

Oracle® Database Appliance

Release Notes

Release 12.1.2.9.0

for Linux x86-64

E80516-02

December 2016

This document may be updated after the most recent version of the product is released.

To check for updates to this document and to view other Oracle documentation, check the online Oracle Database Appliance documentation library:

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

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Oracle Database Appliance Information Center

For the latest software, announcements, alerts, knowledge documents, and problem-solution and troubleshooting documents, visit My Oracle Support Information Center: Oracle Database Appliance (My Oracle Support note 1417713.2).

Access the note using the following URL:

<https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=1417713.2>

Current Support Notes and Known Issues

My Oracle Support note 888888.1 and 2144642.1 are dynamically updated documents that contain patch downloads and the most current information about patches and known deployment issues.

The support notes contains the release history, list the patches, describe known issues and provide workarounds for specific releases:

Support Note 888888.1: Oracle Database Appliance releases.

Support Note 2144642.1: Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

Changing the SYSMAN Password After Installation

Change the SYSMAN user password after installing Oracle Database Appliance with Oracle Database 11g.

When you install Oracle Database Appliance with Oracle Database 11g, Oracle Enterprise Manager Console 11.2 (dbconsole) is installed and configured automatically. The SYSMAN user is created as part of the database creation with the default master password.

The SYSMAN account is the default super user account used to set up and administer Enterprise Manager. The SYSMAN account is also the database account that owns the objects stored in the Oracle Management Repository. You can set up additional administrator accounts from this account, and you can set up Enterprise Manager for use in your organization.

See the *Database 2 Day + Security Guide* at <https://docs.oracle.com/en/database/database.html> for how to secure Oracle Database user accounts.

Oracle Database Appliance Release 12.1.2.9.0

Oracle Database Appliance 12.1.2.9.0 release includes support for new features and Oracle Database Patch Set Update (PSU) 12.1.0.2.161018.

Oracle Database Appliance Patch Set Update

Apply Oracle Database Appliance 12.1.2.9.0 patch bundles to get new features, enhancements to existing features, and the October 2016 Oracle Database PSU. The October 2016 GI PSU is 12.1.0.2.161018.

Oracle Database Appliance Release 12.1.2.9.0 includes separate patch update bundles for the following:

- Software and firmware updates for Oracle Database Appliance X6-2-HA, X5-2, X4-2, X3-2, and V1.
- Software and firmware updates and feature enhancements for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

Note: For Oracle Database Appliance hardware versions X5-2, X4-2, X3-2, and V1, you must be on Patch Set Release 12.1.2.6.0 before you can upgrade to 12.1.2.9.0. Oracle Database Appliance X6-2S and X6-2M were introduced in 12.1.2.8.0. Release 12.1.2.8.1 is used only for Oracle Database Appliance X6-2L and Oracle Database Appliance X6-2-HA.

See [MOS Note: 1683799.1 - 12.1.0.2 Patch Set - Availability and Known Issues](#) for more information about the Oracle Database 12.1.0.2 Patch Set.

Enhancements for Oracle Database Appliance X6-2-HA

Virtualization platform support is available for Oracle Database Appliance X6-2-HA.

Enhancements for Oracle Database Appliance X6-2S, X6-2M, and X6-2L

The following enhancements are available:

- **Initial Database Creation is optional**

You can deploy Oracle Database Appliance without creating a database. If you do not create the initial database, only the Grid Infrastructure (GI) stack is deployed. A dbhome is not created.

- **Enhanced User and Role Separation**

The agent supports the following types of user and groups:

- Two Users (Role Separation=Yes) with six (6) groups. This is the default behavior.
- Single User (Role Separation=NO) with two (2) groups. For example, an oracle user with anoinstall group and a dba group.
- Single User (Role Separation=NO) with six (6) groups. This new option supports SAP.

- **Ability to delete database Home from either the command-line interface or the Web Console**

You can use the ID to delete the Database Home when there are no associated databases. You cannot delete Database Home when it has associated databases.

- **Support for external Oracle Auto Service Request (Oracle ASR)**
 - Updates to the command-line interface and Web Console to support Oracle ASR.
 - New commands, `configure-asr` and `update-asr` to support external Oracle ASR.
- **Patching Enhancements**

The following enhancements for patching:

 - New ILOM and BIOS patching
 - Controller and `dcsccli` RPM patching

Documentation for Oracle Database Appliance Release 12.1.2.9.0

The Oracle Database Appliance 12.1.2.9.0 user documentation is available at http://docs.oracle.com/cd/E80799_01/index.htm:

For Oracle Database Appliance X6-2-HA, see the following documentation :

- Knowledge Document 888888.1 for the latest information about patches and known issues.
- *Oracle Database Appliance Setup Poster X6-2-HA*
- *Oracle Database Appliance X6-2-HA Deployment and User's Guide* for how to deploy Oracle Database Appliance X6-2-HA, how to apply patches to update the Oracle Database Appliance software, and how to manage the appliance.

For Oracle Database Appliance X6-2S, X6-2M, and X6-2L, see the following documentation:

- Knowledge Document 888888.1 for the latest information about patches and known issues
- Knowledge Document 2144642.1 for the latest information about patches and known issues
- *Oracle Database Appliance Setup Booklet X6-2S, X6-2M, and X6-2L*
- *Oracle Database Appliance X6-2S, X6-2M, X6-2L Deployment and User's Guide* for how to deploy Oracle Database Appliance X6-2S, X6-2M, and X6-2L, how to apply patches to update the Oracle Database Appliance software, how to manage the appliance, and how to migrate databases.

Oracle Database Appliance Release 12.1.2.8.1

Oracle Database Appliance 12.1.2.8.1 release includes support for Oracle Database Appliance X6-2L and X6-2-HA.

Support for Oracle Database Appliance X6-2-HA

Oracle Database Appliance X6-2-HA include the following features in the 12.1.2.8.1 release:

- Support for bare metal platforms. Virtualized platforms are not supported in 12.1.2.8.1.
- New database templates for X6-2-HA.
- Database Appliance X6-2-HA uses the OAKCLI command-line interface. The following commands are new for X6-2-HA:
 - `oakcli update-cpucore`
 - `oakcli describe-cpucore`

Support for Oracle Database Appliance X6-2L

Oracle Database Appliance X6-2L includes the following features in the 12.1.2.8.1 release:

- New database templates, or database shapes, for Oracle Database Appliance X6-2L
- New ISO and boot process for Oracle Database Appliance X6-2L

Documentation for Oracle Database Appliance Release 12.1.2.8.1

The Oracle Database Appliance 12.1.2.8.1 user documentation is available at http://docs.oracle.com/cd/E75550_01/index.htm:

For Oracle Database Appliance X6-2-HA, see the following documentation :

- Knowledge Document 888888.1 for the latest information about patches and known issues.
- *Oracle Database Appliance Setup Poster X6-2-HA*
- *Oracle Database Appliance X6-2-HA Deployment and User's Guide* for how to deploy and use Oracle Database Appliance X6-2-HA

For Oracle Database Appliance X6-2S, X6-2M, and X6-2L, see the following documentation:

- Knowledge Document 888888.1 for the latest information about patches and known issues
- Knowledge Document 2144642.1 for the latest information about patches and known issues
- *Oracle Database Appliance Setup Poster X6-2S, X6-2M, and X6-2L*
- *Oracle Database Appliance X6-2S, X6-2M, X6-2L Deployment and User's Guide* for how to deploy Oracle Database Appliance X6-2S, X6-2M, and X6-2L and for how to apply patches to update the Oracle Database Appliance software

Oracle Database Appliance Release 12.1.2.8.0

Oracle Database Appliance 12.1.2.8 release includes support for new features and hardware and a patch set update release.

Oracle Database Patch Set Update (PSU) Release 12.1.2.8.0

Apply Oracle Database Appliance 12.1.2.8.0 patch bundles to get new features and enhancements to existing features.

The Oracle Database Patch Set Update (PSU) Release 12.1.2.8.0 includes separate patch update bundles for the following:

- Software and firmware updates for Oracle Database Appliance X5-2, X4-2, X3-2, and V1.
- Software and firmware updates and feature enhancements for Oracle Database Appliance X6-2S and X6-2M.

Note:

For Oracle Database Appliance hardware versions X5-2, X4-2, X3-2, and V1, you must be on Patch Set Release 12.1.2.6.0 before you can upgrade to 12.1.2.8.0.

Enhancements for Oracle Database Appliance X6-2S and X6-2M

The following updates for Oracle Database Appliance X6-2S and X6-2M:

- New command-line interface commands for Oracle Database Appliance X6-2S and X6-2M:
 - The `odacli update-repository` enables you to update the repository with the new patches.
 - Oracle Auto Service Request (Oracle ASR) commands to configure, describe, test, update, and delete Oracle ASR. The new commands enable you to configure Oracle ASR after provisioning the appliance.
 - CPU core commands to list, describe and update CPU cores. The `odacli update-cores` command replaces the `configure-cpucore` command.
 - Database commands to register and update the database.
 - Additional configuration properties for the `odacli create-database` command.
 - Database storage commands to create, list, describe and delete database storage.
- New chapter in the *Oracle Database Appliance X6-2 Deployment and User's Guide* describes how to update, or patch, Oracle Database Appliance X6-2S or X6-2M.
- Ability to reset and re-enable all CPU cores with the cleanup script.
- Support for Oracle Database 11g Standard Edition and Standard Edition One (release 11.2.0.4) running on Oracle Database Appliance X6-2S and X6-2M. Only Oracle Database Appliance X6-2S and X6-2M are eligible to run Oracle Database Standard Edition.

- Enhancements for the Web Console.

Documentation for Oracle Database Appliance Release 12.1.2.8.0

For Oracle Database Appliance X6-2S and X6-2M, see the following documentation:

- Knowledge Document 2144642.1 for the latest information about patches and known issues.
- *Oracle Database Appliance X6-2 Deployment and User's Guide* for how to deploy Oracle Database Appliance X6-2S and X6-2M and for how to apply patches to update the Oracle Database Appliance software.

For Oracle Database Appliance X5-2, X4-2, X3-2, and V1, see the following documentation:

- Knowledge Document 888888.1 for the latest information about patches and known issues.
- *Getting Started Guide* and the *Oracle Database Appliance Administration and Deployment Guide* for how to deploy Oracle Database Appliance and for how to apply patches to update the Oracle Database Appliance software.

See the Oracle Database Appliance 12.1.2.8 user documentation at http://docs.oracle.com/cd/E75550_01/index.htm.

Oracle Database Appliance Release 12.1.2.7.0

Oracle Database Appliance 12.1.2.7 release includes support for new features and hardware.

The 12.1.2.7 release includes support for Oracle Database Appliance X6-2S and X6-2M. The release also includes separate patch update bundles for Database Appliance hardware versions X5-2, X4-2, X3-2, and V1.

Support for Oracle Database Appliance X6-2S and X6-2M

Oracle Database Appliance X6-2S and X6-2M include the following features in the 12.1.2.7 release:

- New user interface to deploy the appliance and create databases
- New command-line interface to manage the appliance
- Supports Oracle Linux 6.7
- Supports NVM Express (NVMe) storage devices
- Provides option for either Oracle Database Standard Edition 2 (12.1.0.2) or Enterprise Edition (11.2.0.4 or 12.1.0.2) on the same software stack

Capacity on demand is available for systems deployed with Oracle Database Enterprise Edition. You can use the command-line interface to configure the number of cores, from 2 to 20 cores.

For more details about what's new and for instructions on how to download the Oracle Database Appliance Single Instance software bundle (SIB) files, refer to My Oracle Support Note 888888.1.

Use the *Oracle Database Appliance X6-2S and X6-2M Deployment and User's Guide* and the *Oracle Database Appliance X6-2S and X6-2M Poster* to get started with Oracle Database Appliance X6-2S and X6-2M, including deploying and administration concepts, tasks, and reference information.

Note:

To deploy Oracle Database Appliance X6-2S or X6-2M, type the following URL:
<https://ip-address:7093/mgmt/index.html>.

Changes in Release 12.1.2.7.0

Patches offer new features and might improve the functionality of existing features. Due to file size limitations, the Oracle Database Appliance 12.1.2.7.0 Patch 22896543 zip file is split into two parts for this release: `p22896543_121270_Linux-x86-64_1of2.zip` and `p22896543_121270_Linux-x86-64_2of2.zip`.

Note: You must be on Patch Set Release 12.1.2.6 before you can upgrade to 12.1.2.7.

The 12.1.2.7 release includes the following changes:

- Grid Infrastructure updated to 12.1.0.2.160419.
- Oracle Database Patch Set Update (PSU) 12.1.0.2.160419, 11.2.0.4.160419, 11.2.0.3.15.
- Rolling upgrades and patching options.
- `oakcli update -patch version [--server | --storage | --database] [--local] [--noreboot] | [--clean] | [--verify][-h]`

The following are the main patch options:

- `--server`: Contains the patches previously obtained in earlier releases from the Infrastructure (infra) and Grid Infrastructure (gi) patch updates.
- `--storage`: Contains only patches for shared storage components.
- `--database (Optional)`: Patches Oracle database homes.
- A new option called driver domain can be specified on a newly created virtual disk. With the driver domain option, virtual disks are mounted directly from ODA_BASE to the guest VM. The driver domain option is only supported with Oracle Linux, Windows, and Solaris x86 guest operating systems. Live migration of virtual machines (VMs) is not supported with the driver domain option. The `oakcli clone vm` command now supports the driver domain option.
- Enhancements to the guest virtual machine (VM) performance.

Oracle Database Appliance Release 12.1.2.6.0

Apply Oracle Database Appliance 12.1.2.6 patch bundles to get new features and enhancements to existing features.

The two parts of Oracle Database Appliance 12.1.2.6.0 Patch 22328442 are p22328442_121260_Linux-x86-64_1of2.zip and p22328442_121260_Linux-x86-64_2of2.zip.

Note: You must be on Patch Set Release 12.1.2.5 before you can upgrade to 12.1.2.6.

Changes in Release 12.1.2.6.0

Release 12.1.2.6 includes the following:

- Update Grid Infrastructure to 12.1.0.2.160119.
- Oracle Database Patch Set Update (PSU) 12.1.0.2.160119, 11.2.0.4.160119 and 11.2.0.3.15.
- Update the operating system from Oracle Linux 5.11 to Oracle Linux 6.7 for Bare Metal and ODA Base. For this release only, we do not update ILOM, BIOS, Controller, Expander, disk firmwares.
- When patching `infra` with the mandatory `-local` parameter, you can execute the patch from either the first node or the second node, in no particular order.
- When patching `GI` with parameter `-local` parameter, you can execute the patch from either the first node or the second node, in no particular order. You can execute the patch from the first node without the `-local` parameter when both `infra` nodes are already 12.1.2.6.0.
- New offline standalone tool `validate OL6.zip` enables you to validate the operating system patching before downloading the 12.1.2.6.0 patch zip.
- Enhanced InfiniBand connectivity on Oracle Database Appliance X5-2.

Oracle Database Appliance Release 12.1.2.5.0

Due to file size limitations, the release 12.1.2.5.0 patch set zip file is split into two parts.

The two parts of Oracle Database Appliance 12.1.2.5.0 Patch 21645601 are p21645601_121250_Linux-x86-64_1of2.zip, and p21645601_121250_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.5.0

- Support for Oracle Grid Infrastructure 12c release 1 (12.1.0.2.5), including Oracle Database 12c release 1 (12.1.0.2.5), with patch upgrades from Oracle Database releases 11.2.0.4.x to releases 11.2.0.4.8.
- Enhanced output for the `oakcli show dbstorage` command.

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)

- Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
 - Patch 12999313: Oracle Database Appliance 12.1.2.5.0 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2.5.0 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 12.1.0.2.5 RDBMS Clone Patch 19520042
File Name: p19520042_121250_Linux-x86-64.zip
- End User 11.2.0.4.8 RDBMS Clone Patch 17770873
File Name: p17770873_121250_Linux-x86-64.zip
- End User 11.2.0.3.15 RDBMS Clone Patch 14777276
File Name: p14777276_121250_Linux-x86-64.zip

Oracle Database Appliance Release 12.1.2.4.0

Due to file size limitations, the patch set zip file is split into two parts for this release.

The two parts of Oracle Database Appliance 12.1.2.4.0 patch 21204676 are p21204676_121240_Linux-x86-64_1of2.zip, and p21204676_121240_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.4.0

- Support for Oracle Grid Infrastructure release 12.1.0.2.4 including Oracle Database 12.1.0.2.4, with patch upgrades from releases 11.2.0.4.x and 11.2.0.3.x, to releases 11.2.0.4.7, and 11.2.0.3.15, respectively.
- New and modified Oracle Appliance Manager commands, including the following:
 - Addition of the commands `oakcli configure ib2fiber`, and `oakcli migrate vm`
 - Addition of the `-sparse` option for the `oakcli create vdisk` command, which enables you to create a sparse virtual disk.
- Support for `sudo`, which enables administrators to grant the superuser (`root`) privilege to certain users (or groups of users), while logging all commands and arguments.
- Support for passwordless `root` access for `sudo` users.
- Support for performing live migrations of an Oracle Database Appliance virtual machine. This allows you to move a virtual machine or application between physical machines without disconnecting the client or application.

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:

- Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
- Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 12.1.2.4.0 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2.4.0 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 12.1.0.2.4 RDBMS Clone Patch 19520042
File Name: p19520042_121240_Linux-x86-64.zip
- End User 11.2.0.4.7 RDBMS Clone Patch 17770873
File Name: p17770873_121240_Linux-x86-64.zip
- End User 11.2.0.3.15 RDBMS Clone Patch 14777276
File Name: p14777276_121240_Linux-x86-64.zip

Oracle Database Appliance Release 12.1.2.3.0

Due to file size limitations, the patch set zip file is split into two parts for this release

The two parts of Oracle Database Appliance 12.1.2.3.0 Patch 20690087 are p20690087_121230_Linux-x86-64_1of2.zip, and p20690087_121230_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.3.0

- Support for Oracle Grid Infrastructure release 12.1.0.2.3. This patch includes Oracle Database 12.1.0.2.3, with patch upgrades from releases 11.2.0.4.x and 11.2.0.3.x to releases 11.2.0.4.6, and 11.2.0.3.14 respectively.
- New and modified Oracle Appliance Manager commands, including the commands oakcli show dbstorage, oakcli show fs, oakcli show ib, oakcli show iraid, and oakcli show raidsyncstatus.

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 12.1.2.3.0 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2.3.0 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 12.1.0.2.3 RDBMS Clone Patch 19520042
File Name: p19520042_121230_Linux-x86-64.zip
- End User 11.2.0.4.6 RDBMS Clone Patch 17770873
File Name: p17770873_121230_Linux-x86-64.zip
- End User 11.2.0.3.14 RDBMS Clone Patch 14777276
File Name: p14777276_121230_Linux-x86-64.zip

Oracle Database Appliance Release 12.1.2.2.0

Due to file size limitations, the patch set zip file is split into two parts for this release

The two parts of Oracle Database Appliance 12.1.2.2.0 Patch 20340774 are p20340774_121220_Linux-x86-64_1of2.zip, and p20340774_121220_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.2.0

- Support for Oracle Grid Infrastructure release 12.1.0.2.2, including Oracle Database 12.1.0.2.2, with patch upgrades from releases 11.2.0.4.x and 11.2.0.3.x, to releases 11.2.0.4.5, and 11.2.0.3.13 respectively
- Support for Oracle Database Appliance X5-2
- Enhancements to database sizing templates
- New and modified Oracle Appliance Manager commands, including the following:
 - Addition of the `oakcli create dbstorage`, `delete dbstorage`, and `resize dbstorage` commands
 - Enhancements to the `oakcli create database` command
 - Addition of `--storage` parameter to the `oakcli manage diagcollect` command
 - Addition of `-node` and `-d` parameters to the `oakcli start vm` command

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 12.1.2.2.0 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2.2.0 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 12.1.0.2.2 RDBMS Clone Patch 19520042
File Name: p19520042_121220_Linux-x86-64.zip
- End User 11.2.0.4.5 RDBMS Clone Patch 17770873
File Name: p17770873_121220_Linux-x86-64.zip
- End User 11.2.0.3.13 RDBMS Clone Patch 14777276
File Name: p14777276_121220_Linux-x86-64.zip

Oracle Database Appliance Release 12.1.2.1.0

Due to file size limitations, the patch set zip file is split into two parts for this release.

The two parts of Oracle Database Appliance 12.1.2.1.0 Patch 19690105 are p19690105_121210_Linux-x86-64_1of2.zip, and p19690105_121210_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.1.0

- Support for Oracle Grid Infrastructure release 12.1.0.2.1

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 12.1.2.1.0 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2.1.0 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 12.1.0.2.1 RDBMS Clone Patch 19520042
File Name: p19520042_121210_Linux-x86-64.zip
- End User 11.2.0.4.4 RDBMS Clone Patch 17770873
File Name: p17770873_121210_Linux-x86-64.zip
- End User 11.2.0.3.12 RDBMS Clone Patch 14777276
File Name: p14777276_121210_Linux-x86-64.zip

Oracle Database Appliance Release 12.1.2.0.0

Due to file size limitations, the patch set zip file is split into two parts for this release.

The two parts of Oracle Database Appliance 12.1.2.0.0 Patch 18680198 are p18680198_121200_Linux-x86-64_1of2.zip, and p18680198_121200_Linux-x86-64_2of2.zip.

Changes in Release 12.1.2.0.0

- Support for Oracle Grid Infrastructure Release 12.1.0.2.0, including Oracle Database 12.1.0.2.0, with patch upgrades from releases 11.2.0.4.x, 11.2.0.3.x, and 11.2.0.2.x to releases 11.2.0.4.3, 11.2.0.3.11, and 11.2.0.2.12 respectively.
- Support for container databases in Oracle Database 12c release 1 (12.1.0.2.0) Oracle homes.
- Support for virtual disks.
- Support for database snapshots.
- Support for virtual machine snapshots taken from templates and other virtual machines.
- Support for resizing shared repositories.
- The Security Technical Implementation Guide (STIG) is enhanced and converted to Python for this release. The shell script version of the STIG is deprecated, and does not contain the latest updates.
- New and modified Oracle Appliance Manager commands, including the following:
 - Addition of the `-snap` parameter to the `oakcli clone` command.
 - Addition of the `repo` option to the `oakcli configure` command.
 - Addition of the `vdisk` option to the `oakcli create`, `oakcli delete`, `oakcli modify`, and `oakcli show` commands.
 - Addition of the `-errors` parameter to the `oakcli show storage` command.

Virtualized or Non-virtualized (Bare Metal) Deployment

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 12.1.2 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 12.1.2 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 11.2.0.4.3 RDBMS Clone Patch 17770873
File Name: p17770873_121200_Linux-x86-64.zip

- End User 11.2.0.3.11 RDBMS Clone Patch 14777276
File Name: p14777276_121200_Linux-x86-64.zip

Note:

When downloading patches for Oracle Database Appliance Release 12.1.2.0.0, ensure that you select **Oracle Appliance Kit 12.1.2.0.0** in the **Select a Release** list.

Oracle Database Appliance Release 2.10.0.0.0

Due to file size limitations, the patch set zip file is split into two parts for this release.

The two parts of Oracle Database Appliance Patch 2.10.0.0.0 Patch 18284007 are p18284007_210000_Linux-x86-64_1of2.zip, and p18284007_210000_Linux-x86-64_2of2.zip.

Changes in Release 2.10.0.0.0

- The product ODachk has been replaced by ORachk. To support this change, the oakcli odachk command is replaced with oakcli orachk, and the documentation has been appropriately updated.
- All other changes are internal, and not visible to Oracle Database Appliance users.

Virtualized or Non-virtualized (Bare Metal) Deployment Patches

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 2.10 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 2.10 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 11.2.0.4.2 RDBMS Clone Patch 17770873
File Name: p17770873_210000_Linux-x86-64.zip
- End User 11.2.0.3.10 RDBMS Clone Patch 14777276
File Name: p14777276_210000_Linux-x86-64.zip

Oracle Database Appliance Release 2.9.0.0.0

Patch 2.9.0.0.0 Patch 17630388 (p17630388_29000_Linux-x86-64.zip) includes several virtual machine (VM) enhancements and oakcli updates.

Changes are categorized as general release changes, virtualized or non-virtualized deployment patches, and RDBMS clone patches.

Changes in Release 2.9.0.0.0

- Improved VM stack - better logging (TINT ID), better exception handling in oakd, multithreading of XML rpc agent, and a multithreading OAKD adapter, which enables parallel VM commands.
- Import of HTTP-based templates on ODA_BASE.
- Send Key support to the VM using XenStore .
- Oracle Database Patch Set Update (PSU) 11.2.0.4.1 and 11.2.0.3.9.
- Software enhancements:
 - New template available for Very Very Small databases
 - Support for SNMP Version 3. You can use this version instead of SNMP Version 2
 - Hardware Monitoring Tool enhanced to collect information about storage enclosures
 - Revised prompts and tools for managing the selection of Fiber or Copper public network
 - New Oracle Appliance Manager option to update the first startup ("first-boot") installation configuration of a virtual machine
- Oracle Appliance Manager updates include
 - The `oakcli show` command has a new option, `enclosure`, which enables you to monitor storage enclosures
 - The `oakcli modify vm` command has a new parameter, `-s`, which enables you to define and send a message to a virtual machine
 - Commands related to managing databases, Oracle Auto Service Request, Virtual Machines, and the Hardware Monitoring Tool have modified input and output where required by the new features supported in this release

Virtualized or Non-virtualized (Bare Metal) Deployment Patches

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 2.9 Bare Metal ISO Image

- Patch 12978712: Oracle Database Appliance 2.9 End User Bundle (Oracle Grid Infrastructure and Oracle Database) RDBMS Clone Patches

RDBMS Clone Patches

- End User 11.2.0.4.1 RDBMS Clone Patch 17770873
File Name: p17770873_298000_Linux-x86-64.zip
- End User 11.2.0.3.9 RDBMS Clone Patch 14777276
File Name: p14777276_29000_Linux-x86-64.zip

Oracle Database Appliance Release 2.8.0.0.0

Patch 2.8.0.0.0 Patch 17630367 (p17630367_28000_Linux-x86-64.zip) includes support for Oracle Database Appliance X4-2, an updated ILOM and BIOS, and several software and command enhancements.

Changes are categorized as general release changes, virtualized or non-virtualized deployment patches, and RDBMS clone patches.

Changes in Release 2.8.0.0.0

- For Bare Metal and Virtualized Platform ODA_BASE, Oracle Grid Infrastructure upgrade to 11.2.0.4.0
- Oracle Database Patch Set Update (PSU) 11.2.0.3.8 and 11.2.0.2.12
- Support for Oracle Database Appliance X4-2
- ILOM and BIOS updated to 3.0.16.22.d r83408/12010311 for V1, and 3.1.2.10.d r83372/17050100 for X3-2
- Software enhancements:
 - Shared Repository support for Oracle Database Appliance Virtualized Platform
 - Virtual Local Area Network support for Oracle Database Appliance Virtualized Platform
 - Hardware Monitoring Tool reports data from sensors in subsystems for Oracle Database Appliance X3-2 only
 - Initial deployment does not require configuration of initial Oracle Database or Oracle Enterprise Database Control
- Oracle Appliance Manager has many option and parameter additions to existing commands, such as oakcli configure, oakcli show, and so on, to support new features such as shared repositories

Virtualized or Non-virtualized (Bare Metal) Deployment Patches

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)

- Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 2.8 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 2.8 End User Bundle (Oracle Grid Infrastructure and Oracle Database)

RDBMS Clone Patches

- End User 11.2.0.2.12 RDBMS Clone Patch 14349293
File Name: p14349293_28000_Linux-x86-64.zip
- End User 11.2.0.3.8 RDBMS Clone Patch 14777276
File Name: p14777276_28000_Linux-x86-64.zip

Note:

When downloading patches for Oracle Database Appliance Release 2.8, ensure that you select Oracle Appliance Kit 2.8.0.0.0 in the **Select a Release** list

Oracle Database Appliance Release 2.7.0.0.0

Oracle Database Appliance Patch 2.7.0.0.0 Patch 16760967 (p16760967_27000_Linux-x86-64.zip) includes support for Oracle Enterprise Linux 5.9, ILOM and BIOS updates, and new software and command options.

Changes are categorized as general release changes, virtualized or non-virtualized deployment patches, and RDBMS clone patches.

Changes in Release 2.7.0.0.0

- For Bare Metal and Virtualized Platform ODA_BASE, Unbreakable Enterprise Kernel upgraded from UEK1 to UEK2 OEL 5.9 (2.7.39-400.111.1.e15uek)
- For Oracle Virtual Machine (OVM), upgraded from 3.1.1 to 3.2.3 (2.7.39-300.32.1.e15uek)
- Oracle Database Patch Set Update (PSU) 11.2.0.3.7 and 11.2.0.2.11
- For hardware (other than X3-2), ILOM and BIOS updated to 3.0.16.22c r80379 / 12010311
- The `oakcli show` command has new option to show the hardware version and environment type information:


```
oakcli show env_hw
```

Virtualized or Non-virtualized (Bare Metal) Deployment Patches

- For Virtualized Configuration:

- Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
- Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 2.7 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 2.7 End User Bundle (Oracle Grid Infrastructure and Oracle Database)

RDBMS Clone Patches

- End User 11.2.0.2.11 RDBMS Clone Patch 14349293
File Name: p14349293_27000_Linux-x86-64.zip
- End User 11.2.0.3.7 RDBMS Clone Patch 14777276
File Name: p14777276_27000_Linux-x86-64.zip

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Note:

When downloading patches for Oracle Database Appliance Release 2.7, ensure that you select Oracle Appliance Kit 2.7.0.0.0 in the **Select a Release** list.

Oracle Database Appliance Release 2.6.0.0.0

Oracle Database Appliance 2.6.0.0.0 Patch 16744915 (p16744915_26000_Linux-x86-64.zip) includes support for Oracle Virtual Machine (OVM) assemblies, support for SAP, ILOM updates, and new software and command options.

Changes are categorized as general release changes, virtualized or non-virtualized deployment patches, and RDBMS clone patches.

Changes in Release 2.6.0.0.0

- Offers similar deployment and user experience for both Bare Metal and Virtualized platform on X3-2 and all earlier hardware
- Support of Oracle Virtual Machine (OVM) assemblies (*.ova files)
- Support for an HTTP option for template import
- SAP supported on Oracle Database Appliance and on Oracle Database Appliance X3-2 Bare Metal
- ILOM version updated to 3.0.16.22.b r78329
- Oracle Database Patch Set Update (PSU) 11.2.0.3.6 and 11.2.0.2.10
- New offline Oracle Appliance Manager Configurator
- New Oracle Appliance Manager commands and options:

- `oakcli restart oda_base`: stops and restarts ODA_BASE on the local node
- `oakcli start oda_base`: starts ODA_BASE on the local node
- `oakcli stop oda_base`: stops ODA_BASE on the local node

Virtualized or Non-virtualized (Bare Metal) Deployment Patches

- For Virtualized Configuration:
 - Patch 16186163: Oracle Database Appliance VM ISO Image (Dom0)
 - Patch 16186172: Oracle Database Appliance VM Template (ODA_BASE)
- For Bare Metal (non-virtualized) configuration:
 - Patch 12999313: Oracle Database Appliance 2.6 Bare Metal ISO Image
 - Patch 12978712: Oracle Database Appliance 2.6 End User Bundle (Oracle Grid Infrastructure and Oracle Database)

RDBMS Clone Patches

- End User 11.2.0.2.10 RDBMS Clone Patch 14349293
File Name: `p14349293_26000_Linux-x86-64.zip`
- End User 11.2.0.3.6 RDBMS Clone Patch 14777276
File Name: `p14777276_26000_Linux-x86-64.zip`

Note:

When downloading patches for Oracle Database Appliance Release 2.6, ensure that you select Oracle Appliance Kit 2.6.0.0.0 in the **Select a Release** list.

Changes in Release 2.5.5.0.0

This patch set release includes support for Oracle Database Appliance X3-2, an additional storage expansion shelf, and software patches .

This is the first release that supports Oracle Database Appliance X3-2. For that reason, no additional patch is provided for X3-2 with this release. This patch set includes the following updates:

- Support for new Oracle Database Appliance X3-2 (hardware only).
- Support for one additional storage expansion shelf (for a total of two storage shelves).
- Provides choice of either a Bare Metal (BM) or a Virtualization Platform option for Oracle Database Appliance X3-2 hardware.
- For Bare Metal installation only, the following `EndUserBundle` clone file can be applied on Oracle Database Appliance X3-2 nodes running versions 2.5.5.0.0:

- p12978712_25500_Linux-x86-64.zip
 - For Virtualized Platform installation, apply the following files
 - p16186163_25500_Linux-x86-64.zip
 - p16186172_25500_Linux-x86-64.zip
- Apply the files using the step-by-step instructions documented in My Oracle Support note 1520579.1, which is available from the following URL:
- <https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&doctype=REFERENCE&id=1520579.1>

Changes in Release 2.5.0.0.0

Starting with release 2.5, you can deploy Oracle Database Appliance in a Virtualized or Non-virtualized (Bare Metal) configuration.

This release is the first release that supports Oracle Database Appliance in both Virtualized and Non-virtualized configurations. It includes the following features:

- Support for Oracle Virtual Machine (Oracle VM), Version 3.1.1
 - More efficient use of resources:
 - Fewer cores can be licensed for database
 - The remaining cores can support virtual domains for a variety of uses
 - Similar deployment and usage experience for both bare metal and virtual platforms
 - Based on Oracle VM 3.1.1, and supports all operating systems and templates supported by Oracle VM
- New Oracle VM `oakcli` commands
- External Auto Service Request server support

Changes in Release 2.4.0.0.0

This release includes support for configuring Oracle Automatic Storage Management disk groups with NORMAL redundancy, as well as additional software feature enhancements.

This release includes the following features and known issues:

New Features for Release 2.4.0.0.0

- Oracle Automatic Storage Management (Oracle ASM) Normal Redundancy Support for DATA and RECO disk groups: This feature is only available for new deployments. In the Oracle Database Appliance Manager graphic user interface (GUI), you can select normal redundancy for your DATA and RECO disk groups when you select the **Custom** configuration option. Oracle continues to use HIGH redundancy for the REDO disk group.

- Trace File Analyzer: This version adds a deployment step to install the new Trace File Analyzer feature.
- The `oakcli create` command is enhanced as follows:
 - Currently, the supported versions you can create using the command `oakcli create dbhome -version version_number` are releases 11.2.0.2.8 and 11.2.0.3.4.
- All documentation in the Oracle Database Appliance library is current for Oracle Database Appliance 2.4.0.0.0. Some of the documents may refer to previous Oracle Database Appliance releases, but these documents are applicable to this most recent release.

Known Issues for Release 2.4.0.0.0

For additional information about known issues for this patch, refer to My Oracle Support Note 888888.1. The following summarizes the known issues for release 2.4.0.0.0:

- By default, Oracle installs Enterprise Manager DB Console for the database. For Oracle Grid Infrastructure patching, the patch installation stops all DB Consoles. However, if you installed the Oracle Database Cloud Control 12c agent, then it remains operational. If you have installed Oracle Database Cloud Control 12c, then run the command `emctl stop agent` to stop the Oracle Database Enterprise Manager Agent before applying Oracle Grid Infrastructure patching. This avoids running into the following issue: `copy failed for crsctl.bin`.
- It is not necessary to run `emctl stop dbconsole`, because the patching process stops the console. Intermittently, some DB Console processes continue running, and Oracle Grid Infrastructure patching fails because a copy operation for `crsctl.bin` failed. If this happens, then ensure that the DB Console process is stopped before performing Grid Infrastructure patching.
- After the infrastructure is updated, run the following command: on both nodes: `dmidecode -t 1 | egrep Serial Number | Version | Product Name | SKU Number`. If either node responds with the message `Not Available`, then restart that node. This issue should be resolved in this release.
- After the infrastructure updates, run `fwupdate list controller | grep -v Intel` on both nodes. If no information appears under `FW Version` for `SAS LSI Logic 0x0072 Type Manufacturer Model controllers`, then restart the node. The firmware version should be 11.05.02.00. This issue should be resolved in this release.
- In deployments for the version prior to Oracle Database Appliance 2.3, the parameter `use_large_pages` is set to `TRUE`. For new deployments, Oracle adopts the best practice of setting `use_large_pages` to `ONLY`. If you did not properly size your environment based on Appendix C of the Oracle Database Appliance Getting Started Guide, and if your database has a larger system global area (SGA), then you may see related messages in your alert log file. Oracle does not recommend that you revert the setting of `use_large_pages` to `TRUE`. Instead, Oracle recommends that you let the system notify you with the early warning that your database may run into memory issues; eventually this limitation

affects your system's performance. In this case, Oracle recommends that you avoid creating and starting additional databases. The messages you see are similar to the following examples:

```
***** Huge Pages Information *****
Huge Pages memory pool detected (total: 26000 free: 3729)
Huge Pages allocation failed (free: 23694 required: 2049)
Startup will fail as use_large_pages is set to "ONLY"
```

Or:

```
***** Large Pages Information *****
Parameter use_large_pages = ONLY
Large Pages unused system wide = 23951 (47 GB) (alloc incr 128 MB)
Large Pages configured system wide = 26000 (51 GB)
Large Page size = 2048 KB
ERROR:
  Failed to allocate shared global region with large pages, unix errno = 12.
  Aborting Instance startup.
  ORA-27137: unable to allocate Large Pages to create a shared memory segment
ACTION:
  Total Shared Global Region size is 48 GB. Increase the number of
  unused large pages to at least 24580 (48 GB) to allocate 100% Shared Global
  Region with Large Pages.
*****
```

Changes in Release 2.3.0.0.0

This release includes support for multiple Oracle homes for Oracle Database 11g release 2, releases 11.2.0.2.5 and 11.2.0.3.3, as well as `oakcli` command enhancements.

This release includes the following features

Multiple Oracle homes for Oracle Database 11g Release 2

- Support for multiple Oracle homes for Oracle Database 11g Release 2, releases 11.2.0.2.5 and 11.2.0.3.3, including the following features:
 - Ability to create multiple Oracle homes of the same database version, or a different version.
 - Support of Oracle Database releases 11.2.0.2.8 and 11.2.0.3.4 for new database homes.
 - Ability to create a database from an existing home. By default, when you create a database without providing the home information, Oracle creates a separate home for that database.
 - Ability to create a new database home if you provide release information while creating the database. When you provide release information, the configurator creates a new database home with that particular release, and then creates the database in that home.
 - To determine how many Oracle RAC databases your environment can support, refer to Appendix C, *Oracle Database Appliance Getting Started Guide*, for information about Oracle Database Appliance sizing.

OAKCLI CREATE Command Enhancements

- In addition to the `oakcli upgrade` command, there are some new `oakcli` commands included in this patch to support multiple databases and multiple database homes.
- The minimum version to run `oakcli create` or `oakcli delete` is Oracle Database Appliance 2.3.0.0.0.
- Run `oakcli create` commands to create new databases, or to create new database homes or new database configuration parameter files.
- Oracle Database Appliance 2.3: currently the supported versions for `oakcli create dbhome -version version_number` are 11.2.0.2.7 and 11.2.0.3.3.
- To create 11.2.0.2.8 Oracle homes, download the 11.2.0.2.8 Oracle Database clone file from My Oracle Support, patch number 14349293 - `p14349293_24000_Linux-x86-64.zip`. To create 11.2.0.3.4 Oracle homes, download the 11.2.0.3.4 Oracle Database clone file from My Oracle Support, patch number 14777276 - `p14777276_24000_Linux-x86-64.zip`. The command should be run on node 1.

Note:

Enter the `oakcli create -h` command to see more details, or refer to Appendix D in *Oracle Database Appliance Getting Started Guide*

OAKCLI DELETE Command Enhancements

You can use `oakcli delete` commands on node 1 to delete unused databases, and unused database homes.

Note:

Enter the `oakcli create -h` command to see more details, or refer to Appendix D in *Oracle Database Appliance Getting Started Guide*

Oracle Database Appliance Configuration Parameter Enhancements

Oracle uses a set of default parameters to create a database. You can use `oakcli show db_config_parms -detail` to display the database configuration parameter settings. To change these configuration parameter settings, create a configuration file using `oakcli create db_config_params -conf conf_file_name` on node 1, where `conf_file_name` is the name of the configuration file.

Note:

Enter the `oakcli create -h` command to see more details, or refer to Appendix D in *Oracle Database Appliance Getting Started Guide*

OAKCLI UPDATE Enhancements

- Before you run `oakcli update -patch`, you can verify the proposed patch version by running the `oakcli update -patch 2.4.0.0.0 --verify` command.

Enter the `oakcli update -patch 2.4.0.0.0 --verify` command to see more details, or refer to Appendix D, *Oracle Database Appliance Getting Started Guide*

- Run the `oakcli update -patch 2.4.0.0.0 -clean` command to delete all temporary files on the local node.

Enter the `oakcli update -patch 2.4.0.0.0 -clean` command to see more details, or refer to Appendix D, *Oracle Database Appliance Getting Started Guide*

Changes in Release 2.2.0.0.0

This release includes support for Oracle Database 11g release 2, Oracle Linux 5.8, and several enhancements.

The following enhancements are included with this release:

- Support for Oracle Database 11g release 2 (11.2.0.3.2)
- Support for Oracle Linux 5.8, including the Unbreakable Enterprise Kernel
- Patching new features, including the following:
 - Support to patch Oracle Grid Infrastructure and Oracle Database homes separately
 - New `oakcli` command options (`-infra`, `-verify`)
- Improved system diagnostics, including improved logging and patching information
- Support for local applications running Oracle Database Appliance

Changes in Release 2.1.0.2.0

Starting in this release, you can deploy Oracle Database Appliance without using a DNS.

Oracle recommends that you use a DNS so that you can use the Single Client Access Name (SCAN) for client requests. If you deploy the appliance without a DNS, but later set up a DNS and configure the SCAN name and addresses on the DNS, then you must configure the SCAN listeners manually after installation.

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 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.

Oracle® Database Appliance Release Notes , Release 12.1.2.9.0
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