Sun Management Center 3.0 Supplement for the Sun Fire B1600

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Preface

The *Sun™ Management Center 3.0 Supplement for the Sun Fire™ B1600* provides instructions on how to install, configure and use Sun Management Center 3.0 software on Sun Fire B1600 systems.

This supplement is intended for system administrators who install and use the Sun Management Center 3.0 software to monitor and manage their Sun Fire B1600 systems.

How This Book Is Organized

Chapter 1 introduces Sun Management Center 3.0 software for the Sun Fire B1600 system.

Chapter 2 describes how to install and set up Sun Management Center 3.0 software on the Sun Fire B1600 system. Use this chapter in conjunction with the *Sun Management Center 3.0 Software Installation Guide*.

Chapter 3 contains information to help you verify and troubleshoot your installation.

Chapter 4 describes platform, system controller, and domain data that is specific to Sun Fire B1600 systems and is shown in the respective Sun Management Center *Details* window.

Chapter 5 summarizes the alarm rules used by the Sun Fire B1600 system add-on components.

Typographic Conventions

Typeface or Symbol	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide.* These are called *class* options. To delete a file, type **`rm`** *filename.*

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Installing Sun Management Center 3.0 Software	*Sun Management Center 3.0 Software Installation Guide*	806-5943
Using Sun Management Center 3.0 Software	*Sun Management Center 3.0 Software User's Guide*	806-5944
Configuring Sun Management Center 3.0 Software	*Sun Management Center 3.0 Configuration and Deployment Guide*	816-5316
Issues, Limitations and Bugs for Platform 4 Update	*Sun Management Center 3.0 Platform Update 4 Software Release Notes*	816-2700
Platform Hardware	*Sun Fire B1600 Hardware Installation Guide*	816-7614
Platform Software	*Sun Fire B1600 Software Setup Guide* *Sun Fire B1600 Administration Guide*	816-3361 816-4765
SNMP	*Sun SNMP Management Agent Guide For Sun Fire B1600*	817-1010

For a list of other related documents, refer to the *Sun Management Center 3.0 Software Release Notes* on the Sun Management Center Web site:

`http://www.sun.com/sunmanagementcenter`

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Please include the title and part number of your document with your feedback:

Sun Management Center 3.0 Supplement for the Sun Fire B1600,
part number 817-1011-11

CHAPTER 1

Introduction

This chapter provides an introduction to the Sun Management Center 3.0 software in relation to the Sun Fire B1600.

The chapter contains the following sections:

Sun Management Center 3.0

Sun Management Center is an open, extensible system monitoring and management solution that uses Java and a variant of the Simple Network Management Protocol (SNMP) to provide integrated and comprehensive enterprise-wide management of Sun products and their subsystem, component, and peripheral devices.

Chapter 1 of the *Sun Management Center 3.0 Software User's Guide* includes definitions, explanations and diagrams that clarify the Sun Management Center 3.0 architecture. Review that chapter whenever you have questions about how consoles, servers, agents, domains and modules interact.

Support for hardware monitoring within the Sun Management Center 3.0 environment is achieved through the use of an appropriate hardware platform module, which presents hardware configuration and fault reporting information to the Sun Management Center 3.0 management server and console.

Sun Fire B1600

A Sun Fire B1600 shelf comprises up to sixteen Sun Fire Blades (for example, Sun Fire B100s Blades). Each blade has two gigabit Ethernet connections, normally configured for redundant operation, which are, in turn, connected to two integrated gigabit switches and thence to the external Data Networks.

Each shelf also contains one or two system controllers (two system controllers operate as an active/standby pair) for shelf/blade management and control, and dual power supplies. Each system controller/switch pair additionally provides a separate 10/100 Mbit Ethernet connection that is intended to be connected to a common, physically separate management network.

For more information concerning the Sun Fire B1600 system, refer to the following publications:

- *Sun Fire B1600 Hardware Installation Guide*
- *Sun Fire B1600 Software Setup Guide*
- *Sun Fire B1600 Administration Guide*

This supplement provides support for the Sun Fire B1600 platform, system controllers and domains. For the Sun Fire B1600 platform, hardware configuration information is obtained about both system controllers from the active controller. Information about the Sun Fire B100s blade domains is obtained from the active controller and from the individual domains. Your support environment for the Sun Fire B1600 system will have the following components:

- One or more Sun Fire B1600 shelves
- A platform server managing one or more Sun Fire B1600 shelves
- A Sun Management Center 3.0 server
- A Sun Management Center 3.0 console

FIGURE 1-1 shows a simple configuration with:

- Two Sun Fire B1600 shelves (including Sun Fire B100s blades)
- One platform server serving both shelves
- One Sun Management Center 3.0 server
- One workstation and console

FIGURE 1-1 Example Sun Management Center Configuration for the Sun Fire B1600

Note – The platform server and Sun Management Center server can be the same machine.

Managing the Sun Fire B1600 Shelf and Sun Fire B100s Blades

Information about the hardware configuration of an entire Sun Fire B1600 shelf is obtained from the Sun Fire B1600 hardware platform module, which is loaded on the platform server. Each platform agent reports only the configuration of a single Sun Fire B1600 shelf. Therefore, if multiple shelves are being monitored, there will be multiple instances of the platform agent on the platform server.

The Sun Fire B1600 hardware platform module obtains hardware configuration and fault information from the Sun Fire B1600 system by communicating with the instrumentation daemon which, in turn, communicates with the system controller.

The hardware instrumentation daemon and system controller communicate using a private communications interface, referred to in this supplement as the MISMI interface.

The Sun Fire B1600 instrumentation daemon also communicates with software residing on the Sun Fire B100s blade to obtain a small subset of hardware configuration information that is not available from the Sun Fire B1600 system controller.

Additional information about Sun Fire B100s blades is obtained by loading the Sun Fire B100s hardware platform module into the standard Sun Management Center domain agent that can execute on each Sun Fire B100s blade.

Note – Monitoring a Sun Fire B100s blade using Sun Management Center is optional—you can choose to monitor only the Sun Fire B1600 shelf. In this latter instance, the Sun Management Center 3.0 core components, value-added software and integration adapters are unavailable on the Sun Fire B100s domain. Additionally, a small amount of instrumentation, corresponding to the Sun Fire B100s Hard Disk Drive (HDD), CPU and Ethernet MAC addresses, is unavailable in the Sun Fire B1600 hardware platform module.

The term *platform hardware monitoring* is used throughout this guide to represent hardware information obtained via the Sun Fire B1600 system controller.

The term *domain hardware monitoring* is used throughout this guide to represent hardware information obtained via the Solaris domain on each Sun Fire B100s blade.

TABLE 1-1 Hardware Platform Modules

Agent	Description
Sun Fire B1600 Hardware Platform Module	Provides information about the hardware configuration for the entire Sun Fire B1600 system, including the Sun Fire B100s blades
Sun Fire B100s Hardware Platform Module	Provides the hardware configuration for a Sun Fire B100s blade

Domain hardware monitoring of the Sun Fire B100s blades is by means of the Data and/or Management Network. Platform hardware monitoring is by means of the Sun Fire B1600 system controller and Management Network.

To manage your Sun Fire B1600 system using Sun Management Center 3.0 software, you must install Sun Management Center 3.0 software and Sun Fire B1600 platform-specific software on the Sun Management Center server, the platform server and the Sun Fire B100s blades.

Presentation of the Platform

The Sun Management Center graphical user interface (GUI) presents Sun Fire B1600 platforms as icons. For each Sun Fire B1600 platform there is an icon representing the Sun Management Center 3.0 composite object, the Sun Fire B1600 platform agent and additional icons for each Sun Fire B100s domain agent.

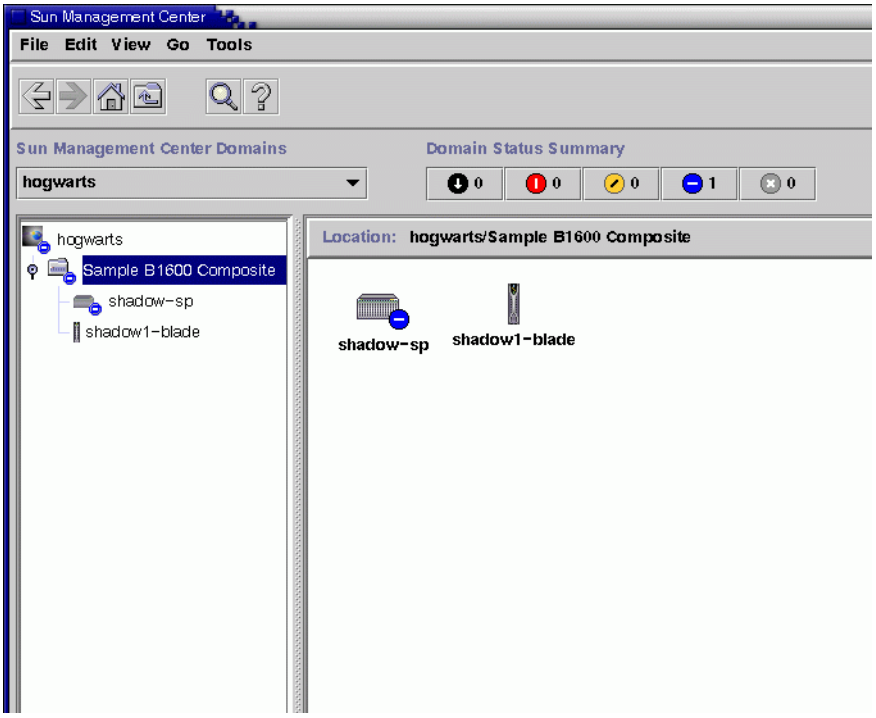

FIGURE 1-2 Domain View Showing Sun Fire B1600 Composite, Platform and Blade Icons

You can expand these icons to provide detailed views of the platform and domains. Sun Management Center 3.0 launches a detail viewer in which the hardware platform module is displayed, in addition to any other traditional Sun Management Center 3.0 monitoring and control modules.

The Sun Fire B1600 hardware platform module enables management of the hardware of a Sun Fire B1600 shelf. The Sun Fire B100s domain agent provides the standard modules provided by Sun Management Center 3.0 (for example, kernel reader) and enables management of a single Sun Fire B100s domain.

Hardware Platform Modules

There are two hardware platform modules—the Sun Fire B1600 hardware platform module, which monitors the hardware of the entire Sun Fire B1600 shelf and its blades, and the Sun Fire B100s hardware platform module, which monitors the hardware of a single Sun Fire B100s blade.

In FIGURE 1-2, the icon named `shadow-sp` represents the Sun Fire B1600 platform agent, which includes the Sun Fire B1600 hardware platform module. In the same figure, the icon named `shadow1-blade` represents the Sun Fire B100s domain agent, which includes the Sun Fire B100s hardware platform module.

Both modules share a common representation of the monitored hardware, and present the following views to the console:

- Browser view
- Logical view
- Physical view

Note – A hardware platform module is also sometimes referred to as the “Config Reader” or “platform add-on”.

Browser View

The browser view displays information representing the platform or domain hardware in the form of tables representing the various physical components.

The browser view represents the hardware configuration in terms of three primary categories:

- Physical components
- Device information
- Environmental sensors

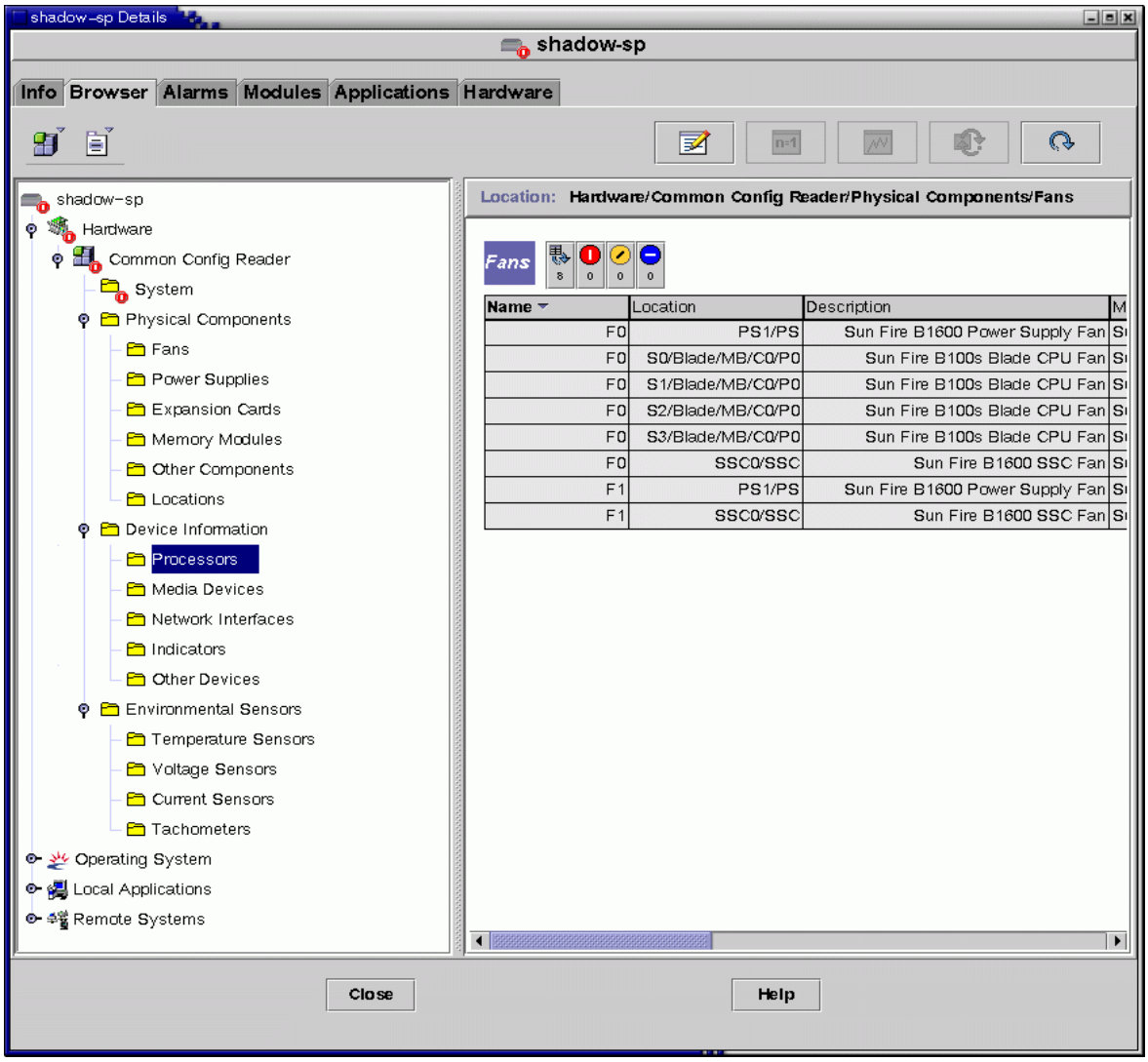

FIGURE 1-3 Browser View Showing Physical Components, Device Information and Environmental Sensors

Physical Components

Physical components occupy physical space and include fans, power supply units, chassis and so on. The browser view represents each physical component using a fundamental set of properties common to all physical components (for example, part number, serial number) with additional properties defined as required.

Device Information

Devices represent the logical devices comprising the platform. For example, a CPU module could contain one or more processing cores. Hence, in this case the CPU module would be represented by the browser as a physical component, but the processing cores would be represented by the browser view as separate devices.

The browser view represents each device using a fundamental set of properties common to all devices. Additional properties are defined to extend this set where required. For example, *description* and *availability* are extended properties.

Environmental Sensors

The browser represents the various environmental sensors of the platform as a discrete category. Environmental sensors include those for voltage, current, temperature and fan speed. Two classes of sensor are supported:

- Numeric sensors
- Non-numeric sensors.

"Environmental Sensor Properties" on page 72 describes the various tables and columns in more detail.

Logical View

The logical view is a tree structure with each node in the tree corresponding to a single row in one table of the browser view. At the top of the tree is the system object. Using parent-child relationships to represent the physical containment hierarchy of the platform, the children of the system object are a set of locations, each containing one physical component. The children of the physical components are either further locations for the logical devices that they realize, or the environmental sensors for monitoring them.

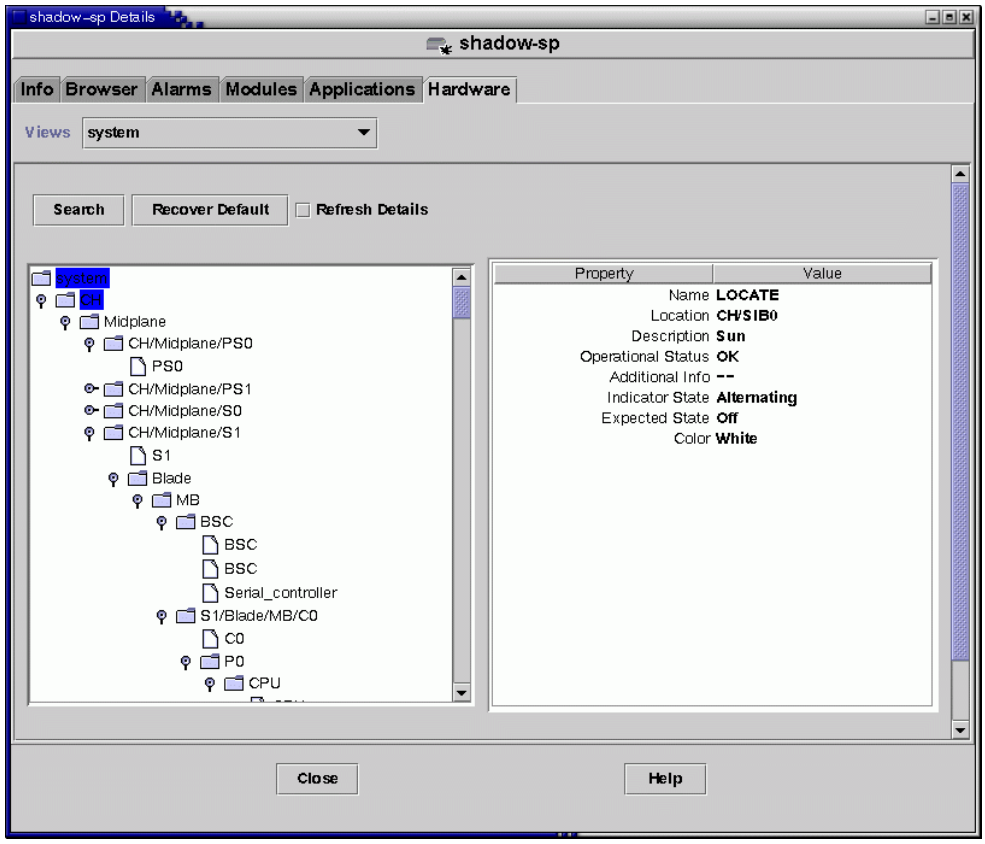

FIGURE 1-4 A Section of the Logical View

Physical View

The physical view is represented by projections of the platform (for example, front, rear and top views). The projections enable you to select the individual physical components modeled in the physical components tables, and any LEDs that are visible.

You can move the mouse over the physical image to display node information in a panel to the right of the physical image.

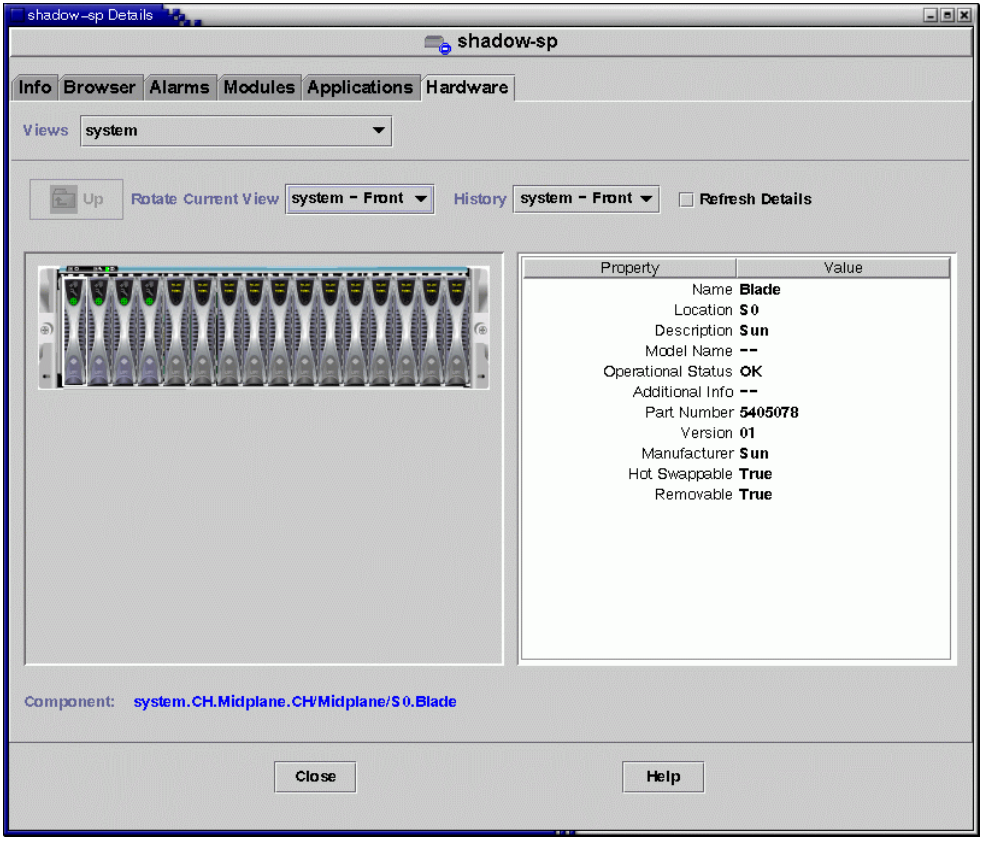

FIGURE 1-5 Sun Fire B1600 Platform Agent Physical View—Location S0 Selected

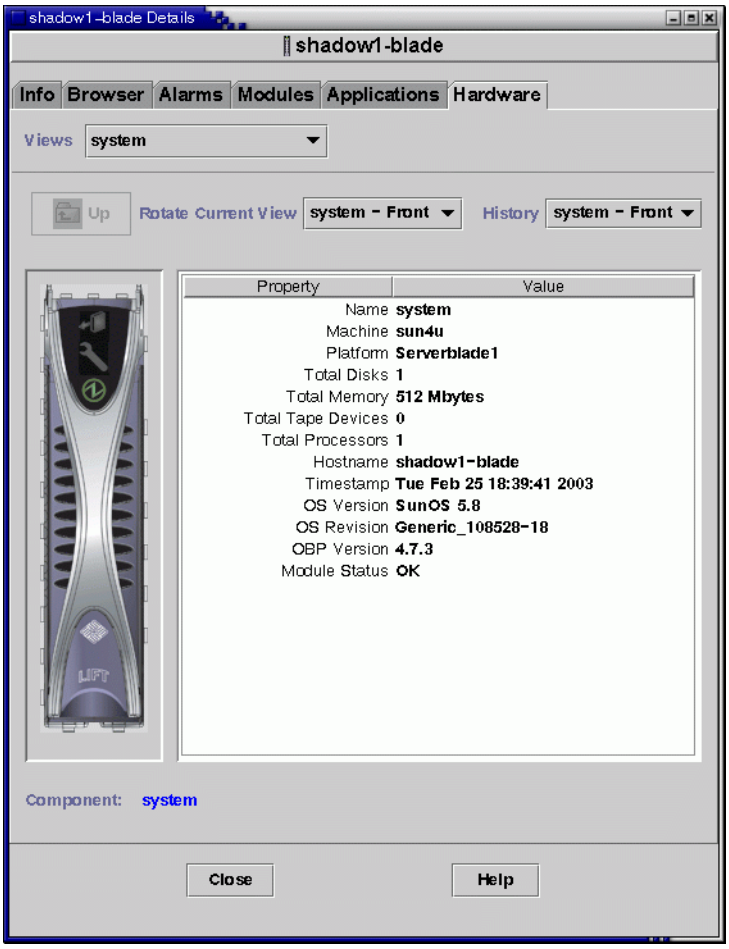

FIGURE 1-6 Sun Fire B100s Domain Agent Physical View

Alarms

The hardware platform module includes a number of alarm rules that are used by the system to determine the status of the various components. Each alarm rule is applied to a specific property of a table in the hardware platform module.

Chapter 5 describes the various alarms in more detail.

CHAPTER 2

Installation

This chapter describes how to install and set up the Sun Management Center 3.0 software for the Sun Fire B1600 system.

The chapter contains the following sections:

Sun Management Center 3.0 Software

The Sun Management Center 3.0 software comprises:

- Sun Management Center 3.0 core components
- Value added software
- Hardware platform modules
- Integration adapters

The Sun Management Center 3.0 Software Installation Guide provides basic information about installing and setting up the Sun Management Center 3.0 core components and starting and stopping the software. For information about the value-added software and integration adapters, please refer to the Sun Management Center web site:

`http://www.sun.com/software/solaris/sunmanagementcenter`

This chapter describes the processes specifically related to installing and configuring Sun Management Center 3.0 for the Sun Fire B1600 system.

Sun Fire B1600 support requires the Sun Management Center 3.0 core packages and the add-on packages for the Sun Fire B1600 system. In this release of the software, the add-on packages are available independently from the Sun Management Center 3.0 core packages.

Your Sun Management Center 3.0 installation and setup scripts may not display the same messages in exactly the same sequence as the examples in this chapter. However, these examples show the basic messages you receive and the approximate sequence in which you receive them.

Specific installation and setup scripts also depend on any additional add-on components you install and other choices you make.

Obtaining the Sun Fire B1600-Specific Software

The Sun Fire B1600-specific software packages are supplied in an archive file in compressed tar format named `symon-B1600-supp.1.0.<ver>.tar.Z`, where `<ver>` is the revision of the file. At the time of writing, the revision is 32b, but you should make sure that you have the latest version.

The file is available from:

`http://www.sun.com/servers/entry/solutions/sun_management.html`

Note – In the future, some of the package filenames in the archive file could vary depending on which version of Solaris you are using, the version of Sun Management Center you have downloaded and the version of this product.

Preparing for Installation

Your environment must meet certain requirements before you can install the management software. This section explains these requirements.

Managing Your Sun Fire B1600 System

FIGURE 2-1 shows a simple configuration with:

- Two Sun Fire B1600 shelves (including Sun Fire B100s blades)
- One platform server serving both shelves
- One Sun Management Center 3.0 server
- One workstation and console

Note – The Sun Management Center server and the platform server can be the same machine, as indicated by the shaded box, or separate machines.

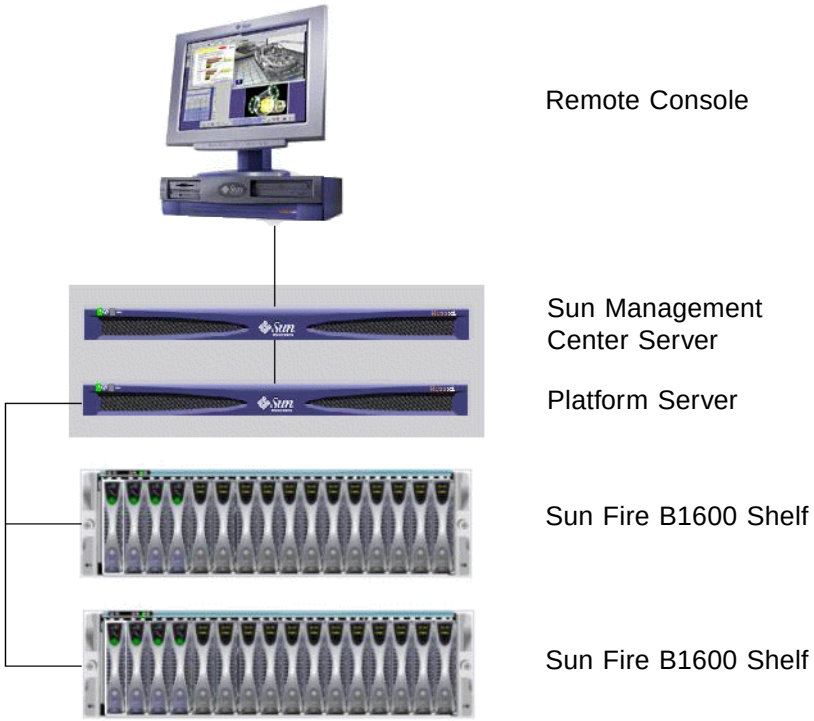

FIGURE 2-1 Simple Sun Management Center Set Up for the Sun Fire B1600

Choosing the Sun Management Center Server

Before installing the Sun Management Center 3.0 software, determine which server is to be the Sun Management Center server. The available memory in the server must be in accordance with the *Sun Management Center 3.0 Configuration and Deployment Guide.*

Note – If you intend to install the platform agent software on this machine rather than a separate platform server, make sure that the available memory is able to meet the additional requirements of the platform agent. See also “Choosing the Platform Server” on page 17.

When the Sun Management Center server is down, you will not be able to use Sun Management Center 3.0 software to manage your system. Refer to the *Sun Management Center 3.0 Configuration and Deployment Guide* for more information about your server requirements.

Choosing the Platform Server

You must also determine which server is to be the Sun Fire B1600 platform server. This can be the same machine as the Sun Management Center server, but see the note above about memory requirments for that machine.

The Sun Fire B1600 platform server is a proxy server to the Sun Fire B1600 shelf. This server must have a minimum of 1GBytes of memory, and should be a system with high availability. A single platform server can support one or more Sun Fire B1600 shelves.

When the Sun Fire B1600 platform server is down, you will not be able to use Sun Management Center 3.0 software to manage your Sun Fire B1600 platform.

Java Environment

If you have chosen to monitor fully the Sun Fire B100s blade, you must pre-install Java J2SE 1.4 components on the Sun Fire B100s blade and on the platform server. If you are monitoring only the Sun Fire B1600 shelf without the Sun Fire B100s domain agents, you need to pre-install Java J2SE 1.4 components only on the platform server. In this case, the instrumentation for the hard disk drive, CPU information and the Ethernet MAC address is not available.

Caution – Java 1.4 cannot co-exist with Java 1.3.1 on Solaris 8 and you must uninstall Java 1.3.1 before you install Java 1.4. Details about upgrade procedure are given on the Java download site (see below).

To ensure that the Java 1.4 files are installed in the correct location (`/usr/j2se`), use the `j2sdk-1_4_0_03-solaris-sparc.tar.Z` package to install them.

The file is available from:

`http://java.sun.com/j2se/1.4/download.html`

Select the SDK download for `Solaris SPARC 32-bit tar.Z`

Follow the instructions for this download that are available at the above location.

Note – This filename is correct at the time of writing. Ensure that you have the latest version of this file. The file name has the format `j2sdk-1_4_0_<ver>-solaris-sparc.tar.Z`, where `<ver>` is the revision of the software.

As this installation replaces the system J2SE, to ensure any existing Java applications continue to run correctly, you must also install the 64-bit J2SE 1.4 packages, which are contained in the file `j2sdk-1_4_0_<ver>-solaris-sparcv9.tar.Z`.

Caution – J2SE 1.4 is intended to replace J2SE 1.3.1 on Solaris 8 and you must uninstall the latter before you install J2SE 1.4. If you install a subsequent quarterly update for Solaris 8, some of the J2SE 1.4 packages will be overwritten by J2SE 1.3.1 packages. To ensure that J2SE 1.4 is installed in the correct locations, use `pkgadd` to install it.

Confirming Installation

To make sure you have the correct installation, use the following command:

```
# /usr/j2se/bin/java -version
java version "1.4.1_03"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.1_03-
b04)
Java HotSpot(TM) Client VM (build 1.4.1_03-b04, mixed mode)
```

This reports the version installed on your system.

If the output reports that Java 1.3.1 is installed, this indicates that Java 1.3.1 has not been removed properly.

For further information about upgrading to Java 1.4, refer to the installation instructions at `http://java.sun.com/j2se/1.4/install-solaris.html`.

Required Software Versions

TABLE 2-1 lists the software versions required for Sun Fire B1600 platform support.

TABLE 2-1 Required Software Versions

Host	Required Software	Version
Sun Management Center Server	Solaris operating environment Sun Management Center Sun Fire B1600 server packages	2.6, 7, 8 3.0 PU4
Workstation (for console layer)	Solaris operating environment Sun Management Center	2.6, 7, 8 3.0 PU4
Sun Fire B1600 Platform Agent	Solaris operating environment Sun Management Center Java Sun Fire B1600 platform agent packages	8, 9 3.0 PU4 1.4
Sun Fire B100s Domains	Solaris operating environment Sun Management Center Java Sun Fire B1600 domain agent packages	8 3.0 PU4 1.4

Network Port Configuration

Sun Management Center 3.0 software and the Sun Management Center 3.0 platform module for Sun Fire B1600 requires network ports to communicate with various components of the system. TABLE 2-2 lists the default port address for these components.

TABLE 2-2 Default Sun Management Center 3.0 Port Addresses

Layer	Component	Default Port
Agent	Agent	161
Server	Trap Handler	162
Server	Event Manager	163
Server	Topology Manager	164
Server	Configuration Server	165
Agent	Platform Agent	166
Server	Metadata	168

In some cases, this default port configuration can conflict with software already running on your system. The presence of legacy or other SNMP agents might cause port 161 conflicts on some Sun Fire B1600 domains. During the Sun Management Center 3.0 setup, specify an alternate network port to avoid this conflict. Refer to the *Sun Management Center 3.0 Software Installation Guide* for further information about solving port conflicts.

To create and access topology objects, the Sun Management Center 3.0 agent layer software uses port 161 by default. If you configure an agent to use an alternate port, you must specify that port when the topology object is created or discovered. To simplify your Sun Management Center 3.0 network configuration and management and enable more efficient discovery of Sun Management Center 3.0 agents, select an alternate port number and use that number for all agent installations that cannot use the default port configuration.

In addition to the default port addresses, and any user-specified addresses, this software uses the following additional port address when the Sun Fire B100s domain agents are installed.

TABLE 2-3 Additional Port Address Used by the Software

Layer	Component	Default Port
Domain Agent	Remote data component	1099

When you set up your Sun Fire B1600 switch, you will need to consider these port addresses, and any user-specified port addresses, in the switch configuration.

Sun Fire B1600 System-Specific Packages

The Sun Fire B1600 system-specific packages are listed in TABLE 2-4, TABLE 2-5 and TABLE 2-6. Refer to the *Sun Management Center 3.0 Software Installation Guide* for information about general Sun Management Center prerequisites, including minimum disk space requirements.

After you have unpacked the Sun Management Center 3.0 system-specific archive file, `symon-B1600-supp.1.0.<ver>.tar.Z`, the software packages corresponding to the Sun Fire B100s domain, the Sun Fire B1600 platform agent and Sun Management Center server are located in `domain`, `platform` and `server` subdirectories, respectively. See “Obtaining the Sun Fire B1600-Specific Software” on page 14 for details of how to obtain the archive file.

Note – In the following tables, the packages referred to as the Sun Management Center 3.0 B1600 Config Reader - Agent Component (SUNWesvca) and the Sun Management Center 3.0 B1600 Config Reader - Server Component (SUNWesvcs), contain the hardware platform modules.

TABLE 2-4 shows the Domain packages, which you install on the Sun Fire B100s blades.

TABLE 2-4 Sun Management Center Domain Packages for the Sun Fire B100s

Package	Description
SUNWbgcm	SPA Hardware Platform Object Manager
SUNWbgcmr	SPA Hardware Platform Object Manager (Root)
SUNWbgidr	SPA Domain Discovery (Root)
SUNWbgpc	SPA Personality Module Framework
SUNWbgpji	SPA Sun Fire B100s Domain Personality Module
SUNWbgpr	SPA Personality Module (Root)
SUNWbgptk	SPA Personality Module Toolkit
SUNWesvca	Sun Management Center 3.0 B1600 Config Reader - Agent Component

TABLE 2-5 shows the platform agent packages, which you install on the platform server.

TABLE 2-5 Sun Management Center Platform Agent Packages for the Sun Fire B1600

Package	Description
SUNWbgcm	SPA Hardware Platform Object Manager
SUNWbgcmr	SPA Hardware Platform Object Manager (Root)
SUNWbgod	SPA Platform Discovery
SUNWbgodr	SPA Platform Discovery (Root)
SUNWbgpc	SPA Personality Module Framework
SUNWbgpjo	SPA Sun Fire B1600 Platform Personality Module
SUNWbgptk	SPA Personality Module Toolkit
SUNWesvca	Sun Management Center 3.0 B1600 Config Reader - Agent Component

TABLE 2-6 shows the Sun Management Center 3.0 server package, which you install on the Sun Management Center server.

TABLE 2-6 Sun Management Center 3.0 Server Package for the Sun Fire B1600

Package	Description
SUNWesvcs	Sun Management Center 3.0 B1600 Config Reader - Server Component

Installation and Configuration

Note – If you want to extend an existing Sun Management Center 3.0 installation to include support for the Sun Fire B1600 platform, it is not necessary to re-install the core Sun Management Center 3.0 packages.

Note – This document does not describe the installation and setup process for the core Sun Management Center 3.0 product. Refer to the *Sun Management Center 3.0 Software Installation Guide* for information about installing and setting up the core software.

To simplify the installation procedure, make sure you have the following information to hand before starting your installation:

- Name of the Sun Management Center server
- Name and IP address of the platform server
- Name and IP address of each monitored Sun Fire B1600 system controller
- Name, IP address and port number of all monitored Sun Fire B100s blades
- Port numbers for all of the platform agent instances (one per managed platform)

Note – Make sure the name and IP addresses of the Sun Fire B100s blades and Sun Fire B1600 system controller is entered into the name service that is in use (for example, DNS, NIS, or `/etc/hosts`).

Installation Summary

1. **Install Sun Management Center 3.0 console software on the console workstation.**

   For details, refer to the *Sun Management Center 3.0 Software Installation Guide*.

2. **Install Sun Management Center 3.0 server software and Sun Fire B1600 server-specific components on the Sun Management Center server.**

   For details of how to install core Sun Management Center 3.0 server software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

   For details of how to install the Sun Fire B1600 server-specific software, see “To Install and Set Up the Sun Management Center Server Software” on page 24.

3. **Install Sun Management Center 3.0 agent software, Java 1.4 and Sun Fire B1600 domain agent-specific software on each Sun Fire B100s blade to be managed.**

   For details of how to install core Sun Management Center 3.0 agent software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

   For details of how to install Java 1.4, refer to “Java Environment” on page 17.

   For details, see “To Install and Set Up the Domain Agent Software” on page 27.

Note – This step is required only if you are fully monitoring your Sun Fire B100s blades.

Note – Perform this step before Step 4 as this port numbers defined in this step are required in Step 4.

---

4. **Install Sun Management Center 3.0 agent software, Java 1.4 and Sun Fire B1600 platform agent-specific software on the platform server.**

   For details of how to install core Sun Management Center 3.0 agent software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

   For details of how to install Java 1.4, refer to “Java Environment” on page 17.

   For details of how to install the Sun Fire B1600 platform-agent specific software, see “To Install and Set Up the Sun Management Center 3.0 Platform Agent Software” on page 30.

Note – If you want your Sun Management Center server and platform server to tbe the same machine, perform Step 2 and Step 4 on the same server.

Installation and Configuration Procedure

This section describes the procedure for installing and configuring the Sun Management Center 3.0 software.

▼ To Install and Set Up the Sun Management Center Server Software

1. **Make sure that the Sun Management Center 3.0 core packages are installed and set up on the Sun Management Center server.**

   For details of how to install core Sun Management Center 3.0 server software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

2. **Log on to the Sun Management Center server platform as root.**

3. **If the Sun Management Center server is running, stop this and all Sun Management Center services by typing:**

```
# /opt/SUNWsymon/sbin/es-stop -A
```

4. **Create a temporary directory and move to it.**

   For example:

```
# mkdir /var/tmp/symon
# cd /var/tmp/symon
```

5. **Copy the Sun Fire B1600-specific software archive file, `symon-B1600-supp.1.0.<ver>.tar.Z`, into the directory you have created.**

   For details of where to obtain the file, see "Obtaining the Sun Fire B1600-Specific Software" on page 14.

6. **Uncompress and unpack the tar file.**

   For example:

```
# zcat ./symon-B1600-supp.1.0.<ver>.tar.Z | tar xvf -
```

Note – The value of <ver> depends on the software release you have downloaded.

---

7. **Move to the server directory that was created when you unpacked the tar file.**

   For example:

```
# cd server
# ls
SUNWesvcs
```

8. **Add the Sun Management Center 3.0 server package.**

```
# pkgadd -d . SUNWesvcs
```

9. **When the installation is complete, you can delete the downloaded file from the temporary directory you created at Step 4, then delete the directory itself.**

10. **Set up the software.**

```
# /opt/SUNWsymon/sbin/es-setup

-----------------------------------
Sun Management Center Setup Program
-----------------------------------

This program does setup of Sun Management Center components that are installed
on your system.

Checking for Sun Management Center components installed on your system.

You have the following Sun Management Center components installed

Sun Management Center Server
Sun Management Center Agent
Sun Management Center Console

Stopping all Sun Management Center processes. This may take a few moments...
Stopping metadata component
Stopping cfgserver component
Stopping topology component
Stopping event component
Stopping trap component
Stopping java server
Stopping agent component
platform component is not running
```

```
Configuring the system for setup, please wait.
This part of setup generates security keys used for communications
between processes. A seed must be provided to initialize the keys. You can choose
to use the standard Sun Management Center default or enter your own seed. If
you do not generate the keys now, you can do so later using the procedure
documented in the Sun Management Center 3.0 Users Guide.

Do you want to generate these keys using the Sun Management Center default seed?
[y|n|q] y
The Sun Management Center base URL is relative to the Sun Management Center
Console.
The Sun Management Center Console is able to request help documentation via the
network.
If you have installed Sun Management Center help documentation in an http-
accessible location within your network, you may specify this location.
If Sun Management Center help is installed on the console host, simply accept
the default value.
Please enter base URL to Sun Management Center help [local]:

The base URL has been set to file:/disk2/opt/SUNWsymon/lib/locale

<truncated>

Do you want to preserve your existing data [y|n|q] y

Please wait, Sun Management Center database setup in progress. It may take 15
to 20 minutes
Do you want to start Sun Management Center agent and server components now
[y|n|q] y
..........
#
```

Note – The text that appears is dependent on the Sun Management Center services that are installed.

▼ To Install and Set Up the Domain Agent Software

Note – This installation procedure is required for each monitored Sun Fire B100s domain. However, the procedure is necessary only if you have chosen to manage your Sun Fire B100s blades.

1. **Make sure that you have installed and set up the Sun Management Center 3.0 core packages on the Sun Fire B100s domain.**

   For details of how to install core Sun Management Center 3.0 server software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

2. **Make sure that you have installed Java 1.4 on the Sun Fire B100s domain.**

   For details, see "Java Environment" on page 17.

3. **Log on to the Sun Fire B100s domain as root**

4. **If the Sun Management Center agent is running, stop it by typing:**

```
# /opt/SUNWsymon/sbin/es-stop -a
```

5. **Create a temporary directory and move to it.**

   For example:

```
# mkdir /var/tmp/symon
# cd /var/tmp/symon
```

6. **Copy the Sun Fire B1600-specific software archive file, `symon-B1600-supp.1.0.<ver>.tar.Z`, into the directory you have created.**

   For details of where to obtain the file, see "Obtaining the Sun Fire B1600-Specific Software" on page 14.

7. **Uncompress and unpack the tar the file.**

   For example:

```
# zcat ./symon-B1600-supp.1.0.<ver>.tar.Z | tar xvf -
```

Note – The value of `<ver>` depends on the software release you have downloaded.

8. **Change to the domain directory that was created when you unpacked the tar file.**

   For example:

```
# cd domain
  ls
  SUNWbgcm SUNWbgcmr SUNWbgidr SUNWbgpc SUNWbgpji SUNWbgpr
  SUNWbgptk SUNWesvca
```

9. **Add the Sun Management Center 3.0 domain packages.**

```
# pkgadd -d . SUNWbgptk SUNWbgpc SUNWbgcm SUNWbgcmr SUNWbgpr \
SUNWbgidr SUNWbgpji SUNWesvca
```

10. **When the installation is complete, you can delete the downloaded file from the temporary directory you created at Step 4, then delete the directory itself.**

11. **Set up the agent using the Sun Management Center 3.0 `es-setup` command.**

Note – The default port number for the agent is 161. The `es-setup` command enables you to specify an alternative port number. The port number used by the agent is required to perform Step 11 of the platform agent set up described in “To Install and Set Up the Sun Management Center 3.0 Platform Agent Software” on page 30. Make sure that you have this port number available when you set up the platform agent.

```
# /opt/SUNWsymon/sbin/es-setup

-----------------------------------
Sun Management Center Setup Program
-----------------------------------

This program does setup of Sun Management Center components that
are installed on your system.

Checking for Sun Management Center components installed on your
system.

You have the following Sun Management Center components installed

Sun Management Center Agent
```

```
Stopping all Sun Management Center processes. This may take a few
moments...

<truncated>
------------------------------------------------------------
Starting Sun Management Center ECP Config Reader Setup
------------------------------------------------------------
Sun Serverblade1 (UltraSPARC-IIe 650MHz)
Added module Config-Readerecp to /var/opt/SUNWsymon/cfg/base-
modules-d.dat.

<truncated>

Sun Management Center setup complete.
Do you want to start Sun Management Center agent now [y|n|q] n

#
```

Note – The dialogue that appears is dependent on the Sun Management Center services that are installed, and on whether the `es-setup` command has already been run. If `es-setup` has already been run, you are asked to confirm the hostname of the Sun Management Center server, otherwise you are asked to specify it.

---

12. **Complete the set up procedure by following a) or b), as required**:

    a. Reboot the Sun Fire B100s domain.

```
# reboot
```

    This is the simplest way to complete the set up, but does involve rebooting the Sun Fire B100s domain.

    b. Start the data acquisition daemon manually:

```
# /etc/init.d/spapom start
```

    Start the domain agent:

```
# /opt/SUNWsymon/sbin/es-start -a
```

    This alternative procedure enables you to complete the set up without rebooting.

▼ To Install and Set Up the Sun Management Center 3.0 Platform Agent Software

1. **Make sure that you have installed and set up the Sun Management Center 3.0 core packages on the platform server.**

   For details of how to install core Sun Management Center 3.0 server software, refer to the *Sun Management Center 3.0 Software Installation Guide*.

2. **Make sure that you have installed Java 1.4 on the platform server.**

   For details, see "Java Environment" on page 17.

3. **Log on to the Sun Management Center platform server as root.**

4. **Create a temporary directory and move to it.**

   For example:

```
# mkdir /var/tmp/symon
# cd /var/tmp/symon
```

5. **Copy the Sun Fire B1600-specific software archive file, `symon-B1600-supp.1.0.<ver>.tar.Z`, into the directory you have created.**

   For details of where to obtain the file, see "Obtaining the Sun Fire B1600-Specific Software" on page 14.

6. **Uncompress and unpack the tar file.**

   For example:

```
# zcat ./symon-B1600-supp.1.0.<ver>.tar.Z | tar xvf -
```

Note – The value of <ver> depends on the software release you have downloaded.

---

7. **Move to the platform directory that was created when you unpacked the tar file.**

   For example:

```
# cd platform
# ls
  SUNWbgcm SUNWbgcmr SUNWbgod SUNWbgodr SUNWbgpc SUNWbgpjo
  SUNWbgptk SUNWesvca
```

8. **Add the Sun Management Center 3.0 platform packages.**

```
# pkgadd -d . SUNWbgptk SUNWbgpc SUNWbgcm SUNWbgcmr SUNWbgod \
SUNWbgodr SUNWbgpjo SUNWesvca
```

9. **When the installation is complete, you can delete the downloaded file from the temporary directory you created at Step 4, then delete the directory itself.**

10. **Set up the Platform Agent:**

```
 /opt/SUNWsymon/sbin/es-platform -a <system-name>
Please enter any port between 1100 and 65535 : <port-number>
This part of setup generates security keys used for communications
between processes. A seed must be provided to initialize the keys.
Please make sure you use the same seed for all the machines you
install.
You may like to keep record of this seed for future use.
Please enter the seed to generate keys:
Please re-enter the seed to confirm:
# /opt/SUNWsymon/addons/SUNWesvca/sbin/es-setup.sh -I <system-
name>
------------------------------------------------------------
Starting Sun Management Center ECP Config Reader Setup
------------------------------------------------------------
Platform types:
1. Sun Fire B100s
2. Sun Fire B1600

Select remote platform type [1,2,q] 2
Added module Config-Readerecp to /var/opt/SUNWsymon/cfg/<system-
name>-modules-d.dat.
agent component is not running
Stopping platform agent, this may take few moments.
<system-name> component is not running
#
```

In the above example:

- <system-name> is the name of the Sun Fire B1600 system controller on the shelf you are monitoring.
- <port-number> should be a number between 1100 and 65535. If the port number you select is already in use, you were prompted to enter another number.

  You must specify a unique port number for each monitored Sun Fire B1600 shelf.

Note – If you create a simple platform object, this port number is required to perform Step 2 in "To create a Simple Platform Object" on page 41. Make sure that you have the port number available if you create the object using this mechanism.

11. Set up the platform agent discovery table for the contained domains.

Note – You need perform this step only if you have chosen to manage your Sun Fire B100s blades.

For each Sun Fire B100s domain that is part of the platform managed by this platform agent, type:

```
# /opt/SUNWsymon/addons/SUNWesvca/sbin/es-setup.sh -I \
<system-name> -a <domain:port>
-------------------------------------------------------
    Starting Sun Management Center ECP Config Reader Setup
    -------------------------------------------------------
    Added module Config-Readerecp to
/var/opt/SUNWsymon/cfg/<system-name>-modules-d.dat.
```

where:

- <system-name> is the name of the system controller on the Sun Fire B1600 shelf
- domain is the name of the Sun Fire B100s blade
- port is the Sun Fire B100s domain agent port (default is 161). This is the port number that you specified in Step 11 of the domain agent set up (see "To Install and Set Up the Domain Agent Software" on page 27).

12. Complete the set up procedure by following a) or b), as required:

a. Reboot the platform server.

```
# reboot
```

This is the simplest way to complete the set up, but does involve rebooting the platform server.

b. Start the data acquisition daemon:

```
# /etc/init.d/spapom start
```

Start the Sun Management Center components:

```
# /opt/SUNWsymon/sbin/es-start -A
```

This alternative procedure enables you to complete the set up without rebooting.

13. Following this step, confirm that the platform agents are running by typing:

```
# ps -ef | grep esd
```

If platform agents are running, you will see a response similar to the following for each platform agent:

```
root   888     1  0 15:57:35 ?        0:12 esd - init <sc-system-
name> -dir /var/opt/SUNWsymon -q
```

Here <sc-system-name> corresponds to a Sun Fire B1600 system controller.

If the agents are not running, start them for each monitored platform by typing:

```
# /opt/SUNWsymon/sbin/es-start -y <sc-system-name>
```

where <sc-system-name> is the name of the Sun Fire B1600 system controller.

Localization Packages

This section describes how to install the localization packages on the Sun Management Center server. You should follow this procedure after you have installed the Sun Management Center 3.0 software and the English language version of the Sun Fire B1600-specific packages.

Obtaining the Localization Packages

The Sun Fire B1600-specific localization software packages are supplied in an archive file in compressed tar format named `symon-B1600-supp.1.0.<ver>-l10n.tar.Z`, where `<ver>` is the revision of the file.

The file is available from:

`http://www.sun.com/servers/entry/solutions/sun_management.html`.

▼ To Install the Localization Packages

1. **Make sure you have installed the platform-specific packages on the Sun Management Center server as described in "To Install and Set Up the Sun Management Center Server Software" on page 24.**
2. **Log into the Sun Management Center server as root.**
3. **Create a temporary directory and move to it.**

   For example:

   ```
   # mkdir /var/tmp/<l10n>
   # cd /var/tmp/<l10n>
   ```

4. **Copy the Sun Fire B1600-specific localization software archive file, `symon-B1600-supp.1.0.<ver>-l10n.tar.Z`, into the directory you have created.**

   For details of where to obtain the file, see "Obtaining the Localization Packages" on page 34.

5. **Uncompress and unpack the tar file.**

   For example:

```
# zcat ./symon-B1600-supp.1.0.<ver>-l10n.tar.Z | tar xvf -
```

6. **Change to the directory <l10n>/image/localization.**

```
# cd image/localization
```

7. **Execute the command** `es-inst-l10n` **to install the localization packages.**

```
# ./es-inst-l10n
```

▼ To Uninstall Localization Packages

1. **Check that the localization packages listed in** TABLE 2-7 **are installed on the Sun Management Center Server.**

TABLE 2-7 Sun Management Center Server Localization Packages

Package	Name
SUNWcscvs	Simplified Chinese Sun Management Center B1600 Config Reader—Server Component
SUNWfscvs	French Sun Management Center B1600 Config Reader—Server Component
SUNWjscvs	Japanese Sun Management Center B1600 Config Reader—Server Component
SUNWhscvs	Traditional Chinese Sun Management Center B1600 Config Reader—Server Component
SUNWkscvs	Korean Sun Management Center B1600 Config Reader—Server Component

```
# pkginfo SUNWcscvs SUNWfscvs SUNWjscvs SUNWhscvs SUNWkscvs
```

2. **Remove the packages from the Sun Management Center server using the** `pkgrm` **command.**

```
# pkgrm SUNWcscvs SUNWfscvs SUNWjscvs SUNWhscvs SUNWkscvs
```

After Installing and Configuring the Software

When you have installed the Sun Management Center 3.0 Supplement for the Sun Fire B1600, verify that the Sun Fire B1600 shelf has been correctly configured to communicate with the host running the platform agent. This requires access to the Sun Fire B1600 system controller console and a user id with appropriate privileges to run the `showsc` command, and also the `setupsc` command if required.

For example:

```
sc>showsc

       Sun Advanced Lights Out Manager for Blade Servers 1.0
       Copyright 2003 Sun Microsystems, Inc. All Rights Reserved.
       ALOM-B 1.0

       Release: 1.0.67

       Parameter                                Running Value      Stored Value
       ------------------------------------------------------------------------
       Bootable Image :                          1.0.67 (Feb 10 03)
       Current Running Image :                   1.0.67 (Feb 10 03)
       SC IP address:                          129.156.203.154    129.156.203.154
       SC IP netmask address:                   255.255.255.0      255.255.255.0
       SC IP gateway address:                   129.156.203.8      129.156.203.8
       SSC0/SC (Active) IP private address:   129.156.203.155    129.156.203.155
       SSC1/SC (Standby) IP private address:  129.156.203.156    129.156.203.156
       SMS IP address:                         129.156.205.81     129.156.205.81

       <truncated>
```

The values you must check are:

- `SMS IP address`—This must be the IP address of the platform server.
- `SC IP address`—This is the IP address of the system controller.

If these values are not correct, you must run `setupsc` on the system controller and set them correctly, otherwise the Sun Fire B1600 platform agent will be unable to determine the status of the B1600 shelf. Refer to the *Sun Fire B1600 Blade System Chassis Software Setup Guide* for details of the procedure, if required.

Sun Fire B1600 Topology Objects

This section describes how to create and discover Sun Fire B1600 topology objects. For full information about creating and monitoring Sun Management Center 3.0 objects, refer to Chapter 3 of the *Sun Management Center 3.0 Software User's Guide*.

If you are managing a Sun Fire B1600 shelf and blades and have installed the domain agent on the Sun Fire B100s domains, you can use Sun Management Center composite objects to represent the shelf and blades as a logical group in the domain view. To create composite objects, use either of the methods described in "Sun Fire B1600 Platform Composites" on page 37.

If you are not monitoring the Sun Fire B100s domains, Sun Management Center composite objects are not necessary and the Sun Fire B1600 shelf can be represented by a simple (that is, not composite) object. To create the object, use the method described in "Creating Sun Fire B1600 Simple Platform Objects" on page 41.

To create topology objects, you need to launch the Sun Management Center console using the following command:

```
# /opt/SUNWsymon/sbin/es-start -c
```

Sun Fire B1600 Platform Composites

A Sun Fire B1600 composite is a Sun Management Center 3.0 object group that can contain all the icons associated with a single Sun Fire B1600 platform. This composite includes:

- Sun Fire B1600 platform agent icons
- Up to sixteen Sun Fire B100s agent icons

To monitor Sun Fire B1600 domains and platforms, you can either create a Sun Fire B1600 composite object using the *Create Topology Object* window, or use a Sun Management Center 3.0 discovery request.

Initialization of the platform agent or the instrumentation daemon, from which the platform agent obtains hardware configuration and fault information, can take up to ten minutes, depending on the physical configuration of the Sun Fire B1600 platform.

If you attempt to create or discover the Sun Fire B1600 platform during this initialization period, the creation or discovery request could fail. The initialzation period is triggered by the following events:

- Reboot of the platform agent server
- Start of the platform agent
- Start of the instrumentation daemon
- Reset of the Sun Fire B1600 system controller

If any of these events have occurred, and the creation or discovery request fails, repeat the creation or discovery request.

Creating Sun Fire B1600 Composite Platform Objects

A summary of the steps of this procedure for the Sun Fire B1600 is given below. For further information about this procedure, refer to Chapter 3 of the *Sun Management Center 3.0 Software User's Guide.*

▼ To create a Composite Platform Object

1. **In the main console window, select *Create an Object* in the *Edit* menu.**
2. **Click on the *Composite* tab in the *Create Topology Object* window.**
3. **From the *Object* list box, select the *Sun Fire B1600 Composite* object.**
4. **Enter any other information in the text boxes.**

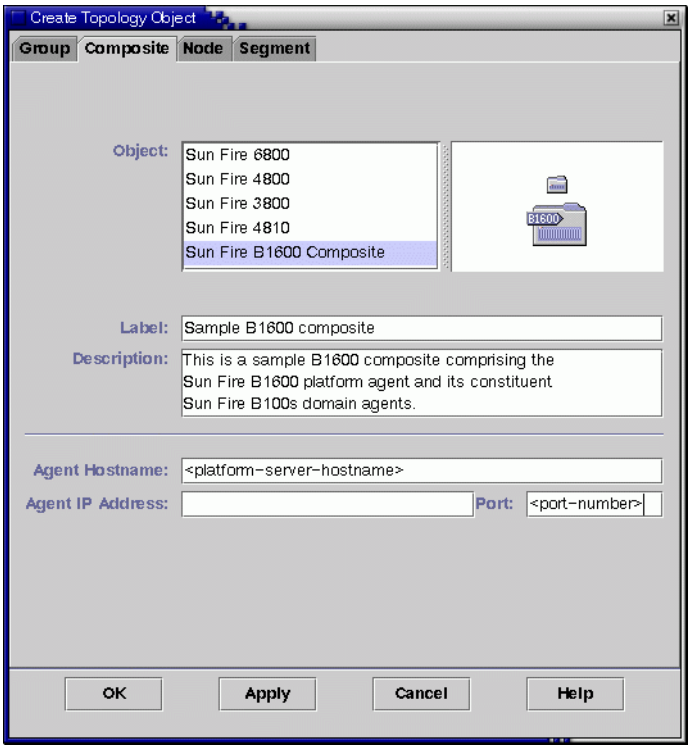

FIGURE 2-2 Create Topology Object Dialogue Box—Composite Tab

The `Agent Hostname` field is the hostname of the platform server.

The `Port` field is the main Sun Management Center agent port for the platform server. This is the port number that you used when setting up your main Sun Management Center agent on the platform server, and is usually 161.

5. **Click on `OK`.**

   The time taken to complete this process varies depending upon the complexity of the platform. On successful completion, a Sun Fire B1600 folder is added to the main console window.

6. **Open this new folder to view all the objects associated with the Sun Fire B1600 platform.**

Discovering Sun Fire B1600 Composite Platform Objects

A summary of the steps of this procedure for the Sun Fire B1600 is given below. For further information about this procedure, refer to Chapter 3 of the *Sun Management Center 3.0 Software User's Guide.*

▼ To Discover a Composite Platform Object

1. **In the main console window, select *Discover* in the *Tools* menu.**
2. **From the *Discovery Requests* dialog box, click on *Add*.**
3. **Enter appropriate information in the *New Discovery Request* dialog box.**

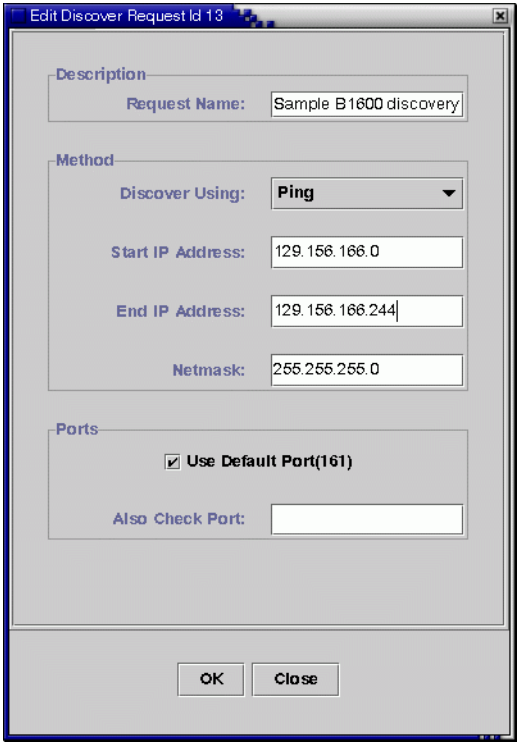

FIGURE 2-3 Discovery Request Dialogue

The `Start IP Address` and `End IP Address` fields should span the IP address of the platform server.

The `Port` field is the main Sun Management Center agent port for the platform server. This is the port number that you used when setting up your main Sun Management Center agent on the platform server, and is usually 161.

4. **Click on `OK` to complete the Add operation and start the Discovery procedure.**

5. **If a dialog box appears requesting that the operation be started upon completion, click on `Yes`, otherwise click on `Start`.**

   If the Sun Fire B1600 composite is not created, refer to the troubleshooting section for further information.

   You can use the *Platform Filter Criteria* options to ensure that only Sun Fire B1600 composites are discovered.

Creating Sun Fire B1600 Simple Platform Objects

A summary of the steps of this procedure for the Sun Fire B1600 is given below. For further information about this procedure, refer to Chapter 3 of the *Sun Management Center 3.0 Software User's Guide*.

▼ To create a Simple Platform Object

1. **In the main console window, select *Create an Object* in the *Edit* menu.**

2. **Enter appropriate information in the text boxes.**

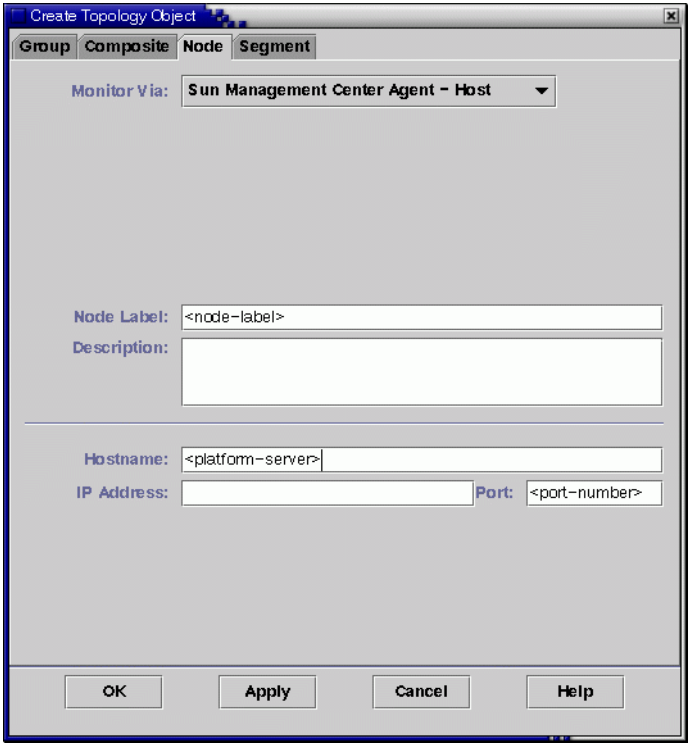

FIGURE 2-4 Create Topology Object Dialogue Box—Node Tab

The `Hostname` field is the hostname of the platform server.

The `Port` field is the Sun Fire B1600 platform agent port. This is the port number that you specified in Step 10 of the platform agent set up (see "To Install and Set Up the Sun Management Center 3.0 Platform Agent Software" on page 30).

3. **Click on `OK`.**

   On successful completion, a Sun Fire B1600 shelf icon is added to the main console window.

4. **Open this new icon to launch the detail viewer for the Sun Fire B1600 shelf.**

CHAPTER 3

Verifying and Troubleshooting the Installation

This chapter describes how to check that you have installed your system correctly and provides troubleshooting steps to follow in the case of a problem with the installation.

The chapter contains the following sections:

Verifying the Installation

After you have completed the installation and configuration procedures described in Chapter 2, verify the installation by launching the Sun Management Center console and confirming that the composite, shelf and blade icons appear in the domain view, similar to FIGURE 3-1. To launch the console, use the following command on the remote console:

```
# /opt/SUNWsymon/sbin/es-start -c
```

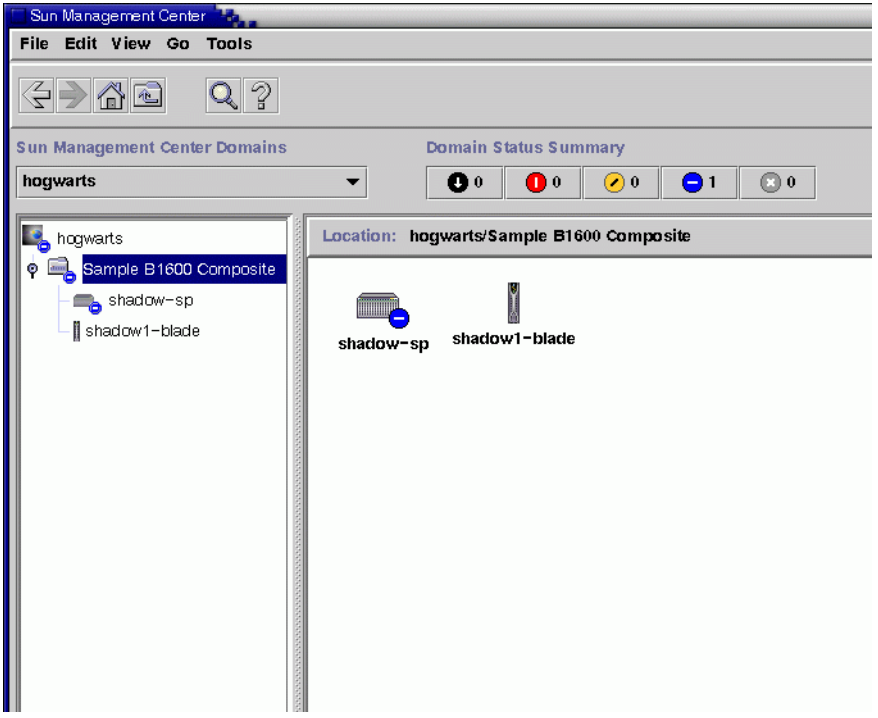

FIGURE 3-1 Domain View Showing Sun Fire B1600 Composite, Platform and Blade Icons

---

Note – If you are managing only a Sun Fire B1600 shelf and have not used the Create Composite mechanism, only the shelf icon will be visible in the domain view.

Explore the platform and domains by referring to “Presentation of the Platform” on page 5.

Sun Fire B100s Domain Agent Setup

FIGURE 3-2 shows a single Sun Fire B100s domain, a Sun Management Center Server and a Sun Management Center console.

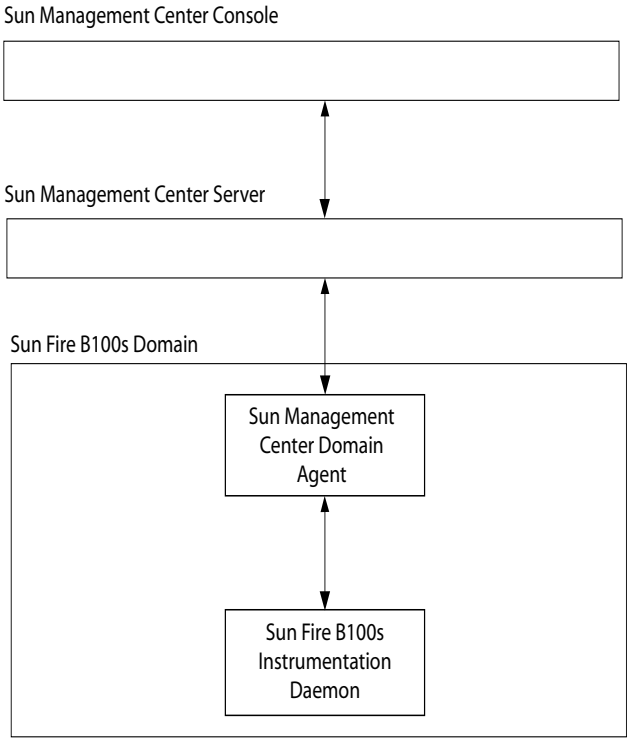

FIGURE 3-2 Domain Agent Components and Data Flow

The Sun Fire B100s instrumentation daemon, communicates with Solaris device drivers and other interfaces, and receives hardware configuration and fault status information about the Sun Fire B100s domain. Subsequently, the instrumentation daemon checks for changes to the hardware configuration and for the occurrence of faults. A single instance of the instrumentation daemon manages the Sun Fire B100s domain.

After you have installed the software on the Sun Fire B100s domain, the instrumentation daemon starts automatically following a reboot.

The Sun Management Center domain agent makes use of the instrumentation daemon.

To verify the setup of the domain agent, you must check each of these components to make sure that you have set them up correctly.

In the event of misconfiguration, the domain agent corresponding to a blade may contain no information, or the domain agent icon may show a red splat with the following message:

```
Data acquisition error: the POM is either not up or not
responding to requests
```

Verification Procedure

1. **The instrumentation daemon requires Java 1.4. Log on to the B100s domain and confirm that the correct version of Java is installed by typing:**

```
# /usr/j2se/bin/java -version
java version "1.4.0_03"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.0_03-
b04)
Java HotSpot(TM) Client VM (build 1.4.0_03-b04, mixed mode)
```

If necessary, install the correct version of Java as described in “Java Environment” on page 17.

Note – If you have installed Java 1.4, but the system continues to report Java 1.3, you must remove the Java 1.3 according to the procedure in “Java Environment” on page 17.

---

2. **Make sure that the instrumentation daemon is running by typing:**

```
# ps -ef | grep java
    root   257     1  0   Feb 25 ?        8:20 /usr/j2se/bin/java
-Dcom.sun.spa.wbem.pomi.port=3333 -Xms64m -Xmx768m -Dcom.sun
       root   324     1  0   Feb 25 ?       5:17 /usr/j2se/bin/java
-Djava.library.path=/opt/SUNWspa/lib/pm/:/opt/SUNWspa/lib/pm
```

Sun Fire B1600 Platform Agent Setup

FIGURE 3-3 shows two Sun Fire B1600 system controllers (full shelf not shown), a platform server, a Sun Management Center Server and a Sun Management Center console.

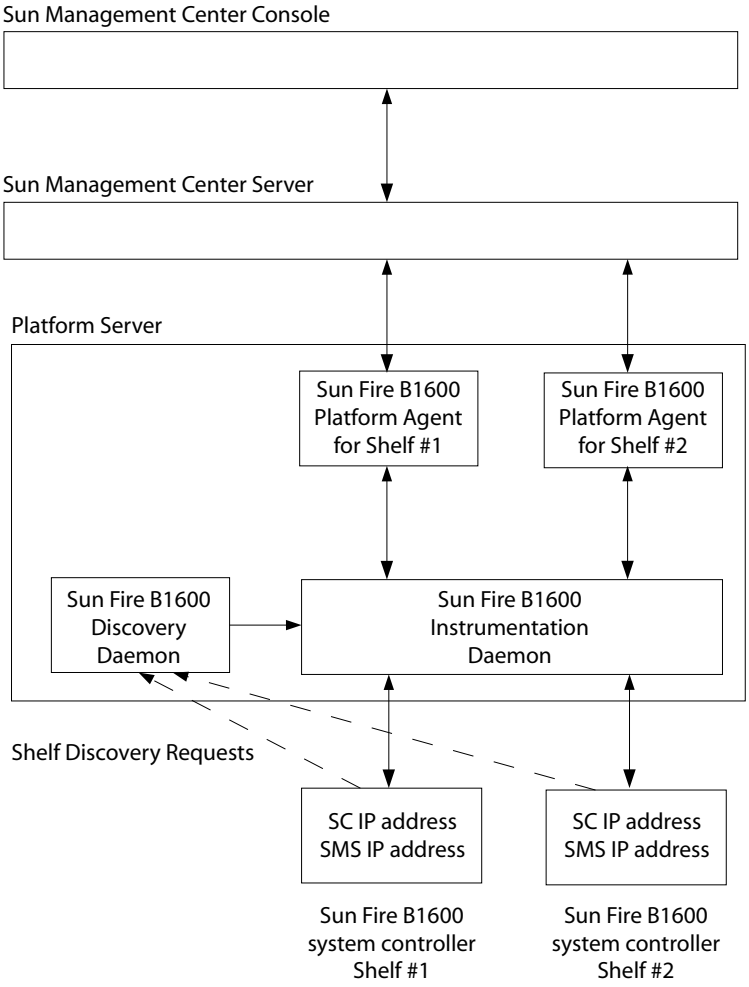

FIGURE 3-3 Platform Agent Components and Data Flow

The Sun Fire B1600 discovery daemon listens for requests from any Sun Fire B1600 platform that has been configured to request management by the particular platform server. The server to which discovery requests are sent is determined by the setting of the SMS IP address property. These management requests occur when the system controller is reset or when relevant system controller parameters are modified

When the discovery daemon receives a request from a Sun Fire B1600 system controller, it notifies the Sun Fire B1600 instrumentation daemon (which is known as the Platform Object Manager or POM). The instrumentation daemon communicates with the system controller, using a protocol known as MISMI, and receives hardware configuration and fault status information about the Sun Fire B1600 shelf from its system controller.

Subsequently, the system controller notifies the instrumentation daemon when changes are made to the hardware configuration and when faults occur. It can take up to ten minutes to complete initialization, depending on the number of blades installed on the shelf being managed.

All Sun Fire B1600 shelves having the same SMS IP address are managed by a single instance of the instrumentation daemon running on the platform server with that address.

The Sun Fire B1600 platform agent is a Sun Management Center agent instance. One platform agent instance exists for each shelf that needs to be managed. The platform agent instance corresponding to each shelf must be set up explicitly using the procedure described in “To Install and Set Up the Sun Management Center 3.0 Platform Agent Software” on page 30.

To verify the setup of the platform agent, you must check each of these components to make sure you have set them up correctly.

In the event of misconfiguration of the platform agent or system controller, the platform agent icon in the Sun Management Center domain view may contain no information, or show a red splat with the following message:

```
Data acquisition error: the POM is either not up or not
responding to requests
```

or a yellow splat with the following message:

```
Data acquisition error: insufficient privileges
```

Verification Procedure

1. **The system controller must be set up with its own IP address and that of the platform server that will manage it. Make sure that the system controller has been set up correctly by running** `showsc` **on the system controller.**

```
sc>showsc

       Sun Advanced Lights Out Manager for Blade Servers 1.0
       Copyright 2003 Sun Microsystems, Inc. All Rights Reserved.
       ALOM-B 1.0

       Release: 1.0.67

       Parameter                                 Running Value      Stored Value
       ------------------------------------------------------------------------
       Bootable Image :                           1.0.67 (Feb 10 03)
       Current Running Image :                    1.0.67 (Feb 10 03)
       SC IP address:                           129.156.203.154    129.156.203.154
       SC IP netmask address:                    255.255.255.0      255.255.255.0
       SC IP gateway address:                    129.156.203.8      129.156.203.8
       SSC0/SC (Active) IP private address:    129.156.203.155    129.156.203.155
       SSC1/SC (Standby) IP private address:   129.156.203.156    129.156.203.156
       SMS IP address:                          129.156.205.81     129.156.205.81

       <truncated>
```

The values you should check are:

- `SMS IP address`—This must be the IP address of the platform server.
- `SC IP address`—This is the IP address of the system controller.

If these values are incorrect, run `setupsc` on the system controller and set them correctly, otherwise the Sun Fire B1600 platform agent will be unable to determine the status of the B1600 shelf. Refer to the *Sun Fire B1600 Blade System Chassis Software Setup Guide* for details of the procedure, if required.

2. **The discovery daemon and the instrumentation daemon require Java 1.4. Log on to the platform server and confirm that the correct version of Java is installed on the platform server by typing:**

```
# /usr/j2se/bin/java -version
java version "1.4.0_03"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.0_03-
b04)
Java HotSpot(TM) Client VM (build 1.4.0_03-b04, mixed mode)
```

If necessary, install the correct version of Java as described in “Java Environment” on page 17.

Note – If you have installed Java 1.4, but the system continues to report Java 1.3, you must remove the Java 1.3 according to the procedure in “Java Environment” on page 17.

---

3. **The discovery daemon listens for requests from Sun Fire B1600 system controllers to be managed. Make sure that the discovery daemon is running and has been set up properly by carrying out the following steps.**

   a. Make sure that the Sun Fire B1600 discovery daemon is running by typing:

```
# netstat -a | grep mismi
     *.mismi            *.*              0     0 24576     0 LISTEN
     *.mismi                        *.*                        0
0 24576      0 LISTEN
```

The output shows that the discovery daemon is listening for requests from the platform(s) to be managed.

b. Examine `/etc/services` **and confirm that the following entry is present:**

```
mismi           8265/tcp                # MISMI Discovery
```

If you do not see this entry, confirm that the packages are installed correctly.

c. Examine `/etc/inetd.conf` **and confirm that the following entry is present:**

```
# MISMIDISCOVERY - mismiDiscovery daemon
mismi stream tcp6 nowait  root /opt/SUNWspa/bin/mismiDiscovery mismiDiscovery
```

If this entry is present, restart `inetd` using the following command and return to Step a:

```
# pkill -1 inetd
```

d. Make sure that `/etc/inetd.conf` **is a symbolic link to** `/etc/inet/inetd.conf` **by typing the following:**

```
# ls -l /etc/inetd.conf
```

The output should be as follows:

```
lrwxrwxrwx   1 root     root          17 Jan  7 17:08 /etc/inetd.conf ->
./inet/inetd.conf
```

If the link is not present, the installation of the `SUNWbgodr` package has failed to add the entry shown in step 4. Copy the entry in `/etc/inet/inetd.conf` to `/etc/inetd.conf` and restart `inetd` using the following command:

```
# pkill -1 inetd
```

Return to the beginning of Step 3 to verify the configuration.

e. Make sure that the Sun Fire B1600 discovery daemon is listening and that a connection to the Sun Fire B1600 system controller has been established.

```
# netstat -a | grep mismi
      *.mismi              *.*                0      0 24576      0 LISTEN
blade-174-119.36780  hornet-sc.mismi       8192      0 24820      0 ESTABLISHED
      *.mismi                           *.*                           0
0 24576      0 LISTEN
```

Note – This step can take several minutes to execute.

In this example, hornet-sc is the name of the Sun Fire B1600 system controller that is being managed.

If the connection has not been established, check the system controller setup by following the instructions given in "After Installing and Configuring the Software" on page 36.

4. **A single instrumentation daemon runs on the platform server that obtains hardware configuration and fault information about the Sun Fire B1600 shelf from the system controller.**

   a. **Make sure that the instrumentation daemon is running by typing:**

```
# ps -ef | grep wbem.pomi
    root   243     1  0 08:59:43 ?        0:21 /usr/j2se/bin/java -
Dcom.sun.spa.wbem.pomi.port=3333 -Xms64m -Xmx768m -Dcom.sun
```

   b. **Make sure that the instrumentation daemon is communicating with the shelf by snooping the instrumentation daemon.**

```
# snoop -d <net-interface> port 8265 host <system-controller>
Using device /dev/ce (promiscuous mode)
blade-174-119 -> hornet-sp    TCP D=8265 S=51699    Ack=3374174817
Seq=503615907 Len=985 Win=24820
   hornet-sp -> blade-174-119 TCP D=51699 S=8265     Ack=503616892
Seq=3374174817 Len=0 Win=8192
   hornet-sp -> blade-174-119 TCP D=51699 S=8265     Ack=503616892
Seq=3374174817 Len=530 Win=8192
blade-174-119 -> hornet-sp    TCP D=8265 S=51699    Ack=3374175347
Seq=503616892 Len=986 Win=24820
```

where

- <system-controller> is the hostname of the system controller
- <net-interface> will be dependent on the platform on which the software is running

There may be periods of several seconds of inactivity. You can provoke traffic by entering the following at the system controller prompt:

```
hornet-sc>setlocator on
hornet-sc>setlocator off
```

5. **Make sure that the platform agent is running by typing:**

```
# ps -ef | grep esd
```

If platform agents are running, you will see a response similar to the following for each platform agent:

```
root   888     1  0 15:57:35 ?        0:12 esd - init <sc-system-
name> -dir /var/opt/SUNWsymon -q
```

Here <sc-system-name> corresponds to a Sun Fire B1600 system controller.

If the agents are not running, start them for each monitored platform by typing:

```
# /opt/SUNWsymon/sbin/es-start -y <sc-system-name>
```

where <sc-system-name> is the name of the Sun Fire B1600 system controller.

Note – If the platform agent is functioning, you can expect the tables to contain no information relating to hard disk drives, CPUs or Ethernet MAC addresses if you have not installed the domain agent on the Sun Fire B100s blades. In this case, either install the blade as described in “To Install and Set Up the Domain Agent Software” on page 27, or carry out the verification steps described in “Sun Fire B100s Domain Agent Setup” on page 45.

Troubleshooting Composite Failures

Problem

- **The composite creation fails**

  Check the following possible sources of the problem:

1. **Make sure that you specified the correct platform host name and Sun Management Center 3.0 agent port.**
2. **Make sure that the main Sun Management Center 3.0 agent is executing on the host running the platform agent by typing the following:**

```
# ps -ef | grep esd
  root 17417 1 1 Feb 12 ? 49:19 esd - init caldbeck-sp -dir /var/opt/SUNWsymon -q
  root 17884 1 0 Feb 12 ?  2:32 esd - inet agent dir -dir /var/opt/SUNWsymon -q
```

3. **Try to create the Sun Fire B1600 platform object directly by creating a node.**

   To do this, select the *Node* tab in the *Create Topology Object* window.

4. **Make sure that a discovery table exists on the Sun Management Center server for the composite object by typing the following:**

```
# /opt/SUNWsymon/sbin/es-dt -v
```

   If no output is produced, or it does not look similar to the following, the Discovery table was not created correctly:

```
Discovery Service loaded on: Agent

Entries:

   Label             ><composite-label><
   Host              ><hostname><
   Port              ><port><
   OID               ><1.3.6.1.4.1.42.2.12.2.2.1.1.9.100><
   Node Object Type  >b1600-composite<
```

CHAPTER 4

Physical and Logical Properties

The Sun Management Center console presents hardware information for the Sun Fire B1600 and Sun Fire B100s blades using a common set of tables and fields. This chapter provides a summary of the classes and properties by table.

The chapter contains the following sections:

The Sun Fire B100s blade domain agent and the Sun Fire B1600 platform agent use the same table layout to present information in the Sun Management Center console. The main difference between the information provided by the two agents is the level of information returned.

The tables in the domain agent contain information pertaining to a single Sun Fire B100s domain (that is, a single blade) only.

The tables in the platform agent contain information pertaining to an entire Sun Fire B1600 shelf, including its blades, and will thus be significantly larger.

Note – Some tables and fields may not be relevant, in which case the fields are filled with "- -" or are blank.

System Properties

The System Information table contains the top level view of the system hardware. For the domain hardware platform module, this relates to the top level view of the Sun Fire B100s blade hardware. For the Sun Fire B1600 hardware platform module, this relates to the entire view of the Sun Fire B1600 shelf, including the blades.

In TABLE 4-1, several fields are present to conform to the conventional information presented by other Sun Management Center 3.0 platform hardware modules.

TABLE 4-1 System Information Table Properties

Property	Comments
Name	Fixed value of System
Machine	CPU architecture (for example Sun4u)
Platform	Platform type
Total Disks	Total of all hard disks managed directly through the platform*
Total Memory	Total of all DIMM memory capacity*
Total Tape Devices	Total of all tape devices managed directly through the platform
Total Processors	Total number of CPU processors*
Hostname	System IP hostname
OS Version	System OS version
OS Revision	OS revision
Module Status	The current status of the module

* For the platform agent, this reports the number of disks and processors, and the amount of memory present in the entire Sun Fire B1600 shelf, including the monitored blades.

Note – If you have chosen not to manage particular Sun Fire B100s blades, their disks, processors and memory are not included in these totals. This is also true if they are normally managed but their domain agent is not running.

Physical Component Properties

The tables in this section represent instances of physical components within the system.

Common Properties

All physical components share a common set of ten properties:

- Name
- Description
- Model
- Operational Status
- Additional Information
- Part Number
- Version
- Serial Number
- Manufacturer
- Hot Swappable
- Removable

FIGURE 4-1 is a browser view of part of the fan table showing specifically the Location and Description columns, which are commonly referenced.

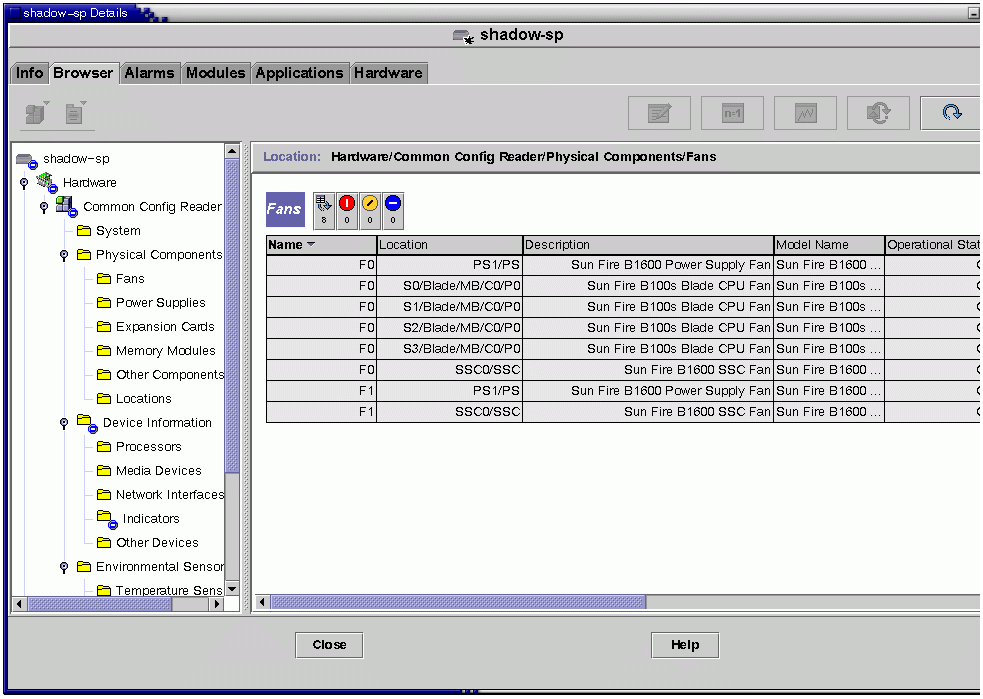

FIGURE 4-1 Physical Components Showing Location and Description Columns

The Operational Status property can take the values shown in TABLE 4-2.

TABLE 4-2 Operational Status Values

SunMC Property	Comments
OK	The component is operating normally.
Error	The component has a detected error
Degraded	The component is providing service, but operating in a degraded state
Unknown	The current operational status is unknown.
Failure Predicted	The component is functioning correctly but a failure in the near future is predicted.
Starting	The component is starting up but is not yet online.
Stopping	The component is shutting down.
Service	The component is being configured, maintained, cleaned, or otherwise administered.

TABLE 4-2 Operational Status Values *(Continued)*

SunMC Property	Comments
Stressed	The component is operating but needs attention. Examples of stressed states include `overloaded`, `overheated` and so forth.
Non Recoverable	A non recoverable error has occurred.
No Contact	The current instance of the monitoring system has knowledge of this component but has never been able to establish communication with it.
Lost Comms	The component is known to exist and has been contacted successfully in the past, but is currently unreachable.
Stopped	The component is known to exist and has not failed, but is not operational and is unable to provide service to users. That is, the component has been purposely made non operational.

Fans

For the platform agent, this table provides rows corresponding to all fans present in the entire Sun Fire B1600 including the blades. To identify each type of fan in the table, examine the *Description* column. To identify the location of each fan, examine the *Location* field.

TABLE 4-3 Fan Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Model	Sun Microsystems model name
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Part Number	Sun Microsystems or other part number
Version	Part version number
Serial Number	Part serial number
Manufacturer	Vendor name
HotSwappable	Boolean: specifies if the component is hot swappable*
Removable	Boolean: specifies if the component is removable†

* A component is hot swappable if it can be replaced without shutting down the system

† A component is removable when the component itself is removable, rather than any containing removable group. For example, a fan in a fan tray may not individually be removable, although the fan tray itself may be removable. All Field Replaceable Units (FRUs) are Removable.

Power Supplies

For the platform agent, this table provides rows corresponding to all power supply components present in the entire Sun Fire B1600 including the blades. The Sun Fire B1600 shelf power supply is identified by the text *Sun Fire B1600 Power Supply FRU Enclosure* in the *Description* column.

This table also includes rows corresponding to other power supply components that are useful for service personnel and can be disregarded by system administrators.

TABLE 4-4 Power Supply Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Model	Sun Microsystems model
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Part Number	Sun Microsystems or other part number
Version	Part version number
Serial Number	Part serial number
Manufacturer	Vendor name
HotSwappable	Boolean: specifies if the component is hot swappable
Removable	Boolean: specifies if the component is removable

Expansion Cards

This table identifies other expansion cards that have been attached to the system. This table also includes rows corresponding to other components that are useful for service personnel and can be disregarded by system administrators.

TABLE 4-5 Expansion Card Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Model	Sun Microsystems model
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Part Number	Sun Microsystems or other part number
Version	Part version number
Serial Number	Part serial number
Manufacturer	Vendor name
HotSwappable	Boolean: specifies if the component is hot swappable
Removable	Boolean: specifies if the component is removable
Bus Type	Identifies card as PCI, cPCI, SCSI and so forth

Memory Modules

This table identifies all physical memory components such as DIMMs and EEPROMs. Use the Description field to determine the type of memory module.

For the platform agent, this table provides rows corresponding to all memory modules present in the entire Sun Fire B1600 including the blades. To identify the location of each memory module, examine the *Location* field.

TABLE 4-6 Memory Modules Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Model	Sun Microsystems model
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Part Number	Sun Microsystems or other part number
Version	Part version number
Serial Number	Part serial number
Manufacturer	Vendor name
HotSwappable	Boolean: specifies if the component is hot swappable
Removable	Boolean: specifies if the component is removable
Size	DIMM size
Blank Label	The physical label associated with this component*
ECC Error Count	The number of ECC error counts recorded for this component

* This string relates to the physical labeling of the memory location rather than the Solaris logical bank numbering.

Other Physical Components

This table is used for all physical components other than those already listed.

Use this table in the platform agent to identify the blades that are installed in your Sun Fire B1600 shelf. Blades are identified by having a *Name* property of `Blade` and a *Location* property that indicates the slot in which the blade is inserted (for example `S0/Blade`).

In the platform agent, the state of each blade, as reported by the Sun Fire B1600 system controller, is displayed in the *Operational Status* field of the corresponding blade.

TABLE 4-7 Other Physical Components Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Model	Sun Microsystems model
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Part Number	Sun Microsystems or other part number
Version	Part version number
Serial Number	Part serial number
Manufacturer	Vendor name
HotSwappable	Boolean: specifies if the component is hot swappable
Removable	Boolean: specifies if the component is removable

Locations

Locations represent slots into which components can be (hot) plugged.

In the platform agent, this table shows the occupancy of blade slots, PSU slots and SSC slots, which are the primary hot-swappable components.

Sun Fire B1600 blade slots are identified by the text *Sun Fire B1600 Blade Slot on Midplane* in the *Description* field.

PSU slots are identified by the text *Sun Fire B1600 PSU Slot on Midplane* in the *Description* field.

SSC slots are identified by the text *Sun Fire B1600 SSC Slot on Midplane* in the *Description* field.

This table also includes rows corresponding to slots that are useful for service personnel and can be disregarded by system administrators.

TABLE 4-8 Location Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Location Type	Specifies the type of component occupying the location
Occupancy	Permitted values are `unknown`, `occupied` or `empty`

Logical Device Properties

Devices represent the logical devices in the system. For example, a CPU module could contain one or more processors, hence the CPU module would be represented as a *physical* component, whereas the processors within it would be represented as *logical* devices. The following tables enumerate the logical devices included in the common model

.

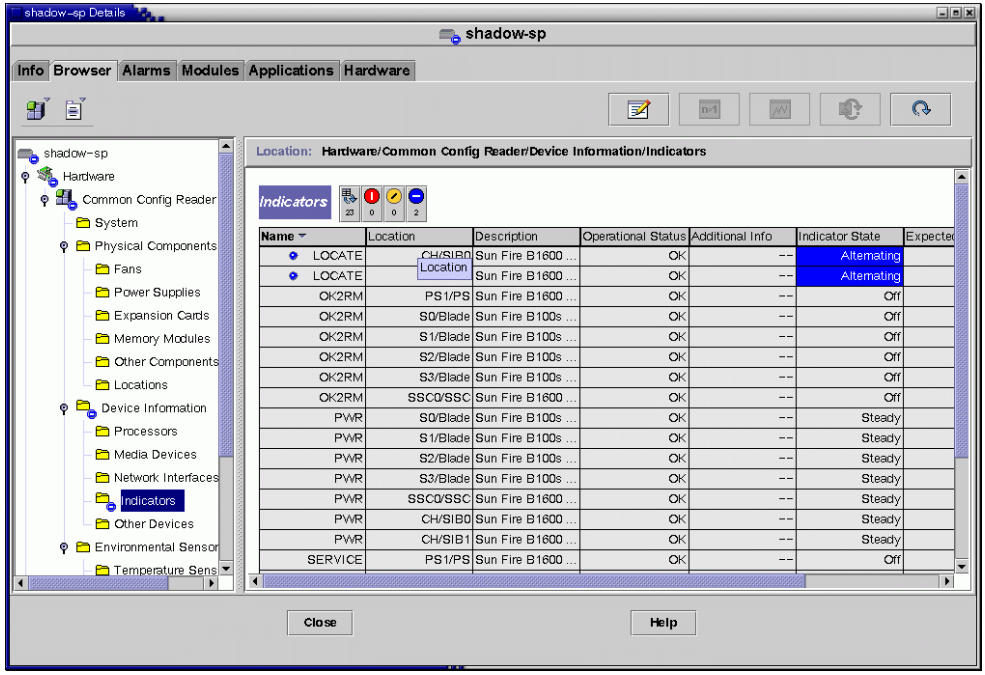

FIGURE 4-2 Portion of the Logical Device Table Showing Indicators

Logical devices introduce an *Availability* property. The availability values are:

- `Other`
- `Unknown`
- `Running/Full Power`
- `Warning`
- `In Test`
- `Not Applicable`
- `Power Off`

- Off Line
- Off Duty
- Degraded
- Not Installed
- Install Error
- Power Save - Unknown
- Power Save - Low Power Mode
- Power Save - Standby
- Power Cycle
- Power Save - Warning
- Paused
- Not Ready
- Not Configured
- Quiesced

Also introduced with logical devices is the *Redundancy Status* property. For devices that are part of a redundancy group, this indicates the current rôle played by this component. For example, a service processor may be operating in an active/standby pairing with another service processor. Similarly a network interface may be the primary or secondary member of a redundant network pair. Valid values for *Redundancy Status* are:

- Not Applicable
- Unknown
- Active
- Standby
- Primary
- Secondary
- Other

Processors

For the platform agent, this table provides rows corresponding to all processors present in the entire Sun Fire B1600 including the blades. To identify each type of processor in the table, examine the *Description* column. To identify the location of each processor, examine the *Location* field.

TABLE 4-9 Processor Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal device description
Operational Status	Current device status
Additional Info	Supporting textual information for the current Operational Status
Availability	The device availability
Redundancy Status	Device status as part of a redundancy group
Processor ID	Numeric ID as used by various Solaris commands
Clock Frequency	Processor clock speed
Family	Processor family, for example, `sparcv9`
Data Cache Size	Primary data cache size
Instruction Cache Size	Primary instruction cache size
L2 Cache Size	Size of level 2 cache

Media Devices

This table represents all media devices: disks, CD-ROM, DVD-ROM, tapes, and so forth.

For the platform agent, this table provides rows corresponding to all media devices present in the entire Sun Fire B1600 including the blades. To identify each type of media device in the table, examine the *Description* column. To identify the location of each media device, examine the *Location* field.

TABLE 4-10 Media Device Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal device description
Operational Status	Current device status
Additional Info	Supporting textual information for the current Operational Status
Availability	The device availability
Redundancy Status	Device status as part of a redundancy group
Physical Path	Media access device path under `/devices`
Type	Disk, CD-ROM, DVD-ROM, Tape
Hard Error Count	The count of *hard* device errors, as available through `kstat`
Soft Error Count	As available through `kstat`
Transport Error Count	As available through `kstat`

Network Interfaces

For the platform agent, this table shows the network interfaces for the Sun Fire B100s blades. To identify the location of each network interface, examine the *Location* field.

Each blade has two network interfaces. To determine the identity of each network interface, examine the *Device ID* field.

TABLE 4-11 Network Interface Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal device description
Operational Status	Current device status
Additional Info	Supporting textual information for the current Operational Status
Availability	The device availability (`offline`, `online`)
Redundancy Status	Device status as part of a redundancy group
Physical Path	Network device path under `/devices`
Speed	Speed in bps
Permanent Address	MAC address
Network Address	IP address
Symbolic Name	Symbolic network or hostname associated with this IP address
Input Error Count	As available through `kstat`
Output Error Count	As available through `kstat`

Indicators

For the platform agent, this table shows information about all the indicators present in the entire Sun Fire B1600 including the blades.

To identify each type of indicator in the table, examine the *Description* column. To identify the location of each indicator, examine the *Location* field. The *Expected State* and *Indicator State* fields represent the normal state and current state of the indicator, respectively.

TABLE 4-12 Indicator Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Operational Status	Current device status
Additional Info	Supporting textual information for the current Operational Status
Indicator State	`STEADY`, `OFF`, `ALTERNATING` or `UNKNOWN`
Expected State	`STEADY`, `OFF`, or `ALTERNATING`
Color	Indicator color

Other Devices

This table is used for all logical devices other than those already listed. This table also includes rows corresponding to other components that are useful for service personnel and can be disregarded by system administrators.

TABLE 4-13 Other Devices Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Operational Status	Current component status
Additional Info	Supporting textual information for the current Operational Status
Availability	The device availability (`offline`, `online`)
Redundancy Status	Device status as part of a redundancy group
Device ID	Device ID

Environmental Sensor Properties

Environmental sensors are modelled for fan speed (tachometer), temperature, current and voltage. Two types of sensor are supported:

- Numeric
- Non numeric

For the platform agent, these tables represent the environmental sensor properties present in the entire Sun Fire B1600 including the blades.

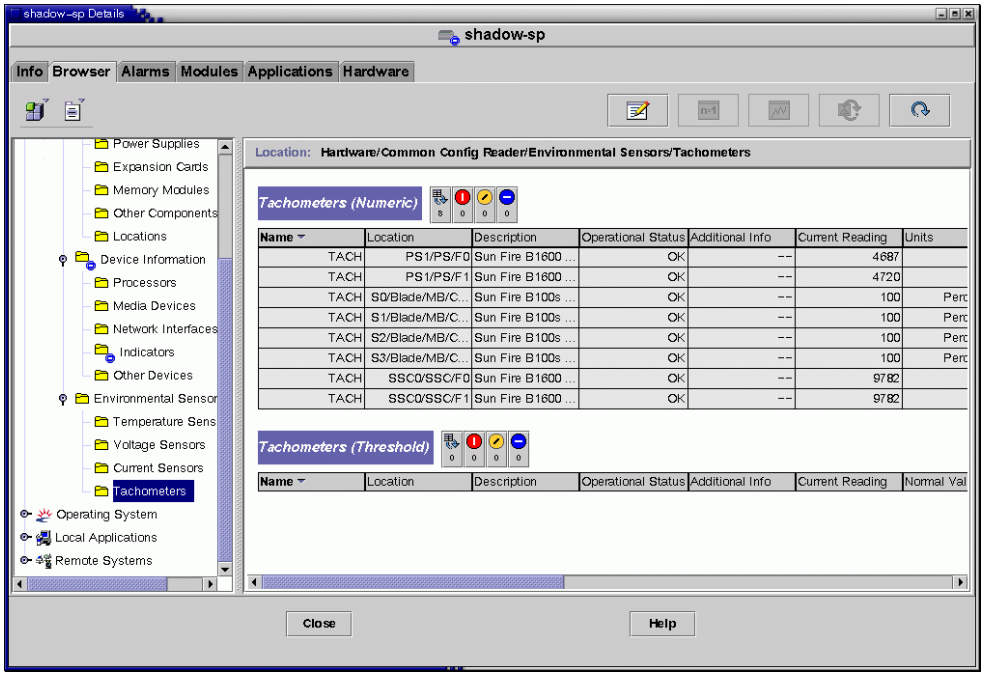

FIGURE 4-3 Part of the Tachometers Table

To identify each type of environmental sensor in the table, examine the *Description* column. To identify the location of each environmental sensor, examine the *Location* field.

Numeric Sensors

TABLE 4-14 shows the properties for numeric sensors.

TABLE 4-14 Numeric Sensor Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Operational Status	Current component status
Additional Info	Supporting information for Operational Status
Current Reading	Current sensor reading
Units	Reading units
Lower Non Critical Threshold	Lower first warning threshold
Upper Non Critical Threshold	Upper first warning threshold
Lower Critical Threshold	Lower second warning threshold
Upper Critical Threshold	Upper second warning threshold
Lower Fatal Threshold	Lower final warning threshold
Upper Fatal Threshold	Upper final warning threshold

Non Numeric Sensors

TABLE 4-15 shows the properties for non numeric sensors.

TABLE 4-15 Non Numeric Sensor Table Properties

SunMC Property	Comments
Name	Unique name
Location	Path to the device location
Description	Informal component description
Operational Status	Current component status
Additional Info	Supporting information for Operational Status
Current Reading	Current sensor reading
Normal Values	A list of values considered *normal* for this sensor

CHAPTER 5

Alarms

This chapter summarizes the Alarm Rules that are specific to the Sun Fire B1600 components.

The chapter contains the following sections:

Overview

The hardware common config reader contains a number of alarm rules used by the system to determine the state of various components. Each alarm rule instance is applied to a specific property of a table in the config reader. A single rule can be applied to multiple properties and tables.

An alarm rule takes input from three main sources:

- Object properties within the config reader
- User-specified values
- Data stored by the rule itself

All three of these sources can be modified on a per-object and property basis. You can change user-specified values, while the rule programmer specifies which object properties and stored data are used.

You can assign actions to rule states and state transitions through the Sun Management Center console (see chapter 9 and chapter 12 of the *Sun Management Center Software User's Guide*).

Operational State Rule

You can apply this rule to any node that contains an *operational status* property. It will alarm if the operational state is anything other than `OK`, `Starting` or `Stopping` (all of which are deemed to be *normal* operational states). The error string incorporates the value of the *Additional Information* property to provide additional information to the end user.

TABLE 5-1 Operational State Rule

Rule Property	Details
Applicable tables	Any tables that contain *operational status* property
Properties read	*Operational Status*, *Additional Information*
Alarm trigger	*Operational Status* is not `OK`, `Starting` or `Stopping`
Editable parameters	*Alarm Severity* for each of the following four groups of *Operational Status* values: • `Error`, `Non-Recoverable` • `Degraded`, `Failure Predicted`, `Stressed` • `Unknown` • `Lost Comms`, `No Contact` • `Service`, `Stopped`

Note – You can clear this alarm by acknowledging the alarm in the Sun Management Center console. All other alarms are cleared by a change of state.

Availability Rule

You can apply this rule to any table with an *availability* property.

TABLE 5-2 Availability Rule

Rule Property	Details
Applicable tables	Any tables that contain the *Availability* property
Properties read	*Availability*
Alarm trigger	*Availability* is not `Running/Full Power`, or `Not Applicable`
Editable parameters	*Alarm Severity* for each of the following three groups of *Availability* values: • `Degraded`, `Warning`, `Power Save - Warning`, `Install Error` • `Not Configured`, `Not Installed`, `Not Ready` • `In Test`, `Off Duty`, `Off Line`, `Paused`, `Quiesced`, `Power Cycle`, `Power Off`, `Power Save - Low Power Mode`, `Power Save - Standby`, `Power Save - Unknown`

Non Numeric Sensor Rule

You can apply this rule to any non numeric sensor. It uses the *Current Reading* in the error message.

TABLE 5-3 Non Numeric Sensor Rule

Rule Property	Details
Applicable tables	Non Numeric Temperature, Voltage and Current sensors
Properties read	*Current Value*, Normal Values
Alarm trigger	*Current Value* is not one of the Normal Values
Editable parameters	*Alarm Severity*

Numeric Sensor Threshold Rule

You can apply this rule to any numeric sensor. It reads the various thresholds presented in the sensor, and generates an alarm if the current value is outside the specified ranges.

TABLE 5-4 Numeric Sensor Threshold Rule

Rule Property	Details
Applicable tables	Numeric Temperature, Voltage and Current Sensors, Tachometers
Properties read	*Current Value*, Threshold Values
Alarm trigger	*Current Value* is outside Threshold ranges
Editable parameters	*Alarm Severity* for Non-Critical, Critical and Fatal thresholds

Occupancy Rule

This rule generates an alarm when the occupancy of a location changes.

TABLE 5-5 Occupancy Rule

Rule Property	Details
Applicable tables	Location
Properties read	*Name, Occupancy*
Alarm trigger	The occupancy changes
Editable parameters	*Alarm Severity*

Rate or Count Rule

This rule enables you to specify a rate or count for any integer property. If the rate or count exceeds the specified values, an alarm is generated. Apply the rule to all properties that keep count of errors, so that you can generate such alarms as required.

TABLE 5-6 Rate or Count Rule

Rule Property	Details
Applicable tables	Any table with an integer property
Properties read	*Error Counts* and similar integer properties
Alarm trigger	*Rate* or *Count* exceeds user-specified value
Editable parameters	*Rate*, *Count* and *Alarm Severity*

Module Status Rule

This rule only applies to the *Module Status* property in the system object. It is primarily used to report module data acquisition problems.

TABLE 5-7 Module Status Rule

Rule Property	Details
Applicable tables	System
Properties read	*Module Status*, *Module Status Severity*
Alarm trigger	*Status* is not `OK`
Editable parameters	An Alarm Severity level can be assigned to each of the *Module Status Severity* levels of `Information`, `Warning` and `Error`

Indicator Status Rule

This rule applies only to the *Indicator State* property in the Indicator object.

TABLE 5-8 Indicator Status Rule

Rule Property	Details
Applicable tables	Indicator
Properties read	*Indicator State, Expected State*
Alarm trigger	*State* does not equal *Expected State*
Editable parameters	*Alarm Severity*

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