

Laboratorio Respaldo

1. Revisión de configuración de base de datos

a. Conectarse con el usuario SYS

```
C:\Users\Administrator>sqlplus sys/oracle as sysdba
```

b. Consultar el modo de logeo de la base de datos

```
SQL> select name,log_mode from v$database;

NAME          LOG_MODE
-----
CDB           NOARCHIVELOG
```

c. Consultar el tamaño del FRA (Fast Recovery Area)

```
SQL> show parameter db_recovery_file_dest_size

NAME                                TYPE          VALUE
-----
db_recovery_file_dest_size          big integer    6420M
SQL>
```

d. Si el tamaño es menor a 6420 aumentamos el tamaño para el backup (Si el tamaño configurado es igual dejarlo como está y saltar éste punto)

```
SQL> alter system set db_recovery_file_dest_size=6420M scope=spfile;

System altered.

SQL>
```

e. Cambiar el modo de logeo de la base a ARCHIVE para poder emitir backups en caliente. Para ello la base de datos debe estar en modo MOUNT.

```
SQL> shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup mount
ORACLE instance started.

Total System Global Area 1048576000 bytes
Fixed Size                 3053584 bytes
Variable Size             675284976 bytes
Database Buffers          364904448 bytes
Redo Buffers               5332992 bytes
```

```
Database mounted.
SQL> ALTER DATABASE ARCHIVELOG;

Database altered.

SQL> alter database open;

Database altered.

SQL>
```

- f. Consultar el modo de logueo de la base de datos

```
SQL> select name,log_mode from v$database;

NAME          LOG_MODE
-----
CDB           ARCHIVELOG

SQL>
```

- g. Consultar el tamaño del FRA (Fast Recovery Area)

```
SQL> show parameter db_recovery_file_dest_size

NAME                                TYPE          VALUE
-----
db_recovery_file_dest_size          big integer    6420M

SQL>
```

2. RMAN (Recovery Manager)

- a. Desde una ventana de comandos de DOS ejecutamos el utilitario RMAN

```
C:\Users\Administrator>rman target /  
  
Recovery Manager: Release 12.1.0.2.0 - Production on Wed Jun 14  
15:51:54 2017  
  
Copyright (c) 1982, 2014, Oracle and/or its affiliates. All  
rights reserved.  
  
connected to target database: CDB (DBID=2057368548)  
  
RMAN>
```

- b. Consultamos la configuración del RMAN

```
RMAN> show all;  
  
using target database control file instead of recovery catalog  
RMAN configuration parameters for database with db_unique_name CDB are:  
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default  
CONFIGURE BACKUP OPTIMIZATION OFF; # default  
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default  
CONFIGURE CONTROLFILE AUTOBACKUP ON; # 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 LOA  
D 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\ORACLE\PRODUCT\12.1.0\DBHOME_1\DA  
TBASE\SNCFMDB.ORA'; # default  
  
RMAN>
```

- c. Listamos los backups

```
RMAN> list backup;  
  
specification does not match any backup in the repository  
  
RMAN>
```

- d. Listamos los archivelog

```
RMAN> list archivelog all;
```

```
specification does not match any archived log in the repository
```

```
RMAN>
```

3. Backup completo (FULL)

- a. Sacamos un backup completo comprimido de la base de datos. El backup completo incluye la CDB y las PDS's

```

RMAN> BACKUP AS COMPRESSED BACKUPSET DATABASE;

Starting backup at 14-JUN-17
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=368 device type=DISK
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00001 name=C:\APP\ORACLE\ORADATA\CDB\SYSTEM01.DBF
input datafile file number=00005 name=C:\APP\ORACLE\ORADATA\CDB\UNDOTBS01.DBF
input datafile file number=00003 name=C:\APP\ORACLE\ORADATA\CDB\SYSAUX01.DBF
input datafile file number=00006 name=C:\APP\ORACLE\ORADATA\CDB\USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01_MF_NNN
DF_TAG20170614T155841_DN38W5VR_.BKP tag=TAG20170614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:01:55
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00024 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\EXAMPLE01.D
BF
input datafile file number=00022 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSAUX01.DB
F
input datafile file number=00021 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSTEM01.DB
F
input datafile file number=00023 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SAMPLE_SCHE
MA_USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD35229690B7
C6\BACKUPSET\2017_06_14\01_MF_NNNDFTAG20170614T155841_DN38ZQBV_.BKP tag=TAG2017
0614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:01:15
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00004 name=C:\APP\ORACLE\ORADATA\CDB\PDBSEED\SYSAUX01
.DBF
input datafile file number=00002 name=C:\APP\ORACLE\ORADATA\CDB\PDBSEED\SYSTEM01
.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AC335758E4B744618879A5ACCCB4DE
90\BACKUPSET\2017_06_14\01_MF_NNNDFTAG20170614T155841_DN392362_.BKP tag=TAG2017
0614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:46
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00008 name=C:\APP\ORACLE\ORADATA\CDB\PDB_LIMA\SYSAUX0
1.DBF
input datafile file number=00007 name=C:\APP\ORACLE\ORADATA\CDB\PDB_LIMA\SYSTEM0
1.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\52BC6444A864A11821D5C390E2775
F4\BACKUPSET\2017_06_14\01_MF_NNNDFTAG20170614T155841_DN393JSR_.BKP tag=TAG2017
0614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:35
channel ORA_DISK_1: starting compressed full datafile backup set
```

```

channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00010 name=C:\APP\ORACLE\ORADATA\CDB\PDB_PIURA\SYSAUX
01.DBF
input datafile file number=00009 name=C:\APP\ORACLE\ORADATA\CDB\PDB_PIURA\SYSTEM
01.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\6F0CA41D3F7B40349318665C05B22B
DB\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN394NN2_.BKP tag=TAG2017
0614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:35
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00012 name=C:\APP\ORACLE\ORADATA\CDB\PDB_ICA\SYSAUX01
.DBF
input datafile file number=00011 name=C:\APP\ORACLE\ORADATA\CDB\PDB_ICA\SYSTEM01
.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\ABCC4EE1638549F08FA94F4313850F
74\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN395R7K_.BKP tag=TAG2017
0614T155841 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:35
Finished backup at 14-JUN-17

Starting Control File and SPFILE Autobackup at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\01_MF_S_
946656268_DN3970M6_.BKP comment=NONE
Finished Control File and SPFILE Autobackup at 14-JUN-17

RMAN>

```

b. Listamos los backups

```

RMAN> list backup;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
----- -- --
1
Full     314.08M   DISK        00:01:52     14-JUN-17
BP Key: 1   Status: AVAILABLE Compressed: YES Tag: TAG20170614T155841
Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NNNDF_TAG20170614T155841_DN38W5VR_.BKP
List of Datafiles in backup set 1
File LV Type Ckp SCN    Ckp Time  Name
----- -- --
1          Full 2853095 14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\SYSTEM01.DBF
3          Full 2853095 14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\SYSAUX01.DBF
5          Full 2853095 14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\UNDOTBS01.DBF
6          Full 2853095 14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\USERS01.DBF

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
----- -- --
2
Full     175.76M   DISK        00:01:15     14-JUN-17
BP Key: 2   Status: AVAILABLE Compressed: YES Tag: TAG20170614T155841

```

```

    Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD352
29690B7C6\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T155841_DN38ZQBV_.BKP
    List of Datafiles in backup set 2
    Container ID: 6, PDB Name: ORCL
    File LV Type Ckp SCN      Ckp Time  Name
    -----
    21      Full 2854494      14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSTEM01.DBF
    22      Full 2854494      14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSAUX01.DBF
    23      Full 2854494      14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SAMPLE_SCHEMA
_USERS01.DBF
    24      Full 2854494      14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\EXAMPLE01.DBF

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
    Full   151.59M    DISK          00:00:42      14-JUN-17
    BP Key: 3  Status: AVAILABLE Compressed: YES  Tag: TAG20170614T155841
    Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AC335758E4B744618879A5A
CCC4DE90\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T155841_DN392362_.BKP
    List of Datafiles in backup set 3
    Container ID: 2, PDB Name: PDB$SEED
    File LV Type Ckp SCN      Ckp Time  Name
    -----
    2      Full 2480317      10-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDBSEED\SYSTEM01.D
BF
    4      Full 2480317      10-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDBSEED\SYSAUX01.D
BF

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
    Full   151.59M    DISK          00:00:35      14-JUN-17
    BP Key: 4  Status: AVAILABLE Compressed: YES  Tag: TAG20170614T155841
    Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\52BC64444A864A11821D5C3
90E2775F4\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T155841_DN393JSR_.BKP
    List of Datafiles in backup set 4
    Container ID: 3, PDB Name: PDB_LIMA
    File LV Type Ckp SCN      Ckp Time  Name
    -----
    7      Full 2581027      12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_LIMA\SYSTEM01.
DBF
    8      Full 2581027      12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_LIMA\SYSAUX01.
DBF

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
    Full   151.63M    DISK          00:00:29      14-JUN-17
    BP Key: 5  Status: AVAILABLE Compressed: YES  Tag: TAG20170614T155841
    Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\6F0CA41D3F7B40349318665
C05B22BDB\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T155841_DN394NN2_.BKP
    List of Datafiles in backup set 5
    Container ID: 4, PDB Name: PDB_PIURA
    File LV Type Ckp SCN      Ckp Time  Name
    -----
    9      Full 2581033      12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_PIURA\SYSTEM01
.DBF
    10     Full 2581033      12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_PIURA\SYSAUX01
.DBF

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
    Full   151.60M    DISK          00:00:32      14-JUN-17
    BP Key: 6  Status: AVAILABLE Compressed: YES  Tag: TAG20170614T155841
    Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\ABCC4EE1638549F08FA94F4

```

```

313850F74\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T155841_DN395R7K_.BKP
List of Datafiles in backup set 6
Container ID: 5, PDB Name: PDB_ICA
File LV Type Ckp SCN    Ckp Time  Name
-----
11          Full 2581039    12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_ICA\SYSTEM01.D
BF
12          Full 2581039    12-APR-17 C:\APP\ORACLE\ORADATA\CDB\PDB_ICA\SYSAUX01.D
BF

BS Key  Type LV Size      Device Type Elapsed Time Completion Time
-----
          Full    17.20M      DISK          00:00:06      14-JUN-17
          BP Key: 7   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T160428
          Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946656268_DN3970M6_.BKP
SPFILE Included: Modification time: 14-JUN-17
SPFILE db_unique_name: CDB
Control File Included: Ckp SCN: 2857363      Ckp time: 14-JUN-17

RMAN>

```


4. Backup de ARCHIVELOG

a. Sacamos backup de los archive log

```
RMAN> BACKUP ARCHIVELOG ALL;

Starting backup at 14-JUN-17
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=21 RECID=1 STAMP=946656676
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01_MF_ANN
NN_TAG20170614T161116_DN39M08Q_.BKP tag=TAG20170614T161116 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:07
Finished backup at 14-JUN-17

Starting Control File and SPFILE Autobackup at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\01_MF_S_
946656684_DN39MZDM_.BKP comment=NONE
Finished Control File and SPFILE Autobackup at 14-JUN-17

RMAN>
```

b. Listamos el backup de los ARCHIVELOG

```
RMAN> LIST BACKUP;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time-----
-----
8        34.28M    DISK        00:00:02      14-JUN-17
  BP Key: 8   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T161116
  Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_ANNNN_TAG20170614T161116_DN39M08Q_.BKP

  List of Archived Logs in backup set 8
  Thrd Seq    Low SCN    Low Time    Next SCN    Next Time
  ----
  1      21       2849370    14-JUN-17  2858546     14-JUN-17

BS Key   Type LV Size       Device Type Elapsed Time Completion Time-----
-----
9        Full   17.20M    DISK        00:00:04      14-JUN-17
  BP Key: 9   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T161124
  Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946656684_DN39MZDM_.BKP
  SPFILE Included: Modification time: 14-JUN-17
  SPFILE db_unique_name: CDB
  Control File Included: Ckp SCN: 2858559      Ckp time: 14-JUN-17

RMAN>
```

5. Backup del CONTROLFILE

a. Ejecutamos el backup del CONTROLFILE

```
RMAN> BACKUP CURRENT CONTROLFILE;

Starting backup at 14-JUN-17
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=6 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 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01_MF_NCN
NF_TAG20170614T162214_DN3B8B4Y_.BKP tag=TAG20170614T162214 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:03
Finished backup at 14-JUN-17

Starting Control File and SPFILE Autobackup at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\01_MF_S_
946657341_DN3B8HJF_.BKP comment=NONE
Finished Control File and SPFILE Autobackup at 14-JUN-17

RMAN>
```

b. Listamos los backups

```
RMAN> LIST BACKUP;

List of Backup Sets
=====

BS Key  Type LV Size          Device Type Elapsed Time Completion Time
----- -- -- -
10      Full  17.17M   DISK         00:00:04      14-JUN-17
        BP Key: 10   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T162214
        Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NCN NF_TAG20170614T162214_DN3B8B4Y_.BKP
        Control File Included: Ckp SCN: 2859193      Ckp time: 14-JUN-17

BS Key  Type LV Size          Device Type Elapsed Time Completion Time
----- -- -- -
11      Full  17.20M   DISK         00:00:03      14-JUN-17
        BP Key: 11   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T162221
        Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946657341_DN3B8HJF_.BKP
        SPFILE Included: Modification time: 14-JUN-17
        SPFILE db_unique_name: CDB
        Control File Included: Ckp SCN: 2859206      Ckp time: 14-JUN-17

RMAN>
```

6. Backup de una PDB

a. Sacar un backup comprimido de la PDB ORCL

```

RMAN> BACKUP AS COMPRESSED BACKUPSET PLUGGABLE DATABASE ORCL;

Starting backup at 14-JUN-17
using channel ORA_DISK_1
channel ORA_DISK_1: starting compressed full datafile backup set
channel ORA_DISK_1: specifying datafile(s) in backup set
input datafile file number=00024 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\EXAMPLE01.D
BF
input datafile file number=00022 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSAUX01.DB
F
input datafile file number=00021 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSTEM01.DB
F
input datafile file number=00023 name=C:\APP\ORACLE\ORADATA\CDB\ORCL\SAMPLE_SCHE
MA_USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD35229690B7
C6\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T162725_DN3BKXXM_.BKP tag=TAG2017
0614T162725 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:01:16
Finished backup at 14-JUN-17

Starting Control File and SPFILE Autobackup at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\01_MF_S_
946657721_DN3BND83_.BKP comment=NONE
Finished Control File and SPFILE Autobackup at 14-JUN-17

RMAN>
```

b. Listar los backups

```

RMAN> LIST BACKUP;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
-----
12       Full  175.76M   DISK        00:01:14    14-JUN-17
        BP Key: 12   Status: AVAILABLE Compressed: YES Tag: TAG20170614T162725

        Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD352
29690B7C6\BACKUPSET\2017_06_14\01_MF_NNDF_TAG20170614T162725_DN3BKXXM_.BKP
        List of Datafiles in backup set 12
        Container ID: 6, PDB Name: ORCL
        File LV Type Ckp SCN      Ckp Time  Name
        ----
        21       Full  2859397   14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSTEM01.DBF
        22       Full  2859397   14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SYSAUX01.DBF
        23       Full  2859397   14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\SAMPLE_SCHEMA_USERS01.DBF
        24       Full  2859397   14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\ORCL\EXAMPLE01.DBF
```

BS Key	Type	LV Size	Device Type	Elapsed Time	Completion Time
13	Full	17.20M	DISK	00:00:04	14-JUN-17
BP Key: 13 Status: AVAILABLE Compressed: NO Tag: TAG20170614T162841					
Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\O					
1_MF_S_946657721_DN3BND83_.BKP					
SPFILE Included: Modification time: 14-JUN-17					
SPFILE db_unique_name: CDB					
Control File Included: Ckp SCN: 2859430 Ckp time: 14-JUN-17					

RMAN>

7. Backup de TABLESPACE

a. Sacamos backup de una tablespace, usar el tablespace USERS

```
RMAN> BACKUP TABLESPACE USERS;

Starting backup at 14-JUN-17
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=00006 name=C:\APP\ORACLE\ORADATA\CDB\USERS01.DBF
channel ORA_DISK_1: starting piece 1 at 14-JUN-17
channel ORA_DISK_1: finished piece 1 at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01_MF_NNN
DF_TAG20170614T163755_DN3C5MJ0_.BKP tag=TAG20170614T163755 comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:01
Finished backup at 14-JUN-17

Starting Control File and SPFILE Autobackup at 14-JUN-17
piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\01_MF_S_
946658276_DN3C5POW_.BKP comment=NONE
Finished Control File and SPFILE Autobackup at 14-JUN-17

RMAN>
```

b. Listamos los backups

```
RMAN> LIST BACKUP;

List of Backup Sets
=====

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
----- -- --
14       Full  1.34M    DISK        00:00:00     14-JUN-17
        BP Key: 14   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T163755
        Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NNNDP_TAG20170614T163755_DN3C5MJ0_.BKP
        List of Datafiles in backup set 14
        File LV Type Ckp SCN      Ckp Time  Name
        ---- --
        6       Full  2859854  14-JUN-17 C:\APP\ORACLE\ORADATA\CDB\USERS01.DBF

BS Key   Type LV Size       Device Type Elapsed Time Completion Time
----- -- --
15       Full  17.20M   DISK        00:00:03     14-JUN-17
        BP Key: 15   Status: AVAILABLE Compressed: NO   Tag: TAG20170614T163756
        Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946658276_DN3C5POW_.BKP
        SPFILE Included: Modification time: 14-JUN-17
        SPFILE db_unique_name: CDB
        Control File Included: Ckp SCN: 2859860      Ckp time: 14-JUN-17

RMAN>
```

8. Listado de Backups

a. Lista Backups por archivo

```
RMAN> LIST BACKUP BY FILE;
```

List of Datafile Backups

```
=====
```

File	Key	TY	LV	S	Ckp SCN	Ckp Time	#Pieces	#Copies	Compressed	Tag
1	1	B	F	A	2853095	14-JUN-17	1	1	YES	TAG20170614T155841
2	3	B	F	A	2480317	10-APR-17	1	1	YES	TAG20170614T155841
3	1	B	F	A	2853095	14-JUN-17	1	1	YES	TAG20170614T155841
4	3	B	F	A	2480317	10-APR-17	1	1	YES	TAG20170614T155841
5	1	B	F	A	2853095	14-JUN-17	1	1	YES	TAG20170614T155841
6	14	B	F	A	2859854	14-JUN-17	1	1	NO	TAG20170614T163755
	1	B	F	A	2853095	14-JUN-17	1	1	YES	TAG20170614T155841
7	4	B	F	A	2581027	12-APR-17	1	1	YES	TAG20170614T155841
8	4	B	F	A	2581027	12-APR-17	1	1	YES	TAG20170614T155841
9	5	B	F	A	2581033	12-APR-17	1	1	YES	TAG20170614T155841
10	5	B	F	A	2581033	12-APR-17	1	1	YES	TAG20170614T155841
11	6	B	F	A	2581039	12-APR-17	1	1	YES	TAG20170614T155841
12	6	B	F	A	2581039	12-APR-17	1	1	YES	TAG20170614T155841
21	12	B	F	A	2859397	14-JUN-17	1	1	YES	TAG20170614T162725
	2	B	F	A	2854494	14-JUN-17	1	1	YES	TAG20170614T155841
22	12	B	F	A	2859397	14-JUN-17	1	1	YES	TAG20170614T162725
	2	B	F	A	2854494	14-JUN-17	1	1	YES	TAG20170614T155841
23	12	B	F	A	2859397	14-JUN-17	1	1	YES	TAG20170614T162725
	2	B	F	A	2854494	14-JUN-17	1	1	YES	TAG20170614T155841
24	12	B	F	A	2859397	14-JUN-17	1	1	YES	TAG20170614T162725
	2	B	F	A	2854494	14-JUN-17	1	1	YES	TAG20170614T155841

List of Archived Log Backups

```
=====
```

Thrd	Seq	Low SCN	Low Time	BS Key	S	#Pieces	#Copies	Compressed	Tag
1	21	2849370	14-JUN-17	8	A	1	1	NO	TAG20170614T161116

List of Control File Backups

```
=====
```

CF Ckp SCN	Ckp Time	BS Key	S	#Pieces	#Copies	Compressed	Tag
2859860	14-JUN-17	15	A	1	1	NO	TAG20170614T163756
2859430	14-JUN-17	13	A	1	1	NO	TAG20170614T162841
2859206	14-JUN-17	11	A	1	1	NO	TAG20170614T162221
2859193	14-JUN-17	10	A	1	1	NO	TAG20170614T162214
2858559	14-JUN-17	9	A	1	1	NO	TAG20170614T161124
2857363	14-JUN-17	7	A	1	1	NO	TAG20170614T160428

List of SPFILE Backups

```
=====
```

Modification Time	BS Key	S	#Pieces	#Copies	Compressed	Tag
14-JUN-17	15	A	1	1	NO	TAG20170614T163756
14-JUN-17	13	A	1	1	NO	TAG20170614T162841
14-JUN-17	11	A	1	1	NO	TAG20170614T162221
14-JUN-17	9	A	1	1	NO	TAG20170614T161124

```
14-JUN-17      7      A 1      1      NO      TAG20170614T160428
RMAN>
```

b. Listar un resumen de backups

```
RMAN> LIST BACKUP SUMMARY;
```

List of Backups

=====

Key	TY	LV	S	Device	Type	Completion Time	#Pieces	#Copies	Compressed	Tag
1	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
2	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
3	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
4	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
5	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
6	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T155841
7	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T160428
8	B	A	A	DISK		14-JUN-17	1	1	NO	TAG20170614T161116
9	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T161124
10	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T162214
11	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T162221
12	B	F	A	DISK		14-JUN-17	1	1	YES	TAG20170614T162725
13	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T162841
14	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T163755
15	B	F	A	DISK		14-JUN-17	1	1	NO	TAG20170614T163756

```
RMAN>
```

c. Listar un Backup Set específico

```
RMAN> LIST BACKUPSET 1;
```

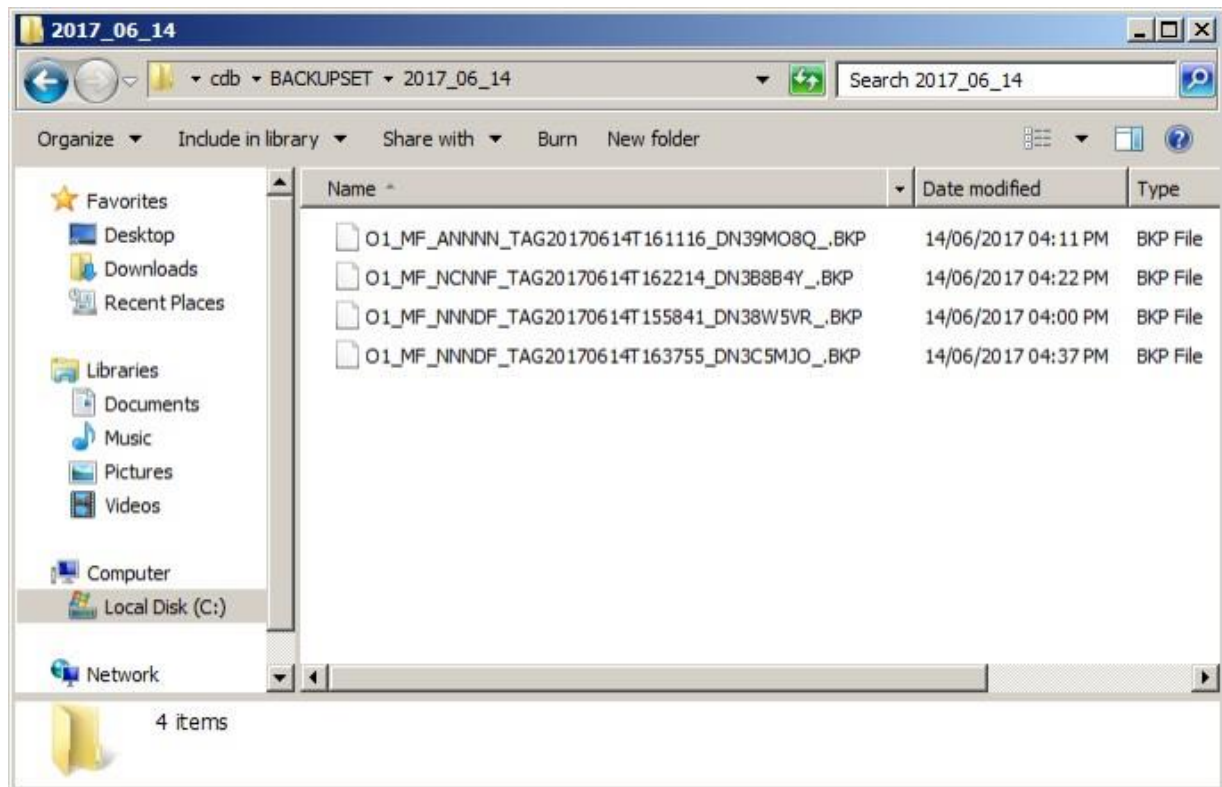
List of Backup Sets

=====

BS Key	Type	LV	Size	Device	Type	Elapsed Time	Completion Time
1	Full		314.08M	DISK		00:01:52	14-JUN-17
BP Key: 1 Status: AVAILABLE Compressed: YES Tag: TAG20170614T155841							
Piece Name: C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01_MF_NNNDP_TAG20170614T155841_DN38W5VR_.BKP							
List of Datafiles in backup set 1							
File	LV	Type	Ckp	SCN	Ckp Time	Name	
1	Full		2853095		14-JUN-17	C:\APP\ORACLE\ORADATA\CDB\SYSTEM01.DBF	
3	Full		2853095		14-JUN-17	C:\APP\ORACLE\ORADATA\CDB\SYS_AUX01.DBF	
5	Full		2853095		14-JUN-17	C:\APP\ORACLE\ORADATA\CDB\UNDOTBS01.DBF	
6	Full		2853095		14-JUN-17	C:\APP\ORACLE\ORADATA\CDB\USERS01.DBF	

```
RMAN>
```

- d. Consultamos la carpeta donde almacenamos el backup (consultar la ruta C:\app\oracle\fast_recovery_area\cdb\BACKUPSET\2017_06_14)



9. Validar estado de Backups

- a. Verificamos los backups. Podemos ver que todos los backups están disponibles (AVAILABLE)

```
RMAN> CROSSCHECK BACKUP;

using channel ORA_DISK_1
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NNNDF_TAG20170614T155841_DN38W5VR_.BKP RECID=1 STAMP=946655925
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD352
29690B7C6\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN38ZQBV_.BKP RECI
D=2 STAMP=946656039
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AC335758E4B744618879A5A
CCCB4DE90\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN392362_.BKP RECI
D=3 STAMP=946656115
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\52BC6444A864A11821D5C3
90E2775F4\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN393JSR_.BKP RECI
D=4 STAMP=946656160
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\6F0CA41D3F7B40349318665
C05B22BDB\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN394NN2_.BKP RECI
D=5 STAMP=946656196
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\ABCC4EE1638549F08FA94F4
313850F74\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T155841_DN395R7K_.BKP RECI
D=6 STAMP=946656232
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946656268_DN3970M6_.BKP RECID=7 STAMP=946656272
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_ANNNN_TAG20170614T161116_DN39M08Q_.BKP RECID=8 STAMP=946656677
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946656684_DN39MZDM_.BKP RECID=9 STAMP=946656687
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NCNNF_TAG20170614T162214_DN3B8B4Y_.BKP RECID=10 STAMP=946657338
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946657341_DN3B8HJF_.BKP RECID=11 STAMP=946657343
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\2E2BEA2F91C04E7781DD352
29690B7C6\BACKUPSET\2017_06_14\01_MF_NNNDF_TAG20170614T162725_DN3BKXXM_.BKP RECI
D=12 STAMP=946657645
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946657721_DN3BND83_.BKP RECID=13 STAMP=946657724
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\BACKUPSET\2017_06_14\01
_MF_NNNDF_TAG20170614T163755_DN3C5MJ0_.BKP RECID=14 STAMP=946658275
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=C:\APP\ORACLE\FAST_RECOVERY_AREA\CDB\AUTOBACKUP\2017_06_14\0
1_MF_S_946658276_DN3C5POW_.BKP RECID=15 STAMP=946658278
Crosschecked 15 objects
```

```
RMAN>
```

Podemos observar que el estado de todos los backups es AVAILABLE