Problem statement:

Site has a Oracle 11g dataset installed. Perform below task:

1. take a incremental level 0 (full DB) backup of DB as well as it will take backup of archive log and control file.
2. take incremental level 1 (differential) backup to align with the latest change.
3. After level1 backup finish create a user and a test table and insert some test data
4. Delete datafile form DB
5. Restore DB and recover database form RMAN
6. Check whether the user and table that we created after level 1 backup is still exists or not.

High level steps:

1.Run below script for level 0 DB backup

2.Run below script for level 1 DB backup

3.Create a test user and test table after level 1 backup finish

4.Delete data file from datafile location (consider that datafile had lost)

5.Start the Db instance

6.Enter to RMAN and first restore and then recover Database

7.Login to database and check DB status

Implementation

1.Run below script for level 0 DB backup :
rman target / nocatalog @level0_backup.bat

level0_backup.bat script file:

run {

        allocate channel c1 device type disk;
         allocate channel c2 device type disk;
        CROSSCHECK ARCHIVELOG ALL;
        CROSSCHECK backup;
        BACKUP AS COMPRESSED BACKUPSET CURRENT CONTROLFILE FORMAT
'E:\app\ASIF\rmanbackup\CONTROL_%U';
        BACKUP AS COMPRESSED BACKUPSET incremental level 0 DATABASE FORMAT
'E:\app\ASIF\rmanbackup\FULL_DB_%U_%T';
        backup spfile format 'E:\app\ASIF\rmanbackup\spf_%T.ora';

```
        sql 'alter system archive log current';
        BACKUP AS COMPRESSED BACKUPSET ARCHIVELOG ALL FORMAT
'E:\app\ASIF\rmanbackup\ARCL_%U_%T';
        DELETE NOPROMPT ARCHIVELOG UNTIL TIME 'SYSDATE -3';
        DELETE NOPROMPT OBSOLETE;
        CROSSCHECK ARCHIVELOG ALL;
        CROSSCHECK backup;
        BACKUP AS COMPRESSED BACKUPSET CURRENT CONTROLFILE FORMAT
'E:\app\ASIF\rmanbackup\CONTROL_FINAL_%U';
}
```

Then it will create a full DB backup and control file and archive log backup at destined location as showing below , FULLDB tag for fuldb and ARCL is for archive log and C for control file logs

```
ARCL_0QVEDS93_1_1_20201101
ARCL_0RVEDS93_1_1_20201101
ARCL_0SVEDS95_1_1_20201101
C-1579482256-20201101-03
C-1579482256-20201101-04
C-1579482256-20201101-05
FULL_DB_0MVEDS87_1_1_20201101
FULL_DB_0NVEDS87_1_1_20201101
```

2.Run below script for level 1 DB backup :
rman target / nocatalog @level0_backup.bat

level1_backup.bat script file:

```
run {
        allocate channel c1 device type disk;
   allocate channel c2 device type disk;
        CROSSCHECK ARCHIVELOG ALL;
        CROSSCHECK backup;
        BACKUP AS COMPRESSED BACKUPSET CURRENT CONTROLFILE FORMAT
'E:\app\ASIF\rmanbackup\level1\level1_CONTROL_%U';
        BACKUP AS COMPRESSED BACKUPSET incremental level 1 DATABASE FORMAT
'E:\app\ASIF\rmanbackup\level1\leve1_DB_%U_%T';
        backup spfile format 'E:\app\ASIF\rmanbackup\level1\spf_%T.ora';
        sql 'alter system archive log current';
        BACKUP AS COMPRESSED BACKUPSET ARCHIVELOG ALL FORMAT
'E:\app\ASIF\rmanbackup\level1\level1_ARCL_%U_%T';
        DELETE NOPROMPT ARCHIVELOG UNTIL TIME 'SYSDATE -3';
```
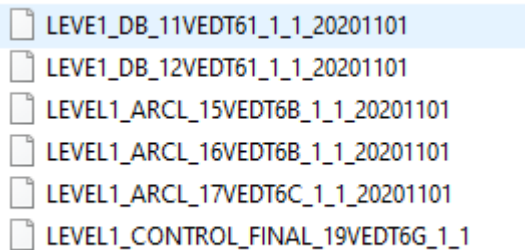
```
        DELETE NOPROMPT OBSOLETE;
        CROSSCHECK ARCHIVELOG ALL;
        CROSSCHECK backup;
        BACKUP AS COMPRESSED BACKUPSET CURRENT CONTROLFILE FORMAT
'E:\app\ASIF\rmanbackup\level1\level1_CONTROL_FINAL_%U';
}
```

Then it will create a full DB backup and control file and archive log backup at destined location as showing below , FULLDB tag for fuldb and ARCL is for archive log and C for control file logs

LEVE1_DB_11VEDT61_1_1_20201101
LEVE1_DB_12VEDT61_1_1_20201101
LEVEL1_ARCL_15VEDT6B_1_1_20201101
LEVEL1_ARCL_16VEDT6B_1_1_20201101
LEVEL1_ARCL_17VEDT6C_1_1_20201101
LEVEL1_CONTROL_FINAL_19VEDT6G_1_1

3.Create a test user and test table after level 1 backup finish

---create mgmt user and create a table and insert data
SQL> create user mgmt identified by mgmt;
SQL> grant connect,resource, create session to mgmt;
SQL> insert into mgmt values ('asif','asif@gmail.com');

1 row created.

SQL> insert into mgmt values ('hasan','hasan@gmail.com');

1 row created.

SQL> select * from mgmt;

```
NAME                            EMAIL
--------------------------------------------------- ------------------------
asif                            asif@gmail.com
hasan                           hasan@gmail.com
```

4.Delete data file from datafile location (consider that datafile had lost)

-----login as sql sysdba user and collect datafile log location

SQL> select name from v$datafile;

NAME

E:\APP\ASIF\ORADATA\ORCL\SYSTEM01.DBF

E:\APP\ASIF\ORADATA\ORCL\SYSAUX01.DBF

E:\APP\ASIF\ORADATA\ORCL\UNDOTBS01.DBF

E:\APP\ASIF\ORADATA\ORCL\USERS01.DBF

E:\APP\ASIF\ORADATA\ORCL\EXAMPLE01.DBF

-----shutdown the instance and delete the datafiles

sqlplus / as sysdba

shutdown immediate;

delte these datafile - SYSTEM01.DBF SYSAUX01.DBF UNDOTBS01.DBF USERS01.DBF EXAMPLE01.DBF

consider the datafile has lost and destroyed

5.Start the Db instance

sqlplus / as sysdba

SQL*Plus: Release 11.2.0.1.0 Production on Sun Nov 1 11:54:58 2020

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Connected to an idle instance.

SQL> startup nomount;

ORACLE instance started.

Total System Global Area 3373858816 bytes
Fixed Size   2180424 bytes
Variable Size   1912605368 bytes
Database Buffers   1442840576 bytes
Redo Buffers   16232448 bytes
SQL> alter database mount;

Database altered.

6.Enter to RMAN and first restore and then recover Database
rman

Recovery Manager: Release 11.2.0.1.0 - Production on Sun Nov 1 12:00:39 2020

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RMAN> connect target /

connected to target database: ORCL (DBID=1579482256, not open)

RMAN> restore database;

Starting restore at 01-NOV-20
using target database control file instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=63 device type=DISK

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00002 to E:\APP\ASIF\ORADATA\ORCL\SYSAUX01.DBF
channel ORA_DISK_1: restoring datafile 00004 to E:\APP\ASIF\ORADATA\ORCL\USERS01.DBF
channel ORA_DISK_1: restoring datafile 00005 to E:\APP\ASIF\ORADATA\ORCL\EXAMPLE01.DBF
channel ORA_DISK_1: reading from backup piece
E:\APP\ASIF\RMANBACKUP\FULL_DB_0NVEDS87_1_1_20201101
channel ORA_DISK_1: piece handle=E:\APP\ASIF\RMANBACKUP\FULL_DB_0NVEDS87_1_1_20201101
tag=TAG20201101T090615
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:25
channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to E:\APP\ASIF\ORADATA\ORCL\SYSTEM01.DBF
channel ORA_DISK_1: restoring datafile 00003 to E:\APP\ASIF\ORADATA\ORCL\UNDOTBS01.DBF

channel ORA_DISK_1: reading from backup piece
E:\APP\ASIF\RMANBACKUP\FULL_DB_0MVEDS87_1_1_20201101
channel ORA_DISK_1: piece handle=E:\APP\ASIF\RMANBACKUP\FULL_DB_0MVEDS87_1_1_20201101
tag=TAG20201101T090615
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:25
Finished restore at 01-NOV-20

RMAN> recover database;

Starting recover at 01-NOV-20
using channel ORA_DISK_1
channel ORA_DISK_1: starting incremental datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
destination for restore of datafile 00001: E:\APP\ASIF\ORADATA\ORCL\SYSTEM01.DBF
destination for restore of datafile 00003: E:\APP\ASIF\ORADATA\ORCL\UNDOTBS01.DBF
channel ORA_DISK_1: reading from backup piece
E:\APP\ASIF\RMANBACKUP\LEVEL1\LEVE1_DB_11VEDT61_1_1_20201101
channel ORA_DISK_1: piece
handle=E:\APP\ASIF\RMANBACKUP\LEVEL1\LEVE1_DB_11VEDT61_1_1_20201101
tag=TAG20201101T092208
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
channel ORA_DISK_1: starting incremental datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
destination for restore of datafile 00002: E:\APP\ASIF\ORADATA\ORCL\SYSAUX01.DBF
destination for restore of datafile 00004: E:\APP\ASIF\ORADATA\ORCL\USERS01.DBF
destination for restore of datafile 00005: E:\APP\ASIF\ORADATA\ORCL\EXAMPLE01.DBF
channel ORA_DISK_1: reading from backup piece
E:\APP\ASIF\RMANBACKUP\LEVEL1\LEVE1_DB_12VEDT61_1_1_20201101
channel ORA_DISK_1: piece
handle=E:\APP\ASIF\RMANBACKUP\LEVEL1\LEVE1_DB_12VEDT61_1_1_20201101
tag=TAG20201101T092208
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01

starting media recovery
media recovery complete, elapsed time: 00:00:01

Finished recover at 01-NOV-20

RMAN>

7.Login to database and check DB status

SQL> select name,open_mode from v$database;

<mark>NAME   OPEN_MODE</mark>
<mark>--------- --------------------</mark>
<mark>ORCL   READ WRITE</mark>

Check and found DB up & running

Also found test mgmt user and table exists with data as below
SQL> select * from mgmt;

```
NAME                                      EMAIL
----------------------------------------- ------------------------
asif                     asif@gmail.com
hasan                      hasan@gmail.com
```

SQL> connect mgmt/mgmt@orcl
Connected.