VERITAS Volume Replicator 4.1

Release Notes

HP-UX

June 2005

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VERITAS Volume Replicator 4.1
Release Notes

VERITAS™ Volume Replicator (VVR) is a licensed product and an add-on feature to the VERITAS Volume Manager (VxVM). This document provides release information for VERITAS Volume Replicator 4.1 on HP-UX and contains information supplemental to the *VERITAS Storage Foundation™ Release Notes*.

VVR contains VERITAS Enterprise Administrator (VVR VEA), VERITAS Volume Replicator Web Console (VRW), HP Serviceguard Support Package and VERITAS Cluster Server (VCS) Agents for VERITAS Volume Replicator (VVR). This document provides information about the VVR VEA, VRW, and VCS agents for VVR. This document also provides information about VERITAS Volume Replicator Advisor, which is a tool you can use to plan your VVR environment.

Review this entire document before installing VVR. For additional information about this release, see "New Features in This Release" on page 2.

VERITAS Volume Replicator is supported on 64-bit versions of the September 2004 HP-UX 11i version 2.0 operating system. This release of VVR is not supported on any earlier HP-UX versions.

New Features in This Release

This release of VERITAS Volume Replicator includes the following features:

Increasing the Size of the SRL

VVR enables you to increase the size of the SRL on the Primary even when the application is active and replication is in progress.

Bandwidth Throttling Feature

The Bandwidth Throttling feature enables you to control the maximum network bandwidth to be used by VVR for replication.

Replicating VxVM ISP Volumes

VVR enables you to replicate VxVM Intelligent Storage Provisioning (ISP) volumes.

Performance Improvements for TCP Transport

To enable optimum usage of the available bandwidth, for each RLINK, VVR can now automatically establish multiple TCP connections to the Secondary based on the latency and bandwidth of the network to the Secondary. Multiple connection improves the overall performance of VVR and specifically the operations such as automatic synchronization and resynchronization.

Enhanced Replication Statistics

The `vxrlink stats` command when used with the new `-e` option enables you to gather extended statistics, which can be useful in troubleshooting replication.

Space-optimized (SO) snapshots

VVR enables you to take space-optimized snapshots, which require lesser storage space than full snapshots. Space-optimized snapshots enable you to perform data validation without stopping the application. The SO snapshot feature also enables you to perform off-host operations on the Secondary using less disk space.

VERITAS Enterprise Administrator for VVR GUI

VERITAS Enterprise Administrator for VVR is the GUI for VVR, which is based on the VEA framework. You can configure, administer, and view VVR objects using VEA for VVR.

SNMP trap, email notifications

VEA for VVR enables you to configure rule-based mechanism for taking actions such as sending SNMP traps and sending email on certain events generated by VVR.

Replication between VVR 3.5 Update 3 and VVR 4.1

VVR enables you to replicate between VVR 3.5 Update 3 and VVR 4.1. You do not have to upgrade VVR on the Primary and the Secondary at the same time.

Online Modification of VVR Memory Tunables (`vxtune`)

VVR provides the `vxtune` utility to display, set, or change the memory tunables that are used by VVR while replication is in progress. A reboot of the system is not required after modifying the value of a tunable.

Consistent Secondary During DCM Replay

The `vradmin resync` command has been enhanced to maintain a consistent Secondary during DCM replay using space-optimized snapshots.

VVR Statistics Collection

VVR has been enhanced to collect statistics for the different components automatically, after the `vradmind` daemon starts. The collected statistics can be used to monitor the system and diagnose problems with the VVR setup. VVR collects the statistics generated by the VVR commands `vxrlink stats`, `vxrlink status` and `vxrvg stats` for all the imported disk groups, and the system level commands `netstat`, `vmstat`, and `vxmemstat`. The output of these commands are stored in separate files.

Unique Number for Error Messages

Each message contains a unique identifier, to enable easy identification of error messages. Use this ID number when reporting messages to VERITAS support to enable them to respond easily to your request.

Support for Multi-Device File System (MDFS) Replication

VVR supports replication of the component volumes of a volume set. For more information, see Chapter 5, "Administering VERITAS Volume Replicator" in the *VERITAS Volume Replicator Administrator's Guide*.

New Entry Point for the VCS RVG Agent

The new entry point `info` for the RVG agent enables you to get the replication status of an RDS.

Disabled Accessibility

VEA for VVR and VRW now provide Disabled Accessibility (Section 508 compliance) support.

Context Sensitive Help

VRW and VEA now provide context-sensitive help.

Improved Checkpoint Support

VRW now provides wizards for End Checkpoint and Delete Checkpoint operations.

VRW Features

◆ Show Commands Button—VRW provides the Show Commands button to display the command or commands corresponding to the selections in the wizard or dialog box.

◆ Configuring Users—VRW enables you to assign hosts for each user to manage, thus limiting the ability of the user to manage the assigned hosts only.

◆ Configuring User Profiles—VRW enables you to organize the hosts assigned to each user into profiles. Each profile contains a sublist of hosts that is assigned to the user.

◆ Command Window—The Command menu option provides an interface that enables you to enter VVR commands without exiting the VRW GUI.

◆ Managing User Roles—VRW provides the ability to define user roles. This enables you to set read-only access for some users.

◆ Centralized Management of configuration on multiple hosts—VRW provides a centralized console to administer RDSs on multiple hosts from one host. You can customize a list of hosts for which you want to administer RDSs. VRW must be installed on each host in the list.

VERITAS Volume Replicator Advisor

VERITAS Volume Replicator Advisor (VRAdvisor) is a tool that helps you plan an optimum configuration for your VERITAS Volume Replicator environment. VRAdvisor does the following:

✔ Collects a sample of data that reflects the application characteristics.

✔ Analyzes the sample of the application characteristic and calculates the size of the SRL and the network bandwidth required for replication.

✔ Enables you to perform a What-if Analysis by varying the needs and constraints of your business, based on your future requirements.

The VRAdvisor operates in two modes, Data Collection Mode and Data Analysis Mode on a Windows server. However, there is no native version of VRAdvisor available on the HP-UX platform. Therefore, you can collect the data using either `vxstat` or `sar` commands. The `sar` command output must be converted to .csv format using the script provided with the package. Use the Windows client to analyze the data that was collected in the `vxstat` or `csv` files.

VERITAS Volume Replicator Advisor includes the following package, which is located on the VERITAS software disc:

`VRTSvradv.msi`—VERITAS Volume Replicator Advisor for Windows, which is located under the directory `windows`.

For more information about the VERITAS Volume Replicator Advisor, refer to the *VERITAS Volume Replicator Advisor User's Guide* (`vvr_advisor_users.pdf`), which is available in the `VRTSvrdoc` package located under the `dvd1/depot` directory.

No Longer Supported

This release of VVR is not supported on the HP-UX 11i operating system.

VERITAS Volume Replicator Packages

The VERITAS software disc contains the VERITAS Volume Replicator packages in the volume_replicator directory. The following list shows the required software packages for VVR:

VRTSvlic	VERITAS Licensing Utilities.
VRTSvxvm	VERITAS Volume Manager and Volume Replicator.
VRTSob	VERITAS Enterprise Administrator Service.
VRTSvmpro	VERITAS Volume Manager Management Services Provider.
VRTSvrpro	VERITAS Volume Replicator Management Services Provider.
VRTSvcsvr	VERITAS Cluster Server Agents for VERITAS Volume Replicator.
VRTSperl	VERITAS Perl Redistribution.

The following list shows the optional software packages for VVR:

VRTSjre	VERITAS JRE Redistribution.
VRTSweb	VERITAS Java Web Server.
VRTSvrw	VERITAS Volume Replicator Web Console.
VRTSobgui	VERITAS Enterprise Administrator Graphical User Interface.
VRTSvmdoc	VERITAS Volume Manager documentation.
VRTSvrdoc	VERITAS Volume Replicator documentation.
VRTSap	VERITAS Provider.
VRTStep	VERITAS Task Execution Provider.
VRTSvrmcsg	VERITAS Volume Replicator Support for HP Serviceguard.

Compatibility Considerations

VVR

This release of VVR is available only on the HP-UX 11i version 2.0 operating system.

VVR is not supported with the Internet Protocol (IP) version IPv6. All nodes in a VVR environment must use IPv4.

VVR supports cross-version replication between VVR 3.5 Update 3 and VVR 4.1.

VVR enables you to replicate VxVM ISP volumes, provided that all the volumes in an RVG are ISP volumes.

VCS Agents for VVR

The VERITAS Cluster Server (VCS) Agents for VERITAS Volume Replicator 4.1 have been tested to work with VVR running on the 64-bit versions of the HP-UX 11i version 2.0 operating system. These agents are for use with VCS 4.1.

VVR VEA

This release of VVR VEA is available for installation on the HP-UX 11i version 2.0 operating system. VVR VEA can only be installed on hosts on which VVR 4.1 is installed.

VRW

This release of VRW is available for installation on the HP-UX 11i version 2.0 operating system. VRW can only be installed on hosts on which VVR 4.1 is installed.

This release of VRW only works with VERITAS Java Web Server version 4.2.

Supported Browsers for VRW

Platform	Supported Browser
Solaris 8, Solaris 9, Solaris 10	Netscape 6.2 or later
Windows NT 4.0, Windows 2000	Internet Explorer 5.0 or later and Netscape 6.2 or later
AIX 5.1 and AIX 5.2	Netscape 6.2 or later
HP-UX 11i version 2.0	Netscape 6.2 or later
Red Hat Enterprise Linux 4 (RHEL 4) Update 1 and SUSE Linux Enterprise Server (SLES) 9 SP1	Mozilla 1.4 and Netscape 6.2 or later

VVR Support for HP Serviceguard

The VERITAS Volume Replicator 4.1 support for HP Serviceguard has been tested to work with VVR 4.1 running on HP-UX 11i version 2.0 (64-bit) operating systems. This support package is for use with HP Serviceguard A.11.16.

Refer to the appropriate HP Serviceguard documentation available at http://docs.hp.com/ for information on any specific hardware requirements for HP Serviceguard. For further information on setting up VVR in an HP Serviceguard environment, see *VERITAS Volume Replicator Support for HP Serviceguard Administrator's Guide*.

VERITAS Volume Replicator Advisor

VRAdvisor does not have a native package for HP-UX. You will need to install the Windows VRAdvisor package and then use the VRAdvisor client to analyze the data that has been collected using either the `vxstat` or `sar` commands.

Note Although VRAdvisor is supported in a non-English locale, the wizards are still displayed in English.

The VRAdvisor Windows package is supported on the following Windows operating system versions.

- Windows XP

- Windows 2000 Professional

- Windows 2000 Server, Advanced Server, Datacenter Server

- Windows Server 2003 (32-bit): Standard Edition, Web Edition, Enterprise Edition, Datacenter Edition

Note If Windows 2000 is installed on your system, you must have Service Pack (SP) 4 installed on it.

Obtaining a License Key

Before installing VVR, obtain a license key for VERITAS Volume Replicator. Note that even if you have already obtained a VERITAS Volume Manager license key, you must obtain a separate license key for VVR. For details, see the section about license information in the *VERITAS Storage Foundation Installation Guide* located in the `dvd1/storage_foundation/docs` directory.

Upgrading and Installing VERITAS Volume Replicator

For details on upgrading and installing VVR, refer to the *VERITAS Volume Replicator Installation Guide*.

Software Fixes and Enhancements

The vradmind Fixes

The vradmind Dumps Core

◆ The `vxrsyncd` daemon dumped core intermittently because of problems during license check. (e305926)

◆ Running the `vradmin ibc` command with scripts that displayed lengthy output or running the `vradmin createpri` command with a large number of volumes caused the `vradmind` daemon to core dump. (e304981)

The vradmind Stops for IBC Scripts with Path Names Exceeding 64 Bytes (e305967)

The `vradmind` daemon stopped when the path name for IBC scripts exceeded 64 characters.

The vradmin Command Fixes

Size of a VRAS Log File (e306702)

The size of a VRAS log file (located in directory `/var/vx/vras/log`) exceeded the value set in the environment variable `VRAS_LOG_MAXLEN`.

Changing IP Address May Cause vradmin Commands to Hang (e306731)

Subsequent `vradmin` commands would hang after `vradmin changeip` was used to convert the Secondary hostname to the corresponding IP address.

vradmin delvol Command Does Not Fail for an SRL Volume (e305940)

The `vradmin delvol` command when executed on the SRL volume would not display an error message on failure.

vradmin Command Displayed Garbled Message (e305984)

If you ran a `vradmin` command while another `vradmin` command was running, a garbled error message was displayed. The `vradmin` command has been fixed to display a proper error message.

vradmin Command Failures

◆ The `vradmin addsec` command could hang if it was used to add an existing Secondary to the RDS with a different name. (e306074)

◆ The `vradmin addsec` or `vradmin syncvol` command could fail with authentication failure if an entry in the file `/etc/vx/vras/.rdg` on the remote host contained some extra blank spaces. (e306098)

vradmin syncrvg Command Failures

◆ If an RDS having multiple Secondaries and different replication networks was used for the Secondaries, the `vradmin syncrvg` command could use the wrong network to synchronize to a Secondary. (e306393)

◆ Starting `syncrvg` did not mark Secondary inconsistent. (e306531)

Performance Improvement (e306167)

Improved performance of the `vradmin syncrvg` and `syncvol` commands, especially in the difference-based synchronization and data verification.

vradmin fbsync Command Enhancement

◆ The `vradmin fbsync` command has been enhanced so that it can now be run from both the original Primary and the new Primary. (e306240)

◆ The `vradmin fbsync` command has been enhanced to maintain a consistent image of the original Primary during the replay of the failback log using space-optimized snapshots. (e306478)

vradmin resync Command Enhancement

The `vradmin resync` command has been enhanced to maintain a consistent image of the original Primary before starting the DCM resynchronization using space-optimized snapshots. (e305439)

Configuration Error when a Disk Group is Imported with a Different Name (e305964)

Deporting a disk group and then importing it with a different name resulted in a configuration error if the RDS(s) resided in this disk group. This prevented any further `vradmin` commands from working.

The RVG and RLINK Fixes

RLINK Connection

◆ If hosts with 32-bit versions of the operating system were running for more than 248 days, the RLINKs would not connect after they disconnected. (e156025)

◆ In certain situations, where there were frequent connects and disconnects of the RLINKs, VVR could cause a system panic. (e157977)

RLINKs in TCP Mode and Flow Control (e151322)

In certain conditions, flow control was ignored for RLINKs replicating in TCP mode. Now, flow control is handled correctly.

Removing a Volume from an RDS (e145292)

A volume could be removed from an RDS only when all the RLINK pairs in the RDS were either in CONNECT or DETACHED state. This restriction has been removed.

Changing or Setting the Packet Size for an RLINK

◆ Changing the packet_size attribute of an RLINK while RLINKs were in the CONNECT state or while replication was in progress resulted in corruption of data or system panic. (e146160)

◆ If the packet_size attribute of an RLINK was set to 65504 or more, and an IO of size 64k or more was done, then replication would hang forever. (e146430)

RLINK Attach Failed (e146938)

RLINKs failed to attach displaying some negative number for data volumes over 1TB.

RVG Recovery Would Take a Long Time to Complete (e145490)

RVG recovery after a reboot or disk group import could take a long time to complete if the RLINK was paused.

Migrating the Primary Role (e291380)

On associating a volume to an RDS after migrating the Primary role, VVR did not correctly maintain the mapping of volumes between the Primary and the Secondary. This resulted in a configuration error and replication was paused. It was then not possible to correct the error or resume replication without removing the volume that was associated to the RDS.

Possible Data corruption After the RVG was Recreated (e291383)

If the Primary RVG was removed and re-created, and during re-creation of the RVG, the volumes were associated to the Primary RVG in a different order than the order in which they were associated with the Secondary RVG, VVR did not map the Primary and Secondary volumes correctly; this led to potential data corruption.

vxrlink updates Command Displayed Incorrect Values

◆ The `vxrlink updates` command displayed that the Secondary was a few updates behind than it was in reality. The number of updates was less than the number of concurrent application writes. (e142447)

◆ The output of the `vxrlink updates` command displayed a large random number as the value for the number of updates the Primary is ahead of Secondary. (e291245)

DCM Fixes

Using Data Change Objects (e156354)

A Data Change Object (DCO) should not be associated as a data volume to an RVG, nor should a DCM be associated to the DCO volume. If you attempt to do so now, the operations fail with an appropriate error.

Allowing Larger DCM Size (e146194)

In this release, VVR allows the size of the DCM to be larger than 32 kilobytes so that there can be smaller region sizes for large volumes. This alleviates the problem where automatic synchronization or DCM replay would not complete for large volumes.

Converting DCM Volumes to Layered Volumes (e136823)

If you created a volume with a DCM and wanted to convert it to be part of a layered volume by issuing the `vxedit set layered=on` *volume* command, the following error message displayed:

```
Unexpected kernel error in configuration update
```

Resynchronizing the RLINK Using DCM

◆ If the RLINK was being resynchronized using the DCM, for example, during automatic synchronization or after SRL overflow, and if the DCM region size was large and the bandwidth was limited, then it was possible that new writes continued to mark bits in the DCM. In such cases, the DCM replay did not complete and the RLINK did not revert to the SRL logging mode. (e153004)

◆ Performing DCM resynchronization while the Secondary was frozen because of an IBC operation resulted in data loss. (e291284)

◆ Performing automatic synchronization and DCM resynchronization of two or more Secondary hosts simultaneously could result in loss of some data on the Secondary. (e144559)

◆ If the RLINK disconnected and reconnected while automatic synchronization or DCM resynchronization of a volume with a DCM region size greater than 256 KB was in progress, it was possible that VVR did not synchronize some blocks of the data volume, resulting in data loss on the Secondary. See "Determining the Region Size" in the *VERITAS Volume Replicator Administrator's Guide*. (e146044)

Removing DCM logs (e146854)

Removing the DCM logs from a volume when `srlprot=autodcm` could cause a panic. This happened if there were any attached RLINKs.

Setting the DCM_logging Flag (e147249)

It is possible that the `dcm_logging` flag may be set on an RLINK even when the RLINK is detached.

SRL Fixes

Primary Checkpoint Overflow (e156268)

If the Primary SRL overflowed during checkpoint attach and DCM replay was initiated during this time, the Secondary SRL could potentially overflow. This could cause data corruption on the Secondary.

Dissociating and Associating SRL (e157849)

When the SRL was dissociated and associated to the RVG without any change to the SRL, the checkpoint area of the SRL header was not being cleared. This issue caused VVR to erroneously interpret stale checkpoint data from the header.

Inconsistent SRL Header Entries May Cause Panic (e150704)

During recovery, inconsistent SRL header entries could cause panic.

RLINK marked with srl_header_err (e153708)

The DiskGroup Agent's offline script issued `vxvol stopall` command, which erroneously set the SRL in DISABLED state. During disk group deport an unsuccessful attempt was made to write to the SRL header, and the RLINK was hence marked as `srl_header_err`. The `vxvol stopall` command has been fixed to not attempt stopping the SRL.

Handling SRL Readbacks (e158025)

In certain situations, when readbacks were in progress, VVR wrote to invalid memory and caused a panic.

Additional Fixes

Typo Error in vxrlink Command Usage (e144064)

The `vxrlink` command usage message had a typographical mistake. The presented option `[-timestamp_freq]` should have been `[-t timestamp_freq]`. The mistake has been corrected.

vrnotify Command Notifications

◆ The `vrnotify` command can report notification events for unregistered RDS(s). This has been fixed. (e305989)

◆ The `vrnotify` command sent incorrect notifications for the RVG frozen and RVG unfrozen events that relate to IBC Messaging. Now, the `vrnotify` command sends correct notifications. (e145732)

Allocation of Separate Buffer Space for each Secondary RVG

Now, VVR allocates a separate buffer space for each Secondary RVG, the size of which is equal to the value of the tunable `vol_max_nmpool_sz`. If the Secondary buffer space has been sized to accommodate all the Secondary RVGs on the system, you can reduce the value of the tunable `vol_max_nmpool_sz`. The new value must be equal to the maximum size of the Secondary buffer space for the RVG that requires the maximum buffer space.

Enhancement to the vxmemstat Output

The output of the vxmemstat utility now includes a DG (disk group) column. The vxmemstat utility prints memory statistics information. In earlier releases, this information was global across the system. In this release, some of the memory pools can be specific to an RVG object. The DG column indicates the name of the disk group in which this RVG is present.

Shortage of Memory Causes System to Panic (e146036)

Shortage of memory on a system while replication was in progress could cause panic.

"Events Dropped" Message in VRAS Logs (e152630)

The following messages can be seen in the VRAS logs (under /var/vx/vras/log directory):

```
VxTrace Dropped <n> events from Trace
```

This is due to I/O tracing getting enabled on RVG objects. As a result, a slight increase in CPU utilization and the dropping of some trace events can happen.

VRW Fixes

Incorrect Error Message Shows No RDS Found (e13389)

The Summary page displayed the following message even when RDSs existed on the host:

```
There is no RDS found on the local host.
```

Online Help Template Issue (e274702)

The online help template caused a new window to pop up each time you clicked on the **Help** button or the Help link from the views. This resulted in multiple windows being created for online help.

VCS Agents for VVR Fixes

Adding VVR Agents Without Stopping VCS

The VVR agent resources can be added without stopping VCS. This release introduces the script `addVVRTypes.sh` which adds the VVR types automatically to the `main.cf` configuration file. See the *VERITAS Cluster Server Agents for VERITAS Volume Replicator Configuration Guide* for more information about how to configure VVR agents without stopping VCS.

New Info Entry Point (e307305)

A new info entry point has been added to the agents. It provides information about the replication status for the RDS configured in VCS environment.

Known Issues

Before installing any product, read the following VERITAS Technical Support TechNote for the latest information on updates, patches, and software issues regarding this release:

http://support.veritas.com/docs/275787

Installation Issues

VCS Agents for VVR (e42381)

When you try to install VVR on a system that already has a version of VCS Agents for VVR installed, the installvvr script indicates that VVR is already installed on the system. This may be erroneous because the script does not check for the other VVR packages. In this case, some of the packages required by VVR that do not exist on the system may not get installed.

Workaround: Use the swinstall command to manually add the VVR packages that are not installed. For more details, see *VERITAS Volume Replicator Installation Guide*.

Support and Compatibility Issues

Supported Internet Protocol Versions (135504)

VVR does not support IPv6.

Running VxFS Commands (e135938)

VxFS commands may execute very slowly and appear to be hung when the following conditions exist:

- ◆ The RLINK is in synchronous mode
- ◆ The network has a low bandwidth
- ◆ VxFS has a very large cache

If you encounter this problem, contact VERITAS Customer Support.

The vradmind Issues

vradmind Marks the VVR Configuration as Invalid (e305980)

The `vradmind` daemon marks the VVR configuration as invalid if different operating systems are running on the Primary and the Secondary.

vradmind Displays Incorrect Host IP (e305870)

If you change the IP address of a host, but do not change the host name, `vradmind` may not work correctly because it still uses the previous IP address to communicate to other hosts in the RDS.

Workaround: Restart the `vradmind` daemon on the host whose IP address has changed.

```
# /sbin/init.d/vras-vradmind.sh stop
# /sbin/init.d/vras-vradmind.sh start
```

vradmind Dumps Core When Collecting Statistics in a Large-volume Configuration (e355521)

While VVR is automatically collecting the statistics in a configuration having more than 256 volumes in an RDS, the `vradmind` daemon may run out of memory due to a memory leak and dump core.

Workaround: Temporarily disable the statistics collection by changing the default value of the `VRAS_ENABLE_STATS` environment variable in the `/etc/vx/vras/vras_env` file from `on` to `off`.

Restart the `vradmind` daemon for the changes to take effect.

```
# /sbin/init.d/vras-vradmind.sh stop
# /sbin/init.d/vras-vradmind.sh start
```

The vradmin Command Issues

Starting Replication on Multiple RDSs (e306715)

If you concurrently issue `vradmin -a startrep` on multiple RDSs whose Primary RVGs reside on the same host, the `vradmind` server on this host can temporarily lose heartbeat to its peers. As a result, subsequent `vradmin` commands fails.

Multiple vradmin Commands (e304827)

If a number of `vradmin` commands are started at the same time in the background, some of the commands might fail.

Incorrect Configuration (e304859)

The `vradmin printrvg` command does not display an error message to indicate an incorrect configuration when the `local_host` and `remote_host` attributes contain the names of hosts that are not in the RDS.

Workaround: Run the `vxprint -Pl` command on the affected hosts to verify that the `local_host` and `remote_host` attributes are set to the correct host names.

Invalid License (e139302)

The `vradmin` commands that change the configuration may fail before completing if the VVR license has expired. Although an attempt is made to undo the changes, it may not be possible to undo the changes because the license has expired.

Synchronizing Volumes and RVG (e306135)

The `vradmin syncrvg` and the `vradmin syncvol` commands do not allow the user to specify an offset for the synchronization operation. They perform the operations on the entire data volume. If the operation is terminated, it must be restarted.

Verifying Data (e306479)

The `vradmin verifydata` command may hang if certain events occur. For example, if the network disconnects, or a large number of writes on the Primary cause the RLINK to go in to DCM mode after the command is issued and before it completes.

Workaround: First, kill the `vradmin verifydata` command using the SIGTERM signal. Press **^C** on the command line, and then perform the following steps on Secondary host:

1. Issue the command:
   # **vxibc -g *dg_name* status *rvg_name***

   The output displays one or more application IDs.
2. Choose the application ID that begins with VD and use this *app-id* in the following steps.
3. Issue the command:
   # **vxibc -g *dg_name* stoprecv *app-id* *rvg_name***
4. Issue the command:
   # **vxibc -g *dg_name* unregister *app-id* *rvg_name***

   The output of the command vxibc -g *dg_name* status *rvg_name* should no longer display the *app-id*.

Resizing the SRL

The `vradmin resizesrl` command enables you to increase the size of the SRL on the Primary while application is active and replication is in progress. The `vradmin resizesrl` command cannot be used to increase the size of the Secondary

SRLs in the RDS. The `vradmin resizesrl` command does not allow you to decrease the size of the SRL. For instructions on resizing the SRL, see the *VERITAS Volume Replicator Administrator's Guide*.

Separator Display in the vradmin Output (e306642)

The separator in the output of `vradmin -l printrvg` is not localized, and always displays as a comma (`,`).

Performing Migration in an RDS with Multiple Secondaries

For a Replicated Data Set (RDS) with multiple Secondaries, the `vradmin migrate` command does not automatically reconfigure any additional Secondaries as Secondaries of the new Primary. If required, reconfigure the additional Secondaries as Secondaries of the new Primary using the VVR low-level command-line interface. For further details, see the *VERITAS Volume Replicator Administrator's Guide.*

Adding a Secondary

When adding a Secondary to the RDS, the `vradmin addsec` command cannot be entered from the host being added. If the RDS contains the Primary only, the command must be entered on the Primary.

RVG and RLINK Issues

RVG Name Size (e304797)

If the total size of the RVG name and the remote host names exceed 26 characters, the default RLINK names created by the `vradmin addsec` command are truncated. This may result in a conflict with other RLINK names and cause an error.

To avoid this error, use the `prlink` and `srlink` attributes with the `vradmin addsec` command. For further details, see the *VERITAS Volume Replicator Administrator's Guide.*

RLINK Name (e151336)

The `vxmake rlink` command fails if the host name is longer than 31 characters.

RLINK Fails to Connect (e151560)

If there are three or less data ports configured for use by VVR and if a connection between the Primary and Secondary nodes cannot be established within three seconds of the initiation of connection, then the following message appears in the syslog and the RLINK does not connect.

```
V-5-0-0 No Ports available for bind on remote
```

RLINK Disconnects and Replication Stops (e346446)

In a clustered Primary and Secondary with NAT support enabled, if you switch the virtual IP from one node to the other, either on the Primary or the Secondary, the heartbeat messages are either sent from the incorrect node or are received by the incorrect node, respectively. This results in the heartbeat messages not being acknowledged, causing the RLINK to disconnect and replication to stop.

Workaround: Reboot the Primary or the Secondary node from which the virtual IP was originally moved.

DCM Issues

Converting DCM Volumes to Layered Volumes (e147490)

If you convert a volume with a DCM to a layered layout the operation completes successfully, but incorrectly prints the following messages:

```
vxvm:vxplex: ERROR: V-5-0-639 Failed to obtain locks:
temp-P05: no such object in the configuration
temp-P06: no such object in the configuration
vxvm:vxassist: ERROR: V-5-0-501 Could not attach log plex(es) to
volume <volume-name>
```

You can safely ignore the messages.

Error when Logging Writes to DCM (e146293)

When writes are being logged to the DCM, the output of the vxrlink updates command is as follows:

```
vxvm:vxrlink: INFO: V-5-0-4348 DCM is in use on rlink <rlinkname>. DCM
contains <number> Kbytes.
```

The message is confusing because the number could be larger than the physical size of the DCM object. The number of kilobytes indicated is the amount of data that requires resynchronization.

DCM Is Removed During Relayout (e156244)

If you perform a relayout that adds a column to a striped volume that has a DCM, the DCM is removed. There is no message indicating this has happened. The DCM can be replaced using the command:

```
# vxassist addlog vol logtype=dcm
```

SRL Issues

SRL is 80% Full (e146176)

VVR issues a warning message when the SRL is 80% full. The threshold at which the warning message is issued cannot be changed.

SRL Overflow (e152276)

If the SRL overflows on the Primary, any IBC message that exists on the Primary SRL is dropped and therefore not delivered to the Secondary. Issue vxibc stoprecv command to prevent secondary from waiting indefinitely for the IBC message.

Takeover Issue

Fast-Failback Synchronization After an SRL Failure on the Original Primary May Cause Data Corruption on the New Secondary (e284372)

After a takeover if fast-failback synchronization is performed and the new Secondary (original Primary) has recovered from an SRL failure, the updates that were lost because of SRL failure are not sent to the Secondary. This can result in data corruption on the new Secondary. To avoid data corruption, after recovering the SRL, synchronize the Secondary completely.

VRW Issues

Increasing Font Size (i78190)

Increasing the font size may cause problems in viewing and navigating the wizards.

IBC Messaging Support (i90949)

This release of VRW does not support In-Band Control (IBC) messaging.

Workaround: Use the Command Line Interface for IBC messaging.

Naming Conventions for Creating RDS using Low-level Commands

VVR cannot manage any objects within an RDS that are created using the VVR low-level commands and do not conform to the VRW naming conventions. Object names that are invalid appear in the Alert section of the GUI. The naming conventions for VRW are as follows:

Only alphanumeric characters, dashes (-), underscores (_), and periods (.) are allowed.

The first character of the name cannot begin with a period (.) or a dash (-).

The maximum length is 31 characters.

Stripe-mirror or Concat-mirror Volumes are not Shown Correctly (e9854)

Stripe-mirror or concat-mirror volumes are shown as simple stripe or simple concat with 0 mirrors.

VCS Agents for VVR Issues

Onlining and Offlining the RVG Resources

Currently a problem with VERITAS Volume Manager affects the RVG resources. When many RVGs are defined, the number of requests to the Volume Manager to `online` or `offline` can overload the Volume Manager's `vxconfigd` process, preventing some RVGs from going online or offline.

To work around this problem, the RVG resources have been set to allow only a single instance of an RVG resource to be brought online or offline. This slows down the onlining and offlining of service groups containing RVGs.

Limitations in the RVGSnapshot Agent

Fire drill setup (`fdsetup`) supports applications using one disk group only. The RVGSnapshot agent does not support volume sets.

VRAdvisor Issue

Processing Large Data Files (307164)

VRAdvisor may fail to process large data files.

HP Serviceguard Issue

Transferring the Primary Role (348987)

Currently, VERITAS does not support the migrate or takeover operations to transfer the Primary role in an HP Serviceguard Disaster Tolerant Cluster architecture. For more information on the Disaster Tolerant Cluster Architecture, refer to the appropriate HP Serviceguard document available at: http://docs.hp.com/

Replication in a Shared Disk Group Environment

For this release, VVR does not support replication in a shared disk group environment.

Additional Issues

Selecting Records Using Search Expressions

The `vxprint -e` *pattern* command: Selecting RVG and RLINK records using search expressions is not supported.

RAID-5 Volume

VVR does not support Volume Manager RAID-5 volumes as part of RVGs. Hardware RAID-5 is supported.

Disk Group Split and Join

VVR does not support Disk Group Split and Join (DGSJ). This means that you cannot use Disk Group Split and Join on data volumes in an RVG. However, you can take snapshots of data volumes and use DGSJ on the snapshots.

Importing a Disk Group with VVR Objects

If a private disk group containing VVR objects is imported on two nodes, as well as the problems documented for VxVM objects, the SRL is corrupted and a full resynchronization of the Secondary is required.

Volumes in Boot Disk Group

We recommend that you do not include replicated volumes in the boot disk group (`bootdg`).

Documentation

This section details information on the documentation available with this product and also related documentation. It also provides information on how you can view the documentation online or print the documentation.

VERITAS Volume Replicator Documentation

VERITAS Volume Replicator Documentation

Title	File Name
VERITAS Volume Replicator Release Notes (this document)	`vvr_notes.pdf`
VERITAS Volume Replicator Installation Guide	`vvr_install.pdf`
VERITAS Volume Replicator Administrator's Guide	`vvr_admin.pdf`
VERITAS Volume Replicator Planning and Tuning Guide **Note** In previous releases, this document was called *VERITAS Volume Replicator Configuration Notes* (`vvr_config.pdf`)	`vvr_planning.pdf`
VERITAS Volume Replicator Advisor User's Guide	`vvr_advisor_users.pdf`
VERITAS Volume Replicator Web Console Administrator's Guide	`vvr_web_admin.pdf`
VERITAS Cluster Server Agents for VERITAS Volume Replicator Configuration Guide **Note** In previous releases, this document was called *VERITAS Cluster Server Enterprise Agent for VERITAS Volume Replicator Installation and Configuration Guide* (`vcsvvr_icg.pdf`)	`vvr_agents_config.pdf`
VERITAS Volume Replicator Support for HP Serviceguard Administrator's Guide **Note** In previous releases, this document was called *VERITAS Volume Replicator Support for MC/ServiceGuard Administrator's Guide* (`vvr_mcsg_admin.pdf`)	`vvr_hpsg_admin.pdf`

Related documents are found in the VERITAS Volume Manager documentation.

VERITAS Volume Manager Documentation

Title	File Name
VERITAS Storage Foundation Release Notes	`sf_notes.pdf`
VERITAS Storage Foundation Installation Guide	`sf_install.pdf`
VERITAS Storage Foundation Cross-Platform Data Sharing Administrator's Guide	`sf_cds_admin.pdf`
VERITAS Storage Foundation Intelligent Storage Provisioning Administrator's Guide	`sf_isp_admin.pdf`
VERITAS Volume Manager Hardware Notes	`vxvm_hwnotes.pdf`
VERITAS Volume Manager Administrator's Guide	`vxvm_admin.pdf`
VERITAS Enterprise Administrator (VEA 500 Series)-Getting Started	`vea5x_getting_started.pdf`
VERITAS Volume Manager Troubleshooting Guide	`vxvm_tshoot.pdf`
VERITAS Flashsnap Point-In-Time Copy Solutions Administrator's Guide	`flashsnap_admin.pdf`

Displaying Documentation Online

The *VERITAS Volume Replicator Installation Guide* is available online as `vvr_install.pdf` in the `/dvd1/volume_replicator/docs` directory on the VERITAS software disc.

The *VERITAS Volume Replicator Release Notes* (this document) is available online as `vvr_notes.pdf` in the `/dvd1/volume_replicator/release_notes` directory.

For notes about VERITAS Volume Manager, see the *VERITAS Storage Foundation Release Notes* (`sf_notes.pdf`) and the *VERITAS Storage Foundation Installation Guide* (`sf_install.pdf`)

Because product release notes and installation guides are not installed by any packages, VERITAS recommends that you copy them to the `/usr/share/doc/vxvm` directory so that they are available for future reference.

The VERITAS Volume Replicator documents are provided on the VERITAS documentation disc as PDF files and in a searchable HTML-based format. You can also install the VVR documentation set by installing the `VRTSvrdoc` package located under the `dvd1/depot` directory. Related documents are available in the VERITAS Volume Manager documentation set, in the `VRTSvmdoc` package. Installation of the documentation packages copies the PDF files into the `/usr/share/doc` directory.

Printing Documentation

Use the print options in your Acrobat Reader viewer to print one or more pages.

Getting Help

For technical assistance, visit http://support.veritas.com and select phone or email support. This site also provides access to resources such as TechNotes, product alerts, software downloads, hardware compatibility lists, and our customer email notification service. Use the Knowledge Base Search feature to access additional product information, including current and past releases of VERITAS documentation.

VERITAS Technical Services provides several diagnostic tools to assist in troubleshooting problems associated with the product. These tools are available on disc or you can download them from the VERITAS FTP site. See the README.VRTSspt file in the /support directory for details.

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