

# Oracle Solaris Cluster

## Frequently Asked Questions

Oracle Solaris Cluster is a comprehensive high availability and disaster recovery solution for Oracle's SPARC and x86 environments based on Oracle Solaris. It combines extreme service availability for applications and virtualized workloads, operational flexibility, agile deployments, and simplified administration for traditional or cloud-based deployments.

### ORACLE SOLARIS CLUSTER

#### **Built for Business-Critical Clouds**

Oracle Solaris Cluster extends Oracle Solaris to provide the infrastructure required for running mission-critical workloads in virtualized cloud environments. It protects applications, zones, kernel zones, and Oracle VM Server for SPARC deployments with advanced monitoring, policy-based recovery, and reliable management of multitier dependencies. The Oracle Solaris Cluster Zone cluster feature offers a virtual cluster infrastructure providing fault isolation, separate resource management, private networking, and administrative isolation for multitenant environments.

#### **Extreme Availability for Enterprise Applications**

Tightly coupled with Oracle Solaris, Oracle Solaris Cluster detects system failures instantly and consistently, providing fast failure notification and faster application and services failover, thereby significantly reducing recovery time.

Oracle Solaris Cluster delivers out-of-the-box support for a large number of applications and databases from Oracle and mainstream ISVs by providing plug-ins that substantially increase uptime through application specific behavior. The plug-ins do not require any development or scripting tasks and enable immediate deployment in bare-metal systems or virtual environments. In addition, the Oracle Solaris Cluster agent toolkit permits you to add custom applications into the cluster framework with minimal effort and maximum flexibility. Oracle Solaris Cluster extends high availability (HA) to include multisite, multicluster disaster recovery for protecting business services from the consequences of disasters. It automates application failover, and coordinates with application, storage, and host-based replication solutions. It also adds orchestrated recovery of multiple applications and their respective replication solutions—offering significant gains in terms of reliability, speed of recovery, and reduced risk. Oracle Solaris Cluster is engineered from the ground up to support the stringent requirements of multitier mission-critical environments. It delivers application high availability in Oracle SuperCluster engineered systems and is part of a series of Oracle Optimized Solutions as the high-availability component.

## **Simplified Operations, Reduced Cost**

Oracle Solaris Cluster is integrated with the Oracle Solaris lifecycle management tools to provide simplified and secure deployments and updates. With the latest browser user interface, access to status, configuration, and management operations is centralized and complexity is hidden through resource-specific wizards. This reduces the time and knowledge required to operate clustered environments.

## **FREQUENTLY ASKED QUESTIONS**

### **GENERAL INFORMATION**

#### **What is Oracle Solaris Cluster?**

- Oracle Solaris Cluster is a framework that extends Oracle Solaris with high availability and disaster recovery features. It includes Oracle Solaris Cluster for the core clustering features; Oracle Solaris Cluster Geographic Edition for the multicluster, multisite disaster recovery features; Oracle Solaris Cluster agents for the built-in support of commercial and open-source applications; and development tools for building custom agents. The integrated software provides high availability and disaster recovery for local, campus, metropolitan, and worldwide clusters in physical and virtual environments.

- A typical Oracle Solaris Cluster configuration includes:

##### Hardware:

- Servers with local storage (storage devices hosted by one node)
- Shared storage (storage devices hosted by more than one node)
- Cluster interconnects for private communication among the cluster nodes
- Public network interfaces for connectivity to the outside world
- Administrative workstation for managing the cluster

##### Software:

- Oracle Solaris running on each cluster node
- Oracle Solaris Cluster software running on each cluster node
- Data services – applications and their corresponding Oracle Solaris Cluster agents that monitor the health of the applications and manage their lifecycle (start, stop, and failover) running on one or more cluster nodes

#### **How does Oracle Solaris Cluster work?**

- By tightly coupling servers, storage, and networking solutions, Oracle Solaris Cluster provides the maximum level of service availability and performance for a cluster system.

- The servers (nodes) in a cluster communicate through private interconnects. These interconnects carry important cluster information (data as well as a cluster "heartbeat"). This heartbeat lets the servers in the cluster monitor the health of the other servers within the cluster, ensuring that each server is "alive." If one of the servers goes offline and its heartbeat disappears, the rest of the devices in the cluster isolate the server and "fail over" any application or data from the failing node to another node. This failover process is quick and transparent to users of the application. By exploiting the redundancy in the cluster, Oracle Solaris Cluster ensures the highest levels of availability.

### **What is Oracle Solaris Cluster Disaster Recovery Framework?**

- Formerly called Oracle Solaris Cluster Geographic Edition, Oracle Solaris Cluster Disaster Recovery Framework enables multisite disaster recovery and manages the availability of application services and data across geographically dispersed clusters based on Oracle Solaris Cluster. In the event that a primary cluster goes down, system administrators are informed immediately and can take the decision to automatically start up business applications with replicated data on the secondary Oracle Solaris Cluster. The new orchestrated disaster recovery support enables Oracle Solaris Cluster to manage the automated and synchronized recovery of multiple applications and their respective replication solution, whether this is following a data center-wide outage or for maintenance purposes – offering a solution for a complete multitiered application.

### **What is an Oracle Solaris Cluster agent?**

- An Oracle Solaris Cluster agent is a ksh script, a C-program, or a binary that manages the availability of an application. The agent starts, stops, and monitors the health of the application, and it takes corrective action to regain application availability upon failure. Applications do not need to be modified to benefit from the enhanced availability offered by the Oracle Solaris Cluster agent. Applications can run either directly on Oracle Solaris on a physical system, in Oracle VM Server for SPARC, in dynamic domains, or within Oracle Solaris Zones.
- Oracle and ISVs have created tailored agents for popular applications and databases such as Oracle Real Application Clusters (Oracle RAC) and single-instance databases, Oracle Web Logic Server, Oracle's Siebel applications, Oracle's PeopleSoft applications, Oracle E-Business Suite, SAP, Sybase, MySQL database, Apache, and many others. If there is no agent for your application, you can create your own using the Oracle Solaris Cluster agent builder (included with the Oracle Solaris Cluster software). This agent builder has an easy to use "wizard" graphical user interface, which leads you through the steps of creating an agent. After the agent-building process has completed, a ready-to-use agent is available for immediate use (the whole process takes only a few minutes from start to finish). The agent toolkit also includes a generic data service (GDS) designed and developed by Oracle Solaris Cluster engineering to reduce the complexity associated with data service development for more advanced applications. GDS v2 further increases flexibility, ease of use, and security of this already trusted and robust development tool.

### **What is the difference between Oracle Solaris Cluster, Oracle Solaris Cluster Disaster Recovery Framework, and Oracle Solaris Cluster, Enterprise Edition?**

- Oracle Solaris Cluster, Enterprise Edition is the overarching license that includes the functionalities offered by Oracle Solaris Cluster, Oracle Solaris Cluster Disaster Recovery Framework, and Oracle Solaris Cluster agents.

### **Why is Oracle Solaris Cluster the best high availability (HA) solution on Oracle Solaris?**

- Oracle Solaris Cluster is designed for and integrated more deeply and broadly with Oracle Solaris and Oracle servers, than any other solution in the industry.

- Tightly coupled with the Oracle Solaris operating system at the kernel level, Oracle Solaris Cluster detects failure without delay. It provides much faster failure notification and reconfiguration time than solutions not integrated with the operating system. This significantly reduces application and platform services recovery time. For customers looking for the highest level of security for their mission-critical applications, Oracle Solaris Cluster offers a qualified HA solution that supports the Oracle Solaris Trusted Extensions feature.
- Oracle Solaris Cluster is designed to take advantage of the built-in reliability features found in Oracle Solaris, such as its Predictive Self-Healing feature framework. It supports applications controlled by the Service Management Facility feature of Oracle Solaris and deployed in Oracle Solaris Zones, as well as the ability to use Oracle Solaris ZFS as a failover and boot file system. It uses Oracle Solaris lifecycle management tools such as the Image Packaging System, the Automated Installer and Unified Archive features of Oracle Solaris, enabling agile and flexible deployments of clustered solutions.
- Oracle Solaris Cluster continuously includes new Oracle server, storage, and connectivity solutions to its configuration matrix. Each new configuration is tested and certified through Oracle Solaris Cluster automated test environment (SCATE), a complete distributed test development and execution framework.

## LATEST RELEASES

### What are the latest Oracle Solaris Cluster releases?

Oracle Solaris 10:

The latest release is Oracle Solaris Cluster 3.3 3/13.

Oracle Solaris 11:

The latest release is Oracle Solaris Cluster 4.4. It is designed to work with Oracle Solaris 11.4 and 11.3

## ORACLE SOLARIS CLUSTER 4 (ORACLE SOLARIS 11)

### What are the new features included in the most recent Oracle Solaris Cluster 4 release?

You can find out about what's new in the latest release and previous releases of Oracle Solaris Cluster in the [Oracle Solaris Cluster What's New document](https://www.oracle.com/technetwork/server-storage/solaris-cluster/overview/oracle-solaris-cluster-whatsnew-170557.pdf) (<https://www.oracle.com/technetwork/server-storage/solaris-cluster/overview/oracle-solaris-cluster-whatsnew-170557.pdf>).

### What applications work with Oracle Solaris Cluster?

- You can find out more about Oracle Solaris Cluster certified applications from My Oracle Support here:  
[https://support.oracle.com/epmos/faces/DocumentDisplay?\\_afLoop=315592227415035&id=156078\\_9.2&\\_afWindowMode=0&\\_adf.ctrl-state=83atqvc7\\_4](https://support.oracle.com/epmos/faces/DocumentDisplay?_afLoop=315592227415035&id=156078_9.2&_afWindowMode=0&_adf.ctrl-state=83atqvc7_4)

## FEATURES

### What are the applications pre-integrated with Oracle Solaris Cluster (for which applications does Oracle Solaris Cluster include agents)?

Please refer to the Oracle Solaris Cluster features document at the following location:

<http://www.oracle.com/technetwork/server-storage/solaris-cluster/overview/features-cluster-166765.pdf>

## SYSTEM REQUIREMENTS

### Is non-Oracle storage supported with Oracle Solaris Cluster?

Oracle Solaris Cluster Storage Partner Program provides customers with expanded choices of supported third-party storage arrays with Oracle Solaris Cluster. The following partners are Oracle Solaris Cluster certified: 3PAR, Compellent, EMC, Engenio, Fijitsu, Hitachi Data Systems, HP, IBM, NEC and NetApp. For detailed information about supported configurations, please check the interoperability matrices at the following location: <http://www.oracle.com/technetwork/server-storage/solaris-cluster/partnerprogram-cluster-168135.pdf>

### Are there any differences between Oracle Solaris Cluster software running with Oracle Solaris on SPARC-based systems and x86-based systems?

No, there are no differences in functionality. All Oracle Solaris Cluster software features are available for Oracle Solaris Cluster software on both processor technologies. However, there are differences in supported applications, their Oracle Solaris Cluster agents, and supported hardware.

### Can I install Oracle Solaris Cluster on any x86 system?

You can install Oracle Solaris Cluster on Oracle's x86 systems that are certified with Oracle Solaris Cluster. The list of supported Oracle servers is available in the system requirements document at the following location: <http://www.oracle.com/technetwork/server-storage/solaris-cluster/overview/sysreq-cluster-166689.pdf>

## LICENSING

### What is the Oracle Solaris Cluster product licensing model?

The Oracle Solaris Cluster pricing and licensing model, aligned with the Oracle software licensing model, consists of a single non-version specific part (Oracle Solaris Cluster, Enterprise Edition). This license includes the right to use all functionalities included in:

- Oracle Solaris Cluster: the core high-availability functionalities
- Oracle Solaris Cluster agents: the applications specific modules
- Oracle Solaris Cluster Disaster Recovery Framework: the disaster recovery features offered on top of Oracle Solaris Cluster

### How do you calculate the number of licenses required?

- The number of required Oracle Solaris Cluster licenses on a system is determined by multiplying the total number of cores of the processors by a core processor licensing factor specified in the Oracle processor core factor table at <http://www.oracle.com/us/corporate/contracts/processor-core-factor-table-070634.pdf>
- All cores on all multicore chips are to be aggregated before multiplying by the appropriate core processor licensing factor, and all fractions of a number are to be rounded up to the next whole number.

- Oracle VM for SPARC is recognized as a hard partition when used as defined in the following document: <http://www.oracle.com/technetwork/server-storage/vm/ovm-sparc-hard-partitioning-1403135.pdf>.

### **Can I evaluate Oracle Solaris Cluster?**

- Yes, customers interested in evaluating Oracle Solaris Cluster can download the software on the Oracle Technology Network for evaluation and development from the following location: <http://www.oracle.com/technetwork/server-storage/solaris-cluster/downloads/index.html>

## **SERVICES AND SUPPORT**

### **I've purchased Oracle Solaris Cluster, Enterprise Edition. How can I get training and assistance to install and operate Oracle Solaris Cluster?**

- Services
  - For assistance to install and operate Oracle Solaris Cluster, Oracle Advanced Customer Support expert services are available to deliver a comprehensive software installation performed by server and storage experts using Oracle best practices. Installation by Oracle services is not a requirement, but it is recommended as it provides expert design, documentation, and testing, helping to meet the high-availability requirements for your deployments.
  - For more information, please refer to the Oracle Advanced Customer Support services for Oracle Solaris Cluster data sheet (<http://www.oracle.com/us/support/systems/advanced-customer-services/services-solaris-cluster-ds-1842611.pdf>) or to the Oracle Advanced Customer Support services web page.
- Support
  - Oracle Premier Support for Software and Oracle's Lifetime Support Policy are available for Oracle Solaris Cluster.
- Training
  - Learning paths identify the required courses for a desired training goal or certification level. Select the course to obtain the training that would enable you to administer and manage a highly available computing environment effectively. The following courses are available for Oracle Solaris Cluster:
    - [Oracle Solaris Cluster Administration, five days](#)
    - [Oracle Solaris Cluster Advanced Administration, five days](#)

## **MORE RESOURCES**

### **Where can I find documentation about Oracle Solaris Cluster?**

Oracle Solaris Cluster documentation is available at the following location:  
<http://www.oracle.com/technetwork/server-storage/solaris-cluster/documentation/index.html>

### **Where can I find more technical information about Oracle Solaris Cluster such as white papers and how-to guides?**

Visit the Oracle Solaris Cluster Technical Resources page on the Oracle Technology Network website:

<http://www.oracle.com/technetwork/server-storage/solaris-cluster/documentation/cluster-how-to-1389544.html>

### How can I get more news about Oracle Solaris Cluster?

 Blogs:

- [The Oracle Solaris Blog](#)
- [The Oracle Solaris Cluster Blog](#)

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## Integrated Cloud Applications & Platform Services

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