

## **1. Purpose:**

Demonstrate the ability to backup and restore Oracle database using RMAN.

## **2. Submission:**

Submit via Brightspace a version of this Word document containing the specified output for each question. Submission and demonstration is due as described in Brightspace. This lab is worth 2 marks towards your lab grade.

## **3. Deliverable:**

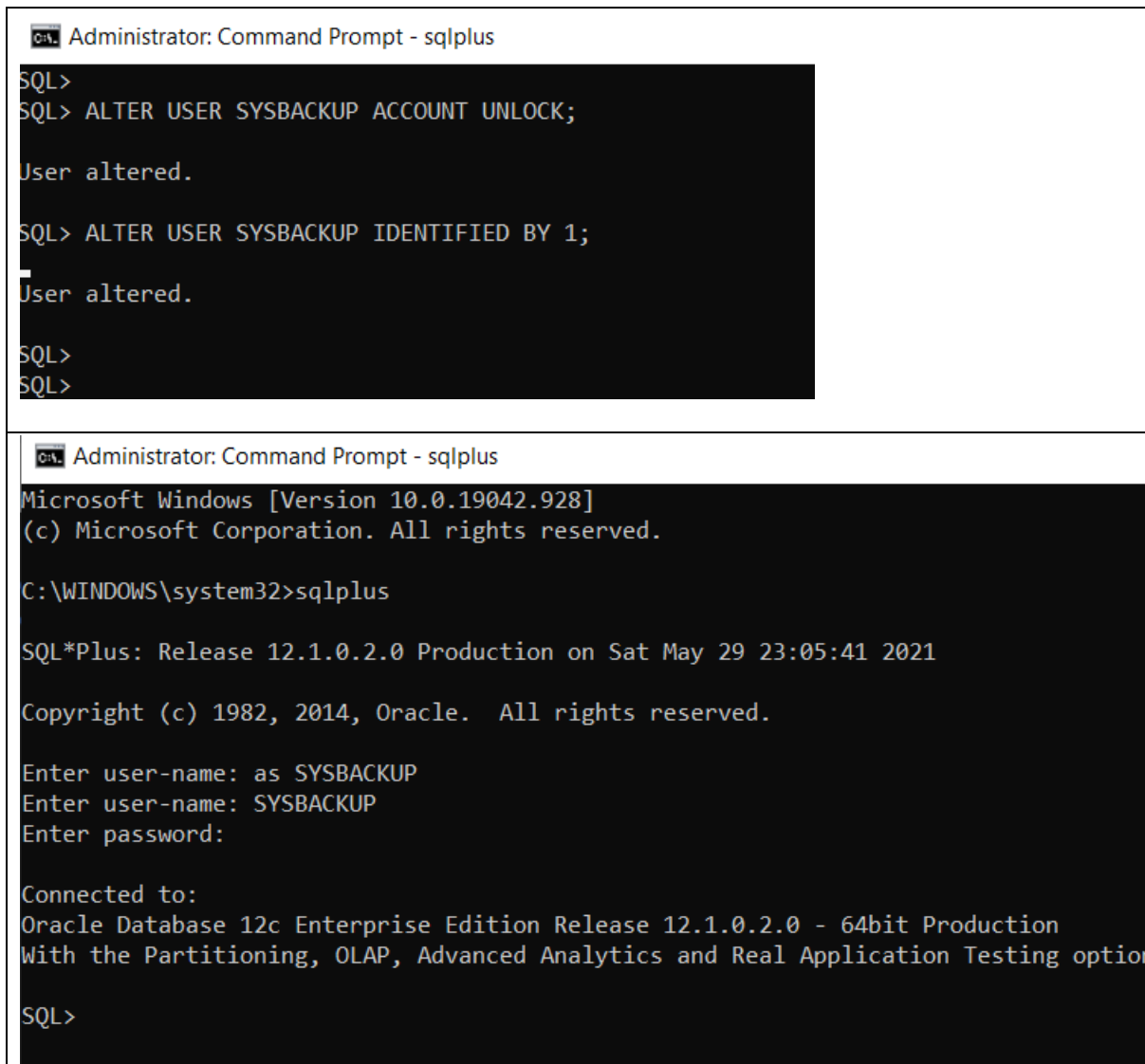
### **Part 1: Read Portions of the RMAN Document and Answer Questions:**

1. Read the sections identified below of the oracle documents. You can find the document at:  
[https://docs.oracle.com/cd/B10501\\_01/server.920/a96566/rcmcnctg.htm](https://docs.oracle.com/cd/B10501_01/server.920/a96566/rcmcnctg.htm)
  2. Starting RMAN: Overview;
  3. Starting RMAN without connection to a database;
  4. Connecting to a database without a Recovery Catalog;
  5. Connecting to a database and Recovery Catalog;
- A. What are the basic options a DBA has to start RMAN:  
TARGET / CATALOG rman/cat@catdb  
TARGET SYS/oracle@trgt NOCATALOG  
TARGET / CATALOG rman/cat@catdb AUXILIARY SYS/oracle@auxdb  
rman
- B. What are the types of databases that you can connect to:  
  
Target, Recovery catalog, Auxiliary
- C. How to start RMAN?  
From the command line, with or without specifying the connection option, after connecting to a database.

### **Part 2: Unlocking an oracle account:**

- A. **First: Connect to oracle (using cmd running as administrator & then invoking sqlplus) as the SYSTEM user and unlock the SYSBACKUP user. Moreover, alter the password of the SYSBACKUP user and change it to 1.**

Then, connect as the unlocked SYSBACKUP user. Take a screen shot of your work and paste it below:



The image contains two screenshots of a Windows Command Prompt window titled "Administrator: Command Prompt - sqlplus".

The first screenshot shows the following text:

```
SQL>
SQL> ALTER USER SYSBACKUP ACCOUNT UNLOCK;

User altered.

SQL> ALTER USER SYSBACKUP IDENTIFIED BY 1;

User altered.

SQL>
SQL>
```

The second screenshot shows the following text:

```
Microsoft Windows [Version 10.0.19042.928]
(c) Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>sqlplus

SQL*Plus: Release 12.1.0.2.0 Production on Sat May 29 23:05:41 2021

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter user-name: as SYSBACKUP
Enter user-name: SYSBACKUP
Enter password:

Connected to:
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>
```

- B. Log in to RMAN as SYSBAKUP. Remember, you have to exit the SQL command prompt and return back to operating system cmd in order to start RMAN.

```

C:\> Command Prompt - RMAN TARGET SYSBACKUP;

Microsoft Windows [Version 10.0.19042.928]
(c) Microsoft Corporation. All rights reserved.

C:\Users\karka>RMAN TARGET SYSBACKUP;

Recovery Manager: Release 12.1.0.2.0 - Production on Wed Jun 2 19:52:36 2021

Copyright (c) 1982, 2014, Oracle and/or its affiliates. All rights reserved.

target database Password:
connected to target database: ORCL (DBID=1600171893)

RMAN>

```

- C. Open a new SQL session and log in as SYSTEM. Use the *show parameter recovery* command to show the settings of all recovery parameters. Take a screen shot of your work and paste it below.

```

SQL Plus

SQL*Plus: Release 12.1.0.2.0 Production on Sat May 29 23:09:21 2021

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter user-name: SYSTEM
Enter password:
Last Successful login time: Sat May 29 2021 23:00:05 -04:00

Connected to:
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> SHOW PARAMETER RECOVERY

NAME                                TYPE        VALUE
-----
db_recovery_file_dest                string
db_recovery_file_dest_size           big integer 0
recovery_parallelism                 integer      0
SQL>

```

- D. Now we want to configure the fast recovery file destination and size. (Show all your work in the box below)
- Set the fast recovery file destination size to be **10G** (use: sqlplus> **alter system set db\_recovery\_file\_dest\_size=10G;** )
  - and then set the file destination to be 'C:\app\yourname\fast\_recovery\_area\orcl'. Change the path depending on your computer setting.

- c. Run the *show parameter recovery* command again and take a screen shot of all your work and paste it below.

```
SQL> SHOW PARAMETER RECOVERY
```

NAME	TYPE	VALUE
db_recovery_file_dest	string	C:\app\karka\fast_recovery_area\orcl
db_recovery_file_dest_size	big integer	10G
recovery_parallelism	integer	0

```
SQL>
```

- E. Open a new SQL session and log in as sysdba user (> SQLPLUS / AS SYSDBA). Check if the database is in the archive mode by executing the *archive log list* command. Take a screen shot of your work and paste it below.

```
SQL Plus
```

```
SQL*Plus: Release 12.1.0.2.0 Production on Sat May 29 23:17:55 2021
```

```
Copyright (c) 1982, 2014, Oracle. All rights reserved.
```

```
Enter user-name: AS SYSDBA
```

```
Enter user-name: SYSDBA
```

```
Enter password:
```

```
Connected to:
```

```
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> ARCHIVE LOG LIST
```

Database log mode	No Archive Mode
Automatic archival	Disabled
Archive destination	USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence	49
Current log sequence	51

```
SQL>
```

- F. Open a second cmd terminal and invoke RMAN and connect as SYSBACKUP user. Then execute the *shutdown immediate* command to shutdown the database instance. After that startup the instance and mount the database (startup mount). Take a screen shot of your work and paste it below.

```

C:\> Command Prompt - RMAN TARGET SYSBACKUP;

Copyright (c) 1982, 2014, Oracle and/or its affiliates. All rights reserved.

target database Password:
connected to target database (not started)

RMAN> SHUTDOWN IMMEDIATE;

using target database control file instead of recovery catalog
RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of shutdown command at 06/02/2021 19:55:06
RMAN-06403: could not obtain a fully authorized session
ORA-01034: ORACLE not available
ORA-27101: shared memory realm does not exist

RMAN> STARTUP MOUNT;

Oracle instance started
database mounted

Total System Global Area      5117050880 bytes

Fixed Size                     4629096 bytes
Variable Size                 1174408600 bytes
Database Buffers              3925868544 bytes
Redo Buffers                   12144640 bytes

RMAN>

```

- G. Execute the *backup database* command to create a backup before you change the archivelog mode. Take a screen shot of your work and paste it below.

```

C:\> Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> BACKUP DATABASE;

Starting backup at 02-JUN-21
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=83 device type=DISK
channel ORA_DISK_1: starting full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00007 name=C:\APP\KARKA\ORADATA\ORCL\EXAMPLE01.DBF
input datafile file number=00003 name=C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
input datafile file number=00001 name=C:\APP\KARKA\ORADATA\ORCL\SYSTEM01.DBF
input datafile file number=00005 name=C:\APP\KARKA\ORADATA\ORCL\UNDOTBS01.DBF
input datafile file number=00006 name=C:\APP\KARKA\ORADATA\ORCL\USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDP_TAG20210602T195629_JCJ60F7Y_.BK
tag=TAG20210602T195629 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:07
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
including current SPFILE in backup set
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NCSNF_TAG20210602T195629_JCJ60OCT_.BK
tag=TAG20210602T195629 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 02-JUN-21

RMAN>

```

- H. Use the command **List backup;** to list the backups. After that, use the **delete backup;** command to delete the backups. List again the backups that you have. Take a screen shot of all the commands that you have executed in this part.

```

Command Prompt - RMAN TARGET SYSBACKUP;

List of Backup Sets
=====

BS Key Type LV Size Device Type Elapsed Time Completion Time
-----
1 Full 1.45G DISK 00:00:06 02-JUN-21
BP Key: 1 Status: AVAILABLE Compressed: NO Tag: TAG20210602T195629
Piece Name: C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDP_TAG20210602T195629_JCJ60F7Y_.BKP
List of Datafiles in backup set 1
File LV Type Ckp SCN Ckp Time Name
-----
1 Full 3170766 02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\SYSTEM01.DBF
3 Full 3170766 02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
5 Full 3170766 02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\UNDOTBS01.DBF
6 Full 3170766 02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\USERS01.DBF
7 Full 3170766 02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\EXAMPLE01.DBF

BS Key Type LV Size Device Type Elapsed Time Completion Time
-----
2 Full 9.64M DISK 00:00:01 02-JUN-21
BP Key: 2 Status: AVAILABLE Compressed: NO Tag: TAG20210602T195629
Piece Name: C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NCSNF_TAG20210602T195629_JCJ60OCT_.BKP
SPFILE Included: Modification time: 02-JUN-21
SPFILE db_unique_name: ORCL
Control File Included: Ckp SCN: 3170766 Ckp time: 02-JUN-21

RMAN> DELETE BACKUP;

using channel ORA_DISK_1

List of Backup Pieces
BP Key BS Key Pc# Cp# Status Device Type Piece Name
-----
1 1 1 1 AVAILABLE DISK C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDP_TAG20210602T195629_JCJ60F7Y_.BKP
2 2 1 1 AVAILABLE DISK C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NCSNF_TAG20210602T195629_JCJ60OCT_.BKP

Do you really want to delete the above objects (enter YES or NO)? YES
Deleted backup piece
Backup piece handle: C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDP_TAG20210602T195629_JCJ60F7Y_.BKP RECID=1 STAMP=1074196589
Deleted backup piece
Backup piece handle: C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NCSNF_TAG20210602T195629_JCJ60OCT_.BKP RECID=2 STAMP=1074196597
Deleted 2 objects

RMAN> LIST BACKUP;

specification does not match any backup in the repository

```

- I. Execute the **alter database archive log** command to put the database in ARCHIVELOG mode. Then open the database (**alter database open**). Take a screen shot of your work and paste it below.

```

Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> ALTER DATABASE ARCHIVELOG;

Statement processed

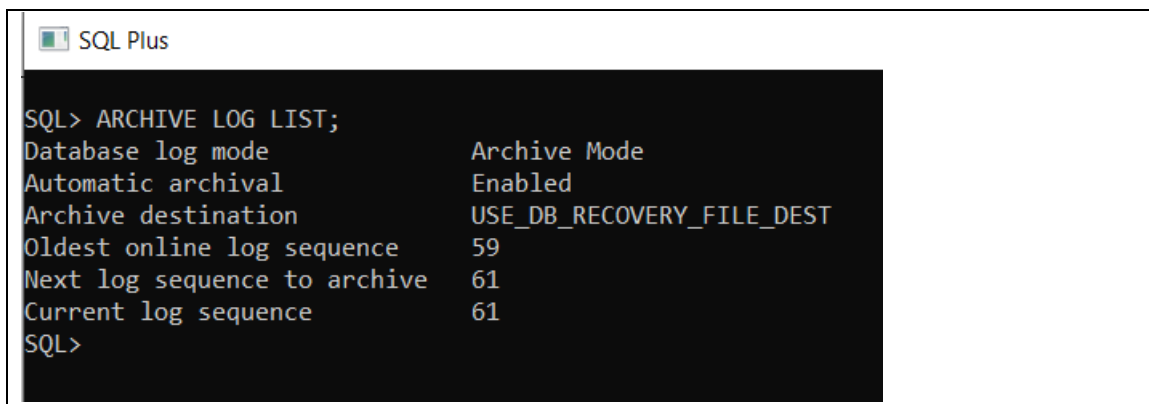
RMAN> ALTER DATABASE OPEN;

Statement processed

RMAN>

```

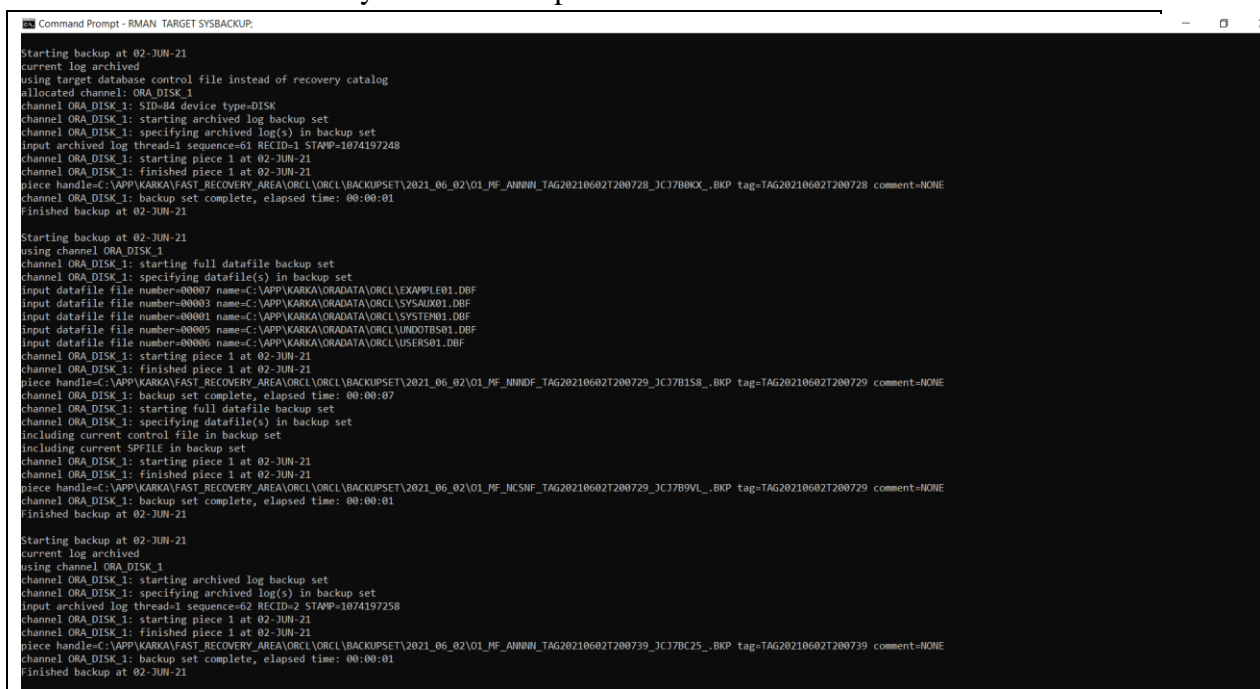
- J. Now return to the SQL session, you may need to connect as sysdba again, and execute one more time the **archive log list** command. Take a screen shot of your work and paste it below and then exit the SQL session.



```

SQL> ARCHIVE LOG LIST;
Database log mode           Archive Mode
Automatic archival         Enabled
Archive destination        USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence  59
Next log sequence to archive 61
Current log sequence        61
SQL>
  
```

- K. Return to your RMAN session. Back up the database by executing the **BACKUP DATABASE PLUS ARCHIVELOG** command. Take a note of the name of the control file. Take a screen shot of your work and paste it below



```

Command Prompt - RMAN TARGET SYSBACKUP
Starting backup at 02-JUN-21
current log archived
using target database control file instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=04 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=61 RECID=1 STAMP=1074197248
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\BACKUPSET\2021_06_02\01_MF_AWWWW_TAG20210602T200728_JC37B0KX_BKP tag=TAG20210602T200728 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 02-JUN-21

Starting backup at 02-JUN-21
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=00007 name=C:\APP\KARKA\ORADATA\ORCL\EXAMPLE01.DBF
input datafile file number=00003 name=C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
input datafile file number=00001 name=C:\APP\KARKA\ORADATA\ORCL\SYSTEM01.DBF
input datafile file number=00005 name=C:\APP\KARKA\ORADATA\ORCL\UNDOTBS01.DBF
input datafile file number=00006 name=C:\APP\KARKA\ORADATA\ORCL\USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDF_TAG20210602T200729_JC37B158_BKP tag=TAG20210602T200729 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:07
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
including current SPFILE in backup set
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\BACKUPSET\2021_06_02\01_MF_NCSNF_TAG20210602T200729_JC37B9VL_BKP tag=TAG20210602T200729 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 02-JUN-21

Starting backup at 02-JUN-21
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=62 RECID=2 STAMP=1074197258
channel ORA_DISK_1: starting piece 1 at 02-JUN-21
channel ORA_DISK_1: finished piece 1 at 02-JUN-21
piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\BACKUPSET\2021_06_02\01_MF_AWWWW_TAG20210602T200739_JC37BC25_BKP tag=TAG20210602T200739 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 02-JUN-21
  
```

- L. Use the **SHOW ALL** command to view the RMAN configuration settings, including backup settings.

```

RMAN> SHOW ALL
2> ;

RMAN configuration parameters for database with db_unique_name ORCL are:
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default
CONFIGURE BACKUP OPTIMIZATION OFF; # default
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default
CONFIGURE CONTROLFILE AUTOBACKUP OFF; # default
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO '%F'; # default
CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO BACKUPSET; # default
CONFIGURE DATAFILE BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE MAXSETSIZE TO UNLIMITED; # default
CONFIGURE ENCRYPTION FOR DATABASE OFF; # default
CONFIGURE ENCRYPTION ALGORITHM 'AES128'; # default
CONFIGURE COMPRESSION ALGORITHM 'BASIC' AS OF RELEASE 'DEFAULT' OPTIMIZE FOR LOAD TRUE ; # default
CONFIGURE RMAN OUTPUT TO KEEP FOR 7 DAYS; # default
CONFIGURE ARCHIVELOG DELETION POLICY TO NONE; # default
CONFIGURE SNAPSHOT CONTROLFILE NAME TO 'C:\APP\KARKA\PRODUCT\12.1.0\DBHOME_1\DATABASE\SNCFORCL.ORA'; # default

RMAN>

```

- M. If the default device for backups is not set to disk (the default), use the **CONFIGURE DEFAULT DEVICE TYPE TO DISK** command to set it.

```

RMAN> CONFIGURE DEFAULT DEVICE TYPE TO DISK;

new RMAN configuration parameters:
CONFIGURE DEFAULT DEVICE TYPE TO DISK;
new RMAN configuration parameters are successfully stored
released channel: ORA_DISK_1

RMAN> _

```

- N. Verify the setting by using the SHOW DEFAULT DEVICE TYPE command. Take a screen shot of your work and paste it below.

```

C:\ Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> SHOW DEFAULT DEVICE TYPE;

RMAN configuration parameters for database with db_unique_name ORCL are:
CONFIGURE DEFAULT DEVICE TYPE TO DISK;

RMAN> _

```

- O. Enter the **LIST BACKUP SUMMARY** command to display backup information stored in the RMAN repository. Take a screen shot of your work and paste it below.



```

RMAN> LIST BACKUP SUMMARY;

List of Backups
=====
Key       TY LV S Device Type Completion Time #Pieces #Copies Compressed Tag
-----
3         B A A DISK      02-JUN-21      1      1      NO      TAG20210602T200728
4         B F A DISK      02-JUN-21      1      1      NO      TAG20210602T200729
5         B F A DISK      02-JUN-21      1      1      NO      TAG20210602T200729
6         B A A DISK      02-JUN-21      1      1      NO      TAG20210602T200739

RMAN>

```

- P. Execute the ***LIST BACKUP OF DATAFILE specific\_datafile\_ID;*** command to view detailed information stored in the RMAN repository about the backup of a **specific** datafile. Take a screen shot of your work and paste it below.

```

Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> LIST BACKUP OF DATAFILE 3;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----
4        Full 1.45G      DISK      00:00:07      02-JUN-21
  BP Key: 4   Status: AVAILABLE Compressed: NO Tag: TAG20210602T200729
  Piece Name: C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNNDP_TAG20210602T200729_JCJ7B1S8_.BKP
  List of Datafiles in backup set 4
  File LV Type Ckp SCN    Ckp Time Name
  -----
  3        Full 3171941    02-JUN-21 C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF

RMAN>

```

- Q. Take note of one of the datafile\_IDs, and then execute the ***VALIDATE DATAFILE specific\_datafile\_ID;*** command to validate the backup for the **specific** datafile. The VALIDATE command determines whether the backup exists. Take a screen shot of your work and paste it below.

```

C:\> Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> VALIDATE DATAFILE 3;

Starting validate at 02-JUN-21
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=84 device type=DISK
channel ORA_DISK_1: starting validation of datafile
channel ORA_DISK_1: specifying datafile(s) for validation
input datafile file number=00003 name=C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
channel ORA_DISK_1: validation complete, elapsed time: 00:00:03
List of Datafiles
=====
File Status Marked Corrupt Empty Blocks Blocks Examined High SCN
-----
3      OK      0          25904          112648          3173225
  File Name: C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
  Block Type Blocks Failing Blocks Processed
  -----
  Data          0          26851
  Index          0          23312
  Other          0          36573

Finished validate at 02-JUN-21

RMAN> _

```

- R. Execute the ***RESTORE TABLESPACE tableSpaceName VALIDATE*** command to validate that the datafiles for the specified tablespace named 'tableSpaceName' can be restored. Take a screen shot of your work and paste it below. The VALIDATE parameter means that the restoration is not done, but it shows the restoration *could* be done.

```

C:\> Command Prompt - RMAN TARGET SYSBACKUP;

RMAN> RESTORE TABLESPACE SYSTEM VALIDATE;

Starting restore at 02-JUN-21
using channel ORA_DISK_1

channel ORA_DISK_1: starting validation of datafile backup set
channel ORA_DISK_1: reading from backup piece C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNINDF_TAG20210602T200729_JCJ7B1S8_.BKP
channel ORA_DISK_1: piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\01_MF_NNINDF_TAG20210602T200729_JCJ7B1S8_.BKP tag=TAG20210602T200729
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: validation complete, elapsed time: 00:00:03
Finished restore at 02-JUN-21

RMAN> _

```

- S. Shutdown the database and then exit RMAN. Then, **copy all of the physical files of the database to a safe location outside of the Oracle file hierarchy**. Make sure to do so before the following steps. Delete the original files after you have taken the copy. (worst case file loss!!)

CONTROL01.CTL	27/11/2016 6:33 PM	CTL File	9,808 KB
CONTROL02.CTL	27/11/2016 6:33 PM	CTL File	9,808 KB
EXAMPLE01.DBF	27/11/2016 6:35 PM	DBF File	1,290,888 KB
LAB9A.DBF	27/11/2016 6:34 PM	DBF File	26,632 KB
LAB9AS.DBF	27/11/2016 6:34 PM	DBF File	17,416 KB
LAB9B.DBF	27/11/2016 6:34 PM	DBF File	34,824 KB
LAB9BS.DBF	27/11/2016 6:34 PM	DBF File	17,416 KB
LAB9C.DBF	27/11/2016 6:34 PM	DBF File	34,824 KB
LAB9CS.DBF	27/11/2016 6:34 PM	DBF File	17,416 KB
SYS_AUX01.DBF	27/11/2016 6:35 PM	DBF File	993,288 KB
SYSTEM01.DBF	27/11/2016 6:35 PM	DBF File	819,208 KB
UNDOTBS01.DBF	27/11/2016 6:34 PM	DBF File	660,488 KB
USERS01.DBF	27/11/2016 6:34 PM	DBF File	57,608 KB

- T. Try to connect to the database as sysdba and then try to startup your database. Take a screen shot of what you have got and paste it below. (It should not be able to start...)

```

SQL Plus

SQL*Plus: Release 12.1.0.2.0 Production on Wed Jun 2 20:28:02 2021

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Enter user-name: AS SYSDBA
Enter user-name: SYSDBA
Enter password:

Connected to:
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> STARTUP
ORA-01081: cannot start already-running ORACLE - shut it down first
SQL>

```

- U. Start a new cmd session. Invoke RMAN (*RMAN target sysbackup*). Then start up with no mount ( RMAN > **STARTUP NOMOUNT;**)

```

Recovery Manager: Release 12.1.0.2.0 - Production on Wed Jun 2 20:27:49 2021

Copyright (c) 1982, 2014, Oracle and/or its affiliates. All rights reserved.

target database Password:
connected to target database: ORCL (DBID=1600171893)

RMAN> STARTUP NOMOUNT;

Database is already started

```

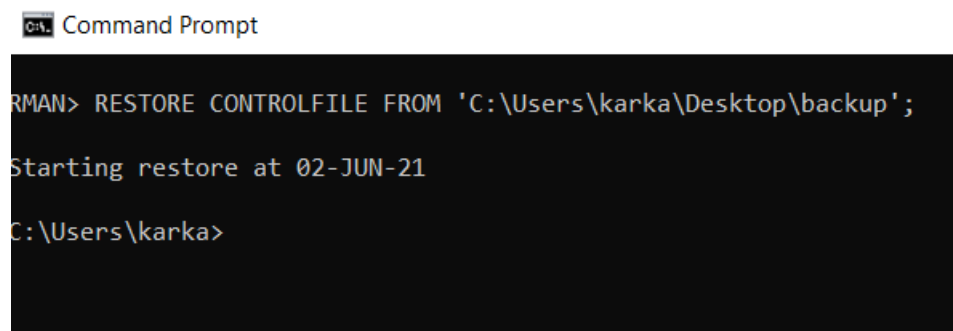
- V. It is time now to restore the control file from backup. The location of my backup control file is at:

```
'C:\app\oracle\fast_recovery_area\orcl\ORCL\BACKUPSET\2019_09_18\O1_MF_NCSNF_TAG20190918T194440_GR5JCS1J_.BKP'
```

Execute the following command, taking into consideration the location of your backup control file:

RMAN> *restore controlfile from*

```
'C:\app\oracle\fast_recovery_area\orcl\ORCL\BACKUPSET\2019_09_18\O1_MF_NCSNF_TAG20190918T194440_GR5JCS1J_.BKP';
```



```
Command Prompt

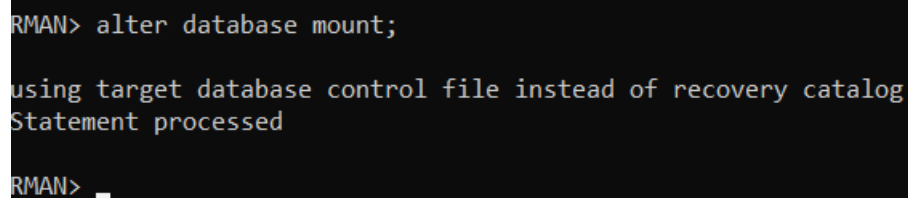
RMAN> RESTORE CONTROLFILE FROM 'C:\Users\karka\Desktop\backup';

Starting restore at 02-JUN-21

C:\Users\karka>
```

R. To restore the database, execute the following commands:

RMAN> *Alter database Mount;*

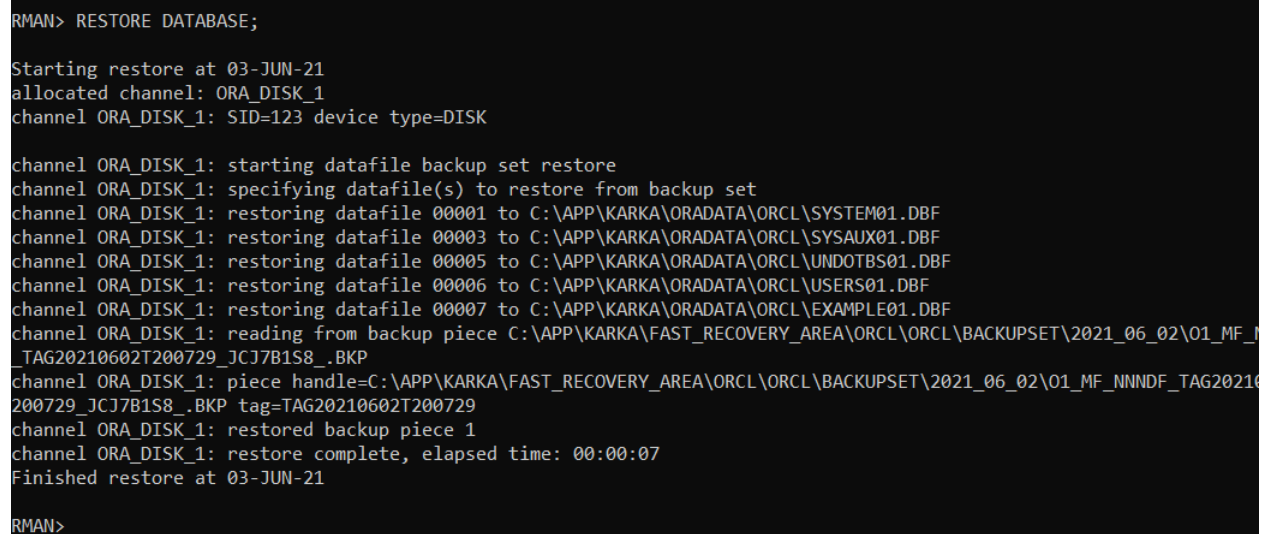


```
RMAN> alter database mount;

using target database control file instead of recovery catalog
Statement processed

RMAN> _
```

RMAN> *Restore Database;*



```
RMAN> RESTORE DATABASE;

Starting restore at 03-JUN-21
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=123 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 C:\APP\KARKA\ORADATA\ORCL\SYSTEM01.DBF
channel ORA_DISK_1: restoring datafile 00003 to C:\APP\KARKA\ORADATA\ORCL\SYSAUX01.DBF
channel ORA_DISK_1: restoring datafile 00005 to C:\APP\KARKA\ORADATA\ORCL\UNDOTBS01.DBF
channel ORA_DISK_1: restoring datafile 00006 to C:\APP\KARKA\ORADATA\ORCL\USERS01.DBF
channel ORA_DISK_1: restoring datafile 00007 to C:\APP\KARKA\ORADATA\ORCL\EXAMPLE01.DBF
channel ORA_DISK_1: reading from backup piece C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\O1_MF_NNND
_TAG20210602T200729_JCJ7B1S8_.BKP
channel ORA_DISK_1: piece handle=C:\APP\KARKA\FAST_RECOVERY_AREA\ORCL\ORCL\BACKUPSET\2021_06_02\O1_MF_NNND
200729_JCJ7B1S8_.BKP tag=TAG20210602T200729
channel ORA_DISK_1: restored backup piece 1
channel ORA_DISK_1: restore complete, elapsed time: 00:00:07
Finished restore at 03-JUN-21

RMAN>
```

RMAN> *Recover Database;*

```

RMAN> RECOVER DATABASE;

Starting recover at 03-JUN-21
using channel ORA_DISK_1

starting media recovery
media recovery complete, elapsed time: 00:00:03

Finished recover at 03-JUN-21

RMAN>

```

RMAN> *Alter Database open resetlogs;*

```

RMAN> Alter Database open resetlogs;

RMAN-00571: =====
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
RMAN-00571: =====
RMAN-03002: failure of sql statement command at 06/03/2021 19:17:20
ORA-01139: RESETLOGS option only valid after an incomplete database recovery

RMAN> ALTER DATABASE OPEN;

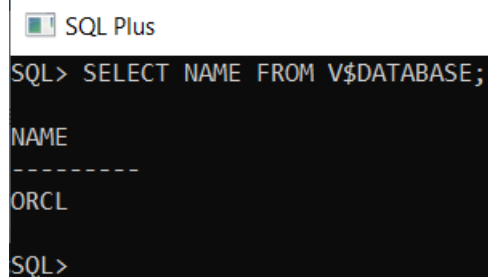
Statement processed

RMAN>

```

S. log on as sysdba and execute the following command. Take a screen shot of your work.

SQL> *select name from V\$database;*



```

SQL Plus
SQL> SELECT NAME FROM V$DATABASE;

NAME
-----
ORCL

SQL>

```

SQL> *select open\_mode from V\$database;*

```

RMAN> SELECT OPEN_MODE FROM V$DATABASE;

OPEN_MODE
-----
READ WRITE

RMAN>

```

**SQL> *Select tablespace\_name from dba\_tablespaces;***

```
RMAN> SELECT TABLESPACE_NAME FROM DBA_TABLESPACES;  
  
TABLESPACE_NAME  
-----  
SYSTEM  
SYSAUX  
UNDOTBS1  
TEMP  
USERS  
EXAMPLE  
  
RMAN>
```

**The database should be restored. Make sure all is OK. (e.g., connect using sqlplus....)**

```
SQL> CONNECT  
Enter user-name: AS SYSDBA  
Enter user-name: SYSDBA  
Enter password:  
Connected.  
SQL> █
```

**That's it – you're done!**