



Sun N1 System Manager 1.1 Installation and Configuration Guide

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Preface

The *Sun N1 System Manager 1.1 Installation and Configuration Guide* describes the requirements, network and hardware connections and preparation processes, and the procedures for installing and configuring the base operating system and then the Sun N1 System Manager system.

Who Should Use This Book

This guide is intended for system administrators who are responsible for installing the N1 System Manager software and hardware. The system administrators must have extensive knowledge and experience in the following areas:

- The Linux and Solaris™ operating systems, and the network administration tools provided by each operating system
- Network equipment and network devices from a variety of vendors such as Sun and Cisco
- DNS, DHCP, IP addressing, subnetworks, VLANs, and SNMP
- Network device interconnections and cabling

How This Book Is Organized

- [Chapter 1](#) describes how to install, configure, and tune the N1 System Manager software.
- [Chapter 2](#) describes how to uninstall the N1 System Manager software.

- [Chapter 3](#) provides a list of problems and error messages, and the procedures for resolving the problems.

Related Documentation

This guide is part of a six-volume implementation reference set. The set should be read in the following order:

- *Sun N1 System Manager 1.1 Release Notes*
- *Sun N1 System Manager 1.1 Introduction*
- *Sun N1 System Manager 1.1 Site Preparation Guide*
- *Sun N1 System Manager 1.1 Administration Guide*
- *Sun N1 System Manager 1.1 Command Line Reference Manual*

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Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name%</code> you have mail.
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name%</code> su Password:
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	The command to remove a file is <i>rm filename</i> .
<i>AaBbCc123</i>	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . Perform a <i>patch analysis</i> . Do <i>not</i> save the file. [Note that some emphasized items appear bold online.]

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell, and the management server N1-ok> shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	<code>machine_name%</code>
C shell superuser prompt	<code>machine_name#</code>
Bourne shell and Korn shell prompt	<code>\$</code>
Bourne shell and Korn shell superuser prompt	<code>#</code>
N1-ok shell	<code>N1-ok></code>

In this book, unless otherwise specified, the term “command line” is used to describe the N1-ok> shell. The N1-ok> shell is defined as any of the following shells:

- The shell available from the command-line pane of the browser interface

- The shell available from a terminal console window, after logging in by `ssh` to the management server
- The standard UNIX or Linux shell, with all commands preceded by the `n1sh` command

Installing and Configuring the Sun N1 System Manager Software

This chapter provides the procedures for installing and configuring the Sun N1 System Manager software on the management server for the first time. The following topics are discussed:

- [“Sun N1 System Manager Installation Prerequisites” on page 9](#)
- [“Installing Sun N1 System Manager Software” on page 11](#)
- [“Configuring the N1 System Manager System” on page 14](#)
- [“Preparing for Production” on page 18](#)
- [“Performance Guidelines” on page 19](#)
- [“N1 System Manager Performance Tuning” on page 19](#)

Sun N1 System Manager Installation Prerequisites

The following prerequisites must be met before you install the Sun N1 System Manager software:

- The hardware must be connected and configured as described in Chapter 2, “Sun N1 System Manager System and Network Preparation,” in *Sun N1 System Manager 1.1 Site Preparation Guide*.
- An OS version appropriate for the management server hardware type must be installed on the N1 System Manager management server as described in Chapter 3, “Installing and Configuring an OS on the Management Server,” in *Sun N1 System Manager 1.1 Site Preparation Guide*.

Two methods of installing the Sun N1 System Manager are available:

- If the server you have selected for the management server has a DVD drive installed, you can install the Sun N1 System Manager software from the installation DVD-ROM as described in [“To Install the N1 System Manager Software” on page](#)

11.

- If the server you have selected for the management server does not have a DVD drive installed, you must download, unpack, and mount the N1 System Manager installation ISO image as described in the following procedure.

▼ To Download and Mount the Sun N1 System Manager Installation ISO Image

Steps 1. Log in as root to the N1 System Manager management server.

2. (Optional) Download and install the Sun Download Manager.

Downloads of large files using Web browsers can sometimes fail. For this reason, use the Sun Download Manager to download the N1 System Manager installation ISO image. For instructions about how to download and install the Sun Download Manager, go to <http://www.sun.com/download/sdm/index.xml>.

3. Download and Unpack the N1 System Manager installation ISO image to the management server.

Refer to your N1 System Manager eFulfillment documentation and email for your download location, and download the ISO image appropriate for the operating system you have installed on your management server:

- n1sm-1.1-ga-linux-x86-iso.zip
- n1sm-1.1-ga-solaris-x86-iso.zip
- n1sm-1.1-ga-solaris-sparc-iso.zip

4. Unpack the N1 System Manager installation ISO image zip file.

Type `unzip ISO-image-name.zip` where *ISO-image-name* is the name of the N1 System Manager installation ISO image zip file that you downloaded.

5. Create a mount point directory for the installation ISO image on the management server and mount the ISO image.

Assume you have saved the N1 System Manager installation ISO image as `n1sm-install.iso`, and that the ISO image is to be mounted on the mount point directory named `/n1sminstall`. You would then create the mount point directory and mount the ISO image as follows:

- Solaris:

```
# mkdir /nlsminstall
# lofiadm -a /nlsm-install.iso
/dev/lofi/1
# mount -F hsfs -o ro /dev/lofi/1 /nlsminstall/
```

- Linux:

```
mkdir /nlsminstall
# mount -o loop,ro /nlsm-install.iso /nlsminstall
```

Next Steps Install the Sun N1 System Manager software as described in the next section.

Installing Sun N1 System Manager Software

This section provides the procedure for installing the N1 System Manager software on the management server.



Caution – Dedicate the management server only to N1 System Manager software. Do not install other applications on the management server.

▼ To Install the N1 System Manager Software

Before You Begin

- The hardware must be connected and configured as described in the Chapter 2, “Sun N1 System Manager System and Network Preparation,” in *Sun N1 System Manager 1.1 Site Preparation Guide*.
- An OS version appropriate for the management server hardware type must be installed on the N1 System Manager management server as described in Chapter 3, “Installing and Configuring an OS on the Management Server,” in *Sun N1 System Manager 1.1 Site Preparation Guide*.

Note – N1 System Manager software installation might require up to two hours to complete depending on your network configuration.

- Steps**
1. Log in as root to the N1 System Manager management server.
 2. Change directory to the N1 System Manager installation directory.

If you are installing from the N1 System Manager DVD, change directory as follows.

- Solaris SPARC-based management server:

```
# cd /cdrom/n1_system_mgr/Solaris_sparc/Product/installer
```

- Solaris x86-based management server:

```
# cd /cdrom/n1_system_mgr/Solaris_x86/Product/installer
```

- Linux x86-based management server:

```
# cd /cdrom/n1_system_mgr/Linux_x86/Product/installer
```

If you are installing from an N1 System Manager installation ISO image, substitute your mount point directory name for /cdrom in the path names.

3. Type `./install`.

The Software Evaluation Agreement appears.

4. Choose whether to accept the agreement and continue installation.

Read the agreement carefully. Type **y** to continue installation, or type **n** to exit the installation.

When you continue installation, the installation process checks for required Perl modules. When the check completes, the N1SM Installer menu appears, and installation starts.

The appearance of the N1SM Installer menu and the applications installed by the N1SM installer depends on the operating system installed on the management server as shown by the following examples.

- Solaris 10

N1SM Installer (SunOS)

1. Install OS packages.	[Not Completed]
2. Install Expect.	[Not Completed]
3. Install IPMI tool.	[Not Completed]
4. Install service provisioning components.	[Not Completed]
5. Install OS provisioning components.	[Not Completed]
6. Copy DHCP configuration file.	[Not Completed]
7. Install user interface components.	[Not Completed]
8. Install service container components.	[Not Completed]
9. Install N1 System Manager.	[Not Completed]

Non-interactive install in progress

Executing current step: Install OS packages...

■ Linux

N1SM Installer (Linux)

1. Check that required RPM packages are present.	[Not Completed]
2. Install IPMI tool.	[Not Completed]
3. Install JDK 1.5.	[Not Completed]
4. Install Python.	[Not Completed]
5. Install service provisioning components.	[Not Completed]
6. Install OS provisioning components.	[Not Completed]
7. Copy DHCP configuration file.	[Not Completed]
8. Install user interface components.	[Not Completed]
9. Install service container components.	[Not Completed]
10. Install N1 System Manager.	[Not Completed]

Non-interactive install in progress.

Note – If you have installed RHEL 3.0 AS Update 2, Update 3, or Update 4 on the management server and have installed RPMs other than those from RHEL 3.0 AS Update 2 through Update 4, you might be warned after Step 1 of the install completes that the RPMs might not work with the N1 System Manager. A list of the expected RPMs is displayed, followed by a list of the RPMs that were found. You are informed that this is only a warning and may continue with the install by pressing `c`. This option is in addition to options currently available for when an installation step fails (`t` to try again or `x` to exit.)

If you installed RedHat Enterprise Linux AS Update 3 or above, the following message might be displayed after installation of the service container components completes:

```
This installer has determined that some rpms currently
installed on this system have later versions than those currently
required by N1SM. If you encounter any problems related to these
substitutions, you might need to obtain and install the exact version
of the software required by the installer before re-installing N1SM.
```

You are then prompted to press `c` to continue N1 System Manager installation.

The installation process runs each step in sequence. When a step completes successfully, the status of the step is updated to Completed.

If a step fails, you are notified, and the status remains Not Completed or is changed to Partially Run. Exit the installation process and examine the log file `/var/tmp/installer.log.latest` to determine the cause of the failure. Correct the problem and then run the installation process again.

You are informed when the installation process completes, and are then prompted to run the configuration utility.

```
N1SM installation is complete
Run the n1smconfig utility to configure N1SM.
```

Next Steps Configure the N1 System Manager system as directed by the next section, [“Configuring the N1 System Manager System” on page 14.](#)

Configuring the N1 System Manager System

This section provides the procedures for configuring the N1 System Manager system.

Initial configuration is performed by running the `n1smconfig` command. If needed, you can reconfigure the N1 System Manager at any time by running the `n1smconfig` command again.

Tip – Before continuing, add the path `/opt/sun/n1sm/bin` to the path of the management server root account.

▼ To Configure the Sun N1 System Manager System

Before You Begin The N1 System Manager software must be successfully installed as described in [“Installing Sun N1 System Manager Software” on page 11.](#)

- Steps**
1. **Log in as root to the N1 System Manager management server.**
 2. **Type `/usr/bin/n1smconfig` to start the configuration process.**

The current system configuration appears, and lists the network interfaces. You are then asked to enter the interface for the Provisioning Network.
 3. **Specify the port for the provisioning network interface.**

The available interfaces are listed in the prompt. Type the interface name that is to be used for the provisioning interface, for example `eth1`, `hme0`, `bge1`, and so on depending on the machine architecture and installed OS.

You are asked whether you want to specify a range of IP addresses for the DHCP server to use.
 4. **Choose whether to configure the DHCP server address range.**

If you choose to configure the DHCP IP address range, the range of IP addresses you provide will be allocated to the provisionable server for loading operating systems and updates over the provisioning network, and for runtime monitoring of the provisionable server operating environment.

If you choose not to configure the DHCP IP address range, then you must specify static addressing when using the N1 System Manager load operation.

Note – The management server does not provide DHCP services for the data network. If you plan to dynamically configure IP services on the data network, you must provide an external DHCP server for the data network. You must not have another DHCP server on the same provisioning network.

- Type **y** if you want to specify a range of IP addresses for the DHCP server to use.



Caution – If the management port address is on the same subnet as the provisioning subnet, ensure that the management server IP addresses do not match any of the addresses in the specified range. This rule ensures that the DHCP server does not assign a duplicate IP address to a client that does not resolve using the DHCP client clause.

You are prompted to type the starting DHCP IP address. Type the starting IP address for the DHCP server to use.

You are prompted to type the ending IP address. Type the ending IP address for the DHCP server to use.

- Type **n** if you do not want to specify a range of IP addresses
- The existing DNS settings IP addresses and domain search list appears. You are asked whether you want to configure the name servers and the search list entry.

5. Choose whether to configure the name servers.

- Type **y** if you want to configure the name servers and domain search list. You are prompted for the name server addresses. Go to [Step 6](#).
- Type **n** if you accept the displayed name servers and domain search list. You are asked whether you want to configure the SMTP server for event notification. Go to [Step 8](#).

6. Configure the name servers.

Type the IP addresses of the name servers, separated by a single space. For example:

129.111.111.11 129.111.111.22

You are prompted to enter the search suffix list.

7. Specify the search domains.

Type the names of the domains that are to be used for DNS search separated by a single space. For example:

location-one.company.com location-two.company.com location-three.company.com

You are asked whether you want to configure the SMTP server for event notification.

8. Choose whether to configure SMTP for event notification.

- Type **y** if you want to configure the SMTP server. You are prompted for the name of the SMTP server, or the IP address of the SMTP server. Go to [Step 9](#).
- Type **n** if you do not want to configure the SMTP server. You are asked whether you want to modify logging configuration. Go to [Step 10](#).

9. Specify the SMTP server name or IP address.

Type either the fully qualified SMTP server name, or the IP address for the SMTP server. For example:

`smtp.mycompany.com`

or

`129.111.222.33`

You are asked whether you want to modify logging configuration.

10. Modify logging configuration

- Type **y** if you want to configure logging. Information about logging configuration appears. Go to [Step 11](#).
- Type **n** if you do not want to configure logging. The configuration process displays the proposed changes to the system configuration. Go to [Step 13](#)

11. Configure logging.

Press Return to accept the default of "ALL" or type the specifications as directed. You are prompted to enter the `topic.severity` value.

12. Specify the topic severity value.

Take one of the following actions:

- Press Return to accept the default value of 0
- Type a different severity value (0 through 7) as follows:
 - 0 = unknown
 - 1 = other
 - 2 = information
 - 3 = warning
 - 4 = minor
 - 5 = major
 - 6 = critical
 - 7 = fatal
- Type **q** to quit without specifying a severity value. Logging configuration is not performed.

You are asked whether you want to modify job time-out configuration.

13. Choose whether to modify job time-out configuration.

Some OS distributions are very large, and might take longer than the default time when provisioning a server. If you plan to provision large OS distributions, increase the time-out values.

- Type **y** if you want to modify job time-out configuration.

A description of job time-out values appears. Type the new time-out values when prompted.

- Type **n** if you do not want to modify job time-out configuration.

You are asked whether to enable N1 System Manager (N1SM) startup at each boot.

14. Choose whether to start the N1 System Manager system at each boot.

- Type **y** to start the N1 System Manager system each time the system boots.

- Type **n** if you want to start the N1 System Manager system manually after the management server has been rebooted. You are notified that you can start the N1 System Manager manually.

To start the N1 System Manager after configuration has successfully completed, type the command `/etc/init.d/n1smninit start`.

You are asked whether you want to enable auto-login to the ILOM Web GUI on provisionable servers which offer the auto-login feature.

15. Choose whether to enable the provisionable server ILOM GUI auto-login feature.

The Sun Fire™ X4100 and Sun Fire X4200 servers provide a Web GUI for performing various system administration tasks such as connecting remote devices and performing system monitoring. If you enable the ILOM GUI auto-login feature, then the menu item Open Web Console will appear in the Actions menu on the Server Details page of the N1 System Manager browser interface. For further information, see “To Open the Sun ILOM Web GUI for a Sun Fire X4000 Series Server” in *Sun N1 System Manager 1.1 Online Help*.



Caution – Enabling the Web Console (Sun ILOM Web GUI) autologin feature for Sun Fire X4100 and X4200 servers exposes the server’s service processor credentials to users who can view the web page source for the login page.

- Type **y** to enable the auto-login feature.
- Type **n** if you do not want to enable the auto-login feature.

If you are configuring a Linux-based management server, the configuration process displays the proposed system settings. You are asked whether you want to apply the settings. Go to [Step 17](#).

If you are configuring a Solaris-based management server, you are then asked whether you want to enable the SSHv1 protocol so that you can access the provisionable server’s serial console.

16. Choose whether to enable the SSHv1 protocol.

SSHv1 is required to enable provisionable server remote serial console access from a Solaris-based N1 System Manager browser interface. For more information, see “To Open the Serial Console for a Server” in *Sun N1 System Manager 1.1 Online Help*.



Caution – The following SSHv1 security issues should be considered:

- The applet used for the serial console access from the browser interface does not provide a certificate-based authentication of the applet. The applet uses SSHv1 only for communication back to the management server, and requires that SSHv1 is enabled for the management server. Users concerned about this issue can use the serial console feature from the command line through the `connect` command.
 - SSH fingerprints used during connections from the management server to the provisioning network interfaces on the provisionable servers are automatically acknowledged by the N1 System Manager software, which may make the provisionable servers vulnerable to man-in-the middle attacks.
-

- Type **y** to enable SSHv1.
- Type **n** if you do not want to enable SSHv1.

The configuration process displays the proposed changes to the system settings. You are asked whether you want to apply the settings.

17. Review the proposed settings.

- Type **y** to apply the settings.
You are prompted to press Enter to start the N1 System Manager.
- Type **n** if the settings are not correct.
You are notified that you must reconfigure and apply settings for the N1 System Manager to work properly. The configuration process then exits to the system prompt. To configure the N1 System Manager, run the `n1smconfig` command again.

Next Steps Prepare the N1 System Manager system for production as described in the next section.

Preparing for Production

This section provides guidelines and procedures for tuning the N1 System Manager.

You should tune the N1 System Manager for maximum performance based on the number of provisionable servers you plan to manage before you run discovery.

Performance Guidelines

To ensure the best performance in your N1 System Manager environment, adhere to the following guidelines and recommendations:

- Before you run discovery, tune the N1 System Manager for the number of provisionable servers as described in [“To Increase the N1 System Manager Performance” on page 20](#).
- Ensure that each OS distribution creation job has finished before starting another one. Creating an OS distribution is a very CPU and disk-intensive operation. The provisioning of operating systems, firmware, and OS management agents on large numbers of monitored servers is also very CPU and disk intensive. Limit the number of simultaneous jobs of this type to prevent performance issues.
- Limit the total number of jobs executing on the system to fewer than 11 jobs. You can determine the total number of running jobs by typing the command `show job state running` at the command-line interface or in the `n1sh` shell.
- Always run the non-interactive `n1sh` shell commands in the foreground.
- Maximize the number of servers per group, and run operations against groups instead of against a large number of individual servers. Running operations on a group minimizes the number of groups you need to manage and minimizes the number of jobs you need to submit in order to accomplish a given task.
- Before performing operations targeted at the operating system level such as remote command execution and operating system update installation, ensure that the OS Health of the servers is not Unknown.
- Before performing operations targeted at the service processor (SP) such as a firmware update, ensure that the Hardware Health of the servers is not Unknown.
- Before performing operations on the provisionable servers, ensure that the network connectivity state for the required interface on targeted servers is not Unreachable.

The next section provides the procedure for tuning your N1 System Manager system.

N1 System Manager Performance Tuning

Tune the N1 System Manager for maximum performance based on the number of provisionable servers you plan to manage. The following procedure should be done before you run discovery.

▼ To Increase the N1 System Manager Performance

Before You Begin

If your management server is running Red Hat, add `RPCNFSDCOUNT=32` to the `/etc/sysconfig/nfs` file and run `/etc/init.d/nfs restart` as root to restart NFS.

Steps

1. Log in to the management server as root.
2. Update the NFS file.
 - a. Change directory to `/etc/sysconfig`.
 - b. Edit the `nfs` file and add the following line:

```
RPCNFSDCOUNT=32
```
 - c. Save and close the `nfs` file.
 - d. Type `/etc/init.d/nfs restart` to restart NFS.
3. Update the `/etc/opt/sun/nlsm/monitoring.properties` file.

Edit the `/etc/opt/sun/nlsm/monitoring.properties` file and set the following tunable parameters based on the number of provisionable servers.

Tunable Parameter (in seconds)	Number of Provisionable Servers			
	1–32	33–64	65–96	97–128
<code>pollinginterval.hardwarehealth</code>	120	300	480	600
<code>pollinginterval.osresources</code>	120	300	480	600
<code>pollinginterval.network</code>	120	300	480	600

Note – You can also set the tunable parameters for an individual provisionable server as follows from the N1 System Manager command line prompt:

```
N1-ok> set server server monitor hardwarehealth interval interval
N1-ok> set server server monitor osresources interval interval
N1-ok> set server server monitor network interval interval
```

Where *server* is the management name of the provisionable server and *interval* is the monitoring interval expressed in seconds.

For more information, type **help set server** at the N1 System Manager command line prompt.

4. Update the `package.cache.xml` file.

Edit the `/opt/sun/nlmc/lib/package.cache.xml` file and locate the line containing attribute `name="FirmwareInfos"`. Update the line to read as follows:

```
<attribute name="FirmwareInfos" refresh-interval="-1"
    delay="none" persistent="true"> />
```

This ensures that the first invocation of the `show server` command after a restart of the N1 System Manager does not take a long time to complete.

5. Stop all N1 System Manager processes.

Type `/etc/init.d/nlsmgmt stop` to stop the N1 System Manager.

Wait for all N1 System Manager processes to stop.

6. Start all N1 System Manager processes.

Type `/etc/init.d/nlsmgmt start` to start the N1 System Manager.

- Next Steps**
- Log in to the N1 System Manager as described in “Introduction to Accessing the N1 System Manager” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Define the N1 System Manager users as described in “Managing Users” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Define the N1 System Manager roles as described in “Managing Roles” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Run discovery to locate and identify the provisionable servers as described in “Discovering Servers” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Create the operating system distributions for the provisionable servers as described in “Managing OS Distributions” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Create the operating system profiles for the provisionable servers as described in “Managing OS Profiles” in *Sun N1 System Manager 1.1 Administration Guide*.
 - Install the operating system distributions on the provisionable servers as described in “Installing OS Distributions by Deploying OS Profiles” in *Sun N1 System Manager 1.1 Administration Guide*.

Uninstalling the Sun N1 System Manager Software

This chapter provides the procedures for uninstalling the N1 System Manager software from the management server.

Before you uninstall the N1 System Manager, back up the management system database and configuration files as described in “Backing Up and Restoring N1 System Manager Database and Configuration Files” in *Sun N1 System Manager 1.1 Administration Guide*.

Uninstalling the Sun N1 System Manager Software

This section provides the procedures for uninstalling the N1 System Manager software.

▼ To Uninstall the N1 System Manager Software

- Steps**
1. Log in as root to the N1 System Manager management server.
 2. Stop all N1 System Manager processes.
Type `/etc/init.d/n1sm init stop` in a terminal window. Wait for the message `N1 services stopped` to appear before continuing.
 3. Type the following command to uninstall the N1 System Manager software:
`/nlgc-setup/installer/install -e`
The uninstall process begins uninstalling the N1 System Manager software and components. When the uninstall process completes, the message `N1SM is`

uninstalled appears.

- 4. Reboot the management server before performing further tasks.**

Troubleshooting

This chapter provides a list of error messages and problems you might encounter while installing the Sun N1 System Manager, and procedures for resolving the errors. The following topics are discussed:

- [“General Information” on page 25](#)
- [“Error Messages” on page 27](#)
- [“Problems” on page 28](#)
- [“Management Server Configuration” on page 29](#)
- [“Provisionable Server Firmware” on page 30](#)

General Information

This section provides information concerning N1 System Manager operational processes. The following topics are discussed:

- [“N1 System Manager Cannot Be Used to Manage System Management Servers” on page 25](#)
- [“Discovery of Servers in the Factory Default State” on page 26](#)
- [“DHCP Service Conflict With N1 Grid Service Provisioning System” on page 26](#)

N1 System Manager Cannot Be Used to Manage System Management Servers

Do not use the N1 System Manager to manage servers that have system management software installed on them such as Sun Management Server, Sun Control Station, and any other system management applications including the N1 System Manager.

Discovery of Servers in the Factory Default State

If discovery is attempted on a provisionable server that is in the factory default state, the N1 System Manager discovery process will automatically attempt to configure the SSH and IPMI accounts on the provisionable server as part of discovery as follows.

The discovery process will configure credentials as follows:

- Sun Fire X4100 and X4200 servers
 - SSH user = root
 - SSH password = changeme
 - IMPI user = root
 - IMPI password = changeme
- Sun Fire V20z and V40z servers
 - SSH login = admin
 - SSH password = admin
 - IMPI login = Null
 - IMPI password = admin
 - SNMP read community string = public
- Sun Fire V210, V240, V440 servers
 - Telnet login = admin
 - Telnet password = admin

If you have specified the SSH and IPMI login accounts and passwords, the discovery process will configure the provisionable server using the user-specified credentials. If only one credential is specified, the missing credential will be configured with one of the defaults specified above.

If you wish to disable auto configuration, add the following line to the file `/etc/opt/sun/nlgc/domain.properties` before you run discovery:

```
com.sun.hss.domain.internal.discovery.initializeDevice=false
```

The N1 System Manager must be restarted for auto configuration disabling to take effect. Note that once auto configuration is disabled, any servers in factory default state cannot be discovered until their SSH and IPMI accounts are configured. For further information, see “Setting Up Provisionable Servers” in *Sun N1 System Manager 1.1 Site Preparation Guide*.

DHCP Service Conflict With N1 Grid Service Provisioning System

If you are using both the N1 System Manager and the N1 Grid Service Provisioning System with the ISP plug-in, you must choose which product you want to use for OS deployment for a given target set of servers. Based on the product chosen for OS

deployment, you must ensure that the DHCP service supplied by the other product is manually shut down (as the root user) using operating system commands. Failure to shut the service down might result in unreliable behavior of OS deployment operations as well as potential network related problems.

Error Messages

This section lists the error messages and resolutions for problems that might occur while installing the Sun N1 System Manager.

```
[alert] httpd: Could not determine the server's fully
qualified domain name, using 129.123.111.12 for ServerName
scs-httpd: Fri Nov 19 12:47:34 PST 2004 : Daemon started (pid=1473 1485 1486..
```

Cause: The system cannot determine the server's fully qualified domain name because the system file `/etc/resolv.conf` is not configured correctly.

Solution: Update the `/etc/resolv.conf` file as directed by [“To Update the /etc/resolv.conf File” on page 29](#).

Error waiting for SPS to start.

Cause: Incorrect entry in the `/etc/hosts` file.

Solution: Update the `/etc/hosts` as directed by [“To Update the /etc/hosts File” on page 29](#).

An exception occurred trying to update *SP-IPaddress*.

Please refer to the log file for more information.

Cause: Firmware versions 2.2 and above for the Sun Fire V20z servers do not support the PIC firmware upgrade. The upgrade of PIC firmware will fail, and the job step will show the above error message.

Solution: Do not load PIC firmware to the V20z servers.

Connect to *management server url:443* failed (Connection refused)

Description: When entering the Sun N1 System Manager server URL using the format `https://servername`, where *servername* is the name of the management server, the above error message is displayed.

Cause: The system file `/etc/resolv.conf` is not configured correctly.

Solution: Update the `/etc/resolv.conf` as directed by [“To Update the /etc/resolv.conf File” on page 29](#).

Fatal error: Command failed for target 'Makefile'

Example: Writing Makefile for Locale::gettext
Makefile out-of-date with respect to
`/usr/perl5/5.8.4/lib/i86pc-solaris-64int/Config.pm`
`/usr/perl5/5.8.4/lib/i86pc-solaris-64`

```
int/CORE/config.h
Cleaning current config before rebuilding Makefile...
make -f Makefile.old clean > /dev/null 2>&1 || /bin/sh -c true
/usr/bin/perl Makefile.PL
Writing Makefile for Locale::gettext
==> Your Makefile has been rebuilt. <==
==> Please rerun the make command. <==
false
*** Error code 255
make: Fatal error: Command failed for target 'Makefile'
```

Cause: The system date is incorrect.

Solution: Set the system date.

Starting dhcpd: [Failed]

Description: dhcpd fails to start during system boot. This message is normal if Sun N1 System Manager configuration has not been performed.

Solution: Configure the N1 System Manager system as directed by [“Configuring the N1 System Manager System”](#) on page 14.

Problems

Cannot discover a provisionable server.

Cause: The provisionable server firmware might be too old.

Solution: Verify the firmware version and, if necessary, update the firmware as described in [“Provisionable Server Firmware”](#) on page 30.

Firmware update for Sun Fire V20z or Sun Fire V40z fails.

Cause: Auto-negotiate link speed has not been enabled on the management network switch.

Solution: Enable auto-negotiate link speed on the management network switch for all management network connections.

management server IP address resolves to 127.0.0.1 instead of a real IP address

Cause: /etc/hosts does not contain an IP address and server name assignment for the management server.

Solution: Update the /etc/hosts file as directed by [“To Update the /etc/hosts File”](#) on page 29.

Unable to log onto a provisionable server management processor.

Cause: The service processor account and password are not known.

Solution: Reset the service processor accounts to the factory defaults as described by the hardware documentation

Management Server Configuration

This section provides the procedures for resolving problems with the management server configuration files. The following topics are discussed:

- [“To Update the /etc/hosts File” on page 29](#)
- [“To Update the /etc/resolv.conf File” on page 29](#)
- [“To Disable Provisionable Server Automatic Configuration” on page 30](#)

▼ To Update the /etc/hosts File

- Step** ● **Edit /etc/hosts and ensure that the entries are similar to the following example:**

```
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1          localhost
111.222.333.44     machine-name loghost
```

Where *111.222.333.44* is the IP address of the N1 System Manager server, and *machine-name* is the name of the N1 System Manager management server.

For example, if the machine name is *nlmanager*, and the assigned IP address for *eth0* is *129.123.111.12*, then the */etc/hosts* file should contain the following settings.

```
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1          localhost.localdomain localhost
129.123.111.12     nlmanager loghost
```

You must reboot the system after updating the */etc/hosts* file.

▼ To Update the /etc/resolv.conf File

- Step** ● **Edit /etc/resolv.conf and ensure that the entries are similar to the following:**

```
nameserver server 1 IP address
nameserver name server 2 IP address
```

```
nameserver name server 3 IP address
domain your company domain namesearch your company domain name
```

For example, assume the IP address of the first DNS server is 129.123.111.12, the second DNS server is 129.123.111.24, and the third DNS server is 129.123.111.36. If your company domain name is mydomain.com, then the `/etc/resolv.conf` file would contain the following lines.

```
nameserver 129.123.111.12
nameserver name 129.123.111.24
nameserver name 129.123.111.36
domain mydomain.com
search mydomain.com
```

▼ To Disable Provisionable Server Automatic Configuration

The following procedure disables the automatic configuration of provisionable servers during discovery.

- Step** ● **Edit the `/etc/opt/sun/nlgc/domain.properties` file and add the following line to the file:**

```
com.sun.hss.domain.internal.discovery.initializeDevice=false
```

The N1 System Manager system must be restarted for auto configuration disabling to take effect. Note that once auto configuration is disabled, any servers in a factory default state cannot be discovered until their SSH and IPMI accounts are configured. For further information, see “Setting Up Provisionable Servers” in *Sun N1 System Manager 1.1 Site Preparation Guide*.

Provisionable Server Firmware

This section provides the list of supported provisionable server firmware versions, and procedures for verifying, downloading, and updating the provisionable server firmware.

The following table lists supported firmware versions by machine type.

	Minimum	Best Practice
Sun Fire V20z and V40z SP	2.1.0.5	2.3.0.11
Sun Fire V20z BIOS	N/A	1.33.5.2
Sun Fire V40z BIOS	N/A	2.33.5.2
Sun Fire X4100 and X4200	1.0	1.0
SPARC servers with ALOM	1.4	1.5.3

To verify a provisionable server's firmware version, proceed as described in "To List the Firmware Updates Installed on a Provisionable Server" in *Sun N1 System Manager 1.1 Administration Guide*.

If the firmware version cannot be reported by the N1 System Manager, one or all of the following situations might be the cause:

- The IP address of the provisionable server's management processor has not been set, and thus the server cannot be discovered.

Check whether the management processor IP address has been set and, if it has been set, whether it is accessible by the N1 System Manager.

If the management processor IP address is not correct, assign an IP address to the processor as directed by the hardware documentation.

If the IP address is correct, go to the next item in this list.

- The provisionable server's management processor account credentials (login account and password) are not recognized by the N1 System Manager. Check the credentials used by the N1 System Manager, and then try accessing the provisionable server's management processor account. For information about the processor accounts, see ["Discovery of Servers in the Factory Default State" on page 26](#).

If you cannot access the management processor, reset the provisionable server to the factory defaults as directed by the hardware documentation, and reassign an IP address to the provisionable server's management processor. When you have completed resetting the provisionable server, run discovery on the server as described in "Discovering Servers" in *Sun N1 System Manager 1.1 Administration Guide*.

If discovery is successful, verify the firmware version as described in "To List the Firmware Updates Installed on a Provisionable Server" in *Sun N1 System Manager 1.1 Administration Guide*. If the firmware version still cannot be reported by the N1 System Manager, update the firmware to a supported version as directed by the hardware documentation.

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