上海黄金交易所

Oracle Active Dataguard

容灾实施报告

****

**北京海量数据技术股份有限公司**

**Beijing Vastdata Technology LTD**.

2019年 6月

**修改历史**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **日期** | **版本号** | **作者** | **修改说明** | **更改请求号** |
| 2018/11/22 | 1.0 | 汤玲霞 | 初稿 |  |
| 2018/11/23 | 1.1 | 周辉 | 复稿 |  |
| 2018/12/03 | 2.0 | 王松柏 | 修订 |  |
| 2019/06/10 | 3.0 | 徐佳阳 | 修订 |  |
| 2019/06/11 | 4.0 | 赵凯敏 | 修订 |  |
| 2019/06/18 | 4.1 | 赵凯敏 | 修订 |  |

注释：“变更请求号”为文档正式发布后需要变更时的编号。

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# 概述

本文档为RAC TO RAC的ADG部署手册。根据“深圳灾备中心”和“上海生产中心”的数据库复制环境架构，主要包含如下要点：

1. 主备均为RAC架构，且使用专线进行数据复制，需提前将专线网卡加入集群，配置专用监听。
2. 专线网络存在带宽限制，故采用RMAN备份还原的方式搭建DG。通过提前将备份文件传输至深圳灾备中心，缩短DG搭建时间。
3. 专线网络传输距离远且存在带宽限制，故使用ASYNC传输方式且启用压缩功能。
4. 为减少日志应用LAG，缩短FAILOVER时间，备库使用Real-Time Apply。
5. 备库端需启用最小附加日志，standby log member为2个。
6. 为满足切换演练需求，备库需提前做好SNAPSHOT STANDBY相关配置。
7. 备库角色切换为primary/snapshot standby后，需自动启用与上海生产中心数据库一致的服务名。
8. “上海生产中心”已经存在单实例DG物理备库，不可破坏当前DG环境。

**数据复制关系参考：**

深圳灾备数据中心

上海生产数据中心

ADG

DSG

DSG

图1：上海生产中心与深圳灾备中心数据复制关系图

# 实施步骤

## 基本信息

(如下是reg主、备库基本信息)主库使用两节点RAC，备库也使用两节点RAC进行搭建ADG，具体信息如下表格：

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DB类型** | **主机名** | **DB\_NAME** | **DB\_UNIQUE\_NAME** | **INSTANCE** | **ASM DG** |
| 主库 | regracdb1 | sgeregdb | sgeregdb | sgeregdb1 | DATA,ARCH |
| regracdb2 | sgeregdb2 |
| 备库 | regracdb1 | sgeregdb | sgeregdbdg | sgeregdbdg1 | DATA,ARCH |
| regracdb2 | sgeregdbdg2 |

灾备网络地址

|  |  |  |  |
| --- | --- | --- | --- |
| **数据中心** | **主机** | **灾备IP** | **灾备VIP** |
| 上海 | regracdb1 | 10.1.100.10 | 10.1.100.11 |
| regracdb2 | 10.1.100.20 | 10.1.100.21 |
| 深圳 | regracdb1 | 20.1.100.10 | 20.1.100.11 |
| regracdb2 | 20.1.100.20 | 20.1.100.21 |

## 准备工作

备注：无特殊说明所有操作均在备库服务器上

### 备份tnsnames.ora

|  |
| --- |
| cp tnsnames.ora tnsnames.ora.product |

### 备份参数文件

|  |
| --- |
| mkdir /home/oracle/inspect/20190607/  sqlplus / as sysdba  create pfile='/home/oracle/inspect/20190607/pfile.ora' from spfile='+DATA/sgeregdbdg/spfilesgeregdbdg.ora'; |

### 备份db和service

备注：步骤2.2.6和2.7.1注册crs资源参数内容校验参考。

|  |
| --- |
| srvctl config database -d sgeregdbdg  srvctl config service -d sgeregdbdg |

### 删除旧库

dbca删除旧库sgeregdbdg，清空+DATA,+ARCH磁盘组

1. 信息确认

|  |
| --- |
| SQL> select status from gv$instance;  STATUS  ------------  OPEN  OPEN  SQL> select open\_mode,database\_role from gv$database;  OPEN\_MODE DATABASE\_ROLE  -------------------------------- -------------------------  READ ONLY WITH APPLY PHYSICAL STANDBY  READ ONLY WITH APPLY PHYSICAL STANDBY |

1. dbca删库

略。

1. 清空+DATA、+ARCH 磁盘组

使用rm指令删除+DATA、+ARCH下文件夹以及文件。

参考指令：rm -fr \*

### 备份删除参数、口令文件

略。

### 集群注册sgeregdbdg

|  |
| --- |
| [oracle@regracdb1 ~]$ srvctl add database -d sgeregdbdg -o $ORACLE\_HOME -p +DATA/sgeregdbdg/spfilesgeregdbdg.ora  [oracle@regracdb1 ~]$ srvctl add instance -d sgeregdbdg -n regracdb1 -i sgeregdbdg1  [oracle@regracdb1 ~]$ srvctl add instance -d sgeregdbdg -n regracdb2 -i sgeregdbdg2 |

### RMAN备份主库

备注：主库端操作

1. 查看数据库大小

|  |
| --- |
| SQL> SELECT SUM(DS.BYTES)/1024/1024/1024 "SIZE(G)" FROM DBA\_SEGMENTS ds; |

1. 编写脚本进行全库备份

|  |
| --- |
| [oracle@rac1 bak]$ vi fullbak.sh  export ORACLE\_SID= sgeregdb1  export ORACLE\_BASE=/app/oracle  export ORACLE\_HOME=$ORACLE\_BASE/product/11.2.0/db\_1  export LD\_LIBRARY\_PATH=$ORACLE\_HOME/lib  export NLS\_DATE\_FORMAT="yyyy-mm-dd hh24:mi:ss"  export NLS\_LANG="AMERICAN\_AMERICA.ZHS16GBK"  export PATH=$PATH:$HOME/bin:$ORACLE\_HOME/bin  bak\_date=$(date '+%Y%m%d')  bak\_dir=/bak/$bak\_date  mkdir -p $bak\_dir  chmod -R 755 /bak  rman target / <<EOF  run{  CONFIGURE DEVICE TYPE DISK PARALLELISM 4 BACKUP TYPE TO COMPRESSED BACKUPSET;  configure channel device type disk maxpiecesize 4G;  BACKUP  FORMAT='$bak\_dir/data\_%U\_%T.dbf'  DATABASE;  BACKUP SPFILE FORMAT '$bak\_dir/spfile\_%U\_%T.ora';  backup current controlfile for standby format'$bak\_dir/ctl\_stand\_con.ctl';  }  EXIT;  EOF |

|  |
| --- |
| [oracle@rac1 bak]$ chmod 755 fullbak.sh  [oracle@rac1 bak]$ nohup sh fullbak.sh > fullbak.log & |

说明：做以上备份操作后，参考2.4.1节将主库的参数文件进行备份

### 备份文件传输至备库

备注：主库端操作

将2.2.7节的全库备份通过灾备复制网络传输至深圳regracdb1服务器的/backup目录中。

### 修改/etc/hosts

添加DG专用IP、VIP、远端IP

|  |
| --- |
| [root@regracdb1 ~]$ vi /etc/hosts  127.0.0.1 regracdb1 localhost localhost.localdomain localhost4 localhost4.localdomain4  #public  20.1.125.51 regracdb1  20.1.125.61 regracdb2  #vip  20.1.125.50 regracdb1-vip  20.1.125.60 regracdb2-vip  #priv  1.1.1.5 regracdb1-priv  1.1.1.6 regracdb2-priv  #scan  20.1.125.58 regracdb-scan  20.1.124.8 regdgdb  192.21.1.3 nas\_nfs  **#shanghai**  **10.1.100.10 regdb\_sh1**  **10.1.100.20 regdb\_sh2**  **10.1.100.11 regdb\_sh1-vip**  **10.1.100.21 regdb\_sh2-vip**  **#shenzhen**  **20.1.100.10 regracdb1\_dg**  **20.1.100.20 regracdb2\_dg**  **20.1.100.11 regracdb1\_dg-vip**  **20.1.100.21 regracdb2\_dg-vip** |

### RAC集群加入专用网卡及监听

1. 配置添加network

|  |
| --- |
| [root@regracdb1~]#/app/11.2.0/grid/bin/srvctl add network -k 2 -S 20.1.100.0/255.255.255.0/team1 -w static  [root@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl config network |

1. 启动network服务

|  |
| --- |
| [root@regracdb1 ~]# /app/11.2.0/grid/bin/crsctl start res ora.net2.network |

1. 添加和启动VIP

|  |
| --- |
| [root@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl add vip -n regracdb1 -A regracdb1\_dg-vip/255.255.255.0/team1 -k 2  [root@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl add vip -n regracdb2 -A regracdb2\_dg-vip/255.255.255.0/team1 -k 2  [root@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl start vip -i regracdb1\_dg-vip  [root@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl start vip -i regracdb2\_dg-vip |

1. 添加和启用DG专用监听

|  |
| --- |
| [grid@regracdb1 ~]$ srvctl add listener -l LISTENER\_DG -o $ORACLE\_HOME -s -p 1521 -k 2  [grid@regracdb1 ~]# /app/11.2.0/grid/bin/srvctl start listener -l LISTENER\_DG |

1. 验证集群资源和状态

|  |
| --- |
| [root@regracdb1 ~]# /app/11.2.0/grid/bin/crsctl stat res -t |

### 添加tnsnames.ora文件信息

两个节点检查复制tnsnames.ora

|  |
| --- |
| cp tnsnames.ora.product tnsnames.ora |

检查是否有以下信息，如没有请按下面添加

1. 配置**主备端**四个节点的tnsnames.ora，添加如下信息：

|  |
| --- |
| sgeregdbdg =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.11)(PORT = 1521))  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.21)(PORT = 1521))  (CONNECT\_DATA =  (SERVER = DEDICATED)  (SERVICE\_NAME = sgeregdbdg)  )  )  sgeregdb =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 10.1.100.11)(PORT = 1521))  (ADDRESS = (PROTOCOL = TCP)(HOST = 10.1.100.21)(PORT = 1521))  (CONNECT\_DATA =  (SERVER = DEDICATED)  (SERVICE\_NAME = sgeregdb)  )  ) |

1. 在**备库端**两个节点的tnsnames.ora添加如下：

|  |
| --- |
| regracdb1:  listener\_net1 =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.125.50)(PORT = 1521))  )  listener\_net2 =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.11)(PORT = 1521))  )  remote\_net2 =  (DESCRIPTION\_LIST =  (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.11)(PORT = 1521)))  (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.21)(PORT = 1521)))  )  regracdb2:  listener\_net1 =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.125.60)(PORT = 1521))  )  listener\_net2 =  (DESCRIPTION =  (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.21)(PORT = 1521))  )  remote\_net2 =  (DESCRIPTION\_LIST =  (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.11)(PORT = 1521)))  (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = 20.1.100.21)(PORT = 1521)))  ) |

**#以上已添加可通过lsnrctl status查看状态**

### 拷贝密码文件

1. 在备库端将主库传输过来的口令文件拷贝到$ORACLE\_HOME/dbs下并重命名：

|  |
| --- |
| [oracle@regracdb1 ~]$ cp /backup/rmanfromsh/regracdb1\_20190606/orapwsgeregdb1 /app/oracle/product/11.2.0/db\_1/dbs/orapwsgeregdbdg1  [oracle@regracdb1 ~]$ scp /backup/rmanfromsh/regracdb1\_20190606/orapwsgeregdb1 regracdb2:/app/oracle/product/11.2.0/db\_1/dbs/orapwsgeregdbdg2 |

## 主库检查

备注：主库端操作

### 是否安装相关组件

|  |
| --- |
| SQL> SELECT \* FROM V$OPTION WHERE PARAMETER in ('Oracle Data Guard', 'Advanced Compression');  PARAMETER VALUE  ------------------------------- ----------  Oracle Data Guard TRUE  Advanced Compression TRUE |

### FORCE\_LOGGING模式

|  |
| --- |
| select force\_logging from v$database;  (开启：alter database force logging;) |

### 最小附件日志

|  |
| --- |
| SQL> SELECT INST\_ID,SUPPLEMENTAL\_LOG\_DATA\_MIN FROM GV$DATABASE;  INST\_ID SUPPLEME  ---------- --------------  1 YES  2 YES |

### 归档模式

|  |
| --- |
| SQL> archive log list;  Database log mode Archive Mode  Automatic archival Enabled  Archive destination +DATA  Oldest online log sequence 63  Next log sequence to archive 64  Current log sequence 64 |

### remote\_login\_passwordfile配置

|  |
| --- |
| show parameter remote\_login\_passwordfile  (remote\_login\_passwordfile应为EXCLUSIVE) |

## 修改参数文件

### 修改主库参数

备注：主库端操作

1. 将主库备份的参数文件传送至备库进行修改

|  |
| --- |
| su - oracle  sqlplus / as sysdba  create pfile='/tmp/oracle/initsgeregdb1.ora.bak' from spfile; |

1. 修改主库参数

|  |
| --- |
| alter system set log\_archive\_config='dg\_config=(sgeregdb,sgeregdg,sgeregdbdg)' scope=both sid='\*';  alter system set log\_archive\_dest\_state\_3='defer' scope=both sid='\*';  #等备库实例启动，再开启enabled  alter system set log\_archive\_dest\_3=  'service=sgeregdbdg ASYNC compression=enable valid\_for=(ONLINE\_LOGFILE,PRIMARY\_ROLE) DB\_UNIQUE\_NAME='sgeregdbdg' scope=both sid='\*';  alter system set fal\_client=' sgeregdb' scope=both sid='\*';  alter system set fal\_server='sgeregdg' ,'sgeregdbdg' scope=both sid='\*';  alter system set standby\_file\_management=AUTO scope=both sid='\*';  alter system set log\_archive\_max\_processes = 8 scope=both sid='\*'; |

### 修改备库参数

1. 在rman中启动数据库到nomount，从主库备份的spfile恢复到本地pfile

|  |
| --- |
| RMAN> startup nomount;  RMAN> restore spfile to '/home/oracle/inspect/20190607/spfile.ora' from '/backup/rmanfromsh/ regracdb1\_20190606/spfile\_9iu3eis2\_1\_1\_20190606.ora';  sqlplus / as sysdba  create pfile='/home/oracle/inspect/20190607/pfile.ora' from spfile='/home/oracle/inspect/20190607/spfile.ora'; |

1. 修改备库参数文件

vi /home/oracle/inspect/20190607/pfile.ora

(标红参数需要更改或者检查)

|  |
| --- |
| \*.\_cleanup\_rollback\_entries=2000  \*.\_datafile\_write\_errors\_crash\_instance=FALSE  \*.\_disable\_streams\_pool\_auto\_tuning=TRUE  \*.\_optimizer\_mjc\_enabled=FALSE  \*.\_optimizer\_use\_feedback=FALSE  \*.\_PX\_use\_large\_pool=TRUE  \*.archive\_lag\_target=3600  \*.cluster\_database=true  \*.audit\_file\_dest='/app/oracle/admin/sgeregdbdg/adump'  \*.audit\_trail='XML','EXTENDED'  \*.compatible='11.2.0.4.0'  \*.control\_file\_record\_keep\_time=30  \*.control\_files='+data/sgeregdbdg/controlfile/control01.ctl','+arch/sgeregdbdg/controlfile/control02.ctl'  \*.db\_block\_checking='FULL'  \*.db\_block\_size=8192  \*.db\_cache\_size=25769803776  \*.db\_create\_file\_dest='+data'  \*.db\_domain=''  \*.db\_files=2048  \*.db\_flashback\_retention\_target=240  \*.db\_name='sgeregdb'  \*.db\_recovery\_file\_dest='+arch'  \*.db\_recovery\_file\_dest\_size=21474836480  \*.db\_writer\_processes=2  \*.deferred\_segment\_creation=FALSE  \*.diagnostic\_dest='/app/oracle'  \*.dispatchers='(PROTOCOL=TCP) (SERVICE=sgeregdbdgXDB)'  \*.enable\_ddl\_logging=TRUE  \*.event='28401 TRACE NAME CONTEXT FOREVER, LEVEL 1'  \*.filesystemio\_options='SETALL'  \*.job\_queue\_processes=10  \*.large\_pool\_size=268435456  \*.log\_archive\_dest\_1='LOCATION=+ARCH'  \*.log\_archive\_format='%t\_%s\_%r.dbf'  \*.open\_cursors=1000  \*.parallel\_max\_servers=12  \*.pga\_aggregate\_target=20G  \*.processes=2000  \*.remote\_login\_passwordfile='EXCLUSIVE'  \*.resource\_limit=TRUE  \*.resource\_manager\_plan=''  \*.service\_names='sgeregdbdg'  \*.session\_cached\_cursors=100  \*.sga\_target=80G  sgeregdbdg2.thread=2  sgeregdbdg1.thread=1  sgeregdbdg1.undo\_tablespace='UNDOTBS1'  sgeregdbdg2.undo\_tablespace='UNDOTBS2'  sgeregdbdg1.instance\_number=1  sgeregdbdg2.instance\_number=2  sgeregdbdg1.listener\_networks='((NAME=network1)(LOCAL\_LISTENER=listener\_net1)(REMOTE\_LISTENER=regracdb-scan:1521))','((NAME=network2)(LOCAL\_LISTENER=listener\_net2)(REMOTE\_LISTENER=remote\_net2))'  sgeregdbdg2.listener\_networks='((NAME=network1)(LOCAL\_LISTENER=listener\_net1)(REMOTE\_LISTENER=regracdb-scan:1521))','((NAME=network2)(LOCAL\_LISTENER=listener\_net2)(REMOTE\_LISTENER=remote\_net2))'  \*.db\_file\_name\_convert='sgeregdb','sgeregdbdg'  \*.log\_file\_name\_convert='sgeregdb','sgeregdbdg'  \*.log\_archive\_dest\_1='LOCATION=+ARCH VALID\_FOR=(ALL\_LOGFILES,ALL\_ROLES) DB\_UNIQUE\_NAME=sgeregdbdg'  \*.log\_archive\_dest\_3='SERVICE=sgeregdb ASYNC compression=enable valid\_for=(ONLINE\_LOGFILE,PRIMARY\_ROLE) DB\_UNIQUE\_NAME=sgeregdb'  \*.log\_archive\_dest\_state\_3='enable'  \*.db\_unique\_name='sgeregdbdg'  \*.fal\_client='sgeregdbdg'  \*.fal\_server='sgeregdb'  \*.log\_archive\_config='dg\_config=(sgeregdb,sgeregdbdg)'  \*.standby\_file\_management='AUTO'  \*.log\_archive\_max\_processes=4 |

#注：如果log\_file\_name\_convert里面有logfile,需要提前在DATA和ARCH磁盘组里面添加目录。

|  |
| --- |
| su - grid  asmcmd  cd +data  cd sgeregdbdg  mkdir logfile  cd +arch  cd sgeregdbdg  mkdir logfile |

1. 创建文件夹

|  |
| --- |
| mkdir -p /app/oracle/admin/sgeregdbdg/adump |

1. 注意参数文件修改与核对
2. 注意两个节点的口令文件的权限，位置和命名orapwsgeregdbdg1/orapwsgeregdbdg2
3. tnsping sgeregdb检查网络服务名是否ping通

## 创建并恢复备库实例

### 恢复参数文件

|  |
| --- |
| [oracle@regracdb1 dbs]$ sqlplus / as sysdba  SQL> create spfile='+DATA/sgeregdbdg/spfilesgeregdbdg.ora' from pfile='/home/oracle/inspect/20190607/pfile.ora';  [oracle@regracdb1 20190607]$ srvctl start database -d sgeregdbdg -o nomount  #检查数据库是否使用spfile启动及参数：  show parameter spfile  show parameter name  show parameter standby  show parameter cluster  show parameter listerner  show parameter fal  show parameter manage  show parameter convert  show parameter log |

### 恢复控制文件

|  |
| --- |
| [oracle@regracdb1 20190607]$ rman target /  RMAN> restore standby controlfile from '/backup/rmanfromsh/regracdb1\_20190606/ctl\_stand\_con.ctl';  RMAN> alter database mount; |

### 恢复数据库

1. restore database前可以先关闭2节点

|  |
| --- |
| RMAN> catalog start with '/backup/rmanfromsh/regracdb1\_20190606/';  RMAN> crosscheck backupset;  RMAN> delete noprompt expired backup;  RMAN> restore database; |

1. 启动数据库到mount状态

|  |
| --- |
| [oracle@regracdb1]$ srvctl stop database -d sgeregdbdg  [oracle@regracdb1]$ srvctl start database -d sgeregdbdg -o mount |

### 修改cluster参数

|  |
| --- |
| SQL> alter system set cluster\_database\_instances=2 scope=spfile;  System altered. |

## 创建standby redo

### 查看主库日志文件大小

备注：主/备库端操作

|  |
| --- |
| col group# for 99  col thread# for 99  col member for 99  col bytes for 99999999  col status for a10  col type for a20  set linesize 200  set pagesize 100  SELECT L.GROUP#, L.THREAD#, LF.MEMBER, L.BYTES/1024/1024, L.STATUS, LF.TYPE  FROM V$LOG L, V$LOGFILE LF  WHERE L.GROUP# = LF.GROUP#; |

### 创建standby日志组

备注：若数据库已经有standby log的信息，主备库可不用重新删除添加。即**忽略**该步骤。以下为主备库均无standby log情况下操作。

select group#,status,type,member from v$logfile;

Alter database drop standby logfile group 5;

…

1. 添加**主备库**端两节点的standby日志组

添加规则：

standby redo log组数公式 >= (每个instance日志组个数+1)\*instance个数

|  |
| --- |
| alter database add standby logfile thread 1 group 20 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 1 group 21 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 1 group 22 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 1 group 23 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 1 group 24 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 1 group 25 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 26 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 27 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 28 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 29 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 30 ('+DATA','+ARCH') size 1024M;  alter database add standby logfile thread 2 group 31 ('+DATA','+ARCH') size 1024M; |

### 备库介质恢复

备注：使用节点1开启mrp

|  |
| --- |
| alter database recover managed standby database using current logfile  disconnect from session nodelay; |

### 开启日志投递

备注：主库端操作

|  |
| --- |
| alter system set log\_archive\_dest\_state\_3='enable' scope=both sid='\*';  alter system switch logfile; |

## 备库添加相关资源

### 将库添加到CRS资源

/app/11.2.0/grid/bin/srvctl add database -d sgeregdbdg -n sgeregdb -o /app/oracle/product/11.2.0/db\_1 -p +DATA/sgeregdbdg/spfilesgeregdbdg.ora -r physical\_standby -a DATA,ARCH

/app/11.2.0/grid/bin/srvctl add instance -d sgeregdbdg -i sgeregdbdg1 -n regracdb1

/app/11.2.0/grid/bin/srvctl add instance -d sgeregdbdg -i sgeregdbdg2 -n regracdb2

### 新增服务名到CRS资源

|  |
| --- |
| srvctl add service -d sgeregdbdg -s sgereg -r sgeregdbdg2 -a sgeregdbdg1 -P BASIC -m BASIC -e SELECT -w 5 -z 3 -l PRIMARY,SNAPSHOT\_STANDBY |

### 查看服务资源状态

|  |
| --- |
| /app/11.2.0/grid/bin/crsctl stat res -t |

## 同步状态检查

### 查看备库警告日志

略。

### mrp进程状态检查

|  |
| --- |
| select inst\_id,process,status,thread#,sequence#,block# from gv$managed\_standby where PROCESS like 'MRP%'; |

### 外部归档文件处理

注意：外部存档日志文件空间，如空间不足请及时删除(**文档 ID** **1617965.1**)

|  |
| --- |
| SQL>select \* from V$FLASH\_RECOVERY\_AREA\_USAGE;  RMAN>delete foreign archivelog all; |

### 日志接收与同步检查

|  |
| --- |
| 主库：  select thread#,max(sequence#) "Last Primary Seq Generated" from v$archived\_log val,v$database vdb where val.resetlogs\_change#=vdb.resetlogs\_change# group by thread# order by 1;  备库：  -- 检查备库已经接收到的 sequence# 号  select thread#,max(sequence#) "Last Standby Seq Received" from v$archived\_log val,v$database vdb where val.resetlogs\_change#=vdb.resetlogs\_change# group by thread# order by 1;  -- 检查备库已经应用到的 sequence# 号  select thread#,max(sequence#) "Last Standby Seq Applied" from v$archived\_log val,v$database vdb where val.resetlogs\_change#=vdb.resetlogs\_change# and val.applied in ('YES','IN-MEMORY') group by thread# order by 1; |

### 延迟查询

|  |
| --- |
| select name,value from v$dataguard\_stats; |

## sgereg服务开启

注意：开启sgereg服务需要备库的crs状态为open。在2.8.4步骤中，检查出的日志序列号一致并且2.8.5中基本无延迟后，可以将数据库开启至open状态。

### 开启数据库为open

|  |
| --- |
| PS:当主备库完全同步后，关闭备库  alter database recover managed standby database cancel;  srvctl stop database -d sgeregdbdg  srvctl start database -d sgeregdbdg  sqlplus / as sysdba  recover managed standby database using current logfile disconnect from session nodelay;  select open\_mode,database\_role from gv$database;  GRID:  crsctl stat res -t |

### 开启sgereg服务

|  |
| --- |
| **#sgereg服务供应用连接**  srvctl start service -d sgeregdbdg -s sgereg |

## SNAPSHOT STANDBY相关配置

|  |
| --- |
| SQL> show parameter recovery  SQL> alter system set DB\_RECOVERY\_FILE\_DEST\_SIZE=20G scope=both sid='\*';  System altered.  SQL> alter system set db\_recovery\_file\_dest='+DATA' scope=both sid='\*';  System altered. |

## 检查集群状态及监听服务状态

|  |
| --- |
| su - grid  crsctl stat res -t  srvctl status service -d sgeregdbdg -s sgereg  lsnrctl status  lsnrctl status LISTENER\_SCAN1 |

## 验证备库状态

### 进行snapshot standby切换测试

|  |
| --- |
| SQL> select name,value from v$dataguard\_stats;  SQL> alter database recover managed standby database cancel;  [oracle@tarracdb1]$ srvctl stop database -d sgeregdbdg  [oracle@tarracdb1]$ srvctl start instance -d sgeregdbdg -i sgeregdbdg1 -o mount  SQL> alter database convert to snapshot standby;  [oracle@tarracdb1]$ srvctl stop database -d sgeregdbdg  [oracle@regracdb1]$ srvctl start database -d sgeregdbdg  SQL> select database\_role,open\_mode from v$database;  [oracle@tarracdb1]$ srvctl stop database -d sgeregdbdg  [oracle@tarracdb1]$ srvctl start instance -d sgeregdbdg -i sgeregdbdg1 -o mount  SQL> alter database convert to physical standby;  [oracle@tarracdb1]$ srvctl stop database -d sgeregdbdg  [oracle@regracdb1]$ srvctl start database -d sgeregdbdg  SQL> alter database recover managed standby database using current logfile disconnect from session nodelay;  SQL> select database\_role,open\_mode from v$database; |

### 验证备库日志应用状态

参考2.8.2-2.8.5步骤。

# 附件

## 附件一：备库搭建重要参数检查

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 检查项 | 参考值 | 检查命令 |
| 1 | 密码文件名称 | 节点1:regracdb1:orapwsgeregdbdg1  节点2:regracdb2:orapwsgeregdbdg2 | ls $ORACLE\_HOME/dbs/orapw\* |
| 2 | pfile | +DATA/sgeregdbdg/spfilesgeregdbdg.ora | show parameter spfile(两个节点都检查) |
| 3 | db\_file\_name\_convert | sgeregdb, sgeregdbdg | show parameter convert |
| 4 | log\_file\_name\_convert | sgeregdb, sgeregdbdg | show parameter convert |
| 5 | log\_archive\_config | dg\_config=(sgeregdb,sgeregdbdg) | show parameter log\_archive\_config |
| 6 | fal\_client | sgeregdbdg | show parameter fal |
| 7 | fal\_server | sgeregdb | show parameter fal |
| 8 | listener\_networks | ((NAME=network1)(LOCAL\_LISTENER=listener\_net1)(REMOTE\_LISTENER=regracdb-scan:1521))','((NAME=network2)(LOCAL\_LISTENER=listener\_net2)(REMOTE\_LISTENER=remote\_net2)) | show parameter networks |
| 9 | log\_archive\_dest\_1 | LOCATION=+ARCH VALID\_FOR=(ALL\_LOGFILES,ALL\_ROLES) DB\_UNIQUE\_NAME=sgeregdbdg | show parameter log\_archive\_dest\_1 |
| 10 | db\_unique\_name | sgeregdbdg | show parameter db\_uniq |