

# Veritas InfoScale™ 7.3

## What's New In This Release

### - AIX, Linux, Solaris

Last updated: 2017-05-31

## Legal Notice

Copyright © 2017 Veritas Technologies LLC. All rights reserved.

Veritas and the Veritas Logo are trademarks or registered trademarks of Veritas Technologies LLC or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

This product may contain third party software for which Veritas is required to provide attribution to the third party ("Third Party Programs"). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Software does not alter any rights or obligations you may have under those open source or free software licenses. Refer to the third party legal notices document accompanying this Veritas product or available at:

<https://www.veritas.com/about/legal/license-agreements>

The product described in this document is distributed under licenses restricting its use, copying, distribution, and decompilation/reverse engineering. No part of this document may be reproduced in any form by any means without prior written authorization of Veritas Technologies LLC and its licensors, if any.

THE DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID. VERITAS TECHNOLOGIES LLC SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS DOCUMENTATION. THE INFORMATION CONTAINED IN THIS DOCUMENTATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

The Licensed Software and Documentation are deemed to be commercial computer software as defined in FAR 12.212 and subject to restricted rights as defined in FAR Section 52.227-19 "Commercial Computer Software - Restricted Rights" and DFARS 227.7202, et seq. "Commercial Computer Software and Commercial Computer Software Documentation," as applicable, and any successor regulations, whether delivered by Veritas as on premises or hosted services. Any use, modification, reproduction release, performance, display or disclosure of the Licensed Software and Documentation by the U.S. Government shall be solely in accordance with the terms of this Agreement.

Veritas Technologies LLC  
500 E Middlefield Road  
Mountain View, CA 94043

<http://www.veritas.com>

## Technical Support

Technical Support maintains support centers globally. All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policies. For information about our support offerings and how to contact Technical Support, visit our website:

<https://www.veritas.com/support>

You can manage your Veritas account information at the following URL:

<https://my.veritas.com>

If you have questions regarding an existing support agreement, please email the support agreement administration team for your region as follows:

Worldwide (except Japan)

[CustomerCare@veritas.com](mailto:CustomerCare@veritas.com)

Japan

[CustomerCare\\_Japan@veritas.com](mailto:CustomerCare_Japan@veritas.com)

## Documentation

Make sure that you have the current version of the documentation. Each document displays the date of the last update on page 2. The latest documentation is available on the Veritas website:

<https://sort.veritas.com/documents>

## Documentation feedback

Your feedback is important to us. Suggest improvements or report errors or omissions to the documentation. Include the document title, document version, chapter title, and section title of the text on which you are reporting. Send feedback to:

[doc.feedback@veritas.com](mailto:doc.feedback@veritas.com)

You can also see documentation information or ask a question on the Veritas community site:

<http://www.veritas.com/community/>

## Veritas Services and Operations Readiness Tools (SORT)

Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

[https://sort.veritas.com/data/support/SORT\\_Data\\_Sheet.pdf](https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf)

# What's new in this release

This document includes the following topics:

- [About this document](#)
- [About the Veritas InfoScale product suite](#)
- [About the Dynamic Multi-Pathing for VMware component](#)
- [Components of the Veritas InfoScale product suite](#)
- [Changes related to virtualization](#)
- [Changes related to Veritas Cluster Server](#)
- [Changes related to installation and upgrades](#)
- [Changes related to Veritas File System](#)
- [Changes related to Veritas Volume Manager](#)
- [Changes related to replication](#)
- [Changes related to operating systems](#)
- [Platforms supported](#)

## About this document

This document covers the major new branding, licensing, and installation changes that are introduced in 7.3.

## About the Veritas InfoScale product suite

The Veritas InfoScale product suite addresses enterprise IT service continuity needs. It draws on Veritas' long heritage of world-class availability and storage management solutions to help IT teams in realizing ever more reliable operations and better protected information across their physical, virtual, and cloud infrastructures. It provides resiliency and software defined storage for critical services across the datacenter infrastructure. It realizes better Return on Investment (ROI) and unlocks high performance by integrating next-generation storage technologies. The solution provides high availability and disaster recovery for complex multi-tiered applications across any distance. Management operations for Veritas InfoScale are enabled through a single, easy-to-use, web-based graphical interface, Veritas InfoScale Operations Manager.

The Veritas InfoScale product suite offers the following products:

- Veritas InfoScale Foundation
- Veritas InfoScale Storage
- Veritas InfoScale Availability
- Veritas InfoScale Enterprise

## About the Dynamic Multi-Pathing for VMware component

Dynamic Multi-Pathing for VMware 7.3 (VxDMP) is a multi-pathing solution integrated with VMware's vSphere infrastructure, which brings the established and proven enterprise-class functionality to VMware virtual environments.

In Veritas InfoScale 7.3, there are two installers. The Veritas InfoScale installer does not install the Dynamic Multi-Pathing for VMware component. To install the Dynamic Multi-Pathing for VMware component, you must use one of the following:

- Veritas\_InfoScale\_Dynamic\_Multi-Pathing\_72\_VMware.zip
- Veritas\_InfoScale\_Dynamic\_Multi-Pathing\_72\_VMware.iso

For the procedure to mount an ISO image,

For more information about the Dynamic Multi-Pathing for VMware component, refer to the following guides:

- *Dynamic Multi-Pathing Installation Guide - VMware ESXi*
- *Dynamic Multi-Pathing Administrator's Guide - VMware ESXi*

---

**Note:** Starting with the next release, Veritas will no longer support VxDMP.

---

## Components of the Veritas InfoScale product suite

Each new InfoScale product consists of one or more components. Each component within a product offers a unique capability that you can configure for use in your environment.

[Table 1-1](#) lists the components of each Veritas InfoScale product.

**Table 1-1** Veritas InfoScale product suite

Product	Description	Components
Veritas InfoScale™ Foundation	Veritas InfoScale™ Foundation delivers a comprehensive solution for heterogeneous online storage management while increasing storage utilization and enhancing storage I/O path availability.	Storage Foundation (SF) Standard (entry-level features)
Veritas InfoScale™ Storage	Veritas InfoScale™ Storage enables organizations to provision and manage storage independently of hardware types or locations while delivering predictable Quality-of-Service, higher performance, and better Return-on-Investment.	Storage Foundation (SF) Enterprise including Replication Storage Foundation Cluster File System (SFCFS)
Veritas InfoScale™ Availability	Veritas InfoScale™ Availability helps keep an organization's information and critical business services up and running on premise and across globally dispersed data centers.	Cluster Server (VCS) including HA/DR

**Table 1-1** Veritas InfoScale product suite (*continued*)

Product	Description	Components
Veritas InfoScale™ Enterprise	Veritas InfoScale™ Enterprise addresses enterprise IT service continuity needs. It provides resiliency and software defined storage for critical services across your datacenter infrastructure.	Cluster Server (VCS) including HA/DR Storage Foundation (SF) Enterprise including Replication Storage Foundation and High Availability (SFHA) Storage Foundation Cluster File System High Availability (SFCFSHA) Storage Foundation for Oracle RAC (SF Oracle RAC) Storage Foundation for Sybase ASE CE (SFSYBASECE)

## Changes related to virtualization

This section describes the changes introduced in this release for virtualized environments.

### Support qualified for configuring InfoScale Storage on Linux in Microsoft Hyper-V environment

Configuration of InfoScale Storage on Linux is now qualified in Microsoft Hyper-V environment. You can successfully configure InfoScale Storage on Linux virtual machines that are hosted on Microsoft Hypervisor.

With this support, you can configure the following InfoScale components for server consolidation and application failover:

- Dynamic Multi-Pathing (DMP)
- Storage Foundation (SF)
- Cluster Server (VCS)
- Storage Foundation and High Availability (SFHA)
- Storage Foundation Cluster File System High Availability (SFCFSHA)

- Replicator option

## Changes related to Veritas Cluster Server

The following section describes the changes introduced in Veritas Cluster Server (VCS) 7.3.

### New High Availability agents for Amazon Web Services (AWS)

(Linux only)

Veritas has introduced two high availability agents for AWS:

- AWSIP agent
- AWSRoute53 agent

Both these agents are bundled with the product.

#### **AWSIP agent**

The AWSIP agent manages the networking resources in an Amazon Web Services (AWS) cloud environment. The agent uses AWS CLIs to associate IP resources in an AWS cloud environment. The agent does the following:

- Assigns and unassigns private IP address
- Associates and disassociates Elastic IP address and assigns/unassigns private IP
- Manages route table entries of overlay IP for failing over across subnets

#### **AWSRoute53 agent**

The AWSRoute53 agent updates and monitors the host name to IP address mapping. The agent does the mapping for the AWS Route 53 domain while failing over nodes across subnets. When you create a hosted zone, Amazon Route 53 automatically creates a name server (NS) record and a start of authority (SOA) record for the zone.

Use the AWSRoute53 agent if the Resource Records need to be dynamically added and deleted from the Route 53 domain during failover. The agent updates the new resource record mappings while failing over and allows the clients to connect to the failed over instance of the application.

For more information, see the *Cluster Server Bundled Agents Reference Guide - Linux*.



## Mount agent: IPv6 support

(Linux only)

The Mount agent supports NFS over IPv6.

## NFSRestart agent: Support for NFS lock recovery

(Linux only)

On NFSv3 and NFSv4, the NFSRestart agent supports NFS lock recovery.

## LLT adaptive window parameter

[Linux only]

The adaptive window parameter enables LLT to control and automatically adjust the value of window size. It provides flexibility in monitoring and setting the maximum number of un-ACKed packets that LLT will put in flight.

In this release, the adaptive window parameter (LLT\_ENABLE\_AWINDOW) is enabled by default for port 5 (cfs) and port 24(cvm) in the `/etc/sysconfig/llt` file. You can manually enable adaptive window for other ports by changing the value of the LLT\_AW\_PORT\_LIST parameter.

If you want to set window size for ports other than those listed in the LLT\_AW\_PORT\_LIST parameter, you can set the window size by appending the `/etc/llttab` file with the values: `Set-flow window: <value>`

To disable the adaptive window feature, the value of the LLT\_ENABLE\_AWINDOW parameter should be set to zero.

To apply the adaptive window feature port-wise:

- See the value of the LLT\_AW\_PORT\_LIST parameter in `/etc/sysconfig/llt` file to get the list of ports for which the adaptive window feature is enabled. For example, `LLT_AW_PORT_LIST=' "5,24" '` shows that both ports are enabled.
- To enable adaptive window for ports other than 5 and 24, add the port numbers in LLT\_AW\_PORT\_LIST separated by comma. For example: `LLT_AW_PORT_LIST= "5,24,0,1,5,14"` shows that adaptive window is enabled for the listed port.
- To disable the adaptive window feature for any of these two ports, remove the specific port from this parameter. For example, `LLT_AW_PORT_LIST=""5"` shows that adaptive window is disabled on port 24.

- To see the current window size for each port, use the `/opt/VRTSllt/lltshow -n <remote-nid>` command and check the value of “Current AWindow”.

For example:

```
/opt/VRTSllt/lltshow -n remote-nid

.
.
port [24]:
    lastacked= 0x1e528a  nextseq= 0x1e528b  recv_seq= 0x1e8b2e
                nextrxseq= 0x1e8b2f
    xmit_head= 0x0  xmit_tail= 0x0  xmit_next= 0x0
    xmit_count= 0  ack_count= 2
    recv_reseq= 0x0  recv_reseq_cnt= 0  oos= 0
    nxtlink= 0  linkxmits= 24
    Current AWindow: 450
    rdma xmit_head= 0x0  rdma xmit_tail= 0x0  rdma xmit_next= 0x0
    rdma xmit_count= 0  rdma onwire_cnt= 0
    rdma nxtlink= 0  rdma linkxmits= 0
    rdma nexttxseq= 1987309  rdma: 450
```

## LLT variables for better performance with I/O shipping

[Linux only]

You can now configure LLT variables to use multiple parallel ports for I/O shipping. You can get better performance with I/O Shipping by setting the following LLT variables.

Append the `/etc/sysconfig/llt` file with the following:

- To enable parallel ports for I/O shipping:  
`LLT_NMULTIPOINTS = number of ports`  
 If you set the value to 0 or 1, CVM uses only one port for I/O shipping. Default value of this variable is 4. However you can set up to 8 parallel ports for I/O shipping.
- To set number of threads per I/O shipping port:  
`LLT_RDLV_MTFACOR = number of threads`  
 If `LLT_NMULTIPOINTS = 0`, the total number of threads for I/O shipping on the single port is 2. However, for performance reason, it is recommended that you set the number of threads to 8 or 16.

For more information, see Cluster Server 7.3 Configuration and Upgrade Guide – Linux.

## Support for configuring applications for HA in AWS cloud using InfoScale Enterprise

(Linux only)

InfoScale Enterprise lets you configure applications for HA within an AWS region. The following scenarios are supported:

- Failover within the same subnet of an availability zone (AZ) using a virtual private IP
- Failover across subnets within a single AZ using an overlay IP
- Failover across multiple AZs using an overlay IP

Application data is stored on the EBS volumes that are attached to an EC2 instance. In case of clusters with two or more nodes, the Flexible Storage Sharing (FSS) feature enables network sharing of the EBS volumes. Thus, application data can be shared between the cluster nodes.

Additionally, you can configure an elastic IP to allow access to a cluster node from anywhere outside its virtual private cloud (VPC).

For more information, see the following documents:

- *Cluster Server 7.3 Bundled Agents Reference Guide - Linux*
- *Cluster Server 7.3 Administrator's Guide - Linux*
- *Storage Foundation Cluster File System High Availability 7.3 Administrator's Guide - Linux*

## New attributes

(Linux only)

This section describes the new attributes introduced in this release.

### **DiskGroup agent**

**DGOptions** Specifies the options for the `vxvdg import` command. The agent uses this attribute only while bringing a DiskGroup resource online.

For more information, see the *vxvdg(1m) manual page*.

Type and dimension: string-scalar

Example: "-o noautostart -o updateid"

### **NFSRestart agent**

LockFailoverAddress	<p>Defines the virtual IP address from which notification should be sent to clients to reclaim locks on the NFSv3 file system. This address should be same as the address by which the clients access NFS shares.</p> <p>If the NFSLockFailover attribute value is 1, the upper NFSRestart resource requires this attribute.</p> <p>Type and dimension: string-scalar</p> <p>Examples: - "10.198.200.198" - "2001::7"</p>
---------------------	---

## NFSRestart agent: Support for NFS lock recovery

(Linux only)

On NFSv3 and NFSv4, the NFSRestart agent supports NFS lock recovery.

## Changes related to installation and upgrades

The following changes are introduced to the installation and upgrading of Veritas Infoscale 7.3.

### Change in upgrade path

You can upgrade to Veritas Infoscale 7.3 only from SFHA 6.1 onwards. Upgrade from any versions prior to 6.1 is not supported.

## Changes related to Veritas File System

The following changes are introduced to Veritas File System (VxFS) of Veritas InfoScale 7.3.

### Support for migrating Oracle database from Oracle ASM to Veritas File System (VxFS)

(Linux only)

Veritas InfoScale supports real-time migration of single instance Oracle databases hosted on Oracle ASM disks to VxFS systems mounted over VxVM disks.

The migration requires a source system on which the primary database is hosted on Oracle ASM disks and a target that serves as a standby during the migration. That target contains VxVM disks on which the Veritas File System is mounted. The target disks can be on the same host as the primary database or on a different host.

The migration is performed by the script `ASM2VxFS`. The script creates the standby database on the designated VxFS mount point and automates most of the necessary configuration tasks such as preparing the primary and standby databases for migration, configuring the listener on the standby and other configuration changes.

For more information, see *Storage Foundation Cluster File System High Availability Administrator's Guide*.

## Support for Network File System version 4 (NFSv4)

InfoScale Storage now supports NFSv4.

With this added support Veritas File System (VxFS) now supports user access through NFSv4. Except for `tmplog`, VxFS complies with the persistency requirements of NFSv4 standard.

## Support for offline conversion of a native file system (Ext4) to VxFS

Veritas InfoScale now provides support for offline conversion of native file system (Ext4) to VxFS.

The Veritas `vxfscconvert` utility enables you to convert the file system. The conversion is an in-place conversion where data is not copied or migrated, but only the bmaps are updated.

The applications must be offline during the conversion process. After the file system is converted to VxFS, the extended attributes of the existing file system are not preserved, and you cannot revert back to the earlier file system.

For more details about converting the native file system to VxFS, refer to, *Veritas InfoScale Solutions Guide*.

## Changes related to Veritas Volume Manager

The following changes are introduced to Veritas Volume Manager (VxVM) of Veritas InfoScale 7.3.

### Support for cloud deployments using Amazon Web Services (AWS)

(Linux only)

Veritas InfoScale can now be deployed in cloud environments using Amazon Web Services (AWS).

Veritas' software-defined storage and resiliency solution offers enterprise-grade capabilities for organizations looking to deploy and run their top tier applications in cloud environments.

Veritas InfoScale deployments in the cloud offer the following capabilities:

- Intelligent data movement to the cloud using SmartMove technology
- Storage reliability and performance using SmartIO and Flexible Storage Sharing (FSS) technologies  
 See [the section called "FSS in AWS cloud environments"](#) on page 14.  
 See [the section called "SmartIO in AWS cloud environments"](#) on page 14.
- High availability of data and disaster recovery using Volume Replicator (VVR and CVR) and FSS technologies  
 See ["Support for configuring volume replication in AWS cloud using InfoScale Enterprise"](#) on page 16.

## FSS in AWS cloud environments

Veritas InfoScale supports flexible storage sharing in AWS cloud environments for a cluster located within the same region. The nodes in the cluster may be located within the same Availability Zone or across Availability Zones. FSS leverages Amazon's block storage system called the Elastic Block Store (EBS) to provide shared storage capability. FSS in AWS environments is supported only with LLT over UDP.

For more information, see the *Storage Foundation Cluster File System High Availability Administrator's Guide*.

## SmartIO in AWS cloud environments

In AWS environments, SmartIO can be configured on Amazon instance store SSDs for better performance. Instance store SSDs are directly attached block device storage in the AWS cloud. As in an on premise clustered environment, the SmartIO cache is local to each node in the cluster.

## NVMe device updates

(Linux only)

A single generic ASL claims all the NVMe devices. Also, vendor-specific array names may be displayed for NVMe devices that are manufactured by known vendors.

The above changes are highlighted in ***bold italics*** in the following command output:

```
# vxddmpadm list dmpnode dmpnodename=nbapp2ek_samsung_nvme1_0
dmpdev                = nbapp2ek_samsung_nvme1_0
```

```

state           = enabled
enclosure      = nbapp2ek_samsung_nvme1
cab-sno        = S2FHNAAGA00023
asl            = libvxnvme.so
vid            = NVMe
pid            = SAMSUNG MZPLK3T2
array-name     = Samsung_NVMe
array-type     = A/A
iopolicy       = MinimumQ
avid          = -
lun-sno        = 144dSAMSUNGMZPLK3T2HCJL-000031000S2FHNAAGA00023
udid           = NVMe%5FSAMSUNG%20MZPLK3T2%523%4dSAMSUNGMZPLK3T2HCJL-
000031000S2FHNAAGA00023
dev-attr       = ssd
lun_type       = std
scsi3_vpd      = -
replicated     = no
num_paths      = 1
###path       = name state type transport ctrl hwpath aporID aporWWN
attr priority  =
path           = nvme1n1 enabled(a) - SCSI c515 c515 - - - -

```

## mediatype property for SATA devices set to SSD

(Linux only)

The `mediatype` property is set to `SSD` for all non-rotational devices in the `scsi3_jbod` category.

## Support for Amazon Simple Storage Service (S3) connector

(Linux only)

Veritas InfoScale now supports the use of S3 connectors with VxVM. The S3 Connector enables you to use cloud storage as a tier to manage your storage needs with agility and flexibility. You can build a hybrid storage environment that seamlessly integrates local on-premise storage with cloud storage. With S3 Connector, Veritas InfoScale supports the ability to migrate data from on-premise storage to cloud storage.

For more information, see *Storage Foundation Cluster File System High Availability Administrator's Guide*.

## Support for `systemd`

(Linux only)

Veritas InfoScale now supports the init system daemon `systemd` on RHEL 7, SUSE 12, and supported RHEL distributions. The installation and configuration of Veritas InfoScale on these operating systems including all services and processes are now configured to be compliant with `systemd`.

## Technology Preview: Erasure coded volume enhancements

(Linux only)

The following enhancements have been added to erasure-coded volumes.

- Synchronization of erasure coded volumes  
 When you create erasure coded volumes, Veritas InfoScale, by default, runs asynchronous initialization on the volumes ensuring that all regions are synchronized. The synchronization operation runs in the background allowing the volume to be available for use to applications immediately after creation. The volumes display SYNC state after creation until all the regions are synchronized. This functionality is supported on both private and shared/FSS disk groups.
- Resizing of erasure coded volumes  
 The resize operation is now supported on erasure coded volumes in the same way as standard VxVM volumes.

For more information, see *Storage Foundation Cluster File System High Availability Administrator's Guide*.

## Changes related to replication

The following changes are introduced to replication of Veritas InfoScale 7.3.

### Support for configuring volume replication in AWS cloud using InfoScale Enterprise

(Linux only)

InfoScale Enterprise lets you configure replication between Amazon EC2 instances, which is used to support various HA and DR scenarios for applications in the AWS cloud.

Volume Replicator (VVR) is used to configure standalone replication between Amazon EBS volumes. Cluster volume replication (CVR) is used in clustered



environments with single-node clusters as well as multi-node clusters. With Veritas' Flexible Storage Sharing (FSS) technology, you can create shared-nothing clusters by sharing Amazon EBS volumes over the network.

The following scenarios are supported:

- Replication between availability zones (AZs) in the same region
- Replication between AZs in different regions
- Replication between multiple AZs in different regions
- Replication between on-premises systems and Amazon EC2 instances

A replication configuration between on-premises systems and Amazon EC2 instances can be used to support DR for an application.

For more information, see the following documents

- *Veritas InfoScale 7.3 Replication Administrator's Guide - Linux*
- *Storage Foundation Cluster File System High Availability 7.3 Administrator's Guide - Linux*
- *Veritas InfoScale 7.3 Disaster Recovery Implementation Guide - Linux*

## Changes related to operating systems

The following changes are related to the support for operating systems (OSs).

### Support for systemd in Linux

`systemd` is an initialization system that controls how services are started, stopped, or otherwise managed on RHEL 7 and SLES12 or later systems. The LSB files for the VCS stack have been replaced with the corresponding systemd unit service files. In the older RHEL distributions, the `init.d` daemon managed the related services. Now, `systemd` manages them as unit service files.

To provide `systemd` support for those services in Linux, the following VCS unit service files and startup scripts are made available:

Old LSB file	New unit service file located at: <code>/usr/lib/systemd/system/</code>	Corresponding script file ( <i>SourcePath</i> )
<code>/etc/init.d/amf</code>	<code>amf.service</code>	<code>/opt/VRTSamf/bin/amf</code>
<code>/etc/init.d/gab</code>	<code>gab.service</code>	<code>/opt/VRTSgab/gab</code>
<code>/etc/init.d/llt</code>	<code>llt.service</code>	<code>/opt/VRTSllt/llt</code>

Old LSB file	New unit service file located at: <code>/usr/lib/systemd/system/</code>	Corresponding script file ( <b>SourcePath</b> )
<code>/etc/init.d/vcs</code>	<code>vcs.service</code>	<code>/opt/VRTSvcs/bin/vcs</code>
<code>/etc/init.d/vcsmm</code>	<code>vcsmm.service</code>	<code>/opt/VRTSvcs/rac/bin/vcsmm</code>
<code>/etc/init.d/vxfen</code>	<code>vxfen.service</code>	<code>/opt/VRTSvcs/vxfen/bin/vxfen</code>

To start, stop, restart, or view the status of one of these services, use the following command:

```
systemctl [start | stop | restart | status] unitServiceFile
```

---

**Note:** The status option of the `systemctl` command displays only the status of the unit service file, like whether it is active, inactive, or failed.

---

To view the actual status information about the module or to view the HAD status, use:

```
serviceSourceScript status
```

For example:

```
/opt/VRTSvcs/bin/vcs status
```

To view the source path of any service, you can use the `systemctl` command as follows:

```
# systemctl show unitServiceFile -p SourcePath
```

For example:

```
# systemctl show vcs -p SourcePath
```

The `systemctl` command displays the source path as follows:

```
SourcePath=/opt/VRTSvcs/bin/vcs
```

Wherever `systemd` support is available, all the process in the VCS stack start in `system.slice` instead of `user.slice`.

## Support for Community Enterprise Operating System (CentOS)

(Linux only)

Veritas InfoScale supports RHEL-compatible distribution, Community Enterprise Operating System (CentOS) versions 6.8 and 7.3. The installation binaries are available as a tar.gz file on Veritas's electronic distribution website

<https://www.veritas.com/customer-center.html>.

All capabilities available on RHEL are supported on CentOS. The commands used for the Red Hat Enterprise Linux (RHEL) operating system in Veritas InfoScale documents also apply to supported RHEL-compatible distributions.

Veritas supports the Oracle RAC database on CentOS; however the support is not certified by Oracle.

---

**Note:** Technical support for CentOS is provided by the community through chat rooms, mailings, and web forums. Veritas offers no technical support for CentOS issues.

---

## Platforms supported

For a detailed info of platforms supported see *Veritas InfoScale™ 7.3 Release Notes*.