Oracle patching with latest Proactive patch

In this document we will see how to patch the database with the latest PSU patches

Check the following note for the patch numbers for all versions
Primary Note for Database Proactive Patch Program (Doc ID 888.1)

Download the relevant patch for the DB version and OS version , in this case
21c – Linux

Patch	Patch Number	
21.9.0.0.230117 DB RU	Patch 34839741	

Check database version : 21.3.0.0

```
SQL>
SQL> select instance_name from gv$instance;

INSTANCE_NAME
---------------
ORCLCDB

SQL> show pdbs

    CON_ID CON_NAME                       OPEN MODE  RESTRICTED
---------- ------------------------------ ---------- ----------
         2 PDB$SEED                       READ ONLY  NO
         3 ORCLPDB1                       READ WRITE NO
SQL>
SQL> select * from v$version;

BANNER                                                               BANNER_FULL
 BANNER_LEGACY                                                       CON_ID
-------------------------------------------------------------------- -------------------------------------------------------------------- ----
Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production    Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production
 Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production                                                                    0
                                                                     Version 21.3.0.0.0
```


Current patch list : **Run the following command to see list of all patches applied**
(None applied on this Oracle home currently)

```
[oracle@oracle-21c-vagrant ~]$ cd $ORACLE_HOME/OPatch/
[oracle@oracle-21c-vagrant OPatch]$ ./opatch lspatches
There are no Interim patches installed in this Oracle Home "/opt/oracle/product/21c/dbhome_1".

OPatch succeeded.
[oracle@oracle-21c-vagrant OPatch]$
```


Always download the latest OPatch from support

https://updates.oracle.com/download/6880880.html

cd $ORACLE_HOME/OPatch
./opatch version

```
[oracle@oracle-21c-vagrant dbhome_1]$
[oracle@oracle-21c-vagrant dbhome_1]$
[oracle@oracle-21c-vagrant dbhome_1]$ cd OPatch
[oracle@oracle-21c-vagrant OPatch]$ ./opatch version
OPatch Version: 12.2.0.1.36

OPatch succeeded.
[oracle@oracle-21c-vagrant OPatch]$
```

Unzip the patch zip file and run the precheck

Perform Precheck :
```
cd 34839741
opatch prereq CheckConflictAgainstOHWithDetail -ph ./
```

```
[oracle@oracle-21c-vagrant 34839741]$ /opt/oracle/product/21c/dbhome_1/OPatch/opatch prereq CheckConflictAgainstOHWithDetail -ph ./
Oracle Interim Patch Installer version 12.2.0.1.26
Copyright (c) 2023, Oracle Corporation.  All rights reserved.

PREREQ session

Oracle Home       : /opt/oracle/product/21c/dbhome_1
Central Inventory : /opt/oracle/oraInventory
   from           : /opt/oracle/product/21c/dbhome_1/oraInst.loc
OPatch version    : 12.2.0.1.26
OUI version       : 12.2.0.9.0
Log file location : /opt/oracle/product/21c/dbhome_1/cfgtoollogs/opatch/opatch2023-02-09_15-31-21PM_1.log

Invoking prereq "checkconflictagainstohwithdetail"

Prereq "checkConflictAgainstOHWithDetail" passed.

OPatch succeeded.
[oracle@oracle-21c-vagrant 34839741]$
```

Once the precheck is successful we can apply the patch.
Make sure all the database running from the Oracle home being
patched are shutdown.

Take a backup of the Oracle home (tar/zip) any format should be
ok. This is just to be safe in the event of corruption of home.

./opatch apply

```
[oracle@oracle-21c-vagrant 34839741]$
[oracle@oracle-21c-vagrant 34839741]$ /opt/oracle/product/21c/dbhome_1/OPatch/opatch apply
Oracle Interim Patch Installer version 12.2.0.1.36
Copyright (c) 2023, Oracle Corporation.  All rights reserved.


Oracle Home       : /opt/oracle/product/21c/dbhome_1
Central Inventory : /opt/oracle/oraInventory
   from           : /opt/oracle/product/21c/dbhome_1/oraInst.loc
OPatch version    : 12.2.0.1.36
OUI version       : 12.2.0.9.0
Log file location : /opt/oracle/product/21c/dbhome_1/cfgtoollogs/opatch/opatch2023-02-10_11-49-20AM_1.log

Verifying environment and performing prerequisite checks...
OPatch continues with these patches:   34839741

Do you want to proceed? [y|n]
y
User Responded with: Y
All checks passed.

Please shutdown Oracle instances running out of this ORACLE_HOME on the local system.
(Oracle Home = '/opt/oracle/product/21c/dbhome_1')
```

```
Patching component oracle.ctx.atg, 21.0.0.0.0...

Patching component oracle.xdk.parser.java, 21.0.0.0.0...

Patching component oracle.precomp.common, 21.0.0.0.0...

Patching component oracle.precomp.lang, 21.0.0.0.0...

Patching component oracle.jdk, 1.8.0.291.09...
Patch 34839741 successfully applied.
Log file location: /opt/oracle/product/21c/dbhome_1/cfgtoollogs/opatch/opatch2023-02-10_11-49-20AM_1.log

OPatch succeeded.
[oracle@oracle-21c-vagrant 34839741]$
```

```
/home/oracle/patches/34839741
[oracle@oracle-21c-vagrant 34839741]$ cd $ORACLE_HOME/OPatch
[oracle@oracle-21c-vagrant OPatch]$ ./opatch lspatches
34839741;Database Release Update : 21.9.0.0.230117 (34839741)

OPatch succeeded.
[oracle@oracle-21c-vagrant OPatch]$
```

```
[oracle@oracle-21c-vagrant OPatch]$ ./opatch lspatches
34839741;Database Release Update : 21.9.0.0.230117 (34839741)

OPatch succeeded.
[oracle@oracle-21c-vagrant OPatch]$
```

After the patch we need apply to Apply Datapatch (Datapatch is
run to complete the post-install SQL deployment for the patch
being installed**) This will be applied to cdb,seed pdb and all
pdbs.**

```
[oracle@oracle-21c-vagrant OPatch]$ cd $ORACLE_HOME/OPatch
[oracle@oracle-21c-vagrant OPatch]$ ./datapatch -verbose
```

```
bash: cd: too many arguments
[oracle@oracle-21c-vagrant OPatch]$ cd $ORACLE_HOME/OPatch
[oracle@oracle-21c-vagrant OPatch]$ ./datapatch -verbose
SQL Patching tool version 21.9.0.0.0 Production on Fri Feb 10 13:38:11 2023
Copyright (c) 2012, 2023, Oracle.  All rights reserved.

Log file for this invocation: /opt/oracle/homes/OraDB21Home1/cfgtoollogs/sqlpatch/sqlpatch_6324_2023_02_10_13_38_11/sqlpatch_invocation.log

Connecting to database...OK
Gathering database info...done

Note:  Datapatch will only apply or rollback SQL fixes for PDBs
       that are in an open state, no patches will be applied to closed PDBs.
       Please refer to Note: Datapatch: Database 12c Post Patch SQL Automation
       (Doc ID 1585822.1)

Bootstrapping registry and package to current versions...done
Determining current state...done

Current state of interim SQL patches:
  No interim patches found

Current state of release update SQL patches:
  Binary registry:
    21.9.0.0.0 Release_Update 230111084300: Installed
  PDB CDB$ROOT:
    No release update patches installed
  PDB ORCLPDB1:
    No release update patches installed
  PDB PDB$SEED:
    No release update patches installed

Adding patches to installation queue and performing prereq checks...done
Installation queue:
  For the following PDBs: CDB$ROOT PDB$SEED ORCLPDB1
    No interim patches need to be rolled back
    Patch 34839741 (Database Release Update : 21.9.0.0.230117 (34839741)):
      Apply from 21.1.0.0.0 Feature Release to 21.9.0.0.0 Release_Update 230111084300
    No interim patches need to be applied

Installing patches...
Patch installation complete.  Total patches installed: 3

Validating logfiles...done
Patch 34839741 apply (pdb CDB$ROOT): SUCCESS
  logfile: /opt/oracle/homes/OraDB21Home1/cfgtoollogs/sqlpatch/34839741/25076790/34839741_apply_ORCLCDB_CDBROOT_2023Feb10_13_38_30.log (no errors)
Patch 34839741 apply (pdb PDB$SEED): SUCCESS
  logfile: /opt/oracle/homes/OraDB21Home1/cfgtoollogs/sqlpatch/34839741/25076790/34839741_apply_ORCLCDB_PDBSEED_2023Feb10_13_41_55.log (no errors)
Patch 34839741 apply (pdb ORCLPDB1): SUCCESS
  logfile: /opt/oracle/homes/OraDB21Home1/cfgtoollogs/sqlpatch/34839741/25076790/34839741_apply_ORCLCDB_ORCLPDB1_2023Feb10_13_41_55.log (no errors)
SQL Patching tool complete on Fri Feb 10 13:45:57 2023
[oracle@oracle-21c-vagrant OPatch]$
```

Upgrade RMAN catalog to complete the patch apply

rman catalog username/password@alias
RMAN> UPGRADE CATALOG;
RMAN> UPGRADE CATALOG;
RMAN> EXIT;

The new version after patching : **21.9.0.0**

```
  1* select * from v$version
SQL> /

BANNER                                                                    BANNER_FULL
  BANNER_LEGACY                                                           CON_ID
-------------------------------------------------------------------- ------------------------------------------------------------------- ----------

-------------------------------------------------------------------- ------------------------------------------------------------------- ----------
Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production     Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production
  Oracle Database 21c Enterprise Edition Release 21.0.0.0.0 - Production      0
                                                                          Version 21.9.0.0.0
```

If we need to rollback the patch for any circumstance,

cd $ORACLE_HOME/Opatch
./opatch rollback -id 34839741