
README.TXT

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

as of February 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.

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1. New Features in this Release

- o Support for maxCache Plus caching and tiering software on Windows and Linux

Optimizes storage structure by assigning different categories of data to different storage tiers. Supported on Adaptec Series 8Q/8ZQ controllers. See Section 3.9 for requirements and setup instructions.
- o MAXCONF Command Line Interface for managing maxCache Plus virtual pools and virtual volumes
- o Support for drive spin-up limits in controller power management GUI
- o Downloadable installers for all supported operating systems at start.adaptec.com

(replaces physical media/DVD for installation of maxView Storage Manager and other management utilities)

- o Bootable USB image, available for download at start.adaptec.com (replaces Bootable DVD)
- o New controller modes on Adaptec Series 7 and Adaptec Series 8 controllers (ARCCONF/BIOS only):

RAID: Expose RAW mode (previously, RAID mode)
RAID: Hide RAW mode

- o Bugfixes

2. Software Versions and Documentation

2.1 Utility Software

- o Adaptec maxView Storage Manager Version 1.05
- o Adaptec ARCCONF Command Line Interface Utility Version 1.05

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 6.4, 5.9, IA-32 and x64
- o SuSE Linux Enterprise Server 11, 10, IA-32 and x64
- o Debian Linux 7.0, 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, 5.9

Virtual OS Environments:

- o VMware ESX 4.1
- o VMware ESXi 5.5

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 4.13 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 Linux Setup

To ensure that the maxView Storage Manager CIM Server initializes and starts correctly on systems with SELINUX enabled, enter the following commands, as root:

```
# cd /usr/StorMan/pegasus/bin
# chcon -t textrel_shlib_t /usr/StorMan/pegasus/lib/libpegcommon.so.1
(or chcon -t textrel_shlib_t /usr/StorMan/pegasus/lib/lib* if any other binary relocation failed)
```

3.7 SLES 11 Host File Configuration

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.

3.8 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 maxCache Plus Setup

3.9.1 maxCache Plus OS Support

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

- o Windows 2008 R2 (x64), Windows Server 2012 (x64)
- o Red Hat Linux 6.4 (x64)
- o 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.

3.9.2 maxCache Plus Driver Setup and Adapter 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 (on Windows) or it installs the maxCache Plus driver automatically (on 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).

3.9.3 Cache Mode Support

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

3.9.4 Virtual Volume Size

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

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

3.10 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

4. Known Limitations

4.1 Non-Default Web Server Port

The default Web Server port number is 8443. If you install maxView Storage Manager with a non-default port number, you will get a 'Browser can't establish connection to the server' error when you try to open the maxView login page (even though the login URL displays the port correctly; for instance, <https://127.0.0.1:8444/maxview/manager/login.xhtml>).

WORKAROUND: Edit the server configuration file and correct the port number manually:

1. Stop the maxView Web Server: in the Windows Control Panel, select Administrative Tools -> Services, then shut down the maxView Web Server service.
2. Open the Web Server configuration file at:
`<maxview install directory>\apache-tomcat-7.0.26\conf\server.xml`
3. Find the line containing `Connector port="8443"`, then update the port number to the preferred port. For instance: `Connector port="8444"`
4. Restart the maxView Web Server.

4.2 Windows Sysprep Issues

On Windows systems, installing maxView Storage Manager with Sysprep (System Preparation tool) kills the maxView desktop icon and Start menu option.

WORKAROUND: Place the shortcuts on the public desktop, making them available to all users. The shortcuts will be preserved even when the server is Sysprep'ed.

1. From a network share, copy the maxView desktop shortcuts to `Libraries\Documents\Public Documents` on your local machine.
2. Open the `Desktop_Icons` folder, then copy and paste the icons in the folder to the public desktop (a hidden folder), available at `C:\Users\public\desktop`.
3. Add or create other shortcuts here, as needed, so they will appear on the public desktop.

4.3 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.

4.4 Hot Spare Issues

After using a hot spare to successfully rebuild a redundant logical drive, maxView Storage Manager will continue to report the drive as a global hot spare. To remove the hot spare designation, delete it in maxView Storage Manager.

4.5 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.

4.6 Email Notifications

- o 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 name.

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

- o 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.

4.7 SGPIO Enclosures

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

4.8 Non-RAID Mode Controllers

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

4.9 RAID-Level Migrations

- o 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

- o A RAID 5 to RAID 6 RLM with >2TB logical drives is not supported in this release.
- o RLM from a 4-drive RAID 6 to a 3-drive RAID 5 is not supported in this release. (The RLM fails with an "insufficient number of drives" error.)
- o When migrating a Simple Volume to RAID 1, maxView Storage Manager reports the logical drive state as Impacted (rather than Reconfiguring); this is normal.
- o 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.

- o 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.

4.10 maxCache Container Migration

Only one maxCache Container is supported per controller. Moving the maxCache Container (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 Container or any other container with a conflicting container number and (2) only after a clean shutdown on the old controller.

4.11 Display and Refresh Issues

- o 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.
- o When using maxView Storage Manager and the CLI concurrently, configuration changes may not appear in the maxView Storage Manager GUI until you refresh the display by pressing F5.

4.12 Browser Issues

- o To run maxView Storage Manager on the supported browsers, Javascript must be enabled.
- o With Microsoft Internet Explorer 10, the maxView help system may not display the "toc" (navigation) pane or properly resolve links with the default Security settings.

WORKAROUND: Change the Security setting in Internet Options from High to Medium. Alternative: add the GUI IP address to the trusted sites list.
- o 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.
- o 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.

4.13 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:

- o Ensure that the DNS server information is properly configured

RHEL/Linux:

- o 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
- o 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

4.14 Power Management Issues

- o Power management is not supported under FreeBSD.
- o In maxView Storage Manager and ARCCONF, you can enable power management for a logical drive comprised of SSDs or a mix of SSDs and HDDs. However, the firmware does not apply power management on the SSDs.
- o In maxView Storage Manager, the Logical Drive Creation wizard does not save the power management setting after the logical

drive is created. It is always disabled.

WORKAROUND: enable power management for the logical drive with the Set Properties action.

4.15 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)

4.16 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)

4.17 RAID 10 Rebuild Order

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

4.18 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
4. The logical drive is Quick initialized (ARCCONF only)

4.19 Logical Drive Wizard Issues

After saving the controller configuration with the Save Configuration option on the Ribbon, the Logical Drive Wizard opens with a 'No Records Found' error.

WORKAROUND: stop the maxView Storage Manager Agent, then stop the maxView web server. Restart the services in the same order.

4.20 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.

4.21 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.

Examples:

- o With ARCCONF CREATE, Adaptec Series 7 and Series 8 controllers do not support 16KB and 32KB stripe sizes or RAID 5EE
- o With ARCCONF SETMAXCACHE, Adaptec Series 7 and Series 8 controllers do not support ADDTOPPOOL or REMOVEFROMPOOL

4.22 ARCCONF Silent Installation

ARCCONF silent installation fails using the command line format of the maxView setup program. After executing the command below, ARCCONF is not installed on the system:

```
setup_asm_x64.exe /s /v"/qb ADDLOCAL=CLITools USERNAME=administrator PASSWORD=pmc@123  
CONFIRMPASSWORD=pmc@123 /lv* c:\pmc.log"
```

WORKAROUND: Install ARCCONF with the maxView GUI installation wizard.

4.23 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.

4.24 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\&
```

4.25 Virtual Pool Delete Error

maxView Storage Manager reports an error if you try to delete an offline maxCache Plus virtual pool. This behavior is per design.

WORKAROUND: Ensure that the virtual pool is online, then delete it.

4.26 Adaptec Series 6 Controller Issues

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

- o 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.

- o 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 isn't 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.
- o Adaptec Series 6 controllers do not support the ARCCONF GETPERFORM command.

4.27 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.

4.28 Online Help Issues

- o In the maxView Storage Manager online help, some links show the full file path to the topic rather than the topic title. The link itself is unaffected. See also 'Browser Issues' in Section 4.12.
- 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

- o Context help in the Virtual Volume wizard (displayed when you click the '?' icon) does not have corresponding entries in TOC panel on the left side of the help system.

4.29 Uninstallation Issues

- o When using the 'Modify' option on a Windows system to uninstall maxView Storage Manager, the 'Adaptec' folder is not removed from the file system.
- o After uninstalling maxView Storage Manager from a Linux system, log files in the root directory are not removed.

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