Oracle® Database Appliance

X8-2 and Earlier Owner's Guide

F92328-01
March 2024

Oracle Database Appliance X8-2 and Earlier Owner's Guide,

F92328-01

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Preface

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

- Audience
- Documentation Accessibility
- Related Documents
- 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.

1

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

2

Overview of Oracle Database Appliance

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

- Supported Components and Capabilities
  See a listing of supported components and capabilities for various Oracle Database Appliance models.
- Oracle Database Appliance X8-2S/X8-2M Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X8-2S/X8-2M.
- Oracle Database Appliance X8-2-HA Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X8-2-HA.
- Oracle Database Appliance X7-2S/X7-2M Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X7-2S/X7-2M.
- Oracle Database Appliance X7-2-HA Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X7-2-HA.
- Oracle Database Appliance X6-2S/X6-2M/X6-2L Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X6-2S/X6-2M and X6-2L.
- Oracle Database Appliance X6-2-HA Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X6-2-HA.
- Oracle Database Appliance X5-2 Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X5-2.
- Oracle Database Appliance X3-2/X4-2 Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance X3-2/X4-2.
- Oracle Database Appliance Version 1 Front and Back Panels
  See views and descriptions of front and back panel features for Oracle Database Appliance Version 1.
- 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.

Supported Components and Capabilities

See a listing of supported components and capabilities for various Oracle Database Appliance models.

- Oracle Database Appliance X8-2 Series Components and Capabilities
  See a listing of the various supported capabilities for the Oracle Database Appliance X8-2 series.
- Oracle Database Appliance X7-2 Series Components and Capabilities
  See a listing of the various supported capabilities for the Oracle Database Appliance X7-2 series.
- Oracle Database Appliance X6-2 Series Components and Capabilities
  See a listing of the various supported capabilities for the Oracle Database Appliance X6-2 series.
- Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2 Components and Capabilities
  See a listing of the various supported capabilities for the Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2.

Oracle Database Appliance X8-2 Series Components and Capabilities

See a listing of the various supported capabilities for the Oracle Database Appliance X8-2 series.

The following table lists supported components and capabilities for the Oracle Database Appliance X8-2 series systems.

Component	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-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 2.3 GHz Intel Xeon 5218 processor.	Two 16-core 2.3 GHz Intel Xeon 5218 processors.	Two 16-core 2.3 GHz Intel Xeon 5218 processors per server node.
Memory	192 GB – six 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec. Optional memory expansion to 384 GB. See Optional Component Installation.	384 GB – twelve 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec. Optional memory expansion to 768 GB. See Optional Component Installation.	384 GB – twelve 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec per server node. Optional memory expansion to 768 GB per server. Both server nodes must have the same amount of memory. See Optional Component Installation.

Component	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-HA
Storage devices	The server includes: • Two internal 480 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.4 TB NVMe SSDs in front slots 0 and 4 No additional storage options are supported.	The server includes: • Two internal 480 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.4 TB NVMe SSDs 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 480 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 14 TB SAS HDDs in slots 6-23 For a partially populated storage shelf, optional 7.68 TB SAS SSDs, or 14 TB SAS HDDs can be added. See Optional Component Installation.
USB 3.0 ports	Two total (one rear and one internal) per server.	Two total (one rear and one internal) per server.	Two total (one rear and one internal) per server node.

Component	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-HA
PCI Express (PCIe) I/O slots	Eleven external low-profile PCIe Gen-3 slots. In the base configuration: PCIe slot 7 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter PCIe slot 9 contains an NVMe switch card. Additional option card configurations can be ordered. See Optional Component Installation.	Eleven external low-profile PCIe Gen-3 slots. In the base configuration: PCIe slot 7 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter PCIe slots 3, 4, 8 and 9 contain an NVMe switch card. Additional option card configurations can be ordered. See Optional Component Installation.	Eleven external low-profile PCIe Gen-3 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 7 contains one of the following: • Dual Port (SFP28) 25 Gb Ethernet Adapter • Quad Port (RJ-45) 10Gbase-T Adapter PCIe slots 3 and 8 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 X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-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).
Power supplies	Two hot-pluggable power supplies.	Two hot-pluggable power supplies.	Two hot-pluggable power supplies per server node and per storage shelf.
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). Each power supply has its own 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). Each power supply has its own cooling fans.	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 (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) 4.0.	Oracle Integrated Lights Out Manager (ILOM) 4.0.	Oracle Integrated Lights Out Manager (ILOM) 4.0.

Oracle Database Appliance X7-2 Series Components and Capabilities

See a listing of the various supported capabilities for the Oracle Database Appliance X7-2 series.

The following table lists supported components and capabilities for the Oracle Database Appliance X7-2 series systems.

Component	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
Server node	Single 1RU server.	Single 1RU server.	Two 1RU 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 10-core 2.2 GHz Intel Xeon 4114 processor.	Two 18-core 2.3 GHz Intel Xeon 6140 processors.	Two 18-core 2.3 GHz Intel Xeon 6140 processors per server node.
Memory	192 GB – six 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec. Optional memory expansion to 384 GB. See Optional Component Installation.	384 GB – twelve 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec. Optional memory expansion to 768 GB. See Optional Component Installation.	384 GB – twelve 32 GB low-voltage DDR4 RDIMMs rated at 2667 MT/sec per server node. Optional memory expansion to 768 GB per server. Both server nodes must have the same amount of memory. See Optional Component Installation.

Component	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
Storage devices	The server includes: • Two internal 480 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.4 TB NVMe SSDs in slots HDD 0-1	The server includes: • Two internal 480 GB M.2 SATA SSDs reserved for operating system storage and system booting • Two 2.5-inch 6.4 TB NVMe SSDs in slots HDD 0-1 Up to six optional NVMe SSDs can be added. See Optional Component Installation.	Each server node includes: • Two internal 480 GB M.2 SATA SSDs reserved for operating system storage and system booting The 4RU storage shelf includes: • Four 2.5-inch 800 GB high endurance SAS SSDs (in 3.5-inch mounting brackets) in slots 20-23 • Plus one of the following available configurations: – Five 2.5-inch 3.2 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 0-4 and filler panels in slots 5-19 – Twenty 2.5-inch 3.2 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 0-19 – Five 2.5-inch 3.2 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 15-19 and fifteen 3.5-inch 10 TB SAS HDDs in slots 0-14 For a partially populated storage shelf, optional SAS SSDs, or HDDs can be added. See Optional Component Installation.
USB 2.0 ports	Two total (one rear and one internal) per server.	Two total (one rear and one internal) per server.	Two total (one rear and one internal) per server node.

Component	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
PCI Express (PCIe) I/O slots	Three external and one internal low-profile PCIe Gen-3 slots. These are shipped empty.	Three external and one internal low-profile PCIe Gen-3 slots. These are shipped empty.	Three external and one internal low-profile PCIe Gen-3 slots for each server node. They contain: • PCIe slot 1: Dual 25 GbE SFP28 PCIe 2.0 Low Profile Adapter • PCIe slot 2: Dual-port External 12Gb/s SAS3 host bus adapter • PCIe slot 3: Dual-port External 12Gb/s SAS3 host bus adapter
Cluster device	N/A	N/A	One integrated cluster device with node-to-node interconnection is provided on each server node through two 10/25GbE 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. Two 10/25GbE SFP28 ports, or two 10 GbE RJ-45 ports located on the back of each server. The system can be configured to use either the SFP28 or RJ-45 ports, but not both.	One 10/100/1000Base-T network interface port with RJ-45 connector on each server rear panel. Two 10/25GbE SFP28 ports, or two 10 GbE RJ-45 ports located on the back of each server. The system can be configured to use either the SFP28 or RJ-45 ports, but not both.	One 10/100/1000Base-T network interface port with RJ-45 connector on each server node rear panel. Two 10/25GbE SFP28 ports, or two 10 GbE RJ-45 ports located on the back of each server node. The system can be configured to use either the SFP28 or RJ-45 ports, but not both.
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 X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-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).
Power supplies	Two hot-pluggable power supplies.	Two hot-pluggable power supplies.	Two hot-pluggable power supplies per server node and per storage shelf.
Cooling fans	Four 40-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total). Each power supply has its own cooling fans.	Four 40-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total). Each power supply has its own cooling fans.	Four 40-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 (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) 4.0.	Oracle Integrated Lights Out Manager (ILOM) 4.0.	Oracle Integrated Lights Out Manager (ILOM) 4.0.

Oracle Database Appliance X6-2 Series Components and Capabilities

See a listing of the various supported capabilities for the Oracle Database Appliance X6-2 series.

The following table lists supported components and capabilities for the Oracle Database Appliance X6-2 series systems.

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Server node	Single 1RU server.	Single 1RU server.	Single 2RU server.	Two 1RU 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 10-core 2.2 GHz Intel Xeon E5-2630 V4 processor.	Two 10-core 2.2 GHz Intel Xeon E5-2630 V4 processors.	Two 10-core 2.2 GHz Intel Xeon E5-2630 V4 processors.	Two 10-core 2.2 GHz Intel Xeon E5-2630 V4 processors per server node.
Memory	128 GB – four 32 GB low-voltage DDR4 RDIMMs rated at 2400 MT/s (2133 MT/s actual maximum). Optional memory expansion to 384 GB. See Optional Component Installation.	256 GB – eight 32 GB low-voltage DDR4 RDIMMs rated at 2400 MT/s (2133 MT/s actual maximum). Optional memory expansion to 512 GB or 768 GB. See Optional Component Installation.	256 GB – eight 32 GB low-voltage DDR4 RDIMMs rated at 2400 MT/s (2133 MT/s actual maximum). Optional memory expansion to 512 GB or 768 GB. See Optional Component Installation.	256 GB – eight 32 GB low-voltage DDR4 RDIMMs rated at 2400 MT/s per server node (2133 MT/s actual maximum). Optional memory expansion to 512 GB or 768 GB. Both server nodes must have the same amount of memory. See Optional Component Installation.

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Storage devices	The server includes: • Two 2.5-inch 480 GB SATA SSDs in slots HDD 0-1 reserved for operating system storage and system booting • Two 2.5-inch 3.2 TB NVMe SSDs in slots NVMe 0-1 Two optional NVMe SSDs can be added. See Optional Component Installation.	The server includes: • Two 2.5-inch 480 GB SATA SSDs in slots HDD 0-1 reserved for operating system storage and system booting • Two 2.5-inch 3.2 TB NVMe SSDs in slots NVMe 0-1 Two optional NVMe SSDs can be added. See Optional Component Installation.	The server includes: • Six 2.5-inch 3.2 TB NVMe SSDs in front slots 0, 1, 3, 4, 6, 7 Three optional NVMe SSDs can be added. See Optional Component Installation. • Two 2.5-inch 480 GB SATA SSDs in rear slots 0-1 reserved for operating system storage and system booting	Each server node includes: • Two 2.5-inch 480 GB SATA SSDs in slots 0-1 reserved for operating system storage and system booting The 4RU storage shelf and the optional storage expansion shelf each include: • Ten 2.5-inch 1.6 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 0-9 • Base storage shelf configuration: Filler panels in slots 10-19 (optional SAS SSDs can be added to these slots, see Optional Component Installation) Full storage shelf or standard storage expansion shelf configuration: Ten 2.5-inch 1.6 TB SAS SSDs (in 3.5-inch mounting brackets) in slots 10-19 • Four 2.5-inch 200 GB high endurance SAS SSDs (in 3.5-inch mounting brackets) in slots 20-23
USB 2.0 ports	Six total (two front, two rear and two internal) per server.	Six total (two front, two rear and two internal) per server.	Six total (two front, two rear and two internal) per server.	Six total (two front, two rear and two internal) per server node.

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
PCI Express (PCIe) I/O slots	Three external and one internal low-profile PCIe Gen-3 slots. They contain: • PCIe slot 2: NVMe Switch PCIe Card • PCIe slot 3: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slot 4: Dual-port Internal 12Gb/s SAS3 host bus adapter	Three external and one internal low-profile PCIe Gen-3 slots. They contain: • PCIe slot 2: NVMe Switch PCIe Card • PCIe slot 3: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slot 4: Dual-port Internal 12Gb/s SAS3 host bus adapter	Six external internal low-profile PCIe Gen-3 slots. They contain: • PCIe slot 1: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slots 2, 5, 6: NVMe Switch PCIe Card • PCIe slot 3: Dual-port Internal 12Gb/s SAS3 host bus adapter	Three external and one internal low-profile PCIe Gen-3 slots for each server node. They contain: • PCIe slot 1: Dual Port QDR InfiniBand M3 PCIe 3.0 Low Profile Adapter *--or--* PCIe slot 1: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slot 2: Dual-port External 12Gb/s SAS3 host bus adapter • PCIe slot 3: Dual-port External 12Gb/s SAS3 host bus adapter • PCIe slot 4: Dual-port Internal 12Gb/s SAS3 host bus adapter

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Cluster device	N/A	N/A	N/A	One integrated cluster device with node-to-node interconnection is provided on each server node through two InfiniBand ports with QSFP+ connections. Alternatively, you have the option of creating the node-to-node interconnection using two of each server node's four 10 GbE network interface ports with RJ-45 connections. This alternative configuration is used when the Oracle Database Appliance X6-2-HA is ordered with a Dual 10GbE SFP+ PCIe 2.0 Low Profile Adapter instead of the standard InfiniBand adapter when an Ethernet fiber connection to the data center or public network is required.
SAS ports	Two internal SAS3 ports.	Two internal SAS3 ports.	Two internal SAS3 ports (only one used for rear drives).	Two internal SAS3 and 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).

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Onboard Ethernet ports	Two functional auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of the server. Ethernet ports NET 2 and NET 3 are nonfunctional in single-processor systems.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of the server.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of the server.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of each server node.
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 rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on each server rear panel.	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on each server 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 rear panel.	One RS-232 RJ-45 serial port on each server node rear panel.
VGA port	One high-density HD-15 video port on each server rear panel.	One high-density HD-15 video port on each server rear panel.	One high-density HD-15 video port on each server rear panel.	One high-density HD-15 video port on each server node rear panel.

Component	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-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).	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).
Power supplies	Two hot-pluggable power supplies.	Two hot-pluggable power supplies.	Two hot-pluggable power supplies.	Two hot-pluggable power supplies per server node and per storage shelf.
Cooling fans	Four 40-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total). Each power supply has its own cooling fans.	Four 40-mm, hot-pluggable fan modules per server for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total). Each power supply has its own 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). Each power supply has its own cooling fans.	Four 40-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 (server node and storage shelf) has its own cooling fans.
Operating system	Oracle Linux.	Oracle Linux.	Oracle Linux.	Oracle Linux.
Management software	Oracle Integrated Lights Out Manager (ILOM) 3.2.	Oracle Integrated Lights Out Manager (ILOM) 3.2.	Oracle Integrated Lights Out Manager (ILOM) 3.2.	Oracle Integrated Lights Out Manager (ILOM) 3.2.

Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2 Components and Capabilities

See a listing of the various supported capabilities for the Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2.

The following table lists supported components and capabilities for the Oracle Database Appliance Version 1, Oracle Database Appliance X3-2, Oracle Database Appliance X4-2 and Oracle Database Appliance X5-2.

Component	Oracle Database Appliance (Version 1)	Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
Server node	Two server nodes per chassis. Each server node operates independently from the other server node. The lower server is node 0. The upper server is node 1.	Two server nodes. Each server node operates independently from the other server node. The lower server is node 0. The upper server is node 1.	Two server nodes. Each server node operates independently from the other server node. The lower server is node 0. The upper server is node 1.	Two 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	Two 6-core 3.06 GHz Intel Xeon X5675 processors per server node.	Two 8-core 2.9 GHz Intel Xeon E5-2690 processors per server node.	Two 12-core 2.7 GHz Intel Xeon E5-2697 v2 processors per server node.	Two 18-core 2.3 GHz Intel Xeon E5-2699 v3 processors per server node.
Memory	96 GB – six 8 GB low-voltage DDR3 RDIMMs (single or dual rank) at 1333 MT/s per server node. Quad-rank DIMMs are not supported.	256 GB – sixteen 16 GB low-voltage DDR3 RDIMMs at 1600 MT/s per server node.	256 GB – sixteen 16 GB low-voltage DDR3 RDIMMs at 1600 MT/s per server node.	256 GB – eight 32 GB low-voltage DDR4 LRDIMMs at 2133 MT/s per server node. Optional memory expansion to 512 GB or 768 GB. See Optional Component Installation.

Component	Oracle Database Appliance (Version 1)	Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
Storage devices	Each server node includes: • Twenty 3.5-inch SAS 600-GB HDDs in slots 0-19 • Four 3.5-inch SAS 73-GB SSDs in slots 20-23 • Two rear accessed, 2.5-inch SATA 500 GB HDDs reserved for operating system storage and system booting • One internal 4 GB USB thumb drive	Each server node includes: • Two 2.5-inch 600 GB SAS2 HDDs reserved for operating system storage and system booting The storage shelf and the optional storage expansion shelf each include: • Twenty 2.5-inch 900 GB SAS2 HDDs in slots 0-19 • Four 2.5-inch 200 GB SAS SSDs in slots 20-23	Each server node includes: • Two 2.5-inch 600 GB SAS2 HDDs reserved for operating system storage and system booting • One internal 4 or 8 GB USB thumb drive (reserved for future use) The storage shelf and the optional storage expansion shelf each include: • Twenty 2.5-inch 900 GB SAS2 HDDs in slots 0-19 • Four 2.5 inch 200 GB SAS SSDs in slots 20-23	Each server node includes: • Two 2.5-inch 600 GB SAS2 HDDs reserved for operating system storage and system booting • One internal 8 GB USB thumb drive (reserved for future use) The storage shelf and the optional storage expansion shelf each include: • Sixteen 3.5-inch 4 TB or 8 TB SAS2 HDDs in slots 0-15 • Four 2.5-inch 400 GB medium endurance SAS SSDs in slots 16-19 • Four 2.5-inch 200 GB high endurance SAS SSDs in slots 20-23
USB 2.0 ports	Two rear and one internal for each server node.	Six total (two front, two rear and two internal) per server node.	Six total (two front, two rear and two internal) per server node.	Six total (two front, two rear and two internal) per server node.

Component	Oracle Database Appliance (Version 1)	Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
PCI Express (PCIe) I/O slots	Three external low-profile PCIe Gen-2 slots (x8) for each server node. They contain: • PCIe slot 0: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slot 1: Quad-port 1 GbE (Gigabit Ethernet) Network Adapter with RJ-45 connectors • PCIe slot 2: Dual-port External 6Gb/s SAS2 host bus adapter One internal low-profile PCIe Gen-2 slot (x8) with a Dual-port Internal 6Gb/s SAS2 host bus adapter	Three external and one internal low-profile PCIe Gen-3 slots for each server node. They contain: • PCIe slot 1: Dual-port 10 GbE Network Adapter with RJ-45 connectors • PCIe slot 2: Dual-port External 6Gb/s SAS2 host bus adapter • PCIe slot 3: Dual-port External 6Gb/s SAS2 host bus adapter • PCIe Slot 4: Dual-port Internal 6Gb/s SAS2 host bus adapter	Three external and one internal low-profile PCIe Gen-3 slots for each server node. They contain: • PCIe slot 1: Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter • PCIe slot 2: Dual-port External 6Gb/s SAS2 host bus adapter • PCIe slot 3: Dual-port External 6Gb/s SAS2 host bus adapter • PCIe slot 4: Dual-port Internal 6Gb/s SAS2 host bus adapter	Three external and one internal low-profile PCIe Gen-3 slots for each server node. They contain: • PCIe slot 1: Dual Port QDR InfiniBand M3 PCIe 3.0 Low Profile Adapter • PCIe slot 2: Dual-port External 12Gb/s SAS3 host bus adapter • PCIe slot 3: Dual-port External 12Gb/s SAS3 host bus adapter • PCIe slot 4: Dual-port Internal 12Gb/s SAS3 host bus adapter
Cluster device	One integrated cluster device with node-to-node connections is provided on each server node. Each integrated cluster device provides two internal 1 GbE network interface ports and two internal dual-port UART ports.	One integrated cluster device with node-to-node interconnection is provided on each server node through two 10 GbE network interface ports with RJ-45 connections.	One integrated cluster device with node-to-node interconnection is provided on each server node through two 10 GbE network interface ports with dual-rate SFP+ connections. Alternatively, you have the option of creating the node-to-node interconnection using two of each server node's four 10 GbE network interface ports with RJ-45 connections. Refer to the *Oracle Database Appliance Deployment and User's Guide* for more information.	One integrated cluster device with node-to-node interconnection is provided on each server node through two InfiniBand ports with QSFP+ connections. Alternatively, you have the option of creating the node-to-node interconnection using two of each server node's four 10 GbE network interface ports with RJ-45 connections. Refer to the *Oracle Database Appliance Deployment and User's Guide* for more information.

Component	Oracle Database Appliance (Version 1)	Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
SAS ports	N/A	Two internal SAS2 and four external SAS2 ports on each server node. Six SAS2 ports on the storage shelf (four used). Six SAS2 ports on the storage expansion shelf (four used).	Two internal SAS2 and four external SAS2 ports on each server node. Six SAS2 ports on the storage shelf (four used). Six SAS2 ports on the storage expansion shelf (four used).	Two internal SAS3 and four external SAS3 ports on each server node. Six SAS2 ports on the storage shelf (four used). Six SAS2 ports on the storage expansion shelf (four used).
Onboard Ethernet ports	Two 1 GbE network interface ports with RJ-45 connectors located on the back panel of each server node.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of each server node.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of each server node.	Four auto-sensing 100/1000/10000 Base-T Ethernet ports with RJ-45 connectors located on the back of each server node. Optionally, you can purchase the Sun Dual 10GbE SFP+ PCIe 2.0 Low Profile Adapter as a replacement for the standard InfiniBand adapter if an Ethernet fiber connection to the data center or public network is required. See Optional Component Installation.
Network management (NET MGT) port	One 10/100Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on the back panel of each server node.	One 10/100Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on the back panel of each server node.	One 10/100Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on the back panel of each server node.	One 10/100/1000Base-T network interface port with RJ-45 connector dedicated to the service processor (SP) on the back panel of each server node.
Serial management (SER MGT) port	One RS-232 RJ-45 serial port on the back panel of each server node.	One RS-232 RJ-45 serial port on the back panel of each server node.	One RS-232 RJ-45 serial port on the back panel of each server node.	One RS-232 RJ-45 serial port on the back panel of each server node.
VGA port	One high-density HD-15 video port on the back panel of each server node.	One high-density HD-15 video port on the back panel of each server node.	One high-density HD-15 video port on the back panel of each server node.	One high-density HD-15 video port on the back panel of each server node.

Component	Oracle Database Appliance (Version 1)	Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
Service Processor (SP)	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 10/100Base-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 10/100Base-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 10/100Base-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).
Power supplies	Two hot-pluggable power supplies per chassis.	Two hot-pluggable power supplies per server node and per storage shelf.	Two hot-pluggable power supplies per server node and per storage shelf.	Two hot-pluggable power supplies per server node and per storage shelf.
Cooling fans	Two redundant hot-pluggable fan modules per server node.	Four 40-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 (server node and storage shelf) has its own cooling fans.	Four 40-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 (server node and storage shelf) has its own cooling fans.	Four 40-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 (server node and storage shelf) has its own cooling fans.
Operating system	Oracle Linux.	Oracle Linux.	Oracle Linux.	Oracle Linux.
Management software	Oracle Integrated Lights Out Manager (ILOM) 3.0.	Oracle Integrated Lights Out Manager (ILOM) 3.1.	Oracle Integrated Lights Out Manager (ILOM) 3.1.	Oracle Integrated Lights Out Manager (ILOM) 3.2.

Oracle Database Appliance X8-2S/X8-2M Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X8-2S/X8-2M.

This section describes Oracle Database Appliance X8-2S/X8-2M front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

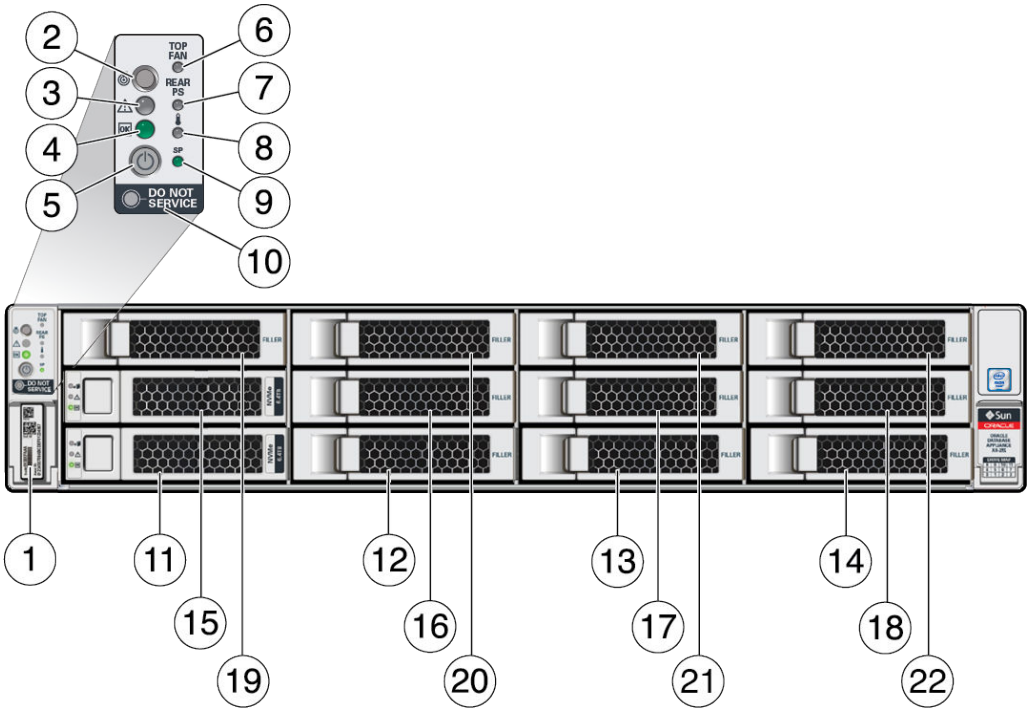
- Oracle Database Appliance X8-2S Front Panel
  See an illustration and description of Oracle Database Appliance X8-2S front panel features.
- Oracle Database Appliance X8-2M Front Panel
  See an illustration and description of Oracle Database Appliance X8-2M front panel features.
- Oracle Database Appliance X8-2S/X8-2M Back Panel
  See an illustration and description of Oracle Database Appliance X8-2S/X8-2M back panel features.

Oracle Database Appliance X8-2S Front Panel

See an illustration and description of Oracle Database Appliance X8-2S front panel features.

Oracle Database Appliance X8-2S server occupies 2RU of rack space.

The following figure shows the components on the front panel of an **Oracle Database Appliance X8-2S**.



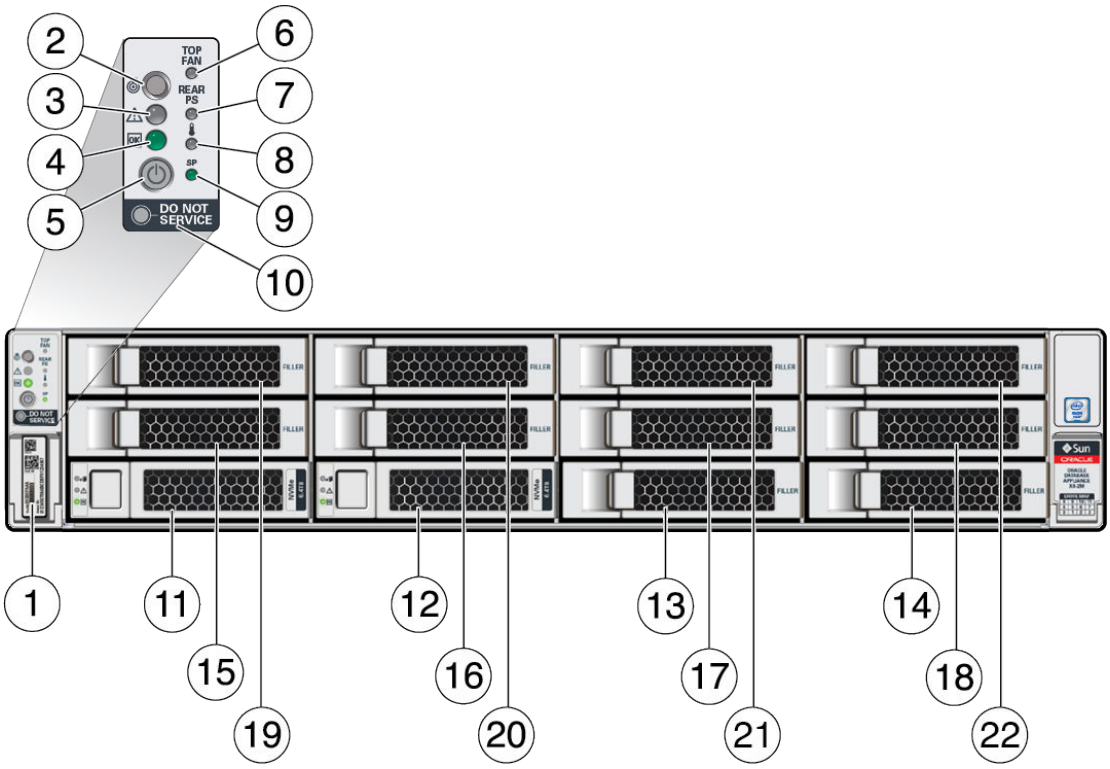
Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Service Required LED: amber
4	Power/OK LED: green
5	Power button
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
8	System Over Temperature Warning LED: amber
9	SP OK LED: green
10	DO NOT SERVICE
11 - 22	Front mounted drive slots: • NVMe0 in drive slot 0 (callout 11) • NVMe1 in slot 4 (callout 15) • Filler panels in slots 1 - 3 and 5 - 11 (callouts 12 - 14 and 16 - 22)

Oracle Database Appliance X8-2M Front Panel

See an illustration and description of Oracle Database Appliance X8-2M front panel features.

Oracle Database Appliance X8-2M server occupies 2RU of rack space.

The following figure shows the components on the front panel of an **Oracle Database Appliance X8-2M**.

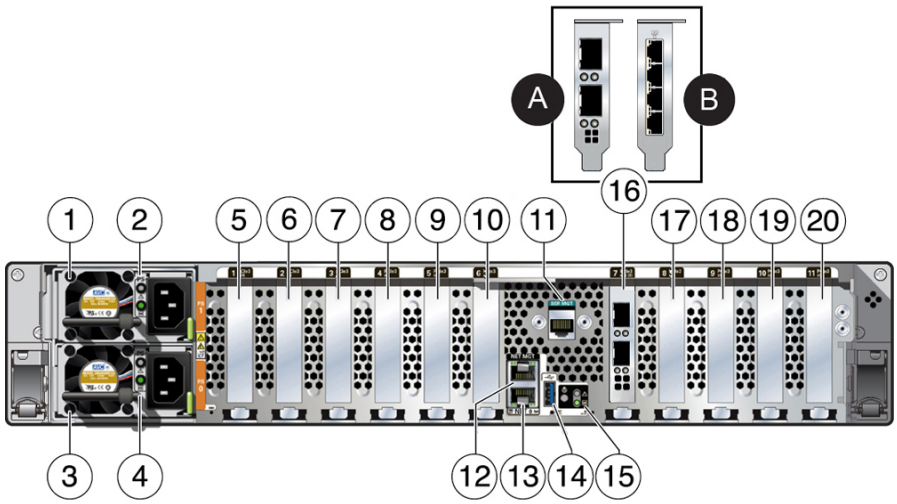


Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Service Required LED: amber
4	Power/OK LED: green
5	Power button
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
8	System Over Temperature Warning LED: amber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

Oracle Database Appliance X8-2S/X8-2M Back Panel

See an illustration and description of Oracle Database Appliance X8-2S/X8-2M back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X8-2S/X8-2M**.



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: • Oracle Database Appliance X8-2S: filler panel • Oracle Database Appliance X8-2M: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
7	PCIe card slot 3: • Oracle Database Appliance X8-2S: filler panel • Oracle Database Appliance X8-2M: Oracle NVMe Switch PCIe card
8	PCIe card slot 4: • Oracle Database Appliance X8-2S: filler panel • Oracle Database Appliance X8-2M: Oracle NVMe Switch PCIe card

Callout	Description
9	PCIe card slot 5: filler panel
10	PCIe card slot 6: filler panel
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 7: public network interface card • Oracle Dual Port 25Gb Ethernet Adapter [16a] *--or--* • Oracle Quad Port 10GBase-T Adapter [16b]
17	PCIe card slot 8: • Oracle Database Appliance X8-2S: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter • Oracle Database Appliance X8-2M: Oracle NVMe Switch PCIe card
18	PCIe card slot 9: Oracle NVMe Switch PCIe card
19	PCIe card slot 10: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
20	PCIe card slot 11: filler panel

Oracle Database Appliance X8-2-HA Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X8-2-HA.

This section describes Oracle Database Appliance X8-2-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 X8-2-HA Front Panel
  See an illustration and listing of Oracle Database Appliance X8-2-HA front panel features.
- Oracle Database Appliance X8-2-HA Back Panel
  See an illustration and listing of Oracle Database Appliance X8-2-HA back panel features.

Oracle Database Appliance X8-2-HA Front Panel

See an illustration and listing of Oracle Database Appliance X8-2-HA front panel features.

Oracle Database Appliance X8-2-HA includes two server nodes (two Oracle Server X8-2L'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 X8-2-HA** with an optional storage expansion shelf.

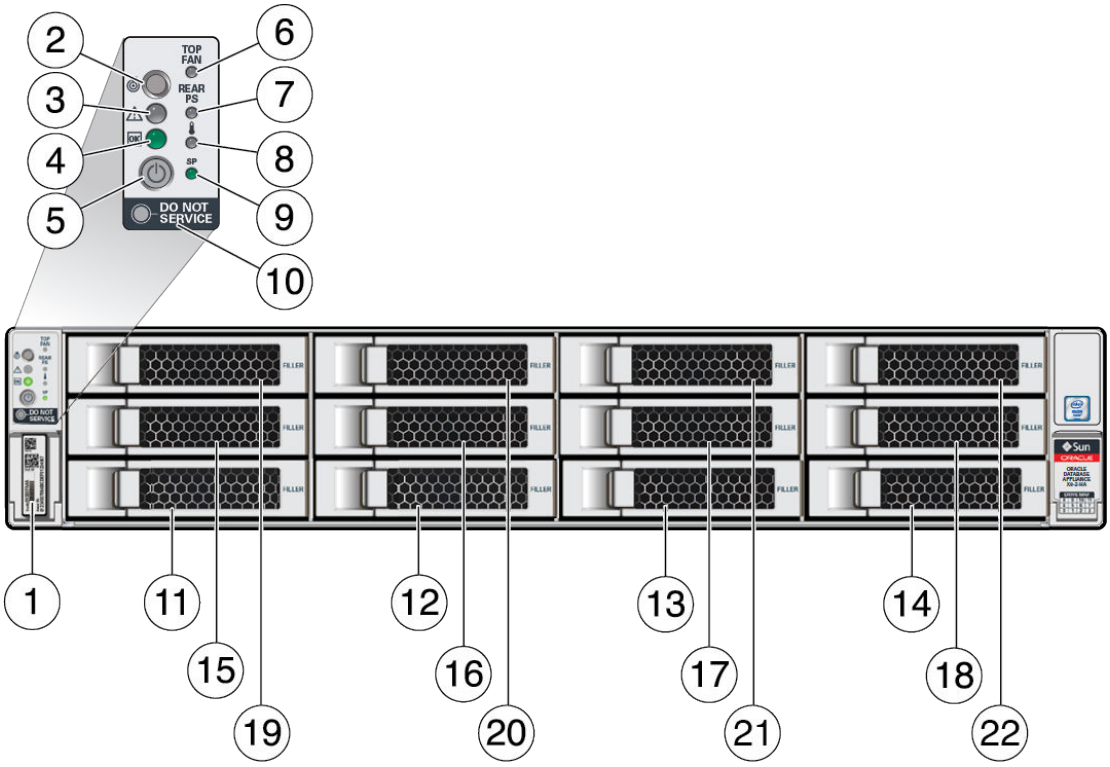
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Front Panel Features
  See an illustration and listing of Oracle Database Appliance X8-2-HA server node front panel features.
- Storage Shelf Front Panel Features
  See an illustration and listing of Oracle Database Appliance X8-2-HA storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X8-2-HA server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X8-2-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
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
8	System Over Temperature Warning LED: amber

Callout	Description
9	SP OK LED: green
10	DO NOT SERVICE
11 - 22	Front mounted drive slots 0 - 11 (filler panels)

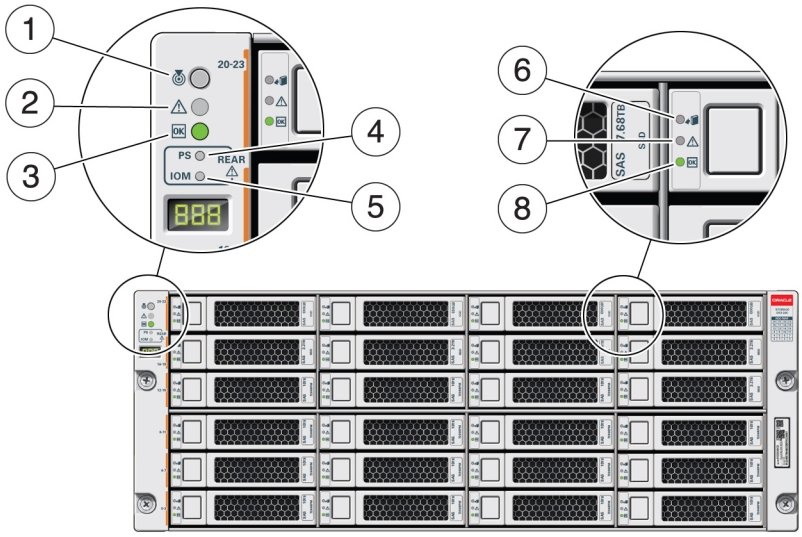
> **Note:**
>
> When contacting Oracle Support Services, use the Top Level Identifier (TLI) instead of the serial number. You can find the TLI by looking at the top of either server node or on the top of the storage shelf. For details, see Technical Support.

Storage Shelf Front Panel Features

See an illustration and listing of Oracle Database Appliance X8-2-HA storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X8-2-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.



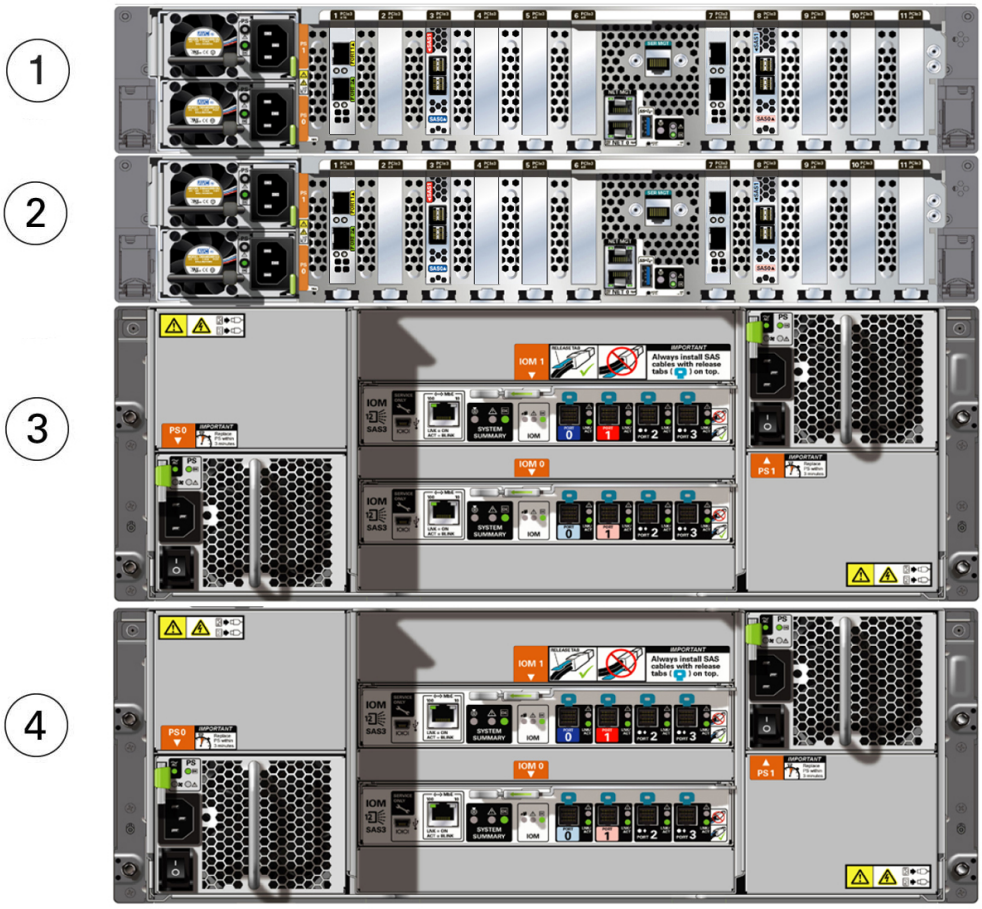
Callout	Description
1	Storage shelf Locate indicator
2	Storage shelf fault indicator
3	Storage shelf OK/power indicator
4	Storage shelf power supply fault indicator
5	Storage shelf IO module fault indicator
6	Drive Ready-to-Remove indicator
7	Drive fault indicator
8	Drive power/activity indicator

Oracle Database Appliance X8-2-HA Back Panel

See an illustration and listing of Oracle Database Appliance X8-2-HA back panel features.

This section describes the back panel features for Oracle Database Appliance X8-2-HA.

The following figure shows the **Oracle Database Appliance X8-2-HA**.



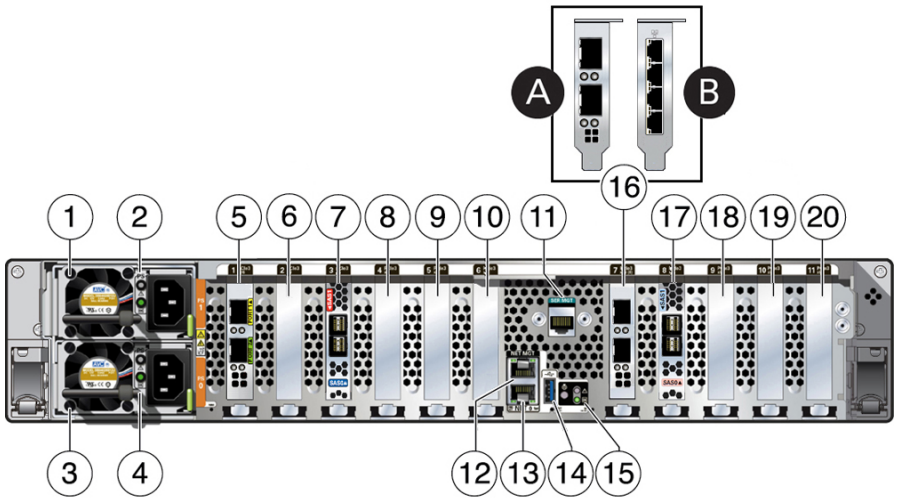
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Back Panel Features
  See an illustration and listing of Oracle Database Appliance X8-2-HA server node back panel features.
- Storage Shelf Back Panel Features
  See an illustration and listing of Oracle Database Appliance X8-2-HA storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X8-2-HA server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X8-2-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: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
7	PCIe card slot 3: provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf
8 - 10	PCIe card slots 4 - 6: filler panels
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

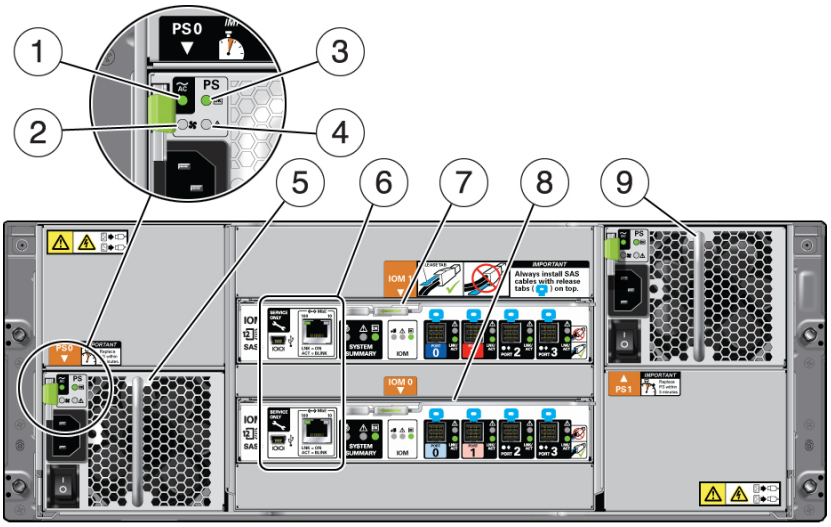
Callout	Description
16	PCIe card slot 7: public network interface card • Oracle Dual Port 25Gb Ethernet Adapter [16a] *--or--* • Oracle Quad Port 10GBase-T Adapter [16b]
17	PCIe card slot 8: provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf
18	PCIe card slot 9: filler panel
19	PCIe card slot 10: filler panel, **or** optional Oracle Dual Port 25Gb Ethernet Adapter, **or** optional Oracle Quad Port 10GBase-T Adapter
20	PCIe card slot 11: filler panel

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X8-2-HA storage shelf back panel features.

The following figure shows the **Oracle Database Appliance X8-2-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
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 X7-2S/X7-2M Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X7-2S/X7-2M.

This section describes Oracle Database Appliance X7-2S/X7-2M front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

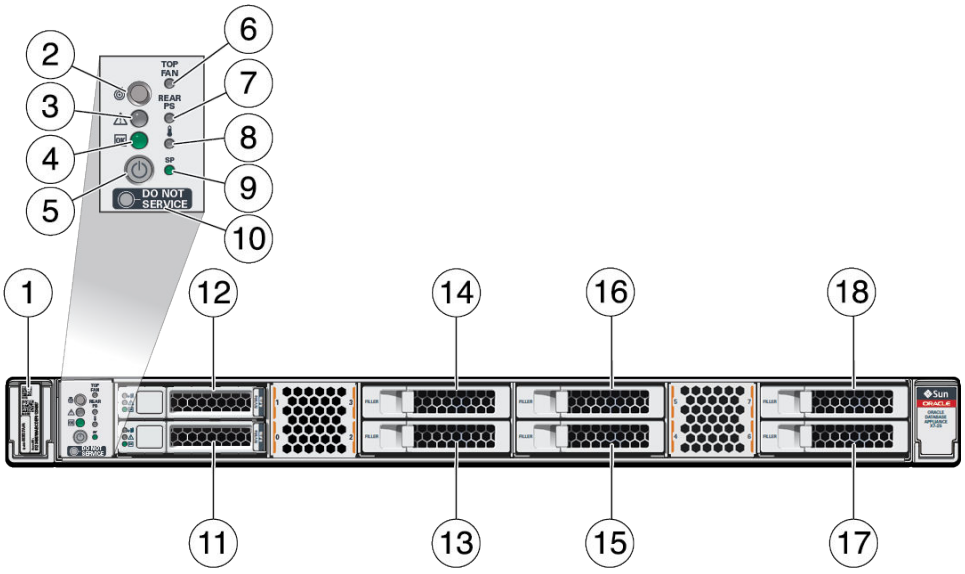
- Oracle Database Appliance X7-2S/X7-2M Front Panel
  See an illustration and description of Oracle Database Appliance X7-2S/X7-2M front panel features.
- Oracle Database Appliance X7-2S/X7-2M Back Panel
  See an illustration and description of Oracle Database Appliance X7-2S/X7-2M back panel features.

Oracle Database Appliance X7-2S/X7-2M Front Panel

See an illustration and description of Oracle Database Appliance X7-2S/X7-2M front panel features.

Oracle Database Appliance X7-2S and Oracle Database Appliance X7-2M servers each occupy 1RU.

The following figure shows the components on the front panel of an **Oracle Database Appliance X7-2S/X7-2M**.

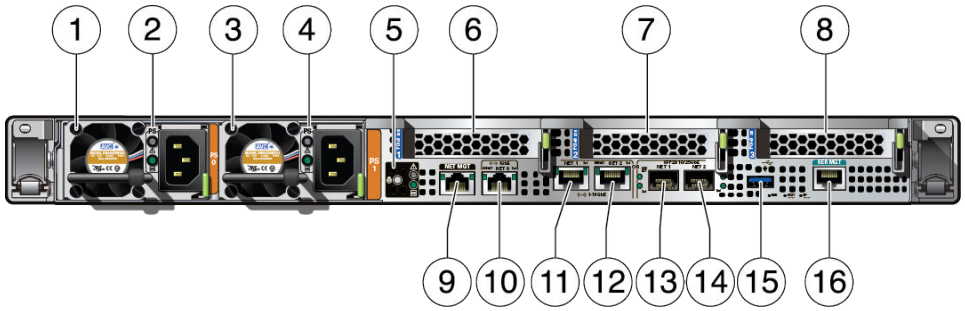


Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Service Required LED: amber
4	Power/OK LED: green
5	Power button
6	Fan Fault LED: amber
7	Power Supply (PS) Fault LED: amber
8	System Over Temperature Warning LED: amber
9	SP OK LED: green
10	DO NOT SERVICE
11 - 12	NVMe0, NVMe1
13 - 18	HDD filler

Oracle Database Appliance X7-2S/X7-2M Back Panel

See an illustration and description of Oracle Database Appliance X7-2S/X7-2M back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X7-2S/X7-2M**.



Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	PCIe card slot 1: empty
7	PCIe card slot 2: empty
8	PCIe card slot 3: empty PCIe card slot 4 (internal): empty.
9	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	1 GbE RJ-45 network interface port: NET 0
11	1/10 GbE RJ-45 network interface port: NET 1 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
12	1/10 GbE RJ-45 network interface port: NET 2 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
13	10/25 GbE SFP28 network interface port: NET 1 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
14	10/25 GbE SFP28 network interface port: NET 2 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
15	USB 2.0 connector
16	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM

Oracle Database Appliance X7-2-HA Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X7-2-HA.

This section describes Oracle Database Appliance X7-2-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.

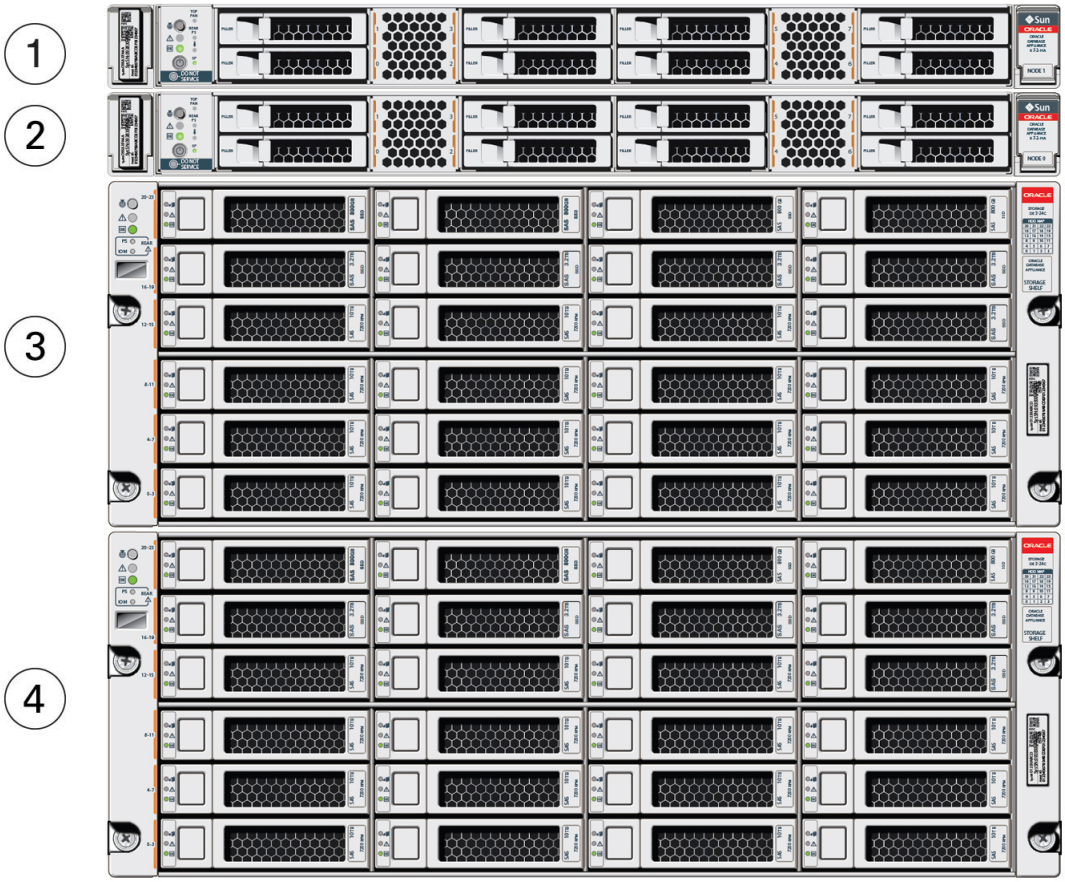
- Oracle Database Appliance X7-2-HA Front Panel
  See an illustration and listing of Oracle Database Appliance X7-2-HA front panel features.
- Oracle Database Appliance X7-2-HA Back Panel
  See an illustration and listing of Oracle Database Appliance X7-2-HA back panel features.

Oracle Database Appliance X7-2-HA Front Panel

See an illustration and listing of Oracle Database Appliance X7-2-HA front panel features.

Oracle Database Appliance X7-2-HA includes two server nodes (two Oracle Server X7-2's) and an Oracle DE3-24C storage shelf. The entire unit occupies 6RU. The optional storage expansion shelf requires an additional 4RU, increasing the total to 10RU.

The following figure shows the front of **Oracle Database Appliance X7-2-HA** with an optional storage expansion shelf.



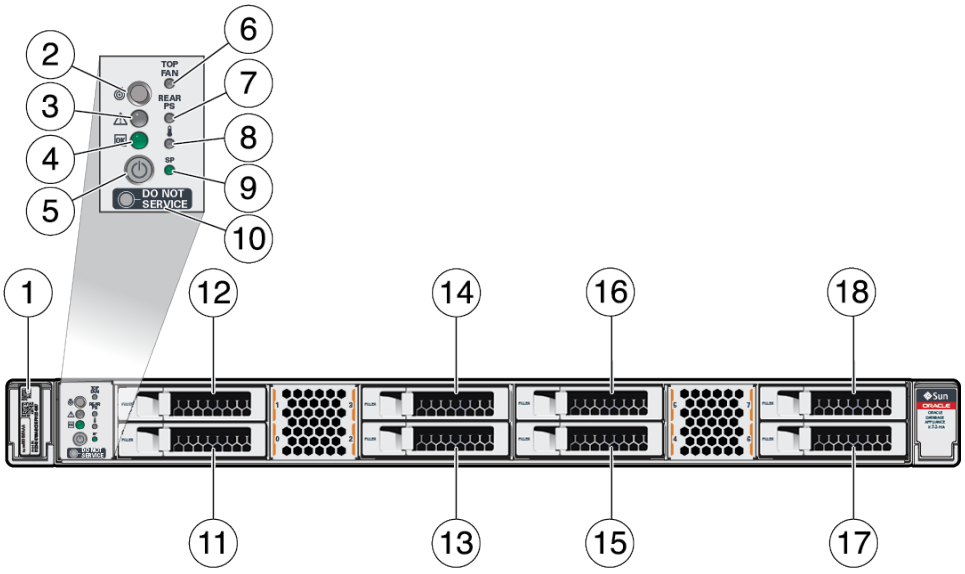
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Front Panel Features
  See an illustration and listing of Oracle Database Appliance X7-2-HA server node front panel features.
- Storage Shelf Front Panel Features
  See an illustration and listing of Oracle Database Appliance storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X7-2-HA server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X7-2-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
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 - 18	HDD/SSD 0 -7 (HDD filler)

Note:

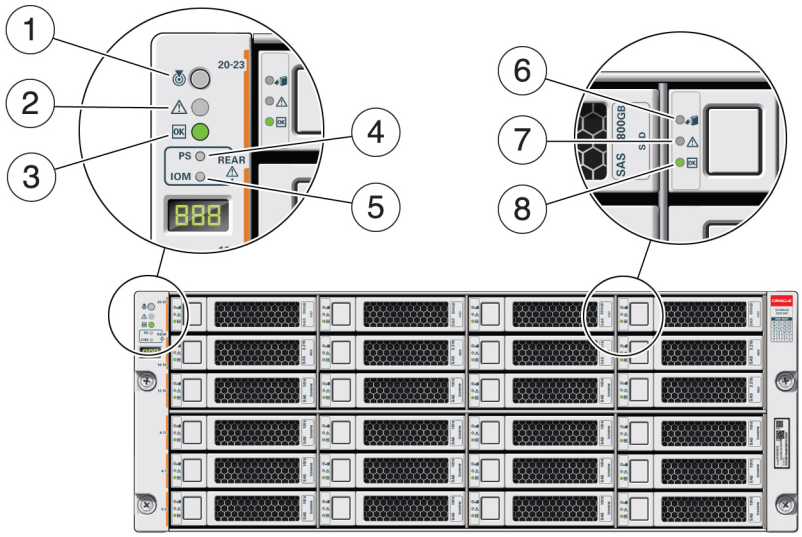
When contacting Oracle Support Services, use the Top Level Identifier (TLI) instead of the serial number. You can find the TLI by looking at the top of either server node or on the top of the storage shelf. For details, see Technical Support.

Storage Shelf Front Panel Features

See an illustration and listing of Oracle Database Appliance storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X7-2-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 5-19 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

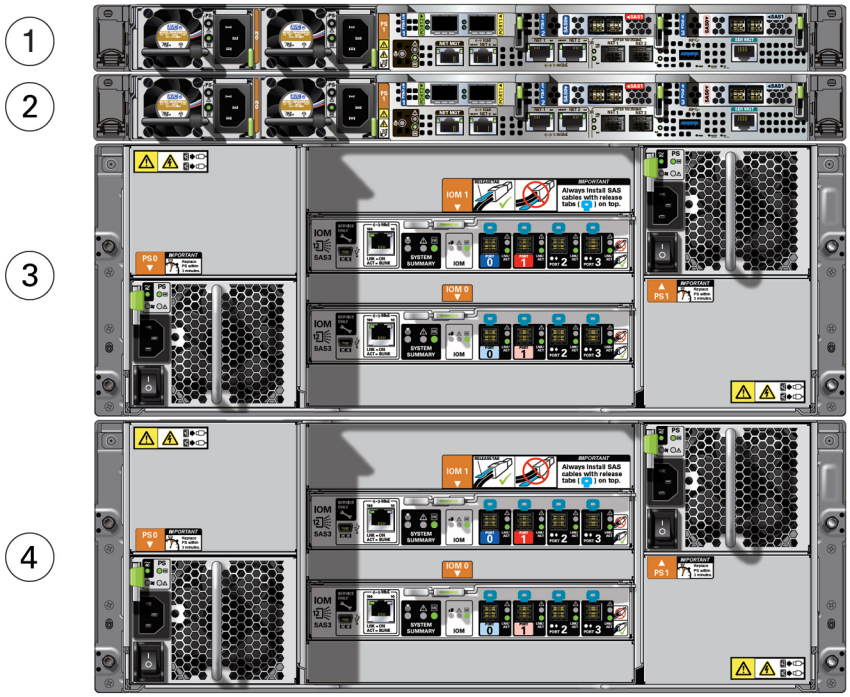
Callout	Description
8	Drive power/activity indicator

Oracle Database Appliance X7-2-HA Back Panel

See an illustration and listing of Oracle Database Appliance X7-2-HA back panel features.

This section describes the back panel features for Oracle Database Appliance X7-2-HA.

The following figure shows the **Oracle Database Appliance X7-2-HA**.



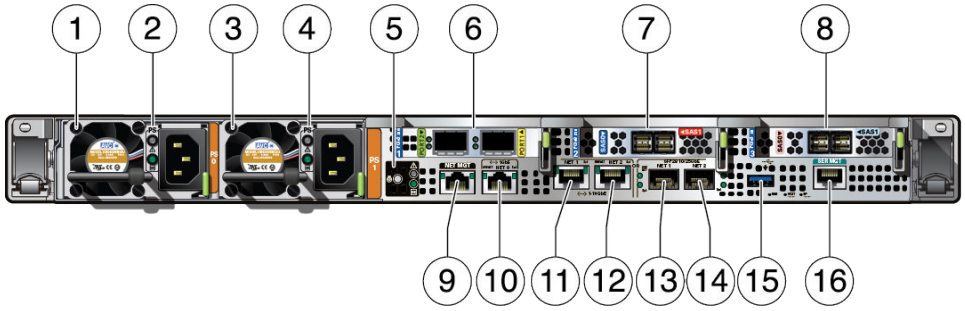
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Back Panel Features
  See an illustration and listing of Oracle Database Appliance X7-2-HA server node back panel features.
- Storage Shelf Back Panel Features
  See an illustration and listing of Oracle Database Appliance X7-2-HA storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X7-2-HA server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X7-2-HA server node**.



Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	PCIe card slot 1. Provides two 10/25GbE network interface ports with SFP28 connections for a private cluster interconnect between server nodes.
7	PCIe card slot 2. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
8	PCIe card slot 3. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
9	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	1 GbE RJ-45 network interface port: NET 0
11	1/10 GbE RJ-45 network interface port: NET 1 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.

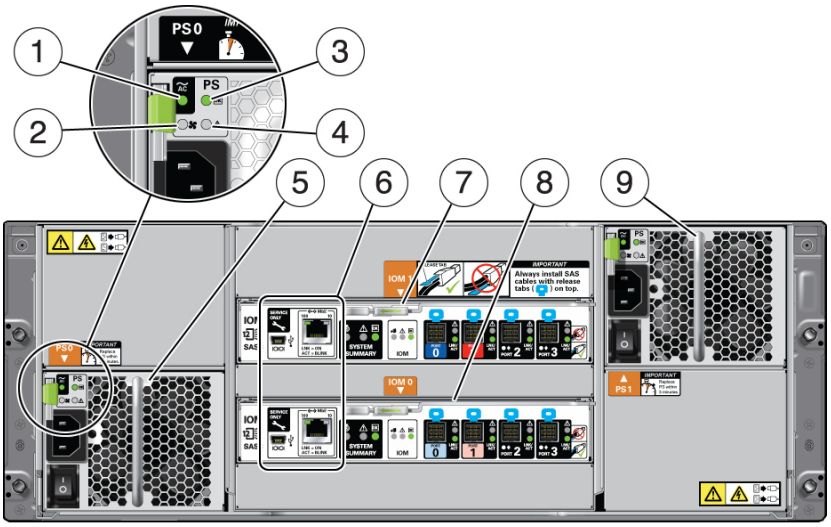
Callout	Description
12	1/10 GbE RJ-45 network interface port: NET 2 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
13	10/25 GbE SFP28 network interface port: NET 1 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
14	10/25 GbE SFP28 network interface port: NET 2 The system can be configured to use **either** the 10 GbE RJ-45 network ports or the 10/25 GbE SFP28 ports.
15	USB 2.0 connector
16	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X7-2-HA storage shelf back panel features.

The following figure shows the **Oracle Database Appliance X7-2-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
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 X6-2S/X6-2M/X6-2L Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X6-2S/X6-2M and X6-2L.

This section describes Oracle Database Appliance X6-2S/X6-2M/X6-2L front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

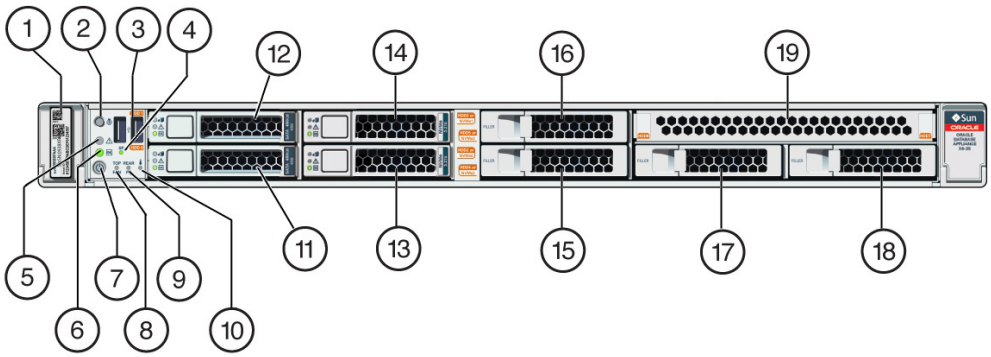
- Oracle Database Appliance X6-2S/X6-2M Front Panel
  See an illustration and description of Oracle Database Appliance X6-2S/X6-2M front panel features.
- Oracle Database Appliance X6-2S/X6-2M Back Panel
  See an illustration and description of Oracle Database Appliance X6-2S/X6-2M back panel features.
- Oracle Database Appliance X6-2L Front Panel
  See an illustration and description of Oracle Database Appliance X6-2L-2M front panel features.
- Oracle Database Appliance X6-2L Back Panel
  See an illustration and description of Oracle Database Appliance X6-2L-2M back panel features.

Oracle Database Appliance X6-2S/X6-2M Front Panel

See an illustration and description of Oracle Database Appliance X6-2S/X6-2M front panel features.

Oracle Database Appliance X6-2S and Oracle Database Appliance X6-2M servers each occupy 1RU.

The following figure shows the components on the front panel of an **Oracle Database Appliance X6-2S/X6-2M**.

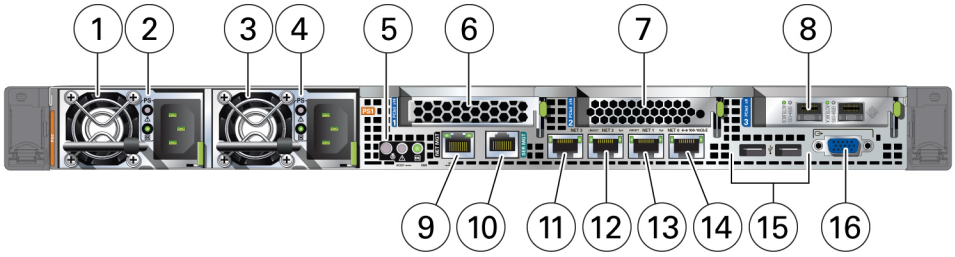


Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	USB 2.0 connectors (2)
4	SP OK LED: green
5	Service Required LED: amber
6	Power/OK LED: green
7	Power button
8	Fan Fault LED: amber
9	Power Supply (PS) Fault LED: amber
10	System Over Temperature Warning LED: amber
11 - 12	HDD 0 - HDD 1 (boot drives)
13 - 16	NVMe0, NVMe1, NVMe2 (or HDD filler), NVMe3 (or HDD filler)
17 - 18	HDD filler
19	DVD filler

Oracle Database Appliance X6-2S/X6-2M Back Panel

See an illustration and description of Oracle Database Appliance X6-2S/X6-2M back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X6-2S/X6-2M**.



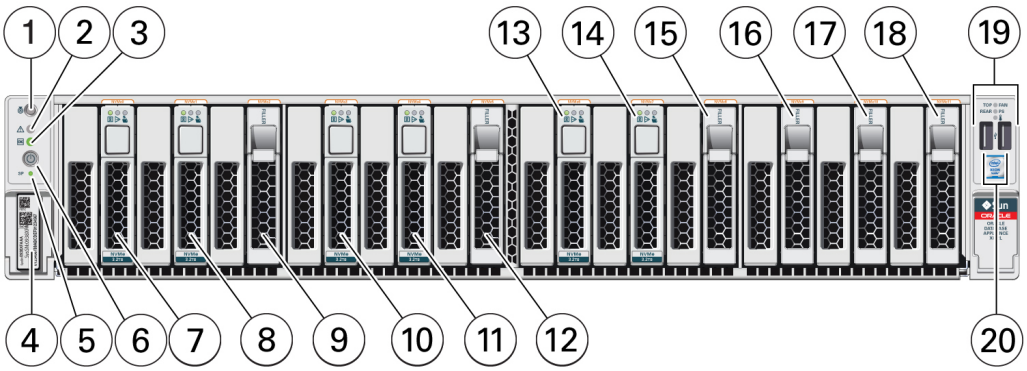
Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	PCIe card slot 1: empty
7	PCIe card slot 2: NVMe Switch PCIe Card
8	PCIe card slot 3. Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter. Provides two 10 GbE dual-rate SFP+ ports. PCIe card slot 4 (internal). Dual-port Internal 12Gb/s SAS3 host bus adapter. Provides support for the server's internal SAS storage.
9	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM
11	10 GbE network interface port with RJ-45 connector Ethernet ports NET 2 and NET 3 are nonfunctional in Oracle Database Appliance X6-2S.
12	10 GbE network interface port with RJ-45 connector Ethernet ports NET 2 and NET 3 are nonfunctional in Oracle Database Appliance X6-2S.
13	10 GbE network interface port with RJ-45 connector
14	10 GbE network interface port with RJ-45 connector
15	USB 2.0 connectors (2)
16	DB-15 video connector

Oracle Database Appliance X6-2L Front Panel

See an illustration and description of Oracle Database Appliance X6-2L-2M front panel features.

The Oracle Database Appliance X6-2L server occupies 2RU.

The following figure shows the components on the front panel of an **Oracle Database Appliance X6-2L**.

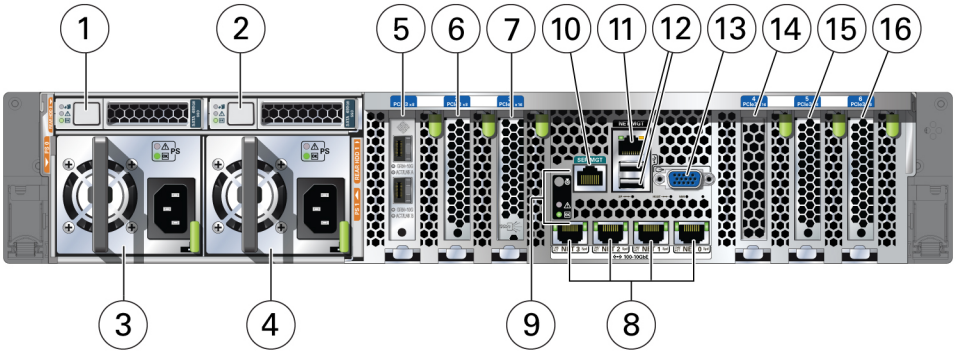


Callout	Description
1	Locate LED/button: white
2	Service Required LED: amber
3	Power/OK LED: green
4	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
5	SP OK LED: green
6	Power button
7 - 15	NVMe0, NVMe1, NVMe2 (or HDD filler), NVMe3, NVMe4, NVMe5 (or HDD filler), NVMe6, NVMe7, NVMe8 (or HDD filler) Slots NVMe2 (callout 9), NVMe5 (callout 12) and NVMe8 (callout 15) are available for storage expansion on base configuration models. See Optional Component Installation.
16 - 18	Slots NVMe9 - NVMe11 Note that these NVMe slots are not supported for use with this product.
19	Top Fan Fault LED: amber Power Supply (PS) Fault LED: amber System Over Temperature Warning LED: amber
20	USB 2.0 connectors (2)

Oracle Database Appliance X6-2L Back Panel

See an illustration and description of Oracle Database Appliance X6-2L-2M back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X6-2L**.



Callout	Description
1	rear HDD 0 (boot drive)
2	rear HDD 1 (boot drive)
3	Power Supply (PS) 0 with fan module Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
4	Power Supply (PS) 1 with fan module Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	PCIe card slot 1: Sun Dual 10GbE SFP+ PCIe 2.0 Low Profile Adapter
6	PCIe card slot 2: Oracle NVMe Switch PCIe card
7	PCIe card slot 3: Oracle Storage 12 Gb SAS3 PCIe RAID Internal HBA
8	Four 10 GbE network interface ports with RJ-45 connectors
9	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
10	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM
11	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
12	USB 2.0 connectors (2)
13	DB-15 video connector
14	PCIe card slot 4: Filler panel
15	PCIe card slot 5: Oracle NVMe Switch PCIe card
16	PCIe card slot 6: Oracle NVMe Switch PCIe card

Oracle Database Appliance X6-2-HA Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X6-2-HA.

This section describes Oracle Database Appliance X6-2-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.

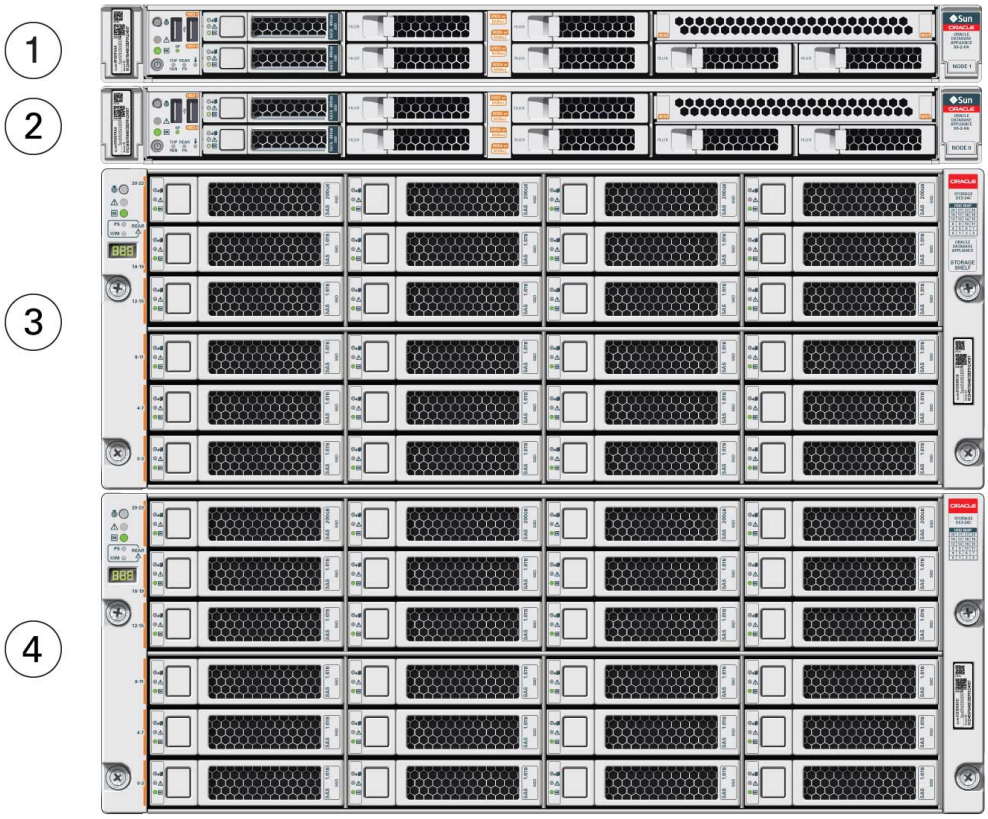
- Oracle Database Appliance X6-2HA Front Panel
  See an illustration and listing of Oracle Database Appliance X6-2-HA front panel features.
- Oracle Database Appliance X6-2-HA Back Panel
  See an illustration and listing of Oracle Database Appliance X6-2-HA back panel features.

Oracle Database Appliance X6-2HA Front Panel

See an illustration and listing of Oracle Database Appliance X6-2-HA front panel features.

Oracle Database Appliance X6-2-HA includes two server nodes (two Oracle Server X6-2's) and an Oracle DE3-24C storage shelf. The entire unit occupies 6RU. The optional storage expansion shelf requires an additional 4RU, increasing the total to 10RU.

The following figure shows the front of **Oracle Database Appliance X6-2-HA** with an optional storage expansion shelf.



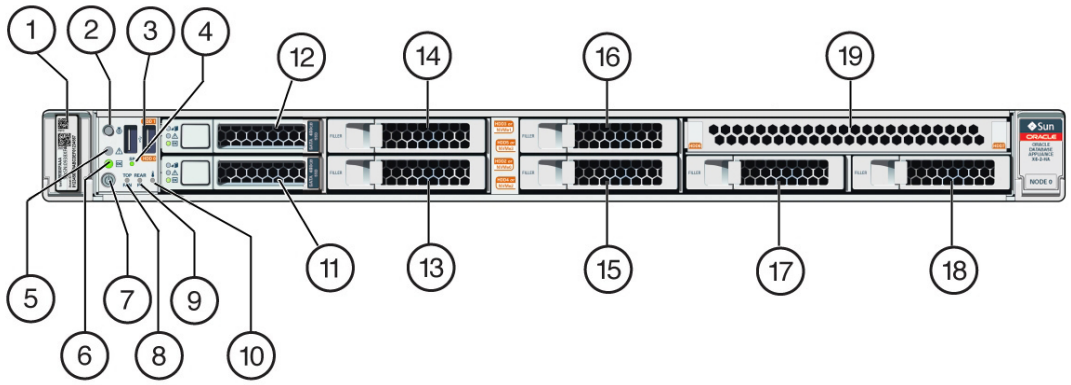
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Front Panel Features
  See an illustration and listing of Oracle Database Appliance X6-2-HA server node front panel features.
- Storage Shelf Front Panel Features
  See an illustration and listing of Oracle Database Appliance storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X6-2-HA server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X6-2-HA server node**.



Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	USB 2.0 connectors (2)
4	SP OK LED: green
5	Service Required LED: amber
6	Power/OK LED: green
7	Power button
8	Fan Fault LED: amber
9	Power Supply (PS) Fault LED: amber

Callout	Description
10	System Over Temperature Warning LED: amber
11	HDD 0 (boot drive)
12	HDD 1 (boot drive)
13 - 18	HDD filler
19	DVD filler

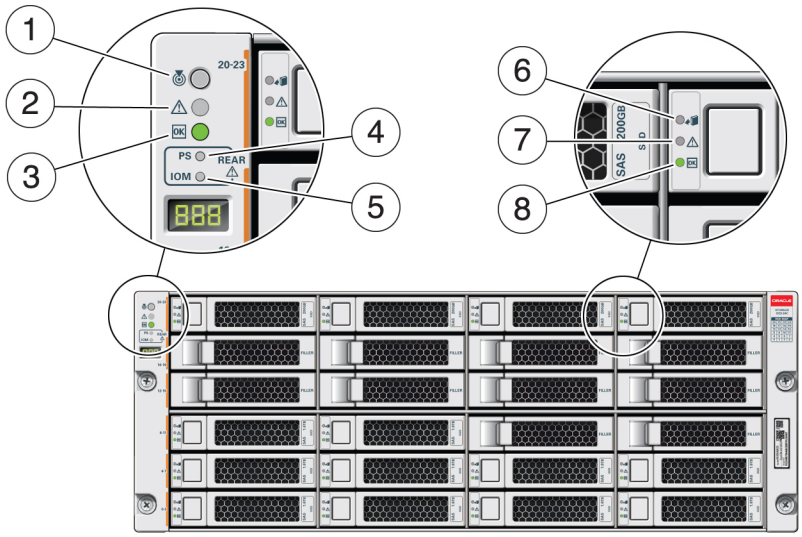
> **Note:**
>
> When contacting Oracle Support Services, use the Top Level Identifier (TLI) instead of the serial number. You can find the TLI by looking at the top of either server node or on the top of the storage shelf. For details, see Technical Support.

Storage Shelf Front Panel Features

See an illustration and listing of Oracle Database Appliance storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X6-2-HA storage shelf** front panel features.

> **Note:**
>
> In the base configuration storage shelf, disk slots 10-19 are empty (filler panels only). The system deployment will fail if the placement of the disks in the base configuration is changed.
>
> You have the option of upgrading the base configuration storage shelf to add an additional ten 1.6 TB SAS SSDs in slots 10-19. 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.



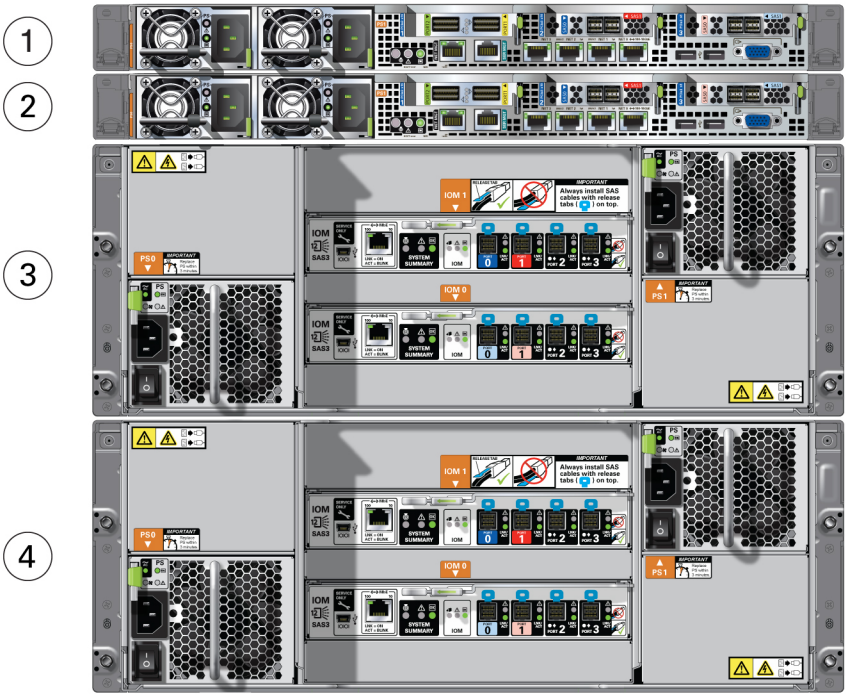
Callout	Description
1	Storage shelf Locate indicator
2	Storage shelf fault indicator
3	Storage shelf OK/power indicator
4	Storage shelf power supply fault indicator
5	Storage shelf IO module fault indicator
6	Drive Ready-to-Remove indicator
7	Drive fault indicator
8	Drive power/activity indicator

Oracle Database Appliance X6-2-HA Back Panel

See an illustration and listing of Oracle Database Appliance X6-2-HA back panel features.

This section describes the back panel features for Oracle Database Appliance X6-2-HA.

The following figure shows the **Oracle Database Appliance X6-2-HA**.



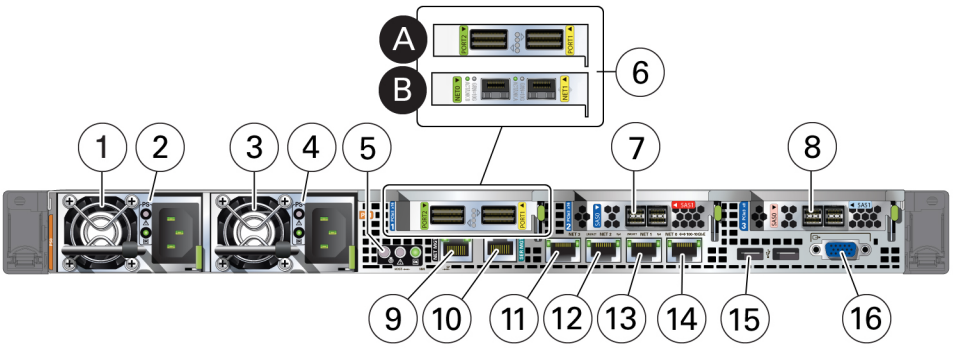
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE3-24C)
4	Optional storage expansion shelf (DE3-24C)

- Server Node Back Panel Features
  See an illustration and listing of Oracle Database Appliance X6-2-HA server node back panel features.
- Storage Shelf Back Panel Features
  See an illustration and listing of Oracle Database Appliance X6-2-HA storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X6-2-HA server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X6-2-HA server node**.



Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	Two interface options are available from the factory for the appliance: • 6a: PCIe card slot 1. Provides two InfiniBand network interface ports with QSFP+ connections for a private cluster interconnect between server nodes. *--or--* • 6b: PCIe card slot 1. Provides two 10GbE network interface ports with SFP+ connections for the data center or public network. Create the private cluster interconnect between the server nodes using two of each server node's four built-in 10 GbE network interface ports with RJ-45 connections. Refer to the *Deployment and User's Guide* for more information.
7	PCIe card slot 2. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
8	PCIe card slot 3. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
9	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM

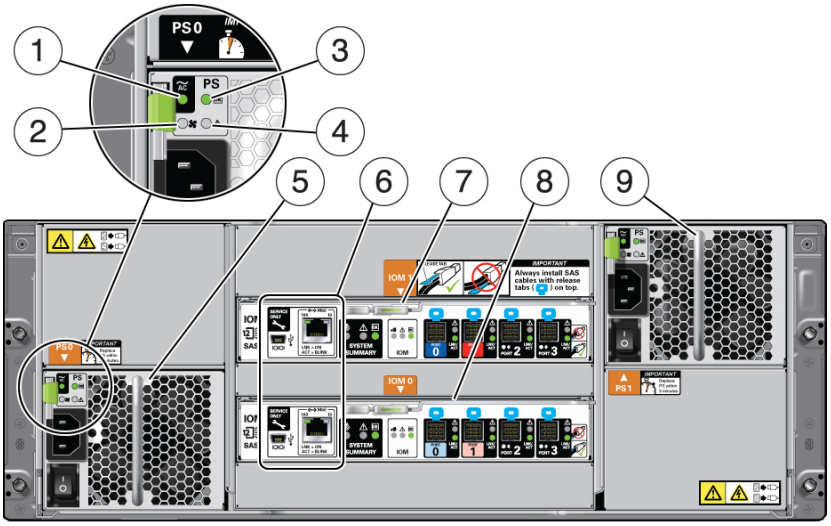
Callout	Description
11	10 GbE network interface port with RJ-45 connector
12	10 GbE network interface port with RJ-45 connector
13	10 GbE network interface port with RJ-45 connector
14	10 GbE network interface port with RJ-45 connector
15	USB 2.0 connectors (2)
16	DB-15 video connector

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X6-2-HA storage shelf back panel features.

The following figure shows the **Oracle Database Appliance X6-2-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 X5-2 Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X5-2.

This section describes Oracle Database Appliance X5-2 front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

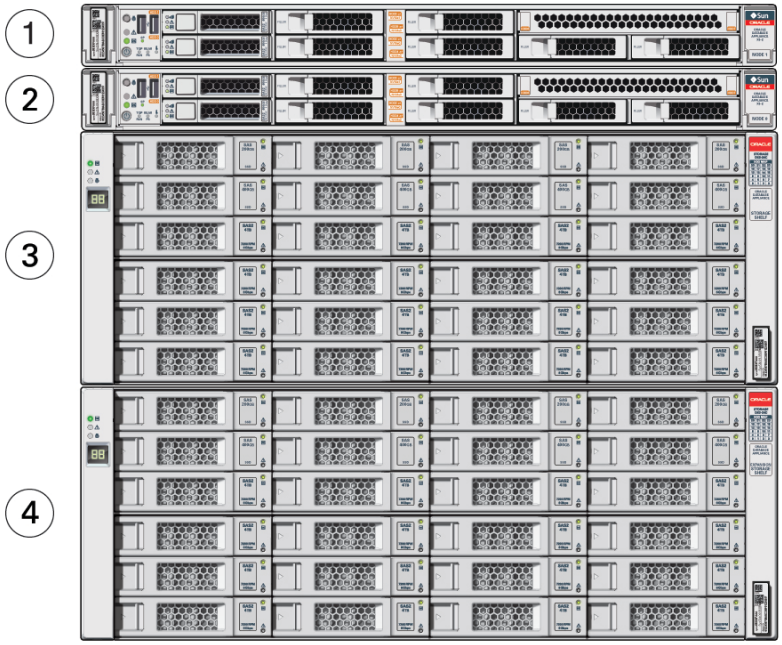
- Oracle Database Appliance X5-2 Front Panel
  See an illustration and listing of Oracle Database Appliance X5-2 front panel features.
- Oracle Database Appliance X5-2 Back Panel
  See an illustration and listing of Oracle Database Appliance X5-2 back panel features.

Oracle Database Appliance X5-2 Front Panel

See an illustration and listing of Oracle Database Appliance X5-2 front panel features.

Oracle Database Appliance X5-2 includes two server nodes (two Oracle Server X5-2's) and an Oracle DE2-24C storage shelf. The entire unit occupies 6RU. The optional storage expansion shelf requires an additional 4RU, increasing the total to 10RU.

The following figure shows the front of **Oracle Database Appliance X5-2** with an optional storage expansion shelf.



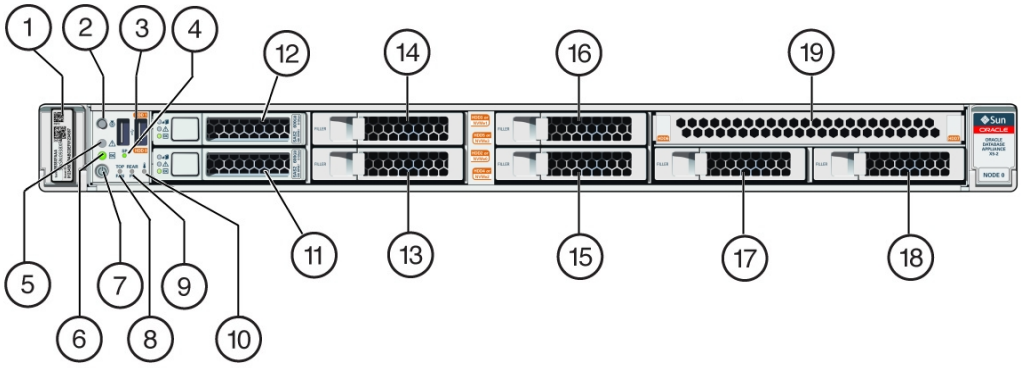
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE2-24C)
4	Optional storage expansion shelf (DE2-24C)

- Server Node Front Panel Features
  See an illustration and listing of Oracle Database Appliance X5-2 server node front panel features.
- Storage Shelf Front Panel Features
  See an illustration and listing of Oracle Database Appliance storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X5-2 server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X5-2 server node**.



Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	USB 2.0 connectors (2)
4	SP OK LED: green
5	Service Required LED: amber
6	Power/OK LED: green
7	Power button
8	Fan Fault LED: amber
9	Power Supply (PS) Fault LED: amber
10	System Over Temperature Warning LED: amber
11	HDD 0 (boot drive)
12	HDD 1 (boot drive)
13 - 18	HDD filler
19	DVD filler

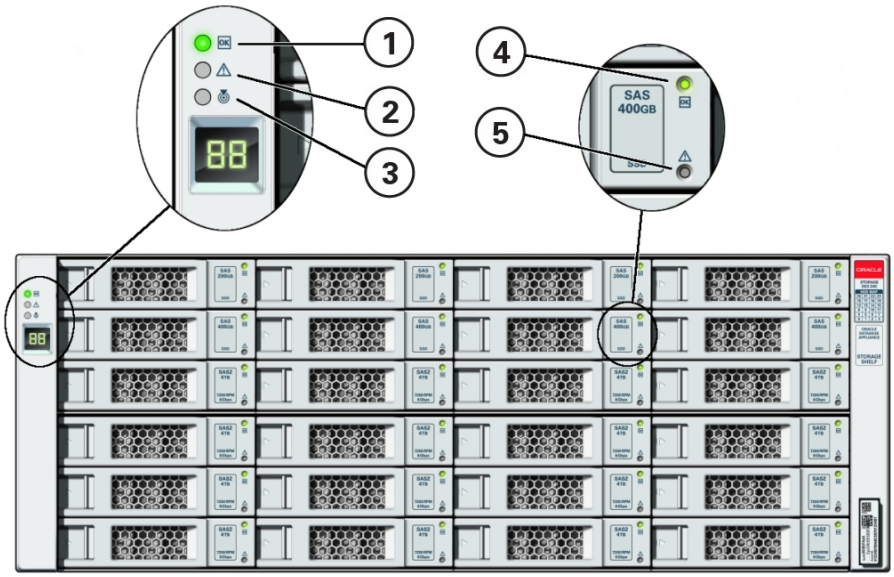
Note:

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 storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X5-2 storage shelf** front panel features.

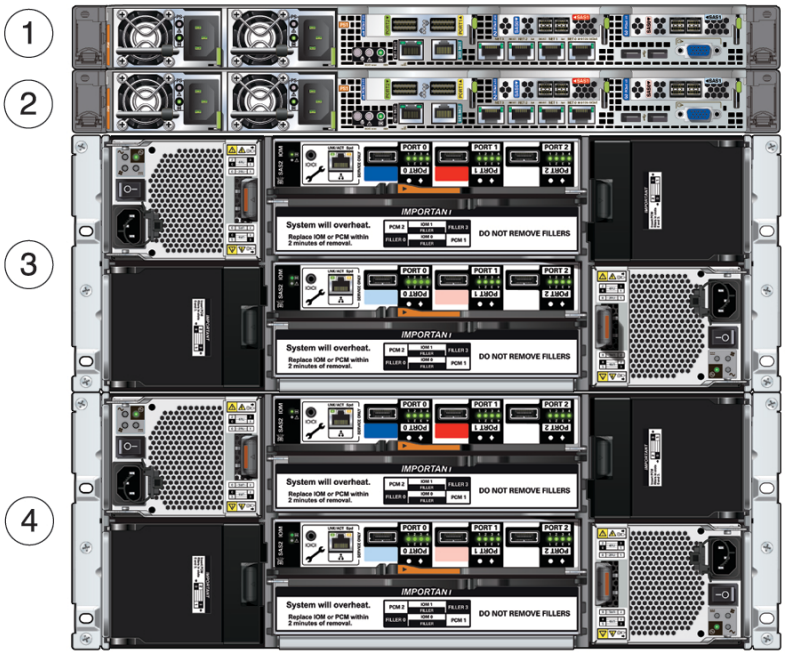


Callout	Description
1	Storage shelf OK/power indicator
2	Storage shelf fault indicator
3	Storage shelf Locate indicator
4	Drive power/activity indicator
5	Drive fault indicator

Oracle Database Appliance X5-2 Back Panel

See an illustration and listing of Oracle Database Appliance X5-2 back panel features.

The following figure shows the **Oracle Database Appliance X5-2** back panel.



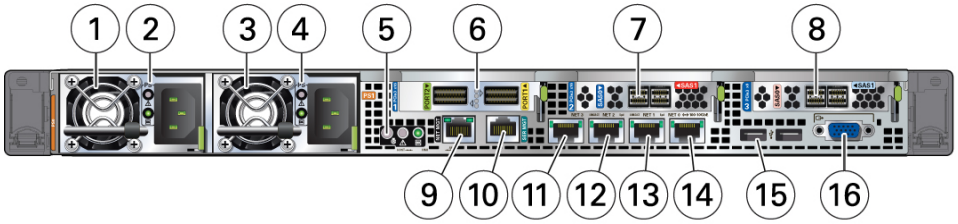
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE2-24C)
4	Optional storage expansion shelf (DE2-24C)

- Server Node Back Panel Features
  See an illustration and listing of Oracle Database Appliance X5-2 server node back panel features.
- Storage Shelf Back Panel Features
  See an illustration and listing of Oracle Database Appliance X5-2 storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X5-2 server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X5-2 server node**.



Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	PCIe card slot 1. Provides two InfiniBand network interface ports with QSFP+ connections for a private cluster interconnect between server nodes. Alternatively, you have the option of creating the node-to-node interconnection using two of each server node's four 10 GbE network interface ports with RJ-45 connections. Refer to the *Oracle Database Appliance Getting Started Guide* for more information.
7	PCIe card slot 2. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
8	PCIe card slot 3. Provides two SAS3 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
9	NET MGT port. Service processor 10/100/1000Base-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM
11	10 GbE network interface port with RJ-45 connector
12	10 GbE network interface port with RJ-45 connector
13	10 GbE network interface port with RJ-45 connector
14	10 GbE network interface port with RJ-45 connector
15	USB 2.0 connectors (2)

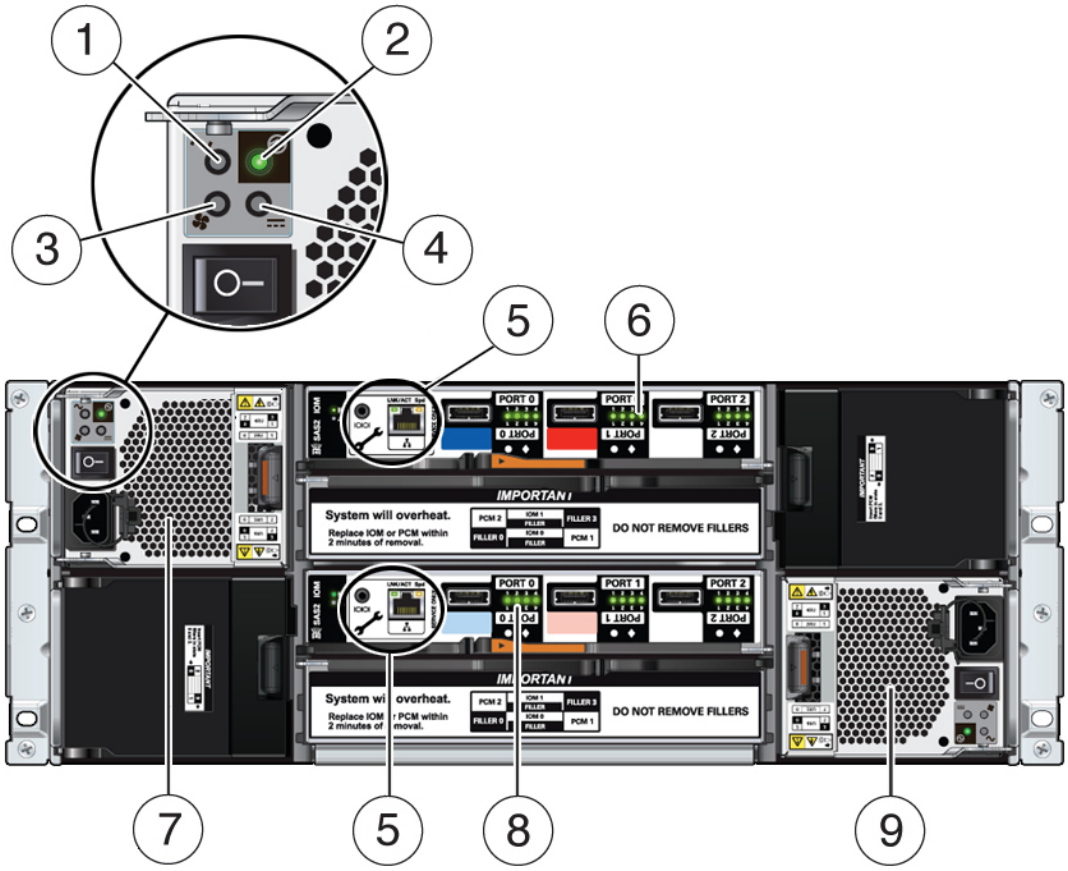
Callout	Description
16	DB-15 video connector

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X5-2 storage shelf back panel features.

The following figure shows the **Oracle Database Appliance X5-2 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
2	Fan fail indicator
3	Power supply status indicator
4	DC power fail indicator
5	Service ports (reserved for Oracle Service only)
6	SAS I/O module 1
7	Power Supply with fan module 0
8	SAS I/O module 0
9	Power Supply with fan module 1

Oracle Database Appliance X3-2/X4-2 Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance X3-2/X4-2.

This section describes Oracle Database Appliance X3-2/X4-2 front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

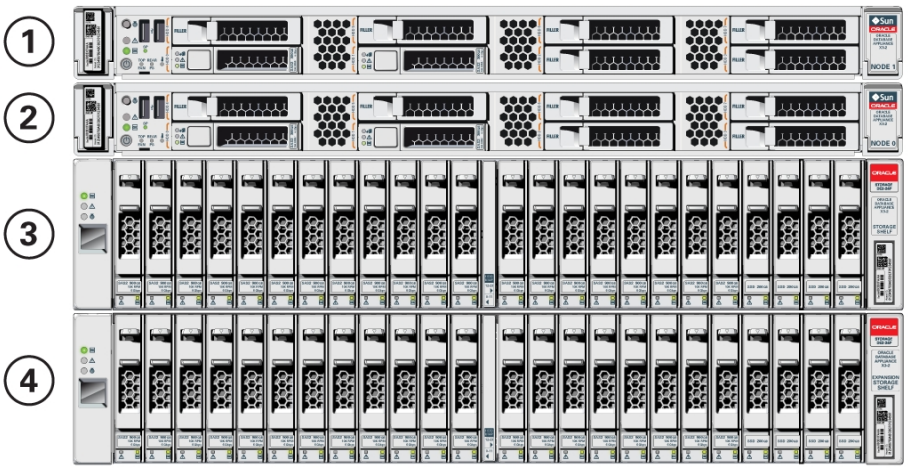
- Oracle Database Appliance X3-2/X4-2 Front Panel
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 front panel features.
- Oracle Database Appliance X3-2/X4-2 Back Panel
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 back panel features.

Oracle Database Appliance X3-2/X4-2 Front Panel

See an illustration and listing of Oracle Database Appliance X3-2/X4-2 front panel features.

Oracle Database Appliance X3-2/X4-2 includes two server nodes (either two Sun Server X3-2's, or two Sun Server X4-2's) and an Oracle DE2-24P storage shelf. The entire unit occupies 4RU. The optional DE2-24P storage expansion shelf requires an additional 2RU, increasing the total to 6RU.

The following figure shows the front of **Oracle Database Appliance X3-2/X4-2** with an optional storage expansion shelf. Except for product labeling, Oracle Database Appliance X3-2 and Oracle Database Appliance X4-2 are nearly identical in outward appearance.



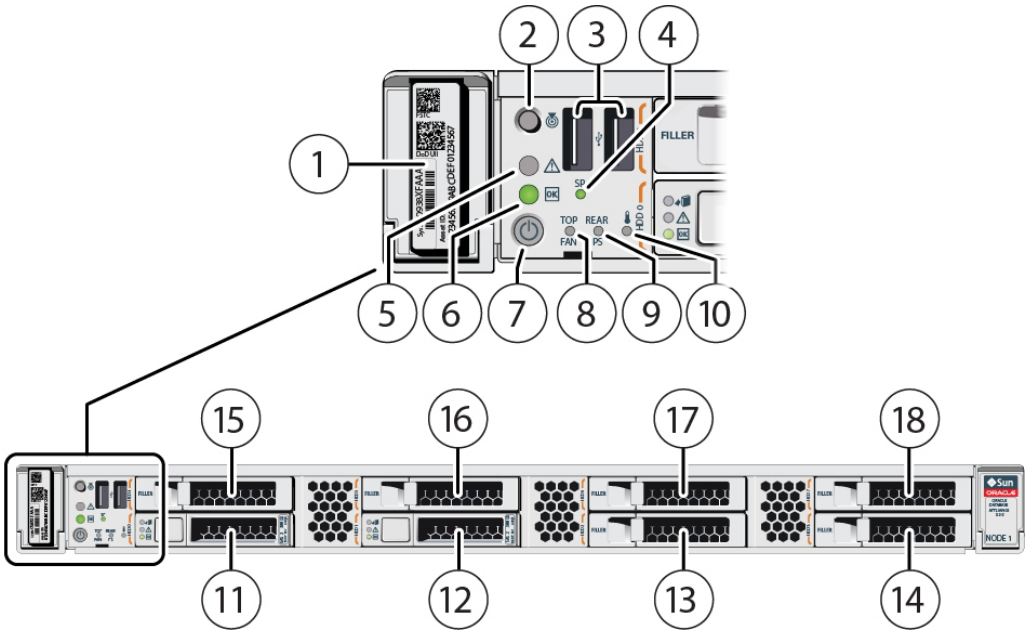
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE2-24P)
4	Optional storage expansion shelf (DE2-24P)

- Server Node Front Panel Features
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 server node front panel features.
- Storage Shelf Front Panel Features
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 storage shelf front panel features.

Server Node Front Panel Features

See an illustration and listing of Oracle Database Appliance X3-2/X4-2 server node front panel features.

The following figure shows the components on the front panel of an **Oracle Database Appliance X3-2/X4-2 server node**.



Callout	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	USB 2.0 connectors (2)
4	SP OK LED: green
5	Service Required LED: amber
6	Power/OK LED: green
7	Power button
8	Fan Fault LED: amber
9	Power Supply (PS) Fault LED: amber
10	System Over Temperature Warning LED: amber
11	HDD 0 (boot drive)
12	HDD 1 (boot drive)
13 - 18	HDD filler

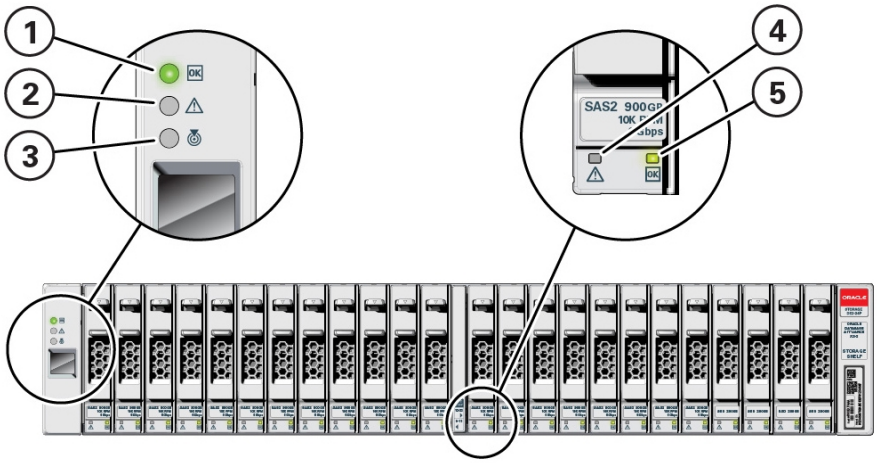
Note:

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 X3-2/X4-2 storage shelf front panel features.

The following figure shows the **Oracle Database Appliance X3-2/X4-2 storage shelf** front panel features.



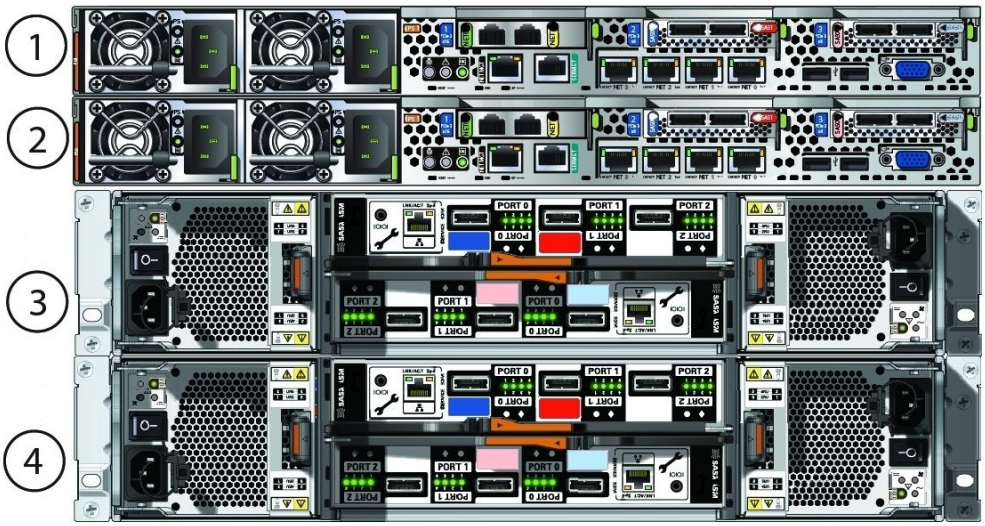
Callout	Description
1	Storage shelf OK/power indicator
2	Storage shelf fault indicator
3	Storage shelf Locate indicator
4	Drive fault indicator
5	Drive power/activity indicator

Oracle Database Appliance X3-2/X4-2 Back Panel

See an illustration and listing of Oracle Database Appliance X3-2/X4-2 back panel features.

The following figure shows the Oracle Database Appliance X4-2. The Oracle Database Appliance X3-2 and Oracle Database Appliance X4-2 are identical except for the network card in PCIe slot 1 (see Server Node Back Panel Features).

The following figure shows the **Oracle Database Appliance X3-2/X4-2** back panel.



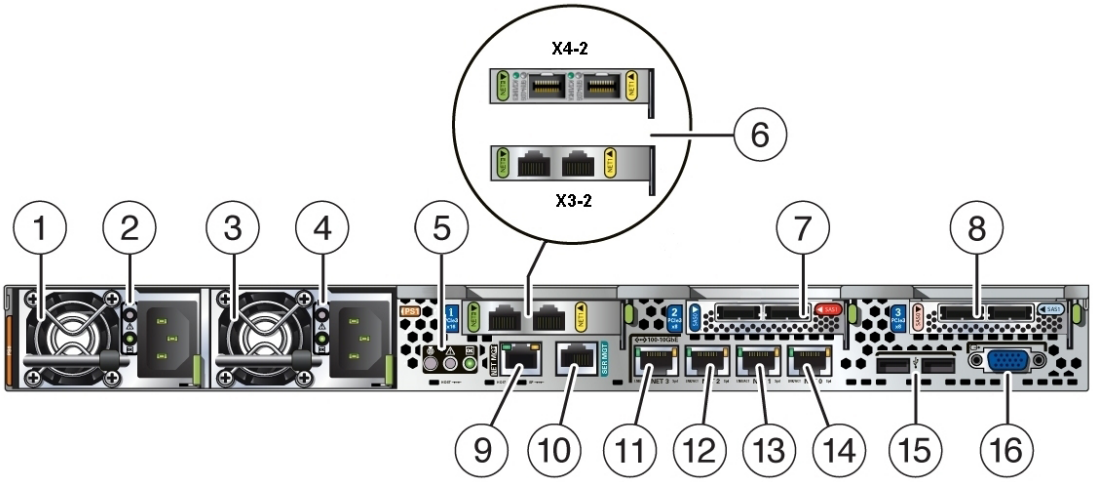
Callout	Description
1	Server node 1
2	Server node 0
3	Storage shelf (DE2-24P)
4	Optional storage expansion shelf (DE2-24P)

- Server Node Back Panel Features
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 server node back panel features.
- Storage Shelf Back Panel Features
  See an illustration and listing of Oracle Database Appliance X3-2/X4-2 storage shelf back panel features.

Server Node Back Panel Features

See an illustration and listing of Oracle Database Appliance X3-2/X4-2 server node back panel features.

The following figure shows the components on the back panel of an **Oracle Database Appliance X3-2/X4-2 server node**.



Callout	Description
1	Power Supply (PS) 0 with fan module
2	Power Supply (PS) 0 status indicators: Service Required LED: amber, AC OK LED: green
3	Power Supply (PS) 1 with fan module
4	Power Supply (PS) 1 status indicators: Service Required LED: amber, AC OK LED: green
5	System status indicators: Locate LED: white, Service Required LED: amber, Power/OK LED: green
6	**Oracle Database Appliance X4-2:** PCIe card slot 1. Provides two 10 GbE dual-rate SFP+ ports for a private cluster interconnect between server nodes. Alternatively, you have the option of creating the node-to-node interconnection using two of each server node's four 10 GbE network interface ports with RJ-45 connections. Refer to the *Oracle Database Appliance Getting Started Guide* for more information. **Oracle Database Appliance X3-2:** PCIe card slot 1. Provides two 10 GbE network interface ports with RJ-45 connectors for a private cluster interconnect between server nodes.
7	PCIe card slot 2. Provides two SAS2 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
8	PCIe card slot 3. Provides two SAS2 connectors used to connect the servers to the storage shelf and the storage expansion shelf.
9	NET MGT port. Service processor 10/100BASE-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM)
10	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM

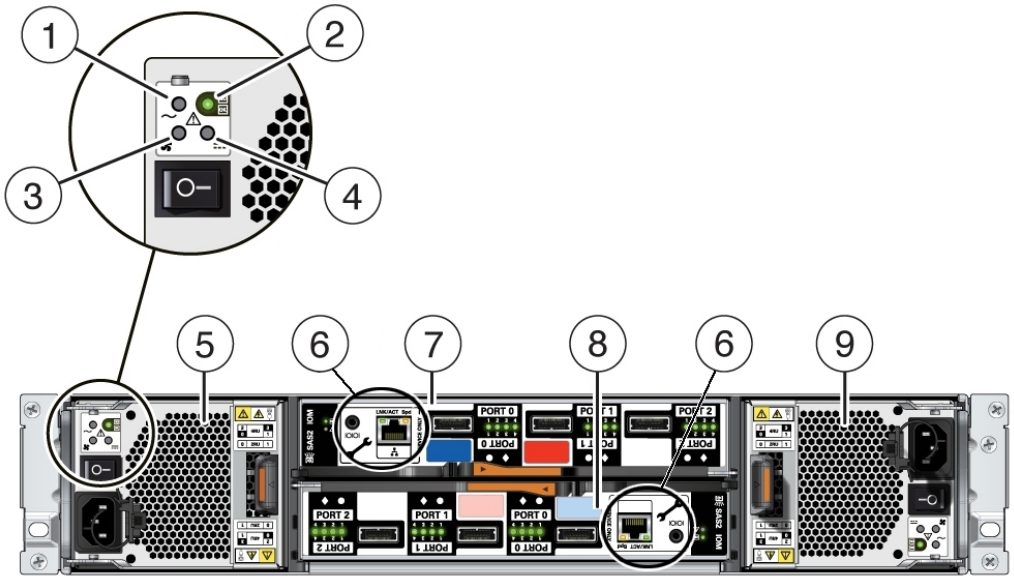
Callout	Description
11	10 GbE network interface port with RJ-45 connector
12	10 GbE network interface port with RJ-45 connector
13	10 GbE network interface port with RJ-45 connector
14	10 GbE network interface port with RJ-45 connector
15	USB 2.0 connectors (2)
16	DB-15 video connector

Storage Shelf Back Panel Features

See an illustration and listing of Oracle Database Appliance X3-2/X4-2 storage shelf back panel features.

The following figure shows the **Oracle Database Appliance X3-2/X4-2 storage shelf** back panel.

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



Callout	Description
1	AC power fail indicator
2	Power supply status indicator
3	Fan fail 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 Version 1 Front and Back Panels

See views and descriptions of front and back panel features for Oracle Database Appliance Version 1.

This section describes Oracle Database Appliance Version 1 front and back panels. If you have some other Oracle Database Appliance model, select the appropriate link listed in Overview of Oracle Database Appliance.

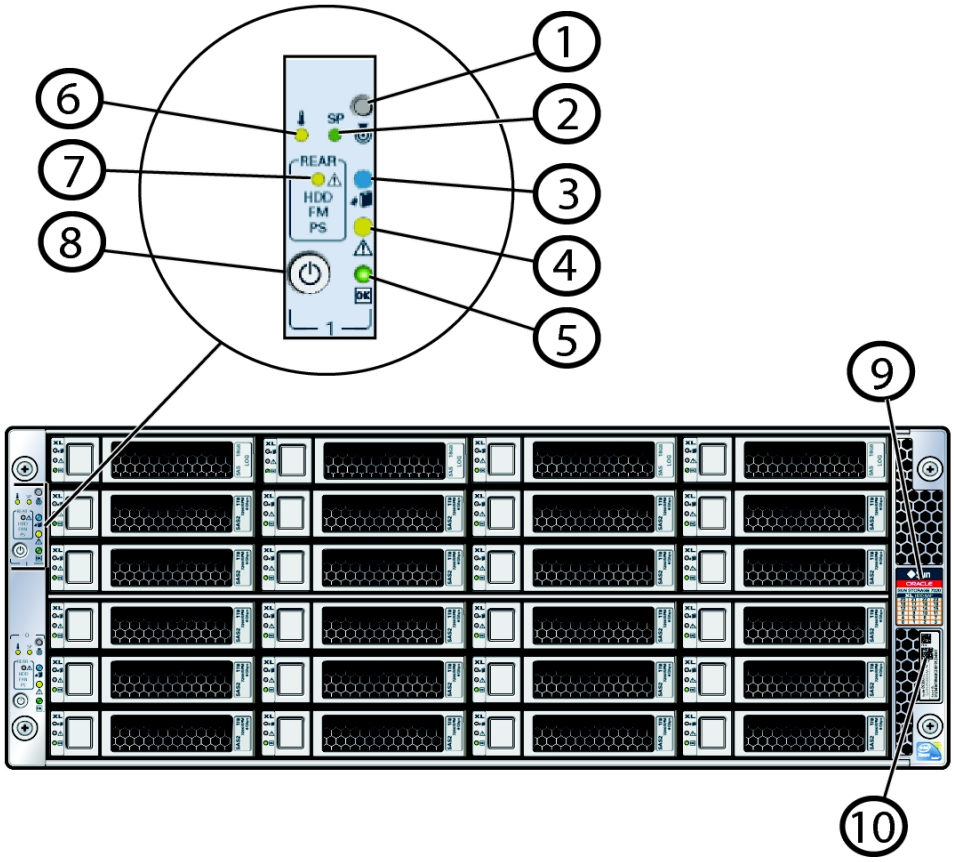
- Oracle Database Appliance Version 1 Front Panel
  See an illustration and listing of Oracle Database Appliance Version 1 front panel features.
- Oracle Database Appliance Version 1 Back Panel
  See an illustration and listing of Oracle Database Appliance Version 1 back panel features.

Oracle Database Appliance Version 1 Front Panel

See an illustration and listing of Oracle Database Appliance Version 1 front panel features.

Oracle Database Appliance Version 1 includes two server nodes, SN0 and SN1. SN0 is on the bottom and SN1 is on the top. Server nodes are also called system controllers.

The following figure shows **Oracle Database Appliance Version 1** front panel and describes its components.



Note:

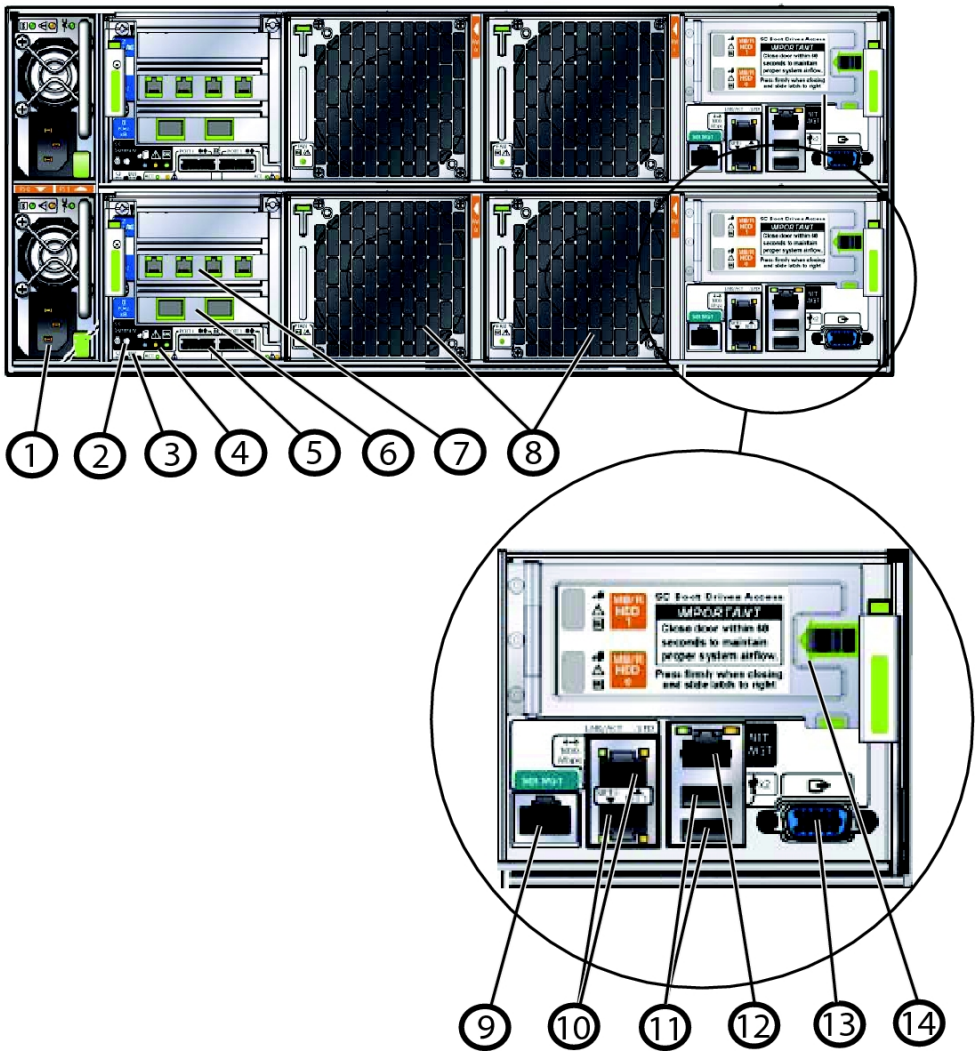
The system has **two** each of items 1 through 8; one for each server node. It has only **one** RFID, product serial number tag, and, drive map.

Callout	Description
1	Locate button/LED (white)
2	SP (service processor) OK LED (green = OK, amber = fault)
3	Server Node Ready to Remove LED (blue)
4	Service Required LED (amber)
5	Power/OK LED (green)
6	System Over Temperature LED (amber)
7	Rear HDD (hard disk drive)/PS (power supply)/Fan Fault LED (amber)
8	Power button (recessed)
9	Drive map
10	RFID (radio frequency identification) and product serial number tag

Oracle Database Appliance Version 1 Back Panel

See an illustration and listing of Oracle Database Appliance Version 1 back panel features.

The following figure shows **Oracle Database Appliance Version 1** back panel and identifies the components on SN0. The components on SN1 are identical.



Callout	Description
1	Power Supply Unit (PSU)
2	Locate button/LED (white)
3	Host nonmaskable interrupt (NMI) and SP reset recessed switches
4	Status LEDs: • Server Node Ready to Remove LED (blue) • Service required LED (amber) • Power/OK LED (green)

Callout	Description
5	External MiniSAS ports (2 per server node) - Reserved. Do not use or connect cables to these ports
6	PCI Express (PCIe) slot 0 - Dual 10 GbE network interface ports
7	PCIe slot 1 - Quad 1 GbE network interface ports with RJ-45 connectors
8	Fans
9	SER MGT port. Service processor RJ-45 serial port used to connect to Oracle ILOM The management ports are intended for use by service engineers only.
10	Dual onboard 1 GbE network interface ports with RJ-45 connectors
11	USB ports
12	NET MGT port. Service processor 10/100BASE-T network interface port with RJ-45 connector used to connect to Oracle Integrated Lights Out Manager (ILOM) The management ports are intended for use by service engineers only.
13	Video connector to console
14	Rear hard disk drives (RHDDs) (boot drives; 2 per server node) The RHDDs are behind hinged access panels.

Oracle Database Appliance Specifications

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

- Physical Specifications
  This section describes the physical specifications for the various versions of Oracle Database Appliance.
- Electrical Specifications
  This section describes the electrical specifications for the various versions of Oracle Database Appliance.
- Environmental Specifications
  This section describes the environmental specifications for the various versions of Oracle Database Appliance.

Physical Specifications

This section describes the physical specifications for the various versions of Oracle Database Appliance.

- Physical Specifications for Oracle Database Appliance X8-2 Series
- Physical Specifications for Oracle Database Appliance X7-2 Series

- Physical Specifications for Oracle Database Appliance X6-2 Series
- Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

Physical Specifications for Oracle Database Appliance X8-2 Series

Item	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-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 in) per server node 446.0 mm (17.6 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 558.0 mm (22.0 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

Physical Specifications for Oracle Database Appliance X7-2 Series

Item	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
Height	42.6 mm (1.7 in)	42.6 mm (1.7 in)	42.6 mm (1.7 in) per server node 175 mm (6.9 in) per storage shelf
Width	436.5 mm (17.2 in)	436.5 mm (17.2 in)	436.5 mm (17.2 in) per server node Storage shelf: 446.0 mm (17.6 in)
Depth	737.0 mm (29.0 in)	737.0 mm (29.0 in)	737.0 mm (29.0 in) per server node Storage shelf: 558.0 mm (22.0 in)
Weight	16.1 kg (34.5 lbs)	16.1 kg (34.5 lbs)	16.1 kg (34.5 lbs) per server node 38.0 kg (84.0 lbs) per storage shelf

Physical Specifications for Oracle Database Appliance X6-2 Series

Item	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Height	42.6 mm (1.7 in)	42.6 mm (1.7 in)	87.6 mm (3.5 in)	42.6 mm (1.7 in) per server node 175 mm (6.9 in) per storage shelf
Width	436.5 mm (17.2 in)	436.5 mm (17.2 in)	445.0 mm (17.5 in)	436.5 mm (17.2 in) per server node Storage shelf: 446.0 mm (17.6 in)
Depth	737.0 mm (29.0 in)	737.0 mm (29.0 in)	737.0 mm (29.0 in)	737.0 mm (29.0 in) per server node Storage shelf: 558.0 mm (22.0 in)
Weight	16.1 kg (35.4 lbs)	16.1 kg (35.4 lbs)	29.0 kg (64.0 lbs)	16.1 kg (34.5 lbs) per server node 38.0 kg (84.0 lbs) per storage shelf

Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

Item	Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2
Height	175.1 mm (6.9 in)	42.6 mm (1.7 in) per server node 87.9 mm (3.5 in) per storage shelf	42.6 mm (1.7 in) per server node 175 mm (6.9 in) per storage shelf
Width	437.0 mm (17.2 in) (without mounting ears) 482.6 mm (19 in) (with mounting ears)	Server node: 436.5 mm (17.2 in) Storage shelf: 483.0 mm (19.0 in)	Server node: 436.5 mm (17.2 in) Storage shelf: 483.0 mm (19.0 in)
Depth	762.0 mm (30.0 in) 782.0 mm (30.8 in) (including fan module handles and latches)	Server node: 737.0 mm (29.0 in) Storage shelf: 630.0 mm (24.8 in)	Server node: 737.0 mm (29.0 in) Storage shelf: 630.0 mm (24.8 in)
Weight	72.6 kg (160.0 lbs)	16.3 kg (36.0 lbs) per server node 24.0 kg (52.9 lbs) per storage shelf	16.3 kg (36.0 lbs) per server node 37.2 kg (82.0 lbs) per storage shelf

Electrical Specifications

This section describes the electrical specifications for the various versions of Oracle Database Appliance.

- Electrical Specifications for Oracle Database Appliance X8-2 Series
- Electrical Specifications for Oracle Database Appliance X7-2 Series
- Electrical Specifications for Oracle Database Appliance X6-2 Series
- Electrical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

Electrical Specifications for Oracle Database Appliance X8-2 Series

Item	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-HA
Server node power supply output rated maximum	1200W at 100-127 VAC 1200W at 200-240 VAC	1200W at 100-127 VAC 1200W at 200-240 VAC	1200W at 100-127 VAC 1200W at 200-240 VAC
Server node AC power	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A 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 X8-2L Power Calculator.	For more information on power consumption, see Oracle Server X8-2L Power Calculator.	Server node • Maximum: 522W • Typical: 217W Storage shelf (24 SSDs) • Maximum: 452W • Typical: 257W Storage shelf (6 SSDs, 14 HDDs) • Maximum: 421W • Typical: 261W

Electrical Specifications for Oracle Database Appliance X7-2 Series

Item	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
Server node power supply output rated maximum	1200W at 100-127 VAC 1200W at 200-240 VAC	1200W at 100-127 VAC 1200W at 200-240 VAC	1200W at 100-127 VAC 1200W at 200-240 VAC
Server node AC power	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC

Item	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
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 X7-2 Power Calculator.	For more information on power consumption, see Oracle Server X7-2 Power Calculator.	Server node • Maximum: 479W • Typical: 172W Storage shelf • Maximum: 453W • Typical: 322W

Electrical Specifications for Oracle Database Appliance X6-2 Series

Item	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Server node power supply output rated maximum	600W at 100-127 VAC 600W at 200-240 VAC	600W at 100-127 VAC 600W at 200-240 VAC	1000W at 100-127 VAC 1000W at 200-240 VAC	600W at 100-127 VAC 600W at 200-240 VAC
Server node AC power	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC	8.5 -12A at 100-127 VAC 5.7A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC
Storage shelf power supply output rated maximum	Not included	Not included	Not included	580W at 100-127 VAC 580W at 200-240 VAC
Storage shelf AC Power	Not included	Not included	Not included	8A at 100-127 VAC 3A at 220-240 VAC
Power usage	Not available	Not available	Not available	Server node • Maximum: 336W • Typical: 142W Storage shelf • Maximum: 453W • Typical: 322W

Electrical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

Item	Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2
Server node power supply output rated maximum	1270W at 100-120 VAC 1370W at 200-240 VAC	600W at 100-127 VAC 600W at 200-240 VAC	600W at 100-127 VAC 600W at 200-240 VAC
Server node AC power	12A at 110-127 VAC 7A at 200-240 VAC 13A at 100 VAC (Japan only)	7.2A at 100-127 VAC 3.4A at 200-240 VAC	7.2A at 100-127 VAC 3.4A at 200-240 VAC
Storage shelf power supply output rated maximum	Not supported	580W at 100-127 VAC 580W at 200-240 VAC	580W at 100-127 VAC 580W at 200-240 VAC
Storage shelf AC Power	Not supported	8A at 100-127 VAC 3A at 220-240 VAC	8A at 100-127 VAC 3A at 220-240 VAC
Power usage	Not available	Server node • X4-2 maximum: 439W X4-2 typical: 164W • X3-2 maximum: 551W X3-2 typical: 178W Storage shelf • Maximum: 699W • Typical: 325W	Server node • Maximum: 727W • Typical: 508W Storage shelf • Maximum: 699W • Typical: 469W

Environmental Specifications

This section describes the environmental specifications for the various versions of Oracle Database Appliance.

- Environmental Specifications for Oracle Database Appliance X8-2 Series
- Environmental Specifications for Oracle Database Appliance X7-2 Series
- Environmental Specifications for Oracle Database Appliance X6-2 Series
- Environmental Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

Environmental Specifications for Oracle Database Appliance X8-2 Series

Item	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-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)
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

Item	Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M	Oracle Database Appliance X8-2-HA
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 X8-2L Power Calculator	For more information on power consumption, see Oracle Server X8-2L Power Calculator	Server node, see Oracle Server X8-2L Power Calculator Storage shelf • At maximum usage: 1553 BTU/h • At typical usage: 874 BTU/h
Acoustic noise	8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling	8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling	8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling

Environmental Specifications for Oracle Database Appliance X7-2 Series

Item	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-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)
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)

Item	Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M	Oracle Database Appliance X7-2-HA
Cooling	For more information on power consumption, see Oracle Server X7-2 Power Calculator	For more information on power consumption, see Oracle Server X7-2 Power Calculator	Server node, see Oracle Server X7-2 Power Calculator Storage shelf • At maximum usage: 1553 BTU/h • At typical usage: 874 BTU/h
Acoustic noise	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling

Environmental Specifications for Oracle Database Appliance X6-2 Series

Item	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-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)	5° C to 35° C (41° F to 95° F)
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)	-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	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	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)	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)	Up to 12,000 m (39,370 ft)
Cooling	Not available	Not available	Not available	Server node • At maximum usage: 1146 BTU/h • At typical usage: 485 BTU/h Storage shelf • At maximum usage: 1553 BTU/h • At typical usage: 874 BTU/h

Item	Oracle Database Appliance X6-2S	Oracle Database Appliance X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Acoustic noise	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling	8.1 Bels A-weighted operating, 5.8 Bels A-weighted idling	7.0 Bels A-weighted operating, 7.0 Bels A-weighted idling

Environmental Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

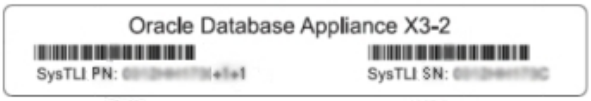
Item	Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2
Operating temperature	5° C to 35° C (41° F to 95° F)	5° C to 35° C (41° F to 95° F)	5° C to 35° C (41° F to 95° F)
Nonoperating temperature	-40° C to 70° C (-40° F to 158° F)	-40° C to 70° C (-40° 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 3000 m* (9,840 ft). Maximum ambient temperature is derated by 1° C per 300 m (984 ft) above 900 m (2,953 ft) * Except in China markets where regulations might limit installations to a maximum altitude of 2,000 m (6,562 ft)	Up to 3,048 m* (10,000 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 (6,562 ft)	Up to 3,048 m* (10,000 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 (6,562 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	Not available	Server node • X4-2 at maximum usage: 1498 BTU/h X4-2 at typical usage: 560 BTU/h • X3-2 at maximum usage: 1744 BTU/h X3-2 at typical usage: 607 BTU/h Storage shelf • At maximum usage: 2385 BTU/h • At typical usage: 1108 BTU/h	Server node • At maximum usage: 2482 BTU/h • At typical usage: 1734 BTU/h Storage shelf • At maximum usage: 2385 BTU/h • At typical usage: 1600 BTU/h
Acoustic noise	7.8 B operating, 7.1 B idling (LwAd: 1 B=10 dB)	7.9 B operating, 5.58 B idling (LwAd: 1 B=10 dB)	7.0 Bels A-weighted operating, 7.0 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 Version 1, X6-2S/X6-2M/ X6-2L, X7-2S/X7-2M and X8-2S/X8-2M	Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-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 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.

- Preparing Your Site
  How to prepare your site for Oracle Database Appliance installation.

Preparing Your Site

How to prepare your site for Oracle Database Appliance installation.

- 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 Version 1, X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M	Oracle Database Appliance X3-2/X4-2/ X5-2 and X6-2-HA/X7-2-HA/X8-2-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 appropriate *Deployment and User's Guide* or, for versions of Oracle Database Appliance released before the Oracle Database Appliance X6 series, the *Getting Started Guide*.

Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2, X6-2-HA, X7-2-HA, X8-2-HA	Oracle Database Appliance X6-2S/X6-2M/ X6-2L, X7-2S/X7-2M, X8-2S/X8-2M
• Optional Component Installation • Safety Precautions When Rackmounting • ESD Precautions • Rack Compatibility Requirements • Rackmount Kit Contents • Staff, Tools, and Equipment Required to Rackmount the System • Removing Components to Reduce System Weight • Install Rackmount Hardware Into a Rack • Installing Oracle Database Appliance Version 1 Into a Rack • Installing Shipping Brackets	• Optional Component Installation • Safety Precautions When Rackmounting • ESD Precautions • Rack Compatibility Requirements • Contents of the Shipping Pallet • Installation Sequence • Verify Component Compatibility • Tools and Equipment Needed • Stabilize the Rack for Installation • Applying Labels • Installing the Storage Shelves Into a Rack • Add a Storage Expansion Shelf to an Existing System • Installing the Server Nodes Into a Rack	• Optional Component Installation • Safety Precautions When Rackmounting • ESD Precautions • Rack Compatibility Requirements • Contents of the Shipping Pallet • Installation Sequence • Verify Component Compatibility • Tools and Equipment Needed • Stabilize the Rack for Installation • Applying Labels • Installing the Storage Shelves Into a Rack • Add a Storage Expansion Shelf to an Existing System • Installing the Server Nodes Into a Rack	• Optional Component Installation • Safety Precautions When Rackmounting • ESD Precautions • Rack Compatibility Requirements • Contents of the Shipping Container • Tools and Equipment Needed • Stabilize the Rack for Installation • Installing the Server Into a Rack

Optional Component Installation

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

- Optional Memory Installation
  Learn about the optional memory supported for the various Oracle Database Appliance models.
- Optional Storage Installation
  Learn about the optional storage supported for the various Oracle Database Appliance models.
- Optional Network Card Installation
  Learn about the optional network cards supported for the various Oracle Database Appliance models.

Optional Memory Installation

Learn about the optional memory 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.

> **Note:**
>
> Depending on how old your system is, some options might no longer be available.

- For **Oracle Database Appliance X8-2S**, you have the option of ordering memory expansion to 384 GB. Memory kits come in sets of 6 x 32 GB DIMMs.
- For **Oracle Database Appliance X8-2M**, you have the option of ordering memory expansion to 768 GB. Memory kits come in sets of 6 x 32 GB DIMMs, which means you need two kits (one for each processor).
- For **Oracle Database Appliance X8-2-HA**, you have the option of ordering memory expansion to 768 GB. Memory kits come in sets of 6 x 32 GB DIMMs, which means you need four kits (two for each server node) for 768 GB. Both server nodes must have the same amount of memory. Thus, the total memory for the appliance becomes 1536 GB.
- For **Oracle Database Appliance X7-2S**, you have the option of ordering memory expansion to 384 GB. Memory kits come in sets of 6 x 32 GB DIMMs.
- For **Oracle Database Appliance X7-2M**, you have the option of ordering memory expansion to 768 GB. Memory kits come in sets of 6 x 32 GB DIMMs, which means you need two kits (one for each processor).
- For **Oracle Database Appliance X7-2-HA**, you have the option of ordering memory expansion to 768 GB. Memory kits come in sets of 6 x 32 GB DIMMs, which means you need four kits (two for each server node) for 768 GB. Both server nodes must have the same amount of memory. Thus, the total memory for the appliance becomes 1536 GB.
- For **Oracle Database Appliance X6-2S**, you have the option of ordering memory expansion to 384 GB. Memory kits come in sets of 8 x 32 GB DIMMs.
- For **Oracle Database Appliance X6-2M/X6-2L**, you have the option of ordering memory expansion to 512 GB or 768 GB. Memory kits come in sets of 8 x 32 GB DIMMs.
- For **Oracle Database Appliance X5-2 and Oracle Database Appliance X6-2-HA**, you have the option of ordering memory expansion to 512 GB or 768 GB. Memory kits come in sets of 8 x 32 GB DIMMs, which means you need two kits (one for each server node) for 512 GB, and four kits (two for each server node) for 768 GB. Both server nodes must have the same amount of memory. Thus, the total memory for the appliance is either 1024 GB or 1536 GB, depending on the expanded configuration.

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

Optional Storage Installation

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

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

> **Note:**
>
> Depending on how old your system is, some options might no longer be available.

- For **Oracle Database Appliance X8-2M** with the default configuration of two NVMe drives, you have the option of ordering up to ten additional 2.5-inch 6.4 TB NVMe SSDs for front drive slots 2-11. Drives must be installed in pairs. Note the following:
  - **If you have Oracle Database Appliance software release 18.7, 19.4 or 19.5,** all storage must be added BEFORE you initially power-on the system and install system software. Once the system is provisioned and running you cannot add storage.
  - **If you have Oracle Database Appliance software release 18.8 , 19.6 or later version,** you can add storage with the system running and use the appliance CLI software commands to expand the storage configuration.
- For **Oracle Database Appliance X8-2-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).

      If you have Oracle Database Appliance software release 18.7, 19.4 or 19.5, all storage must be added BEFORE you initially power-on the system and install system software. Once the system is provisioned and running you cannot add storage.

      If you have Oracle Database Appliance software release 18.8, 19.6 or later version, 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 14 TB HDDs (available in an eighteen-pack).

      If you have Oracle Database Appliance software release 18.7, 19.4 or 19.5, all storage must be added BEFORE you initially power-on the system and install system software. Once the system is provisioned and running you cannot add storage.

      If you have Oracle Database Appliance software release 18.8, 19.6 or later version, 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 14 TB HDDs.

    If you have Oracle Database Appliance software release 18.7, 19.4 or 19.5, all storage must be added BEFORE you initially power-on the system and install system software. Once the system is provisioned and running you cannot add storage.

    If you have Oracle Database Appliance software release 18.8, 19.6 or later version, 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.

- For **Oracle Database Appliance X7-2M** with the default configuration of two NVMe drives, you have the option of ordering three or six additional 2.5-inch 6.4 TB NVMe SSDs for front drive slots 2-7. Drives are available in three-packs.
- For **Oracle Database Appliance X7-2-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 fifteen 7.68 TB SSDs (available in five-packs). Note that 3.2 TB SSDs are no longer available. In order to support 7.68 TB SSDs in the system you must be running **Oracle Database Appliance software release 18.7, 18.8 or 19.6**. In addition:
      - If you are running **Oracle Database Appliance software release 18.7**, you must power off the system to remove any existing 3.2 TB SSDs and replace them with 7.68 TB SSDs. You cannot have both types of drives in the system. After the new storage is added you must perform clean-up, redeploy the appliance software, and restore the database from a backup after adding the new storage.
      - If you are running **Oracle Database Appliance software release 18.8, 19.6 or later version**, your 7.68 TB SSDs can be added with the system running. Note that the 7.68 TB SSDs will be formatted as 3.2 TB SSDs after being added to the system to match the existing 3.2 TB drives.
    - For a high capacity shelf, you can add up to fifteen 14 TB HDDs (available in a fifteen-pack). Note that 10 TB HDDs are no longer available. In order to support 14 TB HDDs in the system you must be running **Oracle Database Appliance software release 18.7, 18.8, 19.6 or later version**. In addition:
      - The storage shelf must be powered off and the five 3.2 TB SSDs already in the base configuration must be moved to slots 15 -19 and the new storage installed.
      - After the new storage is added, perform clean-up, redeploy the appliance software, and restore the database from a backup.
  - The storage expansion shelf is no longer available for this product.
- For **Oracle Database Appliance X6-2S/X6-2M** with the default configuration of two 3.2 TB NVMe drives, you have the option of ordering two additional 2.5-inch 6.4 TB NVMe SSDs (must be installed in pairs) for front drive slots NVMe 2-3. Note that 3.2 TB NVMe SSD drives are no longer available. In addition:
  - You must be running **Oracle Database Appliance software release 18.5, 18.7, 18.8, 19.6 or later version**.
  - The 6.4 TB NVMe SSDs will be formatted to 3.2 TB to match existing drives.
- For **Oracle Database Appliance X6-2L** with the default configuration of six 3.2 TB NVMe drives, you have the option of ordering three additional 2.5-inch 6.4 TB NVMe SSDs for front drive slots NVMe2, NVMe5 and NVMe8 (must be installed in a set of three). Note

that 3.2 TB NVMe SSDs are no longer available. Drive slots NVMe9, NVMe10 and NVMe11 are not supported for use with this product. In addition:

  - You must be running **Oracle Database Appliance software release 18.5, 18.7, 18.8, 19.6 or later version**.
  - The 6.4 TB NVMe SSDs will be formatted to 3.2 TB to match existing drives.

- For **Oracle Database Appliance X6-2-HA**, you can expand storage in a partially populated storage shelf with 7.68 TB SSDs (available in five-packs). Note that 1.6 TB SSDs are no longer available. In addition:
  - You must be running **Oracle Database Appliance software release 18.7, 18.8 , 19.6 or later version**.
  - You must power off the appliance and replace any existing 1.6 TB or 3.2 TB SSDs with 7.68 TB SSD, perform clean-up, redeploy the appliance software, and restore the database from a backup.
  - The storage expansion shelf is no longer available for this product.
- For **Oracle Database Appliance X3-2/X4-2/X5-2**, the storage expansion shelf is no longer available for these products.

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

Optional Network Card Installation

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

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

> **Note:**
>
> Depending on how old your system is, some options might no longer be available.

- For **Oracle Database Appliance X8-2** series, you have the option of ordering up to two additional public network PCIe cards per system (or per node for the X8-2-HA) if you are running **Oracle Database Appliance software release 18.7, 19.4 or 19.5**. Supported network cards include the Oracle Dual Port 25Gb Ethernet Adapter or the Oracle Quad Port 10GBase-T Adapter. Additional public network cards **must** match public network cards (type and model) already installed. These cards cannot be used for the X8-2-HA appliance private cluster node-to-node connection.

> **Note:**
>
> All supported optional network PCIe cards must be added **BEFORE** you initially power-on the system and install system software. Once the system is provisioned and running, adding PCIe cards afterwards will require that you perform clean-up, redeploy the appliance software, and restore the database from a backup.

After option card installation, refer to the *Deyployment and User's Guide* for instructions on cabling and software configuration.

- For **Oracle Database Appliance X8-2** series, you have the option of ordering up to two additional public network PCIe cards per system (or per node for the X8-2-HA) if you are running **Oracle Database Appliance software release 18.8, 19.6 or later version**. 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 7 or the cluster interconnect card in PCIe slot 1.**

  After option card installation, refer to the *Deyployment and User's Guide* for instructions on cabling and software configuration.

- For **Oracle Database Appliance X5-2**, you have the option of ordering two Sun Dual 10GbE SFP+ PCIe 2.0 Low Profile Adapters to replace the two standard InfiniBand adapters in PCIe card slot 1 of each server node to support an Ethernet fiber connection to the data center or public network (it cannot be used for the appliance private node-to-node connection).

  After the card is replaced, refer to the *Deployment and User's Guide* for instructions on cabling and software configuration.

Refer to the *Service Manual* for instructions on installing PCIe cards.

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 tables.

For Oracle Database Appliance X8-2 series:

Feature	Oracle Database Appliance X8-2S/X8-2M	Oracle Database Appliance X8-2-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.

Feature	Oracle Database Appliance X8-2S/X8-2M	Oracle Database Appliance X8-2-HA
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).
Minimum clearance for service access	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)
Server node dimensions	Physical Specifications for Oracle Database Appliance X8-2 Series	Physical Specifications for Oracle Database Appliance X8-2 Series
Storage shelf dimensions	N/A	Physical Specifications for Oracle Database Appliance X8-2 Series

For Oracle Database Appliance X7-2 series:

Feature	Oracle Database Appliance X7-2S/ X7-2M	Oracle Database Appliance X7-2-HA
Rack structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.
Space available	Must have 1RU (rack units) of space available.	6RU without optional storage expansion shelf. 10RU 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).
Minimum clearance for service access	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)
Server node dimensions	Physical Specifications for Oracle Database Appliance X7-2 Series	Physical Specifications for Oracle Database Appliance X7-2 Series
Storage shelf dimensions	N/A	Physical Specifications for Oracle Database Appliance X7-2 Series

For Oracle Database Appliance X6-2 series:

Feature	Oracle Database Appliance X6-2S/X6-2M	Oracle Database Appliance X6-2L	Oracle Database Appliance X6-2-HA
Rack structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.
Space available	Must have 1RU (rack units) of space available.	Must have 2RU of space available.	6RU without optional storage expansion shelf. 10RU 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.	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).	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).	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.	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).	Distance between structural supports and cable troughs is at least 456 mm (18 in).
Minimum clearance for service access	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)
Server node dimensions	Physical Specifications for Oracle Database Appliance X6-2 Series	Physical Specifications for Oracle Database Appliance X6-2 Series	Physical Specifications for Oracle Database Appliance X6-2 Series
Storage shelf dimensions	N/A	N/A	Physical Specifications for Oracle Database Appliance X6-2 Series

For Oracle Database Appliance Version 1 and Oracle Database Appliance X3-2/X4-2/X5-2:

Feature	Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2
Rack structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.

Feature	Oracle Database Appliance Version 1	Oracle Database Appliance X3-2/X4-2	Oracle Database Appliance X5-2
Space available	Must have 4RU (rack units) of space available.	4RU without optional storage expansion shelf. 6RU with optional storage expansion shelf.	6RU without optional storage expansion shelf. 10RU 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.	Conforms to ANSI/EIA 310-D-1992 or IEC 60297 standards.
Distance between front and rear mounting planes	Minimum 660.4 mm and maximum 876.3 mm (26 in to 34.5 in).	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).	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 700 mm (27.5 in).	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).	Distance between structural supports and cable troughs is at least 456 mm (18 in).
Minimum clearance for service access	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)	Front clearance: 123.2 cm (48.5 in) Rear clearance: 91 cm (36 in)
Server node dimensions	Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2	Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2	Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2
Storage shelf dimensions	N/A	Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2	Physical Specifications for Oracle Database Appliance Version 1 and Models X3-2, X4-2 and X5-2

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 X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M Into a Rack
  Procedures describing how to install Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M, X8-2S/X8-2M into a rack.
- Installing Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA Into a Rack
  Procedures describing how to install Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA into a rack.
- Installing Oracle Database Appliance Version 1 Into a Rack
  Procedures describing how to install Oracle Database Appliance Version 1 into a rack.

Installing Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M Into a Rack

Procedures describing how to install Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M, X8-2S/X8-2M into a rack.

If you do not have an Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M model, select the appropriate link listed in Installing the System Into a Rack.

- Contents of the Shipping Container
  A listing of the ship container contents of Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.
- Tools and Equipment Needed
  A listing of the tools you will need to install Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.
- Stabilize the Rack for Installation
  Use this procedure to stabilize the rack before installing Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.
- Installing the Server Into a Rack
  Tasks to complete to install an Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M, X8-2S/X8-2M into a rack.

Contents of the Shipping Container

A listing of the ship container contents of Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.

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 X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.

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 X6-2S/X6-2M/X6-2L, X7-2S/X7-2M and X8-2S/X8-2M.

> **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 an Oracle Database Appliance X6-2S/X6-2M/X6-2L, X7-2S/X7-2M, X8-2S/X8-2M into a rack.

Install the Oracle Database Appliance X8-2S/X8-2M server into the rack:

> **Note:**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X8-2L documentation library. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X8-2S	Oracle Database Appliance X8-2M
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

Install the Oracle Database Appliance X7-2S/X7-2M server into the rack:

> **Note:**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X7-2 documentation library. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X7-2S	Oracle Database Appliance X7-2M
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

Install the Oracle Database Appliance X6-2S/X6-2M/X6-2L server into the rack:

> **Note:**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X6-2 or Oracle Server X6-2L documentation libraries. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X6-2S/X6-2M	Oracle Database Appliance X6-2L
Verify Rackmount Hardware	Verify Rackmount Hardware
Install Mounting Brackets	Install Mounting Brackets
Mark the Rackmount Location	Mark the Rackmount Location
Connect AC Power Cables Before Installing Tool-less Slide-Rails in Sun Rack II 1042	Connect AC Power Cables Before Installing Tool-less Slide-Rails in Sun Rack II 1042
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
Optional: Install the Shipping Bracket With Cable Trough	Optional: Install the Shipping Bracket With Cable Trough

Installing Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA Into a Rack

Procedures describing how to install Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA into a rack.

If you do not have a high availability multi-node Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA model, select the appropriate link listed in Installing the System 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 X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-HA.
- Installation Sequence
  Understand the proper installation sequence when installing an Oracle Database Appliance X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-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 X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-HA.
- Stabilize the Rack for Installation
  Use this procedure to stabilize the rack before installing Oracle Database Appliance X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-HA.

- Applying Labels
  Apply labels to identify appliance components.
- Installing the Storage Shelves Into a Rack
  Use this procedure to install Oracle Database Appliance storage shelves into a rack.
- Installing the Server Nodes Into a Rack
  Describes installing Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA server nodes into a rack.

Contents of the Shipping Container

A listing of the ship container contents of Oracle Database Appliance X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-HA.

Oracle Database Appliance X3-2/X4-2/X5-2 and Oracle Database Appliance X6-2-HA are shipped with the entire system on a single pallet. It includes all server nodes, storage shelves, mounting hardware, cables, and labels.

For Oracle Database Appliance X7-2-HA/X8-2-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 X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-HA into a rack.

Always install equipment in a rack **starting at the bottom and working upwards**. For Oracle Database Appliance X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-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.

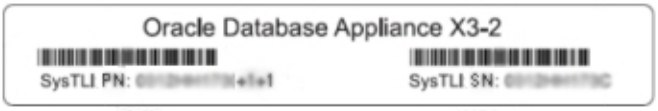
For Oracle Database Appliance X3-2/X4-2/X5-2 and Oracle Database Appliance X6-2-HA, all appliance components that are bundled at the factory have a Top Level Identifier (TLI) number that is matched for the system. Both server nodes and the storage shelf must have the same TLI. The optional storage expansion shelf does not need to have the same TLI.

For Oracle Database Appliance X7-2-HA/X8-2-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 X3-2/X4-2/X5- and X6-2-HA/X7-2-HA/X8-2-HA.

Obtain the following tools and equipment before beginning the installation of Oracle Database Appliance X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-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 X3-2/X4-2/X5-and X6-2-HA/X7-2-HA/X8-2-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.

Applying Labels

Apply labels to identify appliance components.

Oracle Database Appliance X3-2/X4-2/X5-2 and Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA are shipped with a label kit that provides four labels, to be applied to the front of each server node and storage shelf.

- To Apply Labels to Server Nodes and Storage Shelves
  Complete this task to apply storage shelve labels before installing the appliance into a rack.

To Apply Labels to Server Nodes and Storage Shelves

Complete this task to apply storage shelve labels before installing the appliance into a rack.

1. Find the labels.

   Depending on your model, the shipping kit might include server node labels and a sheet with storage shelf labels.

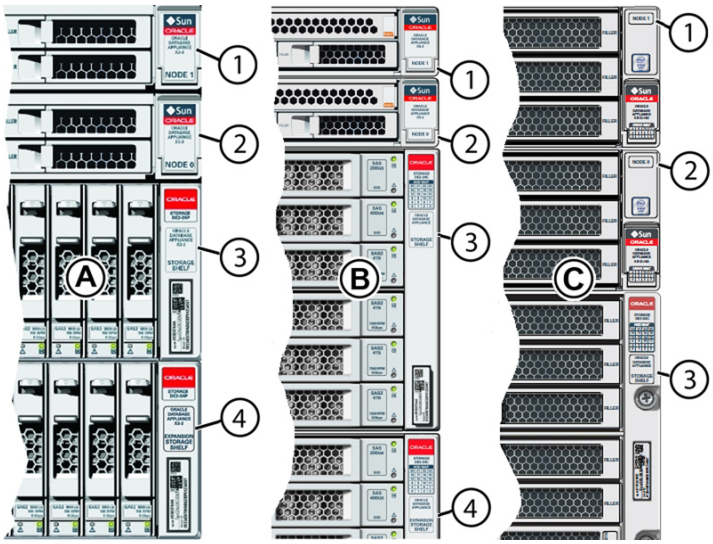
- Oracle Database Appliance X5-2 and Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA systems only include server node labels to attach. The storage shelf labels are attached at the factory.
- Oracle Database Appliance X3-2 and Oracle Database Appliance X4-2 systems include both server node and storage shelf labels that you need to attach.

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].
   - Storage shelf: Apply this label to the storage shelf directly beneath server node 0 [3].
   - Storage expansion shelf (optional): Apply this label to the bottom storage shelf, if one is present [4].

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



Callout	Description
A	Oracle Database Appliance X3-2 and Oracle Database Appliance X4-2
B	Oracle Database Appliance X5-2 and Oracle Database Appliance X6-2-HA/X7-2-HA
C	Oracle Database Appliance X8-2-HA
1	Server node 1
2	Server node 0
3	Storage shelf

Callout	Description
4	Optional storage expansion shelf

Installing the Storage Shelves Into a Rack

Use this procedure to install Oracle Database Appliance storage shelves into a rack.

This section includes instructions for installing the storage shelf into a rack.

Oracle Database Appliance X3-2/X4-2/X5-2 and Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA require one storage shelf and might include a second storage shelf, called the storage expansion shelf. Both are installed in the same way. If a storage expansion shelf came with your appliance, install it first. Otherwise, you can add a storage expansion shelf later.

- Install the Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA DE3-24C Storage Shelf Into a Rack
  Describes how to install an Oracle Database Appliance DE3-24C storage shelf into a rack.
- Install the Oracle Database Appliance X5-2 DE2-24C Storage Shelf Into a Rack
  Use this procedure to install an Oracle Database Appliance DE2-24C storage shelf into a rack.
- Install the Oracle Database Appliance X3-2/X4-2 DE2-24P Storage Shelf Into a Rack
  Use this procedure to install an Oracle Database Appliance DE2-24P 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 Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA DE3-24C Storage Shelf Into a Rack

Describes how to install an Oracle Database Appliance DE3-24C storage shelf into a rack.

The Oracle Storage Drive Enclosure DE3-24C requires four standard mounting units (4RU) of vertical space in the cabinet.

- Ensure that your site meets the requirements in Oracle Database Appliance Specifications
- Ensure that the rack meets the requirements in Rack Compatibility Requirements

> **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 Safety Precautions When Rackmounting

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

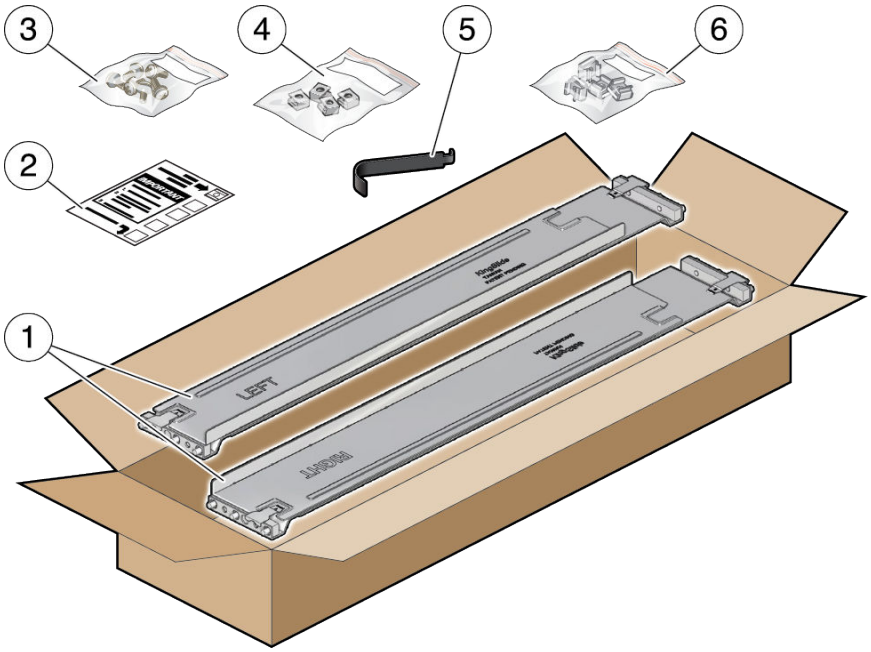
   Storage shelves must be installed below the server nodes to prevent the rack from tipping.

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:

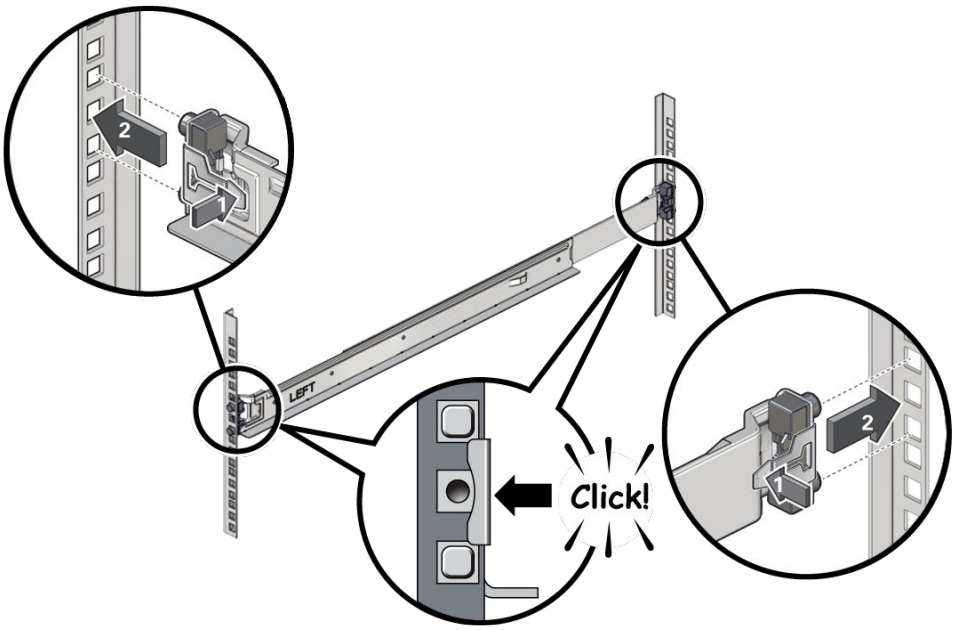
a. Orient the rail so that the stamped label (LEFT or RIGHT) is facing the inside of the rack.

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:



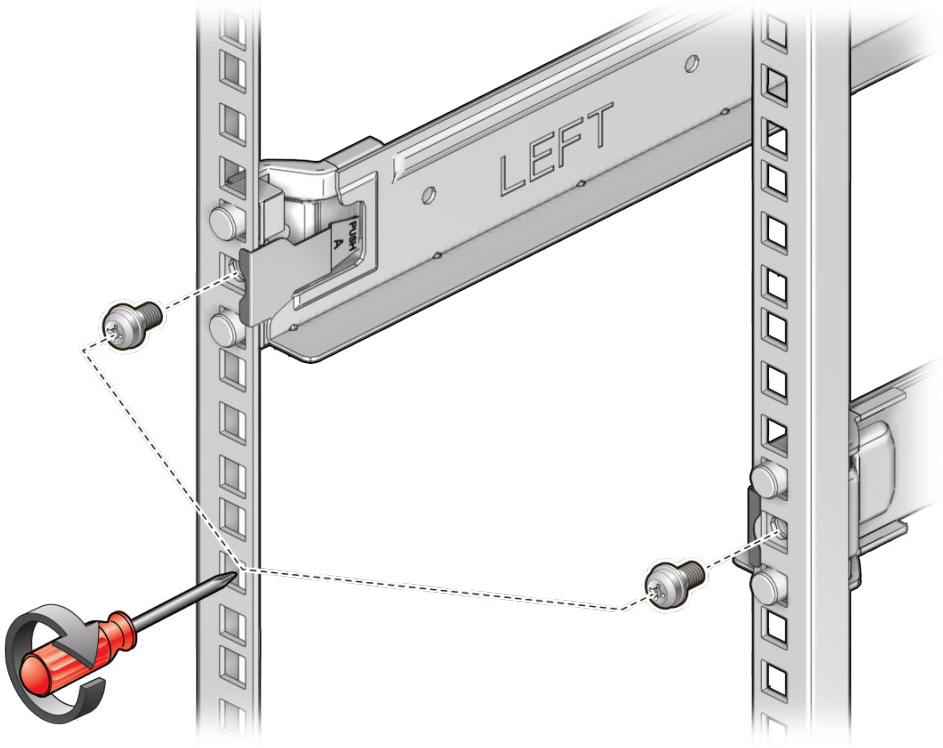
d. Close the rail clamps over the rails by releasing the clamp lever.

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.

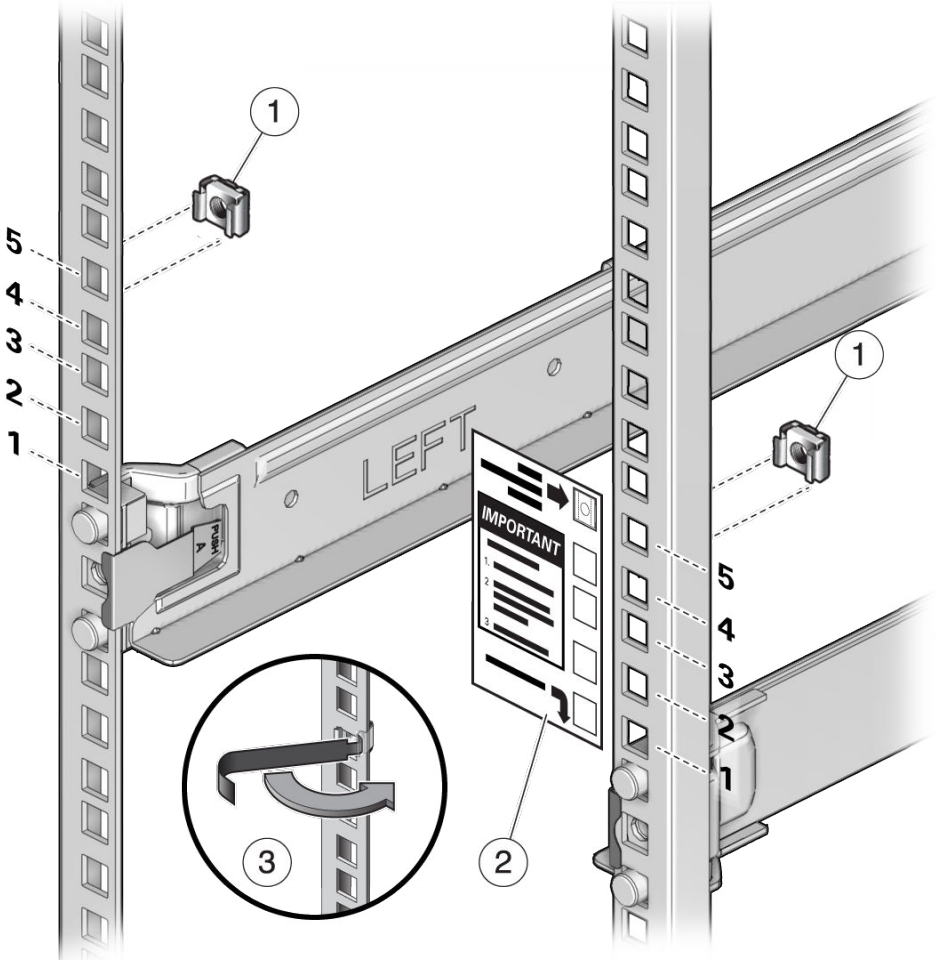
The following figure shows how to secure the storage shelf rails to the rack:



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.

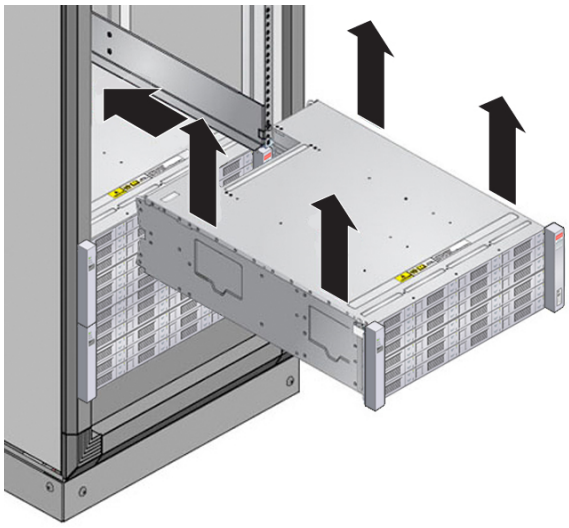
b. Retrieve a cage nut and hook one lip of the nut into the appropriate rail hole [1].

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.

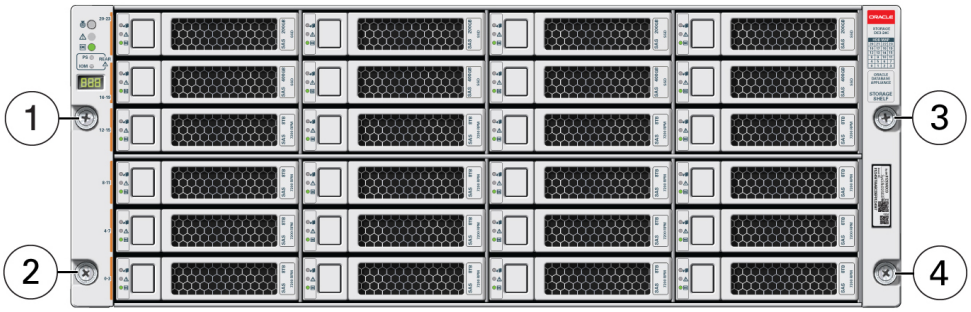
6. Using a mechanical lift or three people, one at each side of the storage shelf and one in front, carefully lift and rest the shelf on the bottom ledge of the left and right rails. Do not lift using the power supply handles.

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



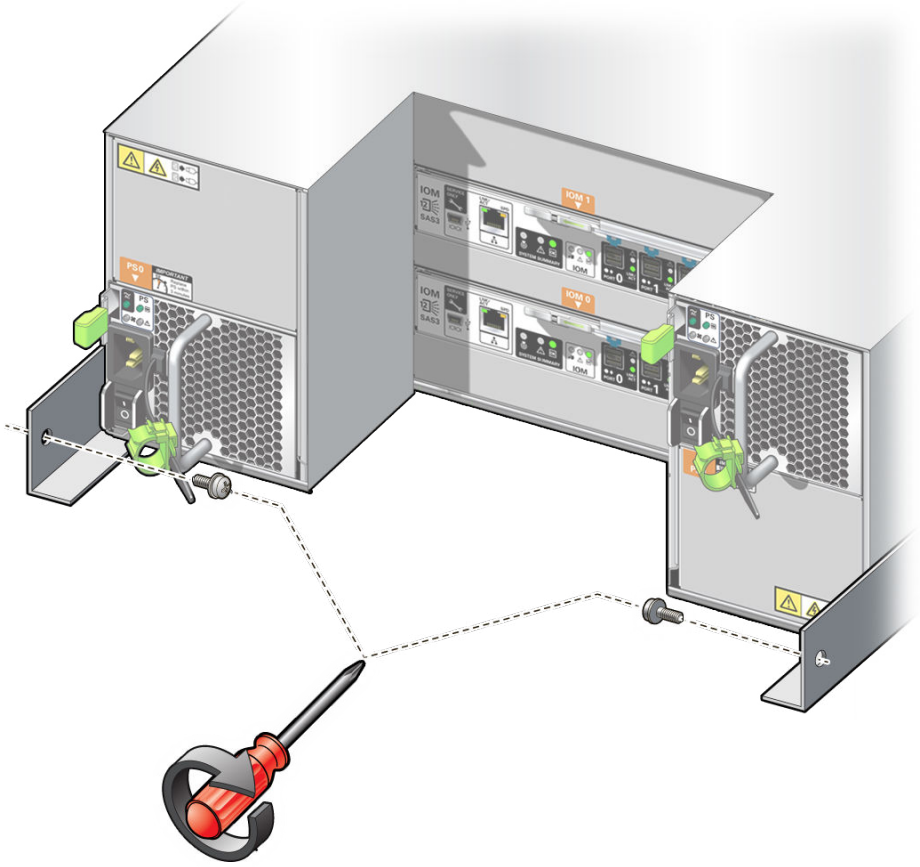
7. Carefully slide the shelf into the cabinet. Ensure that the shelf is fully seated within the rails. If removing the shelf to reseat it, support it at all times.
8. Secure the front of the shelf using the four captive securing screws [1 - 4].

   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.

Install the Oracle Database Appliance X5-2 DE2-24C Storage Shelf Into a Rack

Use this procedure to install an Oracle Database Appliance DE2-24C storage shelf into a rack.

The Oracle Storage Drive Enclosure DE2-24C requires four standard mounting units (4RU) of vertical space in the cabinet. Instructions listed here apply for both threaded and unthreaded racks.

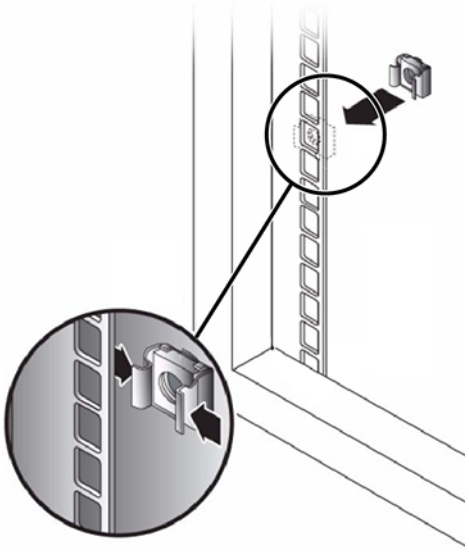
- Ensure that your site meets the requirements in Oracle Database Appliance Specifications
- Ensure that the rack meets the requirements in Rack Compatibility Requirements
- Observe all precautions in Safety Precautions When Rackmounting

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.

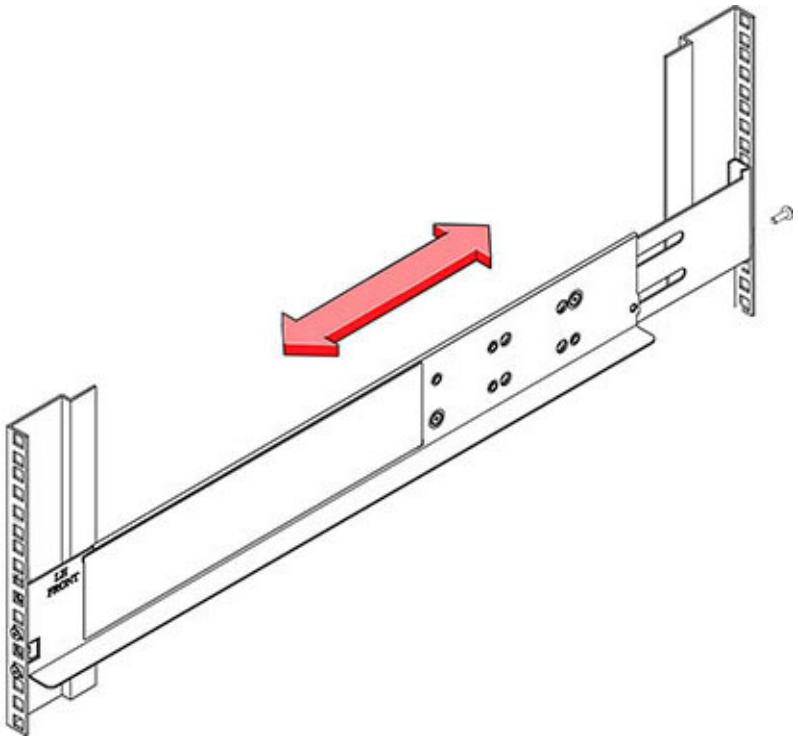
2. If using an unthreaded universal 19-inch or Sun Rack II cabinet, snap one supplied cage nut into the 8th rack hole, counting upward, in each front rail of the 4RU space.

   The following figure shows how to install the cage nuts:



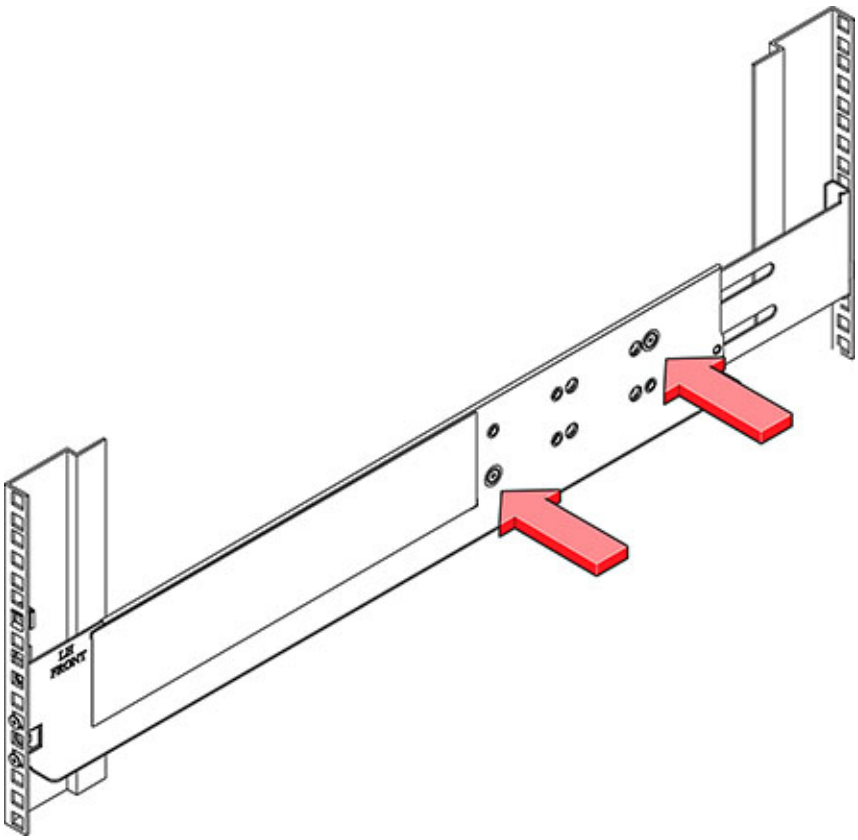
3. Prepare the screws in each rail end:
   - Square-hole unthreaded cabinet: No preparation.
   - Round-hole unthreaded cabinet: Remove the screws from each rail end and discard. Locate the screws for round-hole cabinets and place aside.
   - Threaded cabinet: Remove screws and replace them in the opposite direction (from the inside of the rail flange) so they act as location pins. Also remove the clip nut from each front rail end and discard.
4. Position the front of the rails inside the cabinet, with the rail flange inside of the cabinet flange, and the rail label facing the inside of the cabinet.
   - Square-hole unthreaded cabinet: The screw heads fit inside the rack holes.
   - Round-hole unthreaded cabinet: Install two screws through the rack and into the front of each rail. Do not install into the cage nut in the rack, or the clip nut on the rail.
   - Threaded cabinet: The location pins fit inside the rack holes.
5. Adjust the rail lengths to fit.

   The following figure shows how to adjust the storage shelf rails:



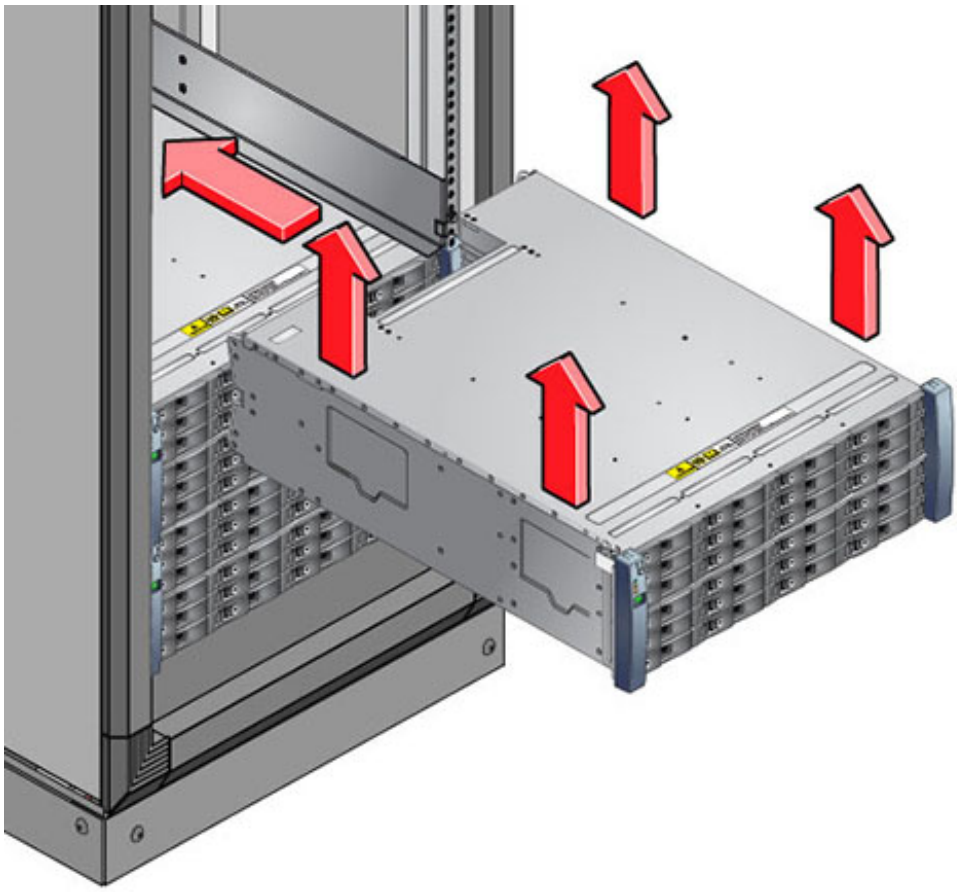
6. Install one screw through the rack and into the rear of each rail.
7. Tighten the two locking screws in the rails.

   The following figure shows how to lock the storage shelf rails:



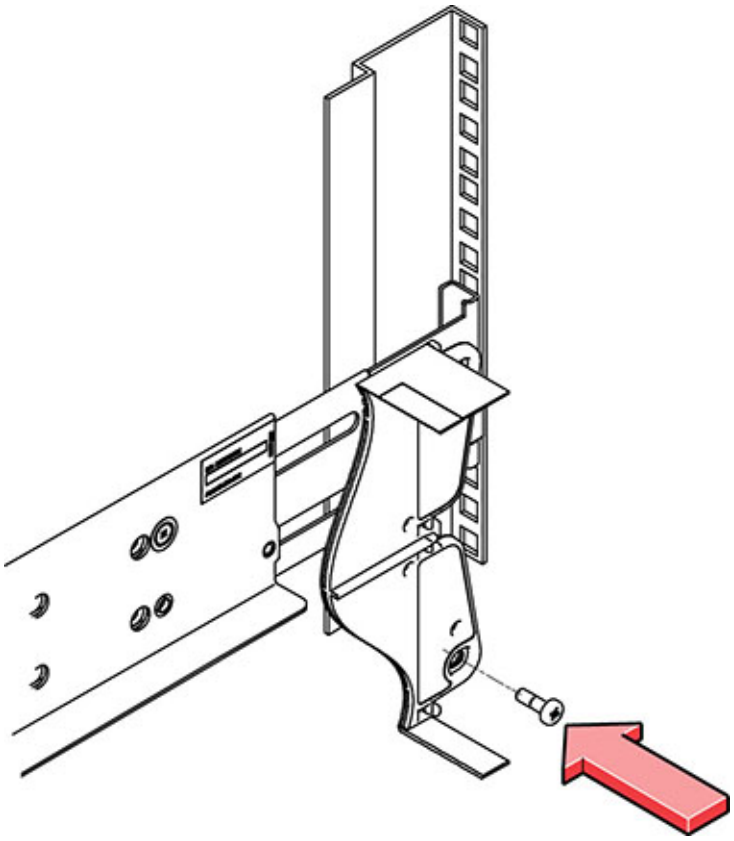
8. Using a mechanical lift or three people, one at each side of the storage shelf and one in front, carefully lift and rest the shelf on the bottom ledge of the left and right rails. Do not lift using the power supply handles.

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



9. 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.
10. Remove the front side caps, install two screws into each front side, and replace the caps.
11. Install one long patchlock screw per rail to secure the rear of the shelf to the rear of the rack.

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



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

Install the Oracle Database Appliance X3-2/X4-2 DE2-24P Storage Shelf Into a Rack

Use this procedure to install an Oracle Database Appliance DE2-24P storage shelf into a rack.

The Oracle Storage Drive Enclosure DE2-24P requires two standard mounting units (2RU) of vertical space in the cabinet. The storage shelf rack-mount kit contains two rack rails, long and short M6 screws, and a 10mm wrench. Instructions listed here apply for both threaded and unthreaded racks.

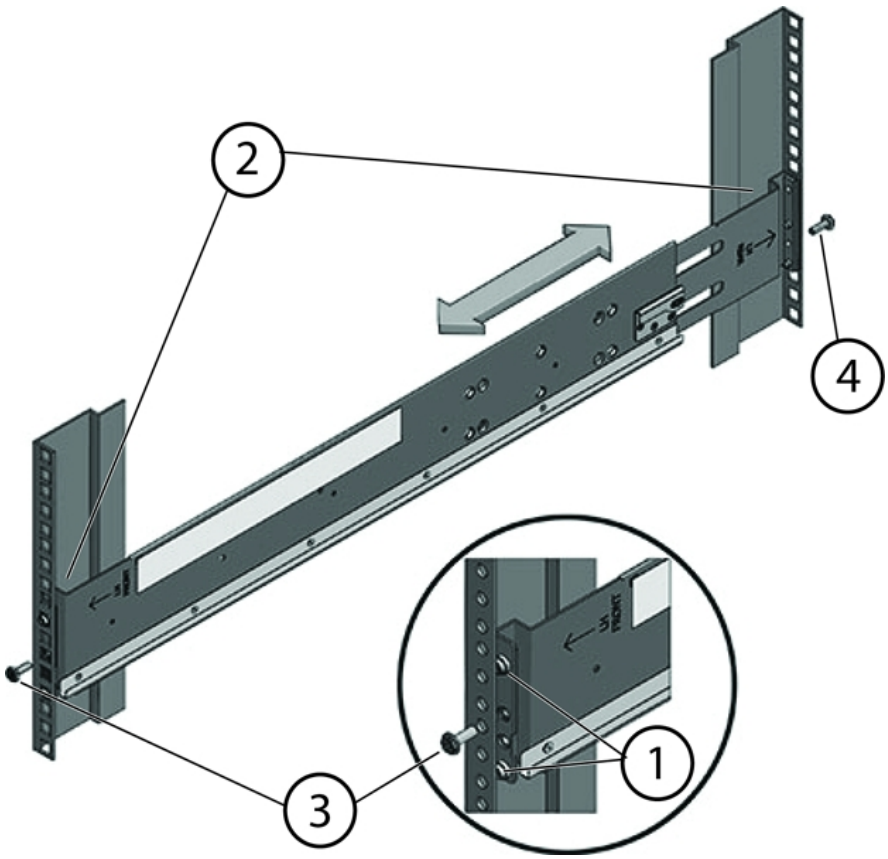
- Ensure that your site meets the requirements in Oracle Database Appliance Specifications
- Ensure that the rack meets the requirements in Rack Compatibility Requirements
- Observe all precautions in Safety Precautions When Rackmounting

1. Install the rails in the rack.
   - If you have an unthreaded rack:
     a. Position the front rail location pegs [1] fully inside the appropriate holes in the front of the rack.

        The rail flange [2] must be inside of the cabinet flange, and the rail label facing the inside of the cabinet.

     b. Insert and loosely tighten one screw through the front of the rack and into the top hole in the rails [3].

c. Insert and loosely tighten one screw through the back of the rack and into the back of the rails [4]. The following figure shows unthreaded rack rail installation:



Callout	Description
1	Location pegs
2	Rail flange and label
3	Front mounting screw
4	Rear mounting screw

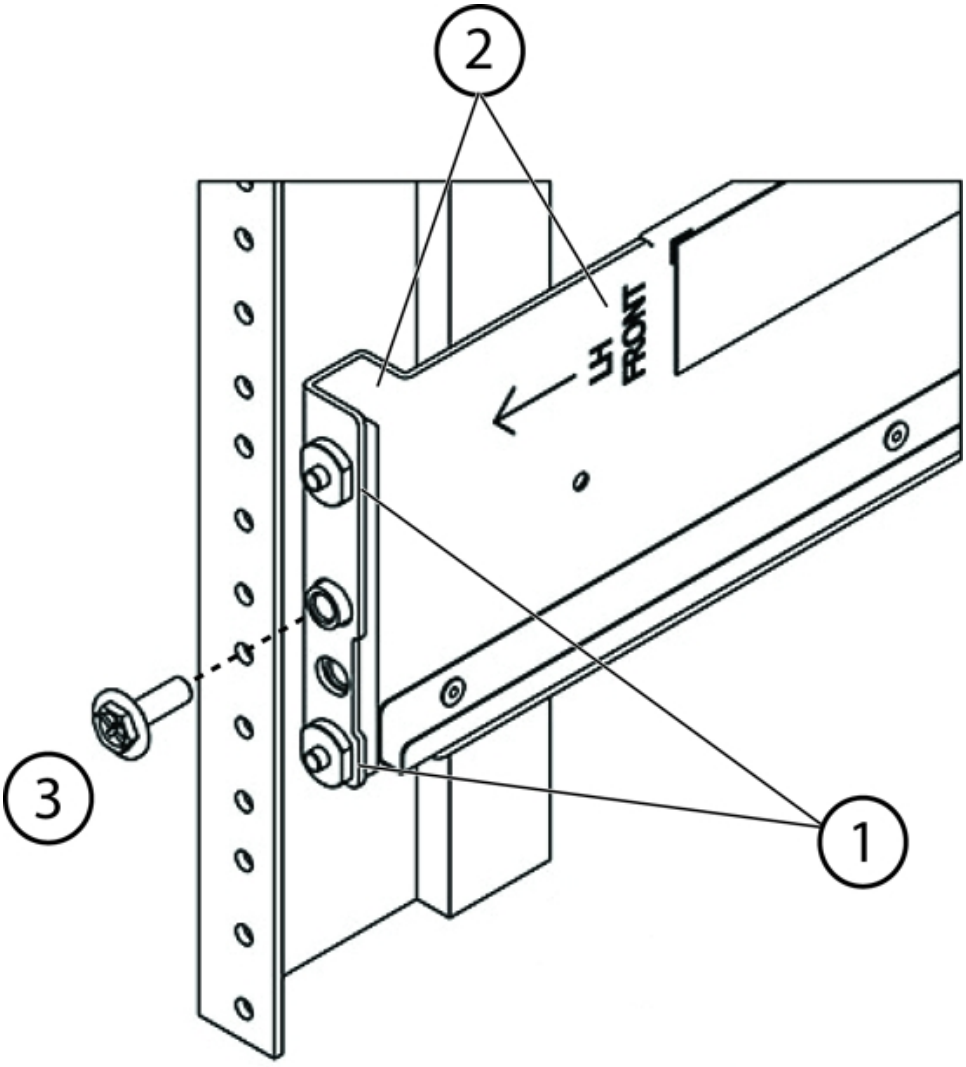
- If you have a threaded rack:
  a. Use the T20 Torx driver to remove the rail location pegs from the front and rear of the rails [1].
  b. Use a 10mm wrench (supplied) to insert the pins into the ends of the rails where you removed the location pegs [1].
  c. Position the front of the rails inside the cabinet, with the rail flange inside of the cabinet flange, and the rail label facing the inside of the cabinet [2].

     The pins should be fully located within the rack holes.
  d. Insert and loosely tighten one screw through the front of the rack and into the top hole in the rails [3].

The screws for threaded racks have an unthreaded area near the top of the shaft. Before threading these screws into the rails, thread them through the rack until the threads clear the rack and the screws turn freely.

> **Caution:**
>
> **Mechanical failure**. When installing a storage shelf in a threaded rack, be sure to use the screws with the partially unthreaded shaft. Before threading them into the rails, be sure to thread them through the rack until the threads clear the rack and the screws turn freely.

The following figure shows front mount threaded rack rail installation:

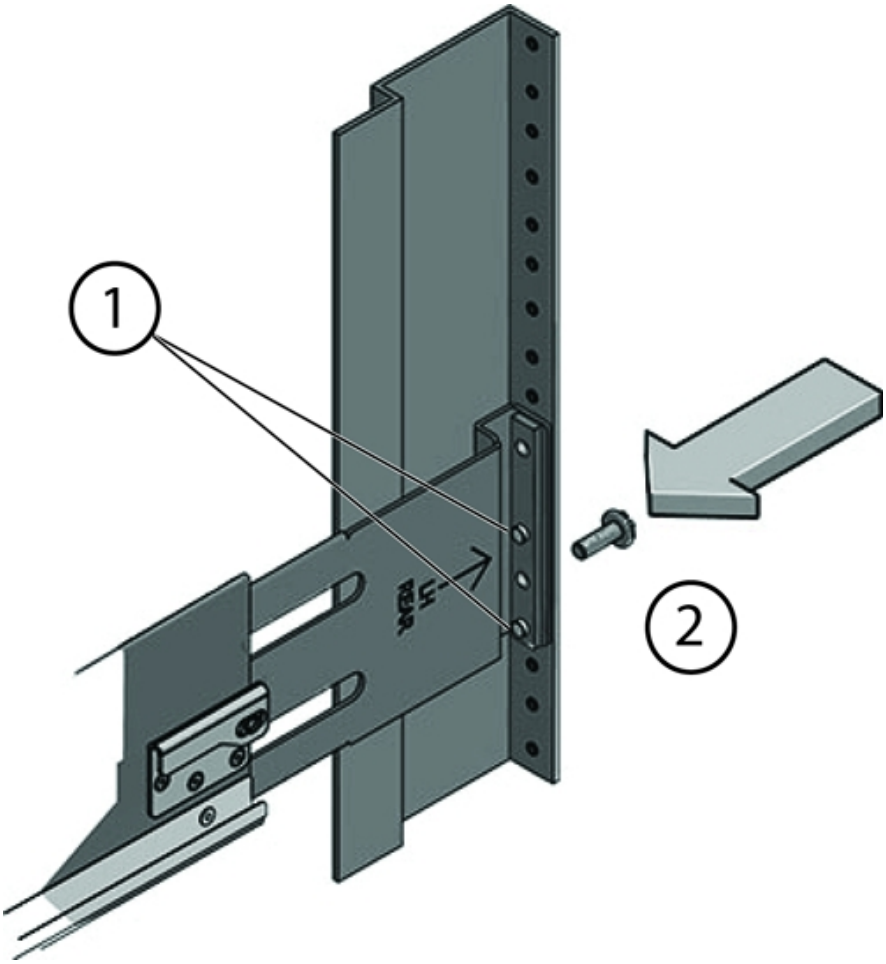


Callout	Description
1	Pins (these replaced the location pegs)
2	Rail flange and label
3	Front mounting screw

e. Adjust the rail lengths to fit, and locate the rear pins inside the corresponding rear rack holes [1].

f. Insert and loosely tighten one screw through the back of the rack and into the back of the rails [2].

The following figure shows rear mount threaded rack rail installation:



Callout	Description
1	Pins (replace location pegs)
2	Rear mounting screw

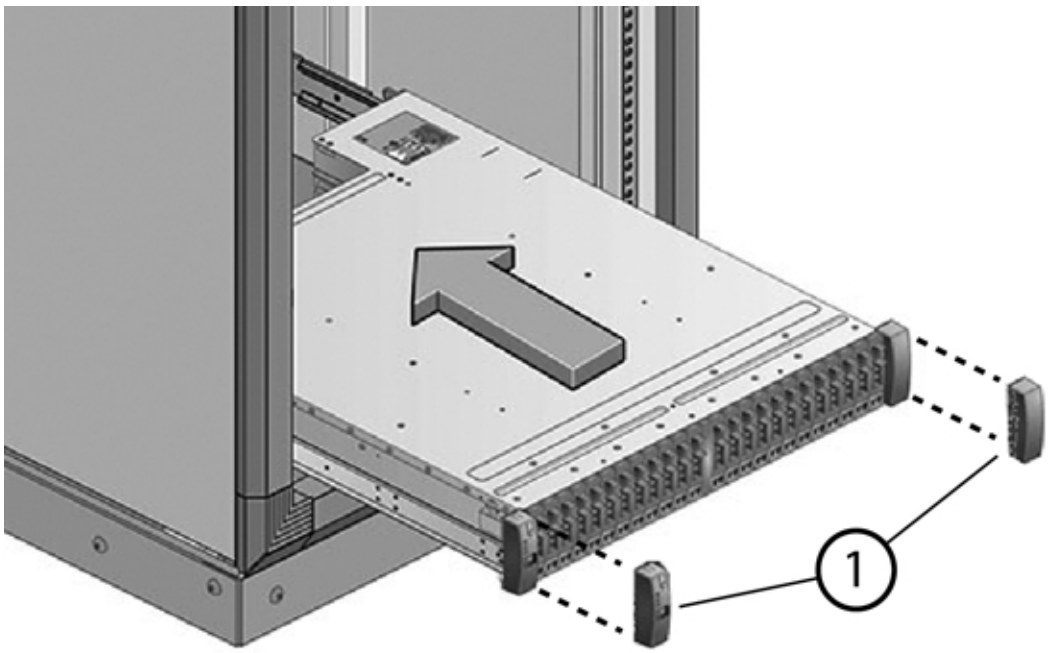
2. Carefully slide the storage shelf onto the shelf rails until it is fully seated in the rack.

> **Caution:**
>
> **Equipment damage.** Do not lift the storage shelf using the handles on the power supply/fan module.

> **Caution:**
>
> **Personal injury or equipment damage.** Use a mechanical lift, or three persons. If you are using three persons, use two to lift the storage shelf into place, and a third to check that it is resting securely on the rails before releasing it.

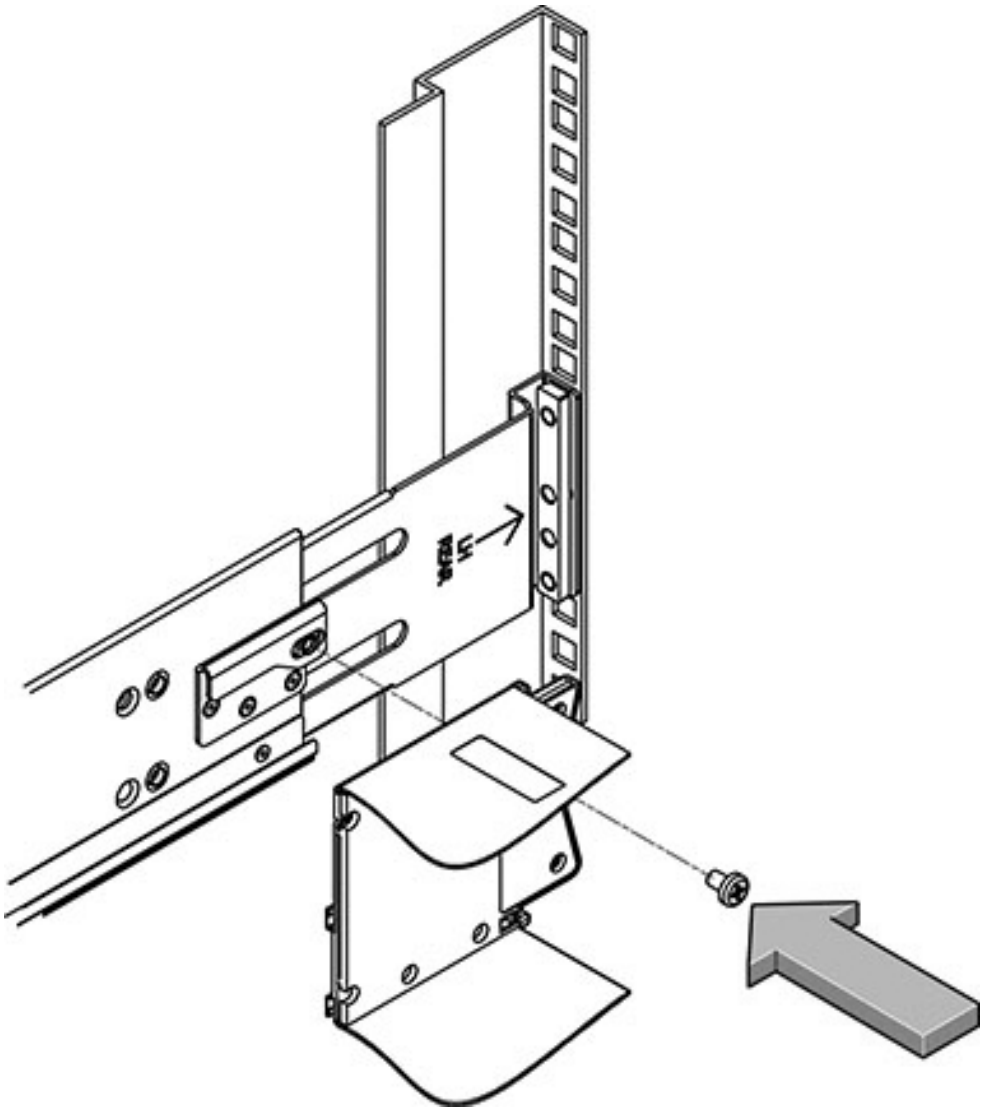
3. Pull the storage shelf partway out of the rack until it is approximately 7.8 inches (200 mm) out of the rack.
4. Tighten the four screws that fasten the rails to the rack (two in front, two in back).
5. Slide the storage shelf back into the rack and check to ensure that it is resting securely on the rails.

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



6. Remove the front end caps that cover the ears on the front of the storage shelf [1]. They snap off.
7. Use one short screw on each side to fasten the front of the storage shelf to the rack.
8. Snap the end caps back onto the storage shelf.
9. Use one short screw per rail to secure the rear of the storage shelf to threaded hole on the rail.

   The following figure shows how to secure storage shelf rear screws:



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 X3-2/X4-2/X5-2, or Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA (must already have a fully populated storage shelf).

> **Note:**
>
> **If you have an Oracle Database Appliance X8-2-HA with software release 18.7 or 19.4, all storage must be added BEFORE you initially power-on the system and install system software. Once the system is provisioned and running you cannot add storage.**

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. Apply the label, if needed.

   The expansion storage shelf shipment might include a label that says "EXPANSION STORAGE SHELF" or simply "STORAGE SHELF". If the label is not already applied to the front of the shelf, apply it now as described in Applying Labels.

2. Install the expansion storage shelf as described in Installing the Storage Shelves Into a Rack.
3. Cable, power-on, and verify that the new storage is added.

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

Installing the Server Nodes Into a Rack

Describes installing Oracle Database Appliance X3-2/X4-2/X5-2 and X6-2-HA/X7-2-HA/X8-2-HA server nodes into a rack.

Installing Oracle Database Appliance X6-2-HA/X7-2-HA/X8-2-HA server nodes into the rack:

> **Note:**
>
> The links in the following table take you to instructions *outside* of the Oracle Database Appliance library to the Oracle Server X6-2, Oracle Server X7-2 and Oracle Server X8-2L documentation libraries. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X6-2-HA	Oracle Database Appliance X7-2-HA	Oracle Database Appliance X8-2-HA
• Verify Rackmount Hardware • Install Mounting Brackets • Mark the Rackmount Location • Connect AC Power Cables Before Installing Tool-less Slide-Rails in Sun Rack II 1042 • Attach the Tool-less Slide-Rail Assemblies • Install the Server into the Slide-Rail Assemblies • Install the Cable Management Arm and Verify Operation • Optional: Install the Shipping Bracket With Cable Trough	• 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	• 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

Installing Oracle Database Appliance X3-2/X4-2/X5-2 server nodes into the rack:

> **Note:**
>
> The links in the following table take you to instructions outside of the Oracle Database Appliance library to the Sun Server X3-2, Sun Server X4-2 and Oracle Server X5-2. Use your browser's Back button to return to the Oracle Database Appliance library.

Oracle Database Appliance X3-2	Oracle Database Appliance X4-2	Oracle Database Appliance X5-2
• Verify Rackmount Hardware • Install Mounting Brackets • Mark the Rackmount Location • Attach the Tool-less Slide-Rail Assemblies • Install the Server into the Slide-Rail Assemblies • Install the Cable Management Arm and Verify Operation	• Verify Rackmount Hardware • Install Mounting Brackets • Mark the Rackmount Location • Attach the Tool-less Slide-Rail Assemblies • Install the Server into the Slide-Rail Assemblies • Install the Cable Management Arm • Verify Operation of Slide Rails and CMA	• Verify Rackmount Hardware • Install Mounting Brackets • Mark the Rackmount Location • Connect AC Power Cables Before Installing Tool-less Slide-Rails in Sun Rack II 1042 • Attach the Tool-less Slide-Rail Assemblies • Install the Server into the Slide-Rail Assemblies • Install the Cable Management Arm and Verify Operation • Optional: Install the Shipping Bracket With Cable Trough

Installing Oracle Database Appliance Version 1 Into a Rack

Procedures describing how to install Oracle Database Appliance Version 1 into a rack.

This section describes installing Oracle Database Appliance Version 1 into a rack. If you have some other Oracle Database Appliance model, select the appropriate link listed in Installing the System Into a Rack.

> **Note:**
>
> The system chassis is fixed in the rack by the rack-mounting kit hardware. The rack-mounting kit does not include slide rails. After the system chassis is installed in the rack, it does not slide in or out of the rack. The server nodes (also called system controllers) can be removed from the chassis while the chassis is installed in the rack.

- Rackmount Kit Contents
  A listing of the rackmount kit contents for the Oracle Database Appliance Version 1.
- Staff, Tools, and Equipment Required to Rackmount the System
  A listing of the staffing and tools you will need to install Oracle Database Appliance Version 1.
- Removing Components to Reduce System Weight
  Components that can be removed to reduce the weight of Oracle Database Appliance Version 1 before racking.
- Install Rackmount Hardware Into a Rack
  Use this procedure to install rackmount hardware before installing the Oracle Database Appliance Version 1 into a rack.
- Install the System Into a Rack
  Use this procedure to install the Oracle Database Appliance Version 1 into a rack.
- Installing Shipping Brackets
  Use this procedure to install the Oracle Database Appliance Version 1 rack shipping bracket.

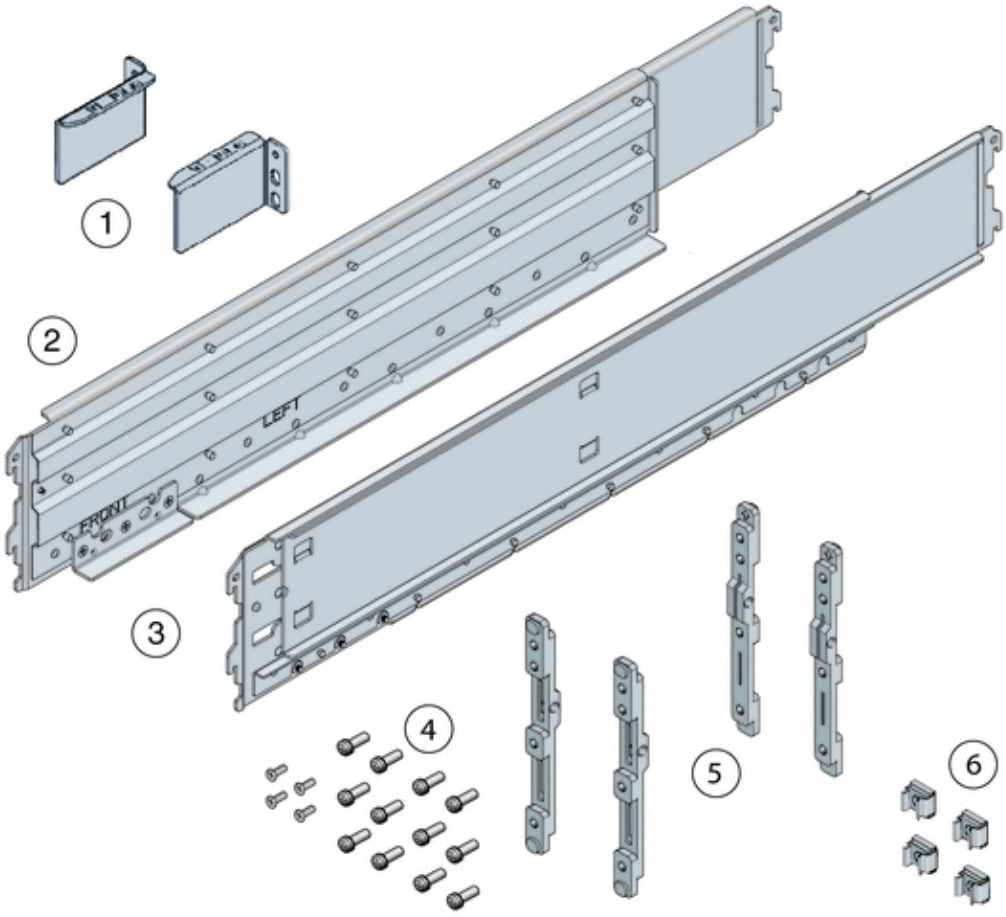
Rackmount Kit Contents

A listing of the rackmount kit contents for the Oracle Database Appliance Version 1.

The Rackmount Kit contains the hardware required to install Oracle Database Appliance Version 1 into a supported rack. The Rackmount Guide and Alignment Template is shipped with the system in the shipping kit. Use this template when you are installing the appliance into the rack.

> **Note:**
>
> The rackmount kit does **not** include slide rails. After the system is installed, it does not slide in or out of the rack. See the Rackmount Guide and Alignment Template for additional instructions on how to install your system into a four-post rack.

The following figure shows the hardware that comes with the rackmount kit:



Callout	Description
1	Top rear braces that attach to the posts at the upper rear of the system.
2	Left shelf rail.
3	Right shelf rail.
4	An assortment of M6 and 10-32 screws, including twelve M6 x 16 screws, twelve M6 x 12 screws, four M6 x 4 flathead screws, ten 10-32 screws, and twelve 10-32 shoulder screws.

Callout	Description
5	Two sets of four adapter brackets, one set for round-hole racks, and one set for square-hole racks.
6	Four M6 cage nuts. **Note -** The cage nuts are not used. You can recycle them.

Staff, Tools, and Equipment Required to Rackmount the System

A listing of the staffing and tools you will need to install Oracle Database Appliance Version 1.

> **Caution:**
>
> **Personal injury or equipment damage.** Use a mechanical lift to install the system or follow the precautions in Removing Components to Reduce System Weight.

Before starting the installation, gather the staff, tools, and equipment required to rackmount the system.

Staff, Tools, and Equipment	Notes
Four trained staff	Four people are needed to lift or transport the system. If a mechanical lift is available or components have been removed from the system, it is safe for two people to lift or transport the system.
No. 2 10-inch Phillips screwdriver	A magnetic tip is recommended.
Mechanical lift	Strongly recommended. If not available, reduce the weight of the system. See Removing Components to Reduce System Weight.
Compatible four-post rack	See Rack Compatibility Requirements.
Rackmount kit	See Rackmount Kit Contents.
Transportation kit	See Transportation Kit Contents.
Antistatic wrist strap and antistatic mat	Required only if you remove system components.

Removing Components to Reduce System Weight

Components that can be removed to reduce the weight of Oracle Database Appliance Version 1 before racking.

Before installing Oracle Database Appliance Version 1 into a rack, you can remove components to reduce the weight of the system so that two persons can lift the system into the rack. Removing system components reduces the weight to approximately 96 pounds (43.5 kg).

Remove the following components to reduce the system weight:

- Server nodes

- Power supplies

> **Note:**
>
> Because of their light weight, you do not need to remove filler panels from the system.

For instructions on removing components from the system and associated safety information, see the *Oracle Database Appliance Service Manual*.

Install Rackmount Hardware Into a Rack

Use this procedure to install rackmount hardware before installing the Oracle Database Appliance Version 1 into a rack.

Oracle Database Appliance Version 1 rack-mounting hardware consists of shelf rails, front and rear adapter brackets, rear braces, and screws.

> **Caution:**
>
> **Personal injury or equipment damage.** Use a mechanical lift to install the system, or follow the precautions in Removing Components to Reduce System Weight. Removing components reduces the weight from 160 pounds (72.6 kg) when fully loaded with components to approximately 96 pounds (43.5 kg).

> **Caution:**
>
> **Tip hazard.** Always load equipment into a rack from the bottom up so that it does not become top-heavy and tip over. Deploy your rack's anti-tilt bar to prevent the rack from tipping during installation.

> **Caution:**
>
> **Elevated operating ambient temperature.** Install this equipment in an environment that does not exceed the maximum ambient temperature (Tma) specified in Environmental Specifications. If the system is installed in a closed or multi-unit rack assembly, then the operating ambient temperature of the rack environment might be greater than room ambient temperature.

> **Caution:**
>
> **Thermal damage.** Install the equipment in a rack so that the airflow is not restricted.

> **Caution:**
>
> **Circuit overloading.** Consider the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Be aware of equipment nameplate power ratings when addressing this concern.

> **Caution:**
>
> **Equipment damage.** Maintain reliable grounding of rack-mounted equipment. Pay attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

1. Use the *Rackmount Guide and Alignment Template* to measure the 4 rack unit (4RU) space in the rack where you will install the system.

   Also, use that template to align the adapter brackets with the rack posts.

2. Verify that you have a 4RU space in your rack.

   Place the bottom edge of the *Rackmount Guide and Alignment Template* in the lowest available position in the rack. Align all arrows with holes on the rack post. Ensure that 4RU space is available in the rack.

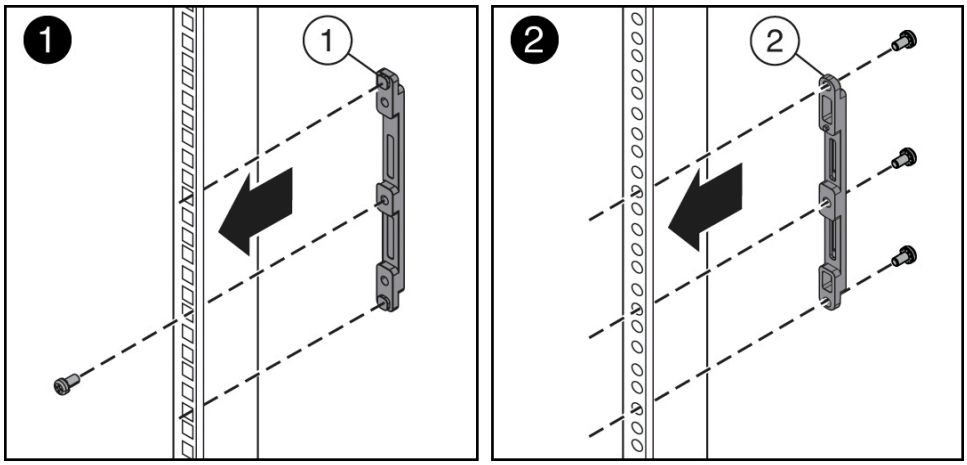
3. Select the adapter brackets that match your rack.

   The system ships with two sets of adapter brackets: one set [1] for racks with square holes and one set [2] for racks with round holes.

   The adapter brackets are labeled to indicate whether they are for square-hole racks or round-hole racks. Additionally, arrows on the adapter brackets indicate how they should be oriented. Install all brackets with the arrow labeled "Top" pointing up.

4. Attach the adapter brackets to the front rack posts.

   The following figure shows the front adapter brackets being attached to a square-hole rack [1] and a round-hole rack [2]:



a. Place the brackets so that the bracket is aligned with the 4RU space where the server will be installed, and verify that the arrow labeled "Top" on the brackets points up.

b. Select the screws that match your rack.

- For a square-hole rack, use one M6 x 12 mm screw per adapter bracket.
- For a threaded round-hole rack, use three M6 x 12 mm screws, or three 10-32 shoulder screws per adapter bracket.

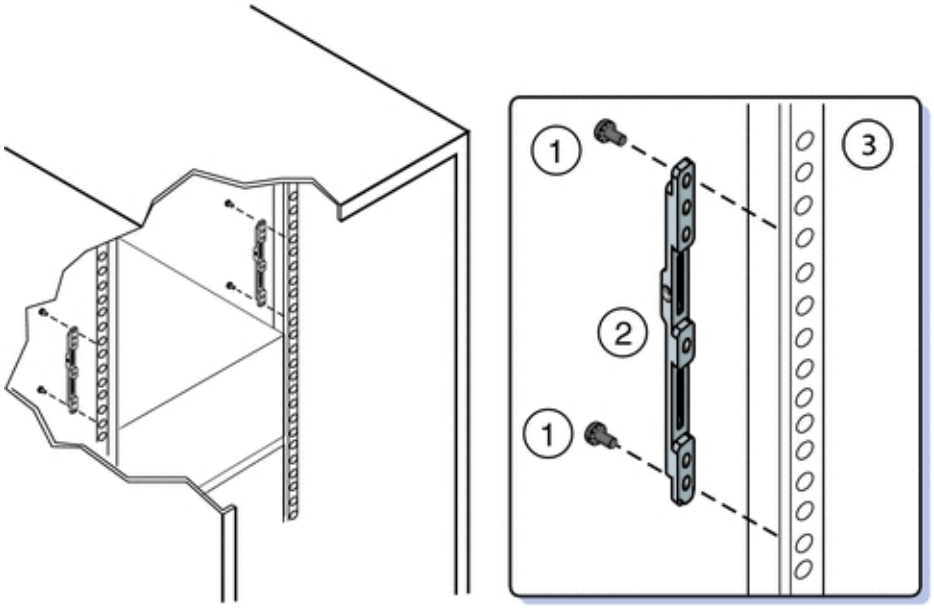
5. Attach the adapter brackets to the rear rack posts.

a. Place the brackets so that the bracket is aligned with the space where the server will be installed and verify that the arrow labeled "Top" on the brackets points up.

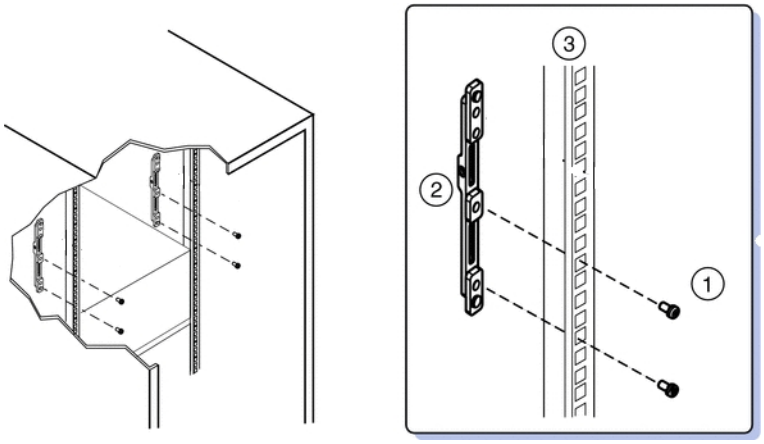
b. Select the screws that match your rack.

- For a square-hole rack, use two M6 x 12 mm screws per adapter bracket.
- For a threaded round-hole rack, use two M6 x 12 mm screws or two 10-32 shoulder screws per adapter bracket.

The following figure shows the rear adapter brackets being attached to a round-hole rack:

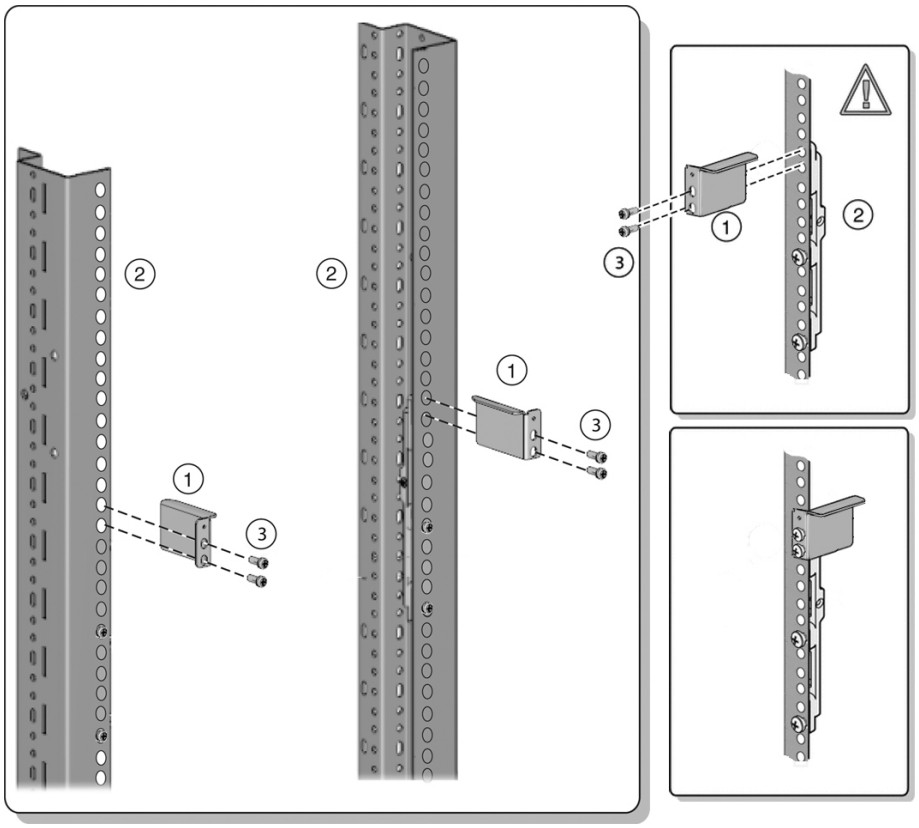


The following figure shows the rear adapter brackets being attached to a square-hole rack:



6. Attach rear braces to the rear rack posts and to the adapter brackets.
   a. Position the rear braces so that the tops of the braces [1] align with the 4U mark on each rear rack post.
   b. Install two M6 x 12 mm screws [3] or two 10-32 x 10 screws to attach each rear brace to the rack post and the adapter bracket.

      The following figure shows how to attach the rear brace:



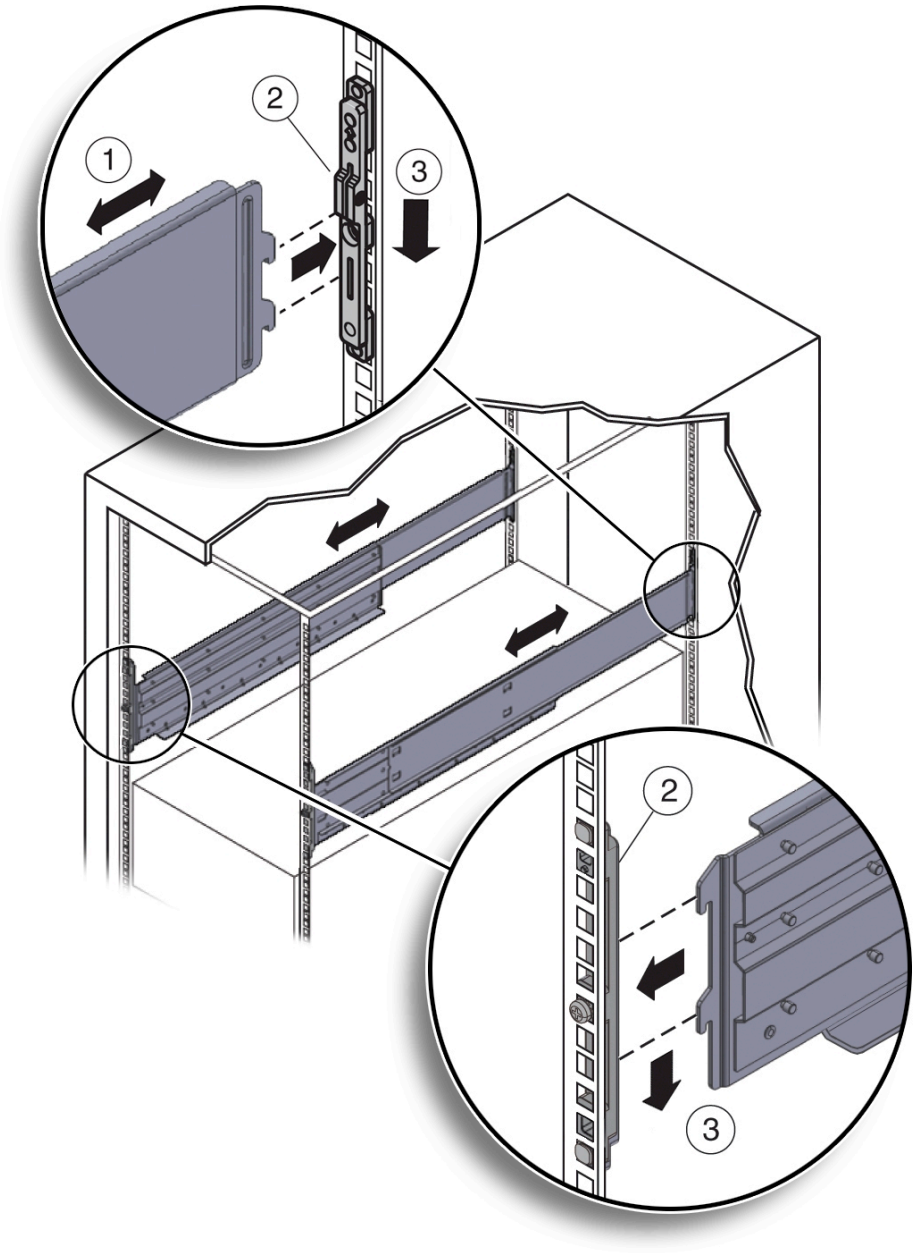
> **Note:**
>
> Before tightening the screws, slide the brackets [1] up as far as they will go. The holes on the brackets are oval-shaped so they can move up and down when the screws are loose.

7. Install the shelf rails into the rack.

> **Caution:**
>
> **System failure.** Orient the shelf rails properly, with the shelf facing inward and the gap toward the front of the rack; otherwise, the system might fall.

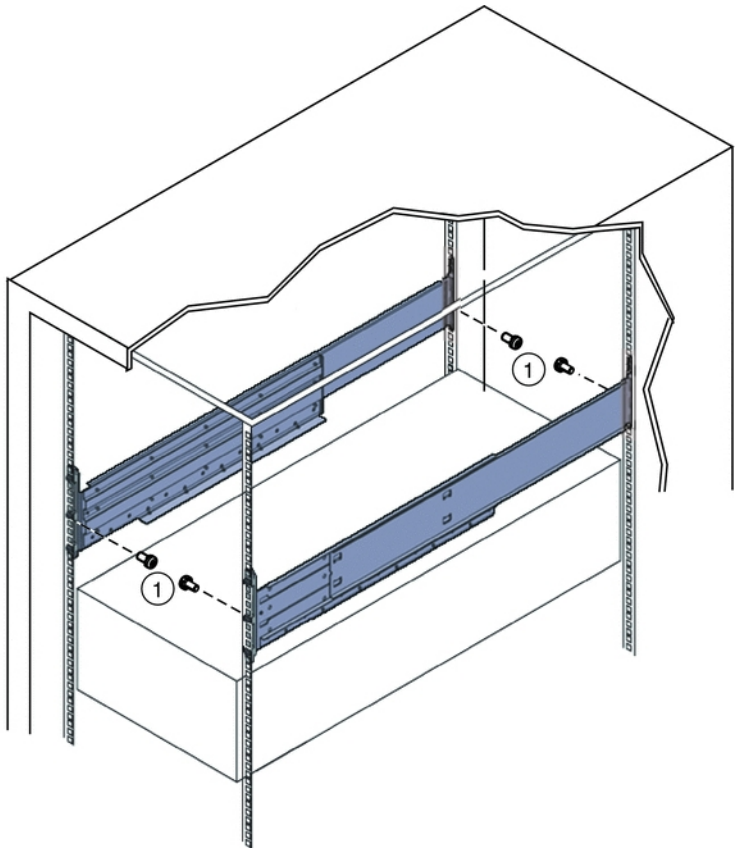
   a. Expand the shelf rails [1] to fit between the front and rear rack posts.
   b. Insert the rear hooks of the shelf rails into the slots on the rear adapter brackets [2 and 3] first. Push down on the rail to engage the hooks.
   c. Insert the front hooks of the shelf rails into the slots on the front adapter bracket. Push down on the rails to engage the hooks.

      The following figure shows how to attach the rails to the rack:



8. Thread the four M4 x 10 flathead locking screws into the four adapter brackets [1]).

   These screws prevent the shelf rails from accidentally lifting out of the adapter brackets. The following figure shows how to install the lock screws to the adapter brackets:



Install the System Into a Rack

Use this procedure to install the Oracle Database Appliance Version 1 into a rack.

Before you begin installing your Oracle Database Appliance Version 1 into a rack, perform the steps in Install Rackmount Hardware Into a Rack.

> **Caution:**
>
> **Personal injury or equipment damage.** Use a mechanical lift to install the system, or follow the precautions in Removing Components to Reduce System Weight. Removing components reduces the weight from 160 pounds (72.6 kg) when fully loaded with components to approximately 96 pounds (43.5 kg).

> **Caution:**
>
> **Tip hazard.** Always load equipment into a rack from the bottom up so that it does not become top-heavy and tip over. Deploy your rack's anti-tilt bar to prevent the rack from tipping during installation.

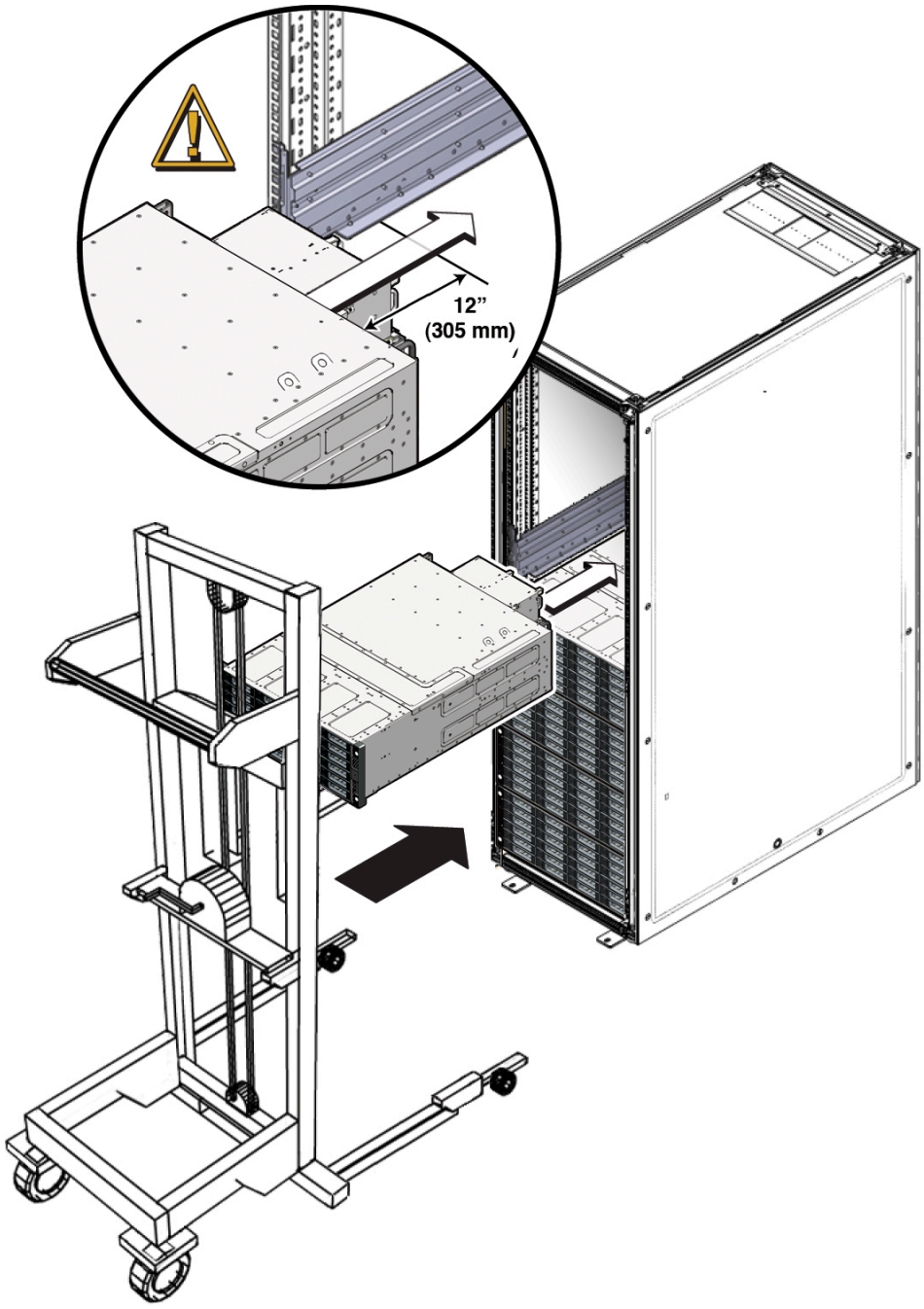
1. Raise the system to slightly above the shelf surfaces.

Use a mechanical lift if possible.

2. Slide the system onto the shelf rails until the rack-mounting ears contact the rack post. Adjust the top rear braces to fully insert the system.

   The following figure shows how to insert the system into the rack:

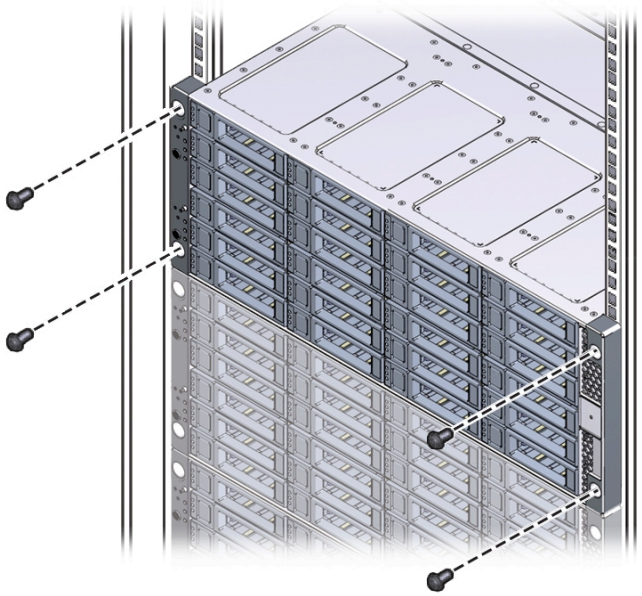
> **Caution:**
>
> **Drop Hazard.** Do not release the system until it is **more** than 12 inches (305 mm) into the rack, and is firmly supported by the shelf rails. The shelf rails do not safely support the system until it is **more** than 12 inches (305 mm) inside the rack.



3. Use four screws to attach the front of the system to the front of the rack.
   - On a threaded, round-hole rack, use four M6 x 12 mm screws or four 10-32 x 10 mm screws.
   - On a square-hole rack, use four M6 x 16 mm screws.

> **Note:**
>
> On square-hole racks, the screws pass through the rack and thread into the adapter bracket. On round-hole racks, the screws thread into the rack rails.

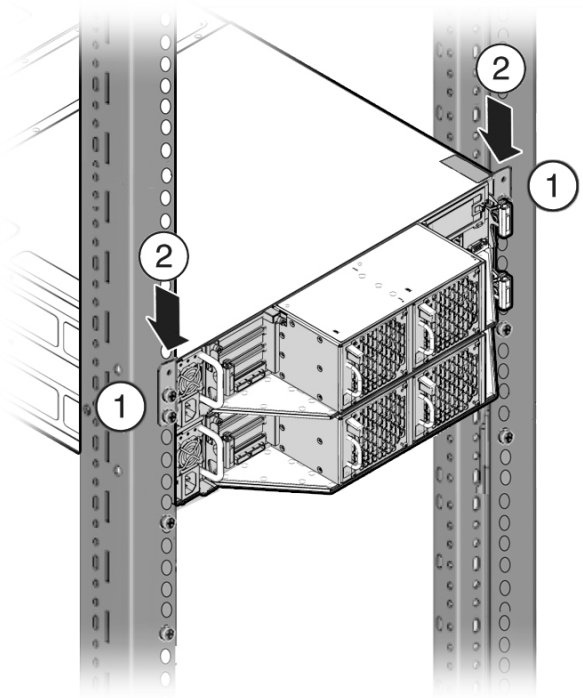
The following figure shows how to attach the front of the system to the rack:



4. To adjust the rear braces, do the following:
   a. Loosen the screws on the rear braces [1].
   b. Slide the rear braces down until they rest firmly on top of the system [2].
   c. Tighten the screws in the rear braces [1].

      The following figure shows how to tighten rear braces to the rack:

      Tighten Rear Braces to the Rack



5. If you removed components from the system, replace them.

   For instructions, see the *Service Manual*, which is part of the product documentation.

Installing Shipping Brackets

Use this procedure to install the Oracle Database Appliance Version 1 rack shipping bracket.

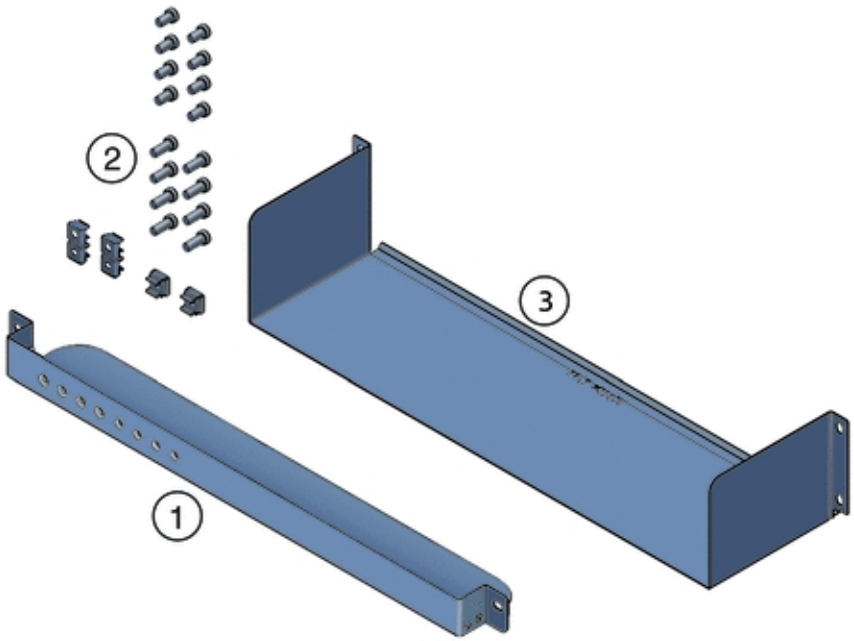
This section includes the following information about installing the shipping brackets for Oracle Database Appliance Version 1.

- Transportation Kit Contents.
- If you plan to ship the system in a rack to another destination, see Install Shipping Brackets.
- If your system is shipped to you in a rack, you must remove the shipping brackets before placing the system into service. For instructions, see the *Oracle Database Appliance Service Manual*.
- Transportation Kit Contents
  View a list of items included in the Transportation Kit for the Oracle Database Appliance Version 1.
- Install Shipping Brackets
  Use this procedure to install the shipping bracket to the appliance in the rack.

Transportation Kit Contents

View a list of items included in the Transportation Kit for the Oracle Database Appliance Version 1.

The following figure shows the hardware that is included in the Oracle Database Appliance Version 1 transportation kit:



Callout	Description
1	Front shipping bracket.
2	Screws and cage nuts: For the rear shipping bracket: • Two sets of M6 x 30 and 10-32 x 1.25 inch screws, two screws per set. • Two sets of M6 x 16 mm and 10-32 x 10 mm screws, four screws per set. • Six M6 cage nuts. **NOTE -** The cage nuts are not used. Recycle unused hardware.
3	Rear shipping bracket.

Install Shipping Brackets

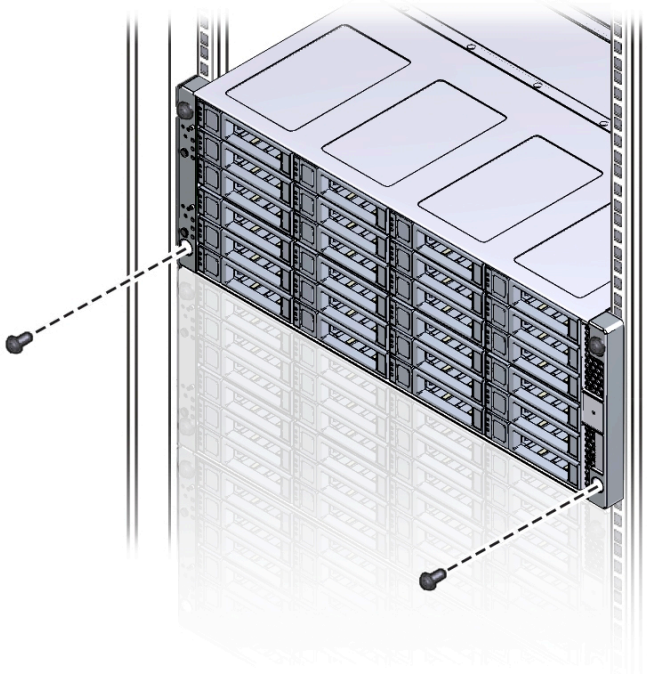
Use this procedure to install the shipping bracket to the appliance in the rack.

If you plan to move or ship Oracle Database Appliance Version 1 in a rack to another location, you need to install the shipping brackets.

> **Caution:**
>
> **Equipment damage.** Shipping brackets are not for use for bracing or anchoring the rack during seismic events.

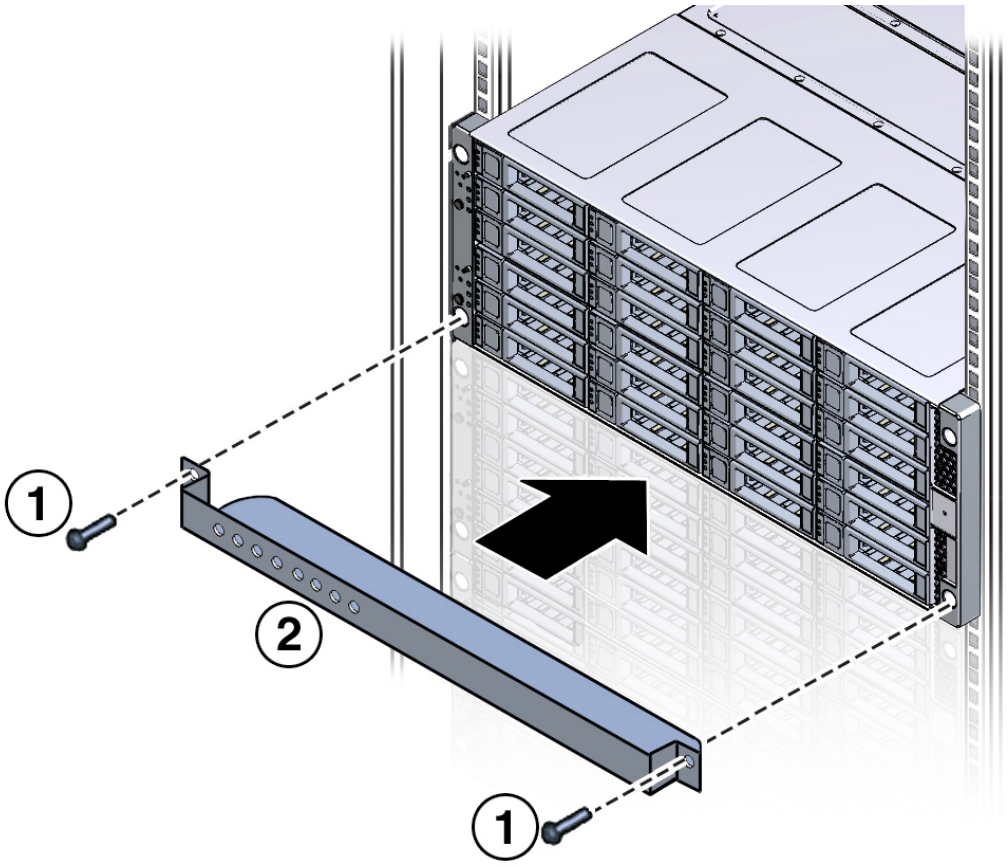
1. Remove the two short screws that fasten the bottom of the system to the rack.

   The following figure shows how to remove screws from the front of the system:



2. Insert the front shipping bracket [2] under the front of the system with the supporting flange underneath the system.

   The following figure shows how to install the front shipping bracket to the system:



3. Use the two long screws (either the M6 x 30 mm screws or the 10-32 x 1.25 inch screws) [1] to fasten the shipping bracket [2] to the front of the system.

   Tighten the two long screws to secure the shipping bracket and the system to the rack.

> **Note:**
>
> The front shipping bracket includes eight threaded holes used for storing unused screws. When the shipping brackets are not installed, the front shipping bracket holds the long screws used to install them. When the shipping brackets are installed, it stores the short screws that were used to secure the system to the front of the rack before the front shipping bracket was installed.

4. Insert the short screws into the four empty storage holes on the front shipping bracket.

   Store the screws so they can be used when the shipping bracket is removed.

5. Remove the bottom two screws that hold the rear adapter brackets in place.

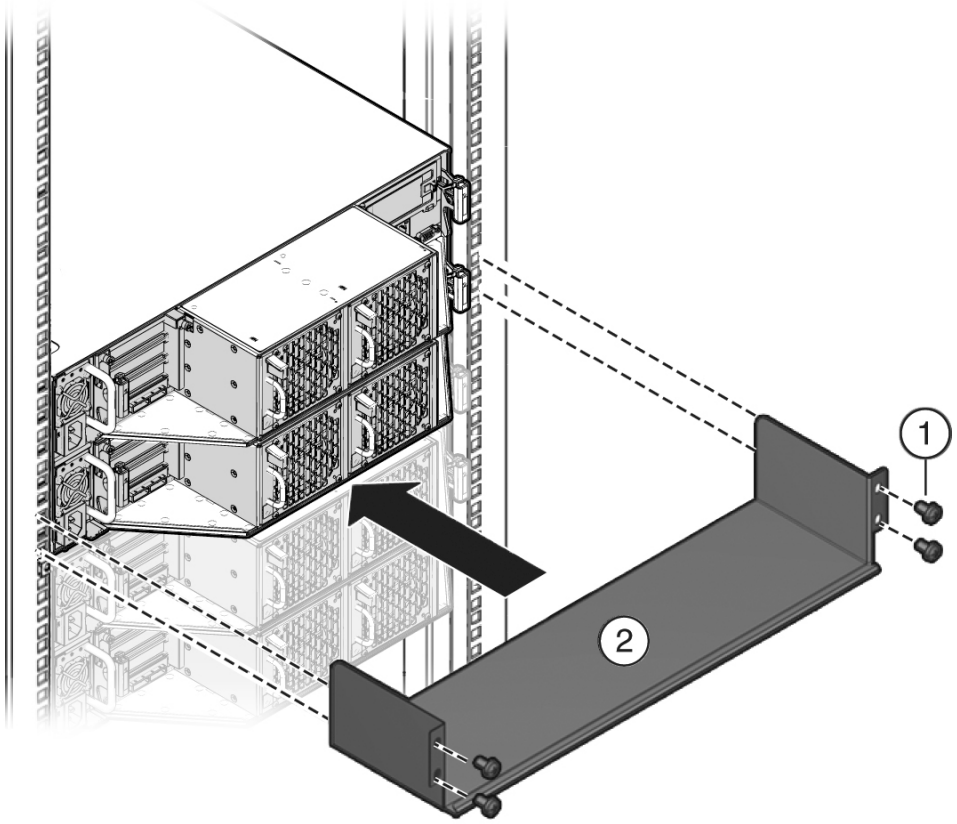
> **Caution:**
>
> **Equipment damage.** Do not remove the bottom screws unless you are certain that at least one upper screw is in place; otherwise, the system might fall.

6. Insert the rear shipping bracket [2] under the back of the system with the side panels facing up.

   Use four screws [1] (either the M6 x 16 mm screws or the 10-32 x 10 mm screws) to fasten the rear shipping bracket to the rack. Do not finish tightening these screws. The screws should be tight enough to hold the bracket in place, but you should still be able to move the bracket slightly.

   The bracket should be fastened to the posts, but loose enough to move slightly.

   The following figure shows how to install the rear shipping bracket to the system:



7. Lift the rear shipping bracket up so that it rests firmly against the bottom of the system, then finish tightening the screws that hold the bracket in place.

   If necessary, loosen the screws enough so that you can move the bracket, then push the bracket against the bottom of the system and tighten the screws.

> **Caution:**
>
> **Equipment damage.** To prevent damage to the system during shipping, the bottom shipping bracket must be positioned firmly against the bottom of the system.

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