

Sun™ Management Center 3.5 Enhancements

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Chapter 1

Introduction

This document highlights the new and improved features in the Sun™ Management Center 3.5 software release. This chapter presents an overview of this document and suggests its intended audience.

Overview

Sun Management Center 3.5 software is the best-of-breed solution for monitoring and managing Sun hardware and software products in the enterprise. The product's ease of use, reliability, scalability, and versatility are enhanced with support for automated agent deployment solutions, improved user interfaces and networking support, better security, and performance optimizations.

Intended Audience

This document is intended for IT managers, system administrators, and architects in organizations using or planning to use Sun Management Center software. It is assumed that readers are familiar with the installation, setup, and use of previous versions of Sun Management Center software.

For additional details regarding the latest Sun Management Center 3.5 software, please refer to the *References* section.

Chapter 2

Overview of Enhancements

This chapter summarizes the key enhancements in the Sun Management Center 3.5 release. More detailed descriptions of these features are provided in the next chapter.

Table 2-1: Multiple Agent Deployment

Feature	Description
Agent Update	Agent Update automates the deployment of Sun Management Center agent packages and patches to managed systems.
JumpStart™ Software Support	JumpStart software can automate the installation of the Solaris™ Operating System (OS) and unbundled software such as the Sun Management Center agent on Sun systems.

Table 2-2: User Interface Improvements

Feature	Description
Job Manager	The Job Manager replaces the Sun Management Center 3.0 Grouping Operations feature with a more intuitive user interface, expanded functionality, and improved status logging.
New GUI-based Install and Setup Programs	The Sun Management Center 3.5 installation and setup programs support scripts and graphical user interfaces.
Improved Performance Reporting Manager (PRM) GUI	The PRM GUI enhancements provide additional information about the status of PRM data collection and data availability.

Table 2-3: Security Improvements

Feature	Description
HyperText Transfer Protocol Secure Sockets (HTTPS) Secure Sockets Layer (SSL) Support	The Sun Management Center Web server supports secure communication with the Web console via HTTPS (SSL).
Firewall Support	Communication between the Sun Management Center server layer and agents can be confined to user-defined port ranges to support firewalls.
Disabling Community-based Simple Network Management Protocol (SNMP) Access	Community-based SNMP access to data in SNMP-based components can be disabled.

Table 2-4: Networking Enhancements

Feature	Description
Network Address Translation (NAT) Support	Sun Management Center can be configured to operate across a NAT through static mappings.
Multiple Internet Protocol (IP) Interface Support for Server	Sun Management Center servers can support multiple network interfaces to address management requirements.

Table 2-5: General Improvements

Feature	Description
Integration of PMA 3.0 Add-on Into Base Product	The features of the Premier Management Applications (PMA) add-on, a product in Sun Management Center 3.0, are part of the Sun Management Center 3.5 base product.
Improved Performance	The performance of Sun Management Center has been optimized to improve scalability and reduce resource usage.
Improved Reliability	A number of Sun Management Center 3.0 bugs have been fixed in the 3.5 release.

Table 2-6: Expanded Software Support

Feature	Description
Solaris 9 OS Support	Sun Management Center consoles, servers, and agents support the latest release of the Solaris Operating System.
Windows 2000 Support for Sun Management Center Clients	The Sun Management Center Java™ technology-based GUI and command-line interface (CLI) user interfaces are supported on Windows 2000.

Table 2-7: Miscellaneous Enhancements

Feature	Description
Validation Tool	A new program is provided to assist in diagnosing Sun Management Center configuration problems.
Configuration Tool	A new program is provided to configure several aspects of Sun Management Center components.
Tomcat Web Server	The Apache Tomcat Web server is employed for better support for the Java Servlet and JavaServer Pages™ specifications.
No X Server dependency for PRM 3.5 Server	The PRM 3.5 server does not require an active X Server session. This was a requirement for PRM 3.0.

Chapter 3

Detailed Feature Descriptions

This chapter discusses new and improved features in the Sun Management Center 3.5 release. The discussion is organized into the following topics:

- Multiple agent deployment
- Improved user interfaces
- Improved security
- Improved networking support
- General enhancements
- Expanded software support
- Miscellaneous improvements

Additional information about these topics can be found in the *Sun Management Center 3.5 Installation and Configuration Guide* and the *Sun Management Center 3.5 User's Guide*.

Multiple Agent Deployment

In large organizations, Sun Management Center administrators face the challenge of deploying and maintaining Sun Management Center agent software on many managed systems. The manual installation, setup, upgrade, and application of patches to hundreds of managed systems are repetitive tasks that can be both time-consuming and error-prone.

To ease this burden, Sun Management Center 3.5 provides the new Agent Update feature and adds support for using JumpStart software to install Sun Management Center agents.

Agent Update

Agent Update is a flexible and powerful agent deployment solution that saves time and improves software reliability through automation. Using Agent Update involves two main steps. First, administrators use an *image tool* to create one or more *Agent Update images* that contain any combination of base agent packages, add-on packages, and agent patches. Next, administrators initiate the deployment of the images on managed systems in two ways.

1. If the managed system is already running a Sun Management Center 3.5 agent, administrators can use the Sun Management Center Job Manager to automatically deploy a selected image to multiple agents concurrently.
2. Otherwise, if the managed system has a Sun Management Center 3.0 agent or has no agent installed, the administrator can execute the *Agent Update bootstrap program* (`agent-update.bin`) on the managed system to initiate the deployment of a selected image.

For details about Agent Update features, design, and best practices, please refer to the *Sun Management Center 3.5 Agent Update* technical white paper.

JumpStart Software Support

JumpStart software can automate installation of the Solaris OS with unbundled software products such as the Sun Management Center base agent. JumpStart software is suited for initial system roll outs and provisioning entire software stacks to systems. It is thoroughly documented in the Solaris Installation Guides and numerous Sun BluePrints™ publications.

Instructions and example scripts for installing Sun Management Center agents via JumpStart software are detailed in the *Sun Management Center 3.5 Installation and Configuration Guide*.

Improved User Interfaces

Several Sun Management Center user interfaces have been improved in the 3.5 release.

Job Manager

The Job Manager enables Sun Management Center console users to define a task comprised of one or more operations that can be applied to a group of agents. Jobs can be executed immediately or on a scheduled basis.

The Job Manager is included in the Sun Management Center 3.5 base product. It replaces the Grouping Operations feature that was part of the Premier Management Applications (PMA) add-on product in the Sun Management Center 3.0 release. The Job Manager provides a simpler and more intuitive user interface with expanded features and better reporting of job status.

In addition to supporting Module, Data Property, and Module Configuration Propagation (MCP) task types, the Job Manager adds supports for Agent Update and Module Table task types. Agent Update tasks can deploy and upgrade agent software on groups of managed systems. The Module Table tasks enable users to create, modify, and delete rows in module tables through the Job Manager.

GUI-based Installation and Setup

The Sun Management Center 3.5 agent, console, and server software can be installed and setup through new Java technology-based graphical installation and setup programs (for example, `es-gui-inst` and `es-gui-setup`). While these graphical installation and setup programs are functionally equivalent to the script-based programs (`es-inst` and `es-setup`), they provide user-friendly features such as the ability to navigate back to change previous selections.

Figure 3-1: GUI-based Installation Window



PRM GUI Improvements

The PRM add-on enables users to create reports containing information gathered from Sun Management Center agents. These can include historical performance data, hardware configuration data, and alarm data, as well as package and patch information.

From the server layer, PRM periodically collects data from agents. The Data Collection and Data Availability windows of the PRM 3.5 graphical console have been enhanced to provide users with additional information regarding the status of PRM data collection operations and data available for reports.

Improved Security

With the responsibility of monitoring and managing key systems, Sun Management Center security is of paramount importance. Sun Management Center 3.5 improves security in several areas.

HTTPS Support

By default, the Sun Management Center 3.5 Web server is configured to communicate with the Sun Management Center Web console using HTTPS over Secure Sockets Layer (SSL). This industry-standard security protocol provides data encryption, server authentication, and message integrity for Web-based communication.

Firewall Support

A firewall is a system designed to prevent unauthorized access to or from a private network. All messages entering or leaving the private network pass through the firewall, which examines each message and blocks those that do not meet specified security criteria. A common security criteria is to restrict communication based on specific port numbers or port ranges.

To support Sun Management Center server-agent communication across a firewall, agents can be configured to employ a user-specified port range when communicating with the server. The `es-config` script included in Sun Management Center 3.5 can restrict the ports used by the agent.

Disabling Community-based SNMP Access

Sun Management Center agents and server processes communicate primarily using SNMPv2 with the User-based Security Model (USEC). The USEC model provides Sun Management Center agents with a robust security scheme that supports three aspects of user authentication: Replay protection, message integrity, and origin identity.

By default, Sun Management Center agents are also configured to support limited read access via community-based SNMPv1 and SNMPv2c. This permits third-party SNMP managers to read most data property values from agent modules. However, since community-based SNMP communication is not considered secure, this feature poses a potential security risk. For environments that do not require this feature, administrators may prefer to disable SNMPv1 and SNMPv2c access for Sun Management Center agents. For Sun Management Center 3.5 agents, SNMPv1, and SNMPv2c access can be disabled by modifying the `domain-config.x` file appropriately.

Improved Networking Support

Sun Management Center 3.5 adds support for static NAT environments and Sun Management Center servers with multiple interfaces. These features enhance Sun Management Center's ability to operate in diverse customer environments.

Static NAT Support

Static Network Address Translation (NAT) is a method of mapping internal IP addresses to public IP addresses, often to permit access to private hosts from a public network. Sun Management Center 3.5 consoles, servers, and agents can be configured to operate across a NAT with the appropriate static mappings.

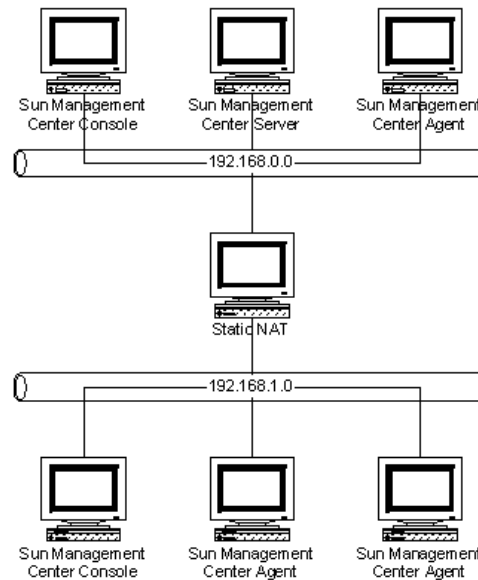
Note – Sun Management Center 3.5 does not support communication across a NAT with dynamic mappings.

By default, Sun Management Center components are not configured to operate in a static NAT environment. In general, configuring Sun Management Center to operate across a NAT involves the following:

- Use Sun Management Center configuration utility (`es-config`) to enable NAT *mode* for the server and appropriate agents
- Add required static mappings to the NAT
- Add required host names or aliases to the appropriate host maps

An example of Sun Management Center operating across a static NAT is shown in Figure 3-2.

Figure 3-2: Sun Management Center NAT Example



In the example, the Sun Management Center server, console, and agent are deployed on the 192.168.0.0 network. Another console and two agents are deployed on the 192.168.1.0 network. This feature is described in *Appendix D, Network Address Translation* in the *Sun Management Center 3.5 Installation and Configuration Guide*.

Multiple Interface Support for Sun Management Center Servers

Each Sun Management Center server defines a server context. Each agent is effectively assigned to a server context during the agent setup through the specification of the hostname of the Sun Management Center server. Agents belonging to a server context are managed by the server, and users logged into the server can perform privileged actions on the agents that belong to the same server context.

In Sun Management Center 3.0, a server associates its server context only with the system's primary interface, even if the system has multiple active network interfaces. This limitation restricts the Sun Management Center 3.0 server's ability to manage agents on the nonprimary network interfaces.

In Sun Management Center 3.5, servers are configured by default to associate all active network interfaces with their server context. As a result, Sun Management Center 3.5 servers can manage agents on all of its network interfaces. Consoles can also connect to the server through any interface.

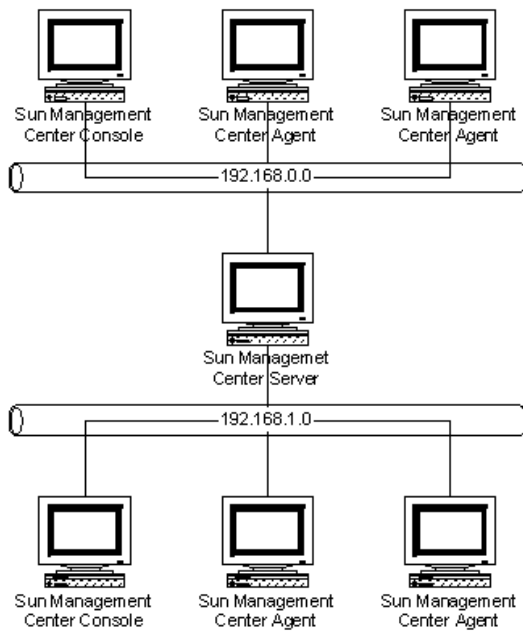


Figure 3-3: Server with Multiple Network Interfaces

Furthermore, Sun Management Center 3.5 provides a utility (`esmultiip`) to manage the list of network interfaces supported by the server. This feature is especially useful for Sun Management Center servers managing high-end Sun Fire™ servers that are configured with a public network for their hardware domains and a private network for their system controllers.

General Enhancements

The overall utility, performance, and reliability of Sun Management Center 3.5 has been improved with the integration of PMA 3.0 features into the base product, performance optimizations, and bug fixes.

Integration of PMA Features into Base Product

The Premier Management Applications (PMA) add-on was a licensed product offered with Sun Management Center 3.0 that is no longer offered in the 3.5 release.

The features of the PMA 3.0 add-on are freely provided as part of the Sun Management Center 3.5 base product. These features are detailed in Figure 3-4.

Table 3-4: Features Included With Sun Management Center 3.5

Feature	Description
Job Manager (Grouping Operations in 3.0)	This feature enables users to define tasks comprised of one or more operations and apply tasks to groups of agents. Jobs can be executed immediately or on a scheduled basis.
Module Configuration Propagation	This feature enables users to create custom module configurations and distribute them to a group of agents through the Job Manager.

Feature	Description
Topology Export/Import	With this feature, users can save and restore topology domain hierarchy configurations through the Sun Management Center graphical console.
Data Views	This feature allows Sun Management Center graphical console users to create and save custom views that display selected data properties.
Web Console	The Web console enables users to access Sun Management Center through a standard Web browser. Web console users can perform many of the functions available through the Java technology-based graphical console.
Command Line Interface (CLI)	The Java technology-based CLI allows users to access Sun Management Center through a character-based interface.

Improved Performance and Scalability

The performance of Sun Management Center has been optimized in several areas, resulting in significant reductions in CPU and memory usage for both the agent and server components. These optimizations improve scalability, allowing Sun Management Center 3.5 to support more add-ons and agents under management. The recommended hardware and improved operational limits are detailed in the *Sun Management Center 3.5 Installation and Configuration Guide*.

Improved Reliability

Numerous Sun Management Center 3.0 bugs have been fixed as part of the Sun Management Center 3.5 release. These bug fixes enhance the overall reliability of the product.

Expanded Software Support

Supported Operating Environments and Java Software Versions

The Sun Management Center 3.5 server, agent, and Java technology-based clients (for example, GUI- and CLI-based clients) have added support for the Solaris 9 OS. The Java technology-based clients have also added support for Windows 2000.

The operating environments and minimum Java technology versions supported by Sun Management Center 3.5 are summarized in Figure 3-5.

Table 3-5: Supported Operating Environments and Minimum Java Technology Versions

Sun Management Center Layer	Supported OS	Supported Java Versions
Server	Solaris 8 and 9 OS	JDK™ 1.4.0 release and above
Client (Java technology-based)	Solaris 2.6, 7, 8, and 9 OS; Windows 98, NT, and 2000	JDK 1.3.1 release and above
Agent	Solaris 2.6, 7, 8, and 9 OS	No Java software required

Miscellaneous Enhancements

Validation Tool

Sun Management Center 3.5 provides a valuable troubleshooting tool in the form of the script-based validation tool (`es-validate`). This script can be executed on a console, server, or agent host to check and report on various aspects of the Sun Management Center installation, configuration, and operational status. It provides detailed information about the Sun Management Center installation including the list of Sun Management Center products, add-ons, packages, patches, and their respective versions.

The script also performs basic checks on various Sun Management Center components, and reports the status of server processes and agents in the server context.

Configuration Tool

Sun Management Center 3.5 offers a new, multipurpose script (`es-config`) for configuring various aspects of a Sun Management Center server or agent installation. This script performs many functions, including:

- Reconfigure SNMP ports used by various Sun Management Center components (typically agents)
- Reconfigure the Remote Method Invocation (RMI) port used by the Sun Management Center Java server component
- Specify the probe port range to be used by an agent (this is useful when restricting the ports used by the agent to support firewall access)
- Enable or disable logging channels (for example, `debug`) of various Sun Management Center components
- Enable NAT support

Tomcat Web Server

Sun Management Center 3.5 uses the Tomcat Web server in place of the Netscape™ Fast Track Web server used in the 3.0 release. Tomcat is an open source Java servlet and JavaServer Pages container.

No X Server Dependency for PRM 3.5 Server

PRM 3.5 servers do not require an active X Server session. This was a requirement in PRM 3.0.

Chapter 4

Summary

Sun Management Center 3.5 reflects Sun's continued commitment to providing the most comprehensive monitoring and management solution for all Sun systems in the enterprise.

The key enhancements of Sun Management Center 3.5 include:

- New multiple agent deployment support for faster automated rollouts and updates of Sun Management Center agent software
- More intuitive user interfaces that reduce training requirements and increase user effectiveness
- Improved security and networking support to meet diverse customer computing environments
- Improved performance, scalability, and reliability for better uptime and more efficient use of computing resources
- Enhanced value through inclusion of premium features in the base product

With Sun Management Center 3.5, organizations can manage a larger number of Sun systems more effectively at a lower cost, while improving the service levels of their Sun environments.

Chapter 5

References

Please refer to the following resources for additional details on the technology presented in this document.

- Sun Management Center and Solaris OS-related documents can be downloaded from docs.sun.com
- *The Architecture of Sun Management Center*, Sun Microsystems, 2000
- *Sun Management Center 3.5 User's Guide*, Sun Microsystems, Part Number 816-2716-10, May 2003
- *Sun Management Center 3.5 Installation and Configuration Guide*, Sun Microsystems, Part Number 816-2678-10, May 2003
- *Sun Management Center 3.5 Agent Update — A Technical White paper*, Sun Microsystems, September 2003
- *Solaris 9 Installation Guide*, Sun Microsystems, Part Number 816-7171-10, December 2002

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