

Multi Standby DataGuard Configuration

See :

<https://hemantoracledba.blogspot.com/2021/07/creating-1-or-more-additional-standby.html>

and

<https://hemantoracledba.blogspot.com/2021/07/a-standby-that-lags-primary-by.html>

for implementation walk-through

Note : Some of the parameters (memory and storage size) are set to low values as this is on POC server(s)

Primary Database

```
*.audit_file_dest='/opt/oracle/admin/ORCLCDB/adump'
*.audit_sys_operations=false
*.audit_trail='none'
*.commit_logging='batch'
*.commit_wait='nowait'
*.compatible='19.0.0'
*.control_files='/opt/oracle/oradata/ORCLCDB/control01.ctl','/opt/oracle/oradata/ORCLCDB/control02.ctl'#Restore Controlfile
*.db_block_size=8192
*.db_create_file_dest='/opt/oracle/oradata'
*.db_name='ORCLCDB'
*.db_recovery_file_dest_size=10737418240
*.db_recovery_file_dest='/opt/oracle/FRA/ORCLCDB'
*.diagnostic_dest='/opt/oracle'
*.dispatchers='(PROTOCOL=TCP) (SERVICE=ORCLCDBXDB) '
*.enable_pluggable_database=true
*.filesystemio_options='setall'
*.local_listener='LISTENER_ORCLCDB'
*.log_archive_config='DG_CONFIG=(ORCLCDB, STDBYDB, STDB2, STDBNEW) '
*.log_archive_dest_1='LOCATION=/opt/oracle/archivelog/ORCLCDB'
*.log_archive_dest_2='SERVICE=STDBYDB SYNC AFFIRM
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=STDBYDB'
*.log_archive_dest_3='SERVICE=STDB2 DELAY=60 ASYNC
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=STDB2'
*.log_archive_dest_4='SERVICE=STDBNEW SYNC AFFIRM
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=STDBNEW'
*.log_archive_dest_state_2='enable'
*.log_archive_dest_state_3='enable'
*.log_archive_dest_state_4='enable'
*.nls_language='AMERICAN'
*.nls_territory='AMERICA'
*.open_cursors=300
*.pga_aggregate_target=384m
*.processes=300
*.remote_login_passwordfile='EXCLUSIVE'
*.sga_target=1152m
*.undo_tablespace='UNDOTBS1'
```

First Standby

```
STDBYDB.__data_transfer_cache_size=0
STDBYDB.__db_cache_size=637534208
STDBYDB.__inmemory_ext_roarea=0
STDBYDB.__inmemory_ext_rwarea=0
STDBYDB.__java_pool_size=0
STDBYDB.__large_pool_size=16777216
STDBYDB.__oracle_base='/opt/oracle'#ORACLE_BASE set from environment
STDBYDB.__pga_aggregate_target=402653184
STDBYDB.__sga_target=1207959552
STDBYDB.__shared_io_pool_size=67108864
STDBYDB.__shared_pool_size=469762048
STDBYDB.__streams_pool_size=0
STDBYDB.__unified_pga_pool_size=0
*.audit_file_dest='/opt/oracle/admin/STDBYDB/adump'
*.audit_sys_operations=false
*.audit_trail='none'
*.commit_logging='batch'
*.commit_wait='nowait'
*.compatible='19.0.0'
*.control_files='/opt/oracle/oradata/STDBYDB/control01.ctl','/opt/oracle/oradata/STDBYDB/control02.ctl'#Restore Controlfile
*.db_block_size=8192
*.db_create_file_dest='/opt/oracle/oradata'
*.db_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDBYDB'
*.db_name='ORCLCDB'
*.db_recovery_file_dest_size=10G
*.db_recovery_file_dest='/opt/oracle/FRA/STDBYDB'
*.db_unique_name='STDBYDB'
*.diagnostic_dest='/opt/oracle'
*.dispatchers='(PROTOCOL=TCP) (SERVICE=STDBYDBXDB)'
*.enable_pluggable_database=true
*.fal_server='ORCLCDB'
*.filesystemio_options='setall'
*.local_listener='LISTENER_STDBYDB'
*.log_archive_config='DG_CONFIG=(ORCLCDB, STDBYDB, STDB2,STDBNEW)'
*.log_archive_dest_1='LOCATION=/opt/oracle/archivelog/STDBYDB'
*.log_archive_dest_2='SERVICE=ORCLCDB SYNC AFFIRM
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=ORCLCDB'
*.log_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDBYDB'
*.nls_language='AMERICAN'
*.nls_territory='AMERICA'
*.open_cursors=300
*.pga_aggregate_target=384m
*.processes=300
*.remote_login_passwordfile='EXCLUSIVE'
*.sga_target=1152m
*.standby_file_management='AUTO'
*.undo_tablespace='UNDOTBS1'
```

Lagging Standby

```
STDB2.__data_transfer_cache_size=0
STDB2.__db_cache_size=872415232
STDB2.__inmemory_ext_roarea=0
STDB2.__inmemory_ext_rwarea=0
STDB2.__java_pool_size=0
STDB2.__large_pool_size=16777216
STDB2.__oracle_base='/opt/oracle'#ORACLE_BASE set from environment
STDB2.__pga_aggregate_target=402653184
STDB2.__sga_target=1207959552
STDB2.__shared_io_pool_size=0
STDB2.__shared_pool_size=301989888
STDB2.__streams_pool_size=0
STDB2.__unified_pga_pool_size=0
*.audit_file_dest='/opt/oracle/admin/STDB2/adump'
*.audit_sys_operations=false
*.audit_trail='none'
*.commit_logging='batch'
*.commit_wait='nowait'
*.compatible='19.0.0'
*.control_files='/opt/oracle/oradata/STDB2/control01.ctl','/opt/oracle/oradata/STDB2/control02.ctl'
*.db_block_size=8192
*.db_create_file_dest='/opt/oracle/oradata'
*.db_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDB2'
*.db_name='ORCLCDB'
*.db_recovery_file_dest_size=10G
*.db_recovery_file_dest='/opt/oracle/FRA/STDB2'
*.db_unique_name='STDB2'
*.diagnostic_dest='/opt/oracle'
*.dispatchers='(PROTOCOL=TCP) (SERVICE=STDB2XDB)'
*.enable_pluggable_database=true
*.fal_server='ORCLCDB'
*.filesystemio_options='setall'
*.local_listener='LISTENER_STDB2'
*.log_archive_config='DG_CONFIG=(ORCLCDB, STDBYDB, STDB2)'
*.log_archive_dest_1='LOCATION=/opt/oracle/archivelog/STDB2/'
*.log_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDB2'
*.nls_language='AMERICAN'
*.nls_territory='AMERICA'
*.open_cursors=300
*.pga_aggregate_target=384m
*.processes=300
*.remote_login_passwordfile='EXCLUSIVE'
*.sga_target=1152m
*.standby_file_management='AUTO'
*.undo_tablespace='UNDOTBS1'
```

Third Standby

```
STDBNEW.__data_transfer_cache_size=0
STDBNEW.__db_cache_size=872415232
STDBNEW.__inmemory_ext_roarea=0
STDBNEW.__inmemory_ext_rwarea=0
STDBNEW.__java_pool_size=0
STDBNEW.__large_pool_size=16777216
STDBNEW.__oracle_base='/opt/oracle'#ORACLE_BASE set from environment
STDBNEW.__pga_aggregate_target=402653184
STDBNEW.__sga_target=1207959552
STDBNEW.__shared_io_pool_size=0
STDBNEW.__shared_pool_size=301989888
STDBNEW.__streams_pool_size=0
STDBNEW.__unified_pga_pool_size=0
*.audit_file_dest='/opt/oracle/admin/STDBNEW/adump'
*.audit_sys_operations=false
*.audit_trail='none'
*.commit_logging='batch'
*.commit_wait='nowait'
*.compatible='19.0.0'
*.control_files='/opt/oracle/oradata/STDBNEW/control01.ctl','/opt/oracle/oradata/STDBNEW/control02.ctl'#Restore Controlfile
*.db_block_size=8192
*.db_create_file_dest='/opt/oracle/oradata'
*.db_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDBNEW'
*.db_name='ORCLCDB'
*.db_recovery_file_dest_size=10G
*.db_recovery_file_dest='/opt/oracle/FRA/STDBNEW'
*.db_unique_name='STDBNEW'
*.diagnostic_dest='/opt/oracle'
*.dispatchers='(PROTOCOL=TCP) (SERVICE=STDBNEWXDB)'
*.enable_pluggable_database=true
*.fal_server='ORCLCDB'
*.filesystemio_options='setall'
*.local_listener='LISTENER_STDBNEW'
*.log_archive_config='DG_CONFIG=(ORCLCDB, STDBYDB, STDB2, STDBNEW)'
*.log_archive_dest_1='LOCATION=/opt/oracle/archivelog/STDBNEW'
*.log_archive_dest_2='SERVICE=ORCLCDB SYNC AFFIRM'
VALID_FOR=(ONLINE_LOGFILES,PRIMARY_ROLE) DB_UNIQUE_NAME=ORCLCDB'
*.log_file_name_convert='/opt/oracle/oradata/ORCLCDB','/opt/oracle/oradata/STDBNEW'
*.nls_language='AMERICAN'
*.nls_territory='AMERICA'
*.open_cursors=300
*.pga_aggregate_target=384m
*.processes=300
*.remote_login_passwordfile='EXCLUSIVE'
*.sga_target=1152m
*.standby_file_management='AUTO'
*.undo_tablespace='UNDOTBS1'
```

listener.ora

```
LISTENER =
(DESCRIPTION_LIST =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC1))
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1521))
  )
)

DEDICATED_THROUGH_BROKER_LISTENER=ON
DIAG_ADR_ENABLED = off

LISTENER_STDBYDB =
(DESCRIPTION_LIST =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1522))
  )
)

SID_LIST_LISTENER_STDBYDB =
(SID_LIST=
  (SID_DESC =
    (ORACLE_HOME = /opt/oracle/product/19c/dbhome_1)
    (SID_NAME = STDBYDB)
  )
)

LISTENER_STDB2 =
(DESCRIPTION_LIST =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1532))
  )
)

SID_LIST_LISTENER_STDB2 =
(SID_LIST=
  (SID_DESC =
    (ORACLE_HOME = /opt/oracle/product/19c/dbhome_1)
    (SID_NAME = STDB2)
  )
)

LISTENER_STDBNEW =
(DESCRIPTION_LIST =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1542))
  )
)

SID_LIST_LISTENER_STDBNEW =
(SID_LIST=
  (SID_DESC =
    (ORACLE_HOME = /opt/oracle/product/19c/dbhome_1)
    (SID_NAME = STDBNEW)
  )
)
```

tnsnames.ora

```
# tnsnames.ora Network Configuration File:
/opt/oracle/product/19c/dbhome_1/network/admin/tnsnames.ora
# Generated by Oracle configuration tools.

ORCLCDB =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORCLCDB)
    )
  )

LISTENER_ORCLCDB =
  (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1521))

ORCLPDB1 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORCLPDB1)
    )
  )

RMANCAT =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = RMANCAT)
    )
  )

STDBYDB =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1522))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = STDBYDB)
    )
  )

LISTENER_STDBYDB =
  (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1522))

STDB2 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1532))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = STDB2)
    )
  )
```

```
LISTENER_STDB2 =  
  (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1532))
```

```
STDBNEW =  
  (DESCRIPTION =  
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1542))  
    (CONNECT_DATA =  
      (SERVER = DEDICATED)  
      (SERVICE_NAME = STDBNEW)  
    )  
  )
```

```
LISTENER_STDBNEW =  
  (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1542))
```

```
STDBYPDB1 =  
  (DESCRIPTION =  
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1522))  
    (CONNECT_DATA =  
      (SERVER = DEDICATED)  
      (SERVICE_NAME = ORCLPDB1)  
    )  
  )
```

```
STDBNEWPDB1 =  
  (DESCRIPTION =  
    (ADDRESS = (PROTOCOL = TCP) (HOST = 0.0.0.0) (PORT = 1542))  
    (CONNECT_DATA =  
      (SERVER = DEDICATED)  
      (SERVICE_NAME = ORCLPDB1)  
    )  
  )
```

Database Settings

```
SQL> select force_logging, log_mode, protection_mode
       2   from v$database
       3   /
```

FORCE_LOGGING	LOG_MODE	PROTECTION_MODE
YES	ARCHIVELOG	MAXIMUM AVAILABILITY

```
SQL>
```

(The Lagging Standby would be in MAXIMUM PERFORMANCE mode)

Recovery Command

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

(The Lagging Standby would be “using archived logfile”)