

Hostnames on Primary RAC : collabn1 and collabn2.
Hosname on Standby : oem132

Pre-Setup on the Primary RAC

Configure Redo

```
SQL> alter database force logging;

Database altered.

SQL> alter database flashback on;

Database altered.

SQL>
SQL> alter database add standby logfile size 50M;

Database altered.

SQL> alter database add standby logfile size 50M;

Database altered.

SQL> alter database add standby logfile size 50M;

Database altered.

SQL> alter database add standby logfile size 50M;

Database altered.

SQL> alter database add standby logfile size 50M;

Database altered.

SQL>
SQL>
```

tnsnames.ora on first RAC Node :

```
STBY =
(DESCRIPTION =
  (ADDRESS = (PROTOCOL = TCP)(HOST = oem132)(PORT = 1521))
  (CONNECT_DATA =
    (SERVER = DEDICATED)
    (SERVICE_NAME = STBY)
  )
)

STBY_DGB =
(DESCRIPTION =
  (ADDRESS = (PROTOCOL = TCP)(HOST = oem132)(PORT = 1521))
  (CONNECT_DATA =
    (SERVER = DEDICATED)
    (SERVICE_NAME = STBY_DGMGRL)
  )
)
```

Pre-Setup on the SingleInstance Standby

Listener on Standby Server :

```
LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP) (HOST = oem132.racattack) (PORT = 1521))
      (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC1521))
    )
  )

SID_LIST_LISTENER=
(SID_LIST =
  (SID_DESC =
    (ORACLE_HOME = /u01/app/oracle/product/12.1.0/dbhome_1)
    (SID_NAME = STBY)
  )
  (SID_DESC =
    (GLOBAL_NAME = STBY_DGMGRL)
    (ORACLE_HOME = /u01/app/oracle/product/12.1.0/dbhome_1)
    (SID_NAME = STBY)
  )
)
```

tnsnames.ora on the Standby :

```
RAC1 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.78.61) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = RAC.racattack)
    )
  )

RAC1_DGB =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 192.168.78.61) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = RAC_DGMGRL)
    )
  )
```

STBY Instance Parameter File :

```
compatible=12.1.0.2.0
db_name=RAC
db_unique_name=STBY
enable_pluggable_database=TRUE
sga_target=800M
db_file_name_convert='+DATA/RAC','/u01/app/oracle/oradata/STBY','+FRA/RAC','/u01/app/oracle/fast_recovery_area/STBY'
log_file_name_convert='+DATA/RAC','/u01/app/oracle/oradata/STBY','+FRA/RAC','/u01/app/oracle/fast_recovery_area/STBY'
db_create_file_dest='/u01/app/oracle/oradata'
db_recovery_file_dest='/u01/app/oracle/fast_recovery_area'
db_recovery_file_dest_size=16G
remote_login_passwordfile=EXCLUSIVE
standby_file_management=AUTO
```

Setup Steps

Copying the Password File :

Oracle DataGuard Setup for 12c RAC to Single Instance

```
ASMCMD> pwcop +DATA/RAC/PASSWORD/pwdrac.277.931824933 /var/tmp/RACPasswordFile
copying +DATA/RAC/PASSWORD/pwdrac.277.931824933 -> /var/tmp/RACPasswordFile
ASMCMD> exit
scp /var/tmp/RACPasswordFile oracle@oem132:/u01/app/oracle/product/12.1.0/dbhome_1/dbs/orapwSTBY
```

Precreate the required folders

for the database (and redo and control) files (I later realised that the "onlinelog" folders for the SEED and PDB are not required)

```
[oracle@oem132 ~]$ cd /u01/app/oracle/oradata
[oracle@oem132 oradata]$ mkdir STBY
[oracle@oem132 oradata]$ cd STBY
[oracle@oem132 STBY]$ mkdir datafile
[oracle@oem132 STBY]$ mkdir onlinelog
[oracle@oem132 STBY]$ mkdir 44bbc69ce8f552aee053334ea8c07365
[oracle@oem132 STBY]$ mkdir fd9ac20f64d244d7e043b6a9e80a2f2f
[oracle@oem132 STBY]$ cd 44*
[oracle@oem132 44bbc69ce8f552aee053334ea8c07365]$ mkdir datafile tempfile
[oracle@oem132 44bbc69ce8f552aee053334ea8c07365]$ cd ../fd*
[oracle@oem132 fd9ac20f64d244d7e043b6a9e80a2f2f]$ mkdir datafile tempfile
[oracle@oem132 fd9ac20f64d244d7e043b6a9e80a2f2f]$
[oracle@oem132 STBY]$
[oracle@oem132 STBY]$ cd /u01/app/oracle/fast_recovery_area
[oracle@oem132 fast_recovery_area]$ mkdir STBY
[oracle@oem132 fast_recovery_area]$ cd STBY
[oracle@oem132 STBY]$ mkdir onlinelog
[oracle@oem132 STBY]$ mkdir 44bbc69ce8f552aee053334ea8c07365
[oracle@oem132 STBY]$ mkdir fd9ac20f64d244d7e043b6a9e80a2f2f
[oracle@oem132 STBY]$ cd 44*
[oracle@oem132 44bbc69ce8f552aee053334ea8c07365]$ mkdir onlinelog
[oracle@oem132 44bbc69ce8f552aee053334ea8c07365]$ cd ../fd*
[oracle@oem132 fd9ac20f64d244d7e043b6a9e80a2f2f]$ mkdir onlinelog
[oracle@oem132 fd9ac20f64d244d7e043b6a9e80a2f2f]$
[oracle@oem132 STBY]$
```

Note that the names of the two folders for the SEED and the PDB are in *lower case*.

Startup Standby Instance

```
[oracle@oem132 STBY]$ cd
[oracle@oem132 ~]$ tail -1 /etc/oratab
STBY:/u01/app/oracle/product/12.1.0/dbhome_1:N
[oracle@oem132 ~]$ . oraenv
ORACLE_SID = [oracle] ? STBY
The Oracle base has been set to /u01/app/oracle
[oracle@oem132 ~]$ ls -l $ORACLE_HOME/dbs/*STBY*
-rw-r--r-- 1 oracle oinstall 508 Mar  6 22:11
/u01/app/oracle/product/12.1.0/dbhome_1/dbs/initSTBY.ora
-rw-r----- 1 oracle oinstall 7680 Mar  6 22:13
/u01/app/oracle/product/12.1.0/dbhome_1/dbs/orapwSTBY
[oracle@oem132 ~]$ sqlplus '/ as sysdba'
```

SQL*Plus: Release 12.1.0.2.0 Production on Sun Mar 12 23:03:43 2017

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Connected to an idle instance.

SQL> startup nomount

```
[oracle@oem132 ~]$ lsnrctl start
<listener startup messages not included here>
```

Oracle DataGuard Setup for 12c RAC to Single Instance

Duplicate Database from Primary to Standby

```
[oracle@collabn1 ~]$ . oraenv
ORACLE_SID = [RAC1] ? RAC1
The Oracle base remains unchanged with value /u01/app/oracle
[oracle@collabn1 ~]$ rman

Recovery Manager: Release 12.1.0.2.0 - Production on Sun Mar 12 23:17:27 2017

Copyright (c) 1982, 2014, Oracle and/or its affiliates. All rights reserved.

RMAN> connect target sys/racattack

connected to target database: RAC (DBID=2519807290)

RMAN> connect auxiliary sys/racattack@STBY

connected to auxiliary database: RAC (not mounted)

RMAN> DUPLICATE TARGET DATABASE FOR STANDBY FROM ACTIVE DATABASE ;
```

DataGuard Broker Config:

on the Standby

```
SQL> startup nomount
ORACLE instance started.

Total System Global Area  838860800 bytes
Fixed Size                  2929936 bytes
Variable Size              230689520 bytes
Database Buffers           599785472 bytes
Redo Buffers                5455872 bytes
SQL> alter database mount standby database;

Database altered.

SQL>
SQL> show parameter dg_broker

NAME                                TYPE                                VALUE
-----
dg_broker_config_file1              string                              /u01/app/oracle/product/12.1.0
                                     /dbhome_1/dbs/dr1STBY.dat
dg_broker_config_file2              string                              /u01/app/oracle/product/12.1.0
                                     /dbhome_1/dbs/dr2STBY.dat
dg_broker_start                     boolean                             FALSE
SQL>
SQL> alter system set dg_broker_Start=TRUE;

System altered.

SQL>
```

On the RAC Primary :

```
SQL> show parameter dg_broker

NAME                                TYPE                                VALUE
-----
dg_broker_config_file1              string                              /u01/app/oracle/product/12.1.0
                                     /dbhome_1/dbs/dr1RAC.dat
dg_broker_config_file2              string                              /u01/app/oracle/product/12.1.0
                                     /dbhome_1/dbs/dr2RAC.dat
dg_broker_start                     boolean                             FALSE
SQL> alter system set dg_broker_config_file1='+DATA/RAC/dgbroker1.dat' sid='*' scope=BOTH;

System altered.

SQL> alter system set dg_broker_config_file2='+FRA/RAC/dgbroker2.dat' sid='*' scope=BOTH;

System altered.

SQL> alter system set dg_broker_start=TRUE;
```

Oracle DataGuard Setup for 12c RAC to Single Instance

System altered.

SQL>

Verification through DataGuard Broker

```
[oracle@collabn1 ~]$ dgmgrl
DGMGRL for Linux: Version 12.1.0.2.0 - 64bit Production

Copyright (c) 2000, 2013, Oracle. All rights reserved.

Welcome to DGMGRL, type "help" for information.
DGMGRL> connect sys/racattack@RAC1
Connected as SYSDBA.
DGMGRL> create configuration RAC as primary database is RAC connect identifier is RAC1;
Configuration "rac" created with primary database "rac"
DGMGRL> add database stby as connect identifier is stby maintained as physical;
Database "stby" added
DGMGRL> enable configuration;
Enabled.
DGMGRL> show configuration;

Configuration - rac

Protection Mode: MaxPerformance
Members:
rac - Primary database
stby - Physical standby database
Error: ORA-16664: unable to receive the result from a database

Fast-Start Failover: DISABLED

Configuration Status:
ERROR (status updated 7 seconds ago)

DGMGRL>
DGMGRL> disable configuration;
Disabled.
DGMGRL> enable configuration;
Enabled.
DGMGRL> show configuration;

Configuration - rac

Protection Mode: MaxPerformance
Members:
rac - Primary database
stby - Physical standby database
Error: ORA-16664: unable to receive the result from a database

Fast-Start Failover: DISABLED

Configuration Status:
ERROR (status updated 125 seconds ago)

DGMGRL> show configuration;

Configuration - rac

Protection Mode: MaxPerformance
Members:
rac - Primary database
stby - Physical standby database

Fast-Start Failover: DISABLED

Configuration Status:
SUCCESS (status updated 14 seconds ago)

DGMGRL>
```

Configure Protection Mode

```
SQL> alter database set standby to maximize performance;
```

Database altered.

```
SQL>
```

```
DGMGRL> EDIT CONFIGURATION SET PROTECTION MODE AS MaxPerformance;
```

Succeeded.

```
DGMGRL> show configuration;
```

Configuration - rac

```
Protection Mode: MaxPerformance
Members:
rac   - Primary database
stby  - Physical standby database
```

Fast-Start Failover: DISABLED

Configuration Status:

SUCCESS (status updated 34 seconds ago)

```
DGMGRL>
```

```
DGMGRL> show configuration verbose
```

Configuration - rac

```
Protection Mode: MaxPerformance
Members:
rac   - Primary database
stby  - Physical standby database
```

```
Properties:
FastStartFailoverThreshold      = '30'
OperationTimeout                = '30'
TraceLevel                      = 'USER'
FastStartFailoverLagLimit       = '30'
CommunicationTimeout            = '180'
ObserverReconnect               = '0'
FastStartFailoverAutoReinstate  = 'TRUE'
FastStartFailoverPmyShutdown   = 'TRUE'
BystandersFollowRoleChange      = 'ALL'
ObserverOverride                 = 'FALSE'
ExternalDestination1           = ''
ExternalDestination2           = ''
PrimaryLostWriteAction          = 'CONTINUE'
```

Fast-Start Failover: DISABLED

Configuration Status:

SUCCESS

```
DGMGRL>
```