

Sun™ Management Center — Solaris™ Container Manager 1.1

Easing Server Consolidation by Simplifying
Container Management



Highlights

- Provides a management model for virtualizing resources on a single server
- Enables flexible allocation of compute power according to business objectives
- Aids creation, deletion, and modification of containers across multiple systems from a central point
- Offers monitoring, graphing, and alarming of application resources
- Enhances resource usage accounting, with extensive tracking of resources that can support capacity planning and advanced client billing models



As IT experts know, server consolidation is one of the best ways to control escalating management costs for vast networks of servers and software. In addition to cutting costs, other benefits, such as optimized utilization of hardware and higher end-user service levels, make consolidation a worthwhile investment. However, consolidating applications onto fewer servers can cause unexpected application interactions, affecting service levels.

To deliver full resource containment and more predictable service levels while avoiding application conflicts, Sun introduced Solaris™ Containers technology into the Solaris Operating System(OS) — enabling customers to create up to 8000 secure, fault-isolated software partitions (or containers), each with its own IP address, memory space, file area, host name, users, and root password.

Solaris Containers technology offers several powerful capabilities:

- Resource management to enable flexible allocation of compute power according to business objectives
- Separation between containers through fault and data isolation
- Security, including access control for each container and restricted visibility between containers

Solaris Containers

Solaris Containers isolate software applications and services using flexible, software-defined boundaries. This breakthrough approach to virtualization and software partitioning enables you to create many private execution environments within a single instance of the Solaris OS. By employing Solaris Containers, businesses can define and meet service levels by dynamically controlling application and resource priorities. Companies can also improve resource utilization and reduce downtime, leading to lower solution costs.

Increases visibility into system utilization

To help manage the containers, Sun developed the Solaris Container Manager, which is specifically designed to handle the resource management feature set of Solaris Containers. Solaris Container Manager helps organizations:

- Simplify enterprise consolidation
- Provide a single point of container administration
- Increase visibility into system utilization

Unique management features

An add-on to Sun Management Center software, the Solaris Container Manager helps administrators “turn on the lights” into functions already present in the Solaris OS. It does this through a series of features, starting with a container management GUI that enables administrators to name a container and then specify its workload, accessible compute resources, and how much resources are allocated to individual applications.

Centralized management of systems, from one to hundreds of servers, is achieved through a full representation of all managed containers on the GUI. This makes it easy to see how containers are set up, as well as what resources are still available. A unique search feature enables administrators to quickly find a system with specific characteristics — such as a particular version of the OS.

To save time, a container can be easily *repliated*, with the same definition deployed and tracked across multiple systems. This capability is especially useful when an application scales horizontally across systems, or when workloads on different systems require similar settings.

Successful management requires constant feedback. Administrators need information, such as: Which processes are running within each container? How well is an application running? Does it need more (or less) resources? *The container and process monitoring* capability of the Solaris Container Manager enables administrators to zoom into a container and view detailed information at any time. From the *host and container views*, administrators can more easily find a particular system when troubleshooting or for accounting purposes.

Many management tasks are repetitive, so an automatic *change jobs* capability allows container resource allocation to be scheduled on a daily, weekly, or monthly basis. This saves money by requiring fewer on-site personnel, and helps avoid human errors.

Usage graphs help administrators understand how an application or system is behaving. Graphs can be created on demand, as information about server health and performance is constantly updated. A simple tab on the GUI enables usage data to be exported to third-party applications such as Excel, facilitating accounting chargebacks.

Finally, the *alarm management* capability provides the ability to set alarms for each container so that resource contention problems can be handled proactively. When a predefined threshold is reached, the system sends an e-mail indicating which system should be checked. This allows administrators to monitor every system on the network, without needing to constantly log into each one.

Feature	Functionality	Benefit
Container Management	Allows the creation, deletion, and modification of containers on specified hosts, thereby enabling the administrator to set the characteristics (name, resource allocation) of the container	Gives the administrator easy control of how much system resources are allocated to individual applications
Global Container Management	GUI provides an overview of all current managed containers, illustrating how containers are set up on specific systems and resources still available for other containers	Gives administrator a single point of administration, providing a better overview of managed environment and decreasing the chance for errors
Host and Container View	Offers administrators the choice of organizing containers from either a host or functional point of view	Aids the user in zooming in on a container both when the location is known or when the function is known
Alarm Management	Enables system administrators to set alarms of varying severity for every managed container and notify administrators via e-mail or pager as alarm thresholds are exceeded	Allows administrators to proactively manage resource contention problems
Container Replication	Deploys the same container definition across multiple systems from a central point	Allows centralized management of horizontally deployed applications and enables administrators to quickly deploy more containers if needed
Container and Process Monitoring	Allows users to zoom into a container and identify the running processes and how much resources are being consumed by each process	Aids in overall health monitoring and identifying whether the right applications are running in the right container
Scheduling Change Jobs	Allows administrators to schedule changes to resources allocated to a container, recurring either on a daily, weekly, or monthly basis	Provides administrators with the flexibility to proactively schedule change jobs
Usage Graphs	Creates resource usage charts with multiple usage lines plotted on the same graph to help administrators understand how applications or systems are consuming resources	Provides insight into resource usage trends and how well the systems are running. The multiple lines per graph allows administrators to quickly identify where resources are being consumed
Export of Usage Data	Allows the export of collected data to third-party applications	Provides an easy way for administrators to incorporate usage data into third-party applications such as accounting data
Discovery of System Setting	Automatically discovers current system setting and loads settings into the database	Current resource management or container customers can easily transition their current investment into this management framework
Bandwidth Management on Solaris Zones with IPQoS	Allows administrators to control the network bandwidth of traffic going to and from a zone on the system	Helps administrators control the impact of a network-intensive application that is sharing a network interface with others

Serious software made simple

Sun provides a complete portfolio of affordable, interoperable, and open software systems designed to help you maximize the utilization and efficiency of your IT infrastructure. Built from the secure, highly available foundations of UNIX® and Java™, these systems deliver implementations that are preintegrated and backward compatible. Sun's portfolio consists of Solaris and Linux software for SPARC™ and x86 platforms, N1™ software for dynamic computing, and the Sun Java™ System — five integrated software systems for the data center, the desktop, the developer, mobile devices, and identity implementations.

Platforms and requirements

In general, all current Sun™ systems can be managed by the Solaris Container Manager. For more detailed information, see the *Installation and Configuration Guide* at sun.com/sunmanagementcenter. (Click on *Documentation*).

For more information

To learn more about Solaris Container Manager, Solaris Containers, the Solaris OS, and Sun Management Center, please visit sun.com/software.

Supported operating systems

Agent Layer

- Solaris 8 OS (SPARC Platform Edition)
Note: *Solaris Resource Manager 1.3 software must be installed*
- Solaris 9 OS (SPARC and x86 Platform Editions)
- Solaris 10 OS (SPARC and x86 Platform Editions)

Server Layer

- Solaris 8,9, and 10 OS (SPARC Platform Edition)

Console Browsers

- Netscape™ 4.7x, 6.2x, and 7.x on the Solaris 8,9, and 10 OS
- Netscape 4.7x, 6.2x, and 7.x on Microsoft Windows 98/SE/ME/2000/XP
- Internet Explorer 5.0 and higher (including 6.x) on Windows 98/SE/ME/2000/XP
- Mozilla™ on the Solaris 8, 9, and 10 OS; and Red Hat Linux OS

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