

What's New in Upgrade for Oracle Database 12c?



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What's New in Upgrade for Oracle Database 12c?

Enhanced Pre-Upgrade Automation

Parallel Upgrade Script

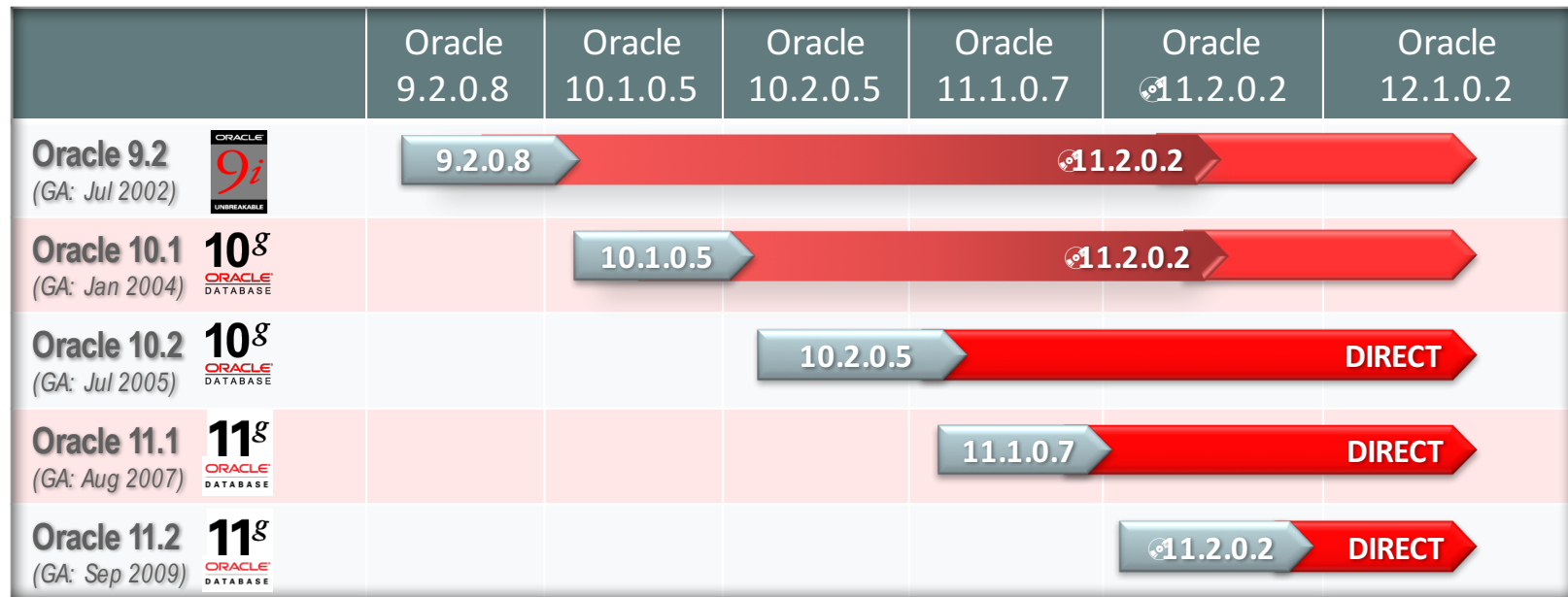
DBUA Enhancements

EM Cloud Control Lifecycle Management

Upgrade and Migration Methods

Migrate into Multitenant

Direct Upgrade to Oracle Database 12c



Please note: This graph will apply to database upgrades only!

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Upgrade SQL Automation

New Pre-Upgrade Script

- `preupgrd.sql`
- Executes pre-upgrade checks
- Runs in source environment
- Generates fixup scripts
 - `preupgrade_fixups.sql`
 - `postupgrade_fixups.sql`
- MOS [Note:884522.1](#)

```
*****
Fixup:      PURGE_RECYCLEBIN
Description: Check that recycle bin is empty
*****
Fixup Succeeded
*****

*****
[Pre-Upgrade Recommendations]
*****

*****
***** Dictionary Statistics *****
*****

Please gather dictionary statistics 24 hours prior to
upgrading the database.
To gather dictionary statistics execute the following command
while connected as SYSDBA:
    EXECUTE dbms_stats.gather_dictionary_stats;
```

40%

Faster Upgrades in
Oracle Database 12c



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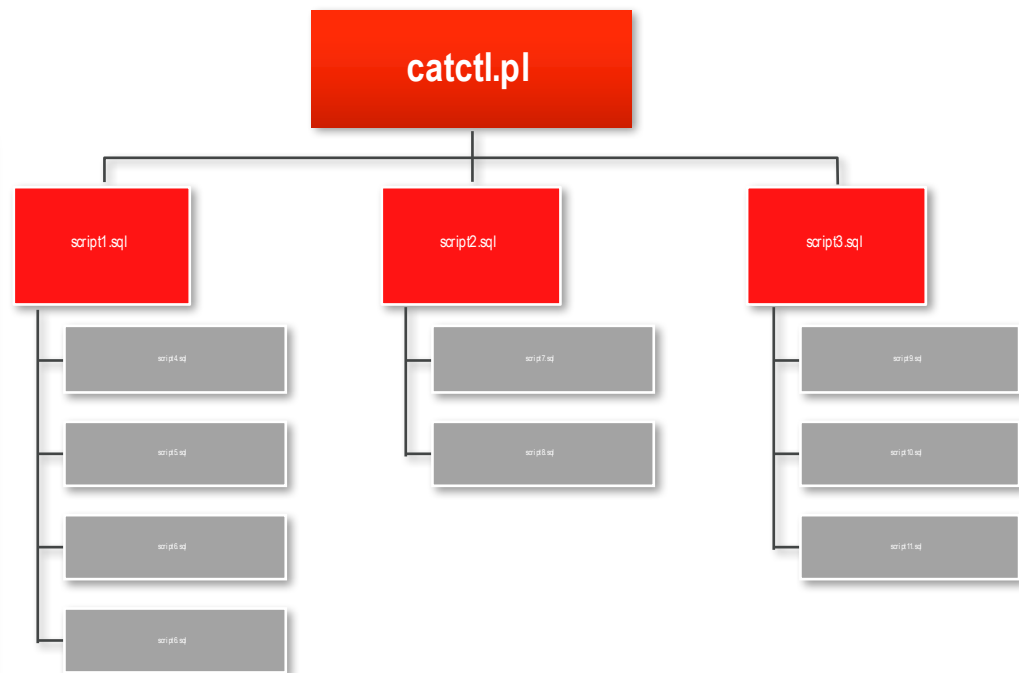
Upgrade and Migration Methods

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Faster Upgrade – Less Downtime

New Parallel Upgrade

- `catctl.pl`
- Runs database upgrade in parallel
- Up to 40% faster upgrade
- Used and proven by **selected Oracle Database 11g** global customers
 - Telco billing
 - >100 SAP systems
 - Large DWH



“The new parallel upgrade script promises to drastically reduce downtime due to planned maintenance. We saw a 37% improvement over the previous upgrade process in our environment.”


Harald Stefan

Leiter Datenbanken
Payback GmbH

Faster Upgrade – Less Downtime

New Parallel Upgrade

```
$> $ORACLE_HOME/perl/bin/perl catctl.pl -n 8 catupgrd.sql
```



```
Serial  Phase #:70 Files: 1    Time: 90s  
Serial  Phase #:71 Files: 1    Time: 0s  
Serial  Phase #:72 Files: 1    Time: 0s  
Serial  Phase #:73 Files: 1    Time: 34s
```

```
Grand Total Time: 1588s
```

```
LOG FILES: (catupgrd*.log)
```

```
Upgrade Summary Report Located in:
```

```
/u01/app/oracle/product/12.1.0.2/cfgtoollogs/UPGR/upgrade/upg_summary.log
```

```
Grand Total Upgrade Time:    [0d:0h:26m:28s]
```

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Simplified Upgrade

Database Upgrade Assistant

- Pre-Upgrade Automation
- Parallel Upgrade
- RMAN Integration
- Guaranteed Restore Points
- Activity and Alert Log

Database Upgrade Assistant - Upgrade Oracle Database - Step 3 of 11

ORACLE DATABASE 12c

Prerequisite Checks

Select Operation
Select Database
Prerequisite Checks
Upgrade Options
Management Options
Move Database Files
Network Configuration
Recovery Options
Summary
Progress
Results

Validation Results

Apply Action Show All Sgt Action Fix

Validation	Severity	Fixable	Action
Pre Upgrade Utility Checks			
"ORACLE_OCM" user present	Warning	Yes	Fix - Pre Upgrade
Invalid objects exist	Warning	No	Ignore
Database Upgrade Checks	Success		

"ORACLE_OCM" user present [more details](#)

The "ORACLE_OCM" user is present in the database. This is an internal account used by Oracle Configuration Manager. Oracle recommends dropping this user prior to upgrading the database.

Help < Back Next > Finish Cancel

“We experienced very few problems and in general the upgrades were very fast.

We were able to upgrade almost all of our 200+ database instances to Database 12c with a downtime of only 30-40 minutes (and that includes some of the pre- and post-tasks).

I have been upgrading Oracle databases since 9i to 10g, and this has been the best release (measured on how easy upgrading is) so far.”

Daniel Overby Hansen

Chief Software Developer, Environment Operation
SimCorp A/S - Denmark

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Enterprise Manager Mass and RAC Upgrades

EM Cloud Control

- Mass Upgrades
- Grid Infrastructure Upgrades
- RAC Database Upgrades
- Standby Database Upgrades

Select Targets for Upgrade

Search

* Cluster: slc00-crs8

* Cluster Database Version: 11.2.0.2.0

Platform: Linux x86-64

Search

Target Name	Target Type	Status	Host Name	Oracle Home	Version
slc00-crs8	Cluster	↑		/u01/app/11.2.0/grid	11.2.0.2.0
db1.us.oracle.com	Cluster Database	↑	slc00exf.us.oracle.com	/u02/app/aim/product/11.2.0/db	11.2.0.2.0
db2.us.oracle.com	Cluster Database	↑	slc00exf.us.oracle.com	/u02/app/aim/product/11.2.0/db	11.2.0.2.0
db3.us.oracle.com	Cluster Database	↑	slc00exf.us.oracle.com	/u02/app/aim/product/11.2.0/db	11.2.0.2.0
+ASM_slc00-crs8	Cluster ASM	↑	slc00exg.us.oracle.com	/u01/app/11.2.0/grid	11.2.0.2.0
has_slc00exg.us.oracle.com	Oracle High Availability Serv	↑	slc00exg.us.oracle.com	/u01/app/11.2.0/grid	11.2.0.2.0
has_slc00exf.us.oracle.com	Oracle High Availability Serv	↑	slc00exf.us.oracle.com	/u01/app/11.2.0/grid	11.2.0.2.0

Columns Hidden: 1

Cancel

What Customers Are Saying...

...about Oracle Database 12c

- *"Go-live migration was flawless."*
 - Brian Pawlik, Technology Manager, Pulte Group
- *"Having been running a 12c production system since GA with no outages, we can attest to the robustness and reliability of this release"*
 - James Anthony, Technology Director, e-DBA
- *"Our experience with upgrade has been very positive, and we have been very impressed with the robustness of 12c."*
 - Nick Salem, Distinguished Engineer, Neustar, Inc.

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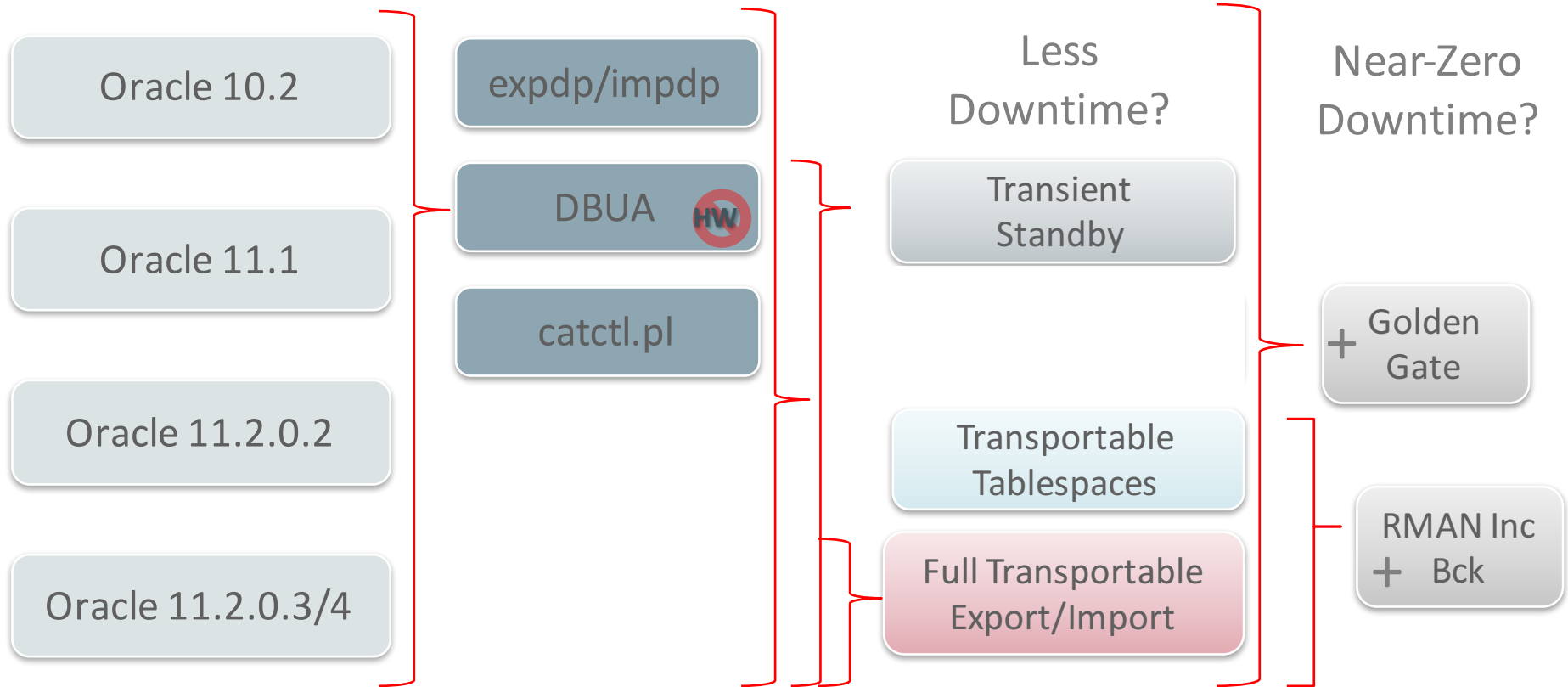
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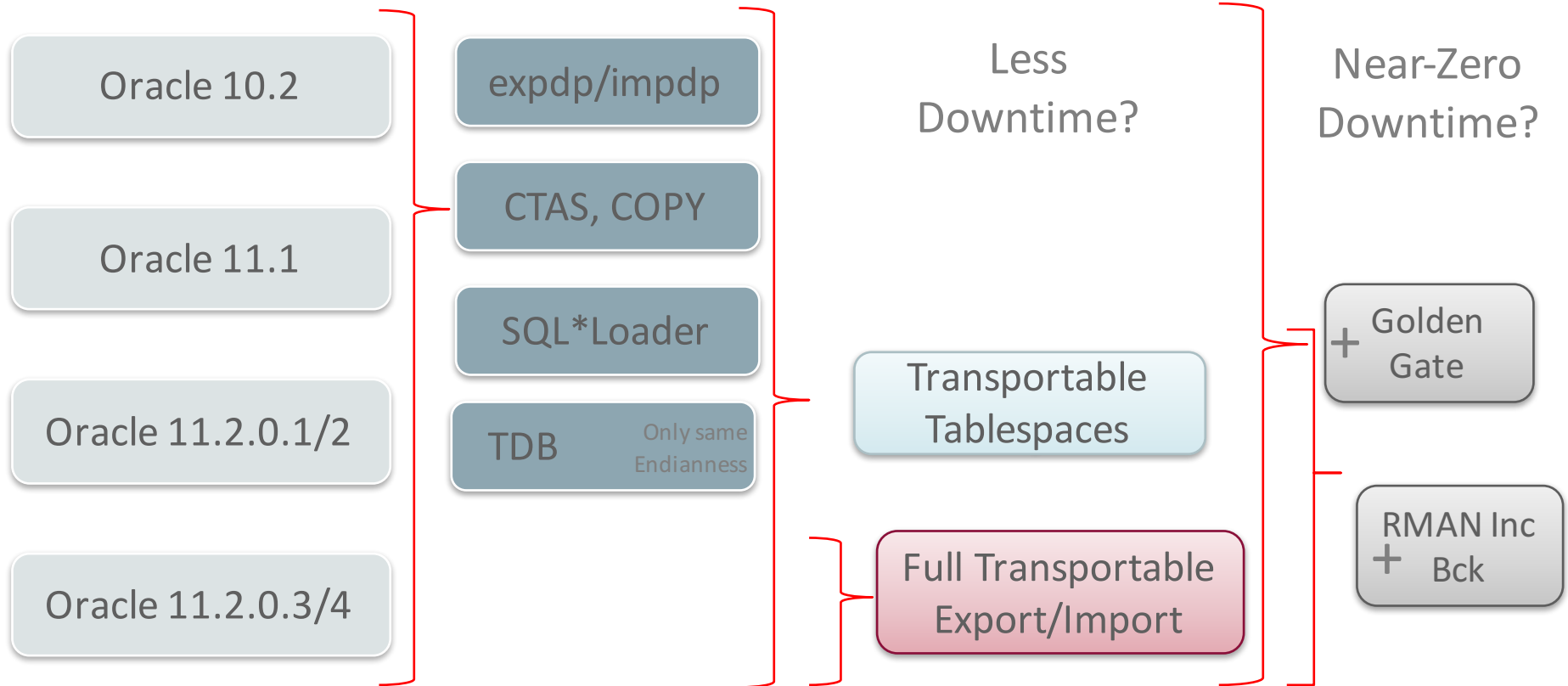
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Upgrade Options to Oracle Database 12c



Migration Options to Oracle Database 12c



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Creation of a New Pluggable Database

- Fast provisioning from PDB\$SEED

```
create pluggable database PDB1
admin user adm1 identified by pwd
file_name_convert=(
'/oradata/CDB2/pdbseed',
'/oradata/CDB2/pdb1')
```

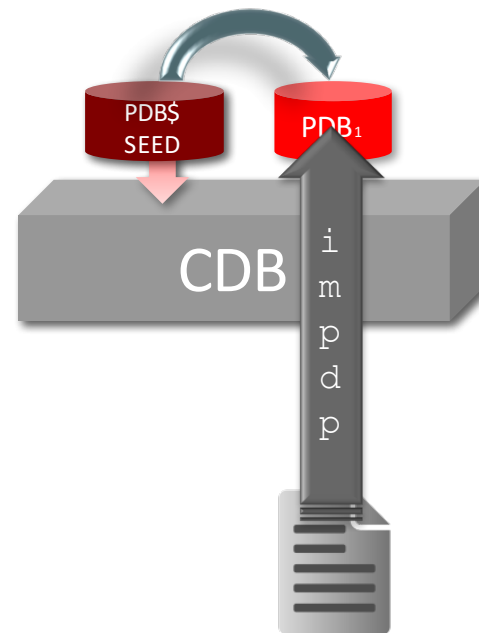
- PDB_FILE_NAME_CONVERT

- Transport with TTS or FTEX

- Import data with `impdp`

- Dump file or `NETWORK_LINK`

- `imp` for \leq Oracle 9i



Cloning of a Pluggable Database

Fast cloning of a PDB

Local*:

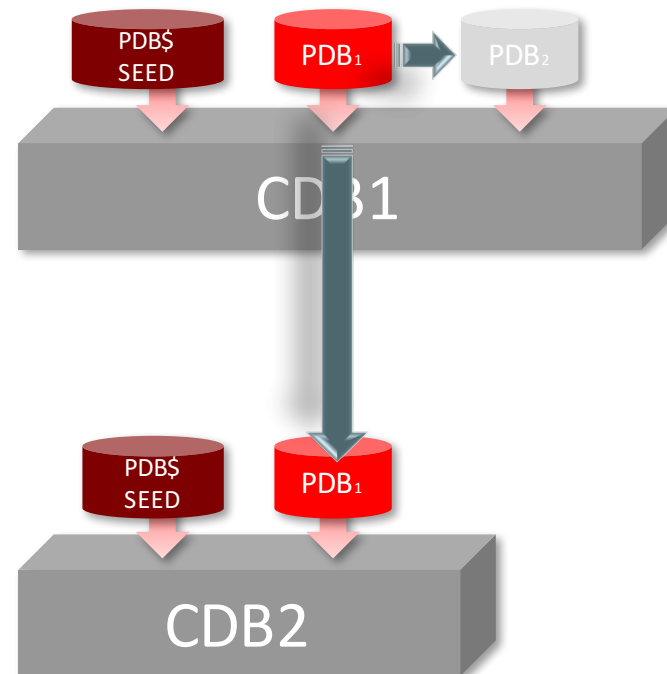
```
create pluggable database  
PDB2 from PDB1;
```

** not available with Single Tenant*

Remote:

```
create pluggable database  
PDB1 from PDB1@CDB1;
```

- *@CDB1 specifies a database link!!!*
- *In Oracle 12.1 the source PDB must be quiesced*



Cloning of a Pluggable Database

- Also supported:

- Snapshot cloning with ACFS, ZFS and NetApp

- `CREATE PLUGGABLE DATABASE pdb2 FROM pdb1 SNAPSHOT COPY;`

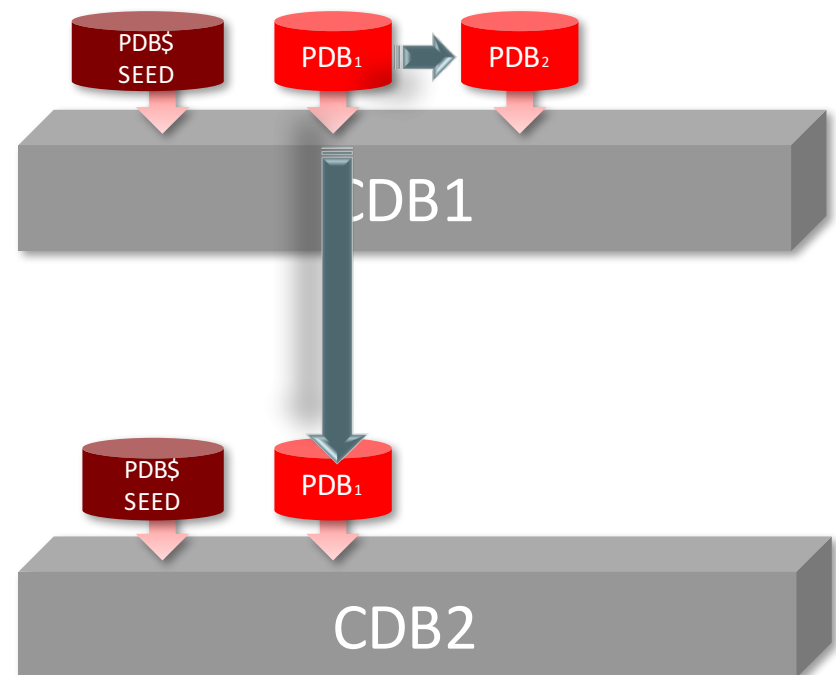
- **Since Oracle Database 12.1.0.2**

- Subset Cloning

- `CREATE PLUGGABLE DATABASE pdb2 FROM pdb1 FILE_NAME_CONVERT= ('..', '/..') USER_TABLESPACES= ('data1', 'data2');`

- Metadata Cloning

- `CREATE PLUGGABLE DATABASE pdb2 FROM pdb1 FILE_NAME_CONVERT= ('..', '/..') NO DATA;`



Upgrade and Plugin as PDB

- Database upgrade
- Start database read-only
- Create XML description file

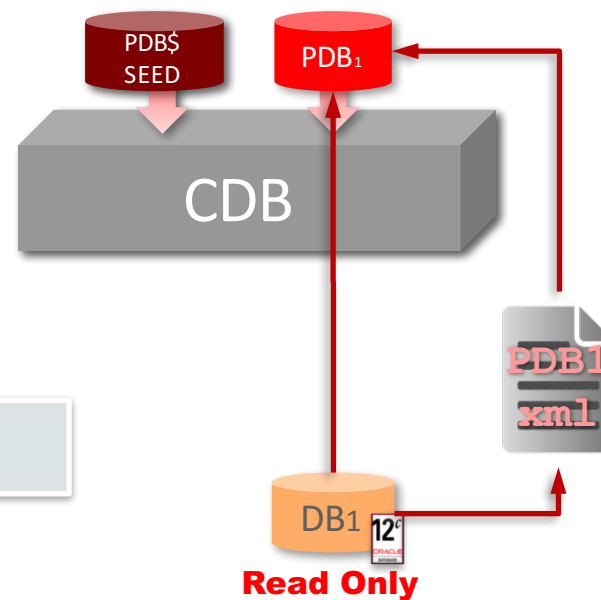
```
exec DBMS_PDB.DESCRIBE ('PDB1.xml');
```

- Shutdown database
- Plugin database

```
create pluggable database PDB1  
using ('PDB1.xml') nocopy tempfile reuse;
```

- Sanity operations

```
start ?/rdbms/admin/noncdb_to_pdb.sql
```



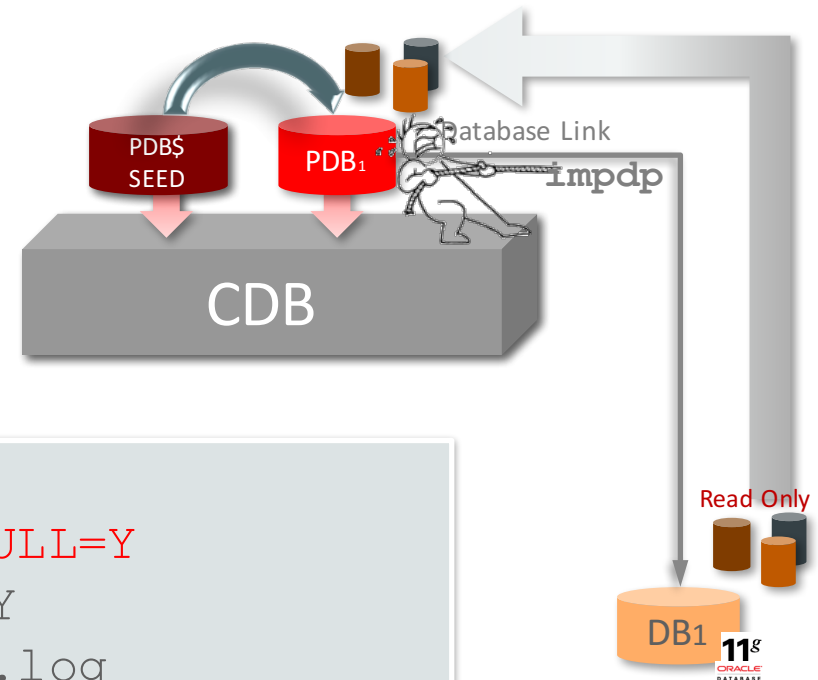
`noncdb_to_pdb.sql`

- Sanity script when plugging in a stand-alone database
- Irreversible
- Runs only once in the life of a database
- Runtime depends ...

Full Transportable Export/Import

- Create a fresh database/PDB
- Create database link to source
- Tablespaces read-only – *downtime!*
- Copy datafiles to destination
- Run impdp on NETWORK_LINK

```
impdp oow/passwd@PDB1  
NETWORK_LINK=DB1 VERSION=12 FULL=Y  
TRANSPORTABLE=ALWAYS METRICS=Y  
LOGFILE=oow_dir:src112fullimp.log  
TRANSPORT_DATAFILES='/oradata/ts1.dbf' ...
```



Resources

- Download slides from:
 - <http://blogs.oracle.com/UPGRADE>



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Aug 29, 2013

on Database Upgrade at OpenWorld 2013

ger on Aug 29, 2013

going to [Oracle OpenWorld](#) in September, you might be overwhelmed by the sheer sessions throughout the week. For those with an interest in upgrade, I have prepared a [Focus on Database Upgrade](#) lays out the sessions, demos, and hands-on lab for this area. listing thus far (NOTE: the list of sessions could change, so ck the document link at the start of OOW for the most current).



AL SESSIONS

p 23, 2013

General Session: Oracle Database 12c— neered for Clouds and Big Data	10:45 AM - 11:45 AM	Moscone North - Hall D	GEN8229
ew Mendelsohn, Oracle			

RENCE SESSIONS


p 23, 2013

olidating Databases with Oracle base 12c	12:15 PM - 1:15 PM	Moscone South - 102	CON8707
Llewellyn, Oracle k Wheeler, Oracle			

rent Ways to Upgrade, Migrat
olidate with Oracle Databas

Dietrich, Oracle	3:15 PM -	Moscone South -	CON8176
Swonger, Oracle	4:15 PM	102	
Tagliaferri, Oracle			

About



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Database Upgrade Devel
- Oracle Corporation


Based near Munich in Ge
[spending plenty of time i](#)
run either upgrade workst
onsite with reference cust
as interlink between cust
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Oracle Database 12c
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\(final update: 8-JAN-20
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