VERITAS Storage Migrator™ 3.4.1

Release Notes

UNIX

VERITAS

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General Information 1

Introduction

> **Note** *VSM* refers to *VERITAS Storage Migrator* throughout this document.

Read these *Release Notes* before you install VERITAS Storage Migrator on a UNIX server system. These *Release Notes* provide you with important information concerning the 3.4.1 release of VSM. They also contain any last minute changes that we were unable to put in the manuals. Refer to the *Installation Guide* for additional notes and cautions about these products.

> **Note** Because VSM 3.4.1 is an incremental upgrade, we have included information on VSM 3.4 in this document.

All VSM Users

With this release of VSM, you must install NetBackup 3.4 and NetBackup patch J0850645 (or higher). See "Getting Help" on page 13 for details on how to obtain this patch. When installing the patch, refer to the *Release Notes* for that patch.

Storage Migrator Remote Users

With this release, there is no distinction between Storage Migrator and Storage Migrator Remote. If you previously installed Storage Migrator Remote, you need to install only Storage Migrator 3.4.1. Note that no functionality has been removed. You can install Storage Migrator and do everything you previously did with the Storage Migrator Remote product.

Supported Platforms and Related Information

Supported Platforms

Release 3.4.1 is supported on the server platforms listed in Table 1.

Note Attention SGI Users: You must run the Java interface from NT or Windows 2000, or you must use the Motif-based interface (xhsmadm) from the server.

Table 1. Supported Platforms

Platform Type	Operating System	File System Type	Implementation	Java interface Location
HP9000-800	HP-UX 10.20 HP-UX 11.0	OnlineJFS 3.1 OnlineJFS 3.3	DMAPI	Server, NT, Windows 2000
SGI	IRIX 6.5 to 6.5.5	xfs	DMAPI	NT and Windows 2000
Sun UltraSPARC	Solaris 2.6, 7, 8	ufs	non-DMAPI	Server, NT, Windows 2000
Sun UltraSPARC	Solaris 2.6, 7, 8	VxFS (3.3.3 or 3.4)	DMAPI	Server, NT, Windows 2000

The DMAPI (nonkernel-based) implementations use the Data Management Application Programming Interface (DMAPI). The non-DMAPI (kernel-based) implementations use a parallel inode (.PAIN) file. These implementations are platform-dependent, and any differences between them are noted in the documentation.

Note For DMAPI (nonkernel-based) implementations running on Solaris, obtain and install the VxFS 3.3.3 binaries separately before installing VSM 3.4.1.

Note Non-DMAPI (kernel-based) and DMAPI (nonkernel-based) implementations of VSM cannot run simultaneously on the same platform.

Platforms Not Supported

◆ Sun4/SPARC platforms are no longer supported in VSM 3.4 and 3.4.1.

◆ Solaris 2.5.1 is no longer supported in VSM 3.4 and 3.4.1.

◆ Solaris systems running VxFS 3.3.2 must be upgraded to VxFS 3.3.3 or VxFS 3.4 in VSM 3.4.1.

◆ HP-UX systems running VxFS (3.3.2) Storage Edition 2.0 are no longer supported in VSM 3.4.1.

Items Not Supported in this Release

◆ Sharing VSM databases by multiple managed file systems is not supported.

◆ Managing sub-directories with VSM is not configured with VSM-Java, and this is procedure is not recommended.

Items Not Supported in Future Releases

◆ The next major release of VSM will no longer support the following operating system levels: HP-UX 10.20 and Solaris 2.6.

◆ The next major release of VSM will no longer support UFS (non-DMAPI) file systems for Solaris. See the *Installation Guide* (Appendix A) for instructions on how to convert from ufs-type to vxfs-type file systems.

◆ The next major release of VSM will no longer support the Motif-based interface, `xhsmadm`. It will be replaced by the Java-based administrator interface, VSM-Java. You can now find the `xhsmadm` interface in the goodies directory:

```
/usr/openv/hsm/bin/goodies/xhsmadm
```

Note On SGI `xhsmadm` is still in **`/usr/openv/hsm/bin`**.

Renamed Commands

◆ In VSM 3.4, the `HSMSA` command (`/usr/openv/hsm/java/HSMSA`) is now the `migsa` command (`/usr/openv/hsm/java/migsa`).

Supported Storage Devices

Drive types and robot types supported on the platforms listed in Table 1 on page 2 are tabulated in the *VERITAS NetBackup Release Notes*. For more current information, visit our web site:

```
http://www.veritas.com/products/vhsm/
```

New Features and Enhancements

New Features and Enhancements with VSM 3.4.1

◆ Operational enhancements for VSM startup and shutdown are provided as follows:

   ◆ The administrator can *idle* an active VSM managed file system. This allows a graceful and clean shutdown of VSM operations. A cleanly shutdown VSM managed file system can be automatically and quickly restarted.

   ◆ The administrator can place the VSM managed file system in a *maintenance* state. This allows restricting VSM activity while performing specific VSM maintenance tasks.

   ◆ On restart, the VSM system detects if it was cleanly shut down. A cleanly shut down system restarts automatically. If the system was not cleanly shut down, it restarts in a *maintenance* state. This allows the administrator to verify the integrity of the VSM managed file system before activation.

   ◆ New commands associated with this feature are `stopmigrd`, `migVSMstate`, `migVSMstartup`, and `migVSMshutdown`.

◆ Operational enhancements to VSM log processing are provided as follows:

   ◆ A new administrative-log viewer is provided. This allows the administrator, from the Java GUI, to view the Storage Migrator log files. A simple search capability is also provided.

   ◆ The parent process ID (PID) is added to the log message. In the example below, `migcopy` has a PID of `[1413]` and it was created by PID `[202]`:

```
07/12 14:40:13 [202]migcopy[1413]: ERROR copy_file()/copy_gran fail
```

   ◆ A conversion utility to convert the new log message format to the old format is provided in the `goodies` directory.

◆ VxFS 3.4 is supported with VSM 3.4.1.

◆ Performance enhancements are provided by reducing lock usage:

   ◆ The window during which `migcopy` keeps the FHDB open and locked is reduced.

   ◆ A `migreg` running file was added to avoid unnecessarily blocking of other processes wanting the `mig.lck` file.

◆ The import/export utility was enhanced to minimize the time that the VSM tables and file systems are locked. This allows the export utility to run concurrently with an active VSM file system. Previously, the VSM file system was locked and concurrent operation was not allowed.

◆ A VSM-Agent for use with VERITAS Cluster Server is available with this release for integration by VERITAS consulting.

◆ Other enhancements in this release:

- ◆ A new command `migunmigrate` is provided. This command ensures the file is cached and resets the file attributes to appear as though the file has never been migrated. For performance reasons, if a large number of files must be *unmigrated*, we recommend the files be migstaged first. The `migunmigrate` command should be used before a NetBackup archive to ensure the complete file is archived, not just the placeholder.

- ◆ `migrecycle` is changed to, if possible, process both sides of an optical platter.

- ◆ A new VOLDB flag (`T`) is added to indicate that a tape volume does not have a trailer label.

- ◆ `migtscan` is enhanced to report if the tape contains a trailer label.

- ◆ An option to `migtscan` and `migopscan` is added to allow overriding the file count in the VOLDB.

- ◆ FHDB compression is enhanced so that at most one FHDB entry is required per volume.

- ◆ A new command, `migactivate`, is available to activate FHDB entries for files with VSM handles.

- ◆ `startmigd` now also starts the `migrd` request daemon.

- ◆ `migsetdb` is enhanced so it can flag a single FHDB entry for a file that has multiple copies at the same level.

New Features and Enhancements with VSM 3.4

◆ Support for the Solaris 8 operating system, with VxFS 3.3.3.

◆ Support for the IRIX 6.5 to 6.5.5 operating systems.

◆ A File System Analyzer tool that presents file system statistics through simple graphical charts. This tool shows administrators the benefits of using VSM by interactively analyzing file system data and evaluating configuration alternatives.

◆ Improved performance when caching file data from tape by using double-buffered I/O.

◆ Improved migrating performance, by writing fewer tape marks, when copying file data to tape.

◆ Improved consolidation performance, if file marks are not written between files when consolidating volumes to tape.

◆ A file list feature for the `migloc` command: `migloc -f <filelist>`

◆ An incremental capacity licensing structure based on the amount of data being migrated to secondary storage. Licensing is enforced when `migcopy` migrates data using the following storage methods: optical (`op` and `ow`), tape (`ct`, `dt`, and `mt`), and NetBackup (`nb`).

◆ Improved configuration process: a choice of two wizards, which allow faster and easier initial configuration of VSM. The Basic Wizard is used to create a configuration with preset or default values. The Advanced Wizard allows greater flexibility. Both wizards use a user-friendly interface.

◆ Enhanced usability by incorporating a file system browser, VSM File Browser, that encapsulates end-user functionality, such as individual file migration and recall and directory grouping.

◆ Enhanced usability by adding a job monitoring capability (with VSM Activity Monitor) in a Java-based interface for all jobs submitted via the interface. This also includes some jobs started through the command line interface.

◆ Enhanced usability by adding an integrated job scheduler in the VSM File Browser.

◆ Improved performance for recalls and multilevel migration. This includes implementation of double-buffered I/O for these cases, and enhancements to the VxFS invisible write interface.

◆ Improved `FTP` method: FTP storage is subdivided into directories to eliminate the performance and management issues associated with large directories on FTP servers. The `migstage` command is enhanced to allow optimal ordering of recall requests across FTP when Storage Migrator is used on both client and server.

◆ Improved online help documentation for the administrator (VSM-Java interface), end-user (VSM File Browser interface), and job monitor (VSM Activity Monitor) interfaces.

Problems Fixed Since Last Release

Problems Fixed with VSM 3.4.1

The following section describes notable problems resolved by the 3.4.1 release of this product.

◆ Improved `install.hsm -D` (complete de-install) functionality.

◆ Improved `ft` method volume switching when ENOSPC condition is encountered.

◆ Improved accuracy of `migdbrpt -a` reporting.

◆ Older versions of VSM could incorrectly purge a file before enough copies of the file have been made, which resulted in data loss. This could happen when the NetBackup (nb) method was used. See Tech Note 233720 for details:

    a. Go to `http://www.veritas.com`.

    b. Select Search.

    c. Search for TechNotes for the product Storage Migrator for Unix.

    d. Read Tech Note 233720.

◆ Changed `HSMKiller` to try to avoid tapes with missing trailers by never sending `kill -9` to `migcopy` or `migtrans`.

◆ Do not count copies of files created with `migmove` when deciding whether enough copies have been made for purge purposes.

◆ Changed `open_ihand()` to require that the `IHAND` file exist. Only `rebuild_ihand` and `ihprint -v` will create a non-existent `IHAND` file.

◆ Improved `migdbrpt` reporting for optical platters with block size other than 1024 bytes.

◆ Eliminated negative numbers in `migtrans` log messages.

◆ Improved `migmode` man page.

◆ Improved build and install of HP-UX 11.0 kernel by using standard HP utilities.

◆ Improved `migcopy` handling of EPIPE error.

◆ Changed `migcopy` to not try to write to side B of an optical platter when it is reading from side A.

◆ Improved `migcopy` handling of volume mount problems.

◆ Added a `-c` option to `migstage` and `migin` to allow files with checksum errors to be cached.

◆ Added a `-L` option to `migsetdb` to allow an FHDB entry for a specific volume to be removed.

◆ Changed `migsetdb` so that it only sets `fh_obsdate` when `fh_flag` is being set to *obsolete* or *dead.*

◆ Enhanced `migloc` to display multiple copies of the same file on a single volume.

◆ Fixed `migsweepm` to correctly handle files with old pathnames in the FHDB entry.

◆ Fixed `migrate` using full path name to correctly process .`migstop` entries.

◆ Fixed FLUSH file limit when a file crossed tape boundaries.

◆ Changed `migreconstruct` so that it reconstructs a file only if all granules are available.

- Fixed `migtscan` to correctly set the value of `vh_blocks`.

- Send some `migpurge` log messages to `stderr`.

- Changed `migstage` to select the same caching volume as `migcopy`.

- Enhanced `migcat` to interpret the termination status of any child process (`migin/migcopy`) and issue an appropriate error message.

- Enhanced `migbatch` to check the termination status of `migarch`.

- Enhanced `migtie` to ensure that error messages go to `stderr` and exit status is non-zero when errors occurred.

- Ensure that non-root users cannot modify the `s_badness` and `p_badness` files.

- Fixed `pfinit -e` to behave as documented when the `.PAIN` file was nonexistent.

- Ensure that `migrc` terminates with a non-zero status when an error occurs.

- Improve `migdbclean` performance.

- Fixed `migtrans` to terminate when `f_newdestvol` fails.

- Enhanced `migcheck` to recognize volumes marked for deferred labeling.

- Avoid hangs when a user does a CTRL-Z that is not followed by a `bg`.

- Fixed `migstage` to not cache files for users that do not have appropriate permissions.

- Fixed `migstage` to correctly set ownership and permissions on files cached from the nb method after ufs to vxfs conversion.

- Fixed `migtie` and `miggroup` to work for filenames that contain white space when listed in a `-f` list file.

- Added a new `-a` option to allow an age to be specified to `migrecycle` (to pass along to `migmdclean`).

- Eliminated `migcopy` warning messages when reading tapes written before the 3.4 release.

- Changed `migloc` to not display obsolete `dk` entries.

- Eliminated `migtrans` warning messages when reading tapes written before the 3.4 release.

- Correctly handle file names containing the % character.

- On HP-UX 11.0 installs, ensure that `max_thread_proc <= nkthread`.

- Fixed problems managing an FHDB larger than two GB.

- Improved functionality of VSM-Java Interface Delete hierarchy.

- Improved *deadman timeout* processing when caching from the `nb` method.

◆ Improved startup processing when an empty global configuration file exists.

◆ Eliminate spurious error messages during `miglicense` space test.

◆ Ensure that commands run through the command line interface have the correct environment.

◆ Fix `migreconstruct` to work correctly for files with identical handles and different machine ids.

◆ Fixed a `migd` `SEGV` core dump.

◆ If `migd` is already running, do not allow another `migd` process to run.

◆ Improved `migrc -R` error handling.

◆ Improved `support.sh` script to obtain more complete version information on IRIX platforms.

◆ Changed installation of `migpurge` to not have 4511 permissions by default.

◆ Change `migrc`, `migmdclean`, and `migdbclean` to honor the environment variable `TMPDIR`.

Problems Fixed with VSM 3.4

◆ Nonroot users can now use the `migstage` command to cache files from the `nb` method on DMAPI implementations of Solaris.

◆ For Solaris 2.6, the `migstage` command will no longer wait until all of the specified files have been cached before returning control to the user. This operation is now asynchronous by default.

◆ `migdbcheck` no longer erroneously indicates that a volume is being written.

◆ The IP address can now be specified for the *server_name* when registering an `ft` volume.

◆ The vh_blocks field of the VOLDB entry is now updated if `ENOSPACE` occurs when writing to tape.

◆ Tape *read_position* failures are now handled gracefully.

◆ Files written to tape on an SGI/IRIX platform can be cached on a Solaris platform.

◆ Key words are now used to improve file caching speed from `ft` volumes.

◆ IRIX PIDs greater than five digits are now handled correctly.

◆ `fls` is now like `ls` on all platforms.

◆ When the sticky bit is set, `fls` now indicates execute permissions, just as `ls` does.

◆ The behavior of `fls`, with respect to "dot" files, is now the same as that of `ls` for each platform.

◆ `migloc` now indicates if a file is in the process of being cached with a *Staging* status.

◆ It is no longer possible to use `migreg` to register the same `ad` volume to more than one VSM managed file system.

◆ `miggetvol` output now shows the correct date.

◆ The *obsdate* field is now correctly initialized for newly created FHDB entries.

◆ Improved performance for `fhdb_info`.

◆ `fhdb_info` no longer expands entries by default. If you desire an expansion, use a new `-e` option.

◆ `ihprint` now indicates how it was invoked with *pathname* or *hsmname inode*.

◆ `migalter` and `gls` now correctly indicate file extent information.

◆ When the `-F` option is specified, `migalter` output now differentiates between the file system and file handles.

◆ Eliminated some `migdbclean` locking problems.

◆ Eliminated expected *Not Enough Copies* log messages when `miggroup -d` is run.

◆ Eliminated bogus *No active dk entry* messages when `miggroup -MP` is run.

◆ Do not attempt to use a non-existent or empty `s_badness` file.

◆ Temporary `migtarunobs` files are no longer left lying about.

◆ Site-defined scripts for `migsweep`, `migpsweep`, and `migsweepm` now work correctly.

◆ `migsweepm` now includes the `machid` when matching handles.

◆ `migstage` of a key caching file now causes all files in the tie group to be staged.

◆ `migstage` from the `nb` method now works for non-root users on Solaris DMAPI platforms.

◆ `migstage` on Solaris 2.6 (and later) `.PAIN/ufs/kernel` implementations is once again asynchronous.

◆ In release 3.2.5, the `migstage` command failed to cache files when, (1) a non-root user invoked `migstage`, and (2) the files to be staged back would stage using the `ft` method. This problem has been corrected.

◆ Utilities that mount volumes now log informative messages in a timely manner.

◆ `migtscan -F` now creates correct VOLDB entries.

◆ Corrected the compression of entries at the end of the FHDB for a two-granule file with copies on tape or optical.

◆ Renamed files with copies on `nb` volumes can now be cached.

◆ `migtestbadness` now uses the user-set values; whenever the values are not user-set, Storage Migrator uses the system defaults.

◆ `migdbcheck` now correctly handles a value of 80000000 or larger in the FHSEQF file.

◆ `miggroup -l` now works even if the non-root user is not the owner.

◆ `migloc` no longer reports erroneous granule numbers.

Known Limitations

Limitations with VSM 3.4.1

◆ The parent process ID of `migd` is sometimes logged incorrectly.

◆ Messages logged by scheduled jobs contain an erroneous parent process id.

◆ After upgrading Storage Migrator, you may see log messages from `migrc` that list locks cleared. These messages *do not* indicate any problems with the startup, and are related to the operational state feature in VSM 3.4.1. Change the file system state from maintenance to active.

◆ Immediately after upgrading to VSM 3.4.1, you may see problems when caching migrated files. In these cases, the cache attempt failed immediately, and there were no indications of failure in the log. A work around for this problem is to stop and restart the daemons using `stopmigd` and `startmigd`.

◆ When the administrator interface (VSM-Java) is used to change the state of a file system, the file system is no longer selected after the window is refreshed.

◆ A file system can appear to achieve the IDLE state while `migstage` and `migcopy` are still running.

◆ File System Analyzer may provide misleading results for non-root users.

◆ In the Main Help window, when you click on Edit Configuration... in the VSM-Java Administration, sometimes the words "vfstab file" will be seen as "vfstabfile."

◆ Some of the man pages do not reflect current state requirements for VSM. See the *System Administrator's Guide* (Appendix B), `migVSMstate.1m`, `migVSMshutdown.1m`, and `migVSMstartup.1m` for the most accurate information on VSM states.

◆ The `migtestbadness.1m` man page contains known inaccuracies.

Limitations with VSM 3.4

◆ Dialogs on the Motif-based interface, xhsmadm, must be closed from the Edit menu instead of using the Close feature of the window manager.

◆ In Solaris 8, the mount option noatime prevents atime changes on read access to files. Do not use this option with VSM. This can cause VSM to migrate recently accessed files more aggressively than intended.

◆ The migfind command is not supported on the HP-UX 10.20 operating system.

◆ The HP 10.20 operating system does not support the interface used in the File System Analyzer. However, since HP 10.20 does support the server portion of the File System Analyzer, you can view the interface (and the scan results) in any NT, HP 11 or Solaris 2.6, 2.7, or 2.8 operating system on your server.

◆ The File System Analyzer scans both migrated and nonmigrated files. As a result, you may observe capacity-used totals larger than what the server alone is designed to hold. For example, if you migrate 80 GB of data from your 100 GB server, and add 50 GB more data, the analyzer tool will plot capacity used as 130 GB, not 100 GB.

◆ If you use the File System Analyzer to scan file data over 1 GB, some graphs exclude files smaller than 1 KB.

◆ With the File System Analyzer, calculated sizes for files can vary by a few percent. For example, your system can represent 1024 bytes as 1000 bytes.

◆ If you use mignewlog with the scheduler tool, VSM automatically creates a new log file and moves the old log file. For example, you have a log file hsm1 and run mignewlog, you would see hsm1, which is the new log, and hsm.*date*, which is the old log file. Keep old log files to help troubleshoot VSM at a later time.

Release Material

The following release material comes with VSM 3.4.1:

◆ Binary release CD-ROM

◆ *VERITAS Storage Migrator Release Notes - UNIX*

◆ *VERITAS Storage Migrator Installation Guide - UNIX*

◆ *VERITAS Storage Migrator System Administrator's Guide - UNIX*

The CD-ROM also contains on-line copies of these product manuals in Adobe Portable Document Format (PDF). You may copy these documents to your system manually. For information on downloading and installing the latest versions of Acrobat Reader, or for help with installation problems, visit the Adobe web site at:

```
http://www.adobe.com
```

Note VERITAS assumes no responsibility for the correct installation or use of the reader.

Other related manuals:

◆ *VERITAS NetBackup Release Notes - UNIX*

◆ *VERITAS Media Manager System Administrator's Guide - UNIX*

◆ *VERITAS NetBackup DataCenter Installation Guide*

◆ *VERITAS NetBackup Media Manager Device Configuration Guide*

Getting Help

◆ For updated information about this release, including system requirements, supported platforms, supported peripherals, and a list of current patches available from Technical Support, visit our web site:
```
http://www.veritas.com/products/vhsm/
```

◆ For product assistance, contact VERITAS Customer Support:

US and Canadian Customers: 1-800-342-0652

International Customers: +1 (650) 335-8555

◆ VERITAS Customer Support can also be reached through electronic mail at:
```
support@veritas.com
```