

# InfoScale Enterprise Version Comparison

Features	7.1-7.4.1	7.4.2	8.0-8.0.1	8.0.2	Feature Notes
<b>Application and OS Support</b>					
Support for Oracle 19c	✓	✓	✓	✓	Support for single-instance configurations with Oracle 19c.
Support for Oracle 21c				✓	Support for single-instance configurations with Oracle 21c. Updated and qualified agent to support virtual fire drill feature.
Support for SUSE 15	✓	✓	✓	✓	Support for SUSE Linux Enterprise Server 15.
Support for RHEL 8	✓	✓	✓	✓	Support for Red Hat Enterprise Linux 8.
Support for RHEL 9			✓	✓	Support for Red Hat Enterprise Linux 9.
Support for Windows Server 2016	✓	✓	✓		Support for Windows Server 2016.
Support for Windows Server 2019	✓	✓	✓	✓	Support for Windows Server 2019.
Cerification for MS SQL Server 2022				✓	Support and certification for MS SQL Server 2022.
Support for Windows Server 2022			✓	✓	*Support for Windows Server 2022, added in 8.0.1.
<b>Security</b>					
Improved VCS password encryption		✓	✓	✓	For enhanced security, the VCS component now uses the AES-256 algorithm to encrypt the VCS user and VCS agent passwords by default; the vcsencrypt utility and the hauser command generate passwords that are encrypted using the standard AES-256 algorithm.
Support for UEFI SecureBoot				✓	InfoScale now supports UEFI SecureBoot, so kernel module signatures are verified before they are loaded into system kernel memory—this integration prevents malicious or modified software from being introduced into your systems, and further protects you from malware attacks.
Protection against ransomware	✓*	✓	✓	✓	The VxFS protects against ransomware with: <ul style="list-style-type: none"> <li>▪ Host-based data isolation (split mirror)</li> <li>▪ Write once, read many (WORM) volumes *(7.4 and later)</li> <li>▪ Audit logging</li> </ul>
Improved FIPS 140-2 compliance			✓	✓	For encrypted volumes created with disk group version 300 or later, InfoScale uses the FIPS 140-2 standards to validate the wrapping key (KEK) that secures volume encryption.
Support for disk group-level encryption key management and the re-key operation		✓	✓	✓	InfoScale supports the use of a single KMS key for all volumes in a disk group. Consequently, you can maintain a common KMS key at the disk group level instead of maintaining an individual KMS key for each volume.
Support for volume encryption for Windows				✓	Veritas Volume Manager (VxVM) provides advanced security for data at rest through encryption of VxVM windows data volumes; supported platforms: Windows server 2019 and Windows server 2022.

Support for Linux volume encryption	✓	✓	✓	✓	Veritas Volume Manager (VxVM) provides advanced security for data at rest through encryption of VxVM Linux data volumes.
Support for replication of encrypted volumes	✓	✓	✓	✓	Veritas Volume Manager (VxVM) provides advanced security for data at rest through encryption of VxVM Linux data volumes.
SecureFS protects from Ransomware and non-intentional file system corruption.				✓	New SecureFS feature integrates several InfoScale features to provide protection from ransomware attacks and unintentional file system corruption: <ul style="list-style-type: none"> <li>▪ Create/enable WORM on the file system</li> <li>▪ Policy to mark files as WORM</li> <li>▪ Schedule to automatically create/delete file system checkpoints and/or volume snapshots; includes checkpoint/snapshot retention policy</li> <li>▪ VIOM provides GUI, and flags file systems in case of illegal event/attack</li> </ul>
<b>Veritas Cluster Server (VCS)</b>					
Rolling upgrade of cluster nodes with different versions of the VCS engine		✓	✓	✓	You can configure InfoScale clusters with nodes that run different versions of the VCS engine, allowing rolling InfoScale upgrades with zero cluster downtime, and reducing application downtime to the time it takes to failover a service group.
Improved VCS password encryption		✓	✓	✓	The VCS component now uses the AES-256 algorithm to encrypt the VCS user and VCS agent passwords by default for enhanced security; the vscencrypt utility and the hauser command generate passwords that are encrypted using the standard AES-256 algorithm.
Intelligent Monitoring Framework (IMF)–aware mount agent		✓	✓	✓	IMF for mounts is now supported for the Veritas File System (VxFS), ext4, XFS, and NFS file system types, providing faster fault detection and reducing monitoring load on the servers.
Intelligent Monitoring Framework (IMF)–aware SambaShare agent	✓	✓	✓	✓	The SambaShare agent, used for monitoring Windows SMB shares mounted to Linux servers, is now IMF–aware.
Support for up to 128 nodes in a cluster	✓	✓	✓	✓	Supported features include: <ul style="list-style-type: none"> <li>▪ Concatenated and striped volume layout</li> <li>▪ Thin provisioning and thin reclamation</li> <li>▪ Veritas File Replicator (VFR)</li> <li>▪ Volume grow and shrink operations master switching and preference</li> <li>▪ Command shipping</li> <li>▪ Private region I/O shipping</li> <li>▪ Split and join operations on disk groups</li> <li>▪ Volume re-layout, hot relocation</li> <li>▪ SCSI-3 I/O fencing for avoiding network split brain</li> <li>▪ Data disk fencing for preventing I/Os from nodes that are not part of the cluster</li> <li>▪ LLT over Ethernet and online coordination point replacement (SCSI-3 to SCSI-3 mode)</li> </ul>
Support for migrating applications from one cluster to another	✓	✓	✓	✓	The Application Migration add-on lets you migrate applications that are under VCS management from one cluster to another.
VCS agent for Oracle supports Oracle Flex ASM	✓	✓	✓	✓	The VCS agent for Oracle supports the Oracle Flex ASM feature; it detects Flex ASM in your installation and extends high-availability (HA) support to the configuration; the disk group status is reported based on the configured ASM cardinality.

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<b>Storage</b>					
Improved Non-Volatile Memory Express (NVMe) SSD support			✓	✓	InfoScale on Linux uses NVMe IOCTL instead of SCSI inquiry to detect NVMe attributes to support RHEL 8 and improve Flexible Storage Sharing (FSS) performance on all Linux platforms.
Support for NVMe based fencing				✓	Expand support for disk-based I/O fencing to utilize the NVMe PGR (persistent group reservations) specification, ensuring data integrity in shared storage deployments with CVM.
Protection against ransomware	✓*	✓	✓	✓	The VxFS protects against ransomware with: <ul style="list-style-type: none"> <li>▪ Host-based data isolation (split mirror)</li> <li>▪ Write once, read many (WORM) volumes *(7.4 and later)</li> <li>▪ Audit logging</li> </ul>
Improved FIPS 140-2 compliance			✓	✓	For encrypted volumes created with disk group version 300 or later, InfoScale uses the FIPS 140-2 standards to validate the wrapping key (KEK) that secures volume encryption.
Improved Flexible Storage Sharing (FSS) performance		✓	✓	✓	Support for configuring LLT over UDP with multiple ports, which improves parallelism and FSS I/O shipping throughput.
Adaptive synchronous Veritas Volume Replicator (VVR) replication		✓	✓	✓	The adaptive synchronous mode in VVR is an enhancement to the existing synchronous override mode. In the adaptive synchronous mode, replication switches from synchronous to asynchronous based on cross-site network latency. This process allows replication to take place in synchronous mode when network conditions are good and automatically switch to asynchronous mode when there is an increase in cross-site network latency.
Enhance SRL mirror resync performance (FSS/VVR)				✓	Enhance SRL mirror resync performance about FSS+VVR configuration to eliminate the need for full mirror resync after routine maintenance activities
VVR Stretched cluster support				✓	VVR Stretched Cluster Support enhanced to bind rlinks to hostnames rather than virtual IP addresses, therefore ensuring transparent failover across unique subnets or availability zones.
Support for disk group-level encryption key management and the re-key operation		✓	✓	✓	InfoScale supports the use of a single KMS key for all volumes in a disk group. Consequently, you can maintain a common KMS key at the disk group level instead of maintaining an individual KMS key for each volume.
Support for Linux volume encryption	✓	✓	✓	✓	Veritas Volume Manager (VxVM) provides advanced security for data at rest through encryption of VxVM Linux data volumes.
Support for volume encryption for Windows				✓	Veritas Volume Manager (VxVM) provides advanced security for data at rest through encryption of VxVM windows data volumes; supported platforms: Windows server 2019 and Windows server 2022.
Support for replication of encrypted volumes	✓	✓	✓	✓	To enable volume encryption for RG volumes, you need to perform a few settings on primary and secondary volumes. To facilitate the process, execute the vxsetupencryption utility for each disk group that is to be replicated. The vxsetupencryption utility sets consistent encryption keys on primary as well secondary volumes.
SmartAssist - SmartIO Caching Profilertool	✓	✓	✓	✓	SmartAssist is now installed as part of VxVM. It supports many targets such as the VxVM volume, the VxVM disk group, the ZFS or VxFS mount point, the CFS mount point, the CVM volume, and the database instance.
Support for Network File System version 4 (NFSv4)	✓	✓	✓	✓	InfoScale storage now supports NFSv4.

Enhanced VVR operations, monitoring and alerting in VIOM				✓	Provides simplified management and alerting of VVR operations via VIOM integration; user can configure VVR from a single wizard by providing primary and secondary details; user can also update replication parameters such as ID, protocol, and modes by performing 'Modify Replication configuration.
Support for migrating Oracle databases from Oracle ASM to Veritas File System (VxFS)	✓	✓	✓	✓	Support for real-time migration of single-instance Oracle databases hosted on Oracle ASM disks to VxFS systems mounted over VxVM disks.

### Virtualization

Virtualization support for Microsoft, Nutanix, and VMware	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Microsoft Hyper-V 2016</li> <li>Nutanix AOS 5.10.5</li> <li>VMware ESXi 6.5U3, 6.7 U3, and 7.0</li> </ul>
Docker/Podman Containers - Automatically provision storage for Docker containers	✓	✓	✓	✓	The Veritas Volume driver enables the Docker daemon to automatically provision storage to Docker containers.
Docker/Podman Containers- Application monitoring inside Docker containers	✓	✓	✓	✓	The InfoScale application agent is enhanced to support application monitoring in Docker containers.

### Kubernetes & Red Hat OpenShift

Kubernetes and Red Hat OpenShift support is now provided by Veritas InfoScale for Kubernetes Edition. Please refer to the InfoScale Enterprise for Kubernetes Edition comparison chart.

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### Cloud

Support for configuring volume replication in the Amazon Web Services (AWS) Cloud	✓	✓	✓	✓	You can now configure replication between Amazon EC2 instances, which is used to support various HA and DR scenarios for applications in the AWS Cloud; VVR is used to configure stand-alone replication between Amazon EBS volumes; cluster volume replication (CVR) is used in clustered environments with single-node and multi-node clusters; wWith Veritas Flexible Storage Sharing (FSS) technology, you can create shared-nothing clusters by sharing Amazon EBS volumes over the network.
New high-availability agents for Google Cloud Platform (GCP)	✓	✓	✓	✓	InfoScale has introduced the GoogleIP and the GoogleDisk agents for GCP environments.
New high-availability agent for AWS	✓	✓	✓	✓	InfoScale has introduced the EBSVol agent for AWS environments.
Support for Amazon Simple Storage Service (S3) connector	✓	✓	✓	✓	InfoScale now supports the use of S3 connectors with VxVM; the S3 connector lets you use cloud storage as a tier to manage your storage needs with agility and flexibility; with the S3 connector, you can build a hybrid storage environment that seamlessly integrates local on-premises storage with cloud storage.
Support for file-level tiering to migrate data using cloud connectors	✓	✓	✓	✓	InfoScale supports file-level tiering to migrate data using cloud connectors.
Veritas InfoScale Operations Manager (VIOM) enhancements		✓	✓	✓	Improved visibility into information on InfoScale clusters hosted in Microsoft Azure.
Enhancements to SAP HANA support in Microsoft Azure		✓	✓	✓	Removes possible single-point failures.
Support for S3 target				✓	InfoScale now supports S3 target to store S3 object data for CFS/ VxFS.
S3 target support for OpenStack Manila and Cinder				✓	InfoScale now supports S3 target for OpenStack Manila and Cinder environment.
Shared storage support in Microsoft Azure (Windows / Linux)				✓	Wizard framework that enables both shared and non shared storage discovery in Azure cloud environment. Shared disk support also provides SCSI-3 PGR for I/O fencing.

DevOps					
Ansible support	✓	✓	✓	✓	You can now use Ansible modules in playbooks to install or upgrade InfoScale, deploy clusters, or configure features such as Flexible Storage Sharing (FSS), Cluster File System (CFS), and Disk Group Volume.
Enhanced support for Ansible	✓	✓	✓	✓	You can now use Ansible to add and delete nodes in a cluster; configure fencing; configure a cluster with LLT over UDP; create volumes based on disk tags; configure and create resources for VVR and Cluster; Volume Replication (CVR); and to create a single-node cluster.
Use Chef to deploy and configure InfoScale	✓	✓	✓	✓	You can now deploy and configure the InfoScale product suite in your environment using Chef.
Support for REST API				✓	Support for customer accessible REST API development for InfoScale, includes the following components: <ul style="list-style-type: none"> <li>▪ REST server</li> <li>▪ Security—authentication/authorization</li> <li>▪ VCS agent for HA of REST server</li> <li>▪ REST endpoints—VM, FS, VCS</li> <li>▪ CPI installer</li> <li>▪ Documentation</li> <li>▪ QA automation</li> <li>▪ TPIP approval</li> </ul>

## About Veritas

Veritas Technologies is a leader in multi-cloud data management. Over 80,000 customers—including 95 percent of the Fortune 100—rely on Veritas to help ensure the protection, recoverability, and compliance of their data. Veritas has a reputation for reliability at scale, which delivers the resilience its customers need against the disruptions threatened by cyberattacks, like ransomware. No other vendor is able to match the ability of Veritas to execute, with support for 800+ data sources, 100+ operating systems, 1,400+ storage targets, and 60+ clouds through a single, unified approach. Powered by Cloud Scale Technology, Veritas is delivering today on its strategy for Autonomous Data Management that reduces operational overhead while delivering greater value. Learn more at [www.veritas.com](http://www.veritas.com). Follow us on Twitter at [@veritastechllc](https://twitter.com/veritastechllc).

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