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README.TXT

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

as of July 14, 2014
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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:

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1. New Features in this Release

    o Support for maxView Storage Manager on Citrix XenServer Guest OSs (32-bit only)

    o Support for setting a global or drive-specific physical drive write cache policy
(maxView/ARCCONF/BIOS)

    o Support for setting the max link rate on Adaptec Series 8 controllers (maxView/ARCCONF/BIOS)
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o Support for preserving the controller DDR cache and settting BIOS options from the command line
(ARCCONF)

    o Support for 16KB/32KB stripe sizes on Adaptec Series 7/8 controllers (maxView/ARCCONF/BIOS)

    o New/enhanced ARCCONF commands:

      – getconfig, getlogs, setbiosparams, setcache, preservecache, setcontrollermode, setphy

    o New controller mode on Adaptec Series 7/8 controllers (ARCCONF/BIOS):

      – Simple Volume mode (limits RAID type to Simple Volume only)

    o Bugfixes

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2. Software Versions and Documentation

    2.1 Utility Software

        o Adaptec maxView Storage Manager Version 1.06
        o Adaptec ARCCONF Command Line Interface Utility Version 1.06

    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

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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

        Virtual OS Environments:

        o VMware ESX 4.1
        o VMware ESXi 5.5
        o Citrix XenServer 6.2

        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 5.11 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 SP4 x86. (The conflict is not seen
      with SLES 10 SP4 x64.)

    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

    o 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'.

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

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4. maxCache Plus Setup

    4.1 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 6.2, 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.

    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:

        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

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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

                                    4

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

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 hame.

  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.

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

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 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.

5.8 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.

5.9 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.

5.10 Browser Issues

    o To run maxView Storage Manager on the supported browers,
      Javascript must be enabled.

    o 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.

    o 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.

    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.

5.11 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

5.12 Power Management Issues

    o Power management is not supported under FreeBSD.

    o You can enable power management for a logical drive comprised
      of a mix of SSDs and HDDs. However, for logical drives
      comprised of SSDs only, the Power tab in maxView Storage
      Manager is disabled.

    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.

5.13 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)
```

5.14 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)
```

5.15 RAID 10 Rebuild Order

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

5.16 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)

5.17 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.

5.18 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.

5.19 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:

o With AARCCONF SETMAXCACHE, Adaptec Series 7 and Series 8
  controllers do not support ADDTOPOOL or REMOVEFROMPOOL

5.20 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.

5.21 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.

5.22 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 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.

o Adaptec Series 6 controllers do not support the ARCCONF GETPERFORM
command.

5.23 Simple Volume Support

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

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

  WORKAROUND: Manually delete the Simple Volume to remove it.

5.24 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 Container. 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.

5.25 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.

5.26 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 continues to remain visible to the OS,

rather than being cleared.

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

5.27 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.

5.28 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.

5.29 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.

5.30 ARCCONF DELETE LD Missing Confirmation Message

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

5.31 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\&

5.32 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.

5.33 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

o 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.