# STANDBY CREATION AND DG Configuration

| Task | Execution Process |
|---|---|
| **1. Standby ORACLE_HOME Cloning** | |
| 1.1. Extract the tar file of ORACLE_HOME copied from primary in the DR machine | cd /u01/app/oracle/product/12.1.0/dbhome_1<br><br>tar -xvzf /u01/app/oracle/product/12.1.0/dbhome_1/DBclone_dbhome_1.tar.gz |
| 1.2. Delete unnecessary files from the unzipped Oracle home directory. | cd $ORACLE_HOME<br>rm -rf network/admin/*.ora<br>rmdbs/old_database_entries |
| 1.3. From $ORACLE_HOME/clone/bin directory, run the clone.pl file. | export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/usr/lib<br><br>perl clone.pl -silent ORACLE_BASE=/u01/app/oracle ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1 ORACLE_HOME_NAME=OraDB12Home1 INVENTORY_LOCATION=/u01/app/oraInventory |

## 2. Create PHYSICAL Standby

2.1. Check standby and Redo logs on primary

**Redo log:**

```
set pagesize300;
set linesize300;
col REDOLOG_FILE_NAME format a50;
SELECT a.GROUP#, a.THREAD#, a.SEQUENCE#,b.type, a.ARCHIVED,
a.STATUS, b.MEMBER AS REDOLOG_FILE_NAME,
(a.BYTES/1024/1024) AS SIZE_MB FROM v$log a JOIN v$logfile b ON
a.Group#=b.Group# ORDER BY a.THREAD#, a.GROUP#;
```

**Standby logs:**

```
col REDOLOG_FILE_NAME format a60;
set pagesize300;
set linesize300;
SELECT a.GROUP#, a.THREAD#, a.SEQUENCE#,b.type, a.ARCHIVED,
a.STATUS, b.MEMBER AS REDOLOG_FILE_NAME,
(a.BYTES/1024/1024) AS SIZE_MB FROM v$standby_log a JOIN
v$logfile b ON a.Group#=b.Group# ORDER BY a.THREAD#,
a.GROUP#;
```

2.2. Current REDO log size in Primary

| GROUP# | FILE NAME | SIZE |
|---|---|---|
| 4 | /u02/ oradata/online/redo01a.log | 1024M |
| 4 | /u02/ oradata/online /redo01b.log | 1024M |
| 5 | /u02/oradata/online/redo02a.log | 1024M |
| 5 | /u02/oradata/online/redo02b.log | 1024M |
| 6 | /u02/oradata/online/redo03a.log | 1024M |
| 6 | /u02/oradata/online/redo03b.log | 1024M |

2.3. Need to create standby log in Primary

| GROUP# | FILE NAME | SIZE |
|---|---|---|
| 10 | /u02/oradata/online/standby_redo01a.log | 1024M |
| 10 | /u02/oradata/online/standby_redo01b.log | 1024M |
| 11 | /u02/oradata/online/standby_redo02a.log | 1024M |
| 11 | /u02/oradata/online/standby_redo02b.log | 1024M |
| 12 | /u02/oradata/online/standby_redo03a.log | 1024M |
| 12 | /u02/oradata/online/standby_redo03b.log | 1024M |
| 13 | /u02/oradata/online/standby_redo04a.log | 1024M |
| 13 | /u02/oradata/online/standby_redo04b.log | 1024M |

2.4. Check FORCE LOGGING

**In Primary:**

select name, force_logging from v$database;

If not enabled
ALTER DATABASE FORCE LOGGING;

2.5. Add Standby Logs in Primary

**In Primary:**

alter database add standby logfile THREAD 1 group 10 ('/u02/oradata/online/standby_redo01a.log') size 1024M;
alter database add standby logfile THREAD 1 group 10 ('/u02/oradata/online/standby_redo01b.log') size 1024M;

alter database add standby logfile THREAD 1 group 11 ('/u02/oradata/online/standby_redo02a.log') size 1024M;
alter database add standby logfile THREAD 1 group 11 ('/u02/oradata/online/standby_redo02b.log') size 1024M;

alter database add standby logfile THREAD 1 group 12 ('/u02/oradata/online/standby_redo03a.log') size 1024M;
alter database add standby logfile THREAD 1 group 12 ('/u02/oradata/online/standby_redo03b.log') size 1024M;

alter database add standby logfile THREAD 1 group 13 ('/u02/oradata/online/standby_redo04a.log') size 1024M;
alter database add standby logfile THREAD 1 group 13 ('/u02/oradata/online/standby_redo04b.log') size 1024M;

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| 2.6. Add Standby DG services names in standby server tnsnames.ora | # Data Guard TNS Names<br>TESTDG =<br>(DESCRIPTION =<br>(ADDRESS_LIST =<br>(ADDRESS = (PROTOCOL = TCP)(HOST = TESTDB.localhost.com)(PORT = 1521))<br>)<br>(CONNECT_DATA =<br>(SERVER = DEDICATED)<br>(SERVICE_NAME = TESTDB)<br>(INSTANCE_NAME = TESTDB)<br>)<br>)<br>TESTDBDRDG =<br>(DESCRIPTION =<br>(ADDRESS_LIST =<br>(ADDRESS = (PROTOCOL = TCP)(HOST = TESTDBBDR-DG.localhost.com)(PORT = 1521))<br>)<br>(CONNECT_DATA =<br>(SERVER = DEDICATED)<br>(SERVICE_NAME = TESTDBDR)<br>(INSTANCE_NAME = TESTDB)<br>)<br>) |
| 2.7. Add Static LISTENER Service for DB Broker on standby server | *# Data Guard LISTENER Services*<br>*SID_LIST_LISTENER_TESTDG =*<br>*(SID_LIST =*<br>*(SID_DESC=*<br>*(GLOBAL_DBNAME=TESTDB_DGMGRL)*<br>*(ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1)*<br>*(SID_NAME= TESTDB)*<br>*)*<br>*)*<br><br>*LISTENER_TESTDG =*<br>*(DESCRIPTION_LIST =*<br>*(DESCRIPTION =*<br>*(ADDRESS = (PROTOCOL = TCP)(HOST = TESTDBBDR-DG.localhost.com)(PORT = 1521))*<br>*)*<br>*)*<br><br>*ADR_BASE_LISTENER_TEST = /u01/app/oracle*<br><br>*Oracle Data Guard Broker and Static Service Registration (Doc ID 1387859.1)* |
| 2.8. Create pfilefrom primary for standby. | cd /u01/app/oracle/product/12.1.0/dbhome_1/dbs/sbyfiles<br><br>vi TESTDBDR_SBYCREATEinit.ora<br><br>*._use_osm=FALSE<br>*.audit_file_dest='/u01/app/oracle/admin/TESTDBDR/adump'<br>*.audit_trail='db' |

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| | *.compatible='12.1.0.2.0'<br>*.control_files='/u02/oradata/onlineDR/control01.ctl','/u01/app/oracle/fast_recovery_area/TESTDBDR/control02.ctl'<br>*.control_management_pack_access='NONE'<br>*.db_block_size=8192<br>*.db_domain=''<br>*.db_name='TESTDB'<br>*.db_recovery_file_dest_size=515396075520<br>*.db_recovery_file_dest='/TESTbackup/RMAN/'<br>*.diagnostic_dest='/u01/app/oracle'<br>*.dispatchers='(PROTOCOL=TCP) (SERVICE=TESTDBXDB)'<br>*.fast_start_mttr_target=900<br>*.log_archive_dest_1='LOCATION=/TESTbackup/RMAN'<br>*.nls_calendar='GREGORIAN'<br>*.nls_date_format='DD-MON-RR'<br>*.nls_language='AMERICAN'<br>*.open_cursors=900<br>*.pga_aggregate_limit=25769803776<br>*.pga_aggregate_target=25769803776<br>*.processes=2250<br>*.remote_login_passwordfile='EXCLUSIVE'<br>*.session_cached_cursors=900<br>*.sessions=3500<br>*.sga_max_size=34359738368<br>*.sga_target=34359738368<br>*.transactions=3850<br>*.undo_retention=1800<br>*.undo_tablespace='UNDOTBS1'<br>*.db_unique_name='TESTDBDR'<br>*.instance_name='TESTDB'<br>*.db_file_name_convert='/TESTDB/','/TESTDBDR/'<br>*.log_file_name_convert='/TESTDB/','/TESTDBDR/'<br>*.local_listener='TESTDBDR','TESTDBDRDG'<br>*.db_create_online_log_dest_1=/u02/oradata/online/<br>*.db_create_online_log_dest_2=/u02 /TESTDBDR/ |
| 2.9. Start the DR DB in no mount state using | source oracle environment files<br><br>sqlplus / as sysdba<br>startup nomount<br>pfile='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/sbyfiles/TESTDBDR_SBYCREATEinit.ora'; |

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| 2.10. Create rman duplicate script for db clone from Backup | vi restore_TESTDBDR.rcv<br>run<br>{<br>allocate auxiliary channel c1 type disk;<br>allocate auxiliary channel c2 type disk;<br>allocate auxiliary channel c3 type disk;<br>allocate auxiliary channel c4 type disk;<br>DUPLICATE DATABASE FOR STANDBY<br>BACKUP LOCATION '/TESTbackup/RMAN/FULLBKP/FULL/Disk1'<br>nofilenamecheck;<br>} |
| 2.11. Run the restoration | cd /TESTbackup/RMAN/RmanScripts<br><br>nohuprman auxiliary / cmdfile=restore_TESTDBDR.rcv<br>log=rman_TESTDBDR_1.log & |
| 2.12. Recover Database | vi recover_TESTDBDR.rcv<br>run<br>{<br>allocate channel c1 type disk;<br>allocate channel c2 type disk;<br>allocate channel c3 type disk;<br>allocate channel c4 type disk;<br>recover database;<br>} |
| 2.13. Run the Recover | nohuprman target / cmdfile=recover_TESTDBDR.rcv<br>log=rman_TESTDBDR_RECOVER_1.log & |
| 2.14. Verify the name,database status and role of DR database | select name,db_unique_name,open_mode,database_role from v$database; |
| 2.15. Verify archived redo log gap on standby | set linesize 300<br>set pagesize 300<br>SELECT ARCH.THREAD# "Thread", ARCH.SEQUENCE# "Last Sequence Received", APPL.SEQUENCE# "Last Sequence Applied", (ARCH.SEQUENCE# - APPL.SEQUENCE#) "Difference" FROM (SEL ECT THREAD# ,SEQUENCE# FROM V$ARCHIVED_LOG WHERE (THREAD#,FIRST_TIME ) IN (SELECT THREAD#,MAX(FIRST_TIME) FROM V$ARCHIVED_LOG GROUP BY THREAD#)) ARCH,(SELECT THREAD# ,S<br>EQUENCE# FROM V$LOG_HISTORY WHERE (THREAD#,FIRST_TIME ) IN (SELECT THREAD#,MAX(FIRST_TIME) FROM V$LOG_HISTORY GROUP BY THREAD#)) APPL WHERE ARCH.THREAD# = APPL.THREAD# ORDER BY 1; |

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| 2.16. Copy new archivelogs generated at Primary to Standby and apply them manually. | Copy new archive logs from primary to Standby.<br>Scp –rp *.dbf oracle@testdb.localhost.local:/backup/archivelog<br>**On standby:**<br>rman target /<br>catalog start with '/backup/archivelog' noprompt;<br>recover database; |
| 2.17. Create spfile from pfile | create spfile from pfile='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/sbyfiles/TESTDBDR_SBYCREATEinit.ora'; |
| 2.18. Mount the DR database using that spfile | Startup mount |
| 2.19. Create Restore point | **Check Flashback On:**<br>SELECT FLASHBACK_ON FROM V$DATABASE;<br><br>**To Enable Flashback:**<br>alter database flashback on;<br>**Create Restore point:**<br>CREATE RESTORE POINT TESTDBDR_RESTORE_B4_DGconfig GUARANTEE FLASHBACK DATABASE;<br><br>set pagesize 300;<br>set linesize 400;<br>col NAME format a30;<br>col TIME format a40;<br>col GUARANTEE_FLASHBACK_DATABASE format a20;<br>SELECT NAME,to_char(SCN), TIME, DATABASE_INCARNATION#,GUARANTEE_FLASHBACK_DATABASE, STORAGE_SIZE FROM V$RESTORE_POINT WHERE GUARANTEE_FLASHBACK_DATABASE='YES'; |

## 3. Data Guard Broker Configuration

### 3.1. Add Static LISTENER Service for DB Broker on primary server

```
 # listener.ora Network Configuration File:
/u01/app/oracle/product/12.1.0/dbhome_1/network/admin/listener.ora
# Generated by Oracle configuration tools.

LISTENER_TEST =
 (DESCRIPTION_LIST =
  (DESCRIPTION =
   (ADDRESS = (PROTOCOL = TCP)(HOST = TESTDB.localhost.com)(PORT = 1521))
  )
  (DESCRIPTION =
   (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC1521))
  )
 )

ADR_BASE_LISTENER_TEST = /u01/app/oracle

SID_LIST_LISTENER_TEST =
 (SID_LIST =
  (SID_DESC =
   (GLOBAL_DBNAME = TESTDB)
   (ORACLE_HOME = /u01/app/oracle/product/12.1.0/dbhome_1)
   (SID_NAME = TESTDB)
  )
  (SID_DESC=
  (GLOBAL_DBNAME=TESTDB_DGMGRL)
  (ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1)
  (SID_NAME=TESTDB)
  )
 )
DIAG_ADR_ENABLED_TESTDB = OFF
```

### 3.2. Add Primary DG services names in primary server tnsnames.ora

```
TESTDBDG =
 (DESCRIPTION =
  (ADDRESS_LIST =
   (ADDRESS = (PROTOCOL = TCP)(HOST = TESTDB.localhost.com)(PORT = 1521))
  )
  (CONNECT_DATA =
   (SERVER = DEDICATED)
   (SERVICE_NAME = TESTDB)
   (INSTANCE_NAME = TESTDB)
  )
 )
TESTDBDRDG =
 (DESCRIPTION =
  (ADDRESS_LIST =
   (ADDRESS = (PROTOCOL = TCP)(HOST = TESTDBDR-DG.localhost.com)(PORT = 1521))
  )
  (CONNECT_DATA =
   (SERVER = DEDICATED)
   (SERVICE_NAME = TESTDBDR)
   (INSTANCE_NAME = TESTDB)
```

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| | )<br>) |
| 3.3. Copy orapwd from Primary to Standby dbs location | Scp –r oraTESTpwd oracle@TESTDB.localhost.com:/u01/app/oracle/product/12.1.0/dbhome_1/dbs |
| 3.4. Adding DG Parameters in Primary | SQL>select name, db_unique_name, open_mode, database_role from v$database;<br><br>SQL> alter system set dg_broker_config_file1='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/dgb_TESTDB01.ora' scope=both SID='*';<br><br>SQL> alter system set dg_broker_config_file2='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/dgb_TESTDB02.ora' scope=both SID='*';<br><br>SQL> alter system set log_archive_config='dg_config=(TESTDB,TESTDBDR)' scope=both SID='*';<br><br>SQL> alter system set dg_broker_start=TRUE scope=both SID='*';<br><br>SQL> show parameter log_archive_config;<br>SQL> show parameter dg_broker_start;<br>SQL> show parameter dg_broker_config_file1;<br>SQL> show parameter dg_broker_config_file2; |
| 3.5. Adding DG Parameters in Standby | **Add below parameters in Standby:**<br><br>SQL>select name, db_unique_name, open_mode, database_role from v$database;<br><br>SQL> alter system set dg_broker_config_file1='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/dgb_TESTDBDR01.ora' scope=both SID='*';<br><br>SQL> alter system set dg_broker_config_file2='/u01/app/oracle/product/12.1.0/dbhome_1/dbs/dgb_TESTDBDR02.ora' scope=both SID='*';<br><br>SQL> alter system set log_archive_config='dg_config=(TESTDB,TESTDBDR)' scope=both SID='*';<br><br>SQL> alter system set dg_broker_start=TRUE scope=both SID='*';<br>SQL> show parameter log_archive_config; |

| | |
|---|---|
| | SQL> show parameter dg_broker_start;<br>SQL> show parameter dg_broker_config_file1;<br>SQL> show parameter dg_broker_config_file2; |
| 3.6. DG broker configuration | **Connect to source machine and perform below:**<br><br>$ dgmgrl sys/*****@TESTDB<br>DGMGRL> show configuration;<br><br>DGMGRL>CREATE CONFIGURATION 'TESTDB_Config' AS PRIMARY DATABASE IS 'TESTDB' CONNECT IDENTIFIER IS 'TESTDBDG';<br><br>DGMGRL>ADD DATABASE 'TESTDBDR' AS CONNECT IDENTIFIER IS 'TESTDBDRDG' maintained as physical;<br><br>DGMGRL>show configuration verbose;<br>DGMGRL>show database verbose "TESTDB";<br>DGMGRL>show database "TESTDB";<br>DGMGRL>show database verbose "TESTDBDR";<br>DGMGRL>show database "TESTDBDR";<br>DGMGRL>enable configuration;<br>DGMGRL>show configuration verbose;<br>DGMGRL>show database "TESTDB" InconsistentProperties;<br>DGMGRL>show database "TESTDBDR" InconsistentProperties; |
| 3.7. Switch Log to test DG. | **Run the SQLIn Primary:**<br><br>SQL>ALTER SYSTEM ARCHIVE LOG CURRENT; |
| 3.8. Check Log difference in Standby | **Check below log difference in Standby:**<br><br>SQL>SELECT ARCH.THREAD# "Thread", ARCH.SEQUENCE# "Last Sequence Received", APPL.SEQUENCE# "Last Sequence Applied", (ARCH.SEQUENCE# - APPL.SEQUENCE#) "Difference" FROM (SELECT THREAD# ,SEQUENCE# FROM V$ARCHIVED_LOG WHERE (THREAD#,FIRST_TIME ) IN (SELECT THREAD#,MAX(FIRST_TIME) FROM V$ARCHIVED_LOG GROUP BY THREAD#)) ARCH,(SELECT THREAD# ,SEQUENCE# FROM V$LOG_HISTORY WHERE (THREAD#,FIRST_TIME ) IN (SELECT THREAD#,MAX(FIRST_TIME) FROM V$LOG_HISTORY GROUP BY THREAD#)) APPL WHERE ARCH.THREAD# = APPL.THREAD# ORDER BY 1; |
| 3.9. Set Standby File Management to Auto on both Standby and Primary | **On Standby:**<br>EDIT DATABASE 'TESTDBDR' SET PROPERTY 'StandbyFileManagement' = 'AUTO'; |

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|---|---|
| | **On Primary:**<br>EDIT DATABASE 'TESTDB' SET PROPERTY 'StandbyFileManagement' = 'AUTO'; |
| 3.10. Configuring RMAN Archivelog deletion policy on both Standby and Primary | **On Standby:**<br>CONFIGURE ARCHIVELOG DELETION POLICY TO APPLIED ON ALL STANDBY;<br><br>**On Primary:**<br>CONFIGURE ARCHIVELOG DELETION POLICY TO SHIPPED TO ALL STANDBY BACKED UP 1 TIMES TO DISK; |