

In this article we are going to see step by Step to configure Oracle 19c Data Guard Physical Standby

The environment is single instance database.

Environment Details:-

Env Details	Primary Side	Standby Side
DB Unique Name	Chennai	Delhi
DB Name	Chennai	Chennai
DB Role	Primary	Standby
Server IP	192.168.125.155	192.168.125.156
Db Version	19.4.1.0.0	19.4.1.0.0
OS Version	Redhat 7.6	Redhat 7.6

Primary Server side Configurations:-

Step1:-Change Archivelog mode and force logging mode

```
[oracle@dev19c ~]$ export ORACLE_SID=chennai
```

```
[oracle@dev19c ~]$ sqlplus / as sysdba
```

```
SQL*Plus: Release 19.0.0.0.0 – Production on Fri Oct 18 12:19:23 2019
```

```
Version 19.4.1.0.0
```

```
Copyright (c) 1982, 2019, Oracle. All rights reserved.
```

```
Connected to:
```

```
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 – Production
```

```
Version 19.4.1.0.0
```

```
SQL> startup mount
```

```
ORACLE instance started.
```

```
Total System Global Area 1048575776 bytes
```

```
Fixed Size 8904480 bytes
```

```
Variable Size 272629760 bytes
```

```
Database Buffers 763363328 bytes
```

```
Redo Buffers 3678208 bytes
```

```
Database mounted.
```

```
SQL> alter database archivelog;  
Database altered.
```

```
SQL> ALTER DATABASE FORCE LOGGING;  
Database altered.
```

```
SQL> alter database open;  
Database altered.
```

```
SQL> select FORCE_LOGGING,log_mode from v$database;
```

FORCE_LOGGING	LOG_MODE
YES	ARCHIVELOG

Step2:-Adding Redologfile for standby database

```
SQL> alter database add standby logfile group 4  
'/u01/app/oracle/oradata/CHENNAI/redo04.log' size 50m;  
Database altered.
```

```
SQL> alter database add standby logfile group 5  
'/u01/app/oracle/oradata/CHENNAI/redo05.log' size 50m;  
Database altered.
```

```
SQL> alter database add standby logfile group 6  
'/u01/app/oracle/oradata/CHENNAI/redo06.log' size 50m;  
Database altered.
```

```
SQL> SELECT GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS FROM  
V$STANDBY_LOG;
```

GROUP#	THREAD#	SEQUENCE#	ARC	STATUS
4	0	0	YES	UNASSIGNED
5	0	0	YES	UNASSIGNED
6	0	0	YES	UNASSIGNED

Step3:-Adding the network entry in primary and standby side(Both servers)

Tnsnames entry:-

```
chennai =
(DESCRIPTION =
(ADDRESS_LIST =
(ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.125.155)(PORT = 1521))
)
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = chennai)
)
)
```

```
delhi =
(DESCRIPTION =
(ADDRESS_LIST =
(ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.125.156)(PORT = 1521))
)
(CONNECT_DATA =
(SERVICE_NAME = delhi)
)
)
```

Listener Entry:-

```
SID_LIST_LISTENER =
(SID_LIST =
(SID_DESC =
(GLOBAL_DBNAME = chennai)
(ORACLE_HOME = /u01/app/oracle/product/19.3.0/db_1/)
(SID_NAME = chennai)
)
(SID_DESC =
(GLOBAL_DBNAME = delhi)
```

```
(ORACLE_HOME = /u01/app/oracle/product/19.3.0/db_1/)  
(SID_NAME = delhi)  
)  
)
```

Output like the below

```
[oracle@dev19c ~]$ tnsping chennai  
TNS Ping Utility for Linux: Version 19.0.0.0.0 – Production on 18-OCT-  
2019 13:12:42  
Copyright (c) 1997, 2019, Oracle. All rights reserved.  
Used parameter files:  
Used TNSNAMES adapter to resolve the alias  
Attempting to contact (DESCRIPTION = (ADDRESS = (PROTOCOL =  
TCP)(HOST = 192.168.125.155)(PORT = 1521)) (CONNECT_DATA =  
(SERVER = DEDICATED) (SERVICE_NAME = chennai)))  
OK (10 msec)
```

```
[oracle@dev19c ~]$ tnsping delhi  
TNS Ping Utility for Linux: Version 19.0.0.0.0 – Production on 18-OCT-  
2019 13:12:47  
Copyright (c) 1997, 2019, Oracle. All rights reserved.  
Used parameter files:  
Used TNSNAMES adapter to resolve the alias  
Attempting to contact (DESCRIPTION = (ADDRESS_LIST = (ADDRESS =  
(PROTOCOL = TCP)(HOST = 192.168.125.156)(PORT = 1521)))  
(CONNECT_DATA = (SERVICE_NAME = delhi)))  
OK (0 msec)
```

step4:-Changing parameters in primary database

```
SQL> ALTER SYSTEM SET log_archive_config='dg_config=(chennai,delhi)'  
SCOPE=both;  
System altered.
```

```
SQL> ALTER SYSTEM SET  
log_archive_dest_1='location=use_db_recovery_file_dest  
valid_for=(all_logfiles,all_roles) db_unique_name=chennai' SCOPE=both;  
System altered.
```

```
SQL> ALTER SYSTEM SET log_archive_dest_2='service=delhi async
valid_for=(online_logfiles,primary_role) db_unique_name=delhi'
SCOPE=both;
System altered.
```

```
SQL> ALTER SYSTEM SET fal_server='DELHI' SCOPE=both;
System altered.
```

```
SQL> ALTER SYSTEM SET fal_client='CHENNAI' SCOPE=both;
System altered.
```

```
SQL> ALTER SYSTEM SET standby_file_management='AUTO'
SCOPE=both;
System altered.
```

Step5:- Password file creation

copy the remote login password file (orapwchennai) from the primary database server to the \$ORACLE_HOME/dbs directory on the standby database server, renaming it to orapwdelhi.

```
[oracle@dev19c dbs]$ scp orapwchennai
oracle@192.168.125.156:$ORACLE_HOME/dbs
The authenticity of host '192.168.125.156 (192.168.125.156)' can't be
established.
ECDSA key fingerprint is
SHA256:9ngU7dHd3U+4VprdmTolulpeCnX3zlJKbX2qqXMgZSg.
ECDSA key fingerprint is
MD5:f8:69:0d:e3:68:0d:24:30:cf:e3:17:6c:7a:59:05:94.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.125.156' (ECDSA) to the list of
known hosts.
oracle@192.168.125.156's password:
orapwchennai 100% 2048 192.4KB/s 00:00
[oracle@devdr19c dbs]$ mv orapwchennai orapwdelhi
```

Step6:- Changing parameters in standby database

In the \$ORACLE_HOME/dbs directory of the standby system, create an initialization parameter file named initdelhi.ora
Containing a single parameter: DB_NAME=chennai

```
[oracle@devdr19c dbs]$ cat initdelhi.ora
db_name=chennai
[oracle@devdr19c dbs]$ pwd
/u01/app/oracle/product/19.3.0/db_1/dbs
```

Step7:- Create directory Structure in Standby database

```
[oracle@devdr19c dbs]$ cd $ORACLE_BASE/admin/
[oracle@devdr19c admin]$ mkdir delhi
[oracle@devdr19c admin]$ cd delhi
[oracle@devdr19c delhi]$ mkdir adump
[oracle@devdr19c delhi]$ mkdir -p /u01/app/oracle/oradata/DELHI
```

Step8:- start the standby database using pfile

```
[oracle@devdr19c delhi]$ cd $ORACLE_HOME/dbs
[oracle@devdr19c dbs]$ export ORACLE_SID=delhi
[oracle@devdr19c dbs]$ sqlplus / as sysdba
SQL*Plus: Release 19.0.0.0.0 – Production on Fri Oct 18 13:55:45 2019
Version 19.4.1.0.0
Copyright (c) 1982, 2019, Oracle. All rights reserved.
Connected to an idle instance.
```

```
SQL> startup pfile='initdelhi.ora' nomount
ORACLE instance started.
Total System Global Area 243268216 bytes
Fixed Size 8895096 bytes
Variable Size 180355072 bytes
Database Buffers 50331648 bytes
Redo Buffers 3686400 bytes
```

Step9:- connect to the rman

```
[oracle@devdr19c admin]$ export ORACLE_SID=chennai
[oracle@devdr19c admin]$ rman target sys/oracle@chennai auxiliary
sys/oracle@delhi
```

Recovery Manager: Release 19.0.0.0.0 – Production on Fri Oct 18
14:02:07 2019
Version 19.4.1.0.0
Copyright (c) 1982, 2019, Oracle and/or its affiliates. All rights reserved.

connected to target database: CHENNAI (DBID=114377971)
connected to auxiliary database: DELHI (not mounted)

Step10:-Build the oracle 19c standby using rman active duplicate method

```
RMAN> run
{
allocate channel p1 type disk;
allocate channel p2 type disk;
allocate channel p3 type disk;
allocate channel p4 type disk;
allocate auxiliary channel s1 type disk;
duplicate target database for standby from active database
spfile
parameter_value_convert 'chennai','delhi'
set db_name='chennai'
set db_unique_name='delhi'
set
db_file_name_convert='/u01/app/oracle/oradata/CHENNAI','/u01/app/o
racle/oradata/DELHI/'
set
log_file_name_convert='/u01/app/oracle/oradata/CHENNAI','/u01/app/
oracle/oradata/DELHI/'
set control_files='/u01/app/oracle/oradata/DELHI/standby1.ctl'
set log_archive_max_processes='5'
set fal_client='delhi'
set fal_server='chennai'
set standby_file_management='AUTO'
set log_archive_config='dg_config=(chennai,delhi)'
set compatible='19.4.0.1.0'
set memory_target='1200m'
```

nofilenamecheck;

}2> 3> 4> 5> 6> 7> 8> 9> 10> 11> 12> 13> 14> 15> 16> 17> 18> 19> 20>
21> 22> 23> 24>

using target database control file instead of recovery catalog

allocated channel: p1

channel p1: SID=4 device type=DISK

allocated channel: p2

channel p2: SID=427 device type=DISK

allocated channel: p3

channel p3: SID=461 device type=DISK

allocated channel: p4

channel p4: SID=6 device type=DISK

allocated channel: s1

channel s1: SID=38 device type=DISK

Starting Duplicate Db at 18-OCT-19

contents of Memory Script:

{

backup as copy reuse

passwordfile auxiliary format

'/u01/app/oracle/product/19.3.0/db_1/dbs/orapwdelhi' targetfile

'/u01/app/oracle/product/19.3.0/db_1/dbs/spfilechennai.ora' auxiliary
format

'/u01/app/oracle/product/19.3.0/db_1/dbs/spfiledelhi.ora' ;

sql clone "alter system set spfile=

"/u01/app/oracle/product/19.3.0/db_1/dbs/spfiledelhi.ora";

}

executing Memory Script

Starting backup at 18-OCT-19

Finished backup at 18-OCT-19

sql statement: alter system set spfile=

"/u01/app/oracle/product/19.3.0/db_1/dbs/spfiledelhi.ora"

contents of Memory Script:

{

sql clone "alter system set audit_file_dest =

"/u01/app/oracle/admin/delhi/adump" comment=


```
"" scope=spfile";
sql clone "alter system set dispatchers =
'(PROTOCOL=TCP) (SERVICE=delhiXDB)' comment=
"" scope=spfile";
sql clone "alter system set db_name =
'chennai' comment=
"" scope=spfile";
sql clone "alter system set db_unique_name =
'delhi' comment=
"" scope=spfile";
sql clone "alter system set db_file_name_convert =
'/u01/app/oracle/oradata/CHENNAI/',
'/u01/app/oracle/oradata/DELHI/' comment=
"" scope=spfile";
sql clone "alter system set log_file_name_convert =
'/u01/app/oracle/oradata/CHENNAI/',
'/u01/app/oracle/oradata/DELHI/' comment=
"" scope=spfile";
sql clone "alter system set control_files =
'/u01/app/oracle/oradata/DELHI/standby1.ctl' comment=
"" scope=spfile";
sql clone "alter system set log_archive_max_processes =
5 comment=
"" scope=spfile";
sql clone "alter system set fal_client =
'delhi' comment=
"" scope=spfile";
sql clone "alter system set fal_server =
'chennai' comment=
"" scope=spfile";
sql clone "alter system set standby_file_management =
'AUTO' comment=
"" scope=spfile";
sql clone "alter system set log_archive_config =
'dg_config=(chennai,delhi)' comment=
```

```

"" scope=spfile";
sql clone "alter system set compatible =
"19.4.0.1.0" comment=
"" scope=spfile";
sql clone "alter system set memory_target =
1200m comment=
"" scope=spfile";
shutdown clone immediate;
startup clone nomount;
}
executing Memory Script
sql statement: alter system set audit_file_dest =
"/u01/app/oracle/admin/delhi/adump" comment= "" scope=spfile
sql statement: alter system set dispatchers = "(PROTOCOL=TCP)
(SERVICE=delhiXDB)" comment= "" scope=spfile
sql statement: alter system set db_name = "chennai" comment= ""
scope=spfile
sql statement: alter system set db_unique_name = "delhi" comment= ""
scope=spfile
sql statement: alter system set db_file_name_convert =
"/u01/app/oracle/oradata/CHENNAI/",
"/u01/app/oracle/oradata/DELHI/" comment= "" scope=spfile
sql statement: alter system set log_file_name_convert =
"/u01/app/oracle/oradata/CHENNAI/",
"/u01/app/oracle/oradata/DELHI/" comment= "" scope=spfile
sql statement: alter system set control_files =
"/u01/app/oracle/oradata/DELHI/standby1.ctl" comment= ""
scope=spfile
sql statement: alter system set log_archive_max_processes = 5
comment= "" scope=spfile
sql statement: alter system set fal_client = "delhi" comment= ""
scope=spfile
sql statement: alter system set fal_server = "chennai" comment= ""
scope=spfile
sql statement: alter system set standby_file_management = "AUTO"

```

```
comment= "" scope=spfile
sql statement: alter system set log_archive_config =
"dg_config=(chennai,delhi)" comment= "" scope=spfile
sql statement: alter system set compatible = "19.4.0.1.0" comment= ""
scope=spfile
sql statement: alter system set memory_target = 1200m comment= ""
scope=spfile
Oracle instance shut down
connected to auxiliary database (not started)
Oracle instance started
Total System Global Area 1258290752 bytes
Fixed Size 8896064 bytes
Variable Size 503316480 bytes
Database Buffers 738197504 bytes
Redo Buffers 7880704 bytes
allocated channel: s1
channel s1: SID=34 device type=DISK
contents of Memory Script:
{
backup as copy current controlfile for standby auxiliary format
'/u01/app/oracle/oradata/DELHI/standby1.ctl';
}
executing Memory Script
Starting backup at 18-OCT-19
channel p1: starting datafile copy
copying standby control file
output file
name=/u01/app/oracle/product/19.3.0/db_1/dbs/snapcf_chennai.f
tag=TAG20191018T144453
channel p1: datafile copy complete, elapsed time: 00:00:01
Finished backup at 18-OCT-19
contents of Memory Script:
{
sql clone 'alter database mount standby database';
}
```

executing Memory Script

sql statement: alter database mount standby database

contents of Memory Script:

```
{
set newname for tempfile 1 to
"/u01/app/oracle/oradata/DELHI/temp01.dbf";
switch clone tempfile all;
set newname for datafile 1 to
"/u01/app/oracle/oradata/DELHI/system01.dbf";
set newname for datafile 3 to
"/u01/app/oracle/oradata/DELHI/sysaux01.dbf";
set newname for datafile 4 to
"/u01/app/oracle/oradata/DELHI/undotbs01.dbf";
set newname for datafile 7 to
"/u01/app/oracle/oradata/DELHI/users01.dbf";
backup as copy reuse
datafile 1 auxiliary format
"/u01/app/oracle/oradata/DELHI/system01.dbf" datafile
3 auxiliary format
"/u01/app/oracle/oradata/DELHI/sysaux01.dbf" datafile
4 auxiliary format
"/u01/app/oracle/oradata/DELHI/undotbs01.dbf" datafile
7 auxiliary format
"/u01/app/oracle/oradata/DELHI/users01.dbf" ;
sql 'alter system archive log current';
}
```

executing Memory Script

executing command: SET NEWNAME

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

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

executing command: SET NEWNAME

Starting backup at 18-OCT-19

channel p1: starting datafile copy
input datafile file number=00001
name=/u01/app/oracle/oradata/CHENNAI/system01.dbf
channel p2: starting datafile copy
input datafile file number=00003
name=/u01/app/oracle/oradata/CHENNAI/sysaux01.dbf
channel p3: starting datafile copy
input datafile file number=00004
name=/u01/app/oracle/oradata/CHENNAI/undotbs01.dbf
channel p4: starting datafile copy
input datafile file number=00007
name=/u01/app/oracle/oradata/CHENNAI/users01.dbf
output file name=/u01/app/oracle/oradata/DELHI/users01.dbf
tag=TAG20191018T144500
channel p4: datafile copy complete, elapsed time: 00:00:07
output file name=/u01/app/oracle/oradata/DELHI/undotbs01.dbf
tag=TAG20191018T144500
channel p3: datafile copy complete, elapsed time: 00:00:55
output file name=/u01/app/oracle/oradata/DELHI/system01.dbf
tag=TAG20191018T144500
channel p1: datafile copy complete, elapsed time: 00:01:17
output file name=/u01/app/oracle/oradata/DELHI/sysaux01.dbf
tag=TAG20191018T144500
channel p2: datafile copy complete, elapsed time: 00:01:16
Finished backup at 18-OCT-19
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=1 STAMP=1021992380 file
name=/u01/app/oracle/oradata/DELHI/system01.dbf
datafile 3 switched to datafile copy

```
input datafile copy RECID=2 STAMP=1021992380 file
name=/u01/app/oracle/oradata/DELHI/sysaux01.dbf
datafile 4 switched to datafile copy
input datafile copy RECID=3 STAMP=1021992380 file
name=/u01/app/oracle/oradata/DELHI/undotbs01.dbf
datafile 7 switched to datafile copy
input datafile copy RECID=4 STAMP=1021992380 file
name=/u01/app/oracle/oradata/DELHI/users01.dbf
Finished Duplicate Db at 18-OCT-19
released channel: p1
released channel: p2
released channel: p3
released channel: p4
released channel: s1
RMAN>
```

Step11:- connect to the standby database

```
[oracle@devdr19c dbs]$ export ORACLE_SID=delhi
[oracle@devdr19c dbs]$ sqlplus '/as sysdba'
```

```
SQL*Plus: Release 19.0.0.0.0 – Production on Fri Oct 18 14:54:43 2019
Version 19.4.1.0.0
Copyright (c) 1982, 2019, Oracle. All rights reserved.
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 – Production
Version 19.4.1.0.0
```

```
SQL> alter database recover managed standby database disconnect
nodelay;;
Database altered.
```

```
SQL> SELECT sequence#, first_time, next_time, applied FROM
v$archived_log ORDER BY sequence#;
```

```
SEQUENCE# FIRST_TIM NEXT_TIME APPLIED
```

```
-----
```

13 18-OCT-19 18-OCT-19 YES
14 18-OCT-19 18-OCT-19 YES
15 18-OCT-19 18-OCT-19 YES

QUERY to check the difference

```
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;
```

Thread Last Sequence Received Last Sequence Applied Difference

Thread	Last Sequence Received	Last Sequence Applied	Difference
1	15	15	0