Adaptec AACRAID Linux User Guide

Table of Contents

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`, `/media/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 in-

stall 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
```

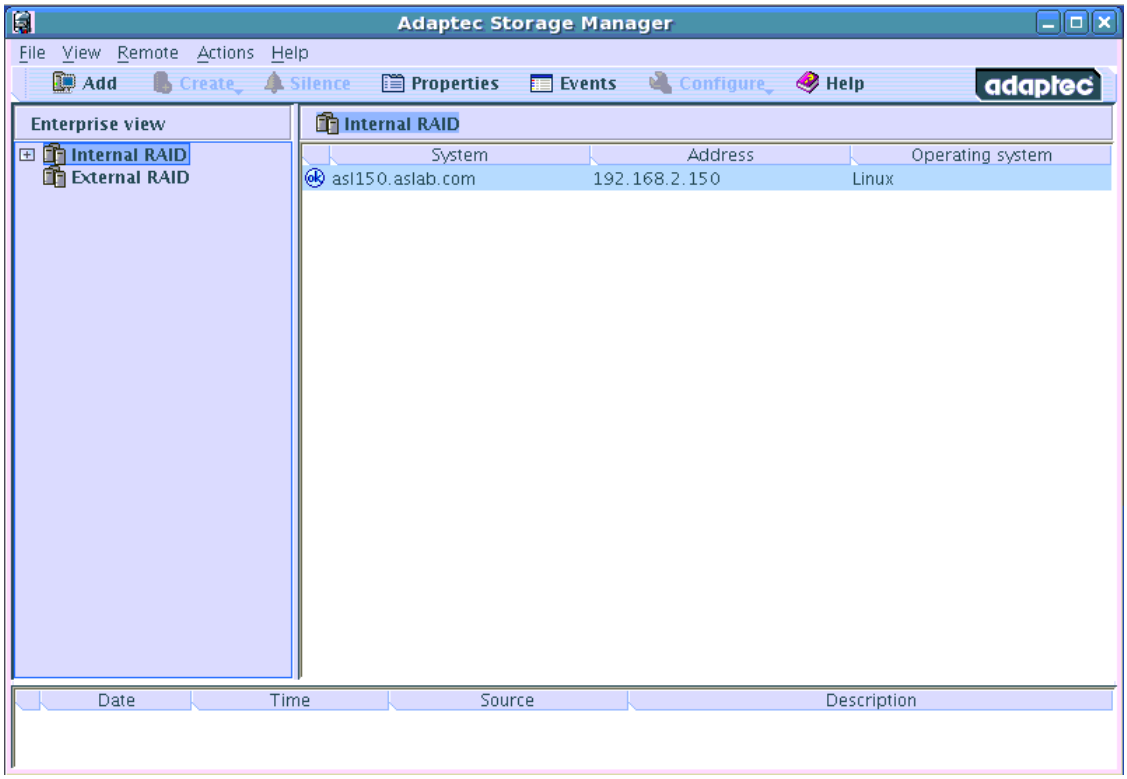
Disk failures and other changes to the array status are logged to `/usr/StorMan/RaidEvtA.log`

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:

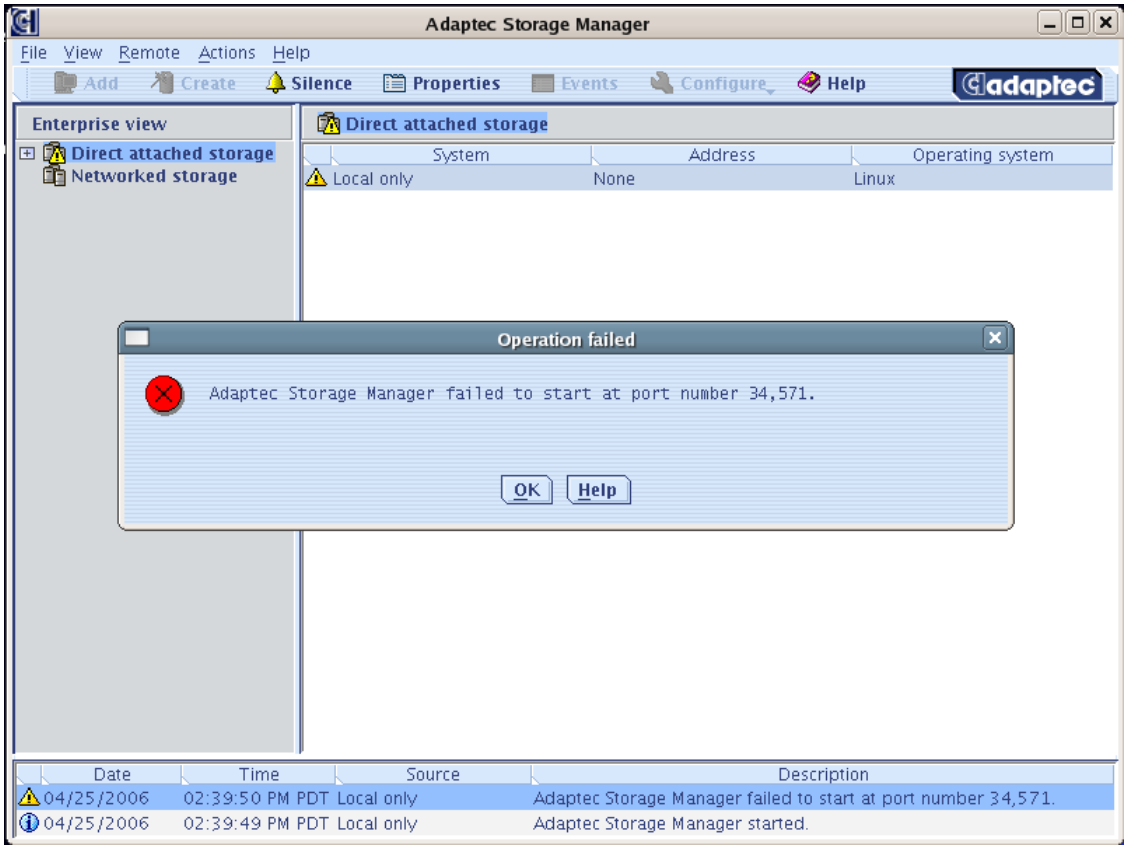
```
# /usr/StorMan/StorMan.sh
```

Figure 1. Launch screen



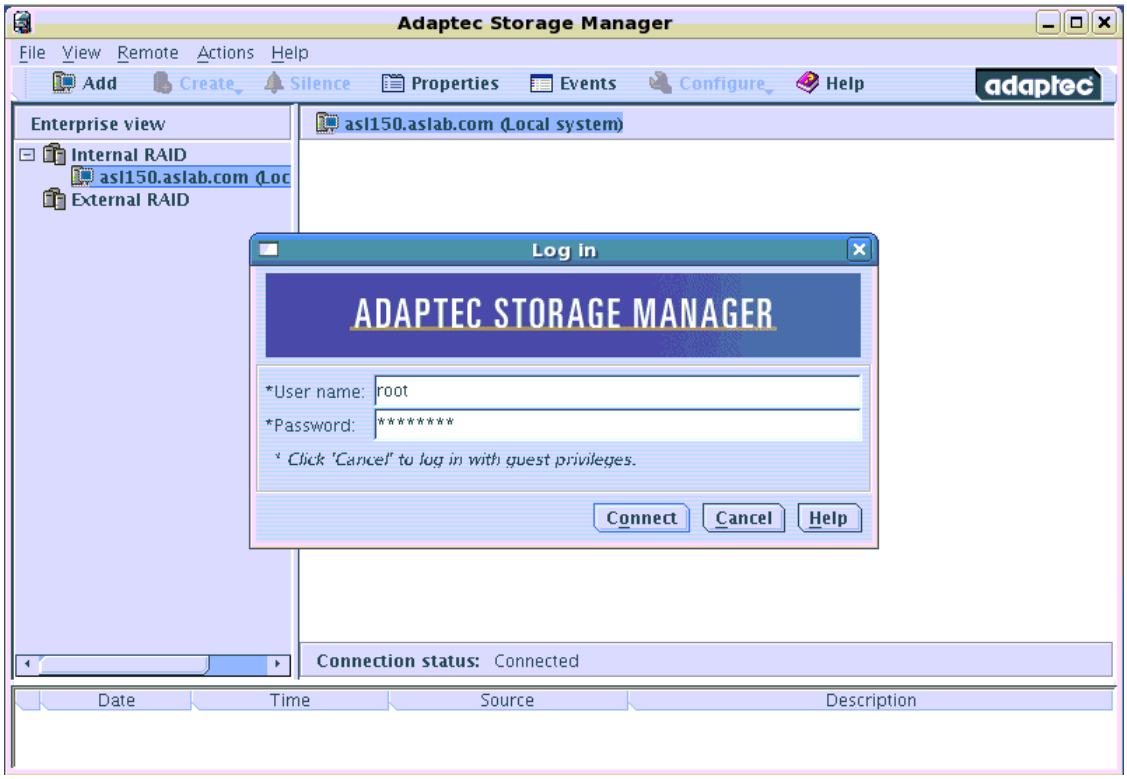
If SELinux is enabled, the following error dialog may be displayed. This will prevent a remote copy of Storage Manager from connecting to this server. However, the array can still be managed locally.

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:

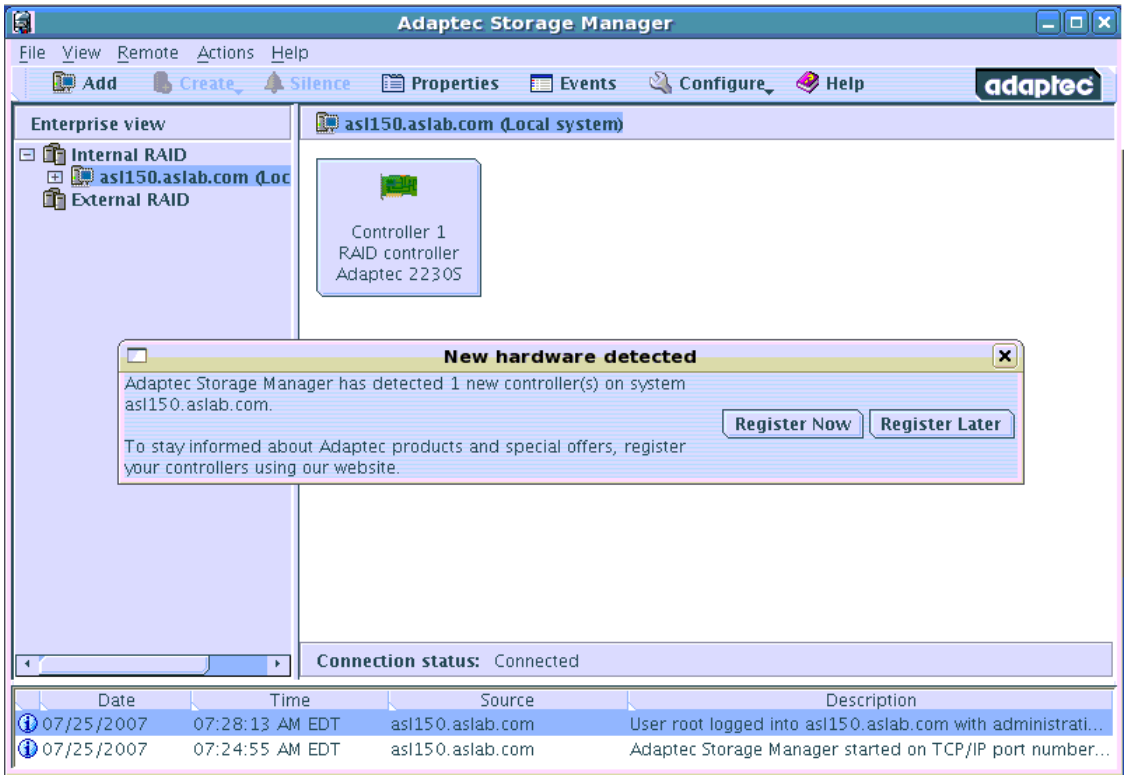
Figure 3. Error dialog



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

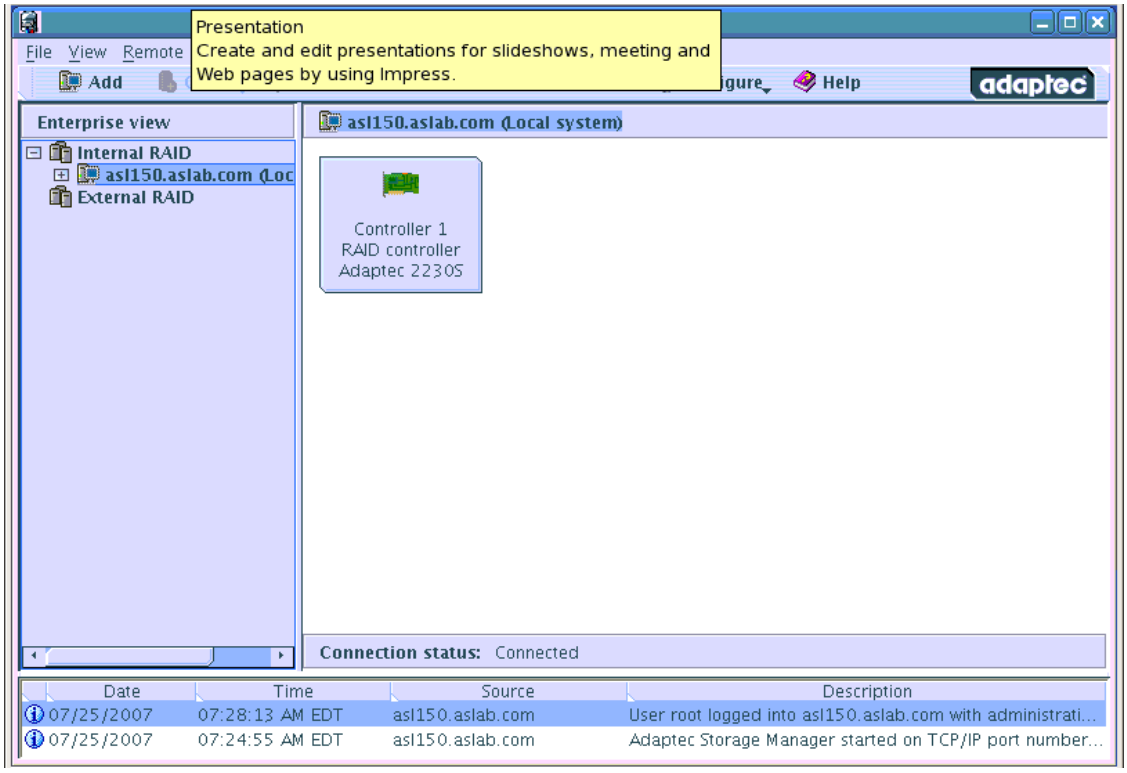
You will next be given the option of registering you controller with Adaptec. If you choose register later, you will be prompted again the next time you run Storage Manager:

Figure 4. Registration dialog



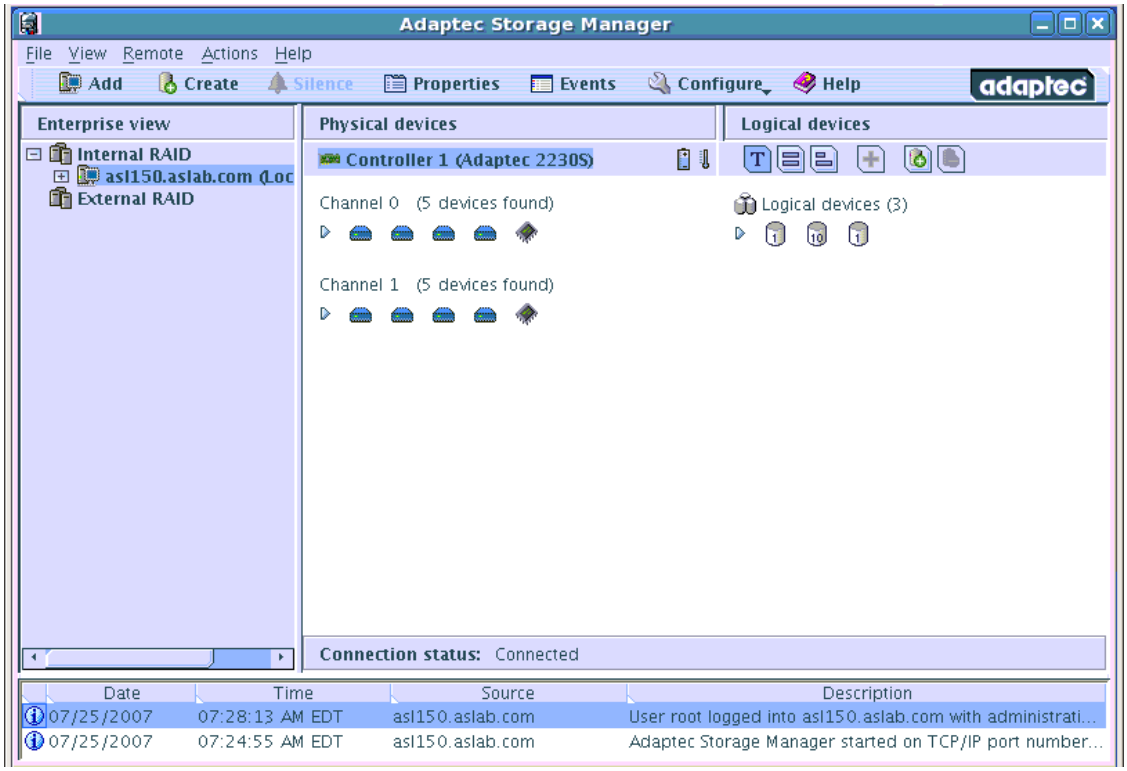
After the registration dialog, you will be presented with a screen showing all the AACRAID controllers in the system:

Figure 5. Main display



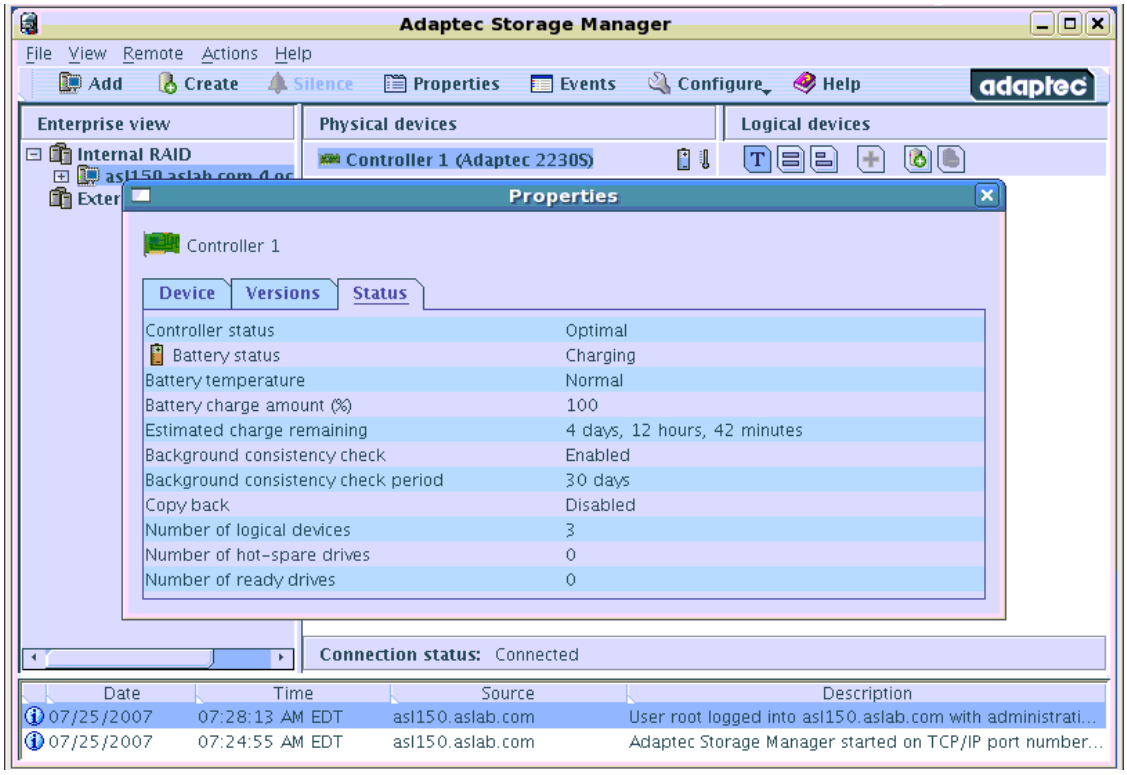
Click on the controller you wish to manage and you will see comprehensive status and configuration information:

Figure 6. Controller details



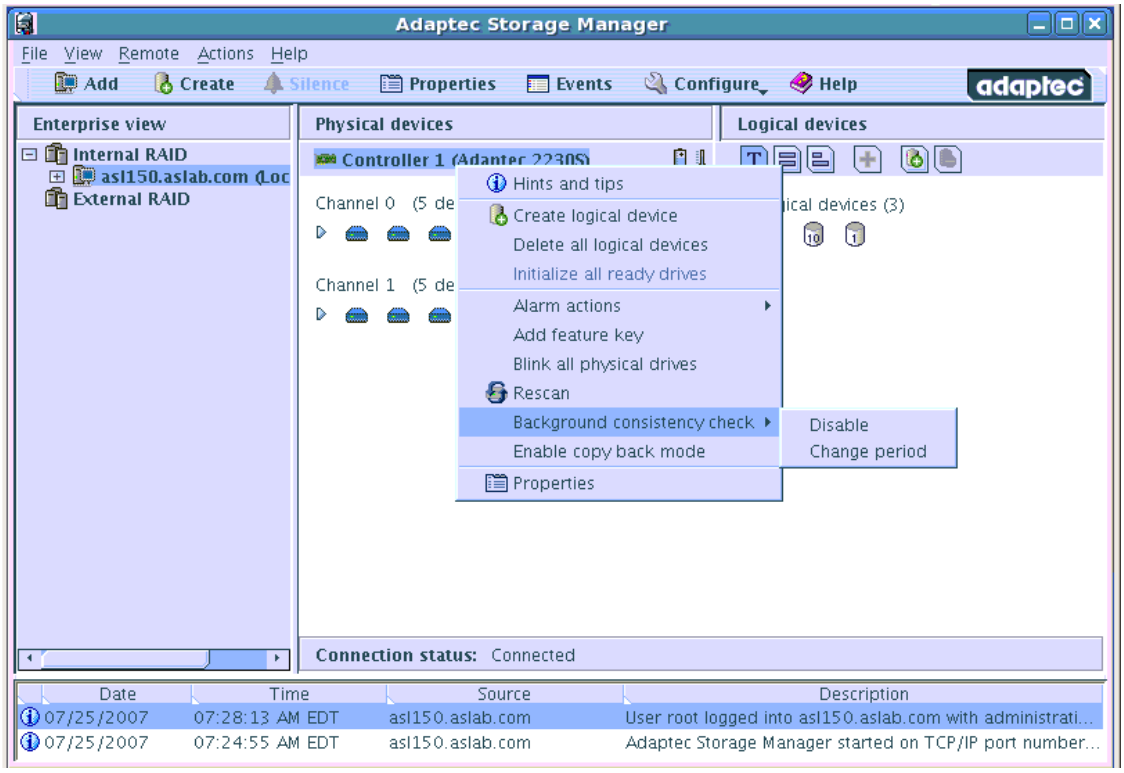
Right click on the controller and select properties to view battery charge status and other controller settings:

Figure 7. Controller properties



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

Figure 8. Background consistency check



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                    : OK
   Channel description                  : SCSI
   Controller Model                     : 2130S
   Controller Serial Number             : 267a69
   BIOS Version                         : 5.1-0 (8832)
   Firmware Version                     : 5.1-0 (8832)
   Driver Version                       : 1.1-5 (2412)
   Physical Slot                        : 1
   Copyback enabled                     : No
   Background consistency check enabled: No
   Defunct disk drive count             : 0
   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
   Status of logical device            : Optimal
   RAID level                          : 5
   Size                                : 139948 MB
   Read cache status                   : Enabled
   Write cache status                  : Write back (WB)
   Number of chunks                    : 3
   Stripe-unit size                    : 256 KB
   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
         State                         : Online
         Transfer Speed                : Ultra320
         Vendor                        : SEAGATE
         Model                         : ST373207LC
         Firmware                      : 0003
         Serial number                 : 3KT1ME7T
         Size                          : 70007 MB
         Write Cache                   : Unknown
         FRU                           :
         S.M.A.R.T.                    : No
      Device #1
         Device is a Hard drive
         State                         : Online
         Transfer Speed                : Ultra320
         Vendor                        : SEAGATE
         Model                         : ST373207LC
         Firmware                      : 0003
         Serial number                 : 3KT0DXLB
         Size                          : 70007 MB
         Write Cache                   : Unknown
         FRU                           :
         S.M.A.R.T.                    : No
      Device #2
         Device is a Hard drive
         State                         : Online
         Transfer Speed                : Ultra320
         Vendor                        : SEAGATE
         Model                         : ST373207LC
         Firmware                      : 0003
         Serial number                 : 3KT17G7F
         Size                          : 70007 MB
         Write Cache                   : Unknown
```

```
         FRU                             :
         S.M.A.R.T.                      : No
      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
==============
Firmware           : 5.1-0 (8832)
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
 CREATE         | creates a logical device
 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
 GETVERSION     | prints version information for all controllers
 RESCAN         | checks for new or removed drives
 ROMUPDATE      | updates controller firmware
 SETALARM       | controls the controller alarm, if present
 SETCONFIG      | restores the default configuration
 SETCACHE       | adjusts logical or physical drive cache mode
 SETNAME        | Renames a logical device given its logical device number
 SETSTATE       | manually sets the state of a physical device
 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