***SESSION 4 MULTIPLEXING CONTROLFILE***

**You use MOBAXTERM tool to open NEW SSH session and connect to your provided VM server myvmlab.senecacollege.ca with your PORT#, as user student and then switch to user oracle**  🡪 then provide the password **PSmgi451**

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

Password:

Last login: Sat Jan 29 13:00:03 EST 2022 on pts/0

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

[oracle@oracledb19c ~]$ **cd /opt/oracle/app/oracle/oradata**

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

total 0

drwxr-xr-x 2 oracle dba 6 Feb 3 19:54 DISK2

drwxr-xr-x 2 oracle dba 6 Feb 3 19:54 DISK3

drwxr-xr-x 2 oracle dba 6 Feb 3 19:54 DISK4

drwxr-xr-x 2 oracle dba 6 Feb 3 19:54 DISK5

drwxr-x--- 2 oracle dba 179 Jan 28 10:29 LEMON

drwxr-x--- 2 oracle dba 179 Mar 10 2021 STUDENT

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

SQL\*Plus: Release 19.0.0.0.0 - Production on Thu Feb 3 19:58:28 2022

Version 19.3.0.0.0

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**Connected to:**  **Our default DB is running**

Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

Version 19.3.0.0.0

SQL> **SELECT instance\_name, status FROM v$instance;**

INSTANCE\_NAME STATUS

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student OPEN

SQL> **SHOW PARAMETER SPFILE**

NAME TYPE VALUE

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

spfile string **/opt/oracle/app/oracle/product/19.3.0/dbhome\_1/dbs/spfilestudent.ora**

**\* There are Three ways to see where the Control Files are! \***

SQL> **SHOW PARAMETER CONTROL**

NAME TYPE VALUE

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

control\_file\_record\_keep\_time integer 7

**control\_files string /opt/oracle/app/oracle/oradata/STUDENT/control01.ctl,**

**/opt/oracle/app/oracle/recovery\_area/STUDENT/control02.ctl**

control\_management\_pack\_access string DIAGNOSTIC+TUNING

**\* So, we have only 2 copies of our Control File in 2 different folders \***

SQL> **SELECT name FROM V$CONTROLFILE;**

NAME

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

**/opt/oracle/app/oracle/oradata/STUDENT/control01.ctl**

**/opt/oracle/app/oracle/recovery\_area/STUDENT/control02.ctl**

SQL> **SELECT name, value FROM V$PARAMETER**

**WHERE name LIKE '%control%' ;**

NAME

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

VALUE

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

**control\_files**

**/opt/oracle/app/oracle/oradata/STUDENT/control01.ctl, /opt/oracle/app/oracle/recovery\_area/STUDENT/control02.ctl**

control\_file\_record\_keep\_time

7

control\_management\_pack\_access

DIAGNOSTIC+TUNING

**\* THIS IS OPTIONAL EXERCISE. BE VERY CAREFUL if doing this !!! \***

**STEP ONE – Dynamic Editing of SPFILE, so that we will have 3 copies of our Controlfile on 3 different disks (instead of having just 2) \***

SQL> **ALTER SYSTEM SET control\_files= '/opt/oracle/app/oracle/oradata/STUDENT/control01.ctl',**

**'/opt/oracle/app/oracle/recovery\_area/STUDENT/control02.ctl',**

**'/opt/oracle/app/oracle/oradata/DISK3/control03.ctl' SCOPE=SPFILE;**

System altered.

**\* STEP TWO – Shut your Database \***

SQL> **SHUTDOWN IMMEDIATE;**

Database closed.

Database dismounted.

ORACLE instance shut down.

**\* STEP THREE – Copy your file in Linux (carefully) and verify \***

SQL> **host**

[oracle@oracledb19c oradata]$ **cp /opt/oracle/app/oracle/oradata/STUDENT/control01.ctl /opt/oracle/app/oracle/oradata/DISK3/control03.ctl**

[oracle@oracledb19c oradata]$ **cd /opt/oracle/app/oracle/oradata/DISK3/**

[oracle@oracledb19c DISK3]$ **ls -l**

total 10352

-rw-r----- 1 oracle dba 10600448 Feb 3 20:05 **control03.ctl**

[oracle@oracledb19c DISK3]$ **exit**

exit

**\* STEP FOUR – Start your Database with SPFILE \***

SQL> **STARTUP;**

ORACLE instance started.

Total System Global Area 2147481656 bytes

Fixed Size 8898616 bytes

Variable Size 1375731712 bytes

Database Buffers 738197504 bytes

Redo Buffers 24653824 bytes

Database mounted.

Database opened.

SQL> **show parameter control**

NAME TYPE VALUE

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

control\_file\_record\_keep\_time integer 7

**control\_files string /opt/oracle/app/oracle/oradata/STUDENT/control01.ctl,**

**/opt/oracle/app/oracle/recovery\_area/STUDENT/control02.ctl,**

**/opt/oracle/app/oracle/oradata/DISK3/control03.ctl**

control\_management\_pack\_access string DIAGNOSTIC+TUNING

***SESSION 3B ADDING, RELOCATING and REMOVING******LOG FILES***

SQL> **DESC V$LOGFILE**

Name Null? Type

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

GROUP# NUMBER

STATUS VARCHAR2(7)

TYPE VARCHAR2(7)

MEMBER VARCHAR2(513)

IS\_RECOVERY\_DEST\_FILE VARCHAR2(3)

CON\_ID NUMBER

SQL> COLUMN member FORMAT a50

SQL> **SELECT group#, status, member FROM V$LOGFILE;**

GROUP# STATUS MEMBER

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

3 /opt/oracle/app/oracle/oradata/STUDENT/redo03.log

2 /opt/oracle/app/oracle/oradata/STUDENT/redo02.log

1 /opt/oracle/app/oracle/oradata/STUDENT/redo01.log

SQL> **DESC v$log**

Name Null? Type

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

GROUP# NUMBER

THREAD# NUMBER

SEQUENCE# NUMBER

BYTES NUMBER

BLOCKSIZE NUMBER

MEMBERS NUMBER

ARCHIVED VARCHAR2(3)

STATUS VARCHAR2(16)

FIRST\_CHANGE# NUMBER

FIRST\_TIME DATE

NEXT\_CHANGE# NUMBER

NEXT\_TIME DATE

CON\_ID NUMBER

SQL> **SELECT group#, sequence#, bytes, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# BYTES STATUS FIRST\_CHANGE#

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

1 28 209715200 INACTIVE 3887903

2 29 209715200 CURRENT 3981338

3 27 209715200 INACTIVE 3798480

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 28 INACTIVE 3887903

2 29 ACTIVE 3981338

3 30 CURRENT 3990966

**\* We always may perform a MANUAL Log Switch \***

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 CURRENT 3991045

2 29 ACTIVE 3981338

3 30 ACTIVE 3990966

**\* We can ADD a new Log Group (do NOT specify Group# ) or new Log Member like below \***

SQL> **ALTER DATABASE ADD LOGFILE '/opt/oracle/app/oracle/oradata/DISK4/redo04.log' SIZE 100M;**

Database altered.

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 CURRENT 3991045

2 29 INACTIVE 3981338

3 30 ACTIVE 3990966

4 0 UNUSED 0

**\* Notice that status of new Group 4 is UNUSED, LSN=0 and SCN=0, because this is a brand new group \***

SQL> **ALTER DATABASE ADD LOGFILE MEMBER**

**'/opt/oracle/app/oracle/oradata/DISK2/redo04b.log' TO GROUP 4;**

Database altered.

SQL> **SELECT group#, status, member FROM V$LOGFILE;**

GROUP# STATUS MEMBER

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

3 /opt/oracle/app/oracle/oradata/STUDENT/redo03.log

2 /opt/oracle/app/oracle/oradata/STUDENT/redo02.log

1 /opt/oracle/app/oracle/oradata/STUDENT/redo01.log

4 /opt/oracle/app/oracle/oradata/DISK4/redo04.log

4 INVALID /opt/oracle/app/oracle/oradata/DISK2/redo04b.log

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 ACTIVE 3991045

2 29 INACTIVE 3981338

3 30 INACTIVE 3990966

4 32 CURRENT 3991261

**\* Notice that after LOG SWITCH, status of our new Group #4 becomes CURRENT, LSN = 32 (next integer after 31 for Group #1) and SCN = 3991261 (higher than one for the previously current Group #1) . \***

SQL> **ALTER SYSTEM SWITCH LOGFILE;**

System altered.

**\* Notice that our sequence of Log Groups now is 1 4 2 3 \***

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 ACTIVE 3991045

2 33 CURRENT 3991298

3 30 INACTIVE 3990966

4 32 ACTIVE 3991261

**\* After 3 minutes -- status of Groups #1 and #4 is still ACTIVE. Then we may perform MANUAL Checkpoint to clear that \***

SQL> **ALTER SYSTEM CHECKPOINT;**

System altered.

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 INACTIVE 3991045

2 33 CURRENT 3991298

3 30 INACTIVE 3990966

4 32 INACTIVE 3991261

***Moving (Relocating) Lofiles Scenario***

**\* STEP ONE -- Physical Move in Linux (ALWAYS FIRST STEP WHEN MOVING) \***

SQL> **HOST**

[oracle@oracledb19c STUDENT]$ **mv /opt/oracle/app/oracle/oradata/DISK2/redo04b.log /opt/oracle/app/oracle/oradata/DISK3/**

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

exit

**\* STEP TWO -- Logical Rename in SQL \***

SQL> **ALTER DATABASE RENAME FILE**

**'/opt/oracle/app/oracle/oradata/DISK2/redo04b.log' to**

**'/opt/oracle/app/oracle/oradata/DISK3/redo04b.log';**

Database altered.

SQL> **SELECT group#, status, member FROM V$LOGFILE**;

GROUP# STATUS MEMBER

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

3 /opt/oracle/app/oracle/oradata/STUDENT/redo03.log

2 /opt/oracle/app/oracle/oradata/STUDENT/redo02.log

1 /opt/oracle/app/oracle/oradata/STUDENT/redo01.log

4 /opt/oracle/app/oracle/oradata/DISK4/redo04.log

4 /opt/oracle/app/oracle/oradata/DISK3/redo04b.log

***Removing (Dropping) Lofiles Scenario***

**\* STEP ONE – Logical Drop in SQL(ALWAYS FIRST STEP WHEN REMOVING) \***

SQL> **ALTER DATABASE DROP LOGFILE MEMBER**

**'/opt/oracle/app/oracle/oradata/DISK3/redo04b.log';**

Database altered.

SQL> **ALTER DATABASE DROP LOGFILE GROUP 4;**

Database altered.

**\* STEP TWO – Physica Removal in Linux \***

SQL> **host**

[oracle@oracledb19c STUDENT]$ **cd /opt/oracle/app/oracle/oradata/DISK4/**

[oracle@oracledb19c DISK4]$ **ls -l**

total 102404

-rw-r----- 1 oracle dba 104858112 Feb 4 10:48 redo04.log

[oracle@oracledb19c DISK4]$ **rm redo04.log**

[oracle@oracledb19c DISK4]$ **cd ../DISK3**

[oracle@oracledb19c DISK3]$ **ls -l**

total 112756

-rw-r----- 1 oracle dba 10600448 Feb 4 10:58 control03.ctl

-rw-r----- 1 oracle dba 104858112 Feb 4 10:48 redo04b.log

[oracle@oracledb19c DISK3]$ **rm redo04b.log**

[oracle@oracledb19c DISK3]$ **exit**

exit

SQL> **SELECT group#, status, member FROM V$LOGFILE;**

GROUP# STATUS MEMBER

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

3 /opt/oracle/app/oracle/oradata/STUDENT/redo03.log

2 /opt/oracle/app/oracle/oradata/STUDENT/redo02.log

1 /opt/oracle/app/oracle/oradata/STUDENT/redo01.log

SQL> **SELECT group#, sequence#, status, first\_change#**

**FROM V$LOG;**

GROUP# SEQUENCE# STATUS FIRST\_CHANGE#

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

1 31 INACTIVE 3991045

2 33 CURRENT 3991298

3 30 INACTIVE 3990966

**\* Even, if you do NOT perform Step Two, nothing will happen. Just, these files being removed logically, will be useless and may confuse you with their presence in the Linux tree \***