DBAII_Lab3

PART 1

1)execute the OS command --> export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'

```
Last login: Fri Apr  5 15:32:28 2024 from 192.168.16.1
[oracle@node1 ~]$ export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'
[oracle@node1 ~]$ echo $NLS_DATE_FORMAT
dd-MON-yyyy hh24:mi:ss
```

2) Make sure that steps (19) (20) (21) of the previous lab were done successfully using RMAN command "list backup;"

and also make sure that all archivelogs exist using RMAN command "list archivelog all;"

3)connect to rmantst_2 schema and execute "create table tab1 as select * from objs;"

```
SQL>  create table tab1 as select * from objs;

Table created.

SQL>
```

4) execute the command "alter system switch logfile;" -- > six times

```
SQL>  alter system switch logfile;

System altered.

SQL> /

System altered.

SQL> /
/

System altered.

SQL>
System altered.

SQL> /

System altered.

SQL> /

System altered.

SQL>
```

5) rm the datafiles of USERS and SYSAUX tablespaces from OS level

```
/rman_backup/bkp_data_D-ITI_I- SYSAUX
2732047794_TS-SYSAUX_FNO-2_022
ndkjt

/rman_backup/bkp_data_D-ITI_I- UNDOTBS1
2732047794_TS-UNDOTBS1_FNO-3_0
32ndkl1

FILE_NAME                        TABLESPACE_NAME
-----------------------------    -----------------------------

/rman_backup/bkp_data_D-ITI_I- USERS
2732047794_TS-USERS_FNO-4_0b2n
dknq
```

```
[oracle@node1 rman_backup]$ rm /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt
[oracle@node1 rman_backup]$ rm /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq
[oracle@node1 rman_backup]$
```

6) shutdown abort then startup your db

```
SQL>  shutdown abort;
ORACLE instance shut down.
SQL> startup;
ORACLE instance started.

Total System Global Area  268434280 bytes
Fixed Size                   8895336 bytes
Variable Size              201326592 bytes
Database Buffers            50331648 bytes
Redo Buffers                 7880704 bytes
Database mounted.
ORA-01157: cannot identify/lock data file 2 - see DBWR trace file
ORA-01110: data file 2:
'/rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt'


SQL>
```

7) identify the needed files to be restored by executing the following from SQLplus:

- set linesize 140
- col NAME format a80
- col CHANGE# format 999999999
- col FILE# format 99999
- col ERROR format a37
- select a.FILE#,b.name,ERROR,CHANGE# from v$recover_file a,v$datafile b where a.FILE#=b.FILE#;

```
SQL> set linesize 140
col NAME format a80
col CHANGE# format 999999999
col FILE# format 99999
col ERROR format a37
select a.FILE#,b.name,ERROR,CHANGE# from v$recover_file a,v$datafile b where a.FILE#=b.FILE#;
SQL> SQL> SQL> SQL> SQL>
 FILE# NAME                                                          ERROR                                 CHANGE#
------ --------------------------------------------------------      -----------------------------------   -------
     2 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt    FILE NOT FOUND                       0
     4 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq     FILE NOT FOUND                       0
SQL>
```

```
RMAN> restore datafile 2 from tag "Full_db";

Starting restore at 05-APR-24
using target database control file instead of recovery catalog
RMAN-06908: warning: operation will not run in parallel on the allocated channels
RMAN-06909: warning: parallelism require Enterprise Edition
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=184 device type=DISK

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00002 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1
channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1 tag=FULL_DB
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:46
Finished restore at 05-APR-24
```

```
RMAN> restore datafile 4 from tag "Full_db";

Starting restore at 05-APR-24
using channel ORA_DISK_1

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00004 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1
channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1 tag=FULL_DB
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:07
Finished restore at 05-APR-24
```

```
SQL> set linesize 140
col NAME format a80
col CHANGE# format 999999999
col FILE# format 99999
col ERROR format a37  SQL> SQL> SQL> SQL>
SQL> select a.FILE#,b.name,ERROR,CHANGE# from v$recover_file a,v$datafile b where a.FILE#=b.FILE#;

 FILE# NAME                                                                      ERROR                                  CHANGE#
------ -------------------------------------------------------------- ------------------------------------- ----------
     2 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt                                     3068083
     4 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq                                      3068083

SQL>
```

```
SQL> alter database open;
alter database open
*
ERROR at line 1:
ORA-01113: file 2 needs media recovery
ORA-01110: data file 2: '/rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt'

SQL>
```

- alter session set nls_date_format='dd-MON-yyyy hh24:mi:ss';
- set linesize 140
- col CHECKPOINT_CHANGE# format 999999999
- col name format a80
- select a.file#,b.name,a.CHECKPOINT_CHANGE#,a.CHECKPOINT_TIME from v$datafile_header a,v$datafile b where a.file#=b.file#;
- select CHECKPOINT_CHANGE# from v$database;

```
SQL> alter session set nls_date_format='dd-MON-yyyy hh24:mi:ss';

Session altered.

SQL> set linesize 140
col CHECKPOINT_CHANGE# format 999999999
col name format a80SQL> SQL>
SQL> select a.file#,b.name,a.CHECKPOINT_CHANGE#,a.CHECKPOINT_TIME from v$datafile_header a,v$datafile b where a.file#=b.file#;

 FILE# NAME                                                                  CHECKPOINT_CHANGE# CHECKPOINT_TIME
------ ------------------------------------------------------------- ------------------ --------------------
     1 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSTEM_FNO-1_012ndkhr          3288205 05-APR-2024 23:03:17
     2 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt          3068083 04-APR-2024 22:40:28
     3 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-UNDOTBS1_FNO-3_032ndkl1        3288205 05-APR-2024 23:03:17
     4 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq           3068083 04-APR-2024 22:40:28
     5 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI_DATA_FNO-5_062ndkn6        3288205 05-APR-2024 23:03:17
     6 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI_DATA_FNO-6_072ndkn9        3288205 05-APR-2024 23:03:17
     7 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-NADA_UNDO_TABLESPACE_FNO-7_082ndknc  3288205 05-APR-2024 23:03:17
     8 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI44SA_FNO-8_042ndkmf         3288205 05-APR-2024 23:03:17
     9 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI44SA_FNO-9_092ndknk         3288205 05-APR-2024 23:03:17
    10 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-BIG_SA_FNO-10_0a2ndknn         3288205 05-APR-2024 23:03:17
    11 /rman_backup/bkp_data_D-ITI_I-2732047794_TS-CATALOG_TS_FNO-11_052ndkmn     3288205 05-APR-2024 23:03:17

11 rows selected.

SQL> select CHECKPOINT_CHANGE# from v$database;

CHECKPOINT_CHANGE#
------------------
           3288205

SQL>
```

```
RMAN> RECOVER DATAFILE 2;

Starting recover at 05-APR-24
using channel ORA_DISK_1
channel ORA_DISK_1: starting incremental datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
destination for restore of datafile 00002: /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/product/19c/db_home/dbs/1f2nehtj_1_1
channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1f2nehtj_1_1 tag=TAG20240404T224402
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01

starting media recovery

archived log for thread 1 with sequence 39 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_39_1163592178.dbf
archived log for thread 1 with sequence 40 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_40_1163592178.dbf
archived log for thread 1 with sequence 41 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_41_1163592178.dbf
archived log for thread 1 with sequence 42 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_42_1163592178.dbf
archived log for thread 1 with sequence 43 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_43_1163592178.dbf
archived log for thread 1 with sequence 44 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_44_1163592178.dbf
archived log for thread 1 with sequence 45 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_45_1163592178.dbf
archived log for thread 1 with sequence 46 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_46_1163592178.dbf
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_39_1163592178.dbf thread=1 sequence=39
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_40_1163592178.dbf thread=1 sequence=40
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_41_1163592178.dbf thread=1 sequence=41
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_42_1163592178.dbf thread=1 sequence=42
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_43_1163592178.dbf thread=1 sequence=43
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_44_1163592178.dbf thread=1 sequence=44
media recovery complete, elapsed time: 00:00:05
Finished recover at 05-APR-24
```

```
RMAN> RECOVER DATAFILE 4;

Starting recover at 05-APR-24
using channel ORA_DISK_1
channel ORA_DISK_1: starting incremental datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
destination for restore of datafile 00004: /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/product/19c/db_home/dbs/1f2nehtj_1_1
channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1f2nehtj_1_1 tag=TAG20240404T224402
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01

starting media recovery

archived log for thread 1 with sequence 39 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_39_1163592178.dbf
archived log for thread 1 with sequence 40 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_40_1163592178.dbf
archived log for thread 1 with sequence 41 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_41_1163592178.dbf
archived log for thread 1 with sequence 42 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_42_1163592178.dbf
archived log for thread 1 with sequence 43 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_43_1163592178.dbf
archived log for thread 1 with sequence 44 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_44_1163592178.dbf
archived log for thread 1 with sequence 45 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_45_1163592178.dbf
archived log for thread 1 with sequence 46 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_46_1163592178.dbf
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_39_1163592178.dbf thread=1 sequence=39
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_40_1163592178.dbf thread=1 sequence=40
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_41_1163592178.dbf thread=1 sequence=41
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_42_1163592178.dbf thread=1 sequence=42
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_43_1163592178.dbf thread=1 sequence=43
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_44_1163592178.dbf thread=1 sequence=44
media recovery complete, elapsed time: 00:00:01
Finished recover at 05-APR-24
```

13) open your database&&14) check "tab1" and "objs" tables under rmantst_2 schema

```
SQL> alter database open;

Database altered.

SQL> conn rmantst_2/rman
Connected.
SQL> select table_name
  2  from all_tables
  3  where owner ='RMANTST_2'
  4  and table_name IN ('TAB1', 'OBJS');

TABLE_NAME
--------------------------------------------------------------
OBJS
TAB1

SQL>
```

PART 2

1) Check your dbid by executing "SQL> select dbid from v$database;"

```
SQL> SELECT DBID FROM V$DATABASE;

      DBID
----------
2732047794

SQL>
```

2) Restore your control file and database to point in time yesterday using set until time (while using Nocatalog)

You can find which time the controlfile was backed up by executing "RMAN> list backup;" search for tag "Full_db"

execute the OS command --> export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'

```
[oracle@node1 ~]$ export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'
[oracle@node1 ~]$ echo $NLS_DATE_FORMAT
dd-MON-yyyy hh24:mi:ss
```

SQL> startup nomount

```
SQL> startup nomount;
ORACLE instance started.

Total System Global Area  268434280 bytes
Fixed Size                  8895336 bytes
Variable Size             201326592 bytes
Database Buffers           50331648 bytes
Redo Buffers                7880704 bytes
```

execute the OS command --> rman

```
[oracle@node1 ~]$ rman

Recovery Manager: Release 19.0.0.0.0 - Production on Sun Apr 7 00:50:52 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle and/or its affiliates.  All rights reserved.
```

RMAN> set dbid 2468101214 ; --> you should use your dbid here (don't use 2468101214)

RMAN> connect target / 2732047794

```
RMAN>
RMAN> SET DBID 2732047794;

executing command: SET DBID

RMAN> connect target /

connected to target database:  (not mounted)
```

RMAN> restore controlfile from ' /rman_backup/c-2732047794-20240407-01';

/rman_backup/c-2732047794-20240404-10

```
RMAN> restore controlfile from '/rman_backup/c-2732047794-20240404-10';

Starting restore at 07-APR-24
using channel ORA_DISK_1

channel ORA_DISK_1: restoring control file
channel ORA_DISK_1: restore complete, elapsed time: 00:00:01
output file name=/oradata/ITI/control01.ctl
output file name=/orafra/ITI/control02.ctl
Finished restore at 07-APR-24
```

==what action should be done here to be able to perform the next step?==

Set changes until this time :**Database Recovery**

run {

set until time "to_date('07/04/24 00:00:01','dd/mm/rr hh24:mi:ss')"; --> this time should be the same as the previuos time above

restore database;

recover database;}

```
ORACLE instance shut down.
SQL> startup mount;
ORACLE instance started.
```

```
RMAN> run {
2> set until time "to_date('04/04/24 22:42:01','dd/mm/rr hh24:mi:ss')";
restore database;
recover database;
3> 4> 5> }

executing command: SET until clause

Starting restore at 07-APR-2024 03:46:47
using target database control file instead of recovery catalog
RMAN-06908: warning: operation will not run in parallel on the allocated channels
RMAN-06909: warning: parallelism require Enterprise Edition
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=184 device type=DISK

channel ORA_DISK_1: starting datafile backup set restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
channel ORA_DISK_1: restoring datafile 00001 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSTEM_FNO-1_012ndkhr
channel ORA_DISK_1: restoring datafile 00002 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-SYSAUX_FNO-2_022ndkjt
channel ORA_DISK_1: restoring datafile 00003 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-UNDOTBS1_FNO-3_032ndkl1
channel ORA_DISK_1: restoring datafile 00004 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-USERS_FNO-4_0b2ndknq
channel ORA_DISK_1: restoring datafile 00005 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI_DATA_FNO-5_062ndkn6
channel ORA_DISK_1: restoring datafile 00006 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI_DATA_FNO-6_072ndkn9
channel ORA_DISK_1: restoring datafile 00007 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-NADA_UNDO_TABLESPACE_FNO-7_082ndknc
channel ORA_DISK_1: restoring datafile 00008 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI44SA_FNO-8_042ndkmf
channel ORA_DISK_1: restoring datafile 00009 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-ITI44SA_FNO-9_092ndknk
channel ORA_DISK_1: restoring datafile 00010 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-BIG_SA_FNO-10_0a2ndknn
channel ORA_DISK_1: restoring datafile 00011 to /rman_backup/bkp_data_D-ITI_I-2732047794_TS-CATALOG_TS_FNO-11_052ndkmn
channel ORA_DISK_1: reading from backup piece /u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1

channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1 tag=FULL_DB
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:03:33
Finished restore at 07-APR-2024 03:50:22

Starting recover at 07-APR-2024 03:50:24
using channel ORA_DISK_1
```
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```
channel ORA_DISK_1: piece handle=/u01/app/oracle/product/19c/db_home/dbs/1c2nehms_1_1 tag=FULL_DB
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:03:33
Finished restore at 07-APR-2024 03:50:22

Starting recover at 07-APR-2024 03:50:24
using channel ORA_DISK_1

starting media recovery

archived log for thread 1 with sequence 36 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_36_1163592178.dbf
archived log for thread 1 with sequence 37 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_37_1163592178.dbf
archived log for thread 1 with sequence 38 is already on disk as file /u01/app/oracle/product/19c/db_home/dbs/arch1_38_1163592178.dbf
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_36_1163592178.dbf thread=1 sequence=36
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_37_1163592178.dbf thread=1 sequence=37
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_38_1163592178.dbf thread=1 sequence=38
archived log file name=/u01/app/oracle/product/19c/db_home/dbs/arch1_39_1163592178.dbf thread=1 sequence=39
media recovery complete, elapsed time: 00:00:04
Finished recover at 07-APR-2024 03:50:39
```

==what action should be done here to open the database?==

You must reset logs

```
SQL> alter database open resetlogs;

Database altered.
```

3)check tab1 table under rmantst_2 schema

SELECT * FROM tab1;

```
SQL> SELECT * FROM tab1;
SELECT * FROM tab1
              *
ERROR at line 1:
ORA-00942: table or view does not exist
```

4) List your incarnation keys

```
List of Database Incarnations
DB Key  Inc Key DB Name  DB ID              STATUS  Reset SCN  Reset Time
------- ------- -------- ----------------   ---     ---------  ----------
1       1       ITI      2732047794         PARENT  1          14-MAR-24
2       2       ITI      2732047794         CURRENT 3593735    07-APR-24

RMAN>
```

RMAN> list incarnation of database orcl;

```
RMAN> list incarnation of database orcl;

using target database control file instead of recovery catalog

RMAN>
```

5) Restore your control file and database to point in time yesterday using set until time (while using catalog connection)

 You can find which time the controlfile was backed up by executing "RMAN> list backup;" search for tag "Full_db"

run {

 set until time "to_date('06/04/24 00:00:05 ','dd/mm/rr hh24:mi:ss')";

 restore database;

 recover database;

}

RMAN> reset database to incarnation <Inc Key>; # should be done in mount mode

RMAN> restore controlfile from 'backup piece';

What action should be done here to be able to perform the next step?

run {

set until time "to_date('30/03/12 18:00:00','dd/mm/rr hh24:mi:ss')"; --> this time should be the same as the previuos time above

restore database;

recover database;

}

What action should be done here to open the database?

6) connect to the rman in a new session:

RMAN> list incarnation of database;

PART 3

) change the 1 defailt tablespace of user rmantst_1 to be "SYSTEM" tablespace and give unlimited tablespace to rmantst_1 on "USERS" tablespace then execute:

```
SQL> alter user rmantst_1 default tablespace SYSTEM;

User altered.

SQL> alter user rmantst_1 quota unlimited on USERS;

User altered.
```

SQL> create table rmantst_1.tab2 tablespace USERS as select * from hr.employees;

```
SQL> create table rmantst_1.tab2 tablespace USERS as select * from hr.employees;

Table created.

SQL>
```

2) backup your current control file with TAG "CFF" and check the time when backup finished (the connection to RMAN should catalog connection)

RMAN> backup current controlfile tag "CFF";

```
connected to target database: ITI (DBID=2732047794)
connected to recovery catalog database

RMAN> backup current controlfile tag 'CFF';

Starting backup at 07-APR-24
new incarnation of database registered in recovery catalog
starting full resync of recovery catalog
full resync complete
RMAN-06908: warning: operation will not run in parallel on the allocated channels
RMAN-06909: warning: parallelism require Enterprise Edition
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=32 device type=DISK
channel ORA_DISK_1: starting full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
including current control file in backup set
channel ORA_DISK_1: starting piece 1 at 07-APR-24
channel ORA_DISK_1: finished piece 1 at 07-APR-24
piece handle=/u01/app/oracle/product/19c/db_home/dbs/1k2nme6g_1_1 tag=CFF comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 07-APR-24

Starting Control File and SPFILE Autobackup at 07-APR-24
piece handle=/rman_backup/c-2732047794-20240407-03 comment=NONE
Finished Control File and SPFILE Autobackup at 07-APR-24
```

RMAN> list backup of controlfile;

```
-------- ---- -- ---------- ----------- ------------ ---------------
2039    Full   10.23M    DISK        00:00:01    07-APR-24
        BP Key: 2042   Status: AVAILABLE  Compressed: NO  Tag: CFF
        Piece Name: /u01/app/oracle/product/19c/db_home/dbs/1k2nme6g_1_1
  Control File Included: Ckp SCN: 3194969      Ckp time: 07-APR-24

BS Key  Type LV Size       Device Type Elapsed Time Completion Time
-------- ---- -- ---------- ----------- ------------ ---------------
```

3) execute:

SQL> alter database default tablespace system;

SQL> Drop tablespace USERS including contents and datafiles;

```
SQL> alter database default tablespace system;

Database altered.

SQL> drop tablespace USERS including contents and datafiles;

Tablespace dropped.

SQL>
```

4) check tab2 table under rmantst_1 schema

```
SQL> select * from rmantst_1.tab2;
select * from rmantst_1.tab2
                        *
ERROR at line 1:
ORA-00942: table or view does not exist
```

5) execute: SQL> create table sys.tab3 as select * from hr.employees;

```
SQL> create table sys.tab3 as select * from hr.employees;

Table created.

SQL>
```

6) shutdown abort the target database then restore your control file with tag "CFF" (the connection to RMAN should catalog connection)

OS_prompt$> export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'

RMAN> startup nomount

RMAN> restore controlfile from tag "CFF";

7) restore your database to before drop the USERS tablespace.

OS_prompt$> export NLS_DATE_FORMAT='dd-MON-yyyy hh24:mi:ss'

RMAN> sql 'alter database mount';

RMAN> run

{

    set until time "TO_DATE('20-12-2014 09:30:00','dd-mm-yyyy hh24:mi:ss')"; --> this time should be after the time of backup controlfile with 3 to 5 seconds

    restore database;

    recover database;

}

RMAN> sql 'alter database open resetlogs';

8) execute: SQL> select tablespace_name from dba_tablespaces;

check tab2 table under rmantst_1 schema

check tab3 table under SYS schema