README.TXT

Adaptec maxView Storage Manager
Adaptec Command Line Interface Utility (ARCCONF)
Adaptec maxCache Plus Command Line Interface Utility (MAXCONF)

as of December 12, 2014

Please review this file for important information about issues and errata that were discovered after completion of the standard product documentation. In the case of conflict between various parts of the documentation set, this file contains the most current information.

The following information is available in this file:

1. New Features in this Release
2. Software Versions and Documentation
   - 2.1 Utility Software
   - 2.2 Documentation
3. Installation and Setup
   - 3.1 Installation Instructions
   - 3.2 Supported Operating Systems
   - 3.3 General Setup Notes
   - 3.4 Remote Access
   - 3.5 Windows 8 Setup
   - 3.6 SLES Setup
   - 3.7 Ubuntu Upgrade Installation
   - 3.8 Bootable USB Image Security Warnings
   - 3.9 RAW Device Setup
   - 3.10 Uninstallation Issues
4. maxCache Plus Setup
   - 4.1 OS Support
   - 4.2 Driver Setup and Controller Support
   - 4.3 Caching Modes
   - 4.4 Virtual Volume Size
5. Known Limitations
   - 5.1 Login Issues on Windows Domain Server
   - 5.2 Hot Spare Issues
   - 5.3 Dual-Controller Systems
   - 5.4 Email Notifications
   - 5.5 SGPIO Enclosures
   - 5.6 Non-RAID Mode Controllers
   - 5.7 RAID-Level Migrations
   - 5.8 maxCache Device Migration
   - 5.9 ARCCONF maxCache Device Size Issue
   - 5.10 Display and Refresh Issues
   - 5.11 Browser Issues
   - 5.12 Remote System Issues
   - 5.13 Power Management Issues
   - 5.14 RAID 50/RAID 60, Max Drives
   - 5.15 RAID 10 Segment Order
   - 5.16 RAID 10 Rebuild Order
   - 5.17 Verify with Fix
   - 5.18 Locate Logical Drive Blink LED
   - 5.19 ATA Secure Erase
   - 5.20 ARCCONF Backward Compatibility
   - 5.21 MAXCONF Logical Drive Status Issues
   - 5.22 Virtual Pool Size Reporting Issue
   - 5.23 Adaptec Series 6 Controller Issues
   - 5.24 Simple Volume Support
   - 5.25 Auto-Volume Mode Limitations
   - 5.26 USB Volume Support on SLES
   - 5.27 Hot-Removing Disk Drives on Xenserver Guest OS
   - 5.28 Updating Hard Disk Firmware on VMware Guest OS
   - 5.29 Creating a Support Archive on a Guest OS
   - 5.30 Enclosure Status Reporting
   - 5.31 PHY Status on Enclosure Backplanes
   - 5.32 ARCCONF DELETE LD Missing Confirmation Message
   - 5.33 Special Characters in Logical Device Names
   - 5.34 Speaker Status on SuperMicro SAS2X28 Enclosures
   - 5.35 Online Help Issues

---

1. New Features in this Release

- SNMP Support
- maxView plugin for VMware vSphere Web Client
- Support for Adaptec SAS Expander AEC-82885T in maxView and ARCCONF (all "set" commands)
- Support for expander firmware update in maxView and ARCCONF
- Silent installation ADDLOCAL options ARCCONF, MAXCONF (changed from CLITools)
- Tooltips on properties screens and dashboard (tabbed screens)

- o Improved event descriptions and recommended action for critical events
- o Click navigation from resource to tree node
- o Save/restore configuration support for Linux/Unix OSs
- o Keyboard navigation:
  - TAB object navigation from table to tree
  - TAB object navigation forward and backward
- o Misc UI enhancements:
  - Improved text/icon alignment
  - "..." replaces wrapped text
  - Progress bar for long-running tasks
  - Physical device state in Enterprise View
  - Group node Summary tab for physical devices and controller resources
  - Resizable panels in main window
  - Fixed table header when vertical scrolling
  - Name Change: maxCache Container to maxCache Device
- o Documentation Changes (other than new features):
  - Revise VMware installation/uninstallation instructions
  - Revise Save Support Archive description
  - Add Force Online Logical Drive description
  - Add Cache Preservation description in Controller Properties
  - Add Verify with OS description in Logical Drive Wizard
  - Add Erase/Clear Logical Drive to list of scheduleable tasks
  - Remove Xenserver x64 GOS installer (not supported in this release)
  - Misc corrections and updates
- o Bugfixes

---

2. Software Versions and Documentation

2.1 Utility Software

- o Adaptec maxView Storage Manager Version 1.07
- o Adaptec ARCCONF Command Line Interface Utility Version 1.07

2.2 Documentation

PDF Format (English/Japanese):

- o maxView Storage Manager User's Guide
- o Adaptec RAID Controller Command Line Utility User's Guide

HTML and Text Format:

- o maxView Storage Manager Online Help
- o maxView Storage Manager README.TXT file

---

3. Installation and Setup

3.1 Installation Instructions

The Adaptec SAS RAID Controllers Installation and User's Guide contains complete installation information for the controllers and drivers. The Adaptec RAID Controllers Command Line Utility User's Guide contains complete installation information for ARCCONF. The maxView Storage Manager User's Guide contains complete installation information for the maxView Storage Manager software.

3.2 Supported Operating Systems

Microsoft Windows:

- o Windows Server 2012, 64-bit
- o Windows Server 2012 R2, 64-bit
- o Windows Server 2008 R2, 64-bit
- o Windows SBS 2011 (all versions)
- o Windows 7, Windows 8, Windows 8.1, 32-bit and 64-bit

Linux:

- o Red Hat Enterprise Linux 6.5, 6.4, 5.10, IA-32 and x64
- o SuSE Linux Enterprise Server 11, 10*, IA-32 and x64
- o Debian Linux 7, IA-32 and x64
- o Ubuntu Linux 12, 11, 10, IA-32 and x64
- o Fedora Linux 19, 18, IA-32 and x64
- o CentOS 6.4, 5.10

*See Section 3.6 for SLES 10 setup issues

Virtual OS Environments:

o VMware ESX 4.1
o VMware ESXi 5.5
o Citrix XenServer 6.2 (32-bit GOS only)

Solaris:

o Solaris 10 U9
o Solaris 11 Express

3.3 General Setup Notes

o maxView Storage Manager supports Adaptec Series 8, Adaptec Series 7, and Adaptec Series 6 controllers. It is not backward compatible with older Adaptec controller models.

o maxView Storage Manager is not supported on FreeBSD. Use ARCCONF to create and manage arrays.

o maxView Storage Manager and legacy Adaptec Storage Manager (ASM) cannot coexist on the same system.

3.4 Remote Access

maxView Storage Manager requires the following range of ports to be open for remote access:

o 34570-34580 (TCP)
o 34570 (UDP)
o 34577-34580 (UDP)

See also Section 5.12 for OS-specific issues and workarounds.

3.5 Windows 8 Setup

To log in and use maxView Storage Manager on a Windows 8 system, you must create a local user account; you cannot use your MS Live account. To create a local user account:

1. Log into your MS Live account.
2. Select Settings->Change PC Settings->Users->Switch to Local user.
3. Provide account details.
4. Start maxView Storage Manager and log in with your local user account credentials.

3.6 SLES Setup

o Due to a JRE conflict, maxView Storage Manager is not supported on SLES 10 SP2/SP3 (x32, x64), and SLES 10 SP4 (x32).

  WORKAROUND: Install SLES 10 SP4 64-bit then replace the 64-bit JRE with a 32-bit JRE. Alternatively, use ARCCONF for storage management on SLES 10 systems.

o To avoid a problem with launching maxView Storage Manager on SLES 11 x64 systems with DHCP enabled, ensure that the /etc/hosts file maps the server IP address to a valid host name; the IP address cannot be mapped to 'localhost'.

3.7 Ubuntu Upgrade Installation

When upgrading maxView Storage Manager on an existing Ubuntu Linux x64 installation, you must enable the upgrade switch before installing the maxView .deb package:

```
export maxView_Upgrade=true
dpkg -i StorMan-*.deb
```

To uninstall maxView after the upgrade:

```
export maxView_Upgrade=false
dpkg -r storman
```

3.8 Bootable USB Image Security Warnings

When running maxView Storage Manager from the bootable USB image, you may be prompted with one or more with security warnings before maxView launches. In each case, acknowledge the warning and continue.

3.9 RAW Device Setup

On Adaptec Series 7 and Adaptec Series 8 controllers, a RAW

Pass Through device is analogous to a JBOD, supported by Adaptec Series 6 controllers and older. Any drive without Adaptec RAID metadata is exposed to the OS as a RAW Pass Through device. To remove the Adaptec metadata and convert the drive to a RAW device, use the Uninitialize action in maxView Storage Manager; any existing data on the drive is destroyed. (You can also run uninit from the BIOS or ARCCONF.) For more information about working with RAW devices, see 'controller modes' in the CLI User's Guide, and BIOS 'general settings' in the RAID Controller Installation and User's Guide

3.10 Uninstallation Issues

- When uninstalling maxView Storage Manager on Fedora Linux, the OS displays a series of warning messages about missing files. These messages can be ignored; the uninstallation completes successfully.

  WORKAROUND: To avoid the warnings, uninstall maxView with './StorMan-1.06-21032.i386.bin --remove' rather than 'rpm -e StorMan'.

- When using the 'Modify' option to uninstall maxView Storage Manager on Windows, the 'Adaptec' folder is not removed from the file system.

---

4. maxCache Plus Setup

4.1 OS Support

maxCache Plus is supported on these Windows and Linux OS versions:

- Windows 2008 R2 (x64), Windows Server 2012 (x64)
- Red Hat Linux 6.2, 6.4 (x64)
- SuSE Linux 11 SP3 (x64)

maxCache Plus supports block-level storage devices on the supported operating systems only. It does not support storage devices on any other OS.

4.2 Driver Setup and Controller Support

On Windows systems, maxCache Plus is a selectable feature in the maxView Storage Manager installation wizard. On Linux systems, running the maxCache Plus installation script, install.sh, installs the maxCache Plus driver and maxView Storage Manager. (A separate install package allows you to install just maxView Storage Manager on Linux.)

If the installer detects an Adaptec Series 8Q or 8ZQ controller and one of the supported OSs, it enables the option to install the maxCache Plus driver (Windows) or it installs the maxCache Plus driver automatically (Linux). Once the qualifying Series 8Q/8ZQ controller is detected in the setup, maxCache Plus caching and tiering can be used with any block-level storage device on the supported operating systems, either from Adaptec or other vendor, including any other Adaptec controller: Series 6/7/8 (Q,non-Q), select 3rd party controllers, HBAs, and PCIe storage (eg, PCIe flash).

4.3 Caching Modes

In this release, Cached Volumes support Write-Back and Write-Through caching modes. Cached LD Volumes support Write-Through caching only.

4.4 Virtual Volume Size

The maximum size of a virtual volume depends on the chunk size:

- 64KB chunk size has a maximum 2TB volume size
- 256KB chunk size has a maximum 8TB volume size
- 1MB chunk size has a maximum 32TB volume size
- 4MB chunk size has a maximum 128TB volume size

---

5. Known Limitations

5.1 Login Issues on Windows Domain Server

If the maxView login account doesn’t have local administrative rights, login will fail with an error message: 'Invalid Username or Password'. On domain servers running later versions of Microsoft

Windows Server, where no local administrator exists or can be created, maxView login is not possible. Use ARCCONF to create and manage arrays.

5.2 Hot Spare Issues

After using a global hot spare to rebuild a redundant logical drive, maxView Storage Manager displays an erroneous event message: "Deleted dedicated hot spare drive for logical device". In fact, the message should read "Logical device X is no longer protected by hot spare drive Y".

5.3 Dual-Controller Systems

In dual-controller systems, the controller order in maxView Storage Manager and the BIOS differs. Example: with an Adaptec 72405 and 7805 installed, the BIOS reports the 72405 as controller 1 and the 7805 as controller 2; in the GUI, the controller order is reversed.

5.4 Email Notifications

- On Linux systems, we recommend adding the SMTP host name to the /etc/hosts file. Doing so ensures that email notifications will succeed if you specify the email server in maxView Storage Manager by host name. Otherwise, email notifications (including test messages) may fail if the DNS is unable to resolve the host hame.

  WORKAROUND: specify the email server in maxView Storage Manager by IP address.

- On CentOS 5.9 x64, email notifications may not be sent for logical drive creations, degraded logical drives, or logical drives that are rebuilding or fully rebuilt.

5.5 SGPIO Enclosures

In this release, maxView Storage Manager does not show connector information for SGPIO enclosures.

5.6 Non-RAID Mode Controllers

maxView Storage Manager can "see" RAID controllers operating in HBA mode, Auto-Volume mode, and Simple Volume mode (Adaptec Series 7 and Adaptec Series 8 controllers only). However, to change the controller mode, you must use ARCCONF or the BIOS.

5.7 RAID-Level Migrations

- The following RAID-level migrations (RLM) are supported in this release:

  RAID 0 to RAID 5
  RAID 0 to RAID 10
  RAID 5 to RAID 6
  RAID 6 to RAID 5
  RAID 10 to RAID 5
  RAID 5 to RAID 10
  RAID 1 to RAID 5
  SIMPLE VOLUME to RAID 1
  RAID 1 to SIMPLE VOLUME

- When migrating a Simple Volume to RAID 1, maxView Storage Manager reports the logical drive state as Impacted (rather than Reconfiguring); this is normal.

- We do not recommend performing a RAID-level migration or Online Capacity Expansion (OCE) on a logical drive with maxCache SSD caching enabled.

  NOTE: maxView Storage Manager grays out the options for logical drives with maxCache enabled. ARCCONF terminates the task.

- Always allow a RAID-level migration to complete before creating a support archive file. Otherwise, the support archive will include incorrect partition information. Once the migration is complete, the partition information will be reported correctly.

5.8 maxCache Device Migration

Only one maxCache Device is supported per controller. Moving

the maxCache Device (all underlying SSDs) from one controller to another (assuming both controllers support maxCache) is supported only if (1) the new controller does not have a maxCache Device or any other maxCache Device with a conflicting device number and (2) only after a clean shutdown on the old controller.

5.9 ARCCONF maxCache Device Size Issue

ARCCONF supports >2TB maxCache Devices if you create the device with the 'max' parameter. However, the functional limit for the maxCache Device is 2TB, which is also the limit in maxView Storage Manager.

5.10 Display and Refresh Issues

We do not recommend using multiple browsers simultaneously on the same maxView instance. Doing so may cause display issues or even freezes; to restore maxView, refresh the display by pressing F5.

5.11 Browser Issues

- To run maxView Storage Manager on the supported browsers, Javascript must be enabled.

- With the default Security setting in Microsoft Internet Explorer 10 and 11, you may be unable to login to maxView Storage Manager or experience certain GUI display issues in the maxView online Help system.

  WORKAROUND: Change the default Security setting from High (or Medium-High) to Medium. Alternative: add the GUI IP address to the trusted sites list.

- With Google Chrome, the scrollbar resets itself to the top after selecting a drive in the Logical Drive wizard. To select another drive, you must scroll down again to the drive location.

- With Microsoft Internet Explorer 10, the controller firmware update wizard does not show the f/w update file name when the upload completes. To refresh the display, click Next then Back.

- With Microsoft Internet Explorer 8, the Verify maxCache dialog box displays square borders on a radio button control with three options. Normally, radio buttons have a round border. Functionally, the control acts like a radio button, where you can select only one option at a time.

5.12 Remote System Access on Linux and Windows

To avoid remote system access failures from Linux and Windows clients running maxView Storage Manager, check and update one or all of the following system and network settings:

Windows:

- Ensure that the DNS server information is properly configured

RHEL/Linux:

- Set server.properties file permissions to at least read-only at all levels

  1. Stop all maxView services.
  2. Set the Permissions of server.properties file to read and write or read-only at all levels (Owner, Group and Others). Apply and close.
  3. Restart all services in the given order - cim, agent, tomcat
  4. Now try to remote login to this system from any other system

- Check/update these network settings:

  1. Disable SELinux
  2. Disable firewall.
  3. Disable the ipv6 in the system, if ipconfig shows both ipv4 and ipv6 address.
  4. Remove the virtual bridge virbr0, if present
  5. Enter local ip address in 'localip' parameter in server.properties file

5.13 Power Management Issues

- Power management is not supported on FreeBSD.

o Capturing support logs from maxView or ARCCONF will spin up drives when power management is active. This is by design.

o For logical drives comprised of SSDs only, the Power Tab in maxView Storage Manager is disabled.

o The Logical Drive Creation wizard does not save the power management settings after the logical drive is created. It is always disabled.

WORKAROUND: Enable power management for the logical drive from the Set Properties window.

5.14 RAID 50/RAID 60, Max Drives

The maximum number of drives in a RAID 50 or RAID 60 differ between maxView Storage Manager, ARCCONF, and the BIOS:

o BIOS and ARCCONF: 128 drives max

RAID 50 - From 2-16 legs with 3-32 drives/leg
RAID 60 - From 2-16 legs with 4-16 drives/leg

o maxView Storage Manager:

Assumes 2 legs for RAID 50/RAID 60 (non-selectable)
RAID 50 3-32 drives/leg (64 total)
RAID 60 4-16 drives/leg (32 total)

5.15 RAID 10 Segment Order

maxView Storage Manager and the Ctrl-A BIOS report the wrong segment order for RAID 10s, regardless of the order in which the drives are selected.

Example 1: Create RAID 10 with 2 SDDs and 2 HDDs in maxView Storage Manager:

(1a) ARCCONF and maxView Storage Manager see the following RAID segment order:
Device 2 (S1)
Device 1 (H2)
Device 3 (S2)
Device 0 (H1)

(1b) the BIOS/CTRL-A sees the following RAID segment order:
Device 2 (S1)
Device 1 (H2)
Device 0 (H1)
Device 3 (S2)

(1c) the correct and expected RAID segment order is:
Device 2 (S1)
Device 0 (H1)
Device 3 (S2)
Device 1 (H2)

Example 2: Create RAID 10 with 2 SDDs and 2 HDDs with ARCCONF:

(2a) the BIOS/CTRL-A sees the following RAID segment order:
Device 0 (H1)
Device 2 (S1)
Device 1 (H2)
Device 3 (S2)

(2b) ARCCONF and maxView Storage Manager see the correct RAID segment order:
Device 2 (S1)
Device 0 (H1)
Device 3 (S2)
Device 1 (H2)

5.16 RAID 10 Rebuild Order

With a degraded RAID 10 logical drive, the drive is rebuilt one leg at a time, not in parallel.

5.17 Verify with Fix

In maxView Storage Manager and ARCCONF, the Verify with Fix operation is NOT available when:

1. The logical drive has a non-redundant RAID level
2. Other tasks are in progress on the logical drive

3. The logical drive is in a non-optimal or impacted state

5.18 Locate Logical Drive Blink LED

In maxView Storage Manager, Locate Logical Drive continues to blink the LED for a pulled physical drive in the array after the locate action is stopped. (For unpulled drives, the blinking stops.) This issue is not seen with ARCCONF.

5.19 ATA Secure Erase

In ARCCONF, the ATA Secure Erase operation cannot be aborted. Once started, it continues to completion.

NOTE: ATA Secure Erase is also available in the Ctrl-A BIOS. and maxView Storage Manager.

5.20 ARCCONF Backward Compatibility

ARCCONF is backward compatible with older Adaptec controller models. As a result, the ARCCONF user's guide and online help show command options that are not supported by newer Adaptec controllers, like the Adaptec Series 7 and Adaptec Series 8.

Example:

- With ARCCONF SETMAXCACHE, Adaptec Series 7 and Series 8 controllers do not support ADDTOPOOL or REMOVEFROMPOOL

5.21 MAXCONF Logical Drive Status Issues

After deleting a logical drive in maxView Storage Manager, the MAXCONF GETCONFIG command lists the drive status as 'Offline'. If the logical drive is not part of any maxCache Plus virtual pool, the drive is removed from the list after reboot.

5.22 Virtual Pool Size Reporting Issue

The maxCache driver reserves 5% of the virtual pool size as buffer space for up-tier/down-tier operations. Both the maxView Event Viewer (for the pool creation event) and the 'maxconf getconfig' command report the total pool size, including buffer space. On the maxView Storage Manager Properties tab, the virtual pool size does not include the buffer space and, therefore, is smaller.

5.23 Adaptec Series 6 Controller Issues

The following issues are seen only with Adaptec Series 6 RAID controllers:

- In maxView Storage Manager, the Preserve Cache option on the Set Properties window is not supported on Series 6 RAID controllers. Attempting to set this option for the Series 6 controller fails.

- Renaming a RAID volume disables the write-cache (if enabled). You cannot re-enable the write-cache in maxView Storage Manager.

  WORKAROUND: Use ARCCONF to enable the write-cache.

- In a VMware Guest OS under VMware ESXi 4.1 or 5.x, maxView Storage Manager and ARCCONF do not correctly identify existing logical drive partitions. In ESXi 5.x the partition is not detected; in ESXi 4.x, it sees a partition when none exists. As a result, attempting to delete, clear, or erase the logical drive may fail.

- Series 6 controllers do not support the ARCCONF GETPERFORM command.

5.24 Simple Volume Support

- In this release, you can create a maximum of 128 Simple Volumes in maxView Storage Manager, ARCCONF, or the BIOS.

- When a Simple Volume fails, the status remains unchanged after drive replacement.

  WORKAROUND: Manually delete the Simple Volume to remove it.

5.25 Auto-Volume Mode Limitations

Changing a controller into Auto-Volume mode (ARCCONF/BIOS) is not

supported if the configuration includes any logical device type other than Simple Volume, including a maxCache Device. The mode switch from RAID mode to Auto-Volume mode is blocked if any other type of logical volume exists (including maxCache). After switching to Auto-Volume mode, you can create and delete Simple Volumes only in maxView Storage Manager and ARCCONF.

NOTE: This behavior differs from previous maxView Storage Manager releases (v1.05 and older), which supported other logical device types in Auto-Volume mode.

5.26 USB Volume Support on SLES

On SLES systems, a pool created on a USB device cannot be assigned to Tier 0 when creating a virtual volume in maxView Storage Manager or maxCONF. (The system hangs.) You can assign the USB device to Tier 1 only.

5.27 Hot-Removing Disk Drives on Xenserver Guest OS

XenServer does not support "hot-removal" of disk drives from a partitioned logical drive. As a result, if you hot remove a disk from a logical drive, the Guest OS becomes inaccessible because the drive partition remains visible to the OS instead of being cleared.

WORKAROUND: Reboot the XenServer host, detach the failed partition, then restart the VM.

5.28 Updating Hard Disk Firmware on VMware Guest OS

Updating the firmware for a SAS hard disk drive with ARCCONF/maxView can crash (PSOD) the VMware Guest OS. This issue is seen with SAS hard drives only; with SATA drives, the firmware update completes successfully.

5.29 Creating a Support Archive on a Guest OS

To create a support archive on a VMware or Xenserver Guest OS, use maxView Storage Manager only. Creating a support archive with ARCCONF is not supported in this release.

5.30 Enclosure Status Reporting

Enclosure status, in maxView Storage Manager, is event-driven. As a result, enclosures can have a "Degraded" status even if related resources (fan, temperature, power) are performing normally (Optimal status). For instance, the Enclosure status changes to "Degraded" if the system reports an "Enclosure device not responding ..." event, even if other sensor values are normal.

5.31 PHY Status on Enclosure Backplanes

In the Controller Properties window, maxView Storage Manager shows the Connector Info as "unknown" for all PHYs on an enclosure-based backplane (for instance, a backplane attached to connector 1).

5.32 ARCCONF DELETE LD Missing Confirmation Message

ARCCONF DELETE LD fails to display a confirmation message after successfully deleting a logical drive.

5.33 Special Characters in Logical Device Names

Special characters are permitted in logical device names in maxView Storage Manager, the BIOS, and ARCCONF. However, with Linux ARCCONF (create, setname), special characters must be "escaped" to ensure proper interpretation. For example:

ARCCONF SETNAME 1 LOGICALDRIVE 1 arc_ldrive%\$12\&

5.34 Speaker Status on SuperMicro SAS2X28 Enclosures

SuperMicro SAS2X28 enclosures do not propagate the speaker status to maxView Storage Manager. As a result, maxView always displays the speaker status as Off.

5.35 Online Help Issues

o When opening the maxView Storage Manager help from a remote Linux system (eg, over a VPN), the help window may fail to

open with a 'can't establish connection to server' message.

WORKAROUND: replace 127.0.0.1:8443 in the URL with <system_ip_address>:8443

- Context help in the Virtual Volume wizard (displayed when you click the '?' icon) does not have a corresponding set of entries in the TOC panel on the left side of the help system. This behavior is per design.

P/N DOC-01768-04-A Rev B