

# HOW TO

Author: Martin Decker  
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Subject: RMAN Restore for Standby 10gR2

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## RMAN Restore for Standby 10gR2

### 1 Preparations

The existing database MDDB1 should be duplicated as Standby Database MDSTB1 with conversion of filesystem path /oracle/MDDB1 to /oracle/MDSTB1.

The existing database should have an existing backup with RMAN catalog available.

#### 1.1 RMAN Catalog Schema:

```
create user "RMAN_MDDB1_DBHOST1"  
  identified by xxx  
  default tablespace RMAN01  
  temporary tablespace TEMP  
  profile DEFAULT  
  quota unlimited on rman01;  
-- Grant/Revoke role privileges  
grant recovery_catalog_owner to "RMAN_MDDB1_DBHOST1";  
  
rman target=/ catalog=RMAN_MDDB1_DBHOST1/xxx@MDDB1
```

```
Recovery Manager: Release 10.2.0.3.0 - Production on Wed Aug 29 14:41:43  
2007
```

```
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```

```
connected to target database: MDDB1 (DBID=2664690349)  
connected to recovery catalog database
```

```
RMAN> create catalog;
```

```
recovery catalog created
```

```
RMAN> register database;
```

```
database registered in recovery catalog  
starting full resync of recovery catalog  
full resync complete
```

Simulation of Tape Backup: (only for internal testcase)

```
RMAN> CONFIGURE CHANNEL DEVICE TYPE 'SBT_TAPE' PARMS  
'SBT_LIBRARY=oracle.disksbt, ENV=(BACKUP_DIR=/oracle/MDDb1/tape_backup)';
```

```
RMAN> CONFIGURE DEVICE TYPE DISK BACKUP TYPE TO COMPRESSED BACKUPSET;
```

```
RMAN> CONFIGURE CONTROLFILE AUTOBACKUP ON;
```

Regular daily/weekly backups:

```
RMAN> BACKUP DATABASE;
```

```
RMAN> BACKUP ARCHIVELOG ALL DELETE INPUT;
```

## 1.2 Standby Initialization Parameters

```
*.log_file_name_convert='/oracle/MDDb1/', '/oracle/MDSTb1/'  
*.db_file_name_convert='/oracle/MDDb1/oradata/', '/oracle/MDSTb1/oradata/'  
*.STANDBY_ARCHIVE_DEST = '/oracle/STEMPRE/oraarch/'  
*.LOG_ARCHIVE_FORMAT='log%d_%t_%s_%r.arc'
```

```
SQL> startup nomount;
```

## 2 Restore

### 2.1 Duplicate via RMAN

- Standby database must be started nomount with init.ora containing the prepared lines
- on the primary database MDDb1:

```
SQL> alter database create standby controlfile as  
'/oracle/MDSTb1/standby_controlfile.ctl' reuse;  
Database altered.  
SQL> alter system switch logfile;  
System altered.  
SQL> alter system switch logfile;  
System altered
```

- backup last created archivelogs to tape

```
RMAN> backup archivelog all delete input;
```

- Connect to RMAN with:

- target set to primary database
- auxiliary set to future standby database

```
$ORACLE_HOME/bin/rman target=sys@MDDb1 auxiliary=/  
catalog=RMAN_MDDb1_DBHOST1/MDDb1@MDDb1 cmdfile=MDDb1_standby.cmd
```

- MDDb1\_standby.cmd:

```
LIST BACKUP OF CONTROLFILE;  
LIST COPY OF CONTROLFILE;
```

```
RUN  
{  
  DUPLICATE TARGET DATABASE FOR STANDBY  
  NOFILENAMECHECK  
  DORECOVER;  
}
```

- Due to DB\_FILE\_NAME\_CONVERT/FILE\_NAME\_CONVERT, „set newname“ is not necessary as it is generated automatically by RMAN.
- automatic recovery after restore of all archive logs backed up on tape.

```
oracle@DBHOST1:~/MDSTB1/rman> ./rman.sh
```

```
Recovery Manager: Release 10.2.0.3.0 - Production on Wed Aug 29 16:42:10 2007
```

```
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```

```
target database Password:  
connected to target database: MDDb1 (DBID=2664690349)  
connected to recovery catalog database  
connected to auxiliary database: MDDb1 (not mounted)
```

```
RMAN> LIST BACKUP OF CONTROLFILE;  
2> LIST COPY OF CONTROLFILE;  
3>  
4> RUN  
5> {  
6>   # If desired, issue a SET command to terminate recovery at a specified point.  
7>   # SET UNTIL SCN 143508;  
8>   DUPLICATE TARGET DATABASE FOR STANDBY  
9>     NOFILENAMECHECK  
10>     DORECOVER;  
11> }  
12>  
13>  
14>
```

```
List of Backup Sets
```

```
=====
```

BS Key	Type	LV	Size	Device Type	Elapsed Time	Completion Time
488	Full		4.77M	DISK	00:00:02	29-AUG-07
	BP Key:	496	Status:	AVAILABLE	Compressed:	NO
			Tag:	TAG20070829T145902		
			Piece Name:	/oracle/MDDb1/10.2.0/dbs/c-2664690349-20070829-00		
			Control File Included:	Ckp SCN: 107853842	Ckp time:	29-AUG-07

BS Key	Type	LV	Size	Device Type	Elapsed Time	Completion Time
555	Full		5.00M	SBT_TAPE	00:00:01	29-AUG-07

BP Key: 557 Status: AVAILABLE Compressed: NO Tag: TAG20070829T154932  
 Handle: c-2664690349-20070829-01 Media: /tape\_backup,c-2664690349-200708  
 Control File Included: Ckp SCN: 107862676 Ckp time: 29-AUG-07

BS Key	Type	LV	Size	Device	Type	Elapsed Time	Completion Time
663	Full		5.00M	SBT_TAPE		00:00:02	29-AUG-07
BP Key: 667 Status: AVAILABLE Compressed: NO Tag: TAG20070829T163444							
Handle: c-2664690349-20070829-02 Media: /tape_backup,c-2664690349-200708							
Control File Included: Ckp SCN: 107869936 Ckp time: 29-AUG-07							

BS Key	Type	LV	Size	Device	Type	Elapsed Time	Completion Time
702	Full		5.00M	SBT_TAPE		00:00:01	29-AUG-07
BP Key: 708 Status: AVAILABLE Compressed: NO Tag: TAG20070829T163524							
Handle: c-2664690349-20070829-03 Media: /tape_backup,c-2664690349-200708							
Control File Included: Ckp SCN: 107870080 Ckp time: 29-AUG-07							

BS Key	Type	LV	Size	Device	Type	Elapsed Time	Completion Time
758	Full		5.00M	SBT_TAPE		00:00:02	29-AUG-07
BP Key: 767 Status: AVAILABLE Compressed: NO Tag: TAG20070829T164154							
Handle: c-2664690349-20070829-04 Media: /tape_backup,c-2664690349-200708							
Control File Included: Ckp SCN: 107870944 Ckp time: 29-AUG-07							

List of Control File Copies

Key	S	Completion Time	Ckp SCN	Ckp Time	Name
737	A	29-AUG-07	107870745	29-AUG-07	/oracle/MDSTB1/standby_controlfile.ctl

Starting Duplicate Db at 29-AUG-07  
 allocated channel: ORA\_AUX\_DISK\_1  
 channel ORA\_AUX\_DISK\_1: sid=157 devtype=DISK  
 allocated channel: ORA\_AUX\_SBT\_TAPE\_1  
 channel ORA\_AUX\_SBT\_TAPE\_1: sid=156 devtype=SBT\_TAPE  
 channel ORA\_AUX\_SBT\_TAPE\_1: WARNING: Oracle Test Disk API

contents of Memory Script:

```
{
  set until scn 107870829;
  restore clone standby controlfile;
  sql clone 'alter database mount standby database';
}
```

executing Memory Script

executing command: SET until clause

Starting restore at 29-AUG-07  
 using channel ORA\_AUX\_DISK\_1  
 using channel ORA\_AUX\_SBT\_TAPE\_1

channel ORA\_AUX\_DISK\_1: restoring control file  
 channel ORA\_AUX\_DISK\_1: copied control file copy  
 input filename=/oracle/MDSTB1/standby\_controlfile.ctl  
 output filename=/oracle/MDSTB1/origlogA/control01.ctl  
 output filename=/oracle/MDSTB1/origlogB/control02.ctl  
 Finished restore at 29-AUG-07

sql statement: alter database mount standby database  
 released channel: ORA\_AUX\_DISK\_1  
 released channel: ORA\_AUX\_SBT\_TAPE\_1

contents of Memory Script:

```
{
  set until scn 107870829;
  set newname for tempfile 1 to
```

```
"/oracle/MDSTB1/oradata/temp01.dbf";
  switch clone tempfile all;
  set newname for datafile 1 to
"/oracle/MDSTB1/oradata/system01.dbf";
  set newname for datafile 2 to
"/oracle/MDSTB1/oradata/undotbs01.dbf";
  set newname for datafile 3 to
"/oracle/MDSTB1/oradata/sysaux01.dbf";
  set newname for datafile 4 to
"/oracle/MDSTB1/oradata/users01.dbf";
  set newname for datafile 5 to
"/oracle/MDSTB1/oradata/mgmt.dbf";
  set newname for datafile 6 to
"/oracle/MDSTB1/oradata/mgmt_ecm_depot1.dbf";
  set newname for datafile 9 to
"/oracle/MDSTB1/oradata/rman01.dbf";
  restore
  check readonly
  clone database
  ;
}
executing Memory Script

executing command: SET until clause

executing command: SET NEWNAME

renamed temporary file 1 to /oracle/MDSTB1/oradata/temp01.dbf in control file

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

Starting restore at 29-AUG-07
allocated channel: ORA_AUX_DISK_1
channel ORA_AUX_DISK_1: sid=157 devtype=DISK
allocated channel: ORA_AUX_SBT_TAPE_1
channel ORA_AUX_SBT_TAPE_1: sid=155 devtype=SBT_TAPE
channel ORA_AUX_SBT_TAPE_1: WARNING: Oracle Test Disk API

channel ORA_AUX_DISK_1: starting datafile backupset restore
channel ORA_AUX_DISK_1: specifying datafile(s) to restore from backup set
restoring datafile 00001 to /oracle/MDSTB1/oradata/system01.dbf
restoring datafile 00002 to /oracle/MDSTB1/oradata/undotbs01.dbf
restoring datafile 00003 to /oracle/MDSTB1/oradata/sysaux01.dbf
restoring datafile 00004 to /oracle/MDSTB1/oradata/users01.dbf
restoring datafile 00005 to /oracle/MDSTB1/oradata/mgmt.dbf
restoring datafile 00006 to /oracle/MDSTB1/oradata/mgmt_ecm_depot1.dbf
restoring datafile 00009 to /oracle/MDSTB1/oradata/rman01.dbf
channel ORA_AUX_DISK_1: reading from backup piece
/oracle/MDDDB1/tape_backup/02iqjumg_1_1
^[[5~^[[5~^[[5~channel ORA_AUX_DISK_1: restored backup piece 1
piece handle=/oracle/MDDDB1/tape_backup/02iqjumg_1_1 tag=TAG20070829T145304
channel ORA_AUX_DISK_1: restore complete, elapsed time: 00:09:07
Finished restore at 29-AUG-07

contents of Memory Script:
{
```

```
    switch clone datafile all;  
}  
executing Memory Script
```

```
datafile 1 switched to datafile copy  
input datafile copy recid=11 stamp=631903894  
filename=/oracle/MDSTB1/oradata/system01.dbf  
datafile 2 switched to datafile copy  
input datafile copy recid=12 stamp=631903895  
filename=/oracle/MDSTB1/oradata/undotbs01.dbf  
datafile 3 switched to datafile copy  
input datafile copy recid=13 stamp=631903895  
filename=/oracle/MDSTB1/oradata/sysaux01.dbf  
datafile 4 switched to datafile copy  
input datafile copy recid=14 stamp=631903895  
filename=/oracle/MDSTB1/oradata/users01.dbf  
datafile 5 switched to datafile copy  
input datafile copy recid=15 stamp=631903895  
filename=/oracle/MDSTB1/oradata/mgmt.dbf  
datafile 6 switched to datafile copy  
input datafile copy recid=16 stamp=631903895  
filename=/oracle/MDSTB1/oradata/mgmt_ecm_depot1.dbf  
datafile 9 switched to datafile copy  
input datafile copy recid=17 stamp=631903895  
filename=/oracle/MDSTB1/oradata/rman01.dbf
```

contents of Memory Script:

```
{  
    set until scn 107870829;  
    recover  
    standby  
    clone database  
    delete archivelog  
    ;  
}
```

executing Memory Script

executing command: SET until clause

```
Starting recover at 29-AUG-07  
using channel ORA_AUX_DISK_1  
using channel ORA_AUX_SBT_TAPE_1
```

starting media recovery

```
channel ORA_AUX_SBT_TAPE_1: starting archive log restore to default destination  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2436  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2437  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2438  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2439  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2440  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2441  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2442  
channel ORA_AUX_SBT_TAPE_1: restoring archive log  
archive log thread=1 sequence=2443  
channel ORA_AUX_SBT_TAPE_1: reading from backup piece 0aiqk51m_1_1  
channel ORA_AUX_SBT_TAPE_1: restored backup piece 1  
piece handle=0aiqk51m_1_1 tag=TAG20070829T164126  
channel ORA_AUX_SBT_TAPE_1: restore complete, elapsed time: 00:00:26  
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2436_595698477.arc  
thread=1 sequence=2436
```

```

channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2436_595698477.arc
recid=8 stamp=631903921
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2437_595698477.arc
thread=1 sequence=2437
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2437_595698477.arc
recid=7 stamp=631903911
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2438_595698477.arc
thread=1 sequence=2438
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2438_595698477.arc
recid=3 stamp=631903905
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2439_595698477.arc
thread=1 sequence=2439
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2439_595698477.arc
recid=1 stamp=631903905
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2440_595698477.arc
thread=1 sequence=2440
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2440_595698477.arc
recid=2 stamp=631903905
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2441_595698477.arc
thread=1 sequence=2441
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2441_595698477.arc
recid=6 stamp=631903906
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2442_595698477.arc
thread=1 sequence=2442
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2442_595698477.arc
recid=5 stamp=631903906
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2443_595698477.arc
thread=1 sequence=2443
channel clone_default: deleting archive log(s)
archive log filename=/oracle/MDSTB1/10.2.0/dbs/archlog9ed3f2ad_1_2443_595698477.arc
recid=4 stamp=631903905
media recovery complete, elapsed time: 00:00:30
Finished recover at 29-AUG-07
Finished Duplicate Db at 29-AUG-07

```

## 2.2 Manual Archivelog Recovery

```
SQL> recover logfile '/oracle/MDDb1/10.2.0/dbs/arch1_2444_595698477.dbf';
```

## 2.3 DataGuard Standby Configuration (without DG Broker)

- TNS Names Configuration

```

MDDb1_DATAGUARD =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = DBHOST1.intra)(PORT = 1521))
    )
    (CONNECT_DATA =

```

```
        (SID = MDDb1)
    )
)

MDSTb1_DATAGUARD =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = DBHOST1.intra)(PORT = 1622))
    )
    (CONNECT_DATA =
      (SID = MDSTb1)
    )
  )
)
```

- Listener Configuration

```
LISTENER_DATAGUARD_MDSTb1 =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS_LIST =
        (ADDRESS = (PROTOCOL = TCP)(HOST = DBHOST1.intra)(PORT = 1622))
      )
      (ADDRESS_LIST =
        (ADDRESS = (PROTOCOL = IPC)(KEY = MDSTb1))
      )
    )
  )
)

SID_LIST_LISTENER_DATAGUARD_MDSTb1 =
  (SID_LIST =
    (SID_DESC =
      (SID_NAME = MDSTb1)
      (ORACLE_HOME = /oracle/MDSTb1/10.2.0)
    )
  )
)
```

- Primary init configuration:

```
ALTER SYSTEM SET fal_client='MDDb1_DATAGUARD' SCOPE=BOTH;
ALTER SYSTEM SET fal_server='MDSTb1_DATAGUARD' SCOPE=BOTH;
ALTER SYSTEM SET log_archive_dest_1='LOCATION=/oracle/MDDb1/oraarch' SCOPE=BOTH;
ALTER SYSTEM SET log_archive_dest_state_2='DEFER' SCOPE=BOTH;
ALTER SYSTEM SET log_archive_dest_2='SERVICE=MDSTb1_DATAGUARD LGWR ASYNC'
SCOPE=BOTH;
```

- Standby init configuration

### Passwordfile configuration

```
*.log_file_name_convert='/oracle/MDDb1/', '/oracle/MDSTb1/'
*.db_file_name_convert='/oracle/MDDb1/oradata/', '/oracle/MDSTb1/oradata/'
*.STANDBY_ARCHIVE_DEST ='/oracle/MDSTb1/oraarch/'
*.LOG_ARCHIVE_FORMAT='log%d_%t_%s_%r.arc'
*.DG_BROKER_START=FALSE
*.FAL_CLIENT='MDSTb1_DATAGUARD'
*.FAL_CLIENT='MDDb1_DATAGUARD'
*.standby_file_management='AUTO'
*.parallel_execution_message_size=4096
*.log_archive_dest_1='LOCATION=/oracle/MDSTb1/oraarch'
```

- Enabling the log transport

```
SQL> startup nomount;
```



```
SQL> alter database mount standby database;
```

- Check if sys can authenticate:

```
sqlplus "sys@MDDb1_DATAGUARD as sysdba"
```

```
SQL*Plus: Release 10.2.0.3.0 - Production on Wed Aug 29 17:52:01 2007
```

```
Copyright (c) 1982, 2006, Oracle. All Rights Reserved.
```

```
Enter password:
```

```
Connected to:
```

```
Oracle Database 10g Enterprise Edition Release 10.2.0.3.0 - Production  
With the Partitioning, OLAP and Data Mining options
```

```
SQL> exit
```

```
sqlplus "sys@MDSTB1_DATAGUARD as sysdba"
```

```
SQL*Plus: Release 10.2.0.3.0 - Production on Wed Aug 29 17:51:52 2007
```

```
Copyright (c) 1982, 2006, Oracle. All Rights Reserved.
```

```
Enter password:
```

```
Connected to:
```

```
Oracle Database 10g Enterprise Edition Release 10.2.0.3.0 - Production  
With the Partitioning, OLAP and Data Mining options
```

```
SQL> exit
```

- Enable Log Transport

```
ALTER SYSTEM SET log_archive_dest_state_2='ENABLE' SCOPE=BOTH;
```