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# Oracle® Database

## Database 23c Free Release Notes

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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 23c.

Starting with Oracle Database 18c, the readme and platform-specific release notes have been combined into one document. The second chapter of this document contains generic information. Subsequent chapters of this document contain platform-specific information. The last chapter of this document contains last-minute changes not included in the Oracle Database documentation library.

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

## Audience

This document is relevant only to Oracle Database 23c 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](#).

## 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

This topic briefly describes the purpose of these release notes.

More recent versions of some Oracle Database release 23c, version 23.3 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 23c

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

- [Restrictions for JSON-Relational Duality Views](#)  
The following are restrictions for JSON-relational duality views in Oracle Database 23c.
- [Property Graph Features That Work With Oracle Database 23c](#)  
Oracle Graph Server and Client Release 23.3 works with the following Property Graph features of Oracle Database 23c:
- [Features Not Available, Restricted or Changed in This Release of Oracle Database 23c](#)  
This topic describes features that are not available or are restricted for Oracle Database 23c. This release is focused on functionality and not performance.
- [Deprecated and Desupported Features for Oracle Database](#)  
This topic describes deprecated and desupported features for Oracle Database 23c.
- [Other Readmes, Release Notes, or Installation Guides](#)  
There are additional documents for Oracle products that are associated with this Oracle Database release.
- [Open Bugs Affecting All Platforms](#)  
This section describes known bugs in Oracle Database 23c that affect all platforms.

### 2.1 Restrictions for JSON-Relational Duality Views

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

- 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 editioning 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.
- Duality view names should use ASCII characters. The use of some non-ASCII characters with non-UTF8 database characters can fail in some operations.

- JSON path expressions with the type( ) item method are not supported when querying the DATA column of a duality view.

## 2.2 Property Graph Features That Work With Oracle Database 23c

Oracle Graph Server and Client Release 23.3 works with the following Property Graph features of Oracle Database 23c:

- 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*.

## 2.3 Features Not Available, Restricted or Changed in This Release of Oracle Database 23c

This topic describes features that are not available or are restricted for Oracle Database 23c. This release is focused on functionality and not performance.

- The following restrictions exist for Oracle AI Vector Search:
  - Vector indexes are not supported.
  - The python-oracledb and node-oracledb SQL drivers enable native binds.
    - \* All other SQL drivers need to use CLOBs 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:
    - \* SQL\*Loader
    - \* Oracle Data Pump
    - \* Oracle Database Advanced Queuing
    - \* Oracle Data Guard
    - \* Oracle Database Gateways
    - \* Oracle Real Application Clusters (Oracle RAC)
    - \* Oracle Sharding
    - \* Oracle Exadata
  - Open Neural Network eXchange (ONNX) in the Oracle database is not supported.
  - Native vector binding for JDBC, ODP.NET, and the C API or Oracle Call Interface (OCI) is not supported.
  - Vector support for PL/SQL is not supported.
  - Only 65533 dimensions are supported.

- This release is available on the Linux platform; specifically, Oracle Linux and Red Hat Linux releases 8.6, 8.7 and 8.8. Platforms other than Oracle Linux and Red Hat Linux are not supported.
- For this release, the Unrestricted Parallel DMLs are:
  - Not compatible with In Memory Undo (IMU). (IMU is already disabled for Oracle RAC.)
  - Not compatible with distributed and clusterwide global transactions.
  - Parallel DML (PDML) and global indexes may lead to deadlocks resulting in error `ORA-00060`.

## 2.4 Deprecated and Desupported Features for Oracle Database

This topic describes deprecated and desupported features for Oracle Database 23c.

Oracle Database 23c 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*.

### Oracle OLAP Desupported

Analytic workspaces, the OLAP DML programming language, and the OLAP Java API are desupported in Oracle Database 23c.

For new applications requiring advanced analytic capabilities, Oracle recommends that you consider analytic views (a feature of Oracle Database), or Oracle Essbase for forecasting and what-if analysis. Oracle analytic views are a feature of every Oracle Database edition. If your application uses OLAP for dimensional query and reporting applications, then Oracle recommends that you consider Oracle analytic views as a replacement for OLAP. Analytic views provide a fast and efficient way to create analytic queries of data stored in existing database tables and views. With Oracle analytic views, you obtain a dimensional query model and supporting metadata without requiring a "cube build/update" process. The elimination of the cube build/update process relieves scalability constraints (model complexity and data volume), simplifies the data preparation pipeline, and reduces or eliminates data latency.

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

There are additional documents for Oracle products that are associated with this Oracle Database release.

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

**Table 2-1 Other Oracle Products Documentation**

Product	Document
Oracle Application Express	<i>Oracle APEX Release Notes</i> and the <i>Oracle APEX Installation Guide</i> .

**Table 2-1 (Cont.) Other Oracle Products Documentation**

Product	Document
Oracle ODBC Driver	<i>ODBC Driver Release Notes</i>

## 2.6 Open Bugs Affecting All Platforms

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

- [Oracle Net Manager Known Bugs](#)  
These are the known bugs in Oracle Net Manager in Oracle Database 23c.

### 2.6.1 Oracle Net Manager Known Bugs

These are the known bugs in Oracle Net Manager in Oracle Database 23c.

- [Bug 35522036](#)

#### 2.6.1.1 Bug 35522036

There is a known JDK11 compatibility issue with Oracle Net Manager in Oracle Database release 23c, version 23.3.

**Workaround:**

Use an earlier version of Oracle Net Manager or refer to the Oracle Net Services page on OTN for Technical Briefs about alternate methods for configuration.