Oracle® Database Appliance X9-2
Owner's Guide

ORACLE®

Oracle Database Appliance X9-2 Owner's Guide,

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Preface

This guide provides a system overview and instructions for racking the Oracle Database Appliance.

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- [Conventions](#)

Audience

This document is intended for technicians, system administrators, and authorized service providers responsible for installing the Oracle Database Appliance.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

For more information about Oracle Database Appliance, go to http://www.oracle.com/goto/oda/docs and click the appropriate release. The following documents are published in the Oracle Database Appliance online documentation library:

- *Oracle Database Appliance Release Notes*
- *Oracle Database Appliance Licensing Information User Manual*
- *Oracle Database Appliance Security Guide*
- *Oracle Database Appliance Accessibility Guide*
- *Oracle Database Appliance Deployment and User's Guide (model-specific)*
- *Oracle Database Appliance Owner's Guide*
- *Oracle Database Appliance Service Manual*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action or terms defined in the text.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.
# prompt	The pound (#) prompt indicates a command that is run as the root user.

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Oracle Database Appliance Setup Tasks

Complete these tasks to setup Oracle Database Appliance.

- Task Checklist
  List of steps with links to information describing the setup of Oracle Database Appliance.

Task Checklist

List of steps with links to information describing the setup of Oracle Database Appliance.

Step	Task	Refer to
1	Access the online product documentation for your release of Oracle Database Appliance.	http://www.oracle.com/goto/oda/docs
2	Review safety information before performing the installation.	*Oracle Database Appliance Series Safety and Compliance Guide*: Online at the product documentation site
		Important Safety Information for Oracle's Hardware Systems: Printed document included in the Accessory Kit
3	Review system features and components.	Overview of Oracle Database Appliance
4	Complete the site preparation procedures.	Site Preparation
5	Rackmount the system.	Installing Oracle Database Appliance Into a Rack
6	Connect cables.	*Oracle Database Appliance Deployment and User's Guide* (model-specific): Online at the product documentation site
7	Connect to Oracle Integrated Lights Out Manager (ILOM).	*Oracle Database Appliance Deployment and User's Guide* (model-specific): Online at the product documentation site
8	Deploy Oracle Database Appliance software.	*Oracle Database Appliance Deployment and User's Guide* (model-specific): Online at the product documentation site

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Overview of Oracle Database Appliance

Learn about Oracle Database Appliance model supported components,capabilities and features.

- [Oracle Database Appliance X9-2 Series Components and Capabilities](#)
  See a listing of the various supported capabilities for the Oracle Database Appliance X9-2 series.

- [Oracle Database Appliance X9-2S/X9-2L Front and Back Panels](#)
  See views and descriptions of front and back panel features for Oracle Database Appliance X9-2S/X9-2L.

- [Oracle Database Appliance X9-2-HA Front and Back Panels](#)
  See views and descriptions of front and back panel features for Oracle Database Appliance X9-2-HA.

- [Oracle Database Appliance Specifications](#)
  This section describes the physical, electrical and environmental specifications for the various Oracle Database Appliance models.

- [Technical Support](#)
  How to obtain technical support for your appliance.

Oracle Database Appliance X9-2 Series Components and Capabilities

See a listing of the various supported capabilities for the Oracle Database Appliance X9-2 series.

The following table lists supported components and capabilities for the Oracle Database Appliance X9-2 series systems.

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Server node	Single 2RU server.	Single 2RU server.	Two 2RU server nodes. Each server node operates independently from the other server node. The lower server is node 0. The upper server is node 1.
CPUs	One 16-core 2.4 GHz Intel Xeon S4314 processor.	Two 16-core 2.4 GHz Intel Xeon S4314 processors.	Two 16-core 2.4 GHz Intel Xeon S4314 processors per server node.

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Memory	256 GB – eight 32 GB low-voltage DDR4 RDIMMs rated at 3200 MT/sec. Optional memory expansion to 512 GB. See Optional Component Installation.	512 GB – sixteen 32 GB low-voltage DDR4 RDIMMs rated at 3200 MT/sec. Optional memory expansion is available to 1 TB. See Optional Component Installation.	512 GB – sixteen 32 GB low-voltage DDR4 RDIMMs rated at 3200 MT/sec per server node. Optional memory expansion to 1 TB per node. Both server nodes must have the same amount of memory. See Optional Component Installation.
Storage devices	The server includes: • Two internal 240 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.8 TB NVMe SSDs (in 3.5-inch mounting brackets) in front slots 0 and 1 No additional storage options are supported.	The server includes: • Two internal 240 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.8 TB NVMe SSDs (in 3.5-inch mounting brackets) in front slots 0 and 1 Up to ten optional NVMe SSDs can be added. See Optional Component Installation.	Each server node includes: • Two internal 240 GB M.2 SATA SSDs reserved for operating system storage and system booting The 4RU storage shelf includes one of the following available configurations: • Partially populated storage shelf with either six, twelve, or eighteen 2.5-inch 7.68 TB SAS SSDs (in 3.5-inch mounting brackets) • Twenty-four 2.5-inch 7.68 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 0-23 • Six 2.5-inch 7.68 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 0-5 and eighteen 3.5-inch 18 TB SAS HDDs in slots 6-23 For a partially populated storage shelf, optional 7.68 TB SAS SSDs, or 18 TB SAS HDDs can be added. See Optional Component Installation.
USB 3.0 ports	One external port at the back of the server.	One external port at the back of the server.	One external port at the back of each server node.

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
PCI Express (PCIe) I/O slots	Ten external low-profile PCIe Gen-4 slots. In the base configuration: PCIe slot 6 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter Additional option card configurations can be ordered. See Optional Component Installation.	Ten external low-profile PCIe Gen-4 slots. In the base configuration: PCIe slot 6 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter PCIe slot 10 contains an Oracle Retimer Card. Additional option card configurations can be ordered. See Optional Component Installation.	Ten external low-profile PCIe Gen-4 slots for each server node. In the base configuration: PCIe slot 1 contains a Dual Port (SFP28) 25 Gb Ethernet Adapter (node interconnect) PCIe slot 6 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter PCIe slots 2 and 9 contain a Dual-port External 12Gb/s SAS3 host bus adapter Additional option card configurations can be ordered. See Optional Component Installation.
Cluster device	N/A	N/A	One integrated cluster device with node-to-node interconnection is provided on each server node through two 25GbE ports with SFP28 connections.
SAS ports	N/A	N/A	Four external SAS3 ports on each server node. Eight SAS3 ports on the storage shelf (four used). Eight SAS3 ports on the storage expansion shelf (four used).
Onboard Ethernet ports	One 10/100/1000Base-T network interface port with RJ-45 connector on each server rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector on each server rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector on each server node rear panel.
Network management (NET MGT) port	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on each server node rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on each server node rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on each server node rear panel.
Serial management (SER MGT) port	One RS-232 RJ-45 serial port on each server rear panel.	One RS-232 RJ-45 serial port on each server rear panel.	One RS-232 RJ-45 serial port on each server node rear panel.
VGA port	N/A	N/A	N/A

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Service Processor (SP)	Each server has a service processor with the following features: • Includes the Baseboard Management Controller (BMC), which supports the industry-standard Intelligent Platform Management Interface (IPMI) feature set. • Supports remote KVMS over IP. • Supports Ethernet access to SP through a dedicated 10/100/1000Base-T management port and optionally through one of the host GbE ports (sideband management).	Each server has a service processor with the following features: • Includes the Baseboard Management Controller (BMC), which supports the industry-standard Intelligent Platform Management Interface (IPMI) feature set. • Supports remote KVMS over IP. • Supports Ethernet access to SP through a dedicated 10/100/1000Base-T management port and optionally through one of the host GbE ports (sideband management).	Each server node has a service processor with the following features: • Includes the Baseboard Management Controller (BMC), which supports the industry-standard Intelligent Platform Management Interface (IPMI) feature set. • Supports remote KVMS over IP. • Supports Ethernet access to SP through a dedicated 10/100/1000Base-T management port and optionally through one of the host GbE ports (sideband management).

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Power supplies	Two A269.2 1200W or two A271/A271A 1400W power supplies are included in the base configuration. Power supplies for the system are redundant (N+N) and hot-pluggable. Systems with A269.2 power supplies can use 100 - 127 or 200 - 240 VAC sources. Systems with A271/A271A power supplies require high-line 200 - 240 VAC sources.	Two A269.2 1200W or two A271/A271A 1400W power supplies are included in the base configuration. Power supplies for the system are redundant (N+N) and hot-pluggable. Systems with A269.2 power supplies can use 100 - 127 or 200 - 240 VAC sources. Systems with A271/A271A power supplies require high-line 200 - 240 VAC sources.	Two hot-pluggable power supplies per server node and per storage shelf. The server node includes A269.2 1200W or two A271/A271A 1400W power supplies in the base configuration. Power supplies for the system are redundant (N+N) and hot-pluggable. Systems with A269.2 power supplies can use 100 - 127 or 200 - 240 VAC sources. Systems with A271/A271A power supplies require high-line 200 - 240 VAC sources.
	ⓘ **Note** Mixing A269.2 and A271/A271A power supplies wit	ⓘ **Note** Mixing A269.2 and A271/A271A power supplies wit	ⓘ **Note** Mixing A269.2 and A271/A271A power supplie

Component	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
	hin the same chassis is not supported.	hin the same chassis is not supported.	swit hin the same chassis is not supported.
			The DE3-24C storage shelf can use 100 - 127 or 200 - 240 VAC sources
Cooling fans	Four 80-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total).	Four 80-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total).	Four 80-mm, hot-pluggable fan modules per server node for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total).
	Each power supply has its own cooling fans.	Each power supply has its own cooling fans.	Each power supply (server node and storage shelf) has its own cooling fans.
Operating system	Oracle Linux.	Oracle Linux.	Oracle Linux.
Management software	Oracle Integrated Lights Out Manager (ILOM) 5.1.	Oracle Integrated Lights Out Manager (ILOM) 5.1.	Oracle Integrated Lights Out Manager (ILOM) 5.1.

Oracle Database Appliance X9-2S/X9-2L Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X9-2S/X9-2L.

This section describes Oracle Database Appliance X9-2S/X9-2L front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

- Oracle Database Appliance X9-2S/X9-2L Front Panel
  See an illustration and description of Oracle Database Appliance X9-2S/X9-2L front panel features.

- Oracle Database Appliance X9-2S/X9-2L Back Panel
  See an illustration and description of Oracle Database Appliance X9-2S/X9-2L back panel features.

Oracle Database Appliance X9-2S/X9-2L Front Panel

See an illustration and description of Oracle Database Appliance X9-2S/X9-2L front panel features.

Oracle Database Appliance X9-2S and Oracle Database Appliance X9-2L servers each occupy 2RU.

The following figure shows the components on the front panel of a standard configuration **Oracle Database Appliance X9-2S/X9-2L**.

Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Service Required LED: amber
4	Power/OK LED: green
5	Power button
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
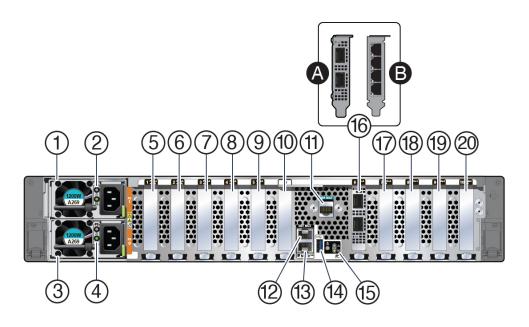
Callout	Description
8	System Over Temperature Warning LED: amber
9	SP OK LED: green
10	DO NOT SERVICE
11 - 22	Front mounted drive slots: NVMe0 in slot 0 (callout 11), NVMe1 in slot 1 (callout 14), filler panels in slots 2 - 11 (callouts 12, 13 and 15 - 22)

Oracle Database Appliance X9-2S/X9-2L Back Panel

See an illustration and description of Oracle Database Appliance X9-2S/X9-2L back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X9-2S/X9-2L**.

Callout	Description
1	Power Supply (PS) 1 with fan module
2	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 0 with fan module
4	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
5	PCIe card slot 1: filler panel
6	PCIe card slot 2: filler panel
7	PCIe card slot 3: filler panel

Callout	Description
8	PCIe card slot 4: • Oracle Database Appliance X9-2S: filler panel • Oracle Database Appliance X9-2L: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
9	PCIe card slot 5: filler panel
10	Not used
11	SER MGT port: RJ-45 serial port used to connect to the Oracle ILOM service processor
12	NET MGT port: 10/100/1000Base-T network interface port with RJ-45 connector used to connect to the Oracle ILOM service processor
13	100/1000BASE-T network interface port with RJ-45 connector: NET 0
14	USB 3.0 connector
15	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
16	PCIe card slot 6: public network interface card • Oracle Dual Port 25Gb Ethernet Adapter [16a] *--or--* • Oracle Quad Port 10GBase-T Adapter [16b]
17	PCIe card slot 7: • Oracle Database Appliance X9-2S: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter • Oracle Database Appliance X9-2L: filler panel
18	PCIe card slot 8: • Oracle Database Appliance X9-2S: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter • Oracle Database Appliance X9-2L: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
19	PCIe card slot 9: filler panel
20	PCIe card slot 10: • Oracle Database Appliance X9-2S: filler panel • Oracle Database Appliance X9-2L: Oracle Retimer Card

Oracle Database Appliance X9-2-HA Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X9-2-HA.

This section describes Oracle Database Appliance X9-2-HA front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.
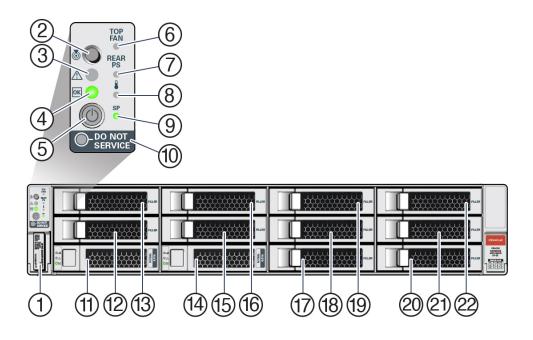
- Oracle Database Appliance X9-2-HA Front Panel
  See an illustration and listing of Oracle Database Appliance X9-2-HA front panel features.

- Oracle Database Appliance X9-2-HA Back Panel
  See an illustration and listing of Oracle Database Appliance X9-2-HA back panel features.

Oracle Database Appliance X9-2-HA Front Panel

See an illustration and listing of Oracle Database Appliance X9-2-HA front panel features.

Oracle Database Appliance X9-2-HA includes two server nodes (two Oracle Server X9-2L's) and an Oracle DE3-24C storage shelf. The entire unit occupies 8RU. The optional storage expansion shelf requires an additional 4RU, increasing the total to 12RU.

The following figure shows the front of **Oracle Database Appliance X9-2-HA** with an optional storage expansion shelf.

Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- **Server Node Front Panel Features**
  See an illustration and listing of Oracle Database Appliance X9-2-HA server node front panel features.

- **Storage Shelf Front Panel Features**
  See an illustration and listing of Oracle Database Appliance X9-2-HA storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X9-2-HA server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X9-2-HA server node**.

Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Service Required LED: amber
4	Power/OK LED: green
5	Power button

Callout	Description
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
8	System Over Temperature Warning LED: amber
9	SP OK LED: green
10	DO NOT SERVICE
11 - 22	Front mounted drive slots 0 - 11 (filler panels)

> ⓘ **Note**
>
> When contacting Oracle Support Services, use the Top Level Identifier (TLI) instead of the serial number. You can find the TLI by looking at the top of either server node or on the top of the storage shelf. For details, see Technical Support.

Storage Shelf Front Panel Features

See an illustration and listing of Oracle Database Appliance X9-2-HA storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X9-2-HA storage shelf** front panel features.
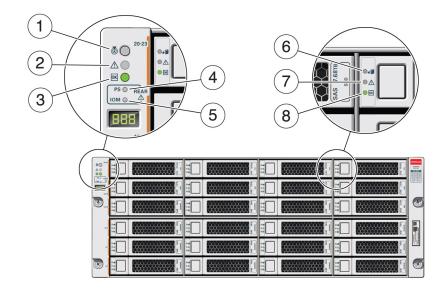
> ⓘ **Note**
>
> There are three base configurations for the storage shelf: two fully populated and one partially populated (disk slots 6-23 are filler panels). Do not attempt to move or switch disks in the base configurations as it could cause the deployment to fail.
>
> You have the option of upgrading the partially populated base configuration storage shelf to add disks to the empty slots. See Optional Component Installation. Upgrading the base configuration to a fully populated storage shelf will allow you to add a storage expansion shelf later, if needed.

Callout	Description
1	Storage shelf Locate indicator
2	Storage shelf fault indicator
3	Storage shelf OK/power indicator
4	Storage shelf power supply fault indicator
5	Storage shelf IO module fault indicator
6	Drive Ready-to-Remove indicator
7	Drive fault indicator
8	Drive power/activity indicator
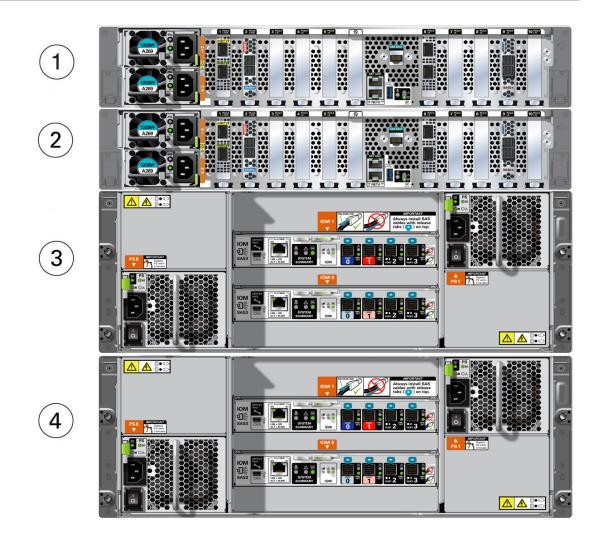
Oracle Database Appliance X9-2-HA Back Panel

See an illustration and listing of Oracle Database Appliance X9-2-HA back panel features.

This section describes the back panel features for Oracle Database Appliance X9-2-HA.

The following figure shows the **Oracle Database Appliance X9-2-HA**.

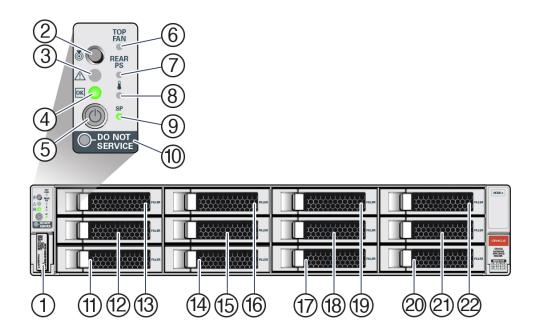| Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- [Server Node Back Panel Features](#)
  See an illustration and listing of Oracle Database Appliance X9-2-HA server node back panel features.

- [Storage Shelf Back Panel Features](#)
 See an illustration and listing of Oracle Database Appliance X9-2-HA storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X9-2-HA server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X9-2-HA server node**.

Callout	Description
1	Power Supply (PS) 1 with fan module
2	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 0 with fan module
4	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
5	PCIe card slot 1: Oracle Dual Port 25Gb Ethernet Adapter provides two ports with SFP28 connections for a private cluster interconnect between server nodes
6	PCIe card slot 2: provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf
7	PCIe card slots 3: filler panel
8	PCIe card slot 4: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
9	PCIe card slots 5: filler panel
10	Not used
11	SER MGT port: RJ-45 serial port used to connect to the Oracle ILOM service processor
12	NET MGT port: 10/100/1000Base-T network interface port with RJ-45 connector used to connect to the Oracle ILOM service processor
13	100/1000BASE-T network interface port with RJ-45 connector: NET 0
14	USB 3.0 connector
15	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green

Callout	Description
16	PCIe card slot 6: public network interface card • Oracle Dual Port 25Gb Ethernet Adapter [16a] *--or--* • Oracle Quad Port 10GBase-T Adapter [16b]
17	PCIe card slot 7: filler panel
18	PCIe card slot 8: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
19	PCIe card slot 9: provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf
20	PCIe card slot 10: filler panel

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X9-2-HA storage shelf back panel features.

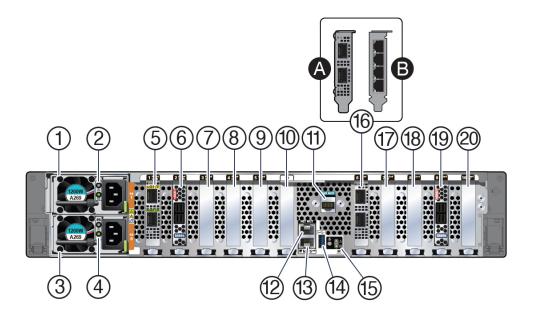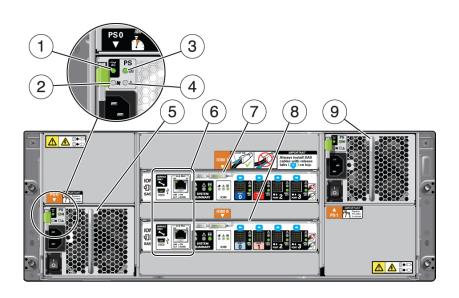The following figure shows the **Oracle Database Appliance X9-2-HA storage shelf** back features.

> ⓘ **Note**
>
> The network ports on the storage shelf are intended for use by service engineers only.

Callout	Description
1	AC power indicator

Callout	Description
2	Fan fail indicator
3	Power supply status indicator
4	DC power fail indicator
5	Power Supply with fan module 0
6	Service ports (reserved for Oracle Service only)
7	SAS I/O module 1
8	SAS I/O module 0
9	Power Supply with fan module 1

Oracle Database Appliance Specifications

This section describes the physical, electrical and environmental specifications for the various Oracle Database Appliance models.

- [Physical Specifications for Oracle Database Appliance X9-2 Series](#)
- [Electrical Specifications for Oracle Database Appliance X9-2 Series](#)
- [Environmental Specifications for Oracle Database Appliance X9-2 Series](#)

Physical Specifications for Oracle Database Appliance X9-2 Series

Item	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Height	86.9 mm (3.4 in)	86.9 mm (3.4 in)	86.9 mm (3.4 in) per server node 175 mm (6.9 in) per storage shelf
Width	445 mm (17.5 in)	445 mm (17.5 in)	445 mm (17.5) per server node 483 mm (19 in) per storage shelf
Depth	759.4 mm (29.9 in)	759.4 mm (29.9 in)	759.4 mm (29.9 in) per server node 630 mm (24.8 in) per storage shelf
Weight	28.6 kg (63 lbs)	28.6 kg (63 lbs)	28.6 kg (63 lbs) per server node 38.0 kg (84 lbs) per storage shelf

Electrical Specifications for Oracle Database Appliance X9-2 Series

There are two types of power supplies supported by the server: the A269.2 or A271/A271A. Each power supply has a label that tells which one has been installed (as shown in the illustration below). Both types are described in the table that follows.

> ⓘ **Note**
>
> The A271 and A271A power supplies are functionally identical. Either are supported in the system.

Item	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Server node power supply output rated maximum	For systems with A269.2 power supplies: 1200W at 100-127 VAC or 1200W at 200-240 VAC For systems with A271/A271A power supplies: 1400W at 200-240 VAC	For systems with A269.2 power supplies: 1200W at 100-127 VAC or 1200W at 200-240 VAC For systems with A271/A271A power supplies: 1400W at 200-240 VAC	For server nodes with A269.2 power supplies: 1200W at 100-127 VAC or 1200W at 200-240 VAC For server nodes with A271/A271A power supplies: 1400W at 200-240 VAC
Server node AC power	For systems with A269.2 power supplies: 10A at 100-127 VAC or 7A at 200-240 VAC For systems with A271 power supplies: 10A at 200-240 VAC	For systems with A269.2 power supplies: 10A at 100-127 VAC or 7A at 200-240 VAC For systems with A271 power supplies: 10A at 200-240 VAC	For server nodes with A269.2 power supplies: 10A at 100-127 VAC or 7A at 200-240 VAC For server nodes with A271 power supplies: 10A at 200-240 VAC
Storage shelf power supply output rated maximum	Not included	Not included	580W at 100-127 VAC 580W at 200-240 VAC
Storage shelf AC Power	Not included	Not included	8A at 100-127 VAC 3A at 220-240 VAC
Power usage	For more information on power consumption, see Oracle Server X9-2L Power Calculator.	For more information on power consumption, see Oracle Server X9-2L Power Calculator.	Two server nodes • Maximum: 1,120W • Typical: 516W Storage shelf (24 SSDs) • Maximum: 449W • Typical: 276W Storage shelf (6 SSDs, 18 HDDs) • Maximum: 434W • Typical: 271W

Environmental Specifications for Oracle Database Appliance X9-2 Series

Item	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Operating temperature	5° C to 35° C (41° F to 95° F)	5° C to 35° C (41° F to 95° F)	5° C to 35° C (41° F to 95° F)

Item	Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L	Oracle Database Appliance X9-2-HA
Nonoperating temperature	-40° C to 70° C (-40° F to 158° F)	-40° C to 70° C (-40° F to 158° F)	-40° C to 70° C (-40° F to 158° F)
Operating humidity	10% to 90% relative humidity, noncondensing	10% to 90% relative humidity, noncondensing	10% to 90% relative humidity, noncondensing
Nonoperating humidity	Up to 93% relative humidity, noncondensing	Up to 93% relative humidity, non-condensing	Up to 93% relative humidity, non-condensing
Operating altitude	Up to 3,000 m* (9,840 ft); maximum ambient temperature is derated by 1° C per 300 m above 900 m * Except in China markets where regulations might limit installations to a maximum altitude of 2,000 m (6,560 ft)	Up to 3,000 m* (9,840 ft); maximum ambient temperature is derated by 1° C per 300 m above 900 m * Except in China where regulations might limit installations to a maximum altitude of 2,000 m (6,560 ft)	Up to 3,000 m* (9,840 ft); maximum ambient temperature is derated by 1° C per 300 m above 900 m * Except in China where regulations might limit installations to a maximum altitude of 2,000 m (6,560 ft)
Nonoperating altitude	Up to 12,000 m (39,370 ft)	Up to 12,000 m (39,370 ft)	Up to 12,000 m (39,370 ft)
Cooling	For more information on power consumption, see Oracle Server X9-2L Power Calculator	For more information on power consumption, see Oracle Server X9-2L Power Calculator	Server node, see Oracle Server X9-2L Power Calculator Storage shelf • At maximum usage: 1553 BTU/h • At typical usage: 874 BTU/h
Acoustic noise	7.1 Bels A-weighted operating, 7.0 Bels A-weighted idling	7.1 Bels A-weighted operating, 7.0 Bels A-weighted idling	8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling

Technical Support

How to obtain technical support for your appliance.

For technical support, go to:

https://support.oracle.com/portal/

Oracle Database Appliance X9-2S/X9-2L	Oracle Database Appliance X9-2-HA
Report the serial number located on the front panel of the system, the top of the system, or on the Customer Information Sheet that is shipped with the system. You only need to extend the server node a couple of inches on its slide rails to see the serial label on the top of the system. You do not need to release any cables, or slide it to the extended maintenance position.	Report the Top Level Identifier (TLI). To see the TLI, look on the Customer Information Sheet or look at the top of a server node or storage shelf on the left-hand side towards the front. The TLI part number and TLI serial number are the same for the factory-bundled server nodes of an appliance. The following figure shows an example Top Level Identifier label: If the appliance is in a rack where you cannot see the TLI, do one of the following: • Look on another component (server node or storage shelf) of the appliance. All factory-bundled server nodes of Oracle Database Appliance have the same TLI numbers. • Slide a server node partway out on its rails, just far enough to see the TLI. See the *Oracle Database Appliance X9-2 Service Manual* for details. You only need to extend the server node a couple of inches on its slide rails to see the TLI. You do not need to release any cables, or slide it to the extended maintenance position.

3

Site Preparation

Learn about site preparation requirements for the Oracle Database Appliance *before* installing it into a rack and cabling it.

- [Prepare Your Site](#)
  Use this procedure before installing the appliance into a rack.

Prepare Your Site

Use this procedure before installing the appliance into a rack.

1. Ensure that your site meets the environmental requirements in [Environmental Specifications](#).

2. Ensure that your site meets the electrical specifications in [Electrical Specifications](#).

3. Ensure that your site has adequate clearance for the shipping containers.

4. Allow the equipment to acclimatize to the computer center environment.

   If significant temperature differences exist (> 10° C / 18° F) between the new system and the designated computer center, the equipment should be left in its boxes for a sufficient period of time to allow the temperature of the equipment to come to within a few degrees of the computer center.

   > ⚠ **Caution**
   >
   > **Equipment damage.** The system should never be powered on unless it is within the supported operating range (temperature and humidity).

5. Open the shipping containers.

   You should do this at the location where the system will be installed, but outside of the computer center itself.

   > ⚠ **Caution**
   >
   > **Equipment damage.** Use a separate area in which to remove the packaging material to reduce particle contamination before entering the computer center.

6. Check the contents of the shipping container.

   > ⚠ **Caution**
   >
   > **System failure.** All items in a shipment are designed to be used together as a single system. Do not mix components from different shipments; this could cause the system to fail.

It should contain:

Oracle Database Appliance X9-2S/X9-2L	Oracle Database Appliance X9-2-HA
- Preconfigured system - Accessory kit, including: *Accessing Product Documentation* or Setup booklet - Safety and legal documentation - Rackmount guide and alignment template - Rackmount kit - Power cords (shipped separately) - Shipping kit (optional)	**The server nodes include:** - Preconfigured server nodes (0 and 1) - Accessory kit, including: - Setup poster - Safety and legal documentation - Rackmount guide and alignment template - Rackmount kit - Power cords - SAS cables, Ethernet cables, cluster cables, and labels are shipped with the storage shelf. **The storage shelf includes:** - Preconfigured storage shelf - Rackmount kit - Power cords - Cables - Setup poster - If you ordered a storage expansion shelf, it is shipped separately and includes the same list of components as the storage shelf.

4
Installing Oracle Database Appliance Into a Rack

Complete the following procedures to install the Oracle Database Appliance into a rack.

- Task Overview
  Tasks to perform when installing various models of Oracle Database Appliance into a rack.

- Optional Component Installation
  Learn about the optional components supported for the various Oracle Database Appliance models.

- Safety Precautions When Rackmounting
  Learn about safety precautions during rack installation for Oracle Database Appliance.

- ESD Precautions
  Learn about electrostatic discharge precautions during rack installation for Oracle Database Appliance.

- Rack Compatibility Requirements
  Learn about the basic racking requirements for installing Oracle Database Appliance.

- Installing the System Into a Rack
  Procedures describing how to install the various Oracle Database Appliance models into a rack.

Task Overview

Tasks to perform when installing various models of Oracle Database Appliance into a rack.

Follow the appropriate procedures to rack mount your system.

> ⓘ **Note**
>
> These procedures describe how to install the appliance into a rack. For cabling instructions, refer to the *Deployment and User's Guide*.

Oracle Database Appliance X9-2S/X9-2L	Oracle Database Appliance X9-2-HA

Optional Component Installation

Learn about the optional components supported for the various Oracle Database Appliance models.

Optional memory can be purchased independent of the standard configuration and is shipped separately. Where possible, optional memory should be installed before you install the server in a rack.

- **DIMM memory kits:**

  – For **Oracle Database Appliance X9-2S**, you have the option of ordering memory expansion to 512 GB. Memory kits come in sets of 8 x 32 GB DIMMs.

  – For **Oracle Database Appliance X9-2L** with 512 GB of base memory:

    * You have the option of ordering memory expansion to 1 TB. Memory kits come in sets of 8 x 32 GB DIMMs, which means you need two kits (one for each processor).

    * Or, if you need 2 TB of memory, you can replace your 32 GB DIMMs with 64 GB DIMMs. Memory kits come in sets of 16 x 64 GB DIMMs, which means you need two kits (one for each processor).

  – For **Oracle Database Appliance X9-2-HA** with 512 GB of base memory:

    * You have the option of ordering memory expansion to 1 TB per server node. Memory kits come in sets of 8 x 32 GB DIMMs, which means you need four kits (two for each server node) for 1 TB. Both server nodes must have the same amount of memory. Thus, the total memory for the appliance becomes 2 TB.

    * Or, if you need 2 TB of memory per server node, you can replace your 32 GB DIMMs with 64 GB DIMMs. Memory kits come in sets of 16 x 64 GB DIMMs, which means you need four kits (two for each server node).

  Refer to the *Service Manual* for instructions on installing memory.

- **Storage drives:**

  – For **Oracle Database Appliance X9-2L** with the default configuration of two NVMe drives, you have the option of ordering up to ten additional 2.5-inch 6.8 TB NVMe SSDs for front drive slots 2-11. Drives must be installed in pairs.

  – For **Oracle Database Appliance X9-2-HA**, you have the following options:

* If your base configuration includes a partially populated storage shelf, you can upgrade it as follows:

  * For a high performance shelf, you can add up to eighteen 7.68 TB SSDs (available in six-packs). You can add storage with the system running and use the appliance CLI software commands to expand the storage configuration.

  * For a high capacity shelf, you can add eighteen 18 TB HDDs (available in an eighteen-pack). You must power off the appliance, add storage, then re-image and redeploy the appliance software. This is required to reconfigure the appliance from the default high performance mode to high capacity mode.

* An additional storage shelf can be added if your existing appliance storage shelf came fully populated, or you expanded your partially populated base storage shelf configuration of six 7.68 TB SSDs with either eighteen 7.68 TB SSDs or eighteen 18 TB HDDs. You can add a storage expansion shelf with the system running and use the appliance CLI software commands to expand the storage configuration.

> ⓘ **Note**
>
> You **cannot** add a storage expansion shelf (which comes fully populated) unless your existing storage shelf is fully populated and the storage shelf you purchase is configured identically (same drives in same slots) to your existing storage shelf.

Refer to the *Service Manual* for instructions on installing storage drives.

- **Optional Network cards:**

  For **Oracle Database Appliance X9-2** series, you have the option of ordering up to two additional public network PCIe cards per system (or per node for the X9-2-HA). Supported network cards include the Oracle Dual Port 25Gb Ethernet Adapter and the Oracle Quad Port 10GBase-T Adapter. Additional public network cards do not need to match public network cards (type and model) already installed..

> ⓘ **Note**
>
> If you intend on replacing public network cards already in the system, you need to follow the instructions in the *Deyployment and User's Guide* to delete the existing network card and interface via software. **You cannot replace the factory installed public network card in PCIe slot 6 or the cluster interconnect card in PCIe slot 1.**

Refer to the *Service Manual* for instructions on installing PCIe cards. After the card is replaced, refer to the *Deployment and User's Guide* for instructions on cabling and software configuration.

Safety Precautions When Rackmounting

Learn about safety precautions during rack installation for Oracle Database Appliance.

This section describes safety precautions you must follow when installing the server into a rack.

> ⚠ **Caution**
>
> **Personal injury or equipment damage.** Prevent the rack from tipping over. 1) Deploy the anti-tilt bar or legs on the equipment rack before beginning an installation. 2) Always load equipment into a rack from the bottom up so that the rack will not become top-heavy and tip over. 3) Mount equipment in the rack such that it does not create uneven or dangerous mechanical loading. 4) Do not use slide-rail mounted equipment as a shelf or workspace.

> ⚠ **Caution**
>
> **Equipment damage caused by elevated temperature.** 1) If you install the equipment in a closed or multi-unit rack assembly, ensure that the operating ambient temperature inside the rack does not exceed the maximum ambient temperature specified for the server. For server environmental requirements, see Environmental Specifications. 2) Install the equipment in the rack such that airflow is not restricted or impeded.

> ⚠ **Caution**
>
> **Supply circuit damage and data loss.** The AC circuits used to supply power to the system must be rated for the maximum amount of power that the system requires. See Electrical Specifications for input power requirements.

> ⚠ **Caution**
>
> **Equipment damage.** Maintain reliable earthing. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

> ⚠ **Caution**
>
> **Equipment damage.** The shipping brackets used to secure the rack cabinet to the shipping pallet are not for use in the data center for bracing or anchoring the rack cabinet during seismic events.

ESD Precautions

Learn about electrostatic discharge precautions during rack installation for Oracle Database Appliance.

> ⚠ **Caution**
>
> **Equipment damage.** To prevent damage from electrostatic discharge, use the following precautions when installing or servicing components.

- 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 system components.

Rack Compatibility Requirements

Learn about the basic racking requirements for installing Oracle Database Appliance.

The rack-mounting hardware can be used only in specialized racks that meet the requirements in the following table.

Feature	Oracle Database Appliance X9-2S/X9-2L	Oracle Database Appliance X9-2-HA
Rack structure	Four-post rack (mounting at both front and back). Supported rack types: square hole (9.5 mm) and round hole (M6 or 1/4-20 threaded only). Two-post racks are not compatible.	Four-post rack (mounting at both front and back). Supported rack types: square hole (9.5 mm) and round hole (M6 or 1/4-20 threaded only). Two-post racks are not compatible.
Space available	Must have 2RU (rack units) of space available.	8RU without optional storage expansion shelf. 12RU with optional storage expansion shelf.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60297 standards.	Conforms to ANSI/EIA 310-D-1992 or IEC 60297 standards.
Distance between front and rear mounting planes	Minimum 610 mm and maximum 915 mm (24 in to 36 in).	Minimum 610 mm and maximum 915 mm (24 in to 36 in).
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 25.4 mm (1 in).	Distance to front cabinet door is at least 25.4 mm (1 in).
Clearance depth behind front mounting plane	Distance to rear cabinet door is at least 900 mm (35.43 in) with the cable management arm, or 800 mm (31.5 in) without the cable management arm.	Distance to rear cabinet door is at least 900 mm (35.43 in) with the cable management arm, or 800 mm (31.5 in) without the cable management arm.
Clearance width between front and rear mounting planes	Distance between structural supports and cable troughs is at least 456 mm (18 in).	Distance between structural supports and cable troughs is at least 456 mm (18 in).

Feature	Oracle Database Appliance X9-2S/X9-2L	Oracle Database Appliance X9-2-HA
Minimum clearance for service access	Front clearance: 123.2 cm (48.5 in)	Front clearance: 123.2 cm (48.5 in)
	Rear clearance: 91 cm (36 in)	Rear clearance: 91 cm (36 in)
Server node dimensions	Physical Specifications for Oracle Database Appliance X9-2 Series	Physical Specifications for Oracle Database Appliance X9-2 Series
Storage shelf dimensions	N/A	Physical Specifications for Oracle Database Appliance X9-2 Series

Installing the System Into a Rack

Procedures describing how to install the various Oracle Database Appliance models into a rack.

> ⚠ **Caution**
>
> **Personal injury or equipment damage.** Always load equipment into a rack from the bottom up so that it will not become top-heavy and tip over. Deploy your rack's anti-tilt bar to prevent the rack from tilting during equipment installation.

- Installing Oracle Database Appliance X9-2S/X9-2L Into a Rack
  Procedures describing how to install Oracle Database Appliance X9-2S/X9-2L into a rack.

- Installing Oracle Database Appliance X9-2-HA Into a Rack
  Procedures describing how to install Oracle Database Appliance X9-2-HA into a rack.

Installing Oracle Database Appliance X9-2S/X9-2L Into a Rack

Procedures describing how to install Oracle Database Appliance X9-2S/X9-2L into a rack.

- Contents of the Shipping Container
  A listing of the ship container contents of Oracle Database Appliance X9-2S/X9-2L.

- Tools and Equipment Needed
  A listing of the tools you will need to install Oracle Database Appliance X9-2S/X9-2L.

- Stabilize the Rack for Installation
  Use this procedure to stabilize the rack before installing Oracle Database Appliance X9-2S/X9-2L.

- Installing the Server Into a Rack
  Tasks to complete to install Oracle Database Appliance into a rack.

Contents of the Shipping Container

A listing of the ship container contents of Oracle Database Appliance X9-2S/X9-2L.

Inspect the shipping cartons of your Oracle Database Appliance system for evidence of physical damage. If a shipping carton appears damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspection.

The ship kit for the server includes the following items:

- Power cords, packaged separately with country kit
- Rail kit containing rack rails, hardware, template and installation instructions
- Miscellaneous hardware, cables, and connectors
- Setup booklet
- Legal and safety documents

Tools and Equipment Needed

A listing of the tools you will need to install Oracle Database Appliance X9-2S/X9-2L.

Obtain the following tools and equipment before beginning the installation of Oracle Database Appliance.

- Phillips head No. 2 screwdriver that is a minimum of 4 inches long
- T20 Torx driver if using a threaded rack
- A mechanical lift is highly recommended

Stabilize the Rack for Installation

Use this procedure to stabilize the rack before installing Oracle Database Appliance X9-2S/X9-2L.

> ⚠ **Caution**
>
> **Personal injury or equipment damage.** To reduce the risk of personal injury, stabilize the rack cabinet, and extend all anti-tilt devices before installing the server.

Refer to your rack cabinet documentation for more detailed instructions.

1. When unpacking at the installation site, verify that the rack cabinet leveling feet are up before moving the rack cabinet.

2. Remove the front and rear doors of the rack cabinet if they interfere with the installation.

3. To prevent the rack cabinet from tipping during the installation, fully extend the rack cabinet's anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack cabinet.

4. If there are leveling feet beneath the rack cabinet to prevent it from rolling, extend these leveling feet fully downward to the floor once the rack cabinet is where it will reside in the data center.

5. When moving a rack cabinet to a different location, including repacking, verify that rack cabinet leveling feet are up before moving the rack cabinet.

Installing the Server Into a Rack

Tasks to complete to install Oracle Database Appliance into a rack.

> ⓘ **Note**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X9-2 documentation library. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X9-2S	Oracle Database Appliance X9-2L
Verify Rackmount Hardware	Verify Rackmount Hardware
Install Mounting Brackets	Install Mounting Brackets
Mark the Rackmount Location	Mark the Rackmount Location
Connect AC Power Cables and Slide-Rails	Connect AC Power Cables and Slide-Rails
Attach the Tool-less Slide-Rail Assemblies	Attach the Tool-less Slide-Rail Assemblies
Install the Server into the Slide-Rail Assemblies	Install the Server into the Slide-Rail Assemblies
Install the Cable Management Arm and Verify Operation	Install the Cable Management Arm and Verify Operation

Installing Oracle Database Appliance X9-2-HA Into a Rack

Procedures describing how to install Oracle Database Appliance X9-2-HA into a rack.

> ⚠ **Caution**
>
> **System Failure.** Oracle Database Appliance is shipped with matched sets of components that must be installed together. Mixing components from different systems might cause the system to fail.

- **Contents of the Shipping Container**
  A listing of the ship container contents of Oracle Database Appliance X9-2-HA.

- **Installation Sequence**
  Understand the proper installation sequence when installing an Oracle Database Appliance X9-2-HA into a rack.

- **Verify Component Compatibility**
  Ensure that appliance components bundled together from the factory are connected together.

- **Tools and Equipment Needed**
  A listing of the tools you will need to install Oracle Database Appliance X9-2-HA.

- **Stabilize the Rack for Installation**
  Use this procedure to stabilize the rack before installing Oracle Database Appliance X9-2-HA.

- **Apply Labels to Server Nodes**
  Complete this task to apply server node labels before installing the appliance into a rack.

- **Install the Storage Shelf Into a Rack**
  Describes how to install an Oracle Database Appliance X9-2-HA storage shelf into a rack.

- [Add a Storage Expansion Shelf to an Existing System](#)
  Use this procedure to add a storage expansion shelf to an appliance system that is already running.

- [Install the Server Nodes Into a Rack](#)
  Describes installing Oracle Database Appliance X9-2-HA server nodes into a rack.

Contents of the Shipping Container

A listing of the ship container contents of Oracle Database Appliance X9-2-HA.

For Oracle Database Appliance X9-2-HA, server nodes are shipped on a single pallet, and the storage shelf and storage expansion shelf are shipped separately. Each component include mounting hardware, cables, and labels.

> ⚠ **Caution**
>
> **System failure.** All items in a shipment are designed to be used together as a single system. Do not mix components from different shipments; this could cause the system to fail. For details, see [Verify Component Compatibility](#).

The items required for your applicance include:

- Server node 0 and server node 1 (shipped together)
- Rackmounting hardware, cables, and labels for server nodes 0 and 1
- One storage shelf (might be shipped separately)
- Rackmounting hardware for the storage shelf

If you ordered an optional storage expansion shelf, it is shipped separately.

Installation Sequence

Understand the proper installation sequence when installing an Oracle Database Appliance X9-2-HA into a rack.

Always install equipment in a rack **starting at the bottom and working upwards**. For Oracle Database Appliance X9-2-HA, install the equipment in the following order:

1. Storage expansion shelf, if equipped (lowest available rack space).
2. Storage shelf (next rack space above that).
3. Server node 0 (next rack space above that).
4. Server node 1 (next rack space above that).

Verify Component Compatibility

Ensure that appliance components bundled together from the factory are connected together.

For Oracle Database Appliance X9-2-HA, server nodes are bundled at the factory and have a Top Level Identifier (TLI) number that is matched for the system. Both server nodes must have the same TLI. The storage shelf and storage expansion shelf will have separate TLI.

> ⓘ **Note**
>
> If you add a storage expansion shelf to the system after the initial installation (that is, the storage expansion shelf was not part of the initial configuration order for the appliance), its TLI will be different from the rest of the system. In this scenario, an add-on component having a different TLI from the main appliance TLI is appropriate.

1. Locate the TLI for both server nodes, the storage shelf, and (if present) the storage expansion shelf.

    The TLI label is on top of the component, on the left-hand side, near the front. The following figure shows an example of a TLI label:

2. Check to ensure that all components in a system that require it (as described above) have the same TLI numbers (a TLI part number and TLI serial number).

Tools and Equipment Needed

A listing of the tools you will need to install Oracle Database Appliance X9-2-HA.

Obtain the following tools and equipment before beginning the installation of Oracle Database Appliance X9-2-HA.

*   Phillips head No. 2 screwdriver that is a minimum of 4 inches long
*   T20 Torx driver if using a threaded rack
*   A mechanical lift is highly recommended

> ⚠ **Caution**
>
> **Personal injury or equipment damage.** The storage shelf weighs approximately 51 lbs (23 kg). If no mechanical lift is available, use three people to place it in the rack.

Stabilize the Rack for Installation

Use this procedure to stabilize the rack before installing Oracle Database Appliance X9-2-HA.

> ⚠ **Caution**
>
> **Personal injury or equipment damage.** To reduce the risk of personal injury, stabilize the rack cabinet, and extend all anti-tilt devices before installing the server.

Refer to your rack cabinet documentation for more detailed instructions.

1. When unpacking at the installation site, verify that the rack cabinet leveling feet are up before moving the rack cabinet.

2. Remove the front and rear doors of the rack cabinet if they interfere with the installation.

3. To prevent the rack cabinet from tipping during the installation, fully extend the rack cabinet's anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack cabinet.

4. If there are leveling feet beneath the rack cabinet to prevent it from rolling, extend these leveling feet fully downward to the floor once the rack cabinet is where it will reside in the data center.

5. When moving a rack cabinet to a different location, including repacking, verify that rack cabinet leveling feet are up before moving the rack cabinet.

Apply Labels to Server Nodes

Complete this task to apply server node labels before installing the appliance into a rack.

1. Find the labels.
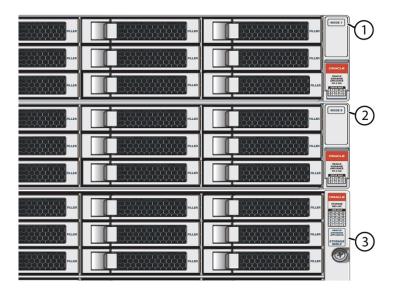
   The shipping kit includes server node labels. The storage shelf labels are applied at the factory.

2. Verify that the locations where the labels need to go are clean, and free of grease and dirt.

3. Apply the labels where needed:

   For labels that you attach, peel off the backing sheet and apply the label to the corresponding spot on the right-hand side of the appliance front panel.

   • Server Node 1: Apply this label to the top server node [1].

   • Server Node 0: Apply this label to the lower server node [2].

   The following figure shows the locations where labels should be applied:

Callout	Description
1	Server node 1
2	Server node 0

Callout	Description
3	Storage shelf

Install the Storage Shelf Into a Rack

Describes how to install an Oracle Database Appliance X9-2-HA storage shelf into a rack.

The Oracle Database Appliance X9-2-HA uses the Oracle Storage Drive Enclosure DE3-24C as its storage shelf. The storage shelf requires four standard mounting units (4RU) of vertical space in the cabinet.

- Ensure that your site meets the requirements in <u>Oracle Database Appliance Specifications</u>

- Ensure that the rack meets the requirements in <u>Rack Compatibility Requirements</u>

> ⓘ **Note**
>
> The rail kit included with the shelf can only be used with EIA compliant 9.5 mm square hole racks or 7.0 mm diameter round hole racks.

- Observe all precautions in <u>Safety Precautions When Rackmounting</u>

1. Starting at the bottom of the cabinet, locate the appropriate rack unit (RU) height.

   Storage shelves must be installed below the server nodes to prevent the rack from tipping.

2. Open the storage shelf rail kit box and find the cage nut packets included with the kit, and confirm if your rack uses square or round holes.

   The cage nut packets include a special template for either round or square hole racks for positioning the cage nuts.
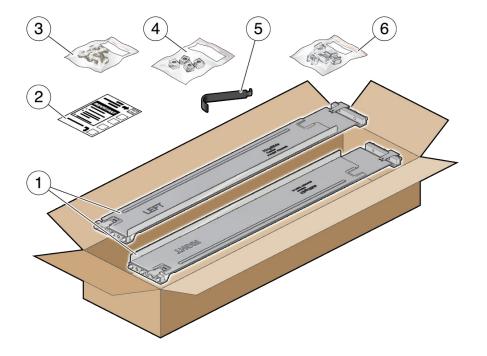
> ⓘ **Note**
>
> The following steps show rail kit installation with a square hole rack. The same steps would apply for a round hole rack.

The following figure shows the rack rail installation kit contents:

Callout	Description
1	Two adjustable storage shelf rails
2	Cage nut installation template
3	Six rear 10-32 7mm shipping screws (2 are spares)
4	Four round 7mm 10-32 cage nuts per set (2 are spares). Only one set is required, either square or round.
5	Cage nut tool
6	Four square 9.5mm 10-32 cage nuts per set (2 are spares). Only one set is required, either square or round.

3. Attach the storage shelf rails to the rack, as follows:

   a. Orient the rail so that the stamped label (LEFT or RIGHT) is facing the inside of the rack.

   b. Adjust the rail length to fit the front and rear of the rack.
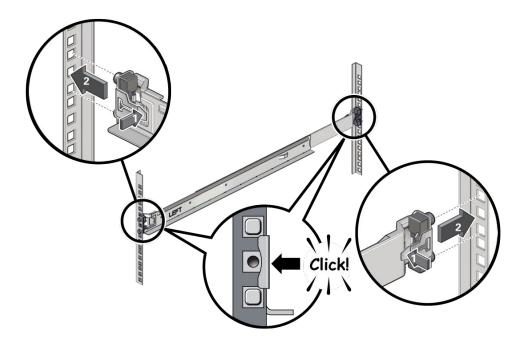
   > ⓘ **Note**
   >
   > Mark which rack rail holes you will be using to ensure the storage shelf rails are installed evenly and correctly the first time.

   c. Hold open the rail clamp at each end of the rail by pressing the clamp lever [1] and insert both ends of the rail into the appropriate rack holes [2].
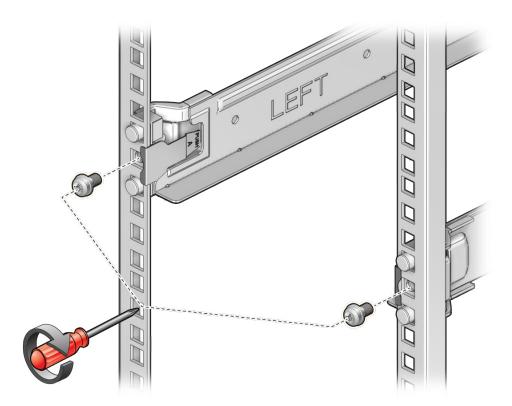
   The following figure shows how to fit the storage shelf rails to the rack:

d. Close the rail clamps over the rails by releasing the clamp lever.

You will hear an audible click as the clamps lock in place over the rack rails.

e. Repeat steps 3a through 3d for the second rail.

4. Install one screw through the rack and into the rear of each rail.

The following figure shows how to secure the storage shelf rails to the rack:
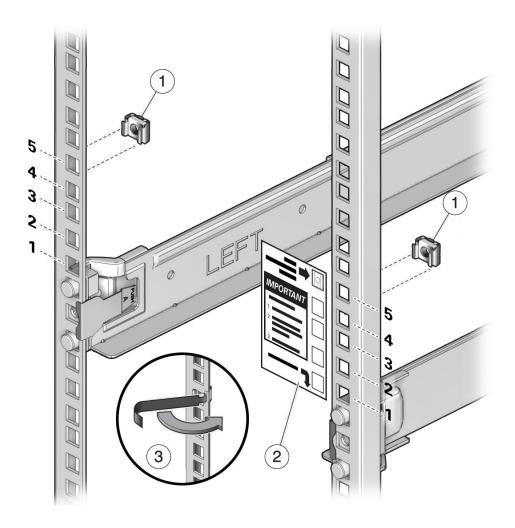
5. Install the front cage nuts.

> ⚠ **Caution**
>
> Installing the storage shelf without the front cage nuts will cause the storage shelf to be unstable. You would then need to remove the storage shelf from the rack to install the cage nuts.

The following figure shows how to install the front cage nuts in the rack:
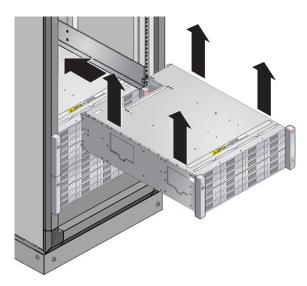
Callout	Description
1	Cage nuts
2	Cage nut installation template
3	Cage nut tool

a. Use the template [2] to determine cage nut placement.

b. Retrieve a cage nut and hook one lip of the nut into the appropriate rail hole [1].

c. Insert the tip of the cage nut insertion tool through the rail hole [3] and hook the other lip of the cage nut. Pull the cage nut through the hole until the lip snaps into place.

d. Repeat through steps 5a through 5c for the second cage nut.
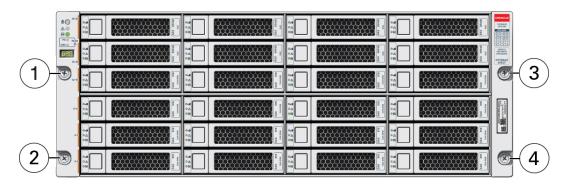
6. Using a mechanical lift or three people, one at each side of the storage shelf and one in front, carefully lift and rest the shelf on the bottom ledge of the left and right rails. Do not lift using the power supply handles.

   The following figure shows how to install the storage shelf into the rack:

7. Carefully slide the shelf into the cabinet. Ensure that the shelf is fully seated within the rails. If removing the shelf to reseat it, support it at all times.

8. Secure the front of the shelf using the four captive securing screws [1 - 4].
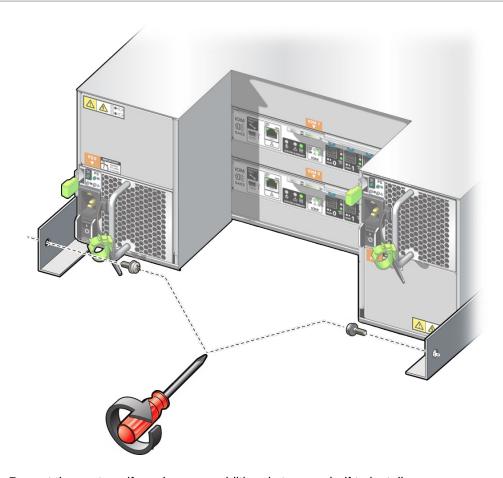
   The following figure shows how to secure the front of the storage shelf:

9. To secure the storage shelf in the rack for shipping, install a screw in each rear storage shelf chassis ear.

   The following figure shows how to secure the storage shelf rear shipping ears:

10. Repeat these steps if you have an additional storage shelf to install.

Add a Storage Expansion Shelf to an Existing System

Use this procedure to add a storage expansion shelf to an appliance system that is already running.

This task assumes that you are adding a storage expansion shelf to an already running Oracle Database Appliance (must already have a fully populated storage shelf).

Unless noted, it is not necessary to shut down your system to complete this task.

Please note the following exceptional conditions:

- The storage expansion shelf normally sits at the bottom of Oracle Database Appliance, beneath the storage shelf. However, since racks should always be provisioned from the bottom up, that space might be unavailable. In these cases, to avoid re-rackmounting the entire system, it can be placed above the server nodes, or even in a different rack.

- The Top Level Identifier (TLI) on the storage expansion shelf will not match the rest of the system as described in Verify Component Compatibility. However, adding a storage expansion shelf after your initial purchase and setup of the appliance is a supported configuration.

1. Install the storage expansion shelf as described in Install the Storage Shelf Into a Rack.

2. Cable, power-on, and verify that the new storage is added.

   Refer to the appropriate *Deployment and User's Guide* for additional information.

Install the Server Nodes Into a Rack

Describes installing Oracle Database Appliance X9-2-HA server nodes into a rack.

> ⓘ **Note**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X9-2 documentation library. Use your browser's Back button to return to the Oracle Database Appliance library.

- [Verify Rackmount Hardware](#)
- [Install Mounting Brackets](#)
- [Mark the Rackmount Location](#)
- [Connect AC Power Cables and Slide-Rails](#)
- [Attach the Tool-less Slide-Rail Assemblies](#)
- [Install the Server into the Slide-Rail Assemblies](#)
- [Install the Cable Management Arm and Verify Operation](#)

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