【DATAGUARD】物理 dg 的 failover 切换(六)

1.1 BLOG 文档结构图

1.2 前言部分

1.2.1 导读

各位技术爱好者，看完本文后，你可以掌握如下的技能，也可以学到一些其它你所不知道的知识，~O(∩_∩)O~：

① 物理 dg 的 failover 切换演练过程

② 物理 dg 管理和维护的一些 sql

③ 利用 duplicate 搭建物理 dg

④

注意：本篇 BLOG 中代码部分需要特别关注的地方我都用黄色背景和红色字体来表示，比如下边的例子中，thread 1 的最大归档日志号为 33，thread 2 的最大归档日志号为 43 是需要特别关注的地方。

```
List of Archived Logs in backup set 11
Thrd Seq    Low SCN    Low Time              Next SCN   Next Time
---- ------- ---------- -------------------- ---------- ----------
1    32      1621589    2015-05-29 11:09:52  1625242    2015-05-29 11:15:48
1    33      1625242    2015-05-29 11:15:48  1625293    2015-05-29 11:15:58
2    42      1613951    2015-05-29 10:41:18  1625245    2015-05-29 11:15:49
2    43      1625245    2015-05-29 11:15:49  1625253    2015-05-29 11:15:53
```

本文如有错误或不完善的地方请大家多多指正，ITPUB 留言或 QQ 皆可，您的批评指正是我写作的最大动力。

1.2.2   实验环境介绍

项目	主库	dg 库
db 类型	单实例	单实例
db version	11.2.0.3	11.2.0.3
db 存储	FS type	FS type
ORACLE_SID	oradg11g	oradgphy
db_name	**oradg11g**	**oradg11g**
主机 IP 地址：	192.168.59.130	192.168.59.130
OS 版本及 kernel 版本	RHEL6.5 64 位，2.6.32-504.16.2.el6.x86_64	RHEL6.5 64 位，2.6.32-504.16.2.el6.x86_64
OS hostname	rhel6_lhr	rhel6_lhr

1.2.3   相关参考文章链接

【DATAGUARD】 基于同一个主机建立物理备库和逻辑备库（一）：　http://blog.itpub.net/26736162/viewspace-1448197/
【DATAGUARD】 基于同一个主机建立物理备库和逻辑备库（二）：　http://blog.itpub.net/26736162/viewspace-1448207/
【DATAGUARD】 基于同一个主机建立物理备库和逻辑备库（三）：　http://blog.itpub.net/26736162/viewspace-1481972/
【DATAGUARD】 基于同一个主机建立物理备库和逻辑备库（四)--添加一个物理 dg 节点：http://blog.itpub.net/26736162/viewspace-1484878/

【DATAGUARD】物理 dg 的 switchover 切换（五）　：http://blog.itpub.net/26736162/viewspace-1753111/

1.2.4 　本文简介

接上一篇文章【DATAGUARD】物理 dg 的 switchover 切换（五）　：http://blog.itpub.net/26736162/viewspace-1753111/ ，本章中介绍 failover 的切换。

1.3 相关知识点扫盲

1. 角色

Oracle 数据库中含有两种角色。

用户角色：定义了一组权限的集合，该角色可以分配给用户，也可以分配给其他角色。

数据库角色：在备库中数据库扮演什么样的角色，primary 还是 standby。

v$database.DATABASE_ROLE 标识了数据库的运行角色。

处于备库环境中，数据库有两种类型：phsical standby、logical standby。

2. 角色管理服务

一个数据库运行在如下互相排斥的角色中。

Primary role：一个数据库运行在 primary role，那么 log transport services 传递重做日志到备库。

Standby role：一个数据库运行在 standby role，那么 log apply services 应用归档日志到备库。

角色管理服务允许用户动态地在主、备库中进行角色切换。

用户可以使用角色管理服务，进行主、备库的计划中的角色切换，这个叫 switchover，或者是非计划中的角色切换，叫 failover。

3. Switchover&Failover

切换是在主数据库与其备数据库之间进行角色反转，切换确保不丢失数据。这是对于主系统计划维护的典型操作。在切换期间，主数据库转换到备角色，备数据库转换到主角色。转换发生不需要重建任何数据库。

（1）Switchover

用到的场景：计划中的角色转换或用户操作系统和硬件的维护等。

（2）Failover

故障转移是当主数据库不可用时执行的。故障转移只有在主数据库灾难故障的情况下执行，并且故障转移导致备数据库转换到主角色。用到的场景：非计划中的角色切换，一般在紧急情况下使用。根据保护模式的不同，可能会没有或者很少的数据损失。

（3）角色转换决策树

角色转换（switchover&failover）的最终目的是尽快地使主库在线，而同时尽量减少数据损失或者是实现无数据损失。尽量选择宕机时间最短，同时数据损失最小的策略。总之在失败切换前，应该先考虑修复主数据库或者进行无数据损失的角色转换。

即使使用无数据损失的备库方案，修复主库可能会比切换到备库更快点。如果修复了主库，那么就不需要修改客户端的连接。但是如果修复工作导致了任何的数据损失，那么可能需要重新创建所有的备用数据库。

通常情况下，最合适切换的备库为已经应用了最多的归档日志的备用数据库。

1.4 实验部分

1.4.1　实验目标

① 主库和物理 dg 的 failover 切换

② 还原为最初始的状态

1.4.2　实验过程

注：failover 切换后原来的主库将不可用，必须重新搭建，所以该实验请慎重选择。

1.4.2.1 在主库端模拟数据库意外宕机

```
[oracle@rhel6_lhr oradg11g]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on 星期日 7 月 26 21:26:20 2015

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连接到:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

21:26:20 SQL>
21:26:29 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE      SWITCHOVER_STATUS     DB_UNIQUE_NAME
--------- ------------ -------------------- ---------------- -------------------- ----------------------------
ORADG11G   ARCHIVELOG    READ WRITE           PRIMARY            TO STANDBY            oradg11g

已用时间:  00: 00: 00.01
21:26:37 SQL> alter system switch logfile;

系统已更改。

已用时间:  00: 00: 00.01
21:27:31 SQL> create table test  as select * from dba_objects;

表已创建。

已用时间:  00: 00: 00.50
21:27:38 SQL> insert into test select * from test;

已创建 75250 行。

已用时间:  00: 00: 00.51
21:27:56 SQL> insert into test select * from test;

已创建 150500 行。

已用时间:  00: 00: 02.62
21:28:00 SQL> commit;

提交完成。

已用时间:  00: 00: 00.00
21:28:06 SQL> insert into test select * from test;

已创建 301000 行。

已用时间:  00: 00: 12.41
21:28:21 SQL> commit;

提交完成。

已用时间:  00: 00: 00.00
21:28:27 SQL> insert into test select * from test;

已创建 602000 行。

已用时间:  00: 00: 22.63
21:29:08 SQL> commit;

提交完成。
```

```
已用时间:  00: 00: 01.29
21:29:12 SQL> shutdown abort;
ORACLE 例程已经关闭。
21:29:14 SQL>
```

备库查询：

```
20:45:30 SQL> select count(1) from test;

  COUNT(1)
----------
   1204000

已用时间:  00: 00: 00.05
21:29:42 SQL> select thread#, low_sequence#, high_sequence# from v$archive_gap;

未选定行

已用时间:  00: 00: 00.02
21:31:23 SQL>
```

如果没有发现明显的 gap 现象，说明此次的 failover 不会有数据损失情况。在 standby 端，要进行关闭 apply 和结束应用动作。

1.4.2.2   备库直接切换

```
21:31:23 SQL> alter database recover managed standby database cancel;

数据库已更改。

已用时间:  00: 00: 01.01
21:33:46 SQL> alter database recover managed standby database finish;

数据库已更改。

已用时间:  00: 00: 00.31
21:33:52 SQL>  select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME      LOG_MODE     OPEN_MODE        DATABASE_ROLE       SWITCHOVER_STATUS   DB_UNIQUE_NAME
--------- ------------ ---------------- ------------------- ------------------- ------------------------------
ORADG11G  ARCHIVELOG   READ ONLY        PHYSICAL STANDBY    TO PRIMARY          oradgphy

已用时间:  00: 00: 00.01
21:34:16 SQL> alter database commit to switchover to primary with session shutdown;

数据库已更改。

已用时间:  00: 00: 00.07
21:36:16 SQL>
21:36:16 SQL>  select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME      LOG_MODE     OPEN_MODE        DATABASE_ROLE       SWITCHOVER_STATUS   DB_UNIQUE_NAME
--------- ------------ ---------------- ------------------- ------------------- ------------------------------
ORADG11G  ARCHIVELOG   MOUNTED          PRIMARY             NOT ALLOWED         oradgphy
```

```
已用时间:  00: 00: 00.01
21:38:18 SQL> alter database open;

数据库已更改。

已用时间:  00: 00: 00.30
21:38:42 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE      OPEN_MODE            DATABASE_ROLE      SWITCHOVER_STATUS    DB_UNIQUE_NAME
--------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G   ARCHIVELOG    READ WRITE           PRIMARY            RESOLVABLE GAP       oradgphy

已用时间:  00: 00: 00.00
21:38:49 SQL>
```

切换成功。切换之后，我们观察这个过程的日志情况。

alert 日志：

```
alter database recover managed standby database cancel
Sun Jul 26 21:33:45 2015
MRP0: Background Media Recovery cancelled with status 16037
Errors in file /u01/app/oracle/diag/rdbms/oradgphy/oradgphy/trace/oradgphy_pr00_45791.trc:
ORA-16037: user requested cancel of managed recovery operation
Managed Standby Recovery not using Real Time Apply
Recovery interrupted!
Recovered data files to a consistent state at change 1874535
Sun Jul 26 21:33:46 2015
MRP0: Background Media Recovery process shutdown (oradgphy)
Managed Standby Recovery Canceled (oradgphy)
Completed: alter database recover managed standby database cancel
alter database recover managed standby database finish
Attempt to do a Terminal Recovery (oradgphy)
Media Recovery Start: Managed Standby Recovery (oradgphy)
 started logmerger process
Sun Jul 26 21:33:52 2015
Managed Standby Recovery not using Real Time Apply
Parallel Media Recovery started with 2 slaves
Begin: Standby Redo Logfile archival
End: Standby Redo Logfile archival
Terminal Recovery timestamp is '07/26/2015 21:33:52'
Terminal Recovery: applying standby redo logs.
Terminal Recovery: thread 1 seq# 183 redo required
Terminal Recovery:
Recovery of Online Redo Log: Thread 1 Group 4 Seq 183 Reading mem 0
  Mem# 0: /u01/app/oracle/oradata/oradgphy/standby_redo04.log
Identified End-Of-Redo (failover) for thread 1 sequence 183 at SCN 0xffff.ffffffff
Incomplete Recovery applied until change 1874536 time 07/26/2015 21:29:12
Media Recovery Complete (oradgphy)
Terminal Recovery: successful completion
Sun Jul 26 21:33:52 2015
ARCH: Archival stopped, error occurred. Will continue retrying
ORACLE Instance oradgphy - Archival Error
ORA-16014: log 4 sequence# 183 not archived, no available destinations
ORA-00312: online log 4 thread 1: '/u01/app/oracle/oradata/oradgphy/standby_redo04.log'
Forcing ARSCN to IRSCN for TR 0:1874536
Attempt to set limbo arscn 0:1874536 irscn 0:1874536
Resetting standby activation ID 1413582769 (0x54418fb1)
Completed: alter database recover managed standby database finish
Sun Jul 26 21:36:16 2015
alter database commit to switchover to primary with session shutdown
ALTER DATABASE SWITCHOVER TO PRIMARY (oradgphy)
Maximum wait for role transition is 15 minutes.
All dispatchers and shared servers shutdown
```

```
CLOSE: killing server sessions.
CLOSE: all sessions shutdown successfully.
Sun Jul 26 21:36:16 2015
SMON: disabling cache recovery
Backup controlfile written to trace file /u01/app/oracle/diag/rdbms/oradgphy/oradgphy/trace/oradgphy_ora_45673.trc
Standby terminal recovery start SCN: 1874535
RESETLOGS after incomplete recovery UNTIL CHANGE 1874536
Online log /u01/app/oracle/oradata/oradgphy/redo01.log: Thread 1 Group 1 was previously cleared
Online log /u01/app/oracle/oradata/oradgphy/redo02.log: Thread 1 Group 2 was previously cleared
Online log /u01/app/oracle/oradata/oradgphy/redo03.log: Thread 1 Group 3 was previously cleared
Standby became primary SCN: 1874534
Sun Jul 26 21:36:16 2015
Setting recovery target incarnation to 3
AUDIT_TRAIL initialization parameter is changed back to its original value as specified in the parameter file.
Switchover: Complete - Database mounted as primary
Completed: alter database commit to switchover to primary with session shutdown
Sun Jul 26 21:36:45 2015
idle dispatcher 'D000' terminated, pid = (17, 1)


Sun Jul 26 21:36:54 2015
ARC0: Becoming the 'no SRL' ARCH
Sun Jul 26 21:36:55 2015
ARC1: Becoming the 'no SRL' ARCH
```

1.4.2.3   切换后的测试

```
21:38:49 SQL> alter system switch logfile;

系统已更改。

已用时间：00: 00: 00.01
21:40:59 SQL> delete from test where rownum<=10000;

已删除 10000 行。

已用时间：00: 00: 00.13
21:41:31 SQL> commit;

提交完成。

已用时间：00: 00: 00.00
21:42:27 SQL> set line 9999
21:42:49 SQL> col  DEST_NAME format a20
21:42:49 SQL> col DESTINATION format a20
21:42:49 SQL> col GAP_STATUS format a10
21:42:49 SQL> col DB_UNIQUE_NAME format a10
21:42:49 SQL> col error format a10
21:42:49 SQL> SELECT al.thread#,
21:42:50   2          ads.dest_id,
21:42:50   3          ads.DEST_NAME,
21:42:50   4          (SELECT ad.TARGET
21:42:50   5           FROM   v$archive_dest AD
21:42:50   6           WHERE  AD.DEST_ID = ADS.DEST_ID) TARGET,
21:42:50   7          ADS.DATABASE_MODE,
21:42:50   8          ads.STATUS,
21:42:50   9          ads.error,
21:42:50  10          ads.TYPE,
21:42:50  11          ads.RECOVERY_MODE,
21:42:50  12          ads.DB_UNIQUE_NAME,
21:42:50  13          ads.DESTINATION,
21:42:50  14          ads.GAP_STATUS,
21:42:50  15          (SELECT MAX(sequence#) FROM v$log na WHERE na.thread# = al.thread#) "Current Sequence",
21:42:50  16          MAX(sequence#) "Last Archived",
```

```
21:42:50  17          MAX(decode(al.APPLIED, 'YES', sequence#)) APPLIED_SEQ#
21:42:50  18  FROM    (SELECT *
21:42:50  19           FROM   v$archived_log V
21:42:50  20           WHERE  V.resetlogs_change# =
21:42:50  21             (SELECT d.RESETLOGS_CHANGE# FROM v$database d)) al,
21:42:50  22          v$archive_dest_status ads
21:42:50  23  WHERE  al.dest_id(+) = ads.dest_id
21:42:50  24  AND    ads.STATUS != 'INACTIVE'
21:42:50  25  GROUP  BY al.thread#,
21:42:50  26          ads.dest_id,
21:42:50  27          ads.DEST_NAME,
21:42:50  28          ads.STATUS,
21:42:50  29          ads.error,
21:42:50  30          ads.TYPE,
21:42:50  31          ADS.DATABASE_MODE,
21:42:50  32          ads.RECOVERY_MODE,
21:42:50  33          ads.DB_UNIQUE_NAME,
21:42:50  34          ads.DESTINATION,
21:42:50  35          ads.GAP_STATUS
21:42:50  36  ORDER  BY al.thread#,
21:42:50  37          ads.dest_id;
```

THREAD# APPLIED_SEQ#	DEST_ID	DEST_NAME	TARGET	DATABASE_MODE	STATUS	ERROR	TYPE	RECOVERY_MODE	DB_UNIQUE_	DESTINATION	GAP_STATUS	Current Sequence	Last Archived
1	1	LOG_ARCHIVE_DEST_1	PRIMARY	OPEN	VALID		LOCAL	IDLE	oradgphy			4	3
	2	LOG_ARCHIVE_DEST_2	STANDBY	UNKNOWN	ERROR	ORA-01034: ORACLE 不可用	UNKNOWN	IDLE	oradg11g	tns_oradg11g	RESOLVABLE GAP		

```
已用时间:  00: 00: 00.00
21:42:50 SQL>
```

此时，failover 过程成功。

1.4.2.4 原主库修复后，开机

```
21:52:00 SQL> startup
ORACLE 例程已经启动。

Total System Global Area  208769024 bytes
Fixed Size                  2226936 bytes
Variable Size             146801928 bytes
Database Buffers           54525952 bytes
Redo Buffers                5214208 bytes
数据库装载完毕。
数据库已经打开。
21:52:15 SQL>  alter database commit to switchover to physical standby with session shutdown;
 alter database commit to switchover to physical standby with session shutdown
*
第 1 行出现错误:
ORA-16416: 没有可行的 Physical Standby 切换目标


已用时间:  00: 00: 02.06
21:52:24 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE      OPEN_MODE       DATABASE_ROLE     SWITCHOVER_STATUS     DB_UNIQUE_NAME
```

```
————————— ————————— ————————————————— ————————————— ———————————————— ——————————————————————————
ORADG11G  ARCHIVELOG  READ WRITE            PRIMARY          FAILED DESTINATION   oradg11g

已用时间:  00: 00: 00.00
21:52:31 SQL>
```

现在原来的主库被修复后 , 整个 DataGuara 架构已经被破坏了 , 所以必须把原来的主库删除后构建成新的备库 , 重新恢复 DataGuard 的环境 , 最后可以根据需要是否进行 switchover 切换来调整环境。

1.4.2.5   在源主库上重新搭建物理 dg

```
[oracle@rhel6_lhr oradg11g]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on 星期日 7 月 26 21:59:40 2015

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连接到:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

21:59:40 SQL> alter database close;

数据库已更改。

已用时间:  00: 00: 02.17
22:00:01 SQL> alter system enable restricted session;

系统已更改。

已用时间:  00: 00: 02.06
22:00:05 SQL> drop database;

数据库已删除。

从 Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options 断开
已用时间:  00: 00: 08.50
22:00:31 SQL> exit

[oracle@rhel6_lhr oradg11g]$ cd $ORACLE_HOME/dbs
[oracle@rhel6_lhr dbs]$ rm -rf  spfileoradg11g.ora
[oracle@rhel6_lhr dbs]$ ll spfileoradg11g.ora
ls: cannot access spfileoradg11g.ora: No such file or directory
[oracle@rhel6_lhr dbs]$ more initoradg
initoradg11g.ora  initoradglg.ora   initoradgphy.ora  initoradgss.ora
[oracle@rhel6_lhr dbs]$ more initoradg11g.ora
db_name='oradg11g'
[oracle@rhel6_lhr dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on 星期日 7 月 26 22:02:20 2015

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已连接到空闲例程。

22:02:20 SQL> startup nomount;
ORACLE 例程已经启动。
```

```
Total System Global Area  250560512 bytes
Fixed Size                  2227256 bytes
Variable Size             192938952 bytes
Database Buffers           50331648 bytes
Redo Buffers                5062656 bytes
22:02:25 SQL> exit
从 Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options 断开
[oracle@rhel6_lhr dbs]$
oracle@rhel6_lhr dbs]$ rman target sys/lhr@tns_oradgphy auxiliary sys/lhr@tns_oradg11g

恢复管理器: Release 11.2.0.3.0 - Production on 星期日 7 月 26 22:04:17 2015

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已连接到目标数据库: ORADG11G (DBID=1403587593)
已连接到辅助数据库: ORADG11G (未装载)

RMAN> duplicate target database
2> for standby  nofilenamecheck
3> from active database
4> DORECOVER
5> spfile
6> set db_unique_name='oradg11g'
7> set log_archive_dest_1='LOCATION=USE_DB_RECOVERY_FILE_DEST db_unique_name=oradg11g valid_for=(ALL_LOGFILES,ALL_ROLES)'
8> set log_archive_dest_2='SERVICE=tns_oradgphy LGWR ASYNC db_unique_name=oradgphy valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'
9> set log_archive_dest_3='SERVICE=tns_oradglg LGWR ASYNC db_unique_name=oradglg valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'
10> set log_archive_dest_4='SERVICE=tns_oradgss LGWR ASYNC db_unique_name=oradgss valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'
11> set log_archive_dest_state_1='ENABLE'
12> set log_archive_dest_state_2='ENABLE'
13> set log_archive_dest_state_3='defer'
14> set log_archive_dest_state_4='defer'
15> set standby_file_management='AUTO'
16> set fal_client='oradg11g'
17> set fal_server='oradgphy'
18> set control_files='/u01/app/oracle/oradata/oradg11g/control01.ctl','/u01/app/oracle/flash_recovery_area/oradg11g/control02.ctl'
19> set db_file_name_convert='oradgphy','oradg11g'
20> set log_file_name_convert='oradgphy','oradg11g'
21> set memory_target='200M'
22> set audit_file_dest='/u01/app/oracle/admin/oradg11g/adump'
23> ;

启动 Duplicate Db 于 2015-07-26 22:04:34
使用目标数据库控制文件替代恢复目录
分配的通道: ORA_AUX_DISK_1
通道 ORA_AUX_DISK_1: SID=171 设备类型=DISK

内存脚本的内容:
{
   backup as copy reuse
   targetfile '/u01/app/oracle/product/11.2.0/dbhome_1/dbs/orapworadgphy' auxiliary format
 '/u01/app/oracle/product/11.2.0/dbhome_1/dbs/orapworadg11g'   targetfile
 '/u01/app/oracle/product/11.2.0/dbhome_1/dbs/spfileoradgphy.ora' auxiliary format
 '/u01/app/oracle/product/11.2.0/dbhome_1/dbs/spfileoradg11g.ora'   ;
   sql clone "alter system set spfile= ''/u01/app/oracle/product/11.2.0/dbhome_1/dbs/spfileoradg11g.ora''";
}
正在执行内存脚本

启动 backup 于 2015-07-26 22:04:34
分配的通道: ORA_DISK_1
通道 ORA_DISK_1: SID=145 设备类型=DISK
完成 backup 于 2015-07-26 22:04:37

sql 语句: alter system set spfile= ''/u01/app/oracle/product/11.2.0/dbhome_1/dbs/spfileoradg11g.ora''

内存脚本的内容:
```

```
{
   sql clone "alter system set  db_unique_name =
''oradg11g'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_1 =
''LOCATION=USE_DB_RECOVERY_FILE_DEST db_unique_name=oradg11g valid_for=(ALL_LOGFILES,ALL_ROLES)'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_2 =
''SERVICE=tns_oradgphy LGWR ASYNC db_unique_name=oradgphy valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_3 =
''SERVICE=tns_oradglg LGWR ASYNC db_unique_name=oradglg valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_4 =
''SERVICE=tns_oradgss LGWR ASYNC db_unique_name=oradgss valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_state_1 =
''ENABLE'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_state_2 =
''ENABLE'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_state_3 =
''defer'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_archive_dest_state_4 =
''defer'' comment=
'''' scope=spfile";
   sql clone "alter system set  standby_file_management =
''AUTO'' comment=
'''' scope=spfile";
   sql clone "alter system set  fal_client =
''oradg11g'' comment=
'''' scope=spfile";
   sql clone "alter system set  fal_server =
''oradgphy'' comment=
'''' scope=spfile";
   sql clone "alter system set  control_files =
''/u01/app/oracle/oradata/oradg11g/control01.ctl'', ''/u01/app/oracle/flash_recovery_area/oradg11g/control02.ctl'' comment=
'''' scope=spfile";
   sql clone "alter system set  db_file_name_convert =
''oradgphy'', ''oradg11g'' comment=
'''' scope=spfile";
   sql clone "alter system set  log_file_name_convert =
''oradgphy'', ''oradg11g'' comment=
'''' scope=spfile";
   sql clone "alter system set  memory_target =
200M comment=
'''' scope=spfile";
   sql clone "alter system set  audit_file_dest =
''/u01/app/oracle/admin/oradg11g/adump'' comment=
'''' scope=spfile";
   shutdown clone immediate;
   startup clone nomount;
}
正在执行内存脚本

sql 语句: alter system set  db_unique_name =  ''oradg11g'' comment= '''' scope=spfile

sql 语句: alter system set  log_archive_dest_1 =  ''LOCATION=USE_DB_RECOVERY_FILE_DEST db_unique_name=oradg11g valid_for=(ALL_LOGFILES,ALL_ROLES)'' comment= '''' scope=spfile

sql 语句: alter system set  log_archive_dest_2 =  ''SERVICE=tns_oradgphy LGWR ASYNC db_unique_name=oradgphy valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment= '''' scope=spfile

sql 语句: alter system set  log_archive_dest_3 =  ''SERVICE=tns_oradglg LGWR ASYNC db_unique_name=oradglg valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment= '''' scope=spfile

sql 语句: alter system set  log_archive_dest_4 =  ''SERVICE=tns_oradgss LGWR ASYNC db_unique_name=oradgss valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)'' comment= '''' scope=spfile
```

sql 语句: alter system set   log_archive_dest_state_1 = ''ENABLE'' comment= '''' scope=spfile

sql 语句: alter system set   log_archive_dest_state_2 = ''ENABLE'' comment= '''' scope=spfile

sql 语句: alter system set   log_archive_dest_state_3 = ''defer'' comment= '''' scope=spfile

sql 语句: alter system set   log_archive_dest_state_4 = ''defer'' comment= '''' scope=spfile

sql 语句: alter system set   standby_file_management = ''AUTO'' comment= '''' scope=spfile

sql 语句: alter system set   fal_client = ''oradg11g'' comment= '''' scope=spfile

sql 语句: alter system set   fal_server = ''oradgphy'' comment= '''' scope=spfile

sql 语句: alter system set   control_files = ''/u01/app/oracle/oradata/oradg11g/control01.ctl'', ''/u01/app/oracle/flash_recovery_area/oradg11g/control02.ctl'' comment= '''' scope=spfile

sql 语句: alter system set   db_file_name_convert = ''oradgphy'', ''oradg11g'' comment= '''' scope=spfile

sql 语句: alter system set   log_file_name_convert = ''oradgphy'', ''oradg11g'' comment= '''' scope=spfile

sql 语句: alter system set   memory_target = 200M comment= '''' scope=spfile

sql 语句: alter system set   audit_file_dest = ''/u01/app/oracle/admin/oradg11g/adump'' comment= '''' scope=spfile

Oracle 实例已关闭

已连接到辅助数据库（未启动）
Oracle 实例已启动

系统全局区域总计   208769024 字节

Fixed Size   2226936 字节
Variable Size   113247496 字节
Database Buffers   88080384 字节
Redo Buffers   5214208 字节

内存脚本的内容:
{
   backup as copy current controlfile for standby auxiliary format '/u01/app/oracle/oradata/oradg11g/control01.ctl';
   restore clone controlfile to '/u01/app/oracle/flash_recovery_area/oradg11g/control02.ctl' from
'/u01/app/oracle/oradata/oradg11g/control01.ctl';
}
正在执行内存脚本

启动 backup 于 2015-07-26 22:04:44
使用通道 ORA_DISK_1
通道 ORA_DISK_1: 启动数据文件副本
复制备用控制文件
输出文件名=/u01/app/oracle/product/11.2.0/dbhome_1/dbs/snapcf_oradgphy.f 标记=TAG20150726T220444 RECID=11 STAMP=886111485
通道 ORA_DISK_1: 数据文件复制完毕, 经过时间: 00:00:01
完成 backup 于 2015-07-26 22:04:45

启动 restore 于 2015-07-26 22:04:45
分配的通道: ORA_AUX_DISK_1
通道 ORA_AUX_DISK_1: SID=134 设备类型=DISK

通道 ORA_AUX_DISK_1: 已复制控制文件副本
完成 restore 于 2015-07-26 22:04:47

内存脚本的内容:
{
   sql clone 'alter database mount standby database';
}
正在执行内存脚本

sql 语句: alter database mount standby database

内存脚本的内容:
{
   set newname for tempfile 1 to
 "/u01/app/oracle/oradata/oradg11g/temp01.dbf";
   switch clone tempfile all;
   set newname for datafile 1 to
 "/u01/app/oracle/oradata/oradg11g/system01.dbf";
   set newname for datafile 2 to
 "/u01/app/oracle/oradata/oradg11g/sysaux01.dbf";
   set newname for datafile 3 to
 "/u01/app/oracle/oradata/oradg11g/undotbs01.dbf";
   set newname for datafile 4 to
 "/u01/app/oracle/oradata/oradg11g/users01.dbf";
   set newname for datafile 5 to
 "/u01/app/oracle/oradata/oradg11g/example01.dbf";
   set newname for datafile 6 to
 "/u01/app/oracle/oradata/oradg11g/logmnrtbs1.dbf";
   backup as copy reuse
   datafile 1 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/system01.dbf"   datafile
 2 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/sysaux01.dbf"   datafile
 3 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/undotbs01.dbf"   datafile
 4 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/users01.dbf"   datafile
 5 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/example01.dbf"   datafile
 6 auxiliary format
 "/u01/app/oracle/oradata/oradg11g/logmnrtbs1.dbf"   ;
   sql 'alter system archive log current';
}
正在执行内存脚本

正在执行命令: SET NEWNAME

临时文件 1 在控制文件中已重命名为 /u01/app/oracle/oradata/oradg11g/temp01.dbf

正在执行命令: SET NEWNAME

正在执行命令: SET NEWNAME

正在执行命令: SET NEWNAME

正在执行命令: SET NEWNAME

正在执行命令: SET NEWNAME

正在执行命令: SET NEWNAME

启动 backup 于 2015-07-26 22:04:52
使用通道 ORA_DISK_1
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00001 名称=/u01/app/oracle/oradata/oradgphy/system01.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/system01.dbf 标记=TAG20150726T220452
通道 ORA_DISK_1: 数据文件复制完毕, 经过时间: 00:00:25
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00002 名称=/u01/app/oracle/oradata/oradgphy/sysaux01.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/sysaux01.dbf 标记=TAG20150726T220452
通道 ORA_DISK_1: 数据文件复制完毕, 经过时间: 00:00:15
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00005 名称=/u01/app/oracle/oradata/oradgphy/example01.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/example01.dbf 标记=TAG20150726T220452
通道 ORA_DISK_1: 数据文件复制完毕, 经过时间: 00:00:07
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00006 名称=/u01/app/oracle/oradata/oradgphy/logmnrtbs1.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/logmnrtbs1.dbf 标记=TAG20150726T220452

通道 ORA_DISK_1: 数据文件复制完毕，经过时间: 00:00:03
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00003 名称=/u01/app/oracle/oradata/oradgphy/undotbs01.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/undotbs01.dbf 标记=TAG20150726T220452
通道 ORA_DISK_1: 数据文件复制完毕，经过时间: 00:00:03
通道 ORA_DISK_1: 启动数据文件副本
输入数据文件: 文件号=00004 名称=/u01/app/oracle/oradata/oradgphy/users01.dbf
输出文件名=/u01/app/oracle/oradata/oradg11g/users01.dbf 标记=TAG20150726T220452
通道 ORA_DISK_1: 数据文件复制完毕，经过时间: 00:00:01
完成 backup 于 2015-07-26 22:05:47

sql 语句: alter system archive log current

内存脚本的内容:
{
   backup as copy reuse
   archivelog like ″/u01/app/oracle/flash_recovery_area/ORADGPHY/archivelog/2015_07_26/o1_mf_1_4_bv9t9vtg_.arc″ auxiliary format
 ″/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_4_%u_.arc″   ;
   catalog clone recovery area;
   switch clone datafile all;
}
正在执行内存脚本

启动 backup 于 2015-07-26 22:05:47
使用通道 ORA_DISK_1
通道 ORA_DISK_1: 正在开始复制归档日志
输入归档日志线程=1 序列=4 RECID=205 STAMP=886111547
输出文件名=/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_4_11qd1v9s_.arc RECID=0 STAMP=0
通道 ORA_DISK_1: 归档日志复制完成，经过时间: 00:00:01
完成 backup 于 2015-07-26 22:05:49

搜索恢复区中的所有文件

数据库未知文件的列表
=====================================
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_13/o1_mf_1_101_blphvhp6_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_94_bl9w2pcn_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_83_bl91pfk8_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_82_bl91gpm1_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_92_bl9w2htt_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_91_bl9w2cpb_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_86_bl91r2j5_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_84_bl91r03h_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_87_bl91r46j_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_89_bl944htj_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_96_bl9w7ym1_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_90_bl944mbj_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_88_bl944f8q_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_95_bl9w6x2l_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_85_bl91r1n9_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_08/o1_mf_1_93_bl9w2nqd_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_18_bkwnm191_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_8_bkwmq00d_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_7_bkwmhpjf_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_14_bkwn5m3n_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_28_bkwr591w_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_15_bkwn5onz_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_23_bkwp1926_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_6_bkwmho6g_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_10_bkwmts9r_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_29_bkwr5d1c_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_16_bkwnl14b_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_27_bkwr5820_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_12_bkwn2kg5_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_21_bkwp14lm_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_19_bkwnyrd9_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_20_bkwp12lg_.arc

```
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_5_bkwmhm1w_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_9_bkwms0xq_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_11_bkwn1m0k_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_22_bkwp18j4_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_25_bkwr53xb_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_24_bkwr51nw_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_26_bkwr5792_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_13_bkwn5jjr_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_03/o1_mf_1_17_bkwnltkg_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_12/o1_mf_1_100_blmt7y70_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_12/o1_mf_1_99_blmt7qw3_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_18/o1_mf_1_105_bm3b08sr_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_18/o1_mf_1_106_bm3b09br_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_18/o1_mf_1_108_bm46tv7x_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_18/o1_mf_1_107_bm3cr8c8_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_22/o1_mf_1_112_bmgqwv55_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_22/o1_mf_1_111_bmgqwr6x_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_52_bl6lzfr1_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_55_bl6m5bmw_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_41_bl6ksxpc_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_42_bl6kt79v_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_81_bl78wx8z_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_76_bl6zdp5q_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_59_bl6psk7g_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_78_bl70ggr3_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_38_bl6jxyv7_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_60_bl6rsyr5_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_66_bl6txphk_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_49_bl6lzbf9_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_58_bl6pphgd_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_69_bl6vsrjo_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_77_bl6zjwor_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_65_bl6tvoy4_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_67_bl6v0qpo_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_39_bl6kc33t_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_44_bl6ktcns_.arc
文件名: /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_07/o1_mf_1_70_bl6w7xdb_.arc
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正在编制文件目录...
目录编制完毕

已列入目录的文件的列表
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文件名：/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_04_18/o1_mf_1_108_bm46tv7x_.arc
```

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```

文件名：/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_177_bv9ns9rj_.arc
文件名：/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_5_bv9d3yjl_.arc

数据文件 1 已转换成数据文件副本
输入数据文件副本 RECID=11 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/system01.dbf
数据文件 2 已转换成数据文件副本
输入数据文件副本 RECID=12 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/sysaux01.dbf
数据文件 3 已转换成数据文件副本
输入数据文件副本 RECID=13 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/undotbs01.dbf
数据文件 4 已转换成数据文件副本
输入数据文件副本 RECID=14 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/users01.dbf
数据文件 5 已转换成数据文件副本
输入数据文件副本 RECID=15 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/example01.dbf
数据文件 6 已转换成数据文件副本
输入数据文件副本 RECID=16 STAMP=886111550 文件名=/u01/app/oracle/oradata/oradg11g/logmnrtbs1.dbf

内存脚本的内容:
{
   set until scn 1877456;
   recover
   standby
   clone database
    delete archivelog
    ;
}
正在执行内存脚本

正在执行命令: SET until clause

启动 recover 于 2015-07-26 22:05:50
使用通道 ORA_AUX_DISK_1

正在开始介质的恢复

线程 1 序列 4 的归档日志已作为文件 /u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_4_11qd1v9s_.arc 存在于磁盘上
归档日志文件名=/u01/app/oracle/flash_recovery_area/ORADG11G/archivelog/2015_07_26/o1_mf_1_4_11qd1v9s_.arc 线程=1 序列=4
介质恢复完成，用时: 00:00:00
完成 recover 于 2015-07-26 22:05:51
完成 Duplicate Db 于 2015-07-26 22:06:01

RMAN>

[oracle@rhel6_lhr dbs]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.3.0 Production on 星期日 7 月 26 22:07:32 2015

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连接到:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

22:07:32 SQL>
22:07:33 SQL> select dbid,name,current_scn,protection_mode,database_role,force_logging,open_mode,switchover_status from v$database;

     DBID NAME   CURRENT_SCN PROTECTION_MODE   DATABASE_ROLE   FOR OPEN_MODE   SWITCHOVER_STATUS
---------- --------- ----------- -------------------- ---------------- --- -------------------- --------------------
1403587593 ORADG11G   1877455 MAXIMUM PERFORMANCE PHYSICAL STANDBY YES MOUNTED   NOT ALLOWED

已用时间: 00: 00: 00.01
22:07:34 SQL> alter database open;

数据库已更改。

已用时间: 00: 00: 00.30
22:07:45 SQL> alter database recover managed standby database using current logfile disconnect;

数据库已更改。

已用时间: 00: 00: 06.02
22:07:56 SQL> 22:07:56 SQL>

已用时间: 00: 00: 00.01
22:07:34 SQL> `alter database open;`

数据库已更改。

已用时间: 00: 00: 00.30
22:07:45 SQL> `alter database recover managed standby database using current logfile disconnect;`

数据库已更改。

已用时间: 00: 00: 06.02
22:07:56 SQL> 22:07:56 SQL>
22:08:03 SQL> select dbid,name,current_scn,protection_mode,database_role,force_logging,open_mode,switchover_status from v$database;

DBID	NAME	CURRENT_SCN	PROTECTION_MODE	DATABASE_ROLE	FOR	OPEN_MODE	SWITCHOVER_STATUS
1403587593	ORADG11G	1877455	MAXIMUM PERFORMANCE	PHYSICAL STANDBY	YES	MOUNTED	NOT ALLOWED

校验：

```
22:10:49 SQL> show parameter unique_name

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
db_unique_name                       string      oradgphy
22:10:55 SQL> select count(1) from test;

  COUNT(1)
----------
   1194000

已用时间: 00: 00: 00.05
22:11:01 SQL> delete from test where rownum<=9400;

已删除 9400 行。

已用时间: 00: 00: 00.13
22:11:45 SQL> commit;

提交完成。

已用时间: 00: 00: 00.00
22:11:48 SQL> select count(1) from test;

  COUNT(1)
----------
   1184600

已用时间: 00: 00: 00.06
22:12:10 SQL> conn sys/lhr@tns_oradg11g as sysdba
已连接。
22:12:14 SQL> select count(1) from test;

  COUNT(1)
```

```
_____
   1184600

已用时间： 00： 00： 00.06
22:12:17 SQL>
```

1.4.2.6　　重新做 switchover 操作还原成最初的环境

```
23:16:58 SQL>  show parameter unique_name

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
db_unique_name                       string      oradgphy
23:17:31 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
---------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G   ARCHIVELOG   READ WRITE           PRIMARY          TO STANDBY           oradgphy

已用时间： 00： 00： 00.00
23:17:52 SQL>  alter database commit to switchover to physical standby with session shutdown;

数据库已更改。

已用时间： 00： 00： 04.83
23:18:15 SQL>
23:19:27 SQL>
23:19:27 SQL>  select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
---------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G   ARCHIVELOG   READ WRITE           PHYSICAL STANDBY RECOVERY NEEDED      oradgphy

已用时间： 00： 00： 00.01
23:19:45 SQL>  select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
---------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G   ARCHIVELOG   READ WRITE           PHYSICAL STANDBY RECOVERY NEEDED      oradgphy

已用时间： 00： 00： 00.00
23:21:48 SQL> startup mount;
ORA-01081: 无法启动已在运行的 ORACLE - 请先将其关闭
23:21:57 SQL> shutdown abort;
ORACLE 例程已经关闭。
23:22:28 SQL> startup mount;
ORACLE 例程已经启动。

Total System Global Area  242171904 bytes
Fixed Size                  2227256 bytes
Variable Size             197133256 bytes
Database Buffers           37748736 bytes
Redo Buffers                5062656 bytes
数据库装载完毕。
23:22:51 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
---------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G   ARCHIVELOG   MOUNTED              PHYSICAL STANDBY RECOVERY NEEDED      oradgphy

已用时间： 00： 00： 00.01
23:22:53 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME       LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
---------- ------------ -------------------- ---------------- -------------------- ------------------------------
```

ORADG11G ARCHIVELOG   MOUNTED   PHYSICAL STANDBY RECOVERY NEEDED   oradgphy

已用时间: 00: 00: 00.00

源主库：

```
23:22:35 SQL>  select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME      LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
--------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G  ARCHIVELOG   READ ONLY WITH APPLY PHYSICAL STANDBY TO PRIMARY           oradg11g

已用时间:  00: 00: 00.00
23:22:36 SQL> alter database commit to switchover to primary with session shutdown;

数据库已更改。

已用时间:  00: 00: 03.08
23:24:06 SQL> alter database open;

数据库已更改。

已用时间:  00: 00: 00.41
23:24:13 SQL> select name, LOG_MODE, OPEN_MODE, database_role, SWITCHOVER_STATUS, db_unique_name from v$database;

NAME      LOG_MODE     OPEN_MODE            DATABASE_ROLE    SWITCHOVER_STATUS    DB_UNIQUE_NAME
--------- ------------ -------------------- ---------------- -------------------- ------------------------------
ORADG11G  ARCHIVELOG   READ WRITE           PRIMARY          TO STANDBY           oradg11g

已用时间:  00: 00: 00.42


备库：
23:24:21 SQL> alter database open;

数据库已更改。

已用时间:  00: 00: 00.30
23:24:31 SQL> alter database recover managed standby database using current logfile disconnect;


数据库已更改。
```

至此所有的实验完毕，数据库也已经还原到最初的状态了。

3、结论

1.4.3 实验总结

Failover 是 Dataguard 的一个重要功能特性。经过 Failover，我们认为 Primary 站点其实已经不能作为 HA 架构成员了。重新让 Primary 加入进去的方法有三个：一个是利用 RMAN 备份将 Primary 恢复到 failover 之前，重新进行日志弥补、角色切换；第二个方法是利用 Flashback Database 策略，将数据库恢复到 failover 之前的时间点；第三个是删除 Primary 数据库，重新利用新 Primary 搭建 standby。

1.5 总结

进行 Dataguard switchover 和 failover 是非常常见的运维需求，在实际场景下，我们尽可能选择稳妥完全的策略进行操作，SQL 命令还是我们比较好的选择，多操作几次就熟悉了。

1.6 About Me

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本文作者：小麦苗，只专注于数据库的技术，更注重技术的运用

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