

# Upgrade to Oracle AI Database 26ai

Best Practices and Customer Experience



Oracle

**DBAs**




run the world





# Mike Dietrich

Vice President




-  [mikedietrich](#)
-  [@mikedietrichde.com](#)
-  <https://mikedietrichde.com>



# Daniel Overby Hansen

Distinguished Product Manager

---


-  [dohdatabase](#)
-  [@dohdatabase.com](#)
-  <https://dohdatabase.com>





# Rodrigo Jorge

Distinguished Product Manager

---

 [rodrigoaraujorge](#)

 [@dbarj.com.br](#)

 <https://www.dbarj.com.br>



# Alex Zaballa

Distinguished Product Manager

---



alexzaballa



@alexzaballa.bsky.social



<https://alexzaballa.com>

# Find Slides and Much More on Our Blogs



MikeDietrichDE.com

Mike.Dietrich@oracle.com



dohdatabase.com

Daniel.Overby.Hansen@oracle.com



DBArj.com.br

Rodrigo.R.Jorge@oracle.com



AlexZaballa.com

Alex.Zaballa@oracle.com

## Virtual Classroom Seminars

### Episode 16

(replaces Episode 1 from Feb 2021)

Oracle Database Release and Patching Strategy for 19c and 23c

115 minutes – May 10, 2023



### Episode 17

From SR to Patch – Insights into the Oracle Database Development process

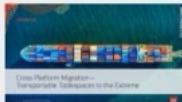
55 minutes – June 22, 2023



### Episode 18

Cross Platform Migration – Transportable Tablespaces to the Extreme

145 min – February 22, 2024



### Episode 19

Move to Oracle Database 23ai – Everything you need to know about Multitenant PART 1

145 min – May 16, 2024



### Episode 20

Move to Oracle Database 23ai – Everything you need to know about Multitenant PART 2

100 min – June 28, 2024



## Recorded Web Seminars

<https://MikeDietrichDE.com/videos>

More than 40 hours of technical content,  
on-demand, anytime, anywhere

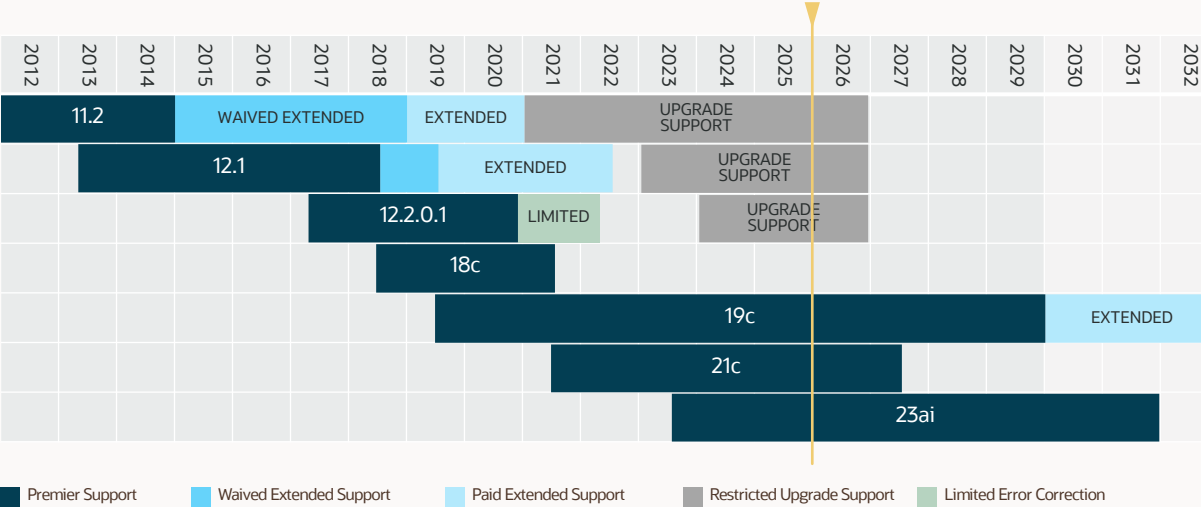


# Release Strategy

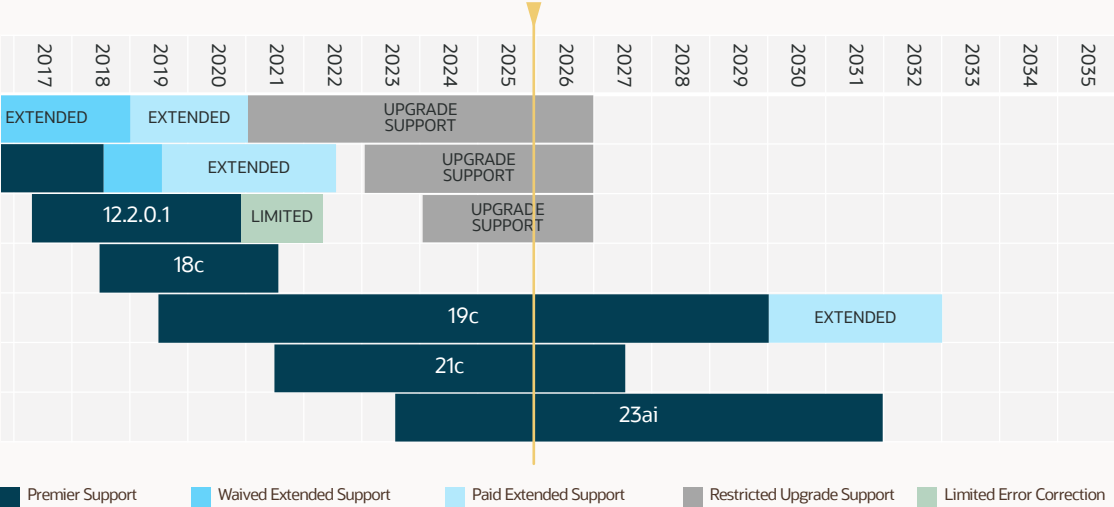
Lifetime Support Policy and Upgrade Path



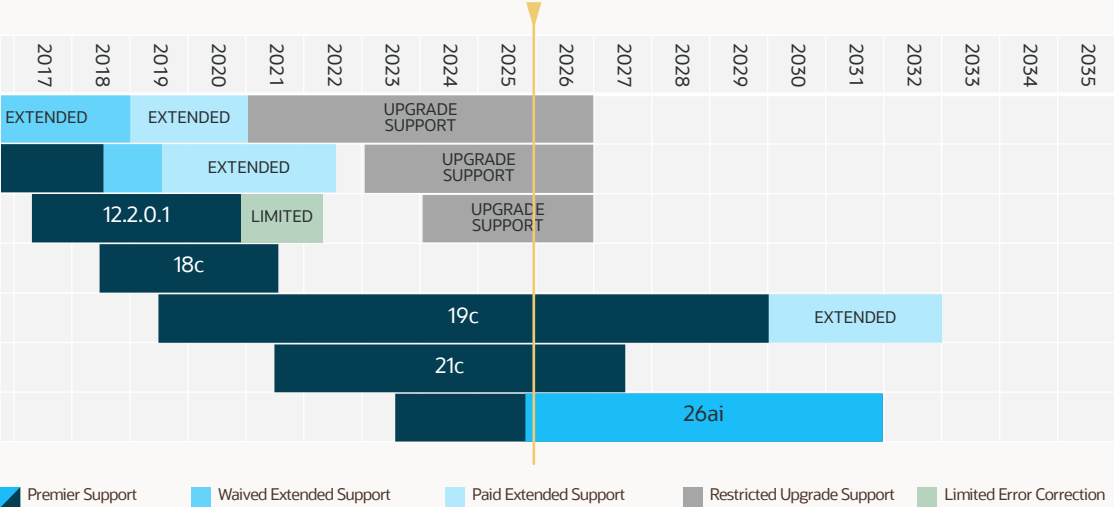
# Lifetime Support Policy



# Lifetime Support Policy



# Lifetime Support Policy



# Do you want to upgrade?

**Oracle Database 11.2.0.4**

**Oracle Database 12.1.0.2**

**Oracle Database 12.2.0.1**

**Oracle Database 18c**

Oracle Database 11.2.0.4  
Oracle Database 12.1.0.2  
Oracle Database 12.2.0.1  
Oracle Database 18c



Oracle Database 19c



**Oracle Database 23ai**

Oracle Database 11.2.0.4  
Oracle Database 12.1.0.2  
Oracle Database 12.2.0.1  
Oracle Database 18c



Oracle Database 19c



Oracle Database 23ai

**Oracle AI Database 26ai**

# 26<sup>ai</sup>

When is a database upgrade required?



Oracle Database 19c ➡➡ Oracle Database 23ai ➡➡ Oracle AI Database 26ai

**UPGRADE**

Oracle Database 19c



Oracle AI Database 26ai

**UPGRADE**

Oracle Database 19c ⇒ Oracle Database 23ai ⇒ Oracle AI Database 26ai

**UPDATE**

---

July 2025

Oracle Database 23ai

23.9.0.25.07

---

October 2025

Oracle AI Database 26ai

23.26.0.0.0

January 2026

Oracle AI Database 26ai

23.26.1.0.0

April 2026

Oracle AI Database 26ai

23.26.2.0.0

July 2025

Oracle Database 23ai

23.9.0.25.07

October 2025

Oracle AI Database 26ai

23.26.0.0.0

January 2026

Oracle AI Database 26ai

23.26.1.0.0

April 2026

Oracle AI Database 26ai

23.26.2.0.0

July 2025

Oracle Database 23ai

23.9.0.25.07

October 2025

Oracle AI Database 26ai

23.26.0.0.0

January 2026

Oracle AI Database 26ai

23.26.1.0.0

April 2026

Oracle AI Database 26ai

23.26.2.0.0

July 2025

Oracle Database 23ai

23.9.0.25.07

October 2025

Oracle AI Database 26ai

23.26.0.0.0

January 2026

Oracle AI Database 26ai

23.26.1.0.0

April 2026

Oracle AI Database 26ai

23.26.2.0.0

July 2025	Oracle Database 23ai	23.9.0.25.07
-----------	----------------------	--------------

October 2025	Oracle AI Database 26ai	23.26.0.0.0
--------------	-------------------------	-------------

January 2026	Oracle AI Database 26ai	23.26.1.0.0
--------------	-------------------------	-------------

April 2026	Oracle AI Database 26ai	23.26.2.0.0
------------	-------------------------	-------------



July 2025	Oracle Database 23ai	23.9.0.25.07
October 2025	Oracle AI Database 26ai	23.26.0.0.0
January 2026	Oracle AI Database 26ai	23.26.1.0.0
April 2026	Oracle AI Database 26ai	23.26.2.0.0

```
SQL> select version, version_full from v$instance
```

VERSION

VERSION\_FULL

-----

-----

23.0.0.0.0

23.26.0.0.0

  
No changes

SQL> select version, version\_full from v\$instance

VERSION	VERSION_FULL
23.0.0.0.0	23.26.0.0.0

↑  
*This changes*

# 26<sup>ai</sup>

There is no need to re-certify your app

- Certification for Oracle Database 23ai applies to Oracle AI Database 26ai

# Before Upgrade

Considerations and tasks



*Your Road to Oracle AI Database 26ai*

**ANALYZE** ⇒ **UPGRADE** ⇒ **GO-LIVE**



## Oracle AI Database 26ai supports the multitenant architecture only

- You must convert your database to a PDB

--Use up to 3 user-created PDBs  
--without a license for Multitenant option.  
--Applies to Oracle Database 19c and newer, including SE2

**alter system set max\_pdb=3;**





## Update Exadata System Software to the latest version

# Further Information

## Exadata System Software



Recommended to use latest version.  
However, minimum version is 25.1

[MOS Note: 888828.1](#)

Exadata Database Machine and Exadata Storage Server  
Supported Versions



## Upgrade to Oracle Grid Infrastructure 26ai

- Manages Oracle Database 19c and newer
- Upgrade older databases in advance

--Grid Infrastructure 26ai requires a minimum compatible setting  
--Databases older than 19c may not use this disk group anymore

```
alter diskgroup DATA set attribute 'compatible.rdbms' = '19.0.0.0.0';
```



## Confirm your clients can connect to Oracle AI Database 26ai

- Upgrade your clients well in advance of the upgrade

# Client / Server Interoperability

Client Version			Server Version				
	26ai	21c	19c	18c	12.2.0	12.1.0	11.2.0
26ai#11	Yes	Yes	Yes	No	No	No	No
21c	Yes	Yes	Yes	Was	Was	Yes#12	No
19c	Yes	Yes	Yes	Was	Was	Yes#12	Yes#9
18c	No	Was	Was	Was	Was	Was	Was#9
12.2.0	No	Was	Was	Was	Was	Was	Was
12.1.0	No	Yes#12	Yes#12	Was	Was	Yes#12	Yes#12
11.2.0	No	No	Yes#9	Was#9	Was	Yes#12	Yes#9

MOS Note: 207303.1 - Client / Server Interoperability Support Matrix

# Client / Server Interoperability

Client Version	Server Version						
	26ai	21c	19c	18c	12.2.0	12.1.0	11.2.0
26ai#11	Yes	Yes	Yes	No	No	No	No
21c	Yes	Yes	Yes	Was	Was	Yes#12	No
19c	Yes	Yes	Yes	Was	Was	Yes#12	Yes#9
18c	No	Was	Was	Was	Was	Was	Was#9
12.2.0	No	Was	Was	Was	Was	Was	Was
12.1.0	No	Yes#12	Yes#12	Was	Was	Yes#12	Yes#12
11.2.0	No	No	Yes#9	Was#9	Was	Yes#12	Yes#9

MOS Note: 207303.1 - Client / Server Interoperability Support Matrix

--List current connections and their driver details  
--Join to gv\$session for more details.

**select \* from gv\$session\_connect\_info;**





The same certification matrix applies  
to **database links** as well

# Further Information

## Client / Server Interoperability



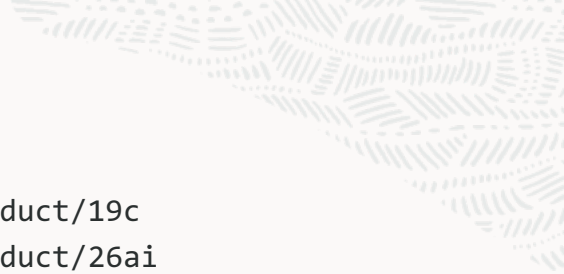
Client / Server Interoperability Support Matrix (Doc ID [207303.1](#))

Blog post:

[Are Your Oracle Database Clients Ready for the next Database Upgrade?](#)



On important databases, execute  
a dictionary check before upgrade



```
upg1.sid=SALESDB  
upg1.source_home=/u01/app/oracle/product/19c  
upg1.target_home=/u01/app/oracle/product/26ai  
upg1.target_cdb=CDB1  
upg1.run_dictionary_health=full
```

```
#To run only the critical checks  
#upg1.run_dictionary_health=critical
```



## Familiarize yourself with the changes in Oracle AI Database

- Check the [Upgrade Guide](#)

Oracle Release Analyzer Diff Utility

MOS AccountOracle Account

daniel.overby.hansen@oracle.com

Home

Parameters

Users, Roles, etc

Privileges

Included Fixes

Oracle Database Home

Objects

Fixed Objects

Audit


System

Scheduler

Release & Updates Timeline

Report

Custom Patch Sets



# Oracle Release Analyzer Diff Utility

Find the differences between two Oracle Database releases

Oracle Release Analyzer Diff Utility (ORAdiff) allows you to compare two database releases to each other - with or without patch bundles on top.

## Get Started

- Click the menu icon on the upper left corner of the page
- Select an object type from the left-hand navigation menu
- Choose the Source and Target versions and patch levels
- View the report. You may optionally choose a filter

ORAdiff

Home

Parameters

Normal Parameters


Underscore Parameters

Parameter Valid Values

Search Parameter

Users, Roles, etc

Privileges

 **ORAdiff**

ORAdiff - Find the differences between two Oracle Database releases

ORAdiff allows you to compare two database releases to each other - with or without patch bundles on top.

### Get Started

- Click the menu icon on the upper left corner of the page
- Select an object type from the left-hand navigation menu
- Choose the Source and Target versions and patch levels
- View the report. You may optionally choose a filter

The tool will display the differences such as "new tables", "added parameters", "changed columns", "removed privileges" and much more. It search can tell you when a parameter was added and which files changed in your Oracle Home.

# Further Information

ORAdiff / Oracle Release Analyzer Diff Utility



[Watch the demo](#)

<http://oradiff.oracle.com>

# Upgrade

AutoUpgrade and more





your key to

## Successful Database Upgrades

# AutoUpgrade

Only supported method for upgrading to Oracle AI Database 26ai



# AutoUpgrade



**1** Upgrading

**2** Non-CDB to PDB

**3** Patching

# AutoUpgrade

## Upgrading

Non-CDB to PDB

Patching

Oracle  
Database 19c



Oracle AI  
Database 26ai



# AutoUpgrade

Upgrading

Non-CDB to PDB

Patching

Non-CDB



Multitenant



# AutoUpgrade

Upgrading

Non-CDB to PDB

Patching

23.9.0

23.26.0





One single tool for everything  
- on all platforms

-- Always use the latest version of AutoUpgrade

-- Available as a direct download from oracle.com or MOS (Doc ID 2485457.1)

```
wget https://download.oracle.com/otn-pub/otn_software/autoupgrade.jar
```



## Simplify downloading and installing Oracle software and patches

- Oracle AI Database 26ai comes as fully updated gold images



## DEMO

Download patches  
Install Oracle home



[Watch on YouTube](#)



```
$ cat get-software.cfg
```

```
global.global_log_dir=/home/oracle/autoupgrade/logs
```

```
global.keystore=/home/oracle/autoupgrade/keystore
```

```
install1.target_version=23
```

```
install1.patch=RECOMMENDED,37393792
```

```
install1.folder=/u01/app/oracle/software
```



```
$ cat get-software.cfg
```

```
global.global_log_dir=/home/oracle/autoupgrade/logs
```

```
global.keystore=/home/oracle/autoupgrade/keystore
```

```
install1.target_version=23
```

```
install1.patch=RECOMMENDED,37393792,JDK
```

```
install1.folder=/u01/app/oracle/software
```



## OJVM is embedded in Release Updates

- No separate download
- Complete RAC Rolling patching support



```
$ cat get-software.cfg
```

```
global.global_log_dir=/home/oracle/autoupgrade/logs
```

```
global.keystore=/home/oracle/autoupgrade/keystore
```

```
install1.target_version=23
```

```
install1.patch=RECOMMENDED,37393792,JDK
```

```
install1.folder=/u01/app/oracle/software
```

```
java -jar autoupgrade.jar -config get-software.cfg -mode download
```



```
$ cat install-OH.cfg
```

```
global.global_log_dir=/home/oracle/autoupgrade/logs
install1.target_version=23
install1.patch=RECOMMENDED,37393792,JDK
install1.folder=/u01/app/oracle/software
install1.download=no
install1.target_home=/u01/app/oracle/product/dbhome_26
install1.home_settings.edition=EE
install1.home_settings.oracle_base=/u01/app/oracle
```



```
$ cat install-OH.cfg
```

```
global.global_log_dir=/home/oracle/autoupgrade/logs
install1.target_version=23
install1.patch=RECOMMENDED,37393792,JDK
install1.folder=/u01/app/oracle/software
install1.download=no
install1.target_home=/u01/app/oracle/product/dbhome_26
install1.home_settings.edition=EE
install1.home_settings.oracle_base=/u01/app/oracle
```

```
java -jar autoupgrade.jar -config install-OH.cfg -mode create_home
```



Create Container Database in advance



# Create Container Database



**1** Character set

**2** Components

**3** COMPATIBLE

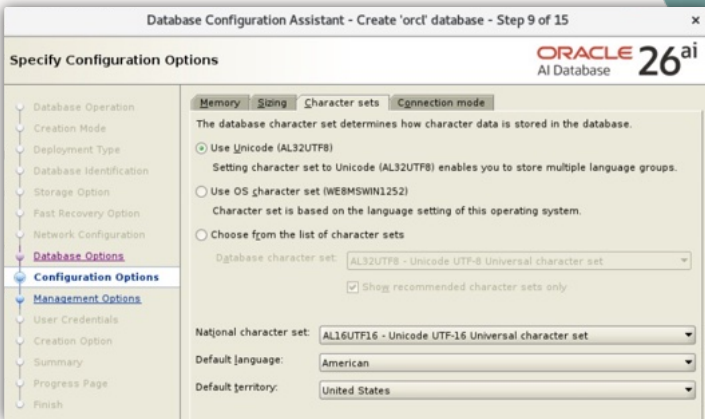
# Create Container Database

## 1 Character set

- Always choose AL32UTF8
- Allows PDBs with any character set

## 2 Components

## 3 COMPATIBLE



# Create Container Database

## 1 Character set

## 2 Components

- Install as many as you need
- No more than that

## 3 COMPATIBLE

Database Configuration Assistant - Create 'orcl' database - Step 8 of 15

Select Database Options

ORACLE 26ai  
AI Database

Database components

Select the standard database components you want to configure for use in your database. Oracle recommends that you always install these components in your database. Deselecting these components may cause you to no longer be able to choose some components on the subsequent page.

Select Component	Tablespace	Include in PDBs
<input type="checkbox"/> Oracle JVM	SYSTEM	<input type="checkbox"/>
<input type="checkbox"/> Oracle Text	SYSAUX	<input type="checkbox"/>
<input type="checkbox"/> Oracle OLAP	SYSAUX	<input type="checkbox"/>
<input type="checkbox"/> Oracle Spatial	SYSAUX	<input type="checkbox"/>
<input type="checkbox"/> Oracle Label Security	SYSTEM	<input type="checkbox"/>
<input type="checkbox"/> Oracle Database Vault	SYSAUX	<input type="checkbox"/>

# Create Container Database

1 Character set

2 Components

3 COMPATIBLE

- Keep at **23.6.0** to benefit from AI Vector Search features
- Unless you want the option of downgrade

All initialization parameters

⚠ Update the initialization parameters only when it is required. Refer to the Oracle documentation to learn more about each initialization parameter and its valid set of values.

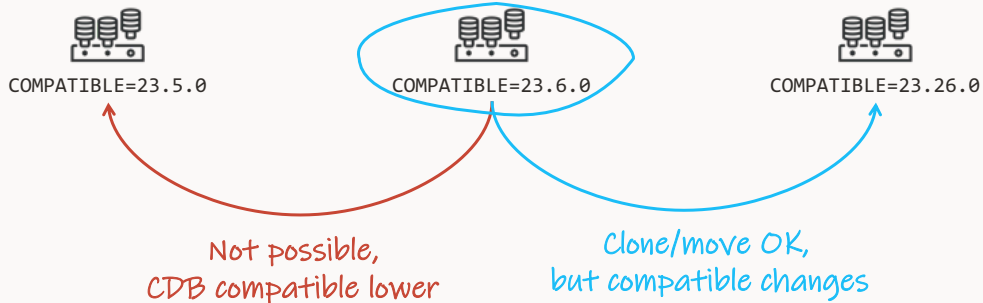
(Storage related parameter(s) value is shown in MB) ☐ Show advanced parameters

Name	Value	Include in spfile	Category
undo_tablespace	UNDOTBS1	<input checked="" type="checkbox"/>	Cluster Database
sga_target	19202	<input checked="" type="checkbox"/>	SGA Memory
db_block_size (bytes)	8192	<input checked="" type="checkbox"/>	Cache and I/O
nls_language	AMERICAN	<input checked="" type="checkbox"/>	NLS
control_files	{*{ORACLE_BASE}/oradata/...	<input checked="" type="checkbox"/>	File Configuration
remote_login_passwordfile	EXCLUSIVE	<input checked="" type="checkbox"/>	Security and Auditing
processes	640	<input checked="" type="checkbox"/>	Processes and Sessions
pga_aggregate_target	6401	<input checked="" type="checkbox"/>	Sort, Hash Joins, Bitmap indexes
nls_territory	AMERICA	<input checked="" type="checkbox"/>	NLS
open_cursors	300	<input checked="" type="checkbox"/>	Cursors and Library Cache
db_domain	livelabs.oraclevcn.com	<input checked="" type="checkbox"/>	Database Identification
compatible	23.6.0	<input checked="" type="checkbox"/>	Miscellaneous
db_name	orcl	<input checked="" type="checkbox"/>	Database Identification
cluster_database	FALSE	<input type="checkbox"/>	Cluster Database

Description:

compatible: Allows you to use a new release, while at the same time guaranteeing backward compatibility with an earlier release.  
Range of Values: Default to current release. Default Value: Release dependent

# Compatible



- You can now update the COMPATIBLE parameter without a restart
- Works within a release, e.g., from 23.6.0 to 23.26.0
- Cross-release changes, e.g., 19.0.0 to 23.6.0, still requires a restart

**alter database set downgrade compatibility to '23.6.0';**

# Further Information

## Container Database



YouTube:  
[Create CDB in Oracle AI Database](#)

Blog post:  
[How I Think You Should Create Your Container Databases](#)

[COMPATIBLE Parameter - Documentation](#)

Blog post:  
[Online COMPATIBLE raise starting with 23.9](#)

```
SQL> select con$name, comp_id, status from cdb_registry;
```

CON\$NAME	COMP_ID	STATUS
-----------	---------	--------

-----	-----	-----
-------	-------	-------

CDB\$ROOT	CATALOG	VALID
-----------	---------	-------

CDB\$ROOT	CATPROC	VALID
-----------	---------	-------

CDB\$ROOT	XDB	VALID
-----------	-----	-------

RED	CATALOG	VALID
-----	---------	-------

RED	CATPROC	VALID
-----	---------	-------

RED	XDB	VALID
-----	-----	-------

No information on  
PDB\$SEED





```
alter system set "_exclude_seed_cdb_view"=false;
```

```
alter system set "_exclude_seed_cdb_view"=false;
```

```
SQL> select con$name, comp_id, status from cdb_registry;
```

CON\$NAME	COMP_ID	STATUS
-----	-----	-----
CDB\$ROOT	CATALOG	VALID
CDB\$ROOT	CATPROC	VALID
CDB\$ROOT	XDB	VALID
PDB\$SEED	CATALOG	VALID
PDB\$SEED	CATPROC	VALID
PDB\$SEED	XDB	VALID
RED	CATALOG	VALID
RED	CATPROC	VALID
RED	XDB	VALID

# Refreshable Clone PDBs

From non-CDB or PDB directly into Oracle AI Database 26ai

1

Plug in

Irreversible!  
Flashback no good

2

Upgrade

3

Convert



# ROLLBACK



## Backup / restore

Ensure you have a recent backup and requires time to restore and recover



## Copy data files

Requires time and disk space to hold a copy of the data files

# ROLLBACK



## Backup / restore

Ensure you have a recent backup and requires time to restore and recover



## Copy data files

Requires time and disk space to hold a copy of the data files



## Refreshable clone PDB

Requires ~~time and~~ disk space to hold a copy of the data files

Requires Oracle Database 12.2 or newer

# Upgrade via Refreshable Clone PDB



## CREATE

In CDB on Oracle AI Database 26ai, create a copy of PDB over a database link



## REFRESH

Apply redo from source to keep PDB up-to-date



## OUTAGE

Disconnect users and refresh PDB for the last time

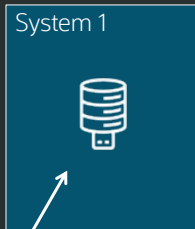


## UPGRADE

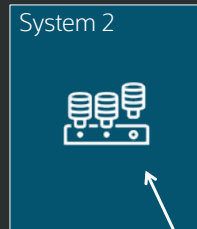
Upgrade PDB to Oracle AI Database 26ai

# Upgrade via Refreshable Clone PDB

system01.dbf  
sysaux01.dbf  
users01.dbf  
undo01.dbf  
...



19c  
database

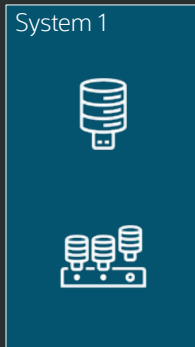


26ai  
CDB



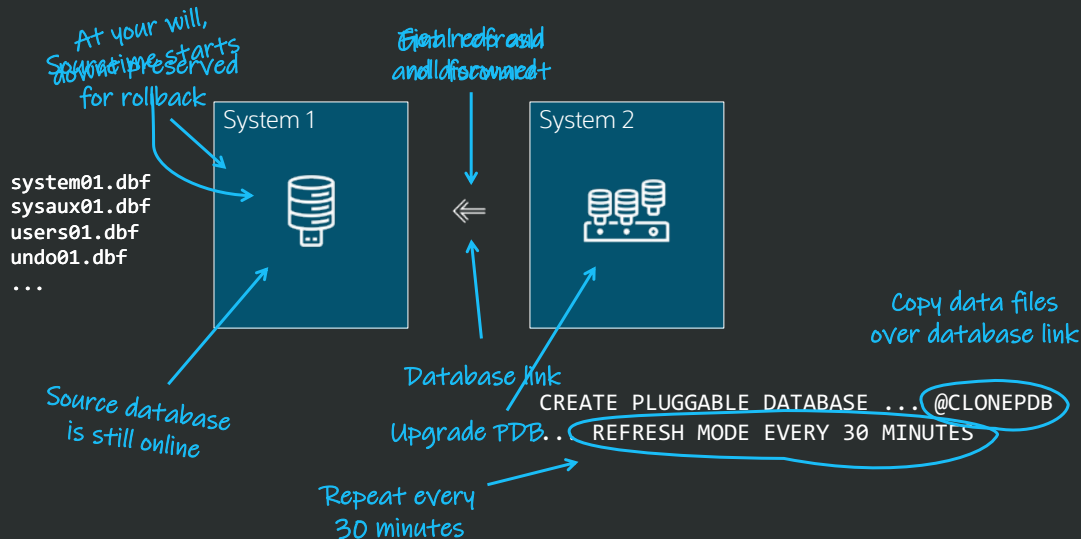
# Upgrade via Refreshable Clone PDB

system01.dbf  
sysaux01.dbf  
users01.dbf  
undo01.dbf  
...



← Could be same  
system as well

# Upgrade via Refreshable Clone PDB



## DEMO

# Upgrade to Oracle AI Database 26ai





You must restore the PDB on standby database after disconnect from non-CDB

- Refreshable clone works only with deferred recovery on standby database

## Key Benefits of Upgrade via Refreshable Clone PDB



- 1 Less downtime
- 2 Excellent rollback option
- 3 For PDBs and non-CDBs

*We used AutoUpgrade and refreshable clone  
to move a mission-critical 76 TB database  
to Oracle Database 23ai in **less than 45 minutes**  
- while preserving the source as rollback option*

---

**Portuguese Government Agency**

# Works everywhere

# Works everywhere



- Base Database Service
- Exadata Database Service
- Exadata Cloud@Customer
- On-prem and other clouds
- Exascale migration
- Non-CDB to PDB migration
- PDB upgrade
- On-prem to cloud migration



In the cloud, upgrading Oracle databases  
is as **easy** as pressing a button



## The **easy** approach



Upgrade entire CDB, including all PDBs



## The **fast** approach



Upgrade single PDB



## You can also migrate with Data Pump or Transportable Tablespaces

- Suitable when direct upgrade is not possible
- Smaller databases
- Reorganizing data

## Upgrading in the cloud



Blog post:

[Upgrade Pluggable Database to Oracle Database 23ai](#)

Blog post:

[Upgrade Oracle Base Database Service to Oracle Database 23ai](#)

Blog post:

[Upgrade from 19c to 23ai using AutoUpgrade –ExaDB-D or ExaC@C – Part 1](#)

Blog post:

[When A Refreshable Clone Takes Over The Service](#)

Blog post:

[Upgrade to Oracle Database 23ai](#)

Documentation: [Proceed command](#)

# Go-Live

Considerations and parameter recommendations





## Check your standby databases

- Check our [webinar](#) for details

--Default value is for CDBs with many PDBs  
--Other places, it leads to concurrency issues  
--Reset back to 12.1 default as described in MOS 2431353.1

```
alter system set "_cursor_obsolete_threshold"=1024;
```

--Default value is for CDBs with many PDBs  
--Other places, it leads to concurrency issues  
--Reset back to 12.1 default as described in MOS 2431353.1

```
alter system set "_cursor_obsolete_threshold"=1024  
comment="Added 2025-11-03 - Advice from MOS Note: 2431353.1";
```



--Database collects SQL Plan Directives even when adaptive  
--statistics are off.  
--If you do not use Adaptive Statistics (optimizer\_adaptive\_statistics)  
--then turn it completely off as described in MOS 2209560.1

```
alter system set "_sql_plan_directive_mgmt_control"=0;
```

--Database collects expression statistics for  
--SQL Plan Directives and Auto-Indexing.  
--If you don't use any of these, then turn it to the 11.2 value of "1".  
--Tables being used in dictionary: EXP\_HEAD\$, EXP\_OBJ\$, EXP\_STAT\$  
--Doc ID 2674400.1, Value of "0" fully disables tracking.

alter system set "\_column\_tracking\_level"=1;

# Real World Customer Cases

---





**Techniker  
Krankenkasse**

Move hundreds of Oracle Database 19c PDBs to  
Oracle Database 23ai with ExaScale-only

## Customer Case | Techniker Krankenkasse

### Customer

Large German Public Health Insurance

Project

Constraints

Preparation

Upgrade

Success?

Remarks

- **Founded:** 1884
- **Legal Form:** Public Corporation
- **Headquarters:** Hamburg, Germany
- **Members:** 11.9 million
- **Employees:** approx. 19,000
- **Customer Service:** 174 service centers
- **Budget 2024:** €62.5 billion

# Customer Case | Techniker Krankenkasse

Customer

**Project**

Constraints

Preparation

Upgrade

Success?

Remarks

## Move to Oracle Database 23ai with ExaScale

- No ASM, no Oracle Database 19c anymore



## Customer Case | Techniker Krankenkasse

Customer

Project

**Constraints**

Preparation

Upgrade

Success?

Remarks

COMPATIBLE=23.0.0

No ASM, no Oracle Database 19c anymore

Data Pump as rollback

# Customer Case | Techniker Krankenkasse

Customer

Project

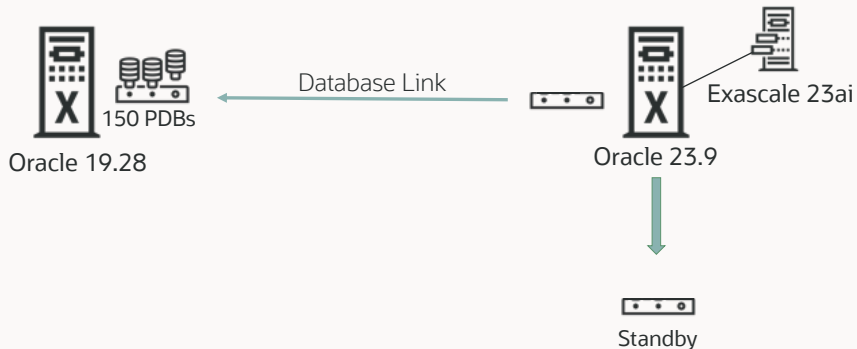
Constraints

**Preparation**

Upgrade

Success?

Remarks





# Customer Case | Techniker Krankenkasse

Customer

Project

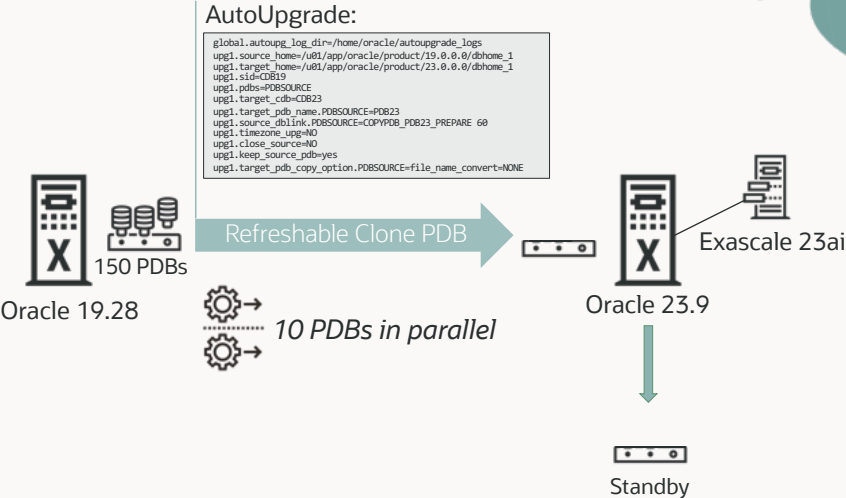
Constraints

Preparation

**Upgrade**

Success?

Remarks



# Customer Case | Techniker Krankenkasse

Customer

Project

Constraints

Preparation

**Upgrade**

Success?

Remarks



Oracle 19.28



Oracle 23.9



Standby

## Customer Case | Techniker Krankenkasse

Customer

Yes!!

Project

- Migrated 150 PDBs from TEST & DEV within less than 4 weeks

Constraints

- Migrated larger environments already

Preparation

- ExaScale snapshots are super-fast

Upgrade

**Success?**

Remarks

## Customer Case | Techniker Krankenkasse

Customer

Project

Constraints

Preparation

Upgrade

Success?

Remarks

### Standby building

- There were some issues
- Refreshable Clones don't propagate
- PDB recovery isolation doesn't work as expected

A number of SRs had to be opened for various areas

Optimizer works very well

# Portuguese Government Agency

Move from 19c PDB to 23ai on-prem with very large databases and very little downtime

# Customer Case | Government Agency - Portugal

## Customer

Project

Constraints

Preparation

Upgrade

Success?

Remarks

## Financial services in public sector



# Customer Case | Government Agency - Portugal

Customer

Project

Constraints

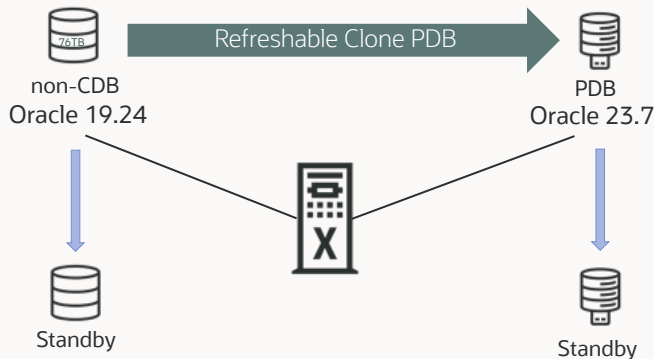
Preparation

Upgrade

Success?

Remarks

## Upgrade and migrate 76TB Data Lake



# Customer Case | Government Agency - Portugal

Customer

**Project**

Constraints

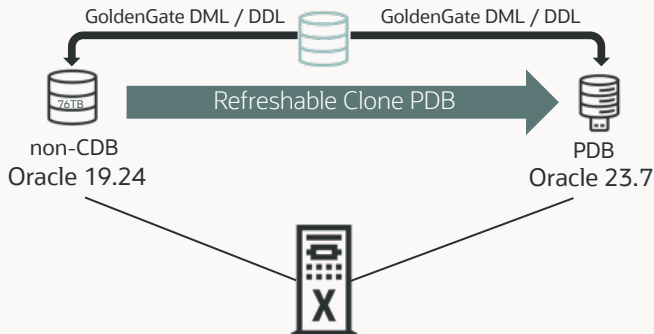
Preparation

Upgrade

Success?

Remarks

## Upgrade and migrate 76TB Data Lake





# Customer Case | Government Agency - Portugal

Customer

Project

Constraints

Preparation

Upgrade

Success?

Remarks

Downtime less 1 hour

Rebuild Standby environment

Keep operational:

- Oracle GoldenGate
- Audit Vault and Database Firewall

# Customer Case | Government Agency - Portugal

Customer

Project

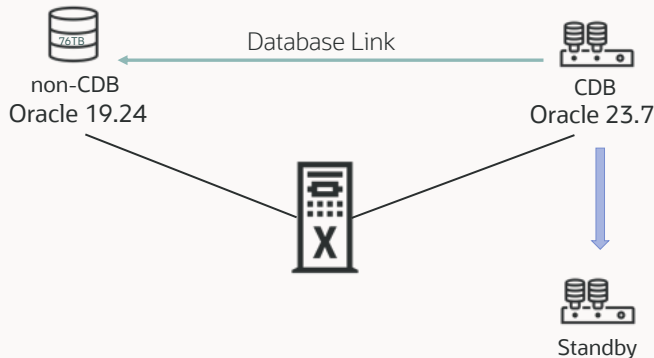
Constraints

**Preparation**

Upgrade

Success?

Remarks



# Customer Case | Government Agency - Portugal

Customer

Project

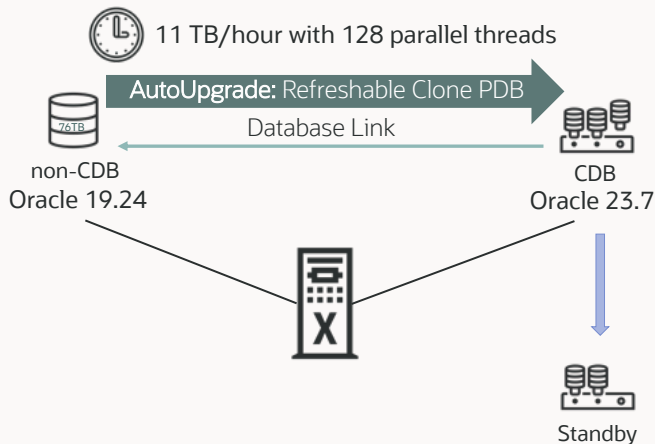
Constraints

Preparation

Upgrade

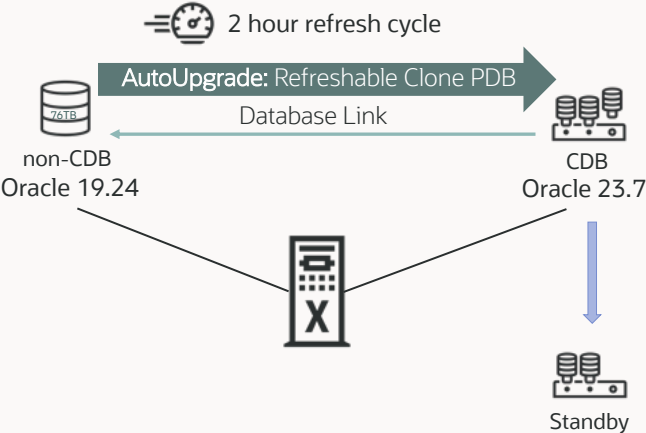
Success?

Remarks



# Customer Case | Government Agency - Portugal

Customer
Project
Constraints
Preparation
Upgrade
Success?
Remarks



# Customer Case | Government Agency - Portugal

Customer

Project

Constraints

Preparation

Upgrade

Success?

Remarks

## AutoUpgrade proceed feature

1. Define `START_TIME` in the future, e.g.  
`upg1.START_TIME=31/10/2025 13:00:00`
2. Run the clone operation until it completes and refreshes
3. Then adjust AutoUpgrade and set a new `START_TIME`:  
`- proceed -job 100 -newStartTime 15/10/2025 15:45:00`

# Customer Case | Government Agency - Portugal

Customer

Project

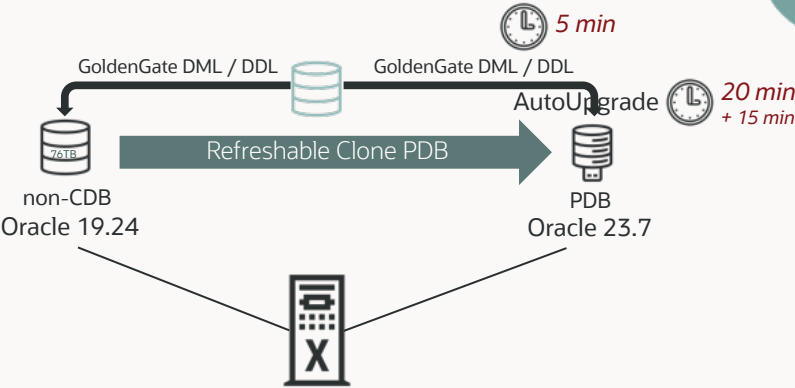
Constraints

Preparation

**Upgrade**

Success?

Remarks



# Customer Case | Government Agency - Portugal

Customer

Project

Constraints

Preparation

Upgrade

**Success?**

Remarks

Massive success!!

Downtime less than 45 minutes

Kickoff for future projects

- More upgrades into PDBs in Oracle Database 23ai
- AutoUpgrade proven to be THE solution
- 80TB DWH
- Migrations from legacy zLinux

# Customer Case | Government Agency - Portugal

Customer	Standby building
Project	Oracle GoldenGate move to 23ai
Constraints	<ul style="list-style-type: none"><li>• Schema cleanout needed</li></ul>
Preparation	
Upgrade	
Success?	
Remarks	





# It's better to fail in our lab, than in production

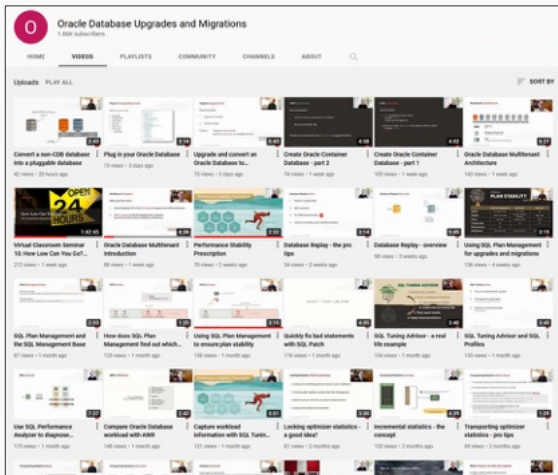
Oracle LiveLabs:  
[Hitchhiker's Guide for Upgrading to Oracle AI Database](#)

# Key Learnings



- 1 Start preparing today
- 2 Use AutoUpgrade
- 3 Caution with Data Guard and Multitenant conversion

# YouTube | Oracle Database Upgrades and Migrations



<https://www.youtube.com/@upgradenow>

- 300+ videos
- New videos every week
- No marketing
- No buzzword
- All tech



ORACLE