

Oracle[®] Exalytics In-Memory Machine T5-8
Owner's Guide



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Contents

Using This Documentation vii

Understanding the Server 1

- Hardware Components 1
- Safety and Compliance Information 2
- Understanding Specifications 3
 - Physical Specifications 3
 - Electrical Specifications 3
 - Environmental Specifications 5
 - Airflow Precautions 6
- Understanding Configuration Details 6
 - Supported Configurations 6
 - CPU/Memory Allocations 7
 - PCIe Physical Slot Assignments 9

Preparing for Installation 11

- Shipping Kit With Single-Unit CMA Comb (Part No. 7069640) 11
- Shipping Kit With Multi-Piece CMA (Part No. 350-1662-02) 13
- Handling Precautions 14
- ESD Precautions 15
- Tools Needed for Installation 15
- ▼ Prepare the Server 16

Installing the Server 17

Rack Compatibility 18

Rack Cautions 19

▼ Stabilize the Rack 20

Rackmount Kit With Single-Piece CMA Comb (Part No. 7069640) 21

Rackmount Kit With Multi-Piece CMA (Part No. 350-1662-02) 22

▼ Determine Correct Rackmount Hardware 24

▼ Mark the Rackmounting Location 24

▼ Install the Rackmount Hardware 25

Installing the CMA 28

CMA Kit (Single-Piece CMA Comb, Part No. 7069793) 29

▼ Install the Single-Piece CMA Comb 30

CMA Kit (Multi-piece CMA, Part No. 7041990) 32

▼ Install the Multi-Piece CMA 32

Installing the Shipping Brace Assembly 34

Shipping Brace Assembly 34

▼ Determine Correct Shipping Brace Fasteners 35

▼ Install the Top Rear Braces 36

▼ Install the Bottom Rear Shipping Brace 37

▼ Remove the Bottom Rear Shipping Brace 37

▼ Install the Server 38

Connecting the Server Cables 39

Cabling Requirements 40

Port Descriptions for Cabling 40

Front Panel Components 41

Rear Panel Components 42

Connecting Data and Management Cables 42

▼ Connect the SER MGT Cable 43

- ▼ Connect the NET MGT Cable 43
- ▼ Connect the Ethernet Network Cables 44
- ▼ Connect the Fiber Channel Card Cables 44
- ▼ Secure Cables Using the CMA 45

Powering On the Server for the First Time 47

- ▼ Prepare the Power Cords 47
- ▼ Connect a Terminal or Emulator to the SER MGT Port 48
- ▼ Power on the System for the First Time 49

Oracle ILOM System Console 51

Installing the OS 51

- ▼ Configure the Preinstalled OS 51
- ▼ Reach a State to Install a Fresh OS (Oracle ILOM CLI) 52
- ▼ Reach a State to Install a Fresh OS (Oracle ILOM Web Interface) 54

Oracle Solaris OS Configuration Parameters 56

Assigning a Static IP Address to the SP 57

- ▼ Log In to the SP (SER MGT Port) 57
- ▼ Assign a Static IP Address to the NET MGT Port 58

Accessing the Server Using Oracle ILOM 61

Oracle ILOM Overview 61

- ▼ Log In to Oracle ILOM 62
- ▼ Display the Oracle ILOM Prompt 62

Oracle ILOM Remote Console 63

Installing Auto Service Request Software 65

ASR Overview 65

Preparing to Configure ASR 66

- ▼ Prepare the ASR Environment 67
- Software Requirements (ASR Manager) 67

Minimum Software Requirements (Oracle Exalytics In-Memory Machine
T5-8 Server) 67

Installing ASR Manager Components 68

- ▼ Install the Oracle Automated Service Manager Package 68
- ▼ Install Service Tools Bundle for Oracle Solaris Only 69
- ▼ Install the Oracle Auto Service Request Package 69
- ▼ Register ASR Manager 70
- ▼ Verify ASR Manager 71
- ▼ Configure ASR on the Server (Oracle ILOM) 71

Configuring ASR on the Server (Oracle Solaris 11) 73

- ▼ Enable the HTTP Receiver on the ASR Manager 74
- ▼ Enable HTTPS on ASR Manager (Optional) 74
- ▼ Register Server With Oracle Solaris 11 to ASR Manager 75
- ▼ Approve and Verify ASR Activation 77

Managing Oracle Solaris 11 Boot Environments 81

Advantages to Maintaining Multiple Boot Environments 81

- ▼ Create a Boot Environment 82
- ▼ Mount to a Different Build Environment 84
- ▼ Reboot to the Original Boot Environment 85
- ▼ Remove Unwanted Boot Environments 86

Index 87

Using This Documentation

This document provides instructions, background information, and reference material for installing Oracle's Exalytics In-Memory Machine T5-8 server. This document is written for technicians, system administrators, and authorized service providers who have advanced experience and training installing similar products. These instructions assume that a system administrator is experienced with the Oracle Solaris Operating System.

- "Product Notes" on page vii
- "Related Documentation" on page viii
- "Feedback" on page viii
- "Access to Oracle Support" on page viii

Product Notes

For late-breaking information and known issues about this product, refer to the product notes at:

<http://www.oracle.com/goto/T5-8/docs>

Related Documentation

Documentation	Links
All Oracle products	http://docs.oracle.com
Oracle Exalytics	http://docs.oracle.com/cd/E27027_01/index.htm
SPARC T5-8 server	http://www.oracle.com/goto/T5-8/docs
Oracle Integrated Lights Out Manager (Oracle ILOM)	http://www.oracle.com/goto/ILOM/docs
Oracle Solaris 11 OS	http://www.oracle.com/goto/Solaris11/docs
Oracle VM Server for SPARC	http://www.oracle.com/goto/VM-SPARC/docs
Oracle VTS	http://www.oracle.com/goto/VTS/docs

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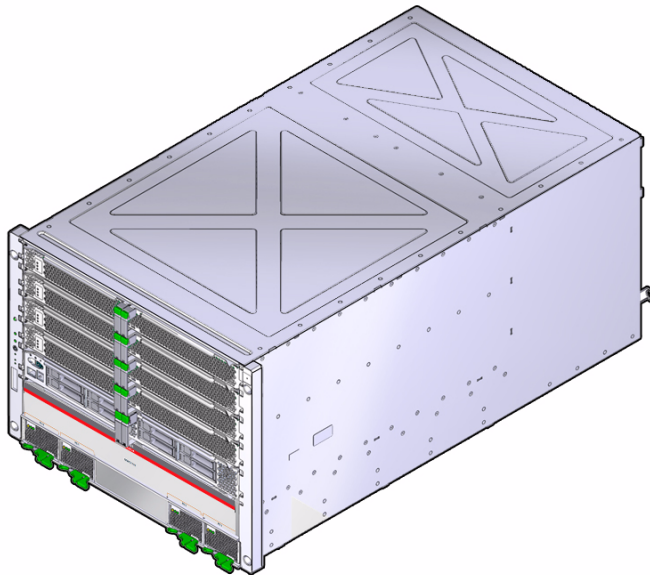
Understanding the Server

These topics list the installation tasks, provide an overview of the Oracle Exalytics In-Memory Machine T5-8, and highlight the key components.

- [“Hardware Components” on page 1](#)
- [“Safety and Compliance Information” on page 2](#)
- [“Understanding Specifications” on page 3](#)
- [“Understanding Configuration Details” on page 6](#)

Hardware Components

This topic provides a high-level introduction to the main components and capabilities of the server.



Component	Description
Chassis	Rack-mountable server with an 8RU form-factor.
CPU	8x SPARC T5, 16-core chip multiprocessor (CMP) with 8 threads per core.
Memory	128 * 32 GB DDR3 DIMM (4 TB total)
I/O expansion	Sixteen PCIe Gen3 card slots (x8 electrical interface). <ul style="list-style-type: none"> • Eight Sun Flash Accelerator F80 PCIe cards • Two Sun QDR Infiniband dual-port LP-PCIE HCAs • Two Dual Fiber Channel HBA LP-PCIE
Storage devices	For internal storage, the server provides: <ul style="list-style-type: none"> • Eight 2.5-inch hard drives (1.2TB). • A slot-loading, USB-connected DVD+/-RW drive (front).
USB ports	Four external USB 3.0 ports (2 front, 2 rear)
Video ports	Two high-density DB-15 video ports (1 front, 1 rear).
Management ports	<ul style="list-style-type: none"> • Two RJ-45 SER MGT ports (1 front, 1 rear). • One 10/100 NET MGT port
Network ports	Four 10-GbE, 100/1000/10000 Mbps (rear)
Power supplies	Four hot-swappable AC 3000W redundant (2+2). Accessed on the front panel.
Fan modules	Ten (N+1) hot-swappable, redundant fan modules (accessed from the rear).
SP	Oracle Integrated Lights Out Manager (Oracle ILOM).

Safety and Compliance Information

For safety and compliance information about your the server, see the following documents:

- *Important Safety Information for Sun Hardware Systems* — Printed document included in the ship kit.
- *SPARC T5-8 Server Safety and Compliance Guide* — Available at: http://docs.oracle.com/cd/E20781_01/index.html

Understanding Specifications

These topics provide the technical information and airflow precautions you need to install the server.

- [“Physical Specifications” on page 3](#)
- [“Electrical Specifications” on page 3](#)
- [“Environmental Specifications” on page 5](#)
- [“Airflow Precautions” on page 6](#)

Physical Specifications

Description	U.S.	Metric
Rack units	8U	8U
Height	13.8 in.	350 mm
Width	17.5 in.	445 mm
Depth	31.5 in.	800 mm
Weight (without rackmount kit)	261.5 lb	118.6 kg
Minimum service clearance (front)	36 in.	914.4 mm
Minimum service clearance (rear)	36 in.	914.4 mm
Minimum airflow clearance (front)	2 in.	50.8 mm
Minimum airflow clearance (rear)	3 in.	76.2 mm

Electrical Specifications

Description	Value	Notes
Voltage range	200 to 240 VAC	
Frequency	50 to 60 Hz	
Maximum operating input current at 200 VAC (Actual amperage draw may exceed rating by no more than 10%)*	30A (16A per cord)	

Description	Value	Notes
Maximum operating input power at 200 VAC (Actual power draw may exceed rating by no more than 10%)	6000W	
Maximum standby power	260W	
Idle input power (maximum configuration) [†]	3150W	
Idle input power (minimum configuration) [‡]	2740W	
Peak AC input power (maximum configuration) [†]	6340W	Conforms to SpecJBB
Peak AC input power (minimum configuration) [‡]	5810W	Conforms to SpecJBB
Maximum heat dissipation	22,185 BTU/hr 23,405 KJ/hr	

* The maximum operating input current values are based on $P / (V * 0.95)$, where P = max. operating input power, V= input voltage. Example: $1060W / (220V * 0.95) = 5.1A$ You can use this equation to calculate your maximum operating current at your input voltage.

† Maximum server configuration specification under nominal temperature and voltage conditions (8 3.6-GHz T5 processors, 128 32-GB DDR3 DIMMS, 8 HDDs, and 16 I/O cards).

‡ Minimum server configuration specification under nominal temperature and voltage conditions (8 3.6-GHz T5 processors, 128 32-GB DDR3 DIMMS, no HDD, and no I/O cards).



Caution – Use only the power cords provided with the server.

For information on power specifications, use the power calculator at:

<http://www.oracle.com/us/products/servers-storage/sun-power-calculators>

Environmental Specifications

TABLE: Temperature, Humidity, and Elevation Specifications

Description	Operating		Nonoperating		Notes
	U.S.	Metric	U.S.	Metric	
Temperature (maximum)	41 to 95°F at 0 to 3000 ft	5 to 35°C at 900m	-40 to 149°F at 0 to 3000 ft	-40 to 65°C at 900m	Decrease in maximum temperature: above 3000 ft. (900m), 1.8°F/1000 ft (1°C/300m)
Relative humidity	10 to 90% at 81°F	10 to 90% at 27°C	Up to 93% at 100°F	Up to 93% at 38°C	Maximum wet bulb noncondensing
Altitude	0 to 9840 ft at 95°F*	0m to 3000m at 40°C*	Up to 40,000 ft	Up to 12,000m	

* Except in China markets where regulations may limit installations to a maximum altitude of 2km.

TABLE: Shock and Vibration Specifications

Description	Operating	Notes
Shock	3G, 11 ms	Half-sine
Vibration (vertical)	0.15G	5 to 500 HZ swept-sine
Vibration (horizontal)	0.10G	

TABLE: Acoustic Specifications

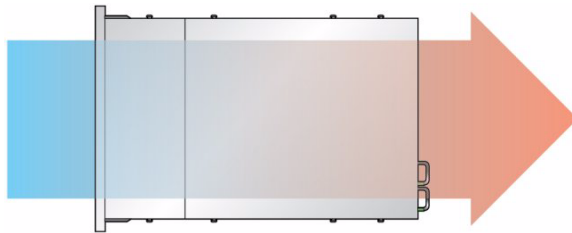
Description	Operating at Idle	Operating at Peak Power
Acoustic power (LwAd 1B= 10dB)	8.2B	
Acoustic pressure level (LpAm: bystander positions)	65.7 dBA	83.2 bBA

Airflow Precautions



Caution – Proper airflow is essential for keeping the server’s internal temperatures within a safe operating range.

Air flows from the front to the rear of the server.



Follow these guidelines to ensure unrestricted airflow in the server:

- Adhere to the minimum airflow clearance specifications. See [“Physical Specifications” on page 3](#).
- Install the server so the front faces the cool aisle and the rear faces the warm aisle.
- Do not direct warm air into the server.
- Prevent recirculation of air within a rack.
- When servicing server internal components, ensure that air ducts and baffles are properly installed.
- Route cables so they do not interfere with airflow.

Understanding Configuration Details

- [“Supported Configurations” on page 6](#)
- [“CPU/Memory Allocations” on page 7](#)
- [“PCIe Physical Slot Assignments” on page 9](#)

Supported Configurations

The system supports two configurations:

- Single domain (E1) — Boots a single OS image and has full visibility of all Exalytics T5-8 components.

- Two domains (E2) — Each domain contains four pairs of root complexes, and includes four local disks as well as a single dual-port 10-GbE NIC. The first domain is also the control domain. Each domain can be run independently and will not be subject to downtime if the other domain is not running for some reason. (Note that the console for the second domain is available only if the first domain also the control domain is running.)

The following tables show the supported configurations, along with root complex assignments.

E1	pci 0+ pci_1	pci 2+ pci_3	pci 4+ pci_5	pci 6+ pci_7	pci 8+ pci_9	pci_10+ pci_11	pci_12+ pci_13	pci 14+ pci_15
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E2	pci 0+ pci_1	pci 2+ pci_3	pci 4+ pci_5	pci 6+ pci_7	pci 8+ pci_9	pci_10+ pci_11	pci_12+ pci_13	pci 14+ pci_15
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CPU/Memory Allocations

This topic describes the CPU/Memory allocation and layout information for each configuration. It includes the following details:

- Configuration — Refers to the supported configurations.
- Layout Name — Corresponds to the `spconfig` name, which is used to store the configuration details.
- Socket Allocation — Shows the number of SPARC T5-8 sockets allocated to each domain (memory is assigned in the same proportion).

Configuration	Layout Name	Socket Allocation	F80 Allocation	Root Complex Allocation	PCIe Slots
E1	E1_1	8	8	pci_0-pci_15	1 through 16
E2	E2_1	4:4	4:4	Domain 1: PCIe Slots: Domain 1: 1, 2, 3, 11 Domain 2: 5, 13, 15, 16	Domain 1: 1, 2, 3, 4, 9, 10, 11, 12 Domain 2: 5, 6, 7, 8, 13, 14, 15, 16

Configuration	Layout Name	Socket Allocation	F80 Allocation	Root Complex Allocation	PCIe Slots
	E2_2	5:3	5:3 PCIe Slots: Domain 1: 1, 3, 11, 13, 15 Domain 2: 2, 5, 16	Domain 1: pci_0->pci3, pci_6->pci_7, pci_10->pci_11 Domain 2: pci_4->pci_5, pci_8->pci_9, pci_12->pci_15	Domain 1: 1, 3, 9, 10, 11, 12, 13, 15 Domain 2: 2, 4, 5, 6, 7, 8, 14, 16
	E2_3	5:3	6:2 PCIe Slots: Domain 1: 1, 2, 3, 11, 13, 15 Domain 2: 5, 16	Domain 1: pci_0->pci7, pci_10->pci_11 Domain 2: pci_8->pci_9, pci_12->pci_15	Domain 1: 1, 2, 3, 4, 9, 10, 11, 12, 13, 15 Domain 2: 5, 6, 7, 8, 14, 16
	E2_4	6:2	6:2 PCIe Slots: Domain 1: 1, 2, 3, 11, 13, 15 Domain 2: 5, 16	Domain 1: pci_0->pci7, pci_10->pci_11 Domain 2: pci_8->pci_9, pci_12->pci_15	Domain 1: 1, 2, 3, 4, 9, 10, 11, 12, 13, 15 Domain 2: 5, 6, 7, 8, 14, 16

Note – For two-domain configurations, CPU and memory can be reallocated after the initial install with a tool, `setcoremem`, which is provided with the software release. The `setcoremem` tool offers a small number of other allocation alternatives at socket granularity, with memory assigned in the same proportion. The allocation alternatives provided by the tool minimize NUMA behavior for optimal performance. For more information about the `setcoremem` tool, refer to the *Oracle SuperCluster T5-8 Owner's Guide*.

PCIe Physical Slot Assignments

PCIe Card	Slot Assignments
Sun Flash Accelerator F80 PCIe card	Slot 1
Sun Flash Accelerator F80 PCIe card	Slot 2
Sun Flash Accelerator F80 PCIe card	Slot 3
Sun Flash Accelerator F80 PCIe card carrier	Slot 4
Sun Flash Accelerator F80 PCIe card	Slot 5
Sun Flash Accelerator F80 PCIe card carrier	Slot 6
Dual Fiber Channel HBA LP-PCIE	Slot 7
Sun QDR Infiniband dual-port LP-PCIE	Slot 8
Sun QDR Infiniband dual-port LP-PCIE	Slot 9
Dual Fiber Channel HBA LP-PCIE	Slot 10
Sun Flash Accelerator F80 PCIe card	Slot 11
Sun Flash Accelerator F80 PCIe card carrier	Slot 12
Sun Flash Accelerator F80 PCIe card	Slot 13
Sun Flash Accelerator F80 PCIe card carrier	Slot 14
Sun Flash Accelerator F80 PCIe card	Slot 15
Sun Flash Accelerator F80 PCIe card	Slot 16

Preparing for Installation

These topics detail the precautions to follow, the tools to assemble, and the tasks to perform prior to installing the server.

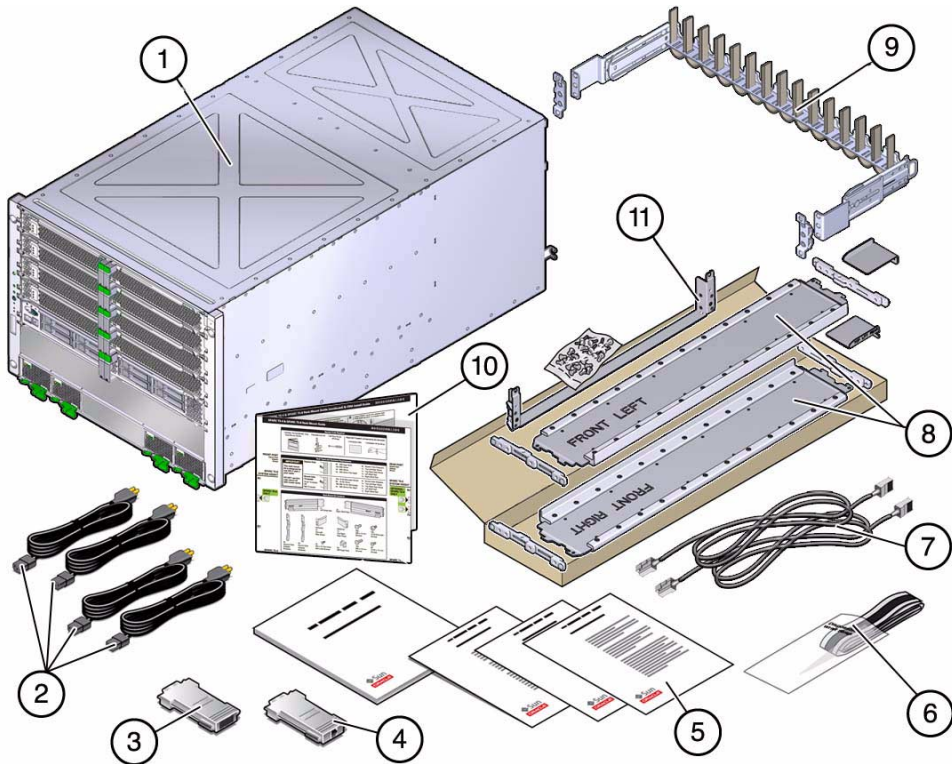
Step	Description	Links
1.	Confirm that you have received all the items you ordered for the type of CMA you will be using in your installation.	“Shipping Kit With Single-Unit CMA Comb (Part No. 7069640)” on page 11 “Shipping Kit With Multi-Piece CMA (Part No. 350-1662-02)” on page 13
2.	Review safety and ESD precautions.	“Handling Precautions” on page 14 “ESD Precautions” on page 15
3.	Verify that you have the correct tools.	“Tools Needed for Installation” on page 15
4.	Prepare the server for installation.	“Prepare the Server” on page 16

Shipping Kit With Single-Unit CMA Comb (Part No. 7069640)

Verify that you have received all of the components that ship with your server.

This shipping kit includes the single-unit CMA comb. If your shipping kit includes the multi-piece CMA, see [“Shipping Kit With Multi-Piece CMA \(Part No. 350-1662-02\)” on page 13](#).

Note – When you receive the server, place it in the environment where you will install it. Leave it in its shipping crate at its final destination for 24 hours. This resting period prevents thermal shock and condensation.



No.	Description
1	Server
2	AC power cords (2)
3	RJ-45 to DB-25 crossover adapter
4	RJ-45 to DB-9 crossover adapter
5	Print document kit
6	Antistatic wrist strap
7	Ethernet cables (2)
8	Rackmounting kit
9	CMA
10	Rack Buddy template
11	Bottom rear shipping brace

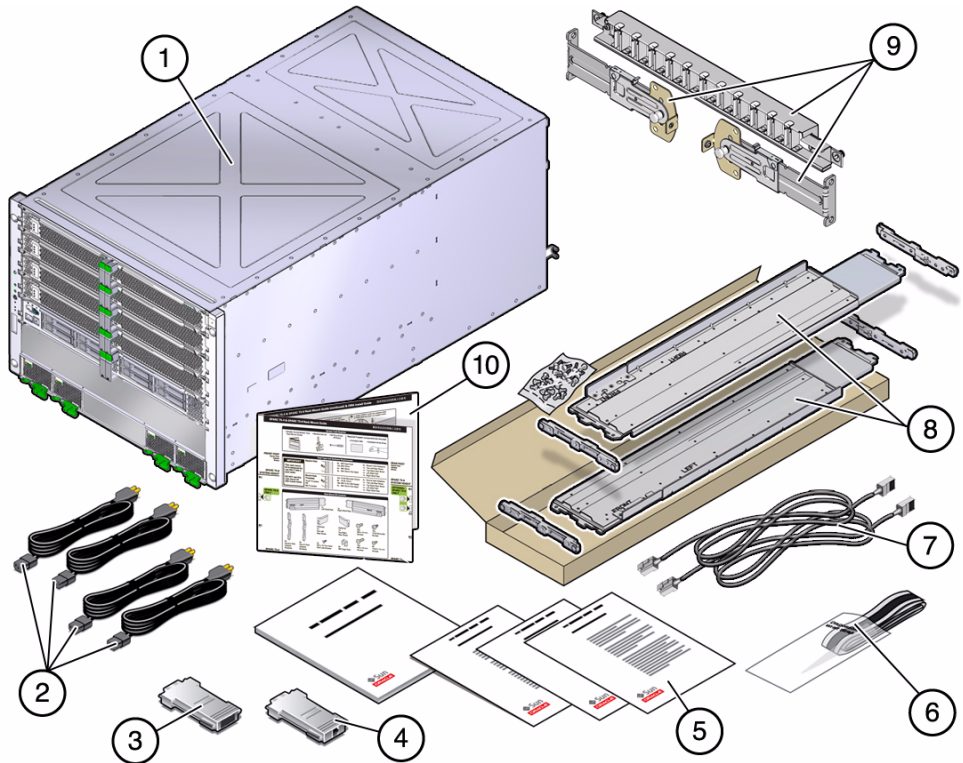
Shipping Kit With Multi-Piece CMA (Part No. 350-1662-02)

Verify that you have received all of the components that ship with your server.

This shipping kit includes the multi-piece CMA. If your shipping kit includes the single-piece CMA comb, see [“Shipping Kit With Multi-Piece CMA \(Part No. 350-1662-02\)”](#) on page 13.

Note – When you receive the server, place it in the environment where you will install it. Leave it in its shipping crate at its final destination for 24 hours. This resting period prevents thermal shock and condensation.

Verify that you have received all of the components that ship with your server.



No.	Description
1	Server
2	AC power cords (quantity 4)
3	RJ-45 to DB-25 crossover adapter
4	RJ-45 to DB-9 crossover adapter
5	Print document kit
6	Antistatic wrist strap
7	Ethernet cables (quantity 2)
8	Rackmounting kit
9	Cable management assembly
10	Rack Buddy template

Handling Precautions



Caution – Deploy the anti-tilt bar on the equipment rack before beginning an installation.



Caution – Always load equipment into a rack from the bottom up so that it will not become top-heavy and tip over.



Caution – Do not attempt to move the server alone without a lift. For a one-person installation, all the components must be removed and a lift must be used. For a two-person installation, all the components must be removed and a lift is optional.



Caution – Always communicate your intentions clearly before, during, and after each step of the rackmounting procedure to minimize confusion.

ESD Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wriststrap, footstrap, or equivalent safety equipment to prevent electrostatic damage when you install or service the server.



Caution – To protect electronic components from electrostatic damage, which can permanently disable the server or require repair by service technicians, place components on an antistatic surface, such as an antistatic discharge mat, an antistatic bag, or a disposable antistatic mat. Wear an antistatic grounding strap connected to a metal surface on the chassis when you work on server components.

Tools Needed for Installation

- Long No. 2 Phillips screwdriver
- Cutters or heavy duty scissors
- Marking pen or tape
- ESD mat and grounding strap
- Hydraulic or mechanical lift (optional for two-person installation)

In addition, you must provide a system console device, such as one of the following:

- ASCII terminal
- Workstation
- Terminal server (optional to capture initial boot output)
- Patch panel connected to a terminal server

▼ Prepare the Server



Caution – Do not attempt to move the server alone without a lift. For a one-person installation, all the components must be removed and a lift must be used. For a two-person installation, all the components must be removed and a lift is optional.

1. Remove the server from the box.

See [“Shipping Kit With Single-Unit CMA Comb \(Part No. 7069640\)”](#) on page 11 or [“Shipping Kit With Single-Unit CMA Comb \(Part No. 7069640\)”](#) on page 11.

2. Remove all of the processor modules, the main module, the power supplies, the fan modules, and the PCIe card carriers from the server.

Refer to the service manual for detailed instructions.

3. Determine your next step:

- For a one-person installation, place the server on a mechanical lift.
- For a two-person installation, place the server on a mechanical lift if one is available.

4. Install any PCIe cards that need to be installed in the PCIe card carriers.

Refer to the service manual for detailed instructions.

5. Install the server in the rack.

See [“Installing the Server”](#) on page 17.

Installing the Server

These topics describe how to install the server into a rack equipped with square mounting holes. If you are installing the server into a rack equipped with round mounting holes, see [“Determine Correct Rackmount Hardware” on page 24](#).

Note – If the rackmount kit came with its own instructions, use the kit instructions instead of the instructions in this chapter. After performing the server installation, proceed to [“Powering On the Server for the First Time” on page 47](#) for first-time power on.

Step	Description	Links
1.	Ensure that your rack is compatible with the server requirements.	“Rack Compatibility” on page 18
2.	Determine the correct rackmounting hardware, and install the hardware.	“Determine Correct Rackmount Hardware” on page 24 “Mark the Rackmounting Location” on page 24 “Install the Rackmount Hardware” on page 25
3.	(Optional) Install the CMA.	“Installing the CMA” on page 28
4.	If you are installing the server into a rack that will be shipped to another location, install the shipping brace assembly.	“Shipping Brace Assembly” on page 34
5.	Install the server in the rack.	“Install the Server” on page 38
6.	Review cabling requirements and port information. Attach data and management cables to the server.	“Connecting the Server Cables” on page 39
7.	Configure the Oracle ILOM SP and power on the server for the first time.	“Powering On the Server for the First Time” on page 47

Rack Compatibility

The rackmount kit is compatible with equipment racks that meet the following standards.

Item	Requirement
Rack types when used with the Single-piece CMA comb, part number 7069793	1000-mm and 1200-mm racks.
Rack type when used with the multi-piece CMA, part number 7041990	1200-mm rack.
Structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards.
Rack rail mounting hole sizes	9.5-mm square holes, M6 round mounting holes and 10-32 mounting holes are supported. All other sizes, including 7.2-mm or M5 mounting holes, are <i>not</i> supported.
Distance between front and rear mounting planes	Minimum: 24 in. (240 mm). Maximum: 36 in. (915 mm).
Clearance depth in front of front mounting plane	Distance to front rack door is at least 1 in. (25.4 mm).
Clearance depth behind front mounting plane	Distance to rear rack door is at least 34.6 in. (878.8 mm) with the cable management arm, or 31.5 in. (800 mm) without the cable management arm.
Clearance width between front and rear mounting planes	Distance between structural supports and cable troughs is at least 18.9 in. (480 mm).
Server dimensions	Depth: 31.5 in. (800 mm) Width: 17.5 in. (445 mm) Height: 13.8 in. (350 mm).

Rack Cautions



Caution – Equipment Loading: Always load equipment into a rack from the bottom up so that the rack does not become top-heavy and tip over. Deploy the rack's anti-tilt bar to prevent the rack from tipping during equipment installation.



Caution – Elevated Operating Ambient Temperature: If the server is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient temperature. Therefore, install the equipment only in an environment compatible with the maximum ambient temperature (T_{ma}) specified for the server.



Caution – Reduced Air Flow: Install the equipment in a rack so that the amount of air flow is adequate for the safe operation of the equipment.



Caution – Mechanical Loading: Mount the equipment in the rack so that the weight is distributed evenly. A hazardous condition can exist with uneven mechanical loading.



Caution – Circuit Overloading: Do not overload the power supply circuits. Before connecting the server to the supply circuit, review the equipment nameplate power ratings and consider the effect that circuit overloading might have on overcurrent protection and supply wiring.



Caution – Reliable grounding: Maintain reliable grounding of rackmounted equipment. Give particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).



Caution – Do not use slide rail mounted equipment as a shelf or a work space.

Caution – Do not attempt to move the server alone without a lift. For a one-person installation, all the components must be removed and a lift must be used. For a two-person installation, all the components must be removed and a lift is optional.



Caution – Due to the weight of the server, it should not be shipped while it is in a rack. Install the server into the rack only at its final location.



Caution – There are two rail kits for the SPARC T5-8 server. If you have installed the old rail kit (part number 350-1662-02) without the shipping brace, you cannot ship the server in the rack. If you have installed the new rail kit (part number 7069640) with the shipping braces, there is no restriction on shipping the server in a rack.

▼ Stabilize the Rack



Caution – To reduce the risk of personal injury, stabilize the rack by extending all anti-tilt devices before installing the server.

Refer to the rack documentation for detailed instructions for the following steps.

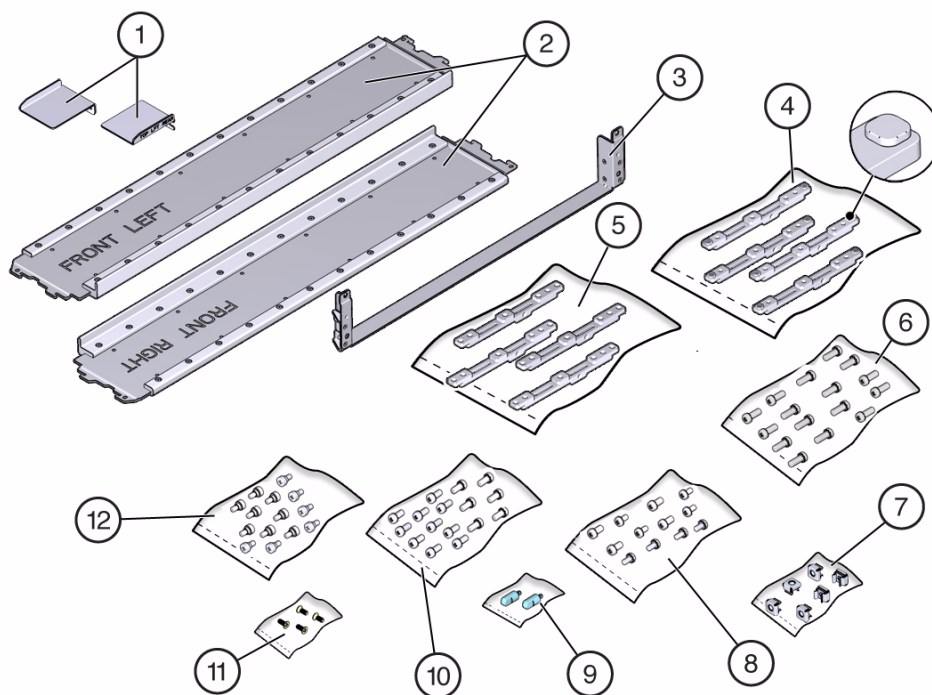
1. **Read the rack cautions and stabilize the rack.**
See [“Rack Cautions”](#) on page 19.
2. **Open and remove the front and rear doors from the rack.**
3. **To prevent the rack from tipping during the installation, stabilize the rack using all anti-tilt mechanisms provided.**
4. **If there are leveling feet beneath the rack to prevent it from rolling, extend the leveling feet fully downward to the floor.**

Rackmount Kit With Single-Piece CMA Comb (Part No. 7069640)

This rackmount kit includes the single-piece CMA comb. If your rackmount kit includes the multi-piece CMA, see [“Rackmount Kit With Multi-Piece CMA \(Part No. 350-1662-02\)”](#) on page 22.

The rackmount kit has two shelf rails, one for each side of the rack. Each shelf rail is marked FRONT LEFT or FRONT RIGHT.

The shelf rails are mounted to the rack with four adaptor brackets. The shelf rails adjust to fit rack depths from 25 to 34.25 in. (63.5 to 87 cm).



No.	Description
1	Top rear brace (right and left)
2	Shelf rails
3	Bottom rear shipping brace

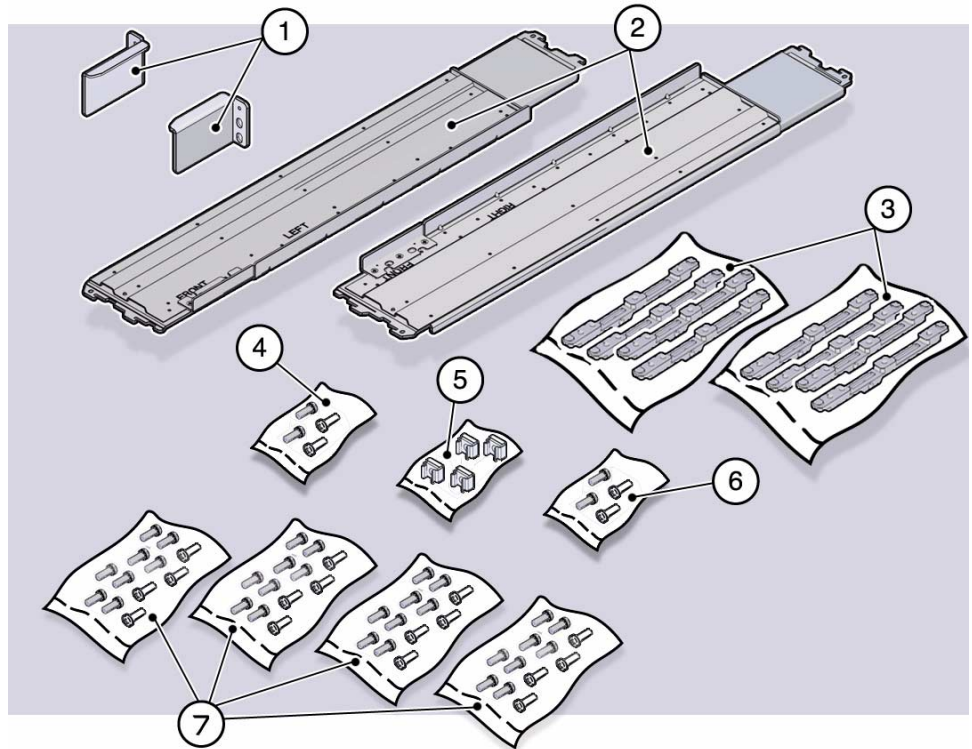
No.	Description
4	Adapter bracket (for square mounting holes)
5	Adapter bracket (for round mounting holes)
6	M6 16-mm screws (16)
7	Cage nuts (4)
8	10-mm screws (12)
9	Guide pin (2)
10	M6 12-mm screws (16)
11	M4 flathead screws (4)
12	M6 16-mm screws (12)

Rackmount Kit With Multi-Piece CMA (Part No. 350-1662-02)

This rackmount kit includes the multi-piece CMA. If your rackmount kit includes the CMA comb, see [“Rackmount Kit With Single-Piece CMA Comb \(Part No. 7069640\)” on page 21](#).

The rackmount kit has two shelf rails, one for each side of the rack. Each shelf rail is marked LEFT or RIGHT.

The shelf rails are mounted to the rack with four adapter brackets. The shelf rails adjust to fit rack depths from 25 to 34.25 in. (63.5 to 87 cm).



No.	Description
1	Upper rear brackets
2	Shelf rails
3	Adapter brackets (two types provided, for racks with either square mounting holes or round mounting holes)
4	Flathead screws
5	Threaded inserts
6	M6 screws
7	Rackmount screws

▼ Determine Correct Rackmount Hardware

- Determine the hardware needed for your rack installation.

Rack Type	Fastener Bags Required
Square hole	SCREW, SEMS, M6 X 16 CAGENUTS, M6 SCREW, FLAT HEAD, M4 X 10
Round hole (10-32) with corner bezel	SCREW, SEMS, 10-32 X 10 SCREW, FLAT HEAD, M4 X 10
Round hole (M6) with corner bezel	SCREW, SEMS, M6 X 12 SCREW, FLAT HEAD, M4 X 10
Round hole (10-32) inside installation	SCREW, SHOULDER, 10-32 SCREW, FLAT HEAD, M4 X 10
Round hole (M6) inside installation	SCREW, SEMS, M6 X 12 SCREW, FLAT HEAD, M4 X 10

Note – Some of the fastener bags that are included in the kit are not required to install this server.

▼ Mark the Rackmounting Location

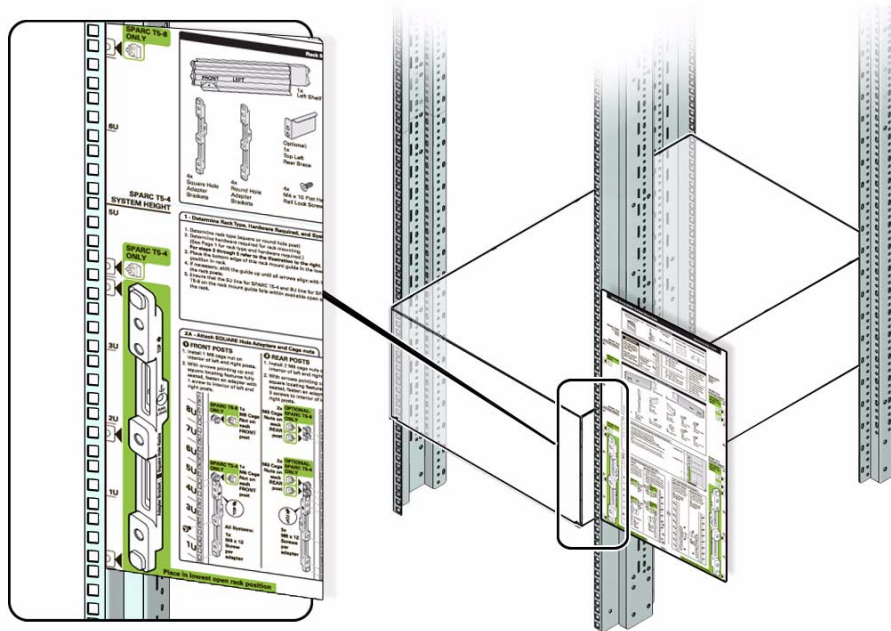
Use the Rack Buddy template to identify the correct mounting holes for the shelf rails.

Note – Load the rack from bottom to top.

1. Ensure that there is enough vertical space in the rack to install the server.

2. Place the Rack Buddy template against the front rails.

The bottom edge of the template corresponds to the bottom edge of the server. Measure up from the bottom of the template.



3. Mark the mounting holes for the front shelf rails.

4. Mark the mounting holes for the rear shelf rails.

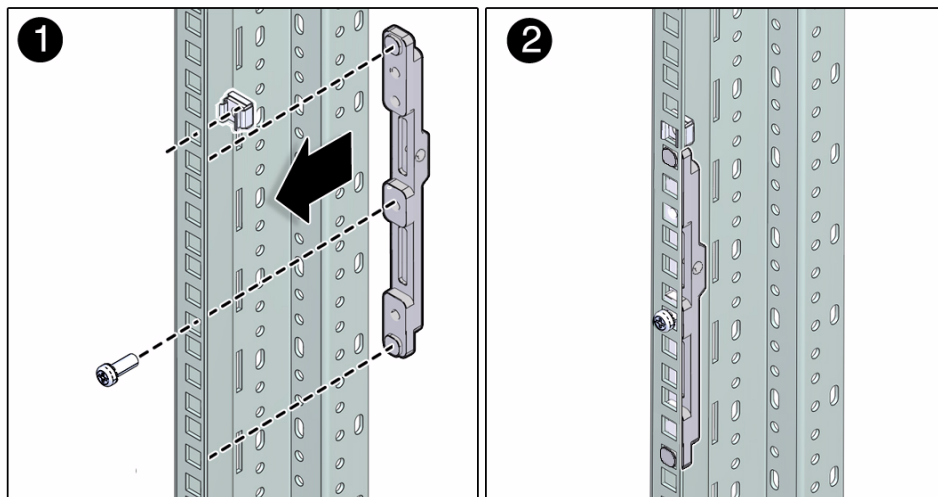
▼ Install the Rackmount Hardware

1. Repeat the following steps for both the left and right front mounting points:

- Place the adapter bracket in the marked location.

Note – An “up” arrow indicates proper orientation.

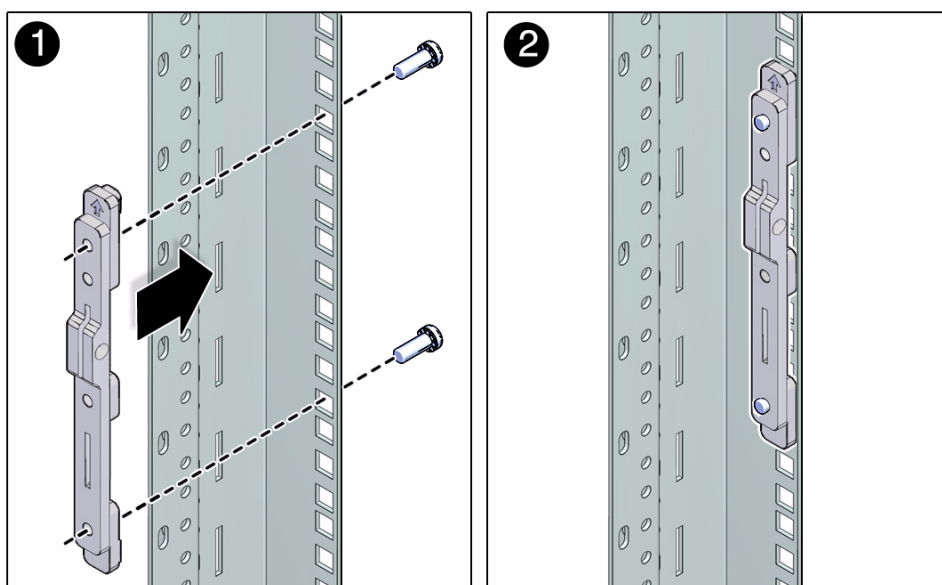
- Secure the adapter bracket in the center hole using one No. 2 Phillips screw.
- Insert a cage nut in the hole just above the top of the rack rail bracket.



2. Repeat the following steps for both the left and right rear mounting points:
- Place the adapter bracket in the marked location.

Note – An “up” arrow indicates proper orientation.

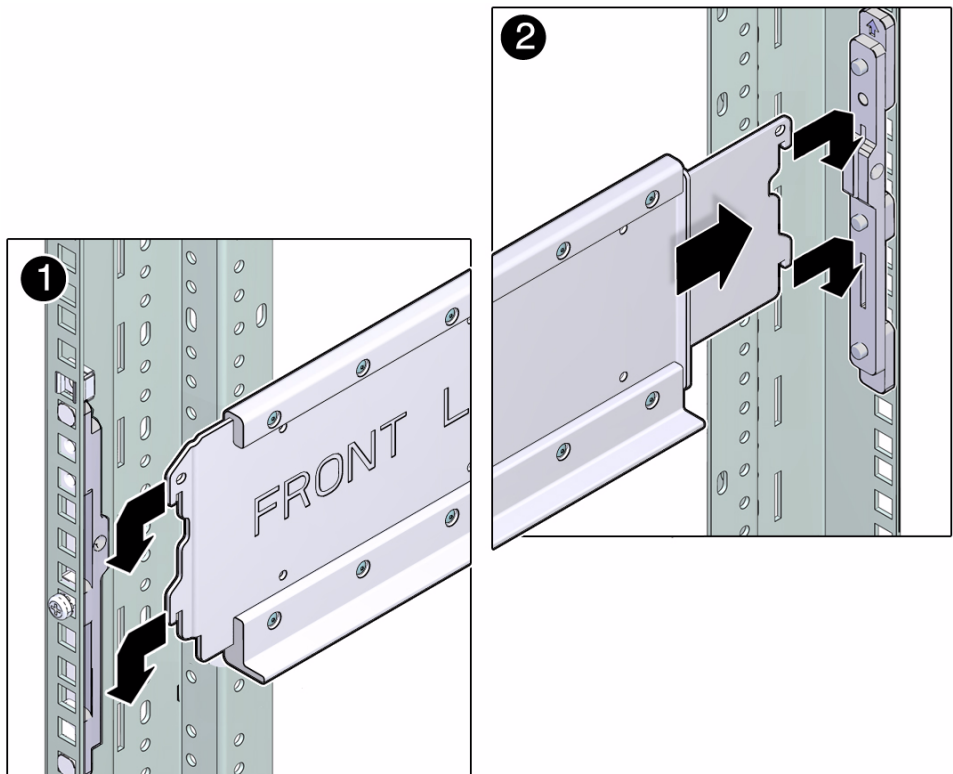
- Secure the adapter bracket top and bottom holes using two No. 2 Phillips screws.



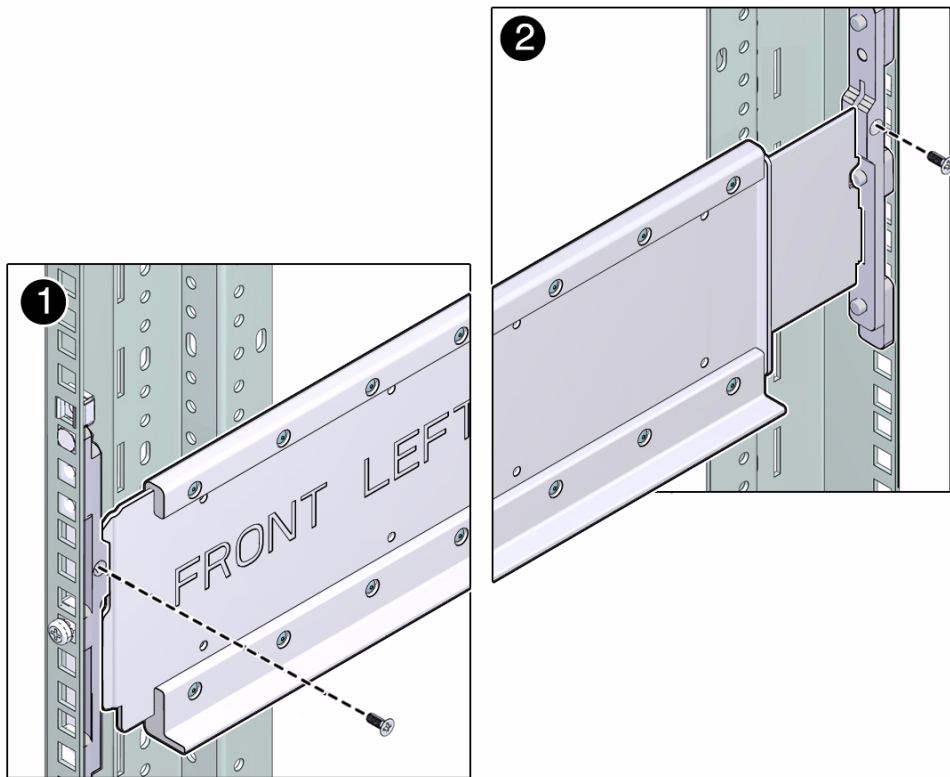
3. Install the shelf rails.

Note – The shelf rails are marked “FRONT LEFT” and “FRONT RIGHT” (as viewed from the front of the server).

- a. **Position the left shelf rail between the front and rear rack posts.**
The shelf rail slides in and out to fit racks of different depths.
- b. **Extend the shelf rail and insert the rear hooks into the adapter slots.**
- c. **Push the shelf rail down to engage the hooks.**
- d. **Insert the front hooks into the adapter slots.**
- e. **Push the shelf rail down to engage the hooks.**
- f. **Repeat steps a through e for the right shelf rail and confirm all the rail hooks are fully engaged in front and rear adapters.**



- g. **Secure each shelf rail with two rail lock screws (one M4 x 10 flat-head screw on each adapter bracket).**



4. Consider your next step.

- If you are installing a CMA, see [“Installing the CMA” on page 28](#).
- If you are installing the server into an equipment rack that will be shipped to another location, see [“Installing the Shipping Brace Assembly” on page 34](#).
- If you are installing the server, see [“Installing the Server” on page 17](#).

Installing the CMA

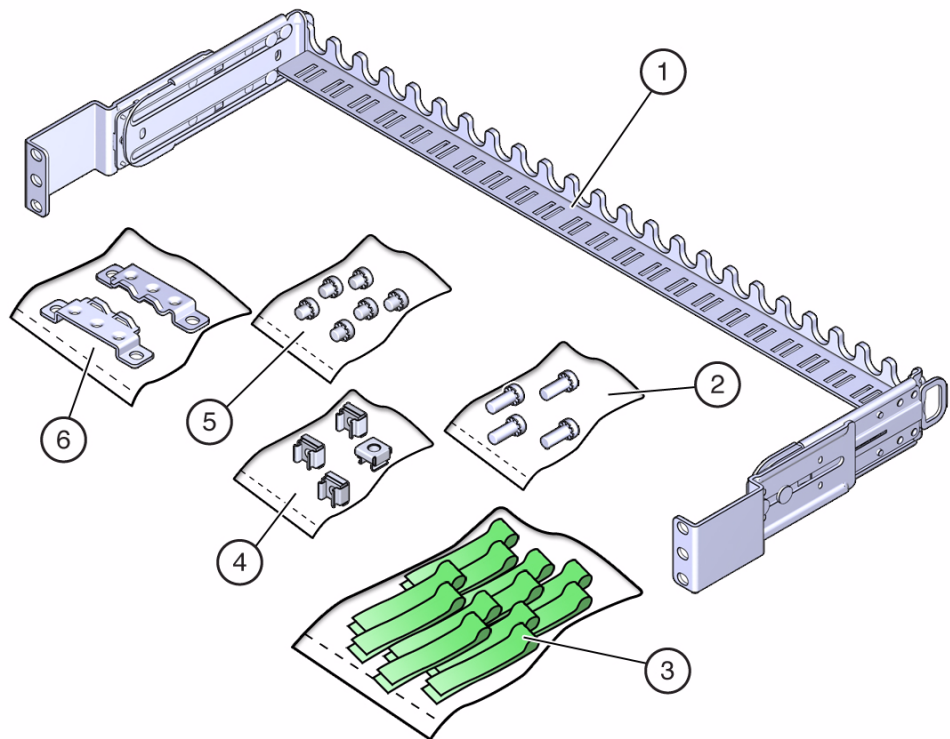
The cable management assembly is an optional kit for managing and routing power and data cables attached to the back of the server. There are two types of CMAs and rail kits. Determine which type you have for applicable installation instructions.

Note – This server with the multi-piece CMA (part number 7041990) attached fits only a 1200-mm rack.

These topics provide the information and tasks needed to install the CMA:

- “CMA Kit (Single-Piece CMA Comb, Part No. 7069793)” on page 29
- “Install the Single-Piece CMA Comb” on page 30
- “CMA Kit (Multi-piece CMA, Part No. 7041990)” on page 32
- “Install the Multi-Piece CMA” on page 32
- “Secure Cables Using the CMA” on page 45

CMA Kit (Single-Piece CMA Comb, Part No. 7069793)



No.	Description
1	CMA comb
2	M6 16-mm screws (4)
3	Hook and loop straps (14)
4	M6 cage nuts (4)
5	M6 6-mm screws (6)
6	Bracket adapters (2)

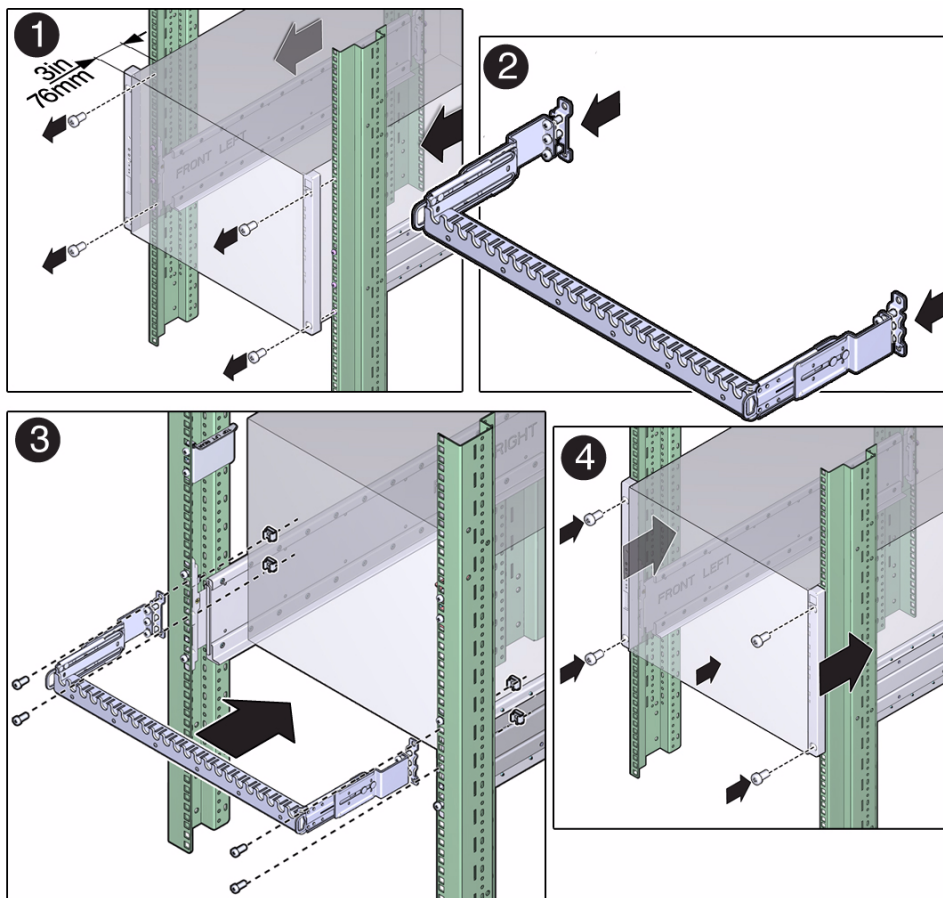
▼ Install the Single-Piece CMA Comb

This topic describes how to install the single-piece CMA comb. For installation of the multi-piece CMA, see [“Install the Multi-Piece CMA” on page 32](#).

The CMA is attached to the rear posts of the rack.

Note – The CMA installation might block some of the power outlets in the rack, making them unavailable.

1. **Confirm that you have the correct hardware to install the CMA** (see [“Determine Correct Rackmount Hardware” on page 24](#)).
2. **At the front of the system, remove four screws, two per side.**



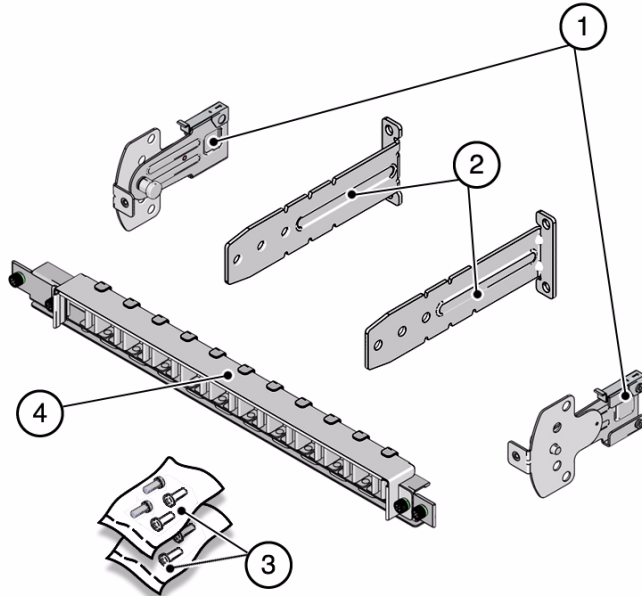
3. At the rear of the system, on square hole racks, remove the middle adapter screw on each side and push the system forward 3 in. (76 mm).



Caution – Do not remove the top adapter screw on the square hole racks.

4. Attach the left and right CMA brackets to the comb, using three M6 screws per side.
5. Attach the CMA comb to the rack posts, using two M6 screws per side.
6. At the front of the system, push the system back until it touches the rails.
7. Reinstall the four screws, two per side.

CMA Kit (Multi-piece CMA, Part No. 7041990)



No.	Description
1	Swivel clips
2	L brackets
3	Fasteners
4	CMA

▼ Install the Multi-Piece CMA

This topic describes how to install the multi-piece CMA. For installation of the single-piece CMA comb, see [“Install the Single-Piece CMA Comb”](#) on page 30.

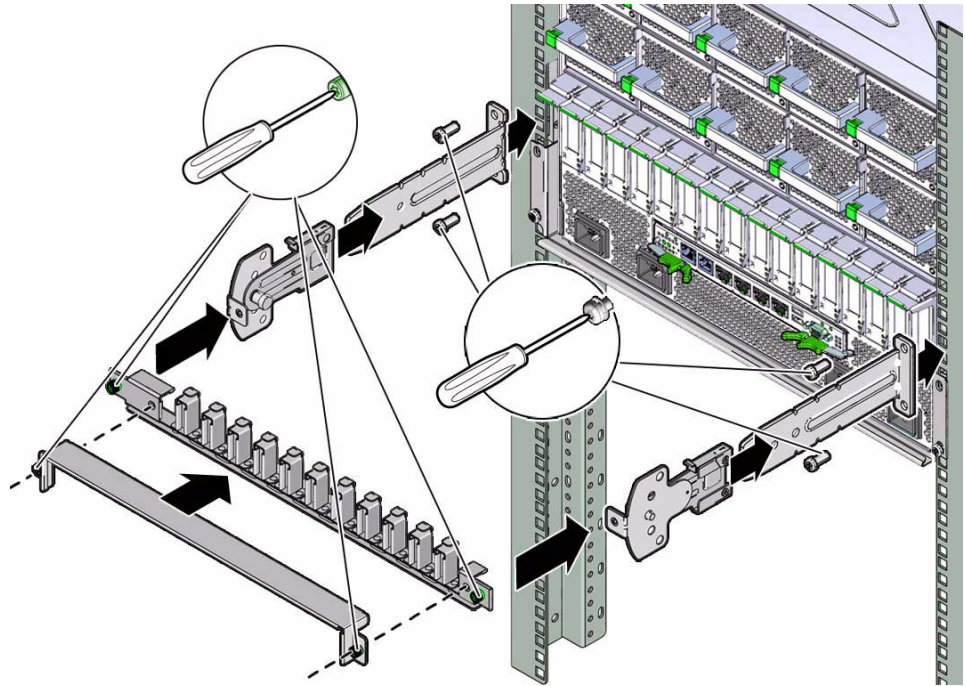
The CMA attaches to the rear posts of the rack.

Note – The CMA installation might block some of the power outlets in the rack, making them unavailable.

1. Install the L brackets at the rear.

The brackets are marked "Left" and "Right" as viewed from the back of the server. Repeat the steps for both the left and right sides:

- a. Identify the left and right side brackets.
- b. Remove the two middle screws from the rackmount adapter.
- c. Place the bracket over the center two mounting holes.
- d. Secure each mounting bracket with two No. 2 Phillips screws.



2. Slide the left and right swivel clips into the left and right L brackets.
3. Secure the CMA with the two captive screws.

Installing the Shipping Brace Assembly

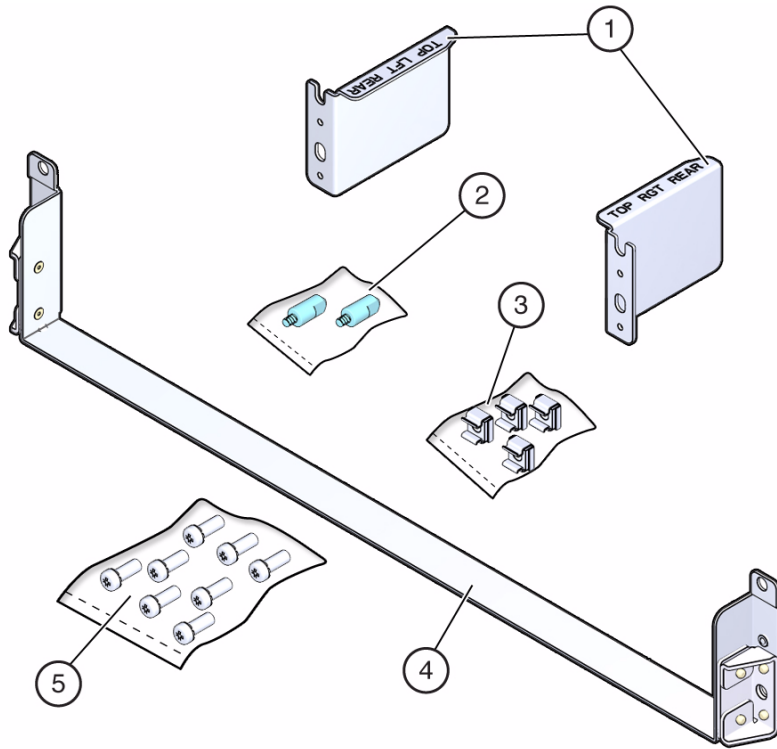
This shipping brace assembly is included in the shipping kit with the single-piece CMA comb, part number 7069640. Use these procedures if you are installing the server into an equipment rack that will be shipped to another location.

Note – These procedures describe how to install the server into a rack with square mounting holes. If you are installing the server into a rack with round mounting holes, see [“Determine Correct Rackmount Hardware” on page 24](#).

- [“Determine Correct Shipping Brace Fasteners” on page 35](#)
- [“Install the Top Rear Braces” on page 36](#)
- [“Install the Bottom Rear Shipping Brace” on page 37](#)

Shipping Brace Assembly

The shipping brace assembly provides extra shock and vibration protection. Use this kit when installing the server into a vehicle, or when you are installing the server into an equipment rack that will be shipped to another location for final installation.



No.	Description
1	Top rear shipping brace (2)
2	Guide pins (2)
3	Cage nuts (4)
4	Bottom rear shipping brace
5	Screws (8)

▼ Determine Correct Shipping Brace Fasteners

- Determine the correct fasteners for your shipping brace installation.

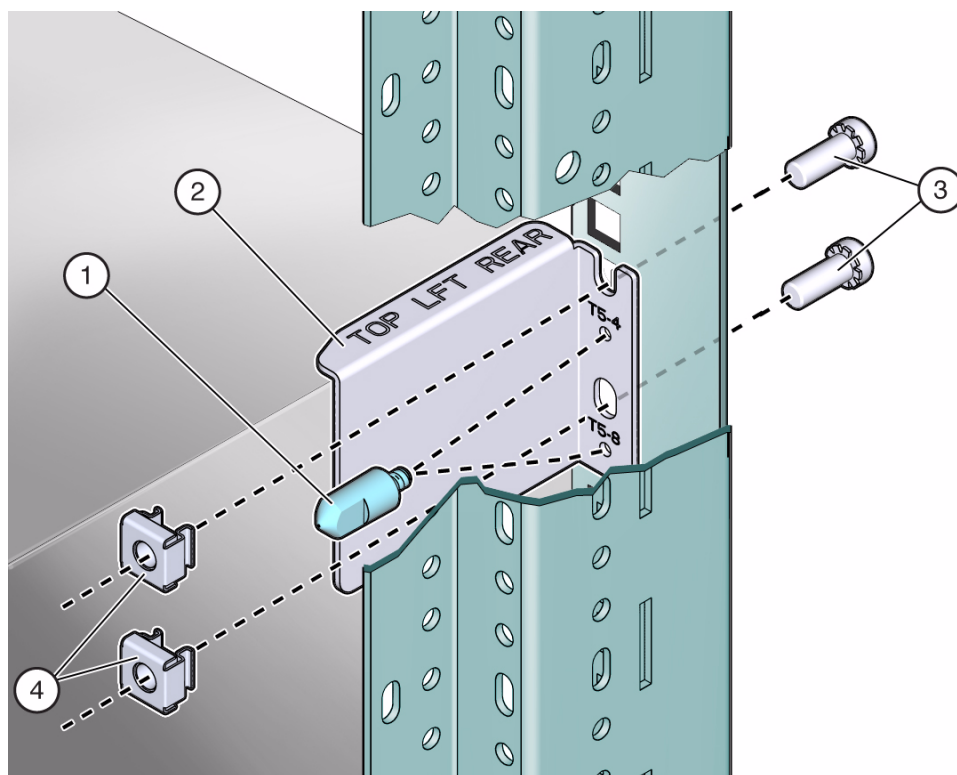
Rack Type	Fastener Bags Required
Square hole with corner bezel	SCREW, SEMS, M6 X 16MM
	SCREW, SEMS, M6 X 30MM

Rack Type	Fastener Bags Required
Tapped hole (10-32)	SCREW, SEMS, 10-32 X 1-1/4" SCREW, SEMS, 10-32 X 10MM
Tapped hole (M6)	SCREW, SEMS, M6 X 16MM SCREW, SEMS, M6 X 30MM

▼ Install the Top Rear Braces

The rear braces are labeled left and right as viewed from the rear of the rack.

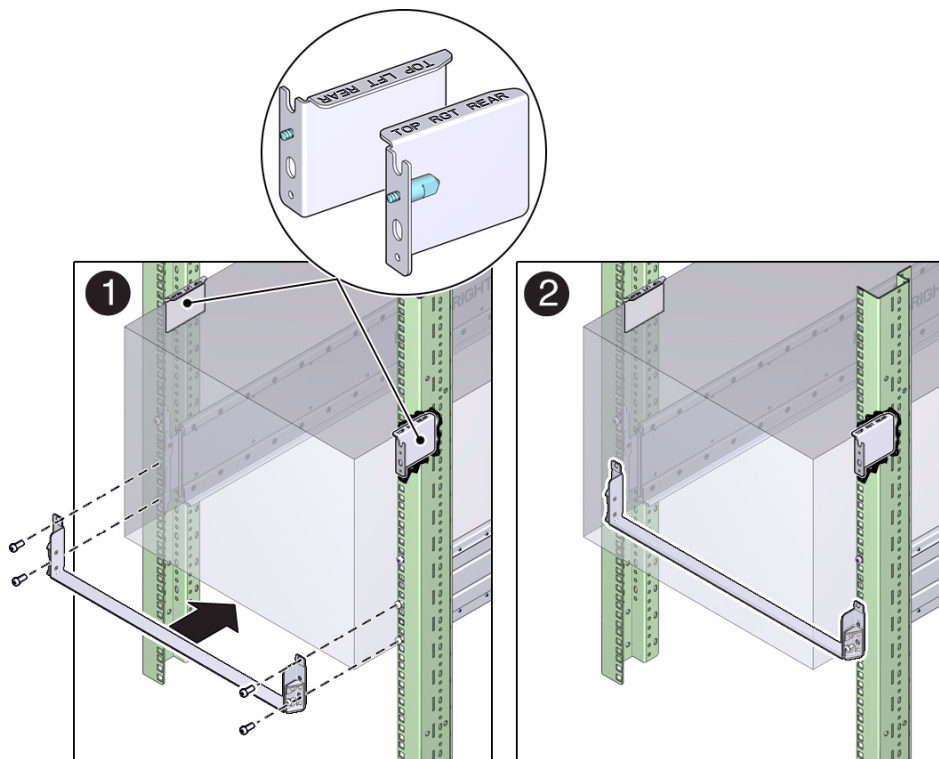
1. Install two cage nuts into the left rear rack post above the adapter bracket.



2. Position the top left brace on the left rear rack post above the adapter.
3. Insert and finger-tighten the guide pin in the appropriate hole for your server.
4. Secure the brace with two M6 x 12-mm screws.
5. Repeat steps 1 through 4 for the top right brace.

▼ Install the Bottom Rear Shipping Brace

1. Hold the shipping brace at the bottom rear of the system.
2. Install two No. 2 Phillips screws in each side of the shipping brace.



▼ Remove the Bottom Rear Shipping Brace

Remove the bottom shipping brace after the server rack reaches its final destination.

1. Remove the four screws that secure the bottom shipping brace to the rack.
2. Slide the shipping brace out from the rear of the rack.

▼ Install the Server



Caution – Do not attempt to move the server alone without a lift. For a one-person installation, all the components must be removed and a lift must be used. For a two-person installation, all the components must be removed and a lift is optional.



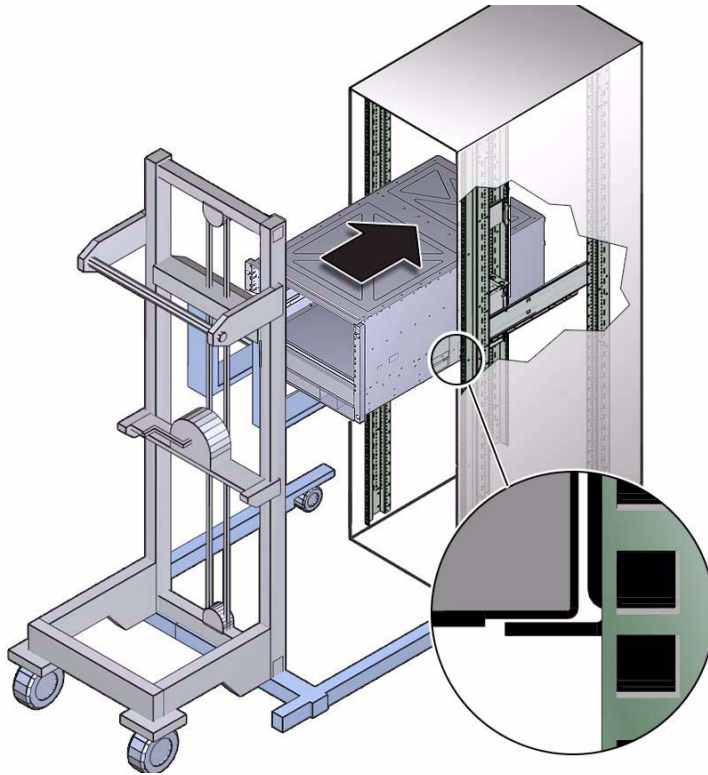
Caution – There are two rail kits for the SPARC T5-8 server. If you have installed the old rail kit (part number 350-1662-02) without the shipping brace, you cannot ship the server in the rack. If you have installed the new rail kit (part number 7069640) with the shipping braces, there is no restriction on shipping the server in a rack.

1. **Prior to installing the server, confirm that you have removed all of the processor modules, the main module, the power supplies, the fan modules, and the PCIe card carriers.**

For instructions on how to remove these components, refer to the service manual.

2. **If you are using a mechanical lift, ensure that the lift is level and stable.**
3. **Lift the server up to the correct height.**
4. **Slide the server into the rack.**

Ensure that the bottom edge of the server has cleared the bottom of the rack rails.



5. Secure the server to the front panel using four No. 2 Phillips screws.

6. Replace all of the components that you removed.

For instructions on how to install these components, refer to the service manual.

Connecting the Server Cables

These tasks describe how to connect and configure the network and serial ports before you attempt to boot the server.

Step	Description	Links
1.	Review the cabling requirements.	“Cabling Requirements” on page 40
2.	Review the front and rear panel connectors and ports.	“Front Panel Components” on page 41 “Rear Panel Components” on page 42
3.	Connect the management and data cables.	“Connecting Data and Management Cables” on page 42
4.	Secure the cables with the CMA.	“Secure Cables Using the CMA” on page 45

Cabling Requirements

The minimum required cable connections for the server are the power cables, at least one server on-board Ethernet network connection, the serial management port, and the network management port.

Port Descriptions for Cabling

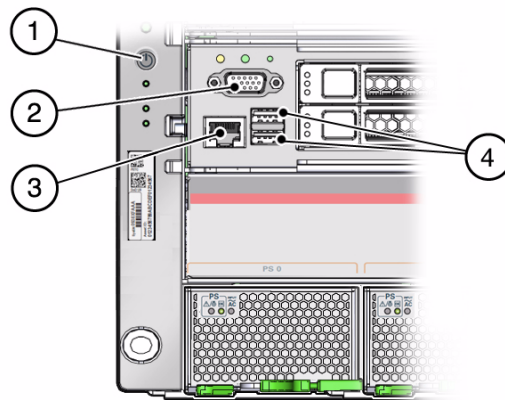
- **SP management ports:** There are two SP management ports for use with the ILOM SP.
 - The SER MGT port uses an RJ-45 cable and is always available. This port is the default connection to the ILOM SP.
 - The NET MGT port is the optional connection to the ILOM SP. The NET MGT port is configured to use DHCP by default. To set a static IP address, see [“Assigning a Static IP Address to the SP” on page 57](#). The SP network management port uses an RJ-45 cable for a 10/100 BASE-T connection.
- **Ethernet ports:** are labeled NET0, NET1, NET2, and NET3. The Ethernet interfaces operate at 100 Mbps, 1000 Mbps, and 10000 Mbps.

Connection Type	IEEE Terminology	Transfer Rate
Fast Ethernet	100BASE-T	100 Mbits/sec
Gigabit Ethernet	1GBASE-T	1000 Mbits/sec
10 Gigabit Ethernet	10GBASE-T	10000 Mbits/sec

Note – To achieve 1-GbE network speeds, use Category 6 (or better) cables and network devices that support 1000BASE-T networks.

- **USB ports:** USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running without affecting server operations.
 - You can perform USB hot-plug operations only while the OS is running. USB hot-plug operations are not supported when the server ok prompt is displayed or before the server has completed booting.
 - You can connect up to 126 devices to each of the four USB controllers, for a total of 504 USB devices per server.
- **AC power cables:** Do not attach power cables to the power supplies until you have finished connecting the data cables and have connected the server to a serial terminal or a terminal emulator (PC or workstation). The server goes into Standby mode and the Oracle ILOM SP initializes as soon as the AC power cables are connected to the power source. System messages will not be displayed if the server is not connected to a terminal, PC, or workstation.

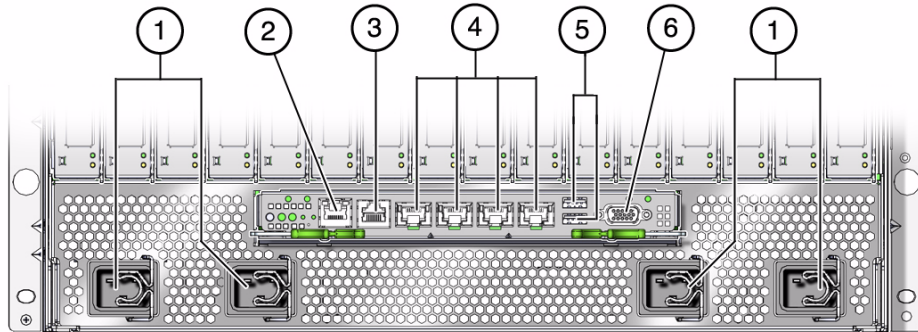
Front Panel Components



No.	Description
1	Power button
2	VGA port
3	SER MGT port
4	USB 3.0 ports

Rear Panel Components

Note – You must follow the proper sequence when connecting cables to the server. Do not connect the power cords until all data cables have been connected.



No	Description
1	Power supply unit AC inputs
2	NET MGT RJ-45 network port
3	SER MGT RJ-45 serial port
4	Network 10 Gbps ports: NET0—NET3
5	USB 3.0 ports
6	VGA port

Connecting Data and Management Cables

After you have connected these cables, see [“Powering On the Server for the First Time” on page 47](#) before connecting the AC power cords.



Caution – Use only the power cords provided with the server.

- [“Connect the SER MGT Cable” on page 43](#)
- [“Connect the NET MGT Cable” on page 43](#)
- [“Connect the Ethernet Network Cables” on page 44](#)
- [“Connect the Fiber Channel Card Cables” on page 44](#)

▼ Connect the SER MGT Cable

The serial management port on the SP is marked SER MGT. The SP SER MGT port is used only for server management. The port is the default connection between the SP and a terminal or a computer. See [“Front Panel Components” on page 41](#) and [“Rear Panel Components” on page 42](#) for connector locations.



Caution – Do not attach a modem to the SP SER MGT port.

- **Connect an RJ-45 cable (Category 5) from the SP SER MGT port to the terminal device.**

Use this port for initial server management. This port is needed to activate the NET MGT port, as detailed in [“Powering On the Server for the First Time” on page 47](#).

When connecting either a DB-9 or a DB-25 cable, use an adapter to perform the crossovers given for each connector.

Note – To achieve 1-GbE network speeds, use Category 6 (or better) cables and network devices that support 1000BASE-T networks.

▼ Connect the NET MGT Cable

The SP network management port is labeled NET MGT. After the initial server configuration, you can connect to the SP over an Ethernet network using this NET MGT port.

If your network uses a DHCP server to assign IP addresses, the DHCP server will assign an IP address to this NET MGT port. With this IP address, you can connect to the SP using an SSH connection. If your network does not use DHCP, this NET MGT port will not be accessible until you configure the network settings through the SER MGT port. For instructions, see [“Assign a Static IP Address to the NET MGT Port” on page 58](#).

- **Connect the NET MGT port to your network switch or hub using a Category 5 (or better) cable.**

See [“Rear Panel Components” on page 42](#) for connector locations.

The NET MGT port is not operational until you configure the network settings through the SER MGT port as detailed in [“Connect a Terminal or Emulator to the SER MGT Port” on page 48](#).

Note – The NET MGT port is configured by default to retrieve network settings with DHCP and to enable connections using SSH. You might need to modify these settings for your network. Information related to changing these settings are in [“Powering On the Server for the First Time” on page 47](#).

▼ Connect the Ethernet Network Cables

The server has four network connectors marked NET0, NET1, NET2, and NET3. Use these ports to connect the server to the network. The Ethernet interfaces operate at 100 Mbps, 1000 Mbps, and 10000 Mbps. See [“Rear Panel Components” on page 42](#) for port locations.

Note – The Oracle ILOM sideband management feature enables you to access the SP using one of these Ethernet ports. Refer to the administration guide for your server for instructions.

Note – To achieve 1-GbE network speeds, use Category 6 (or better) cables and network devices that support 1000BASE-T networks.

1. **Connect a Category 5 (or better) cable from your network switch or hub to Ethernet Port 0 (NET0) on the rear of the chassis.**
2. **Connect Category 5 (or better) cables from your network switch or hub to the remaining Ethernet ports (NET1, NET2, NET3) as needed.**

▼ Connect the Fiber Channel Card Cables

Use this procedure to connect the fiber channel cards (located in slots 7 and slot 10) to your storage network.

Note – The HBA does not allow normal data transmission on an optical link unless it is connected to another similar or compatible Fibre Channel product (that is, multimode to multimode).

1. **Use a multimode fiber-optic cable, intended for short-wave lasers, that adheres to the specifications in the following table.**

Fiber-Optic Cable	Maximum Length	Minimum Length	Connector
OM3 - Multimode 50/125 micron fiber (2000 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 500m	.5 meters	LC
	4.25 Gb/s: 0.5m - 380m		
	8.5 Gb/s: 0.5m - 150m		
OM2 - Multimode 50/125 micron fiber (500 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 300m	.5 meters	LC
	4.25 Gb/s: 0.5m - 150m		
	8.5 Gb/s: 0.5m - 50m		
OM1 - Multimode 62.5/125 micron fiber (200 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 150m	.5 meters	LC
	4.25 Gb/s: 0.5m - 70m		
	8.5 Gb/s: 0.5m - 21m		

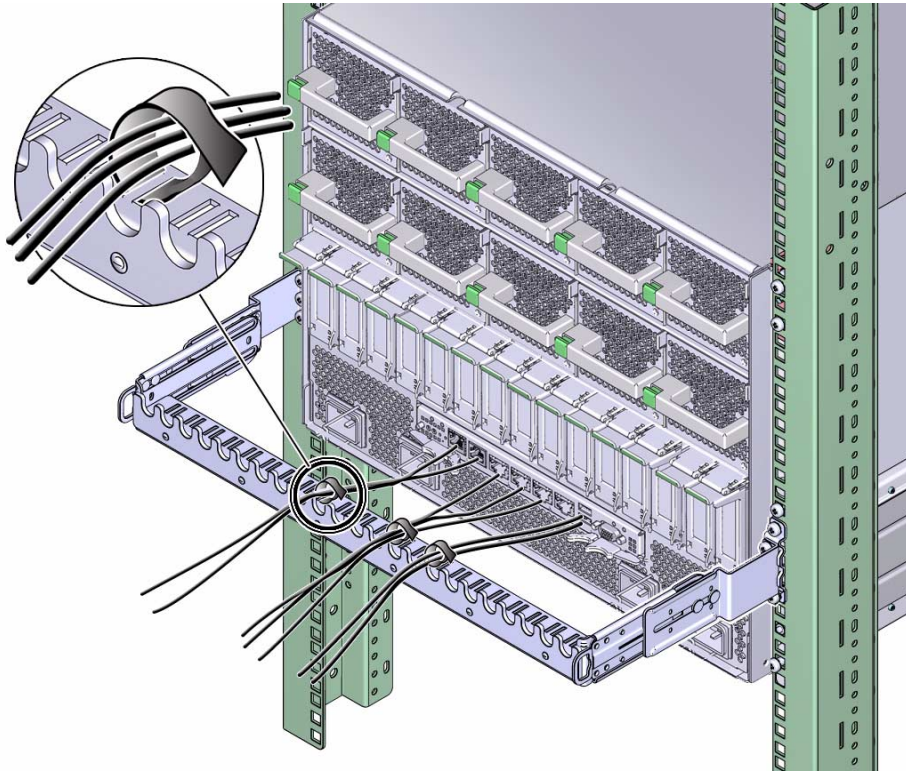
- 2. Connect the fiber-optic cable to an LC connector on the HBA.**
- 3. Connect the other end of the cable to the FC device.**

▼ Secure Cables Using the CMA

Use the CMA to secure cables and ensure proper cable routing.

- 1. Remove the CMA cover.**

The CMA cover is secured with two No. 2 Phillips screws.



2. Place the system cables into the appropriate slots in the CMA.

See [“Connecting the Server Cables”](#) on page 39.

3. Install the CMA cover.

Secure the cover using two No. 2 Phillips screws.

Powering On the Server for the First Time

These topics include instructions for powering on the server for the first time and configuring the Oracle Solaris OS.

Step	Description	Links
1.	Prepare the power cords.	“Prepare the Power Cords” on page 47
2.	Connect a serial terminal device or terminal server to the SER MGT port.	“Connect a Terminal or Emulator to the SER MGT Port” on page 48
3.	Power on the server and start the Oracle ILOM system console.	“Power on the System for the First Time” on page 49 or “Configure the Preinstalled OS” on page 51
4.	Configure the preinstalled OS, or install a fresh OS.	“Configure the Preinstalled OS” on page 51 or “Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)” on page 54
5.	Set the configuration parameters for the Oracle Solaris OS.	“Oracle Solaris OS Configuration Parameters” on page 56
6.	(Optional) Configure the NET MGT port to use a static IP address.	“Assigning a Static IP Address to the SP” on page 57

▼ Prepare the Power Cords

Prepare the power cords by routing them from the AC power source to the server.



Caution – Use only the power cords provided with the server.



Caution – Do not attach power cables to the power supplies until you have connected the server to a serial terminal or a terminal emulator (PC or workstation). The server goes into Standby mode and the Oracle ILOM SP initializes as soon as a

power cable connects a power supply to an external power source. System messages might be lost after 60 seconds if a terminal or terminal emulator is not connected to the SER MGT port before power is applied.

Note – Oracle ILOM will signal a fault if both power supplies are not cabled at the same time, since it will be a nonredundant condition. Do not be concerned with this fault in this situation.

- **Route the power cords from the AC power source to the rear of the server.**

Do not attach the power cords to the power supplies at this time.

▼ Connect a Terminal or Emulator to the SER MGT Port

Prior to powering on the server for the first time, make a serial connection to the SP from a terminal or terminal emulator. After making this serial connection, you will be able to view the system messages when you connect the power cords.

1. Confirm that you have completed the following tasks:

- a. **Completed the preparation for installation.**

See [“Preparing for Installation” on page 11](#).

- b. **Completed the installation of the server in a rack.**

See [“Installing the Server” on page 17](#).

- c. **Connected the necessary cables.**

See [“Connecting the Server Cables” on page 39](#).

2. Connect a terminal or a terminal emulator (PC or workstation) to the server SER MGT port.

3. Configure a terminal or terminal emulator with these settings:

- 9600 baud
- 8 bits
- No parity
- 1 stop bit

- No handshake

A null modem configuration is needed, meaning the transmit and receive signals are reversed (crossed over) for DTE-to-DTE communications. You can use the supplied RJ-45 crossover adapters with a standard RJ-45 cable to achieve the null modem configuration.

Note – If you power on the server for the first time and do not have a terminal or terminal emulator (PC or workstation) connected to the SER MGT port, you will not see system messages.

4. (Optional) Connect an Ethernet cable between the server's NET MGT port and the network to which future connections to the SP and host will be made.

Configure the system for the first time through the SER MGT port. After the initial configuration, you can set up communication between the SP and host through this Ethernet interface.

5. Connect an Ethernet cable between one of the server's NET ports and the network to which the server will communicate.
6. Connect the power cords to the power supplies and to separate power sources.
When the power cords are connected, the SP initializes and the power supply LEDs illuminate. After a few minutes, the SP login prompt is displayed on the terminal device. At this time, the host is not initialized or powered on.
7. Continue with the installation by powering on the server for the first time.
See ["Power on the System for the First Time"](#) on page 49.

▼ Power on the System for the First Time

1. At the terminal device, log in to the SP as `root` with a password of `changeme`.

```
XXXXXXXXXXXXXXXXX login: root
Password: changeme
. . .
->
```

After a brief delay, the Oracle ILOM prompt is displayed (->). For optimal security, change the root password. For more information about the administration tasks such as changing passwords, adding accounts, and setting account privileges, refer to the Oracle ILOM documentation.

Note – By default, the SP is configured to use DHCP to obtain an IP address. If you plan to assign a static IP address to the SP, see [“Assign a Static IP Address to the NET MGT Port” on page 58](#) for more instructions.

2. Power on the server using one of the following methods:

- Press the power button.
- At the Oracle ILOM prompt, type:

```
-> start /System  
Are you sure you want to start /System (y/n)? y
```

The server initialization might take several minutes to complete.

To cancel the initialization, press the #. (Hash+Dot) keys to return to the Oracle ILOM prompt. Then type: `stop /System`

Note – In Oracle ILOM 3.1, the name space for `/SYS` was replaced with `/System`. You can use the legacy name in a command at any time, but to expose the legacy name in the output, you must enable it with `-> set /SP/cli legacy_targets=enabled`. For more information, see the Oracle ILOM 3.1 documentation.

3. (Optional) Redirect the host output to display on the serial terminal device.

```
-> start /HOST/console  
Are you sure you want to start /SP/console (y/n)? y  
Serial console started.  
. . .
```

4. (Optional) You can execute other Oracle ILOM commands while the server initializes.

- a. To display the Oracle ILOM prompt, press the #. (Hash+Dot) keys.
- b. To see information about available Oracle ILOM commands, type: **help**
To see information about a specific command, type **help** *command-name*
- c. To return to displaying host output from the server initialization, type:

```
-> start /HOST/console
```

5. Continue with the installation by installing the OS.

See [“Configure the Preinstalled OS” on page 51](#).

Oracle ILOM System Console

When power is first applied to the system, the boot process begins under the control of the Oracle ILOM system console. The system console displays status and error messages generated by firmware-based tests that are run during system startup.

Note – To see these status and error messages, connect a terminal or terminal emulator to the SER MGT before applying power to the server.

After the system console finishes its low-level system diagnostics, the SP initializes and runs a suite of higher level diagnostics. When you access the SP using a device connected to the SER MGT port, you see the output of the Oracle ILOM diagnostics.

By default, the SP configures the NET MGT port automatically, retrieving network configuration settings using DHCP and allowing connections using SSH.

For a more detailed discussion on configuring the system console and connecting terminals, refer to the administration guide for your server.

Installing the OS

Use these topics to either configure the preinstalled OS or use an alternative OS.

- [“Configure the Preinstalled OS” on page 51](#)
- [“Reach a State to Install a Fresh OS \(Oracle ILOM CLI\)” on page 52](#)
- [“Reach a State to Install a Fresh OS \(Oracle ILOM Web Interface\)” on page 54](#)

▼ Configure the Preinstalled OS

1. Determine which OS you will use.

- If you plan to use the preinstalled OS, proceed to step 2.
- If you do not plan to use the preinstalled OS, go to [“Reach a State to Install a Fresh OS \(Oracle ILOM CLI\)” on page 52](#).

2. When prompted, follow the onscreen instructions for configuring the Oracle Solaris OS on your host.

You will be prompted to confirm the configuration several times, enabling confirmation and changes. If you are not sure how to respond to a particular value, you can accept the default, and make future changes when the Oracle Solaris OS is running. See [“Oracle Solaris OS Configuration Parameters” on page 56](#) for a description of the Oracle Solaris OS parameters you must provide during initial configuration.

3. Log in to the server.

You can now enter Oracle Solaris OS commands at the prompt. For more details, refer to the Oracle Solaris 11 or 10 OS man pages and documentation at:

<http://www.oracle.com/goto/Solaris11/docs>

<http://www.oracle.com/goto/Solaris10/docs>

▼ Reach a State to Install a Fresh OS (Oracle ILOM CLI)

If you do not plan to use the preinstalled OS use this procedure to prevent the server from booting from the preinstalled OS. You can perform this alternative procedure after reading Step 5 in [“Configure the Preinstalled OS” on page 51](#).

1. Prepare the appropriate boot media according to your installation method.

There are many methods by which you can install the OS. For example, you can boot and install the OS from DVD media or from another server on the network.

For more information about the methods, refer to these Oracle Solaris document sections:

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:

<http://www.oracle.com/goto/Solaris11/docs>

- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

<http://www.oracle.com/goto/Solaris10/docs>

2. From Oracle ILOM, set the OpenBoot `auto-boot?` parameter to `false`.

```
-> set /HOST/bootmode script="setenv auto-boot? false"
```

This setting prevents the server from booting from the preinstalled OS. When you use `bootmode`, the change applies only to a single boot and expires in 10 minutes if the power on the host is not reset.

3. When you are ready to initiate the OS installation, reset the host.

```
-> reset /System  
Are you sure you want to reset /System (y/n)? y  
Performing reset on /System
```

Note – In Oracle ILOM 3.1, the name space for `/SYS` was replaced with `/System`. You can use the legacy name in a command at any time, but to expose the legacy name in the output, you must enable it with `-> set /SP/cli legacy_targets=enabled`. For more information, refer to the Oracle ILOM 3.1 documentation.

4. Switch communication to the server host.

```
-> start /HOST/console  
Are you sure you want to start /HOST/console (y/n)? y  
Serial console started. To stop, type #.
```

The server might take several minutes to complete POST, and then the OpenBoot prompt (ok) is displayed.

5. Boot from the appropriate boot media for your installation method.

For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:
<http://www.oracle.com/goto/Solaris11/docs>
- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:
<http://www.oracle.com/goto/Solaris10/docs>

For a list of valid boot commands, type:

```
{0} ok help boot  
boot <specifier> ( -- ) boot kernel ( default ) or other file  
Examples:  
boot - boot kernel from default device.  
Factory default is to boot  
from DISK if present, otherwise from NET.  
boot net - boot kernel from network  
boot cdrom - boot kernel from CD-ROM  
boot disk1:h - boot from disk1 partition h  
boot tape - boot default file from tape  
boot disk myunix -as - boot myunix from disk with flags "-as"
```

```
dload <filename> ( addr -- )      debug load of file over network
at address
Examples:
    4000 dload /export/root/foo/test
    ?go          - if executable program, execute it
                  or if Forth program, compile it
```

▼ Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)

If you do not plan to use the preinstalled OS, use this procedure to prevent the server from booting from the preinstalled OS.

1. Prepare the appropriate boot media according to your installation method.

There are many methods by which you can install the OS. For example, you can boot and install the OS from DVD media or from another server on the network.

For more information about the methods, refer to these Oracle Solaris document sections:

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:
<http://www.oracle.com/goto/Solaris11/docs>
- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:
<http://www.oracle.com/goto/Solaris10/docs>

2. If you have not done so, perform these tasks to access the Oracle ILOM web interface on the server:

- a. In a browser on the same network as the system, type the IP address of the SP.
- b. Log in to Oracle ILOM by typing your user name and password.

3. In the Oracle ILOM web interface, in the left navigation pane, choose Host Management > Host Boot Mode.

The Host Boot Mode page is displayed.

4. Apply these changes to the Host Boot Mode Settings:

a. For State, select: Reset NVRAM

This setting applies a one-time NVRAM (OpenBoot) change based on the script setting, then resets the NVRAM to default settings on the next host reset.

b. For Script, type: `setenv auto-boot? false`

This setting configures the host to stop at the `ok` prompt instead of automatically booting the preinstalled OS.

c. Click Save.

Note – You have 10 minutes to perform the next step. After 10 minutes, the state is automatically returned to normal.

5. In the left navigation panel, click Host Management > Power Control.

6. Choose Reset > Save.

7. In the left navigation panel, click Remote Control > Redirection.

8. Select Use Serial Redirection, and click Launch Remote Console.

As the host resets, messages are displayed in the serial console. The reset activity takes a few minutes to complete. When the `ok` prompt is displayed, continue to the next step.

9. At the `ok` prompt, boot from the appropriate boot media for your installation method.

For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:

<http://www.oracle.com/goto/Solaris11/docs>

- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

<http://www.oracle.com/goto/Solaris10/docs>

For a list of valid boot commands that you can enter at the OpenBoot prompt, type:

```
{0} ok help boot
boot <specifier> ( -- )    boot kernel ( default ) or other file
  Examples:
    boot                    - boot kernel from default device.
                           Factory default is to boot
                           from DISK if present, otherwise from NET.
    boot net                - boot kernel from network
    boot cdrom              - boot kernel from CD-ROM
    boot disk1:h            - boot from disk1 partition h
    boot tape               - boot default file from tape
    boot disk myunix -as    - boot myunix from disk with flags "-as"
dload <filename> ( addr -- )    debug load of file over network at address
```

Examples:

```
4000 dload /export/root/foo/test
?go      - if executable program, execute it
          or if Forth program, compile it
```

Oracle Solaris OS Configuration Parameters

This topic describes configuration parameters you must provide during initial Oracle Solaris OS configuration.

Parameter	Description
Language	Select a number from the displayed language list.
Locale	Select a number from the displayed locale list.
Terminal Type	Select a terminal type that corresponds with your terminal device.
Network?	Select Yes.
Multiple Network Interfaces	Select the network interfaces that you plan to configure. If you are not sure, select the first one in the list.
DHCP?	Select Yes or No according to your network environment.
Host Name	Type the host name for the server.
IP Address	Type the IP address for this Ethernet interface.
Subnet?	Select Yes or No according to your network environment.
Subnet Netmask	(If subnet was Yes) Type the netmask for the subnet for your network environment.
IPv6?	Specify whether or not to use IPv6. If you are not sure, select No to configure the Ethernet interface for IPv4.
Security Policy	Select either standard UNIX security (No) or Kerberos Security (Yes). If you are not sure, select No.
Confirm	Review the onscreen information and change it if needed. Otherwise, continue.
Name Service	Select the name service according to your network environment. If you select a name service other than None, you will be prompted for additional name service configuration information.
NFSv4 Domain Name	Select the type of domain name configuration according to your environment. If you are not sure, select Use the NFSv4 domain derived by the system.

Parameter	Description
Time Zone (Continent)	Select your continent.
Time Zone (Country or Region)	Select your country or region.
Time Zone	Select the time zone.
Date and Time	Accept the default date and time or change the values.
root Password	Type the root password twice. This password is for the superuser account for the Oracle Solaris OS on this server. This password is not the SP password.

Assigning a Static IP Address to the SP

If your network does *not* use DHCP, the NET MGT port is not operational until you configure network settings for the SP.

Note – If you are unable to use DHCP on your network, you must connect to the ILOM SP using the SER MGT port to configure the NET MGT port for your network. See [“Assign a Static IP Address to the NET MGT Port” on page 58.](#)

- [“Log In to the SP \(SER MGT Port\)” on page 57](#)

▼ Log In to the SP (SER MGT Port)

After the SP boots, access the ILOM CLI to configure and manage the server. The ILOM CLI prompt (->) is displayed the first time the SP is booted. The default configuration provides an ILOM CLI root user account. The default root password is *changeme*. Change the password using the SP ILOM CLI password command.

1. **If this is the first time the server has been powered on, use the password command to change the root password.**

```
hostname login: root
Password:
Last login: Mon Feb 18 16:53:14 GMT 2013 on ttyS0
Detecting screen size; please wait...done

Oracle(R) Integrated Lights Out Manager
```

```
Version 3.2.1.2 rxxxxx

Copyright (c) 2013, Oracle and/or its affiliates. All rights
reserved.
Warning: password is set to factory default.

-> set /HOST/users/root password
Enter new password: *****
Enter new password again: *****

->
```

Note – After the root password has been set, on subsequent reboots, the ILOM CLI login prompt is displayed.

2. Type root for the login name, followed by your password.

```
...
hostname login: root
Password: password (nothing displayed)

Oracle(R) Integrated Lights Out Manager

Version 3.2.1.2 rxxxxx

Copyright (c) 2013 Oracle and/or its affiliates. All rights
reserved.

->
```

▼ Assign a Static IP Address to the NET MGT Port

If you plan to connect to the SP through its NET MGT port, the SP must have a valid IP address.

By default, the server is configured to obtain an IP address from DHCP services in your network. If the network your server is connected to does not support DHCP for IP addressing, perform this procedure.

Note – To configure the server to support DHCP, refer to the Oracle ILOM documentation.

1. Set the SP to accept a static IP address.

```
-> set /SP/network pendingipdiscovery=static  
Set 'pendingipdiscovery' to 'static'
```

2. Set the IP address for the SP.

Oracle ILOM is shipped with IPv4 DHCP and IPv6 Stateless default network settings.

- a. To change the default IPv4 DHCP property and set property values for a static IPv4 address, type *IPv4-address*.
- b. To change the default IPv6 DHCP property and set property values for a static IPv6 address, type *IPv6-address*.

This setting configures the host to stop at the ok prompt instead of automatically booting the preinstalled OS.

```
-> set /SP/network pendingipaddress=service-processor-IPAddr  
Set 'pendingipaddress' to 'service-processor-IPAddr'
```

For more information about the administration tasks such as modifying default network connectivity settings, refer to the Oracle ILOM documentation.

3. Set the IP address for the SP gateway.

```
-> set /SP/network pendingipgateway=gateway-IPAddr  
Set 'pendingipgateway' to 'gateway-IPAddr'
```

4. Set the netmask for the SP.

```
-> set /SP/network pendingipnetmask=255.255.255.0  
Set 'pendingipnetmask' to '255.255.255.0'
```

This example uses 255.255.255.0 to set the netmask. Your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

5. Verify that the pending parameters are set correctly.

```
-> show /SP/network  
/SP/network  
Targets:
```

```
Properties:
  commitpending = (Cannot show property)
  dhcp_clientid = xxx.xxx.xxx.xxx
  dhcp_server_ip = xxx.xxx.xxx.xxx
  ipaddress = xxx.xxx.xxx.xxx
  ipdiscovery = dhcp
  ipgateway = xxx.xxx.xxx.xxx
  ipnetmask = 255.255.255.0
  macaddress = xx:xx:xx:xx:xx:xx
  managementport = MGMT
  outofbandmacaddress = xx:xx:xx:xx:xx:xx
  pendingipaddress = service-processor-IPAddr
  pendingipdiscovery = static
  pendingipgateway = gateway-IPAddr
  pendingipnetmask = 255.255.255.0
  pendingmanagementport = MGMT
  sidebandmacaddress = xx:xx:xx:xx:xx:xx
  state = enabled
```

6. Set the changes to the SP network parameters.

```
-> set /SP/network commitpending=true
Set 'commitpending' to 'true'
```

Note – You can type the `show /SP/network` command again to verify that the parameters have been updated.

7. Set the static IP address when you configure the Oracle Solaris OS.

See [“Configure the Preinstalled OS” on page 51](#).

Accessing the Server Using Oracle ILOM

These topics include information on establishing low-level communication with the server using Oracle ILOM and the system console.

- [“Oracle ILOM Overview” on page 61](#)
- [“Log In to Oracle ILOM” on page 62](#)
- [“Display the Oracle ILOM Prompt” on page 62](#)
- [“Oracle ILOM Remote Console” on page 63](#)

Oracle ILOM Overview

Oracle ILOM is system management firmware that is preinstalled on most SPARC servers. Oracle ILOM enables you to actively manage and monitor components installed in the server. Oracle ILOM provides a browser-based interface and a CLI, as well as SNMP and IPMI interfaces.

In the server’s SP, Oracle ILOM runs independently of the server host and regardless of the server power state as long as AC power is connected to the server (or to the modular system that contains the server module). When you connect the server to AC power, the SP immediately starts up and begins monitoring the server. All environmental monitoring and control are handled by Oracle ILOM.

The `->` prompt indicates that you are interacting with the Oracle ILOM SP directly. This prompt is the first prompt you see when you log in to the server through the SER MGT port or NET MGT port, regardless of the host’s power state. On a modular system, that prompt is also present when you log in to a server module either directly or through Oracle ILOM on the CMM of the modular system.

You can also access the Oracle ILOM prompt (`->`) from the OpenBoot `ok` prompt.

The SP supports concurrent Oracle ILOM sessions per server. Multiple SSH or web connections are available through the NET MGT port, and one connection is available through the SER MGT port.

For more information about how to work with Oracle ILOM features that are common to all platforms managed by Oracle ILOM, see the Oracle ILOM documentation at:

<http://www.oracle.com/goto/ILOM/docs>

For more information specific to managing a SPARC T5-8 server using ILOM, see the SPARC T5-8 server documentation at:

http://docs.oracle.com/cd/E35078_01/index.html

▼ Log In to Oracle ILOM

This procedure assumes the SP is in the default configuration as described in the server's installation guide.

- **Open an SSH session and connect to the SP by specifying its IP address.**

The Oracle ILOM default username is `root`, and the default password is `changeme`.

```
% ssh root@xxx.xxx.xxx.xxx
Password: password (nothing displayed as you type)
...
Oracle(R) Integrated Lights Out Manager
Version 3.2.1.0 r78841
Copyright (c) 2013, Oracle and/or its affiliates. All rights
reserved.
->
```

You are now logged in to Oracle ILOM. Perform tasks as needed by entering commands at the Oracle ILOM prompt.

Note – To provide optimum server security, change the default server password.

▼ Display the Oracle ILOM Prompt

- **Display the Oracle ILOM prompt in one of these ways:**
 - From the system console, type the Oracle ILOM escape sequence (`#.`).

- Log in to Oracle ILOM directly from a device connected to the SER MGT port or NET MGT port.
- Log in to Oracle ILOM through an SSH connection. See [“Log In to Oracle ILOM” on page 62](#).

Oracle ILOM Remote Console

Oracle ILOM Remote Console is a Java application that enables you to remotely redirect and control the following devices on the host server. This group of devices is commonly abbreviated as KVMS.

- Keyboard
- Video console display
- Mouse
- Serial console display
- Storage devices or images (CD/DVD)

Oracle ILOM Remote Console is documented in the *Configuration and Maintenance Guide* for the Oracle ILOM release.

Installing Auto Service Request Software

These topics describe how to install and activate the Oracle Auto Service Request (ASR) software.

- [“ASR Overview” on page 65](#)
- [“Preparing to Configure ASR” on page 66](#)
- [“Installing ASR Manager Components” on page 68](#)
- [“Verify ASR Manager” on page 71](#)
- [“Configure ASR on the Server \(Oracle ILOM\)” on page 71](#)
- [“Configuring ASR on the Server \(Oracle Solaris 11\)” on page 73](#)
- [“Approve and Verify ASR Activation” on page 77](#)

ASR Overview

Auto Service Request (ASR) is designed to automatically open service requests when specific Oracle SuperCluster T5-8 hardware faults occur. To enable this feature, the system components must be configured to send hardware fault telemetry to the ASR Manager software. The ASR Manager must be installed on a server that has connectivity to the system, and an outbound Internet connection using HTTPS or an HTTPS proxy.

When a hardware problem is detected, the ASR Manager submits a service request to Oracle Support Services. In many cases, Oracle Support Services can begin work on resolving the issue before the database/system administrator is even aware the problem exists.

Prior to using ASR, set up the following:

- Oracle Premier Support for Systems or Oracle/Sun Limited Warranty
- Technical contact responsible for the Oracle Exalytics In-Memory Machine T5-8 server

- Valid shipping address for the Oracle Exalytics In-Memory Machine T5-8 server

An e-mail message is sent to both the My Oracle Support (MOS) e-mail account for Auto Service Request and the technical contact for the activated asset, notifying them of the creation of the service request.

Note – If a subscriber has not been set up, then the subsequent Auto Service Request activation will fail.

Consider the following information when using ASR:

- ASR is applicable only for component faults. Not all component failures are covered, though the most common components, such as disk, fan, and power supplies are covered. For more information, see:

<http://www.oracle.com/asr>

Click the Documentation link on this page, then refer to the “ASR Fault Coverage Information” section at the bottom of the page.

- ASR is not a replacement for other monitoring mechanisms, such as SMTP, and SNMP alerts, within the customer data center. It is a complementary mechanism that expedites and simplifies the delivery of replacement hardware. ASR should not be used for downtime events in high-priority systems. For high-priority events, contact Oracle Support Services directly.
- There are occasions when a service request may not be automatically filed. This can happen because of the unreliable nature of the SNMP protocol, or loss of connectivity to the ASR Manager. Oracle recommends that customers continue to monitor their systems for faults and call Oracle Support Services if they do not receive notice that a service request has been automatically filed.

Tip – Refer to the Oracle Auto Service Request web page at <http://www.oracle.com/asr> for more information on ASR.

Preparing to Configure ASR

Confirm your environment is supported and prepared before installing and configuring ASR on the system:

- “Prepare the ASR Environment” on page 67
- “Software Requirements (ASR Manager)” on page 67

- “Minimum Software Requirements (Oracle Exalytics In-Memory Machine T5-8 Server)” on page 67

▼ Prepare the ASR Environment

Before installing ASR, ensure the following conditions are met:

1. **Create a My Oracle Support (MOS) account at <http://support.oracle.com>.**

Ensure the following are correctly set up:

- Oracle Premier Support for Systems or Oracle/Sun Limited Warranty
- Technical contact responsible for Oracle Exalytics In-Memory Machine T5-8
- Valid shipping address for Oracle Exalytics In-Memory Machine T5-8 parts

2. **Identify and designate a system to serve as ASR Manager.**

For more information, see:

<http://www.oracle.com/asr>

Click additional details, then click Hardware and Network Configuration Recommendations.

3. **Identify and verify ASR assets.**

4. **Ensure connectivity to the Internet using HTTPS.**

You may need to open certain ports to your datacenter. For more information, see the *Oracle ASR Security Whitepaper*, located here:

http://docs.oracle.com/cd/E37710_01/index.htm

Click on the Oracle ASR user documentation link.

Software Requirements (ASR Manager)

You will need root access to install the software to set up the ASR Manager.

- ASR Manager, version 3.6 or higher
- Oracle Services Tool Bundle (STB) for Oracle Solaris only

Minimum Software Requirements (Oracle Exalytics In-Memory Machine T5-8 Server)

You need root access to install the software to set up the ASR Manager.

- Operating system: Oracle Linux 5.3, or Oracle Solaris 10 Update 10 (10u10) plus patches, at minimum
- Java Version: JRE/JDK 6.2.28, at minimum
- Database Server: Exadata Software 11.2.3.1 at minimum

Installing ASR Manager Components

Perform these procedures to install the ASR Manager components on the external system designated as the ASR Manager. You may use a pre-existing ASR Manager, as long as it conforms to the requirements listed in [“Prepare the ASR Environment” on page 67](#).

- [“Install the Oracle Automated Service Manager Package” on page 68](#)
- [“Install Service Tools Bundle for Oracle Solaris Only” on page 69](#)
- [“Install the Oracle Auto Service Request Package” on page 69](#)
- [“Register ASR Manager” on page 70](#)

▼ Install the Oracle Automated Service Manager Package

1. Verify that you have version 1.3.1 or later (if needed, download OASM).

As root:

- Oracle Solaris: `pkginfo -l SUNWsasm`
- Oracle Linux: `rpm -q SUNWsasm`

2. Install the OASM package.

As root:

- Oracle Solaris: `pkgadd -d SUNWsasm.version-number.pkg`
- Oracle Linux: `rpm -i SUNWsasm.version-number.rpm`

▼ Install Service Tools Bundle for Oracle Solaris Only

1. If needed, download Services Tools Bundle from:

<http://www.oracle.com/asr>

and click on the Download link.

2. Untar the STB bundle and run the installation script (`install_stb.sh`).

As part of the installation, select:

- Type I for "install"
- Type Y to replace existing SNEEP packages
- Type Y to replace existing Service Tags packages

Note – See Doc ID 1153444.1 to download the latest STB bundle from My Oracle Support (log in required):

<https://support.oracle.com>

3. Confirm that SNEEP is installed correctly:

```
# sneep -a
```

4. Verify that Service Tags is reporting your system attributes correctly:

```
# stclient -E
```

If the serial number does not display, then register the serial number manually:

```
# sneep -s serial-number
```

▼ Install the Oracle Auto Service Request Package

1. Download and unzip the ASR package.

As root:

- Oracle Solaris: `pkgadd -d SUNWswasr.version-number.pkg`
- Oracle Linux: `rpm -i SUNWswasr.version-number.rpm`

2. Add the `asr` command to the `PATH` (update to the root's `.profile`, `.cshrc`, `.kshrc` or `.bashrc` as needed):

```
PATH=$PATH:/opt/SUNWswasr/bin
export PATH
```

▼ Register ASR Manager

When registering ASR Manager, you will be asked to type your MOS single sign on information and any proxy servers, if needed.

1. As root on the ASR Manager system, type:

```
# asr register
```

2. Type "1" or "alternate URL for Managed OPS use only":

```
1) transport.oracle.com
```

3. If you are using a proxy server to access the Internet, type the proxy server information.

Your screen output should look like this:

```
Proxy server name: ? <proxy server name>
Proxy port number: ? <proxy port number>
Proxy authentication; if authentication is not required, enter -.
Proxy user: <proxy user name>
Proxy password: <proxy password>
If this is an NTLM type proxy, enter the information below.
Otherwise, enter -
NTLM Domain: [?] <NTLM domain name>
Enter the host the NTLM authentication request is originating
from. Usually this is the hostname of the SASM server.
NTLM Host: [?] <NTLM host name>
NTLM support is not bundled with SASM but may be added now.

1) Download jCIFS from http://jcifs.samba.org/
2) Extract contents and locate the jcifs-*.jar file
3) Enter full path to this file below

jCIFS jar file: [?] <full path of jCIFS jar file>
Note: These properties are stored in the
/var/opt/SUNWasm/configuration/config.ini file. You can update
these properties if needed and then restart SASM.
```

4. When prompted, type your My Oracle Support (MOS) username and password.
ASR will validate the login. Once validated, the registration is complete. Note:
Passwords are not stored.
Your MOS e-mail address receives output from notification of ASR problems and
Service Request (SR) generation.

▼ Verify ASR Manager

1. On the ASR Manager, verify that you have the correct version of ASR Manager:

```
# asr show_rules_version
```

You should see that the version is 3.6 or later.

2. Check the registration status:

```
# asr show_reg_status
```

3. Test the connection to ensure that ASR can send information to the transport server:

```
# asr test_connection
```

▼ Configure ASR on the Server (Oracle ILOM)

Note – Do not attempt to copy and paste commands that span across multiple lines from these topics. Manually type commands that span across multiple lines to ensure the commands are typed properly.

1. Log in to the server using Oracle ILOM.

2. Display the available rules:

```
# show /SP/alertmgmt/rules
```

The output lists the rules available, similar to the following:

```
1
2
3
...
15
```

3. Pick one of the rules and type the following command to determine if that rule is currently being used:

```
# show /SP/alertmgmt/rules/rule-number
```

For example:

```
# show /SP/alertmgmt/rules/1
```

■ If you see output similar to the following:

Properties:

```
type = snmptrap
level = minor
destination = 10.60.10.243
destination_port = 0
community_or_username = public
snmp_version = 2c
testrule = (Cannot show property)
```

this rule is currently being used and should not be used for this exercise (the destination address shown would be the IP address of the ASR Manager in this case). If you see output similar to the preceding example, pick another rule and type the `show /SP/alertmgmt/rules/rule-number` command again, this time using another rule in the list.

■ If you see output similar to the following:

Properties:

```
type = snmptrap
level = disable
destination = 0.0.0.0
destination_port = 0
community_or_username = public
snmp_version = 1
```



```
testrule = (Cannot show property)
```

this rule is currently unused and can be used for this exercise.

4. Type this command using the unused rule:

```
# set /SP/alertmgmt/rules/unused-rule-number type=snmptrap level=
minor destination=IP-address-of-ASR-Manager snmp_version=2c
community_or_username=public
```

5. Log in to the ASR Manager server.

6. Activate Oracle ILOM for the SPARC T5-8 server:

```
asr> activate_asset -i ILOM-IP-address
```

7. When you have completed these instructions, approve and verify contacts to the SPARC T5-8 server on MOS.

See [“Approve and Verify ASR Activation” on page 77](#) for those instructions.

For more information on the process, see ASR MOS 5.3+ Activation Process (Doc ID 1329200.1).

Configuring ASR on the Server (Oracle Solaris 11)

Note – Do not attempt to copy and paste commands that span across multiple lines from these topics. Manually type commands that span across multiple lines to ensure the commands are typed properly.

Oracle Solaris 11 includes the ability to send ASR fault events and telemetry to Oracle using xml over HTTP to the ASR Manager.

To enable this capability, use the `asr enable_http_receiver` command on the ASR Manager. Select a port for the HTTP receiver that is appropriate for your network environment and does not conflict with other network services.

Perform the following tasks:

- [“Enable the HTTP Receiver on the ASR Manager” on page 74](#)
- [“Enable HTTPS on ASR Manager \(Optional\)” on page 74](#)
- [“Register Server With Oracle Solaris 11 to ASR Manager” on page 75](#)

▼ Enable the HTTP Receiver on the ASR Manager

Follow this procedure on the ASR Manager to enable the HTTP receiver for Oracle Solaris 11 ASR Assets.

1. Log in to the ASR Manager system as `root`.

2. Verify the existing settings:

```
# asr show_http_receiver
```

3. Enable the HTTP receiver:

```
# asr enable_http_receiver -p port-number
```

where *port-number* is the port that you are designating for HTTP traffic.

Note – If you need to disable the HTTP receiver, run `asr disable_http_receiver`.

4. Verify the updated configuration:

```
# asr show_http_receiver
```

5. Verify the HTTP receiver is up and running.

In a browser, go to: `http://ASR-Manager-name:port-number/asr`

A message appears indicating that the HTTP receiver is up and running.

▼ Enable HTTPS on ASR Manager (Optional)

If you need to use HTTPS for security purposes, you can set up HTTPS/SSL for the ASR Manager HTTP receiver. The detailed steps for enabling HTTPS/SSL for Jetty are documented at:

<http://docs.codehaus.org/display/JETTY/How+to+configure+SSL>

1. After the SSL certificate from a trusted authority is loaded into keystore, add the following SSL connector in

/var/opt/SUNWsasm/configuration/jetty/jetty.xml **below the** <Call name="addConnector"> **sections:**

```
<Call name="addConnector">
  <Arg>
    <New class="org.mortbay.jetty.security.SslSocketConnector">
      <Set name="Port">443</Set>
      <Set name="maxIdleTime">30000</Set>
      <Set name="keystore">path-to-keystore</Set>
      <Set name="password">password</Set>
      <Set name="keyPassword">key-password</Set>
      <Set name="truststore">path-to-keystore</Set>
      <Set name="trustPassword">trust-password</Set>
    </New>
  </Arg>
</Call>
```

Passwords above can be plain text or obfuscated as follows:

```
java -classpath lib/jetty-6.1.7.jar:lib/jetty-util-6.1.7.jar
org.mortbay.jetty.security.Password plaintext-password
```

Then copy and paste the output line starting with OBF: (including the OBF: part) into this jetty.xml config file.

2. Restart OASM.

- On a system running Oracle Solaris, type:

```
# svcadm restart sasm
```

- On a system running Oracle Linux, type:

```
# /opt/SUNWsasm/bin/sasm stop-instance
```

```
# /opt/SUNWsasm/bin/sasm start-instance
```

3. Verify the SSL setup by accessing the following URL from a browser:

<https://ASR-Manager-name/asr>

▼ Register Server With Oracle Solaris 11 to ASR Manager

1. Log in to the server as root.

Note – If the same ASR Asset is using ILOM telemetry, the ILOM telemetry must go through the ASR Manager.

2. To register the ASR manager, run:

```
# asradm register -e http://asr-manager-host:port-number/asr
```

For example:

```
# asradm register -e http://asrmanager1.mycompany.com:8777/asr
```

You should see screens asking for your Oracle Support account name and password.

3. Type your Oracle Support account name and password.

```
Enter Oracle SSO User Name:
```

```
Enter password:
```

```
Registration complete.
```

You should see a notification, saying that your registration is complete.

4. Run the following command:

```
# asradm list
```

The screen output should be similar to the following:

```
PROPERTY VALUE
```

```
Status Successfully Registered with ASR manager
```

```
System Id system-identification-number
```

```
Asset Id asset-identification-number
```

```
User username
```

```
Endpoint URL http://asr-manager-host:port-number/asr
```

Upon successful results of the above commands, the registration of the ASR Manager is complete.

5. Approve and verify contacts to the SPARC T5-8 server on MOS.

See [“Approve and Verify ASR Activation” on page 77](#) for those instructions.

For more information on the process, see ASR MOS 5.3+ Activation Process (Doc ID 1329200.1).

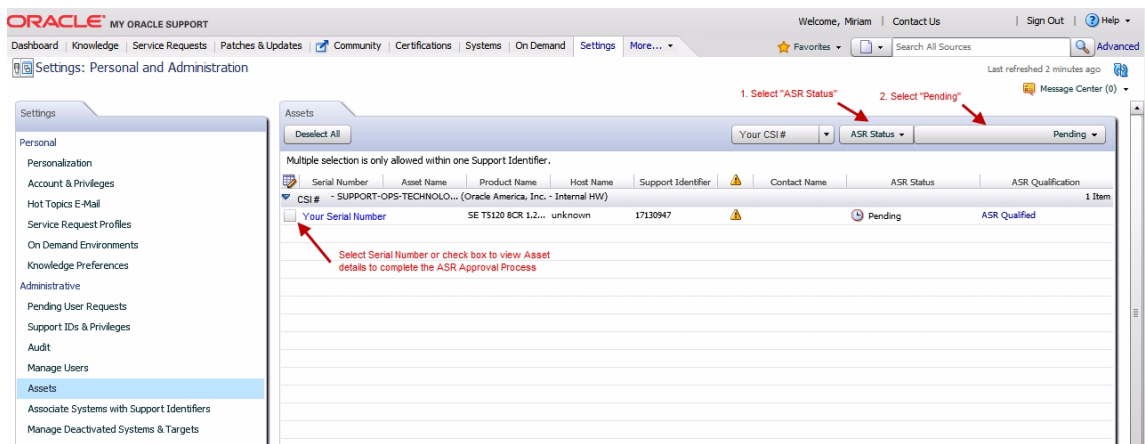
▼ Approve and Verify ASR Activation

1. On the standalone system where ASR Manager is running, run the following command to verify the status of your system assets:

```
list_asset
```

2. Log in to My Oracle Support (<https://support.oracle.com>).
3. In the My Oracle Support Dashboard, click the **More . . .** tab, then choose **Settings** from the menu.
4. In the **Settings** pane on the left of the window, select **Pending ASR Activations** (located under the **Administrative** sub menu).

A complete list of all qualified ASR assets that are awaiting approval are displayed.



Note – By default, all support identifiers that you are associated with are displayed. If this list of assets is long, you can limit the display to show only assets associated to one support identifier. You can also search for an asset’s serial number.

Note – For each component in the system, you should see two host names associated with each serial number. If you see only the Oracle ILOM host name, that means you did not activate ASR for that component. If you see more than two host names associated with each serial number, you might need to request help for ASR. To do this, open a hardware SR with “Problem Category” set to “My - Auto Service Request (ASR) Installation and Configuration Issues.”

5. Select the asset's serial number.

If any missing information about the asset is required, the information pop-up indicates the needed information. The ASR Activation window is displayed.

Note – ASR Host name is updated when an activation request is sent to Oracle from the ASR software on the asset. (For example, from the `asr activate_asset` command on the ASR Manager.)

Required fields for ASR asset activation are:

Field	Description
Contact Name	You can only select a name associated with the support identifier. Click the drop-down menu to see the list of available names. A contact must have the Create SR privilege for the asset's support identifier.
Street Address 1	Type the street address for the asset.
Country	Select the asset's country location from the drop-down menu.
ZIP/Postal Code	Type the ZIP/postal code for the asset's location. If there is no postcode insert "-".

Field	Description
Distribution Email List	<p>You can add email addresses that will receive all ASR mail notifications. Separate multiple emails addresses with a comma. For example:</p> <pre>asr-notifications-1@mycompany.com, asr-notifications-2@mycompany.com</pre> <p>ASR sends email to the Contact's email address and the Distribution Email List, if provided. This is a useful feature if your organization has a team that should be informed about Service Requests created by ASR.</p>

Note – By default, all support identifiers that you are associated with are displayed. If this list of assets is long, you can limit the display to show only assets associated to one support identifier. You can also search for an asset's serial number.

6. Click the **Approve** button to complete the ASR activation.

Note – A system asset must be in an active ASR state in My Oracle Support in order for Service Request autocreate to work.

7. To confirm that ASR can send information to the transport server, type:

```
# asradm send test email-address@company.com
```

This command sends a test alert email to the email address.

Managing Oracle Solaris 11 Boot Environments

When you first install the Oracle Solaris OS on a system, a boot environment is created. You can use the `beadm` (1M) utility to create and administer additional boot environments on your system.

After your system is installed, you should create a backup of the original boot environment. If needed, you can then boot to the backup of the original boot environment.

For more information about Oracle Solaris 11 boot environments, refer to:

http://docs.oracle.com/cd/E23824_01/html/E21801/toc.html

These topics describe how to manage the Oracle Solaris 11 boot environments.

- “Advantages to Maintaining Multiple Boot Environments” on page 81
- “Create a Boot Environment” on page 82
- “Mount to a Different Build Environment” on page 84
- “Reboot to the Original Boot Environment” on page 85
- “Remove Unwanted Boot Environments” on page 86

Advantages to Maintaining Multiple Boot Environments

Multiple boot environments reduce risk when updating or changing software because system administrators can create backup boot environments before making any updates to the system. If needed, they have the option of booting a backup boot environment.

The following examples show how having more than one Oracle Solaris boot environment and managing them with the `beadm` utility can be useful.

- You can maintain more than one boot environment on your system and perform various updates on each of them as needed. For example, you can clone a boot environment by using the `beadm create` command. The clone you create is a bootable copy of the original. Then, you can install, test, and update different software packages on the original boot environment and on its clone.

Although only one boot environment can be active at a time, you can mount an inactive boot environment by using the `beadm mount` command. Then, you could use the `pkg` command with the alternate root (`-R`) option to install or update specific packages on that environment.

- If you are modifying a boot environment, you can take a snapshot of that environment at any stage during modifications by using the `beadm create` command. For example, if you are doing monthly upgrades to your boot environment, you can capture snapshots for each monthly upgrade.

Use the command as follows:

```
# beadm create BeName@snapshotNamedescription
```

Use the format, `BeName@snapshotdescription`, where *BeName* is the name of an existing boot environment that you want to make a snapshot from. Enter a custom snapshot description to identify the date or purpose of the snapshot.

You can use the `beadm list -s` command to view the available snapshots for a boot environment.

Although a snapshot is not bootable, you can create a boot environment based on that snapshot by using the `-e` option in the `beadm create` command. Then you can use the `beadm activate` command to specify that this boot environment will become the default boot environment on the next reboot.

For more information about the advantages of having multiple Oracle Solaris 11 boot environments, see:

http://docs.oracle.com/cd/E23824_01/html/E21801/snap3.html#scrolltoc

▼ Create a Boot Environment

If you want to create a backup of an existing boot environment, for example, prior to modifying the original boot environment, use the `beadm` command to create and mount a new boot environment that is a clone of your active boot environment. This clone is listed as an alternate boot environment in the boot menu for SPARC systems.

1. Log in to the target system.

```
localsys% ssh systemname -l root  
Password:  
Last login: Wed Nov 13 20:27:29 2011 from dhcp-vpn-r  
Oracle Corporation SunOS 5.11 solaris April 2011  
root@sup46:~#
```

2. Manage ZFS boot environments using the `beadm` command.

In the Active column, the first letter indicates the current status of the boot environment and the second letter indicates the status at next reboot. In this example, N indicates the current (or Now) boot environment while the R indicates which boot environment will be active at next Reboot.

```
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created

solaris	NR	/	2.17G	static	2011-07-13 12:01

3. Create a new ZFS boot environment based on the current environment.

```
root@sup46:~# beadm create solaris_backup  
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created

solaris	NR	/	2.17G	static	2011-07-13 12:01
solaris_backup	-	-	35.0K	static	2011-07-17 21:01

4. Change to the next boot environment.

```
root@sup46:~# beadm activate solaris_backup
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created
solaris_backup	R	-	2.17G	static	2011-07-17 21:01
solaris	N	/	1.86G	static	2011-07-13 12:01

5. Reboot to the new boot environment.

```
root@sup46:~# reboot
Connection to systemname closed by remote host.
Connection to systemname closed.
localsys% ssh systemname -l root
Password:
Last login: Thu Jul 14 14:37:34 2011 from dhcp-vpn-
Oracle Corporation SunOS 5.11 solaris April 2011
```

```
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created
solaris_backup	NR	-	2.19G	static	2011-07-17 21:01
solaris	-	/	4.12G	static	2011-07-13 12:01

▼ Mount to a Different Build Environment

- Use the following commands to mount to a different build environment and unmount the other build environment.

```
root@sup46:~# beadm mount s_backup /mnt
root@sup46:~# df -k /mnt
```

Filesystem	1024-blocks	Used	Available	Capacity	Mounted on
rpool1/ROOT/s_backup	286949376	2195449	232785749	1%	/mnt

```

root@sup46:~# df -k /
Filesystem            1024-blocks Used      Available  Capacity  Mounted on
rpool1/ROOT/s_backup 286949376    2214203   232785749    1%      /

root@sup46:~# ls /mnt
bin etc lib opt rpool1 system wwss
boot export media pkg sbin tmp
cdrom home micro platform scde usr
dev import mnt proc share var
devices java net re shared workspace
doe kernel nfs4 root src ws
root@sup46:~#

root@sup46:~# beadm umount solaris
root@sup46:~#

```

▼ Reboot to the Original Boot Environment

- Use the following commands to reboot to the original boot environment.

```

root@sup46:~# beadm activate solaris
root@sup46:~# reboot
Connection to systemname closed by remote host.
Connection to systemname closed.
localsys%
ssh systemname -l root
Password: Last login: Thu Jul 14 14:37:34 2011 from dhcp-vpn-
Oracle Corporation SunOS 5.11 solaris April 2011
root@sup46:~#

```

▼ Remove Unwanted Boot Environments

- Use the following commands to remove boot environments.

```
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created
solaris_backup	-	-	13.25G	static	2011-07-17 21:19
solaris	NR	-	4.12G	static	2011-07-13 12:01

```
root@sup46:~# beadm destroy solaris_backup
```

Are you sure you want to destroy solaris_backup? This action cannot be undone(y/[n]): **y**

```
root@sup46:~# beadm list
```

BE	Active	Mountpoint	Space	Policy	Created
solaris	NR	/	4.12G	static	2011-07-13 12:01

```
root@sup46:~#
```

Index

A

- accessing the server, 61
- acoustic specifications, 5
- adapters for serial cables, 43
- admin login, setting password for, 57
- airflow, 6
- altitude specification, 5
- anti-tilt legs or bar, 20
- ASR, 65
 - configuring, 66
 - configuring for SPARC T4-4 servers with Oracle Solaris OS, 73
 - enable HTTPS on ASR Manager, 74
 - install ASR Manager, 68
 - overview, 65
 - verify, 71
 - verify assets, 77
- Auto Service Request see ASR, 65

B

- baud rate for serial terminal, 48
- bits setting for serial terminal, 48
- boot environment, 81
 - advantages of multiple, 81
 - boot to original environment, 85
 - create, 82
 - mount to a different build environment, 84
 - remove boot environment, 86

C

- cable management assembly
 - See CMA, 28
- cabling
 - adapters for serial data cables, 43
 - Ethernet ports, 44
 - NET MGT port, 43

- power cords, 47
- required connections, 40
- securing to CMA, 45
- SER MGT port, 43

CMA

- cable hook and loop straps, installing, 17
- installing, 28
- kit, 28
- multi-piece, 13, 28
- required hardware, 28
- securing cables, 45
- single-piece comb, 11

CMA comb, 21

- compatible racks, 18
- configuring, 47
- confirming specifications, 3

D

- depth specification, 3
- DHCP, 43
- DIMMs, 1
- drives, 2

E

- electrical specifications, 3
- elevation specification, 5
- environmental specifications, 5
- ESD precautions, 15
- Ethernet ports, 2

F

- fasteners
 - shipping bracket, 35

H

- handling precautions, 14

- handshaking for serial terminal, no, 49
- height specification, 3
- hot-plugging USB ports, 41
- humidity specification, 5

I

- installing
 - CMA, 28
 - CMA comb, 30
 - multi-piece CMA, 30
 - rackmount kit, 21
 - server into rack, 38

K

- KVMS, 63

L

- LEDs
 - ports, 42
- logging into service processor
 - using SER MGT port, 57

M

- memory description, 1
- messages retention, limits of, 41
- modem not for use with the SER MGT port, 43

N

- NET MGT port
 - cabling, 43
 - DHCP, 43
 - location, 42
 - static IP address, 43

O

- Oracle ILOM, 51
 - accessing, 62
 - default user name and password, 62
 - logging in to, 62
 - overview, 61
 - prompt, 61, 62
- Oracle ILOM Remote Console, 63
- Oracle Solaris 11 boot environments, 81
- Oracle Solaris OS
 - configuration parameters, 56
 - configuring the preinstalled OS, 51

- installing a fresh OS (Oracle ILOM CLI), 52
- installing a fresh OS (Oracle ILOM web interface), 54

P

- parity for serial terminal, no, 48
- password command, 57
- physical specifications, 3
- power cords, cabling, 47
- precautions
 - ESD, 15
 - handling, 14

R

- rack
 - compatibility, 18
 - mounting holes, supported, 18
 - stabilizing, 20
- rackmount
 - anti-tilt legs or bar, extending, 20
 - installing the hardware, 25
 - marking the location, 24
 - preparing the server, 16
 - safety warnings, 19
 - stabilizing the rack, 20
- rackmount kit
 - CMA comb, 21
- rackmounting, 17
- rear panel
 - components, 42
- RJ-45 cable, 40

S

- SER MGT port
 - cabling, 43
 - initial power on, 48
- serial terminal settings, 48
- server
 - accessing, 61
 - installing, 38
 - overview, 1
- service clearance, 3
- service processor, see SP, 57
- shipping bracket
 - front, removal at destination, 37
 - kit contents, 34

- rear, installation, 37
- shipping bracket fasteners, 35
- shipping kit, 11
- shipping kit contents, 13
- slide rail assembly, 21
- slots, ports, and LEDs illustrated, 42
- SP
 - accessing with SER MGT port, 57
 - log in using SER MGT port, 57
- SPARC SuperCluster T4-4 server
 - monitoring using Auto Service Request, 65
- specifications
 - acoustic, 5
 - altitude, 5
 - electrical, 3
 - elevation, 5
 - environmental, 5
 - humidity, 5
 - physical, 3
 - temperature, 5
 - vibration, 5
- standby
 - mode, 47
 - when AC connected, 41
- stop bit, 48
- system communication, 61

T

- temperature specifications, 5
- terms
 - slide rail assembly, 22
- tools, 15

U

- USB ports, 2

V

- vibration specifications, 5
- video connector
 - described, 2
 - front, 41
 - rear, 42

W

- weight specification, 3

- width specification, 3

