**Oracle 12c to 19c Database Upgrade**

[**USING DBUA**](#USING_DBUA)

[**USING MANUAL UPGRADE**](#UPGARDE_USING_MANUAL_METHOD)

**===========================================================================**

**USING DBUA**

**Pre-Upgrade Tasks**

Backup your database before performing the upgrade and also check application compatibility with the new version of the Oracle database.

**STEP-1 : Run the 19c pre-install package on Linux to complete all OS level pre-requisites**

**yum install -y oracle-database-preinstall-19c**

**yum update -y**

**Connect to the database and verify tablespace sizes for upgrade. Make sure to have good free space in system and sysaux tablespaces**

**Check for Invalid objects and fix it using utlrp script**

**SQL> select count(\*) from dba\_objects where status='INVALID';**

**Gather DICTIONARY STATS**

**SET ECHO ON;**

**SET SERVEROUTPUT ON;**

**EXECUTE DBMS\_STATS.GATHER\_DICTIONARY\_STATS;**

**Purge Recycle bin**

**PURGE DBA\_RECYCLEBIN;**

**Refresh MVs**

**declare**

**list\_failures integer(3) :=0;**

**begin**

**DBMS\_MVIEW.REFRESH\_ALL\_MVIEWS(list\_failures,'C','', TRUE, FALSE);**

**end;**

**/**

**Verify archive log dest size and Create Flashback Guaranteed Restore Point**

**archive log list**

**alter system set db\_recovery\_file\_dest\_size=10G;**

**select flashback\_on from v$database;**

**select name,open\_mode,log\_mode from v$database;**

**show parameter compatible**

**show parameter recovery**

**select \* from V$restore\_point;**

**create restore point pre\_upgrade guarantee flashback database;**

**STEP-2 Install Oracle 19c**

**Create 19c home directory and give ownership to Oracle user**

**mkdir -p /u01/app/oracle/product/19.3/db\_home**

**Download and Install Oracle 19c Software**

**cd /u01/app/oracle/product/19.3/db\_home**

**unzip -qo /tmp/LINUX.X64\_193000\_db\_home.zip**

**#for silent installation**

./runInstaller -ignorePrereq -waitforcompletion -silent \

-responseFile ${ORACLE\_HOME}/install/response/db\_install.rsp \

oracle.install.option=INSTALL\_DB\_SWONLY \

ORACLE\_HOSTNAME=${HOSTNAME} \

UNIX\_GROUP\_NAME=oinstall \

INVENTORY\_LOCATION=/u01/app/oraInventory \

SELECTED\_LANGUAGES=en,en\_GB \

ORACLE\_HOME=/u01/app/oracle/product/19.3/db\_home \

ORACLE\_BASE=/u01/app/oracle \

oracle.install.db.InstallEdition=EE \

oracle.install.db.OSDBA\_GROUP=dba \

oracle.install.db.OSBACKUPDBA\_GROUP=dba \

oracle.install.db.OSDGDBA\_GROUP=dba \

oracle.install.db.OSKMDBA\_GROUP=dba \

oracle.install.db.OSRACDBA\_GROUP=dba \

SECURITY\_UPDATES\_VIA\_MYORACLESUPPORT=false \

DECLINE\_SECURITY\_UPDATES=true

**Run pre-upgrade script**

**/u01/app/oracle/product/12.2.0.1/db\_home/jdk/bin/java -jar /u 01/app/oracle/product/19.3.0/db\_home/rdbms/admin/preupgrade.jar FILE DIR /home/oracle/preupgrade**

**View Pre upgrade log**

**cat /home/oracle/preupgrade/preupgrade.log**

**Run Oracle Generated FIXUP SCRIPT**

**@/home/oracle/preupgrade/preupgrade\_fixups.sql**

**Upgrade using DBUA**

Invoke Database Upgrade Assistant DBUA from 19c home

**cd /u01/app/oracle/product/19.3.0/db\_home/bin/**

**./dbua**

Database upgrade has been completed successfully, and the database is ready for use!

**Post Upgrade Tasks**

**Verify /etc/oratab and check if ORACLE\_HOME location has changed to 19c home**

**cat /etc/oratab | grep -i prod**

**Verify Timezone version**

**SQL> SELECT version FROM v$timezone\_file;**

**Verify INVALID objects**

**SQL> select count(1) from dba\_objects where status='INVALID';**

**Verify DBA\_REGISTRY**

**select COMP\_ID,COMP\_NAME,VERSION,STATUS from dba\_registry;**

**Run postupgrade\_fixups.sql, this script already ran by DBUA under the post-upgrade section. However, we have executed it again**

**SQL> @/home/oracle/preupgrade/postupgrade\_fixups.sq**

**Drop Restore point**

**SQL> drop restore point PRE\_UPGRADE;**

**Update COMPATIBLE parameter**

If the value of the COMPATIBLE parameter is changed to 19.0.0 then if for some reasons database needs to be downgraded to 12.2.0.1 the DBA would not have any option other than export/import to downgrade the database. But if this parameter is left unchanged for some time to see how the database performs after upgrade then it is very easy and fast to downgrade the database if for some reason it is required to be downgraded.

*Good practice - Change this parameter only after 1 month of database upgrade!*

**SQL> show parameter COMPATIBLE**

**SQL> ALTER SYSTEM SET COMPATIBLE = '19.0.0' SCOPE=SPFILE;**

**SQL> shut immediate;**

**SQL> startup;**

**SQL> show parameter COMPATIBLE**

**SQL> select name,open\_mode,version from v$database,v$instance;**

**Upgrade using Manual Method**

**Pre-Upgrade Tasks**

Backup your database before performing the upgrade and also check application compatibility with the new version of the Oracle database.

**STEP-1 : Run the 19c pre-install package on Linux to complete all OS level pre-requisites**

**yum install -y oracle-database-preinstall-19c**

**yum update -y**

**Connect to the database and verify tablespace sizes for upgrade. Make sure to have good free space in system and sysaux tablespaces**

**Check for Invalid objects and fix it using utlrp script**

**SQL> select count(\*) from dba\_objects where status='INVALID';**

**Gather DICTIONARY STATS**

**SET ECHO ON;**

**SET SERVEROUTPUT ON;**

**EXECUTE DBMS\_STATS.GATHER\_DICTIONARY\_STATS;**

**Purge Recycle bin**

**PURGE DBA\_RECYCLEBIN;**

**Refresh MVs**

**DBMS\_MVIEW.REFRESH\_ALL\_MVIEWS(list\_failures,'C','', TRUE, FALSE);**

**Verify archive log dest size and Create Flashback Guaranteed Restore Point**

**archive log list**

**alter system set db\_recovery\_file\_dest\_size=10G;**

**select flashback\_on from v$database;**

**select name,open\_mode,log\_mode from v$database;**

**show parameter compatible**

**select \* from V$restore\_point;**

**create restore point pre\_upgrade guarantee flashback database;**

**STEP-2 Install Oracle 19c**

**Create 19c home directory and give ownership to Oracle user**

**mkdir -p /u01/app/oracle/product/19.3/db\_home**

**Download and Install Oracle 19c Software**

**cd /u01/app/oracle/product/19.3/db\_home**

**unzip -qo /tmp/LINUX.X64\_193000\_db\_home.zip**

**#for silent installation**

./runInstaller -ignorePrereq -waitforcompletion -silent \

-responseFile ${ORACLE\_HOME}/install/response/db\_install.rsp \

oracle.install.option=INSTALL\_DB\_SWONLY \

ORACLE\_HOSTNAME=${HOSTNAME} \

UNIX\_GROUP\_NAME=oinstall \

INVENTORY\_LOCATION=/u01/app/oraInventory \

SELECTED\_LANGUAGES=en,en\_GB \

ORACLE\_HOME=/u01/app/oracle/product/19.3/db\_home \

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oracle.install.db.InstallEdition=EE \

oracle.install.db.OSDBA\_GROUP=dba \

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oracle.install.db.OSDGDBA\_GROUP=dba \

oracle.install.db.OSKMDBA\_GROUP=dba \

oracle.install.db.OSRACDBA\_GROUP=dba \

SECURITY\_UPDATES\_VIA\_MYORACLESUPPORT=false \

DECLINE\_SECURITY\_UPDATES=true

**Run pre-upgrade script**

**/u01/app/oracle/product/12.2.0.1/db\_home/jdk/bin/java -jar /u 01/app/oracle/product/19.3.0/db\_home/rdbms/admin/preupgrade.jar FILE DIR /home/oracle/preupgrade**

**View Pre upgrade log**

**cat /home/oracle/preupgrade/preupgrade.log**

**Run Oracle Generated FIXUP SCRIPT**

**@/home/oracle/preupgrade/preupgrade\_fixups.sql**

**SQL> SELECT NAME,OPEN\_MODE FROM V$DATABASE;**

**Copy init and password files from 12c to 19c dbs home then shutdown the database**

**cd $ORACLE\_HOME/dbs**

**ls -ltr**

**cp orapwprod spfileprod.ora /u01/app/oracle/product/19.3.0/db\_home/dbs**

**ls -ltr /u01/app/oracle/product/19.3.0/db\_home/dbs/**

**Shutdown the database**

**Startup DB in Upgrade mode from 19c home**

**export ORACLE\_HOME=/u01/app/oracle/product/19.3.0/db\_home**

**export ORACLE\_SID=prod**

**sqlplus / as sysdba**

**SQL> startup upgrade;**

**select name,open\_mode,cdb,version,status from v$database, v$instance;**

**Run dbupgrade**

**cd /u01/app/oracle/product/19.3.0/db\_home/bin**

**ls -ltr dbupgrade**

**nohup ./dbupgrade & --> Press enter 2 times**

**jobs -l**

**disown**

**ps -ef | grep -i catctl.pl**

**Monitor upgrade log**

**cd /u01/app/oracle/product/19.3.0/db\_home/bin**

**more nohup.out**

**cd /u01/app/oracle/product/19.3.0/db\_home/cfgtoollogs/prod/upgrade20210131020428/**

**ls -ltr \*.log**

**tail -f catupgrd0.log**

**tail -f catupgrd1.log**

**tail -f catupgrd2.log**

**tail -f catupgrd3.log**

**Startup DB from 19c home**

**export ORACLE\_HOME=/u01/app/oracle/product/19.3.0/db\_home**

**export ORACLE\_SID=prod**

**sqlplus / as sysdba**

**startup;**

**select name,open\_mode,cdb,version,status from v$database, v$instance;**

**select COMP\_ID,COMP\_NAME,VERSION,STATUS from dba\_registry;**

**Post Upgrade Steps**

**Run utlrp.sql, run catcon.pl to start utlrp.sql, and to recompile any remaining invalid objects**

**cd /u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/ nohup sqlplus "/ as sysdba" @utlrp.sql > /home/oracle/utlrp.out 2>&1 &**

**SQL> select count(\*) from dba\_objects where status='INVALID';**

**SQL> select count(\*) from dba\_objects where status='INVALID' and owner in ('SYS','SYSTEM');**

**SQL> @/u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/utlrp.sql**

Use the following queries to track recompilation progress. Query returning the number of invalid objects remaining. This number should decrease with time

**SQL> SELECT COUNT(\*) FROM obj$ WHERE status IN (4, 5, 6)**

**Run postupgrade\_fixups.sql**

**@/home/oracle/preupgrade/postupgrade\_fixups.sql**

**Upgrade Timezone file**

**SQL> SELECT version FROM v$timezone\_file;**

**SQL> @/u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/utltz\_upg\_check.sql**

**SQL> @/u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/utltz\_upg\_apply.sql**

**SQL> SELECT version FROM v$timezone\_file;**

**Run utlusts.sql**

**SQL> @/u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/utlusts.sql TEXT**

**Run catuppst.sql**

*Do not run this in UPGRADE mode.*

SQL> @/u01/app/oracle/product/19.3.0/db\_home/rdbms/admin/catuppst.sql

**Re-Run postupgrade\_fixups.sql**

**@/home/oracle/preupgrade/postupgrade\_fixups.sql**

**Reverify INVALID OBJECTS**

**SQL> select count(\*) from dba\_objects where status='INVALID';**

**Drop Restore point**

**select NAME,GUARANTEE\_FLASHBACK\_DATABASE,TIME from V$restore\_point;**

**SQL> drop restore point PRE\_UPGRADE;**

**SQL> select NAME,GUARANTEE\_FLASHBACK\_DATABASE,TIME from V$restore\_point;**

**Set COMPATIBLE parameter value to 19.0.0**

**SQL> show parameter COMPATIBLE**

**SQL> ALTER SYSTEM SET COMPATIBLE = '19.0.0' SCOPE=SPFILE;**

**SQL> shut immediate;**

**SQL> startup;**

**SQL> show parameter COMPATIBLE**

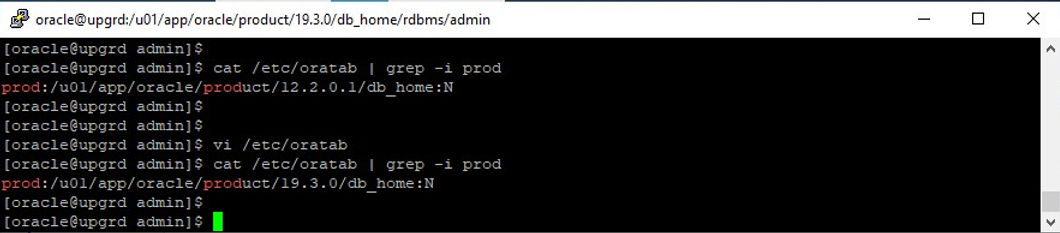
**Verify DBA\_REGISTRY**

**select COMP\_ID,COMP\_NAME,VERSION,STATUS from dba\_registry;**

**Edit oratab**

**cat /etc/oratab | grep -i prod**

**vi /etc/oratab**



**Done!**

SOURCE: https://support.dbagenesis.com/post/oracle-12c-to-19c-database-upgrade