安能聚创

ANE-Oracle 数据库 11g ADG 配置作业标准

上海安能聚创供应链管理有限公司

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文档信息

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前言

1 文档简介

本文档详细描述了 Oracle 11g 数据库 ADG 配置过程（主备库均为单实例），形成标准作业化作业文档，以便于日后查阅和使用。

2 适用范围

该文档适用于 ANE 系统 Oracle 11g ADG 配置实施部署。

3 Oracle 11g ADG 配置过程

■ 环境描述

--- 1.主库

IP	10.113.128.66
主机名	dbtest5
DB 版本	11.2.0.4.0
db_name	dbpod
db_unique_name	dbpod
instance_name	dbpod
service_names	dbpod

--- 2.主库

IP	10.113.128.67
主机名	dbtest6
DB 版本	11.2.0.4.0
db_name	dbpod
db_unique_name	dbsdb
instance_name	dbsdb
service_names	dbsdb

■ 备库创建目录【与主库保持相同的目录结构】

```
$ mkdir -p /u01/app/oracle/admin/dbsdb/adump
$ mkdir -p /u01/app/oracle/admin/dbsdb/dpdump
$ mkdir -p /u01/app/oracle/admin/dbsdb/pfile
$ mkdir -p /u01/app/oracle/cfgtoollogs/dbca/dbsdb
$ mkdir -p /u01/app/oracle/fast_recovery_area
$ mkdir -p /u01/app/oracle/fast_recovery_area/dbsdb
$ mkdir -p /u01/app/oracle/oradata
$ mkdir -p /u01/app/oracle/oradata/dbsdb
```

■ 主库开启 force logging

```
SQL> alter database force logging;
```

■ 主备库创建并启动静态监听

```
$ cat listener.ora
# listener.ora Network Configuration File: /u01/app/oracle/product/11.2.0/db_1/network/admin/listener.ora
# Generated by Oracle configuration tools.

SID_LIST_LISTENER_POD =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = dbpod)
      (ORACLE_HOME = /u01/app/oracle/product/11.2.0/db_1)
      (SID_NAME = dbpod)
    )
  )

LISTENER_POD =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = 10.113.128.66)(PORT = 1525))
  )

ADR_BASE_LISTENER_POD = /u01/app/oracle
```

```
$ cat listener.ora
# listener.ora Network Configuration File: /u01/app/oracle/product/11.2.0/db_1/network/admin/listener.ora
# Generated by Oracle configuration tools.

SID_LIST_LISTENER_SDB =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = dbsdb)
      (ORACLE_HOME = /u01/app/oracle/product/11.2.0/db_1)
      (SID_NAME = dbsdb)
    )
```

```
  )

LISTENER_SDB =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = 10.113.128.67)(PORT = 1525))
  )

ADR_BASE_LISTENER_SDB = /u01/app/oracle
```

```
$ lsnrctl start LISTENER_POD
$ lsnrctl start LISTENER_SDB
$ lsnrctl status LISTENER_POD
$ lsnrctl status LISTENER_SDB
```

■ 主备库创建 TNS【主备库相同】

```
$ cat tnsnames.ora
# tnsnames.ora Network Configuration File: /u01/app/oracle/product/11.2.0/db_1/network/admin/tnsnames.ora
# Generated by Oracle configuration tools.

DBPOD =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 10.113.128.66)(PORT = 1525))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = DBPOD)
    )
  )

DBSDB =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 10.113.128.67)(PORT = 1525))
```

```
    )
    (CONNECT_DATA =
      (SERVICE_NAME = DBSDB)
    )
  )
```

■ 主库修改 DG 相关参数

```
SQL> alter system set LOG_ARCHIVE_CONFIG='DG_CONFIG=(dbpod,dbsdb)' scope=spfile;
SQL> alter system set LOG_ARCHIVE_DEST_1='LOCATION=/u01/app/oracle/fast_recovery_area/arch VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=dbpod' scope=spfile;
SQL> alter system set LOG_ARCHIVE_DEST_2='SERVICE=dbsdb ASYNC VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=dbsdb' scope=spfile;
SQL> alter system set LOG_ARCHIVE_DEST_STATE_1=ENABLE scope=spfile;
SQL> alter system set LOG_ARCHIVE_DEST_STATE_2=ENABLE scope=spfile;
SQL> alter system set REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE scope=spfile;
SQL> alter system set FAL_SERVER=dbsdb scope=spfile;
SQL> alter system set DB_FILE_NAME_CONVERT='dbsdb','dbpod' scope=spfile;
SQL> alter system set LOG_FILE_NAME_CONVERT= 'dbsdb','dbpod' scope=spfile;
SQL> alter system set STANDBY_FILE_MANAGEMENT=AUTO scope=spfile;
```

■ 主库开启归档

```
SQL> shutdown immediate;
SQL> startup mount;
SQL> alter database archivelog;
SQL> alter database open;
```

■ 主库创建备库参数文件

```
SQL> create pfile='/home/oracle/dbsdb.ora' from spfile;
```

■ 将创建的参数文件拷贝到备库

```
$ scp /home/oracle/dbsdb.ora dbtest6:/u01/app/oracle/product/11.2.0/db_1/dbs/initdbsdb.ora
```

■ 备库修改参数文件 pfile【根据原主库的参数文件修改将所有 dbpod 替换成 dbsdb 除 db_name 以外】

$ cat /u01/app/oracle/product/11.2.0/db_1/dbs/initdbsdb.ora

dbsdb.__db_cache_size=1157627904

dbsdb.__java_pool_size=16777216

dbsdb.__large_pool_size=419430400

dbsdb.__oracle_base='/u01/app/oracle'#ORACLE_BASE set from environment

dbsdb.__pga_aggregate_target=1325400064

dbsdb.__sga_target=1979711488

dbsdb.__shared_io_pool_size=0

dbsdb.__shared_pool_size=352321536

dbsdb.__streams_pool_size=0

*._index_partition_large_extents='FALSE'

*._optimizer_null_aware_antijoin=FALSE

*._partition_large_extents='FALSE'

*._undo_autotune=FALSE

*._use_adaptive_log_file_sync='FALSE'

*.audit_file_dest='/u01/app/oracle/admin/dbsdb/adump'

*.audit_trail='NONE'

*.compatible='11.2.0.4.0'

*.control_files='/u01/app/oracle/oradata/dbsdb/control01.ctl','/u01/app/oracle/fast_recovery_area/dbsdb/control02.ctl'

*.db_block_size=8192

*.db_domain=''

*.db_name='dbpod'

*.db_recovery_file_dest='/u01/app/oracle/fast_recovery_area'

*.db_recovery_file_dest_size=5218762752

*.deferred_segment_creation=FALSE

*.diagnostic_dest='/u01/app/oracle'

*.event='10949 trace name context forever,level 1'

*.dispatchers='(PROTOCOL=TCP) (SERVICE=dbsdbXDB)'

*.log_archive_dest_state_1='ENABLE'

*.log_archive_dest_state_2='ENABLE'

*.log_archive_format='%t_%s_%r.dbf'

*.memory_target=3300917248

*.open_cursors=300

*.processes=1000

*.remote_login_passwordfile='EXCLUSIVE'

*.sec_case_sensitive_logon=FALSE

*.sessions=1105

*.undo_tablespace='UNDOTBS1'

■ 创建备库 spfile 文件

SQL> create spfile from pfile;

■ 备库启动到 nomount

SQL> startup nomount

■ 修改备库与 DG 相关的参数

SQL >alter system set DB_UNIQUE_NAME=dbsdb scope=spfile;

SQL >alter system set LOG_ARCHIVE_CONFIG='DG_CONFIG=(dbpod,dbsdb)' scope=spfile;

SQL >alter system set DB_FILE_NAME_CONVERT='dbpod','dbsdb' scope=spfile;

SQL >alter system set LOG_FILE_NAME_CONVERT='dbpod','dbsdb' scope=spfile;

SQL >alter system set LOG_ARCHIVE_DEST_1='LOCATION=/u01/app/oracle/fast_recovery_area/arch VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=dbsdb' scope=spfile;

SQL >alter system set LOG_ARCHIVE_DEST_2='SERVICE=dbpod ASYNC VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=dbpod' scope=spfile;

SQL >alter system set STANDBY_FILE_MANAGEMENT=AUTO scope=spfile;

SQL >alter system set FAL_SERVER=dbpod scope=spfile;

SQL >alter system set FAL_CLIENT=dbsdb scope=spfile;

■ 使用 RMAN DUPLICATE 将主库恢复到备库【此处可以使用 active database 直接将主库在线复制到备库】

$ rman target sys/oracle@dbpod auxiliary sys/oracle@dbsdb nocatalog

--- 如果使用非 catalog 则在 RMAN 连接时加上 nocatalog 关键字，否则会报如下错误:

PLS-00201: identifier'DBMS_RCVCAT.GETDBID' must be declared

RMAN> duplicate target database for standby from active database dorecover nofilenamecheck;

--- 在执行 duplicate 的时候，如果源库和目标库目录相同，那么在 duplicate 时需要加上 nofilenamecheck 关键字，否则会报如下错：

RMAN-05001: auxiliary file name conflicts with a file used by the target database

--- 下面为 duplicate 执行输出过程【此处未使用 catalog 且主备库目录不同】

[oracle@dbtest6 ~]$ rman target sys/oracle@dbpod auxiliary sys/oracle@dbsdb nocatalog

Recovery Manager: Release 11.2.0.4.0 - Production on Thu Jul 21 15:41:15 2016

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connected to target database: DBPOD (DBID=3530613280)

using target database control file instead of recovery catalog

connected to auxiliary database: DBPOD (not mounted)

RMAN> duplicate target database for standby from active database;

Starting Duplicate Db at 21-JUL-16

allocated channel: ORA_AUX_DISK_1

channel ORA_AUX_DISK_1: SID=771 device type=DISK

contents of Memory Script:

{

backup as copy reuse

targetfile '/u01/app/oracle/product/11.2.0/db_1/dbs/orapwdbpod' auxiliary format '/u01/app/oracle/product/11.2.0/db_1/dbs/orapwdbsdb' ;--- 拷贝主库密码文件到备库

}

executing Memory Script

Starting backup at 21-JUL-16

allocated channel: ORA_DISK_1

channel ORA_DISK_1: SID=18 device type=DISK

Finished backup at 21-JUL-16

contents of Memory Script:

{

backup as copy current controlfile for standby auxiliary format '/u01/app/oracle/oradata/dbsdb/control01.ctl';

restore clone controlfile to '/u01/app/oracle/fast_recovery_area/dbsdb/control02.ctl' from '/u01/app/oracle/oradata/dbsdb/control01.ctl'; --- 创建备库控制文件

}

executing Memory Script

Starting backup at 21-JUL-16

using channel ORA_DISK_1

channel ORA_DISK_1: starting datafile copy

copying standby control file

output file name=/u01/app/oracle/product/11.2.0/db_1/dbs/snapcf_dbpod.f tag=TAG20160721T154230 RECID=2 STAMP=917797350

channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:01

Finished backup at 21-JUL-16

Starting restore at 21-JUL-16

using channel ORA_AUX_DISK_1

channel ORA_AUX_DISK_1: copied control file copy

Finished restore at 21-JUL-16

contents of Memory Script:

{

sql clone 'alter database mount standby database';--- 启动备库到 mount

}

executing Memory Script

sql statement: alter database mount standby database

contents of Memory Script:

```
{
    set newname for tempfile    1 to
 "/u01/app/oracle/oradata/dbsdb/temp01.dbf";
    switch clone tempfile all;
    set newname for datafile    1 to
 "/u01/app/oracle/oradata/dbsdb/system01.dbf";
    set newname for datafile    2 to
 "/u01/app/oracle/oradata/dbsdb/sysaux01.dbf";
    set newname for datafile    3 to
 "/u01/app/oracle/oradata/dbsdb/undotbs01.dbf";
    set newname for datafile    4 to
 "/u01/app/oracle/oradata/dbsdb/users01.dbf";
    backup as copy reuse
    datafile    1 auxiliary format
 "/u01/app/oracle/oradata/dbsdb/system01.dbf"      datafile
 2 auxiliary format
 "/u01/app/oracle/oradata/dbsdb/sysaux01.dbf"      datafile
 3 auxiliary format
 "/u01/app/oracle/oradata/dbsdb/undotbs01.dbf"      datafile
 4 auxiliary format
 "/u01/app/oracle/oradata/dbsdb/users01.dbf"      ;
    sql 'alter system archive log current';
}
```

executing Memory Script--- 将主库数据文件进行 convert 后拷贝到备库

executing command: SET NEWNAME

renamed tempfile 1 to /u01/app/oracle/oradata/dbsdb/temp01.dbf in control file

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

Starting backup at 21-JUL-16
using channel ORA_DISK_1
channel ORA_DISK_1: starting datafile copy
input datafile file number=00001 name=/u01/app/oracle/oradata/dbpod/system01.dbf
output file name=/u01/app/oracle/oradata/dbsdb/system01.dbf tag=TAG20160721T154238
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:15
channel ORA_DISK_1: starting datafile copy
input datafile file number=00002 name=/u01/app/oracle/oradata/dbpod/sysaux01.dbf
output file name=/u01/app/oracle/oradata/dbsdb/sysaux01.dbf tag=TAG20160721T154238
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:15
channel ORA_DISK_1: starting datafile copy
input datafile file number=00003 name=/u01/app/oracle/oradata/dbpod/undotbs01.dbf
output file name=/u01/app/oracle/oradata/dbsdb/undotbs01.dbf tag=TAG20160721T154238
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:07
channel ORA_DISK_1: starting datafile copy
input datafile file number=00004 name=/u01/app/oracle/oradata/dbpod/users01.dbf
output file name=/u01/app/oracle/oradata/dbsdb/users01.dbf tag=TAG20160721T154238
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:01
Finished backup at 21-JUL-16

sql statement: alter system archive log current

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

datafile 1 switched to datafile copy
input datafile copy RECID=2 STAMP=917797396 file name=/u01/app/oracle/oradata/dbsdb/system01.dbf
datafile 2 switched to datafile copy
input datafile copy RECID=3 STAMP=917797396 file name=/u01/app/oracle/oradata/dbsdb/sysaux01.dbf
datafile 3 switched to datafile copy
input datafile copy RECID=4 STAMP=917797396 file name=/u01/app/oracle/oradata/dbsdb/undotbs01.dbf
datafile 4 switched to datafile copy
input datafile copy RECID=5 STAMP=917797396 file name=/u01/app/oracle/oradata/dbsdb/users01.dbf
Finished Duplicate Db at 21-JUL-16

--- duplicate 完成后备库处理 mount 状态
SQL> select status from v$instance;

STATUS

MOUNTED

■ 主库添加 standby redo log
SQL> alter database add standby logfile group 4 ('/u01/app/oracle/oradata/dbpod/dbpod_srl01a.log','/u01/app/oracle/fast_recovery_area/dbpod/dbpod_srl01b.log') size 1024M;
SQL> alter database add standby logfile group 5 ('/u01/app/oracle/oradata/dbpod/dbpod_srl02a.log','/u01/app/oracle/fast_recovery_area/dbpod/dbpod_srl02b.log') size 1024M;
SQL> alter database add standby logfile group 6 ('/u01/app/oracle/oradata/dbpod/dbpod_srl03a.log','/u01/app/oracle/fast_recovery_area/dbpod/dbpod_srl03b.log') size 1024M;
SQL> alter database add standby logfile group 7 ('/u01/app/oracle/oradata/dbpod/dbpod_srl04a.log','/u01/app/oracle/fast_recovery_area/dbpod/

dbpod_srl04b.log') size 1024M;

■ 备库添加 standby redo log

SQL> alter database add standby logfile group 4 ('/u01/app/oracle/oradata/dbsdb/dbsdb_srl01a.log','/u01/app/oracle/fast_recovery_area/dbsdb/dbsdb_srl01b.log') size 1024M;

SQL> alter database add standby logfile group 5 ('/u01/app/oracle/oradata/dbsdb/dbsdb_srl02a.log','/u01/app/oracle/fast_recovery_area/dbsdb/dbsdb_srl02b.log') size 1024M;

SQL> alter database add standby logfile group 6 ('/u01/app/oracle/oradata/dbsdb/dbsdb_srl03a.log','/u01/app/oracle/fast_recovery_area/dbsdb/dbsdb_srl03b.log') size 1024M;

SQL> alter database add standby logfile group 7 ('/u01/app/oracle/oradata/dbsdb/dbsdb_srl04a.log','/u01/app/oracle/fast_recovery_area/dbsdb/dbsdb_srl04b.log') size 1024M;

■ 备库开始实时应用日志

SQL> alter database recover managed standby database using current logfile disconnect from session;

■ 备库日志应用情况

SQL> select sequence#, first_time, next_time from v$archived_log order by sequence#;

SQL> select sequence#,applied from v$archived_log order by sequence#;

■ 备库日志应用状态

SQL> select open_mode from v$database;

OPEN_MODE

READ ONLY WITH APPLY