



# 3ware 9000 Series Release Notes

Release 9.2.0

**READ ME FIRST!**

## *Introduction*

Thank you for purchasing the AMCC 3ware 9000 Series Serial ATA RAID Controller. Please refer to the Errata section below for important information regarding the controller before calling technical support. This document describes known issues and important recommendations that are not included in the Installation Guide and the User's Guide.

For additional information, see our web site at:

[http://www.3ware.com/products/serial\\_ata9000.asp](http://www.3ware.com/products/serial_ata9000.asp)

User Documentation:

<http://www.3ware.com/support/userdocs.asp>

Knowledgebase:

<http://www.3ware.com/KB/kb.asp>

Software Downloads:

<http://www.3ware.com/support/download.asp>

System Compatibility Lists:

[http://www.3ware.com/products/compatibility\\_sata.asp](http://www.3ware.com/products/compatibility_sata.asp)

Service and support:

<http://www.3ware.com/support/index.asp>

Main U.S. Phone: 800-840-6055 (US only) or 858-535-6517

European Phone: 00 (800) 3-927-3000

i. Germany, France, Benelux region and Eastern Europe, +49-89-800777-15

ii. UK, Ireland, Nordic region, Spain, Italy, Portugal, +353 61702060

## ***Release Highlights***

- Support for Online Capacity Expansion (OCE) and RAID Level Migration (RLM)
- Support for SuSE Linux Enterprise Server 9.0 and SuSE Professional 9.2
- Support for Red Hat WS3 Update 3
- Beta support for Fedora Core 3
- Critical bug fixes for BBU support. This is the minimum code level recommended for controllers with a BBU attached.
- Support for array naming and serial numbers
- Support for AutoCarving (Multiple 2 TB LUN option) for legacy OS
- Updated firmware, drivers, CLI, and 3DM 2

## ***Release Details***

The following firmware, driver, 3DM 2 and CLI versions comprise the 9.2.0 release package:

- Firmware version: 2.06.00.009
- 3BM (BIOS) version: 2.03.01.051

## **Operating System Drivers**

Windows driver version: 2.06.03.040

- Windows 2003, XP (SP1), and 2000 (SP4) for AMD and Intel Platforms (32-bit)
- Windows 2003 and XP (SP1) for AMD (Opteron) and Intel (EM64T) Platforms (64-bit) (Beta version)

Linux 2.6 driver version: 2.26.03.015fw

- SuSE 9.2 Pro for AMD and Intel Platforms (32-bit & 64-bit)
- SuSE Linux Enterprise Server 9.0 for AMD and Intel Platforms (32-bit & 64-bit)
- Fedora Core 3 for AMD and Intel Platforms (32-bit & 64-bit)
- Open source driver also available, refer to readme.txt file on the 3ware CD
- 'fw' after the driver version indicates that the controller firmware is bundled with the driver

Linux 2.4 driver version: 2.24.03.015fw

- Red Hat Enterprise WS3.0 Update3 for AMD and Intel Platforms (32-bit & 64-bit)
- Open source driver also available, refer to readme.txt file on the 3ware CD
- 'fw' after the driver version indicates that the controller firmware is bundled with the driver



FreeBSD 5.x driver version: 3.50.00.015

- For AMD and Intel Platforms (32-bit)
- Only FreeBSD 5.2 and 5.2.1 are supported

### **3DM 2 Disk Management Utility**

- 3DM 2 for Windows 32-bit and 64-bit versions: 2.03.00.025
- 3DM 2 for Linux 32-bit and 64-bit versions: 2.03.00.025
- 3DM 2 for FreeBSD 32-bit version: 2.03.00.025
- 3DM 2 installer for Fedora Core 3 requires additional steps (see below)

### **CLI Command Line Interface**

- CLI for Windows 32-bit and 64-bit versions: 2.00.02.008
- CLI for Linux 32-bit and 64-bit versions: 2.00.02.008
- CLI for FreeBSD 32-bit version: 2.00.02.008

# Errata

## *Important Issues*

### *Red Hat WS3.0 driver does not work with older (or newer) versions*

The drivers provided in release 9.2 for Red Hat Enterprise WS3 are for Update 3 only. If a driver is needed for an earlier version (Update 2) or for a newer version (Update 4), you can build your own driver using the knowledgebase article 11843:

<http://www.3ware.com/kb/article.aspx?id=11843>

### *Red Hat – Additional configuration required for AutoCarving (Multi LUN support) under Linux 2.4 (not required for Linux 2.6)*

To allow multi LUN to work an 'options' line needs to be added to the `/etc/modules.conf` file above the controller entry:

e.g.  
`options scsi_mod max_scsi_luns=8`  
`alias scsi_hostadapter 3w-9xxx`

If the system is booting from the 9500S controller (i.e. the array is primary storage) then the `initrd` image also needs to be updated:

e.g. `/sbin/mkinitrd -v -f /boot/initrd-<kernel>.img <kernel>`  
e.g. `/sbin/mkinitrd -v -f /boot/init-2.4.21-4.EL.img`  
`init-2.4.21-4.EL`

### *Fedora Core 3 - 3DM 2 installer does not work completely with Fedora Core 3*

The install script for the 9.2 code set for 3DM 2 was not designed for Fedora Core 3, so you must do some additional steps as described below. This is true for other non supported distributions as well. See KB article 12692

<http://www.3ware.com/kb/article.aspx?id=12692>

1. Install 3DM 2:

```
./install.3dm
```

2. Untar 3dm-lnx.tgz

```
tar zxvf 3dm-lnx.tgz
```

3. Copy `rc.redhat` to `/etc/rc.d/init.d/3dm2`

```
cp rc.redhat /etc/rc.d/init.d/3dm2
```

4. Type:

```
chkconfig --add 3dm2
```

5. Type:

```
chkconfig --add --level 345 3dm2
```

6. Change the operating mode by typing:

```
chmod +x /etc/rc.d/init.d/3dm2
```

7. Change the permissions on the 3dm2 configuration file:

```
chmod 600 /etc/3dm2/3dm2.conf
```

8. Start the 3DM 2 daemon by typing:

```
/etc/rc.d/init.d/3dm2 start
```

9. Open the web browser and go to <https://localhost:888> or <http://localhost:888>.

### ***Fedora Core 3 – 3DM 2 crashes when email notification is used***

If you use email notification (using sendmail or any other email server) under Fedora Core 3, the 3DM 2 daemon will crash. You will then have to restart the 3DM 2 daemon (e.g. `/etc/rc.d/init.d/3dm2 start`). To get around this problem, you must use the IP address instead of the name in the 'Server (name or IP)' box to resolve this issue. You can use 127.0.0.1 by default or the actual IP address of your server.

If you don't know the IP address of your mail server, you can get it by typing:

```
nslookup <your email server name>
```

See 3ware KB article 12753 <http://www.3ware.com/kb/article.aspx?id=12753>

### ***Linux (all versions) - After Migration Additional Steps are required to Show & Use New Capacity***

To get the new unit capacity to show up on the block device target within Linux, after the migrate completes, do the following:

If the newly migrated unit is being used as primary storage, then a reboot is required before seeing the new unit size. Following the reboot proceed to step-4.

If the newly migrated unit is being used as secondary storage, do the following:

1. Unmount all filesystems, swap devices, and stop all processes which have open file descriptors on the unit that had its capacity expanded
2. Use 3DM 2 or `tw_cli` to remove the newly migrated unit

3. Use 3DM 2 or `tw_cli` to rescan the controller. The new unit capacity will now be available to the operating system.

4. Filesystem resizing is not automatic. Use the appropriate Linux tool to resize or grow the filesystem. Check the manual pages for more details about `resize_reiserfs`, `xfs_grow`, `resize2fs`, etc. Some filesystems cannot be resized at all. Others can only be resized when off-line or unmounted.

### *SuSE Errata*

- “LUN larger than current supported” errors under SuSE 9.2 and 9.0ES
  - These errors may occur on systems with memory over 4 GB
- Out of memory errors under SuSE 9.2
  - Memory errors may occur when running even a minimum amount of I/O, on systems with 2 GB or more RAM.
- Kernel does not detect a new array created from 3ware BIOS, except for boot device.
  - As a work around use 3DM 2 or `tw_cli` to remove the unit and rescan the controller or execute the command:  
`/etc/rc.d/boot.udev force-reload.`
- Boot fails after installing SuSE 9.0ES
  - SuSE 9.0ES and earlier installers contain a bug that does not update `initrd` to include the 3w-9xxx drivers. This has been fixed in SuSE 9.2. The work around is to run the installation normally as described in the Installation Guide, but at the end when SuSE displays the “Now booting your system” countdown, immediately click the stop button and switch over to the console by using the `Ctrl+Alt+F2` key combination on the keyboard. Change directories to `/update/000/install` and run the update script which will copy the necessary 3ware driver and update `initrd` accordingly. When the update is completed, return to the install screen with `Ctrl+Alt+F7` and click the OK button to finish the installation.

### *Linux (all versions) and usage of Ctrl+c*

The use of `Ctrl+c` to abort operations is not recommended while having I/O to the 3ware controller. The following are known incompatibilities:

1. Create a RAID-0 unit
2. Migrate the unit to another RAID-0 using CLI
3. Format and perform I/O on the array
4. Delete the unit using CLI
5. Hitting `Ctrl+c` causes a kernel panic

### *3BM BIOS is enabled or disabled for all controllers*

Pressing `Alt+B` every time you boot when the 3ware BIOS is displayed during boot will disable the BIOS for all 3ware controllers in the system.

### ***3DM 2 remote access requires synchronized time***

When accessing a computer remotely with 3DM 2, the system time on the remote computer cannot vary by more than 30 minutes (including time changes due to time zones) from the system with the 3ware controller. You will be allowed to connect remotely, but if you click on any screen you will get the message: “(0x0C:0x001A): You have been logged out due to inactivity or Cookies are disabled” To remotely connect to a system, change the local time of remote system to match the time of the system with the 3ware controller. See 3ware KB article 13322.

<http://www.3ware.com/kb/article.aspx?id=13322>

### ***Linux/FreeBSD - 3DM 2 Daemon Startup***

If the 3DM 2 daemon was started when the 3ware driver was loaded, you will have to stop and restart the daemon:

```
e.g. /etc/rc.d/init.d/3dm stop
     /etc/rc.d/init.d/3dm start
```

### ***Fedora Core 3 / AMD 64-bit – can’t update the mkinitrd file***

When installing Fedora Core 3 (64-bit version) to a 3ware RAID array as primary storage, by default FC3 uses LVM when creating the disk partitions. If you use LVM, then you will not be able to update the 3ware driver at a later time. Updating the 3ware driver at a later time with the mkinitrd command will cause the system to not be able to boot. See 3ware KB article 13297 <http://www.3ware.com/kb/article.aspx?id=13297>.

### ***SODIMM Memory Module***

Use only the memory that is included with the controller or one that is listed in the compatibility chart posted in the product knowledge base.

<http://www.3ware.com/kb/article.aspx?id=11748>

### ***3DM 2 Schedule/Verify Behavior***

In cases when no time slot task (verify/schedule) is scheduled 3DM displays "Disabled until at least one scheduled entry is set below." When the user schedules a new task the system automatically sets "Ignore" for the requested scheduled.

### ***3DM 2/CLI Array Naming***

The following characters are not allowed for array names, including a space:

@ % & , ; : " ' { } | \ ~ ` \* [ ] < > ( )

### ***For Controllers using the Battery Backup Unit (BBU)***

- BIOS reports “Error 01D2 in opcode 13. Press any key to continue” This message will appear when creating an array with cache enabled and the BBU is not read (e.g. in testing or charging mode). Create arrays before starting any BBU tests, or create the arrays with cache disabled.
- The battery is defective and should be replaced if either the HIGH\_CURRENT\_TEST\_WARNING or HIGH\_CURRENT\_TEST\_FAULT messages are reported by the controller. When the battery is in this status, it may

not be capable of protecting the data inside the cache memory when the system is interrupted by power failure or unclean shutdown.

- If the CLI is used to disable the BBU (e.g. `tw_cli /c0/bbu disable`) the CLI and 3DM 2 will show the BBU as 'NOT PRESENT', even though it is present and just disabled. To determine if the BBU is truly not present and not just disabled, you can use the CLI to enable the BBU (e.g. `tw_cli /c0/bbu enable`), then check the status of the BBU. If the BBU was simply disabled, it will now show that it is available.

### *Compatibility Issues:*

- HP Proliant ML570 G2 computer system
  - HP BIOS P32 (02/01/2003) <- original  
HP BIOS P32 (09/15/2004) <- latest (Please upgrade to the latest motherboard BIOS)
  - With a 3ware 9500 board installed, if there are any units created, the system won't boot to the local drive. Workarounds include:
    1. Reduce other device's usage of shadow memory (sound, video, etc). Consult the HP documentation for how to do this.
    2. Press Alt-B when the 3ware BIOS is displayed on the screen during boot to disable 9500S BIOS from loading.
    3. Check the HP documentation to see if it is possible to change the boot sequence from the system BIOS.
- With multiple controllers, the controller ID is switched with Win 2k3/64 and WinXP/32 with the 3ware BIOS vs. 3DM 2 / CLI.
  - Dell PowerEdge 2600
  - Tyan K8S Pro 2882 with the latest AMI Bios version 2.04
- Multiple controller are not supported on the following system:
  - Dell PowerEdge 2600
- "LUN Larger than currently supported" when loading 9.0ES 64-bit Xeon
  - This is a kernel bug which happens on 64-bit machines when the first LUN is over 1TB then the remaining logical units report errors.  
[https://bugzilla.redhat.com/bugzilla/show\\_bug.cgi?id=127434](https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=127434)
- Fedora Core 3 kernel bug/System hang and kernel panic under FC3 x86\_64 and EM64T processors with smp kernel.
  - This is a kernel bug that causes the system to hang on boot when using Fedora Core 3 with the 2.6.9 kernel with the Intel 64-bit EM64T processor and the smp kernel. The issue is fixed in the 2.6.10 kernel

### *Arrays over 4TB and SuSE 9.1*

Using the 9500S-12 controller and 400GB hard drives, users can create an array over 4TB. Ext2 and ext3 file systems do not support more than 4TB, while the XFS file system does. We have tested the XFS file system with the kernel 2.6.8.1 and found it to work successfully. We were able to mount a partition larger than 4TB.

*Arrays over 2TB and Windows*

- All released versions of Windows 2K/XP/2K3 currently only support partitions up to 2 TB. Future service packs for Windows 2K3 will have support for disk greater than 2 TB. In the meantime the multiple LUN option can be enabled prior to creating arrays greater the 2 TB.
- Beta Windows 2003 SP1  
With the 9.2 code set driver, if user wants to enable >2 TB under Windows 2003 SP1, a registry entry is required:  
[HKEY\_LOCAL\_MACHINE\SYSTEM\ControlSet001\Services\3wareDrv\Parameters]  
"LargeUnits"=dword:00000001

Note, If the 'largeunits' is on by default from device driver installation 2 TB arrays will be seen Disk Manager as 0 TB in the earlier Windows versions, such as XP.