

# Oracle® Database

## Database Release Notes



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Oracle Database Database Release Notes, 23ai

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# Preface

This document describes last-minute features and changes that are not included in the Oracle Database Documentation Library for Oracle Database 23ai.

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Resources](#)
- [Conventions](#)

## Audience

This document is relevant only to Oracle Database 23ai and documents new features, changes, unsupported products, preinstallation requirements, generic and platform-specific bug fixes, and known issues that are not included in the Oracle Database documentation library.

## 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 Resources

Refer to the following documentation for more information related to this release:

- <http://docs.oracle.com/en/database/database.html>
- For licensing information, refer to *Oracle Database Licensing Information User Manual*.
- Additional readme or release notes files also exist. Refer to [Other Readmes](#), [Release Notes](#), or [Installation Guides](#).

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## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

# 1

## Purpose of These Release Notes

More recent versions of some Oracle Database 23ai documentation may be available in either HTML or PDF format.

Updates to this release note document can occur after it is released. Check for updates to this document and view other Oracle documentation at:

<http://docs.oracle.com/en/database/database.html>

For licensing information, refer to *Oracle Database Licensing Information User Manual*.

Additional readme or release notes files also exist. Refer to the [Other Readmes, Release Notes, or Installation Guides](#).

# 2

## Issues Affecting All Platforms for Oracle Database 23ai

These topics contain last-minute features and changes that affect all platforms for Oracle Database 23ai.

- [Restrictions for Oracle AI Vector Search](#)  
The following are restrictions for Oracle AI Vector Search in Oracle Database 23ai.
- [Restrictions for JSON-Relational Duality Views](#)  
The following are restrictions for JSON-relational duality views in Oracle Database 23ai.
- [Property Graph Features That Work With Oracle Database 23ai](#)  
Oracle Graph Server and Client Release 24.2 works with the following Property Graph features of Oracle Database 23ai.
- [Unrestricted Parallel DMLs](#)  
The following are restrictions for Unrestricted Parallel DMLs in Oracle Database 23ai.
- [Deprecated and Desupported Features for Oracle Database](#)  
Oracle Database 23ai introduces behavior changes for your database in addition to new features.
- [Other Readmes, Release Notes, or Installation Guides](#)  
Refer to the following Oracle products and the location of their associated readme, release notes, or installation guide for additional information.
- [Open Bugs Affecting All Platforms](#)  
This section describes known bugs in Oracle Database 23ai that affect all platforms.

### 2.1 Restrictions for Oracle AI Vector Search

The following are restrictions for Oracle AI Vector Search in Oracle Database 23ai.

- The feature Open Neural Network Exchange (ONNX) is only supported on the x86-64 Linux platform. It is not supported on Microsoft Windows.
- To size the Vector Pool, use the `VECTOR_MEMORY_SIZE` initialization parameter. You can dynamically modify this parameter at the following levels:
  - At the multitenant container database (CDB) level, `VECTOR_MEMORY_SIZE` specifies the current size of the Vector Pool. Reducing the parameter value fails if there is current vector usage.
  - At the pluggable database (PDB), level `VECTOR_MEMORY_SIZE` specifies the maximum Vector Pool usage allowed by a PDB. Reducing the parameter value is allowed even if current vector usage exceeds the new quota.
- [Table-Level Support](#)
  - Truncate or move table operations are supported but will mark vector indexes unusable.

- Partition management (PMOP) operations (for example, DROP, TRUNCATE, EXCHANGE, MERGE, MOVE, COALESCE, and SPLIT) are supported but will mark vector indexes unusable.
- Adding a hash partition will also mark vector indexes unusable. However, adding a range or list partition will not mark vector indexes unusable.
- Vector columns are not supported either in or as the following:
  - \* External tables
  - \* Index organized tables (IOTs) (neither as a primary key or as a non-key column)
  - \* Clusters or cluster tables
  - \* Global temporary tables
  - \* Blockchain tables
  - \* Immutable tables
  - \* Partitioning and subpartitioning keys
  - \* Primary and foreign keys
  - \* Unique and check constraints
  - \* Default value
  - \* Modify column
  - \* Manual segment space management (MSSM) tablespace (only a SYS user can create vectors as BasicFiles in MSSM tablespace)
  - \* Continuous Query Notification (CQN) queries
  - \* Non-vector indexes such as B-tree, bitmap, reverse key, text, spatial indexes
- Type-Level Support  
Vector column specification does not support the following:
  - Encryption clause
  - SecureFiles storage clause
- Query-Level Support
  - The partition row-limiting clause does not use vector indexes.
  - There is limited cost-based optimization support for vector indexes.
  - SQL constructs with vector columns do not support the following:
    - \* Distinct, Count Distinct
    - \* Order By, Group By
    - \* Join condition
    - \* Comparison operators (for example, >, <, =)
- Index-Level Support
  - Vector indexes do not support the following:
    - \* External tables
    - \* IOTs



- \* Clusters or cluster tables
- \* Global temporary tables
- \* Blockchain tables
- \* Immutable tables
- \* Materialized views
- There is no support for the following:
  - \* Vector index creation on non-vector columns (for example, VARCHAR, NUMBER, and so on)
  - \* Function-based vector index
  - \* Alter index DDL for vector indexes
  - \* Local partitioned vector indexes
  - \* Global partitioned vector indexes
  - \* Online creation of vector indexes
- INMEMORY NEIGHBOR GRAPH restrictions include:
  - \* There is no support for INMEMORY NEIGHBOR GRAPH indexes on Oracle RAC.
  - \* DMLs are not supported on base tables that have an INMEMORY NEIGHBOR GRAPH index.
- The latest python-oracledb, node-oracledb, JDBC, ODP.NET, and OCI drivers enable native binds.
  - All other SQL drivers need to use CLOBs or VARCHAR2 for binds and for vector definitions.
  - Oracle clients from release 19c and release 21c will see vectors as CLOBs.
- Integration with the following is not supported:
  - Vector indexes with transportable tablespaces are not supported with Oracle Data Pump.
  - Oracle Database Advanced Queuing
  - Oracle Database Gateways
- A maximum of 65535 dimensions is supported.
- Data redaction is not supported for the VECTOR data type. Specifically, you cannot:
  - Add a data redaction policy on a vector column.
  - Alter a table to modify a column to the VECTOR data type if the column has a redaction policy defined on it.

## 2.2 Restrictions for JSON-Relational Duality Views

The following are restrictions for JSON-relational duality views in Oracle Database 23ai.

- The following column data types cannot be used with duality views:
  - TIMESTAMP WITH LOCAL TIME ZONE
  - BFILE

- ROWID
- UROWID
- XMLTYPE
- ANYTYPE
- ANYDATA
- ANYDATASET
- HTTPURIType
- XDBURIType
- DBURIType
- SDO\_POINT\_TYPE
- SDO\_ELEM\_INFO\_ARRAY
- SDO\_ORDINATE\_ARRAY
- SDO\_GEOMETRY
- SDO\_TOPO\_GEOMETRY
- Object types (Abstract Data Types)
- Duality views cannot be created on:
  - System-partitioned tables
  - Partitioned-extended tables
  - Sharded tables
  - Views (except editing views). Views include materialized views and duality views.
  - External tables
  - Hybrid partitioned tables
  - Global or private temporary tables
  - Remote tables (for example, tables over database links)
- Updates of duality views across database links are not supported.
- You cannot create a functional index, JSON search index, or JSON multivalue index on the `DATA` column of a duality view.
- The use of a JSON search index on the column of an underlying table is not supported.
- Virtual private database (VPD) and Oracle Real Application Security (RAS) on duality views are not supported.
- VPD on underlying tables are supported only if all statements (`INSERT`, `UPDATE`, `DELETE`, or `SELECT`) are included in the policy. However, when all statement types are not included in the VPD policy, there is no error returned but DML and query results may be unexpected or may fail.
- Transparent Sensitive Data Protection is not supported with duality views and underlying tables.

- Table columns of a duality view cannot be redacted if the redacted columns are part of the ETAG.
- Because JSON-relational duality views rely on JSON type, a 19c or earlier SQL\*Plus client cannot be used for queries, DML or other SQL operations that use the `DATA` column which is of data type `JSON`.
- Duality views cannot be created on base tables with textual JSON columns (`VC2/CLOB/BLOB` with `IS-JSON` constraint) in the base table.
- The same subquery cannot be used multiple times to define nested JSON structures (object or array) in the same parent object.
- Fine-grained auditing policies are not supported with duality views.
- DML error logging is not supported with duality views.

## 2.3 Property Graph Features That Work With Oracle Database 23ai

Oracle Graph Server and Client Release 24.2 works with the following Property Graph features of Oracle Database 23ai.

- Native representation of graphs in Oracle Database.
- Support for the ISO/IEC SQL Property Graph Queries (SQL/PGQ) standard.
- Use JSON collections as a graph data source.
- Use Native Representation of Graphs in Oracle Database with Graph Tools.

See the topics [SQL Property Graphs](#) and [Visualizing GRAPH\\_TABLE Queries on SQL Property Graphs](#) in *Oracle Database Graph Developer's Guide for Property Graph*.

## 2.4 Unrestricted Parallel DMLs

The following are restrictions for Unrestricted Parallel DMLs in Oracle Database 23ai.

For this release, the Unrestricted Parallel DMLs feature is:

- Not compatible with In-Memory Undo (IMU). (IMU is already disabled for Oracle RAC.)
- Not compatible with distributed and clusterwide global transactions.

## 2.5 Deprecated and Desupported Features for Oracle Database

Oracle Database 23ai introduces behavior changes for your database in addition to new features.

Changes in behavior include deprecated and desupported initialization parameters, options, syntax, and the deprecation and desupport of features and components. For more information, see the *Oracle Database Upgrade Guide*.

## 2.6 Other Readmes, Release Notes, or Installation Guides

Refer to the following Oracle products and the location of their associated readme, release notes, or installation guide for additional information.

- [Oracle APEX Release Notes](#)
- [Oracle APEX Installation Guide](#).

## 2.7 Open Bugs Affecting All Platforms

This section describes known bugs in Oracle Database 23ai that affect all platforms.

- [Recovery Manager Known Bugs](#)  
These are the Recovery Manager (RMAN) known bugs in Oracle Database 23ai.

### 2.7.1 Recovery Manager Known Bugs

These are the Recovery Manager (RMAN) known bugs in Oracle Database 23ai.

- [Bug 36470533](#)

#### 2.7.1.1 Bug 36470533

Restoring the pluggable database (PDB) using the `FROM SERVICE` clause of the `RESTORE` command is failing at the standby database when the source is a primary database using Oracle Database as a service (Oracle DBaaS) tools.

**Workaround:**

Restart the standby database in mount mode by running the `STARTUP MOUNT FORCE` command and then retry the `RECOVER` command.

# 3

## Issues Affecting Linux for Oracle Database 23ai

These topics contain last-minute features and changes for Linux for Oracle Database 23ai.

- [Unsupported Products for Oracle Database 23ai](#)  
This topic describes products or features that are unavailable for Oracle Database 23ai.
- [Product Support](#)  
This topic describes the supported products or features for Oracle Database 23ai.
- [Open Bugs Affecting Linux](#)  
This topic contains last-minute features and changes for Oracle Database 23ai.

### 3.1 Unsupported Products for Oracle Database 23ai

This topic describes products or features that are unavailable for Oracle Database 23ai.

- DBnest is not supported on Oracle Linux 8 with the Unbreakable Enterprise Kernel 7: 5.15.0-202.135.2.el8uek.x86\_64 or later and Red Hat Enterprise Linux 8: 5.15.0-202.135.2.el8uek.x86\_64 or later.
- DBnest is only supported on Linux cgroup v1. By default, Oracle Linux 8 with the Unbreakable Enterprise Kernel 7: 5.15.0-202.135.2.el8uek.x86\_64 or later and Red Hat Enterprise Linux 8: 5.15.0-202.135.2.el8uek.x86\_64 or later boot with cgroup v2.

### 3.2 Product Support

This topic describes the supported products or features for Oracle Database 23ai.

- For Oracle Database 23ai on Oracle Linux 9 Red Hat Compatible Kernel (RHCK), Oracle ASMLIB V3 is supported on kernel version 5.14.0-362.8.1.el9\_3 or later only.

### 3.3 Open Bugs Affecting Linux

This topic contains last-minute features and changes for Oracle Database 23ai.

- [Bug 36326543](#)
- [Bug 35517929](#)

#### 3.3.1 Bug 36326543

On Oracle Linux 9.2, the listener fails to start due to issues with `getaddrinfo()` if the `/etc/hosts` has an entry in the order IPv4 and IPv6 addresses when the same host name and listener are configured with IPv6 address and `ip=v6_only`.

#### **Workaround**

Change the order of the address in the `/etc/hosts` entry with IPv6 first and then IPv4.

### 3.3.2 Bug 35517929

Static linking demos fail during compilation on Oracle Database 23ai on Oracle Linux 9 and Red Hat Enterprise Linux 9.

**Workaround:**

Oracle Database 23ai supports only Dynamic linking demos on Oracle Linux 9 and Red Hat Enterprise Linux 9.