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This document describes the procedure to upgrade a 12.1.0.2 database to 18c (12.2.0.2) or 19c (12.2.0.3) on a Linux Oracle Standard Build environment. Steps 1-5 are pre-upgrade steps which can be executed prior to the actual upgrade without any impact to database availability unless the application makes use of APEX. However, if you execute these steps prior to the actual upgrade, you must check and re-empty the recycle bin at upgrade time. The areas of the document in a grey box are the output results of each of the commands. The commands to execute are indicated in **BOLD.** Puppet will deliver the 18c or 19c dbms software to each VM prior to the upgrade.

1. **execute pre-upgrade tool**

TSTASM18> **$ORACLE\_HOME/jdk/bin/java -jar /orahome/u01/app/oracle/product/<upgrade version>/db\_1/rdbms/admin/preupgrade.jar TERMINAL TEXT**

Report generated by Oracle Database Pre-Upgrade Information Tool Version

18.0.0.0.0 on 2018-09-18T15:24:50

Upgrade-To version: 18.0.0.0.0

=======================================

Status of the database prior to upgrade

=======================================

Database Name: TSTASM18

Container Name: TSTASM18

Container ID: 0

Version: 12.1.0.2.0

Compatible: 12.1.0.2.0

Blocksize: 8192

Platform: Linux x86 64-bit

Timezone File: 18

Database log mode: ARCHIVELOG

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

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BEFORE UPGRADE

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REQUIRED ACTIONS

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1. (AUTOFIXUP) Empty the RECYCLEBIN immediately before database upgrade.

The database contains 226 objects in the recycle bin.

The recycle bin must be completely empty before database upgrade.

2. Set DB\_RECOVERY\_FILE\_DEST\_SIZE initialization parameter to at least 7317

MB. Check alert log during the upgrade to ensure there is remaining free

space available in the recovery area.

DB\_RECOVERY\_FILE\_DEST\_SIZE is set at 4000 MB. There is currently 1301 MB

of free space remaining, which may not be adequate for the upgrade.

Currently:

Fast recovery area : +FLASH\_01

Limit : 4000 MB

Used : 2699 MB

Available : 1301 MB

The database has archivelog mode enabled, and the upgrade process will

need free space to generate archived logs to the recovery area specified

by initialization parameter DB\_RECOVERY\_FILE\_DEST. The logs generated

must not overflow the limit set by DB\_RECOVERY\_FILE\_DEST\_SIZE, as that

can cause the upgrade to not proceed.

RECOMMENDED ACTIONS

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3. Run 12.1.0.2.0 $ORACLE\_HOME/rdbms/admin/utlrp.sql to recompile invalid

objects. You can view the individual invalid objects with

SET SERVEROUTPUT ON;

EXECUTE DBMS\_PREUP.INVALID\_OBJECTS;

4 objects are INVALID.

There should be no INVALID objects in SYS/SYSTEM or user schemas before

database upgrade.

4. Perform one of the following:

1) Expire user accounts that use only the old 10G password version and

follow the procedure recommended in Oracle Database Upgrade Guide under

the section entitled, "Checking for Accounts Using Case-Insensitive

Password Version".

2) Explicitly set SQLNET.ALLOWED\_LOGON\_VERSION\_SERVER in the 18.0.0.0.0

SQLNET.ORA to a non-Exclusive Mode value, such as "11". (This is a short

term approach and is not recommended because it will retain known

security risks associated with the 10G password version.)

Your database system has at least one account with only the 10G password

version (see the PASSWORD\_VERSIONS column of DBA\_USERS).

Starting with Oracle Database release 12.2.0.1, Exclusive Mode is the new

default password-based authentication mode. All Exclusive Mode

login/authentication attempts will fail for preexisting user accounts

which only have the 10G password version and neither the 11G or 12C

password version (see DBA\_USERS.PASSWORD\_VERSIONS.) For more information,

refer to "Understanding Password Case Sensitivity and Upgrades" in the

Oracle Database Upgrade Guide.

5. Upgrade Oracle Application Express (APEX) manually before the database

upgrade.

The database contains APEX version 4.2.5.00.08. Upgrade APEX to at least

version 5.1.3.00.05.

Starting with Oracle Database Release 18, APEX is not upgraded

automatically as part of the database upgrade. Refer to My Oracle Support

Note 1088970.1 for information about APEX installation and upgrades.

6. (AUTOFIXUP) Gather stale data dictionary statistics prior to database

upgrade in off-peak time using:

EXECUTE DBMS\_STATS.GATHER\_DICTIONARY\_STATS;

Dictionary statistics do not exist or are stale (not up-to-date).

Dictionary statistics help the Oracle optimizer find efficient SQL

execution plans and are essential for proper upgrade timing. Oracle

recommends gathering dictionary statistics in the last 24 hours before

database upgrade.

For information on managing optimizer statistics, refer to the 12.1.0.2

Oracle Database SQL Tuning Guide.

INFORMATION ONLY

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7. To help you keep track of your tablespace allocations, the following

AUTOEXTEND tablespaces are expected to successfully EXTEND during the

upgrade process.

Min Size

Tablespace Size For Upgrade

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

SYSTEM 860 MB 1289 MB

Minimum tablespace sizes for upgrade are estimates.

ORACLE GENERATED FIXUP SCRIPT

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All of the issues in database TSTASM18

which are identified above as BEFORE UPGRADE "(AUTOFIXUP)" can be resolved by

executing the following

SQL>@/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/preup

grade\_fixups.sql

=============

AFTER UPGRADE

=============

REQUIRED ACTIONS

================

None

RECOMMENDED ACTIONS

===================

8. Upgrade the database time zone file using the DBMS\_DST package.

The database is using time zone file version 18 and the target 18.0.0.0.0

release ships with time zone file version 31.

Oracle recommends upgrading to the desired (latest) version of the time

zone file. For more information, refer to "Upgrading the Time Zone File

and Timestamp with Time Zone Data" in the 18.0.0.0.0 Oracle Database

Globalization Support Guide.

9. (AUTOFIXUP) Gather dictionary statistics after the upgrade using the

command:

EXECUTE DBMS\_STATS.GATHER\_DICTIONARY\_STATS;

Oracle recommends gathering dictionary statistics after upgrade.

Dictionary statistics provide essential information to the Oracle

optimizer to help it find efficient SQL execution plans. After a database

upgrade, statistics need to be re-gathered as there can now be tables

that have significantly changed during the upgrade or new tables that do

not have statistics gathered yet.

10. Gather statistics on fixed objects after the upgrade and when there is a

representative workload on the system using the command:

EXECUTE DBMS\_STATS.GATHER\_FIXED\_OBJECTS\_STATS;

This recommendation is given for all preupgrade runs.

Fixed object statistics provide essential information to the Oracle

optimizer to help it find efficient SQL execution plans. Those

statistics are specific to the Oracle Database release that generates

them, and can be stale upon database upgrade.

For information on managing optimizer statistics, refer to the 12.1.0.2

Oracle Database SQL Tuning Guide.

ORACLE GENERATED FIXUP SCRIPT

=============================

All of the issues in database TSTASM18

which are identified above as AFTER UPGRADE "(AUTOFIXUP)" can be resolved by

executing the following

SQL>@/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/postu

pgrade\_fixups.sql

==================

PREUPGRADE SUMMARY

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/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/preupgrade.log

/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/preupgrade\_fixups.sql

/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/postupgrade\_fixups.sql

Execute fixup scripts as indicated below:

Before upgrade log into the database and execute the preupgrade fixups

@/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/preupgrade\_fixups.sql

After the upgrade:

Log into the database and execute the postupgrade fixups

@/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade/postupgrade\_fixups.sql

Preupgrade complete: 2018-09-18T15:24:50

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/product/18.0.0/db\_1

TSTASM18>

1. **execute pre-fixups**

TSTASM18> **cd $ORACLE\_BASE/cfgtoollogs/${ORACLE\_SID}\_<server name>/preupgrade**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 12.1.0.2.0 Production on Tue Sep 18 15:34:08 2018

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to:

Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

SQL> @**preupgrade\_fixups.sql**

Executing Oracle PRE-Upgrade Fixup Script

Auto-Generated by: Oracle Preupgrade Script

Version: 18.0.0.0.0 Build: 1

Generated on: 2018-09-18 15:24:36

For Source Database: TSTASM18

Source Database Version: 12.1.0.2.0

For Upgrade to Version: 18.0.0.0.0

Preup Preupgrade

Action Issue Is

Number Preupgrade Check Name Remedied Further DBA Action

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

1. purge\_recyclebin YES None.

2. min\_recovery\_area\_size NO Manual fixup required.

3. invalid\_objects\_exist NO Manual fixup recommended.

4. exclusive\_mode\_auth NO Manual fixup recommended.

5. apex\_manual\_upgrade NO Manual fixup recommended.

6. dictionary\_stats YES None.

7. tablespaces\_info NO Informational only.

Further action is optional.

The fixup scripts have been run and resolved what they can. However,

there are still issues originally identified by the preupgrade that

have not been remedied and are still present in the database.

Depending on the severity of the specific issue, and the nature of

the issue itself, that could mean that your database is not ready

for upgrade. To resolve the outstanding issues, start by reviewing

the preupgrade\_fixups.sql and searching it for the name of

the failed CHECK NAME or Preupgrade Action Number listed above.

There you will find the original corresponding diagnostic message

from the preupgrade which explains in more detail what still needs

to be done.

PL/SQL procedure successfully completed.

SQL>

1. **check and recompile invalids**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 12.1.0.2.0 Production on Tue Sep 18 15:40:44 2018

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to:

Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

SQL> **@check\_invalids**

SQL>

SQL>

SQL> select

2 owner,

3 substr(object\_name,1,32) "Name",

4 substr(object\_type,1,32) "Type" ,

5 substr(to\_char(last\_ddl\_time, 'DD-MON-YY HH24:MI:SS'),1,25) "Last DDL Time",

6 status

7 from

8 dba\_objects

9 where

10 status <> 'VALID'

11 order by

12 4 desc

13 ;

OWNER Name Type Last DDL Time STATUS

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

PUBLIC DBA\_COMMON\_AUDIT\_TRAIL SYNONYM 29-MAR-16 10:47:57 INVALID

PUBLIC DBA\_FGA\_AUDIT\_TRAIL SYNONYM 29-MAR-16 10:47:57 INVALID

SYS DBA\_COMMON\_AUDIT\_TRAIL VIEW 29-MAR-16 10:47:55 INVALID

SYS DBA\_FGA\_AUDIT\_TRAIL VIEW 29-MAR-16 10:47:55 INVALID

SQL>

SQL>

SQL> spool off;

SQL> exit;

Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 12.1.0.2.0 Production on Tue Sep 18 15:41:05 2018

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to:

Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

SQL> **@?/rdbms/admin/utlrp**

TIMESTAMP

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

COMP\_TIMESTAMP UTLRP\_BGN 2018-09-18 15:41:16

DOC> The following PL/SQL block invokes UTL\_RECOMP to recompile invalid

DOC> objects in the database. Recompilation time is proportional to the

DOC> number of invalid objects in the database, so this command may take

DOC> a long time to execute on a database with a large number of invalid

DOC> objects.

DOC>

DOC> Use the following queries to track recompilation progress:

DOC>

DOC> 1. Query returning the number of invalid objects remaining. This

DOC> number should decrease with time.

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

DOC>

DOC> 2. Query returning the number of objects compiled so far. This number

DOC> should increase with time.

DOC> SELECT COUNT(\*) FROM UTL\_RECOMP\_COMPILED;

DOC>

DOC> This script automatically chooses serial or parallel recompilation

DOC> based on the number of CPUs available (parameter cpu\_count) multiplied

DOC> by the number of threads per CPU (parameter parallel\_threads\_per\_cpu).

DOC> On RAC, this number is added across all RAC nodes.

DOC>5

DOC> UTL\_RECOMP uses DBMS\_SCHEDULER to create jobs for parallel

DOC> recompilation. Jobs are created without instance affinity so that they

DOC> can migrate across RAC nodes. Use the following queries to verify

DOC> whether UTL\_RECOMP jobs are being created and run correctly:

DOC>

DOC> 1. Query showing jobs created by UTL\_RECOMP

DOC> SELECT job\_name FROM dba\_scheduler\_jobs

DOC> WHERE job\_name like 'UTL\_RECOMP\_SLAVE\_%';

DOC>

DOC> 2. Query showing UTL\_RECOMP jobs that are running

DOC> SELECT job\_name FROM dba\_scheduler\_running\_jobs

DOC> WHERE job\_name like 'UTL\_RECOMP\_SLAVE\_%';

DOC>#

PL/SQL procedure successfully completed.

TIMESTAMP

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

COMP\_TIMESTAMP UTLRP\_END 2018-09-18 15:41:22

DOC> The following query reports the number of objects that have compiled

DOC> with errors.

DOC>

DOC> If the number is higher than expected, please examine the error

DOC> messages reported with each object (using SHOW ERRORS) to see if they

DOC> point to system misconfiguration or resource constraints that must be

DOC> fixed before attempting to recompile these objects.

DOC>#

OBJECTS WITH ERRORS

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

0

DOC> The following query reports the number of errors caught during

DOC> recompilation. If this number is non-zero, please query the error

DOC> messages in the table UTL\_RECOMP\_ERRORS to see if any of these errors

DOC> are due to misconfiguration or resource constraints that must be

DOC> fixed before objects can compile successfully.

DOC>#

ERRORS DURING RECOMPILATION

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

0

Function created.

PL/SQL procedure successfully completed.

Function dropped.

...Database user "SYS", database schema "APEX\_040200", user# "98" 15:42:03

...Compiled 0 out of 3014 objects considered, 0 failed compilation 15:42:04

...271 packages

...263 package bodies

...452 tables

...11 functions

...16 procedures

...3 sequences

...457 triggers

...1320 indexes

...211 views

...0 libraries

...6 types

...0 type bodies

...0 operators

...0 index types

...Begin key object existence check 15:42:04

...Completed key object existence check 15:42:04

...Setting DBMS Registry 15:42:04

...Setting DBMS Registry Complete 15:42:05

...Exiting validate 15:42:05

PL/SQL procedure successfully completed.

SQL>**@check\_invalids**

SQL>

SQL>

SQL> select

2 owner,

3 substr(object\_name,1,32) "Name",

4 substr(object\_type,1,32) "Type" ,

5 substr(to\_char(last\_ddl\_time, 'DD-MON-YY HH24:MI:SS'),1,25) "Last DDL Time",

6 status

7 from

8 dba\_objects

9 where

10 status <> 'VALID'

11 order by

12 4 desc

13 ;

no rows selected

SQL>

SQL>

SQL> spool off;

SQL> exit;

Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/cfgtoollogs/TSTASM18\_xorangw2d/preupgrade

TSTASM18>

1. **Fix 10g user ID passwords**
   1. **Check for 10g password version**

SQL> **select USERNAME from DBA\_USERS where ( PASSWORD\_VERSIONS = '10G ' or PASSWORD\_VERSIONS = '10G HTTP ') and USERNAME <> 'ANONYMOUS';**

**USERNAME**

**--------------------------------------------------------------------------------**

**TOM**

**AEAUDIT**

**ORATIVOLI**

**DBCMS**

* 1. **Fix standard users 10g password version**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 12.1.0.2.0 Production on Wed Jan 9 10:39:29 2019

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to:

Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

With the Partitioning, Automatic Storage Management, OLAP, Advanced Analytics

and Real Application Testing options

SQL>

SQL> **@fix\_standard\_user\_10g\_password.sql**

SQL> set echo on

SQL> ALTER PROFILE "TRUSTED\_ID\_NO\_EXPIRE" LIMIT PASSWORD\_REUSE\_MAX UNLIMITED PASSWORD\_REUSE\_TIME UNLIMITED;

Profile altered.

SQL> alter user dbcms identified by VALUES 'S:8406389178114D80367B21E95B64D166500DFC0F6CB00D8B09A116F8385F;T:D216BD1BE9C8187C66D822B415C81B0A3EA8CCDAFB650FED84604EF2B20A498C0C7A943AF46F4EDD0368ADFEA689586248997C4737B11A6A1F682430DF6F7771065A190AACEA56C69CBE084454EC87C9;BBEE1F9B3A94B3CF';

User altered.

SQL> alter user tom identified by VALUES 'S:8EC3851304545F0EE2B4098FE13EF981E7A8D3BB9A50EA2CCEF8790E24C9;T:A7C769D7B2DBE4141F5096BE1235DFF2C37EDD8AEBB3B3477524496B86D9323936344DE9F4DD8337ECD27939C085FE99CD9A38F5B74F1A6D2E28B62874DF129D5C5109EE51F6D2251A58BDA9CB853E8F;3141BFFD0D91699D';

User altered.

SQL> alter user AEAUDIT identified by VALUES 'S:39AE6CE7DE6B273DADE99C7F3961D043982B2B512D3F2897215616761A9C;T:2769E98E82E537D2C6747F5F1F75B39662EF642A0627C2BCBE20FD1D81EB6C54DDF44460A5A0F954A64BDDD7E6F479EA34FA7799A0135B1301F82E72985795A3D96065A349C15AAF83BD56DE79CCDDC3;D3CF3912523E800E';

User altered.

SQL> alter user orativoli identified by VALUES 'S:472152CDDB4D5CEF042D73FDFC1147771218C86DD8C4945181E02A3A57C7;T:83E9538D576AF11E266CF2AE62FC668AACBDB7AB86076624C6A210076A77F540B5144F9EAB107BD5396C78B7F686B4FD85D1AFA4551158BBC32C9CA1821E942EC460ABF980D18871C44CF91C137A1A83;28CB29E5CDCC920C';

User altered.

SQL> ALTER PROFILE trusted\_id\_no\_expire LIMIT PASSWORD\_REUSE\_MAX 6 PASSWORD\_REUSE\_TIME 365;

Profile altered.

SQL> spool off

1. **upgrade apex**

TSTASM18> **cd /orahome/u01/app/oracle/product/<upgrade vesion>/db\_1/apex**

SQL>**@apexins SYSAUX SYSAUX TEMP /i/**

.

.

.

timing for: Phase 1 (Installation)

Elapsed: 00:04:26.68

Phase 2 (Upgrade)

.

.

.

timing for: Phase 2 (Upgrade)

Elapsed: 00:06:55.63

Phase 3 (Switch)

...Upgrading DBMS\_REGISTRY

PL/SQL procedure successfully completed.

Session altered.

Thank you for installing Oracle Application Express 5.1.3.00.05

Oracle Application Express is installed in the APEX\_050100 schema.

The structure of the link to the Application Express administration services is as follows:

http://host:port/pls/apex/apex\_admin (Oracle HTTP Server with mod\_plsql)

http://host:port/apex/apex\_admin (Oracle XML DB HTTP listener with the embedded PL/SQL gateway)

http://host:port/apex/apex\_admin (Oracle REST Data Services)

The structure of the link to the Application Express development interface is as follows:

http://host:port/pls/apex (Oracle HTTP Server with mod\_plsql)

http://host:port/apex (Oracle XML DB HTTP listener with the embedded PL/SQL gateway)

http://host:port/apex (Oracle REST Data Services)

timing for: Phase 3 (Switch)

Elapsed: 00:00:41.22

timing for: Complete Installation

Elapsed: 00:12:03.53

PL/SQL procedure successfully completed.

1. **Drop old APEX schema**

sqlplus> **drop user apex\_040200 cascade;**

1. **(OPTIONAL if DG is in use) Disable log shipping to standby db**

xoragdbw2d.aetna.com (oracle) TSTADGPA::/orahome/u01/app/oracle/product/19.4.0/db\_1/apex

TSTADGPA> **dgmgrl**

DGMGRL for Linux: Version 12.1.0.2.0 - 64bit Production

Copyright (c) 2000, 2013, Oracle. All rights reserved.

Welcome to DGMGRL, type "help" for information.

DGMGRL> **connect /**

Connected as SYSDBA.

**DGMGRL> show database 'TSTADGPA\_xoragdbw2d'**

Database - TSTADGPA\_xoragdbw2d

Role: PRIMARY

Intended State: TRANSPORT-ON

Instance(s):

TSTADGPA

Database Status:

SUCCESS

DGMGRL> **edit database '${ORACLE\_SID}\_<server name>' set state='TRANSPORT-OFF';**

Succeeded.

DGMGRL> **show database '${ORACLE\_SID}\_<server name>'**

Database - TSTADGPA\_xoragdbw2d

Role: PRIMARY

Intended State: TRANSPORT-OFF

Instance(s):

TSTADGPA

Database Status:

SUCCESS

DGMGRL>

1. **(Optional if DG is in use) Upgrade Standby database on standby server**

TSTADGPA> **upgrade\_standby\_db.sh <upgrade version> $ORACLE\_SID**

Start standby DB upgrade of TSTADGPA on Linux xorangw2d.aetna.com 3.10.0-957.12.1.el7.x86\_64 #1 SMP Wed Mar 20 11:34:37 UTC 2019 at Thu Aug 29 15:51:42 EDT 2019 using /orahome/u01/app/oracle/local/scripts/upgrade\_standby\_db.sh

Review log file /orahome/u01/app/oracle/local/logs/upgrade\_standby\_db\_TSTADGPA\_20190829\_1567108302.out for details

oracle 15442 1 0 15:49 ? 00:00:00 ora\_pmon\_TSTADGPA

Oracle DBMS software version 19.4.0 is installed, continuing with upgrade

Database exists in ORATAB, continuing with upgrade apply

Start options: read only

Standby database is configured with Active Dataguard, setting startoption to mount for upgrade......

Start option mount has been set.

DBS files for TSTADGPA have been moved to /orahome/u01/app/oracle/product/19.4.0/dbs

Updating srvctl configuration..........

Configuratioin update complete

Setting start option back to READ ONLY.....

Start option has been set.

Switching ORACLE\_HOME link

Oracle Home symbolic link has been created as the following:

lrwxrwxrwx 1 oracle dba 43 Aug 29 15:52 /orahome/u01/app/oracle/admin/TSTADGPA/oracle\_home -> /orahome/u01/app/oracle/product/19.4.0/db\_1

Starting OEM update.........

emcli exists and is executable, updating OEM

The Oracle base remains unchanged with value /orahome/u01/app/oracle

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CUSTOM VARIABLES:

NLS\_LANG American\_America.UTF8

NLS\_DATE\_FORMAT DD-MON-YYYY HH24:MI:SS

DB\_UNIQUE\_NAME tstadgpa\_xorangw2d

BDUMP /orahome/u01/app/oracle/diag/rdbms/tstadgpa\_xorangw2d/TSTADGPA/trace

CDUMP /orahome/u01/app/oracle/diag/rdbms/tstadgpa\_xorangw2d/TSTADGPA/cdump

UDUMP /orahome/u01/app/oracle/diag/rdbms/tstadgpa\_xorangw2d/TSTADGPA/trace

DBS /orahome/u01/app/oracle/product/19.4.0/db\_1/dbs

LSNRLOG /orahome/u01/app/oracle/diag/tnslsnr/xorangw2d/tstadgpa/trace

LISTENER\_NAME tstadgpa

=================================================================================

Couldn't find matching DB System

OEM system details could not be retrirved, assume the standby OEM target name is the standby database unique name

Oracle Database Home prior to update: /orahome/u01/app/oracle/product/12.1.0.2.190416/db\_1

Oracle Listener Home prior to update: /orahome/u01/app/oracle/product/12.1.0.2.190416/db\_1

OEM Database Target has been updated with the ORACLE\_HOME value of /orahome/u01/app/oracle/product/19.4.0/db\_1 for database TSTADGPA\_xorangw2d

OEM Listener Target has been updated with the ORACLE\_HOME value of /orahome/u01/app/oracle/product/19.4.0/db\_1 for listener TSTADGPA\_xorangw2d.aetna.com

Oracle Database Home after update: /orahome/u01/app/oracle/product/19.4.0/db\_1

Oracle Listener Home after update: /orahome/u01/app/oracle/product/19.4.0/db\_1

Upgrade of TSTADGPA to 19.4.0 complete on Linux xorangw2d.aetna.com 3.10.0-957.12.1.el7.x86\_64 #1 SMP Wed Mar 20 11:34:37 UTC 2019 at Thu Aug 29 15:52:52 EDT 2019 using /orahome/u01/app/oracle/local/scripts/upgrade\_standby\_db.sh

xorangw2d.aetna.com (oracle) TSTADGPA::/orahome/u01/app/oracle/local/scripts

TSTADGPA>

1. **Shutdown database and listener**

TSTASM18> **srvctl stop database -d ${ORACLE\_SID}\_<server name>**

TSTASM18> **srvctl stop listener -l ${ORACLE\_SID}**

1. **Remove database and listener HAS configuration**

TSTASM18> **srvctl remove database -d ${ORACLE\_SID}\_<server name>**

Remove the database TSTASM18\_xorangw2d? (y/[n]) y

xorangw2d.aetna.com (oracle) 190416::/orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/trace

TSTASM18>

TSTASM18> **srvctl remove listener -l ${ORACLE\_SID}**

xorangw2d.aetna.com (oracle) 190416::/orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/trace

TSTASM18>

1. **Copy password file, spfile and DG config files(if in use) to new dbs directory**

TSTASM18> **cd $DBS**

TSTASM18> **cp \*${ORACLE\_SID}\* $ORACLE\_BASE/product/<upgrade version>/db\_1/dbs**

1. **Copy listener.ora and tnsnames.ora to new network/admin directory, edit listener.ora to point to 18c oracle home**

**TSTASM18> cd $ORACLE\_HOME/network/admin**

**TSTASM18> cp tnsnames.ora $ORACLE\_BASE/product/<upgrade version>/db\_1/network/admin**

**TSTASM18> cp listener.ora $ORACLE\_BASE/product/<upgrade version>/db\_1/network/admin**

**Edit $ORACLE\_BASE/product/<upgrade version>/db\_1/network/admin/listener.ora**

1. **Update oratab to add ${ORACLE\_SID}:/orahome/u01/app/oracle/product/<upgrade version>/db\_1:N** **and source environment**

**TSTASM18> cat /etc/oratab**

#Backup file is /orahome/u01/app/oracle/product/18.0.0/grid/srvm/admin/oratab.bak.xorangw2d line added by Agent

# Entries are of the form: $ORACLE\_SID:$ORACLE\_HOME:<N|Y>:

180717:/orahome/u01/app/oracle/product/12.1.0.2.180717/db\_1:N # dummy entry

180000:/orahome/u01/app/oracle/product/18.0.0/db\_1:N # dummy entry

GCAGENT:/orahome/u01/app/oracle/product/agent12c/core/12.1.0.4.0:N # gcagent entry

+ASM:/orahome/u01/app/oracle/product/18.0.0/grid:N # line added by Agent

180417:/orahome/u01/app/oracle/product/12.1.0.2.180417/db\_1:N # dummy entry

TSTASM18:/orahome/u01/app/oracle/product/18.5.0/db\_1:N

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/product/18.0.0/db\_1/apex

**TSTASM18> . oraenv**

ORACLE\_SID = [TSTASM18] ?

The Oracle base remains unchanged with value /orahome/u01/app/oracle

=================================================================================

CUSTOM VARIABLES:

NLS\_LANG American\_America.UTF8

NLS\_DATE\_FORMAT DD-MON-YYYY HH24:MI:SS

DB\_UNIQUE\_NAME tstasm18\_xorangw2d

BDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/trace

CDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/cdump

UDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_**xorangw2d/TSTASM18/trace**

**DBS /orahome/u01/app/oracle/product/18.5.0/db\_1/dbs**

**LSNRLOG /orahome/u01/app/oracle/diag/tnslsnr/xorangw2d/tstasm18/trace**

**LISTENER\_NAME tstasm18**

=================================================================================

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/product/18.5.0/db\_1/apex

TSTASM18>

1. **Startup upgrade**
2. **Execute upgrade**

TSTASM18> **dbupgrade -d /orahome/u01/app/oracle/product/<upgrade version>/db\_1/rdbms/admin -l $ORACLE\_BASE/local/logs**

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

Phases [0-108] End Time:[2018\_09\_18 16:36:45]

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

Grand Total Time: 1578s

LOG FILES: (/orahome/u01/app/oracle/local/logs/catupgrd\*.log)

Upgrade Summary Report Located in:

/orahome/u01/app/oracle/local/logs/upg\_summary.log

Grand Total Upgrade Time: [0d:0h:26m:18s]

1. **Rename the upgrade summary log to contain the database name.**

TSTASM18> **mv /orahome/u01/app/oracle/local/logs/upg\_summary.log /orahome/u01/app/oracle/local/logs/${ORACLE\_SID}\_upg\_summary.log**

1. **Add database and listener HAS configuration.**

TSTASM18> **srvctl add listener -l ${ORACLE\_SID} -oraclehome ${ORACLE\_HOME} -endpoints "TCP:<PORT>/IPC:${ORACLE\_SID}\_IPC"**

TSTASM18> **srvctl add database -db ${ORACLE\_SID}\_<server\_name> -oraclehome ${ORACLE\_HOME} -spfile ${ORACLE\_HOME}/dbs/spfile${ORACLE\_SID}.ora -instance ${ORACLE\_SID} -diskgroup "DATA\_01,REDOA\_01,REDOB\_01"**

1. **Start database and Listener**

TSTADM18> **srvctl start database -d ${ORACLE\_SID}\_<server name>**

**Note: starting the database will start the listener as well.**

1. **Replace ORACLE\_HOME symbolic Link**

+ASM> **. oraenv**

ORACLE\_SID = [+ASM] ? **${ORACLE\_SID}**

The Oracle base remains unchanged with value /orahome/u01/app/oracle

=================================================================================

CUSTOM VARIABLES:

NLS\_LANG American\_America.UTF8

NLS\_DATE\_FORMAT DD-MON-YYYY HH24:MI:SS

DB\_UNIQUE\_NAME tstasm18\_xorangw2d

BDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/trace

CDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/cdump

UDUMP /orahome/u01/app/oracle/diag/rdbms/tstasm18\_xorangw2d/TSTASM18/trace

DBS /orahome/u01/app/oracle/product/18.5.0/db\_1/dbs

LSNRLOG /orahome/u01/app/oracle/diag/tnslsnr/xorangw2d/tstasm18/trace

LISTENER\_NAME tstasm18

=================================================================================

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/local/scripts

TSTASM18> **cd $ORACLE\_BASE/admin/${ORACLE\_SID}**

TSTASM18> **ls -l oracle\_home**

lrwxrwxrwx 1 oracle dba 52 Jun 25 10:54 oracle\_home -> /orahome/u01/app/oracle/product/12.1.0.2.190416/db\_1

xorangw2d.aetna.com (oracle) TSTASM18::/orahome/u01/app/oracle/admin/TSTASM18

TSTASM18> **rm oracle\_home**

TSTASM18> **ln -s $ORACLE\_HOME oracle\_home**

TSTASM18> **ls -l oracle\_home**

lrwxrwxrwx 1 oracle dba 43 Jun 26 08:54 oracle\_home -> /orahome/u01/app/oracle/product/18.5.0/db\_1

1. **Execute Post fixup script**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 18.0.0.0.0 - Production on Wed Jun 26 09:07:06 2019

Version 18.5.0.0.0

Copyright (c) 1982, 2018, Oracle. All rights reserved.

Connected to:

Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production

Version 18.5.0.0.0

SQL> **@/orahome/u01/app/oracle/cfgtoollogs/${ORACLE\_SID}\_<server name>/preupgrade/postupgrade\_fixups.sql**

Session altered.

PL/SQL procedure successfully completed.

PL/SQL procedure successfully completed.

PL/SQL procedure successfully completed.

Package created.

No errors.

Package body created.

PL/SQL procedure successfully completed.

No errors.

Package created.

No errors.

Package body created.

No errors.

Executing Oracle POST-Upgrade Fixup Script

Auto-Generated by: Oracle Preupgrade Script

Version: 18.0.0.0.0 Build: 1

Generated on: 2019-06-25 14:31:01

For Source Database: TSTASM18

Source Database Version: 12.1.0.2.0

For Upgrade to Version: 18.0.0.0.0

Preup Preupgrade

Action Issue Is

Number Preupgrade Check Name Remedied Further DBA Action

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

8. old\_time\_zones\_exist NO Manual fixup recommended.

9. dir\_symlinks YES None.

10. post\_dictionary YES None.

11. post\_fixed\_objects NO Informational only.

Further action is optional.

The fixup scripts have been run and resovled what they can. However,

there are still issues originally identified by the preupgrade that

have not been remedied and are still present in the database.

Depending on the severity of the specific issue, and the nature of

the issue itself, that could mean that your database upgrade is not

fully complete. To resolve the outstanding issues, start by reviewing

the postupgrade\_fixups.sql and searching it for the name of

the failed CHECK NAME or Preupgrade Action Number listed above.

There you will find the original corresponding diagnostic message

from the preupgrade which explains in more detail what still needs

to be done.

PL/SQL procedure successfully completed.

Session altered.

SQL>

1. **Upgrade RMAN catalog**

TSTASM18> **rmanc**

Recovery Manager: Release 18.0.0.0.0 - Production on Wed Jun 26 14:36:33 2019

Version 18.5.0.0.0

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connected to target database: TSTASM18 (DBID=944627029)

connected to recovery catalog database

PL/SQL package TSTASM18.DBMS\_RCVCAT version 12.01.00.02. in RCVCAT database is too old

RMAN> **upgrade catalog;**

recovery catalog owner is TSTASM18

enter UPGRADE CATALOG command again to confirm catalog upgrade

RMAN> **upgrade catalog;**

recovery catalog upgraded to version 18.05.00.00.00

DBMS\_RCVMAN package upgraded to version 18.05.00.00

DBMS\_RCVCAT package upgraded to version 18.05.00.00.

RMAN>

**22. Upgrade Time zone file**

* 1. **Execute utlz\_countstats.sql to get optimizer statistics showing num\_rows of all the tables having TIMESTAMP WITH TIME ZONE (TSTZ) data.**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 18.0.0.0.0 - Production on Wed Jun 26 09:28:38 2019

Version 18.5.0.0.0

Copyright (c) 1982, 2018, Oracle. All rights reserved.

Connected to:

Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production

Version 18.5.0.0.0

SQL> **@?/rdbms/admin/utltz\_countstats.sql**

Session altered.

.

Amount of TSTZ data using num\_rows stats info in DBA\_TABLES.

.

For SYS tables first ...

Note: empty tables are not listed.

Stat date - Owner.TableName.ColumnName - num\_rows

25/04/2019 - SYS.AQ$\_ALERT\_QT\_S.CREATION\_TIME - 9

25/04/2019 - SYS.AQ$\_ALERT\_QT\_S.DELETION\_TIME - 9

25/04/2019 - SYS.AQ$\_ALERT\_QT\_S.MODIFICATION\_TIME - 9

07/07/2014 - SYS.AQ$\_AQ$\_MEM\_MC\_S.CREATION\_TIME - 3

07/07/2014 - SYS.AQ$\_AQ$\_MEM\_MC\_S.DELETION\_TIME - 3

07/07/2014 - SYS.AQ$\_AQ$\_MEM\_MC\_S.MODIFICATION\_TIME - 3

07/07/2014 - SYS.AQ$\_AQ\_PROP\_TABLE\_S.CREATION\_TIME - 1

07/07/2014 - SYS.AQ$\_AQ\_PROP\_TABLE\_S.DELETION\_TIME - 1

07/07/2014 - SYS.AQ$\_AQ\_PROP\_TABLE\_S.MODIFICATION\_TIME - 1

26/06/2019 - SYS.AQ$\_ORA$PREPLUGIN\_BACKUP\_QTB\_S.CREATION\_TIME - 1

26/06/2019 - SYS.AQ$\_ORA$PREPLUGIN\_BACKUP\_QTB\_S.DELETION\_TIME - 1

26/06/2019 - SYS.AQ$\_ORA$PREPLUGIN\_BACKUP\_QTB\_S.MODIFICATION\_TIME - 1

26/06/2019 - SYS.AQ$\_PDB\_MON\_EVENT\_QTABLE$\_S.CREATION\_TIME - 1

26/06/2019 - SYS.AQ$\_PDB\_MON\_EVENT\_QTABLE$\_S.DELETION\_TIME - 1

26/06/2019 - SYS.AQ$\_PDB\_MON\_EVENT\_QTABLE$\_S.MODIFICATION\_TIME - 1

07/07/2014 - SYS.AQ$\_SCHEDULER$\_EVENT\_QTAB\_S.CREATION\_TIME - 3

07/07/2014 - SYS.AQ$\_SCHEDULER$\_EVENT\_QTAB\_S.DELETION\_TIME - 3

07/07/2014 - SYS.AQ$\_SCHEDULER$\_EVENT\_QTAB\_S.MODIFICATION\_TIME - 3

07/07/2014 - SYS.AQ$\_SCHEDULER$\_REMDB\_JOBQTAB\_S.CREATION\_TIME - 1

07/07/2014 - SYS.AQ$\_SCHEDULER$\_REMDB\_JOBQTAB\_S.DELETION\_TIME - 1

07/07/2014 - SYS.AQ$\_SCHEDULER$\_REMDB\_JOBQTAB\_S.MODIFICATION\_TIME - 1

09/02/2016 - SYS.AQ$\_SCHEDULER\_FILEWATCHER\_QT\_S.CREATION\_TIME - 1

09/02/2016 - SYS.AQ$\_SCHEDULER\_FILEWATCHER\_QT\_S.DELETION\_TIME - 1

09/02/2016 - SYS.AQ$\_SCHEDULER\_FILEWATCHER\_QT\_S.MODIFICATION\_TIME - 1

26/06/2019 - SYS.AQ$\_SUBSCRIBER\_TABLE.CREATION\_TIME - 1

26/06/2019 - SYS.AQ$\_SUBSCRIBER\_TABLE.DELETION\_TIME - 1

26/06/2019 - SYS.AQ$\_SUBSCRIBER\_TABLE.MODIFICATION\_TIME - 1

26/06/2019 - SYS.AQ$\_SYS$SERVICE\_METRICS\_TAB\_S.CREATION\_TIME - 4

26/06/2019 - SYS.AQ$\_SYS$SERVICE\_METRICS\_TAB\_S.DELETION\_TIME - 4

26/06/2019 - SYS.AQ$\_SYS$SERVICE\_METRICS\_TAB\_S.MODIFICATION\_TIME - 4

25/06/2019 - SYS.KET$\_AUTOTASK\_STATUS.ABA\_START\_TIME - 1

25/06/2019 - SYS.KET$\_AUTOTASK\_STATUS.ABA\_STATE\_TIME - 1

25/06/2019 - SYS.KET$\_AUTOTASK\_STATUS.MW\_RECORD\_TIME - 1

25/06/2019 - SYS.KET$\_AUTOTASK\_STATUS.MW\_START\_TIME - 1

25/06/2019 - SYS.KET$\_AUTOTASK\_STATUS.RECONCILE\_TIME - 1

26/06/2019 - SYS.KET$\_CLIENT\_CONFIG.FIELD\_2 - 7

26/06/2019 - SYS.KET$\_CLIENT\_CONFIG.LAST\_CHANGE - 7

25/06/2019 - SYS.KET$\_CLIENT\_TASKS.CURR\_WIN\_START - 3

25/06/2019 - SYS.KET$\_CLIENT\_TASKS.LG\_DATE - 3

25/06/2019 - SYS.KET$\_CLIENT\_TASKS.LT\_DATE - 3

26/06/2019 - SYS.OPTSTAT\_HIST\_CONTROL$.SPARE6 - 42

26/06/2019 - SYS.OPTSTAT\_HIST\_CONTROL$.SVAL2 - 42

26/06/2019 - SYS.OPTSTAT\_SNAPSHOT$.TIMESTAMP - 825

26/06/2019 - SYS.OPTSTAT\_USER\_PREFS$.CHGTIME - 36

09/02/2016 - SYS.RADM\_FPTM$.TSWTZ\_COL - 1

26/06/2019 - SYS.REG$.NTFN\_GROUPING\_START\_TIME - 5

26/06/2019 - SYS.REG$.REG\_TIME - 5

20/06/2019 - SYS.SCHEDULER$\_EVENT\_LOG.LOG\_DATE - 39130

26/06/2019 - SYS.SCHEDULER$\_GLOBAL\_ATTRIBUTE.ATTR\_TSTAMP - 11

26/06/2019 - SYS.SCHEDULER$\_JOB.END\_DATE - 31

26/06/2019 - SYS.SCHEDULER$\_JOB.LAST\_ENABLED\_TIME - 31

26/06/2019 - SYS.SCHEDULER$\_JOB.LAST\_END\_DATE - 31

26/06/2019 - SYS.SCHEDULER$\_JOB.LAST\_START\_DATE - 31

26/06/2019 - SYS.SCHEDULER$\_JOB.NEXT\_RUN\_DATE - 31

26/06/2019 - SYS.SCHEDULER$\_JOB.START\_DATE - 31

25/06/2019 - SYS.SCHEDULER$\_JOB\_RUN\_DETAILS.LOG\_DATE - 7477

25/06/2019 - SYS.SCHEDULER$\_JOB\_RUN\_DETAILS.REQ\_START\_DATE - 7477

25/06/2019 - SYS.SCHEDULER$\_JOB\_RUN\_DETAILS.START\_DATE - 7477

09/02/2016 - SYS.SCHEDULER$\_SCHEDULE.END\_DATE - 4

09/02/2016 - SYS.SCHEDULER$\_SCHEDULE.REFERENCE\_DATE - 4

26/06/2019 - SYS.SCHEDULER$\_WINDOW.ACTUAL\_START\_DATE - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW.END\_DATE - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW.LAST\_START\_DATE - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW.MANUAL\_OPEN\_TIME - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW.NEXT\_START\_DATE - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW.START\_DATE - 9

26/06/2019 - SYS.SCHEDULER$\_WINDOW\_DETAILS.LOG\_DATE - 2

26/06/2019 - SYS.SCHEDULER$\_WINDOW\_DETAILS.REQ\_START\_DATE - 2

26/06/2019 - SYS.SCHEDULER$\_WINDOW\_DETAILS.START\_DATE - 2

25/06/2019 - SYS.STATS\_TARGET$.END\_TIME - 843

25/06/2019 - SYS.STATS\_TARGET$.START\_TIME - 843

10/02/2016 - SYS.TAB\_STATS$.SPARE6 - 1028

26/06/2019 - SYS.WRI$\_ALERT\_HISTORY.CREATION\_TIME - 15

26/06/2019 - SYS.WRI$\_ALERT\_HISTORY.TIME\_SUGGESTED - 15

26/06/2019 - SYS.WRI$\_OPTSTAT\_HISTGRM\_HISTORY.SAVTIME - 163045

26/06/2019 - SYS.WRI$\_OPTSTAT\_HISTGRM\_HISTORY.SPARE6 - 163045

26/06/2019 - SYS.WRI$\_OPTSTAT\_HISTHEAD\_HISTORY.SAVTIME - 40765

26/06/2019 - SYS.WRI$\_OPTSTAT\_HISTHEAD\_HISTORY.SPARE6 - 40765

26/06/2019 - SYS.WRI$\_OPTSTAT\_IND\_HISTORY.SAVTIME - 3548

26/06/2019 - SYS.WRI$\_OPTSTAT\_IND\_HISTORY.SPARE6 - 3548

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR.END\_TIME - 116

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR.SPARE6 - 116

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR.START\_TIME - 116

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR\_TASKS.END\_TIME - 6038

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR\_TASKS.SPARE6 - 6038

26/06/2019 - SYS.WRI$\_OPTSTAT\_OPR\_TASKS.START\_TIME - 6038

26/06/2019 - SYS.WRI$\_OPTSTAT\_TAB\_HISTORY.SAVTIME - 2451

26/06/2019 - SYS.WRI$\_OPTSTAT\_TAB\_HISTORY.SPARE6 - 2451

26/06/2019 - SYS.WRM$\_DATABASE\_INSTANCE.STARTUP\_TIME\_TZ - 6

26/06/2019 - SYS.WRM$\_PDB\_INSTANCE.OPEN\_TIME\_TZ - 1

26/06/2019 - SYS.WRM$\_PDB\_INSTANCE.STARTUP\_TIME\_TZ - 1

26/06/2019 - SYS.WRM$\_PDB\_IN\_SNAP.OPEN\_TIME\_TZ - 1

26/06/2019 - SYS.WRM$\_SNAPSHOT.BEGIN\_INTERVAL\_TIME\_TZ - 68

26/06/2019 - SYS.WRM$\_SNAPSHOT.END\_INTERVAL\_TIME\_TZ - 68

07/07/2014 - SYS.XS$PRIN.END\_DATE - 14

07/07/2014 - SYS.XS$PRIN.START\_DATE - 14

Total numrows of SYS TSTZ columns is : 503882

There are in total 160 SYS TSTZ columns.

.

For non-SYS tables ...

Note: empty tables are not listed.

Stat date - Owner.Tablename.Columnname - num\_rows

31/05/2017 - DBSNMP.MGMT\_DB\_FEATURE\_LOG.LAST\_UPDATE\_DATE - 2

07/07/2014 - GSMADMIN\_INTERNAL.AQ$\_CHANGE\_LOG\_QUEUE\_TABLE\_S.CREATION\_TIME - 1

07/07/2014 - GSMADMIN\_INTERNAL.AQ$\_CHANGE\_LOG\_QUEUE\_TABLE\_S.DELETION\_TIME - 1

07/07/2014 - GSMADMIN\_INTERNAL.AQ$\_CHANGE\_LOG\_QUEUE\_TABLE\_S.MODIFICATION\_TIME -

1

07/07/2014 - WMSYS.AQ$\_WM$EVENT\_QUEUE\_TABLE\_S.CREATION\_TIME - 1

07/07/2014 - WMSYS.AQ$\_WM$EVENT\_QUEUE\_TABLE\_S.DELETION\_TIME - 1

07/07/2014 - WMSYS.AQ$\_WM$EVENT\_QUEUE\_TABLE\_S.MODIFICATION\_TIME - 1

03/05/2016 - WMSYS.WM$WORKSPACES\_TABLE$.CREATETIME - 1

03/05/2016 - WMSYS.WM$WORKSPACES\_TABLE$.LAST\_CHANGE - 1

Total numrows of non-SYS TSTZ columns is : 10

There are in total 33 non-SYS TSTZ columns.

Total Minutes elapsed : 0

Session altered.

SQL>

* 1. **Optionally purge scheduler logs and stats history, we are choosing to keep both**

sqlplus> **exec dbms\_schedule.purge\_log;**

sqlplus> **exec dbms\_stats.alter\_stats\_history\_retention(0);**

sqlplus> **exec dbms\_stats.purge\_stats(systimestamp);**

sqlplus> **exec dbms\_stats.alter\_stats\_history\_retention(31);**

* 1. **Execute Timezone upgrade**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 18.0.0.0.0 - Production on Wed Jun 26 09:50:06 2019

Version 18.5.0.0.0

Copyright (c) 1982, 2018, Oracle. All rights reserved.

Connected to:

Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production

Version 18.5.0.0.0

SQL> **spool /orahome/u01/app/oracle/local/logs/${ORACLE\_SID}\_utltz\_upg\_check.log**

SQL> **@?/rdbms/admin/utltz\_upg\_check.sql**

Session altered.

INFO: Starting with RDBMS DST update preparation.

INFO: NO actual RDBMS DST update will be done by this script.

INFO: If an ERROR occurs the script will EXIT sqlplus.

INFO: Doing checks for known issues ...

INFO: Database version is 18.0.0.0 .

INFO: Database RDBMS DST version is DSTv18 .

INFO: No known issues detected.

INFO: Now detecting new RDBMS DST version.

A prepare window has been successfully started.

INFO: Newest RDBMS DST version detected is DSTv31 .

INFO: Next step is checking all TSTZ data.

INFO: It might take a while before any further output is seen ...

A prepare window has been successfully ended.

INFO: A newer RDBMS DST version than the one currently used is found.

INFO: Note that NO DST update was yet done.

INFO: Now run utltz\_upg\_apply.sql to do the actual RDBMS DST update.

INFO: Note that the utltz\_upg\_apply.sql script will

INFO: restart the database 2 times WITHOUT any confirmation or prompt.

Session altered.

SQL> **spool off**

SQL> **spool /orahome/u01/app/oracle/local/logs/${ORACLE\_SID}\_utltz\_upg\_apply.log**

SQL> **@?/rdbms/admin/utltz\_upg\_apply.sql**

Session altered.

INFO: If an ERROR occurs, the script will EXIT SQL\*Plus.

INFO: The database RDBMS DST version will be updated to DSTv31 .

WARNING: This script will restart the database 2 times

WARNING: WITHOUT asking ANY confirmation.

WARNING: Hit control-c NOW if this is not intended.

INFO: Restarting the database in UPGRADE mode to start the DST upgrade.

Database closed.

Database dismounted.

ORACLE instance shut down.

ORACLE instance started.

Total System Global Area 2147480376 bytes

Fixed Size 8659768 bytes

Variable Size 1426063360 bytes

Database Buffers 704643072 bytes

Redo Buffers 8114176 bytes

Database mounted.

Database opened.

INFO: Starting the RDBMS DST upgrade.

INFO: Upgrading all SYS owned TSTZ data.

INFO: It might take time before any further output is seen ...

An upgrade window has been successfully started.

INFO: Restarting the database in NORMAL mode to upgrade non-SYS TSTZ data.

Database closed.

Database dismounted.

ORACLE instance shut down.

ORACLE instance started.

Total System Global Area 2147480376 bytes

Fixed Size 8659768 bytes

Variable Size 1426063360 bytes

Database Buffers 704643072 bytes

Redo Buffers 8114176 bytes

Database mounted.

Database opened.

INFO: Upgrading all non-SYS TSTZ data.

INFO: It might take time before any further output is seen ...

INFO: Do NOT start any application yet that uses TSTZ data!

INFO: Next is a list of all upgraded tables:

Table list: "GSMADMIN\_INTERNAL"."AQ$\_CHANGE\_LOG\_QUEUE\_TABLE\_S"

Number of failures: 0

Table list: "GSMADMIN\_INTERNAL"."AQ$\_CHANGE\_LOG\_QUEUE\_TABLE\_L"

Number of failures: 0

Table list: "DVSYS"."SIMULATION\_LOG$"

Number of failures: 0

Table list: "DVSYS"."AUDIT\_TRAIL$"

Number of failures: 0

Table list: "APEX\_040200"."WWV\_FLOW\_WORKSHEET\_NOTIFY"

Number of failures: 0

Table list: "APEX\_040200"."WWV\_FLOW\_FEEDBACK"

Number of failures: 0

Table list: "APEX\_040200"."WWV\_FLOW\_FEEDBACK\_FOLLOWUP"

Number of failures: 0

Table list: "APEX\_040200"."WWV\_FLOW\_DEBUG\_MESSAGES"

Number of failures: 0

Table list: "APEX\_040200"."WWV\_FLOW\_DEBUG\_MESSAGES2"

Number of failures: 0

Table list: "APEX\_050100"."WWV\_FLOW\_DEBUG\_MESSAGES2"

Number of failures: 0

Table list: "APEX\_050100"."WWV\_FLOW\_FEEDBACK\_FOLLOWUP"

Number of failures: 0

Table list: "APEX\_050100"."WWV\_FLOW\_FEEDBACK"

Number of failures: 0

Table list: "APEX\_050100"."WWV\_FLOW\_WORKSHEET\_NOTIFY"

Number of failures: 0

Table list: "APEX\_050100"."WWV\_FLOW\_DEBUG\_MESSAGES"

Number of failures: 0

INFO: Total failures during update of TSTZ data: 0 .

An upgrade window has been successfully ended.

INFO: Your new Server RDBMS DST version is DSTv31 .

INFO: The RDBMS DST update is successfully finished.

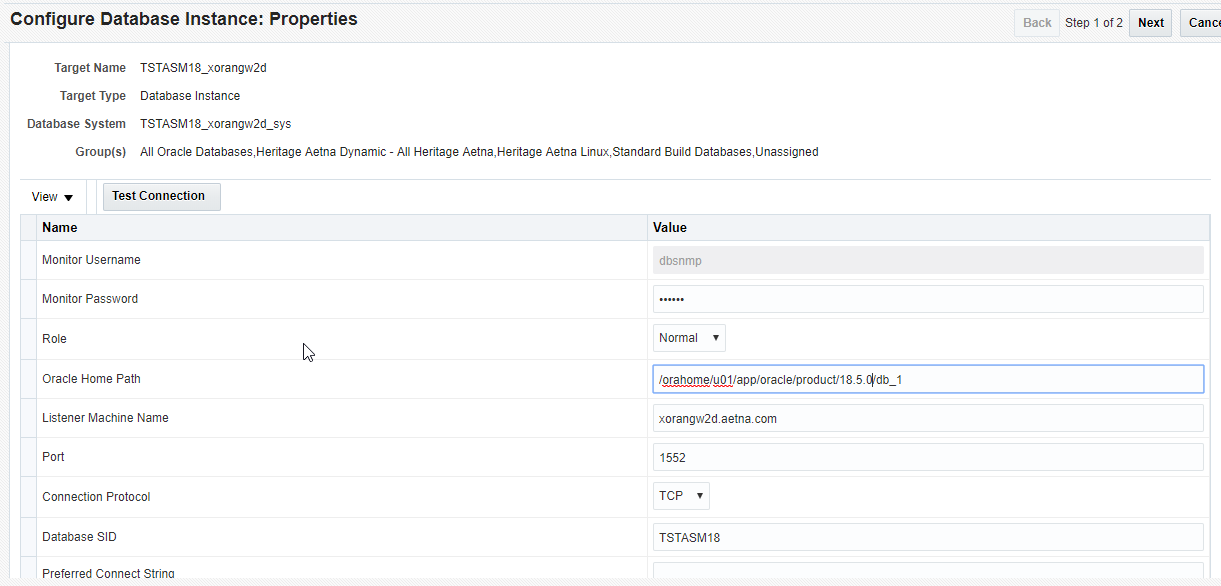
INFO: Make sure to exit this SQL\*Plus session.

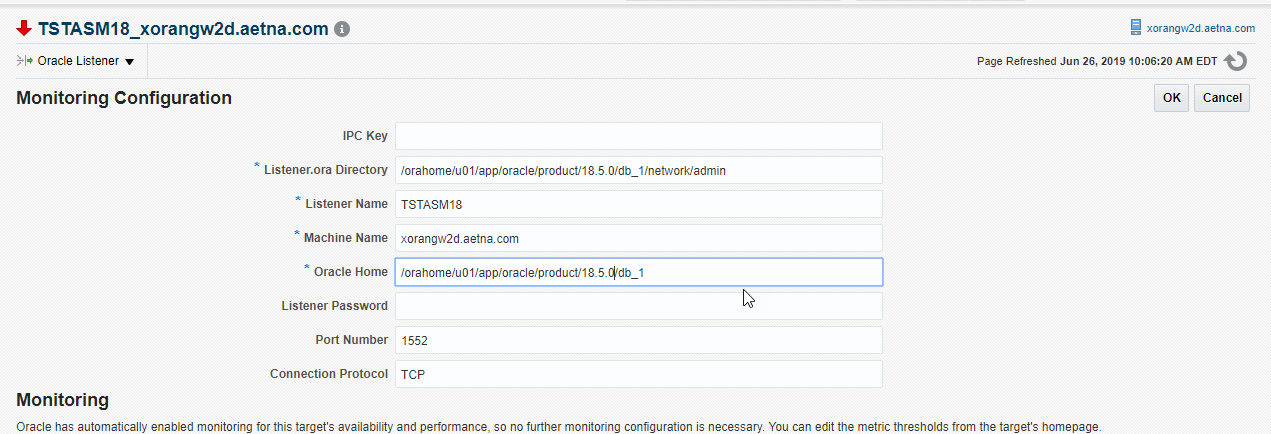
INFO: Do not use it for timezone related selects.

Session altered.

SQL> **spool off**

**23. Update OEM monitoring configuration for database and listener**





1. **(optional if DG is in use) Enable log shipping**

**TSTADGPA>ENable\_log\_shipping.sh ${ORACLE\_SID}**

1. **(optional if ADG is in use) Bounce Standby database to place it back in READ ONLY mode.**

**Note: Ensure all redo logs are applied to the standby prior to bouncing.**

**TSTADGPA> srvctl stop database -d ${ORACLE\_SID}\_<server name>**

**TSTADGPA> srvctl start database -d ${ORACLE\_SID}\_<server name>**

**26. (optional if ADG is in use) Bounce OEM agent on standby server.**

**GCAGENT> emctl stop agent**

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Stopping agent ... stopped.

xorangw2d.aetna.com (oracle) GCAGENT::/home/oracle

**GCAGENT> emctl start agent**

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Starting agent .................................... started.

xorangw2d.aetna.com (oracle) GCAGENT::/home/oracle

GCAGENT>

**27. (optional if ADG is in use) Configure AWR for ADG**

**1. unlock user sys$umf and set password on primary database**

sqlplus> **alter user sys$umf identified by Locked#99999 account unlock;**

1. **ensure tns entries <$ORACLE\_SID>\_<server\_name> for both primary and standby are in place on both primary and standby servers**
2. **create database links on primary database**sqlplus> **create database link primary\_to\_standby connect to "SYS$UMF" identified by "Locked#99999" using '<$ORACLE\_SID>\_<stdby\_server\_name>';**sqlplus> **create database link standby\_to\_primary connect to "SYS$UMF" identified by "Locked#99999" using '<$ORACLE\_SID\_<prim\_server\_name>';**
3. **Configure UMF node on primary**sqlplus> **exec dbms\_umf.configure\_node('<$ORACLE\_SID>\_<prim\_server\_name>');**
4. **Configure UMF node on standby**sqlplus> **exec dbms\_umf.configure\_node ('<$ORACLE\_SID\_<stdby\_server\_name>','standby\_to\_primary');**
5. **Create UMF topology on primary**sqlplus> **exec DBMS\_UMF.create\_topology ('Topology\_1');**
6. **Register node on primary**sqlplus> **exec DBMS\_UMF.register\_node ('Topology\_1', '<$ORACLE\_SID>\_<stdby\_server\_name>', 'primary\_to\_standby', 'standby\_to\_primary', 'FALSE','FALSE');**
7. **Adjust AWR setting for standby database**sqlplus> **begin  
   dbms\_workload\_repository.modify\_snapshot\_settings(  
   retention => 43200,  
   interval =>60 ,  
   dbid => <stnadby db\_id>);  
   end;  
   /**
8. **To manually create a snap shot from primary database**sqlplus> **exec dbms\_workload\_repository.create\_remote\_snapshot('<$ORACLE\_SID>\_<stdby\_server\_name>');**

**28. Schedule a change to upgrade the database compatibility to <UPGRADED VERSION> in 1 week.**

TSTASM18> **sqlplus / as sysdba**

SQL\*Plus: Release 18.0.0.0.0 - Production on Wed Jun 26 10:21:04 2019

Version 18.5.0.0.0

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Connected to:

Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production

Version 18.5.0.0.0

SQL> **alter system set compatible='<upgrade version>' scope=spfile;**

System altered.

SQL> **shutdown immediate;**

Database closed.

Database dismounted.

ORACLE instance shut down.

SQL> **startup**

ORACLE instance started.

Total System Global Area 2147480376 bytes

Fixed Size 8659768 bytes

Variable Size 1426063360 bytes

Database Buffers 704643072 bytes

Redo Buffers 8114176 bytes

Database mounted.

Database opened.

SQL>