

ORACLE CDB & PDB UPGRADE 12C TO 19C

CDB NAME -CDB\$ROOT

PDB – PDB\$SEED,PDB5

Make director for 19c home

Mkdir -p /home/oracle/19c /stage/

Run below java file for prupgrade utility

Java /home/oracle/app/oracle/product/12.1.0/dbhome_4/jdk/bin/java

>-jar /home/oracle/19c /stage/

> FILE DIRECTORY /home/oracle/19c

CDB preupgrade log

```
Report generated by Oracle Database Pre-Upgrade Information Tool Version
9.0.0.0.0 Build: 1 on 2024-07-05T15:56:51

Pre-Upgrade-To version: 19.0.0.0.0

=====
Status of the database prior to upgrade
=====
Database Name:      PROD
Container Name:     CDB$ROOT
Container ID:       1
Version:            12.1.0.2.0
DB Patch Level:     No Patch Bundle applied
Compatible:         12.1.0.2.0
Blocksize:          8192
Platform:           Linux x86 64-bit
Timezone File:      18
Database log mode:  NOARCHIVELOG
Readonly:           FALSE
Edition:            EE

=====
Oracle Component      Upgrade Action      Current Status
=====
Oracle Server          [to be upgraded]    VALID
JServer JAVA Virtual Machine [to be upgraded]    VALID
Oracle XDK for Java    [to be upgraded]    VALID
Real Application Clusters [to be upgraded]    OPTION OFF
Oracle Workspace Manager [to be upgraded]    VALID
OLAP Analytic Workspace [to be upgraded]    VALID
Oracle Label Security  [to be upgraded]    VALID
Oracle Database Vault  [to be upgraded]    VALID
Oracle Text            [to be upgraded]    VALID
```

INFORMATION ONLY

4. To help you keep track of your tablespace allocations, the following AUTOEXTEND tablespaces are expected to successfully EXTEND during the upgrade process.

Tablespace	Size	Min Size For Upgrade
SYSAUX	720 MB	825 MB
SYSTEM	800 MB	1140 MB
UNDOTBS1	220 MB	896 MB

Minimum tablespace sizes for upgrade are estimates.

5. No action needed.

Using default parallel upgrade options, this CDB with 2 PDBs will first upgrade the CDB\$ROOT, and then upgrade at most 2 PDBs at a time using 2 parallel processes per PDB.

The number of PDBs upgraded in parallel and the number of parallel processes per PDB can be adjusted as described in Database Upgrade Guide.

6. Check the Oracle Backup and Recovery User's Guide for information on how to manage an RMAN recovery catalog schema.

Preupgrade pdb log

Report generated by Oracle Database Pre-Upgrade Information Tool Version
9.0.0.0.0 Build: 1 on 2024-07-05T15:57:16

Upgrade-To version: 19.0.0.0.0

Status of the database prior to upgrade

Database Name: PROD
Container Name: PDB\$SEED
Container ID: 2
Version: 12.1.0.2.0
DB Patch Level: No Patch Bundle applied
Compatible: 12.1.0.2.0
Blocksize: 8192
Platform: Linux x86 64-bit
Timezone File: 18
Database log mode: NOARCHIVELOG
Readonly: TRUE
Edition: EE

Oracle Component	Upgrade Action	Current Status
Oracle Server	[to be upgraded]	VALID
JServr JAVA Virtual Machine	[to be upgraded]	VALID
Oracle XDK for Java	[to be upgraded]	VALID
Real Application Clusters	[to be upgraded]	OPTION OFF
Oracle Workspace Manager	[to be upgraded]	VALID
OLAP Analytic Workspace	[to be upgraded]	VALID
Oracle Label Security	[to be upgraded]	VALID
Oracle Database Vault	[to be upgraded]	VALID
Oracle Text	[to be upgraded]	VALID
Oracle XML Database	[to be upgraded]	VALID
Oracle Java Packages	[to be upgraded]	VALID
Oracle Multimedia	[to be upgraded]	VALID
Oracle Spatial	[to be upgraded]	VALID
Oracle OLAP API	[to be upgraded]	VALID

INFORMATION ONLY

4. To help you keep track of your tablespace allocations, the following AUTOEXTEND tablespaces are expected to successfully EXTEND during the upgrade process.

Tablespace	Size	Min Size For Upgrade
SYSAUX	550 MB	688 MB
SYSTEM	250 MB	599 MB
TEMP	100 MB	150 MB

Minimum tablespace sizes for upgrade are estimates.

ORACLE GENERATED FIXUP SCRIPT

All of the issues in database PROD container PDB\$SEED which are identified above as BEFORE UPGRADE "(AUTO)FIXUP)" can be resolved by executing the following from within the container

SQL>@/home/oracle/19c/upgradelogs/preupgrade_fixups.sql

Preupgrade pdb5 log

```
oracle@prdadapl.manuel.com:/home/oracle/19c/upgradelogs$ cat preupgrade_PDB5.log
Report generated by Oracle Database Pre-Upgrade Information Tool Version
19.0.0.0.0 Build: 1 on 2024-07-05T15:57:11

Upgrade-To version: 19.0.0.0.0

=====
Status of the database prior to upgrade
=====
Database Name: PROD
Container Name: PDB5
Container ID: 3
Version: 12.1.0.2.0
DB Patch Level: No Patch Bundle applied
Compatible: 12.1.0.2.0
Blocksize: 8192
Platform: Linux x86 64-bit
Timezone File: 18
Database log mode: NOARCHIVELOG
Readonly: FALSE
Edition: EE

Oracle Component      Upgrade Action      Current Status
-----
Oracle Server          [to be upgraded]    VALID
JServer JAVA Virtual Machine [to be upgraded]    VALID
Oracle XDK for Java    [to be upgraded]    VALID
Real Application Clusters [to be upgraded]    OPTION OFF
Oracle Workspace Manager [to be upgraded]    VALID
OLAP Analytic Workspace [to be upgraded]    VALID
Oracle Label Security  [to be upgraded]    VALID
Oracle Database Vault  [to be upgraded]    VALID
Oracle Text            [to be upgraded]    VALID
Oracle XML Database    [to be upgraded]    VALID
Oracle Java Packages   [to be upgraded]    VALID
Oracle Multimedia      [to be upgraded]    VALID
Oracle Spatial          [to be upgraded]    VALID
Oracle OLAP API         [to be upgraded]    VALID

Activate Windows
Go to Settings to activate W
```

```
INFORMATION ONLY
=====
4. To help you keep track of your tablespace allocations, the following
   AUTOEXTEND tablespaces are expected to successfully EXTEND during the
   upgrade process.

Tablespace      Size      Min Size
-----
SYSaux          580 MB    696 MB
SYSTEM          260 MB    602 MB
TEMP            20 MB     150 MB

Minimum tablespace sizes for upgrade are estimates.

ORACLE GENERATED FIXUP SCRIPT
=====
All of the issues in database PROD container PDB5
which are identified above as BEFORE UPGRADE "(AUTOFIXUP)" can be resolved by
executing the following from within the container

SQL>@/home/oracle/19c/upgradelogs/preupgrade_fixups.sql
```

INCREASE DB_RECOVERY_FILE_DEST IN CDB

```
SQL> show con_name
CON_NAME
-----
CDB$ROOT
SQL>
SQL>
SQL>
SQL> show parameter recovery
NAME                                 TYPE      VALUE
-----
db_recovery_file_dest                string     /home/oracle/app/oracle/fast_r
db_recovery_file_dest_size           big integer 4560M
recovery_parallelism                 integer    0
SQL>
SQL>
SQL> show parameter spfile
NAME                                 TYPE      VALUE
-----
spfile                              string     /home/oracle/app/oracle/produc
t/12.1.0/dbhome_4/dbs/spfilepr
od.ora
SQL> alter system set db_recovery_file_dest_size=10g scope=both;
System altered.
SQL>
SQL>
SQL> show parameter recovery
NAME                                 TYPE      VALUE
-----
db_recovery_file_dest                string     /home/oracle/app/oracle/fast_r
db_recovery_file_dest_size           big integer 10G
recovery_parallelism                 integer    0
SQL> █
```

Resize Datafile for CDB

```
SQL> select con_id,name,bytes/1024/1024 "MB" from v$datafile order by 1;
CON_ID NAME                                                                 MB
-----
1 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_system_m8f9dth2_.dbf 800
1 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_sysaux_m8f9dlfq_.dbf 790
1 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_undotbs1_m8f9fyysg_.dbf 220
1 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_users_m8f9fxpl_.dbf 5
2 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_sysaux_m8f9hsr9_.dbf 550
2 /home/oracle/app/oracle/oradata/PROD/datafile/o1_m
f_system_m8f9hstm_.dbf 250
3 /home/oracle/app/oracle/oradata/PROD/1C6D361392483
AE7E063C91AA8C001FC/datafile/o1_mf_users_m8fb3xgt_
_.dbf 5
3 /home/oracle/app/oracle/oradata/PROD/1C6D361392483
AE7E063C91AA8C001FC/datafile/o1_mf_system_m8fb2v2f
_.dbf 260
3 /home/oracle/app/oracle/oradata/PROD/1C6D361392483
AE7E063C91AA8C001FC/datafile/o1_mf_sysaux_m8fb2v8t
_.dbf 590

9 rows selected.
```

```
SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/datafile/ol_mf_system_m8f9dth2_.dbf' resize 1G;
Database altered.

SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/datafile/ol_mf_sysaux_m8f9dlfq_.dbf' resize 1G;
Database altered.

SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/datafile/ol_mf_undotbs1_m8f9fysg_.dbf' resize 1G;
Database altered.

SQL>
```

Resize Datafile for pdb\$seed

Open the pdb\$seed in read write mode

```
SQL> alter session set "_oracle_script"=true;
Session altered.

SQL> alter pluggable database PDB$SEED close immediate instances=all;
Pluggable database altered.

SQL> show pdbs

  CON_ID CON_NAME          OPEN MODE  RESTRICTED
  -----
  2 PDB$SEED                MOUNTED
  3 PDB5                   READ WRITE NO
SQL> alter pluggable database PDB$SEED open read write;
Pluggable database altered.

SQL> show pdbs

  CON_ID CON_NAME          OPEN MODE  RESTRICTED
  -----
  2 PDB$SEED                READ WRITE NO
  3 PDB5                   READ WRITE NO
```

Resize datafile PDB\$SEED

```
SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/datafile/ol_mf_system_m8f9hstm_.dbf' resize 3G;
Database altered.

SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/datafile/ol_mf_sysaux_m8f9hsr9_.dbf' resize 3G;
Database altered.

SQL> alter session set container=PDB5;
Session altered.
```

Resize PDB5

```
SQL> alter session set container=PDB5;
Session altered.

SQL> show pdbs

  CON_ID CON_NAME          OPEN MODE  RESTRICTED
  -----
  3 PDB5                   READ WRITE NO
SQL> show con_name;
CON_NAME
-----
PDB5
SQL> select file_name from dba_data_files;
FILE_NAME
-----
/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_system_m8fb2v2f_.dbf
/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_sysaux_m8fb2v8t_.dbf
/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_users_m8fb3xgt_.dbf
SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_system_m8fb2v2f_.dbf' resize 3G;
Database altered.

SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_sysaux_m8fb2v8t_.dbf' resize 3G;
Database altered.

SQL> alter database datafile '/home/oracle/app/oracle/oradata/PROD/1C6D361392483AE7E063C91AA8C001FC/datafile/ol_mf_users_m8fb3xgt_.dbf' resize 3G;
Database altered.
```

Now again run preupgradefix.sql script and recheck the requirement done or not

Now make PDB\$SEED in read only mode again

```
SQL> alter session set "_oracle_script"=true;
Session altered.

SQL> alter pluggable database PDB$SEED close immediate instances=all;
Pluggable database altered.

SQL> alter pluggable database PDB$SEED open read only;
Pluggable database altered.

SQL> show pdbs

  CON_ID CON_NAME              OPEN MODE  RESTRICTED
-----
      2 PDB$SEED                READ ONLY  NO
      3 PDB5                    READ WRITE NO
```

Create Restore point In CDB

```
SQL> select DBID,NAME,FLASHBACK_ON,FORCE_LOGGING from v$database;

  DBID NAME          FLASHBACK_ON  FORCE_LOGGING
-----
585271467 PROD          NO            NO
```

Sql>create restore point before_cdb_upd guarantee flashback database;

Check restore point

Sql> select * from v\$restore_point;

Shut down database

Make entry in oratab

Vi /etc/oratab

Stop listener

Copy spfile from 12c home to 19c home location

Copy password file from 12c home to 19c home location

Copy listener entry from 12c and paste listener entry in 19c listener.ora

Start listener from 19c

```
oracle@prdappl.manuel.com:/home/oracle/19c/stage\ $ lsnrctl status

LSNRCTL for Linux: Version 19.0.0.0.0 - Production on 09-JUL-2024 06:19:03

Copyright (c) 1991, 2019, Oracle. All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=tcp) (HOST=) (PORT=1521))
STATUS of the LISTENER
-----
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 19.0.0.0.0 - Production
Start Date                07-JUL-2024 14:32:07
Uptime                   1 days 15 hr. 46 min. 56 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Log File         /home/oracle/19c/diag/tnslsnr/prdappl/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=PRDAPPL.manuel.com) (PORT=1521)))
The listener supports no services
The command completed successfully
```

Activate Windows
Go to Settings to activate Windows.

Start the database in upgrade mode

```
Sql>startup upgrade;
```

Open PDB to upgrade mode

```
Sql>show pdbs
```

Make directory to keep upgraded files I have already created

```
mkdir -p /home/oracle/19c/upgradelogs
```

now from admin location run below script

```
/home/oracle/19c/stage/perl/bin/perl /19c/stage/rdbms/admin/catctl.pl -R -l  
/home/oracle/19c/upgradelogs/ -n 4 catupgrd.sql &
```

Below is the upgraded logs

```
Oracle Database Release 19 Post-Upgrade Status Tool    07-07-2024 16:48:11  
Container Database: PROD  
CON_ID: 1 => CDB$ROOT]
```

Component Name	Current Status	Full Version	Elapsed Time HH:MM:SS
Oracle Server	UPGRADED	19.3.0.0.0	01:00:07
Server JAVA Virtual Machine	UPGRADED	19.3.0.0.0	00:05:28
Oracle XDK	UPGRADED	19.3.0.0.0	00:00:55
Oracle Database Java Packages	UPGRADED	19.3.0.0.0	00:00:13
LDAP Analytic Workspace	UPGRADED	19.3.0.0.0	00:00:50
Oracle Label Security	UPGRADED	19.3.0.0.0	00:00:34
Oracle Database Vault	UPGRADED	19.3.0.0.0	00:01:55
Oracle Text	UPGRADED	19.3.0.0.0	00:02:51
Oracle Workspace Manager	UPGRADED	19.3.0.0.0	00:00:57
Oracle Real Application Clusters	UPGRADED	19.3.0.0.0	00:00:01
Oracle XML Database	UPGRADED	19.3.0.0.0	00:04:27
Oracle Multimedia	UPGRADED	19.3.0.0.0	00:02:27
spatial	UPGRADED	19.3.0.0.0	00:12:10
Oracle OLAP API	UPGRADED	19.3.0.0.0	00:00:38
datapatch			00:11:34
Final Actions			00:13:25
Post Upgrade			00:00:24

Total Upgrade Time: 01:48:53 [CON_ID: 1 => CDB\$ROOT]

Database time zone version is 18. It is older than current release time
zone version 32. Time zone upgrade is needed using the DBMS_DST package.

Oracle Database Release 19 Post-Upgrade Status Tool 07-07-2024 19:41:5
Container Database: PROD
[CON_ID: 3 => PDB5]

Component Name	Current Status	Full Version	Elapsed Time HH:MM:SS
Oracle Server	UPGRADED	19.3.0.0.0	01:32:55
JSERVER JAVA Virtual Machine	UPGRADED	19.3.0.0.0	00:04:51
Oracle XDK	UPGRADED	19.3.0.0.0	00:00:41
Oracle Database Java Packages	UPGRADED	19.3.0.0.0	00:00:10
OLAP Analytic Workspace	UPGRADED	19.3.0.0.0	00:01:24
Oracle Label Security	UPGRADED	19.3.0.0.0	00:00:42
Oracle Database Vault	UPGRADED	19.3.0.0.0	00:21:50
Oracle Text	UPGRADED	19.3.0.0.0	00:03:20
Oracle Workspace Manager	UPGRADED	19.3.0.0.0	00:01:27
Oracle Real Application Clusters	UPGRADED	19.3.0.0.0	00:00:02
Oracle XML Database	UPGRADED	19.3.0.0.0	00:06:05
Oracle Multimedia	UPGRADED	19.3.0.0.0	00:03:00
Spatial	UPGRADED	19.3.0.0.0	00:13:37
Oracle OLAP API	UPGRADED	19.3.0.0.0	00:00:58
Datapatch			00:13:23
Final Actions			00:15:49
Post Upgrade			00:01:13

Total Upgrade Time: 02:49:25 [CON_ID: 3 => PDB5]

Database time zone version is 18. It is older than current release time
zone version 32. Time zone upgrade is needed using the DBMS_DST package.

Oracle Database Release 19 Post-Upgrade Status Tool 07-07-2024 19:49:1
Container Database: PROD
[CON_ID: 2 => PDB\$SEED]

Component Name	Current Status	Full Version	Elapsed Time HH:MM:SS
Oracle Server	VALID	19.3.0.0.0	01:32:46
JSERVER JAVA Virtual Machine	VALID	19.3.0.0.0	00:05:03
Oracle XDK	VALID	19.3.0.0.0	00:00:41
Oracle Database Java Packages	VALID	19.3.0.0.0	00:00:10
OLAP Analytic Workspace	VALID	19.3.0.0.0	00:01:17
Oracle Label Security	VALID	19.3.0.0.0	00:00:44
Oracle Database Vault	VALID	19.3.0.0.0	00:22:46
Oracle Text	VALID	19.3.0.0.0	00:02:45
Oracle Workspace Manager	VALID	19.3.0.0.0	00:01:11
Oracle Real Application Clusters	OPTION OFF	19.3.0.0.0	00:00:02
Oracle XML Database	VALID	19.3.0.0.0	00:06:05
Oracle Multimedia	VALID	19.3.0.0.0	00:02:50
Spatial	VALID	19.3.0.0.0	00:13:48
Oracle OLAP API	VALID	19.3.0.0.0	00:00:58
Datapatch			00:13:19
Final Actions			00:15:20
Post Upgrade			00:01:31
Post Compile			00:07:44

Upgrade Times Sorted In Descending Order

Total Upgrade Time: 02:57:01 [CON_ID: 2 => PDB\$SEED *]
Total Upgrade Time: 02:49:25 [CON_ID: 3 => PDB5]
Total Upgrade Time: 01:48:53 [CON_ID: 1 => CDB\$ROOT]
Grand Total Upgrade Time: [0d:4h:52m:48s]

End of Summary Report

Check database version after upgrade

```
SQL> select version from v$instance;

VERSION
-----
19.0.0.0.0

SQL> show pdbs;

  CON_ID CON_NAME              OPEN MODE  RESTRICTED
  -----
        2 PDB$SEED              READ ONLY  NO
        3 PDB5                 MOUNTED
SQL> alter pluggable database PDB5 open READ WRITE;

pluggable database altered.

SQL> show pdbs;

  CON_ID CON_NAME              OPEN MODE  RESTRICTED
  -----
        2 PDB$SEED              READ ONLY  NO
        3 PDB5                 READ WRITE NO
```

Post upgrade task run utlustrs.sql

```
SQL> @$ORACLE_HOME/rdbms/admin/utlustrs.sql TEXT

Oracle Database Release 19 Post-Upgrade Status Tool    07-08-2024 13:43:3
Container Database: PROD
[CON_ID: 1 => CDB$ROOT]

Component          Current      Full      Elapsed Time
Name              Status      Version   HH:MM:SS
-----
Oracle Server      UPGRADED    19.3.0.0.0 01:00:07
JSERVER JAVA Virtual Machine UPGRADED    19.3.0.0.0 00:05:28
Oracle XDK         UPGRADED    19.3.0.0.0 00:00:55
Oracle Database Java Packages UPGRADED    19.3.0.0.0 00:00:13
OLAP Analytic Workspace UPGRADED    19.3.0.0.0 00:00:50
Oracle Label Security UPGRADED    19.3.0.0.0 00:00:34
Oracle Database Vault UPGRADED    19.3.0.0.0 00:01:55
Oracle Text        UPGRADED    19.3.0.0.0 00:02:51
Oracle Workspace Manager UPGRADED    19.3.0.0.0 00:00:57
Oracle Real Application Clusters UPGRADED    19.3.0.0.0 00:00:01
Oracle XML Database UPGRADED    19.3.0.0.0 00:04:27
Oracle Multimedia  UPGRADED    19.3.0.0.0 00:02:27
Spatial            UPGRADED    19.3.0.0.0 00:12:10
Oracle OLAP API    UPGRADED    19.3.0.0.0 00:00:38
Datapatch          UPGRADED    19.3.0.0.0 00:11:34
Final Actions      UPGRADED    19.3.0.0.0 00:13:25
Post Upgrade       UPGRADED    19.3.0.0.0 00:00:24

Total Upgrade Time: 01:48:53 [CON_ID: 1 => CDB$ROOT]

Database time zone version is 18. It is older than current release time
zone version 32. Time zone upgrade is needed using the DBMS_DST package.
```

RUN UTLRP to check invalid object

Update timezone this all are post upgrade task you can run post upgrade sql to check