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Introduction

Adaptec provides Linux array management software for the AACRAID series of RAID controllers (2120S, 2200S, 2130S and 2230S). There are two different RAID management interfaces available:

• Adaptec Storage Manager (ASM) – This is a Java based application for managing your array with a graphical interface. It also provides a storage agent daemon, which monitors the array and writes events to a log file.



Note

When e-mailing technical support, please attach /usr/StorMan/RaidEvtA.log.

• arcconf – This is a text based application which provides a command line interface (CLI) for managing your array.

Documentation Notes

Depending on your specific optical drive, you may need to replace /media/cdrom with a different value in the instructions that follow. Common mount points are /mnt/cdrom, /me-dia/cdrecorder and /media/dvdrecorder. The mount point for your system can be found in the /etc/fstab file.

OS Installation

For the following OSes, the kernel already includes a functional version of the aacraid driver. No driver disk is necessary:

- RHEL 3 (Update 7 and higher)
- RHEL 4 (Update 3 and higher)
- RHEL 5

- CentOS 3 (Version 3.7 and higher)
- CentOS 4 (Version 4.3 and higher)
- CentOS 5

For prior versions of RHEL and CentOS, you must create a driver floppy using the files under images. For example, to create a driver disk for the aacraid controller under RHEL 2.6.9-22.EL on an i686 system:

```
# mount -t ext2 /dev/cdrom
# dd if=/mnt/cdrom/images/2.6.9-22.EL/i686/aacraid-2.6.9-22.EL-i686.img \
    of=/dev/fd0
# umount /dev/cdrom
```

To install the system using this driver:

- 1. Power on the system
- 2. Insert the RHEL installation CD #1 in the cdrom drive
- 3. At the boot: prompt type linux dd and press enter
- 4. When asked if you have a driver disk, select Yes
- 5. You will next be presented with a list of driver sources. Use the up/down arrow keys to highlight the floppy device (typically fd0) and select Ok
- 6. When asked to insert the driver disk, insert the driver floppy in the floppy drive
- 7. Select Ok
- 8. When asked if you wish to load any more drive disks, select No
- 9. The installation will now proceed as usual

Kernel Upgrade Procedure

RHEL 4 and CentOS 4

Kernel 2.6.9-34.EL and higher already contain an up to date device driver. For these kernels, this procedure can be skipped.

If you use **yum** or RedHat network to update your kernel, the updated drivers will no longer work. If you are updating your kernel to 2.6.9-22.EL, then you can install the provided driver RPMS:

mount -t ext2 /dev/cdrom
rpm -ivh /mnt/cdrom/RPMS/aacraid*2.6.9-22*.rpm
umount /dev/cdrom

The driver RPMS should be installed prior to installing the corresponding kernel from RedHat. After installation, the drivers can be found under /lib/modules/kernel_version/updates. If you install the kernel packages first, you will need to update the initial ramdisks after installing the drivers. For example:

```
# new-kernel-pkg --mkinitrd --depmod --install 2.6.9-22.ELsmp
```

If you are updating to a newer kernel, you can build your own driver RPMS using the supplied source RPM and build script:

mount -t ext2 /dev/cdrom
rpm -ivh /mnt/cdrom/SRPMS/aacraid*.src.rpm
/mnt/cdrom/SRPMS/builddriver.sh aacraid.spec [arch] [version] \
[release]
umount /dev/cdrom

For example, to re-build the AACRAID driver RPM for kernel 2.6.9-22.EL (x86_64):

/mnt/cdrom/SRPMS/builddriver.sh aacraid.spec x86_64 2.6.9 22.EL

Make sure that the kernel-sources and the development tools are installed before trying to build the packages. Starting with kernel 2.6.9-22.EL, the kernel-source package is no longer provided by RedHat. To install the kernel-sources in this case perform the following steps:

```
# rpm -ivh kernel-2.6.9-22.EL.src.rpm
# cd /usr/src/redhat/SPECS
# rpmbuild -bp kernel-2.6.spec -target=noarch
# cp -R ../BUILD/kernel-2.6.9/linux-2.6.9 /usr/src/linux-2.6.9-22.EL
# ln -s /usr/src/linux-2.6.9-22.EL /usr/src/linux
```

For CentOS, the kernel SRPM can be downloaded from a CentOS mirror, ie:

Current version:

ftp://mirrors.kernel.org/centos/version/os/SRPMS

Older versions:

http://vault.centos.org/version/os/SRPMS

For RHEL, the kernel SRPM can be downloaded via RedHat Network:

http://rhn.redhat.com

Management Software Installation Guide

Since the RAID management software is not included in any Linux distribution, the tools must be installed manually if the operating system has been reinstalled. Please note that installation of packages via **yum** requires a functional Internet connection. To install the software:

Fedora Core 3 (32 and 64-bit)

- Log into the console, or open an xterm.
- If you are not already logged in as root, use the su command to become root.

• If the RPM gpg keys have not already been imported:

rpm --import /usr/share/doc/fedora-release-3/RPM-GPG-KEY*

• Install prerequisite packages:

yum -y install compat-libstdc++

• Insert the Fedora Core installation CD #2:

```
# mount /dev/cdrom
# rpm -ivh /mnt/cdrom/Fedora/RPMS/xorg-x11-deprecated-libs*arch.rpm
# umount /dev/cdrom
```

Where *arch* is i386 for 32-bit and x86_64 for 64-bit.

Depending on the options chosen during OS installation, one or both of these packages may already be installed.

Fedora Core 4 (32 and 64-bit)

- Log into the console, or open an xterm.
- If you are not already logged in as root, use the **su** command to become root.
- If the RPM gpg keys have not already been imported:

rpm --import /usr/share/doc/fedora-release-4/RPM-GPG-KEY*

• Install prerequisite packages:

yum -y install compat-libstdc++-33

Depending on the options chosen during OS installation, this package may already be installed.

CentOS 4 (32 and 64-bit)

- Log into the console, or open an xterm.
- If you are not already logged in as root, use the su command to become root.
- Install the prerequisite packages:

yum -y install compat-libstdc++-33

Depending on the options chosen during OS installation, this package may already be installed.

CentOS 5 (32 and 64-bit)

Install the prerequisite packages:

yum -y install libXp compat-libstdc++-33

Depending on the options chosen during OS installation, one or both of these packages may already be installed.

All Distributions

Install the array management utilities: Insert the ASL driver CD:

```
# mount /dev/cdrom
# ARCH=`uname -m`
# rpm -ivh /media/cdrom/ASL-packages/asm_linux_$ARCH*.rpm
# umount /dev/cdrom
```

After installation, the storage agent daemon will be started. The agent is configured to start automatically each time the system boots. To stop the daemon:

```
# /etc/rc.d/init.d/stor_agent stop
```

Disk failures and other changes to the array status are logged to /usr/StorMan/RaidEvtA.log

Using the Adaptec Storage Manager

Using Storage Manager, administrators can view, create and delete arrays. Storage Manager can also turn off the RAID controller's audible alarm. To launch Storage Manager, log in as the root user and start X if necessary. From an xterm:

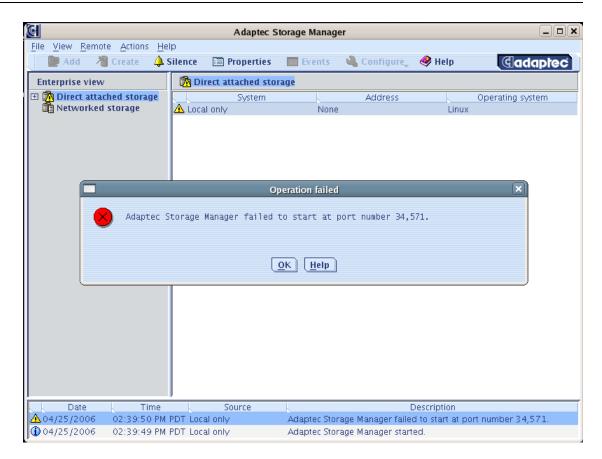
/usr/StorMan/StorMan.sh

Figure 1. Launch screen

1	Adaptec St	orage Manager		
File View Remote Actions			A	
🚺 Add 🛛 📙 Create 🗸 🖌	Silence 🗎 Properties	🔲 Events 🛛 🔌 Configure_	🧇 Help	adaptec
Enterprise view	internal RAID			
🗄 <u></u> Internal RAID	System	Address		ating system
📫 External RAID	🛞 asl150.aslab.com	192.168.2.150	Linux	
Date	Time Sou	rce	Description	

If SELinux is enabled, the following error dialog may be displayed. This will prevent a remote copy of Storage Manager from connecting to this server. However, the array can still be managed locally.

Figure 2. Error dialog



In the left hand pane, you will see an entry representing the local system. To manage your array, click on this entry. You will then be prompted for a user name and password:

Figure 3. Error dialog

	Adaptec St	orage Mana	ager		_ 🗆 🗙
<u>File View Remote Actions He</u> l					
🚺 Add 🔒 Create 📣 S	ilence 🗎 Properties	Events	📲 Configure	🤣 Help	adaptec
Enterprise view	🚂 asl150.aslab.com (l	.ocal system)			
□					
		Log in		×	
	ADAPTEC S	TORAGE	MANAGER		
	er name: root				
	ssword.				
	lick 'Cancel' to log in with g	juest privileges			
		Co	nnect <u>C</u> ancel	<u>H</u> elp	
	Connection status: Co	nnected			
				Doscrie	otion
Date Tim	ne Soul	rce		Descrij	puon
P					

The user name is root, and the default root password as configured at the factory is asllinux.

You will next be given the option of registering you controller with Adaptec. If you choose register later, you will be prompted again the next time you run Storage Manager:

Figure 4. Registration dialog

a	Adaptec Storage I	fanager 🔤 🗌	
File View Remote Actions Hel	p illence 🖺 Properties 🔲 Eve	nts 🔌 Configure, 🤗 Help 🛛 🔍 adapte	'ec
Enterprise view	💭 asl150.aslab.com (Local sys	iem)	
 □ Internal RAID □ Image asi150.asiab.com (Loc □ External RAID 	Controller 1 RAID controller Adaptec 2230S		
	New hardwar	e detected	
asi150.asiab.com.	ager has detected 1 new controller(ut Adaptec products and special off our website.	Register Now Register Later	
	Connection status: Connected		
Date Tim		Description	
07/25/2007 07:28:13 AM		User root logged into asl150.aslab.com with administra	trati
107/25/2007 07:24:55 AM		Adaptec Storage Manager started on TCP/IP port numb	

After the registration dialog, you will be presented with a screen showing all the AACRAID controllers in the system:

Figure 5. Main display

	edit presentations for slideshows, meeting and by using Impress.	gure, 🧶 Help adapted
Enterprise view Internal RAID Rail Solve as a state of the stat	Controller 1 RAID controller Adaptec 22305	
•	Connection status: Connected	
Date Tim ① 07/25/2007 07:28:13 AW ③ 07/25/2007 07:24:55 AW	EDT asl150.aslab.com User root I	Description ogged into asl150.aslab.com with administrati torage Manager started on TCP/IP port number

Click on the controller you wish to manage and you will see comprehensive status and configuration information:

Figure 6. Controller details

	Adaptec Storage Mana	iger 🗖
Eile View Remote Actions Hel	o ilence 🗎 Properties 🔲 Events	🖏 Configure, 🤣 Help 🛛 🔍 adapted
Enterprise view	Physical devices	Logical devices
⊡ 💼 Internal RAID ⊕ 🗊 asi150.asiab.com (Loc	🗯 Controller 1 (Adaptec 22305)	[] T = = ()
External RAID	Channel 0 (5 devices found) D 💼 🌰 🌰 🌧 🚸	🛍 Logical devices (3) Þ 👔 👔 👔
	Channel 1 (5 devices found) D 💼 🌰 🌰 🌧 秦	
	Connection status: Connected	
Date Tim		Description
<pre>① 07/25/2007 07:28:13 AM</pre>		Jser root logged into asl150.aslab.com with administrati
① 07/25/2007 07:24:55 AM	EDT asl150.aslab.com	Adaptec Storage Manager started on TCP/IP port number.

Right click on the controller and select properties to view battery charge status and other controller settings:

Figure 7. Controller properties

	view Physical devices		Logical devices
💼 Intern	al RAID Controller 1 (Ad	aptec 2230S) 👔 🔋	T82 🕂 🔕 🖲
Exter		Properties	\mathbf{x}
	Controller 1		
	Device Versions <u>Status</u>		
	Controller status	Optimal	
	🔋 Battery status	Charging	
	Battery temperature	Normal	
	Battery charge amount (%)	100	
	Estimated charge remaining	4 days, 12 hours, 4	42 minutes
	Background consistency check	Enabled	
	Background consistency check period	30 days	
	Copy back	Disabled	
	Number of logical devices	3	
	Number of hot-spare drives	0	
	Number of ready drives	0	
	Connection status:	Connected	
			Description
)07/25/20	te Time	Source	Description

Right click on the controller and select Background consistency check to modify the disk scrubbing options:

Figure 8. Background consistency check

📰 Add 🛛 👌 Create 🌲	Silence 📰 Prope	erties 🔲 Events 🔌 Conf	figure 🧶 Help adapted
Enterprise view	Physical devices		Logical devices
🗉 💼 Internal RAID	🗯 Controller 1	(Adanter 2230S) 🛛 🗎 🎚	TRE 🕂 🔕 🕒
⊞ ﷺ asl150.aslab.com (Loc ∰ External RAID	Channel 0 (5 de D 🌰 🌰 🌰 Channel 1 (5 de D 🌰 🌰 🌰	Create logical device Delete all logical devices	ical devices (3)
		Background consistency of Enable copy back mode	check Disable Change period
		Properties	
	Connection stat	us: Connected	
	<u> </u>		
Date Tir 1) 07/25/2007 07:28:13 Al		Source User root lo	Description ogged into asI150.asIab.com with administrati.
8 01/20/2007 07.20.15 A	a con a anto 0.0	19/10/10/00/10 05/21/10/01/0	sgged into dsitts v. dsido, com with duministrati.

Detailed information on using the Storage Manager application can be found in the online help.

Using the Command line utility

To get information about the controller run:

```
# /usr/StorMan/arcconf getconfig 1 AD
Controllers found: 1
  _____
Controller information
 _____
  Controller Status
Channel description
                               : OK
                                : SCSI
                                : 2130S
  Controller Model
                                : 267a69
  Controller Serial Number
                               : 5.1-0 (8832)
  BIOS Version
  Firmware Version
                                : 5.1-0 (8832)
                                : 1.1-5 (2412)
  Driver Version
  Physical Slot
                                : 1
  Copyback enabled
                                : No
  Background consistency check enabled: No
                               : 0
  Defunct disk drive count
  Logical devices/Failed/Degraded : 1/0/0
Command completed successfully.
To get information about the disk array(s), run:
```

/usr/StorMan/arcconf getconfig 1 LD

Controllers found: 1 _____ Logical device information -Logical device number 1 Logical device name : RAID 5 : Optimal Status of logical device RAID level : 5 Size : 139948 MB : Enabled Read cache status : Write back (WB) Write cache status Number of chunks : 3 : 256 KB Stripe-unit size Stripe order (Channel, Device) : 0,0 0,1 0,2 Command completed successfully. To get information about the physical drive(s), run: # /usr/StorMan/arcconf getconfig 1 PD Controllers found: 1 _____ Physical device information _____ Channel #0: Transfer Speed : Ultra320 Initiator at SCSI ID 7 Device #0 Device is a Hard drive : Online State : Ultra320 Transfer Speed Vendor : SEAGATE : ST373207LC Model : 0003 Firmware : 3KT1ME7T Serial number : 70007 MB Size Write Cache : Unknown FRU : S.M.A.R.T. : No Device #1 Device is a Hard drive : Online State Transfer Speed : Ultra320 Vendor : SEAGATE Model : ST373207LC Firmware : 0003 Serial number : 3KTODXLB : 70007 MB Size : Unknown Write Cache FRU : No S.M.A.R.T. Device #2 Device is a Hard drive : Online State Transfer Speed : Ultra320 Vendor : SEAGATE : ST373207LC Model : 0003 Firmware Serial number : 3KT17G7F : 70007 MB Size Write Cache : Unknown

FRU : : No S.M.A.R.T. Device #6 Device is a Enclosure State : Standby Transfer Speed : Basic SCSI Vendor : SUPER Model : GEM318 Firmware : 0 Command completed successfully. To get a list of all controllers in the system: # /usr/StorMan/arcconf getversion Controllers found: 1 Controller #1 _____ : 5.1-0 (8832)Firmware Staged Firmware : 5.1-0 (8832)BIOS : 5.1-0 (8832)Driver : 1.1-5 (2412) Command completed successfully To get a complete list of commands: # /usr/StorMan/arcconf help Controllers found: 1 UCLI Adaptec uniform command line interface UCLI Version 4.1 (B4574) UCLI (C) Adaptec 2003-2005 UCLI All Rights Reserved COPYBACK changes controller copyback mode creates a logical device CREATE DELETE deletes a logical device SNAPSHOT creates a copy of a logical device GETCONFIG prints controller information GETLOGS gets controller log information GETSTATUS displays the status of running background tasks prints version information for all controllers GETVERSION checks for new or removed drives RESCAN updates controller firmware ROMUPDATE controls the controller alarm, if present SETALARM SETCONFIG restores the default configuration SETCACHE adjusts logical or physical drive cache mode SETNAME Renames a logical device given its logical device number manually sets the state of a physical device SETSTATE TASK performs a task such as verify on a logical or physical device

Full documentation for the **arcconf** utility can be found on the ASL Driver CD:

Docs/AACRaid_CLI_UG.pdf

Technical Support

Prior to contacting technical support, please visit the ASL online FAQ for quick answers to common hardware and software issues. The answers may be searched by keyword or browsed by category. These documents are maintained with up to date information.

FAQ [http://faq.aslab.com]

To request replacement of a defective part (except monitor) on systems under warranty, please send an E-mail to <techsupport@aslab.com> with the following information:

- Serial number or invoice number of the system
- Detailed description of the problem
- Shipping address

If the transaction involves multiple systems, ASL highly recommends creating one ticket per system. This will avoid any mixup when the RMA is processed.

Defective monitors will be handled directly by the manufacturer. Here is the contact information:

- Viewsonic: 800 888 8583 (US) or 866-262-1967 (Canada)
- IIyama: 800 594 7480