# Sun™ Release Notes for VERITAS® Volume Manager 3.0.2

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# Introduction

This document provides release information for the VERITAS Volume Manager 3.0.2 software, which is supported on the following Solaris™ releases:

- Solaris 2.5.1
- Solaris 2.6
- Solaris 7

# Table of Contents

These Release Notes contain the following information:

# Typographic Conventions

**TABLE P-1** Typographic Conventions

| Typeface | Meaning | Examples |
|---|---|---|
| `AaBbCc123` | The names of commands, files, and directories; on-screen computer output | Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.` |
| **`AaBbCc123`** | What you type, when contrasted with on-screen computer output | `% `**`su`** `Password:` |
| *AaBbCc123* | Book titles, new words or terms, words to be emphasized | Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. |
| | Command-line variable; replace with a real name or value | To delete a file, type `rm` *filename*. |

# Related Documentation

| Title |
|---|
| *VERITAS Volume Manager Hardware Application Note Release 3.0.1* |
| *VERITAS Volume Manager Command Line Interface Administrator's Guide Release 3.0.2* |
| *VERITAS Volume Manager Getting Started Guide* |
| *VERITAS Volume Manager Administrator's Reference Guide* |
| *VERITAS Volume Manager Installation Guide* |
| *VERITAS Volume Manager Release Notes* |
| *VERITAS Volume Manager Storage Administrator Release Notes* |
| *VERITAS Volume Manager Storage Administrator Administrator's Guide* |
| *Sun Enterprise Server Alternate Pathing Installation and Release Notes* |
| *Sun Enterprise Server Alternate Pathing 2.2 User's Guide* |
| *Sun Enterprise Server Alternate Pathing 2.2 Reference Manual* |

# Product Considerations

## Recommended Patches

TABLE 1 provides an overview of the patches that are recommended to work around issues with the VMSA client (refer to Bug 4235795 in "Known Issues").

You can download the actual patches from the SunSolve Online[SM] Web site:

```
http://sunsolve.sun.com/
```

Be sure you download the latest patches and patch revisions. For information on how to get the latest patches and patch revisions, contact your local Sun solution center or Sun service provider.

**TABLE 1**      Required Patches for VERITAS Volume Manager 3.0.2

| Solaris Version | Patch ID | Description |
|---|---|---|
| 2.5.1 | 103640-28 (or later rev level) | kernel, nisopaccess, & libthread patch (SPARC) |
|  | 103641-28 (or later rev level) | kernel, nisopaccess, & libthread patch (x86) |
| 2.6 | 105568-13 (or later rev level) | libthread patch (SPARC) |
|  | 105569-13 (or later rev level) | libthread patch (x86) |
| 7 QU 8/99 | 106980-05 (or later rev level) | libthread patch (SPARC) |
|  | 106981-05 (or later rev level) | libthread patch (x86) |

# Using VERITAS Volume Manager with Alternate Pathing

Alternate Pathing (AP) supports high availability of I/O paths, including I/O controllers. I/O controllers allow the server to communicate with I/O devices such as disks and networks. AP helps the system recover from certain types of I/O controller or general I/O path failures by switching I/O from the active controller to an alternate controller. AP is used only with devices that have the ability to connect to more than one I/O controller.

VERITAS Volume Manager contains a component called Dynamic Multi-Pathing (DMP), which provides an alternate pathing solution similar to AP.

AP and DMP are not compatible and cannot be used simultaneously within the same systems. If you choose to use the DMP functionality instead of AP, you need to remove AP. If you choose to use the AP functionality instead of DMP, refer to "Installing VERITAS Volume Manager After Alternate Pathing (Recommended)" on page 5 or "Dynamic Multi-Pathing and Alternate Pathing" on page 10 for instructions on disabling DMP to run AP.

## Installing VERITAS Volume Manager After Alternate Pathing (Recommended)

This section provides a high-level overview of the VERITAS Volume Manager installation process. It assumes that you have already installed Alternate Pathing and now want to install VERITAS Volume Manager.

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**Note –** The recommended sequence is to install Alternate Pathing *before* installing VERITAS Volume Manager; however, if you have already installed VERITAS Volume Manager and now want to install AP, see "Installing Alternate Pathing After VERITAS Volume Manager" on page 6.

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1. **Install the VERITAS Volume Manager packages.**

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**Note –** Before running `vxinstall`, refer to Bug 4215262 in "Known Issues."

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2. **Exclude any controllers and disks that you do not want under VERITAS Volume Manager control.**

   a. **If you are using** `vxinstall` **and you want to exclude certain controllers, you must specify in the** `/etc/vx/cntrls.exclude` **file both physical paths for each device that you want to exclude.**

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**Note –** `vxdiskadm` does not have the same limitation as `vxinstall`. With `vxdiskadm`, you can simply list a controller as mc*?* in the `cntrls.exclude` file.

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   b. **To exclude a disk, you need only add the c*?*t*?*d*?* device name to the** `/etc/vx/disks.exclude` **file.**

3. **Configure VERITAS Volume Manager devices.**

   VERITAS Volume Manager recognizes and properly installs existing AP metadevices; no special action is required.

4. **(Optional) Encapsulate, if desired.**

   VERITAS Volume Manager successfully encapsulates boot devices under AP control and data devices under AP control.

   VERITAS Volume Manager successfully encapsulates AP databases without any impact on AP. Note, however, that the following standard VERITAS Volume Manager requirements for encapsulation apply:

   ■ There must be an s2 slice that represents the entire disk.

- There must be a "small amount" of free disk space at the beginning or end of the disk.
- There must be two free partitions.

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**Note –** The partition requirement may necessitate giving up an AP database, which is often placed in slice s4.

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Use `vxapslice` to free up a slice for an AP database on a disk that is currently under VERITAS Volume Manager control. Removing the slice from VERITAS Volume Manager control allows you to successfully create and maintain an AP database in that slice. (The slice must be not be used for any other purpose.)

## Installing Alternate Pathing After VERITAS Volume Manager

This section provides a high-level procedure for installing AP *after* you have installed VERITAS Volume Manager.

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**Note –** Since the Dynamic Multi-Pathing (DMP) feature of VERITAS Volume Manager is not compatible with AP or Dynamic Reconfiguration (DR), you must disable the DMP component in VERITAS Volume Manager. Refer to "Dynamic Multi-Pathing and Alternate Pathing" on page 10 for instructions on disabling DMP to run AP.

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There are two versions of this procedure because the steps differ depending upon whether the boot disk is controlled by VERITAS Volume Manager.

### Boot Disk Is Not Under VERITAS Volume Manager Control

Use this procedure to install AP after VERITAS Volume Manager if the boot disk is *not* under VERITAS Volume Manager control.

1. **In the** `vfstab` **file, comment out all volumes that are controlled by VERITAS Volume Manager.**

2. **Touch the following file:**

   `/etc/vx/reconfig.d/state.d/install-db`

3. **Reboot to disable VERITAS Volume Manager.**

   After the reboot, Volume Manager is not enabled.

4. **Install the AP packages.**

   Refer to the *Solaris 7 5/99 Sun Hardware Platform Guide* (806-0276-xx) for detailed instructions.

5. **Create AP databases.**

   Refer to the *Sun Enterprise Server Alternate Pathing 2.2 User's Guide* (805-5985-xx) for detailed instructions.

6. **Configure the AP devices.**

   Refer to the *Sun Enterprise Server Alternate Pathing User's Guide* (805-5985-xx) for detailed instructions.

7. **Remove or rename the** `vxdmp` **driver from the** `/kernel/drv` **directory:**

   `/kernel/drv/vxdmp`

8. **Remove or rename the Volume Manager DMP files:**

   `/dev/vx/dmp`

   `/dev/vx/rdmp`

9. **Create a soft link from** `/dev/dsk` **to** `/dev/vx/dmp`**:**

   ```
   # ln -s /dev/dsk /dev/vx/dmp
   ```

10. **Create a soft link from** `/dev/rdsk` **to** `/dev/vx/rdmp`**:**

    ```
    # ln -s /dev/rdsk /dev/vx/rdmp
    ```

11. **Edit the** `/etc/system` **file and remove the following line:**

    forceload: `drv/vxdmp`

12. **Remove the following file:**

    `/etc/vx/reconfig.d/state.d/install-db`

13. **Edit the** `vfstab` **file so that all volumes that are controlled by VERITAS Volume Manager are** *not* **commented out (refer to Step 1).**

14. **Reboot with VERITAS Volume Manager enabled.**

    After the reboot, VERITAS Volume Manager recognizes and uses AP devices.

## Boot Disk Is Under VERITAS Volume Manager Control

Use this procedure to install AP after VERITAS Volume Manager if the boot disk is under VERITAS Volume Manager control.

1. **Stop all disk I/O.**

2. **Unmount all unnecessary file systems.**

3. **Stop all volumes, except the boot volumes.**

4. **Install the AP packages.**

   Refer to the *Solaris 7 5/99 Sun Hardware Platform Guide* (806-0276-xx) for detailed instructions.

5. **Create the AP databases.**

   Refer to the *Sun Enterprise Server Alternate Pathing 2.2 User's Guide* (805-5985-xx) for detailed instructions.

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   **Note –** If you want to create AP databases on slices that are controlled by VERITAS Volume Manager, you must first use vxapslice to remove those slices from VERITAS Volume Manager control.

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6. **Configure the AP devices.**

   Refer to the *Sun Enterprise Server Alternate Pathing 2.2 User's Guide* (805-5985-xx) for detailed instructions.

7. **Create and run the following script to disable DMP on the system:**

   ```
   #!/bin/sh
   /usr/bin/mv /kernel/drv/vxdmp /kernel/drv/was_vxdmp
   /usr/bin/mv /dev/vx/dmp /dev/vx/was_dmp
   /usr/bin/ln -s /dev/dsk /dev/vx/dmp
   /usr/bin/mv /dev/vx/rdmp /dev/vx/was_rdmp
   /usr/bin/ln -s /dev/rdsk /dev/vx/rdmp
   ```

8. **Edit the** /etc/system **file and remove the following line:**

   forceload: drv/vxdmp

9. **Reboot.**

   After the reboot, VERITAS Volume Manager recognizes and uses AP devices.

10. **If you want to use** apboot **to configure the boot disk:**

    a. **Create an** /etc/vfstab.apb **file that contains the physical device entries for the underlying slices of your VERITAS Volume Manager boot disk.**

> **Note –** If `/etc/vfstab.prevm` is still available, it should satisfy this requirement. If so, you can copy it to the `/etc/vfstab.apb` file.

**b. Create a backup copy of your** `/etc/system` **file.**

**c. Run the following command for your alternately pathed boot disk:**

```
# apboot -v /etc/vfstab.apb metadevice-name
```

**d. Edit the** `/etc/system` **file and insert the string** `*(vxvm rootability)*` **before the** `rootdev:/pseudo/ap_dmd@` **entry that was created by the** `apboot` **command in Step c.**

> **Note –** This string, rather than a simple asterisk (*), is required for `vxunroot` to find the entry if you must run `vxunroot` at a later time.

The entire line should look similar to the following:

```
# *(vxvm rootability)* rootdev:/pseudo/ap_dmd@0:256,blk
```

**e. Run the following command for the alternately pathed mirror of your boot disk as required:**

```
# apboot -m metadevice-name
```

The steps described above update the AP databases and insert the correct entries in the `$SSPVAR/etc/`*`platform_name`*`/$SUNW_HOSTNAME/ap_ssp_db` file.

# Dynamic Multi-Pathing and Alternate Pathing

Currently, the DMP feature in VERITAS Volume Manager and the Sun AP driver cannot co-exist. To run DMP, you need to remove AP. To run AP, you need to disable DMP.

If the Sun AP driver is already installed on a machine, during installation of VERITAS Volume Manager the existence of the `/kernel/drv/ap` file is detected by Volume Manager and DMP is automatically disabled during the installation process.

If Volume Manager with DMP is already installed on a machine, and if you want to install AP, you must manually remove the DMP driver `vxdmp` from `/kernel/drv` and set up soft links of `/dev/dsk` and `/dev/rdsk` to `/dev/vx/dmp` and `/dev/vx/rdmp` respectively in order to disable the DMP feature.

To disable the DMP module, perform the following steps:

1. **Unmount all file systems created on Volume Manager volumes.**

2. **Stop the Volume Manager (use** `vxdctl stop`**).**

3. **Remove the vxdmp driver from the** `/kernel/drv` **directory:**

   ```
   # rm /kernel/drv/vxdmp
   ```

4. **Edit** `/etc/system` **and remove the** `vxdmp` **forceload statement as follows:**

   ```
   # vi /etc/system
   # forceload: drv/vxdmp
   ```

5. **Remove the Volume Manager DMP files:**

   ```
   # rm -rf /dev/vx/dmp
   # rm -rf /dev/vx/rdmp
   ```

6. **Create symbolic links to** `dmp` **and** `rdmp`**:**

   ```
   # ln -s /dev/dsk /dev/vx/dmp
   # ln -s /dev/rdsk /dev/vx/rdmp
   ```

7. **Shut down the system to disable the DMP functionality.**

```
# /usr/sbin/shutdown
```

8. **Reboot the system and install the Sun AP driver.**

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**Note –** If VERITAS Volume Manager is installed and DMP is active, you must disable DMP prior to installing AP on the system.

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# Known Issues

The following bugs are known to exist in this version of VERITAS Volume Manager.

## 4215262 - VM /etc/vx/cntrls.exclude file does not handle meta-device properly

If you are using Volume Manager on top of an AP meta-device and do *not* want to encapsulate any disks, be sure to add entries for all controller(s) corresponding to those disks in the /etc/vx/cntrls.exclude file before running vxinstall. This means that entries for the meta-controller and the physical controllers that correspond to those disks, should be added to the /etc/vx/cntrls.exclude file.

For example, assume that the disks on controllers *c2* and *c4* are represented by the meta-controller *mc2* by A and are connected to an SSA. To exclude the SSA from being seen by the VxVM utilities, there must be entries for *mc2*, *c2*, and *c4* in the /etc/vx/cntrls.exclude file. If all of these are not added to the /etc/vx/cntrls.exclude file, some VxVM utilities might still display the disks on one or more of these controllers.

If you are using Volume Manager on top of an AP meta-device and you do want to encapsulate the disk using vxinstall, specify the two controller numbers that reside below the meta-device (for example, *c0* and *c1* for *mc1*) in the /etc/vx/cntrls.exclude file.

## 4215683 - DR operation fails due to an incompatibility with the DMP feature

Until AP and DMP can co-exist on a system, VERITAS Volume Manager will not seamlessly detach a board that contains open Volume Manager volumes. If the DR device contains disks in `rootdg`, the board cannot be detached.

The workaround to perform a DR operation on a board that contains VERITAS DMP devices is:

1. **Deport all disk groups connected to the board to be dynamically reconfigured.**

2. **Run** `vxdisk` **to remove on all disks attached to the board.**

3. **Run** `vxdiskadm` **option 11 to move off-line any disks attached to the board.**

## 4221077 - `vxrecover -s` times out during the startup of volumes

Customers running configurations with large numbers of volumes (that is, greater than 320) have encountered problems when the license received from a Sun StorEdge A5000 or SSA prevented all volumes from starting up during bootup.

Presently, the only workaround is to install a Volume Manager demo license.

## 4233219 - In VMSA Java application, can scroll name bar to left beyond data fields

Throughout the VMSA Java application, you can scroll the name bar to the left beyond data fields, which renders an overlapped value field. For example, when a field has been sized so it is smaller than the data it contains, the data may appear incomplete or not visible (it is actually clipped and centered). This results in the display of unrecognizable data.

To work around this problem, do not scroll the name bar beyond the values in the data field. If corruption of a data field occurs, scroll the name bar to the right to view the data in a field with corruption.

## 4235795 - VMSA client crashes when using green threads

If you encounter a JVM (Java Virtual Machine) system failure while running the Solaris operating environment, the probable cause of the failure is JVM effecting the library that VERITAS Volume Manager uses for making its Java calls. VERITAS Volume Manager currently uses the *green threads* that ship with JVM. Unfortunately, it has been discovered that in certain circumstances using these threads can cause the Java Runtime Environment (JRE) to fail and cause the Java application to exit.

The workaround to this problem is to use the native threads supplied through Java. *Before* you change to native threads, you must install the patches described in "Recommended Patches" on page 3.

To change to native threads, edit the `vmsa` client script located in `/opt/VRTSvmsa/bin` and change the line containing TH_TYPE= to:

    TH_TYPE=-native

## 4243617 - `vxassist` SIGSEGV: segmentation fault

When creating mirrors and RAID 5 volumes on a system under heavy load, `vxassist` may produce a core file with a segmentation violation.

The workaround is to try the operation again.

## 4245838 - Volume Manager not closing layered opens on shutdown

When the `shutdown` command is issued, all non-layered opens to disks are being closed, but there always remains a layered open to both VERITAS partitions (public and private regions). All other partitions appear to be closed off correctly, including partition 2. This situation may cause other device drivers to fail.

There is no workaround for this issue.

## 4250631 - VMSA GUI core dumps when canceling a new file system on an existing raw volume

The graphical user interface in VMSA core dumps when canceling the creation of a new file system on an existing raw volume.

To work around this issue, do not interrupt the creation of a new file system and wait until the operation is finished.

## 4255085 - Performance does not scale when adding disks to a RAID 0+1 configuration

At default read policy (select), the read performance of Raid-0+1 volume does not scale up when the number of disks that construct Raid-0+1 volume is increased.

## 4255694 - Cannot reuse disk after the disk group has been deported without first removing disk from disk group

A disk that has been initialized and added to a disk group cannot be reused unless explicitly removed from the disk group before the disk group has been deported. There are no recovery procedures available if this problem occurs.

To prevent the problem from happening, be sure to remove the disk from the disk group before deporting the disk group.

## 4267660 - VERITAS Volume Manager install thrashes /etc/system

After installing VERITAS Volume Manager 3.0.2 on a fully-patched Solaris 7 system, approximately 1,800 lines (consisting of duplicated driver `forceload` statements) may be added to the `/etc/system` file, and the lines are interspersed with the contents of the `/etc/system` file from the previous installation. In most instances, the corruption occurs during installation of the `VRTSvxvm` package.

After removing previous versions of VERITAS Volume Manager, the `/etc/system` file may still contain performance settings with the following VERITAS keywords:

- vxio

- vxdmp
- vxspec
- vxvm

Even if you comment out the lines with these keywords, they can still cause the post-install script to corrupt the /etc/system file.

The work around is to edit the /etc/system file prior to installing a new version of VERITAS Volume Manager and remove (instead of comment out) any lines with these keywords.