

## Oracle RAC+ASM+DataGuard配置实验记录+常见问题



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### 1、环境规划:

---RAC 环境介绍(primary database)

	rac1	rac2
public ip	192.168.110.11	192.168.110.12
virtual ip	192.168.110.21	192.168.110.22
instance	racdb1	racdb2
db_name	racdb	
storage mode	ASM	

---单机环境介绍 (standby database)

数据文件可放至本地, 也可以放至 ASM 上, 本实验中先放至本地实验

ip	192.168.110.11	192.168.110.12
instance	192.168.110.13(rac3)	
storage mode	/oradata/racdb	

----hosts 文件

```
#Public Network - (eth0)
192.168.110.11   rac1
192.168.110.12   rac2
192.168.110.13   rac3

#Private Interconnect - (eth1)
10.10.10.11      rac1priv
10.10.10.12      rac2priv

#Public Virtual IP (VIP) addresses - (eth0)
192.168.110.21   rac1vip
192.168.110.22   rac2vip
```

--检查环境

1)、启动 archive log 归档模式

```
SQL> archive log list;
Database log mode           Archive Mode
Automatic archival          Enabled
Archive destination         USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence  54
Next log sequence to archive 56
Current log sequence        56
```

```
SQL> show parameter RECOVERY
```

NAME	TYPE	VALUE
db_recovery_file_dest	string	+DG_RECOVERY
db_recovery_file_dest_size	big integer	2G
recovery_parallelism	integer	0

2)、启动 FORCE\_LOGGING 模式

```
SQL> alter database FORCE LOGGING;
```

Database altered.

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

FOR

---

YES

2、首先配置两个[数据库](#)的tnsnames.ora和listener.ora

tnsnames.ora(两台主机相同)

```
racdb_rac1 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.110.21) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = racdb_s)
      (SERVICE_NAME = racdb1)
    )
  )

racdb_rac2 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.110.22) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = racdb_s)
      (SERVICE_NAME = racdb2)
    )
  )

racdb_standby =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.110.13) (PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = racdb)
    )
  )
```

standby 主机上的 listener.ora

```
SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = racdb)
```

```

        (ORACLE_HOME = /oracle/app/product/10.2.0/db_1)
        (SID_NAME = racdb)
    )
    (SID_DESC =
        (GLOBAL_DBNAME = PLSExtProc)
        (ORACLE_HOME = /oracle/app/product/10.2.0/db_1)
        (SID_NAME = PLSExtProc)
    )
)

LISTENER =
    (DESCRIPTION_LIST =
        (DESCRIPTION =
            (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.110.13) (PORT = 1521))
            (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROCO))
        )
    )
)

```

### 3、准备参数文件

[RAC](#)环境下的参数变化增加如下：

RAC 主库：（注意使用 ASM 的时候，不要改变 db\_unique\_name 参数，否则之后创建的 asm 文件就会放入至新的 db\_unique\_name 目录下面，导致 DB\_FILE\_NAME\_CONVERT 失效。）

```

#add below parameter for standby database
*.service_names=racdb_s
*.LOG_ARCHIVE_CONFIG='DG_CONFIG=(racdb,racdb_standby)'
*.LOG_ARCHIVE_DEST_1='LOCATION=USE_DB_RECOVERY_FILE_DEST
VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=racdb'
*.LOG_ARCHIVE_DEST_2='SERVICE=racdb_standby LGWR
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE)
DB_UNIQUE_NAME=racdb_standby'
*.FAL_SERVER='racdb_standby'
*.STANDBY_ARCHIVE_DEST='/oradata/arch'
*.racdb1.fal_client=racdb1
*.racdb2.fal_client=racdb2
*.STANDBY_FILE_MANAGEMENT=AUTO
*.DB_FILE_NAME_CONVERT='/oradata/racdb/datafile','+DG_DATA/racdb/data
file','/oradata/racdb/tempfile','+DG_DATA/racdb/tempfile'
*.LOG_FILE_NAME_CONVERT='/oradata/racdb/onlineolog','+DG_DATA/racdb/on
lineolog'

```

单机备库增加以下：

```
*.db_name='racdb'
*.db_unique_name='racdb_standby'
*.service_names='racdb_standby'
*.LOG_ARCHIVE_CONFIG='DG_CONFIG=(racdb_standby,racdb)'
*.LOG_ARCHIVE_DEST_1='LOCATION=/oradata/arch
VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=racdb_standby'
*.LOG_ARCHIVE_DEST_2='SERVICE=racdb1 LGWR
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=racdb'
*.STANDBY_FILE_MANAGEMENT='AUTO'
STANDBY_ARCHIVE_DEST='/oradata/arch'
*.FAL_SERVER='racdb1','racdb2'
fal_client='racdb_standby'
*.DB_FILE_NAME_CONVERT='+DG_DATA/racdb/datafile','/oradata/racdb/data
file','+DG_DATA/racdb/tempfile','/oradata/racdb/tempfile'
*.LOG_FILE_NAME_CONVERT='+DG_DATA/racdb/onlineolog','/oradata/racdb/on
linelog'*
racdb1.thread=1
*.undo_management='AUTO'
```

单机备库参数如下：

```
#add below parameter for standy database
*.audit_file_dest='/oracle/app/admin/racdb/adump'
*.background_dump_dest='/oracle/app/admin/racdb/bdump'
*.compatible='10.2.0.4'
*.control_files='/oradata/racdb/datafile/racdb.ctl'
*.core_dump_dest='/oracle/app/admin/racdb/cdump'
*.db_block_size=16384
*.db_domain=''
*.db_name='racdb'
*.db_file_multiblock_read_count=16
*.DB_FILE_NAME_CONVERT='+DG_DATA/racdb/datafile','/oradata/racdb/data
file','+DG_DATA/racdb/tempfile','/oradata/racdb/tempfile'
*.db_unique_name='racdb_standby'
fal_client='racdb_standby'
*.FAL_SERVER='racdb1','racdb2'
*.job_queue_processes=10
*.LOG_ARCHIVE_CONFIG='DG_CONFIG=(racdb_standby,racdb_s)'
*.LOG_ARCHIVE_DEST_1='LOCATION=/oradata/arch
VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=racdb_standby'
*.LOG_ARCHIVE_DEST_2='SERVICE=racdb1 LGWR
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=racdb'
*.LOG_FILE_NAME_CONVERT='+DG_DATA/racdb/onlineolog','/oradata/racdb/on
```

```
linelog'  
*.open_cursors=300  
*.pga_aggregate_target=89128960  
*.processes=150  
*.remote_login_passwordfile='exclusive'  
*.service_names='racdb_standby'  
*.sga_target=268435456  
*.STANDBY_FILE_MANAGEMENT='AUTO'  
racdb1.thread=1  
*.undo_management='AUTO'  
racdb1.undo_tablespace='UNDOTBS1'  
*.user_dump_dest='/oracle/app/admin/racdb/udump'  
STANDBY_ARCHIVE_DEST='/oradata/arch'
```

## 5、在rac上进行[备份](#)

[rman](#) target /

```
backup database format '/soft/racdb/racdbfull%u_%s_%p';
```

```
RMAN> backup database format '/soft/racdb/racdbfull%u_%s_%p';
```

```
Starting backup at 11-JUN-10  
using target database control file instead of recovery catalog  
allocated channel: ORA_DISK_1  
channel ORA_DISK_1: sid=127 instance=racdb1 devtype=DISK  
channel ORA_DISK_1: starting full datafile backupset  
channel ORA_DISK_1: specifying datafile(s) in backupset  
including current SPFILE in backupset  
including current control file in backupset  
input datafile fno=00001  
name=+DG_DATA/racdb/datafile/system.268.719166757  
input datafile fno=00002  
name=+DG_DATA/racdb/datafile/undotbs1.269.719166777  
input datafile fno=00003  
name=+DG_DATA/racdb/datafile/sysaux.270.719166783  
input datafile fno=00004  
name=+DG_DATA/racdb/datafile/undotbs2.272.719166797  
input datafile fno=00006 name=+DG_DATA/racdb/datafile/rman_tbs.dbf  
input datafile fno=00005  
name=+DG_DATA/racdb/datafile/users.273.719166803  
channel ORA_DISK_1: starting piece 1 at 11-JUN-10  
channel ORA_DISK_1: finished piece 1 at 11-JUN-10  
piece handle=/soft/racdb/racdbfull10elfvhv4_14_1 tag=TAG20100611T143204
```

```
comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:38
Finished backup at 11-JUN-10
```

将备份的文件拷到另一台备机相同目录下。

```
[oracle@rac1 racdb]$ ls -ls
total 498268
498268 -rw-r----- 1 oracle oinstall 509722624 Jun 11 12:10
racdbfull_0clfv9jn_12_1
[oracle@rac1 racdb]$ pwd
/soft/racdb
[oracle@rac1 racdb]$ scp racdbfull_0clfv9jn_12_1 rac3:/soft/racdb/
```

## 6、创建 standby 控制文件

在 rac 两个实例上进行几次归档。

```
alter system archive log current;
```

创建 standby 控制文件

```
alter database create standby controlfile as '/oracle/standby.ctl';
```

创建 spfile 并启动 standby 至 nomount 状态。

```
startup nomount;
```

## 7、利用 rman 创建 standby 数据库

rac1:

```
rman target / auxiliary sys/sys@racdb\_standby
```

```
allocate channel c1 device type disk format '/soft/racdb/%U'
connect sys/6212327@rac1;
allocate channel c2 device type disk format '/soft/racdb/%U'
connect sys/6212327@rac2;
allocate auxiliary channel ac1 device type disk format '/soft/racdb/%U';
allocate auxiliary channel ac2 device type disk format '/soft/racdb/%U';
```

```
duplicate target database for standby;
```

过程如下：

```
[oracle@rac1 racdb]$ rman target / auxiliary sys/sys@racdb\_standby
```

Recovery Manager: Release 10.2.0.4.0 - Production on Fri Jun 11 13:41:48 2010

Copyright (c) 1982, 2007, Oracle. All rights reserved.

```
connected to target database: RACDB (DBID=716783510)
connected to auxiliary database: RACDB (not mounted)
```

```
RMAN> duplicate target database for standby;
```

```
Starting Duplicate Db at 11-JUN-10
using target database control file instead of recovery catalog
allocated channel: ORA_AUX_DISK_1
channel ORA_AUX_DISK_1: sid=155 devtype=DISK
```

```
contents of Memory Script.:
{
  restore clone standby controlfile;
  sql clone 'alter database mount standby database';
}
executing Memory Script
```

```
Starting restore at 11-JUN-10
using channel ORA_AUX_DISK_1
```

```
channel ORA_AUX_DISK_1: restoring control file
channel ORA_AUX_DISK_1: copied control file copy
input filename=/oracle/standby.ctl
output filename=/oradata/racdb/datafile/racdb.ctl
Finished restore at 11-JUN-10
```

```
sql statement: alter database mount standby database
released channel: ORA_AUX_DISK_1
```

```
contents of Memory Script.:
{
  set newname for tempfile 1 to
  "/oradata/racdb/tempfile/temp.271.719166789";
  switch clone tempfile all;
  set newname for datafile 1 to
  "/oradata/racdb/datafile/system.268.719166757";
  set newname for datafile 2 to
  "/oradata/racdb/datafile/undotbs1.269.719166777";
```

```
    set newname for datafile 3 to
"/oradata/racdb/datafile/sysaux.270.719166783";
    set newname for datafile 4 to
"/oradata/racdb/datafile/undotbs2.272.719166797";
    set newname for datafile 5 to
"/oradata/racdb/datafile/users.273.719166803";
    set newname for datafile 6 to
"/oradata/racdb/datafile/rman_tbs.dbf";
    restore
    check readonly
    clone database
    ;
}
```

executing Memory Script

executing command: SET NEWNAME

renamed temporary file 1 to /oradata/racdb/tempfile/temp.271.719166789  
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

Starting restore at 11-JUN-10

allocated channel: ORA\_AUX\_DISK\_1

channel ORA\_AUX\_DISK\_1: sid=155 devtype=DISK

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

/oradata/racdb/datafile/system.268.719166757

restoring datafile 00002 to

/oradata/racdb/datafile/undotbs1.269.719166777

restoring datafile 00003 to

/oradata/racdb/datafile/sysaux.270.719166783

restoring datafile 00004 to

```
/oradata/racdb/datafile/undotbs2.272.719166797
restoring datafile 00005 to /oradata/racdb/datafile/users.273.719166803
restoring datafile 00006 to /oradata/racdb/datafile/rman_tbs.dbf
channel ORA_AUX_DISK_1: reading from backup piece
/soft/racdb/racdbfull_0clfv9jn_12_1
channel ORA_AUX_DISK_1: restored backup piece 1
piece handle=/soft/racdb/racdbfull_0clfv9jn_12_1
tag=TAG20100611T120926
channel ORA_AUX_DISK_1: restore complete, elapsed time: 00:01:39
Finished restore at 11-JUN-10
```

```
contents of Memory Script.:
{
    switch clone datafile all;
}
executing Memory Script
```

```
datafile 1 switched to datafile copy
input datafile copy recid=10 stamp=721116136
filename=/oradata/racdb/datafile/system.268.719166757
datafile 2 switched to datafile copy
input datafile copy recid=11 stamp=721116137
filename=/oradata/racdb/datafile/undotbs1.269.719166777
datafile 3 switched to datafile copy
input datafile copy recid=12 stamp=721116137
filename=/oradata/racdb/datafile/sysaux.270.719166783
datafile 4 switched to datafile copy
input datafile copy recid=13 stamp=721116137
filename=/oradata/racdb/datafile/undotbs2.272.719166797
datafile 5 switched to datafile copy
input datafile copy recid=14 stamp=721116137
filename=/oradata/racdb/datafile/users.273.719166803
datafile 6 switched to datafile copy
input datafile copy recid=15 stamp=721116137
filename=/oradata/racdb/datafile/rman_tbs.dbf
Finished Duplicate Db at 11-JUN-10
```

```
RMAN>
```

## 8、检查 standby 数据库

```
SQL> select status from v$instance;
```

STATUS

-----  
MOUNTED

SQL> select open\_mode from v\$database;

OPEN\_MODE

-----  
MOUNTED

SQL> select member from v\$logfile;

MEMBER

-----  
-----  
/oradata/racdb/onlinelog/group\_1. 266. 719166749  
/oradata/racdb/onlinelog/group\_2. 267. 719166751  
/oradata/racdb/onlinelog/group\_3. 274. 719167937  
/oradata/racdb/onlinelog/group\_4. 275. 719167939  
/oradata/racdb/onlinelog/group5  
/oradata/racdb/onlinelog/group6

6 rows selected.

SQL> select name from v\$datafile;

NAME

-----  
-----  
/oradata/racdb/datafile/system. 268. 719166757  
/oradata/racdb/datafile/undotbs1. 269. 719166777  
/oradata/racdb/datafile/sysaux. 270. 719166783  
/oradata/racdb/datafile/undotbs2. 272. 719166797  
/oradata/racdb/datafile/users. 273. 719166803  
/oradata/racdb/datafile/rman\_tbs.dbf

6 rows selected.

SQL> select name from v\$tempfile;

NAME

```
-----  
/oradata/racdb/tempfile/temp.271.719166789
```

```
SQL> show parameter control
```

NAME	TYPE	VALUE
control_file_record_keep_time	integer	7
control_files	string	/oradata/racdb/datafile/racdb.ctl

## 9、创建 standby redo log 日志。

创建原则和单实例一样，大小相等，但日志组数量要比 primary 数据库多一组。如之前为 6 组 12 个，则现在要创建 7 组 14 个。

```
alter database add standby logfile thread 1 group 7  
'/oradata/racdb/onlinelog/group_7.log' size 50M;
```

```
alter database add standby logfile thread 1 group 8  
'/oradata/racdb/onlinelog/group_8.log' size 50M;
```

```
alter database add standby logfile thread 1 group 9  
'/oradata/racdb/onlinelog/group_9.log' size 50M;
```

```
alter database add standby logfile thread 2 group 10  
'/oradata/racdb/onlinelog/group_10.log' size 50M;
```

```
alter database add standby logfile thread 2 group 11  
'/oradata/racdb/onlinelog/group_11.log' size 50M;
```

```
alter database add standby logfile thread 2 group 12  
'/oradata/racdb/onlinelog/group_12.log' size 50M;
```

```
alter database add standby logfile thread 1 group 13  
'/oradata/racdb/onlinelog/group_13.log' size 50M;
```

```
alter database add standby logfile thread 2 group 14  
'/oradata/racdb/onlinelog/group_14.log' size 50M;
```

## 10、开始同步

启动 MRP:

```
SQL> alter database recover managed standby database disconnect from session;
```

Media recovery complete.

停止 MRP:

```
alter database recover managed standby database cancel;
```

11、在 rac 各个实例上查看日志传送情况:

```
col DEST_NAME format a20
```

```
select dest_name,status,error from v$archive_dest;
```

DEST_NAME	STATUS	ERROR
LOG_ARCHIVE_DEST_1	INACTIVE	
LOG_ARCHIVE_DEST_2	ERROR	ORA-16057: DGID from server not in <a href="#">Data Guard</a> configuration
LOG_ARCHIVE_DEST_3	INACTIVE	
LOG_ARCHIVE_DEST_4	INACTIVE	
LOG_ARCHIVE_DEST_5	INACTIVE	
LOG_ARCHIVE_DEST_6	INACTIVE	
LOG_ARCHIVE_DEST_7	INACTIVE	
LOG_ARCHIVE_DEST_8	INACTIVE	
LOG_ARCHIVE_DEST_9	INACTIVE	
LOG_ARCHIVE_DEST_10	VALID	

错误 1:

ORA-16057: DGID from server not in Data Guard configuration

原因:主库没有设置参数 log\_archive\_config

解决方法\*.log\_archive\_config=' dg\_config=(orcl,auxdb)'

```
alter system set log_archive_config=' dg_config=(racdb,racdb_standby)'
scope=both;
```

```
SQL> select dest_name,status,error from v$archive_dest;
```

DEST_NAME	STATUS	ERROR
-----------	--------	-------

```
LOG_ARCHIVE_DEST_1    VALID
LOG_ARCHIVE_DEST_2    VALID
LOG_ARCHIVE_DEST_3    INACTIVE
LOG_ARCHIVE_DEST_4    INACTIVE
LOG_ARCHIVE_DEST_5    INACTIVE
LOG_ARCHIVE_DEST_6    INACTIVE
LOG_ARCHIVE_DEST_7    INACTIVE
LOG_ARCHIVE_DEST_8    INACTIVE
LOG_ARCHIVE_DEST_9    INACTIVE
LOG_ARCHIVE_DEST_10   INACTIVE
```

10 rows selected

---测试看日志是否传送成功。

主库:

```
Sql>alter system switch logfile;
```

```
Sql> select max(SEQUENCE#) from v$archived_log;
```

备库:

```
Sql> select max(SEQUENCE#) from v$archived_log;
```

```
#或者更详细的: select FIRST_TIME, NEXT_TIME, APPLIED, SEQUENCE# from
v$archived_log order by SEQUENCE#;
```

```
SELECT MAX(R. SEQUENCE#) LAST_SEQ_REC'D, MAX(L. SEQUENCE#) LAST_SEQ_SENT
FROM V$ARCHIVED_LOG R, V$LOG L WHERE R. DEST_ID=2 AND L. ARCHIVED=' YES'
```

```
SELECT NAME FROM V$ARCHIVED_LOG WHERE THREAD#=1 AND DEST_ID=1 AND
SEQUENCE# BETWEEN 85 AND 86;
```

测试在 RAC 主库上创建一个表空间:

```
CREATE TABLESPACE FMISMAIN
  LOGGING
  DATAFILE '+dg_data' SIZE 20M AUTOEXTEND
  ON NEXT 10M EXTENT MANAGEMENT LOCAL SEGMENT SPACE
  MANAGEMENT AUTO;
```

创建用户:

```
CREATE USER "FMISMAIN" PROFILE "DEFAULT"
  IDENTIFIED BY "FMISMAIN" DEFAULT TABLESPACE "FMISMAIN"
  TEMPORARY TABLESPACE "TEMP"
```

```
ACCOUNT UNLOCK;  
GRANT DBA TO "FMISMAIN";
```

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

```
NAME
```

```
-----  
-----  
+DG_DATA/racdb/datafile/system. 268. 719166757  
+DG_DATA/racdb/datafile/undotbs1. 269. 719166777  
+DG_DATA/racdb/datafile/sysaux. 270. 719166783  
+DG_DATA/racdb/datafile/undotbs2. 272. 719166797  
+DG_DATA/racdb/datafile/users. 273. 719166803  
+DG_DATA/racdb/datafile/rman_tbs.dbf  
+DG_DATA/racdb/datafile/fmismain. 287. 721410885
```

```
SQL> conn fmismain/fmismain
```

```
Connected.
```

```
SQL> select count(*) from xtdw3;
```

```
COUNT(*)
```

```
-----  
30
```

```
SQL> select dh from xtdw3;
```

```
DH
```

```
-----  
MAIN
```

```
0600
```

```
0601
```

```
1200
```

```
1201
```

```
0602
```

```
0100
```

```
0101
```

```
0400
```

```
0401
```

```
0500
```

```
DH
```

```
-----  
0501
```

```
0700
```

0701  
1300  
1301  
1800  
1801  
1900  
1901  
5100  
5101

DH

-----

5300  
5301  
0301  
0300  
1500  
1501  
1600  
1601

30 rows selected.

在两个 RAC 实例上分别手工执行查看结果：

```
SQL> alter system switch logfile;
```

System altered.

```
SQL> /
```

System altered.

```
SQL> /
```

System altered.

检查 rac3 备库的日志传送：

```
[oracle@rac3 oradata]$ ls -lsR
```

total 24

```
 4 drwxr-xr-x 2 oracle oinstall 4096 Jun 11 16:15 arch
16 drwxrwxrwx 2 oracle dba      16384 Jun  8 03:21 lost+found
 4 drwxr-xr-x 5 oracle oinstall 4096 Jun  8 03:25 racdb
```

```
./arch:
total 4888
 36 -rw-r----- 1 oracle oinstall 36352 Jun  8 07:26
1_76_719166742.dbf
 76 -rw-r----- 1 oracle oinstall 73728 Jun  8 07:26
1_77_719166742.dbf
152 -rw-r----- 1 oracle oinstall 151040 Jun  8 07:26
1_78_719166742.dbf
168 -rw-r----- 1 oracle oinstall 165888 Jun  8 07:26
1_79_719166742.dbf
168 -rw-r----- 1 oracle oinstall 166400 Jun  8 07:51
1_80_719166742.dbf
148 -rw-r----- 1 oracle oinstall 144896 Jun  8 07:51
1_81_719166742.dbf
  4 -rw-r----- 1 oracle oinstall  1024 Jun  8 07:51
1_82_719166742.dbf
144 -rw-r----- 1 oracle oinstall 140288 Jun  8 07:51
1_83_719166742.dbf
  4 -rw-r----- 1 oracle oinstall  1024 Jun  8 07:42
1_84_719166742.dbf
 72 -rw-r----- 1 oracle oinstall  66048 Jun  8 07:47
1_85_719166742.dbf
1464 -rw-r----- 1 oracle oinstall 1492992 Jun  8 08:25 1_86_719166742.dbf
 16 -rw-r----- 1 oracle oinstall  13824 Jun 11 16:15 1_87_719166742.dbf
  4 -rw-r----- 1 oracle oinstall   2560 Jun 11 16:15 1_88_719166742.dbf
 24 -rw-r----- 1 oracle oinstall  23040 Jun  8 07:27
2_36_719166742.dbf
176 -rw-r----- 1 oracle oinstall 175104 Jun  8 07:27
2_37_719166742.dbf
148 -rw-r----- 1 oracle oinstall 143872 Jun  8 07:27
2_38_719166742.dbf
768 -rw-r----- 1 oracle oinstall 778752 Jun  8 07:51
2_39_719166742.dbf
152 -rw-r----- 1 oracle oinstall 149504 Jun  8 07:51
2_40_719166742.dbf
  4 -rw-r----- 1 oracle oinstall  1024 Jun  8 07:51
2_41_719166742.dbf
140 -rw-r----- 1 oracle oinstall 139264 Jun  8 07:43
2_42_719166742.dbf
  4 -rw-r----- 1 oracle oinstall  1024 Jun  8 07:42
2_43_719166742.dbf
 60 -rw-r----- 1 oracle oinstall  54272 Jun  8 07:51
2_44_719166742.dbf
948 -rw-r----- 1 oracle oinstall 963584 Jun 11 16:14 2_45_719166742.dbf
```

```
4 -rw-r----- 1 oracle oinstall 2048 Jun 11 16:15 2_46_719166742.dbf
4 -rw-r----- 1 oracle oinstall 1536 Jun 11 16:15 2_47_719166742.dbf
```

```
./lost+found:
total 0
```

```
./racdb:
total 12
4 drwxr-xr-x 2 oracle oinstall 4096 Jun 11 16:14 datafile
4 drwxr-xr-x 2 oracle oinstall 4096 Jun 8 06:55 onlinelog
4 drwxr-xr-x 2 oracle oinstall 4096 Jun 8 08:05 tempfile
```

```
./racdb/datafile:
total 1245228
20520 -rw-r----- 1 oracle oinstall 20987904 Jun 11 16:22
fmismain.287.721410885
15076 -rw-r----- 1 oracle oinstall 15417344 Jun 11 16:29 racdb.ctl
51272 -rw-r----- 1 oracle oinstall 52445184 Jun 11 16:22 rman_tbs.dbf
215272 -rw-r----- 1 oracle oinstall 220217344 Jun 11 16:22
sysaux.270.719166783
440772 -rw-r----- 1 oracle oinstall 450904064 Jun 11 16:22
system.268.719166757
292148 -rw-r----- 1 oracle oinstall 298860544 Jun 11 16:22
undotbs1.269.719166777
205020 -rw-r----- 1 oracle oinstall 209731584 Jun 11 16:22
undotbs2.272.719166797
5148 -rw-r----- 1 oracle oinstall 5259264 Jun 11 16:22
users.273.719166803
```

```
./racdb/onlinelog:
total 717640
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 11 16:29 group_10.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 07:26 group_11.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 06:55
group_1.266.719166749
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 07:47 group_12.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 07:37 group_13.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 07:37 group_14.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 06:55
group_2.267.719166751
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 06:55
group_3.274.719167937
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 06:55
group_4.275.719167939
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 8 06:55 group5
```

```
51260 -rw-r----- 1 oracle oinstall 52429312 Jun  8 06:55 group6
51260 -rw-r----- 1 oracle oinstall 52429312 Jun 11 16:29 group_7.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun  8 07:25 group_8.log
51260 -rw-r----- 1 oracle oinstall 52429312 Jun  8 07:39 group_9.log

./racdb/tempfile:
total 84
84 -rw-r----- 1 oracle oinstall 20987904 Jun  8 08:05 temp.271.719166789
```

在备库中查看刚才创建的表空间与用户是否生效。

首先将数据库启动到 read only 模式下：

```
SQL> alter database recover managed standby database cancel;
```

Database altered.

```
SQL> alter database open read only;
```

Database altered.

```
SQL> !hostname
```

rac3

```
SQL>
```

```
SQL> conn fmismain/fmismain
```

Connected.

```
SQL> show parameter db_unique
```

NAME	TYPE	VALUE
db_unique_name	string	racdb_standby

```
SQL>
```

```
SQL> select count(*) from xtdw3;
```

COUNT(*)
30

```
SQL> select dh from xtdw3;
```

DH

MAIN

0600  
0601  
1200  
1201  
0602  
0100  
0101  
0400  
0401  
0500

DH

-----

0501  
0700  
0701  
1300  
1301  
1800  
1801  
1900  
1901  
5100  
5101

DH

-----

5300  
5301  
0301  
0300  
1500  
1501  
1600  
1601

30 rows selected.

12、增加 temp 文件

---在[管理](#)恢复模式下到只读模式

```
SQL>alter database recover managed standby database cancel;
```

```
SQL>alter database open read only;
```

这个时候，可以给数据库增加临时数据文件（这个在热备份的时候是没有备份过来的）

```
alter tablespace temp add tempfile  
'/oradata/racdb/tempfile/temp.271.719166789' reset 100M;
```

--从只读方式到管理恢复方式

```
SQL>recover managed standby database disconnect from session;
```

### 13、少日志的时候，维护故障解决

#### 故障 1

由于网络等原因导致归档日志没有全部传输到从库中，这些需要我们手动干预。  
常见因素：从库关闭、网络故障、从库空间不足等。

维护的通常步骤：关闭：先关主库后关从库，启动：先启动从库然后启动主库。  
关于日志传输的控制可以通过 MANDATORY、REOPEN、MAX\_FAILURE 来控制  
MANDATORY REOPEN=5 MAX\_FAILURE=3 每 5 秒重试一次，最大允许错误次数为 3  
次，如果重试 3 次仍然不能成功，那么主库的日志传输服务就会停止。

```
*.log_archive_dest_2='service=AUX  
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) MANDATORY REOPEN=5  
MAX_FAILURE=3 DB_UNIQUE_NAME=auxdb'
```

#### 1)、查找不在 standby 的日志。

```
SQL>  
SELECT MAX(R.SEQUENCE#) LAST_SEQ_REC'D, MAX(L.SEQUENCE#) LAST_SEQ_SENT  
FROM V$ARCHIVED_LOG R, V$LOG L WHERE R.DEST_ID=2 AND L.ARCHIVED='YES';  
LAST_SEQ_REC'D LAST_SEQ_SENT
```

```
-----  
7 10
```

#### 2)、查找 primary 的所在路径

```
SQL> SELECT NAME FROM V$ARCHIVED_LOG WHERE THREAD#=1 AND DEST_ID=1 AND  
SEQUENCE# BETWEEN 5 AND 10;  
NAME
```

```
-----  
/primary/thread1_dest/arcr_1_7.arc  
/primary/thread1_dest/arcr_1_8.arc  
/primary/thread1_dest/arcr_1_9.arc
```

3)、将日志 copy 到 standby 的 STANDBY\_ARCHIVE\_DEST 下, 将 STANDBY\_ARCHIVE\_DEST 的日志 copy 到 LOG\_ARCHIVE\_DEST 下

4)、

```
SQL> STARTUP MOUNT
```

```
SQL> ALTER DATABASE RECOVER AUTOMATIC STANDBY DATABASE;
```

```
SQL> ALTER DATABASE RECOVER MANAGED STANDBY DATABASE DISCONNECT FROM SESSION;
```

至此恢复成功。

故障 2:

归档日志之间经常产生 gap

1)、确认归档日志之间有无遗漏

```
SQL> SELECT THREAD#, LOW_SEQUENCE#, HIGH_SEQUENCE# FROM V$ARCHIVE_GAP;
```

```
THREAD# LOW_SEQUENCE# HIGH_SEQUENCE#
```

```
-----
```

```
1 90 92
```

2)、将遗漏的归档日志 copy 到备库的 standby\_archive\_dest 下

然后对其分别注册

```
ALTER DATABASE REGISTER PHYSICAL LOGFILE 'filespec1';
```

3)、恢复归档日志

```
SQL> ALTER DATABASE RECOVER MANAGED STANDBY DATABASE FINISH FORCE;
```

4)、然后就可以按切换步骤进行切换了。

## 14、 参数说明

COMPATIBLE=' 10.2.0.1.0':数据库版本号,主库与从库要统一,否则有可能 redo 的数据不能从主库传送到从库。

DB\_FILE\_NAME\_CONVERT=主库数据文件地址,从库数据文件地址:用于主从库在同一台机器上或主从库数据文件的路径不一致的情况下

DB\_UNIQUE\_NAME=:数据库的唯一名称。推荐使用,如果使用了

LOG\_ARCHIVE\_CONFIG,那么就必须有改参数。

FAL\_CLIENT=,指向从库的服务名,本例为 aux

FAL\_SERVER 指向主库的服务名,本例为 orcl

LOG\_ARCHIVE\_CONFIG=' DG\_CONFIG=(主库的 db\_unique\_name,从库的 db\_unique\_name)'

LOG\_ARCHIVE\_DEST\_n:日志归档的地址,最少需要两个,一个指向主库,另一个指向从库

LOG\_ARCHIVE\_DEST\_STATE\_n = {ENABLE|DEFER|ALTERNATE|RESET} 指定:enable

or disable 来决定是否传输 redo 的数据到从库中。  
LOG\_FILE\_NAME\_CONVERT:同 DB\_FILE\_NAME\_CONVERT  
STANDBY\_ARCHIVE\_DEST:指定路径存放接收从主库传输过来的归档日志。  
STANDBY\_FILE\_MANAGEMENT={AUTO|MANUAL} :AUTO 当主库添加或减少数据文件时会自动同步从库而不需要手动干预。

## 15、 经常遇到错误

错误 1:

ORA-16057: DGID from server not in Data Guard configuration

原因:主库没有设置参数 log\_archive\_config

解决方法\*.log\_archive\_config='dg\_config=(orcl,auxdb)'  
alter system set log\_archive\_config='dg\_config=(orcl,auxdb)'  
scope=both;

错误 2:

PING[ARC0]: Heartbeat failed to connect to standby 'aux'. Error is 1031.

ORA-01031: insufficient privileges

解决问题思路:1、检查 sys 密码是否正确，大部分是这个原因。

错误 3:Oracle 用户有写 standby\_archive\_dest 的权限

ORA-16025: parameter LOG\_ARCHIVE\_DEST\_2 contains repeated or conflicting attributes

出现该错误的原因是 LOG\_ARCHIVE\_DEST\_2='SERVICE=orcl LGWR ASYNC  
VALID\_FOR=(ONLINE\_LOGFILES, PRIMARY\_ROLE) DB\_UNIQUE\_NAME=orcl'  
db\_unique\_name 前少了一个空格导致的

## 16、日常管理

(1) 启动到管理模式

```
SQL>shutdown immediate;  
SQL>startup nomount;  
SQL>alter database mount standby database;  
SQL>alter database recover managed standby database disconnect from session;
```

(2) 启动到只读方式

```
SQL>shutdown immediate;  
SQL>startup nomount;  
SQL>alter database mount standby database;  
SQL>alter database open read only;
```

(3) 在管理恢复模式下到只读模式

```
SQL>recover managed standby database cancel;
```

```
SQL>alter database open read only;
```

这个时候，可以给数据库增加临时数据文件（这个在热备份的时候是没有备份过来的）

如

```
alter tablespace temp add tempfile '/oracle/oradata/ddd/temp01.dbf' size 100M;
```

(4) 从只读方式到管理恢复方式

```
SQL>recover managed standby database disconnect from session;
```

(5) 打开备库

```
# sqlplus /nolog
```

```
Sql> connsys/sys@standbyas sysdba;
```

```
Sql> startup mount;
```

```
Sql> alter database recover managed standby database disconnect from session;
```

如果要取消恢复：alter database recover managed standby database cancel;

(5) 打开主库

```
# sqlplus /nolog
```