***SESSION 15 PERFORMING BACKUPS with RMAN (ARCHIVELOG)***

Last login: Sun Apr 3 10:54:18 2022 from 10.30.2.33

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

Password:

Last login: Sun Apr 3 10:54:26 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 6 Mar 30 12:13 ARCHIVE

drwxrwxrwx 2 oracle dba 106 Mar 30 12:27 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 0

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

SQL\*Plus: Release 19.0.0.0.0 - Production on Tue Apr 5 12:47:17 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> **ARCHIVE LOG LIST;  to check the status of Archiving (only SYSDBA)**

Database log mode No Archive Mode

Automatic archival Disabled

Archive destination USE\_DB\_RECOVERY\_FILE\_DEST

Oldest online log sequence 111

Current log sequence 113

SQL> **SHOW PARAMETER ARCHIVE**

NAME TYPE VALUE

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

archive\_lag\_target integer 0

log\_archive\_config string

log\_archive\_dest string

**log\_archive\_dest\_1 string**

log\_archive\_dest\_10 string

log\_archive\_dest\_11 string

log\_archive\_dest\_12 string

log\_archive\_dest\_13 string

log\_archive\_dest\_14 string

log\_archive\_dest\_15 string

log\_archive\_dest\_16 string

log\_archive\_dest\_17 string

log\_archive\_dest\_18 string

log\_archive\_dest\_19 string

log\_archive\_dest\_2 string

log\_archive\_dest\_20 string

log\_archive\_dest\_21 string

log\_archive\_dest\_22 string

log\_archive\_dest\_23 string

log\_archive\_dest\_24 string

log\_archive\_dest\_25 string

log\_archive\_dest\_26 string

log\_archive\_dest\_27 string

log\_archive\_dest\_28 string

log\_archive\_dest\_29 string

log\_archive\_dest\_3 string

log\_archive\_dest\_30 string

log\_archive\_dest\_31 string

log\_archive\_dest\_4 string

log\_archive\_dest\_5 string

log\_archive\_dest\_6 string

log\_archive\_dest\_7 string

log\_archive\_dest\_8 string

log\_archive\_dest\_9 string

log\_archive\_dest\_state\_1 string enable

log\_archive\_dest\_state\_10 string enable

log\_archive\_dest\_state\_11 string enable

log\_archive\_dest\_state\_12 string enable

log\_archive\_dest\_state\_13 string enable

log\_archive\_dest\_state\_14 string enable

log\_archive\_dest\_state\_15 string enable

log\_archive\_dest\_state\_16 string enable

log\_archive\_dest\_state\_17 string enable

log\_archive\_dest\_state\_18 string enable

log\_archive\_dest\_state\_19 string enable

log\_archive\_dest\_state\_2 string enable

log\_archive\_dest\_state\_20 string enable

log\_archive\_dest\_state\_21 string enable

log\_archive\_dest\_state\_22 string enable

log\_archive\_dest\_state\_23 string enable

log\_archive\_dest\_state\_24 string enable

log\_archive\_dest\_state\_25 string enable

log\_archive\_dest\_state\_26 string enable

log\_archive\_dest\_state\_27 string enable

log\_archive\_dest\_state\_28 string enable

log\_archive\_dest\_state\_29 string enable

log\_archive\_dest\_state\_3 string enable

log\_archive\_dest\_state\_30 string enable

log\_archive\_dest\_state\_31 string enable

log\_archive\_dest\_state\_4 string enable

log\_archive\_dest\_state\_5 string enable

log\_archive\_dest\_state\_6 string enable

log\_archive\_dest\_state\_7 string enable

log\_archive\_dest\_state\_8 string enable

log\_archive\_dest\_state\_9 string enable

log\_archive\_duplex\_dest string

**log\_archive\_format string %t\_%s\_%r.dbf**

log\_archive\_max\_processes integer 4

log\_archive\_min\_succeed\_dest integer 1

**log\_archive\_start boolean FALSE**

log\_archive\_trace integer 0

**Recipe for Switching to ARCHIVELOG mode** (needs to be done by **SYSDBA**)

Step One: We need to modify 2 parameters in SPFILE before switch to archiving. First one sets the folder location and second one the log name convention.

SQL> **ALTER SYSTEM SET LOG\_ARCHIVE\_DEST\_1 =**

**'LOCATION=/home/oracle/ARCHIVE/' SCOPE=SPFILE;**

System altered.

SQL> **ALTER SYSTEM SET LOG\_ARCHIVE\_FORMAT =**

**'arch\_%r\_%t\_%s.log' SCOPE=SPFILE;**

System altered.

Step Two: Close your Database

SQL> **SHUTDOWN IMMEDIATE;**

Database closed.

Database dismounted.

ORACLE instance shut down.

Step Three: Mount your Database

SQL> **STARTUP MOUNT;**

ORACLE instance started.

Total System Global Area 2147481656 bytes

Fixed Size 8898616 bytes

Variable Size 1476395008 bytes

Database Buffers 637534208 bytes

Redo Buffers 24653824 bytes

Database mounted.

Step Four: Turn on Archiving

SQL> **ALTER DATABASE ARCHIVELOG;**

Database altered.

Step Five: Open your Database

SQL> **ALTER DATABASE OPEN;**

Database altered.

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

SQL> **ARCHIVE LOG LIST;**

Database log mode Archive Mode

Automatic archival Enabled

Archive destination /home/oracle/ARCHIVE/

Oldest online log sequence 113

Next log sequence to archive 115

Current log sequence 115

SQL> **SELECT group#, sequence#, archived, status FROM V$LOG;**

GROUP# SEQUENCE# ARC STATUS

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

1 113 YES ACTIVE

2 114 YES ACTIVE

3 115 NO CURRENT

** Archiving is enabled and we have our first two Archive Logs in the ARCHIVE folder**

SQL> **HOST**

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

total 112132

-rw-r----- 1 oracle dba 114817536 Apr5 12:52 arch\_1066817182\_1**\_113.log**

-rw-r----- 1 oracle dba 1024 Apr5 12:52 arch\_1066817182\_1\_**114.log**

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

exit

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]$ **cd ../BACKUP**

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

total 3945568

-rw-r----- 1 oracle dba 1157963776 Mar 30 12:21 full\_010pmgho\_1\_1

-rw-r----- 1 oracle dba 861863936 Mar 30 12:21 full\_020pmgi7\_2\_1

-rw-r----- 1 oracle dba 1150550016 Mar 30 12:27 full\_040pmgtl\_4\_1

-rw-r----- 1 oracle dba 869883904 Mar 30 12:27 full\_050pmgu4\_5\_1

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

Recovery Manager: Release 19.0.0.0.0 - Production on Tue Apr 5 12:55:51 2022

Version 19.3.0.0.0

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connected to target database: STUDENT (DBID=107505563)

RMAN> **LIST BACKUP OF DATABASE;**

using target database control file instead of recovery catalog

List of Backup Sets

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

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**1 Full 1.08G** DISK 00:00:07 30-MAR-22

BP Key: 1 Status: AVAILABLE Compressed: NO Tag: TAG20220330T122112

Piece Name: /home/oracle/BACKUP/full\_010pmgho\_1\_1

List of Datafiles in backup set 1

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

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

3 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

7 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

8 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/DISK4/joke02.dbf

9 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**2 Full 821.93M** DISK 00:00:06 30-MAR-22

BP Key: 2 Status: AVAILABLE Compressed: NO Tag: TAG20220330T122112

Piece Name: /home/oracle/BACKUP/full\_020pmgi7\_2\_1

List of Datafiles in backup set 2

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

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

1 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

2 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/joke01.dbf

4 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

5 Full 8461257 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**4 Full 1.07G** DISK 00:00:09 30-MAR-22

BP Key: 4 Status: AVAILABLE Compressed: NO Tag: TAG20220330T122733

Piece Name: /home/oracle/BACKUP/full\_040pmgtl\_4\_1

List of Datafiles in backup set 4

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

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

3 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

7 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/users01.dbf

9 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

**5 Full 829.58M** DISK 00:00:05 30-MAR-22

BP Key: 5 Status: AVAILABLE Compressed: NO Tag: TAG20220330T122733

Piece Name: /home/oracle/BACKUP/full\_050pmgu4\_5\_1

List of Datafiles in backup set 5

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

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

1 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

4 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/DISK3/undotbs01.dbf

5 Full 8462745 30-MAR-22 NO /opt/oracle/app/oracle/oradata/STUDENT/mine01.dbf

**\* Our backup sets (1,2,3,4,5,6) that were created in NOARCHIVELOG mode are useless now and need to be removed manually like shown here \***

RMAN> **DELETE BACKUPSET 1,2,3,4,5,6;**

** to manually delete a single backup set - use BS key in syntax**

allocated channel: ORA\_DISK\_1

channel ORA\_DISK\_1: SID=270 device type=DISK

List of Backup Pieces

BP Key BS Key Pc# Cp# Status Device Type Piece Name

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

1 1 1 1 AVAILABLE DISK /home/oracle/BACKUP/full\_010pmgho\_1\_1

2 2 1 1 AVAILABLE DISK /home/oracle/BACKUP/full\_020pmgi7\_2\_1

3 3 1 1 AVAILABLE DISK /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_03\_30/o1\_mf\_s\_1100694021\_k490wq12\_.bkp

4 4 1 1 AVAILABLE DISK /home/oracle/BACKUP/full\_040pmgtl\_4\_1

5 5 1 1 AVAILABLE DISK /home/oracle/BACKUP/full\_050pmgu4\_5\_1

6 6 1 1 AVAILABLE DISK /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_03\_30/o1\_mf\_s\_1100694391\_k4918cto\_.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\_010pmgho\_1\_1 RECID=1 STAMP=1100694072

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_020pmgi7\_2\_1 RECID=2 STAMP=1100694087

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_03\_30/o1\_mf\_s\_1100694021\_k490wq12\_.bkp RECID=3 STAMP=1100694103

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_040pmgtl\_4\_1 RECID=4 STAMP=1100694453

deleted backup piece

backup piece handle=/home/oracle/BACKUP/full\_050pmgu4\_5\_1 RECID=5 STAMP=1100694468

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_03\_30/o1\_mf\_s\_1100694391\_k4918cto\_.bkp RECID=6 STAMP=1100694475

Deleted 6 objects

RMAN> **LIST BACKUP OF DATABASE;**

specification does not match any backup in the repository

**\* We can perform Whole Database /Tablespace /Datafile /Archived Log then Full / Incremental Level (0 or 1) and Off-Line (Cold) /On-Line (Hot) Backup ; these options exist when doing Backup in ARCHIVELOG mode. This exercise will perform always Full and Hot Backups. \***

The Generic Backup Syntax is shown here:

* **BACKUP { as [COMPRESSED] backupset | as copy }**

**{ \_ | incremental level {0 | 1 } [cumulative ] }**

**{ DATABASE | TABLESPACE name1, name2 | DATAFILE m, n }**

**[ PLUS ARCHIVELOG ] [FILESPERSET=n] ;**

RMAN> **BACKUP DATABASE FILESPERSET=3;**

Starting backup at 05-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 full 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=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 05-APR-22

channel ORA\_DISK\_1: finished piece 1 at 05-APR-22

piece handle=/home/oracle/BACKUP/full\_080q6d54\_8\_1 tag=TAG20220405T130124 comment=NONE

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

channel ORA\_DISK\_1: starting full datafile backup set

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

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

channel ORA\_DISK\_1: starting piece 1 at 05-APR-22

channel ORA\_DISK\_1: finished piece 1 at 05-APR-22

piece handle=/home/oracle/BACKUP/full\_090q6d5j\_9\_1 tag=TAG20220405T130124 comment=NONE

channel ORA\_DISK\_1: backup set complete, elapsed time: 00:00:07

Finished backup at 05-APR-22

Starting Control File and SPFILE Autobackup at 05-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 05-APR-22

RMAN> **LIST BACKUP;  to show ALL backup sets (both Datafiles and Archived Logs plus Auto-Backup of Controlfile)**

List of Backup Sets

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

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

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

**9 Full 10.20M** DISK 00:00:00 05-APR-22

BP Key: 9 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130146

Piece Name: /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp

SPFILE Included: Modification time: 05-APR-22

SPFILE db\_unique\_name: STUDENT

Control File Included: Ckp SCN: **8948396** Ckp time: 05-APR-22

**\* Notice that in all sets created here with HOT backup like (7,8,9)  Checkpoint System Change Number is NOT the SAME number. This means that Datafiles and Controlfiles do NOT have same last transaction number, so HOT backup is also called INCONSISTENT \***

RMAN> **BACKUP TABLESPACE mine, users FILESPERSET=2;**

Starting backup at 05-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting full 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 05-APR-22

channel ORA\_DISK\_1: finished piece 1 at 05-APR-22

piece handle=/home/oracle/BACKUP/full\_0b0q6d9i\_11\_1 tag=TAG20220405T130346 comment=NONE

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

Finished backup at 05-APR-22

Starting Control File and SPFILE Autobackup at 05-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215027\_k4rxmmtt\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 05-APR-22

RMAN> **LIST BACKUP;**

List of Backup Sets

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

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

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

9 Full 10.20M DISK 00:00:00 05-APR-22

BP Key: 9 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130146

Piece Name: /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp

SPFILE Included: Modification time: 05-APR-22

SPFILE db\_unique\_name: STUDENT

Control File Included: Ckp SCN: 8948396 Ckp time: 05-APR-22

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

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

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

11 Full 10.20M DISK 00:00:00 05-APR-22

BP Key: 11 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130347

Piece Name: /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215027\_k4rxmmtt\_.bkp

SPFILE Included: Modification time: 05-APR-22

SPFILE db\_unique\_name: STUDENT

Control File Included: Ckp SCN: 8948686 Ckp time: 05-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

RMAN> **BACKUP DATAFILE 4;  this is undotbs1.dbf file**

Starting backup at 05-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting full 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 05-APR-22

channel ORA\_DISK\_1: finished piece 1 at 05-APR-22

piece handle=/home/oracle/BACKUP/full\_0d0q6ddb\_13\_1 tag=TAG20220405T130547 comment=NONE

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

Finished backup at 05-APR-22

Starting Control File and SPFILE Autobackup at 05-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215148\_k4rxqdsp\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 05-APR-22

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

RMAN> **BACKUP AS COPY DATAFILE 5;  to perform an ordinary COPY of datafile**

Starting backup at 05-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting datafile copy

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

output file name=/home/oracle/BACKUP/full\_0f0q6dh0\_15\_1 tag=TAG20220405T130744 RECID=1 STAMP=1101215265

channel ORA\_DISK\_1: datafile copy complete, elapsed time: 00:00:01

Finished backup at 05-APR-22

Starting Control File and SPFILE Autobackup at 05-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215266\_k4rxv296\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 05-APR-22

RMAN> **LIST COPY OF DATAFILE 5;**

List of Datafile Copies

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

Key File S Completion Time Ckp SCN Ckp Time Sparse

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

1 5 A 05-APR-22 8949825 05-APR-22 NO

Name: /home/oracle/BACKUP/full\_0f0q6dh0\_15\_1

Tag: TAG20220405T130744

RMAN> **show RETENTION POLICY;**

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

CONFIGURE RETENTION POLICY TO REDUNDANCY 2;

RMAN> **REPORT NEED BACKUP;**

** This will list all files that do not have at least Two backups (below our non-default Retention policy of 2)**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 2

Report of files with less than 2 redundant backups

File #bkps Name

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

1 1 /opt/oracle/app/oracle/oradata/STUDENT/system01.dbf

file 2 is excluded from whole database backup

3 1 /opt/oracle/app/oracle/oradata/STUDENT/sysaux01.dbf

file 8 is excluded from whole database backup

9 1 /opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

RMAN> **BACKUP DATAFILE 1, 3, 9 ;**

Starting backup at 05-APR-22

using channel ORA\_DISK\_1

channel ORA\_DISK\_1: starting full 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=00009 name=/opt/oracle/app/oracle/oradata/DISK2/indx01.dbf

channel ORA\_DISK\_1: starting piece 1 at 05-APR-22

channel ORA\_DISK\_1: finished piece 1 at 05-APR-22

piece handle=/home/oracle/BACKUP/full\_0h0q6dkt\_17\_1 tag=TAG20220405T130949 comment=NONE

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

Finished backup at 05-APR-22

Starting Control File and SPFILE Autobackup at 05-APR-22

piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215404\_k4rxzf2w\_.bkp comment=NONE

Finished Control File and SPFILE Autobackup at 05-APR-22

RMAN> **REPORT NEED BACKUP;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 2

Report of files with less than 2 redundant backups

File #bkps Name

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

file 2 is excluded from whole database backup

file 8 is excluded from whole database backup

RMAN> **REPORT OBSOLETE;**

** This will list all files that have 3, 4, … backups (above or beyond Retention policy of 2)**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 2

Report of obsolete backups and copies

Type Key Completion Time Filename/Handle

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

Archive Log 1 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_113.log

Archive Log 2 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_114.log

Backup Set 9 05-APR-22

Backup Piece 9 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp

Backup Set 11 05-APR-22

Backup Piece 11 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215027\_k4rxmmtt\_.bkp

Backup Set 13 05-APR-22

Backup Piece 13 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215148\_k4rxqdsp\_.bkp

RMAN> **DELETE OBSOLETE;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 2

using channel ORA\_DISK\_1

Deleting the following obsolete backups and copies:

Type Key Completion Time Filename/Handle

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

Archive Log 1 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_113.log

Archive Log 2 05-APR-22 /home/oracle/ARCHIVE/arch\_1066817182\_1\_114.log

Backup Set 9 05-APR-22

Backup Piece 9 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp

Backup Set 11 05-APR-22

Backup Piece 11 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215027\_k4rxmmtt\_.bkp

Backup Set 13 05-APR-22

Backup Piece 13 05-APR-22 /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215148\_k4rxqdsp\_.bkp

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

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_113.log RECID=1 STAMP=1101214358

deleted archived log

archived log file name=/home/oracle/ARCHIVE/arch\_1066817182\_1\_114.log RECID=2 STAMP=1101214372

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101214907\_k4rxhvb0\_.bkp RECID=9 STAMP=1101214907

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215027\_k4rxmmtt\_.bkp RECID=11 STAMP=1101215027

deleted backup piece

backup piece handle=/opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215148\_k4rxqdsp\_.bkp RECID=13 STAMP=1101215148

Deleted 5 objects

RMAN> **REPORT OBSOLETE;**

RMAN retention policy will be applied to the command

RMAN retention policy is set to redundancy 2

no obsolete backups found

RMAN> **LIST BACKUP;**

List of Backup Sets

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

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

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

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

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

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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14 Full 10.20M DISK 00:00:00 05-APR-22

BP Key: 14 Status: AVAILABLE Compressed: NO Tag: TAG20220405T130746

Piece Name: /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215266\_k4rxv296\_.bkp

SPFILE Included: Modification time: 05-APR-22

SPFILE db\_unique\_name: STUDENT

Control File Included: Ckp SCN: 8949834 Ckp time: 05-APR-22

BS Key Type LV Size Device Type Elapsed Time Completion Time

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

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

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

16 Full 10.20M DISK 00:00:01 05-APR-22

BP Key: 16 Status: AVAILABLE Compressed: NO Tag: TAG20220405T131004

Piece Name: /opt/oracle/app/oracle/recovery\_area/STUDENT/autobackup/2022\_04\_05/o1\_mf\_s\_1101215404\_k4rxzf2w\_.bkp

SPFILE Included: Modification time: 05-APR-22

SPFILE db\_unique\_name: STUDENT

Control File Included: Ckp SCN: 8949962 Ckp time: 05-APR-22

RMAN> **list copy;  to list all Backup Copies and all original Archived Logs stored**

OUTPUT is NOT shown here

RMAN> **exit**

Recovery Manager complete.

[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

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

logout

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

logout