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Oracle VM Server for SPARC

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Oracle VM Server for SPARC (previously called Sun Logical Domains) provides highly efficient, enterprise-class virtualization capabilities for supported SPARC servers. Oracle VM Server leverages the built-in SPARC hypervisor to subdivide a platform's resources (CPUs, memory, network, and storage) by creating partitions called logical domains. Each logical domain runs an independent operating system. Oracle VM Server for SPARC provides the flexibility to deploy multiple Oracle Solaris operating systems simultaneously on a single platform. Oracle VM Server also allows you to create up to 128 virtual servers on one system to take advantage of the massive thread scale offered by SPARC servers.

The virtualization platform for enterprise server workloads

Oracle VM Server for SPARC integrates SPARC servers and the Oracle Solaris operating system. This combination helps to increase flexibility, isolate workload processing, and improve the potential for maximum server utilization

Oracle VM Server for SPARC delivers the following:

- **Leading price/performance –** The low-overhead architecture provides scalable, near-native CPU and I/O performance without additional license cost, and supports the Software in Silicon features of SPARC servers. This enables you to meet the most aggressive price/performance requirements for demanding applications.
- **Secure live migration** – Enables you to migrate an active domain to another physical machine on the same or different generations of supported SPARC servers while maintaining application services. On-chip cryptographic accelerators deliver secure, wire speed encryption to protect sensitive data during migration – without any additional hardware investment. Live migration security is further enhanced by optional use of certificated-based authentication and by FIPS 140-2 certified OpenSSL libraries.
- **Virtual SCSI host bus adapters (vHBA)** – Extends Oracle VM Server for SPARC virtual disk and network I/O with a virtual SCSI HBA interface for guest domains. vHBA recognizes any SCSI device type such as disk, CD, DVD, or tape. This provides support for advanced Solaris I/O features like MPxIO and SCSI reservation support in guest domains.
- **Verified boot** – verifies the cryptographically signed boot blocks and kernel modules to ensure the OS is booting with unaltered binaries. Similarly, there is support for secure wanboot to validate signed network OS install images.
- **Oracle VM Server for SPARC templates** – Accelerates the deployment cycle by making it possible to install and run pre-built guest domains containing Solaris

Key features

- Create multiple independent logical domains quickly and easily using the built-in hypervisor.
- Leverage advanced Oracle Solaris technologies, such as ZFS cloning and snapshots, to speed deployment and dramatically reduce disk-capacity requirements.
- Utilize redundant virtual networks and disks to create more highly available domains.
- Dynamically reconfigure computing resources to meet business demand.
- Perform domain migration from system to system securely and quickly with very little latency..
- Leverage advanced SPARC features, such as Software in Silicon to increase performance and security

Key benefits

- Oracle VM Server for SPARC offers leading reliability with unmatched RAS features and can consolidate up to 128 servers on one supported SPARC server or physical domain.
- Greatly increased utilization
- Flexibility in provisioning and deployment of services
- More uniform management interfaces
- Higher level of service
- Lower total cost of ownership (TCO)

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and applications, using the industry-standard OVF format. Templates can be used with template command line utilities or with Oracle VM Manager.

- **Single-root I/O virtualization (SR-IOV)** – Delivers superior I/O throughput and enables the efficient sharing of PCIe network, InfiniBand and Fibre Channel devices. SR-IOV lets workloads achieve native I/O performance, and can be configured for resiliency to tolerate I/O domain or I/O failures.

- **PCIe direct I/O** – Extends current PCIe support to enable you to assign either individual PCIe cards or entire PCIe buses to a domain. This provides I/O configuration flexibility and native I/O throughput.

- **Dynamic reconfiguration (DR)** – Allows computing resources to be dynamically added to or removed from a running domain. You can change CPU, virtual I/O, SR-IOV, and memory resources on an active domain. These capabilities help organizations better align IT and business priorities.

- **Advanced RAS** – Each domain is an independent virtual machine with its own OS, memory, and CPU cores. Domains use IP multipathing (IPMP) and virtual disk multipathing for resiliency if a service domain has an I/O failure or an outage, or is rebooted for a planned system upgrade – without needing to evacuate the server. Administrators can set policies between domains, so domains can be automatically stopped or rebooted if the domain they depend upon fails. Domains leverage Solaris FMA (Fault Management Architecture), which enables predictive self healing and blacklists faulty hardware resources until they are repaired. Recovery mode, on selected SPARC servers, permits system operation if hardware resources are unavailable.

- **CPU whole core allocation and core and memory affinity** – Optimizes assignment of virtual CPUs and RAM to deliver higher and more predictable performance for all types of application workloads. The whole core allocation setting is preserved when a domain is live migrated from one server to another.

- **CPU dynamic resource management (DRM)** – Enables a resource management policy to trigger automatic addition and removal of CPUs based on domain resource requirements and priorities. This helps you better align IT with business priorities.

- **Physical-to-virtual (P2V) conversion** – Quickly convert an existing SPARC server that runs the Solaris 8, Solaris 9, or Oracle Solaris 10 OS into an Oracle Solaris 10 domain. This facilitates migration into the consolidated virtualized environment.

- **Advanced network configuration** – Configures your network to use the following features for flexible network configurations, performance, and scalability: Jumbo frames, VLANs/PVLANs, virtual switches on link aggregations, packet priority, IEEE 802.1p service class. Virtual network devices can host Oracle Solaris virtual NICs (VNICs) to enable Solaris network virtualization. Bandwidth controls let administrators set maximum traffic rates on any virtual network device, making it possible to safely consolidate workloads while ensuring quality of service.

- **Low-overhead, higher-scalability networking for Oracle Solaris 11**– Extended mapin space permits virtual network devices to use shared memory to exchange network packets, which improves performance and scalability to efficiently drive today's high speed 10GbE interconnects.

- **Enhanced management information base (MIB)** – Enables the SNMP MIB to use the latest Logical Domains Manager XML interface, permitting third-party management software to access the new features and resource properties.

Related services
- Oracle Premier Support for Systems
- Oracle Premier Support for Operating Systems

Related products
- Oracle Virtualization
- Oracle Solaris
- Oracle SPARC Servers
- Oracle Enterprise Manager
- Oracle Engineered Systems

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- **Official certification based on real-world testing –** You can use Oracle VM Server for SPARC with the most sophisticated enterprise workloads under real-world conditions, including Oracle Real Application Clusters (RAC).
- **Affordable, full-stack enterprise class support** – You can obtain worldwide support from Oracle for both your entire virtualization environment and workloads. The support covers hardware, firmware, OS, virtualization, and the software stack.

SPARC server virtualization

Oracle offers a full portfolio of virtualization solutions to address your needs. SPARC is the leading platform to have the hard-partitioning capability that provides the physical isolation needed to run independent operating systems. Many customers have already used Oracle Solaris Zones for application isolation.

Oracle VM Server for SPARC provides another important feature with OS isolation. This gives you the flexibility to deploy multiple operating systems simultaneously on a single SPARC server with finer granularity for computing resources.

Your organizations can combine Oracle Solaris Zones and Oracle VM Server for SPARC with the breakthrough space and energy savings afforded by SPARC servers to deliver a more agile, responsive, and low-cost environment.

Unified server virtualization management

Oracle VM Manager can administer servers running Oracle VM Server for SPARC. Users can create SPARC server pools, virtual machines, and manage networking and storage in the same way as in x86 environments. The full lifecycle of virtual machines, and the storage, network and server resources they rely on, can be administered from a single web-based graphical interface or advanced CLI and APIs.
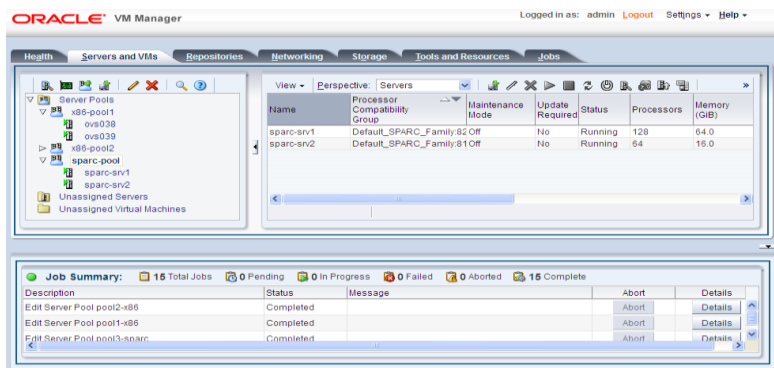
Management with Oracle Enterprise Manager Ops Center

Oracle Enterprise Manager Ops Center is an end-to-end management solution for physical and virtual systems on a single web-based console. It provides full lifecycle management of virtual guests, including Oracle VM Server for SPARC and Oracle Solaris Zones. This solution streamlines operations, reduces downtime, automates management of physical and virtual systems, and is the most effective systems management solution for Oracle SPARC servers.

Oracle Solaris Cluster HA support

The Oracle Solaris Cluster HA for Oracle VM Server for SPARC data service provides a mechanism for orderly startup and shutdown, fault monitoring and automatic failover of the Oracle VM Server guest domain service. Applications that run on a logical domain, as well as the domain's resources and dependencies, can be controlled and managed independently. These resources and dependencies are managed as if they were running in a classic Solaris Cluster hardware node.

Supported SPARC systems

Please refer to the product documentation for a list of supported SPARC platforms, a matrix of required software and patches, and other pertinent information.

Oracle Systems support

Visit oracle.com/support for information about Oracle's support offerings.

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