

# Oracle® Database

## Database Release Notes



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Oracle Database Database Release Notes, 21c

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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 21c.

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](#)
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## Audience

This document is relevant only to Oracle Database 21c 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.
monospace	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.

Updates to this 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 21c

These topics contain last-minute features and changes that affect all platforms for Oracle Database 21c.

- [Features Not Available or Restricted in This Release of Oracle Database 21c](#)  
This topic describes features that are not available or are restricted for Oracle Database 21c.
- [Deprecated and Desupported Features for Oracle Database](#)  
This topic describes deprecated and desupported features for Oracle Database 21c.
- [Other Readmes, Release Notes, or Installation Guides](#)  
There are additional documents for Oracle products that are associated with this Oracle Database release.

## Features Not Available or Restricted in This Release of Oracle Database 21c

This topic describes features that are not available or are restricted for Oracle Database 21c.

- Only available on Linux x86-64 platform.
- Virtual Machines using Oracle Real Application Clusters (Oracle RAC) are not supported on bare-metal systems.
- Upgrade from previous releases to Oracle Database release 21c, version 21.1 is not supported.
- The Pilot utility is not available on Microsoft Windows for Oracle Database 21c.
- Intelligent Platform Management Interface (IPMI) is not available on Microsoft Windows for Oracle Database release 21c, but will be available in a future release.

## Deprecated and Desupported Features for Oracle Database

This topic describes deprecated and desupported features for Oracle Database 21c.

Oracle Database 21c 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*.

## 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**

<b>Product</b>	<b>Document</b>
Oracle Application Express	<i>Oracle Application Express Release Notes and the Oracle Application Express Installation Guide.</i>
Oracle ODBC Driver	<i>ODBC Driver Release Notes</i>
Pro*C	<i>Pro*C/C++ Release Notes</i>
Pro*COBOL	<i>Pro*COBOL Release Notes</i>
SQL*Plus	<i>SQL*Plus Release Notes</i>

# 3

## Open Bugs Affecting All Platforms

This section describes known bugs in Oracle Database 21c that affect all platforms.

- [Oracle Database Enterprise Edition Known Bugs](#)  
These are the Oracle Database Enterprise Edition bugs in Oracle Database 21c.
- [Oracle Database Vault Known Bugs](#)  
These are the Oracle Database Vault known bugs in Oracle Database 21c.
- [Oracle Grid Infrastructure Known Bugs](#)  
These are the Oracle Grid Infrastructure known bugs in Oracle Database 21c.
- [Oracle Sharding Known Bugs](#)  
These are the Oracle Sharding known bugs in Oracle Database 21c.
- [Oracle Universal Installer Known Bugs](#)  
These are the Oracle Universal Installer (OUI) bugs in Oracle Database 21c.
- [JavaScript Object Notation Known Bugs](#)  
These are the JavaScript Object Notation (JSON) bugs in Oracle Database 21c.

### Oracle Database Enterprise Edition Known Bugs

These are the Oracle Database Enterprise Edition bugs in Oracle Database 21c.

- [Bug 23569490](#)
- [Bug 33090781](#)

#### Bug 23569490

If you have a large number of collections and are working with clients earlier than Oracle Database 12c release 2 (12.2), then you need a larger object cache, due to a change in snapshot size and thus a need for collection image conversion.

**Workaround:**

The object cache size can be set using the `OBJECT_CACHE_OPTIMAL_SIZE` initialization parameter. This is set to a low value by default.

#### Bug 33090781

If the Oracle Database user password has expired, then you might not be able to use the password command to change the password if the network encryption is enabled.

**Workaround:**

Contact your database administrator to change or reset the password.

## Oracle Database Vault Known Bugs

These are the Oracle Database Vault known bugs in Oracle Database 21c.

- [Bug 33109335](#)

### Bug 33109335

For all Oracle Scheduler jobs, if the following conditions are met, then the jobs fail with error `ORA-01031`:

- The job must access Oracle Database Vault protected objects.
- The jobs are owned by a non-SYS user.
- The job must be started before Oracle Database Vault is enabled in the database.

#### Workaround:

For all jobs failing with error `ORA-01031`, disable and reenabte the job with a user with Oracle Database Vault enabled. If the user enabling the job is not same as the job owner, then scheduler authorization is necessary. The authorization looks like:

```
execute dbms_macadm.authorize_scheduler_user('user_who_enabled_job',  
'job_owner');
```

## Oracle Grid Infrastructure Known Bugs

These are the Oracle Grid Infrastructure known bugs in Oracle Database 21c.

- [Bug 33156635](#)

### Bug 33156635

If there is a failure while running the root script and the following information is found in the installation log, then the Apache Tomcat port is already in use by another process:

```
2020/02/25 00:25:52 CLSRSC-594: Executing installation step 18 of 19:  
'ConfigNode'.  
QoS Management Server could not be started.  
PRCR-1079 : Failed to start resource ora.qosmsserver  
TCC-0004: The container was not able to start.  
Failed to create a new RMI registry.Port already in use: 8895;
```

#### Workaround:

Identify the process holding the Apache Tomcat port, shut it down, and rerun the root script. If this is not possible, then do the following (where the `<newrmiport>` and `<newhttpport>` are port numbers that are not in use, not in the privileged range, and are not 8888 or 8895) and then rerun the root script:

Error Message Report Port Number	Workaround
8895	<code>srvctl modify qosmsserver -rmiport &lt;newrmiport&gt;</code>
8888	<code>srvctl modify qosmsserver -httpport &lt;newhttpport&gt;</code>

## Oracle Sharding Known Bugs

These are the Oracle Sharding known bugs in Oracle Database 21c.

- [Bug 33156635](#)

### Bug 33156635

When running Oracle RAC or Oracle Restart in a role-separated environment, where the Oracle RAC or Oracle Restart account is different from the Oracle Database account, performing administrative operations for sharding or for Global Data Services (GDS) can result in error GSM-45029: SQL ERROR NO MORE DATA TO READ FROM SOCKET when connected through a listener that runs in the Oracle RAC or Oracle Restart account.

**Workaround:**

In order to mitigate this issue, start a listener in the Oracle Database account on the sharded catalog database, and on each shard, if one is not already running. This listener can be used to connect and perform administrative operations, and can also be used when providing an Oracle Database Transparent Network Substrate (TNS) address when one is required for administrative commands, such as `add shard`.

## Oracle Universal Installer Known Bugs

These are the Oracle Universal Installer (OUI) bugs in Oracle Database 21c.

- [Bug 18336219](#)
- [Bug 27080535](#)
- [Bug 27120934](#)

### Bug 18336219

Oracle Database installer does not check if the password specified for `ASMSNMP` on the Specify Management Options screen is correct. If you proceed with the configuration and specify an incorrect password, then Oracle Enterprise Manager Cloud Control cannot discover details and monitor the Oracle ASM instance.

**Workaround #1:**

Ensure that the correct password (the same password specified earlier during the Oracle Grid Infrastructure for a cluster installation) is specified in the Specify Management Options screen of Oracle Database installer.

**Workaround #2:**

On the Oracle Enterprise Manager Cloud Control portal, navigate to the Oracle ASM credentials screen and update the password for `ASMSNMP`. Once the password is saved on Oracle Enterprise Manager Cloud Control, the Oracle ASM monitoring starts working.

## Bug 27080535

When deinstalling Oracle Grid Infrastructure for a standalone server home with an Oracle Management Server configuration, the `emConfig.txt` file in `ORACLE_BASE/admin/emca` is not deleted.

**Workaround:**

To remove the `emConfig.txt` file, run the following command:

```
rm -rf $ORACLE_BASE/admin/emca/emConfig.txt
```

During the last `ORACLE_HOME` deinstallation, to remove `ORACLE_BASE`, run the following command after the deinstallation tool exits:

```
rm -rf $ORACLE_BASE
```

## Bug 27120934

After downgrading Oracle Clusterware using the Grid Setup Wizard, from Oracle Database 21c to Oracle Clusterware release 12.1 or release 11.2, the unused data files of the Oracle Grid Infrastructure Management Repository (GIMR) of the 21c Oracle Grid Infrastructure home could still be present in the disk group.

**Workaround:**

Before starting the downgrade procedure using the Grid Setup Wizard, delete the GIMR database using the following command:

```
<Active_GI_HOME>/bin/dbca -silent -deleteDatabase -sourceDB -MGMTDB
```

# JavaScript Object Notation Known Bugs

These are the JavaScript Object Notation (JSON) bugs in Oracle Database 21c.

- [Bug 30896685](#)

## Bug 30896685

The `RETURNING DATE` clause for SQL functions `JSON_VALUE` and `JSON_TABLE` returns a `DATE` value with the time component zeroed out (truncated) in releases prior to Oracle Database 21c. The analogous `DATE ()` item method in the SQL/JSON path language has the same behavior.

**Workaround:**

In release 21c, this continues to be the default behavior for the `RETURNING DATE` clause. However, there is a new, optional behavior that preserves the time component of a `DATE` value for consistency with the Oracle `DATE` data type. This new behavior is expected to become the default in a future release.

The new behavior is now available using the `RETURNING DATE PRESERVE TIME` clause or using a new item method, `dateWithTime ()`. Time truncation, although the default in release 21c, can also be specified explicitly using the `RETURNING DATE TRUNCATE TIME` clause.

To minimize the impact to applications from the expected change in default behavior, Oracle Corporation recommends that, at least in new code, you explicitly use the `PRESERVE TIME` or `TRUNCATE TIME` clause, as appropriate, and use the item method `dateWithTime ()` where appropriate.

For most use cases, the `PRESERVE TIME` clause and the item method `dateWithTime ()` are preferable. However, using the `TRUNCATE TIME` clause continues to ensure the same behavior that is the default in release 21c.

For an index to be used, the time handling (truncate or preserve) of the query and the index must match. An application time-handling change requires rebuilding any persistent objects that depend on it, such as indexes, materialized views, partitions, check constraints, and PL/SQL subprograms.

# 4

## Issues Affecting Linux for Oracle Database 21c

These topics contain last-minute features and changes for Linux for Oracle Database 21c.

- [Unsupported Products for Linux](#)  
This topic describes products or features that are unavailable for Oracle Database 20c.
- [Product Support](#)  
This topic describes the supported products or features for Oracle Database 20c.
- [Linking Applications with Oracle Client Libraries for Linux](#)  
You must use the dynamic Oracle client libraries to link the client code on Linux.
- [Preinstallation Requirements for the Linux Platform](#)  
Refer to the installation guides for the preinstallation requirements for Oracle Database 20c.
- [Open Bugs Affecting Linux](#)  
This topic contains last-minute features and changes for Oracle Database 21c.

### Unsupported Products for Linux

This topic describes products or features that are unavailable for Oracle Database 20c.

In addition to the list of unavailable products or features in this release of Oracle Database 20c, the following product is not supported for Linux:

- IPv6 Networks Support  
The IPv6 based IP addresses to configure the private networks for a cluster is not supported on IBM: Linux on System z. It is currently under testing and the support will be announced after testing is successfully complete.

### Product Support

This topic describes the supported products or features for Oracle Database 20c.

The supported products or features are:

- Database Smart Flash Cache Support  
Database Smart Flash Cache is supported on Oracle Linux.
- Oracle ACFS and Oracle ADVM Support  
Although Oracle ADVM supports raw disks in Oracle Automatic Storage Management disk groups, Oracle ADVM device special files created through raw are not supported; Oracle ADVM only supports block device special files.  
For the latest information about supported platforms and releases, see the Note 1369107.1 on My Oracle Support at <https://support.oracle.com>
- Oracle ASM Filter Driver Support

Oracle Automatic Storage Management Filter Driver (Oracle ASMFD) is supported only on Linux x86-64.

- **Share-based Instance Caging**  
Share-based Instance Caging is supported on Oracle Linux.
- **Minimum Kernel Version Required for Oracle ASM library driver (Oracle ASMLIB)**  
For Oracle Database 21c, to use Oracle ASM library driver (Oracle ASMLIB) on Oracle Linux 8 or Red Hat Enterprise Linux 8, use the following kernel versions:
  - Oracle Linux 8 with 5.4.17-2036.102.0.2.el8uek.x86\_64 or later
  - Red Hat Enterprise Linux 8 with 4.18.0-305.3.1.el8\_4.x86\_64 or later

## Linking Applications with Oracle Client Libraries for Linux

You must use the dynamic Oracle client libraries to link the client code on Linux.

Do not link the static Oracle client libraries.

## Preinstallation Requirements for the Linux Platform

Refer to the installation guides for the preinstallation requirements for Oracle Database 20c.

## Open Bugs Affecting Linux

This topic contains last-minute features and changes for Oracle Database 21c.

- [Bug 33222396](#)

### Bug 33222396

Unable to build Oracle C++ Call Interface (OCCI) applications with g++8 using the demo make file.

#### Workaround

To ensure that C++ applications built with g++8 work with Oracle C++ Call Interface (OCCI), use these compilation options:

- If the application does not use C++ 11 features, then use the compilation option:

```
-D_GLIBCXX_USE_CXX11_ABI=0 -Wno-narrowing
```

- If the application uses C++ 11 features, then use the compilation option:

```
-Wno-narrowing
```

Link the application with `$ORACLE_HOME/lib/libocci_gcc53.so.21.1` instead of the default `libocci.so.21.1`.



 **Note:**

`libocci_gcc53.so.21.1` is not part of the Instant Client zip or RPMs.  
`libocci_gcc53.so.21.1` is available from the regular client installation.