SATA RAID Controller
Command Line Interface

USER Guide

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WARRANTY

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Contents

1. Introduction

This user guide provides SATA controller Command Line Interface (CLI) intructions for configuring and maintaining your SATA RAID controller. Before using this CLI, we assumes that you have already installed your controller in your system. If you have not yet installed SATA RAID controller, see ARECA SATA 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 RAID controller components in Windows, Linux and FreeBSD and 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 ArcHttp 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

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- 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.
- Linux: RedHat, SuSE,……etc.
- FreeBSD
- Solaris 10
- Mac OS

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

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 subsystem CD in the CD-ROM drive. You aslo 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.

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5. When this screen complete, you have completed the CLI soft ware 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 and Solaris

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

The following is the CLI installation procedure in the Linux, Free-BSD and Solaris.

1. Insert the SATA 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.

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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 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 and Solaris

To access the CLI from the Linux/FreeBSD/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 startup, please see your Linux/FreeBSD/Solaris documentation for information on setting up directory paths.

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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.

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.

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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

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 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 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
exit	Exit CLI

Main Command

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

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Set Commands

To prepare a SATA 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 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 RAID controller. Typical operations include: create RAID set, delete RAID set, create hot spare, and delete hot spare from the SATA 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 RAID controller. Typical operations include: create volume set, delete volume set, modify volume set, and migrate volume set from the SATA 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 RAID controller. Typical operations include: create pass-through, delete pass-through, modify pass-through, and view disk information from the SATA RAID controller. For details, see "Disk Function" on section 3.4.5.

Sys Commands

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

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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 Event by the SATA RAID controller. Typical operations include: create pass-through, delete pass-through, modify pass-through, and view disk information from the SATA 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 RAID controller. For details, see "Hardware Monitor Function" on section 3.4.9.

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.

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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:

```
CLI> main
Copyright (c) 2004 Areca, Inc. All Rights Reserved.
Areca CLI, Version: 1.60.200< Windows >

Controllers List
==================================================
Controller#01<PCI>: ARC-1280
Current Controller: Controller#01
==================================================

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 Information.
exit     Exit CLI.
==================================================
Command Format: <CMD> [Sub-Command] [Parameters].
Note: Use <CMD> -h or -help to get details.

CLI> _
```

3.4.2 Set Commands

If there is more than one SATA 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.

```
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>
```

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:

Syntax
set <curctrl=xx : password=xxxx>

Parameters
<curctrl=xx>

Description:
To prepare a SATA RAID controller to receive a CLI command, you first need to select the controller. You can select one SATA 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>

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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 subsystem by providing the correct password. The password is used to protect the internal RAID subsystem from unauthorized entry. The controller will check the password only when entering the rsf, vsf and disk function from the initial screen. The RAID subsystem will automatically go back to the initial screen when it does not receive any command in twenty seconds. The RAID subsystem password is default setting at 0000 by the manufacture.
If the password of the controller is already disabled you do not need to specify it again when selecting the controller.

Example
CLI > set password=0000 [Enter]
Enter the controller 1 password as 0000.

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:

```
Sub-Command & Parameters Of [ rsf ]
Sub-Command Description
======================================================================
create      Parameter: <drv=xxx> [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=<0|1|3|5|6>]
                       [newstripe=<4|8|16|32|64|128>]
            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]

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

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

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.

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.

Example
In the following example, raid set#1 is expand by adding the disk drive 3.
CLI > rsf expand raid=1 drv=3[Enter]

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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 subsystem 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 > 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 Raid Set Information

After creating a RAID set, use this command to display information about the RAID sets.

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To display all RAID sets information, please follow the procedure below:

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 SATA controller.

```
CLI> rsf info
 #  Name            Disks TotalCap  FreeCap DiskChannels      State
===============================================================================
 1  Raid Set # 00      12 3000.0GB 2328.2GB 123456789ABC      Normal
===============================================================================
GuiErrMsg<0x00>: Success.

CLI> rsf info raid=1
Raid Set Information
============================================
Raid Set Name        : Raid Set # 00
Member Disks         : 12
Total Raw Capacity   : 3000.0GB
Free Raw Capacity    : 2328.2GB
Min Member Disk Size : 250.0GB
Raid Set State       : Normal
============================================
GuiErrMsg<0x00>: Success.

CLI>
```

3.3.4 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 SATA 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> vsf -h

Sub-Command & Parameters Of [ vsf ]
Sub-Command Description
================================================================================
create      Parameter: <raid=xx> <capacity=xxx> <level=<0|1|3|5|6>> [ch=<0>]
                        [id=<0~15>] [lun=<0~7>] [name=xxxx] [tag=<Y|N>]
                        [cache=<Y|N>] [stripe=<4|8|16|32|64|128>]
                        [fginit=<Y|N>] [gt2tb=<64BIT|WIN>]
            Fn: Create A VolumeSet.
            Ex: Create A VolumeSet Belongs To RaidSet#1, Capacity=10.5G,
                RaidLevel=5, name=VolumeSet1, 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.

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=<0|1|3|5|6>] [ch=<0>]
                        [id=<0~15>] [lun=<0~7>] [name=xx] [tag=<Y|N>]
                        [cache=<Y|N>] [stripe=<4|8|16|32|64|128>]
            Fn: Modify VolumeSet.
            Ex: Assume 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=xxx>].
            Fn: Display VolumeSet Info.
            Command: vsf info [Enter]
            Ex: Display VolumeSet#1 Info.
            Command: vsf info vol=1 [Enter]
================================================================================
CLI>
```

3.3.4.1 Create Volume Set

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

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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.

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).

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 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 SATA 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 SCSI command tag queuing support for each drive channel. This function should normally remain enabled. Disable this function only when using older SCSI drives that do not support command tag queuing.

• **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 create raid=1 capacity=1.5 level= 5 ch=0 id=1 lun=0 name=areca tag=Y cache=Y stripe=16 fginit=Y

3.3.4.2 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.

3.3.4.3 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>]

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).

CLI CONFIGURATION

3.3.4.4 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.

3.3.4.5 Stop Volume Set Check

To display volume set information, follow the procedure below:

Syntax
vsf stopcheck

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

3.3.4.6 Display Volume Set Info.

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

```
CLI> vsf info
 # Name              Raid# Level   Capacity Ch/Id/Lun  State
===============================================================================
 1 ARC-1230-VOL#00     1   Raid0    500.0GB 00/00/00   Normal
 2 ARC-1230-VOL#01     1   Raid5    100.0GB 00/00/01   Normal
 3 ARC-1230-VOL#02     1   Raid0     10.0GB 00/00/02   Normal
 4 ARC-1230-VOL#03     1   Raid0     10.0GB 00/00/03   Normal
 5 ARC-1230-VOL#04     1   Raid5     30.0GB 00/00/04   Normal
 6 ARC-1230-VOL#05     1   Raid0     10.0GB 00/00/05   Normal
===============================================================================
GuiErrMsg<0x00>: Success.

CLI> vsf info vol=1
Volume Set Information
=============================================
Volume Set Name : ARC-1230-VOL#00
Raid Set Name   : Raid Set # 00
Volume Capacity : 500.0GB
SCSI Ch/Id/Lun  : 00/00/00
Raid Level      : Raid0
Stripe Size     : 64K
Block Size      : 512Bytes
Member Disks    : 12
Cache Mode      : Write Back
Tagged Queuing  : Enabled
Volume State    : Normal
=============================================
GuiErrMsg<0x00>: Success.

CLI> _
```

3.3.5 Disk Commands

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

CLI CONFIGURATION

```
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>]
             Fn: Create A PassThrough Disk.
             Ex: Create A PassThrough Disk With Disk#1.
             Command: disk create drv=1 [Enter]

delete       Parameter: <drv=xx>
             Fn: 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>]
             Fn: Modify A PassThrough Disk.
             Ex: Assume The Disk#1 Lun=0, Change Lun To 3.
             Command: disk modify drv=1 lun=3 [Enter]

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

info         Parameter: [drv=<xxx>].
             Fn: Display Disks Info.
             Command: disk info [Enter]
             Ex: Display Disk#1 Info.
             Command: disk info drv=1 [Enter]
================================================================================

CLI>
```

3.3.5.1 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 SATA 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 SCSI command tag queuing support for each drive channel. This function should normally remain enabled. Disable this function only when using older SCSI 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).

• **Speed**
[speed=<150:300>]

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

3.3.5.2 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.

3.3.5.3 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.

3.3.5.4 Smart Pass-Through Disk

Use this command to show disk HDD smart information.

3.3.5.5 Display Pass-Through Disk Info

After creating all pass-through disk, use the command to display information about the selected SATA controller.
To display all pass-through disks information, please follow the procedure below:
Syntax
disk info

Description:
Use this command to display all pass-through disk information. The pass-through disk Information will show as following. You can only view the information of all pass-through disks.

Example

CLI > disk info [Enter]

Display all pass-through disks information, which belong to the currently selected SATA controller.

```
CLI> disk info
 #   ModelName        Serial#         FirmRev   Capacity  State
===============================================================================
 1   ST3250620NS      5QE1CP8S        3.AEE      250.1GB  RaidSet Member(1)
 2   ST3250620NS      3QE090NC        3.AEE      250.1GB  RaidSet Member(1)
 3   ST3250620NS      5QE1CPAN        3.AEE      250.1GB  RaidSet Member(1)
 4   ST3250620NS      5QE1CNPX        3.AEE      250.1GB  RaidSet Member(1)
 5   ST3250620NS      5QE1CNPT        3.AEE      250.1GB  RaidSet Member(1)
 6   ST3500630NS      3QG04QPD        3.AEE      500.1GB  RaidSet Member(1)
 7   ST3250620NS      3QE00AEYB       3.AEE      250.1GB  RaidSet Member(1)
 8   ST3250620NS      5QE1CP7F        3.AEE      250.1GB  RaidSet Member(1)
 9   ST3250620NS      5QE1CP7W        3.AEE      250.1GB  RaidSet Member(1)
10   ST3250620NS      5QE1CPC5        3.AEE      250.1GB  RaidSet Member(1)
11   ST3250620NS      5QE1CNQP        3.AEE      250.1GB  RaidSet Member(1)
12   ST3250620NS      5QE1CNQC        3.AEE      250.1GB  RaidSet Member(1)
===============================================================================
GuiErrMsg<0x00>: Success.

CLI> disk info drv=1
Drive Information
==============================================
IDE Channel        : 1
Model Name         : ST3250620NS
Serial Number      : 5QE1CP8S
Firmware Rev.      : 3.AEE
Disk Capacity      : 250.1
Device State       : RaidSet Member(1)
Timeout Count      : 0
Media Error Count  : 0
==============================================
GuiErrMsg<0x00>: Success.

CLI> _
```

3.3.6 Raid System Function

To facilitate tuning of the SATA 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 CONFIGURATION

```
CLI> sys -h

Sub-Command & Parameters Of [ sys ]
Sub-Command      Description
================================================================================
beeper      Parameter: <p=<0<mute>:1<disable>:2<enable>>>
            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-Z][a-z].
            Ex: Change Password To "11111".
            Command: sys changepwd p=11111 [Enter]

mode        Parameter: <p=<0<RAID>:1<JOBD>>>
            Fn: Change The Host Mode.
            Ex: Suppose The Current Host Mode Is 'RAID',
                Change The Host Mode To JBOD.
            Command: sys mode p=1 [Enter]

changept    Parameter: <p=<0<ULow>:1<Low>:2<Medium>:3<High>>>
            Fn: Change The Background Task Priority.
            Ex: Change The Background Task Priority To High<3>.
            Command: sys changept p=3 [Enter]

updatefw    Parameter: <path=<PATH_OF_FIWMWARE_FILE>>
            Fn: Firmware Updating.
            Ex: Update Firmware And File Path Is In [C:\FW\ARC1110FIRM.BIN].
            Command: sys updatefw path=c:\fw\arc1110firm.bin [Enter]

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

CLI>
```

3.3.6.1 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 SATA 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 SATA RAID controller beeper off temporarily. The beeper will still activate on the next event.

3.3.6.2 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 SATA 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 SATA RAID controller alarm tone generator

3.3.6.3 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 subsystem's password protection feature. Once the password has been set, the user can only monitor and configure the raid subsystem by providing the correct password. The password is used to protect the internal RAID subsystem from unauthorized entry. The controller will check the password only when entering the Main menu from the initial screen. The RAID subsystem 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.

CLI CONFIGURATION

Example
CLI > sys changepwd p=11111 [Enter]
The selected SATA RAID controller password will change to new password:11111.

3.3.6.4 RAID/JBOD Function

To change the password, follow the procedure below:

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

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

Description:
The RAID/JBOD command is used to set the SATA 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.

3.3.6.5 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 SATA 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.

3.3.6.6 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 SATA 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    : V1.41 2006-9-14
BOOT ROM Version    : V1.41 2006-7-18
Serial Number       : ARC--1280-950612
Controller Name     : ARC-1280
Current IP Address  : 192.168.0.47
=========================================
GuiErrMsg<0x00>: Success.

CLI>
```

3.3.7 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:

CLI CONFIGURATION

```
CLI> net -h

Sub-Command & Parameters Of [ net ]
Sub-Command    Description
==============================================================================
dhcp         Parameter: <p=<0(disable)!1(enable)>>
             Fn: DHCP Settings.
             Ex: Enable the DHCP function.
             Command: net dhcp p=1 [Enter]

ipaddr       Parameter: <p=xxx>
             Fn: IP Settings.
             Ex: Set the IP Address to [192.168.0.100].
             Command: net ipaddr p=192.168.0.100 [Enter]
info         Parameter: None.
             Fn: Display Network Information.
             Command: net info [Enter]
==============================================================================
```

Parameter:<p=0(disable):1(enable)>>

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.

3.3.8 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 SATA RAID controller. An event occurs when the SATA 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> 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.

3.3.9 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 CONFIGURATION

```
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 Hwardware 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
==========================================
GuiErrMsg<0x00>: Success.

CLI>
```