SESSION 3A MULTIPLEXING CONTROLFILE

You use MOBAXTERM tool to open NEW SSH session and connect to your provided VM server with your PORT (as user oracle)

```
The Oracle base remains unchanged with value /opt/oracle
[oracle@oracloud12c ~]$ pwd
/home/oracle
[oracle@oracloud12c ~]$ cd  /opt/oracle/oradata/student
[oracle@oracloud12c student]$ ls -l
total 11902664
-rw-r-----. 1 oracle dba   10043392 Feb  1 11:13 control01.ctl
-rw-r-----. 1 oracle dba  209723392 Feb  1 10:10 mgmt_ad4j.dbf
-rw-r-----. 1 oracle dba 7392468992 Feb  1 11:12 mgmt.dbf
-rw-r-----. 1 oracle dba  167780352 Feb  1 11:11 mgmt_depot.dbf
-rw-r-----. 1 oracle dba   52429312 Feb  1 11:13 redo01.log
-rw-r-----. 1 oracle dba   52429312 Feb  1 08:09 redo02.log
-rw-r-----. 1 oracle dba   52429312 Feb  1 10:05 redo03.log
-rw-r-----. 1 oracle dba 2212503552 Feb  1 11:12 sysaux01.dbf
-rw-r-----. 1 oracle dba 1111498752 Feb  1 11:12 system01.dbf
-rw-r-----. 1 oracle dba   62922752 Feb  1 11:00 temp01.dbf
-rw-r-----. 1 oracle dba  849354752 Feb  1 11:12 undotbs01.dbf
-rw-r-----. 1 oracle dba    5251072 Feb  1 10:10 users01.dbf

[oracle@oracloud12c student]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Thu Feb 1 11:18:38 2018

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Connected to:                    ← Our DB is running
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit
Production
With the Partitioning, OLAP, Advanced Analytics and Real Application
Testing options

SQL> set pagesize 120
```

*** 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/oradata/student/control01.ctl,
             /opt/oracle/fast_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/oradata/student/control01.ctl
/opt/oracle/fast_recovery_area/student/control02.ctl

SQL> SELECT name, value FROM V$PARAMETER
          WHERE   name LIKE '%control%';

NAME
--------------------------------------------------------------------------------
VALUE
--------------------------------------------------------------------------------
control_files
/opt/oracle/oradata/student/control01.ctl,
/opt/oracle/fast_recovery_area/student/control02.ctl

control_file_record_keep_time
7

control_management_pack_access
DIAGNOSTIC+TUNING

SQL> SHOW PARAMETER SPFILE
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
spfile                               string
     /opt/oracle/product/12.1.0/dbhome_1/dbs/spfilestudent.ora

SQL> HOST
[oracle@oracloud12c student]$ pwd
/opt/oracle/oradata/student
[oracle@oracloud12c student]$ cd ..
[oracle@oracloud12c oradata]$ ls -l
total 16
drwxr-xr-x. 2 oracle dba 4096 Dec 29 14:10 student

   * Let's make 4 new Folders that will mimic 4 new Disks *
[oracle@oracloud12c oradata]$ mkdir DISK2 DISK3 DISK4 DISK5
[oracle@oracloud12c oradata]$ ls -l
total 24
drwxr-xr-x. 2 oracle dba 4096 Feb  1 11:23 DISK2
drwxr-xr-x. 2 oracle dba 4096 Feb  1 11:23 DISK3
drwxr-xr-x. 2 oracle dba 4096 Feb  1 11:23 DISK4
drwxr-xr-x. 2 oracle dba 4096 Feb  1 11:23 DISK5
drwxr-xr-x. 2 oracle dba 4096 Dec 29 14:10 student
 [oracle@oracloud12c oradata]$ exit
exit
```

*** STEP ONE - Dynamic Editing of SPFILE, so that we have now 3 copies on 3 different disks (instead of having 2 copies only) ***

```
SQL> ALTER SYSTEM SET control_files=
'/opt/oracle/oradata/student/control01.ctl',
'/opt/oracle/fast_recovery_area/student/control02.ctl',
'/opt/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 ***

```
SQL> host
[oracle@oracloud12c oradata]$ cp
      /opt/oracle/oradata/student/control01.ctl
      /opt/oracle/oradata/DISK3/control03.ctl
[oracle@oracloud12c oradata]$ exit
exit
```

*** STEP FOUR - Start your Database with SPFILE ***

```
SQL> STARTUP;
ORACLE instance started.

Total System Global Area 1073741824 bytes
Fixed Size                  2932632 bytes
Variable Size             377487464 bytes
Database Buffers          687865856 bytes
Redo Buffers                5455872 bytes
Database mounted.
Database opened.

SQL> SHOW PARAMETER CONTROL

NAME                                 TYPE        VALUE
------------------------------------ ----------- ----------------------
control_file_record_keep_time        integer     7
control_files                        string
     /opt/oracle/oradata/student/control01.ctl,
     /opt/oracle/fast_recovery_area/student/control02.ctl,
     /opt/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 a40
SQL> SELECT  group#, status, member  FROM    V$LOGFILE;

    GROUP# STATUS  MEMBER
---------- ------- ----------------------------------------
         3         /opt/oracle/oradata/student/redo03.log
         2         /opt/oracle/oradata/student/redo02.log
         1         /opt/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       3598   52428800 CURRENT               68005004
         2       3596   52428800 INACTIVE              67942179
         3       3597   52428800 INACTIVE              67973146
```

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

```
SQL> ALTER  SYSTEM  SWITCH  LOGFILE;
System altered.
```

```
SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;

    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 ACTIVE                68005004
         2       3599   52428800 CURRENT               68032297
         3       3597   52428800 INACTIVE              67973146
```

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

```
SQL> ALTER DATABASE ADD LOGFILE '/opt/oracle/oradata/DISK4/redo04.log'
SIZE 20M;

Database altered.
SQL>  ALTER DATABASE ADD LOGFILE MEMBER
'/opt/oracle/oradata/DISK2/redo04b.log'    TO GROUP 4;

Database altered.

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

    GROUP# STATUS  MEMBER
---------- ------- ----------------------------------------
         3         /opt/oracle/oradata/student/redo03.log
         2         /opt/oracle/oradata/student/redo02.log
         1         /opt/oracle/oradata/student/redo01.log
         4         /opt/oracle/oradata/DISK4/redo04.log
         4 INVALID /opt/oracle/oradata/DISK2/redo04b.log

SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;

    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 ACTIVE                68005004
         2       3599   52428800 CURRENT               68032297
         3       3597   52428800 INACTIVE              67973146
         4          0   20971520 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  SYSTEM SWITCH LOGFILE;

System altered.

SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;
```

```
    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 ACTIVE                68005004
         2       3599   52428800 ACTIVE                68032297
         3       3597   52428800 INACTIVE              67973146
         4       3600   20971520 CURRENT               68032964
```

*** Notice that after LOG SWITCH status of our new Group becomes CURRENT, LSN = 3600 (next integer after 3599) and SCN = 68032964 (higher than one for the previously current Group 2) .**

After 3 minutes -- status of Groups 1 and 2 is still ACTIVE. Then we may perform MANUAL Checkpoint to clear that *

```
SQL> ALTER  SYSTEM  CHECKPOINT;

System altered.

SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;

    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 INACTIVE              68005004
         2       3599   52428800 INACTIVE              68032297
         3       3597   52428800 INACTIVE              67973146
         4       3600   20971520 CURRENT               68032964

SQL> ALTER  SYSTEM SWITCH LOGFILE;
System altered.

SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;

    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 INACTIVE              68005004
         2       3599   52428800 INACTIVE              68032297
         3       3601   52428800 CURRENT               68033994
         4       3600   20971520 ACTIVE                68032964
```

Moving (Relocating) Lofiles Scenario

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

```
SQL> HOST

[oracle@oracloud12c student]$  mv
/opt/oracle/oradata/DISK2/redo04b.log  /opt/oracle/oradata/DISK3
[oracle@oracloud12c student]$ exit
exit
```

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

```
SQL> ALTER DATABASE RENAME FILE
       '/opt/oracle/oradata/DISK2/redo04b.log'
     TO '/opt/oracle/oradata/DISK3/redo04b.log';

Database altered.

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

    GROUP# STATUS  MEMBER
---------- ------- ---------------------------------------
         3         /opt/oracle/oradata/student/redo03.log
         2         /opt/oracle/oradata/student/redo02.log
         1         /opt/oracle/oradata/student/redo01.log
         4         /opt/oracle/oradata/DISK4/redo04.log
         4         /opt/oracle/oradata/DISK3/redo04b.log
```

Removing (dropping) Lofiles Scenario

*** STEP ONE - Logical Removal in SQL(ALWAYS FIRST STEP WHEN REMOVING) ***

```
SQL> ALTER DATABASE DROP LOGFILE MEMBER
        '/opt/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@oracloud12c student]$ cd  /opt/oracle/oradata/DISK3/
[oracle@oracloud12c DISK3]$ ls -l
total 30292
-rw-r-----. 1 oracle dba 10043392 Feb  1 11:56 control03.ctl
-rw-r-----. 1 oracle dba 20972032 Feb  1 11:49 redo04b.log

[oracle@oracloud12c DISK3]$ rm redo04b.log

[oracle@oracloud12c DISK3]$ cd ../DISK4
[oracle@oracloud12c DISK4]$ ls -l
total 20484
-rw-r-----. 1 oracle dba 20972032 Feb  1 11:49 redo04.log

[oracle@oracloud12c DISK4]$ rm redo04.log
[oracle@oracloud12c DISK4]$ exit
exit
```

```
SQL> SELECT   group#, sequence#, bytes, status, first_change#
     FROM     V$LOG;

    GROUP#  SEQUENCE#      BYTES STATUS           FIRST_CHANGE#
---------- ---------- ---------- ---------------- -------------
         1       3598   52428800 INACTIVE              68005004
         2       3599   52428800 INACTIVE              68032297
         3       3601   52428800 CURRENT               68033994

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

    GROUP# STATUS  MEMBER
---------- ------- ---------------------------------------
         3         /opt/oracle/oradata/student/redo03.log
         2         /opt/oracle/oradata/student/redo02.log
         1         /opt/oracle/oradata/student/redo01.log
```

*** 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 ***

```
SQL> SHUTDOWN IMMEDIATE;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> EXIT
Disconnected from Oracle Database 12c Enterprise Edition Release
12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application
Testing options
[oracle@oracloud12c student]$ exit
logout


Session stopped
    - Press <return> to exit tab
    - Press R to restart session
    - Press S to save terminal output to file
```