 [Enter]
```

Set the controller works at 0.7 mode.

3.4.6.11 Capacity Truncation

Use this command to change disk capacity truncation mode, follow the procedure below:

Syntax

```
sys truncation <p=<0<10G>:1<1G>:2<disabled>>
```

Parameter

```
<p=<0<10G>:1<1G>:2<disabled>>
```

Description:

Areca RAID controllers use drive truncation so that drives from different vendors are more likely to be usable as spares for one

CLI CONFIGURATION

another. Drive truncation slightly decreases the usable capacity of a drive that is used in redundant units. The controller provides three truncation modes in the system configuration: Multiples Of 10G, Multiples Of 1G and Disabled.

Example:

```
CLI > sys truncation p=0 [Enter]
```

Set the controller works at 10G.

3.4.6.12 Auto Activate Raid Set

Use this command to change auto activate incomplete RAID set, follow the procedure below:

Syntax

```
sys autoact <p=<0<disabled>:1<enabled>>>
```

Parameter

```
<p=<0<disabled>:1<enabled>>>
```

Description:

When some of the disk drives are removed in power off state or boot up stage, the RAID set state will change to "Incomplete State". But if a user wants to automatically continue to work while the RAID controller is powered on, then user can set the "Auto Activate Raid Set" option to "Enabled". The RAID state will change to "Degraded Mode" while it powers on.

Example:

```
CLI > sys autoact p=0 [Enter]
```

Set the controller works at disabled mode.

3.4.6.13 HDD SMART Status Polling (SATA only)

Use this command to change HDD SMART status polling, follow the procedure below:

Syntax

```
sys smartpoll <p=<0<disabled>:1<enabled>>>
```

Parameter

```
<p=<0<disabled>:1<enabled>>>
```

Description:

An external RAID enclosure has the hardware monitor in the dedicated backplane that can report HDD temperature status to the controller. However, PCI cards do not use backplanes if the drives are internal to the main server chassis. The type of enclosure cannot report the HDD temperature to the controller. For this reason, "HDD SMART Status Polling" was added to enable scanning of the HDD temperature function. It is necessary to enable "HDD SMART Status Polling" function before SMART information is accessible. This function is disabled by default.

Example:

```
CLI > sys smartpoll p=0 [Enter]
```

Set the controller works at disabled mode.

3.4.6.14 Spin Down Idle HDD

Use this command to change spin down idle hdd, follow the procedure below:

Syntax

```
sys spindown <p=<0<disabled>:1<min>:2<3min>:3<5min>:  
4<10min>:5<15min>:6<20min>:7<30min>:8<40min>:9<60  
min>>>
```

Parameter

```
<p=<0<disabled>:1<min>:2<3min>:3<5min>:4<10min>:5<  
15min>:6<20min>:7<30min>:8<40min>:9<60min>>>
```

Description:

This function can automatically spin down the drive if it hasn't been accessed for a certain amount of time. This value is used by the drive to determine how long to wait (with no disk activity, before turning off the spindle motor to save power.)

Example:

```
CLI > sys spindown p=3 [Enter]
```

Set the controller works at 3 mins.

CLI CONFIGURATION

3.4.6.15 NCQ Support

Use this command to change ncq mode, follow the procedure below:

Syntax

sys ncq <p=<0<enabled>:1<disabled>>

Parameter

<p=<0<enabled>:1<disabled>>

Description:

The controller supports both SAS/SATA disk drives. The SATA NCQ allows multiple commands to be outstanding within a drive at the same time. Drives that support NCQ have an internal queue where outstanding commands can be dynamically rescheduled or re-ordered, along with the necessary tracking mechanisms for outstanding and completed portions of the workload. The RAID controller allows the user to select the SATA NCQ support: "Enabled" or "Disabled".

Example:

CLI > sys ncq p=0 [Enter]

Set the controller works at enabled mode.

3.4.6.16 Empty HDD slot LED

Use this command to change empty hdd slot led, follow the procedure below:

Syntax

sys hddled <p=<0<on>:1<off>>

Parameter

<p=<0<on>:1<off>>

Description:

The firmware has added the "Empty HDD Slot LED" option to setup the fault LED light "ON "or "OFF" when there is no HDD installed on this slot. When each slot has a power LED for the HDD installed identify, user can set this option to "OFF". Choose

option "ON", the RAID controller will light the fault LED; if no HDD installed.

Example:

```
CLI > sys hddled p=0 [Enter]
```

Set the controller hdd led to on mode.

3.4.6.17 Volume Data Read Ahead

Use this command to change volume data read ahead, follow the procedure below:

Syntax

```
sys vloreadahead <p=<0<normal>:1<aggressive>:2<conservative>:3<disabled>>>
```

Parameter

```
<p=<0<normal>:1<aggressive>:2<conservative>:3<disabled>>>
```

Description:

The volume read data ahead parameter specifies the controller firmware algorithms which process the Read Ahead data blocks from the disk. The Read Ahead parameter is normal by default. To modify the value, you must set it from the command line using the Read Ahead option. The default normal option satisfies the performance requirements for a typical volume. The disabled value implies no read ahead. The most efficient value for the controllers depends on your application. Aggressive read ahead is optimal for sequential access but it degrades random access.

Example:

```
CLI > sys hddreadahead p=0 [Enter]
```

Set the controller works at normal mode.

3.4.6.18 HDD Queue Depth

Use this command to change hdd queue depth, follow the procedure below:

CLI CONFIGURATION

Syntax

```
sys hddqdepth <p=<0<1>:1<2>:2<4>:3<8>:4<16>:5<32>>>
```

Parameter

```
<p=<0<1>:1<2>:2<4>:3<8>:4<16>:5<32>>>
```

Description:

This parameter is adjusted the queue depth capacity of NCQ (SATA HDD) or Tagged Command Queuing (SAS) which transmits multiple commands to a single target without waiting for the initial command to complete.

Example:

```
CLI > sys hddqdepth p=0 [Enter]
```

Set the controller queue depth to 0.

3.4.6.19 Show System Configuration

Use this command to display system configuration.

Example:

```
CLI > sys showcfg p=0 [Enter]
```

3.4.6.20 Synchronize the time (SAS Only)

Use this command to synchronize the time of controller with localtime of UTC time.

Syntax

```
sys synctime<path=<0<localtime>:1<UTC>>>
```

Parameter

```
<path=<0<localtime>:1<UTC>>>
```

Description:

synchronize the time of controller with localtime of UTC time.

Example:

```
CLI > synctime p=0 [Enter]
```

Set the controller works at localtime mode.

3.4.6.21 Get Real Time Click (SAS Only)

Use this command only for external RAID controller ARC-8000 series and ARC-8060 series.

3.4.6.22 Save Bin (SAS Only)

Use this command to save RAID controller system configuration into a binary file.

Syntax

```
sys savebin<path=<PATH_OF_FILE>>
```

Parameter

```
<path=<PATH_OF_FILE>>
```

Description:

Save RAID controller system function configurations into a binary file.

Example:

```
CLI > sys savebin path=c:\ctrlrl.bin [Enter]
```

The currently selected RAID controller RAID system function configurations save to a file path on the [C:\ctrlr1.bin].

3.4.6.23 Restore Bin (SAS Only)

Use this command to restore RAID system function configurations file into the selected RAID controller.

Syntax

```
sys restorebin<path=<PATH_OF_FILE>>
```

Parameter

```
<path=<PATH_OF_FILE>>
```

Description:

Restore the RAID controller system function configurations file on the <path=<PATH_OF_FILE>> into the selected RAID controller.

CLI CONFIGURATION

Example:

CLI > sys savebin path=c:\ctrlrl.bin [Enter]

Restore RAID controller system function configurations file on the path [C:\ctrl1.bin] into the selected RAID controller.

3.4.6.24 System Information

Choose this option to display Main processor, CPU Instruction cache and data cache size, firmware version, serial number, controller model name, and the cache memory size.

To view the system information, follow the procedure below:

Syntax
sys info

Description:

This command provides currently selected RAID controller system information.

Example

CLI > sys info [Enter]

All the major controller system information will be displayed.

```
CLI> sys info
The System Information
=====
Main Processor       : 800MHz
CPU ICache Size     : 32KB
CPU DCache Size     : 32KB
System Memory       : 2048MB/533MHz
Firmware Version    : U1.41 2006-2-14
BOOT ROM Version    : U1.41 2006-2-18
Serial Number       : ARC-1280-950612
Controller Name      : ARC-1280
Current IP Address   : 192.168.0.47
=====
GuiErrMsg(0x00): Success.
CLI>
```

3.4.7 Ethernet Configuration

The net -h command can view the sub-command and parameters of the [net] function.

To view the system information, follow the procedure below:Parameter:<p=0(disable):1(enable)>>

CLI CONFIGURATION

```
CLI> net -h
Sub-Command & Parameters Of [ net ]
Sub-Command Description
=====
dhcp      Parameter: <p>(Disable)</p>(enable)>>
           Pa: DHCP Settings.
           Ex: Enable The DHCP Function.
           Command: net dhcp p=1 [Enter]

ipaddr    Parameter: <p>xxx>
           Pa: Local IP Settings.
           Ex: Set The Local IP Address To [192.168.0.100].
           Command: net ipaddr p=192.168.0.100 [Enter]

httpport  Parameter: <p>xxx>
           Pa: HTTP Port Settings.
           Ex: Set The HTTP Port To [2000].
           Command: net httpport p=2000 [Enter]

telnetport Parameter: <p>xxx>
           Pa: Telnet Port Settings.
           Ex: Set The Telnet Port To [3000].
           Command: net telnetport p=3000 [Enter]

smtpport  Parameter: <p>xxx>
           Pa: SMTP Port Settings.
           Ex: Set The SMTP Port To [4000].
           Command: net smtpport p=3000 [Enter]

info      Parameter: Name.
           Pa: Display Network Information.
           Command: net info [Enter]
=====
CLI>
```

Description:

Select the "Disabled" or "Enabled" option to enable or disable the DHCP function. If DHCP is disabled, it will be necessary to manually enter a static IP address that does not conflict with other devices on the network.

3.4.8 View System Events

A management program is almost useless without reporting or notification function ability. For this reason, the GUI RAID Manager enables you to configure notifications to occur in response to various disk array events. For example, if you configure an e-mail notification, the GUI RAID Manager will send an e-mail to selected computers on the network if the event (that just occurred) falls within the selected notification level. If the notification is detailed enough, the recipient can respond accordingly.

The event command provides a log of events that have occurred on the RAID controller. An event occurs when the RAID controller requires attention, such as when a RAID set becomes degraded and is no longer fault tolerant.

The event -h command can view the sub-command and parameters of the event function.

CLI CONFIGURATION

```
CLI> event -h
Sub-Command & Parameters Of [ event ]
Sub-Command Description
-----
info      Parameter: None.
          Fn: Display System Events.
          Command: event info [Enter]

clear     Parameter: None.
          Fn: Clear System Events.
          Command: event clear [Enter]
-----
CLI>
```

Syntax
event info

Description:
Choose this option to view the system events information.

Example:
CLI > event info [Enter]
All the event of the currently selected controller information will be displayed.

```
CLI> event info
Date-Time      Device      Event Type
-----
2004-9-16  11:30:22  IDE Channel # 1  Start Initialize
2004-9-16  11:30:16  IDE Channel # 1  Start Migrating
-----
GuiErrMsg(0x00): Success.
CLI>
```

Syntax
event clear

Description:
This command clears the entire events buffer information.

Example
CLI > event clear [Enter]
All the event of the currently selected controller information will be cleared.

3.4.9 Hardware Monitor

To display the cooler fan, and the associated disk temperature status, use the hardware monitor command.

The `hw -h` command can view the sub-command and parameters of the `[hw]` function.

```
CLI> hw -h
Sub-Command & Parameters Of [ hw ]
Sub-Command Description
-----
info      Parameter: None.
          Fn: Display Hardware Monitor Information.
          Command: hw info [Enter]
-----
CLI>
```

To view the hardware monitor information, follow the procedure below:

Syntax

`hw info`

Description:

Choose this option to view the hardware monitor information.

Example

CLI > `hw info` [Enter]

All the hardware monitor of the currently selected controller information will be displayed.

```
CLI> hw info
The Hardware Monitor Information
-----
Fan#1 Speed (RPM) : 2574
HDD #1 Temp.      : 38
HDD #2 Temp.      : 0
HDD #3 Temp.      : 0
HDD #4 Temp.      : 0
HDD #5 Temp.      : 0
HDD #6 Temp.      : 0
HDD #7 Temp.      : 0
HDD #8 Temp.      : 0
-----
GetErrMsg(0x00): Success.
CLI>
```

CLI CONFIGURATION

3.4.10 Mail (Alert by Mail) Configuration:

The mail -h command can view the sub-command and parameters of the [mail] function.

```
CLI> mail -h
Sub-Command & Parameters Of [ mail ]
Sub-Command Description
=====
ipaddr Parameter: <p=xxx>
Fn: SMTP Server IP Settings.
Ex: Set The SMTP Server IP Address To (192.168.0.1).
Command: mail ipaddr p=192.168.0.1 [Enter]

account Parameter: {name=<xxx> | NULL} {password=<xxx> | NULL}.
Fn: Mail Account Setting.
Ex: Set The SMTP Server Mail Account Name=john, Password=1234
Command: mail account name=john password=1234[Enter]
Note: Use The Value "NULL" To Clear The Field Of Account.

sender Parameter: {name=<xxx> | NULL} {addr=<xxx> | NULL}.
Fn: Sender Mail Address Setting.
Ex: Set The Sender Mail Address Name=john, Addr=john@mailaddr.com
Command: mail sender name=john addr=john@mailaddr.com[Enter]
Note: Use The Value "NULL" To Clear The Field Of Sender.

mailto1 Parameter: {name=<xxx> | NULL} {addr=<xxx> | NULL}.
Fn: Mailto1 Mail Address Setting.
Ex: Set The Mailto1 Mail Address Name=john, Addr=john@mailaddr.com
Command: mail mailto1 name=john addr=john@mailaddr.com[Enter]
Note: Use The Value "NULL" To Clear The Field Of Mailto1.

mailto2 Parameter: {name=<xxx> | NULL} {addr=<xxx> | NULL}.
Fn: Mailto2 Mail Address Setting.
Ex: Set The Mailto2 Mail Address Name=john, Addr=john@mailaddr.com
Command: mail mailto2 name=john addr=john@mailaddr.com[Enter]
Note: Use The Value "NULL" To Clear The Field Of Mailto2.

mailto3 Parameter: {name=<xxx> | NULL} {addr=<xxx> | NULL}.
Fn: Mailto3 Mail Address Setting.
Ex: Set The Mailto3 Mail Address Name=john, Addr=john@mailaddr.com
Command: mail mailto3 name=john addr=john@mailaddr.com[Enter]
Note: Use The Value "NULL" To Clear The Field Of Mailto3.

mailto4 Parameter: {name=<xxx> | NULL} {addr=<xxx> | NULL}.
Fn: Mailto4 Mail Address Setting.
Ex: Set The Mailto4 Mail Address Name=john, Addr=john@mailaddr.com
Command: mail mailto4 name=john addr=john@mailaddr.com[Enter]
Note: Use The Value "NULL" To Clear The Field Of Mailto4.

eventlevel Parameter: <p=0(Disabled) | 1(Urgent) | 2(Serious) | 3(Warning) |
4(Information)>
Fn: Event Notification Level Settings.
Ex: Set The Event Notification Level To (Warning).
Command: mail eventlevel p=3 [Enter]

noeventfor24h Parameter: <p=0(Disabled) | 1(Enabled)>
Fn: Notification If NoEvent Occurs Within 24 Hours Settings.
Ex: Set To (Enabled).
Command: mail noeventfor24h p=1 [Enter]

info Parameter: None.
Fn: Display Mail Notification Information.
Command: mail info [Enter]
=====
CLI>
```

To view the mail information, follow the procedure below:

Parameter: <p=xxx>>

Description:

To enable the controller to send the email function, you need to configure the SMTP function on the ArchHttp software. To enable the RAID controller email sending function, click on the "Mail Configuration" link. The "SMTP Server Configurations" menu will show as following: When you open the mail configuration page, you will see following settings:

CLI CONFIGURATION

- **SMTP Server Configuration:**

SMTP Server IP Address: Enter the SMTP server IP address which is not MCRAID manager IP.Ex: 192.168.0.2

- **Mail Address Configurations:**

Sender Name: Enter the sender name that will be shown in the outgoing mail.Ex: RaidController_1Mail address: Enter the sender email that will be shown in the outgoing mail, but don't type IP to replace domain name. Ex: RaidController_1@areca.com.tw

Account: Enter the valid account if your SMTP mail server need authentication.

Password: Enter the valid password if your SMTP mail server need authentication.

MailTo Name: Enter the alert receiver name that will be shown in the outgoing mail.

Mail Address: Enter the alert receiver mail address

Ex: admin@areca.com.tw

- **Event Notification Configurations:**

According to your requirement, set the corresponding event level :

Disable Event Notification: No event notification will be sent.

Urgent Error Notification: Send only urgent event

Serious Error Notification: Send urgent and serious event

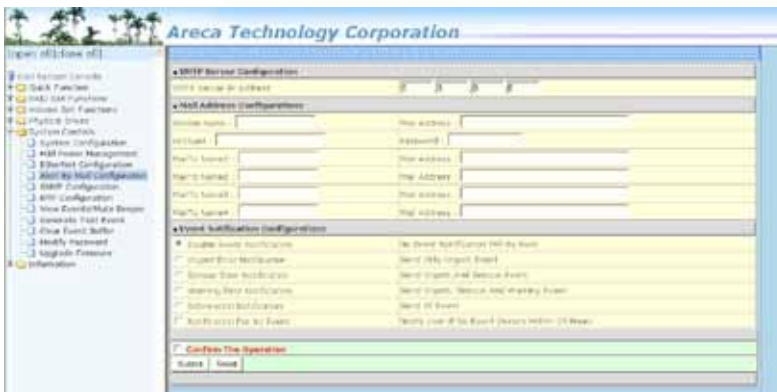
Warning Error Notification: Send urgent, serious and warning Event

Information Notification: Send all event

Notification For No Event: Notify user if no event occurs within 24 hours.

The "Mail (Alert by Mail) Configuration" sub-commands are used to fill the item similar as the "Web Browser Configuration" window below:

CLI CONFIGURATION



3.4.11 SNMP Configuration

The `snmp -h` command can view the sub-command and parameters of the `[snmp]` function.

```
CLI> snmp -h

Sub-Command & Parameters Of [ snmp ]
Sub-Command Description
=====
ipaddr1 Parameter: <p>xxx</p>
          Fn: SNMP Trap IP#1 Settings.
          Ex: Set The SNMP Trap IP#1 Address To [192.168.0.1].
          Command: snmp ipaddr1 p=192.168.0.1 [Enter]

ipaddr2 Parameter: <p>xxx</p>
          Fn: SNMP Trap IP#2 Settings.
          Ex: Set The SNMP Trap IP#2 Address To [192.168.0.1].
          Command: snmp ipaddr2 p=192.168.0.1 [Enter]

ipaddr3 Parameter: <p>xxx</p>
          Fn: SNMP Trap IP#3 Settings.
          Ex: Set The SNMP Trap IP#3 Address To [192.168.0.1].
          Command: snmp ipaddr3 p=192.168.0.1 [Enter]

port1 Parameter: <p>xxx</p>
        Fn: SNMP Port#1 Settings.
        Ex: Set SNMP Port#1 To [162].
        Command: snmp port1 p=162 [Enter]

port2 Parameter: <p>xxx</p>
        Fn: SNMP Port#2 Settings.
        Ex: Set SNMP Port#2 To [162].
        Command: snmp port2 p=162 [Enter]

port3 Parameter: <p>xxx</p>
        Fn: SNMP Port#3 Settings.
        Ex: Set SNMP Port#3 To [162].
        Command: snmp port3 p=162 [Enter]

community Parameter: <p>xxx</p>
          Fn: SNMP Community String Settings.
          Ex: Set SNMP Community To [public].
          Command: snmp community p=public [Enter]
          Note: Use The Value "NULL" To Clear The Field Of Community.

contact Parameter: <p>xxx</p>
          Fn: SNMP Contact String Settings.
          Ex: Set SNMP Contact To [contactstr].
          Command: snmp contact p=contactstr [Enter]
          Note: Use The Value "NULL" To Clear The Field Of Contact.

name Parameter: <p>xxx</p>
        Fn: SNMP Name String Settings.
        Ex: Set SNMP Name To [namestr].
        Command: snmp name p=namestr [Enter]
        Note: Use The Value "NULL" To Clear The Field Of Name.

location Parameter: <p>xxx</p>
          Fn: SNMP Location String Settings.
          Ex: Set SNMP Location To [locstr].
          Command: snmp location p=locstr [Enter]
          Note: Use The Value "NULL" To Clear The Field Of Location.
```

CLI CONFIGURATION

```
outlevel Parameter: <p=0(Disabled) | 1(Urgent) | 2(Serious) | 3(Warning) |  
4(Information)>  
Fn: Event Notification Level Settings.  
Ex: Set The Event Notification Level To (Warning).  
Command: snmp outlevel p=3 [Enter]  
  
info Parameter: None.  
Fn: Display SNMP Information.  
Command: snmp info [Enter]  
=====
```

● SNMP Trap Configurations

Enter the SNMP trap IP address.

Syntax

snmp ipaddr1 <p=xxx>

Parameter

<p=xxx>

Description:

Enter the SNMP trap IP address.

Example

CLI > snmp ipaddr1 p=192.168.0.1 [Enter]

Set the SNMP trap ip#1 address to 198.168.0.1.

● SNMP System Configurations

The system Contact, Name and Location that will be shown in the outgoing SNMP trap. Community name acts as a password to screen accesses to the SNMP agent of a particular network device. Type in the community names of the SNMP agent. Before access is granted to a request station, this station must incorporate a valid community name into its request; otherwise, the SNMP agent will deny access to the system. Most network devices use "public" as default of their community names. This value is case-sensitive.

● SNMP Trap Notification Configurations

Event Notification Configurations. The controller classifies disk array events into four levels depending on their severity. These include level 1: Urgent, level 2: Serious, level 3: Warning and level 4: Information. The level 4 covers notification events such as initialization of the controller and initiation of the rebuilding process; Level 2 covers notification events which once have happen; Level 3 includes events which require the issuance of warning messages; Level 1 is the highest level, and covers events the need immediate attention (and action) from the administrator.

CLI CONFIGURATION

The “SNMP Configuration” sub-commands are used to fill the item similar as the “Web Browser Configuration” window below:

The screenshot displays the 'Areca Technology Corporation' web browser configuration interface. The left sidebar contains a tree view with categories like 'System Configuration', 'Network Configuration', and 'Security Settings'. The 'SNMP Configuration' option is selected. The main content area is divided into three sections: 'SNMP Trap Configuration', 'SNMP System Subparameters', and 'SNMP Trap Notification Configuration'. The 'SNMP Trap Configuration' section contains a table with columns for 'Trap ID', 'Trap Name', 'Trap Type', 'Trap Severity', and 'Trap Action'. The 'SNMP System Subparameters' section contains fields for 'Community', 'System ID', 'System Name', and 'System Description'. The 'SNMP Trap Notification Configuration' section contains checkboxes for 'Enable SNMP Trap', 'Trap ID', 'Trap Name', 'Trap Type', and 'Trap Severity'. The 'Trap ID' field is set to '1'. The 'Trap Name' field is set to 'Trap ID 1'. The 'Trap Type' field is set to 'Trap ID 1'. The 'Trap Severity' field is set to 'Trap ID 1'. The 'Trap Action' field is set to 'Trap ID 1'. The 'SNMP Trap Notification Configuration' section also contains a 'Trap ID' field set to '1' and a 'Trap Name' field set to 'Trap ID 1'. At the bottom, there is a 'Save' button and a 'Cancel' button.

| Trap ID | Trap Name | Trap Type | Trap Severity | Trap Action |
|---------|-----------|-----------|---------------|-------------|
| 1 | Trap ID 1 | Trap ID 1 | Trap ID 1 | Trap ID 1 |

SNMP System Subparameters

Community:
System ID:
System Name:
System Description:

SNMP Trap Notification Configuration

☒ Enable SNMP Trap
☒ Trap ID
☒ Trap Name
☒ Trap Type
☒ Trap Severity
☒ Trap Action

Trap ID:
Trap Name:
Trap Type:
Trap Severity:
Trap Action:

Trap ID:
Trap Name:

Configure Trap Notification

Save Cancel