

Sun Ray™ Enterprise Server Software 1.1 Installation Guide



THE NETWORK IS THE COMPUTER™

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Part No. 805-7916-11
April 2000, Revision A

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Preface

The *Sun Ray Enterprise Server Software 1.1 Installation Guide* describes how to install the Sun Ray™ server software on a system running the server version of the Solaris™ 2.6 or Solaris 7 operating environment. This guide provides instruction for system administrators to use an installation and upgrade script.

Note – The Sun Ray enterprise server software 1.1 cannot be installed on a system running the Solaris 8 operating environment.

How This Book Is Organized

Chapter 1 provides an overview of the Sun Ray enterprise server software 1.1, including changes and new features.

Chapter 2 describes the hardware and software requirements for the Sun Ray enterprise server software 1.1.

Chapter 3 summarizes the install and upgrade processes, and introduces the `utinstall` script.

Chapter 4 describes how to install the Sun Ray enterprise server software 1.1.

Chapter 5 describes how to upgrade to version 1.1 of the Sun Ray enterprise server software.

Chapter 6 provides additional information for use after installation or upgrade.

Documentation Set

The Sun Ray enterprise server software includes hardcopy and online documentation.

TABLE P-1 Sun Ray Enterprise Server 1.1 Documentation Set

Title	Part Number	Location
<i>Sun Ray Enterprise Server Software 1.1 Product Notes</i>	805-7918-11	Hardcopy, in box
<i>Sun Ray Enterprise Server Software 1.1 Installation Guide</i>	805-7916-11	Hardcopy, in box (this document)
<i>Sun Ray Enterprise Server Software 1.1 Administrator's Guide</i>	805-7915-11	On CD
<i>Sun Ray Enterprise Server Software 1.1 Advanced Administrator's Guide</i>	806-4181-10	On CD

Related Documentation

TABLE P-2 Related Documentation

Title	Part Number	Location
<i>Sun Ray 1 Troubleshooting Guide</i>	805-7871-1x	Hardcopy, in Sun Ray 1 appliance box
<i>Sun Ray 1 Safety and Compliance Guide</i>	805-7870-1x	Hardcopy, in Sun Ray 1 appliance box

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<http://docs.sun.com>

Typographic Conventions

TABLE P-3 Typographic Conventions

Typeface or Symbol	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

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Introduction

This guide describes how to install or upgrade the Sun Ray™ enterprise server software on a system running the server version of the Solaris™ 2.6 or Solaris 7 operating environment. The software cannot install on a system running the Solaris 8 operating environment.

This guide provides system administrators technical information and procedures using a command-line interface, and assumes that the reader is fully confident in network configuration and administration.

Topic covered in this chapter include:

- “Before You Read This Book” on page 1
- “What’s New in Version 1.1” on page 2

Before You Read This Book

To make the installation or upgrade and the configuration of the Sun Ray enterprise server software 1.1 as trouble-free as possible, read the following documentation supplied with the CD-ROM in this order:

- The *Sun Ray Enterprise Server Software 1.1 Product Notes* provide last minute information and additions to the Sun Ray server software documentation set.
- The *Sun Ray Enterprise Server Software 1.1 Installation Guide* describes how to install or upgrade to the 1.1 version of the Sun Ray server software.
- The *Sun Ray Enterprise Server Software 1.1 Administrator’s Guide* explains how to configure and administer the Sun Ray server software and how to use the administration application graphical user interface (GUI).
- The *Sun Ray Enterprise Server Software 1.1 Advanced Administrator’s Guide* provides additional information for power users and procedures to customize Sun Ray server software installations. These customizations are optional.

What's New in Version 1.1

The Sun Ray enterprise server software 1.1 includes several improvements and new features.

Improvements Over Previous Release

Through continuous testing and customer feedback, bugs discovered in the previous software release have been corrected, the installation and upgrade script (`utinstall`) was refined, and the administration application has been extended.

Patches Included in Release 1.1

The 1.1 version of the Sun Ray server software integrates the following patches:

TABLE 1-1 Patches Included With the Sun Ray Enterprise Server Software 1.1

Software	Patches and Location			
Solaris 2.6 operating environment	105181-17	105210-25	105284-31	105390-02
	105490-07	105568-14	105633-30	105669-09
	105703-18	106040-13	106123-04	106409-01
	107272-02	107381-01	108396-01	
	/cdrom/cdrom0/Patches/Solaris_2.6			
Solaris 7 operating environment	106980-07	107078-18	107081-10	107180-12
	107248-02	107250-02	107636-03	108374-01
	/cdrom/cdrom0/Patches/Solaris_7			
LDAP client	106497-01			
	/cdrom/cdrom0/LDAP_client/Solaris_2.6/Patches			
SunDS 3.1	106621-05			
	/cdrom/cdrom0/Sun_Directory_Services_3.1/Solaris_2.6+/Patches			
Sun WebServer™ 2.1	107609-03			
	/cdrom/cdrom0/Sun_WebServer_2.1/Solaris_2.6+/Patches			

This list is not complete and newer or additional patches may be available on the CD-ROM. Check the *Sun Ray Enterprise Server Software 1.1 Product Notes* for more current patch information. Additionally, patch information is available at this URL:

<http://www.sun.com/products/sunray1/patches.html>

Installation and Upgrade Script

The `utinstall` script has been refined to ease the process of installing or upgrading to the Sun Ray enterprise server software 1.1. Bugs have been fixed, the script status is more informative, and the script reports any discrepancies and informs the system administrator if a particular action needs to be taken.

New Administration Application

Release 1.0 of the Sun Ray server software provided a basic graphical user interface. In this release, an improved, user-friendly, and feature-rich GUI is provided as the default means of administering the Sun Ray server. Command-line interaction with the Sun Ray server is also possible. More information about and use of the administration application is available in the *Sun Ray Enterprise Server Software 1.1 Administrator's Guide*.

New Features in this Release

New features have been added to the Sun Ray server software so that power users can customize their servers with special functionality. More information about these features and installing them is in the *Sun Ray Enterprise Server Software 1.1 Advanced Administrator's Guide*.

Failover Capability

New in this release is the failover option, wherein two or more Sun Ray servers may “back-up” each other so that in the event of a Sun Ray server failure, another Sun Ray server is available.

Additional Smart Card Support

In release 1.1 of the Sun Ray enterprise server software, the Sun Ray server can be configured to recognize additional standard smart card formats. This enables diverse card security protocols from different smart card vendors.

Sun Enterprise 10000 Server Support Provided

The Sun Ray server software now supports the Sun Enterprise™ 10000 server.

Requirements

This chapter provides an overview of the requirements of the Sun Ray enterprise server software 1.1. Topics include:

- “Hardware Requirements” on page 5
- “Software Requirements” on page 8

Hardware Requirements

For a system to be configured as a Sun Ray server, it must have the appropriate hardware installed and have access to a private, Sun Ray dedicated network. More detailed information regarding Sun Ray server hardware requirements and network fabric requirements are available in the *Sun Ray Enterprise Server Software 1.1 Administrator’s Guide* and the *Sun Ray Enterprise Server Software 1.1 Advanced Administrator’s Guide* respectively.

Minimum Hardware Requirements

The following table lists minimum requirements for a Sun Ray server:

TABLE 2-1 Minimum Sun Ray Server Requirements

Component	Minimum Requirement	Comment
CPU	UltraSPARC™ 300 MHz	More or faster processors are needed as more appliances are added or application complexity increases.
Memory	256 Mbytes	More memory is needed as appliances increase and as applications demand.
Hard drive	1 Gbyte of free space	More space is needed as users increase. This value does not include swap space.

Sizing Hardware Requirements

The following table provides quick, generic sizing requirements. The values computed do not guarantee satisfactory performance for your Sun Ray server installation.

TABLE 2-2 Sizing Hardware Requirements

Component	Equation	Comment
CPU	$(\# \text{ of appliances} \times \% \text{ activity} \times 5\%) + (10\% \text{ for OS}) \times 300 \text{ MHz}$ Example with 40 appliances at 50% activity: $(40 \times 50\% \times 5\%) + (10\%) \times 300 = 330 \text{ MHz}$	Round up to nearest CPU speed configurable or multiple CPUs*.
Memory	$(\# \text{ of appliances} \times \% \text{ activity} \times 40 \text{ Mbyte}) + 64 \text{ Mbyte for OS}$ Example with 40 appliances at 50% activity: $(40 \times 50\% \times 40) + 64 = 864 \text{ Mbyte}$	Round up to nearest Mbyte configurable.
Hard drive swap space	$(\# \text{ of appliances} \times 50 \text{ Mbyte}) - \text{memory} + 500 \text{ Mbyte (tmp)}$ Example with 40 appliances: $(40 \times 50) - 864 + 500 = 1636 \text{ Mbyte}$	Round up to nearest Mbyte configurable.

* If more than one CPU is used, hard drive swap space must be evenly divided to one spindle per each CPU.

For more thorough information regarding proper provisioning of a Sun Ray server, refer to the *Sun Ray Enterprise Server Software 1.1 Administrator's Guide* or go to this URL:

<http://www.sun.com/products/sunray1>

Your Sun Microsystems sales representative can also be of assistance.

Other System Hardware

Other system hardware is required for installing or upgrading to the Sun Ray enterprise server software 1.1.

CD-ROM and Server Head Requirements

For simplest installation or upgrade, ensure that the Sun Ray server has a CD-ROM drive, a monitor, a keyboard, and a mouse. If these peripherals are unavailable, install or upgrade the software from a remote server on the network.

Network Interface Requirements

The system to be configured as a Sun Ray server must have at least one additional Ethernet network interface installed which is dedicated solely for the Sun Ray private network. The interface must have 100 Mbps bandwidth capability or faster.

Network Requirements

The Sun Ray network is dedicated to application specific protocols. Standard public networks and TCP/IP protocols cannot be introduced into a Sun Ray network. Additionally, Sun Ray networks require very high bandwidth, so all components of the network (switches, hubs, and cabling) must be capable of 100 Mbps or faster data rate and completely private.

Switch Requirements

The following table lists necessary specifications of switches for the Sun Ray network:

TABLE 2-3 Switch Specifications

Switches Must	Switches Must Not
Auto-negotiate only	Hard code direct connect
Backplane bandwidth of a higher order than port bandwidth	Backplane bandwidth equal to port bandwidth
Full duplex	Half duplex
Fast power-on and link-up	Enable spanning tree protocols
Low latency	Blocking

TABLE 2-3 Switch Specifications (Continued)

Switches Must	Switches Must Not
Minimize store and forward	Strict cut-through
High capacity buffering	
Enable multi-casting	

Hub Requirements

Considering the price/performance value of switches, the use of hubs in a Sun Ray network is not advised. However, if you must use hubs, observe the following conditions:

- Use hubs only to get fan-out between switches and Sun Ray 1 appliances.
- Do not use hubs with more than 12 ports.

Cable Requirements

Cable selection and routing is also important.

- Use only category 5 or faster Ethernet cabling.
- Cable multiple switches in a daisy chain rather than a cascade.

Software Requirements

Before installing the Sun Ray server software, certain software requirements must be fulfilled. More detailed information regarding Sun Ray server software requirements is available in the *Sun Ray Enterprise Server Software 1.1 Administrator's Guide*.

Solaris Operating Environment

The Sun Ray server must be preconfigured with a “full cluster” install of the server version 2.6 or 7 of the Solaris operating environment. You can check the version by typing the following command as a user of the Sun Ray server:

```
% uname -r
```

A response of 5.6 means Solaris 2.6 software, a response of 5.7 means Solaris 7 software. If the server has a lower version, contact your Sun Microsystems representative to purchase a newer version of the Solaris software. Alternatively, you can go to this URL:

<http://www.sun.com/software/solaris/how-to-buy.html>

Note – The Sun Ray enterprise server software 1.1 does *not* support a Solaris software upgrade.

Other Software

Web Server Conditions

The Sun Ray server software includes, requires, and installs the Sun WebServer 2.1 web server software. If you already have a different web server configured on the Sun Ray server, it can coexist with the Sun WebServer. By default, port 1660 is used by the Sun WebServer for the Sun Ray administration application. If this port is unavailable, a new port can be configured while running the `utconfig` script.

Note – If you are installing the Sun Ray server software onto a system with the Solaris 7 operating environment and the `SUNWfns` package is not installed, the `utinstall` script will abort.

Web Browser Conditions

To view the Sun Ray administration application, you must have a web browser installed on the system which shall access the administration application. For best results, use Netscape™ Communicator 4.5.1 or a later version. The Netscape Communicator web browser is available on the Communicator CD-ROM in the Solaris software box, or at this URL:

<http://www.netscape.com/download>

Note – The Sun Ray administration application does not support the HotJava™ Browser or the StarOffice™ web browser.

LDAP Server Conditions

The Sun Ray server software includes, requires, and installs the SunDS lightweight directory access protocol (LDAP) server. If you already have a different LDAP server configured on the Sun Ray server, it can coexist with SunDS; however it must not use port 389. Port 389 is reserved for use by the SunDS LDAP server. If this situation is not feasible, refer to “Changing LDAP Server Port” on page 33.

Additionally, the SunDS LDAP server expects a version 1.1.x of the Java™ Development Kit (JDK™) to be installed. Any versions other than 1.1.x are not supported.

You can verify which version of the JDK is installed by typing this command as superuser of the Sun Ray server:

```
# java -version
```

Note – If you are installing the Sun Ray server software onto a system with the Solaris 7 operating environment and the SUNWlldap package is not installed, the `utinstall` script will abort.

Patch Requirements

For the Sun Ray software to function properly, certain patches are necessary. Most of these patches are automatically installed by the `utinstall` script. However, if the `utinstall` script encounters a newer version of a patch than what the `utinstall` script was going to install, the script does not replace this patch. This way, only the latest versions of patches are installed.

Preparation Before Installation or Upgrade

This chapter provides an outline of the install and upgrade process. Topics covered in this chapter are:

- “Installation and Upgrade Procedures” on page 11
- “The utinstall Script” on page 13

Installation and Upgrade Procedures

The `utinstall` script, provided on the Sun Ray enterprise server software 1.1 CD-ROM, enables you to install or upgrade to the Sun Ray enterprise server software 1.1.

- If you are configuring a system to be a Sun Ray server, then you are *installing* the Sun Ray enterprise server software 1.1. Make any changes to the Solaris operating environment to meet the requirements before installing the Sun Ray server software.
- If you are replacing the older Sun Ray server software in an existing Sun Ray server, you are *upgrading* to the Sun Ray enterprise server software 1.1. If you are also upgrading to the Solaris 7 operating environment, an additional procedure must be done before upgrading the Sun Ray server software.

Whether installing the Sun Ray server software for the first time, or upgrading an existing Sun Ray network, certain steps must be taken to assure an easy, trouble-free experience.

Note – The Sun Ray server software does not support a Solaris operating environment upgrade. If you need to upgrade to the Solaris 2.6 or Solaris 7 operating environment, you must do so before installing or upgrading the Sun Ray server software. The installation of the Solaris 2.6 or Solaris 7 operating environment must be a fresh, “full cluster” installation. The Solaris 8 operating environment is not supported by the Sun Ray enterprise server software 1.1.

Installation Procedure Overview

The following list is a general overview of the process for installing the Sun Ray server software. The process is explained with greater detail in Chapter 4.

1. If required, make a fresh, “full cluster” install of the server version of the Solaris 2.6 or Solaris 7 operating environment. For this step, first consider making a tape backup of the file system, as the existing file system is lost as part of the full cluster install. Refer to the documentation supplied with the Solaris software.
2. Read the *Sun Ray Enterprise Server Software 1.1 Product Notes*.
3. Read the *Sun Ray Enterprise Server Software 1.1 Installation Guide*.
4. Verify hardware and software requirements. Correct if necessary.
5. Run the `utinstall` script. If the `utinstall` script aborts with an error message, interpret the results and correct as necessary, then rerun the `utinstall` script.
6. Perform any additional procedures.
7. Read the *Sun Ray Enterprise Server Software 1.1 Administrator's Guide*.
8. Use the `utadm` and `utconfig` commands to configure the Sun Ray server.
9. Configure a secured socket layer (SSL) certificate, if desired.
10. If additional features are desired, read the *Sun Ray Enterprise Server Software 1.1 Advanced Administrator's Guide*.
11. Perform tasks to install and configure additional features.

Upgrade Procedure Overview

The following list is a general overview of the process to upgrade the Sun Ray server software. This process is explained with greater detail in Chapter 5.

1. If the Solaris operating environment will also be upgraded, first back up the Sun Ray 1.0 configuration and the Sun Ray server file system. Then make a fresh, “full cluster” install of the server version of the Solaris 7 software. Refer to the documentation supplied with the Solaris software for assistance. Then restore the Sun Ray 1.0 configuration.
2. Read the *Sun Ray Enterprise Server Software 1.1 Product Notes*.
3. Read the *Sun Ray Enterprise Server Software 1.1 Installation Guide*.
4. Run the `utinstall` script. If the `utinstall` script aborts with an error message, interpret the results and correct as necessary, then rerun the `utinstall` script.
5. Perform any additional procedures.
6. Read the *Sun Ray Enterprise Server Software 1.1 Administrator's Guide*.
7. Use the `utadm` and `utconfig` commands to configure the Sun Ray server.
8. Configure a secure socket layer (SSL) certificate, if desired.
9. If additional features are desired, read the *Sun Ray Enterprise Server Software 1.1 Advanced Administrator's Guide*.
10. Perform tasks to install and configure additional features.

The `utinstall` Script

To ease the installation of or upgrade to the Sun Ray enterprise server software 1.1, a command-line script, `utinstall`, is used. The `utinstall` script can install, upgrade, or uninstall the Sun Ray server software.

Note – Unlike the previous release, the `utinstall` script is the only supported means of installing or upgrading to the Sun Ray enterprise server software 1.1. Relocating packages using the `pkgadd` command will cause problems.

When the `utinstall` script is invoked for install or upgrade, it checks the configuration and the software installed on the Sun Ray server. If conditions are unsatisfactory, the `utinstall` script may abort with an error message. The system administrator should resolve the error condition and then rerun the `utinstall` script.

Executing the Script

You execute the `utinstall` script as superuser. The script has the following formats:

```
# /cdrom/cdrom0/utinstall options
```

```
# /opt/SUNWut/sbin/utinstall options
```

The following table describes the available *options*:

TABLE 3-1 Options for the `utinstall` Command

Option	Function
none	Typical for installation or upgrade, no option is used.
-a <i>adminfile</i>	Install using <i>adminfile</i> as the installation administration file for <code>pkgadd</code> operations. The default installation administration file is <code>admin_default</code> , located in the installation media root directory. For the CD-ROM, this is <code>/cdrom/cdrom0</code> .
-d <i>mediadir</i>	Use <i>mediadir</i> as the installation media root directory.
-u	Removes previously installed Sun Ray server software through <code>pkgrm</code> commands.

Script Error Messages

If during an installation, upgrade, or uninstall the `utinstall` script returns an error, refer to the following table for assistance.

TABLE 3-2 `utinstall` Error Messages

Message	Meaning	Resolution
Incomplete installation media root, it must contain <code>Sun_Ray_Ent_Server_1.1</code> directory and contents.	The user called the <code>-d</code> option, but <i>mediadir</i> is incomplete.	The <i>mediadir</i> directory requires relevant patches and packages for installation. This includes the Sun Ray directory.
Cannot open for read <i>adminfile</i>	The <code>admin_default</code> file is unreadable, or the user called the <code>-a</code> option and the <i>adminfile</i> is unreadable.	Verify that the installation administration file exists, (<code>admin_default</code> or other), and the permissions are correct.

TABLE 3-2 utinstall Error Messages (Continued)

Message	Meaning	Resolution
Please supply an adequate installation media root using the <code>-d</code> option.	The default installation media root directory is incomplete.	Make sure the default installation media root directory is complete and has the <code>admin_default</code> file. Or, use the <code>-d</code> option and specify a different, complete installation media root directory.
SunOS release is <code>x.x</code> , valid releases are : 5.6 and 5.7	The user is attempting to install the Sun Ray server software onto Solaris software version 2.5.1 (5.5.1) or older.	Upgrade to the Solaris 2.6 (5.6) or 7 (5.7) operating environment before installing the Sun Ray server software.
SUNWlldap package is part of the Solaris entire distribution install	The LDAP client is not installed under Solaris software version 7 (5.7).	Make a “full cluster” install of the Solaris 7 (5.7) operating environment, or add the SUNWlldap package.
SUNWfns package is part of the Solaris entire distribution install	The Federated Naming Service software is not installed under Solaris software version 7 (5.7).	Make a “full cluster” install of the Solaris 7 (5.7) operating environment, or add the SUNWfns package.
No user data was specified to be preserved during upgrade install	The user called the <code>-d</code> option, but <code>mediadir</code> is incomplete.	The <code>mediadir</code> directory requires the <code>.upgrade</code> directory, its contents, and other files.
Failed to “Save & Restore” current user data successfully	The <code>utinstall</code> script failed to preserve existing configuration files.	Either exit and manually preserve these files, or just continue.
<code>xxxxxx</code> not successfully installed	May occur for the installation of any application or patch, <code>xxxxxx</code> , if relevant packages have not been properly installed.	Verify the component <code>xxxxxx</code> is present in the installation media directory path and has the correct permissions, then re-run the <code>utinstall</code> script.
The following packages were not successfully removed <code>xxxxxx ...</code>	The packages listed have not been properly removed.	Use the <code>pkgrm</code> command to manually remove each package listed, then run <code>utinstall -u</code> again.
A different version <code>x.x</code> of <i>product</i> has been detected. The <i>otherproduct</i> Software is only compatible with <i>product</i> <code>y.y</code> . You must either upgrade or remove the current <i>product</i> installation before proceeding.	Some of the applications provided with the Sun Ray server software are only compatible with certain versions of other applications.	Compatible and necessary applications are included with the Sun Ray server software. Remove older versions, then re-run the <code>utinstall</code> script.
Exiting ...		

TABLE 3-2 utinstall Error Messages (Continued)

Message	Meaning	Resolution
Nothing to remove, exiting ...	None of the Sun Ray components are installed on this system.	No action is required as the product is not installed.
<i>product</i> has not installed correctly. All data saved during the upgrade 'Save & Restore' has been retained at the following location:	Upgrade of the Sun Ray server software was incomplete.	<ol style="list-style-type: none"> 1. Run utinstall again. 2. If message appears again, type: # pkginfo -p grep SUNWut 3. Use pkgrm to remove packages listed. 4. Type: # pkginfo grep SUNWut 5. If output, go to step 7. 6. If no output, type: # cd /cdrom/cdrom0/ Sun_Ray_Ent_Server_1.1/ Solaris_2.6+/Product 7. Run utinstall again.
The following files were not successfully replaced during this upgrade. The saved copies can be found in <i>directory</i>	Some files were not properly replaced as part of the upgrade.	Manually copy the listed files from the <i>directory</i> overwriting the newer files if applicable.
Removal of <i>product</i> was not successfully completed. See <i>logfile</i> for more details.	Removal of the Sun Ray server software was incomplete.	Check <i>logfile</i> for the package which started the problem and manually remove it with the pkgrm command, then run utinstall -u again.
Message	Meaning and Resolution	
<pre> Partition Name Space Required (KB) Space Available (KB) ----- <i>partition</i> <i>xxx</i> <i>yyy</i> </pre>	Not enough disk space was allocated for <i>partition</i> . Repartition the disk and run utinstall again.	

Installing the Sun Ray Server Software 1.1

This chapter describes the two aspects of a Sun Ray server installation:

- “Hardware Installation” on page 17
- “Installing the Software” on page 18

Hardware Installation

Sun Ray Server Check

Ensure the system to be configured as a Sun Ray server is fully operational and meets the hardware requirements previously outlined. The system is cabled to both the public network and to the dedicated, private Sun Ray network through a high-bandwidth network interface. Refer to the documentation provided with the network interface card for installation instructions.

Network Conditions

The Sun Ray network is private and independent of the public network. It is configured with appropriate high-bandwidth switches and hubs where acceptable. Cabling for the Sun Ray network is category 5 or better.

Sun Ray 1 Appliance Setup

The Sun Ray 1 appliances are configured with monitors, mice, keyboards, network cables, and power cables.

Verify all hardware connections.

Installing the Software

To upgrade the Solaris operating environment, perform the following procedure. Otherwise, proceed to “To Mount the CD-ROM” on page 18.

▼ To Upgrade the Solaris Operating Environment

The following procedure is a brief overview. Refer to the documentation provided with the Solaris software for complete instructions.

1. **Log in or use the `rlogin` command to log in as superuser of the server which is to be configured as the Sun Ray server.**
2. **Make a tape backup of the file system.**
3. **Upgrade to either the Solaris 2.6 or Solaris 7 operating environment.**
4. **Selectively restore the file system previously backed up.**
5. **If you are going to install the Sun Ray enterprise server software 1.1 from a remote system, perform the following procedure. Otherwise, proceed to “To Install the Sun Ray Enterprise Server Software 1.1” on page 19.**

▼ To Mount the CD-ROM

Perform the following procedure if you are installing the Sun Ray enterprise server software 1.1 from a remote server with a CD-ROM drive. If the Sun Ray server has a CD-ROM drive and server head, proceed to “To Install the Sun Ray Enterprise Server Software 1.1” on page 19.

1. **As superuser of the remote system, open a shell window and insert the Sun Ray Enterprise Server Software 1.1 CD-ROM into the CD-ROM drive.**

2. If a file manager window opens, close it.

The file manager CD-ROM window is not necessary for installation.

3. Share the Sun Ray CD-ROM file system:

```
# share -o ro /cdrom/cdrom0
```

4. Use the `rlogin` command to log into the Sun Ray server as the root user:

```
# rlogin sunrayservername -l root
Password:
```

Where *sunrayservername* is the host name of the Sun Ray server.

5. Create the file system mount point:

```
# mkdir /cdrom/cdrom0
```

6. Mount the remote CD-ROM drive:

```
# mount -o ro cdservername:/cdrom/cdrom0 /cdrom/cdrom0
```

Where *cdservername* is the host name of the server with the Sun Ray CD-ROM.

7. Go to the next procedure, “To Install the Sun Ray Enterprise Server Software 1.1” on page 19.

▼ To Install the Sun Ray Enterprise Server Software 1.1

If you have already mounted the Sun Ray enterprise server software 1.1 CD-ROM from a remote server, begin at Step 4.

Note – During the process, you may see messages indicating an error condition. Refer to “Script Error Messages” on page 14 for an explanation of these messages.

1. As superuser, open a shell window on the Sun Ray server.

2. Insert the Sun Ray enterprise server software 1.1 CD-ROM.

3. If a file manager window opens, close it.

The file manager CD-ROM window is not necessary for installation.

4. Install the Sun Ray software:

```
# /cdrom/cdrom0/utinstall
```

The installation process begins and the script checks to see which required software products are already installed. For example:

```
Installation of Sun Ray enterprise server Software

Sun Ray enterprise server      not installed
Sun Directory Services 3.1    not installed
LDAP Client Libraries 11.6.0  not installed
Sun Web Server 2.1 (optional) not installed
```

If you have an earlier version of any of the software products, the script displays a message about what it has found and may exit or ask a question. For example:

```
A version other than 2.1 of Sun WebServer has been detected.
Although the Sun Ray enterprise server web-based applications are
only supported running under Sun WebServer 2.1, you can elect to
use a different web server on your own. If you wish to take
advantage of the Sun Ray enterprise server automatic installation
and configuration tools, you must either upgrade or remove the
current Sun WebServer installation before proceeding.

Do you want to replace current Sun WebServer version ([y]/n)?
```

Otherwise, the script asks if you want to install the Sun WebServer software. For example:

```
Install Sun Web Server 2.1 ([y]/n)?
```

5. The Sun WebServer must be installed. Type y (yes).

The script informs the user that it will install the required software products and any necessary patches and waits for approval. For example:

```
About to install the following software products:

Sun Ray enterprise server 1.1
Sun Directory Services 3.1
LDAP Client Libraries 11.6.0
Sun Web Server 2.1

In addition, required Solaris patches will be installed if necessary
and any running Sun Ray enterprise server services will be stopped.

Continue ([y]/n)?
```

6. Answer y (yes).

The script begins to install patches. For example:

```
Installing OS patches ...

Installing patch 105181-17 ...
.
.
```

If you see the following message, it is no cause for alarm, as a newer version of the patch already exists on the Sun Ray server. For example:

```
Patch 107272-02 or later already installed.
```

However, if you see the following message, you need to manually install the patch on to the Sun Ray server. For example:

```
Installing patch 108396-01 ...
utinstall: note, patch 108396-01 did not install correctly,
continuing ...
```

The script installs the required software applications. The following table is a sample from the application installation portion of the `utinstall` script. It is for the Sun Directory Services server. Installation of each software application has sequential output similar to the following:

TABLE 4-1 Sample Application Installation

Screen Text	What Is Happening
Installing Sun Directory Services version 3.1 ...	Software application is installed.
This will take a few minutes, please wait ...	User is informed of time requirements.
Processing package instance <SUNWsd> from </cdrom/cdrom0/Sun_Directory_Services_3.1/Solaris_2.6+/Product>	User is informed from what directory the package is installed.
Sun Directory Services (sparc) 3.1 Copyright 1997 Sun Microsystems, Inc. All Rights Reserved : JURIDIQUEMENT NUL ET NON AVENU.	Copyright, in both English and French, is displayed. (Edited for sample.)
Installing package <SUNWsd>: Sun Directory Services	Package is installed.
Using </opt> as the package base directory.	User is informed where package is installed.
## Processing package information. ## Processing system information. 9 package pathnames are already properly installed. ## Verifying disk space requirements.	Package script, <i>not</i> <code>utinstall</code> , checks the package information, system status, and available disk space.
Installing Sun Directory Services as <SUNWsd>	Actual installation of the package.
## Installing part 1 of 1. 34612 blocks	User is informed that the first part of only one part is installed, with a content of 34612 blocks.
/etc/init.d/dsadm : /etc/rc3.d/S86dsnmpserv <linked pathname>	Beginning and ending of a list of all files installed. (Very long. Edited for sample.)
## Executing postinstall script.	Postinstall script for the package, <i>not</i> <code>utinstall</code> , is run.
Make sure to run the license insertion tool or the license configuration script on this machine to install additional licenses.	User is reminded to run a license tool. <code>utinstall</code> script does this for the user.
Licenses for sunds.lic copied from /etc/opt/licenses to /opt/SUNWconn/license_dir	User is informed that licenses have been copied to the correct directories.
Please wait ...	User is asked to wait.
Creating /etc/opt/SUNWconn/ldap/current/dsnmpserv.conf ... Creating /etc/opt/SUNWconn/ldap/current/dsnmpserv.boots ... Creating /etc/opt/SUNWconn/ldap/current/dsnmprad.conf ... Creating /etc/opt/SUNWconn/ldap/current/dsnmprad.boots ...	Creation of configuration files.

TABLE 4-1 Sample Application Installation (Continued)

Screen Text	What Is Happening
The product contains two SNMP agents: A LDAP Server Agent (dsnmprserv) A RADIUS Server Agent (dsnmprad)	Two SNMP agents are identified.
You can configure them later by typing: /opt/SUNWconn/sbin/dsnmpcfg configure	User is informed of command to configure SNMP agents. utinstall script does this for the user.
To restore a configuration from Sun Directory Services 1.0 type: /opt/SUNWconn/sbin/dsupgrade	User is informed of command to restore configuration. utinstall script does this for the user.
To perform the initial configuration of the Sun Directory Services NIS server, type: /opt/SUNWconn/sbin/dsypinstall	User is informed of command to configure Sun Directory Services NIS server. utinstall script does this for the user.
Updating system information	System information is updated.
Can't locate Java runtime Install Java runtime or Set JAVA_HOME to its location	Existence of Java™ runtime environment checked.
Installation of <SUNWsds> was successful.	User is informed that application installation was successful.

The utinstall script continues to install:

1. Sun Directory Services client tools
2. LDAP client libraries
3. Sun WebServer
4. Sun WebServer configuration
5. Sun Ray enterprise server:
 - a. Administration software
 - b. Java JRE software
 - c. Man pages
 - d. Core software
 - e. Configuration
 - f. Drivers

The utinstall script ends, indicating a log file is available at:

```
/var/tmp/utinstall.year_month_date_hour:minute:second.log
```

Where the *year*, *month*, etc are represented by numbers. For example:

```
Installation of Sun Ray enterprise server has completed. Please
check the log file, /var/tmp/utinstall.1999_12_03_15:14:53.log,
for errors.
```

7. If the `utinstall` script has an error message, or aborts with an error message, refer to “Script Error Messages” on page 14.

Note – The `utinstall` script will request that you reboot the Sun Ray server. This action can be deferred until all features have been installed. Instructions for reboot are in Chapter 6

8. After the `utinstall` script has run successfully, go to Chapter 6 for important information regarding Sun Ray server configuration and other procedures. If you are upgrading the Sun Ray server software, return to Step 3 in “To Upgrade to the Sun Ray Enterprise Server Software 1.1” on page 28.

Upgrading the Sun Ray Enterprise Server Software 1.1

The Sun Ray enterprise server software 1.1 upgrade concerns only software installation, as hardware requirements are already met. This chapter describes the upgrade procedure and includes the following topics:

- “Configuration File Preservation” on page 25
- “Upgrading the Software” on page 26

Configuration File Preservation

During an upgrade to the Sun Ray enterprise server software 1.1, configuration files are preserved. The following table lists these files:

TABLE 5-1 Configuration Files Preserved During Upgrade

Category	File
Authentication	<code>/etc/opt/SUNWut/auth.permit</code>
Manager	<code>/etc/opt/SUNWut/token.equiv</code>
	<code>/etc/opt/SUNWut/auth.props</code>
	<code>/etc/opt/SUNWut/policy/utpolicy</code>

TABLE 5-1 Configuration Files Preserved During Upgrade

Category	File
Authentication Policy	<code>/etc/opt/SUNWut/policy/RegisteredDistributed</code> <code>/etc/opt/SUNWut/policy/TerminalId</code> <code>/etc/opt/SUNWut/policy/TerminalId.example</code> <code>/etc/opt/SUNWut/policy/ZeroAdmin</code> <code>/etc/opt/SUNWut/sessionTypes.props</code>
Utsettings	<code>/etc/opt/SUNWut/utsettings_defaults.properties</code> <code>/etc/opt/SUNWut/utsettings_mandatory.properties</code>
Administration	<code>/etc/opt/SUNWut/utadmin.conf</code> <code>/etc/opt/SUNWut/utadmin.pw</code>

Note – Log files are not preserved during an upgrade. Move `/var/opt/SUNWut/log/messages` and `/var/opt/SUNWut/log/auth_log` to a safe place before upgrading. Return the files after upgrade.

If you are only upgrading the Sun Ray server software, proceed to “To Upgrade to the Sun Ray Enterprise Server Software 1.1” on page 28.

If the Solaris operating environment will also be upgraded, then the configuration files must be preserved using the following procedure.

Upgrading the Software

If you are going to upgrade the Solaris operating environment, perform the following procedure. Otherwise, proceed to “To Mount the CD-ROM” on page 27.

▼ To Upgrade the Solaris Operating Environment

The following procedure is a brief overview. Refer to the documentation provided with the Solaris software for complete instructions.

1. **Log in or use the `rlogin` command to log in as superuser of the Sun Ray server.**
2. **Type the following commands to make backups of user and desktop data:**

```
# utuser -o /tmp/users
# utdesktop -o /tmp/desktops
```

3. Use NFS™, FTP, or other means to move the `/tmp/users` and `/tmp/desktops` files to a safe location on another server.
Optionally, move the `/var/opt/SUNWut/log/messages` and `/var/opt/SUNWut/log/auth_log` files to a safe location on another server.
4. Make a tape backup of the file system.
5. Upgrade to the Solaris 7 operating environment.
6. Selectively restore the file system previously backed up.
7. Use NFS, FTP, or other means to return the `/tmp/users` and `/tmp/desktops` files to the Sun Ray server.
8. If you are going to upgrade the Sun Ray server software from a remote system, perform the following procedure. Otherwise, proceed to “To Upgrade to the Sun Ray Enterprise Server Software 1.1” on page 28.

▼ To Mount the CD-ROM

Perform the following procedure if you are upgrading to the Sun Ray enterprise server software 1.1 from a remote server with a CD-ROM drive. If the Sun Ray server has a CD-ROM drive and server head, go to “To Upgrade to the Sun Ray Enterprise Server Software 1.1” on page 28.

1. As superuser of the remote system, open a shell window and insert the Sun Ray Enterprise Server Software 1.1 CD-ROM into the CD-ROM drive.
2. If a file manager window opens, close it.
The file manager CD-ROM window is not necessary for installation.
3. Share the Sun Ray CD-ROM file system:

```
# share -o ro /cdrom/cdrom0
```

4. Use the `rlogin` command to log into the Sun Ray server as the root user:

```
# rlogin sunrayservername -l root  
Password:
```

Where *sunrayservername* is the host name of the Sun Ray server.

5. Create the file system mount point:

```
# mkdir /cdrom/cdrom0
```

6. Mount the remote CD-ROM drive:

```
# mount -o ro cdservername:/cdrom/cdrom0 /cdrom/cdrom0
```

Where *cdservername* is the host name of the server with the Sun Ray CD-ROM.

7. Go to the next procedure, “To Upgrade to the Sun Ray Enterprise Server Software 1.1” on page 28.

▼ To Upgrade to the Sun Ray Enterprise Server Software 1.1

The process to upgrade the Sun Ray server is similar to installation, in that the `utinstall` script is run in the same manner.

1. If you want to preserve the log files, use NFS, FTP, or other means to move the `/var/opt/SUNWut/log/messages` and `/var/opt/SUNWut/log/auth_log` files to a safe location on another server.

This step is optional.

2. Go to “To Install the Sun Ray Enterprise Server Software 1.1” on page 19 and perform that sequence, then return here.

3. If you upgraded the Solaris software, type the following commands to restore the user and desktop data:

```
# utuser -af /tmp/users  
# utdesktop -ef /tmp/desktops
```

4. If you moved the log files to another server, use NFS, FTP, or other means to return them to the Sun Ray server.

5. After the `utinstall` script has run successfully, proceed to Chapter 6 for important information regarding Sun Ray server configuration and other procedures.

Additional Steps

This chapter provides important information for use after installation of or upgrade to the Sun Ray enterprise server software 1.1. Topics include:

- “Configuring and Adding Features to the Sun Ray Enterprise Server” on page 29
- “Accessing Documentation Online” on page 30
- “SSL Certificate” on page 31
- “Sun Ray 1 Appliance Firmware Update” on page 31
- “Viewing Sun Ray Man Pages” on page 33
- “Changing LDAP Server Port” on page 33
- “Unmounting the CD-ROM” on page 34
- “Rebooting the Sun Ray Enterprise Server” on page 35
- “Not Installed Components” on page 36

Configuring and Adding Features to the Sun Ray Enterprise Server

After completing the installation or upgrade procedures, continue on to the *Sun Ray Enterprise Server Software 1.1 Administrator’s Guide* to configure the Sun Ray server using the `utadm` and `utconfig` scripts. An SSL certificate can also be configured.

After configuration, the *Sun Ray Enterprise Server Software 1.1 Advanced Administrator’s Guide* provides instructions to install optional features on the Sun Ray server.

Accessing Documentation Online

Before installation, the localized Sun Ray enterprise server software 1.1 documentation is available in HTML, PDF or PostScript™ format on the CD-ROM at the following path:

```
/cdrom/cdrom0/Docs/Solaris_2.6+/locale/package/reloc/SUNWut/doc/locale/
```

Where *locale* and *package* are according to TABLE 6-1:

TABLE 6-1 Language, Locales, and Packages

Language	Locale	Package	Language	Locale	Package
English	en	SUNWeutdo	Korean	ko	SUNWkutdo
French	fr	SUNWfutdo	Simplified Chinese	zh	SUNWcutdo
Japanese	ja	SUNWjutdo	Traditional Chinese	zh_TW	SUNWhutdo

Both English and Japanese documentation is installed automatically by the `utinstall` script. Additional languages are installed using the `pkgadd` command.

▼ To Manually Install a Localized Documentation Package

This procedure uses locales and package names from TABLE 6-1.

1. From the shell window where you typed the `utinstall` command, change to the directory for your locale:

```
# cd /cdrom/cdrom0/Docs/Solaris_2.6+/locale
```

2. Install the localized documentation package:

```
# pkgadd -d . package
```

After installation, the localized documentation is available on the Sun Ray server at the following path:

```
/opt/SUNWut/doc/locale/
```

Note – The Sun Ray administration application has a link for viewing online documentation. Clicking on this link will display the HTML version of either the English or Japanese documentation. If you select Japanese language while logging in to the administration application, the Japanese HTML is displayed at the Online Documents link. If any other language is selected during log in, English HTML is displayed.

SSL Certificate

To improve the security of the Sun Ray administration GUI, a secure socket layer (SSL) certificate can be configured. The *Sun Ray Enterprise Server Software 1.1 Administrator's Guide* describes how to configure the Sun Ray web server with an SSL certificate.

Note – Installing the SSL certificate is optional.

Sun Ray 1 Appliance Firmware Update

There are two firmware images provided with the Sun Ray server software to update the Sun Ray 1 appliances:

- `CoronaP1`

This is the default firmware image. This firmware provides auto-sensing of display data channel (DDC) compliant monitors. If a DDC monitor is not found, the default resolution of 1152 x 900 x 66 Hz is set.

- `CoronaP1.vga`

This firmware image is similar to the `CoronaP1` image, except the default resolution is 640 x 480 x 60 Hz. This image is useful when older, non-DDC compliant, smaller monitors are configured with Sun Ray 1 appliances.

The Sun Ray 1 appliance firmware is not automatically updated as part of the `utinstall` script. The firmware update is installed manually. The following two procedures describe how to update all Sun Ray 1 appliances with the default firmware image and how to update only one Sun Ray 1 appliance with the `CoronaP1.vga` image.

For information about selective firmware updates and the use of the `utfwadm` script, see “PROM Version Management” in Chapter 6 of the *Sun Ray Enterprise Server Software 1.1 Administrator’s Guide* or the man page for `utfwadm`.

▼ To Upgrade All Sun Ray 1 Appliances With the Default Firmware

Caution – This procedure irrevocably upgrades *all* Sun Ray 1 appliances on *all* network interfaces.

1. As superuser of the Sun Ray server, open a shell window and type the following command:

```
# cd /opt/SUNWut/sbin
```

2. Update the firmware for all Sun Ray 1 appliances:

```
# ./utfwadm -A -a -n all
```

The next time a Sun Ray 1 appliance is power cycled, the new firmware will be loaded.

▼ To Update One Sun Ray 1 Appliance With the CoronaP1.vga Firmware

1. Determine the Ethernet address of the Sun Ray 1 appliance to upgrade. It is found by either of two methods:
 - The last six digits of the bar code on the bottom of the Sun Ray 1 appliance
 - Press all three Sun Ray 1 appliance keyboard audio keys simultaneously. The Ethernet address is displayed on the monitor at the top of the purple box.
2. As superuser of the Sun Ray server, open a shell window and type the following command:

```
# cd /opt/SUNWut/sbin
```

3. Update the firmware for the Sun Ray 1 appliance:

```
# ./utfwadm -A -s Ether -n intf -f /opt/SUNWut/lib/firmware/CoronaP1.vga
```

Where *Ether* is the Ethernet address and *intf* is the interface name for that Sun Ray 1 appliance. The next time the Sun Ray 1 appliance is power cycled, the new firmware will be loaded.

Viewing Sun Ray Man Pages

After installation of or upgrade to the Sun Ray enterprise server software 1.1, Sun Ray specific man pages are viewed by typing this command:

```
% man -a -M /opt/SUNWut/man command
```

Where *command* is the Sun Ray specific command.

Changing LDAP Server Port

The SunDS server requires use of port 389. However, if an LDAP server is already installed, most likely this port is unavailable. The following procedure explains how to change the default port for SunDS.

▼ To Change the SunDS Port

1. **As superuser of the Sun Ray server, edit the `/etc/opt/SUNWut/utadmin.conf` file.**
2. **Search the file for this line:**

```
admin.server.port=389
```

3. **Change the port number from 389 to an unused, unique value.**

4. **Save the file.**
5. **Edit the /etc/opt/SUNWconn/ldap/default/dsserv.ini file.**
6. **Search the file for this line:**

```
LdapPort=389
```

7. **Change the port number from 389 to the value you entered in Step 3.**
8. **Save the file.**
9. **Edit the /etc/inet/services file.**
10. **Search the file for these lines:**

```
ldap      389/tcp
ldap      389/udp
```

11. **Change the port number from 389 to the value you entered in Step 3.**
12. **Save the file.**
13. **Restart the SunDS and Sun Ray servers:**

```
# /etc/init.d/utsvnc stop
# /etc/init.d/dsserv stop
# /etc/init.d/dsserv start
# /etc/init.d/utsvnc start
```

Unmounting the CD-ROM

After performing an installation or upgrade from a remote server, you need to unmount the CD-ROM.

▼ To Unmount the CD-ROM

1. From the shell window where you typed the `utinstall` command, unmount the CD-ROM file system:

```
# umount /cdrom/cdrom0
```

2. Remove the CD-ROM file system mount point:

```
# rm -fR /cdrom
```

3. Close the `rlogin` session:

```
# exit
```

4. Unshare the CD-ROM file system:

```
# unshare /cdrom/cdrom0
```

Rebooting the Sun Ray Enterprise Server

After performing an installation or upgrade, you *must* reboot the Sun Ray server.

▼ To Reboot the Sun Ray Server

- From the shell window where you typed the `utinstall` command, reboot the Sun Ray server:

```
# sync;sync;init 6
```

The Sun Ray server is rebooted.

Not Installed Components

The following table lists components that are not installed by the `utinstall` script:

TABLE 6-2 Not Installed Components and Their Location

Component Name	Location (relative to /cdrom/cdrom0)	Comment
SUNWfutdo	Docs/Solaris_2.6+/fr	French document package
SUNWkutdo	Docs/Solaris_2.6+/ko	Korean document package
SUNWcutdo	Docs/Solaris_2.6+/zh	Simplified Chinese document package
SUNWhutdo	Docs/Solaris_2.6+/zh_TW	Traditional Chinese document package
README.sds	Sun_Directory_Services_3.1/ Solaris_2.6+/Docs	SunDS readme file
sunds.lic	Sun_Directory_Services_3.1/ Solaris_2.6+/Tools	SunDS license file
SUNWlicsw	Sun_Directory_Services_3.1/ Solaris_2.6+/Product	FlexLM License System and scripts package for SunDS
SUNWlit	Sun_Directory_Services_3.1/ Solaris_2.6+/Product	STE License Installation Tool and scripts package for SunDS
README.sunwebserver	Sun_WebServer_2.1/ Solaris_2.6+/Docs	Sun WebServer readme file
SWS_Installation.ps	Sun_WebServer_2.1/ Solaris_2.6+/Docs	Sun WebServer installation guide file
SWS_Migration.ps	Sun_WebServer_2.1/ Solaris_2.6+/Docs	Sun WebServer migration guide file
SUNWhtdoc	Sun_WebServer_2.1/ Solaris_2.6+/Product	Sun WebServer administration online help package
SUNWhtsvl	Sun_WebServer_2.1/ Solaris_2.6+/Product	Sun WebServer servlet support package
SUNWixklg	Sun_WebServer_2.1/ Solaris_2.6+/Product	Solaris for ISPs KLG classes package
SUNWhtadm	Sun_WebServer_2.1/ Solaris_2.6+/Product	Sun WebServer administration package
SUNWhtman	Sun_WebServer_2.1/ Solaris_2.6+/Product	Sun WebServer man page package