Oracle® VM Server for SPARC 3.2 Installation Guide

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Accès au support électronique

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Using This Documentation

- **Overview** – Provides detailed information and procedures that describe how to install the Oracle VM Server for SPARC 3.2 software on supported servers, blades, and server modules.
- **Audience** – System administrators who install Oracle VM Server for SPARC software on SPARC servers
- **Required knowledge** – System administrators on these servers must have a working knowledge of UNIX® systems and the Oracle Solaris operating system (Oracle Solaris OS)

Product Documentation Library

Late-breaking information and known issues for this product are included in the documentation library at http://www.oracle.com/pls/topic/lookup?ctx=E48724.

Feedback

Provide feedback about this documentation at http://www.oracle.com/goto/docfeedback.

♦ ♦ ♦ CHAPTER 1

Oracle VM Server for SPARC 3.2 System Requirements

This chapter contains system requirements for running the Oracle VM Server for SPARC software.

Note - Oracle VM Server for SPARC features are added and maintained on the supported hardware platforms listed in "Supported Platforms" on page 9. However, new features will not be added and existing features will not be maintained on hardware platforms that have been removed from the list.

As a rule, new Oracle VM Server for SPARC features and functionality are made available for all price-listed, supported T-Series and M-Series servers from Oracle and Fujitsu M10 servers at the time that the Oracle VM Server for SPARC software is released and not for SPARC based systems that have already passed their last-order date.

Supported Platforms

When more than one version of the Oracle VM Server for SPARC software is supported on a hardware platform, bug fixes apply only to the latest version of the software. To receive Premier Support, you must use the latest Oracle VM Server for SPARC software.

You can find the platform documentation on the Oracle Technology Network (`http://www.oracle.com/technetwork/documentation/sparc-tseries-servers-252697.html`). You can also find information about the software stacks for the various platforms on the Sun System Software Stacks page (`http://www.oracle.com/technetwork/systems/software-stacks/stacks/index.html`).

The Oracle VM Server for SPARC 3.2 software is supported on the following platforms:

- **Fujitsu M-Series servers**
  - Fujitsu M10 server (refer to *Fujitsu M10 Server Product Notes*)

    For more information about features that are specific to the Fujitsu M10 servers, see *Fujitsu M10 Servers/SPARC M10 System Operation and Administration Guide* in

the Product Notes for your model at http://www.fujitsu.com/global/services/computing/server/sparc/downloads/manual/.

- **SPARC M-Series servers**
  - SPARC M6-32 server (refer to *SPARC M5-32 and SPARC M6-32 Servers Product Notes*)
  - SPARC M5-32 server (refer to *SPARC M5-32 Server Product Notes*)
- **SPARC T5 servers**
  - SPARC T5-1B server (refer to *SPARC T5-1B Server Product Notes*)
  - SPARC T5-2 server (refer to *SPARC T5-2 Server Product Notes*)
  - SPARC T5-4 server (refer to *SPARC T5-4 Server Product Notes*)
  - SPARC T5-8 server (refer to *SPARC T5-8 Server Product Notes*)
- **SPARC T4 servers**
  - SPARC T4-1 server (refer to *SPARC T4-1 Server Product Notes*)
  - SPARC T4-2 server (refer to *SPARC T4-2 Server Product Notes*)
  - SPARC T4-4 server (refer to *SPARC T4-4 Server Product Notes*)
  - SPARC T4-1B server (refer to *SPARC T4-1B Server Product Notes*)
  - Netra SPARC T4-1 server (refer to *Netra SPARC T4-1 Server Product Notes*)
  - Netra SPARC T4-2 server (refer to *Netra SPARC T4-2 Server Product Notes*)
  - Netra SPARC T4-1B server (refer to *Netra SPARC T4-1B Server Product Notes*)
- **SPARC T3 servers**
  - SPARC T3-1 server (refer to *SPARC T3-1 Server Product Notes*)
  - SPARC T3-2 server (refer to *SPARC T3-2 Server Product Notes*)
  - SPARC T3-4 server (refer to *SPARC T3-4 Server Product Notes*)
  - SPARC T3-1B server (refer to *SPARC T3-1B Server Module Product Notes*)
  - Netra SPARC T3-1 server (refer to *Netra SPARC T3-1 Server Product Notes*)
  - Netra SPARC T3-1B server (refer to *Netra SPARC T3-1B Server Product Notes*)
  - Netra SPARC T3-1BA server (refer to *Netra SPARC T3-1BA Server Product Notes*)
- **UltraSPARC T2 Plus servers**
  - Oracle's Sun SPARC Enterprise® T5140 and T5240 servers (refer to *Sun SPARC Enterprise T5140 and T5240 Servers Administration Guide*)
  - Oracle's Sun SPARC Enterprise T5440 server (refer to *Sun SPARC Enterprise T5440 Server Administration Guide*)
  - Oracle's Sun Blade™ T6340 server module (refer to *Sun Blade T6340 Server Module Product Notes*)
  - Oracle's Netra™ T5440 server (refer to *Sun Netra T5440 Server Product Notes*)
  - Oracle's Sun Netra T6340 Server Module (refer to *Sun Netra T6340 Server Module Product Notes*)
- **UltraSPARC T2 servers**

- Oracle's Sun SPARC Enterprise T5120 and T5220 servers (refer to *Sun SPARC Enterprise T5120 and T5220 Servers Administration Guide*)
- Oracle's Sun Blade T6320 server module (refer to *Sun Blade T6320 Server Module Product Notes*)
- Oracle's Netra T5220 server (refer to *Sun Netra T5220 Server Product Notes*)
- Oracle's Netra CP3260 Blade (refer to *Netra CP3260 Blade Server Product Notes*)

System Firmware Versions and Oracle Solaris OS Versions

This section describes the system firmware versions and Oracle Solaris OS versions to use with the current Oracle VM Server for SPARC software.

You can run the Oracle VM Server for SPARC 3.2 software with at least the minimum versions of the system firmware and Oracle Solaris OS. In such a configuration, you might not have access to all the features of the latest Oracle VM Server for SPARC software. For the best results in production environments, run with the fully qualified system firmware version described in "Fully Qualified System Firmware Versions" on page 12 and with the Oracle Solaris OS version described in "Fully Qualified Oracle Solaris OS Versions" on page 13.

Caution - Do *not* downgrade to older versions of individual system firmware, Oracle Solaris OS or software components. Such downgrades might lead to unexpected behavior and failures.

Minimum System Firmware Versions

You can apply the latest Oracle VM Server for SPARC package to a system that runs at least the following versions of the system firmware, which are platform specific and depend on the requirements of the CPU in the machine.

- Fujitsu M10 servers: XCP2210
- SPARC M6 servers: 9.1.0.g
- SPARC M5 servers: 9.0.1.f
- SPARC T5 servers: 9.1.0.b
- SPARC T4 servers: 8.4.0.a
- SPARC T3 servers: 8.3
- UltraSPARC T2 Plus servers: 7.4.5
- UltraSPARC T2 servers: 7.4.5

Fully Qualified System Firmware Versions

To enable all the Oracle VM Server for SPARC 3.2 features, you must run the fully qualified system firmware versions on the following platforms:

- Fujitsu M10 server: XCP2240
- SPARC M6 server: 9.4
- SPARC M5 server: 9.4
- SPARC T5 server: 9.4
- SPARC T4 server: 8.7
- SPARC T3 server: 8.3.10
- SPARC T2 Plus server: 7.4.8.a
- SPARC T2 server: 7.4.8.a

Fully Qualified System Firmware Patches

To take advantage of all features of Oracle VM Server for SPARC 3.2, ensure that your SPARC T-Series server or M-Series server from Oracle runs at least the revisions of the system firmware patches that are shown in the following table.

TABLE 1-1 Oracle VM Server for SPARC 3.2: Fully Qualified System Firmware Versions

Platform Type	3.2 System Firmware Patch
SPARC M6-32 server	20214652
SPARC M5-32 server	20214652
SPARC T5-1B Server	20214649
SPARC T5-2 Server	20214646
SPARC T5-4 Server	20214648
SPARC T5-8 Server	20214648
Netra SPARC T5-1B Server	20214650
SPARC T4-1 Server	151743-01
SPARC T4-2 Server	151744-01
SPARC T4-4 Server	151745-01
SPARC T4-1B Server	151746-01
Netra SPARC T4-1 Server	151747-01
Netra SPARC T4-2 Server	151748-01
Netra SPARC T4-1B Server	151749-01

Minimum Oracle Solaris OS Versions

The minimum Oracle Solaris OS version for a given CPU type applies to all domain types (control, service, I/O, and guest). For information about the minimum versions of the Oracle Solaris OS for supported server platforms, see the data sheet for your server platform at http://www.oracle.com/technetwork/documentation/oracle-sparc-ent-servers-189996.html.

Note - On a guest domain, you can run any OS version that is supported by the platform.

Fully Qualified Oracle Solaris OS Versions

To use all features of the Oracle VM Server for SPARC 3.2 software, install or upgrade to at least the following operating system (OS) on all domains:

- Oracle Solaris 10 1/13 OS plus the patches listed in Table 1-2
- Oracle Solaris 11.2.8.0.0 (SRU 8) OS

The following table shows the patches that you must apply to the Oracle Solaris 10 1/13 OS to have the Oracle VM Server for SPARC 3.2 functionality. For information about the minimum Oracle Solaris OS versions for supported server platforms, see the data sheet for your server platform at http://www.oracle.com/technetwork/documentation/oracle-sparc-ent-servers-189996.html.

TABLE 1-2 Oracle VM Server for SPARC 3.2: Patches for Older Oracle Solaris OS Versions and Domains

Patch ID	Control Domain	Service Domain	I/O Domain	Guest Domain
125555-15 (Oracle Solaris 10 1/13)	X	X	X	
146582-05 (Oracle Solaris 10 1/13 `fmd`)	X	X	X	
148322-12 (Oracle Solaris 10 1/13 `ixgbe`)	X	X	X	
148322-12 (Oracle Solaris 10 1/13 `ixgbevf`)	X	X	X	
148888-05 (Oracle Solaris 10 1/13 kernel update)	X	X	X	
149173-04 (Oracle Solaris 10 1/13)	X	X	X	X
150031-09 (Oracle Solaris 10 1/13)	X	X	X	X
150107-03 (Oracle Solaris 10 1/13 `ds`)	X	X	X	X
150400-18 (Oracle Solaris 10 1/13 Kernel Update for dynamic I/O virtualization)	X	X	X	X
150435-03 (Oracle Solaris 10 1/13)	X	X	X	X
150840-04 (Oracle Solaris 10 1/13)	X	X	X	X

Note - This patch list includes the minimum patch revisions. You can install later revisions of the same patch.

Location of the Oracle VM Server for SPARC Software

You can obtain the latest packages for both the Oracle Solaris 10 OS and Oracle Solaris 11 OS for the Oracle VM Server for SPARC 3.2 release. Note that the Oracle VM Server for SPARC 3.2 software is included by default with at least the Oracle Solaris 11.2.8.0.0 (SRU 8) OS.

- **Oracle Solaris 11 OS.** Obtain the `ldomsmanager` package from the Oracle Solaris 11.2 Support Repository or from My Oracle Support. See "How to Upgrade to the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 11)" on page 29.

  Also see the article "How to Update Oracle Solaris 11 Systems Using Support Repository Updates" (`http://www.oracle.com/technetwork/articles/servers-storage-admin/o11-018-howto-update-s11-1572261.html`) and "How to Update to Oracle Solaris 11.1 Using the Image Packaging System" (`http://www.oracle.com/technetwork/articles/servers-storage-admin/howto-update-11dot1-ips-1866781.html`).
- **Oracle Solaris 10 OS.** Download the `OVM_Server_SPARC-3_2.zip` Oracle VM Server for SPARC package from My Oracle Support. See "How to Download the Logical Domains Manager Software (Oracle Solaris 10)" on page 22.

For Oracle Solaris 10, the `OVM_Server_SPARC-3_2.zip` file that you download contains the following:

- Oracle VM Server for SPARC software (`SUNWldm.v`)
- The `ldm`(1M), `ldmconfig`(1M), and `ldmd`(1M) man pages in the `SUNWldm.v` package, which are installed when the package is installed
- Installation script for Oracle VM Server for SPARC software (`install-ldm`)
- Oracle VM Server for SPARC Management Information Base (`SUNWldmib`)
- Physical-to-Virtual Conversion Tool (`SUNWldmp2v`)

You can find system firmware for your platform at `http://www.oracle.com/technetwork/systems/patches/firmware/index.html`.

You can find the Logical Domains Manager and Oracle Solaris OS patches at `http://support.oracle.com`.

The directory structure of the zip file is similar to the following:

```
Install/
   install-ldm
```

```
Product/
   Japanese/
      README.txt
      SUNWjldm.v
      SUNWjldmp2v
   SUNWldm.v
   SUNWldmib
   SUNWldmp2v
README.txt
```

Location of Documentation

Late-breaking information and known issues for this product are included in the documentation library at http://www.oracle.com/technetwork/documentation/vm-sparc-194287.html.

For the Oracle Solaris 10 OS, the Oracle VM Server for SPARC 3.2 man pages are installed on your system as part of the `SUNWldm.v` and `SUNWldmp2v` packages. You can install the Japanese translations of the man pages on your Oracle Solaris 10 system with the `SUNWjldm.v` and `SUNWjldmp2v` packages.

For the Oracle Solaris 11 OS, the Oracle VM Server for SPARC 3.2 man pages and the Japanese translations are installed on your system as part of the `ldomsmanager` package.

The following table shows the documentation that is available for the Oracle VM Server for SPARC 3.2 release. These documents are available in HTML and PDF formats unless indicated.

TABLE 1-3 Related Documentation

Application	Title
Oracle VM Server for SPARC 3.2 Software	"Oracle VM Server for SPARC 3.2 Administration Guide" "Oracle VM Server for SPARC 3.2 Installation Guide" "Oracle VM Server for SPARC 3.2 Security Guide" "Oracle VM Server for SPARC 3.2 Reference Manual" "Oracle VM Server for SPARC 3.2 Release Notes"
Oracle VM Server for SPARC 3.2 `drd`(1M) and `vntsd`(1M) man pages	Oracle Solaris OS Reference Manuals: ■ Oracle Solaris 10 Documentation (http://www.oracle.com/technetwork/documentation/solaris-10-192992.html) ■ Oracle Solaris 11.2 Documentation (http://docs.oracle.com/cd/E36784_01)
Oracle Solaris OS: Installation and Configuration	Oracle Solaris OS Installation and Configuration Guides: ■ Oracle Solaris 10 Documentation (http://www.oracle.com/technetwork/documentation/solaris-10-192992.html)

Application	Title
	■ Oracle Solaris 11.2 Documentation (http://docs.oracle.com/cd/E36784_01)
Oracle VM Server for SPARC and Oracle Solaris OS Security	Oracle VM Server for SPARC White Paper and Oracle Solaris OS Security Guides: ■ *Secure Deployment of Oracle VM Server for SPARC* (http://www.oracle.com/technetwork/articles/systems-hardware-architecture/secure-ovm-sparc-deployment-294062.pdf) ■ "Oracle Solaris 10 Security Guidelines " ■ "Oracle Solaris 11 Security Guidelines "

You can find documentation that relates to your server, software, or the Oracle Solaris OS at http://www.oracle.com/technetwork/indexes/documentation/index.html. Use the Search box to find the documents and the information that you need.

Related Software

Software That Can Be Used With the Oracle VM Server for SPARC Software

This section describes the software that is compatible with and can be used with the Oracle VM Server for SPARC software. Be sure to check the software documentation or your platform documentation to find the version number of the software that is available for your version of the Oracle VM Server for SPARC software and your platform.

- **Oracle VM Manager** is a web-based user interface that you can use to manage the Oracle VM environment. For more information about Oracle VM Manager, see the Oracle VM Documentation (http://www.oracle.com/technetwork/documentation/vm-096300.html).
- **SunVTS** functionality is available in the control domain and guest domains on certain Oracle VM Server for SPARC releases and certain platforms. SunVTS™ is a validation test suite that provides a comprehensive diagnostic tool that tests and validates Oracle's Sun hardware by verifying the connectivity and proper functioning of most hardware controllers and devices on Oracle's Sun servers. For more information about SunVTS, refer to *SunVTS 7.0 Software*.
- **Explorer Data Collector** can be used with the Oracle VM Server for SPARC software enabled on the control domain. Explorer is a diagnostic data collection tool. The tool comprises shell scripts and a few binary executables. For more information, see "Oracle Explorer User's Guide" (http://docs.oracle.com/cd/E19957-01/819-6613/819-6613.pdf).

- **Oracle Solaris Cluster** software can be used in a guest domain with some restrictions. See the Oracle Solaris Cluster documentation for more information about any restrictions and about the Oracle Solaris Cluster software in general.
- **Oracle Enterprise Manager Ops Center** enables you to manage physical and virtual system resources. This solution simplifies resource discovery and monitoring, provides operating system and firmware provisioning, performs comprehensive update and patch management, manages virtual environments such as Oracle Solaris Zones and Oracle VM Server for SPARC, and supports hardware management from power up to production. For more information, see `http://www.oracle.com/us/products/enterprise-manager/index.html`.

System Controller Software That Interacts With Oracle VM Server for SPARC

The following system controller (SC) software interacts with the Oracle VM Server for SPARC 3.2 software:

- **Sun Integrated Lights Out Manager (ILOM) 3.0** is the system management firmware that you can use to monitor, manage, and configure SPARC T-Series and M-Series systems. ILOM is preinstalled on these platforms and can be used on supported servers with the Oracle VM Server for SPARC 3.2 software enabled. Refer to *Sun Integrated Lights Out Manager 3.0 User's Guide* for features and tasks that are common to Oracle's Sun rack-mounted servers or blade servers that support ILOM. Other user documents present ILOM features and tasks that are specific to the server platform that you are using. You can find the ILOM platform-specific information within the documentation set that accompanies your system.
- **Netra Data Plane Software Suite** is a complete board software package solution. The software provides an optimized rapid development and runtime environment on top of multithread partitioning firmware for Sun CMT platforms. The Logical Domains Manager contains some `ldm` subcommands (`add-vdpcs`, `rm-vdpcs`, `add-vdpcc`, and `rm-vdpcc`) for use with this software. For more information about this software, see the documentation at `http://docs.oracle.com/cd/E19282-01/`.
- **Fujitsu M10 Servers eXtended System Control Facility (XSCF)** is the system management firmware that you can use to monitor, manage, and configure Fujitsu M10 servers. XSCF is preinstalled on these systems and can be used with the Oracle VM Server for SPARC 3.2 software enabled. For more information about this software, see *Fujitsu M10 Servers/SPARC M10 System Operation and Administration Guide* and *Fujitsu M10 Servers/SPARC M10 XSCF Reference Manual* in the Product Notes for your model at `http://www.fujitsu.com/global/services/computing/server/sparc/downloads/manual/`.

♦ ♦ ♦ CHAPTER 2

Installing and Enabling Software

This chapter describes how to install or upgrade the different software components required to enable the Oracle VM Server for SPARC 3.2 software.

This chapter covers the following topics:

- "Oracle VM Server for SPARC Hardware, Firmware, and Software Components" on page 19
- "Installing Oracle VM Server for SPARC Software on a New System" on page 20
- "Upgrading a System That Is Already Using Oracle VM Server for SPARC" on page 25
- "Factory Default Configuration and Disabling Domains" on page 30

Oracle VM Server for SPARC Hardware, Firmware, and Software Components

Using the Oracle VM Server for SPARC software requires the following components:

- A supported platform. Refer to "Supported Platforms" on page 9 for a list of supported platforms. For information about the minimum and fully qualified system firmware versions, see "Fully Qualified System Firmware Versions" on page 12 and "Upgrading the System Firmware" on page 21.
- A control domain running an operating system equivalent to at least the Oracle Solaris 11 OS and the appropriate Support Repository Update (SRU), if applicable, or the Oracle Solaris 10 1/13 OS with any patches in "System Firmware Versions and Oracle Solaris OS Versions" on page 11. See "Upgrading the Oracle Solaris OS" on page 26.

  For information about the minimum versions of the Oracle Solaris OS for supported server platforms, see the data sheet for your server platform at `http://www.oracle.com/technetwork/documentation/oracle-sparc-ent-servers-189996.html`.
- Oracle VM Server for SPARC 3.2 software installed and enabled on the control domain. See "Installing the Logical Domains Manager" on page 22.
- (Optional) The Oracle VM Server for SPARC Management Information Base (MIB) software package. See Chapter 20, "Using the Oracle VM Server for SPARC Management Information Base Software," in "Oracle VM Server for SPARC 3.2 Administration Guide ".

If your system is already using Oracle VM Server for SPARC software, see "Upgrading a System That Is Already Using Oracle VM Server for SPARC" on page 25. Otherwise, see "Installing Oracle VM Server for SPARC Software on a New System" on page 20.

Installing Oracle VM Server for SPARC Software on a New System

SPARC platforms that support the Oracle VM Server for SPARC software are preinstalled with the Oracle Solaris 10 OS or the Oracle Solaris 11 OS. Initially, the platform appears as a single system hosting only one operating system. After the Oracle Solaris OS, system firmware, and Logical Domains Manager have been installed, the original system and instance of the Oracle Solaris OS become the control domain. That first domain of the platform is named `primary`, and you cannot change that name or destroy that domain. From there, the platform can be reconfigured with multiple domains hosting different instances of the Oracle Solaris OS.

Note - The version of the Oracle Solaris OS software that runs on a guest domain is *independent* of the Oracle Solaris OS version that runs on the `primary` domain. So, if you run the Oracle Solaris 10 OS in the `primary` domain, you can still run the Oracle Solaris 11 OS in any of the guest domains. Similarly, if you run the Oracle Solaris 11 OS in the `primary` domain, you can still run the Oracle Solaris 10 OS in any of the guest domains.

Base your decision about which Oracle Solaris OS version to run on the `primary` domain on your requirements and any potential feature differences between Oracle Solaris 10 and Oracle Solaris 11. See "Oracle Solaris 11.2 Release Notes " and "Transitioning From Oracle Solaris 10 JumpStart to Oracle Solaris 11.2 Automated Installer ".

Updating the Oracle Solaris OS

On a new system, you might want to reinstall the factory-installed OS to conform to your installation policy. See "Fully Qualified Oracle Solaris OS Versions" on page 13. For complete Oracle Solaris OS installation instructions, see the Oracle Solaris 10 8/11 Information Library (`http://docs.oracle.com/cd/E23823_01/`) and the Oracle Solaris 11.1 Information Library (`http://docs.oracle.com/cd/E23824_01/`). You can tailor the installation to the requirements of your system.

If your system is already installed with the Oracle Solaris OS, you must upgrade it to the OS version that is associated with the Oracle VM Server for SPARC 3.2 software. See "System Firmware Versions and Oracle Solaris OS Versions" on page 11. For complete Oracle Solaris OS upgrade instructions, see the Oracle Solaris 10 8/11 Information Library (`http://`

docs.oracle.com/cd/E23823_01/) and the Oracle Solaris 11.1 Information Library (http://docs.oracle.com/cd/E23824_01/).

Upgrading the System Firmware

Use the following resources when upgrading the system firmware on SPARC T-Series and SPARC M-Series systems:

- For information about upgrading the system firmware by using the ILOM software, see "Update the Firmware" and "Updating ILOM Firmware" in *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*. For more information about using the ILOM software, see the documents for your specific platform at http://www.oracle.com/technetwork/documentation/sparc-tseries-servers-252697.html.
- System firmware for your platform is available at http://www.oracle.com/technetwork/systems/patches/firmware/index.html.
- For information about the required system firmware for the supported servers, see "Fully Qualified System Firmware Patches" on page 12.
- To upgrade the system firmware from the control domain, refer to your system firmware product notes, which are available at SPARC T-Series Servers Documentation (http://www.oracle.com/technetwork/documentation/sparc-tseries-servers-252697.html).
- Refer to the administration guides or product notes for the supported servers for more information about installing and upgrading the system firmware for these servers.
- To find out how to use the ILOM web interface to upgrade system firmware, see "Updating ILOM Firmware" in the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

To upgrade Fujitsu M10 server firmware by using the eXtended System Control Facility (XSCF), see the following resources:

- *Fujitsu M10 Servers System Operation and Administration Guide*
- *Fujitsu M10 Servers XSCF Reference Manual*

Downloading the Logical Domains Manager

You can obtain the latest packages for both the Oracle Solaris 10 OS and the Oracle Solaris 11 OS. Note that the Oracle VM Server for SPARC software is included by default with the Oracle Solaris 11 OS.

- **Oracle Solaris 10 OS.** Download the `OVM_Server_SPARC-3_2.zip` package from My Oracle Support. See "How to Download the Logical Domains Manager Software (Oracle Solaris 10)" on page 22.

- **Oracle Solaris 11 OS.** Obtain the `ldomsmanager` package from the Oracle Solaris 11 Support Repository. See "How to Upgrade to the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 11)" on page 29.

▼ How to Download the Logical Domains Manager Software (Oracle Solaris 10)

1. **Download the `OVM_Server_SPARC-3_2.zip` zip file at `http://www.oracle.com/us/technologies/virtualization/overview/index.html`.**

2. **Unzip the zip file.**

```
$ unzip OVM_Server_SPARC-3_2.zip
```

See "Location of the Oracle VM Server for SPARC Software" on page 14 for details about the structure of the file and what it includes.

Installing the Logical Domains Manager

The methods of installing the Logical Domains Manager software are:

- **Oracle Solaris 10 only.** Using the installation script to install the packages and patches. This method automatically installs the Logical Domains Manager software. See "Automatically Installing the Logical Domains Manager Software (Oracle Solaris 10)" on page 23.
- **Oracle Solaris 10 only.** Using the Oracle Solaris JumpStart feature to install the packages as part of a network installation. See "Oracle Solaris 10 8/11 Installation Guide: Custom JumpStart and Advanced Installations " for information about configuring a JumpStart server. Also see *JumpStart Technology: Effective Use in the Solaris Operating Environment* for complete information about using this feature.
- **Oracle Solaris 11 only.** Using the Oracle Solaris 11 Automated Installer feature to install the packages as part of a network installation. See Part III, "Installing Using an Install Server," in "Installing Oracle Solaris 11.2 Systems " and "Transitioning From Oracle Solaris 10 JumpStart to Oracle Solaris 11.2 Automated Installer ".
- Installing the package manually. See "Manually Installing the Logical Domains Manager Software" on page 24.

Note - You must manually install the Oracle VM Server for SPARC MIB software package after you install the Oracle VM Server for SPARC packages. It is not automatically installed with the other packages. See Chapter 20, "Using the Oracle VM Server for SPARC Management Information Base Software," in "Oracle VM Server for SPARC 3.2 Administration Guide " for more information about installing and using the Oracle VM Server for SPARC MIB.

Automatically Installing the Logical Domains Manager Software (Oracle Solaris 10)

The `install-ldm` installation script provides options to specify how you want the script to run. Each choice is described in the procedures that follow.

If you do not specify any options, the script does the following automatically:

- Checks that the Oracle Solaris OS release is the Oracle Solaris 10 OS
- Verifies that the package subdirectories `SUNWldm/` and `SUNWldmp2v/` and that the prerequisite Oracle VM Server for SPARC driver packages, `SUNWldomr` and `SUNWldomu`, are present
- Verifies that the `SUNWldm` and `SUNWldmp2v` packages have not been installed
- Installs the Oracle VM Server for SPARC 3.2 software
- Verifies that all packages are installed
- If the Solaris Security Toolkit (SST) package (`SUNWjass`) is already installed, you are prompted to harden the Oracle Solaris OS on the control domain.
- Determines whether to use the Oracle VM Server for SPARC Configuration Assistant (`ldmconfig`) to perform the installation.

To automatically run the Oracle VM Server for SPARC Configuration Assistant after the software is installed, specify the `-c`. To skip running this utility, specify the `-s`.

If the SST package is installed, you can issue the following options with the `install-ldm` script:

`-d`	Specifies an SST driver other than a driver ending with `-secure.driver`. This option hardens the Oracle Solaris OS on the control domain with the SST customized driver that you specify, for example, the `server-secure-myname.driver`.
`-d none`	Specifies that you do *not* want to harden the Oracle Solaris OS running on your control domain by using the SST. Bypassing the use of the SST is not suggested and should only be done when you intend to harden your control domain using an alternative process.
`-p`	Specifies that you only want to perform the post-installation actions of enabling the Logical Domains Manager daemon (`ldmd`) and running the SST. For example, you would use this option if the `SUNWldm` and `SUNWjass` packages are preinstalled on your server.

Manually Installing the Logical Domains Manager Software

The following procedure guides you through manually installing the Oracle VM Server for SPARC 3.2 software on the Oracle Solaris 10 OS.

When you install the Oracle Solaris 11.2 OS, the Oracle VM Server for SPARC 3.1.1.0 software is installed by default. If you want to install the Oracle VM Server for SPARC 3.2 software, see "How to Upgrade to the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 11)" on page 29.

▼ How to Manually Install the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 10)

1. **Download the `OVM_Server_SPARC-3_2.zip` zip file at `http://www.oracle.com/us/technologies/virtualization/overview/index.html`.**

2. **Unzip the zip file.**

```
$ unzip OVM_Server_SPARC-3_2.zip
```

See "Location of the Oracle VM Server for SPARC Software" on page 14 for details about the structure of the file and what it includes.

3. **If you are already running an earlier version of the Oracle VM Server for SPARC software, save your configuration to the service processor (SP).**

```
primary# ldm add-config config-name
```

4. **Install the `SUNWldm.v` and `SUNWldmp2v` packages.**

```
# pkgadd -Gd . SUNWldm.v SUNWldmp2v
```

Answer `y` for yes to all questions in the interactive prompts.

The `-G` option installs the package in the global zone only. The `-d` option specifies the path to the directory that contains the `SUNWldm.v` and `SUNWldmp2v` packages.

For more information, see the `pkgadd`(1M) man page.

5. **Verify that the `SUNWldm` and `SUNWldmp2v` packages are installed.**

```
# pkginfo -l SUNWldm
# pkginfo -l SUNWldmp2v
```

For more information, see the `pkginfo`(1) man page.

Enabling the Logical Domains Manager Daemon

The `install-ldm` installation script automatically enables the Logical Domains Manager daemon (`ldmd`). The `ldmd` daemon is also automatically enabled when the Oracle VM Server for SPARC software package is installed. Once the daemon is enabled, you can create, modify, and control the logical domains.

Caution - Avoid disabling the ILOM interconnect on other systems. However, if you do so, the `ldmd` daemon can still communicate with the SP.

▼ How to Enable the Logical Domains Manager Daemon

Use this procedure to enable the `ldmd` daemon if it has been disabled.

1. **Use the `svcadm` command to enable the Logical Domains Manager daemon, `ldmd`.**

```
# svcadm enable ldmd
```

For more information about the `svcadm` command, see the `svcadm`(1M) man page.

2. **Verify that the Logical Domains Manager is running.**

The `ldm list` command should list all domains that are currently defined on the system. In particular, the `primary` domain should be listed and be in the `active` state. The following sample output shows that only the `primary` domain is defined on the system.

```
# ldm list
NAME             STATE    FLAGS   CONS    VCPU  MEMORY   UTIL  UPTIME
primary          active   ---c-   SP      64    3264M    0.3%  19d 9m
```

Upgrading a System That Is Already Using Oracle VM Server for SPARC

This section describes the process of upgrading the Oracle Solaris OS, firmware, and Logical Domains Manager components on a system that is already using the Oracle VM Server for SPARC software. Upgrading the control domain and the existing domains enables the use of all the Oracle VM Server for SPARC 3.2 features on those domains.

Note - If you want to upgrade the Oracle VM Server for SPARC software, first perform the following steps:

- Upgrade the system firmware.

  See "Fully Qualified System Firmware Versions" on page 12.
- Install the Oracle Solaris 11 OS SRU or the Oracle Solaris 10 OS and appropriate patches.

  See "Fully Qualified Oracle Solaris OS Versions" on page 13.
- Save the configurations to the SP.

Upgrading the Oracle Solaris OS

Refer to "System Firmware Versions and Oracle Solaris OS Versions" on page 11 to find the Oracle Solaris 10 or Oracle Solaris 11 OS that you should use for this version of the Oracle VM Server for SPARC software, and the required and recommended patches for the different domains. Refer to the Oracle Solaris 10 and Oracle Solaris 11 installation guides for complete instructions on upgrading the Oracle Solaris OS.

When reinstalling the Oracle Solaris OS in the control domain, you must save and restore the domain autosave configuration data and the constraints database file, as described in this section.

Saving and Restoring Autosave Configuration Directories

You can save and restore autosave configuration directories prior to reinstalling the operating system on the control domain. Whenever you reinstall the operating system on the control domain, you must save and restore the domain autosave configuration data, which is found in the `/var/opt/SUNWldm/autosave-`*autosave-name* directories.

You can use the `tar` or `cpio` command to save and restore the entire contents of the directories.

Note - Each autosave directory includes a timestamp for the last SP configuration update for the related configuration. If you restore the autosave files, the timestamp might be out of sync. In this case, the restored autosave configurations are shown in their previous state, either `[newer]` or up to date.

For more information about autosave configurations, see "Managing Domain Configurations" in "Oracle VM Server for SPARC 3.2 Administration Guide ".

▼ How to Save and Restore Autosave Directories

1. **Save the autosave directories.**

```
# cd /
# tar -cvpf autosave.tar var/opt/SUNWldm/autosave-*
```

2. **(Optional) Remove the existing autosave directories to ensure a clean restore operation.**

   Sometimes an autosave directory might include extraneous files, perhaps left over from a previous configuration, that might corrupt the configuration that was downloaded to the SP. In such cases, clean the autosave directory prior to the restore operation as shown in this example:

```
# cd /
# rm -rf var/opt/SUNWldm/autosave-*
```

3. **Restore the autosave directories.**

   These commands restore the files and directories in the `/var/opt/SUNWldm` directory.

```
# cd /
# tar -xvpf autosave.tar
```

Saving and Restoring the Logical Domains Constraints Database File

Whenever you upgrade the operating system on the control domain, you must save and restore the `/var/opt/SUNWldm/ldom-db.xml` Logical Domains constraints database file.

Note - Also save and restore the `/var/opt/SUNWldm/ldom-db.xml` file when you perform any other operation that is destructive to the control domain's file data, such as a disk swap.

Preserving the Logical Domains Constraints Database File When Using the Oracle Solaris 10 Live Upgrade Feature

If you are using the Oracle Solaris 10 Live Upgrade feature on the control domain, consider adding the following line to the `/etc/lu/synclist` file. This line causes the database to be copied automatically from the active boot environment to the new boot environment when you switch boot environments.

```
/var/opt/SUNWldm/ldom-db.xml     OVERWRITE
```

For more information about `/etc/lu/synclist` and synchronizing files between boot environments, refer to "Synchronizing Files Between Boot Environments" in "Oracle Solaris 10 8/11 Installation Guide: Live Upgrade and Upgrade Planning ".

Upgrading the Logical Domains Manager and the System Firmware

This section describes how to upgrade to Oracle VM Server for SPARC 3.2 software.

First download the Logical Domains Manager to the control domain. See "Downloading the Logical Domains Manager" on page 21.

Then stop all domains (except the control domain) running on the platform:

▼ How to Stop All Domains Running on the Platform, Except the Control Domain

Perform this task only if you plan to perform a power cycle of the system or upgrade the firmware. Performing this task is not required if you are only upgrading the Logical Domains Manager software.

1. **Stop all domains.**

```
primary# ldm stop-domain -a
```

2. **Issue the `unbind-domain` subcommand from the control domain for each domain.**

```
primary# ldm unbind-domain ldom
```

Upgrading to Oracle VM Server for SPARC 3.2 Software

This section explains how to upgrade to the Oracle VM Server for SPARC 3.2 software.

▼ How to Upgrade to the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 10)

1. **Save your configuration to the SP.**

```
# ldm add-config config-name
```

The following example saves the configuration called `ldoms-prev-config`:

```
# ldm add-config ldoms-prev-config
```

2. **Perform a flash upgrade of the system firmware, if needed.**

3. **Disable the Logical Domains Manager daemon (`ldmd`).**

```
# svcadm disable ldmd
```

4. **Remove the old `SUNWldm` package.**

```
# pkgrm SUNWldm
```

5. **Add the new `SUNWldm` package.**

```
# pkgadd -Gd . SUNWldm.v
```

Specifying the `-d` option indicates that the package is in the current directory.

Note - To obtain the latest features for this Oracle VM Server for SPARC release, you might need to apply one or more patches. For more information, see "Fully Qualified Oracle Solaris OS Versions" on page 13.

---

6. **Use the `ldm list` command to verify that the Logical Domains Manager is running.**

The `ldm list` command should list all domains that are currently defined on the system. In particular, the `primary` domain should be listed and be in the `active` state. The following sample output shows that only the `primary` domain is defined on the system.

```
# ldm list
NAME             STATE    FLAGS   CONS    VCPU  MEMORY   UTIL  UPTIME
primary          active   ---c-   SP      32    3264M    0.3%  19d 9m
```

▼ How to Upgrade to the Oracle VM Server for SPARC 3.2 Software (Oracle Solaris 11)

1. **Save your configuration to the SP.**

```
# ldm add-config config-name
```

The following example saves the configuration called `ldoms-prev-config`:

```
# ldm add-config ldoms-prev-config
```

2. **Register to use the online software repository.**

See Certificate Generator Online Help (`https://pkg-register.oracle.com/help/#support`).

3. **Install the required Oracle Solaris 11 SRU.**

```
# pkg update
```

For information about updating to a new SRU, see How to Update Oracle Solaris 11 Systems From Oracle Support Repositories (`http://www.oracle.com/technetwork/articles/servers-storage-admin/o11-018-howto-update-s11-1572261.html`).

4. **Upgrade the system firmware, if needed, or reboot into the new BE that is created by the `pkg update` command.**

5. **Verify that you are running the correct `ldm` version.**

```
# ldm -V
```

Factory Default Configuration and Disabling Domains

The initial configuration, in which the platform appears as a single system hosting only one operating system, is called the factory default configuration. If you want to disable logical domains, you probably also want to restore this configuration so that the system regains access to all resources (CPUs, memory, I/O) that might have been assigned to other domains.

This section describes how to remove all guest domains, remove all domain configurations, and revert the configuration to the factory default.

▼ How to Remove All Guest Domains

1. **Stop all domains.**

```
primary# ldm stop-domain -a
```

2. **Unbind all domains except for the `primary` domain.**

```
primary# ldm unbind-domain ldom
```

Note - You might be unable to unbind an I/O domain if it is providing services required by the control domain. In this situation, skip this step.

---

3. **Destroy all domains except for the `primary` domain.**

```
primary# ldm remove-domain -a
```

How to Remove All Domain Configurations

1. **List all the domain configurations that are stored on the service processor (SP).**

   ```
   primary# ldm list-config
   ```

2. **Remove all configurations (*config-name*) previously saved to the SP except for the `factory-default` configuration.**

   Use the following command for each such configuration:

   ```
   primary# ldm rm-config config-name
   ```

   After you remove all the configurations previously saved to the SP, the `factory-default` domain is the next domain to use when the control domain (`primary`) is rebooted.

How to Restore the Factory Default Configuration

1. **Select the factory default configuration.**

   ```
   primary# ldm set-config factory-default
   ```

2. **Stop the control domain.**

   ```
   primary# shutdown -i5 -g0 -y
   ```

3. **Perform a power cycle of the system to load the factory default configuration.**

   ```
   -> stop /SYS
   -> start /SYS
   ```

How to Disable the Logical Domains Manager

Disabling the Logical Domains Manager does not stop any running domains, but does disable the ability to create a new domains, change the configuration of existing domains, or monitor the state of the domains.

Caution - If you disable the Logical Domains Manager, this action disables some services, such as error reporting and power management. In the case of error reporting, if you are in the `factory-default` configuration, you can reboot the control domain to restore error reporting. However, you cannot re-enable power management. In addition, some system management or monitoring tools rely on the Logical Domains Manager.

- **Disable the Logical Domains Manager from the control domain.**

  ```
  primary# svcadm disable ldmd
  ```

How to Restore the Factory Default Configuration From the Service Processor

You can restore the factory default configuration from the service processor.

1. **Restore the factory default configuration from the service processor.**

   ```
   -> set /HOST/bootmode config=factory-default
   ```

2. **Perform a power cycle of the system to load the factory default configuration.**

   ```
   -> reset /SYS
   ```

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