



Sun N1 System Manager 1.1 Site Preparation Guide

Sun Microsystems, Inc.
4150 Network Circle
Santa Clara, CA 95054
U.S.A.

Part No: 819-2722
September 2005

Copyright 2005 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. All rights reserved.

This product or document is protected by copyright and distributed under licenses restricting its use, copying, distribution, and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any. Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, docs.sun.com, JumpStart, N1, Sun Fire, JDK, Netra, Sun Enterprise and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc. Netscape Navigator and Mozilla is a trademark or registered trademark of Netscape Communications Corporation in the United States and other countries.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights – Commercial software. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2005 Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 U.S.A. Tous droits réservés.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a. Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées du système Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, docs.sun.com, JumpStart, N1, Sun Fire, JDK, Netra, Sun Enterprise et Solaris sont des marques de fabrique ou des marques déposées, de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc. Netscape Navigator et Mozilla sont des marques de Netscape Communications Corporation aux Etats-Unis et dans d'autres pays.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

CETTE PUBLICATION EST FOURNIE "EN L'ETAT" ET AUCUNE GARANTIE, EXPRESSE OU IMPLICITE, N'EST ACCORDEE, Y COMPRIS DES GARANTIES CONCERNANT LA VALEUR MARCHANDE, L'APTITUDE DE LA PUBLICATION A REpondre A UNE UTILISATION PARTICULIERE, OU LE FAIT QU'ELLE NE SOIT PAS CONTREFAISANTE DE PRODUIT DE TIERS. CE DENI DE GARANTIE NE S'APPLIQUERAIT PAS, DANS LA MESURE OU IL SERAIT TENU JURIDIQUEMENT NUL ET NON AVENU.



050829@12762



Contents

Preface 9

1	Site Preparation Overview	13
	Summary of Major Tasks	13
	Security Considerations	16
2	Sun N1 System Manager System and Network Preparation	17
	Sun N1 System Manager Hardware and OS Requirements	17
	Management Server Requirements	18
	Provisionable Server Requirements	19
	Recommended Switch Configuration	20
	Sun N1 System Manager Connection Information	21
	Management Server Connections	22
	Provisionable Server Connections	23
	Reference Configurations	25
	Separate Management, Provisioning, and Data Networks	25
	Combined Management and Provisioning Network, and a Separate Data Network	27
	Combined Provisioning and Data Network, and a Separate Management Network	29
	Combined Provisioning, Data, and Management Network	31
	Site Planning	33
	Management Server Considerations	33
	Switch Considerations	35
	Setting Up Provisionable Servers	37

3	Installing and Configuring an OS on the Management Server	39
	Installing Solaris on the Management Server	39
	Disk Drive Considerations	40
	Installing the Solaris OS Using JumpStart	40
	Installing the Solaris OS Manually	41
	▼ To Install Solaris Manually	41
	Installing the RedHat Enterprise Linux OS on the Management Server	41
	Disk Drive Considerations	42
	Installing the RedHat Linux OS Using Kickstart	42
	▼ To Configure the Kickstart File	45
	Installing RedHat Linux Manually	46
	▼ To Install RedHat Linux Manually	46
	▼ To Install RPMs Required by the Sun N1 System Manager From the CD-ROMs	48
	Installing Third-Party RPMs Required by the Sun N1 System Manager	49
	▼ To Download and Install the Internationally Compliant Perl Module	49
	▼ To Download, Make, and Install the Simplified Chinese Perl Module	50
	Enabling FTP on the Management Server	51
	▼ To Enable FTP on a Solaris Based Management Server	51
	▼ To Enable FTP on a Linux Based Management Server	51
	Updating the /etc/hosts File	52
	▼ To Update the /etc/hosts file	52
A	Alternate Sun Fire V20z and V40z Reference Configuration	55
	Index	59

Tables

TABLE 2-1	Management Server Hardware and Operating System Requirements	
	18	
TABLE 2-2	Provisionable Server Hardware and Operating System Requirements	
	19	
TABLE 2-3	Management Server Hardware Sizing Guidelines	34
TABLE 2-4	Switch Port Requirements Worksheet	36
TABLE 3-1	Solaris Management Server Partitioning	40
TABLE 3-2	Linux-based Management Server Partitioning	42

Figures

FIGURE 1-1	Site Preparation Task Flow	14
FIGURE 2-1	Separate Management, Provisioning, and Data Networks	26
FIGURE 2-2	Combined Management and Provisioning Networks, and a Separate Data Network	28
FIGURE 2-3	Combined Provisioning and Data Network, and a Separate Management Network	30
FIGURE 2-4	Combined Provisioning and Data Network, and a Separate Management Network	32
FIGURE A-1	5 Daisy-Chained SP Provisionable Servers, One Switch	57

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 or upgrading 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
- Linux Kickstart™ installation
- Solaris JumpStart™ installation

How This Book Is Organized

- [Chapter 1](#) provides an overview of the N1 System Manager system preparation work flow.
- [Chapter 2](#) lists the hardware and software required for a successful installation of the N1 System Manager, and provides references and guidelines describing how to connect the N1 System Manager management server to servers that are to be managed and to external Ethernet switches.
- [Chapter 3](#) describes how to install an OS on the N1 System Manager system.
- [Appendix A](#) provides an overview and reference configuration diagrams for an alternative method of connecting Sun Fire™ V20z and V40z provisionable servers to the N1 System Manager networks.

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 Installation and Configuration Guide*
- *Sun N1 System Manager 1.1 Administration Guide*
- *Sun N1 System Manager 1.1 Command Line Reference Manual*

Accessing Sun Documentation Online

The docs.sun.comSM Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is <http://docs.sun.com>.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print. For a list of documents and how to order them, see “Buy printed documentation” at <http://docs.sun.com>.

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% you have mail.</code>
AaBbCc123	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> Password:
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	The command to remove a file is <code>rm filename</code> .
<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	machine_name%
C shell superuser prompt	machine_name#
Bourne shell and Korn shell prompt	\$
Bourne shell and Korn shell superuser prompt	#
N1-ok shell	N1-ok>

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

Site Preparation Overview

This chapter provides a summary of the steps required to prepare your site for installation and configuration of the Sun N1 System Manager 1.1 system, and security issues you need to consider when preparing your site for the N1 System Manager.

Summary of Major Tasks

The following diagram provides a high-level overview of the tasks required to prepare a site for Sun N1 System Manager 1.1 installation.

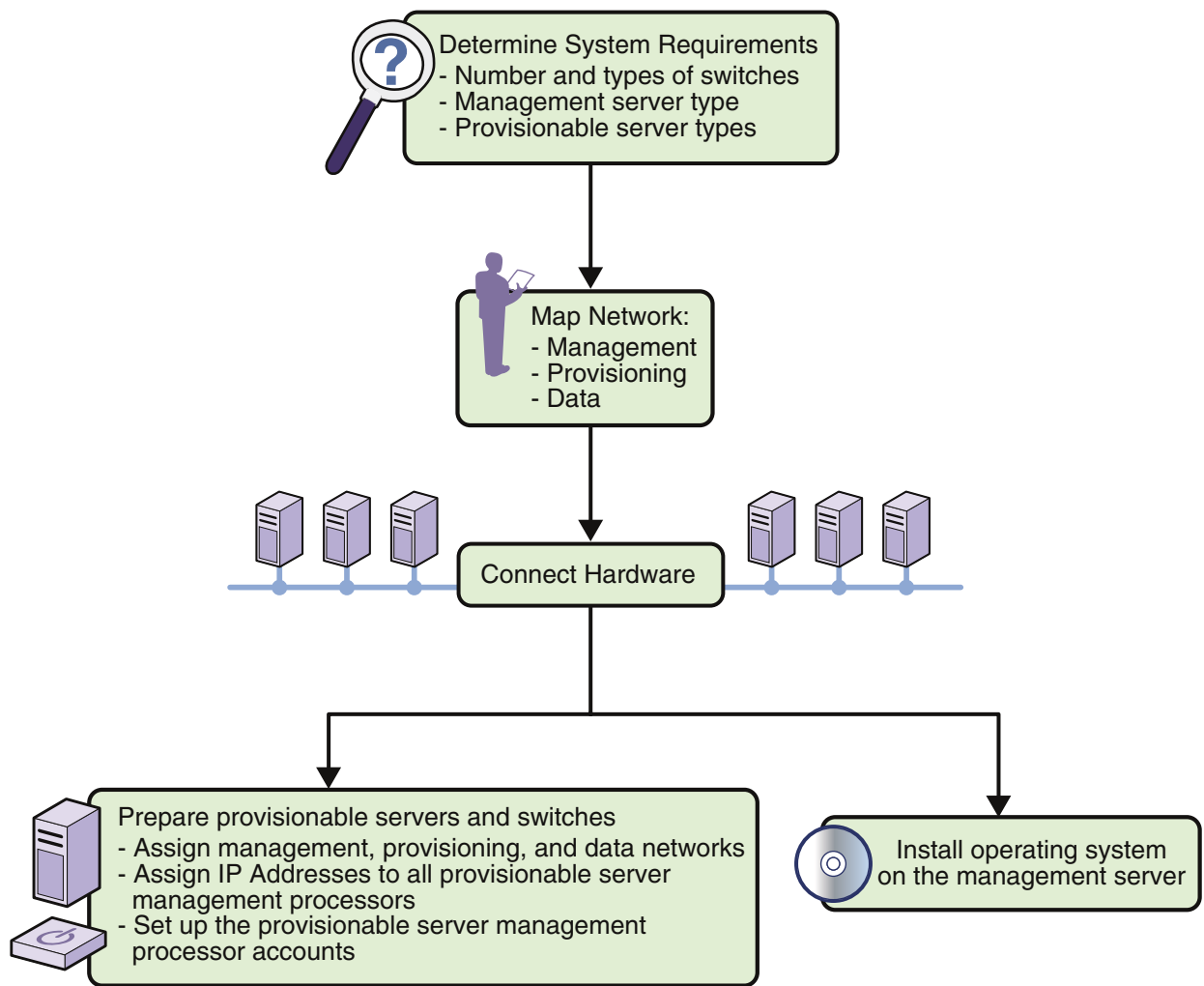


FIGURE 1-1 Site Preparation Task Flow

Summaries of each of the above tasks are provided in the following list.

- Determine system requirements

This task involves:

- Inventory of the equipment you want to use with the Sun N1 System Manager
- Compare the inventory to the system requirements, and if desired, purchase additional equipment
- Determine which server you will use as the management server, and which operating system you will install on the management server

- Determine which servers you will use as provisionable servers, and based on the total, determine the number of racks needed.

References:

- [“Sun N1 System Manager Hardware and OS Requirements” on page 17](#)
- [“Sun N1 System Manager Connection Information” on page 21](#)

■ Map network

This task involves:

- Determining the IP addressing scheme for the management, provisioning, and data networks.
- Whether you will use a single-switch configuration in which all connections are on a single switch, or a two-switch configuration, in which the management network is isolated on one switch and the data and provisioning networks are on the second switch.
- Determining the VLAN assignments

References:

- [“Reference Configurations” on page 25](#)
- [“Site Planning” on page 33](#)

■ Connect the hardware based on the information and decisions you have made in the preceding steps.

■ Install operating system on the management server

This task can be performed at the same time as provisionable server preparation.

References:

[Chapter 3](#)

■ Prepare the provisionable servers

This task involves:

- Assigning IP addresses to the management port of each provisionable server
- Setting up the provisionable server management processor accounts, and where applicable, the IPMI accounts.

References:

- [“Setting Up Provisionable Servers” on page 37](#)

Security Considerations

The following list provides general security considerations that you should be aware of when you are using the N1 System Manager:

- The Java™ Web Console that is used to launch the N1 System Manager's browser interface uses self-signed certificates. These certificates should be treated with the appropriate level of trust by clients and users.
- The terminal emulator applet that is used by the browser interface for the serial console feature does not provide a certificate-based authentication of the applet. The applet also requires that you enable SSHv1 for the management server. For certificate-based authentication or to avoid enabling SSHv1, use the serial console feature by running the `connect` command from the `n1sh` shell.
- SSH fingerprints that are used to connect from the management server to the provisioning network interfaces on the provisionable servers are automatically acknowledged by the N1 System Manager software. This automation might make the provisionable servers vulnerable to "man-in-the middle" attacks.
- The Web Console (Sun ILOM Web GUI) autologin feature for Sun Fire X4100 and Sun Fire X4200 servers exposes the server's service processor credentials to users who can view the web page source for the Login page. To avoid this security issue, disable the autologin feature by running the `n1smconfig` utility. See "Configuring the N1 System Manager System" in *Sun N1 System Manager 1.1 Installation and Configuration Guide* for details.

Sun N1 System Manager System and Network Preparation

This chapter provides the Sun N1 System Manager hardware and software requirements, reference architectures, and procedures for preparing your N1 System Manager components.

The tasks provided in this chapter can be performed in parallel with the management server preparation as described in [Chapter 3](#) and Chapter 1, “Installing and Configuring the Sun N1 System Manager Software,” in *Sun N1 System Manager 1.1 Installation and Configuration Guide*.

Note – Do not run discovery or use the N1 System Manager system until all provisionable servers have been configured as described by the following sections.

This chapter discusses the following topics:

- “Sun N1 System Manager Hardware and OS Requirements” on page 17
- “Sun N1 System Manager Connection Information” on page 21
- “Reference Configurations” on page 25
- “Site Planning” on page 33
- “Setting Up Provisionable Servers” on page 37

Sun N1 System Manager Hardware and OS Requirements

The information in this section will help you determine what operating system, hardware, and storage resources must be allocated or acquired to implement the N1 System Manager system.

This section discusses the following topics:

- “Management Server Requirements” on page 18
- “Provisionable Server Requirements” on page 19
- “Recommended Switch Configuration” on page 20

Management Server Requirements

N1 System Manager management server hardware and operating software minimum requirements are listed in the following table. See [Table 2–3](#) for specific management server sizing information based on the number of provisionable servers to be managed.



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

TABLE 2–1 Management Server Hardware and Operating System Requirements

Type	Operating System	Disk Space	RAM
SPARC			
Netra™ 240, 440	Solaris 10	72 Gbytes minimum	4 Gbytes minimum
Sun Fire™ V210, V240, V440	Solaris 10		
x86			
Sun Fire X4100 and X4200	Solaris x86 Version 10 HW1	72 Gbytes minimum	4 Gbytes minimum
	Red Hat Enterprise Linux 3.0 AS Update 5, 32-bit and 64-bit		
Sun Fire V20z and V40z	Solaris x86 Version 10		
	Red Hat Enterprise Linux 3.0 AS Update 2 through 5, 32-bit and 64-bit		

A minimum of 3.0 Gbytes should be allocated for each OS distribution you plan to provision.

- On a Solaris-based management server, OS distributions are stored as follows:
 - Linux OS distributions are stored in `/var/opt/SUNWscs/share/allstart`
 - Solaris OS distributions are stored in `/var/js`
- On a Linux-based management server, OS distributions are stored as follows:
 - Linux OS distributions are stored in `/var/opt/sun/scs/share/allstart/`

- Solaris OS distributions are stored in
/var/opt/sun/scs/share/allstart/jumpstart/

Note – For ease of administration, install a 10/100 NIC as ETH2 in the N1 System Manager management server to provide connectivity through the management switch to the management interfaces of the provisionable servers. Example diagrams and configurations in this document assume that an additional 10/100/1000 NIC has been installed in the management server.

Provisionable Server Requirements

N1 System Manager provisionable server hardware and operating software requirements are listed in the following table.

TABLE 2–2 Provisionable Server Hardware and Operating System Requirements

Server Type	Provisionable OS	Disk Space Requirements	RAM Requirements
SPARC			
Sun Netra 240 and 440	Solaris 10	12 Gbytes minimum	512 Mbytes minimum, 1 Gbyte recommended
	Solaris 9 7/05		
Sun Fire V210, V240, and V440	Solaris 10	12 Gbytes minimum	512 Mbytes minimum, 1 Gbyte recommended
	Solaris 9 7/05		
x86			
Sun Fire X4100 and X4200	Solaris 10 HW1	12 Gbytes minimum	512 Mbytes minimum, 1 Gbyte recommended
	Red Hat Enterprise Linux AS 4.0 Update 1, 64 bit only		
	Red Hat Enterprise Linux ES 4.0 Update 1, 64 bit only		
	Red Hat Enterprise Linux AS 3.0, Update 5, 32 bit and 64 bit		
	Red Hat Enterprise Linux ES 3.0, Update 5, 32 bit and 64 bit		
	SUSE Linux Enterprise Server 9 SP1, 64 bit only		

TABLE 2–2 Provisionable Server Hardware and Operating System Requirements *(Continued)*

Server Type	Provisionable OS	Disk Space Requirements	RAM Requirements
Sun Fire V20z and V40z	Solaris x86 Version 10	12 Gbytes minimum	512 Mbytes minimum, 1 Gbyte recommended
	Solaris x86 Version 9 Update 7		
	Red Hat Enterprise Linux AS 4.0, 32 bit and 64 bit		
	Red Hat Enterprise Linux ES 4.0, 32 bit and 64 bit		
	Red Hat Enterprise Linux AS 3.0, Updates 1 through 5, 32 and 64 bit		
	Red Hat Enterprise Linux ES 3.0, Updates 1 through 5, 32 and 64 bit		
	SUSE Linux Enterprise Server 9 and SP1, 32 and 64 bit		

Recommended Switch Configuration

You can use a single VLAN-programmable switch to provide the management, provisioning, and data network infrastructure. However, for ease of management, you should install one VLAN-programmable switch for the management network, and a second VLAN-programmable switch for the provisioning and data network. Each management, provisioning, and data network should be assigned to separate subnets and VLANs.

Note – The management network switch must be configured to auto-negotiate link speed. If link speed is not auto-negotiated, firmware updates to Sun Fire V20z and V40z servers can fail.

The management switch and the provisioning and data network switch should support the following Ethernet connectivity.

- Management Network Switch
 - 10/100 megabit per second connectivity from the management server to the management switch to provide connectivity to each provisionable servers management port
 - 10/100 megabit per second connectivity from each provisionable server management port to the management switch

The management network should be on a private subnet, and must provide connectivity to a management port on each provisionable server

- Provisioning and Data Network Switch
 - 1 gigabit per second connectivity from the management server ETH1 port to the provisioning and data switch
 - 1 gigabit per second connectivity from each provisionable server ETH0 port to the provisioning and data switch
 - 1 gigabit per second connectivity from each provisionable server ETH1 port to the provisioning and data switch
 - 1 gigabit per second connectivity from the provisioning and data switch to the corporate network

The provisioning network should be on a private subnet.

Note – OS provisioning of Linux might fail if there is a delay in the transmission of data between the management server and the provisionable server is too long. A long delay can result if the spanning tree option is enabled for the switch port connected to the ETH0 port of the provisionable server. To address this issue, you can disable the spanning tree option for the switch or for the switch ports connected to the provisionable servers. Refer to your switch documentation for instructions about how to disable spanning tree on your switch.

Note – The data network should be on a public subnet accessible by the management server, provisionable servers, and the corporate network.

Due to the use of the DHCP protocol and the bandwidth requirements for OS provisioning, isolating the data network from the provisioning network might be required.

Sun N1 System Manager Connection Information

This section provides the connectivity requirements for the Sun N1 System Manager servers.

The following topics are discussed:

- [“Management Server Connections” on page 22](#)
- [“Provisionable Server Connections” on page 23](#)

Management Server Connections

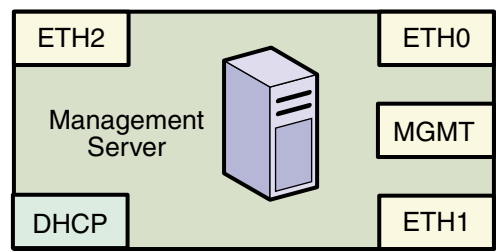
This section provides the logical port diagram and connectivity requirements for the Sun N1 System Manager management server.

A SPARC or x86 based server can be used as the management server as described by Table 2–1. Each server provides at least one 10/100/1000 (1 Gbit) network interface port, but adding additional Gbit network interface cards to the management server increases ease of management and physical separation of the corporate and provisioning networks. If you do not add additional NICs, you can configure your network to route the corporate and provisioning networks through a single 1 Gbit port. This document assumes that your management server has three Gbit NICs.

Each server also provides one or two system management ports depending on server architecture, labeled Net Mgmt (Network Management), ALOM (Advanced Lights Out Manager port), or ILOM (Integrated Lights Out Manager port) on single management port servers, and labeled SP0 and SP1 (Service Processor 1 and 2) on dual management port servers. The management server requires only a single management port to provide connectivity with the corporate network. In this document, the management port is always shown as MGMT.

Note – Depending on the system architecture and the operating system installed, the operating system refers to the Ethernet ports by different names. For example, the first Ethernet port on a machine is referred to as ETH0, HME0, or BGE0 depending on the operating system. This document refers to the lowest order Ethernet port on a machine as ETH0, the next port as ETH1 and so on regardless of architecture and operating system.

The following illustration provides the logical diagram of the management server ports, and is used in subsequent sections to illustrate reference architecture and production VLAN diagrams.



The management server should provide connectivity to three separate networks using the ports as follows:

- The management port connects the management server to the corporate network. The management port connection provides external power up and power down access to the management server, enables firmware updates from the corporate network, and enables you to check the status of the management server from the corporate network. The management port is a 100-Mbit NIC interface.
- ETH0 connects the management server to the corporate network to provide external access to the management server. The management server ETH0 IP address, netmask, and gateway should be configured to meet your corporate environment connectivity requirements. DNS configuration is performed during the N1 System Manager configuration process. ETH0 should be a 1 Gbit NIC interface.
- ETH1 connects the management server to the provisioning network and should be on the same switch and network as the ETH0 connections of the provisionable servers. The management server ETH1 IP address, netmask, and gateway can be configured to support hundreds of provisionable servers. No devices other than the management server and the provisionable servers should reside on the provisioning network. ETH1 should be a 1 Gbit NIC interface.
- ETH2 connects the management server to the management network and should be on the same switch and network as the management port connections of the provisionable servers. The management server connection is not required to be on the same switch as the management port connections of the provisionable servers as long as connectivity to the provisionable servers management port is provided. The management server ETH2 IP address, netmask, and gateway should be configured to enable connectivity to the provisionable servers management port IP addresses. ETH2 should be a 1 Gbit NIC interface.
- The management server DHCP service allocates IP addresses to the provisionable servers for loading operating systems and updates over the provisioning network, and for runtime monitoring of the provisionable server operating environment.

Note – The management server DHCP service 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.

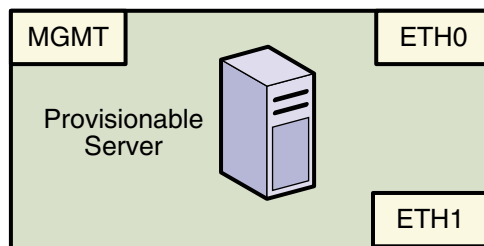
Provisionable Server Connections

This section provides the logical port diagrams and connectivity requirements for the Sun N1 System Manager provisionable server.

A SPARC or x86-based server can be used as a provisionable server as described by [“Management Server Requirements” on page 18](#). Each server provides two 10/100/1000 network interface ports. Each server also provides one or two system

management ports depending on server architecture, labeled ALOM or ILOM on single management port servers, and labeled SP0 and SP1 on dual management port servers. In this document, the management port is always shown as MGMT.

The following illustrations provide the logical diagrams for the provisionable server ports based on the server architecture, and are used in subsequent sections to illustrate reference diagrams.



Each provisionable server should provide connectivity to three separate networks as follows:

- The management port connects the provisionable server to the management network and should be on the same switch and network as the ETH2 connection of the management server. The provisionable server management port connection is not required to be on the same switch as the ETH2 connection of the management server as long as connectivity to the management server ETH2 port is provided.

The management port should be a 100 megabit connection.

- ETH0 connects the provisionable server to the provisioning network and must be on the same switch and network as the ETH1 connection of the management server.

ETH0 should be a 1 Gbyte connection.

- ETH1 connects the provisionable server to the data network through the switch to provide external corporate network access to the provisionable server.

ETH1 should be a 1 Gbyte connection.

The next section provides reference system connection and VLAN configurations for the N1 System Manager.

Reference Configurations

This section provides reference configurations that will assist you in designing and connecting your N1 System Manager equipment. The following topics are discussed:

- [“Separate Management, Provisioning, and Data Networks” on page 25](#)
- [“Combined Management and Provisioning Network, and a Separate Data Network” on page 27](#)
- [“Combined Provisioning and Data Network, and a Separate Management Network” on page 29](#)
- [“Combined Provisioning, Data, and Management Network” on page 31](#)

Note – In each of the following reference configurations, corporate access is shown as a connection to the management server. Alternatively, corporate access to the N1 System Manager can be provided through a switch instead of the management server.

Other configurations are possible, such as using separate switches for each network. You can implement your network using any combination of VLANs and switches. Each network, whether management, provisioning or data, should be assigned to separate VLANs.

Separate Management, Provisioning, and Data Networks

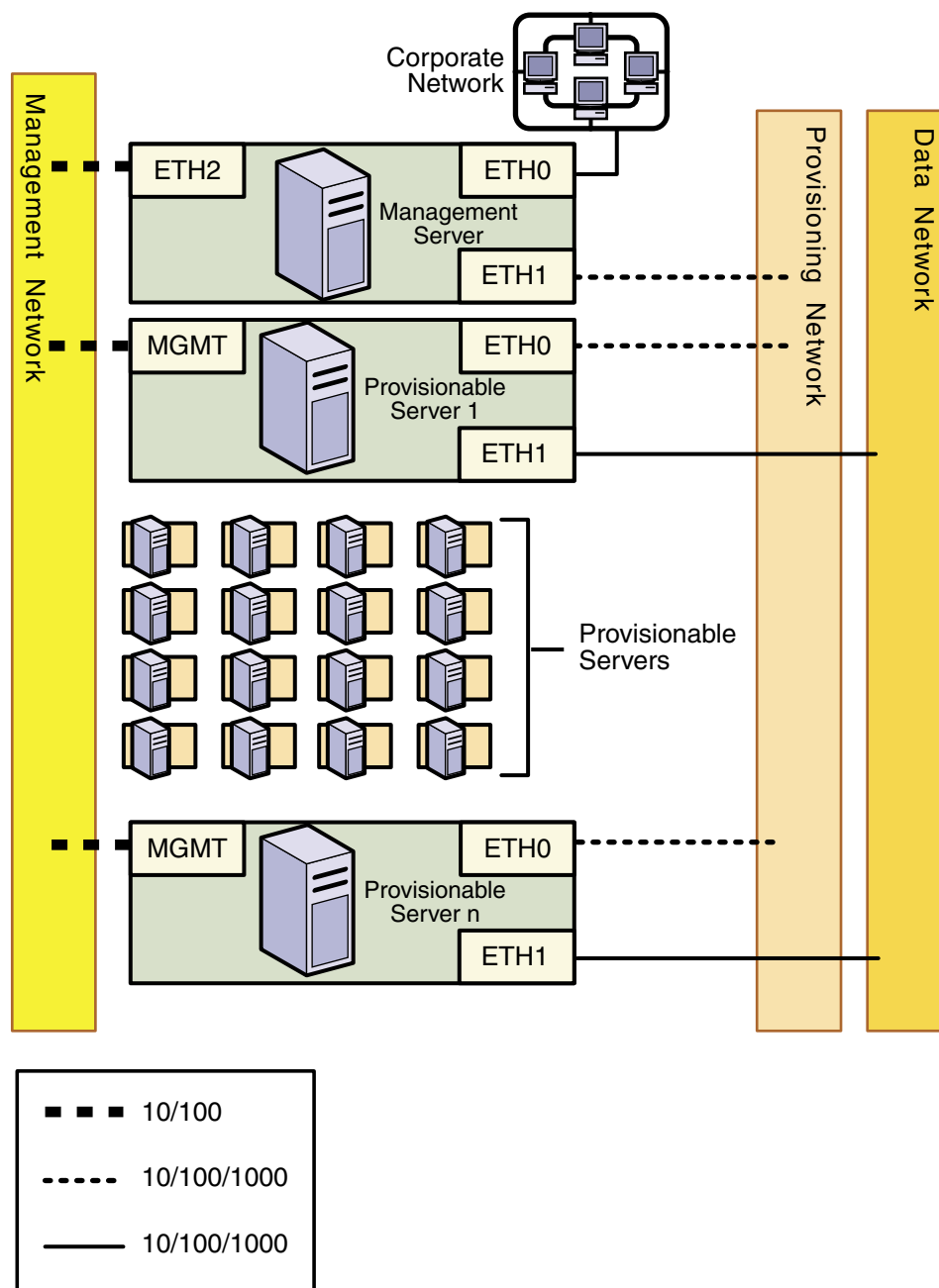


FIGURE 2-1 Separate Management, Provisioning, and Data Networks

Notes:

- Configuring separate management, provisioning, and data networks is the best practice
- Separate networks provide the highest security and the lowest number of points of failure
- The corporate DHCP service can be used to assign IP addresses to provisioned servers
- You might need to install additional NICs in the management server and some provisionable servers to support this configuration

Combined Management and Provisioning Network, and a Separate Data Network

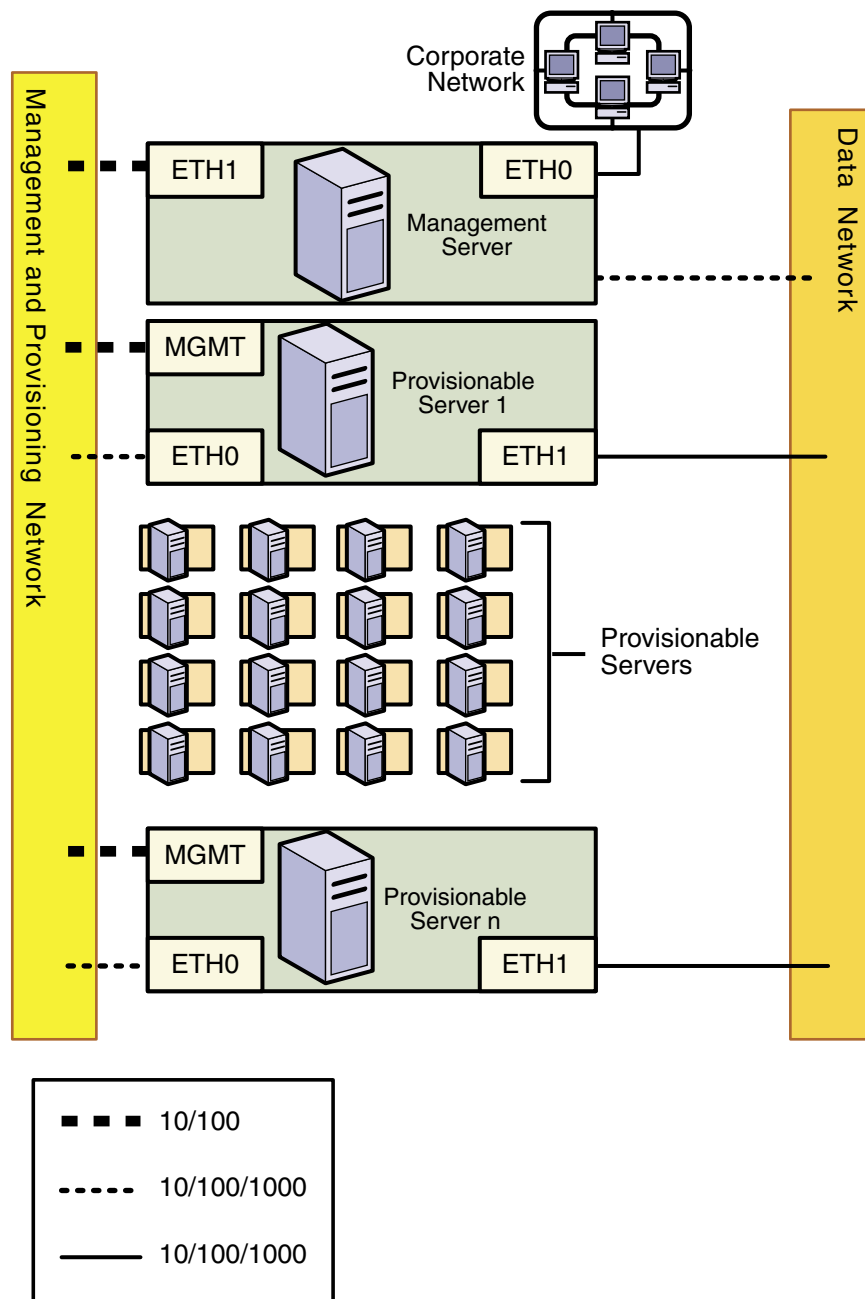


FIGURE 2-2 Combined Management and Provisioning Networks, and a Separate Data Network

Notes:

- An additional NIC does not need to be installed on the management server
- The combined management and provisioning network reduces system and network security
- The corporate DHCP service can be used to assign IP addresses to provisioned servers



Caution – The statically-assigned management IP addresses and the dynamically assigned IP addresses used during OS provisioning are part of the same network. The N1 System Manager does not manage IP addresses. You must ensure that the IP addresses used during provisioning do not conflict with the management network IP addresses.

Combined Provisioning and Data Network, and a Separate Management Network

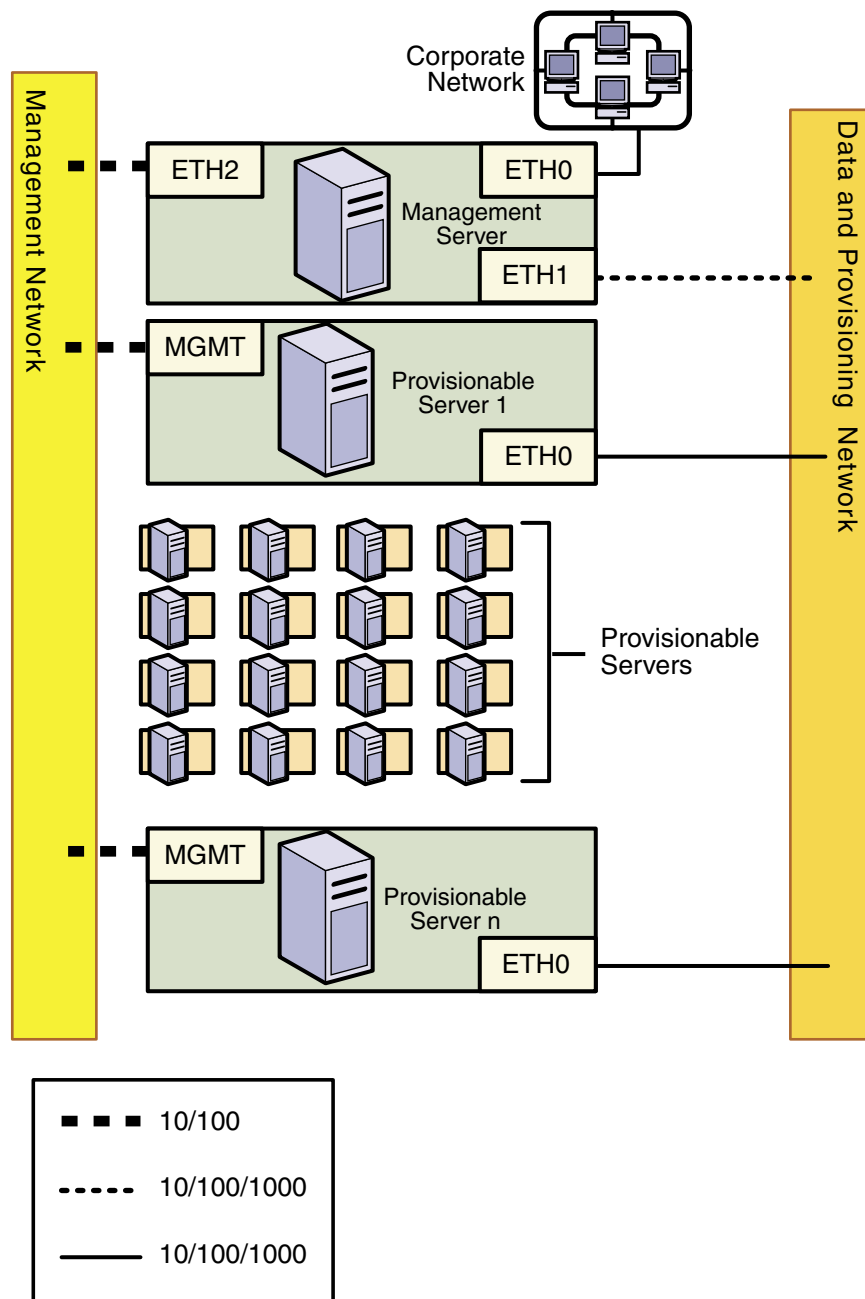


FIGURE 2-3 Combined Provisioning and Data Network, and a Separate Management Network

Notes:

- An additional NIC does not need to be installed on the management server
- The combined provisioning and data network reduces system and network security
- The data network must use the N1 System Manager DHCP service



Caution – The statically-assigned management IP addresses and the dynamically assigned IP addresses used during OS provisioning are part of the same network. The N1 System Manager does not manage IP addresses. You must ensure that the IP addresses used during provisioning do not conflict with the management network IP addresses.

Combined Provisioning, Data, and Management Network

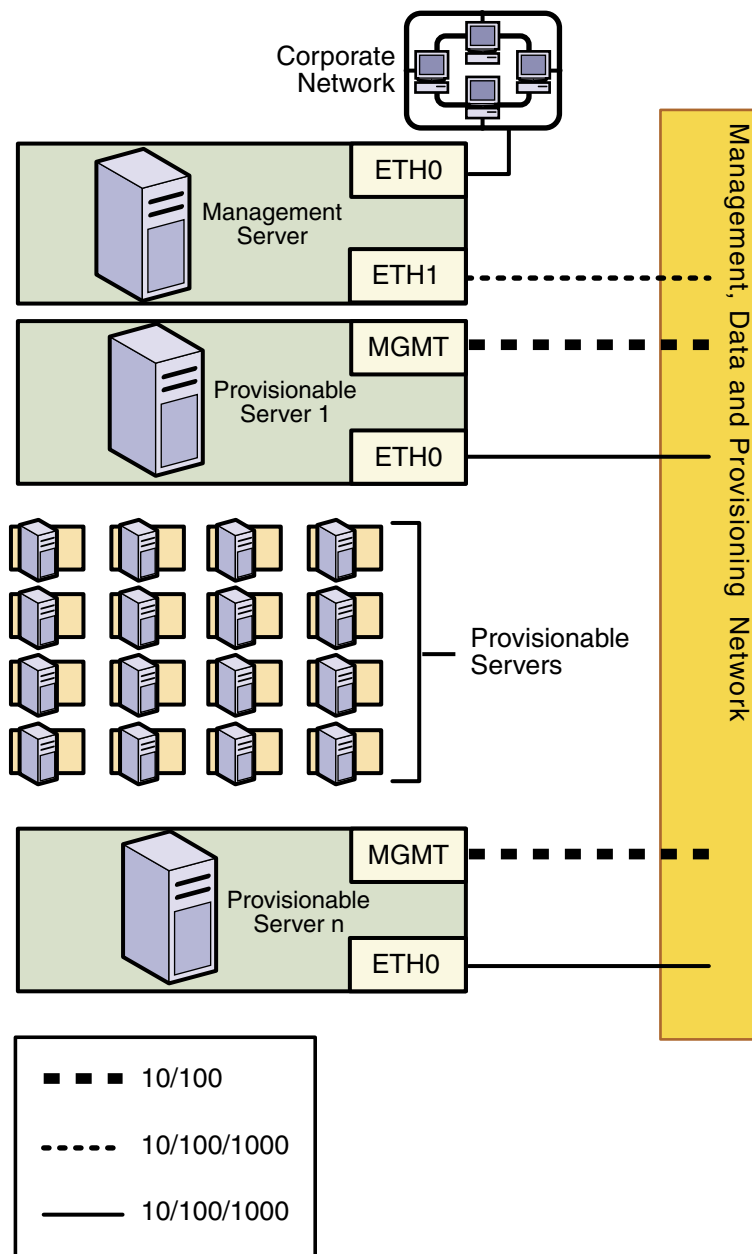


FIGURE 2-4 Combined Provisioning and Data Network, and a Separate Management Network

Notes:

- An additional NIC does not need to be installed on the management server
- The combined management, provisioning, and data networks greatly reduces system and network security
- The data network must use the N1 System Manager DHCP service



Caution – The statically-assigned management IP addresses and the dynamically assigned IP addresses used during and after OS provisioning are part of the same network. The N1 System Manager does not manage IP addresses. You must ensure that the IP addresses used during provisioning and after provisioning do not conflict with the management network IP addresses.

Site Planning

This section provides guidelines for determining your management server and switch needs. The following topics are discussed:

- [“Management Server Considerations” on page 33](#)
- [“Switch Considerations” on page 35](#)

Management Server Considerations

Hard drive capacity and the number of provisionable servers to be managed are the primary considerations for your management server.

- Hard drive capacity is affected by two factors: the number of OS distributions that are to be provisioned, and the log files generated by each N1 System Manager job. OS distributions are stored in the `/var/opt` directory on the management server. Allocate 3 Gbytes for each OS distribution and its associated profiles and scripts.
Sufficient disk space should also be allocated for the N1 System Manager monitoring log files, which are stored in the N1 System Manager data base. Log file size depends on how you set up monitoring and the amount of detail chosen for each log. The `n1smconfig` utility is used to configure logging during initial N1 System Manager configuration, and can subsequently be used after the system is in production to reconfigure logging. For further information, see Chapter 5, “Monitoring Your Servers,” in *Sun N1 System Manager 1.1 Administration Guide*.
- System processing is affected by three major factors: The number of provisionable servers being managed, the types of monitoring being performed on the provisionable servers, and the number of OS provisioning tasks running on the management server.

The following table provides sizing guidelines for the management server.

TABLE 2-3 Management Server Hardware Sizing Guidelines

Small scale deployment: 1 to 256 provisionable servers	
Total number of processors	1 or more single core AMD Opterons 1 or more 1x1 Ghz Ultra SPARC IIIi minimum
Total memory	4 Gbytes minimum
Total file system space	73 Gbytes minimum
Media	1 DVD ROM drive
Qualified Sun Fire Models	V20z, V40z, X4100, X4200, V210, V240, V280 and V440
Sample Configuration	Sun Fire V20z Single Processor (single core) Opteron, 4 GB RAM, 1x73 GB HDD, DVD ROM Drive
Medium scale deployment: 257 to 768 provisionable servers	
Total number of processors	2 or more single core AMD Opterons, or 1 or more dual-core AMD Opterons 2 or more 1x1 Ghz Ultra SPARC IIIi minimum
Total memory	8 Gbytes minimum
Total file system space	146 Gbytes minimum
Media	1 DVD ROM drive
Qualified Sun Fire Models	V20z, V40z, X4100, X4200, V210, V240, V280 and V440
Sample Configuration	Sun Fire V40z Dual Processor (dual core), 8 GB RAM, 1x146 GB HDD, DVD ROM Drive
Large scale deployment: 769 to 1,024 provisionable servers	
Total number of processors	4 single-core AMD Opterons, or 2 or more dual-core AMD Opterons 4 1x1 Ghz Ultra SPARC IIIi minimum
Total memory	16 Gbytes minimum
Total file system space	300 Gbytes minimum
Media	1 DVD ROM drive
Qualified Sun Fire Models	V20z, V40z, X4100, X4200, V440

TABLE 2-3 Management Server Hardware Sizing Guidelines (Continued)

Sample Configuration	Sun Fire V40z Dual Processor (dual core), 16 GB RAM, 1x300 GB HDD, DVD ROM Drive
----------------------	--

Switch Considerations

Switch requirements are determined by the following factors:

- Whether you have added a third 1-Gbit NIC to the management server
- The number of management ports on each provisionable server
The number of provisionable servers to be connected to the switch
The V20z and V40z servers have two management ports, and subsequently can be daisy-chained. For further information, see [Appendix A](#).
- The network topology you have chosen

The following worksheet will assist you in determining the total number of switch ports by type that you will need on your switch or switches.

TABLE 2-4 Switch Port Requirements Worksheet

Server Type	10/100 Ports	10/100/1000 Ports
Management Server		
10/100 Management port: 1	Total: 1	Total: _____
If you have not installed a third 1-Gbit NIC in the management server, enter 1 in the 10/100/1000 port column.		
If you have installed a third 1-Gbit NIC, enter 2 in the 10/100/1000 column.		
Provisionable Servers		
<ul style="list-style-type: none"> ■ Separate management, provisioning, and data networks: Total the number of provisionable servers and enter that number in the 10/100 column Double the number of provisionable servers and enter that number in the 10/100/1000 column. ■ Separate management network, and combined data and provisioning networks: Total the number of provisionable servers and enter that number in the 10/100 column and in the 10/100/1000 column. ■ Combined management, provisioning, and data networks: Total the number of provisionable servers and enter that number in the 10/100/1000 column. 	Total: _____	Total: _____
10/100/100 connection for the corporate network:		Total: 1
Total the number of ports for each column:	10/100 ports: Total: _____	10/100/1000 ports: Total: _____

Use the above totals to determine your switch requirements, and then connect the servers and switches according to your site plan.

Setting Up Provisionable Servers

Before you can use the N1 System Manager to discover provisionable servers, each provisionable server must be set up as follows:

- An IP address must be assigned to the provisionable server's management port
- The management processor credentials must be configured:
 - A Secure Shell (SSH) account must be created, and a password assigned to the account
 - The management processor Intelligent Platform Management Interface (IPMI) account must be configured and enabled where applicable

Discovery will fail if any of the above conditions are not met.

Tip – Install the operating system and the N1 System Manager software on your management server while you set up the provisionable servers.

Refer to your provisionable server documentation for procedures for assigning a management port IP address and for configuring the management processor credentials. You can also locate the server documentation at http://sunsolve.sun.com/handbook_pub/Systems/.

If you do not specify the Secure Shell (SSH) and Intelligent Platform Management Interface (IPMI) accounts and passwords, the discovery process assumes that the following credentials are configured on the provisionable servers:

- 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

Note – Automatic configuration of credentials is supported for Sun Fire V20z and V40z servers if they are in the factory default state.

If you do specify the login accounts and passwords for discovery, the discovery process configures the provisionable server using the user-specified credentials. If only one credential is specified, the missing credential is configured with one of the defaults specified above.

Installing and Configuring an OS on the Management Server

This chapter provides the procedures for installing and configuring an operating system on the Sun N1 System Manager management server.

This chapter discusses the following topics:

- “Installing Solaris on the Management Server” on page 39
- “Installing the RedHat Enterprise Linux OS on the Management Server” on page 41
- “Enabling FTP on the Management Server” on page 51
- “Updating the `/etc/hosts` File” on page 52

To ensure you select the correct operating system for the management server, see [Table 2-1](#).

Installing Solaris on the Management Server

This section provides procedures for installing and configuring Solaris on your management server. Solaris must be installed on the management server before you can install the N1 System Manager system software.

This section discusses the following topics:

- “Disk Drive Considerations” on page 40
- “Installing the Solaris OS Using JumpStart” on page 40
- “Installing the Solaris OS Manually” on page 41

Disk Drive Considerations

Solaris must be installed on an empty hard drive that contains no partitions or data. If the hard drive contains partitions, delete the partitions before installing Solaris.

The following tables provides the partitioning information for SPARC and x86 architecture management server, based on the minimum requirement of a 72 gigabyte hard drive.

TABLE 3-1 Solaris Management Server Partitioning

Partition	Mbytes
swap	4 Gbytes minimum
/	all remaining space

Note – Allocate 3 Gbytes of free space for each distribution you plan to provision. If needed, upgrade the management server to a larger hard drive before continuing.

Installing the Solaris OS Using JumpStart

This section provides an example of the JumpStart configuration file required to use JumpStart to install Solaris 10 on your management server.

Refer to your Solaris 10 documentation for the procedures for configuring a JumpStart server, and for the procedures to configure the JumpStart start and finish scripts for your environment. When you have completed JumpStart configuration, install Solaris 10 on your management server using JumpStart.

EXAMPLE 3-1 JumpStart Configuration File

```
install_type      initial_install
system_type       standalone
partitioning      explicit
filesys c1t1d0s1   4096      swap
filesys c1t1d0s0   free      /
cluster SUNWCXall
```

After you have installed Solaris 10 on your management server:

- If you plan to manage SPARC-based provisionable servers, enable FTP as described in [“Enabling FTP on the Management Server”](#) on page 51.
- If you do not plan to manage SPARC-based provisionable servers, update the `/etc/hosts` file as described by [“Updating the `/etc/hosts` File”](#) on page 52.

Installing the Solaris OS Manually

This section provides the procedures for installing Solaris manually on the management server.

▼ To Install Solaris Manually

Before You Begin

Ensure the partitions on all disks on the management server have been deleted.

Steps

1. **Insert the Solaris installation DVD-ROM in the DVD drive of the N1 System Manager and reboot the system.**
Respond to each prompt according to the requirements of your environment.
2. **When prompted for the Type of Install, select Custom Install.**
Respond to each prompt according to the requirements of your environment.
3. **When prompted for the Software Group, select Entire Group Plus OEM.**
4. **When prompted for disk selection, select all available disks.**
5. **When prompted to lay out file systems, remove the `/export/home` directory and assign all free space to `/` (the system root directory).**

Next Steps

- If you plan to manage SPARC-based provisionable servers, enable FTP as described by [“Enabling FTP on the Management Server” on page 51](#).
- If you do not plan to manage SPARC-based provisionable servers, update the `/etc/hosts` file as described by [“Updating the `/etc/hosts` File” on page 52](#).

Installing the RedHat Enterprise Linux OS on the Management Server

This section provides procedures for installing and configuring Linux on your management server. Linux must be installed on the management server before you can install the N1 System Manager system software.

This section discusses the following topics:

- [“Disk Drive Considerations” on page 42](#)
- [“Installing the RedHat Linux OS Using Kickstart” on page 42](#)
- [“Installing RedHat Linux Manually” on page 46](#)
- [“Installing Third-Party RPMs Required by the Sun N1 System Manager” on page 49](#)

Disk Drive Considerations

Linux must be installed on an empty hard drive that contains no partitions or data. If the hard drive contains data, ensure the old partitions on the drive are deleted during Linux installation by modifying the Kickstart file as described in [“To Configure the Kickstart File” on page 45](#).

The following table provides the partitioning information for the management server, based on the minimum requirement of a 72 gigabyte hard drive.

TABLE 3-2 Linux-based Management Server Partitioning

Partition	Mbytes
/boot	102
/	69530
swap	4096

If your hard drive is larger than 72 Gbytes:

- Do not change the assigned space for swap.
- Allocate the space shown above for /boot.
- Allocate the remaining space to /. OS distributions that are to be provisioned are stored within the root file system.

Note – Allocate 3 Gbytes of free space for each distribution you plan to provision. If needed, upgrade the management server to a larger hard drive before continuing.

Installing the RedHat Linux OS Using Kickstart

This section provides example Kickstart files and the procedures to configure a Kickstart file and then use the Kickstart file to install Linux. The following topics are discussed:

Sample Kickstart Files

This section provides two example Kickstart files. The first Kickstart file is configured for a full distribution installation of Linux. The second Kickstart file is configured to install only the RPM groups required by the N1 System Manager.

EXAMPLE 3-2 Entire Distribution Kickstart File

```
install
lang en_US.UTF-8
langsupport --default en_US.UTF-8 en_US.UTF-8
keyboard us
mouse genericwheelps/2 --device psaux
nfs --server 10.0.0.50 --dir /export/images/RHEL3U2
skipx
timezone America/Denver
rootpw --iscrypted $1$Rig3dbXb$OWcv00J/V2WsBGcgx0bmp1
network --device eth0 --bootproto static --ip 10.0.0.100
--netmask 255.255.255.0 --gateway 10.0.0.254 --nameserver 10.0.0.200
--hostname sun-ms
network --device eth1 --bootproto static --ip 192.168.200.254
--netmask 255.255.255.0 --gateway --nameserver 10.0.0.200
--hostname sun-ms-prov
network --device eth2 --bootproto static --ip 192.168.100.254
--netmask 255.255.255.0 --gateway --nameserver 10.0.0.200
--hostname sun-ms-admin
firewall -disabled
authconfig -enablemd5 -enablesshadow
bootloader -location=mbr
clearpart --all -drives=hda
part /boot --fstype ext3 --size=102 -ondisk=sda
part / --fstype ext3 --size=1024 --grow -ondisk=sda
part swap --size=4096 --grow --maxsize=1024 -ondisk=sda
reboot
%packages
@ everything
grub
kernel
kernel-smp
%post
echo "RHEL3U2 installed `/bin/date`" > /etc/motd
cat << EOF > /etc/resolv.conf
nameserver 10.0.0.200
search Customer.Com
EOF
cat << EOF > /etc/hosts
127.0.0.1      localhost.localdomain  localhost
10.0.0.100     sun-ms
192.168.200.254 sun-ms-prov
192.168.100.254 sun-ms-admin
EOF
```

EXAMPLE 3-3 Required RPMs Only Kickstart File

```
install
lang en_US.UTF-8
langsupport --default en_US.UTF-8 en_US.UTF-8
keyboard us
mouse genericwheelps/2 --device psaux
nfs --server 10.0.0.50 --dir /export/images/RHEL3U2
skipx
timezone America/Denver
rootpw --iscrypted $1$Rig3dbXb$OWcv00J/V2WsBGcgx0bmp1
network --device eth0 --bootproto static --ip 10.0.0.100
--netmask 255.255.255.0 --gateway 10.0.0.254 --nameserver 10.0.0.200
--hostname sun-ms
network --device eth1 --bootproto static --ip 192.168.200.254
--netmask 255.255.255.0 --gateway --nameserver 10.0.0.200
--hostname sun-ms-prov
network --device eth2 --bootproto static --ip 192.168.100.254
--netmask 255.255.255.0 --gateway --nameserver 10.0.0.200
--hostname sun-ms-admin
firewall -disabled
authconfig -enablemd5 -enablesshadow
bootloader -location=mbr
clearpart --all --drives=hda
part /boot --fstype ext3 --size=102 --ondisk=sda
part / --fstype ext3 --size=1024 --grow --ondisk=sda
part swap --size=4096 --grow --maxsize=1024 --ondisk=sda
reboot
%packages --resolvedeps
@ office
@ engineering-and-scientific
@ editors
@ system-tools
@ base-x
@ web-server
@ development-tools
@ printing
@ text-internet
@ legacy-network-server
@ gnome-desktop
@ admin-tools
0.@ server-cfg
@ ftp-server
@ network-server
@ graphical-internet
@ compat-arch-support
grub
kernel
kernel-smp
%post
echo "RHEL3U2 installed `bin/date`" > /etc/motd
cat << EOF > /etc/resolv.conf
nameserver 10.0.0.200
search Customer.Com
EOF
```

EXAMPLE 3-3 Required RPMs Only Kickstart File (Continued)

```
cat << EOF > /etc/hosts
127.0.0.1          localhost.localdomain  localhost
10.0.0.100         sun-ms
192.168.200.254    sun-ms-prov
192.168.100.254    sun-ms-admin
EOF
```

▼ To Configure the Kickstart File

Steps 1. Log in to a machine that is accessible to the management server using NFS or HTTP.

2. Create the Linux Kickstart configuration file.

Choose whether to use the entire distribution Kickstart file shown in [Example 3-2](#), or the required-RPMs-only Kickstart file shown in [Example 3-3](#). Copy the chosen configuration data into a file, for example, *n1gc-ks.cfg*

Note – If you chose the required-RPMs-Kickstart file, you must also manually install additional RPMs as described by “[To Install RPMs Required by the Sun N1 System Manager From the CD-ROMs](#)” on page 48.

3. Configure the Kickstart installation file for your environment.

- If you plan to use dynamic IP addressing, replace each network statement in the Kickstart file using the following syntax:

```
network --device ethx --bootproto dhcp
```

where *ethx* is the port, for example, *eth0*.

- If you plan to use static IP addressing, make the following changes in each of the network statements.
 - Replace *ip* with the Ethernet port IP address.
 - Replace *nameserver* with the IP address of the corporate name server. If you want to use more than one name server, separate each name server IP address with a comma. For example: `--nameserver 110.112.113.11,110.112.113.22`.
 - Replace *hostname* with the name of your management server.

If desired, you can combine static and dynamic IP addressing for the ETH ports. Modify the network settings according to your chosen reference architecture.

4. **Save the Kickstart file to an NFS or HTTP directory on the Kickstart server.**

- Next Steps**
- Install Linux on the management server using the Kickstart file you created.
 - If you plan to manage SPARC-based provisionable servers, enable FTP as described in [“Enabling FTP on the Management Server” on page 51.](#)
 - If you do not plan to manage SPARC-based provisionable servers, update the `/etc/hosts` file as described in [“Updating the `/etc/hosts` File” on page 52.](#)

Installing RedHat Linux Manually

This section provides the procedures for installing Linux manually on the management server.

The following topics are discussed:

- [“To Install RedHat Linux Manually” on page 46](#)
- [“To Install RPMs Required by the Sun N1 System Manager From the CD-ROMs” on page 48](#)

▼ To Install RedHat Linux Manually

- Steps**
1. **Insert the RedHat Linux installation CD-ROM 1 of 4 in the DVD drive of the N1 System Manager management server and reboot the system.**

At the boot: prompt, start either a text-based or graphical user interface-based installation.

- Press Return to install using the graphical interface
- Type **text** to install using the text-based interface

Respond to each prompt according to the requirements of your environment. You are prompted for the language selection, keyboard configuration, and mouse type. Provide the requested information.

2. **When prompted for partitioning information, choose Automatically Partition.**

You are prompted to choose whether to remove all Linux partitions, remove all partitions, or keep all partitions. Choose Remove all partitions. The partitioning values are displayed.

Compare the displayed values to the required values listed by [Table 3–2](#).

- If the partitioning values match, choose Next.
- If the partitioning values do not match, update the partitioning values to match [Table 3–2](#).

3. **When prompted for the boot loader, choose Grub.**

4. **When prompted to provide the Ethernet port selections, assign the IP addresses, netmask, and gateway values as described by the following guidelines.**
 - a. **Configure ETH0 to connect to the corporate network to provide external access to the management server.**
 - b. **Configure ETH1 to connect to the provisioning network.**

ETH1 must be on the same broadcast domain as ETH0. The IP addresses must be on the same broadcast domain as the provisionable servers' ETH0 interfaces, and can be configured to support hundreds of provisionable servers.
 - c. **Configure ETH2 to connect to the service processor interface SP0 ports of all provisionable servers.**

The netmask and gateway values must allow access to the management network.

Note – If you have not installed a separate ETH2 gigabit NIC card in the management server, ETH0 and ETH2 functionality can be provided solely by ETH0. ETH0 must be configured to provide access to and from the service processor interfaces of the provisionable servers.

5. **When prompted for the firewall configuration, choose No firewall.**

You are prompted in sequence for additional language support, your time zone, and the root password. Provide the requested information.
6. **When prompted to accept the default packages or to customize the set of packages to install, choose Customize.**
7. **Choose the packages required by the N1 System Manager system.**

Choose the following packages.

 - ☐ Office
 - ☐ Engineering and Scientific
 - ☐ Editors
 - ☐ System Tools
 - ☐ X-Windows (base-x)
 - ☐ Web Server
 - ☐ Development Tools
 - ☐ Legacy Software Development
 - ☐ Printing
 - ☐ Text-based Internet
 - ☐ Legacy Network Server
 - ☐ Gnome Desktop

- ☐ Administration Tools
- ☐ Server Configuration
- ☐ FTP Server
- ☐ Network Server
- ☐ Graphical-based Internet
- ☐ Compatibility Architecture Support (graphical install) or Legacy Software Development (text install)

When you have completed the package selection, continue installation. When Linux installation completes, you are prompted for additional system information such as graphics, monitor type, and screen resolution after which the system reboots. You are then prompted for additional startup information.

8. Answer the System information prompts.

When you have completed responding to the prompts, the login screen appears.

9. Log in as root.

Next Steps Install the additional RPMs required by the Sun N1 System Manager system as described in [“To Install RPMs Required by the Sun N1 System Manager From the CD-ROMs”](#) on page 48.

▼ To Install RPMs Required by the Sun N1 System Manager From the CD-ROMs

Before you can install the N1 System Manager software, you must complete the following tasks:

- Install additional RPMs required by the N1 System Manager system from the Linux installation CD-ROMs
- Download and install the internationally compliant Perl RPM
- If needed, download, make, and install the Simplified Chinese Perl modules
- Download and install the Java runtime environment
- Update the `/etc/hosts` file

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

2. Install the following RPMs from your RedHat installation CD-ROMs.

- `perl-CGI-2.81-88.4.i386.rpm`
- `anaconda-runtime-9.1.2-2.RHEL.i386.rpm`
- `perl-DBI-1.32-5.i386.rpm`
- `perl-DBD-Pg-1.21-2.i386.rpm`
- `rh-postgresql-7.3.6-1.i386.rpm`
- `rh-postgresql-server-7.3.6-1.i386.rpm`

The location of the RPMs on the installation CD-ROMs varies depending on your RedHat Linux version.

A `DSA signature:nokey` warning is displayed during RPM installation. This warning message is generated only because the RPMs do not have a DSA security signature. All `DSA signature:nokey` warning messages can be safely ignored.

Next Steps Download and install the internationally compliant Perl module as described by the next procedure.

Installing Third-Party RPMs Required by the Sun N1 System Manager

This section provides the procedures for installing additional RPMs required by the Sun N1 System Manager. The following topics are discussed:

- [“To Download and Install the Internationally Compliant Perl Module” on page 49](#)
- [“To Download, Make, and Install the Simplified Chinese Perl Module” on page 50](#)

▼ To Download and Install the Internationally Compliant Perl Module

- Steps**
1. Log in as root on the N1 System Manager management server.
 2. Open a web browser and find a site that provides the `perl-5.8.3-16.i386.rpm` file for download.
 3. Download the `perl-5.8.0-88.4.i386.rpm` file to a directory on the management server.
 4. In a terminal window, change directory to the location where you saved the RPM file.
 5. Type `rpm -i perl-5.8.3-16.i386.rpm` to install the Perl module.

- Next Steps**
- If you are installing in the Simplified Chinese locale, then download, make, and install the Simplified Chinese Perl Module as described in [“To Download, Make, and Install the Simplified Chinese Perl Module” on page 50](#).
 - If you are not installing in the Simplified Chinese locale, go to [“Enabling FTP on the Management Server” on page 51](#).

▼ To Download, Make, and Install the Simplified Chinese Perl Module

This procedure is required only if you are installing the N1 System Manager in the Chinese locale

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

2. Ensure your locale is set to Simplified Chinese.

In a terminal window, type `echo $LANG` to display the system locale setting. For example:

```
# echo $LANG
zh_CN.gb18030
```

If the language locale is not `zh_CN.gb18030`, set the locale by typing `export LANG=zh_CN.gb18030`.

3. Open a web browser and go to

<http://search.cpan.org/~autrijus/Encode-HanExtra-0.10>.

The browser displays the *Encode-HanExtra-0.10* download page.

4. Click Download and save the `Encode-HanExtra-0.10.tar.gz` file to a directory on the management server.

5. In a terminal window, change directory to the location where you saved the `Encode-HanExtra-0.10.tar.gz` file.

6. Unpack the `Encode-HanExtra-0.10.tar.gz` file.

a. To unpack the tar file, type `gunzip Encode-HanExtra-0.10.tar.gz`.

b. To unpack the modules, type `tar -xvf Encode-HanExtra-0.10.tar`.

7. Change directory to `Encode-HanExtra-0.10`.

8. To update the system `Encode.pm` database with the Simplified Chinese encoding, type the following commands in sequence.

Wait for each command to complete before typing the next command in the sequence.

```
# perl Makefile.PL
# make
# make test
# make install
```

- Next Steps**
- If you plan to manage SPARC-based provisionable servers, enable FTP as described by [“Enabling FTP on the Management Server” on page 51](#).
 - If you do not plan to manage SPARC-based provisionable servers, update the `/etc/hosts` file as described by [“Updating the `/etc/hosts` File” on page 52](#).

Enabling FTP on the Management Server

If you plan to manage SPARC-based provisionable servers, you must enable the FTP service on the management server.

▼ To Enable FTP on a Solaris Based Management Server

Steps 1. Log in to the management server as root.

2. Type the command `svcadm -v enable network/ftp`.

The FTP service is enabled, and starts when the management server is rebooted. After the system is rebooted, you can verify whether the FTP service has start using the `inetadm` command:

```
# inetadm
enabled  online          svc:/network/telnet:default
enabled  online          svc:/network/nfs/rquota:default
disabled disabled         svc:/network/echo:dgram
disabled disabled         svc:/network/time:stream
enabled  online          svc:/network/ftp:default
```

Next Steps Update the `/etc/hosts` file as described in [“Updating the `/etc/hosts` File” on page 52](#)

▼ To Enable FTP on a Linux Based Management Server

Steps 1. Log in to the management server as root.

2. Create symbolic links to the `/etc/init.d/vsftpd` file in the `/etc/rc3.d` and `/etc/rc5.d` directories.

For example:

```
# ln -s /etc/init.d/vsftpd /etc/rc3.d/S99vsftpd
# ln -s /etc/init.d/vsftpd /etc/rc5.d/S99vsftpd
```

The FTP service is enabled, and starts when the management server is rebooted. After the system is rebooted, you can verify whether the FTP service has start using the `ps` and `grep` commands:

```
# ps -eaf | grep ftp
root      3035      1  0  16:27 ?        00:00:00 /usr/sbin/vsftpd /etc/vsftpd/vsf
```

Next Steps Update the `/etc/hosts` file as described in [“Updating the `/etc/hosts` File” on page 52.](#)

Updating the `/etc/hosts` File

The IP address and the name of your management server must be added to the `/etc/hosts`. Failure to add the IP address and name will cause Sun N1 System Manager installation to fail.

▼ To Update the `/etc/hosts` file

- Steps**
1. Log in as root to the Sun N1 System Manager management server.
 2. Verify that the `/etc/hosts` file has entries for loopback and the server.

- a. Make certain that either of the following loopback entries is in the `/etc/hosts` file.

```
127.0.0.1    localhost
```

or

```
127.0.0.1    localhost.localdomain    localhost
```

- b. Make certain that an entry exists for the server and its IP address. For example:

```
111.11.111.11 n1mgmt
```

where `111.11.111.11` is the IP address of the management server, and `n1mgmt` is the name of the management server.

Your `/etc/hosts` should be similar to the following example:

```
127.0.0.1    localhost.localdomain    localhost
10.5.157.123 n1mgmt
```

- c. Save and close `/etc/hosts`.

3. Reboot the N1 System Manager management server.

Next Steps Validate your N1 System Manager as directed by the following sections of the *Sun N1 System Manager 1.1 Administration Guide*:

- Log in to and access the N1 System Manager as described by “Introduction to Accessing the N1 System Manager” in *Sun N1 System Manager 1.1 Administration Guide*.

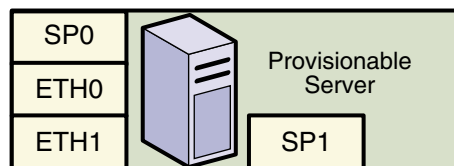
- Set up the N1 System Manager accounts as described by “Managing Users” in *Sun N1 System Manager 1.1 Administration Guide*.
- Set up the N1 System Manager security roles as described by “Managing Roles” in *Sun N1 System Manager 1.1 Administration Guide*.
- Run the N1 System Manager discovery process and set up your provisionable servers as described by Chapter 2, “Discovering, Grouping, and Replacing Servers in the Sun N1 System Manager,” in *Sun N1 System Manager 1.1 Administration Guide*.
- Provision an operating system to a provisionable server as described by Chapter 3, “Provisioning Operating Systems, OS Updates, and Firmware Updates,” in *Sun N1 System Manager 1.1 Administration Guide*.

If provisioning is successful, you can complete discovery and provisioning of all of your provisionable servers as described by the *Sun N1 System Manager 1.1 Administration Guide*.

If provisioning of a single server is not successful, refer to Chapter 3, “Troubleshooting,” in *Sun N1 System Manager 1.1 Installation and Configuration Guide* for problem resolution procedures.

Alternate Sun Fire V20z and V40z Reference Configuration

Sun Fire V20z and V40z provisionable servers have two management ports, SP0 and SP1, as shown by the following logical port diagram.



The Sun Fire V20z and V40z provisionable servers can be connected to a switch in either of two ways:

- Direct connections:

The SP0 port of each provisionable server connects directly to the switch for the management network. Therefore, the switch must have a 1-Mbit port for each provisionable server.

- Daisy-chaining:

- The SP0 port of the first SP-architecture provisionable server must be connected to the switch.
- The SP1 port of the first SP-architecture provisionable server must be connected to the SP0 port of the second provisionable server.
- The SP1 port of the second SP-architecture provisionable server must be connected to the SP0 port of the third provisionable server and so on.

Tip – To ensure performance, daisy-chain up to five Sun Fire V20z and V40z architecture machines. If you have more than five Sun Fire V20z or V40z management port machines, daisy-chain the machines in clusters of five.

Therefore, the switch needs only one 1-Mbit port for each group of five Sun Fire V20z and V40z provisionable servers.

The following figure illustrates a Sun Fire V20z and V40z daisy-chained configuration.

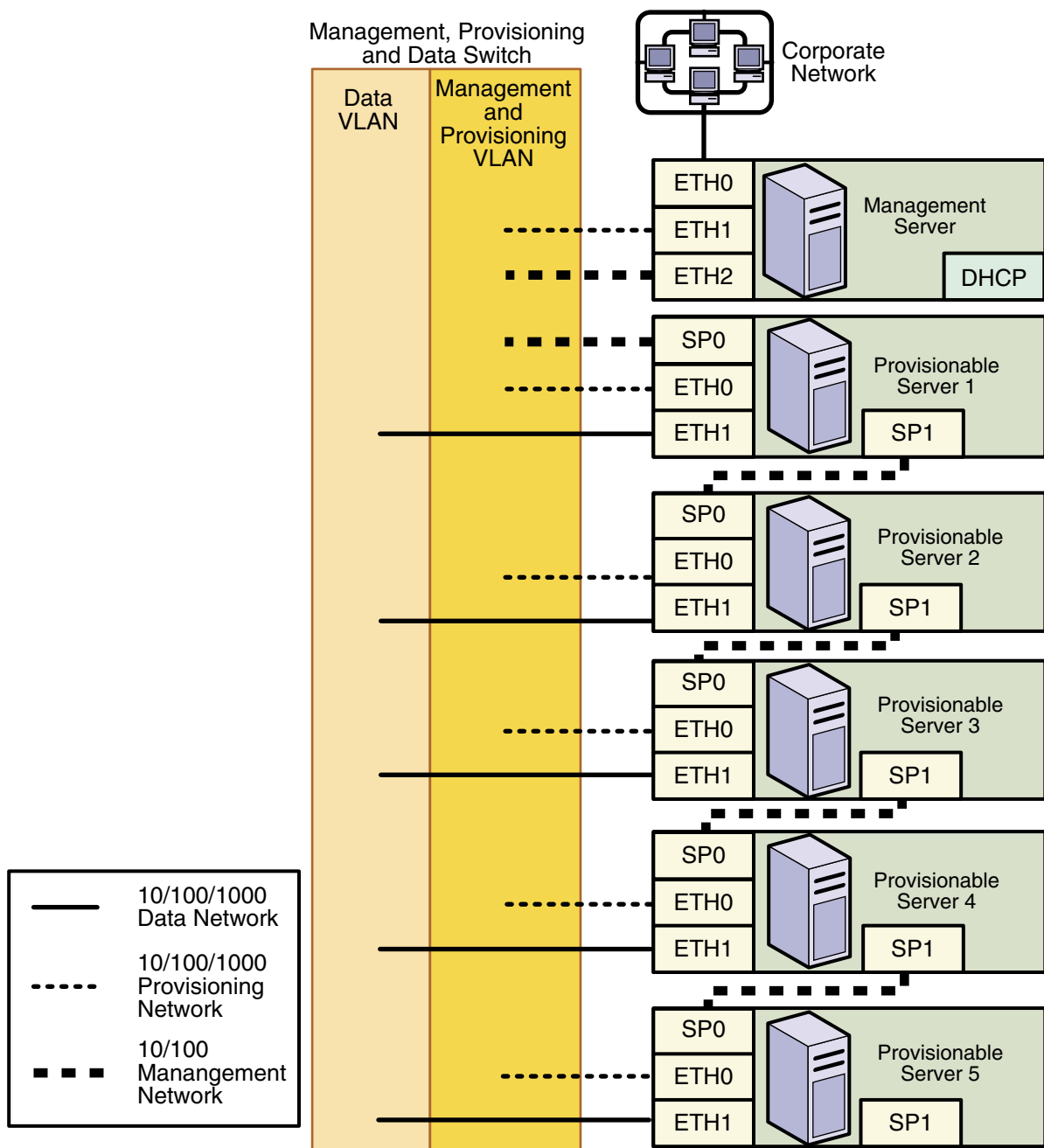


FIGURE A-1 5 Daisy-Chained SP Provisionable Servers, One Switch

Index

C

configuration

- Ethernet ports, 23
- Kickstart installation, 45
- reference diagrams, 25
- switches, 20-21
- updating `/etc/hosts`, 52-53

connections

- hardware, 21-24
- management server, 22-23
- provisionable server, 23-24

D

data network, switch requirements, 21

default credentials

- Sun Fire V20z and V40z server, 37
- Sun Fire V210, V240, and V440 server, 37
- Sun Fire X4100 and X4200 server, 37

disk partitioning, management server

- Linux OS, 42
- Solaris OS, 40

E

`/etc/hosts`, updating, 52-53

Ethernet ports

- configuration, 23
- management server, 22
- provisionable server, 24

F

FTP, enabling

- Linux based management server, 51-52
- Solaris based management server, 51

H

hardware

- connectivity requirements, 21-24
- management server connections, 22-23
- management server requirements, 18
- provisionable server connections, 23-24
- provisionable server requirements, 19
- reference configurations, 25
- switch configuration, 20-21

I

installation

- Linux OS, Kickstart, 45
- Linux OS management server
 - additional required CD-ROM RPMs, 48-49
 - installing, 50
 - Perl module, 49
 - required third-party RPMs, 49-50
 - Simplified Chinese Perl module, 50
- management server, Linux OS manual installation, 46-48
- management server, Solaris OS manual installation, 41

- installation (Continued)
 - updating `/etc/hosts`, 52-53
- installing
 - Linux OS using Kickstart, 42-46
 - Solaris OS using JumpStart, 40
- IP address, configuration, management server, 23

J

- Java Runtime Environment
 - Linux OS management server installing, 50
- JumpStart, installing Solaris OS on management server, 40

K

- Kickstart
 - configuration, 45
 - installing Linux OS on management server, 42-46
 - Linux OS installation, 45

L

- Linux OS
 - installing on management server using Kickstart, 42-46
 - Kickstart installation, 45
 - management server, manual installation, 46-48
 - management server drive considerations, 42
- logical ports
 - management server, 22
 - provisionable server, 24

M

- management network, switch requirements, 20
- management server
 - connections, 22-23
 - enabling FTP, Linux based, 51-52
 - enabling FTP, Solaris based, 51

- management server (Continued)
 - installing Linux OS using Kickstart, 42-46
 - installing Solaris OS using JumpStart, 40
 - IP address configuration, 23
 - Linux OS
 - additional required CD-ROM RPMs, 48-49
 - Perl module, 49
 - required third-party RPMs, 49-50
 - Linux OS manual installation, 46-48
 - logical ports, 22
 - partitioning requirements
 - Linux OS, 42
 - Solaris OS, 40
 - requirements, 18
 - site planning considerations, 33-35
 - Solaris OS manual installation, 41
 - updating `/etc/hosts`, 52-53

N

- N1 System Manager
 - See* N1 System Manager
 - server requirements, 17

O

- operating systems
 - management server requirements
 - See also* Solaris OS, Linux OS
 - provisionable server, 19

P

- partitioning requirements, management server
 - Linux OS, 42
 - Solaris OS, 40
- preparation, 17
- provisionable server
 - connections, 23-24
 - logical ports, 24
 - requirements, 19
 - switch requirements, 21
- provisioning network, switch requirements, 21

R

reference configurations, 25

requirements

- management server, 18

- management server, partitioning

 - Linux OS, 42

 - Solaris OS, 40

- management server connectivity, 22-23

- provisionable server, 19

- provisionable server connectivity, 23-24

- switch configuration, 20-21

RPMs

- Linux OS management server

 - additional required CD-ROM

 - RPMs, 48-49

 - Perl module, 49

 - required third-party RPMs, 49-50

S

security considerations, 16

server requirements

- management server, 18

- provisionable server, 19

Simplified Chinese Perl module

- Linux OS management server

 - installing, 50

site planning

- management server considerations, 33-35

- switch considerations, 35-36

- switch port requirements worksheet, 36

Solaris OS

- installing on management server using

 - JumpStart, 40

- management server, manual installation, 41

- management server drive considerations, 40

Sun Fire V20z and V40z server, default

- credentials, 37

Sun Fire V210, V240, and V440 server, default

- credentials, 37

Sun Fire X4100 and X4200 server, default

- credentials, 37

switches

- management network, 20

- port requirements worksheet, 36

- provisionable server, 21

- recommended configuration, 20-21

switches (Continued)

- site planning considerations, 35-36

T

troubleshooting

- Sun Fire V20z and V40z server, default

 - credentials, 37

- Sun Fire V210, V240, or V440 server, default

 - credentials, 37

- Sun Fire X4100 and X4200 server, default

 - credentials, 37

