**Session 16 MORE BACKUPS with RMAN (ARCHIVELOG)**

Last login: Tue Apr 5 11:30:14 2022 from 10.30.2.33

[student@oracledb19c ~]$ **su - oracle**

Password:

Last login: Tue Apr 5 11:30:24 EDT 2022 on pts/0

The Oracle base remains unchanged with value /opt/oracle/app/oracle

[oracle@oracledb19c ~]$ **pwd**

/home/oracle

[oracle@oracledb19c ~]$ **ls -l**

total 48

drwxrwxrwx 2 oracle dba 105 Apr 7 22:00 ARCHIVE

drwxrwxrwx 2 oracle dba 160 Apr 5 13:09 BACKUP

-rw-r--r-- 1 oracle dba 0 Jan 28 14:36 conn

-rw-r--r-- 1 oracle dba 0 Jan 28 14:32 exit

-rw-r--r-- 1 oracle dba 122 Mar 25 11:37 ins\_child\_first.sql

-rw-r--r-- 1 oracle dba 396 Jan 29 12:53 profile.txt

-rw-r--r-- 1 oracle dba 9806 Feb 20 10:31 scott2.sql

-rw-r--r-- 1 oracle dba 22542 Feb 20 10:14 scott.sql

-rw-r--r-- 1 oracle dba 0 Jan 28 14:36 SELECT

-rw-r--r-- 1 oracle dba 47 Jan 6 11:48 setport.sql

[oracle@oracledb19c ~]$ **cd ARCHIVE**

[oracle@oracledb19c ARCHIVE]$ **ls -l**

total 524644

-rw-r----- 1 oracle dba 173185536 Apr5 23:06 arch\_1066817182\_1\_115.log

-rw-r----- 1 oracle dba 183088128 Apr6 22:00 arch\_1066817182\_1\_116.log

-rw-r----- 1 oracle dba 180957184 Apr7 22:00 arch\_1066817182\_1\_117.log

** Since we turned to Archive Log mode, we stored Log files with LSN of 115,116,117**

[oracle@oracledb19c ARCHIVE]$ **cd ../BACKUP**

[oracle@oracledb19c BACKUP]$ **ls -l**

total 3927448

-rw-r----- 1 oracle dba 1143726080 Apr 5 13:01 full\_080q6d54\_8\_1

-rw-r----- 1 oracle dba 860872704 Apr 5 13:01 full\_090q6d5j\_9\_1

-rw-r----- 1 oracle dba 6168576 Apr 5 13:03 full\_0b0q6d9i\_11\_1

-rw-r----- 1 oracle dba 4440064 Apr 5 13:05 full\_0d0q6ddb\_13\_1

-rw-r----- 1 oracle dba 10493952 Apr 5 13:07 full\_0f0q6dh0\_15\_1

-rw-r----- 1 oracle dba 1996005376 Apr 5 13:10 full\_0h0q6dkt\_17\_1

** Since we turned to Archive Log mode, we stored 6 backup sets (pieces)**

[oracle@oracledb19c BACKUP]$ **rman target /**

Recovery Manager: Release 19.0.0.0.0 - Production on Fri Apr 8 10:17:40 2022

Version 19.3.0.0.0

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connected to target database: STUDENT (DBID=107505563)

RMAN> **show retention policy ;**

using target database control file instead of recovery catalog

RMAN configuration parameters for database with db\_unique\_name STUDENT are:

CONFIGURE RETENTION POLICY TO REDUNDANCY 2;

RMAN> **configure retention policy clear;**

** If we want to return any parameter to its DEFAULT value, then use option CLEAR**

old RMAN configuration parameters:

CONFIGURE RETENTION POLICY TO REDUNDANCY 2;

RMAN configuration parameters are successfully reset to default value

RMAN> **show retention policy;**

RMAN configuration parameters for database with db\_unique\_name STUDENT are:

CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default

RMAN> **report need backup;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 1

Report of files with less than 1 redundant backups

File #bkps Name

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

file 2 is excluded from whole database backup

file 8 is excluded from whole database backup

** Since our new Policy is to keep only ONE backup file, we have NOTHING in the need of backup**

RMAN> **backup incremental level 0 database plus archivelog ;**

**\* we are going to do WHOLE and FULL backup (that can be used as a base for other incremental ones) of Database. Also, we will add ALL Archive Logs stored so far. We will not also limit # of files in the Backupset (maximum is 16) \***

Starting backup at 08-APR-22

current log archived

allocated channel: ORA\_DISK\_1

channel ORA\_DISK\_1: SID=269 device type=DISK

channel ORA\_DISK\_1: starting archived log backup set

channel ORA\_DISK\_1: specifying archived log(s) in backup set

input archived log thread=1 sequence=115 RECID=3 STAMP=1101251210

input archived log thread=1 sequence=116 RECID=4 STAMP=1101333633

input archived log thread=1 sequence=117 RECID=5 STAMP=1101420015

input archived log thread=1 sequence=118 RECID=6 STAMP=1101464480

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0j0qe0t1\_19\_1 tag=TAG20220408T102121 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:03

Finished backup at 08-APR-22

Starting backup at 08-APR-22

using channel ORA\_DISK\_1

file 2 is excluded from whole database backup

file 8 is excluded from whole database backup

channel ORA\_DISK\_1: starting incremental level 0 datafile backup set

channel ORA\_DISK\_1: specifying datafile(s) in backup set

input datafile file number=00003 name=/opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

input datafile file number=00001 name=/opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

input datafile file number=00004 name=/opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

input datafile file number=00005 name=/opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

input datafile file number=00009 name=/opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

input datafile file number=00007 name=/opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0k0qe0t4\_20\_1 tag=TAG20220408T102124 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:15

Finished backup at 08-APR-22

Starting backup at 08-APR-22

current log archived

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting archived log backup set

channel ORA\_DISK\_1: specifying archived log(s) in backup set

input archived log thread=1 sequence=119 RECID=7 STAMP=1101464500

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0l0qe0tk\_21\_1 tag=TAG20220408T102140 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:01

Finished backup at 08-APR-22

Starting Control File and SPFILE Autobackup at 08-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464501\_k50k7oz7\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 08-APR-22

RMAN> **list backup of database;**

List of Backup Sets

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BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**7 Full 1.07G** DISK 00:00:07 05-APR-22

BP Key: 7 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130124

Piece Name: /home/oracle/BACKUP/**full\_080q6d54\_8\_1**

List of Datafiles in backup set 7

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

3 Full 8948365 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

7 Full 8948365 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

9 Full 8948365 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**8 Full 820.98M** DISK 00:00:04 05-APR-22

BP Key: 8 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130124

Piece Name: /home/oracle/BACKUP/**full\_090q6d5j\_9\_1**

List of Datafiles in backup set 8

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

1 Full 8948386 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

**4**  Full 8948386 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

**5** Full 8948386 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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**10 Full 5.88M** DISK 00:00:00 05-APR-22

BP Key: 10 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130346

Piece Name: /home/oracle/BACKUP/**full\_0b0q6d9i\_11\_1**

List of Datafiles in backup set 10

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5** Full 8948678 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

7 Full 8948678 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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**12 Full 4.23M** DISK 00:00:00 05-APR-22

BP Key: 12 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130547

Piece Name: /home/oracle/BACKUP/**full\_0d0q6ddb\_13\_1**

List of Datafiles in backup set 12

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4**  Full 8948774 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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**15 Full 1.86G** DISK 00:00:11 05-APR-22

BP Key: 15 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130949

Piece Name: /home/oracle/BACKUP/**full\_0h0q6dkt\_17\_1**

List of Datafiles in backup set 15

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

1 Full 8949949 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

3 Full 8949949 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

9 Full 8949949 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**18 Incr 0 1.86G** DISK 00:00:12 **08-APR-22**

BP Key: 18 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102124

Piece Name: /home/oracle/BACKUP/**full\_0k0qe0t4\_20\_1**

List of Datafiles in backup set 18

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

1 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

3 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

**4**  0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

**5** 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

7 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

9 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

RMAN> **BACKUP INCREMENTAL LEVEL 0 TABLESPACE users, mine;**

** This is same as FULL (default) type of backup, but it may be used as a base for Incremental ones**

Starting backup at 08-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting incremental level 0 datafile backup set

channel ORA\_DISK\_1: specifying datafile(s) in backup set

input datafile file number=00005 name=/opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

input datafile file number=00007 name=/opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0n0qe1a6\_23\_1 tag=TAG20220408T102822 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:01

Finished backup at 08-APR-22

Starting Control File and SPFILE Autobackup at 08-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464903\_k50kn7gz\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 08-APR-22

RMAN> **BACKUP INCREMENTAL LEVEL 0 DATAFILE 4; this is undotbs1.dbf**

Starting backup at 08-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting incremental level 0 datafile backup set

channel ORA\_DISK\_1: specifying datafile(s) in backup set

input datafile file number=00004 name=/opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0p0qe1ba\_25\_1 tag=TAG20220408T102858 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:01

Finished backup at 08-APR-22

Starting Control File and SPFILE Autobackup at 08-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464939\_k50kod19\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 08-APR-22

RMAN> **BACKUP INCREMENTAL LEVEL 1 TABLESPACE mine;**

** By default, level 1 backup is DIFFERENTIAL – it will cover only changed blocks since ANY Incremental Level of backup (0 or 1)**

Starting backup at 08-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting incremental level 1 datafile backup set

channel ORA\_DISK\_1: specifying datafile(s) in backup set

input datafile file number=00005 name=/opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0r0qe1f7\_27\_1 tag=TAG20220408T103103 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:01

Finished backup at 08-APR-22

Starting Control File and SPFILE Autobackup at 08-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101465064\_k50ks8yl\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 08-APR-22

RMAN> **BACKUP INCREMENTAL LEVEL 1 CUMULATIVE DATAFILE 4;**

** Level 1 backup may be also CUMULATIVE (not default) – it will cover only changed blocks since the last Level 0 backup. It may be much bigger than the differential one.**

Starting backup at 08-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting incremental level 1 datafile backup set

channel ORA\_DISK\_1: specifying datafile(s) in backup set

input datafile file number=00004 name=/opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

channel ORA\_DISK\_1: starting piece 1 at 08-APR-22

channel ORA\_DISK\_1: finished piece 1 at 08-APR-22

piece handle=/home/oracle/BACKUP/full\_0t0qe1hi\_29\_1 tag=TAG20220408T103218 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:02

Finished backup at 08-APR-22

Starting Control File and SPFILE Autobackup at 08-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101465140\_k50kvnbs\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 08-APR-22

RMAN> **LIST BACKUP OF TABLESPACE mine;**

List of Backup Sets

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

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**8 Full 820.98M** DISK 00:00:04 05-APR-22

BP Key: 8 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130124

Piece Name: /home/oracle/BACKUP/**full\_090q6d5j\_9\_1**

List of Datafiles in backup set 8

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5** Full 8948386 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**10 Full 5.88M** DISK 00:00:00 05-APR-22

BP Key: 10 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130346

Piece Name: /home/oracle/BACKUP/**full\_0b0q6d9i\_11\_1**

List of Datafiles in backup set 10

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5**  Full 8948678 05-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**18 Incr 0 1.86G** DISK 00:00:12 08-APR-22

BP Key: 18 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102124

Piece Name: /home/oracle/BACKUP/**full\_0k0qe0t4\_20\_1**

List of Datafiles in backup set 18

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5**  0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**21 Incr 0 5.88M** DISK 00:00:00 08-APR-22

BP Key: 21 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102822

Piece Name: /home/oracle/BACKUP/**full\_0n0qe1a6\_23\_1**

List of Datafiles in backup set 21

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5** 0 Incr 9164548 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**25 Incr 1 48.00K** DISK 00:00:00 08-APR-22

BP Key: 25 Status: AVAILABLE Compressed: NO Tag: TAG20220408T103103

Piece Name: /home/oracle/BACKUP/**full\_0r0qe1f7\_27\_1**

List of Datafiles in backup set 25

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**5** 1 Incr 9164685 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/**mine01.dbf**

****

** Notice how much bigger is set # 21 (Level 0 ) from set # 25 (Level 1 Differential), both represent Tbsp MINE backup**

RMAN> **LIST BACKUP OF DATAFILE 4;**

List of Backup Sets

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

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**8 Full 820.98M** DISK 00:00:04 05-APR-22

BP Key: 8 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130124

Piece Name: /home/oracle/BACKUP/**full\_090q6d5j\_9\_1**

List of Datafiles in backup set 8

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4**  Full 8948386 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**12 Full 4.23M** DISK 00:00:00 05-APR-22

BP Key: 12 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130547

Piece Name: /home/oracle/BACKUP/**full\_0d0q6ddb\_13\_1**

List of Datafiles in backup set 12

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4** Full 8948774 05-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**18 Incr 0 1.86G** DISK 00:00:12 08-APR-22

BP Key: 18 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102124

Piece Name: /home/oracle/BACKUP/**full\_0k0qe0t4\_20\_1**

List of Datafiles in backup set 18

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4**  0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**23 Incr 0 1.70M** DISK 00:00:00 08-APR-22

BP Key: 23 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102858

Piece Name: /home/oracle/BACKUP/**full\_0p0qe1ba\_25\_1**

List of Datafiles in backup set 23

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4** 0 Incr 9164593 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**27 Incr 1 128.00K** DISK 00:00:01 08-APR-22

BP Key: 27 Status: AVAILABLE Compressed: NO Tag: TAG20220408T103218

Piece Name: /home/oracle/BACKUP/**full\_0t0qe1hi\_29\_1**

List of Datafiles in backup set 27

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

**4**  1 Incr 9164743 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/**undotbs01.dbf**

** Notice how much bigger is set # 23 (Level 0 ) from set # 27 (Level 1 Cumulative), both represent Datafile 4 backup only.**

RMAN> **report obsolete;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 1

Report of obsolete backups and copies

Type Key Completion Time Filename/Handle

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Backup Set 7 05-APR-22

Backup Piece 7 05-APR-22 /home/oracle/BACKUP/full\_080q6d54\_8\_1

Backup Set 8 05-APR-22

Backup Piece 8 05-APR-22 /home/oracle/BACKUP/full\_090q6d5j\_9\_1

Backup Set 10 05-APR-22

Backup Piece 10 05-APR-22 /home/oracle/BACKUP/full\_0b0q6d9i\_11\_1

Datafile Copy 1 05-APR-22 /home/oracle/BACKUP/full\_0f0q6dh0\_15\_1

Backup Set 12 05-APR-22

Backup Piece 12 05-APR-22 /home/oracle/BACKUP/full\_0d0q6ddb\_13\_1

Backup Set 14 05-APR-22

Backup Piece 14 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215266\_k4rxv296\_.bkp

Backup Set 15 05-APR-22

Backup Piece 15 05-APR-22 /home/oracle/BACKUP/full\_0h0q6dkt\_17\_1

Archive Log 3 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_115.log

Backup Set 16 05-APR-22

Backup Piece 16 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215404\_k4rxzf2w\_.bkp

Archive Log 4 06-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_116.log

Archive Log 5 07-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_117.log

Archive Log 6 08-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_118.log

Backup Set 17 08-APR-22

Backup Piece 17 08-APR-22 /home/oracle/BACKUP/full\_0j0qe0t1\_19\_1

Backup Set 20 08-APR-22

Backup Piece 20 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464501\_k50k7oz7\_.bkp

Backup Set 22 08-APR-22

Backup Piece 22 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464903\_k50kn7gz\_.bkp

Backup Set 24 08-APR-22

Backup Piece 24 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464939\_k50kod19\_.bkp

Backup Set 26 08-APR-22

Backup Piece 26 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101465064\_k50ks8yl\_.bkp

RMAN> **delete obsolete;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 1

using channel ORA\_DISK\_1

Deleting the following obsolete backups and copies:

Type Key Completion Time Filename/Handle

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

Backup Set 7 05-APR-22

Backup Piece 7 05-APR-22 /home/oracle/BACKUP/full\_080q6d54\_8\_1

Backup Set 8 05-APR-22

Backup Piece 8 05-APR-22 /home/oracle/BACKUP/full\_090q6d5j\_9\_1

Backup Set 10 05-APR-22

Backup Piece 10 05-APR-22 /home/oracle/BACKUP/full\_0b0q6d9i\_11\_1

Datafile Copy 1 05-APR-22 /home/oracle/BACKUP/full\_0f0q6dh0\_15\_1

Backup Set 12 05-APR-22

Backup Piece 12 05-APR-22 /home/oracle/BACKUP/full\_0d0q6ddb\_13\_1

Backup Set 14 05-APR-22

Backup Piece 14 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215266\_k4rxv296\_.bkp

Backup Set 15 05-APR-22

Backup Piece 15 05-APR-22 /home/oracle/BACKUP/full\_0h0q6dkt\_17\_1

Archive Log 3 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_115.log

Backup Set 16 05-APR-22

Backup Piece 16 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215404\_k4rxzf2w\_.bkp

Archive Log 4 06-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_116.log

Archive Log 5 07-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_117.log

Archive Log 6 08-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_118.log

Backup Set 17 08-APR-22

Backup Piece 17 08-APR-22 /home/oracle/BACKUP/full\_0j0qe0t1\_19\_1

Backup Set 20 08-APR-22

Backup Piece 20 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464501\_k50k7oz7\_.bkp

Backup Set 22 08-APR-22

Backup Piece 22 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464903\_k50kn7gz\_.bkp

Backup Set 24 08-APR-22

Backup Piece 24 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464939\_k50kod19\_.bkp

Backup Set 26 08-APR-22

Backup Piece 26 08-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101465064\_k50ks8yl\_.bkp

**Do you really want to delete the above objects (enter YES or NO)**? **YES**

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_080q6d54\_8\_1 RECID=7 STAMP=1101214884

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_090q6d5j\_9\_1 RECID=8 STAMP=1101214899

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_0b0q6d9i\_11\_1 RECID=10 STAMP=1101215026

deleted datafile copy

datafile copy file name=/home/oracle/BACKUP/full\_0f0q6dh0\_15\_1 RECID=1 STAMP=1101215265

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_0d0q6ddb\_13\_1 RECID=12 STAMP=1101215147

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215266\_k4rxv296\_.bkp RECID=14 STAMP=1101215266

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_0h0q6dkt\_17\_1 RECID=15 STAMP=1101215389

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_115.log RECID=3 STAMP=1101251210

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215404\_k4rxzf2w\_.bkp RECID=16 STAMP=1101215405

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_116.log RECID=4 STAMP=1101333633

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_117.log RECID=5 STAMP=1101420015

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_118.log RECID=6 STAMP=1101464480

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_0j0qe0t1\_19\_1 RECID=17 STAMP=1101464481

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464501\_k50k7oz7\_.bkp RECID=20 STAMP=1101464501

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464903\_k50kn7gz\_.bkp RECID=22 STAMP=1101464903

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101464939\_k50kod19\_.bkp RECID=24 STAMP=1101464940

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_08/o1\_mf\_s\_1101465064\_k50ks8yl\_.bkp RECID=26 STAMP=1101465064

Deleted 17 objects

RMAN> **LIST BACKUP OF TABLESPACE mine;**

List of Backup Sets

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

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**18 Incr 0 1.86G** DISK 00:00:12 08-APR-22

BP Key: 18 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102124

Piece Name: /home/oracle/BACKUP/**full\_0k0qe0t4\_20\_1**

List of Datafiles in backup set 18

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

5 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**21 Incr 0 5.88M** DISK 00:00:00 08-APR-22

BP Key: 21 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102822

Piece Name: /home/oracle/BACKUP/**full\_0n0qe1a6\_23\_1**

List of Datafiles in backup set 21

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

5 0 Incr 9164548 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**25 Incr 1 48.00K** DISK 00:00:00 08-APR-22

BP Key: 25 Status: AVAILABLE Compressed: NO Tag: TAG20220408T103103

Piece Name: /home/oracle/BACKUP/**full\_0r0qe1f7\_27\_1**

List of Datafiles in backup set 25

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

5 1 Incr 9164685 08-APR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

** We can see that sets # 08 and #10 were deleted here (beyond retention policy of 1)**

RMAN> **LIST BACKUP OF DATAFILE 4;**

List of Backup Sets

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

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**18 Incr 0 1.86G** DISK 00:00:12 08-APR-22

BP Key: 18 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102124

Piece Name: /home/oracle/BACKUP/**full\_0k0qe0t4\_20\_1**

List of Datafiles in backup set 18

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

4 0 Incr 9164178 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**23 Incr 0 1.70M** DISK 00:00:00 08-APR-22

BP Key: 23 Status: AVAILABLE Compressed: NO Tag: TAG20220408T102858

Piece Name: /home/oracle/BACKUP/**full\_0p0qe1ba\_25\_1**

List of Datafiles in backup set 23

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

4 0 Incr 9164593 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**27 Incr 1 128.00K** DISK 00:00:01 08-APR-22

BP Key: 27 Status: AVAILABLE Compressed: NO Tag: TAG20220408T103218

Piece Name: /home/oracle/BACKUP/**full\_0t0qe1hi\_29\_1**

List of Datafiles in backup set 27

File LV Type Ckp SCN Ckp Time Abs Fuz SCN Sparse Name

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

4 1 Incr 9164743 08-APR-22 NO /opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

** We can see that sets #08 and #12 were deleted here (beyond retention policy of 1)**

RMAN> **exit**

Recovery Manager complete.

[oracle@oracledb19c BACKUP]$ **ls -l**

total 1962824

-rw-r----- 1 oracle dba 2001772544 Apr 8 10:21 full\_0k0qe0t4\_20\_1

-rw-r----- 1 oracle dba 5120 Apr 8 10:21 full\_0l0qe0tk\_21\_1

-rw-r----- 1 oracle dba 6168576 Apr 8 10:28 full\_0n0qe1a6\_23\_1

-rw-r----- 1 oracle dba 1785856 Apr 8 10:28 full\_0p0qe1ba\_25\_1

-rw-r----- 1 oracle dba 57344 Apr 8 10:31 full\_0r0qe1f7\_27\_1

-rw-r----- 1 oracle dba 139264 Apr 8 10:32 full\_0t0qe1hi\_29\_1

** One of these backup files store our Archived Logs covered with syntax option PLUS ARCHIVELOG (**full\_0l0qe0tk\_21\_1)

[oracle@oracledb19c BACKUP]$ **cd ../ARCHIVE**

[oracle@oracledb19c ARCHIVE]$ **ls -l**

total 4

-rw-r----- 1 oracle dba 2048 Apr 8 10:21 arch\_1066817182\_1\_119.log

[oracle@oracledb19c ARCHIVE]$ **sqlplus / as sysdba**

SQL\*Plus: Release 19.0.0.0.0 - Production on Fri Apr 8 10:42:11 2022

Version 19.3.0.0.0

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Connected to:

Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

Version 19.3.0.0.0

SQL> **select \* from v$log;**

GROUP# THREAD# SEQUENCE# BYTES BLOCKSIZE MEMBERS ARC

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

STATUS FIRST\_CHANGE# FIRST\_TIM NEXT\_CHANGE# NEXT\_TIME

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

1 1 119 209715200 512 1 YES

INACTIVE 9164161 08-APR-22 9164189 08-APR-22

**2** 1 **120** 209715200 512 1 NO

**CURRENT** 9164189 08-APR-22 1.8447E+19

3 1 118 209715200 512 1 YES

INACTIVE 9121137 07-APR-22 9164161 08-APR-22

** Since the last Archived Log file is with LSN=119, it is clear why the CURRENT Log File is with LSN=120, like shown above**

SQL> **exit**

Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

Version 19.3.0.0.0

[oracle@oracledb19c ARCHIVE]$ **exit**

logout

[student@oracledb19c ~]$ **exit**

logout