User's Guide

Microsemi Adaptec Host Bus Adapter 1000 Series Command Line Utility

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Revision History

Issue	Issue Date	Details of Change
1-3	Aug/Sept/Oct 2015	Pre-production releases.
4	December 2015	First Production release.
5	April 2016	V1.1.0 Maintenance Release

Contents

Microsemi Adaptec Product Support....6

Software License Agreement....7

1 Getting Started with the Command Line Utility....10
1.1 Installing the Command Line Utility....10
1.1.1 Downloading the Installation Packages....10
1.2 Starting the Command Line Utility....10

2 Using the Command Line Utility....11
2.1 ARCCONF Commands....11
2.2 arcconf atapassword....12
2.3 arcconf driverupdate....12
2.4 arcconf expanderlist....13
2.5 arcconf expanderupgrade....13
2.6 arcconf getconfig....14
2.7 arcconf getlogs....15
2.8 arcconf getsmartstats....16
2.9 arcconf getversion....16
2.10 arcconf identify....17
2.11 arcconf imageupdate....17
2.12 arcconf key....18
2.13 arcconf list....19
2.14 arcconf phyerrorlog....19
2.15 arcconf rescan....20
2.16 arcconf romupdate....20
2.17 arcconf savesupportarchive....21
2.18 arcconf setboot....21
2.19 arcconf setcontrollerparam....22
2.20 arcconf setstate....23
2.21 arcconf smp....23
2.22 arcconf task....24
2.23 arcconf uartlog....25
2.24 arcconf uninit....25

List of Tables

Table 1 • ARCCONF Batch Environments 11
Table 2 • ARCCONF Commands 11

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1 Getting Started with the Command Line Utility

This utility allows you to:

- Display configuration settings
- Flash new firmware and BIOS onto the controller
- Enable the controller to check the removal and connection of any disk drives
- Provides access to the status and event logs of a controller

1.1 Installing the Command Line Utility

1.1.1 Downloading the Installation Packages

Complete these steps to download the ARCCONF installation package for your operating system(s):

1. Open a browser window, then type `start.adaptec.com` in the address bar.
2. Enter your product or adapter model number, then select HBA 1000.
3. Select **Storage Manager Downloads**, then select **Adaptec ARCCONF Command Line Utility** from the list of installers.
4. Download the ARCCONF installation package.
5. When the download completes, extract the package contents to the installation directory on your machine (`Program Files` or `/opt`, for instance).
6. On Linux systems, ensure that `arcconf` has 'execute' privilege:
   chmod arcconf.exe +x

1.2 Starting the Command Line Utility

1. To start ARCCONF, enter one of the following commands:

Options	Description
Windows	`<install_dir>\arcconf.exe`
Linux	`/<install_dir>/arcconf`

   where Install_dir is the directory where the utility is installed.

2. To see a list of available commands, type ARCCONF at the prompt. For help with a specific command, type ARCCONF <*command_name*> `help`.

2 Using the Command Line Utility

This chapter explains how to use the command line utility interactively or in batch mode. With interactive mode, enter commands at the prompt. In batch mode, create scripts and run the script in the appropriate shell, as described in the table below.

Table 1 • ARCCONF Batch Environments

Environment	Batch File	Run Script
Windows	.bat	CMD.EXE
Linux/Unix	.sh	sh / bash

In either mode, if your command fails, you immediately see an error message of Command failed. Other script messages that you can get are Command completed successfully, or Command aborted.

The return values for each command are the same:

```
0x00: SUCCESS

0x01: FAILURE - The requested command failed

0x02: ABORT - The command was aborted because parameters failed
validation

0x03: INVALID_ARGUMENTS - The arguments are incorrect. (Displays COMMAND
 help)
```

To view a list of commands at the command line, type ARCCONF and press `Enter`.

To access the online help for a specific command, type ARCCONF <*command*>, then press `Enter`.

2.1 ARCCONF Commands

The following commands are available in ARCCONF for the Microsemi Adaptec HBA 1000 Series adapter. The commands are described on the following pages, in alphabetical order. In the command descriptions, <> indicates a required parameter and [] indicates an optional parameter.

Table 2 • ARCCONF Commands

atapassword	getsmartstats	phyerrorlog	setstate
driverupdate	getversion	rescan	smp
expanderlist	identify	romupdate	task
expanderupgrade	imageupdate	savesupportarchive	uartlog
getconfig	key	setboot	uninit
getlogs	list	setcontrollerparam	

Note: This guide describes commands that are supported by Microsemi Adaptec HBA 1000 Series adapters only. ARCCONF supports additional commands that are not listed in the table above. If you attempt to execute any command that is not described in this guide, the firmware returns an error.

2.2 arcconf atapassword

Description

Sets or clears the password for SATA drives.

Syntax

```
ARCCONF ATAPASSWORD <Controller#> SET <new password> <Channel# ID#> ...
ARCCONF ATAPASSWORD <Controller#> CLEAR <current password> <Channel# ID#> ...
```

Parameters

new password | current password

New password, current password.

Channel/ID

Lists the space-delimited channel number and device number (ID) pairs for each drive on which to set or clear the password.

Examples

```
ARCCONF ATAPASSWORD 1 SET uR8ryx 0 1
ARCCONF ATAPASSWORD 1 CLEAR uR8ryx 0 1
```

2.3 arcconf driverupdate

Description

Updates the Windows device driver for the controller.

Note: This command is available on Windows systems only.

Syntax

```
ARCCONF DRIVERUPDATE <DirName> [nologs]
```

Parameters

DirName

Absolute path to directory containing the Windows driver.

Nologs

Optional parameter that suppresses log output.

Examples

```
ARCCONF DRIVERUPDATE C:\WINDOWSALL
```

2.4 arcconf expanderlist

Description

Returns a list of disk drive expanders on a controller.

Syntax

```
ARCCONF EXPANDERLIST <Controller#>
```

Parameters

Controller#
Controller number.

Examples

```
ARCCONF EXPANDERLIST 1
```

2.5 arcconf expanderupgrade

Description

Allows new firmware to be flashed to an enclosure or expander.

Syntax:

```
ARCCONF EXPANDERUPGRADE <Controller#> ENCLOSURE <Connector# Channel# ID#>
[ChunkSize#] <UpgradeType> <Filename> [Mode#] [noprompt]
```

Parameters

Controller#
Controller number.
Channel#
Channel number of the device to be updated.
ID#
Device number of the device to be updated.
Connector#
Connector number of the device to be updated.
ChunkSize#
Chunk size, in bytes, to be used to update the firmware. Default is 65536 bytes.

Filename
Name of the firmware update file.
UpgradeType
EXPANDER—update the firmware image on the expander or enclosure
MFG—update the manufacturing image (BOOT SEEPROM) on the expander or enclosure
CPLD—update the CPLD image on the expander or enclosure

Note: MFG and CPLD upgrade types are supported on the Microsemi Adaptec AEC-82885T expander only.

Mode#

The Mode parameter applies to EXPANDER and MFG upgrade types only. Valid values are:

- 2—download microcode only; requires system reset or power cycle to activate (default)
- 6—download microcode with offsets and activate
- 7—download microcode with offsets, save, and activate

Noprompt

Optional parameter that suppresses alert messages.

Examples

```
arcconf EXPANDERUPGRADE 1 ENCLOSURE 2 0 0 1024 EXPANDER C:\FirmwareImage.bin 7
arcconf EXPANDERUPGRADE 1 ENCLOSURE 2 0 0 512 MFG C:\FirmwareImage.rom 6
arcconf EXPANDERUPGRADE 1 ENCLOSURE 2 0 0 256 CPLD C:\CPLDImage.bin noprompt
```

2.6 arcconf getconfig

Description

Lists information about controllers, physical drives, including:

- Controller type, status, World Wide Name (WWN), and mode
- BIOS, boot block, device driver, and firmware versions
- Device type, device ID, presence of PFA
- Physical device state, mount point (for drives with OS partition)
- Enclosure information: fan, power supply, and temperature status
- SGPIO virtual SEP information (virtual enclosure device for SGPIO backplanes)
- Connector/Lane/Phy mapping

Also displays controller BIOS settings if you do not include a device-type keyword.

Note: When displaying adapter information (AD keyword), the Controller Status field is set to `Ok` or `Not Ok`. Its value is set to `Not Ok` only if:

1. Communication with the controller fails. This occurs when the driver returns an error code after attempting to send a command to the controller.

Syntax

```
ARCCONF GETCONFIG <Controller#> [AD|PD|AL|CN]
```

Parameters

Controller#

Controller number

AD/PD/AL...

- AD—Adapter information only
- PD—Physical device information only
- CN—Connector information only
- AL—All information

Examples

```
ARCCONF GETCONFIG 1
   ------------------------------------------------------
   Controller BIOS Setting Information
   ------------------------------------------------------
   Runtime BIOS                          : Enabled
```

```
   Array BBS Support                          : Enabled
   Physical Drives Displayed during POST      : Disabled
   Backplane Mode                             : SGPIO
   MissingDrvCount                            :8
   ...

ARCCONF GETCONFIG 1 CN
```

2.7 arcconf getlogs

Description

Provides access to controller status, event logs, and usage statistics, including:

- A log of device errors that the controller encountered
- A log that records any occurrences of defunct devices
- A log of special events that may have occurred
- A log of controller usage statistics, including Inter-I/O Read and Write times and I/O Completion Read and Write times
- A log of supported hardware components on the controller

Syntax

```
ARCCONF GETLOGS <Controller#> <Type1> [clear|tabular] [nologs]
ARCCONF GETLOGS <Controller#> <Type2> [tabular] [nologs]
ARCCONF GETLOGS <Controller#> <Type4> <HardwareType#> [nologs]
ARCCONF GETLOGS <Controller#> DEVICE <clear> <ErrorType#> [<Channel# ID#>|ALL]
 [nologs]
```

Parameters

Controller#

Controller number.

Type1

One of the following:

- DEVICE—device error log
- DEAD—dead (failed) drive log
- EVENT—controller event log

Type2

One of the following:

- STATS—controller statistics data

Type4

One of the following:

1. Cache Memory
2. NVSRAM

ErrorType

One of the following:

- 1 - Parity Error Counter
- 2 - Link Failure Counter
- 3 - Hardware Error Counter
- 4 - Aborted Commands Counter
- 5 - Medium Error Counter
- 6 - SMART Warning Counter

Clear
: Clears the specified log from the controller or a specific error counter for one or all physical drives on a controller.

Channel/ID
: Channel and number of the physical device on the controller.

Tabular
: Displays the log or statistics in tabular format.

Examples

```
ARCCONF GETLOGS 1 EVENT
ARCCONF GETLOGS 1 STATS tabular
ARCCONF GETLOGS 1 DEVICE clear 3 ALL
```

2.8 arcconf getsmartstats

Description

Displays SMART statistics for the hard drives and Solid State Drives (SSDs) on a controller.

Syntax

```
ARCCONF GETSMARTSTATS <Controller#> [Tabular]
```

Parameters

Controller#
: Controller number.

Tabular
: Creates output in tabular format.

Examples

```
ARCCONF GETSMARTSTATS 1
ARCCONF GETSMARTSTATS 1 TABULAR
```

2.9 arcconf getversion

Description

Lists version information for all controllers or a specific controller's software components, including information about the BIOS, driver, firmware currently running, and firmware that will run after a reboot.

Syntax

```
ARCCONF GETVERSION
ARCCONF GETVERSION <Controller#>
```

Parameters

Controller#

Controller# is the controller number

Examples

```
ARCCONF GETVERSION
ARCCONF GETVERSION 1
```

2.10 arcconf identify

Description

Identifies a physical device by blinking its LEDs.

Syntax

```
ARCCONF IDENTIFY <Controller#> DEVICE <Channel# ID#> [TIME <BlinkTime>] [nologs]
ARCCONF IDENTIFY <Controller#> ALL [STOP]
```

Parameters

Controller#

Controller number

Channel# ID#

Channel number and ID number for the physical device(s) to be identified

ALL

Blinks all physical devices on the controller for 1 hour or until the STOP command is issued

TIME <BlinkTime>

Time, in seconds, for the LEDs to continue blinking

STOP

Stops blinking the device

Examples

```
ARCCONF IDENTIFY 1 DEVICE 0 0
```

```
ARCCONF IDENTIFY 1 ALL
ARCCONF IDENTIFY 1 ALL STOP
```

2.11 arcconf imageupdate

Description

Allows new firmware to be flashed to the hard drive.

Syntax:

```
ARCCONF IMAGEUPDATE <Controller#> DEVICE <Channel# ID# ChunkSize# Filename>
[Mode#] [BufferID#] [noprompt]
```

Parameters

Controller#
Controller number.
Channel#
Channel number of the device to be updated.
ID#
Device number of the device to be updated.
ChunkSize#
Chunk size, in bytes, to be used to update the firmware.

Note: For SATA drives, the chunk size must be a multiple of 512.

Filename
Name of the firmware update file.
Mode#
Firmware update mode. Valid values for physical drives are:

- 3-(SATA) Download with offsets and save image for immediate and future use
- 7-(SAS) Download microcode with offsets, save, and activate

BufferID#
Mandatory for tape drive firmware update.
Noprompt
Optional parameter that suppresses alert messages.

Examples

```
ARCCONF IMAGEUPDATE 1 DEVICE 0 0 16384 ados.lod 3
```

2.12 arcconf key

Description

Loads a feature key onto a Microsemi Adaptec controller.

Syntax

```
ARCCONF KEY <Controller#> SET <Key#>
```

Parameters

Controller#
The controller number.
Key#
The key number provided by Microsemi.

Examples

```
ARCCONF KEY 1 SET ABCDEFGHIJKLMNOPQRSTUVWX
```

2.13 arcconf list

Description

Lists all controllers in the system or the configuration of a specific controller.

Syntax

```
ARCCONF LIST [Controller#]
```

Parameters

Controller#
The controller number.

Examples

```
ARCCONF LIST
ARCCONF LIST 1
```

2.14 arcconf phyerrorlog

Description

Displays PHY error logs for physical devices on a controller.

Syntax

```
ARCCONF PHYERRORLOG <Controller#> DEVICE <Channel# ID#>
ARCCONF PHYERRORLOG <Controller#> DEVICE ALL
```

Parameters

Controller#
Controller number.
Channel/ID
Channel and number of the physical device on the controller.
ALL
Displays PHY error log for all physical devices.

Examples

```
ARCCONF PHYERRORLOG 1 DEVICE 0 0
ARCCONF PHYERRORLOG 1 DEVICE ALL
```

2.15 arcconf rescan

Description

Enables the controller to check for the removal of any disk drives and to check for the connection of any new disk drives to the controller. Controller rescan runs in the background, asynchronously. When rescan is started, a message is displayed stating that the process is running in the background and may take 10 minutes to complete. Another message is displayed if a rescan is started while one is already in progress.

Syntax

```
ARCCONF RESCAN <Controller#> [nologs]
ARCCONF RESCAN ALL [nologs]
```

Parameters

Controller#
  The controller number

ALL
  Rescans all controllers in the system

Examples

```
ARCCONF RESCAN 1
ARCCONF RESCAN ALL
```

2.16 arcconf romupdate

Description

Allows new firmware and BIOS to be flashed to the controller. A reboot is required for the new firmware to take effect.

Note:

1. This command is supported in Windows and Linux only.
2. You can download the .bin update files from the Support area at www.adaptec.com.

Syntax

```
ARCCONF ROMUPDATE <Controller#> <BaseName> [newversion <build#> [force]]
[noprompt] [nologs]
```

Parameters

Controller#
  The controller number.

BaseName
  Absolute path to the controller image file.

Newversion <build#>
  Specifies the version of the firmware build.

Force

An optional parameter used to force a down-level firmware update. Valid only if Newversion parameter is specified.

Noprompt

An optional parameter that suppresses the confirmation prompt.

Examples

```
ARCCONF ROMUPDATE 1 /usr/home/AC220001.BIN
ARCCONF ROMUPDATE 1 C:\firmwareImage\as483c.bin newversion 12345 force noprompt
```

2.17 arcconf savesupportarchive

Description

Saves configuration and status information to help diagnose a problem with your system. Saved information includes device logs, drive logs, event logs, error logs, controller logs, history logs, basecode logs, and SSD SMART statistics.

By default, the log files are saved in the Support folder in the standard logs directory for your operating system (/var/log for Linux, and so on).

Syntax

```
ARCCONF SAVESUPPORTARCHIVE [Path] [Firmware|Arcconf|Storlib|Basecode]
```

Parameters

Path

Path to store the log files.

Log type:

One of these log files:

- Firmware: saves Firmware logs
- Arcconf: saves Arcconf logs
- Storlib: saves StorLib logs
- Basecode: saves basecode logs

Examples

```
ARCCONF SAVESUPPORTARCHIVE
ARCCONF SAVESUPPORTARCHIVE Firmware
```

2.18 arcconf setboot

Description

Sets the controller as a boot device for the system. This command is available only when the controller is offline.

Syntax

```
ARCCONF SETBOOT <Controller#> DEVICE <Channel# ID#> TYPE <Boot Type> [nologs]
ARCCONF SETBOOT <Controller#> ENABLE
```

Parameters

Controller#

Controller number

Channel# ID#

Channel and ID of the physical device to mark as the boot device

TYPE <Boot Type>

Boot type:

- Primary - Primary boot device
- Secondary - Secondary boot device
- None - Non-bootable

ENABLE

Sets the controller as a boot controller

Examples

```
ARCCONF SETBOOT 1 DEVICE 0 5 TYPE secondary
ARCCONF SETBOOT 1 ENABLE
```

2.19 arcconf setcontrollerparam

Description

Changes a parameter of a controller.

Syntax

```
ARCCONF SETCONTROLLERPARAM <Controller#> QUEUEDEPTH <QDepth> [nologs]
ARCCONF SETCONTROLLERPARAM <Controller#> ELEVATORSORT <Enable | Disable>
[nologs]
ARCCONF SETCONTROLLERPARAM <Controller#> LATENCY <Latency> [nologs]
```

Parameters

Controller#

Controller number

QUEUEDEPTH <QDepth>

Sets the queue depth for the controller. Valid values are 0, 2, 4, 8, 16, and 32. A value of 0 indicates automatic queue depth.

ELEVATORSORT

Sets the behavior of the controller cache write Elevator sort algorithm.

LATENCY

Sets the flexible latency scheduler. Valid values are:

- 0 : Disable (default).
- 1 : Low. Sets value to 250.
- 2 : Medium. Sets value to 100.
- 3: High. Sets value to 50.
- 4: Aggressive level 1. Sets value to 30.
- 5: Aggressive level 2. Sets value to 10.

Examples

```
ARCCONF SETCONTROLLERPARAM 1 QUEUEDEPTH 16
```

```
ARCCONF SETCONTROLLERPARAM 1 ELAVATORSORT disable
ARCCONF SETCONTROLLERPARAM 1 LATENCY 2
```

2.20 arcconf setstate

Description

Changes the state of a physical device to the designated state.

Syntax

```
ARCCONF SETSTATE <Controller#> DEVICE <Channel#> <Device#> <State> [noprompt]
```

Parameters

Controller#

The controller number

Channel#

The channel number for the drive.

Device#

Device number for the device.

State

- RDY—Attempts to change a drive from Failed to Ready.
- DDD—Force a drive offline (to Failed).
- EED—Enable the erased drive.

Noprompt:

No prompt for confirmation.

Examples

```
ARCCONF SETSTATE 1 DEVICE 0 0 DDD
ARCCONF SETSTATE 1 DEVICE 0 0 RDY
```

2.21 arcconf smp

Description

Sends a SAS Management Protocol (SMP) function request to a SMP target device.

Syntax:

```
ARCCONF SMP <Controller#> Enclosure <Connector# Channel# Device#> Expander
<Expander#> <CommandType1> [ASCII]
ARCCONF SMP <Controller#> Enclosure <Connector# Channel# Device#> Expander
<Expander#> <CommandType2 PHY#> [ASCII]
```

Parameters

Controller#

Controller number.

Connector# Channel# ID#

Connector ID, Channel ID and Device ID of the enclosure that contains the expander.

Expander#

Expander number on the controller (SMP target device).

PHY#

The PHY Identifier (valid only for for Discover and PHY Error Log Request).

CommandType#

CommandType1:

- RGR - Report General Request
- RMR - Report Manufacturer Request

CommandType2:

- DR - Discover Request
- RPELR - Report PHY Error Log Request

ASCII

Displays the SMP response in ASCII format along with Hex formatted output.

Examples

```
ARCCONF SMP 1 Enclosure 1 2 0 Expander 0 RGR
ARCCONF SMP 1 Enclosure 1 2 0 Expander 1 DR 0
```

2.22 arcconf task

Description

Performs a task on a physical drive. Uninitializes physical drives on a controller.

Syntax:

```
ARCCONF TASK START <Controller#> DEVICE ALL UNINITIALIZE
```

Parameters

Controller#

The controller number

Options:

- Physical device options:
  - UNINITIALIZE—When specified with ALL, clears Microsemi Adaptec meta-data and any OS partitions from all drives on the controller; existing data on the drive is destroyed.

Examples

```
ARCCONF TASK START 1 DEVICE ALL UNINITIALIZE
```

2.23 arcconf uartlog

Description

Starts a console for UART command execution.

Syntax

```
ARCCONF UARTLOG <Controller#> CONSOLE [noprompt] [nologs]
```

Parameters

Controller#
Controller number

CONSOLE
Starts an interactive UART console to run commands. Enter commands one line at a time. Type "exit" to stop.

Noprompt:
No prompt for confirmation.

Example

```
ARCCONF UARTLOG 1 CONSOLE
```

2.24 arcconf uninit

Description

Uninitializes one or more physical drives. The uninitialize command clears Microsemi Adaptec meta-data and any OS partitions from a drive; existing data on the drive is destroyed.

> **Note:** Uninitialized drives are compatible with any HBA and can be exchanged with drives on the motherboard's SATA interface.

Syntax:

```
ARCCONF UNINIT <Controller#> <Channel# Drive#> [Channel# Drive#] ... [nologs]
ARCCONF UNINIT <Controller#> ALL [nologs]
```

Parameters

Controller#
Controller number.

Channel#
The channel number of the device to be uninitialized.

Drive#
The drive number of the device to be uninitialized.

ALL
Uninitializes all physical devices on the controller.

nologs

Suppresses log output for the command.

Examples

```
ARCCONF UNINIT 1 0 12 0 13
ARCCONF UNINIT 1 ALL
```