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SUN™ MANAGEMENT CENTER 3.6 FEATURES AND ENHANCEMENTS

White Paper
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Chapter 1

Introduction

This document seeks to highlight the prominent new features and enhancements in the Sun™ Management Center 3.6 software release. This chapter presents an overview of the document and identifies its intended audience.

Overview

Sun Management Center 3.6 software is a top-of-line solution for monitoring and managing Sun hardware and software products in an enterprise. This product release provides extensive support for the Solaris™ 10 Operating System (OS), features significant enhancements to its Command Line Interface (CLI), moves the product to the industry-standard, Simple Network Management Protocol version 3 (SNMPv3), and supports additional software and hardware, including Linux.

Intended Audience

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

For additional details regarding the Sun Management Center 3.6 software, please see the *References* section.

Chapter 2

Overview of Enhancements

This chapter outlines the key enhancements in the Sun Management Center 3.6 software release. A more detailed description of the enhancements can be found in the next chapter.

The features and enhancements introduced in Sun Management Center 3.6 can be grouped into three primary categories: Support for Solaris 10 features, other new features, and miscellaneous enhancements.

Table 1. Support for Solaris 10 Features

| Feature | Description |
|---|--|
| Service Management Facility (SMF) support | The SMF module displays details of SMF services on the host, and allows users to enable or disable services from the module browser window. |
| Fault Management Architecture (FMA) support | The FMA module displays system Fault Events in a table, and allows users to view fault reports and navigate to fault-specific messages at www.sun.com/msg/ |
| Support for Zones | Sun Management Center 3.6 supports agent installation inside a nonglobal zone, and provides the ability to monitor the zone. |
| Dynamic Tracing (DTrace) support | Enhancements to the System Reliability Manager (SysRM) allow addition of d-scripts to the Script Repository, and launching of these scripts from the Script Launcher module. |

Table 2. Other New Features

| Feature | Description |
|---|---|
| Integration with Sun N1™ System Manger (N1SM) | The Sun Management Center 3.6 Volume Systems Monitoring (VSM) add-on offers a single, integrated view of N1SM systems through the VSM module. |
| Linux support | Sun Management Center 3.6 provides Linux agent and console supported on Linux kernel versions 2.4 and 2.6. |
| Support for SNMPv3 | SNMPv3 support for secure communication between agents allows third-party SNMP utilities to interact with the Sun Management Center agent. |

Table 3. Miscellaneous Enhancements

| Feature | Description |
|---|--|
| Agent Update enhancements | Agent Update now provides support for Linux, and allows creation of a single image that can be used across diverse host configurations. |
| Command Line Interface (CLI) enhancements | In addition to enhancements to “help” and Command History Execution, the Sun Management Center CLI now allows users to browse topology objects and traverse the topology hierarchy through the “browse” command. |
| Expanded software and hardware support | Sun Management Center 3.6 provides enhanced support for Solaris 10 on both SPARC® and x86 platforms. It also provides support for Linux kernel versions 2.4 and 2.6. |

Chapter 3

Detailed Feature Descriptions

This chapter discusses the new features and enhancements in the Sun Management Center 3.6 release. The topics covered in this chapter include:

- Support for Solaris 10 features
 - Service Management Facility (SMF)
 - Fault Management Architecture (FMA)
 - Zones
 - Dynamic Tracing (DTrace)
- Other new features
 - Integration with Sun N1 System Manager (N1SM)
 - Linux support
 - Support for SNMPv3
- Miscellaneous enhancements
 - Agent Update
 - Command Line Interface (CLI)
 - Expanded software and hardware support

Support for Solaris 10 Features

Service Management Facility Support

Solaris 10 introduces the concept of Service Management Facility (SMF) to simplify the management of system services. SMF creates a supported, unified model for services and service management on a Solaris system. SMF is an integral part of the Predictive Self-Healing technology available in Solaris 10. It provides a mechanism for failed services to restart automatically in the dependency order, and allows the enabling and disabling of services with the changes persistent across patches and upgrades. For details about the SMF feature of Solaris 10, please refer to “*In a Class by Itself — The Solaris 10 Operating System*” technical white paper.

The Sun Management Center Agent and Server layer processes are a collection of SMF services, bringing Sun Management Center under the SMF framework in Solaris 10, and allowing Sun Management Center to enjoy the benefits provided by SMF. In addition, a new module was introduced as part of the Advanced System Monitoring (ASM) add-on. This SMF module displays details of SMF services on the Solaris 10 host, and allows users to enable and disable SMF services from the module browser window. For more information on the SMF module, please refer to the *Sun Management Center 3.6 User’s Guide*.

Fault Management Architecture Support

As part of its Predictive Self-Healing paradigm, Solaris 10 provides the Fault Management Architecture (FMA) framework, which deals with historical OS issues of limited resilience to hardware faults, ad-hoc error reporting and handling, and dependence on human fault diagnosis. FMA provides a cohesive architecture for fault management, with pluggable diagnosis engines consuming the error event stream. The FMA framework also includes a mechanism to track dependencies between system components aimed at limiting fault impact. For more information on the FMA framework in Solaris 10, please refer to *“In a Class by Itself — The Solaris 10 Operating System”* technical white paper.

Sun Management Center 3.6 provides the user a loadable FMA module as part of the ASM Add-on. The module’s Fault Management Daemon (FMD) configuration table lists details of various diagnosis engines that consume error events, analyze them, and generate faults. These faults are then listed in the FMD Fault Events table of the FMA module. The user can also view a fault report about any fault listed in the table, and can even navigate to a fault-specific message at www.sun.com/msg/ from the table’s fault entry. In addition, with FMA events being written into syslog, the functionality of the File Scan module of ASM add-on has been enhanced to parse and identify FMA syslog entries, which can then be listed in the Scan table of the File Scan module. For more information on the FMA module, please refer to the *Sun Management Center 3.6 User’s Guide*.

Support for Zones

Solaris 10 introduces the concept of Zones, based on the same basic concept as the FreeBSD Jails. The Solaris Zones feature allows administrators to create separate environments for running applications, and provides a way to virtualize system resources. Each zone offers a virtual view of the operating environment, and processes in one zone are completely isolated and insulated from processes in other zones on the host. For more information on the Solaris Zones feature, please refer to *“In a Class by Itself — The Solaris 10 Operating System”* technical white paper.

The Sun Management Center 3.6 installer allows for the setup and configuration of the Sun Management Center agent inside a nonglobal zone on Solaris 10 hosts. An agent running inside a nonglobal zone has the intelligence to identify and filter out modules that are not meaningful in the zone environment. As a rule, all hardware-related modules are ignored. An additional Zone Information table has been added to the Kernel Reader module of the ASM add-on. This table is available on hosts running Solaris 10 or higher, and displays information about the zone the agent is running in. In addition, the Solaris Process Details table contains Zone ids for listed processes. For more information on monitoring a zone using Sun Management Center, please refer to the *Sun Management Center 3.6 Installation and Configuration Guide*.

Dynamic Tracing Support

The Dynamic Tracing (DTrace) facility introduced in Solaris 10 provides dynamic instrumentation and tracing for both applications and kernel activities. It enables developers to track down performance problems and locate the cause of aberrant behavior. Tracing is accomplished by dynamically modifying OS kernel and user processes to record additional data at points of interest, called *probes*. DTrace even allows users to dynamically instrument the system using scripts written in the D programming language. Developers can use these D programs (or d-scripts) to bind their customized tracing actions to more than 30,000 published probes in the Solaris 10 kernel. For more information on the DTrace feature of Solaris 10, please refer to *“In a Class by Itself — The Solaris 10 Operating System”* technical white paper.

Sun Management Center 3.6 provides support for DTrace through enhancements to the Script Repository and Script Launcher modules of the System Reliability Manager (SysRM) add-on for Sun Management Center. A new category called DScript has been added to the Language table, and some default d-scripts are available to users under the Script table of the Script Repository module. In addition, users can add customized d-scripts to the Script Repository. Users can launch these scripts through the Script Launcher module. When launched, d-scripts are executed in a separate shell with the necessary permissions provided to run the script. For more information on the SysRM Add-on, please refer to the *Sun Management Center 3.0 Software System Reliability Manager User's Guide*.

Other New Features

Integration with Sun N1 System Manager

The N1 System Manager (N1SM) system management tool provides comprehensive infrastructure life cycle management capabilities for discovering, provisioning, monitoring, updating, and managing Sun Fire™ x64 and SPARC servers running Solaris, Linux, and Microsoft Windows operating systems. For details about Sun N1SM features and usage, please refer to the *Sun N1 System Manager Administration Guide*.

Sun Management Center 3.6 provides a single integrated view of provisionable servers under the purview of an N1SM server by means of the Volume Systems Monitoring (VSM) add-on. The VSM add-on monitors N1SM systems by proxy-monitoring the N1SM SNMP agent running on the N1SM server through a module. The module displays monitored N1SM attributes in the Sun Management Center module viewer in two tables. The module also has alarmable attributes that can be set to generate Sun Management Center alarms based on specific criteria. The VSM add-on also allows users to invoke the N1SM Browser User Interface (BUI) or CLI (n1sh) from the Sun Management Center topology object used to represent the N1SM server host. For further details about the VSM add-on and module, please refer to the *Sun Management Center 3.6 User's Guide*.

Linux support

Reflecting Sun's commitment to support Linux in its software offerings, Sun Management Center 3.6 provides support for Linux through the Linux agent and console for kernel versions 2.4.x and 2.6.x. For an extensive list of supported hardware and software, please refer to the *Sun Management Center 3.6 Installation and Configuration Guide*. The Linux agent inherits its design, implementation and behavior from the Sun Management Center agent. The Linux agent provides most of the base agent modules, like the kernel-reader, agent-update, and mib2-simple. In addition, the VSM add-on, which provides a mechanism to integrate Sun Management Center with Sun's N1SM solution, is available for installation with the Linux agent on a Sun N1 System Manager server.

Support for SNMP version3

Sun Management Center 3.6 allows secure communication between its agents via the industry-standard SNMPv3 protocol. This allows third-party SNMP tools and utilities to interact with the Sun Management Center agents securely, making Sun Management Center interoperable with other enterprise management software in a customer environment. For more information on Sun Management Center 3.6 support for SNMP v3, please refer to the *Sun Management Center 3.6 User's Guide*.

Miscellaneous Enhancements

Agent Update Enhancements

Agent Update is an agent deployment solution provided with Sun Management Center. It enables the creation of software images of Sun Management Center agent packages and patches, and facilitates the automated installation of these images on multiple hosts simultaneously. For details about Agent Update architecture and design, please refer to the *Sun Management Center 3.5 Agent Update* technical white paper.

The chief enhancements to Agent Update in Sun Management Center 3.6 are:

1. Agent Update image creation and application support has been extended to the Sun Management Center Linux agent introduced in this release.
2. Agent Update capability in Sun Management Center 3.6 has been enhanced to enable the creation of a single Agent Update image catering to every supported host configuration, and the application of the agent image.

For details about Agent Update usage, please refer to the *Sun Management Center 3.6 Installation and Configuration Guide*.

Command Line Interface Enhancements

Sun Management Center CLI provides a set of commands that are a subset of the functionality provided by the Graphical User Interface (GUI) console. Sun Management Center 3.6 introduces significant enhancements to the existing CLI, improving ease of use and delivering performance improvements. A new command, Browse, allows users to browse topology objects, traverse the topology hierarchy, and view information on the Sun Management Center server. To this end, CLI commands have been made available in the browse mode, in addition to the browse commands. Sun Management Center 3.6 also provides a new, back-end implementation of the invocation of *es-cli* in Batch Mode that significantly improves response time for CLI Batch Mode operations, while providing support for scripting. Also incorporated are enhancements to “help”, Command History Execution, and making Aliases persistent. For more information on CLI enhancements in Sun Management Center 3.6, please refer to the *Sun Management Center 3.6 User’s Guide*.

Expanded Software and Hardware Support

In addition to providing enhanced support for the Solaris 10 OS on both SPARC and x86 platforms, Sun Management Center 3.6 also provides agent support on Linux kernels 2.4 and 2.6. For a complete list of supported platforms, please refer to the *Sun Management Center 3.6 Installation and Configuration Guide*.

Chapter 4

Summary

Sun Management Center 3.6, while continuing in Sun's tradition of providing the most comprehensive monitoring and management solution for all Sun systems in an enterprise, also expands the scope of monitoring and management available through Sun Management Center into the realm of Linux. The key enhancements of Sun Management Center 3.6 include:

- Support for several features introduced with Solaris 10, including SMF, FMA, Dtrace, and Zones.
- Integration with N1SM enables monitoring of all Sun systems using a single interface.
- Support for Linux through the Sun Management Center Linux agent.
- Support for the industry-standard SNMPv3 protocol.
- Agent Update enhancements to extend support to Linux and enable creation of a single Agent update image usable across diverse host configurations.
- Improved usability and performance through enhancements to the CLI.
- Extended software and hardware support.

In conclusion, Sun Management Center 3.6 offers enterprises a reliable, scalable, cost-effective, and easy-to-use solution for monitoring and managing a large number of Sun systems.

Chapter 5

References

Please refer to the following documents for additional information on the content presented in this document.

- Sun Management Center and Solaris related documents are available at: www.docs.sun.com
- *Sun Management Center 3.6 User's Guide*, Part Number 817-7961-10, December 2005
- *Sun Management Center 3.6 Installation and Configuration Guide*, Part Number 817-7958-05, December 2005
- *Sun Management Center 3.5 Agent Update — A Technical White paper*, Sun Microsystems, Inc. September 2003
- *In a Class By Itself — The Solaris 10 Operating System* technical white paper, November 2004

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