Veritas™ Cluster Server Release Notes

Solaris x64 Platform Edition

5.0

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Veritas Cluster Server
Release Notes

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Veritas Cluster Server Release Notes

Introduction

This document provides important information regarding Veritas Cluster Server (VCS) version 5.0 for Solaris x64 Platform Edition. Please review this entire document before installing VCS.

For the latest information on updates, patches, and software issues regarding this release, see the following TechNote on the Veritas Technical Support website:

http://entsupport.symantec.com/docs/286955

Changes in this release

This section lists the changes in this release of VCS.

Campus cluster support

You can configure a campus cluster using functionality provided by Veritas Volume Manager.

To set up a campus cluster, make sure the disk group contains mirrored volumes. The mirrors must be on separate storage at different sites. Use site tags to distinguish between mirrors located at different sites. You could also use enclosure-based naming. See the *Veritas Volume Manager Administrator's Guide* for detailed instructions.

Symantec recommends using I/O fencing in campus clusters.

Cluster Management Console

The new Cluster Management Console replaces Cluster Manager (Web Console) and CommandCentral Availability.

Cluster Management Console enables administration and analysis for VCS clusters in your enterprise from a single console. You can install Cluster Management Console on a stand-alone system to manage multiple clusters or you can install the console on cluster nodes to manage a local cluster. When installed to manage a local cluster, the console is configured as part of the ClusterService group and the AppName attribute is set to cmc.

CommandCentral Availability installed a component called Cluster Monitor on cluster nodes. The updated component is called Cluster Connector.

VCS privileges for operating system user groups

VCS 5.0 lets you assign VCS privileges to native users at an operating system (OS) user group level in secure clusters.

Assigning a VCS role to a user group assigns the same VCS privileges to all members of the user group, unless you specifically exclude individual users from those privileges.

See the *Veritas Cluster Server User's Guide* for more information.

Five levels of service group dependencies

VCS now supports configuring up to five levels of service group dependencies. The exception is the online local hard dependency, for which only two levels are supported.

New RemoteGroup agent to monitor service groups in remote clusters

The new RemoteGroup agent monitors and manages service groups in a remote cluster. See the *Veritas Cluster Server Bundled Agents Reference Guide* for more information about the agent.

Enhancements to the hastop command

You can customize the behavior of the hastop command by configuring the new EngineShutdown attribute for the cluster.

EngineShutdown Value	Description
Enable	Process all hastop commands. This is the default behavior.
Disable	Reject all hastop commands.
DisableClusStop	Do not process the hastop -all command; process all other hastop commands.
PromptClusStop	Prompt for user confirmation before running the hastop -all command; process all other hastop commands.
PromptLocal	Prompt for user confirmation before running the hastop -local command; reject all other hastop commands.
PromptAlways	Prompt for user confirmation before running any hastop command.

Simulator supports deleting simulated clusters

VCS Simulator now supports deleting simulated clusters.

Symantec recommends using the same tool (command line or Java Console) to create and delete a cluster. For example, if you created the cluster from the Java Console, delete the cluster from the Java Console.

Fencing updates: DMP support

Dynamic multi-pathing (DMP) allows coordinator disks to take advantage of the path failover and the dynamic adding and removal capabilities of DMP. You can configure coordinator disks to use Veritas Volume Manager DMP feature.

You can set the coordinator disks to use either raw or DMP as the hardware path to a drive. See the *Veritas Cluster Server Installation Guide* for more information.

Backup of VCS configuration files

VCS backs up all configuration files (<config>.cf) including main.cf and types.cf to <config>.cf.autobackup. The configuration is backed up only if the BackupInterval is set and the configuration is writable.

When you save a configuration, VCS saves the running configuration to the actual configuration file (i.e. <config>.cf) and removes all autobackup files. This does away with the VCS behavior of creating .stale files

If you do not configure the BackupInterval attribute, VCS does not save the running configuration automatically.

See the *Veritas Cluster Server User's Guide* for more information.

Separate logger thread for HAD

The VCS engine, HAD, runs as a high-priority process to send heartbeats to kernel components and to respond quickly to failures. In VCS 5.0, HAD runs logging activities in a separate thread to reduce the performance impact on the engine due to logging.

Enhanced NFS lock failover

The new NFSRestart agent provides high availability to NFS locks. Use the agent in conjunction with the NFS agent. See the *Veritas Cluster Server Bundled Agents Reference Guide* for more information. The NFSRestart agent replaces the NFSLock agent.

Support for VLAN interfaces

The NIC and IPMultiNIC agents now support VLAN interfaces. The agents do not configure the NICs, but can monitor them.

See the OS vendor's documentation on how to configure VLAN on your host, and ensure that the switch or router connected to such an interface is compatible with your configuration. Both server-side and switch-side VLAN configurations are supported.

Virtual fire drill

VCS supports a virtual fire drill capability that lets you test whether a resource can fail over to another node in the cluster. Virtual fire drills detect discrepancies between the VCS configuration and the underlying infrastructure on a node; discrepancies that might prevent a service group from going online on a specific node. See the *Veritas Cluster Server User's Guide* for more information on running virtual fire drills.

DB2 agent for x64 Platform Edition

This release adds x64 Platform Edition support for the DB2 agent.

New term: Daemon Down Node Alive (DDNA)

Daemon Down Node Alive (DDNA) is a condition in which the VCS high availability daemon (HAD) on a node fails, but the node is running. When HAD fails, the hashadow process tries to bring HAD up again. If the hashadow process succeeds in bringing HAD up, the system leaves the DDNA membership and joins the regular membership. See the *Veritas Cluster Server User's Guide* for more information.

Change in string size for some attribute values

For group name, resource name, attribute name, type name, and VCS username and password, the string size is limited to 1024 characters.

Change in behavior: Use comma or semicolon as delimiter

VCS 5.0 does not support using spaces as delimiters to separate vector, association, or keylist values. You must use a comma or a semicolon as a delimiter.

Change in behavior: New format for engine version

The new EngineVersion attribute replaces the MajorVersion and MinorVersion attributes. VCS stores version information in the following format:

`<major>.<minor>.<maintenance_patch_num>.<point_patch_num>`

Change in behavior for the resfault trigger

VCS now provides finer control over the resfault trigger. The resfault trigger is now invoked if the TriggerResFault attribute is set to 1.

Change in behavior: New location for enterprise agents

VCS enterprise agents are now installed in the /opt/VRTSagents/ha/bin directory.

The <agent>Types.cf files are now located at /etc/VRTSagents/ha/conf/<agent>.

Change in behavior: New location of message catalogs and attribute pools

VCS stores binary message catalogs (BMCs) at the following location:

/opt/VRTS/messages/*language*/module_name

The variable *language* represents a two-letter abbreviation.

The attribute pools also move from /var to /opt.

Change in behavior: New option for the hastart and had commands

Use the -v option to retrieve concise information about the VCS version. Use the -version option to get verbose information.

Changes to bundled agents

VCS introduces the following new agents:

- NFSRestart—Provides high availability for NFS record locks. The agent replaces the NFSLock agent.

- RemoteGroup—Monitors and manages a service group on another system.

- Apache (now bundled on all platforms)—Provides high availability to an Apache Web server.

See "No longer supported" on page 18.

Changes to licensing for VCS

VCS now follows the licensing scheme that is described below:

License	What's included
VCS	■ VCS ■ Cluster Management Console ■ Database agents ■ Application agents ■ Virtual fire drill support
VCS HA/DR	■ VCS ■ Cluster Management Console ■ Database agents ■ Application agents ■ Replication agents ■ Global clustering ■ Fire drill support

Note: Database agents are included on the VCS 5.0 disc. The replication and application agents are available via the Veritas High Availability Agent Pack.

New attributes

VCS 5.0 introduces the following new attributes. See the *Veritas Cluster Server User's Guide* for more information.

Resource type attributes

■ AgentFile—Complete name and path of the binary for an agent. Use when the agent binaries are not installed at their default locations.

■ AgentDirectory—Complete path of the directory in which the agent binary and scripts are located. Use when the agent binaries are not installed at their default locations.

Cluster attributes

■ EngineShutdown—Provides finer control over the hastop command.

■ BackupInterval—Time period in minutes after which VCS backs up configuration files.

■ OperatorGroups—List of operating system user account groups that have Operator privileges on the cluster.

■ AdministratorGroups—List of operating system user account groups that have administrative privileges on the cluster.

■ Guests—List of users that have Guest privileges on the cluster.

System attributes

■ EngineVersion—Specifies the major, minor, maintenance-patch, and point-patch version of VCS.

Service group attributes

■ TriggerResFault—Defines whether VCS invokes the resfault trigger when a resource faults.

■ AdministratorGroups—List of operating system user account groups that have administrative privileges on the service group.

■ OperatorGroups—List of operating system user account groups that have Operator privileges on the service group.

■ Guests—List of users that have Guest privileges on the service group.

Removed attributes

- DiskHbStatus—Deprecated. This release does not support disk heartbeats. Symantec recommends using I/O fencing.

- MajorVersion—The EngineVersion attribute provides information about the VCS version.

- MinorVersion—The EngineVersion attribute provides information about the VCS version.

Updates to the Sybase agent

The agent for Sybase agent supports Sybase ASE 12.5.x and 15.

Updates to the Oracle agent

- New monitoring option—The basic monitoring option of the Oracle agent now allows health check monitoring in addition to the process check monitoring. You can choose the health check monitoring option for Oracle 10g and later.

- Support for virtual fire drills—VCS requires you to keep the configurations in sync with the underlying infrastructure on a cluster node. Virtual fire drills detect such discrepancies that prevent a service group from going online on a specific system. Refer to the *Veritas Cluster Server User's Guide* for more information.
  The agent uses the Action entry point to support the virtual fire drill functionality.

Veritas agents

VCS bundles agents to manage key resources used in the cluster. The implementation and configuration of bundled agents vary by platform.

See the *Veritas Cluster Server Bundled Agent Reference Guide.*

VCS also provides agents for the management of key enterprise applications. This section lists the agents for enterprise applications and the software the agents support.

In addition to the agents for enterprise applications provided with VCS, other agents are available through an independent Symantec offering called the Veritas Cluster Server Agent Pack. The agent pack includes the currently shipping agents and is re-released regularly to add new agents that are now under development. Contact your Symantec sales representative for information about agents included in the agent pack, agents under development, and agents available through Symantec consulting services.

Note: Before configuring an enterprise agent with VCS, verify that you have a supported version of the agent.

Agent	Agent version	VCS version		Application	
		4.1	5.0		
DB2	5.0	p	s	DB2 Enterprise Server Edition	8.2
Oracle	5.0	p	s	Oracle	10g R1, 10g R2
Sybase	5.0	p	s	Sybase Adaptive Server Enterprise	12.5.x, 15

s — supported configuration of the agent   p — supported by previous version

Custom agents

Solaris

Custom agents developed in C++ must be compiled using Sun Studio 10 or Forte Developer 6 compilers. The following is the layout of libvcsagfw.so in /usr/lib:

/usr/lib/libvcsagfw.so --> . /libvcsagfw.so.2

If your custom agents use scripts, continue linking to ScriptAgent. Use Script50Agent for agents written for VCS 5.0.

System requirements

System requirements for VCS are as follows.

Supported hardware

The compatibility list contains information about supported hardware and is updated regularly. For the latest information on supported hardware visit the following URL:

http://entsupport.symantec.com/docs/287089

Before installing or upgrading Veritas Cluster Server, review the current compatibility list to confirm the compatibility of your hardware and software.

Supported software for VCS cluster nodes

- Solaris 10 (64-bit)
  For each platform, we recommend applying the latest Solaris operating system patches available from Sun. See the following site:
  http://sunsolve.sun.com

- Veritas Volume Manager (VxVM) 5.0

- Veritas File System (VxFS) 5.0

Required patches

The following patches are required for this release of Veritas Cluster Server.

- To use I/O Fencing, you must install the Solaris 10 patches 119716-10 and 118844-27.

- Cluster Manager requires Java 2 standard edition (J2SE) patches.

Supported software for Cluster Management Console

You can install Cluster Management Console on a standalone system to manage multiple clusters or you can install the console on cluster nodes to manage a local cluster.

Install Mode	Supported software
Multi-cluster mode. To manage multiple clusters. Installed on a standalone system designated the *management server*.	■ Solaris (SPARC) 8, 9, and 10, with patches indicated by Sun. ■ Windows 2000 Server, Advanced Server, and Datacenter, with SP4 or patches as indicated by Microsoft. ■ Windows Server 2003 Standard Edition, Datacenter Edition, Enterprise Edition, and Web Edition, with patches as indicated by Microsoft. **Note:** Windows Management Instrumentation (WMI) must be installed on Windows 2003 systems prior to installing Cluster Management Console.
Single cluster mode. To manage a single cluster. Installed on cluster nodes.	You can install Cluster Management Console in this mode only with VCS 5.0 in a fresh install or upgrade scenario. See "Supported software for VCS cluster nodes" on page 16.

Supported browsers

Veritas Cluster Management Console is supported on the following browsers:

■ Microsoft Internet Explorer 6.0 with SP2 or later

■ Firefox 1.5 or later

Veritas Cluster Management requires the Macromedia Flash Plugin v8.0.

Requirements for accessing Cluster Manager (Java Console)

The VCS Java Console requires a minimum of 256MB RAM and 1280x1024 display resolution. The color depth of the monitor must be at least 8-bit (256 colors), although 24-bit is recommended.

The minimum requirements for Windows clients are Pentium II, 300MHz, 256MB RAM, and 800x600 display resolution. (Symantec recommends a minimum of Pentium III, 400MHz, and 512MB RAM.) The color depth of the monitor must be at least 8-bit (256 colors), and the graphics card must be able to render 2D images.

No longer supported

Support is no longer provided for:

■   CampusCluster agent

■   nfs_restart trigger. Use the NFSRestart agent to provide high availability to NFS lock records. (Solaris)

■   ServiceGroupHB agent. This release does not support disk heartbeats. Symantec recommends using I/O fencing.

Installation notes

Refer to the *Veritas Cluster Server Installation Guide* for instructions on how to install VCS 5.0 and how to upgrade to VCS 5.0 from earlier versions of VCS. The Installation Guide is in the cluster_server/docs directory of the software disc.

The following information includes guidelines, tips, and other considerations for installing VCS 5.0.

Change default password after installing VCS

When you install and configure VCS, if you do not choose the secure mode, the installvcs program creates a user *admin* with the password *password*. The user has administrative privileges to the cluster.

Symantec recommends you change the password of the user after installing and configuring VCS. See the *Veritas Cluster Server User's Guide* for more information.

If you used the AllowNativeCliUsers attribute

If you used the AllowNativeCliUsers attribute, see the *Veritas Cluster Server Installation Guide* for information on how to use the halogin utility after upgrading to VCS 5.0.

Installing Veritas Cluster Management Console Management Server

If you plan to set up a management server to administer your clusters, install the Veritas Cluster Management Console on a system outside of the managed clusters.

To install Veritas Cluster Management Console

1   Go to http://www.symantec.com/enterprise/products/index.jsp.

2   In the **Product Finder** box, click **Select Product/Service** and selected **High Availability>Veritas Cluster Server**.

3   In the **Learn about this product** box, click **Trialware**.

4   Click Storage Foundation and High Availability Solutions.

5   On the Trialware Download page, click **Download Now**.

6   Accept the export restrictions agreement.

7   Enter your credentials or create a new user account.

8   On the **Software Download** page, click the link for **Storage Foundation and HA Solutions, Solaris, v5.0** to begin the download process.

Note that the Solaris package contains installers for setting up a management server on Solaris or Windows systems.

9 After the download completes, extract the files.

10 Install the console by following the instructions in the *Veritas Cluster Server Installation Guide*. The guide is available in the cluster_server/docs directory of the extracted image.

For information on administering clusters using the console, see the *Veritas Cluster Server Centralized Management Guide*.

Fixed Issues

Concurrency violation with online firm dependencies

The concurrency violation trigger could not offline a service group if the group had a parent online on the system with local firm dependency. The concurrency violation continued until the parent was manually taken offline.

Other fixed issues

The following issues were fixed in this release.

247698	Need to move logging activities out of single-threaded HAD.
248069	Commands do not close socket after successful termination.
584243	hares options do not filter correctly.
515644	hacf does not handle MAXARG values of vector/associative attributes in the main.cf.
426932	Indeterministic service thread cancellation.
308607	The Monitor process for the MultiNICB agent sometimes returns status 111 (HAPING_TIMED_OUT).
271167	Provide finer control over the hastop -all command.
254947	GAB and LLT device files have open permissions.
252347	Behavior of parent group is incorrect when groups are linked with online global firm and child group faults.
246238	Information required when had is restarted either by hashadow or gab.
805061	The VCS install program does not support e1000g NIC interface.
848078	The nfs_postoffline trigger should not start the nfsd or mountd daemons if there is no NFS or NFSRestart agent in the service group.
861785	Issues with the creation of the fire drill service group.
908910	NFSRestart agent entry points should not create lock files in /tmp directory. Create entry points in the $VCSLOG/lock directory.
926544	Mount Agent has a problem monitoring two Mount resources with the same mount point.
787222	Erroneous information in entry point output when zone name is larger than 11 characters.

Known issues

The following issues are open for this version of VCS.

- "Operational issues for VCS" on page 22

- "Issues related to the VCS engine" on page 25

- "Issues related to the VCS engine" on page 25

- "Issues related to fencing" on page 25

- "Issues related to global service groups" on page 26

- "Issues related to the Oracle agent" on page 29

- "Issues related to Cluster Manager (Java Console)" on page 30

- "Issues related to Cluster Management Console" on page 31

Operational issues for VCS

Partial groups go online after restart

Partial groups go online erroneously if you kill and restart the VCS engine. [821454]

Saving large configuration results in very large file size for main.cf

If your service groups have a large number resources or resource dependencies, and if the PrintTree attribute is set to 1, saving the configuration may cause cause the configuration file to become excessively large in size and may impact performance. [616818]

Workaround: Disable printing of resource trees in regenerated configuration files by setting the PrintTree attribute to 0.

AutoStart may violate limits and prerequisites load policy

The load failover policy of Service Group Workload Management may be violated during AutoStart when all of the following conditions are met:

■ More than one autostart group uses the same Prerequisites.

■ One group, G2, is already online on a node outside of VCS control, and the other group, G1, is offline when VCS is started on the node.

■ The offline group is probed before the online group is probed.

In this scenario, VCS may choose the node where group G2 is online as the AutoStart node for group G1 even though the Prerequisites load policy for group G1 is not satisfied on that node.

Workaround: Persistently freeze all groups that share the same Prerequisites before using `hastop -force` to stop the cluster or node where any such group is online. This workaround is not required if the cluster or node is stopped without the force option.

Trigger not invoked in REMOTE_BUILD state

In some situations, VCS does not invoke the injeopardy trigger if the system is a REMOTE_BUILD state. VCS fires the trigger when the system goes to the RUNNING state.

Issue with offline local group dependencies

This issue occurs with offline local group dependencies, when the parent service group has the AutoFailover attribute set to 0. When the child group faults, it does not fail over to system where parent is online, even though that is the only system available for failover. [248532]

Using the coordinator attribute

This release contains an attribute for disk groups called coordinator, which configures disks as coordinator disks by the I/O fencing driver. Setting the attribute prevents the coordinator disks from being reassigned to other disk groups. See the Veritas Volume Manager documentation for additional information about the coordinator attribute.

The attribute requires that the disk group contain an odd number of disks. Symantec recommends that you use only three coordinator disks. Using more (five or seven) disks may result in different subclusters.

Some alert messages do not display correctly

The following alert messages do not display correctly [612268]:

51030	Unable to find a suitable remote failover target for global group %s. administrative action is require
51031	Unable to automatically fail over global group %s remotely because local cluster does not have Authority for the group.
50913	Unable to automatically fail over global group %s remotely because clusters are disconnected and ClusterFailOverPolicy is set to %s. Administrative action is required.
50914	Global group %s is unable to failover within cluster %s and ClusterFailOverPolicy is set to %s. Administrative action is required.
50916	Unable to automatically failover global group %s remotely due to inability to communicate with remote clusters. Please check WAN connection and state of wide area connector.
50761	Unable to automatically fail over global group %s remotely because ClusterList values for the group differ between the clusters. Administrative action is required.
50836	Remote cluster %s has faulted. Administrative action is required.
51032	Parallel global group %s faulted on system %s and is unable to failover within cluster %s. However, group is still online/partial on one or more systems in the cluster
51033	Global group %s is unable to failover within cluster %s and AutoFailOver is %s. Administrative action is required.

Issues related to the VCS engine

Engine may hang in LEAVING state

When the command `hares -online` is issued for a parent resource when a
child resource faults, and the `hares -online` command is followed by the
command `hastop -local` on the same node, then the engine transitions to the
LEAVING state and hangs.
Workaround: Issue the command `hastop -local -force`.

Timing issues with AutoStart policy

Consider a case where the service group is offline and engine is not running on
node 1. If you restart the engine on node 1 after HAD is killed on node 2 *and*
before the engine is restarted on node 2, then VCS does not initiate the autostart
policy of the group.

Issues related to fencing

Preexisting split brain after rebooting nodes

The fencing driver in 5.0 uses Veritas DMP to handle SCSI commands to the disk
driver if fencing is configured in *dmp* mode.   This allows fencing to use Veritas
DMP for access to the coordinator disks.   With certain disk arrays, when paths
are failed over due to a path failure, the SCSI-3 persistent reservation keys for
the previously active paths are not removed. If the nodes in a cluster are all
rebooted at the same time, then the cluster will not start due to a `Preexisting
split brain` message. [609407]

Workaround: Use the `vxfenclearpre` script to remove the keys from the
coordinator disks as well as from the data disks.

Stopping vxfen when the fencing module is being configured

Trying to stop the vxfen driver when the fencing module is being configured
results in the following error.
```
VCS FEN vxfenconfig ERROR V-11-2-1013 Unable to unconfigure vxfen
VCS FEN vxfenconfig ERROR V-11-2-1022 Active cluster is currently
fencing.
```
Workaround: This message may be safely ignored.

Fencing configuration fails if fencing module is running on another node

The `vxfenconfig -c` command fails if any of the following commands are running on other nodes in the cluster:

```
vxfenconfig -U
vxfenconfig -c
```

Some vxfenadm options do not work with DMP paths

Some options of the vxfenadm utility do not work well with DMP paths such as /dev/vx/rdmp/sdt3.

Workaround: Use the -a option to register keys instead of -m option for DMP paths.

Issues related to global service groups

Switch across clusters may cause concurrency violation

If you try to switch a global group across clusters while the group is in the process of switching across systems within the local cluster, then the group may go online on both the local and remote clusters. This issue affects only global groups. Local groups do not experience this behavior.

Workaround: Ensure that the group is not switching locally before attempting to switch the group remotely.

Global service group does not go online on AutoStart node

At cluster startup, if the last system where the global group is probed is not part of the group's AutoStartList, then the group does not AutoStart in the cluster. This issue affects only global groups. Local groups do not display this behavior.

Workaround: Ensure that the last system to join the cluster is a system in the group's AutoStartList.

Declare cluster dialog may not display highest priority cluster as failover target

When a global cluster fault occurs, the Declare Cluster dialog enables you to fail groups over to the local cluster. However, the local cluster may not be the cluster assigned highest priority in the cluster list.

Workaround: To bring a global group online on a remote cluster, do one of the following:

- From the Java Console, right-click the global group in the Cluster Explorer tree or Service Group View, and use the Remote Online operation to bring the group online on a remote cluster.

- From the Web Console, use the Operations links available on the Service Groups page to bring the global group online on a remote cluster.

The gcoconfig command assigns priority 0 to all nodes

If you configure a global cluster using the `/opt/VRTSvcs/bin/gcoconfig` command, the gcoconfig utility assigns the same priority '0' to all the nodes that are in the SystemList of the ClusterService group. [857159]

Workaround: Edit main.cf and assign priority for cluster nodes in the SystemList of the ClusterService group.

Use one of the following approaches to edit the main.cf file:

- Veritas Cluster Server GUI

- VCS commands

- Stop VCS and manually edit the main.cf file
  Note that this approach has HA downtime.

Issues related to VCS bundled agents

Problem in failing over the IP resource

When a system panics, the IP address remains plumbed to the system for a while. In such a case, VCS may not succeed in failing over the IP resource to another system. This can be observed when a system panics during I/O Fencing.

Workaround: Increase the value of the OnlineRetryLimit attribute for the IP resource type.

Volume agent may hang

Under extreme conditions, the volume agent may hang. This behavior has been observed under the following circumstances:

■   Failover for the JNI Fibre Channel driver (JNIfcaPCI) was set to 0. Note this is *not* failover for VCS. The JNI driver has a variable called "failover" that defines the number of seconds after the target is declared offline and before it is declared failed. When target is declared failed, all pending commands are flushed back to the application. This failover value is set in the file /kernel/drv/fca-pci.conf. Setting failover to 0 means that the target is never declared failed. With failover for the JNI driver set to 30 seconds, the agent behavior was normal.

■   Fibre cable was disconnected from the switch (to simulate failure of the Fibre drives).

In general, an agent can hang when it attempts to cancel a service thread executing a C++ entry point that has timed out if that entry point has issued a blocking call that is not a valid cancellation point.

Issues related to the Oracle agent

NOFAILOVER action specified for certain Oracle errors

The Veritas High Availability agent for Oracle provides enhanced handling of Oracle errors encountered during detailed monitoring. The agent uses the reference file oraerror.dat, which consists of a list of Oracle errors and the actions to be taken. Refer to the *Veritas High Availability Agent for Oracle Installation and Configuration Guide* for a description of the actions.

Currently, the reference file specifies the NOFAILOVER action when the following Oracle errors are encountered:

ORA-00061, ORA-02726, ORA-6108, ORA-06114

The NOFAILOVER action means that the agent sets the resource's state to OFFLINE and freezes the service group. You may stop the agent, edit the oraerror.dat file, and change the NOFAILOVER action to another action that is appropriate for your environment. The changes go into effect when you restart the agent.

Health check may not work

If you set MonitorOption to 1, health check monitoring may not function when the following message is displayed [589934]:

```
Warning message - Output after executing Oracle Health Check is:
GIM-00105: Shared memory region is corrupted.
```

Workaround: Set MonitorOption to 0 to continue monitoring the resource.

Health check monitoring does not work in csh environment

If you use csh, you must change your shell environment to enable the Health check monitoring option.

Oracle 10g R1 on Solaris 64-bit OS Requires a Patch

After installing Oracle 10g R1 software, download and install the Oracle 10g R1 patch 4186426. You must install the Oracle patch before creating a database on the Solaris 64-bit operating system. Refer to the Oracle support website for additional information.

Oracle Database Instance May Terminate at Regular Intervals

At regular short intervals, the Oracle database instance may terminate unexpectedly. Workaround: The recommendation from Oracle is to set the database initialization parameters db_cache_size and java_pool_size to optimal values.

Issues related to Cluster Manager (Java Console)

Exception when selecting preferences

On Windows systems, selecting the Java (Metal) look and feel of the Java Console may cause a Java exception. [585532]

Workaround: After customizing the look and feel, close restart the Java Console.

Printing to file from the VCS Java Console throws exception

VCS Java Console and Help throw an exception while printing to a file from a system that does not have a printer configured. Also, the content is not written to the file.

Workaround: Before printing, make sure at least one printer is configured on the system where the VCS Java Console is launched.

Common system names in a global cluster setup

If both local and remote systems have a common system name in a global cluster setup, group operations cannot be performed on those systems using the Java console.

Workaround: Use command-line interface to perform group operations.

Issues related to Cluster Management Console

Remote Cluster Configuration wizard hangs

After configuring a global service group, if you try to delete a remote cluster from the list, the wizard hangs. [894678]

Global Group Configuration wizard accepts alphabets for port number

If you enter alphabets when asked to specify a port number for remote cluster authentication, the wizard displays a dialog box with the following message [893876]:

    Undefined

Workaround: None. Use numeric values when specifying port numbers.

Removing cluster connector from a CMC management server

The current implementation allows removing cluster connector running on a Solaris x64 system from a management server running on a Solaris SPARC system [859110].

Blank page when adding users in secure mode

If VCS is configured to run in secure mode, trying to add users results in a blank page [892493].

Some Cluster Management Console controls not immediately active

In some versions of Internet Explorer, you may need to click Flash-based screens, popups, and wizards once before the controls become active. Controls that require this activating click show the following message when you roll over them with your mouse pointer [603415]:

    Press SpaceBar or Click to activate this Control

Login screen may not display after inactivity timeout

If your Cluster Management Console is inactive and the session times out, your next action in the console should return you to the login screen. However, if your next action is to request a sort or a new page, the console will not sort the data or load the page.

Workaround: Use the browser refresh feature and the login screen will display.

Uninstall of Cluster Connector in a secure cluster leaves the VxSS service group frozen

On UNIX, when you remove the cluster connector from a secure cluster, the VxSS service group is frozen. [619106]

Workaround: Manually unfreeze the VxSS group. Run the following commands.

```
haconf -makerw
hagrp -unfreeze VxSS -persistent
haconf -dump -makero
```

Documentation Errata

This section adds or replaces content in the VCS 5.0 documents.

Veritas Cluster Server User's Guide

User's Guide does not mention backward-compatibility of the Java Console

The VCS User's Guide does not mention the backward-compatibility of Cluster Manager (Java Console.) The console enables or disables features depending on whether the features are supported in the cluster that the console is connected to. For example, the Cluster Shell icon is grayed out when you connect to recent versions of VCS. But the icon is enabled when you connect to a pre-4.1 version of a VCS cluster. [641680]

Updated definition of the IntentOffline attribute

The definition of IntentOnline needs to be updated to include following information:

VCS sets IntentOnline attribute value to 2 for failover groups while VCS attempts to autostart a service group. Once the service group is online, VCS sets IntentOnline value to 1. [831858]

Veritas Cluster Server Bundled Agents Reference Guide

The Bundled Agents Reference Guide references the SANVolume agent, which is not supported with this release of VCS.

The DefaultRouter attribute for the MultiNICB agent

The description for DefaultRouter attribute should be present in the section for "Optional attributes for Base and Mpathd modes" instead of the "Optional attributes for Base mode" section. [766145]

The NetMask attribute for the IPMultiNICB agent

NetMask attribute appears both as required and optional attribute. This is a required attribute. Disregard the optional attribute. [629011]

The NFSRestart agent, additional information for NFSv4 locks

Replace the following sentence in the description on page 85, "The daemon copies the NFS locks from the shared-storage to the local directory (/var/statmon/sm) and vice-versa," with this new sentence, "The daemon copies the NFS locks from the shared-storage to the local directory (/var/statmon/sm or
/var/nfs/v4_state) and vice-versa."

This change takes place for all cases where the NFSv3/2 locks path is specified. [703498]

Updated information for the nfsd and mountd daemons under VCS control for Solaris 10 in the NFSRestart agent

In the NFSRestart agent on page 87, Replace the existing section that starts with, "To keep NFS daemons under VCS control," with the following sections.

To keep the statd daemon under VCS control

1 Set the auto_enable property to false.

```
svccfg -s nfs/status setprop "application/auto_enable = false"
```

2 Refresh the SMF configuration repository.

```
svcadm refresh nfs/status
```

3 Disable SMF.

```
svccfg disable svc:/network/nfs/status:default
```

To keep lockd daemon under VCS control

1 Set the auto_enable property to false.

```
svccfg -s nfs/nlockmgr setprop "application/auto_enable = false"
```

2 Refresh the SMF configuration repository.

```
svcadm refresh nfs/nlockmgr
```

3 Disable SMF.

```
svccfg disable svc:/network/nfs/nlockmgr:default
```

To manually restart the lockd, statd, and automountd

For lockD   `/usr/lib/nfs/lockd`

For statd   `/usr/lib/nfs/statd`

For automountd   `/usr/lib/fs/autofs/automount`

                   `/usr/lib/autofs/automountd`

Incorrect configuration in the guide

Ignore Sample Configuration on page 53 of the *Veritas Cluster Server Bundled Agents Reference Guide*. This configuration is not for the NIC agent.

Veritas Cluster Server Installation Guide

Creating the coordinator disk group

On page 106, replace the instructions to create a coordinator disk group with [1005851]:

To create the coordinator disk group

1 On one node, create the disk group by specifying the device name of one of the disks:

```
# vxdg init vxfencoorddg c1t1d0
```

2 Add the other two disks to the disk group:

```
# vxdg -g vxfencoorddg adddisk c2t1d0
# vxdg -g vxfencoorddg adddisk c3t1d0
```

Refer to the Veritas Volume Manager documentation for details on creating disk groups.

3 Set the option coordinator=on to set the coordinator attribute:

```
# vxdg -g vxfencoorddg set coordinator=on
```

Cluster connector must be taken offline before it is uninstalled

Ensure that you take the CMC service group offline before you uninstall cluster connector. Otherwise, cluster connector remains running even after you uninstall the cluster connector software. [796739]

To take the CMC service group offline on UNIX platforms

1 Obtain a command prompt on the management server host system.

2 Enter the following command:

```
hagrp -offline CMC -sys
```

Replace sys with the name of the system that is running the CMC service group.

Software limitations

The following limitations apply to this release.

Cluster address for global cluster requires resolved virtual IP

The virtual IP address must have a DNS entry if virtual IP is used for heartbeat agents.

System names in VCS

Systems specified in the VCS configuration file, main.cf, and in the files /etc/nodename and /etc/llthosts, must be consistent. The names cannot include periods and thus must not be in the fully qualified form. If you create the file /etc/VRTSvcs/conf/sysname to contain system names used by main.cf, VCS uses the file to verify the names.

Systems in a cluster must have same system locale setting

VCS does not support clustering of systems with different system locales. All systems in a cluster must be set to the same locale.

Using agents in NIS

Programs using networked services (for example, NIS, NFS, RPC, or a TCP socket connection to a remote host) can hang if the host is disconnected from the network. If such a program is used as an agent entry point, a network disconnect can cause the entry point to hang and possibly time out. For example, if the host is configured to use NIS maps as a client, basic commands such as `ps -ef` can hang if there is network disconnect. Symantec recommends creating users locally and configuring /etc/nsswitch.conf to reflect local users.

Fire drill does not support volume sets

The fire drill feature for testing fault readiness of a VCS configuration supports only regular Volume Manager volumes. Volume sets are not supported in this release.

Manually removing VRTSat package erases user credentials

Symantec recommends saving user credentials before manually removing the VRTSat package. If you need the credentials again, you can restore them to their original locations.

To save user credentials

1   Run the `vssat showbackuplist` command. The command displays the data files and backs them up into the SnapShot directory /var/VRTSatSnapShot. Output resembles the following:

```
 vssat showbackuplist
B| /var/VRTSat/.VRTSat/profile/VRTSatlocal.conf
B| /var/VRTSat/.VRTSat/profile/certstore
B| /var/VRTSat/RBAuthSource
B| /var/VRTSat/ABAuthSource
B| /etc/vx/vss/VRTSat.conf
Quiescing ...
Snapshot Directory :/var/VRTSatSnapShot
```

2   Move the credentials to a safe location. Preserving the directory structure makes restoring the files easier.

To restore user credentials

1   Navigate to the SnapShot directory or the safe location where you previously saved credentials:

```
  cd /var/VRTSatSnapShot/profile
```

2   Restore the files:

```
 cp ABAuthSource /var/VRTSat/
 cp RBAuthSource /var/VRTSat
 cp VRTSat.conf /etc/vx/vss
 cd /var/VRTSatSnapShot/
 cp -r profile /var/VRTSat/.VRTSat
```

Bundled agent limitations

Volume agent clean may forcibly stop volume resources

When the attribute FaultOnMonitorTimeouts calls the Volume agent `clean` entry point after a monitor time-out, the `vxvol -f stop` command is also issued. This command forcibly stops all volumes, even if they are still mounted.

NFS failover

If the NFS share is exported to the world (*) and the NFS server fails over, NFS client displays the following error, "Permission denied".

To avoid this error, export NFS shares explicitly using FQDN hostnames.

False concurrency violation when using PidFiles to monitor application resources

The PID files created by an application contain the PIDs for the processes that are monitored by Application agent. These files continue to exist even after a node running the application crashes. On restarting the node, the operating system may assign the PIDs listed in the PID files to other processes running on the node.

Thus, if the Application agent monitors the resource using the PidFiles attribute *only*, the agent may discover the processes running and report a false concurrency violation. This could result in some processes being killed that are not under VCS control.

Networking agents do not support IPv6 protocol

The bundled IP, NIC, IPMultiNIC, MultiNICA, IPMultiNICB, and MultiNICB agents for VCS 5.0 do not support the IPv6 enhanced IP protocol.

VCS does not provide a bundled agent for volume sets

VCS 5.0 does not provide a bundled agent to detect Volume Manager volume sets, Problems with volumes and volume sets can only be detected at the DiskGroup and Mount resource levels.

Workaround: Set StartVolumes and StopVolumes attributes of the DiskGroup resource that contains volume set to 1. If a file system is created on the volume set, use a Mount resource to mount the volume set.

Cluster Manager (Java console) limitations

Use the VCS 5.0 Java Console to manage clusters

Cluster Manager (Java Console) from previous VCS versions cannot be used to manage VCS 5.0 clusters. Symantec recommends using the latest version of Cluster Manager. See the *Veritas Cluster Server 5.0 Installation Guide* for instructions on upgrading Cluster Manager.

Run Java Console on a non-cluster system

Symantec recommends not running Cluster Manager (Java Console) for an extended period on a system in the cluster. The Solaris version of the Java Virtual Machine has a memory leak that can gradually consume the host system's swap space. This leak does not occur on Windows systems.

Cluster Manager and wizards do not work if the hosts file contains IPv6 entries

VCS Cluster Manager and Wizards fail to connect to the VCS engine if the /etc/hosts file contains IPv6 entries.

Workaround: Remove IPv6 entries from the /etc/hosts file.

VCS Simulator does not support I/O fencing

When running the Simulator, be sure the UseFence attribute is set to the default, "None."

Undocumented commands, command options, and libraries

VCS contains undocumented commands and command options intended for development use only. Undocumented commands are not supported.

Documentation

Product guides are available on the documentation disc in PDF and HTML formats. We recommend copying pertinent information, such as installation guides and release notes, from the disc to your system directory /opt/VRTS/docs for reference.

VCS documentation set

VCS includes the following documents.

Title	File Name
Veritas Cluster Server Installation Guide	vcs_install.pdf
Veritas Cluster Server Release Notes	vcs_notes.pdf
Veritas Cluster Server User's Guide	vcs_users.pdf
Veritas Cluster Server Bundled Agents Reference Guide	vcs_bundled_agents.pdf
Veritas Cluster Server Agent Developer's Guide	vcs_agent_dev.pdf
Veritas High Availability Agent for DB2 Installation and Configuration Guide	vcs_db2_install.pdf
Veritas High Availability Agent for Oracle Installation and Configuration Guide	vcs_oracle_install.pdf
Veritas High Availability Agent for Sybase Installation and Configuration Guide	vcs_sybase_install.pdf

The manual pages for the `VRTSllt`, `VRTSgab`, and `VRTSvcs` are installed in /opt/VRTS/man. Set the `MANPATH` environment variable so the `man(1)` command can point to the VCS manual pages.

For Bourne or Korn shell (sh or ksh), type:

```
MANPATH=$MANPATH:/opt/VRTS/man
export MANPATH
```

For C shell (csh or tcsh), type:

```
setenv MANPATH ${MANPATH}:/opt/VRTS/man
```

For more information, refer to the `man(1)` manual page.

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Sockets++ library

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