

AutoUpgrade Hundreds of Databases to Oracle 19c

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[MikeDietrichDE](#)

Slides and more | <https://MikeDietrichDE.com>

Upgrade your Database - NOW!

The screenshot shows a blog post titled "AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB". The "Slides" menu item is highlighted with a red box, and a red arrow points from this box to a QR code on the right.

AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB

Posted on July 19, 2019 by Mike.Dietrich [AutoUpgrade](#)

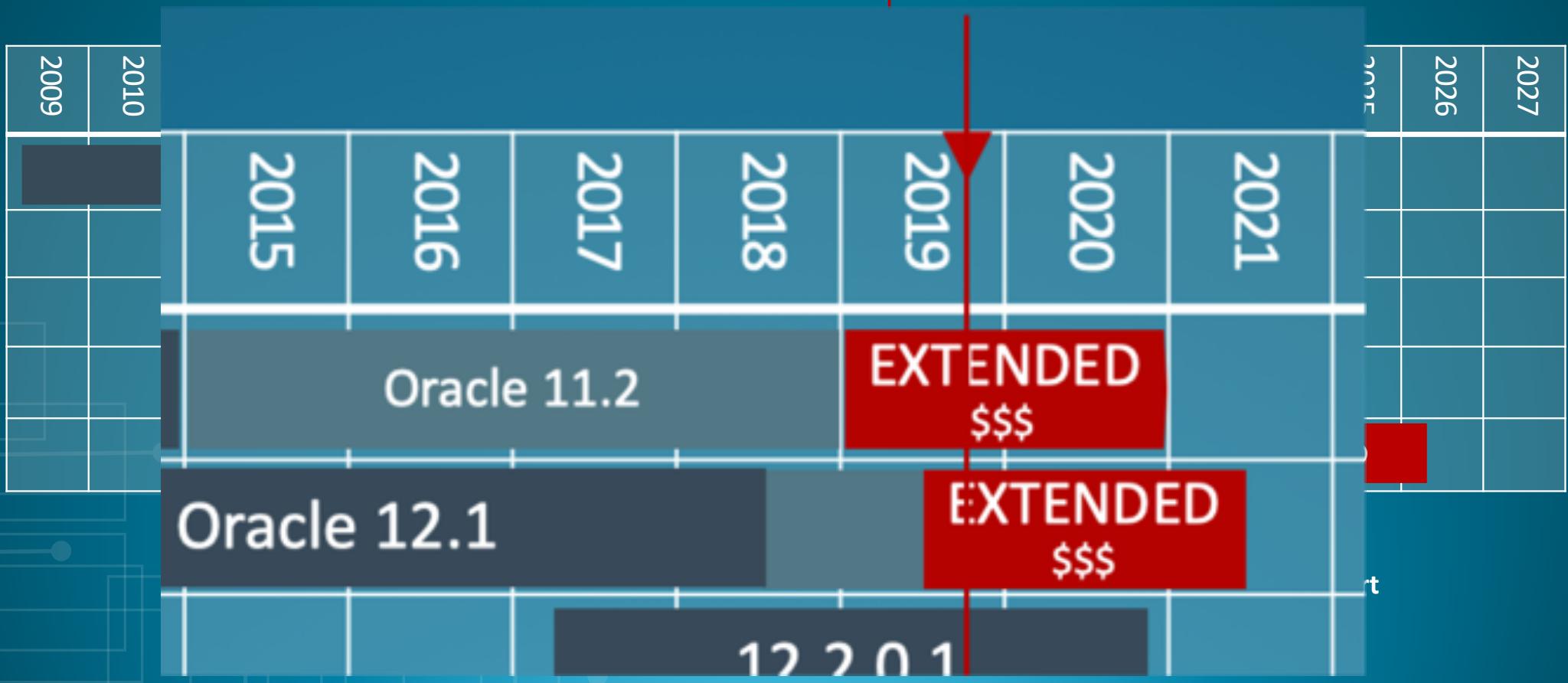
I need to bring this blog post forward about AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB. Initially I planned to write this a bit later. But some of you had questions or were wondering why AutoUpgrade hasn't done certain tasks. Hence, I'd like to clarify what AutoUpgrade can do, what it can't and what you'll have to do at the moment.

I refer to the [AutoUpgrade tool](#) as of July 2019. In later versions, one or the other restriction may be lifted. I will blog about it then as well.

AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB

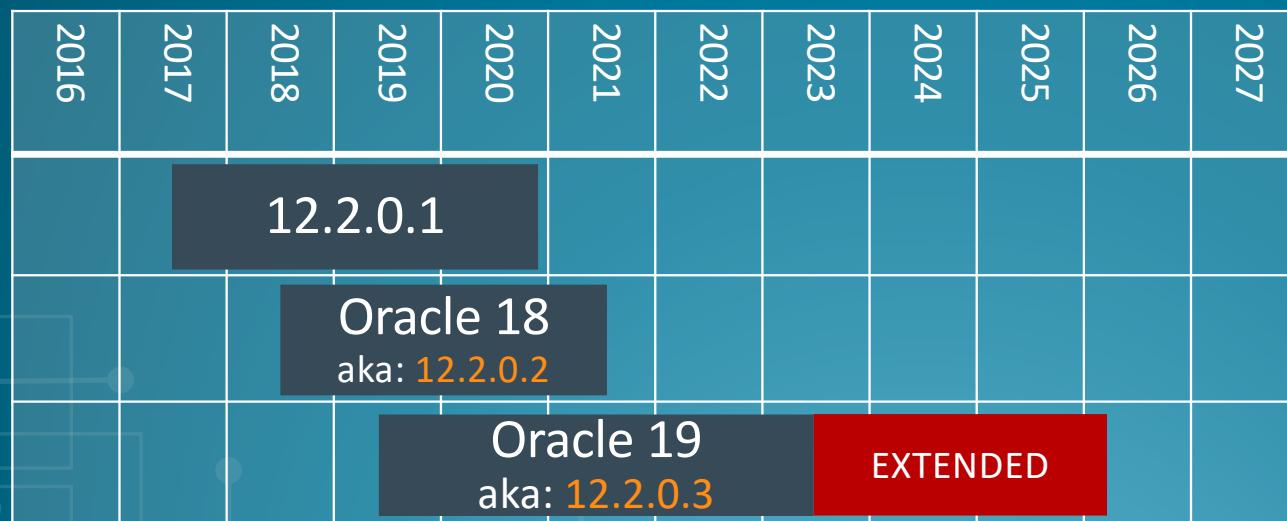


Lifetime Support Commitments and Plans



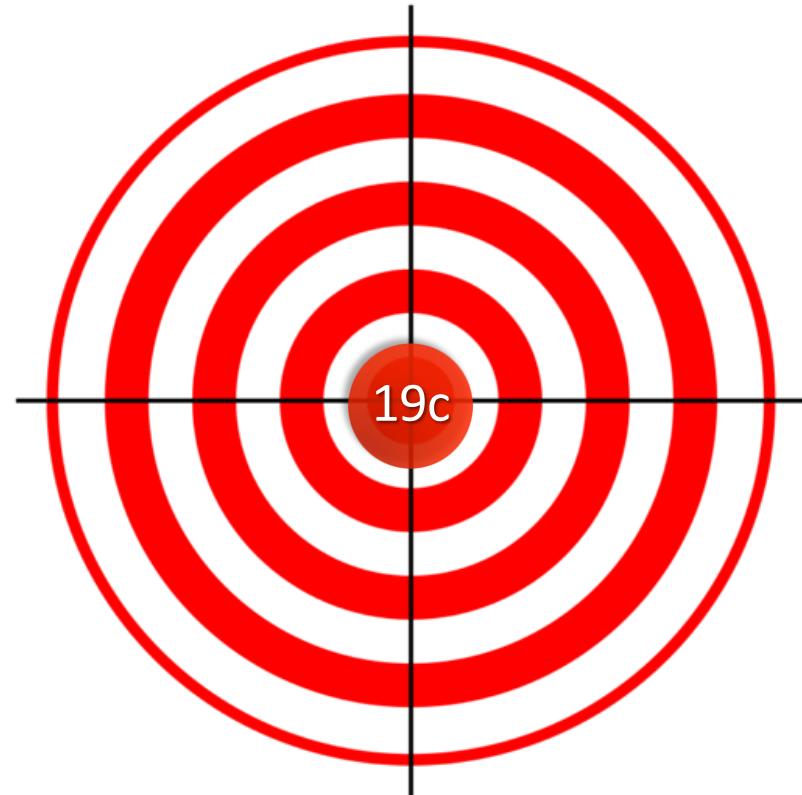
Clarification | Oracle 12.2 Release Family

- The 18c and 19c releases are part of the Database 12.2 "Family" for Lifetime Support as if they were the 12.2.0.2 and 12.2.0.3 patch sets

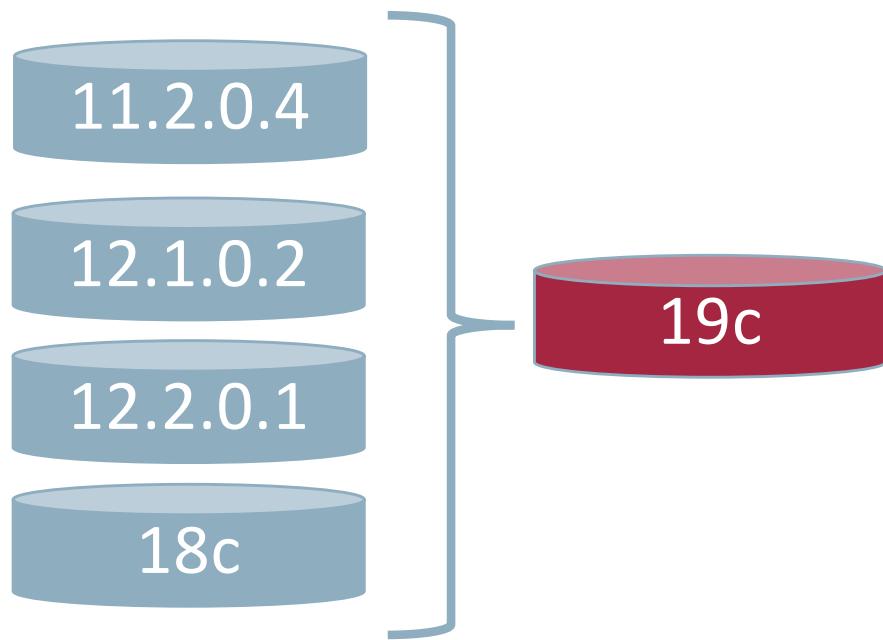


See MOS 742060.1 for announcements and details

Upgrading Directly to Oracle Database 19c



Database Upgrade | Releases for Upgrade/Downgrade



Oracle Database 19c requires OL7, RHEL7 or SLES12 or newer

Posted on February 14, 2019 by Mike.Dietrich | Oracle Database 19c

Oracle Database 19.2 for Oracle Exadata systems is available for download since yesterday night. One important thing you need to take into account once Oracle 19c will be generally available: On Linux, Oracle Database 19c requires OL7, RHEL7 or SLES12 or newer.

Database Installation Guide for Linux

A screenshot of a web page titled "Database Installation Guide for Linux". The page includes a sidebar with a "Table of Contents" section containing links to "Preface", "Changes in this Release for Oracle Database", and "1 Oracle Database Installation Checklist". The main content area displays the "Database Installation Guide" for Oracle Database 19c for Linux, version E96432-01, dated January 2019.

You will find the exact minimum OS and kernel version requirements in the [Database Installation Guide for Linux for Oracle 19c](#). Please see here the [Operating System Checklist for Oracle Database Installation on Linux](#).

- **Oracle Linux 7.4 with the Unbreakable Enterprise Kernel 4:** 4.1.12-112.16.7.el7uek.x86_64 or later
- **Oracle Linux 7.4 with the Unbreakable Enterprise Kernel 5:** 4.14.35-1818.1.6.el7uek.x86_64 or later
- **Oracle Linux 7.4 with the Red Hat Compatible kernel:** 3.10.0-693.5.2.0.1.el7.x86_64 or later
- **Red Hat Enterprise Linux 7.4:** 3.10.0-693.5.2.0.1.el7.x86_64 or later
- **SUSE Linux Enterprise Server 12 SP3:** 4.4.103-92.56-default or later

You may recognize that there is **no support of Oracle 19c on OL6 or RHEL6**.

Database Upgrade | Preupgrade Tool

- `preupgrade.jar`
 \$ java -jar preupgrade.jar TEXT TERMINAL
- Checks source environment
- Detailed recommendations
- Fixup scripts
- Rerunnable and dynamic
- Always download from:
[MOS Note: 884522.1](#)

Target Upgrade-To Version	Upgrading From Version	Script Build/Date	Latest Preupgrade Tool and Description
19c	18 12.2.0.1 12.1.0.2 11.2.0.4	Build 3 July 2nd 2019	<p>For Unix: preupgrade_19_cbuild_3_lf.zip For Windows: preupgrade_19_cbuild_3_cr1f.zip</p> <p>Changes included in Build 1:</p> <ul style="list-style-type: none">Improvements:<ul style="list-style-type: none">Support for case sensitive pdb nameDisplay patch levelOptimize query that review space on tablespacesNew checks added:<ul style="list-style-type: none">Streams setupInform about upgrade needed for RMAN recovery catalogReview if object directory symlinks are in useNotify about desupport continuous_mine and EDSReview if TDE is in useWarn about remove ApplicationPrincipalWarn about ORDIM desupportValidate existance of jobs defined through DBMS_JOBCheck for unified audit recs in fileWarn if utdrp.sql will run seriallyWarn about RAC dessupport on Standard Edition <p>Changes included in Build 2:</p> <p>Zip files renamed and build number updated.</p> <p>Changes included in build 3:</p> <ul style="list-style-type: none">- Modified OVERLAP_NETWORK_ACL check to avoid potential issues when generating XML file.- Fixed character to number conversion error.

Database Upgrade | dbupgrade

- dbupgrade -l /tmp/logs
- Non-CDBs and CDB\$ROOT:
 - 4 (default) - maximum: 8 workers
- PDBs:
 - Limited only by computing power
- **Resumable:**
\$ dbupgrade -R -l /tmp/logs
- Wrapper for:
catctl.pl
\$ perl catctl.pl -n 4 -l /tmp/logs catupgrd.sql

```
l ..]
***** Catproc DataPump *****
[...]
***** Catproc SQL *****
[...]
***** Final Catproc scripts *****
Serial Phase #:48 [UPGR] Files:1 Time: 8s
Restart Phase #:49 [UPGR] Files:1 Time: 0s
***** Final RDBMS scripts *****
Serial Phase #:50 [UPGR] Files:1 Time: 32s
***** Upgrade Component Start *****
Serial Phase #:51 [UPGR] Files:1 Time: 1s
Restart Phase #:52 [UPGR] Files:1 Time: 0s
***** Upgrading Java *****
Serial Phase #:53 [UPGR] Files:1 Time: 0s
Restart Phase #:54 [UPGR] Files:1 Time: 1s
***** Upgrading XDK *****
Serial Phase #:55 [UPGR] Files:1 Time: 0s
Restart Phase #:56 [UPGR] Files:1 Time: 0s
```



AutoUpgrade

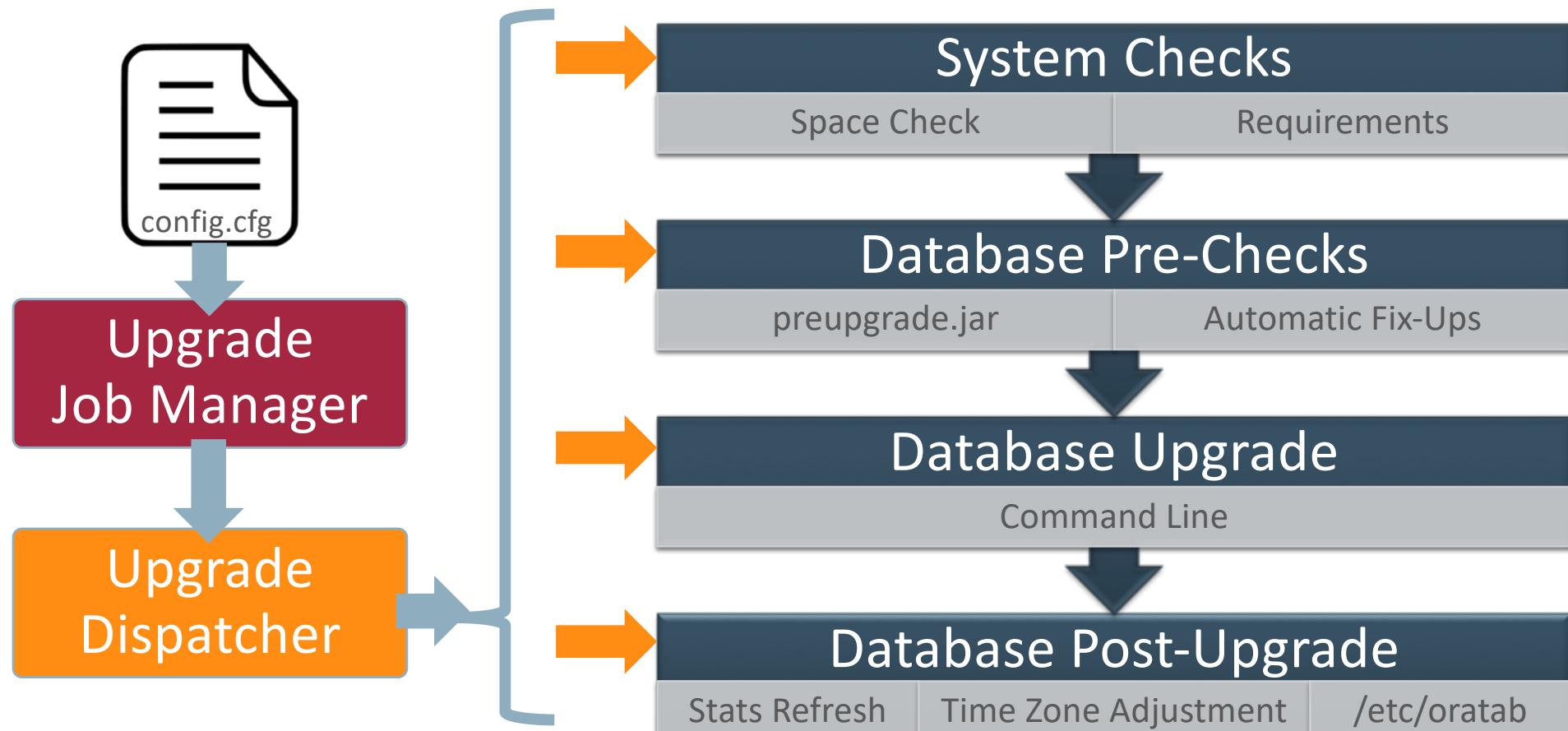
Hands-Free Upgrades to Oracle Database 19c

ORACLE®

Copyright © 2019, Oracle and/or its affiliates. All rights reserved. | AutoUpgrade Hundreds of Database to Oracle 19c

Photo by [samsommmer](#) on [Unsplash](#)

AutoUpgrade Tool | Architecture



AutoUpgrade Tool | What do you need?

- Java 8 or newer
 - Default in your \$ORACLE_HOME since 12.1.0.2
 - Check: \$ORACLE_HOME/jdk/bin/java -version
- Oracle source database version
 - Minimum database version is 11.2.0.4
- The AutoUpgrade package
 - A jar file of <5 MB in size

AutoUpgrade Tool | **ALWAYS download the newest version**

- MOS Note: 2485457.1

Description

Oracle Database AutoUpgrade allows DBAs to upgrade one or many databases without human intervention, all with one command and a single configuration file.

AutoUpgrade version

The last upload of the tool corresponds to version **20190823**.

Benefits

AutoUpgrade enables customers to upgrade one or many Oracle databases at the command-line with a single command and a single configuration file. AutoUpgrade will run the preupgrade tasks, perform automated fixups where needed, execute the database upgrade, and finish by taking care of post-upgrade tasks. It includes automatic retry and fallback, the possibility to schedule upgrades for future points in time, and the ability to set, change or remove initialization parameters as desired. It saves time and money by upgrading hundreds of databases with one command and replacing bespoke high maintenance upgrade solutions.

As of the January 2019 Release Updates (DBJAN2019RU) and beyond, AutoUpgrade Support is available for Oracle Database 12c Release 2 (12.2) and Oracle Database 18c (18.5) target homes. For both Oracle Database 12c Release 2 (12.2) and Oracle Database 18c (18.5), download the [AutoUpgrade Tool](#) and place it under \$ORACLE_HOME/rdbms/admin.

In Oracle Database 19c (19.3) and later target Oracle homes, the autopgrade.jar file exists by default. However, before you use AutoUpgrade, Oracle recommends that you download the [latest version](#) and replace the one already existing under \$ORACLE_HOME/rdbms/admin.

Target versions supported

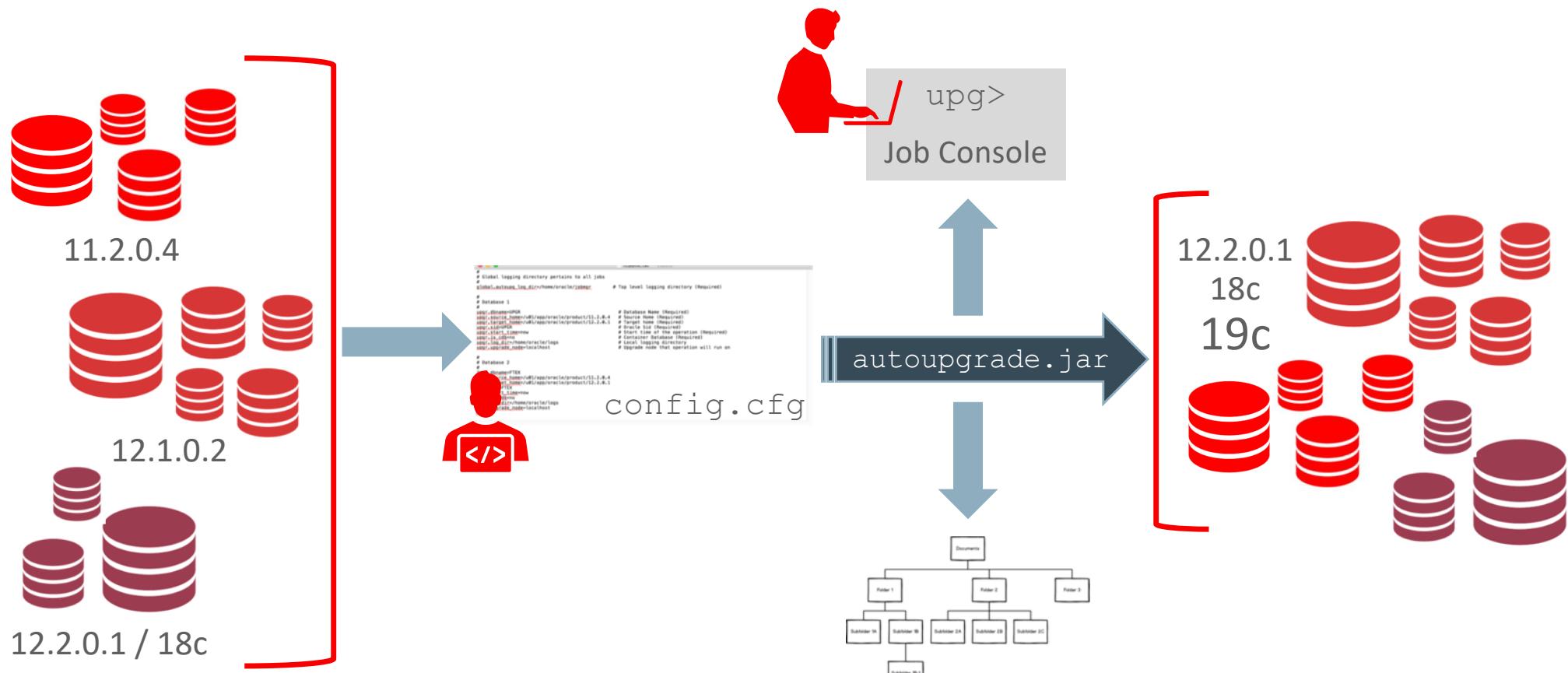
AutoUpgrade Tool can be used on upgrading to below Oracle Database releases:

- Oracle Database 19c (19.3 and newer)
- Oracle Database 18c (18.5 and newer)
- Oracle Database 12c Release 2 (12.2 + DBJAN2019RU and newer)

AutoUpgrade Tool | What we support

- Non-CDB and CDB upgrades
- All operating systems running Oracle Database servers
- Standard Edition 2 and Enterprise Edition
- Upgrades to version:
 - 12.2.0.1 with Jan 2019 Update or newer
 - 18.5.0 (includes Jan 2019 Update) or newer
 - 19.3.0 or newer

AutoUpgrade Tool | What do you need to do?



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AutoUpgrade Tool | What you don't need?

- Agents
- EM Cloud Control
- DBUA
- Extra license

AutoUpgrade Tool | What we can't do ... yet

- RAC
 - SRVCTL upgrade part
 - Shutdown all instances and services
- Data Guard
 - Disable DG Broker and defer log transport
- Migration from non-CDB to PDB
 - Well ... we can ... but it is not flexible enough yet ☺
- Unplug/plug/upgrade from one CDB to another

AutoUpgrade Tool | Blog Post Series

- <https://mikedietrichde.com/2019/04/29/the-new-autoupgrade-utility-in-oracle-19c/>

AutoUpgrade – Step-by-step

1. [The new AutoUpgrade Utility – Download, documentation and support](#)
2. [Create and adjust the config file for AutoUpgrade](#)
3. [Config file for AutoUpgrade – Advanced options](#)
4. [Config file for AutoUpgrade – Tweaking init parameters](#)
5. [AutoUpgrade: ANALYZE, FIXUPS, UPGRADE and DEPLOY modes](#)
6. [AutoUpgrade: Where do you find all the logfiles?](#)
7. [UPG: The AutoUpgrade Command Line Interface](#)
8. [Upgrading Multitenant databases with AutoUpgrade](#)
9. [Moving to a new server with AutoUpgrade](#)
10. [How to tweak the hidden settings in AutoUpgrade](#)
11. [AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB](#)
12. [AutoUpgrade and Wallets](#)

The new AutoUpgrade utility in Oracle 19c

Posted on April 29, 2019 by Mike.Dietrich [AutoUpgrade](#)

51



AutoUpgrade Tool | Create a configuration file

```
$ java -jar autoupgrade.jar -create_sample_file config
```

```
Created sample configuration file /home/oracle/sample_config.cfg
```

AutoUpgrade Tool | Configuration file

```
global.autooupg_log_dir=/home/oracle/logs

upg1.dbname=DB12
upg1.start_time=NOW
upg1.source_home=/u01/app/oracle/product/12.2.0.1
upg1.target_home=/u01/app/oracle/product/19
upg1.sid=DB12
upg1.log_dir=/home/oracle/aux/DB12
upg1.upgrade_node=localhost
upg1.target_version=19

upg2.dbname=UPGR
upg2.start_time=NOW
upg2.source_home=/u01/app/oracle/product/11.2.0.4
...
```

AutoUpgrade Tool | But there are more options ...

```
#  
#      Example global pfile configuration entries  
#  
global.del_during_upgrade_pfile=/database/pfiles/global_during_delinit.ora  
global.add_during_upgrade_pfile=/database/pfiles/global_during_addinit.ora  
global.del_after_upgrade_pfile=/database/pfiles/global_after_delinit.ora  
global.add_after_upgrade_pfile=/database/pfiles/global_after_addinit.ora  
  
#  
#      Example local pfile configuration entries  
#  
upg2.del_during_upgrade_pfile=/database/pfiles/hr_during_delinit.ora  
upg2.add_during_upgrade_pfile=/database/pfiles/hr_during_addinit.ora  
upg2.del_after_upgrade_pfile=/database/pfiles/hr_after_delinit.ora  
upg2.add_after_upgrade_pfile=/database/pfiles/hr_after_addinit.ora
```

AutoUpgrade Tool | Even more options ...

```
#  
#      Example global script execution  
#  
global.before_action=/database/scripts/run_this_before.sh  
global.after_action=/database/scripts/run_this_after.sh  
  
#  
#      Example local script execution  
#  
upg2.before_action=/database/scripts/run_this_on_UPG2_before.sh  
upg2.after_action=/database/scripts/run_this_on_UPG2_after.sh
```

- Permitted extension options:

- Unix shell (.sh)
- Microsoft Windows batch (.bat, .cmd)
- Microsoft Windows PowerShell (.ps1)

AutoUpgrade Tool | Ok, there's still more ...

```
#  
#      By default a GRP will be created. Default for EE: Yes  
#  
upg2.restoration=no
```

```
#  
#      By default a GRP will be kept. This option overwrites the default.  
#  
upg2.drop_grp_after_upgrade=yes
```

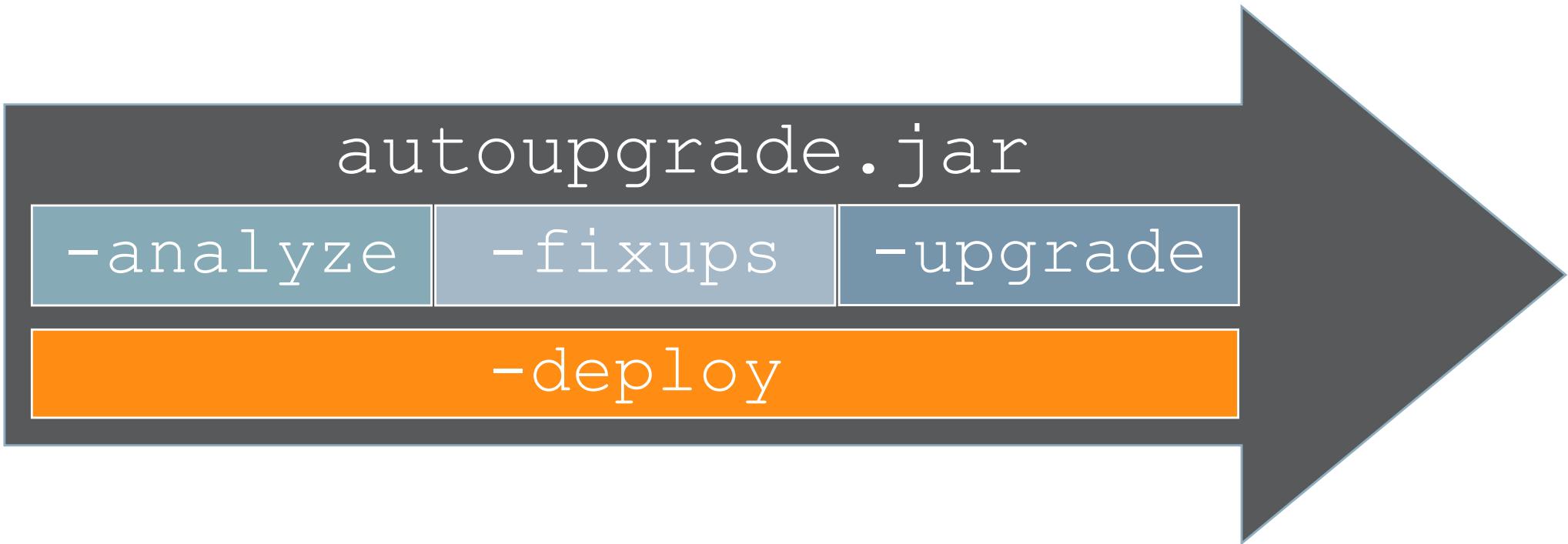
AutoUpgrade Tool | And more ...

```
#  
#      Example global directive - Default: Underscores stay as before  
#  
global.remove_underscore_parameters  
  
#  
#      If unset, utlrp.sql won't be run - Default: YES  
#  
upgr2.run_utlrp=no  
  
#  
#      If unset, time zone upgrade won't be performed - Default: YES  
#  
upgr2.timezone_upg=no
```

AutoUpgrade Tool | START_TIME

- VALID values
 - NOW *[default]*
 - 30/12/2018 15:30:00
 - 01/11/2019 01:30:15
 - 2/5/2019 3:30:50
- INVALID values
 - 30-12-2018 15:30:00
 - 01/11/2019 3:30:15pm
 - 2019/06/01 01:30:15

AutoUpgrade Tool | AutoUpgrade - 4 modes



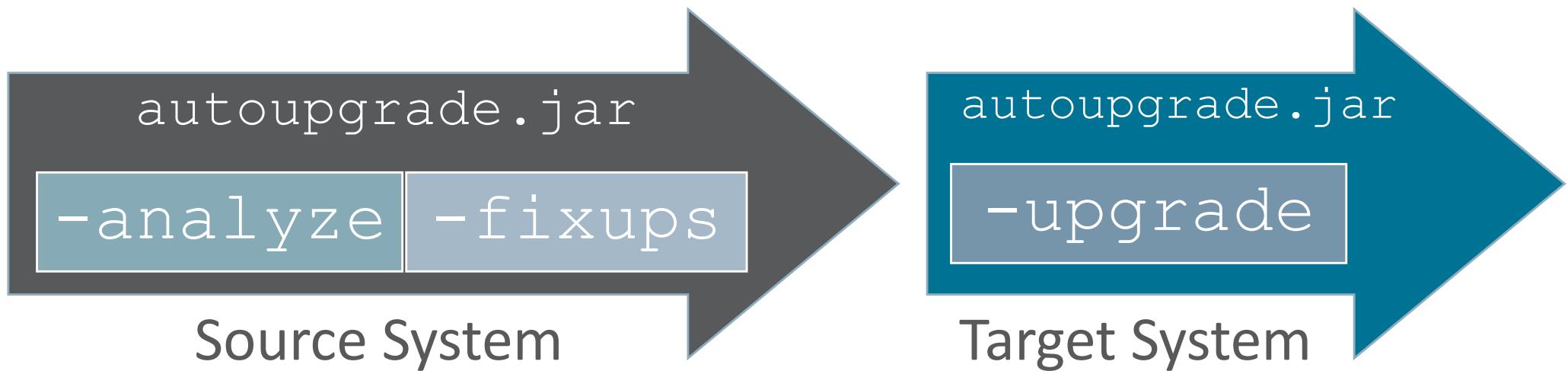
AutoUpgrade Tool | Recommendation

The diagram consists of a large grey arrow pointing to the right. Inside the arrow, the text "autoupgrade.jar" is centered above two adjacent boxes. The left box is blue and contains the text "-analyze". The right box is orange and contains the text "-deploy".

autoupgrade.jar
-analyze -deploy

```
$ java -jar autoupgrade.jar -config config.cfg -mode analyze  
$ java -jar autoupgrade.jar -config config.cfg -mode deploy
```

AutoUpgrade Tool | When you move to new hardware



```
$ java -jar autoupgrade.jar -config config.cfg -mode analyze  
$ java -jar autoupgrade.jar -config config.cfg -mode fixups  
$ java -jar autoupgrade.jar -config config.cfg -mode upgrade
```

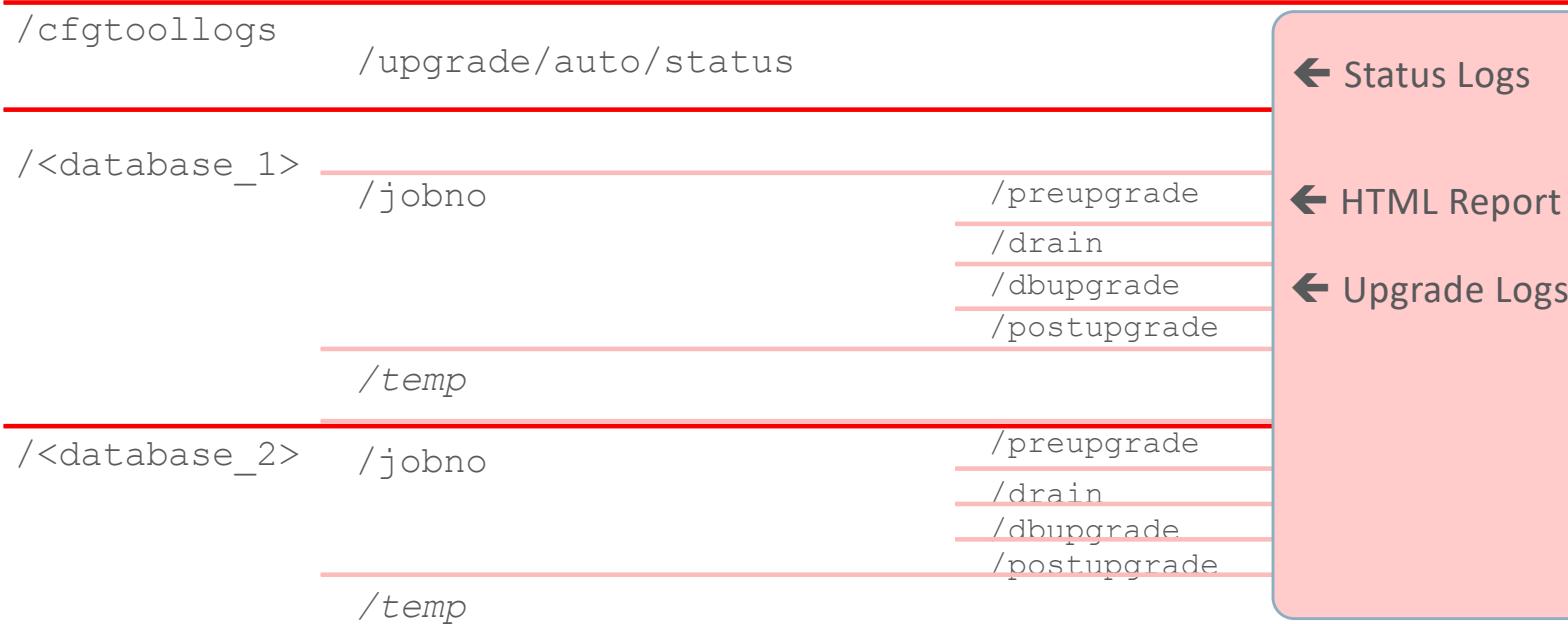
AutoUpgrade Tool | Job Control - Most Important Commands

upg>

```
lsj                                // List jobs
resume -job <number>               // Restarts a job
status [-job <number>]              // Show job status
restore -job <number>               // Restores database from GRP
abort    -job <number>               // Aborts the specified job
```

AutoUpgrade Tool | Logging

- Text and JSON format
- Directory structure



<https://youtu.be/kr3aZrqA9Go>

Oracle Database Upgrade 19c with AutoUpgrade

Oracle 11.2.0.4 => Oracle 19c

Oracle 12.2.0.1 => Oracle 19c

AutoUpgrade Tool | What if ...

- What if you need to **reset** AutoUpgrade?

- `java -jar autoupgrade.jar -config abd.cfg -mode analyze -clear_recovery_data`
or:
– Remove or rename directory `global.autoupg_log_dir`

- What if you need **Support**?

- 1. Open an SR
 2. Upload the entire `global.autoupg_log_dir` to MOS

"After qualifying the new AutoUpgrade tool on a representative portion of our database landscape we found that tool was doing a great job and is production-ready. In our automation tool we have removed a lot of "home-grown" code, and replaced it with AutoUpgrade functionality.

Since August 2019 all upgrades at SimCorp have been executed using the AutoUpgrade tool."

Daniel Overby Hansen
Lead Developer
SimCorp A/S
Denmark



  doh-database



Oracle Autoupgrade experience at CERN, the European Organization for Nuclear Research

Ludovico Caldara - Computing Engineer, Oracle ACE Director



DBA survival BLOG
Keep DBA job simple. Thanks.

Databases Events Custom Searches Other Techs About Me My Employer

Oracle Database 18c and version numbers

Posted on August 15, 2018

The Oracle New Release Model is very young, and thus suffers of some small inconsistencies in the release naming.
Oracle already announced that 18c was a renaming of what was intended to be 12.2.0.2 in the original roadmap.
I though that 19c would have been 12.2.0.3, but now I have some doubts when looking at the local inventory contents.

Ludovico Caldara

- Two decades of DBA experience (Not Only Oracle)
- ITOUG co-founder
- OCP (11g, 12c, MySQL) & OCE
- Italian living in Switzerland
- <http://www.ludovicocaldara.net>
- [@ludodba](#)
- [ludovicocaldara](#)



The Large Hadron Collider (LHC)



Largest machine in the world

27km, 6000+ superconducting magnets

Fastest racetrack on Earth

Protons circulate 11245 times/s (99.9999991% the speed of light)

Emptiest place in the solar system

High vacuum inside the magnets

Hottest spot in the galaxy

During Lead ion collisions create temperatures 100 000x hotter than the heart of the sun

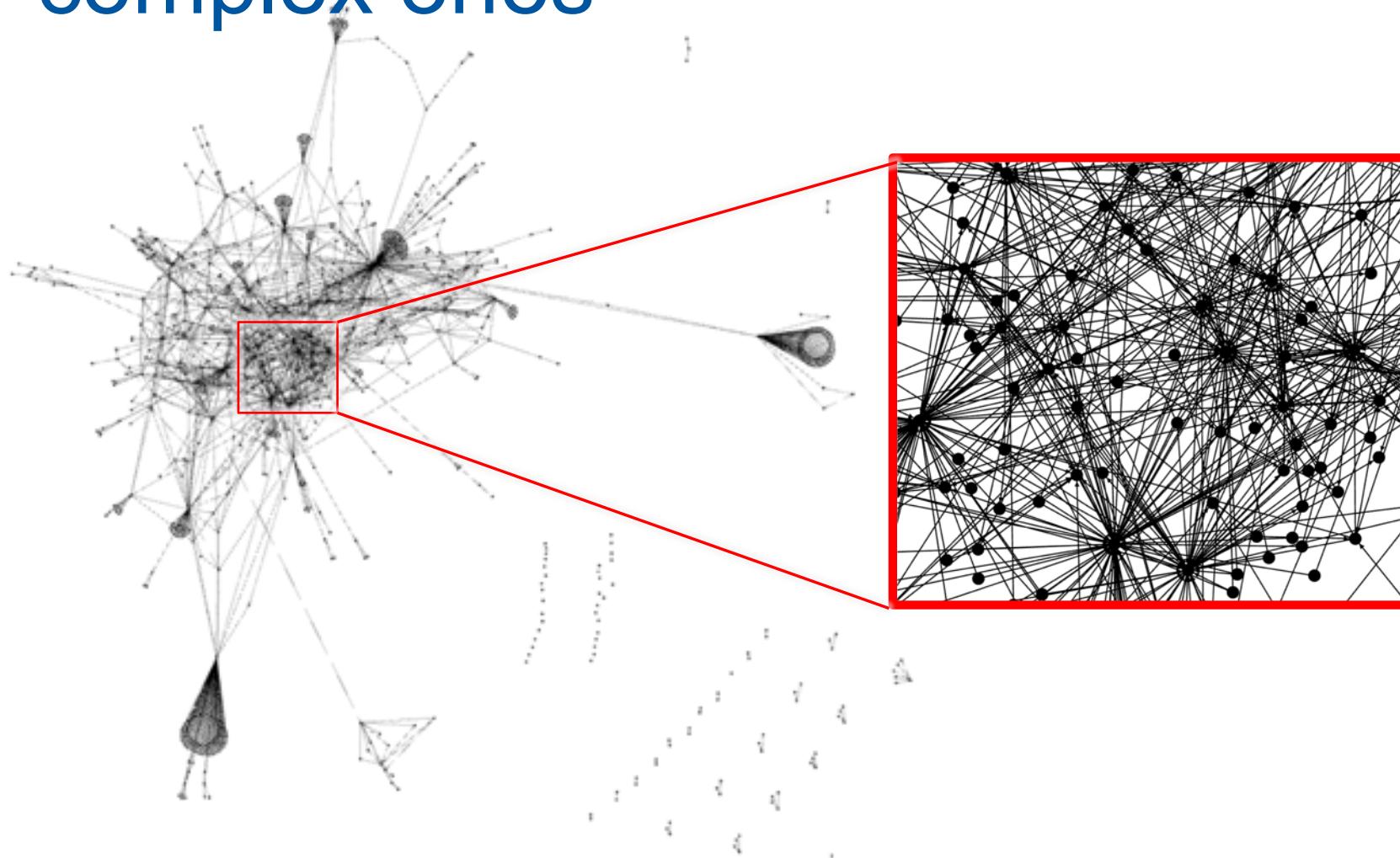
Large databases

```
SQL> select sum(bytes/power(1024,5)) as "PetaBytes"  
> from dba_data_files;
```

PetaBytes

1.045261270388

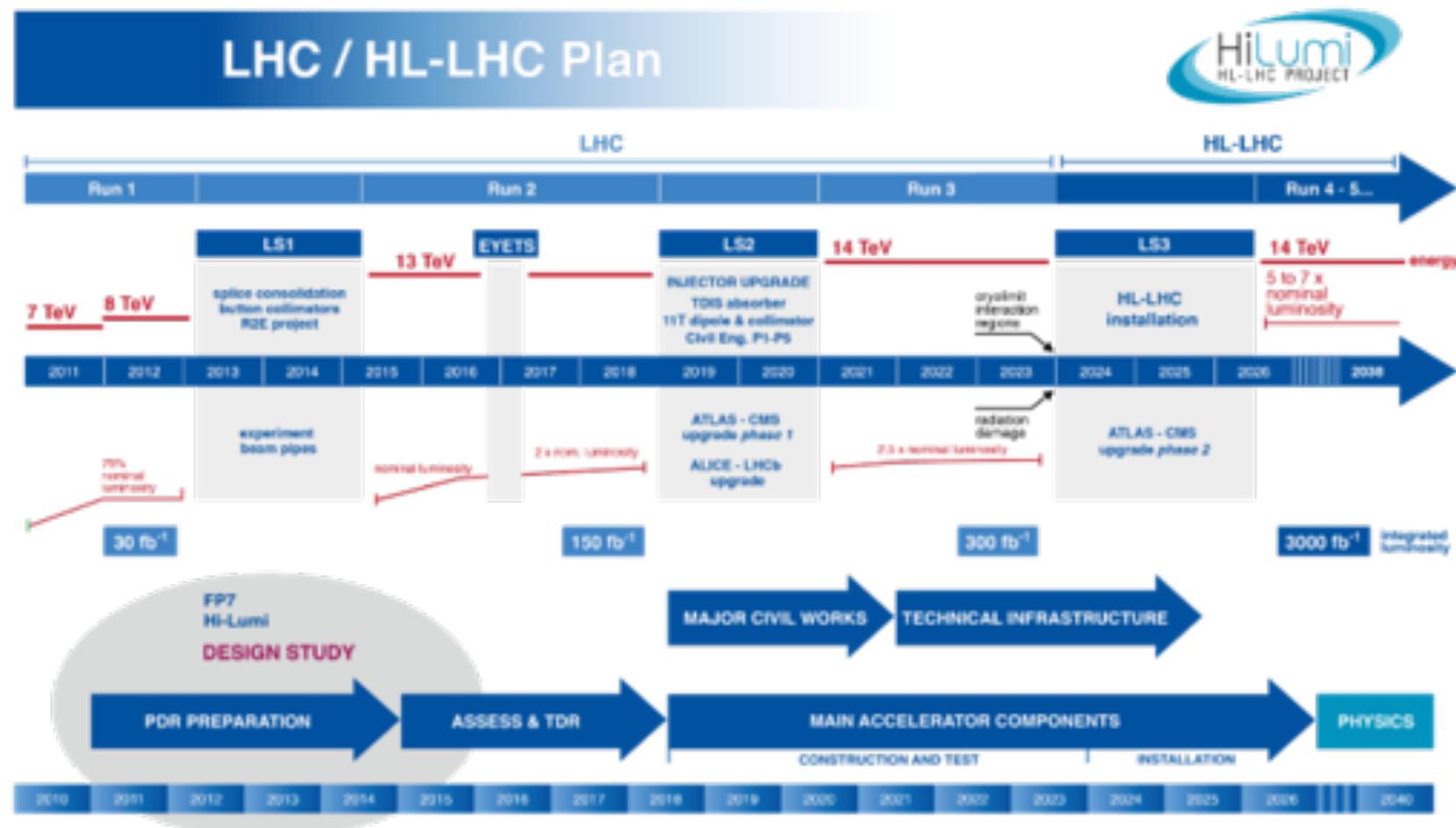
Or complex ones



Many Legacy Databases

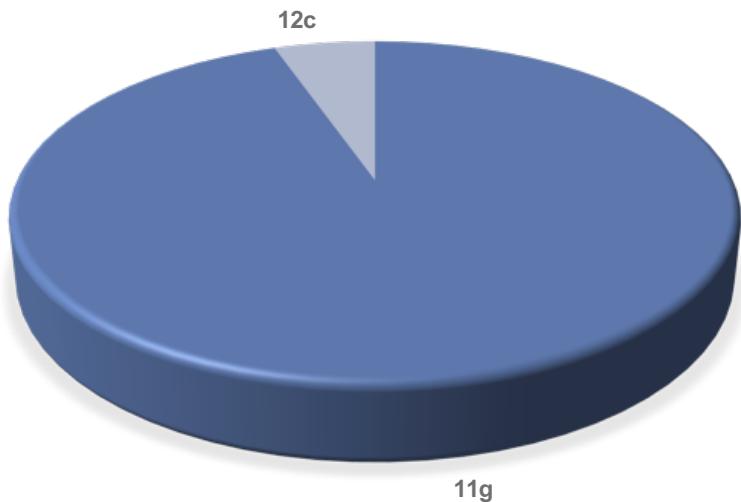
- Some software built decades ago
- Databases for researchers, a big mess!
- Uncommon development cycles
- Still many 11g in 2019
- Heterogeneous technologies, connection methods
- DB links everywhere! 😞

Timing constraints for upgrades

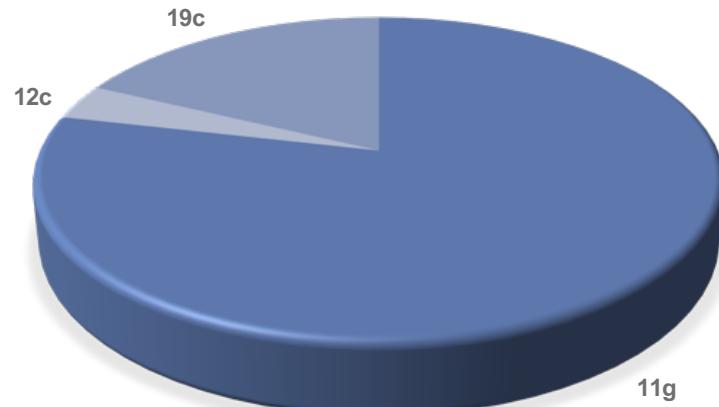


The big upgrade challenge

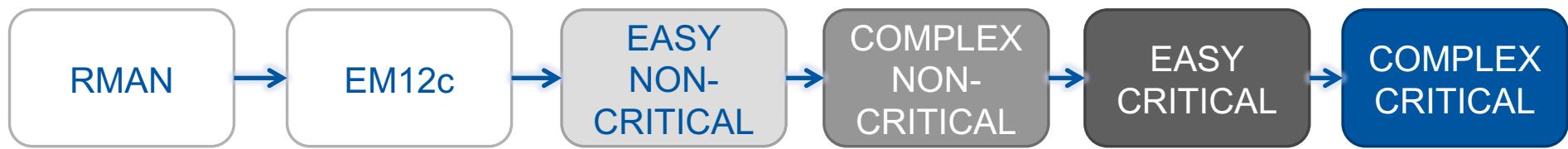
INITIAL SITUATION



CURRENT SITUATION



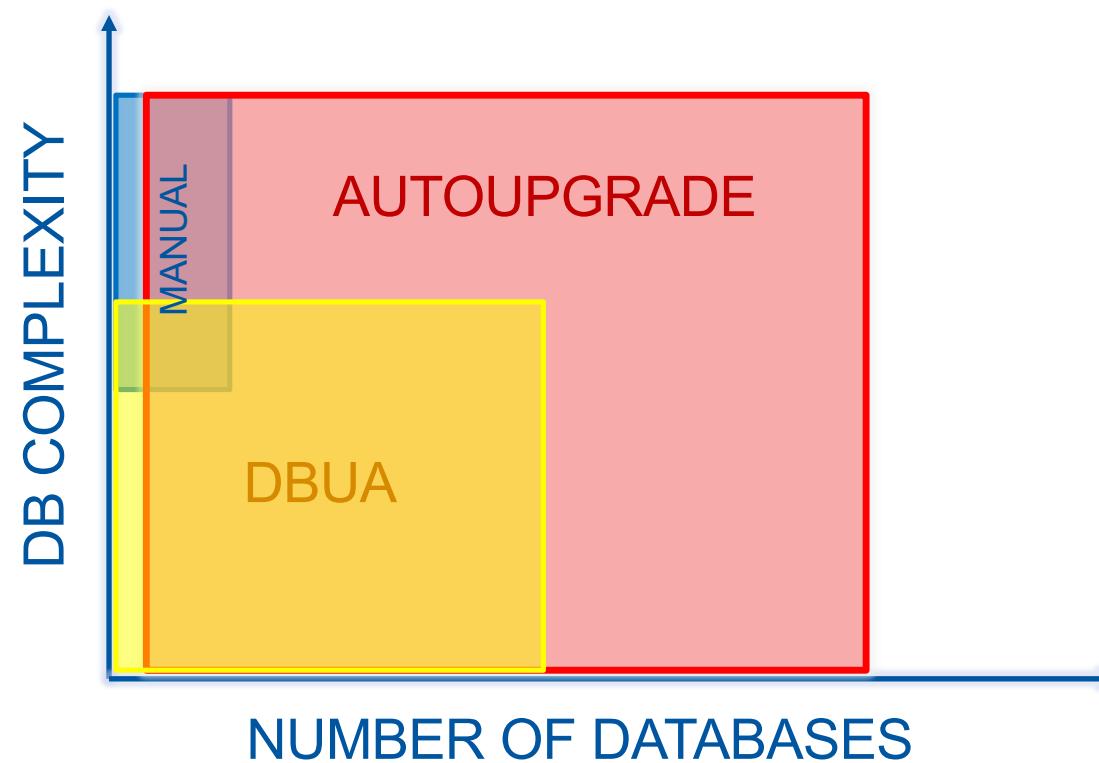
Plan (Jul 2019 – Jul 2020)



Automation and simplicity are the key

- Install new servers with OL7 (PXE, TFTP, Puppet)
- Install Grid Infrastructure 19c (Silent install via Rundeck)
- Move databases (Data Guard, NFS umount/mount via Rundeck)
- Upgrade databases (Autouupgrade)

The right tool for most cases



Steps used at CERN

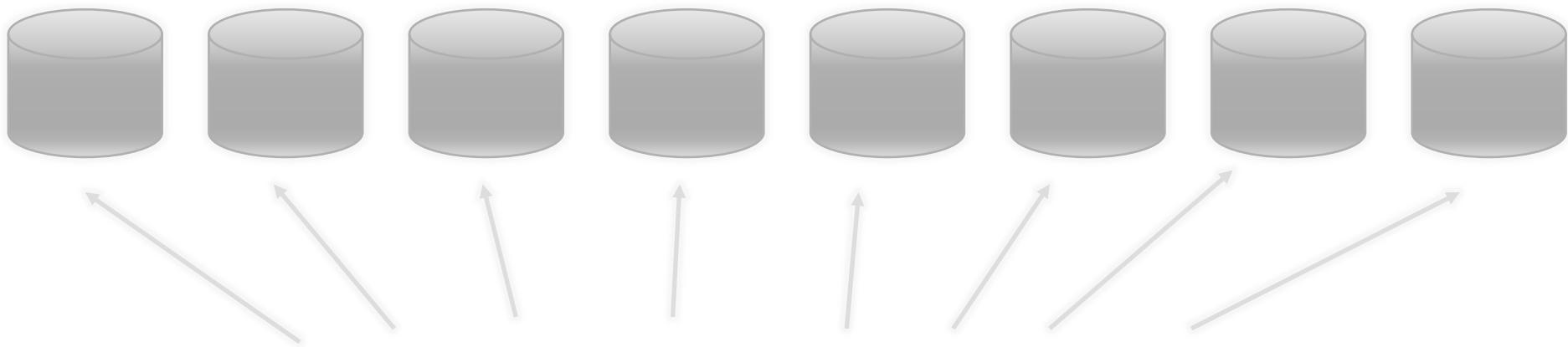
- Latest AutoUpgrade kit from MOS Document 2485457.1 (autoupgrade.jar)
- Script:

```
setoh rdbms1930
JAVA=$OH/jdk/jre/bin/java
$JAVA -jar autoupgrade.jar -config ./DB.cfg -mode analyze|fixups|deploy
```

- Config:

```
global.autoapg_log_dir=/ORA/dbs01/oracle/autouupgrade_cerndb/logs
DB.dbname=DB_UNIQUE_NAME
DB.source_home=/ORA/dbs01/oracle/product/rdbms11204_171017_cern9
DB.target_home=/ORA/dbs01/oracle/product/rdbms1930
DB.sid=DB1
DB.start_time=now
DB.log_dir=/ORA/dbs01/oracle/autouupgrade_cerndb/DB_logs
DB.upgrade_node=server1.cern.ch
DB.run_utlrp=yes
DB.timezone_upg=yes
DB.target_version=19.3
```

analyze / fixups



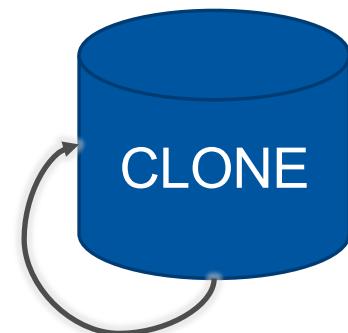
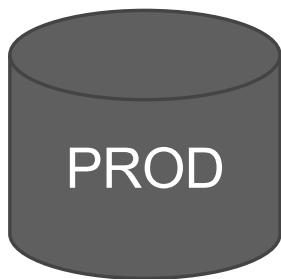
Batch execution on all databases

Test, test, test!



Clone

Test, test, test!



Upgrade

Test, test, test!



Repeat!

Before autoupgrade -deploy

- Increase SGA $\geq 17G$ and shared_pool $\geq 7G$
- Blackout in EM
- Dump Network ACLs
- Set *cluster_database=false*

After autoupgrade -deploy

- Cluster_database=true and srvctl update database
- Test
- Remove restore point
- Increase compatible parameter
- Various cosmetics (move passwordfile, etc.)

Log structure

```
$ ls -l
total 16
drwxr-xr-x. 3 oracle ci 4096 Aug 21 10:43 DB_logs
-rwxr-xr-x. 1 oracle ci 386 May 7 15:03 DB.sh
-rw-r--r--. 1 oracle ci 493 May 7 13:21 DB.txt
drwx----- 3 oracle ci 4096 May 7 13:19 logs
```

```
$ ls -l logs/cfgtoollogs/upgrade/auto/
total 9248
-rwx----- 1 oracle ci 31531 May 7 16:56 autoupgrade_err.log
-rwx----- 1 oracle ci 9387210 May 7 16:59 autoupgrade.log
-rwx----- 1 oracle ci 8421 May 7 16:56 autoupgrade_user.log
drwx----- 2 oracle ci 4096 May 7 15:05 config_files
drwx----- 2 oracle ci 4096 May 7 15:03 lock
-rwx----- 1 oracle ci 12718 May 7 16:45 state.html
drwx----- 2 oracle ci 4096 May 7 16:21 status
```

Log structure

```
$ ls -l DB_logs/DB1/*
DB_logs/DB1/101:
total 84
-rwx-----. 1 oracle ci 77166 May  7 14:16 autoupgrade_20190507.log
-rwx-----. 1 oracle ci     96 May  7 14:16 autoupgrade_20190507_user.log
-rwx-----. 1 oracle ci     0 May  7 14:16 autoupgrade_err.log
drwx-----. 2 oracle ci  4096 May  7 14:20 prechecks
DB_logs/DB1/102:
total 208
-rwx-----. 1 oracle ci 177770 May  7 14:38 autoupgrade_20190507.log
-rwx-----. 1 oracle ci  2865 May  7 14:38 autoupgrade_20190507_user.log
-rwx-----. 1 oracle ci  17209 May  7 14:38 autoupgrade_err.log
drwx-----. 2 oracle ci  4096 May  7 14:38 prechecks
drwx-----. 2 oracle ci  4096 May  9 11:54 prefixups
DB_logs/DB1/103:
total 1072
-rwx-----. 1 oracle ci 997979 May  7 16:45 autoupgrade_20190507.log
-rwx-----. 1 oracle ci 15237 May  7 16:21 autoupgrade_20190507_user.log
-rwx-----. 1 oracle ci 44713 May  7 16:18 autoupgrade_err.log
drwx-----. 2 oracle ci  4096 May  7 16:19 dbupgrade
drwx-----. 7 oracle ci  4096 May  7 16:14 dbupgradecfgtoollogs
drwx-----. 2 oracle ci  4096 May  7 15:05 drain
drwx-----. 2 oracle ci  4096 May  7 16:21 postchecks
drwx-----. 2 oracle ci  4096 May  9 12:03 postfixups
drwx-----. 2 oracle ci  4096 May  7 15:04 prechecks
drwx-----. 2 oracle ci  4096 May  7 15:05 prefixups
drwx-----. 2 oracle ci  4096 May  7 15:03 preupgrade
```

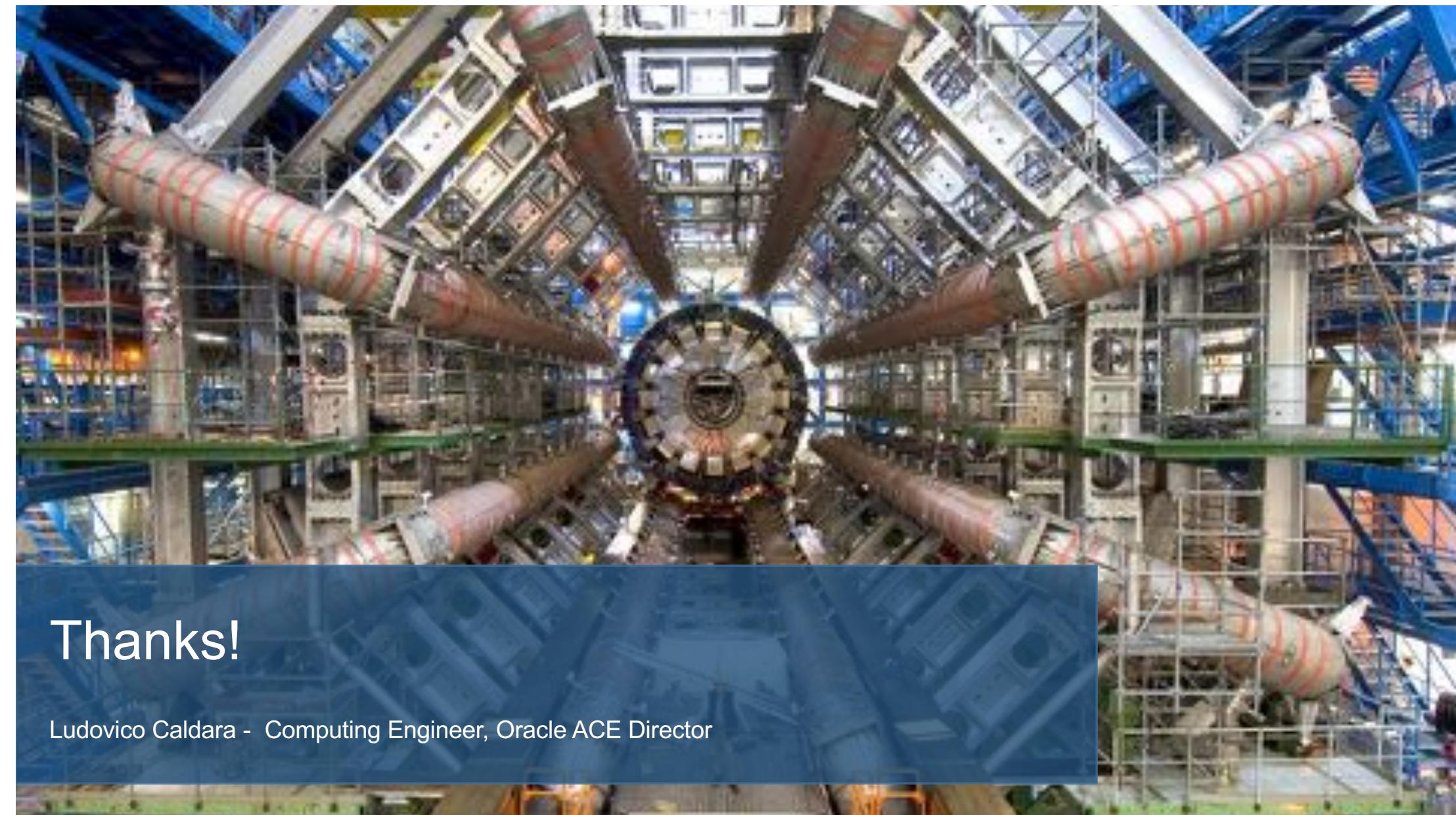
CONTINUE...

Log structure

```
DB_logs/DB1/temp:  
total 92  
-rwx-----. 1 oracle ci 1923 May 7 16:13 after_upgrade_pfile_DB1.ora  
drwx-----. 3 oracle ci 4096 May 7 16:45 DB_UNIQUE_NAME  
-rwx-----. 1 oracle ci 2252 May 7 16:16 DB_UNIQUE_NAME_autocompile.sql  
-rwx-----. 1 oracle ci 883 May 7 16:16 DB_UNIQUE_NAME_objcompare.sql  
-rwx-----. 1 oracle ci 0 May 7 15:14 DB_UNIQUE_NAME.restart  
-rwx-----. 1 oracle ci 21499 May 7 16:45 DB_UNIQUE_NAME_utltz_upg_apply.sql  
-rwx-----. 1 oracle ci 33657 May 7 16:45 DB_UNIQUE_NAME_utltz_upg_check.sql  
-rwx-----. 1 oracle ci 1923 May 7 16:13 before_upgrade_pfile_DB1.ora  
-rwx-----. 1 oracle ci 1953 May 7 16:10 during_upgrade_pfile_DB1.ora  
-rwx-----. 1 oracle ci 964 May 7 16:45 sqlsessend.sql  
-rwx-----. 1 oracle ci 971 May 7 16:45 sqlsessstart.sql
```

Conclusions

- CERN beta tester: usable since the very beginning
- Few minor problems fixed quickly by the development
- Great usability
- Awesome logging, ideal for troubleshooting
- Our recommended way to upgrade!



Thanks!

Ludovico Caldara - Computing Engineer, Oracle ACE Director

Slides and more | <https://MikeDietrichDE.com>

Upgrade your Database - NOW!

The screenshot shows a blog post titled "AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB". The navigation bar includes a "Slides" link, which is highlighted with a red box and connected by a red arrow to a QR code on the right.

AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB

Posted on July 19, 2019 by Mike.Dietrich [AutoUpgrade](#)

I need to bring this blog post forward about AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB. Initially I planned to write this a bit later. But some of you had questions or were wondering why AutoUpgrade hasn't done certain tasks. Hence, I'd like to clarify what AutoUpgrade can do, what it can't and what you'll have to do at the moment.

I refer to the [AutoUpgrade tool](#) as of July 2019. In later versions, one or the other restriction may be lifted. I will blog about it then as well.

AutoUpgrade and Data Guard, RAC, Restart and non-CDB to PDB



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