



## Escalade™ 6.9 release

### Release Notes

February 2002

#### Feature Highlights

- Large Drive Support (48bit LBA for drives >137GB)
- Advanced Features
  - Dynamic Sector Repair
  - SMART data
- Improved Array Maintenance
  - Scheduling Background Tasks
  - Background Media Scan
  - Improved error recovery during rebuilds
  - Progress indicators
- Additional Drivers
  - Windows XP Driver
  - Linux Drivers (Red Hat 7.2, SuSE 7.2/7.3)
- Improved Customer Support Diagnostics

#### Firmware and Driver Information

3ware periodically updates drivers, firmware and 3DM (Management Software) to add features and improve product reliability and compatibility.

Please visit our website at <http://www.3ware.com/support/swlibrary.asp> to obtain the latest drivers, firmware and 3DM.

**3ware Escalade 6000 Storage Switch 6.9 release includes new firmware, driver and 3DM revisions. All three components must be installed; individual components of the 6.9 release can not be mixed with prior releases.**

#### Firmware:

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Firmware version: 1.02.28.053

BIOS version: 1.07.02.005

Monitor version: 1.01.00.028

Achip version: 4.4

Pchip version: 5.7

#### Drivers:

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Windows driver version: 1.11.00.001

Operating systems supported:

Windows 98SE, Windows ME, Windows NT wSP/6, Windows XP and Windows 2000 w/SP2

Linux Red Hat 6.2 driver version: 1.02.00.015

Linux Red Hat 7.1/7.2 driver version: 1.02.00.016

Linux SuSE 6.4 driver version: 1.02.00.015

Linux SuSE 7.2/7.3driver version: 1.02.00.016

#### 3DM (Management Software):

3ware Escalade Storage Switch Firmware and Driver for the 6000 Series require the following 3DM versions or later for the latest features.

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3DM for Windows version: 1.11.00.006

3DM for Linux version: 1.11.00.006

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## New Features

### Large Drive Support

48bit LBA support for drives larger than 137GB. See Known Problems and Solutions section for information regarding migration to large arrays.

### Advanced Features:

#### Dynamic Sector repair

Dynamic sector repair is implemented for RAID 5 and now works on RAID 1, 10 and 5. This feature enables the repair of data sectors when errors are encountered in a redundant array.

#### SMART Monitoring (Self-Monitoring, Analysis and Reporting Technology)

This feature adds monitoring and troubleshooting functionality by automatically checking a disk drive's health and reporting potential problems. It allows you to take proactive steps to prevent impending disk failures. If a failure of any drive is determined to be likely, the user is notified by an AEN (asynchronous error notification).

### Improved Array Maintenance:

#### Scheduling Background Tasks

Automatic rebuilds and Background Media Scans can now be scheduled within 3DM.

#### Background Media Scan

Background Media Scan is an embedded feature that performs a read-scan of all disks in an array. An error notification is posted for each read error detected. If the array is redundant (i.e., RAID 1, 10 and 5) Dynamic Sector Repair automatically recovers the redundant data and rewrites it to the logical defective location. The drive reallocates the sector where the read error occurred and a notification of repair is posted. This results in the restoration of drive and data integrity; the primary and redundant data are again both valid. This is a schedulable task that can be found in the 3DM Configuration.

#### Improved error recovery during rebuilds

Selecting the new feature, **Force Continue on Source Errors**, in 3DM prior to rebuilding a degraded array will ensure the rebuild completes even though read errors may be encountered on the source array. Errors encountered during a rebuild are logged in the AEN alarms page in 3DM and indicate that a file system check may be required.

#### Progress Indicators

Status meters are now displayed for Rebuilding and Initializing and provide information regarding percentage complete for these tasks.

### Additional Driver Support

#### Windows XP Driver

Linux: Red Hat 7.2 & SuSE 7.2/7.3

### Improved Customer Support Diagnostics

#### Download Error Log

To better assist you in diagnosing controller failures, diagnostic data including SMART logs may be saved and e-mailed to 3ware Customer Support. This feature, **Download Error Log**, can be found in the 3DM alarms page.

#### View serial number in 3DM

This allows a user to view the serial number of the Escalade board in the 3DM Technical page.

### Additional Changes

#### 3DM Pop-up for Windows

In order to provide a more consistent user interface between 3DM Linux and 3DM Windows the Pop-up window in 3DM Windows has been altered. All of the functionality, except the audible alarm, has been moved to the 3DM Settings page. Launch the 3DM Web Browser for viewing of current status.

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## Upgrade Overview

### Overview

The 6.9 release consists of new firmware, drivers and 3DM.

**\*\*\* Please note: \*\*\***

**All** 6.9 release components **must** be installed together.

You may not mix any 6.9 components with prior releases!

### The upgrade steps are as follows:

1. Upgrade the driver - note: user documentation is available on the 3ware website at [www.3ware.com/support/userdocs.asp](http://www.3ware.com/support/userdocs.asp)
  - Windows – please refer to the relevant section of the Users Guide corresponding to the specific version of the Operating System you are using
  - Linux – please refer to the driver upgrade instructions below pertaining to the specific distribution and kernel of your release
2. Upgrade 3DM
  - Windows – run 3DMsetup.exe in the downloaded ZIP image
  - Linux – run the 3DM install script
3. Reboot the system to a DOS boot floppy containing the firmware upgrade image and upgrade program
4. Upgrade the firmware by running UPGRADE.BAT – please refer to the Firmware upgrade procedure below
5. Reboot the system
6. You will now be running the new 6.9 release

### Upgrading from releases prior to release 6.6

If you have an Escalade 6000 with a release prior to release 6.6, you will have to upgrade the firmware in two steps:

#### How to tell if you have a release prior to 6.6:

1. You get the following error when you attempt to upgrade to 6.9
  - “missing codeset or wrong codeset”
2. Use 3DM and go to the Details page.
  - If the firmware version is 1.00.xx.xxx or 1.01.xx.xxx, you have a release **PRIOR** to 6.6 and must upgrade in two stages

#### Upgrade steps are:

1. Upgrade the driver and 3DM
2. Reboot the system to a DOS boot floppy containing release 6.8 firmware (available from the 3ware website)
3. Upgrade the firmware by running UPGRADE.BAT – see Firmware upgrade procedure, below
4. Power cycle the system.
5. Reboot the system with a DOS floppy containing the 6.9 firmware
6. Upgrade the firmware by running UPGRADE.BAT
7. Reboot the system
8. You will now be running the new release

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## Firmware Installation Instructions

### Firmware Upgrade Procedure

The 3ware on-board code-set requires a DOS bootable diskette to boot the system and run the installation program.

- This utility DOES NOT work in a Windows DOS box.

If you do not have a DOS bootable floppy, you may obtain one free at [www.bootdisk.com](http://www.bootdisk.com)

1. Make sure you have the correct code-set for your board.
  - To identify whether your board is a 3w-6x00 board or a 3w-7x00, open 3DM and go to the Detail page. Confirm that the Model number is 6xxx.
2. Update the driver
3. Update 3DM
4. Insert a DOS bootable diskette version 6.22 or later into the floppy drive and boot the system to DOS.
5. Insert the diskette containing the hardware upgrade code into the drive.
6. Type "upgrade.bat" at the A: prompt then press enter. Follow the instructions on the screen to update the code-set.
7. If the code-set you download is incompatible with your board, the code-set will not upgrade and an error message will be reported.
8. Once the upgrade is successfully completed, turn off the system as instructed.
9. Remove the floppy diskette from the drive.
10. Next, turn your system back on to execute new code-set.
11. If you have upgraded your driver and your hardware correctly, the system will boot successfully.
12. If your system doesn't boot and your OS is installed on the 3ware controller, you will have to go into your system BIOS to change the boot order.
  - Follow your system guide if you don't know how to perform the operation.
  - Consult the BIOS Settings section in the manual that accompanied the system and/or motherboard.

### Firmware Upgrade Procedure for Multiple Boards Systems

1. If your system contains multiple 3ware controllers, the upgrade utility will display all the boards on your system and ask you to choose the board you want to upgrade.
  - You can only upgrade one board at a time.
  - To upgrade multiple boards, you have to re-run the utility program and choose a different board each time until all boards are updated.
2. If you are upgrading 6000 series boards, you may only have a maximum of 3 boards in the system at a time due to system resource issues. If there are more than 3 boards in the system the upgrade utility will fail due to insufficient system memory.

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## Driver Installation Instructions

### Windows Driver Upgrade Instructions:

Please refer to the user documentation which is available on the 3ware website at [www.3ware.com/support/userdocs.asp](http://www.3ware.com/support/userdocs.asp)

### Linux Driver Upgrade Procedure for:

Red Hat 6.2, 7.1, 7.2  
SuSE 6.4, 7.2, 7.3  
Red Hat 7.0, SuSE 7.0 and SuSE 7.1 are no longer supported.

### Upgrading drivers for systems that boot from the Array or 3w-xxxx driver loaded by initial ram disk image:

Obtain new driver images from 3ware web site.  
Unzip to floppy or local directory.  
Change directory to floppy or local directory.  
Continue with instructions below for your operating system.

#### Red Hat 6.2:

Non SMP  
Copy rh62/3w-xxxx.o to /lib/modules/2.2.14-5.0/scsi/3w-xxxx.o  
SMP  
Copy rh62/3w-xxxx.smp to /lib/modules/2.2.14-5.0smp/scsi/3w-xxxx.o

#### Red Hat 7.1:

Non SMP  
Copy rh71/3w-xxxx.o to /lib/modules/2.4.2-2/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy rh71/3w-xxxx.smp to /lib/modules/2.4.2-2smp/kernel/drivers/scsi/3w-xxxx.o

#### Red Hat 7.2:

Non SMP  
Copy rh72/3w-xxxx.o to /lib/modules/2.4.7-10/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy rh72/3w-xxxx.smp to /lib/modules/2.4.7-10smp/kernel/drivers/scsi/3w-xxxx.o

#### SuSE 6.4:

Non SMP  
Copy su64/3w-xxxx.o to /lib/modules/2.2.14/scsi/3w-xxxx.o  
SMP  
Copy su64/3w-xxxx.smp to /lib/modules/2.2.14-SMP/scsi/3w-xxxx.o

#### SuSE 7.2:

Non SMP  
Copy su72/3w-xxxx.o to /lib/modules/2.4.4-4GB/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy su72/3w-xxxx.smp to /lib/modules/2.4.4-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o

#### SuSE 7.3:

Non SMP  
Copy su73/3w-xxxx.o to /lib/modules/2.4.10-4GB/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy su73/3w-xxxx.smp to /lib/modules/2.4.10-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o

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## Driver Installation Instructions

### Upgrade initial ram disk:

#### Red Hat Linux Uniprocessor Systems:

Type the following commands:  
cd /boot

#### For Red Hat 6.2:

```
cp initrd-2.2.14-5.0.img initrd-2.2.14-5.0.bak - make a backup copy just in case!  
mv initrd-2.2.14-5.0.img initrd.img.gz
```

#### For Red Hat 7.1:

```
cp initrd-2.4.2-2.img initrd-2.4.2-2.bak - make a backup copy just in case!  
mv initrd-2.4.2-2.img initrd.img.gz
```

#### For Red Hat 7.2:

```
cp initrd-2.4.7-10.img initrd-2.4.7-10.bak - make a backup copy just in case!  
mv initrd-2.4.7-10.img initrd.img.gz
```

```
gunzip initrd.img.gz  
mount -o loop initrd.img tmp  
mkdir tmp  
cd tmp  
cd lib
```

#### For Red Hat 6.2:

```
cp /lib/modules/2.2.14-5.0/scsi/3w-xxxx.o ./
```

#### For Red Hat 7.1:

```
cp /lib/modules/2.4.2-2/kernel/drivers/scsi/3w-xxxx.o ./
```

#### For Red Hat 7.2:

```
cp /lib/modules/2.4.7-10/kernel/drivers/scsi/3w-xxxx.o ./
```

\*\* If prompted to replace file answer yes.

```
sync;sync;sync  
cd ../..
```

```
umount tmp  
gzip -9 initrd.img
```

#### For Red Hat 6.2:

```
mv initrd.img.gz initrd-2.2.14-5.0.img
```

#### For Red Hat 7.1:

```
mv initrd.img.gz initrd-2.4.2-2.img
```

#### For Red Hat 7.2:

```
mv initrd.img.gz initrd-2.4.7-10.img
```

```
rmdir tmp  
lilo
```

\*\* You should see a printout of kernels that are able to boot on this system after running lilo.

```
Example: 2.2.14-5.0  
          2.2.14-5.0smp  
          2.4.2-2
```

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## Driver Installation Instructions

### Red Hat Linux SMP Systems:

Type the following commands:  
cd /boot

#### For Red Hat 6.2smp:

cp initrd-2.2.14-5.0smp.img initrd-2.2.14-5.0smp.bak - make a backup copy just in case!  
mv initrd-2.2.14-5.0smp.img initrdsmp.img.gz

#### For Red Hat 7.1smp:

cp initrd-2.4.2-2smp.img initrd-2.4.2-2smp.bak - make a backup copy just in case!  
mv initrd-2.4.2-2smp.img initrdsmp.img.gz

#### For Red Hat 7.2smp:

cp initrd-2.4.7-10smp.img initrd-2.4.7-10smp.bak - make a backup copy just in case!  
mv initrd-2.4.7-10smp.img initrdsmp.img.gz

gunzip initrdsmp.img.gz  
mount -o loop initrdsmp.img tmp  
mkdir tmp  
cd tmp  
cd lib

#### For Red Hat 6.2smp:

cp /lib/modules/2.2.14-5.0smp/scsi/3w-xxxx.o ./

#### For Red Hat 7.1smp:

cp /lib/modules/2.4.2-2smp/kernel/drivers/scsi/3w-xxxx.o ./

#### For Red Hat 7.2smp:

cp /lib/modules/2.4.7-10smp/kernel/drivers/scsi/3w-xxxx.o ./

\*\* If prompted to replace file answer yes.

sync;sync;sync  
cd ../..  
umount tmp  
gzip -9 initrdsmp.img

#### For Red Hat 6.2smp:

mv initrdsmp.img.gz initrd-2.2.14-5.0smp.img

#### For Red Hat 7.1smp:

mv initrdsmp.img.gz initrd-2.4.2-2smp.img

#### For Red Hat 7.2smp:

mv initrdsmp.img.gz initrd-2.4.7-10smp.img

rmdir tmp  
lilo

\*\* You should see a printout of kernels that are able to boot on this system after running lilo.

Example: 2.2.14-5.0  
          2.2.14-5.0smp  
          2.4.2-2

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## Driver Installation Instructions

### SuSE Linux Systems:

#### SuSE Linux Uniprocessor Systems:

Type the following commands:

```
cd /boot
cp initrd initrd.bak - make a backup copy just in case!
mv initrd initrd.gz
gunzip initrd.gz
mount -o loop initrd tmp
mkdir tmp
cd tmp
cd lib
```

#### For SuSE 6.4:

```
cp /lib/modules/2.2.14/scsi/3w-xxxx.o modules/2.2.14/scsi
```

#### For SuSE 7.2:

```
cp /lib/modules/2.4.4-4GB/kernel/drivers/scsi/3w-xxxx.o modules/2.4.4-4GB/kernel/drivers/scsi
```

#### For SuSE 7.3:

```
cp /lib/modules/2.4.10-4GB/kernel/drivers/scsi/3w-xxxx.o modules/2.4.10-4GB/kernel/drivers/scsi
```

\*\* If prompted to replace file answer yes.

```
sync;sync;sync
cd ../..
umount tmp
gzip -9 initrd
mv initrd.gz initrd
rmdir tmp
lilo
```

\*\* You should see a printout of kernels that are able to boot on this system after running lilo.

```
Example: 2.2.14
         2.2.14-SMP
         2.4.4
```

### SuSE Linux SMP Systems:

Type the following commands:

```
cd /boot
cp initsmp initsmp.bak - make a backup copy just in case!
mv initsmp initsmp.gz
gunzip initsmp.gz
mount -o loop initsmp tmp
mkdir tmp
cd tmp
cd lib
```

#### For SuSE 6.4-SMP:

```
cp /lib/modules/2.2.14/scsi/3w-xxxx.o modules/2.2.14-SMP/scsi
```

#### For SuSE 7.2-SMP:

```
cp /lib/modules/2.4.4-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o modules/2.4.4-64GB-SMP/kernel/drivers/scsi
```

#### For SuSE 7.3-SMP:

```
cp /lib/modules/2.4.10-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o modules/2.4.10-64GB-SMP/kernel/drivers/scsi
```

\*\* If prompted to replace file answer yes.



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## Driver Installation Instructions

```
sync;sync;sync
cd ../../
umount tmp
gzip -9 initsmp
mv initsmp.gz initsmp
rmdir tmp
lilo
```

\*\* You should see a printout of kernels that are able to boot on this system after running lilo.

Example: 2.2.14  
          2.2.14-SMP  
          2.4.4

### Upgrading 3w-xxxx driver for systems that don't boot from the array or use an initial ramdisk file to load the driver:

Red Hat 6.2, 7.1, 7.2  
SuSE 6.4, 7.2, 7.3

#### Red Hat 6.2:

Non SMP  
Copy rh62/3w-xxxx.o to /lib/modules/2.2.14-5.0/scsi/3w-xxxx.o  
SMP  
Copy rh62/3w-xxxx.smp to /lib/modules/2.2.14-5.0smp/scsi/3w-xxxx.o

#### Red Hat 7.1:

Non SMP  
Copy rh71/3w-xxxx.o to /lib/modules/2.4.2-2/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy rh71/3w-xxxx.smp to /lib/modules/2.4.2-2smp/kernel/drivers/scsi/3w-xxxx.o

#### Red Hat 7.2:

Non SMP  
Copy rh72/3w-xxxx.o to /lib/modules/2.4.7-10/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy rh72/3w-xxxx.smp to /lib/modules/2.4.7-10smp/kernel/drivers/scsi/3w-xxxx.o

#### SuSE 6.4:

Non SMP  
Copy su64/3w-xxxx.o to /lib/modules/2.2.14/scsi/3w-xxxx.o  
SMP  
Copy su64/3w-xxxx.smp to /lib/modules/2.2.14-SMP/scsi/3w-xxxx.o

#### SuSE 7.2:

Non SMP  
Copy su72/3w-xxxx.o to /lib/modules/2.4.4-4GB/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy su72/3w-xxxx.smp to /lib/modules/2.4.4-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o

#### SuSE 7.3:

Non SMP  
Copy su73/3w-xxxx.o to /lib/modules/2.4.10-4GB/kernel/drivers/scsi/3w-xxxx.o  
SMP  
Copy su73/3w-xxxx.smp to /lib/modules/2.4.10-64GB-SMP/kernel/drivers/scsi/3w-xxxx.o

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## Known Problems and Solutions

If you encounter a problem or an issue with this release, please contact 3ware Customer Support at [www.3ware.com/support/index.shtml](http://www.3ware.com/support/index.shtml) or at 877- 88-3ware (877-883-9273) or 650-614-3439.

### Migration Support for Large Disk Drives

Arrays created with large LBA drives (>137GB) using earlier versions of firmware cannot be dynamically resized. To take advantage of large LBA drives you must first delete the existing array and recreate it with firmware release 6.9 or later.

### Support for Large Disk Drives on Linux

Kernel versions below 2.4.18 may not support an array size of 1 Terabyte or larger. Kernel version 2.4.18 and above supports arrays greater than 1 Terabyte, but may report the array size incorrectly. This is a sign overflow issue with the Kernel.

### BIOS incorrectly reports verification complete and freezes

Using the 3ware BIOS setup, if verification is started, cancelled, and restarted without exiting the 3ware BIOS, the BIOS will immediately report that the restarted verification completed successfully even though the verification is still in process. The system will appear to hang, however, it will recover when the verify is complete. You can perform a soft or hard reset to cancel the verify.

### 3DM for SuSE Linux: E-mail notification requires port mapper service

The default installation of SuSE may not install port mapper, a required service for e-mail notification from 3DM. Choosing "Complete Install" during installation will select all packages and will insure that port mapper is installed.

### 3DM for Linux: Unable to change default 3DM password for 2.4 kernels using Netscape

Problems may be encountered when changing the password or unlocking 3DM using the default password while using Netscape. Rebooting the same system in SMP mode works and the password can be changed. This is a Netscape issue affecting the 2.4 kernels (non-smp) with Red Hat or SuSE. Upgrading to Netscape v6.0 or later addresses this problem.

### 3DM for Linux: Leaving Netscape open during upgrades causes errors

Leaving Netscape open during the upgrade process results in an open socket error.

The 3DM web page will not load and the following error message will appear:

```
Jan 14 10:49:57 localhost 3dm: 3dmd shutdown succeeded
```

```
Jan 14 10:49:57 localhost 3dmd: The application could not initialize the server socket (e005)
```

```
Jan 14 10:49:57 localhost 3dm: 3dmd startup succeeded
```

### SuSE 7.2 Linux Driver and RAID 5

This is not supported due to a conflict in the way SuSE 7.2 handles the number of maximum buffers. For this reason, *RAID 5 is not supported under SuSE 7.2*. Upgrading to SuSE 7.3 fixes this problem

### Linux Driver: Older 3ware driver loads after installing and rebooting Red Hat 7.2

Due to a Red Hat 7.2 installer bug, an older version of the 3ware driver loads instead of the latest one from the driver disk. Complete the installation by upgrading the driver. See the preceding upgrade procedure for more information.

### 3DM for Windows: Incorrect error message

3DM reports the following incorrect error message when rebuilding using a smaller drive:

Error: The request could not be performed because of an I/O device error (error code 1117)

(e057/ad011/ffffff)

### 3DM for Windows: Rebuild starts outside of scheduled time after system reboot

If a system is rebooted or goes into hibernation while a rebuild is scheduled in 3DM a rebuild will begin even though it's outside of the scheduled time. This can be corrected by restarting 3DM.

### Windows Driver: Download error log not available for Windows 98/ME

This feature is not available for this OS.

For further information, please visit our web site at [www.3ware.com](http://www.3ware.com) or call us at 877-88-3ware (877-883-9273) or 650-614-3439