The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

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Oracle Maximum Availability Architecture (MAA)

- Real Application Clusters
- Flashback
- RMAN & Oracle Secure Backup
- ASM
- Data Guard
- Streams
Audience Poll

- Who is running physical standby? Logical standby? Golden Gate? SharePlex?
- Show of people running 10g, 11g R1, 11g R2
- Who is running Data Guard Broker?
- Who is monitoring and maintaining with Grid Control?
- Who is leveraging FSFO?

- Who is in Maximum Performance Mode? Max Availity? Max Protection?
- Who is running level 0 image copy backups with incremental updates for backup solution?
**iPhone Apps**

- Goal is to have our App out by IOUG 2011
- First application will be Linux for DBAs
- Second application will be between Data Guard and ASM. We are still debating.
- Will give out codes for free download
At the heart of it is the dg.conf configuration file
DG Menu / Toolkit Shell Script APIs

10. ./dg_preliminary_check_menu.ksh

20. ./dg_prepare_standby_menu.ksh

30. ./dg_broker_menu.ksh

40. ./dg_physical_standby_menu.ksh

50. ./dg_logical_menu.ksh

60. ./dg adr_menu.ksh

.ORACLE_BASE 100. ./dg_rman2disk_menu.ksh

200. ./dg_backup_from_standby_scn.ksh

dg.conf
dg_adrci_policy.conf

.syspasswd
Data Guard Book Website

View up to date scripts:  http://dataguardbook.com
## DG Menu Custom Scripts

<table>
<thead>
<tr>
<th>Script Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dg_redo.sql</td>
<td>Check Redo Log information</td>
</tr>
<tr>
<td>dg_sredo.sql</td>
<td>Check Standby Redo Log information</td>
</tr>
<tr>
<td>dg_start.sql</td>
<td>Start MRP (with SRL) disconnect</td>
</tr>
<tr>
<td>dg_stop.sql</td>
<td>Stop MRP</td>
</tr>
<tr>
<td>dg_client_start.sql</td>
<td>Enabled archive dest #2</td>
</tr>
<tr>
<td>dg_client_stop.sql</td>
<td>Disable archive dest #2</td>
</tr>
<tr>
<td>dg_register_archivelog_from_primary.sql</td>
<td>Register archivelogs from primary</td>
</tr>
<tr>
<td>rman2disk.sql</td>
<td>RMAN template to backup the database to FRA disk group</td>
</tr>
<tr>
<td>rman2disk.ksh</td>
<td>korn shell script to backup the database to the FRA or file system disk group</td>
</tr>
<tr>
<td>dg_prim_diag.sql</td>
<td>Troubleshooting script from Metalink ID: 241374.1</td>
</tr>
</tbody>
</table>
Foundation

• 100% shell and SQL scripts
• Either shell script invoking another shell script or shell script executing SQL*Plus executing a .SQL script
• All source code is 100% exposed
• All scripts that relate to physical standby start with dg_ prefix
• All scripts that relate to logical standby start with logical_ prefix
• All menu screens have the _menu.ksh suffix
• Lot of dg_ scripts can be executed standalone

• Either dg.conf or whatever $CONF references
dg.conf - DB information

# - For RAC configuration, use the VIP for PRIMARY_HOST and STANDBY_HOST
# 1. You may have to use the fully qualified hostname.domain_name for PRIMARY_HOST and STANDBY_HOST
# 2. Typically the PRIMARY_DB_SERVICE will be same as the PRIMARY_DB
# PRIMARY_DB_SERVICE can be blank

PRIMARY_HOST=rac5501-vip
PRIMARY_DB=DBATOOLS
PRIMARY_DB_SERVICE=DBATOOLS
PRIMARY_PORT=1521
STANDBY_HOST=rac5502-vip
STANDBY_DB=DBATOOLS_WA
STANDBY_DB_SERVICE=DBATOOLS_WA
STANDBY_PORT=1521
PRIMARY_DOMAIN=dbaexpert.com
PRIMARY_DB_INSTANCE=DBATOOLS1
STANDBY_DB_INSTANCE=DBATOOLS_WA1

export CONF=dg.conf.DBATOOLS
# Disk Group information

# - Valid entries for FS=FS for file system or ASM for automated storage management
FS=ASM

# - Primarily used for the DG Broker but used at multiple places
# 1. If you are not RAC, please make PRIMARY_SERVER and STANDBY_SERVER equal to PRIMARY_HOST and STANDBY_HOST respectfully

PRIMARY_ORACLE_HOME=/u01/app/oracle/product/11.2.0/db
STANDBY_ORACLE_HOME=/u01/app/oracle/product/11.2.0/db
dg.conf - adrci config

# --
# - The server names are non-vip server names
# - For non-RAC database environments, the PRIMARY_HOST and PRIMARY_SERVER will be the same
# - For non-RAC database environments, the STANDBY_HOST and STANDBY_SERVER will be the same
#
PRIMARY_SERVER=rac5501
STANDBY_SERVER=rac5502
#
# - The following section is used for ADR including viewing of ALERT LOGs
export DG_ADRCI_CONF=dg_adrci.conf
export DG_ADRCI_COMMAND_FILE=dg_last_adrci_command.log
export DG_ADRCI_COMMAND_LOGFILE=dg_adrci_command.log
export DG_ADRCI_ALERT_LINES=40
#

dg.conf - backup and restore

# - The following section is only used by the dg_asm_cp.ksh script as part of the backupset copy from one ASM instance to another
# - If you are cloning a database from one ASM instance to another, you do not need to modify this section
#  For RAC, change the LOCAL_ASM_INSTANCE=+ASM1
#  For non-RAC standalone databases, change the LOCAL_ASM_INSTANCE=+ASM (without the 1)
#
export LOCAL_ASM_INSTANCE=+ASM1
export REMOTE_ASM_INSTANCE=+ASM2
#
# Both LOCAL_DIR and REMOTE_DIR must NOT have a / at the end.
# The scripts will append a / at the very end
#
export LOCAL_DIR=+FRADG_S1/dbatools/backupset/2010_09_07
# --
# You MUST Create the following REMOTE_DIR on the target ASM instance
export REMOTE_DIR=+FRA/DBATOOLS/backupset/2010_09_07
export ASM_SYS_PASSWORD=oracle123

# -- For debugging purposes
#export DBI_TRACE=1
dg.conf - Coming to next release

# - Bystander Physical Standby Database Configuration
# -
SECOND_STANDBY_HOST=srac5501
SECOND_STANDBY_DB=DBATOOLS_DR
SECOND_STANDBY_DB_SERVICE=DBATOOLS_DR
SECOND_STANDBY_PORT=1521
SECOND_STANDBY_DB_INSTANCE=DBATOOLS_DR1
How to invoke

[oracle@rac5501 dgmenu] $ ls -l dg.conf.*
-rwx------ 1 oracle oinstall 2821 Aug  5 18:35 dg.conf.EDOC
-rwx------ 1 oracle oinstall 3265 Aug 21 20:03 dg.conf.ABCPROD
-rwx------ 1 oracle oinstall 3270 Aug 28 03:42 dg.conf.EDIPROD
-rwx------ 1 oracle oinstall 3300 Aug 12 16:14 dg.conf.DWDEV
-rwx------ 1 oracle oinstall 3215 Aug 24 16:20 dg.conf.DNPROD
-rwx------ 1 oracle oinstall 3191 Aug 23 19:13 dg.conf.FRPROD
-rwx------ 1 oracle oinstall 3203 Sep  7 01:39 dg.conf.ERPPROD
-rwx------ 1 oracle oinstall 3273 Aug 28 03:42 dg.conf

export CONF=dg.conf.ERPPROD

./dg
Main Menu - Agenda

# Data Guard Menu System
# Primary Host: rac5501 Standby Host: rac5502
# Primary DB: DBATOOLS Standby DB: DBATOOLS_WA
# 
# 10. Launch Preliminary Check Submenu
# 
# 20. Launch Build Standby Database Submenu
# 
# 30. Launch the Data Guard Broker Submenu
# 
# 40. Launch Monitor Physical Standby Data Guard Submenu
# 
# 50. Launch Monitor Logical Standby Data Guard Submenu
# 
# 60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
# 
# 100. Launch RMAN Backup to Disk Submenu
# 
# x. Exit
Demo
What's Coming in the Next Release

- Bystander database configuration
  - Conversion physical standby to RAC Configuration
    - Convert to Snapshot Standby
      - Convert to Active Standby
    - Backup / Recover from Physical Standby SCN
    - Switchover to standby database
    - Failover to standby database
  - What's coming next?
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Preliminary Check Steps

- Review database information and status
- Check for password file on the local node
- Check for forced logging and unrecoverable activities
- Check for archive log mode
- Check for standby redo logs
10. Launch Preliminary Check Submenu

# Data Guard Preliminary Check SubMenu: dg_preliminary_check_menu.ksh
# Primary Host: rac5501    Standby Host: rac5502

# 10. Review database information and status

# 20. Check if the password file exists for DBATOOLS on rac5501-vip
# 21. Check if the password file exists for DBATOOLS_WA on rac5502-vip

# 30. Check for forced logging and unrecoverable activities
# 40. Check for archive log mode

# 50. Check for standby redo logs at DBATOOLS on rac5501-vip
# 51. Check for standby redo logs at DBATOOLS_WA on rac5502-vip

# 60. Check archive log destinations at DBATOOLS on rac5501-vip
# 61. Check archive log destinations at DBATOOLS_WA on rac5502-vip

# x. Exit
10. DG Preliminary Check Submenu
10a. Review Database Information and Status

```
# Executing dg_database_info.sql on DB: DBATOOLS

Host Name: rac5501.dbaexpert.com
Instance Name: DBATOOLS
Version: 11.2.0.1.0
Startup Time: 06-SEP-10 15:13:22
Instance Role: PRIMARY_INSTANCE
Blocked: NO
```
10. DG Preliminary Check Submenu
10b. Review Database Information and Status

# ---------------------------
# -- Database Information --
# ---------------------------
Name: DBATOOLS
Database Role: PRIMARY
Created: 05-SEP-10
Log Mode: ARCHIVELOG
Open Mode: READ WRITE
Protection Mode: MAXIMUM PERFORMANCE
Protection Level: MAXIMUM PERFORMANCE
Current SCN: 699366
Flashback on: NO
Open Mode: READ WRITE
DB Unique Name: DBATOOLS
Archivelog Change#: 0
Switchover Status: NOT ALLOWED

Remote Archive: ENABLED
Supplemental Log PK: NO - Supplemental Log
UI: NO
Data Guard Broker: DISABLED
Force Logging: NO

# -----------------------------------
# -- NLS Characterset Information --
# -----------------------------------
NLS_LANG: AMERICAN_AMERICA.WE8MSWIN1252
NLS NCHAR Character Set: AL16UTF16
10. DG Preliminary Check Submenu
20. Review Password File

```
-rw-r----- 1 oracle oinstall 1536 Sep  7 08:42
/u01/app/oracle/product/11.2.0/db/dbs/orapwDBATOOLS1
Password file exists.
Please proceed with the next steps ...
Checking password file on DBATOLS

# --------------------------------------------------------------- #
# Executing dg_check_password_file.sql on DB: DBATOLS
# --------------------------------------------------------------- #

USERNAME    SYSDB  SYSOP  SYSAS
------------- ----- ----- -----
SYS          TRUE  TRUE  FALSE
```
10. DG Preliminary Check Submenu
30. Check for Force Logging

Checking for forced logging at the database level
# --------------------------------------------------------------- #
# Executing dg_check_force_logging.sql on DB: DBATOOLS
# --------------------------------------------------------------- #
NO
Forced Logging is not enabled. Please execute the following:
Syntax: alter database force logging;
# --------------------------------------------------------------- #
# Executing dg_check_unrecoverable.sql on DB: DBATOOLS
# --------------------------------------------------------------- #
Checking for datafiles with unrecoverable activities
Checking for tablespace(s) that are not being logged
10. DG Preliminary Check Submenu
40. Check for Archive Log Mode

# Executing dg_check_archive_mode.sql on DB: DBATOOLS

<table>
<thead>
<tr>
<th>DB_UNIQUE_NAME</th>
<th>LOG_MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBATOOLS</td>
<td>NOARCHIVELOG</td>
</tr>
</tbody>
</table>

Database log mode No Archive Mode
You are not in archive log mode. Please enabled archive log mode.

Syntax:
```sql
shutdown immediate;
startup mount;
alter database archivelog;
archive log start;
alter database open;
```
5

#  Executing dg_check_standby_redo.sql on DB:  DBATOOLS
#  --------------------------------------------------------------------------------------------------

<table>
<thead>
<tr>
<th>NAME</th>
<th>TYPE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>db_unique_name</td>
<td>string</td>
<td>DBATOOLS</td>
</tr>
</tbody>
</table>

**THREAD# Online Redo Logs**

<table>
<thead>
<tr>
<th>THREAD#</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**THREAD# Standby Redo Logs**

<table>
<thead>
<tr>
<th>THREAD#</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Build Physical Standby Database

- Generate Alter System Commands for the primary database
- Generate Alter System Commands for the standby database
- Generate tnsnames.ora entries for primary and standby databases
  - Generate SQL syntax to create standby redo logs
  - Generate orapwd syntax
  - Generate syntax to backup the primary database
- Generate ASM copy scripts to copy backupsets from Primary Server to Standby Server
  - Generate create pfile from spfile and transfer to Standby Server
  - Generate syntax to create standby control files on Primary Server
  - Generate syntax to restore archivelog from RMAN Backups
  - Generate syntax to recover standby database
  - Generate syntax to duplicate standby database from active database
- Backup and Restore Preparation
20. Launch Build Standby Database Submenu

# Prepare Physical Standby Database SubMenu: dg_prepare_standby_menu.ksh
# Primary Host: rac5501      Standby Host: rac5502
# ------------------------------------------------------------------------- #
# 10. Generate Alter System Commands for the primary database
# 20. Generate Alter System Commands for the standby database
# ------------------------------------------------------------------------- #
# 30. Generate syntax to backup the primary database - rac5501
# 40. Generate orapwd syntax for DBATOOLS1 and DBATOOLS_WA1
# 50. Generate create pfile from spfile and transfer to rac5502
# 60. Generate syntax to create standby controlfiles on rac5501
# ------------------------------------------------------------------------- #
# 70. Generate ASM copy scripts to copy backupsets from rac5501-vip to rac5502-vip on port 1521
# ------------------------------------------------------------------------- #
# 80. Generate tnsnames.ora entries for primary and standby databases
# 90. Generate syntax to restore the database DBATOOLS_WA to disk group +DATA_WA
# 100. Generate SQL syntax to create standby redo logs
# ------------------------------------------------------------------------- #
# 200. Generate syntax to duplicate standby database
# 300. Generate syntax to duplicate standby database from active database(11g+)
20. Launch Build Standby Database Submenu
10. Generate Alter System Commands for the primary database

```sql
alter system set db_file_name_convert='+DATA_WA/DBATOOLS_WA', '+DATA_PR/DBATOOLS' comment='# added for DG' scope=spfile sid='*';
alter system set log_file_name_convert='+FRA/DBATOOLS_WA', '+FRA/DBATOOLS', '+DATA_WA/DBATOOLS_WA', '+DATA_PR/DBATOOLS' comment='# added for DG' scope=spfile sid='*';
alter system set db_recovery_file_dest_size=32g comment='# added for DG' scope=spfile sid='*';
alter system set db_recovery_file_dest='+FRA' comment='# added for DG' scope=spfile sid='*';
alter system set event='10298 trace name context forever, level 32' comment='# added for RMAN backup on NFS file system' scope=spfile sid='*';
alter system set fal_client='DBATOOLS_PRI' comment='# added for DG Net service name in primary tnsnames.ora points to Stdby' scope=both sid='*';
alter system set fal_server='DBATOOLS_STDBY' comment='# added for DG Net service name in standby tnsnames.ora points to Primary' scope=both sid='*';
alter system set log_archive_config='DG_CONFIG=(DBATOOLS,DBATOOLS_WA)' comment='# added for DG primary followed by standby db unique name' scope=both sid='*';

alter system set standby_file_management='AUTO' comment='# added for DG' scope=both sid='*';
alter system set log_archive_config='DG_CONFIG=(DBATOOLS,DBATOOLS_WA)' comment='# added for DG primary followed by standby db unique name' scope=both sid='*';
alter system set log_archive_dest_1='LOCATION=+FRA VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=DBATOOLS' comment='# added for DG' scope=both sid='*';
alter system set log_archive_dest_2='SERVICE=DBATOOLS_STDBY lgwr async reopen=30 VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=DBATOOLS_WA' comment='# added for DG' scope=both sid='*';
alter system set log_archive_dest_state_1='enable' comment='# added for DG' scope=both sid='*';
alter system set log_archive_dest_state_2='enable' comment='# added for DG' scope=both sid='*';
alter system set standby_archive_dest='+FRA';
```
20. Launch Build Standby Database Submenu

20. Generate Alter System Commands for the standby database

```sql
alter system set db_file_name_convert='+DATA_PR/DBATOOLS','+DATA_WA/DBATOOLS_WA' comment=' ## added for DG' scope=spfile;
alter system set log_file_name_convert='+FRA/DBATOOLS','+FRA/DBATOOLS_WA','+DATA_PR/DBATOOLS','+DATA_WA/DBATOOLS_WA' comment=' ## added for DG' scope=spfile;
alter system set db_flashback_retention_target=10080 comment=' ## added for DG' scope=spfile;
alter system set db_recovery_file_dest_size=34359738368 comment=' ## added for DG' scope=spfile;
alter system set db_recovery_file_dest='+FRA' comment=' ## added for DG' scope=spfile;
alter system set db_unique_name='DBATOOLS_WA' comment=' ## added for DG' scope=spfile;
alter system set event='10298 trace name context forever, level 32' comment=' ## added for RMAN backup on NFS file system' scope=spfile;
alter system set fal_client='DBATOOLS_STDBY' comment=' ## added for DG Net service name in prim tnsnames.ora points to Stdby' scope=spfile;
alter system set fal_server='DBATOOLS_PRI' comment=' ## added for DG Net service name in stdby tnsnames.ora points to Primary' scope=spfile;
alter system set log_archive_config='DG_CONFIG=(DBATOOLS_WA, DBATOOLS)' comment=' ## added for DG primary followed by standby db unique name' scope=spfile;
alter system set log_archive_dest_1='LOCATION=+FRA VALID_FOR=(ALL_LOGFILES,ALL_ROLES) DB_UNIQUE_NAME=DBATOOLS_WA' comment=' ## added for DG' scope=spfile;
alter system set log_archive_dest_2='SERVICE=DBATOOLS_PRI lgwr async reopen=30 VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=DBATOOLS' comment=' ## added for DG' scope=spfile;
alter system set log_archive_dest_state_1='enable' comment=' ## added for DG' scope=spfile;
alter system set log_archive_dest_state_2='defer' comment=' ## added for DG' scope=spfile;
alter system set standby_archive_dest='+FRA';
alter system set standby_file_management='AUTO' comment=' ## added for DG' scope=spfile;
```
20. Launch Build Standby Database Submenu
30. Generate Syntax to Backup the Primary Database

```sql
# -- Using RMAN Backup Template:  /home/oracle/work/dgmenu/dg_rman2disk.sql
run
{
  allocate channel d1 type disk;
  allocate channel d2 type disk;
  allocate channel d3 type disk;
  set limit channel d1 kbytes = 4000000;
  set limit channel d2 kbytes = 4000000;
  set limit channel d3 kbytes = 4000000;
  backup as backupset incremental level 0 tag=DBATOOLS1_bkup_0_08Sep10_2349 filesperset 1 format '+FRA' (database) ;

  #sql "create pfile=''/tmp/init_DBATOOLS1_08Sep10_2349.ora'' from spfile"
  sql "alter system archive log current"
  sql "alter system switch logfile"
  sql "alter system switch logfile"

  #resync catalog;
  change archivelog all validate;

  sql "alter database backup controlfile to trace"
  sql "alter database backup controlfile to ''+FRA''"

  backup as backupset format '+FRA' skip inaccessible (archivelog all not backed up 2 times);
  backup tag=DBATOOLS1_CTL_08Sep10_2349 format '+FRA' (current controlfile);

  delete noprompt archivelog until time 'sysdate - 2' backed up 2 times to device type disk;

  release channel d1;
  release channel d2;
  release channel d3;
}
```

Execute the following:
```
nohup /u01/app/oracle/product/11.2.0/db/bin/rman target /  cmdfile /home/oracle/work/dgmenu/dg_rman2disk_DBATOOLS.rman
```
20. Launch Build Standby Database Submenu
40. Generate orapwd syntax for DBATOOLS1 and DBATOOLS_WA1

40
-- If the orapwDBATOOLS file does not exist, then execute the following:
-----------------------------------------------
-- On the Primary Database Server - rac5501 from the OS:
-----------------------------------------------
orapwd file=/u01/app/oracle/product/11.2.0/db/dbs/orapwDBATOOLS1 entries=25
password=oracle123 force=yes ignorecase=y
-----------------------------------------------
scp /u01/app/oracle/product/11.2.0/db/dbs/orapwDBATOOLS1 oracle@rac5502:/u01/app/oracle/product/11.2.0/db/dbs/orapwDBATOOLS_WA1

Note:
1. Please make sure to modify the file parameter for instance names if you are on RAC
2. scp the orapwDBATOOLS to other RAC nodes and DG nodes
3. ignorecase parameter is only available for Oracle Database 11g Release 1 and higher
20. Launch Build Standby Database Submenu
60. Generate syntax to create standby controlfiles on rac5501

-- On the Primary Database with SQL*Plus:
-----------------------------------------
alter database create standby controlfile as '/tmp/DBATOOLS_standby.ctl';
----------------------------------------- OR -----------------------------------------

-- On the Primary Database with RMAN:
backup format '/tmp/DBATOOLS.CTL' current controlfile for standby;

scp /tmp/DBATOOLS_standby.ctl oracle@rac5502:/tmp/DBATOOLS_standby.ctl
Or
scp /tmp/DBATOOLS_standby.CTL oracle@rac5502:/tmp/DBATOOLS_standby.CTL

-- On the Standby Database with RMAN restore the standby controlfile from primary:
restore controlfile from '/tmp/DBATOOLS_standby.ctl';
Or
restore controlfile from '/tmp/DBATOOLS_standby.CTL';
# -- For RAC environments, make sure that you add the TNS ENTRIES to all the RAC nodes

DBATOOLS_PRI =
  (DESCRIPTION =
   (SDU=32767)
   (ADDRESS_LIST =
     (ADDRESS = (PROTOCOL = TCP)(HOST = rac5501-vip)(PORT = 1521))
   )
   (CONNECT_DATA =
     (SERVER = DEDICATED)
     (SERVICE_NAME = DBATOOLS)
   )
  )

DBATOOLS_STDBY =
  (DESCRIPTION =
   (SDU=32767)
   (ADDRESS_LIST =
     (ADDRESS = (PROTOCOL = TCP)(HOST = rac5502-vip)(PORT = 1521))
   )
   (CONNECT_DATA =
     (SERVER = DEDICATED)
     (SERVICE_NAME = DBATOOLS_WA)
   )
  )
90. Generate syntax to restore the database DBATOOLS_WA to disk group +DATA_WA

```sql
# -- Restore Script Generated as restore_DBATOOLS_WA.rman
```
### 20. Launch Build Standby Database Submenu

#### 100a. Generate SQL syntax to create standby redo logs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Redo Group:</td>
<td>4</td>
</tr>
<tr>
<td>Redo Size:</td>
<td>50</td>
</tr>
<tr>
<td>Redo Count:</td>
<td>3</td>
</tr>
<tr>
<td>Thread Count:</td>
<td>2</td>
</tr>
</tbody>
</table>

```sql
# --
# -- On the Primary Database: DBATOOLS
# --

alter database add standby logfile thread 1 group 5 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_05a.rdo') size 50m;
alter database add standby logfile thread 1 group 6 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_06a.rdo') size 50m;
alter database add standby logfile thread 1 group 7 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_07a.rdo') size 50m;
alter database add standby logfile thread 2 group 8 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_08a.rdo') size 50m;
alter database add standby logfile thread 2 group 9 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_09a.rdo') size 50m;
alter database add standby logfile thread 2 group 10 ('+FRA/DBATOOLS/ onlinelog/stdby_redo_10a.rdo') size 50m;
```
20. Launch Build Standby Database Submenu

100b. Generate SQL syntax to create standby redo logs

```sql
# --
# -- On the Standby Database:  DBATOOLS_WA
# --
alter database add standby logfile thread 1 group 11 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_11a.rdo') size 50m;
alter database add standby logfile thread 1 group 12 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_12a.rdo') size 50m;
alter database add standby logfile thread 1 group 13 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_13a.rdo') size 50m;
alter database add standby logfile thread 2 group 14 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_14a.rdo') size 50m;
alter database add standby logfile thread 2 group 15 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_15a.rdo') size 50m;
alter database add standby logfile thread 2 group 16 ('+FRA/
  DBATOOLS_WA/onlinelog/stdby_redo_16a.rdo') size 50m;
# --
# --
```

Execute SQL Script: `cr_standby_redo_p.sql` on DBATOOLS
Execute SQL Script: `cr_standby_redo_s.sql` on DBATOOLS_WA
rman <EOF
connect target sys/oracle123@DBATOOLS;
connect auxiliary sys/oracle123@DBATOOLS_WA;
run {
allocate channel prmy1 type disk;
allocate channel prmy2 type disk;
allocate channel prmy3 type disk;
allocate channel prmy4 type disk;
allocate auxiliary channel stby type disk;
duplicate target database for standby from active database
spfile
parameter_value_convert 'DBATOOLS','DBATOOLS_WA'
set 'db_unique_name'='DBATOOLS_WA'
set 'db_file_name_convert'='/DBATOOLS/','/DBATOOLS_WA/'
set log_file_name_convert='/DBATOOLS/','/DBATOOLS_WA/'
set control_files='/DBATOOLS_WA/control.ctl'
set log_archive_max_processes='5'
set fal_client='DBATOOLS_WA'
set fal_server='DBATOOLS'
set standby_file_management='AUTO'
set log_archive_config='dg_config=(DBATOOLS,DBATOOLS_WA)' set log_archive_dest_1='service=DBATOOLS LGWR ASYNC
valid_for=(ONLINE_LOGFILES,PRIMARY_ROLE)
Why We Need Data Guard
Data Guard Broker Menu

**Setup and Configuration**
- Alter System Syntax for DG_BROKER Setup (Initialization Parameters)
- Generate listener.ora entries for DG Broker - uses nslookup command
- Create Broker Configuration
- Enable Flashback on both databases - requires DB bounce
- Start Observer Process on another server - not part of DG environment
- Create Fast-Start Failover Configuration

**Data Guard Broker SubMenu**

**Reporting Menu**
- Show Data Guard Broker Configuration
- Show Database Configuration of Primary Database
- Show Database Configuration of Standby Database
- Show Status Report of Primary Database
- Show Status Report of Standby Database
- View Primary Database Send Queue
  - View Standby Receive Queue
- View Top Wait Events on the Standby Database
- View Inconsistent Properties on the Primary Database
  - View Inconsistent Properties on the Standby Database
- View drc log file on the Standby Database

**FSFO Status**
- SQL Query FSFO State
- Show FSFO
30a. Launch the Data Guard Broker Submenu

# Data Guard Broker SubMenu: dg_broker_menu.ksh
# Primary Host: rac5501        Standby Host: rac5502
# Generate Syntax for Broker Setup and Configuration Menu
# 1. Alter System Syntax for DG_BROKER Setup (Initialization Parameters)
# 2. Generate listener.ora entries for DG Broker - uses nslookup command
# 3. Create Broker Configuration
# 4. Enable Flashback on both databases - requires DB bounce
# 5. Start Observer Process on another server - should not be part of DG
# 6. Change Protection Mode to Maximum Availability
# 7. Create Fast-Start Failover Configuration
# Broker Reporting Menu
30b. Launch the Data Guard Broker Submenu

# 11. Show Data Guard Configuration
# 12. Show Database Configuration of DBATOOLS on rac5501
# 13. Show Database Configuration of DBATOOLS_WA on rac5502
# 14. Show Status Report of DBATOOLS on rac5501
# 15. Show Status Report of DBATOOLS_WA on rac5502
# 30. View Primary Send Queue on DBATOOLS
# 31. View Standby Receive Queue on DBATOOLS_WA
# 32. View Top Wait Events on DBATOOLS_WA
# 33. View Database Inconsistent Properties on DBATOOLS
# 34. View Database Inconsistent Properties on DBATOOLS_WA

# Data Guard Broker Log Files
# 40. Generate Config file -- MUST DO STEP FOR EACH DATABASE: dg_adrci.conf
# 41. View drcDBATOOLS1.log on DBATOOLS
# 42. View drcDBATOOLS_WA1.log on DBATOOLS_WA

# 50. Show Fast-Start Failover
# 51. SQL Query FSFO State
30 Launch the Data Guard Broker Submenu
1. Alter System Syntax for DG_BROKER Setup (Initialization Parameters)

# --
# -- Execute the following on the Primary Database: DBATools
alter system set dg_broker_config_file1='+DATA_PR/DBATools/
broker1.dat' scope=bothA sid='*';
alter system set dg_broker_config_file2='+FRA/DBATools/
broker2.dat' scope=both sid='*';
alter system set dg_broker_start=true scope=both sid='*';

# --
# -- Execute the following on the Standby Database: DBATools_WA
alter system set dg_broker_config_file1='+DATA_WA/DBATools_WA/
broker1.dat' scope=both sid='*';
alter system set dg_broker_config_file2='+FRA/DBATools_WA/
broker2.dat' scope=both sid='*';
alter system set dg_broker_start=true scope=both sid='*';
30 Launch the Data Guard Broker Submenu

2. Generate listener.ora entries for DG Broker - uses nslookup command

# -- Primary Database Server
...
SID_LIST_LISTENER_DBATOOLS =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = DBATOOLS_DGMGRL)
      (ORACLE_HOME = /u01/app/oracle/product/11.2.0/db)
      (SID_NAME = DBATOOLS1)
    )
  )
# -- Standby Database Server
..
SID_LIST_LISTENER_DBATOOLS_WA =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = DBATOOLS_WA_DGMGRL)
      (ORACLE_HOME = /u01/app/oracle/product/11.2.0/db)
      (SID_NAME = DBATOOLS_WA1)
    )
  )
30 Launch the Data Guard Broker Submenu

3. Create Broker Configuration

DGMGRL> connect sys/oracle
Connected.

DGMGRL> create configuration DBATools_DGCONFIG as primary
database is "DBATools" connect identifier is DBATools_PRI;
Configuration "dbatools_dgconfig" created with primary
database "DBATools"

DGMGRL> add database "DBATools_WA" as connect identifier is
DBATools_STDBY maintained as physical;
Database "DBATools_WA" added

DGMGRL> enable configuration;
Enabled.
Launch the Data Guard Broker Submenu

4. Enable Flashback on both databases - requires DB bounce

```sql
4
# -- On Primary DB: DBATOOLS
shutdown immediate;
startup mount;
alter system set db_recovery_file_dest_size=32g comment='# added for DG'
scope=both sid='*';
alter system set db_recovery_file_dest='+FRA' comment='# added for DG'
scope=both sid='*';
alter database flashback on;
alter database open;

# -- On Standby DB: DBATOOLS_WA
alter database recover managed standby database cancel;
alter system set db_recovery_file_dest_size=32g comment='# added for DG'
scope=both sid='*';
alter system set db_recovery_file_dest='+FRA' comment='# added for DG'
scope=both sid='*';
alter database flashback on;
alter database recover managed standby database using current logfile
disconnect;
```
30 Launch the Data Guard Broker Submenu

5. Start Observer Process on another server - should not be part of DG

# -- Copy the following TNSNAMES entries to the server that will be running the DG Observer Process
# -- The server that the observer runs on should not part of the Data Guard Configuration

DBATOOLS_PRI = (DESCRIPTION =
...

DBATOOLS_STDBY = (DESCRIPTION =
...

# -- You can use the following script to start the observer
#!/usr/bin/ksh
dgmr1 <<___EOF >/tmp/observer_`hostname`.log
cnect sys/oracle123@DBATOOLS_PRI
start observer
___EOF
30 Launch the Data Guard Broker Submenu
6. Change Protection Mode to Maximum Availability
7. Create Fast-Start Failover Configuration

6
edit database 'DBATOOLS' set property 'LogXptMode'='SYNC';
edit database 'DBATOOLS_WA' set property 'LogXptMode'='SYNC';
edit configuration set protection mode as maxavailability;

7
edit database 'DBATOOLS' set property 'LogXptMode'='SYNC';
edit database 'DBATOOLS_WA' set property 'LogXptMode'='SYNC';
edit database 'DBATOOLS' set property
FastStartFailoverTarget='DBATOOLS_WA';
edit database 'DBATOOLS_WA' set property
FastStartFailoverTarget='DBATOOLS';
edit configuration set protection mode as maxavailability;
enable fast_start failover;
show fast_start failover;
30 Launch the Data Guard Broker Submenu

11. Show Data Guard Broker Configuration

DGMGRL> show configuration

Configuration - dbatools_dgconfig

Protection Mode: MaxPerformance
Databases:
  DBATOOLS - Primary database
  DBATOOLS_WA - Physical standby database

Fast-Start Failover: DISABLED

Configuration Status:
SUCCESS
30 Launch the Data Guard Broker Submenu
12. Show Database Configuration of DBATOOLS on rac5501

Executing: show database verbose "DBATOOLS";

.. Database - DBATOOLS

  Role: PRIMARY
  Intended State: TRANSPORT-ON
  Instance(s):
   DBATOOLS1

  Properties:
   DGConnectIdentifier = 'dbatools_pri'
   ObserverConnectIdentifier = ''
   LogXptMode = 'ASYNC'
   DelayMins = '0'
   Binding = 'optional'
   MaxFailure = '0'
   MaxConnections = '1'
   ReopenSecs = '300'
30  Launch the Data Guard Broker Submenu
13. Show Database Configuration of DBATOOLS_WA on rac5502

Executing:  show database verbose "DBATOOLS_WA";
...
Database - DBATOOLS_WA

Role: PHYSICAL STANDBY
Intended State: APPLY-ON
Transport Lag: 0 seconds
Apply Lag: 0 seconds
Real Time Query: OFF
Instance(s):
  DBATOOLS_WA1

Properties:
  DGConnectIdentifier = 'dbatools_stdby'
  ObserverConnectIdentifier = ''
  LogXptMode = 'ASYNC'
  DelayMins = '0'
  Binding = 'OPTIONAL'

ORACLE
30 Launch the Data Guard Broker Submenu
14+15. Show Status Report on DBATOOLS and DBATOOLS_WA

Executing: show database "DBATOOLS" StatusReport;
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Welcome to DGMGRL, type "help" for information.
Connected.
STATUS REPORT

INSTANCE_NAME   SEVERITY ERROR_TEXT

Executing: show database "DBATOOLS_WA" StatusReport;
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Welcome to DGMGRL, type "help" for information.
Connected.
STATUS REPORT

INSTANCE_NAME   SEVERITY ERROR_TEXT
30 Launch the Data Guard Broker Submenu
32. View Top Wait Events on DBATOOLS_WA

Executing: show database "DBATOOLS_WA" topwaitevents;
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Welcome to DGMGRL, type "help" for information.
Connected.

TOP SYSTEM WAIT EVENTS

<table>
<thead>
<tr>
<th>Event</th>
<th>Wait Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>rdbms ipc message</td>
<td>176138790</td>
</tr>
<tr>
<td>SQL*Net message from client</td>
<td>25481325</td>
</tr>
<tr>
<td>DIAG idle wait</td>
<td>17485704</td>
</tr>
<tr>
<td>dispatcher timer</td>
<td>8754165</td>
</tr>
<tr>
<td>wait for unread message on broadcast channel</td>
<td>8754096</td>
</tr>
</tbody>
</table>

30  Launch the Data Guard Broker Submenu
30.  View Standby Receive Queue on DBATOOLS_WA

Welcome to DGMGRL, type "help" for information.
Connected.

<table>
<thead>
<tr>
<th>STATUS</th>
<th>RESETLOGS_ID</th>
<th>THREAD</th>
<th>LOG_SEQ</th>
<th>TIME_GENERATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>1</td>
<td>3105</td>
<td>09/10/2010 14:43:47 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>1</td>
<td>3106</td>
<td>09/10/2010 14:45:42 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>1</td>
<td>3107</td>
<td>09/10/2010 14:47:35 09/1</td>
</tr>
<tr>
<td>PARTIALLY_APPLIED</td>
<td>727802316</td>
<td>2</td>
<td>1150</td>
<td>09/10/2010 14:36:45 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>2</td>
<td>1151</td>
<td>09/10/2010 14:42:29 09/1</td>
</tr>
<tr>
<td>PARTIALLY_APPLIED</td>
<td>727802316</td>
<td>3</td>
<td>1167</td>
<td>09/10/2010 14:37:25 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>3</td>
<td>1168</td>
<td>09/10/2010 14:43:12 09/1</td>
</tr>
<tr>
<td>PARTIALLY_APPLIED</td>
<td>727802316</td>
<td>4</td>
<td>1045</td>
<td>09/10/2010 14:37:09 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>4</td>
<td>1046</td>
<td>09/10/2010 14:42:52 09/1</td>
</tr>
<tr>
<td>PARTIALLY_APPLIED</td>
<td>727802316</td>
<td>5</td>
<td>1042</td>
<td>09/10/2010 14:37:19 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>5</td>
<td>1043</td>
<td>09/10/2010 14:43:06 09/1</td>
</tr>
<tr>
<td>NOT_APPLIED</td>
<td>727802316</td>
<td>6</td>
<td>610</td>
<td>09/10/2010 14:42:53 09/1</td>
</tr>
</tbody>
</table>
30 Launch the Data Guard Broker Submenu

33. View Database Inconsistent Properties on DBATOOLS

Executing: show database "DBATOOLS" InconsistentProperties;
Executing: show database "DBATOOLS" InconsistentLogXptProps;

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Welcome to DGMGRL, type "help" for information.
Connected.

INCONSISTENT PROPERTIES

<table>
<thead>
<tr>
<th>INSTANCE_NAME</th>
<th>PROPERTY_NAME</th>
<th>MEMORY_VALUE</th>
<th>BROKER_VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPFILE_VALUE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DGMGRL for Linux: Version 11.2.0.1.0 - 64bit Production

.. Connected.

INCONSISTENT LOG TRANSPORT PROPERTIES

<table>
<thead>
<tr>
<th>INSTANCE_NAME</th>
<th>STANDBY_NAME</th>
<th>PROPERTY_NAME</th>
<th>MEMORY_VALUE</th>
<th>BROKER_VALUE</th>
</tr>
</thead>
</table>
30 Launch the Data Guard Broker Submenu
34. View Database Inconsistent Properties on DBATOOLS_WA

Executing: show database "DBATOOLS_WA" InconsistentProperties;
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Welcome to DGMGRL, type "help" for information.
Connected.
INCONSISTENT PROPERTIES

<table>
<thead>
<tr>
<th>INSTANCE_NAME</th>
<th>PROPERTY_NAME</th>
<th>MEMORY_VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPFILE_VALUE</td>
<td>BROKER_VALUE</td>
<td></td>
</tr>
</tbody>
</table>
30  Launch the Data Guard Broker Submenu

40. Generate Config file -- MUST DO STEP FOR EACH DATABASE: dg_adrci.conf

40
Executing Shell Script: ./$dg_determine_adrci_diag_home.ksh
Generated configuration file: dg_adrci.conf

Contents of the dg_adrci.conf config file is:
DIAG_DEST=diag/rdbms/dbatools/DBATOOLS1
DIAG_HOME=/u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1
TRACE_HOME=/u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1/trace

41. View drcDBATOOLS1.log on DBATOOLS

2010-09-11 07:53:15.326                      Database Resource:
Get Property InconsistentLogXptProps
2010-09-11 07:53:15.329                      Database Resource
GetProperty succeeded
2010-09-11 07:53:15.329 01010000  1783789245 DMON: MON_PROPERTY
operation completed

2010-09-11 07:54:46.421 02010000  1783789248 DMON: MON_PROPERTY
forwarded to site DBATOOLS_WA for processing
Monitoring and Statistics

- Check current SCN on primary and standby databases
- Check archive log destinations
- Check Data Guard Status View for errors and fatal messages
- Check Managed Recovery Process Status
- Check for missing archive logs
- Check archive log gaps on the standby database
- Check average apply rate / active apply rate
- Check transport / apply lag
- How far behind is my Data Guard in terms of time?
40. Launch Monitor Physical Standby Data Guard Submenu

# Data Guard Physical Standby Submenu: dg_physical_standby_menu.ksh
# Primary Host: rac5501        Standby Host: rac5502

# 10. Check current SCN on primary and standby databases
# 20. Check Data Guard Status View for errors and fatal messages
# 30. Check Managed Recovery Process Status
# 40. Check for missing archive logs
# 50. Check archive log gaps on the standby database
# 60. Check average apply rate / active apply rate
# 70. Check transport / apply lag
# 80. How far behind is my Data Guard in terms of time?
# x. Exit
### 40. Launch Monitor Physical Standby Submenu

### 10. Check current SCN on primary and standby databases

<table>
<thead>
<tr>
<th>DB_UNIQUE_NAME</th>
<th>CURRENT_SCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBATOOLS</td>
<td>1512025</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DB_UNIQUE_NAME</th>
<th>CURRENT_SCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBATOOLS_WA</td>
<td>1506576</td>
</tr>
</tbody>
</table>
40. Launch Monitor Physical Standby Submenu
20. Check Data Guard Status View for errors and fatal messages

```sql
# Executing dg_check_dg_status.sql on DB: DBATOOLS

<table>
<thead>
<tr>
<th>ERROR_CODE</th>
<th>SEVERITY</th>
<th>MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LNS: Beginning to archive log 1 thread 1 sequence 23</td>
</tr>
<tr>
<td>0</td>
<td>Control</td>
<td>12-SEP-10 20:30:13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ERROR_CODE</th>
<th>SEVERITY</th>
<th>MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Control</td>
<td>ARC3: Completed archiving thread 1 sequence 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1473301-1506577) 12-SEP-10 20:30:26</td>
</tr>
</tbody>
</table>

12 rows selected.

# Executing dg_check_dg_status.sql on DB: DBATOOLS_WA

```sql
<table>
<thead>
<tr>
<th>ERROR_CODE</th>
<th>SEVERITY</th>
<th>MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Control</td>
<td>ARC1: Beginning to archive thread 1 sequence 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1473301-1506577) 12-SEP-10 20:30:12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ERROR_CODE</th>
<th>SEVERITY</th>
<th>MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Control</td>
<td>ARC1: Completed archiving thread 1 sequence 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12-SEP-10 20:30:27</td>
</tr>
</tbody>
</table>
```
40. Launch Monitor Physical Standby Submenu
30. Check Managed Recovery Process Status

```sql
# Executing dg_check_mrp.sql on DB: DBATOOLS_WA

<table>
<thead>
<tr>
<th>PID</th>
<th>PROCESS</th>
<th>STATUS</th>
<th>CLIENT_P</th>
<th>CLIENT_PID</th>
<th>THREAD#</th>
<th>SEQUENCE#</th>
</tr>
</thead>
<tbody>
<tr>
<td>7102</td>
<td>ARCH</td>
<td>CLOSING</td>
<td>ARCH</td>
<td>7102</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>88065</td>
<td></td>
<td>186</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7119</td>
<td>ARCH</td>
<td>CLOSING</td>
<td>ARCH</td>
<td>7119</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>90113</td>
<td></td>
<td>854</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7121</td>
<td>ARCH</td>
<td>CONNECTED</td>
<td>ARCH</td>
<td>7121</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7123</td>
<td>ARCH</td>
<td>CLOSING</td>
<td>ARCH</td>
<td>7123</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>88065</td>
<td></td>
<td>186</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7225</td>
<td>RFS</td>
<td>IDLE</td>
<td>UNKNOWN</td>
<td>7842</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30723</td>
<td>RFS</td>
<td>IDLE</td>
<td>UNKNOWN</td>
<td>7844</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30721</td>
<td>RFS</td>
<td>IDLE</td>
<td>UNKNOWN</td>
<td>7835</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7223</td>
<td>RFS</td>
<td>IDLE</td>
<td>LGWR</td>
<td>7850</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>10334</td>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30644</td>
<td>MRP0</td>
<td>APPLYING_LOG</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>10333</td>
<td></td>
<td>102400</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

9 rows selected.
40. Launch Monitor Physical Standby Submenu

40. Check for missing archive logs

# Executing dg_check_missing_arc.sql on DB: DBATOOLS

DB: DBATOOLS - Thread#: 1 - Last Sequence: 22
DB: DBATOOLS - Thread#: 2 - Last Sequence: 7

# Executing dg_check_missing_arc.sql on DB: DBATOOLS_WA

DB: DBATOOLS_WA - Thread#: 1 - Last Sequence: 22
DB: DBATOOLS_WA - Thread#: 2 - Last Sequence: 7
40. Launch Monitor Physical Standby Submenu
40. Check for missing archive logs
50. Check archive log gaps on the standby database

40

# ----------------------------------------------------------------------- #
# Executing dg_check_missing_arc.sql on DB:  DBATOOLS
# ----------------------------------------------------------------------- #
DB: DBATOOLS - Thread#: 1 - Last Sequence: 22
DB: DBATOOLS - Thread#: 2 - Last Sequence: 7
# ----------------------------------------------------------------------- #
# Executing dg_check_missing_arc.sql on DB:  DBATOOLS_WA
# ----------------------------------------------------------------------- #
DB: DBATOOLS_WA - Thread#: 1 - Last Sequence: 22
DB: DBATOOLS_WA - Thread#: 2 - Last Sequence: 7

50

# ----------------------------------------------------------------------- #
# Executing dg_check_gap.sql on DB:  DBATOOLS_WA
# ----------------------------------------------------------------------- #
# DB Unique Name: DBATOOLS_WA
# ----------------------------------------------------------------------- #
40. Launch Monitor Physical Standby Submenu

60. Check average apply rate / active apply rate

60

# -------------------------------------------------------------------- #
#         Executing dg_apply_rate.sql on DB:  DBATools_WA          #
# -------------------------------------------------------------------- #

<table>
<thead>
<tr>
<th>START_TIME</th>
<th>ITEM</th>
<th>SOFAR UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-AUG-10 02:13:59</td>
<td>Active Apply Rate</td>
<td>22325 KB/sec</td>
</tr>
<tr>
<td>27-AUG-10 02:13:59</td>
<td>Average Apply Rate</td>
<td>11112 KB/sec</td>
</tr>
<tr>
<td>27-AUG-10 02:13:59</td>
<td>Redo Applied</td>
<td>6695 Megabytes</td>
</tr>
</tbody>
</table>

[ ... Press any key to continue ... ]
40. Launch Monitor Physical Standby Submenu
70. Check transport / apply lag

# ----------------------------------------------------------------------- #
#         Executing dg_lag.sql on DB:  DBATOOLS_WA
# ----------------------------------------------------------------------- #

<table>
<thead>
<tr>
<th>NAME</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME_COMPUTED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>transport lag</td>
<td>+00 00:00:00</td>
<td>day(2) to second(0) interval</td>
</tr>
<tr>
<td>09/12/2010 21:41:37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>apply lag</td>
<td>+00 00:00:00</td>
<td>day(2) to second(0) interval</td>
</tr>
<tr>
<td>09/12/2010 21:41:37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
40. Launch Monitor Physical Standby Submenu
80. How far behind is my Data Guard in terms of time?

<table>
<thead>
<tr>
<th>PRIMARY</th>
<th>DR</th>
<th>WKS</th>
<th>DAYS</th>
<th>HR</th>
<th>MI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-SEP-10 09.44.27.0000000000 PM</td>
<td>12-SEP-10 08.30.08.0000000000 PM</td>
<td>0</td>
<td>0</td>
<td>01</td>
<td>14</td>
<td>19</td>
</tr>
</tbody>
</table>
Logical Standby Menu

- Check Logical Progress - View Overall Progress Of SQL Apply
- Check Logical Events - History on Logical Standby Apply Activity
  - Check Logical Events - Detailed View
  - Check Logical Stats - Logical Standby Stats
  - Check Logical Parameters - Logical Standby Parameters
- Look At What The Logical Standby Processes Are Doing Coordinator, Reader, Builder, Preparer, Analyzer, Applier ...
- Look At The Status Codes For The Logical Standby Processes
  - Look At Events The Applier Process Is Stuck On
  - Check the LCR - Look At Bytes Paged Out
- Generate Syntax To Skip Transactions Based On MAX(EVENT_TIME) FROM DBA_LOGSTDBY_EVENTS DO NOT SKIP DML STATEMENTS
  - Diagnostic Script Per Metalink Note ID: 241512.1
  - Look for output in logical_diag_[ORACLE_SID_MONDD_HHMM].out] format
- Review What Is NOT Supported In Your Logical Standby Database
  - Review Tables That Do NOT have Unique Identifiers
  - Check Primary Database For Supplemental Logging
- Start Logical Standby Database
- Stop Logical Standby Database – PLEASE BE CAREFUL !!!!! THIS WILL STOP THE LOGICAL STANDBY APPLY PROCESS
- Startup / Shutdown Logical Standby Database
50a. Launch Monitor Logical Standby Data Guard Submenu

#    #    #  Logical Standby Data Guard SubMenu:
#    #
#    #    #  1. Check Logical Progress - View Overall Progress Of SQL Apply
#    #    #  2. Check Logical Events - History on Logical Standby Apply Activity
#    #    #  3. Check Logical Events - Detailed View
#    #    #  4. Check Logical Stats - Logical Standby Stats
#    #    #  5. Check Logical Parameters - Logical Standby Parameters
#    #    #  6. Look At What The Logical Standby Processes Are Doing
#    #    #      Coordinator, Reader, Builder, Preparer, Analyzer, Applier ...
#    #    #  7. Look At The Status Codes For The Logical Standby Processes
#    #    #  8. Look At Events The Applier Process Is Stuck On
50b. Launch Monitor Logical Standby Data Guard Submenu

# 10. Check the LCR - Look At Bytes Paged Out
# 11. Generate Syntax To Skip Transactions
#     Based On MAX(EVENT_TIME) FROM DBA_LOGSTDBY_EVENTS
#     DO NOT SKIP DML STATEMENTS
# 12. Diagnostic Script Per Metalink Note ID: 241512.1
#     Look for output in logical_diag_[ORACLE_SID_MONDD_HHMM.out] format
#
# 20. Review What Is NOT Supported In Your Logical Standby Database
# 21. Review Tables That Do NOT have Unique Identifiers
# 22. Check Primary Database For Supplemental Logging
#
# 30. Start Logical Standby Database
# 40. Stop Logical Standby Database - PLEASE BE CAREFUL !!!!!
#     THIS WILL STOP THE LOGICAL STANDBY APPLY PROCESS
#
# x. Exit
ADR Command Line Interface

- **Generate Config File** - `dg_adrci.conf`
  
  - View Primary Alert Log
  - View Standby Alert Log
  - Show last 20 ORA- errors from the Alert Log
  - Show Alert tail `-f`
  - Show Alert tail `-lines`
  - Show Tracefile (equivalent to `ls -lt`)
  - Show Specific Tracefile for an incident
  - Show Problem
  - Show ALL Incident
  - Show Specific Incident

- **View Automatic Diagnostic Repository (ADR)**
  
  - Create Logical Package
  - Generate Package to Upload to Metalink
  - Show Retention Policies
  - Set Short and Long Retention Policies
  - Modify `dg_adrci_policy.txt` file accordingly
  - Purge based on type: ALERT|INCIDENT|TRACE|CDUMP|HM|UTSCDUMP
  - Backup ADR to `$TMPDIR`

- **ADR Package Generation**
  
  - ADR Maintenance
60a. Launch Automatic Diagnostic Repository (ADR) CLI Submenu

# --------------------------------------------------------------------------- #
# Automatic Diagnostic Repository SubMenu: dg_adr_menu.ksh
# Primary Host: rac5501        Standby Host: rac5502
# --------------------------------------------------------------------------- #
# View Automatic Diagnostic Repository (ADR) Menu
# --------------------------------------------------------------------------- #
# 1. Generate Config file - dg_adrci.conf *MUST DO THIS STEP FOR EACH DB #
# 2. View Primary Alert Log (alert_DBATOOLS1.log) on DBATOOLS
# 3. View Standby Alert Log (alert_DBATOOLS_WA1.log) on DBATOOLS_WA
# 4. Show last 20 ORA- errors from the Alert Log
# 5. Show Alert tail -f
# 6. Show Alert tail 40 lines
# 7. Show Tracefile (equivalent to ls -lt)
# 8. Show Specific Tracefile for an incident
# 9. Show Problem
# 10. Show ALL Incident
# 11. Show Specific Incident
#
60b. Launch Automatic Diagnostic Repository (ADR)
CLI Submenu

# ------------------------------------------------------------------------- #
#  ADR Package Generation                                                 #
# ------------------------------------------------------------------------- #
#  30.  Create Logical Package                                             #
#  31.  Generate Package to Upload to Metalink                            #
# ------------------------------------------------------------------------- #
#  ADR Maintenance                                                         #
# ------------------------------------------------------------------------- #
#  40.  Show Retention Policies                                           #
#  41.  Set Short and Long Retention Policies                             #
#       Modify dg_adrci_policy.conf file accordingly                       #
#  42.  Purge based on type:  ALERT|INCIDENT|TRACE|CDUMP|HM|UTSCDMP           #
#  50.  Backup ADR to $TMPDIR                                             #
# ------------------------------------------------------------------------- #
#  x.  Exit                                                                #
# ------------------------------------------------------------------------- #
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
9. Show Problem

9
set homepath diag/rdbms/dbatools/DBATOOLS1
show problem

# ----------------------------------------------------------------- #
ADR Home = /u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1:
*********************************************************************
****
PROBLEM_ID           PROBLEM_KEY
LAST_INCIDENT        LASTINC_TIME
-------------------- ----------------------------------------
-----------------------------------------------------------
1                    ORA 603
80249                2010-09-04 06:57:17.788761 -07:00
1 rows fetched
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
10. Show ALL Incident

10
set homepath diag/rdbms/dbatools/DBATOOLS1
show incident

# ---------------------------------------------------------------------- #

ADR base = "/u01/app/oracle"
adrci> adrci>
ADR Home = /u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1:
****************************************************************************************************************************
INCIDENT_ID       PROBLEM_KEY
CREATE_TIME
---------------------

-----------------------------------------
80249           ORA 603
2010-09-04 06:57:17.788761 -07:00
1 rows fetched
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
11. Show Specific Incident

```
11
# Enter Incident Number:
80249
set homepath diag/rdbms/dbatools/DBATOOLS1
show incident -mode brief -p "incident_id=80249"
#
```

```
ADRCI: Release 11.1.0.7.0 - Production on Sun Sep 12 02:42:22 2010

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

ADR base = "/u01/app/oracle"
adrci> adrci>
ADR Home = /u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1:
******************************************************************************
******************************************************************************

******************************************************************************
INCIDENT INFO RECORD 1
******************************************************************************

<table>
<thead>
<tr>
<th>INCIDENT_ID</th>
<th>STATUS</th>
<th>CREATE_TIME</th>
<th>PROBLEM_ID</th>
<th>CLOSE_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>80249</td>
<td>ready</td>
<td>2010-09-04 06:57:17</td>
<td>1</td>
<td>&lt;NULL&gt;</td>
</tr>
</tbody>
</table>
```
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu

8. Show Specific Tracefile for an incident

```
8
# Enter Incident Number:
80249
set homepath diag/rdbms/dbatools/DBATools1
show trace -i 80249
#
```

ADRCI: Release 11.1.0.7.0 - Production on Sun Sep 12 02:44:35 2010

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

ADR base = "/u01/app/oracle"
adrci> adrci>
Output the results to file: /tmp/utsout_12505_1_2.ado
"/tmp/utsout_12505_1_2.ado" 86455 lines, 5114771 characters
/u01/app/oracle/diag/rdbms/dbatools/DBATools1/incident/incdir_80249/DBATools1_ora_7813_i80249.trc
...

2> ***** Call Stack Trace *****
calling call entry
location type point
------------------------ --------- ------------
ksedst1()+88 CALL skdstdst() 00000000A ? 000000001 ?
FFFFFFFF7FFF5230 ?
30. Create Logical Package

```bash
# Enter Incident Number:
80249
set homepath diag/rdbms/dbatools/DBATOOLS1
ips create package incident 80249
#
```

ADRCI: Release 11.1.0.7.0 - Production on Sun Sep 12 02:53:22 2010

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

ADR base = "/u01/app/oracle"
adrci> Created package 2 based on incident id 80249, correlation level typical
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
31. Generate Package to Upload to Metalink

# --- Hangs ----

# --
# -
# Look at two files in the dgmenu directory:
# -rw-r--r--  1 oracle  oinstall      57 Sep 12 03:03 dg_last_adrci_command.log
# -rw-r--r--  1 oracle  oinstall    3611 Sep 12 03:03 dg_adrci_command.log
# Look at the dg_last_adrci_command.log and execute the command manually

adrci> set homepath diag/rdbms/dbatools/DBATOOLS1
adrci> IPS GENERATE PACKAGE 2 IN /tmp

# Another method to package the trace files
# adrci> ips pack problem <problem id> in /tmp

Generated package 2 in file /tmp/
ORA603_20100912025322_COM_1.zip, mode complete
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
40. Show Retention Policies

set homepath diag/rdbms/dbatools/DBATOOLS1
show control

ADR Home = /u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1:

<table>
<thead>
<tr>
<th>ADRID</th>
<th>SHORTP_POLICY</th>
<th>LONGP_POLICY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2191908053</td>
<td>720</td>
<td>8760</td>
</tr>
<tr>
<td>2010-09-07 08:36:04.457901 -05:00</td>
<td>2010-09-12 23:07:17.174532 -05:00</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>76</td>
</tr>
<tr>
<td>1</td>
<td>2010-09-07 08:36:04.457901 -05:00</td>
<td>84</td>
</tr>
</tbody>
</table>

ADR base = "/u01/app/oracle"
adrci> adrci>
ADR Home = /u01/app/oracle/diag/rdbms/dbatools/DBATOOLS1:

ADRCI: Release 11.2.0.1.0 - Production on Sun Sep 12 23:32:02 2010
Copyright (c) 1982, 2009, Oracle and/or its affiliates. All rights reserved.

ADR base = "/u01/app/oracle"
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
41. Set Short and Long Retention Policies
   Modify dg_adrci_policy.conf file accordingly

```bash
DBATOOLS1 - oracle: cat dg_adrci_policy.conf
# Set in Hours
set control (SHORTP_POLICY = 168)
set control (LONGP_POLICY = 1440)
#
# - Basically, the short policy=720 (1 month)
# - The incident files and dumps retention policy -
#   (Default is one month))
#
# - And the long policy=8760 (1 Year)
# - The incident metadata retention policy (default is 1 year )
#
# - Specified in hours
# In this example:  168 =  7 days
#                1440 = 60 days
```
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu

42. Purge based on type: ALERT|INCIDENT|TRACE|CDUMP|HM|UTSCDMP

42
# Enter Type to Purge ALERT|INCIDENT|TRACE|CDUMP|HM|UTSCDMP: TRACE
# Specify duration to keep in Days [7]
14
Deleting all TRACE files except file newer than 20160 minutes
set homepath diag/rdbms/dbatools/DBATOOLS1
purge -age 20160 -type TRACE
# --------------------------------------------------------- #

ADRCI: Release 11.2.0.1.0 - Production on Sun Sep 12 23:41:23 2010
Copyright (c) 1982, 2009, Oracle and/or its affiliates. All
rights reserved.

ADR base = "/u01/app/oracle"
adrci> adrci> adrci> adrci>
[ ... Press any key to continue ... ]
60. Launch Automatic Diagnostic Repository (ADR) CLI Submenu
50. Backup ADR to $TMPDIR

50
Making sub-directory in /tmp
set homepath diag/rdbms/dbatools/DBATOOLS1
set autoshell on
begin backup
cp -R /u01/app/oracle.diag/rdbms/dbatools/DBATOOLS1 /tmp/diag
end backup

# --------------------------------------------------------- #
ADRCI: Release 11.2.0.1.0 - Production on Sun Sep 12 23:38:58 2010
Copyright (c) 1982, 2009, Oracle and/or its affiliates. All rights reserved.
ADR base = "/u01/app/oracle"
adrci> adrci> adrci> adrci> adrci> adrci> adrci> adrci>
[ ... Press any key to continue ... ]
RMAN Backup to Disk

Enable Block Change Tracking
- Perform full level 0 backupset
- Perform compressed full level 0 backupset
- Perform backup as copy image backup

Perform level 1 incremental backup
- Perform level 1 compressed incremental backup
- Perform level 1 incremental backup for recover (UPDATE IMAGE COPY)

Configure archivelog retention on the primary database
Configure archivelog retention on the standby database
100. Launch RMAN Backup to Disk Submenu

# ------------------------------------------------------------------------- #
# Data Guard RMAN Backup to Disk Submenu: dg_rman2disk_menu.ksh
# Primary Host:  rac5501        Standby Host:  rac5502
# ------------------------------------------------------------------------- #
# 10.  Enable Block Change Tracking on the DBAToolS1 on rac5501
# 20.  Perform full level 0 backupset of DBAToolS1 on rac5501
# 30.  Perform compressed full level 0 backupset of DBAToolS1 on rac5501
# 40.  Perform backup as copy image backup of DBAToolS1 on rac5501
# ------------------------------------------------------------------------- #
# 50.  Perform level 1 incremental backup of DBAToolS1 on rac5501
# 60.  Perform level 1 compressed incremental backup of DBAToolS1 on rac5501
# 70.  Perform level 1 incremental backup for recover (UPDATE IMAGE COPY)
#  of DBAToolS1 on rac5501
# ------------------------------------------------------------------------- #
# 100. Configure archivelog retention policy for DBAToolS1 on rac5501
# 110. Configure archivelog retention policy for DBAToolS_WA1 on rac5502
# x. Exit
# ------------------------------------------------------------------------- #
100. Launch RMAN Backup to Disk Submenu

10. Enable Block Change Tracking on the DBATOOLS1 on rac5501
# --------------------------------------------------------------- #
On the primary database: DBATOOLS, issue the following:
alter database enable block change tracking using file '+DATA_PR';

100. Configure archivelog retention policy for DBATOOLS1 on rac5501
# --------------------------------------------------------------- #
From RMAN on the DBATOOLS1, issue one of the following commands
configure archivelog deletion policy to shipped to all standby;
------------------------ OR -----------------------------
configure archivelog deletion policy to applied on all standby;

110. Configure archivelog retention policy for DBATOOLS_WA1 on rac5502
# --------------------------------------------------------------- #
From RMAN on the DBATOOLS_WA1, issue the following command
configure archivelog deletion policy to applied on standby;
100. Launch RMAN Backup to Disk Submenu

40. Perform backup as copy image backup of DBATOOLS1 on rac5501

```sql
40
Backup Dest: fs
Performing backup with arguments: -l baseline -d DBATOOLS1 -m -n 2
Performing backup with arguments: -r
Performing backup with arguments: -z
Spfile Backup:
Archive log mode: ARCHIVELOG
Initiating backup with database online
DBATOOLS1_baseline_22Sep10_1111
Using the template file: /home/oracle/work/dgmenu/rman2disk.sql.baseline for backup to fs
```

# Please look at the RMAN Backup Script: /tmp/dba/DBATOOLS1/log/DBATOOLS1_22Sep10_1111_baseline.sql
100. Launch RMAN Backup to Disk Submenu
70. Perform level 1 incremental backup for recover (UPDATE IMAGE COPY) of DBATOOLS1 on rac5501

run
{
allocate channel d1 type disk;
allocate channel d2 type disk;
allocate channel d3 type disk;
allocate channel d4 type disk;
recover copy of database with tag 'DBATOOLS1_baseline_22Sep10_1111';

BACKUP INCREMENTAL LEVEL 1 tag='DBATOOLS1_1_22Sep10_1113' FOR RECOVER OF COPY WITH TAG 'DBATOOLS1_baseline_22Sep10_1111' format '/u01/app/oracle/admin/DBATOOLS1/bkups/%d.%s.%p.%t.L1.4R.DB' DATABASE;

#sql "create pfile='"/u01/app/oracle/admin/DBATOOLS1/bkups/init_DBATOOLS1_22Sep10_1113.ora'" from spfile";
sql "alter system archive log current";
sql "alter system switch logfile";
sql "alter system switch logfile";

#resync catalog;
change archivelog all validate;