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## Duplicate Database from ASM to Non-ASM using RMAN

### Step 1:

Determine how much disk space will be required.

SQL> select name from v\$database;

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

NAME
-----
TEST
```

```
SQL> select name from v$datafile;

NAME
-----
+DATA/test/datafile/system.323.741804635
+DATA/test/datafile/sysaux.324.741804637
+DATA/test/datafile/undotbs1.325.741804637
+DATA/test/datafile/users.326.741804637
+DATA/test/datafile/example.334.741804919
+DATA/test/datafile/undotbs2.335.741805219

6 rows selected.
```

Calculate total space for all datafiles within database

```
select DF.TOTAL/1048576 "DataFile Size Mb",LOG.TOTAL/1048576 "Redo Log Size Mb",CONTROL.TOTAL/1048576 "Control File Size Mb",
(DF.TOTAL + LOG.TOTAL + CONTROL.TOTAL)/1048576 "Total Size Mb" from dual,(select sum(a.bytes) TOTAL from dba_data_files a) DF,
(select sum(b.bytes) TOTAL from v$log b) LOG,(select sum((cffsz+1)*cfbsz) TOTAL from x$kcccf c) CONTROL ;
```

```
SQL>
SQL>
SQL> select DF.TOTAL/1048576 "DataFile Size Mb",LOG.TOTAL/1048576 "Redo Log Size Mb",CONTROL.TOTAL/1048576 "Control File Size Mb",
2 (DF.TOTAL + LOG.TOTAL + CONTROL.TOTAL)/1048576 "Total Size Mb" from dual,(select sum(a.bytes) TOTAL from dba_data_files a) DF,
3 (select sum(b.bytes) TOTAL from v$log b) LOG,(select sum((cffsz+1)*cfbsz) TOTAL from x$kcccf c) CONTROL ;

DataFile Size Mb Redo Log Size Mb Control File Size Mb Total Size Mb
-----
1345                200                35.28125        1580.28125
```

Calculate space for list of datafiles within primary database

```
select DF.TOTAL/1048576 "DataFile Size Mb",
```

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```
LOG.TOTAL/1048576 "Redo Log Size Mb",
CONTROL.TOTAL/1048576 "Control File Size Mb",
(DF.TOTAL + LOG.TOTAL + CONTROL.TOTAL)/1048576 "Total Size Mb" from dual,
(select sum(a.bytes) TOTAL from dba_data_files a where tablespace_name in
('SYSTEM','SYSAUX','UNDO','USERS')) DF,
(select sum(b.bytes) TOTAL from v$log b) LOG,
(select sum((cffsz+1)*cfbsz) TOTAL from x$kcccf c) CONTROL ;
```

```
SQL> select DF.TOTAL/1048576 "DataFile Size Mb",
2 LOG.TOTAL/1048576 "Redo Log Size Mb",
3 CONTROL.TOTAL/1048576 "Control File Size Mb",
(DF.TOTAL + LOG.TOTAL + CONTROL.TOTAL)/1048576 "Total Size Mb" from dual,
4 5 (select sum(a.bytes) TOTAL from dba_data_files a where tablespace_name in ('SYSTEM','SYSAUX','UNDO','USERS')) DF,
6 (select sum(b.bytes) TOTAL from v$log b) LOG,
7 (select sum((cffsz+1)*cfbsz) TOTAL from x$kcccf c) CONTROL ;

DataFile Size Mb Redo Log Size Mb Control File Size Mb Total Size Mb
-----
1175                200          35.28125      1410.28125
```

## Step 2: backup Source database

rman target /

```
run{
  allocate channel d1 type disk;
  backup format '/d03/oracle/RMAN_BACKUP/TEST/df_t%t_s%s_p%p' database;
  sql 'alter system archive log current';
  backup format '/d03/oracle/RMAN_BACKUP/TEST/al_t%t_s%s_p%p' archivelog all;
  backup format '/d03/oracle/RMAN_BACKUP/TEST/control%U' current controlfile;
  delete noprompt archivelog all backed up 1 times to device type disk;
  release channel d1;
  allocate channel d1 type disk;
  crosscheck backup;
  crosscheck archivelog all;
  delete noprompt obsolete;
  release channel d1;
}
```

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```
[oracle@linux1 ~]$ rman target /

Recovery Manager: Release 11.2.0.1.0 - Production on Mon Jan 31 10:51:08 2011

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connected to target database: TEST (DBID=2039951311)

RMAN> run(
2> allocate channel d1 type disk;
3> backup format '/d03/oracle/RMAN_BACKUP/TEST/df_t%t_s%$p%p' database;
4> sql 'alter system archive log current';
   backup format '/d03/oracle/RMAN_BACKUP/TEST/al_t%t_s%$p%p' archivelog all;
   backup format '/d03/oracle/RMAN_BACKUP/TEST/control%U' current controlfile;
5> 6> 7> delete noprompt archivelog all backed up 1 times to device type disk;
8> release channel d1;
9> allocate channel d1 type disk;
   crosscheck backup;
10> 11> crosscheck archivelog all;
12> delete noprompt obsolete;
   release channel d1;
13> 14> )

using target database control file instead of recovery catalog
allocated channel: d1
channel d1: SID=62 instance=TEST1 device type=DISK
```

```
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/al_t741869651_s10_p1 RECID=10 STAMP=741869651
crosschecked backup piece: found to be 'AVAILABLE'
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/control0bm3g236_1_1 RECID=11 STAMP=741869673
Crosschecked 8 objects

specification does not match any archived log in the repository

RMAN retention policy will be applied to the command
RMAN retention policy is set to redundancy 1
Deleting the following obsolete backups and copies:
Type          Key      Completion Time      Filename/Handle
-----
Backup Set    4        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/df_t741816080_s4_p1
Backup Piece  4        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/df_t741816236_s5_p1
Backup Set    5        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/df_t741816236_s5_p1
Backup Piece  5        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/df_t741816236_s5_p1
Backup Set    6        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/al_t741816255_s6_p1
Backup Piece  6        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/al_t741816255_s6_p1
Backup Set    7        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/control07m3edua_1_1
Backup Piece  7        30-JAN-11             /d03/oracle/RMAN_BACKUP/TEST/control07m3edua_1_1
deleted backup piece
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/df_t741816080_s4_p1 RECID=4 STAMP=741816081
deleted backup piece
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/df_t741816236_s5_p1 RECID=5 STAMP=741816239
deleted backup piece
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/al_t741816255_s6_p1 RECID=6 STAMP=741816255
deleted backup piece
backup piece handle=/d03/oracle/RMAN_BACKUP/TEST/control07m3edua_1_1 RECID=7 STAMP=741816269
Deleted 4 objects

released channel: d1
```

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**Step 3:** Create pfile & edit some required parameters

```
SQL> create pfile=$ORACLE_HOME/initAUX.ora from spfile;  
File created.
```

```
SQL>  
Edit& Save
```

```
db_name                = AUX  
control_files          = /d01/oracle/AUX/db/apps_st/data/cntrl01.dbf  
db_block_size         = 8192  
compatible            = 11.2.0  
diagnostic_dest       = /d01/oracle/AUX/db/tech_st/11.1.0/admin/AUX_linux1  
db_files               = 512          # Max. no. of database files  
sga_target            = 1G  
shared_pool_size      = 400M  
shared_pool_reserved_size = 40M  
db_block_checking     = FALSE  
db_block_checksum     = TRUE  
log_checkpoint_interval = 100000  
log_checkpoints_to_alert = TRUE  
log_buffer            = 10485760  
undo_management       =AUTO  
undo_retention        =10800  
undo_tablespace='UNDOTBS1'  
olap_page_pool_size  =          4194304  
_no_recovery_through_resetlogs=TRUE  
db_file_name_convert =('+DATA', '/d01/oracle/AUX/db/apps_st/data')  
log_file_name_convert =('+DATA', '/d01/oracle/AUX/db/apps_st/data')
```

**Step 4:** startup nomount for AUX database

```
export ORACLE_SID=AUX  
sqlplus / as sysdba
```

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```
SQL*Plus: Release 11.2.0.1.0 Production on Mon Jan 31 11:04:32 2011
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Connected to an idle instance.

SQL> startup nomount
ORACLE instance started.

Total System Global Area 1071333376 bytes
Fixed Size 1341312 bytes
Variable Size 427821184 bytes
Database Buffers 629145600 bytes
Redo Buffers 13025280 bytes
SQL> show parameter convert

NAME                                TYPE                                VALUE
-----                                -                                -
_convert_set_to_join                 boolean                             FALSE
db_file_name_convert                  string                              +DATA, /d01/oracle/AUX/db/apps
                                       _st/data
log_file_name_convert                 string                              +DATA, /d01/oracle/AUX/db/apps
                                       _st/data
```

**Step 5:** Create duplicate database from here

Make an entry in tnsnames.ora for TEST instance

```
export ORACLE_SID=AUX
rman target sys/oracle10g@test auxiliary /
```

```
[oracle@linux1 data]$ export ORACLE_SID=AUX
[oracle@linux1 data]$ rman target sys/oracle10g@test auxiliary /

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connected to target database: TEST (DBID=2039951311)
connected to auxiliary database: AUX (not mounted)
```

```
run{
allocate auxiliary channel C1 device type disk;
duplicate target database to AUX;
}
```

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```
RMAN> run{
allocate auxiliary channel C1 device type disk;
duplicate target database to AUX;
}
2> 3> 4>
using target database control file instead of recovery catalog
allocated channel: C1
channel C1: SID=25 device type=DISK

Starting Duplicate Db at 31-JAN-11
█
```

```
archived log file name=/d01/oracle/app/oracle/product/11.2.0/dbhome_1/dbs/arch2_8_741804886.dbf thread=2 sequence=8
channel clone default: deleting archived log(s)
archived log file name=/d01/oracle/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_8_741804886.dbf RECID=19 STAMP=741870746
archived log file name=/d01/oracle/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_9_741804886.dbf thread=1 sequence=9
channel clone default: deleting archived log(s)
archived log file name=/d01/oracle/app/oracle/product/11.2.0/dbhome_1/dbs/arch1_9_741804886.dbf RECID=17 STAMP=741870744
channel clone default: deleting archived log(s)
archived log file name=/d01/oracle/app/oracle/product/11.2.0/dbhome_1/dbs/arch2_8_741804886.dbf RECID=16 STAMP=741870744
media recovery complete, elapsed time: 00:00:05
Finished recover at 31-JAN-11
```

contents of Memory Script:

```
{
  shutdown clone immediate;
  startup clone nomount;
  sql clone "alter system set db_name =
'AUX' comment=
'Reset to original value by RMAN' scope=spfile";
  sql clone "alter system reset db_unique_name scope=spfile";
  shutdown clone immediate;
  startup clone nomount;
}
```

executing Memory Script

database dismounted
Oracle instance shut down

connected to auxiliary database (not started)
Oracle instance started

Total System Global Area 1071333376 bytes

Fixed Size 1341312 bytes

Variable Size 427821184 bytes

Database Buffers 629145600 bytes

Redo Buffers 13025280 bytes

allocated channel: C1

channel C1: SID=24 device type=DISK

sql statement: alter system set db\_name = 'AUX' comment= 'Reset to original value by RMAN' scope=spfile

```
datafile 2 switched to datafile copy
input datafile copy RECID=1 STAMP=741870791 file name=/d01/oracle/AUX/db/apps_st/data/test/datafile/sysaux.324.741804637
datafile 3 switched to datafile copy
input datafile copy RECID=2 STAMP=741870791 file name=/d01/oracle/AUX/db/apps_st/data/test/datafile/undotbs1.325.741804637
datafile 4 switched to datafile copy
input datafile copy RECID=3 STAMP=741870791 file name=/d01/oracle/AUX/db/apps_st/data/test/datafile/users.326.741804637
datafile 5 switched to datafile copy
input datafile copy RECID=4 STAMP=741870791 file name=/d01/oracle/AUX/db/apps_st/data/test/datafile/example.334.741804919
datafile 6 switched to datafile copy
input datafile copy RECID=5 STAMP=741870791 file name=/d01/oracle/AUX/db/apps_st/data/test/datafile/undotbs2.335.741805219
```

contents of Memory Script:

```
{
  Alter clone database open resetlogs;
}
```

executing Memory Script

database opened
Finished Duplicate Db at 31-JAN-11
released channel: C1

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**Step 6:** Check Duplicate Database

```
export ORACLE_SID=AUX

select name from v$database;
NAME
-----
AUX

select name from v$datafile;
```

```
SQL> select name from v$datafile;

NAME
-----
/d01/oracle/AUX/db/apps_st/data/test/datafile/system.323.741804635
/d01/oracle/AUX/db/apps_st/data/test/datafile/sysaux.324.741804637
/d01/oracle/AUX/db/apps_st/data/test/datafile/undoths1.325.741804637
/d01/oracle/AUX/db/apps_st/data/test/datafile/users.326.741804637
/d01/oracle/AUX/db/apps_st/data/test/datafile/example.334.741804919
/d01/oracle/AUX/db/apps_st/data/test/datafile/undoths2.335.741805219

6 rows selected.
```

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Possible Errors:

You can get some errors , can't restore datafile & onlineredo log files, in this case you need to create directory ,It should be indicate.

test/datafile  
test/onlineolog