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**Oracle Active Data Guard Setup**

Version 0.1

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# Objective

Purpose of this document is to setup & configure active data guard in Exadata environment and switchover to standby. However this document can also be used in non-exadata environments.

Transport methods within Exadata environment are depending how the environment is architected.

1. Standard Client Network which would be used by SCAN/VIP Network, typically 1Ge or 10Ge
2. IB/SDP Protocol Deployment, this is only applicable if the Primary/Standby are connected via Spine switches. Located in the same data center physically connected to each other.
3. High Speed Transport using 10gE Interface SFP Module over LAN or WAN

# Pre-Requisites

* 1. **Hardware**
* The standby or DR site will most likely be hosted on same or similar hardware as primary to able to support the primary site’s workload. While this is not mandatory, it ensures to meet same SLAs and capacity to support workload at standby site until primary site became available.
  1. **Network**
* Maximum Protection and Maximum Availability require high network bandwidth and low latency to facilitate SYNC redo transport mode.
* In high latency and low bandwidth environments, consider ASYNC option.
* Make sure the network is reliable, no packet losses, or network congestion.
* Dedicate required bandwidth to synchronize data at DR site
* A suitable bandwidth must be accommodated based on primary database’s redo rate.
* Allow sufficient bandwidth growth projects per redo and workload load growth on primary
  1. **Software**
* Make sure to maintain same version and patch levels on primary and all standby sites.
* If primary database uses ASM, then always consider using ASM for standby database.
* If primary database is RAC database then preferred storage method is ASM.
* If primary database is on RAC and using raw devices as storage, then standby must use raw devices. However, if primary database is not on RAC and using raw devices as storage, the standby database is not required to use raw devices.

# 

# Validate Pre-Requisites

* 1. **Calculate Primary’s current REDO rate bytes/sec**
* This can be calculated several ways. Below are the options.
* From AWR report
* From V$ views

SELECT SUM(blocks\*block\_size)/3600 total\_bytes\_per\_sec FROM gv$archived\_log WHERE first\_time BETWEEN SYSDATE -1/24 AND SYSDATE;

* 1. **Calculate Primary’s future growth projections**
* Check with Application team on data volume growth.
  1. **Check current network bandwidth**
* Bandwidth is not speed, it’s a capacity where how many bytes can be sent across the network. Use network utilities to monitor bandwidth usage. For example netstat helps determine route table information, packets information. What ports are being used and how many packets are sent/received. Check network switch, Ethernet ports capacity.

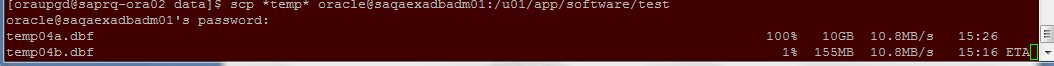
|  |
| --- |
| [oracle@odevx2db01 ~]$ **netstat -ar** |
| Kernel IP routing table |
| Destination Gateway Genmask Flags MSS Window irtt Iface |
| gp-rhel-prod-or 172.16.100.76 255.255.255.255 UGH 0 0 0 trunk0.100 |
| gp-rhel-prod-or 172.16.100.76 255.255.255.255 UGH 0 0 0 trunk0.100 |
| 10.10.0.0 \* 255.255.255.0 U 0 0 0 trunk0.2253 |
| 10.10.114.0 \* 255.255.255.0 U 0 0 0 eth2.2014 |
| 10.10.254.0 \* 255.255.255.0 U 0 0 0 eth7 |
| 172.16.100.0 \* 255.255.252.0 U 0 0 0 trunk0.100 |
| link-local \* 255.255.0.0 U 0 0 0 eth2 |
| link-local \* 255.255.0.0 U 0 0 0 eth7 |
| link-local \* 255.255.0.0 U 0 0 0 trunk0 |
| link-local \* 255.255.0.0 U 0 0 0 eth2.2014 |
| link-local \* 255.255.0.0 U 0 0 0 trunk0.100 |
| link-local \* 255.255.0.0 U 0 0 0 trunk0.2253 |
| default 172.16.100.1 0.0.0.0 UG 0 0 0 trunk0.100 |

|  |
| --- |
|  |
| [oracle@odevx2db01 ~]$ **netstat -s** |
| Ip: |
| 227929855 total packets received |
| 78662 with invalid addresses |
| 0 forwarded |
| 0 incoming packets discarded |
| 227850769 incoming packets delivered |
| 162319771 requests sent out |
| 486 reassemblies required |
| 81 packets reassembled ok |
| 2 fragments received ok |
| 4 fragments created |
| Icmp: |
| 122150 ICMP messages received |
| 15860 input ICMP message failed. |
| ICMP input histogram: |
| destination unreachable: 2104 |
| redirects: 6 |
| echo requests: 104842 |
| echo replies: 3 |
| address mask request: 88 |
| 107771 ICMP messages sent |
| 0 ICMP messages failed |
| ICMP output histogram: |
| destination unreachable: 3502 |
| echo request: 3 |
| echo replies: 104266 |
| IcmpMsg: |
| InType0: 3 |
| InType3: 2104 |
| InType5: 6 |
| InType8: 104842 |
| InType9: 14532 |
| InType10: 575 |
| InType17: 88 |
| OutType0: 104266 |
| OutType3: 3502 |
| OutType8: 3 |
| Tcp: |
| 4688577 active connections openings |
| 325078 passive connection openings |
| 4601061 failed connection attempts |
| 80158 connection resets received |
| 151 connections established |
| 219979785 segments received |
| 166465952 segments send out |
| 163290 segments retransmited |
| 0 bad segments received. |
| 4818362 resets sent |
| Udp: |
| 33801 packets received |
| 1424 packets to unknown port received. |
| 0 packet receive errors |
| 101187 packets sent |
| UdpLite: |
| TcpExt: |
| 69162 invalid SYN cookies received |
| 2860 resets received for embryonic SYN\_RECV sockets |
| 699 packets pruned from receive queue because of socket buffer overrun |
| 105 ICMP packets dropped because they were out-of-window |
| 36222 TCP sockets finished time wait in fast timer |
| 2116023 delayed acks sent |
| 138 delayed acks further delayed because of locked socket |
| Quick ack mode was activated 3462 times |
| 73192777 packets directly queued to recvmsg prequeue. |
| 35775519 packets directly received from backlog |
| 13413491596 packets directly received from prequeue |
| 73366974 packets header predicted |
| 52889017 packets header predicted and directly queued to user |
| 40415825 acknowledgments not containing data received |
| 72563994 predicted acknowledgments |
| 13 times recovered from packet loss due to fast retransmit |
| 31447 times recovered from packet loss due to SACK data |
| TCPDSACKUndo: 395 |
| 1819 congestion windows recovered after partial ack |
| 106035 TCP data loss events |
| TCPLostRetransmit: 7945 |
| 26 timeouts after reno fast retransmit |
| 229 timeouts after SACK recovery |
| 135 timeouts in loss state |
| 126828 fast retransmits |
| 5215 forward retransmits |
| 15028 retransmits in slow start |
| 9340 other TCP timeouts |
| TCPRenoRecoveryFail: 8 |
| 702 sack retransmits failed |
| 22010 packets collapsed in receive queue due to low socket buffer |
| 2969 DSACKs sent for old packets |
| 2602 DSACKs received |
| 11 DSACKs for out of order packets received |
| 15387 connections reset due to unexpected data |
| 76271 connections reset due to early user close |
| 108 connections aborted due to timeout |
| TCPDSACKIgnoredNoUndo: 195 |
| TCPSpuriousRTOs: 2 |
| TCPSackShifted: 227642 |
| TCPSackMerged: 155899 |
| TCPSackShiftFallback: 61281 |
| TCPBacklogDrop: 27363 |
| TCPChallengeACK: 5 |
| IpExt: |
| InMcastPkts: 143103 |
| InBcastPkts: 12105050 |
| InOctets: 1124106223548 |
| OutOctets: 867090253457 |
| InMcastOctets: 4463948 |
| InBcastOctets: 1227347796 |

|  |
| --- |
| [oracle@odevx2db01 ~]$ **grep net /etc/sysctl.conf** |
| net.ipv4.ip\_forward = 0 |
| net.ipv4.conf.default.rp\_filter = 1 |
| net.ipv4.conf.default.accept\_source\_route = 0 |
| net.ipv4.tcp\_syncookies = 1 |
| net.ipv4.ip\_forward = 0 |
| net.ipv4.conf.default.rp\_filter = 1 |
| net.ipv4.conf.default.accept\_source\_route = 0 |
| net.ipv4.tcp\_syncookies = 1 |
| net.bridge.bridge-nf-call-ip6tables = 0 |
| net.bridge.bridge-nf-call-iptables = 0 |
| net.bridge.bridge-nf-call-arptables = 0 |
| net.core.rmem\_default = 262144 |
| net.core.rmem\_max = 4194304 |
| net.core.wmem\_default = 262144 |
| net.core.wmem\_max = 1048576 |
| net.ipv4.ip\_local\_port\_range = 9000 65500 |
| net.core.wmem\_max = 1048576 |

* 1. **Check current network speed** (Primary 🡨🡪 Standby)

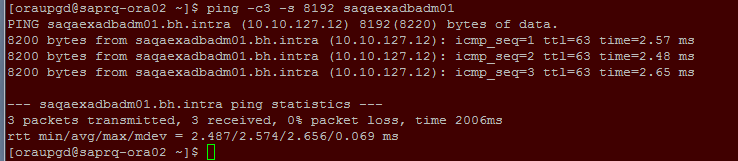
Use normal OS file transfer utilities like ftp, sftp or scp to transfer a few giga bytes file to see what is the network transfer rate. This gives a rough idea how much redo data can be sent per second. This gives rough estimate of network transfer rate and result in goodput which typically less than maximum theoretical maximum throughput and influenced by network transmission overheads, latency, TCP receive window size, system limitations.



In theory, maximum network bandwidth is calculated based on formula below.

Maximum Network throughput <= TCP receive Window/Round Trip Time.

* 1. **Check network latency and Round Trip Time (RTT) (Primary 🡨🡪 Standby)**
* Latency is delay typically incurred in processing of network data.
* RTT is the length of time it takes for a data packet to be sent plus the length of time it takes for acknowledgement of that data packet to be received.
* Use OS utilities to check latency across data centers.
* For example:



* 1. **Check network bandwidth requirements**

This can be calculated per below formula. Once you know what is redo rate bytes/sec , then you can determine bandwidth calculations requirements.

Network Bandwidth = ((Redo rate bytes per sec. / 0.7) \* 8) / 1,000,000

in Mega bits/sec

Example: A Redo rate of 89205 kb/sec requires 1.043 Giga bits/sec bandwidth.

Network Bandwidth = ((91345920/ 0.7) \* 8) /1,000,000 = 1043 Mega bits/sec or 1.043 Giga bits/sec

* 1. Check network latency requirements
* To Local Standby site <= 1 ms
* To remote (DR) site not more than 5 ms is recommended.
  1. Check BDP (bandwidth delay product)

BDP = Bandwidth x Latency

* 1. Calculate Maximum BDP and required bandwidth (Mbits/sec) for ASYNC

Maximum BDP = 3 x Bandwidth x Latency

* 1. Check hardware, software, network, storage provisions, configured that match primary.
* Make sure to install and configure OS, Clusterware, ASM, RAC/RDBMS software per requirements, and on same versions and patch releases. Check oracle support site for any known issues with hardware and software versions.
  1. Check connectivity among primary and all standby sites.
* Establish connections among primary and all standby sites.

# Setup & Configuration

* 1. Primary and Standby Hosts & Database information

Primary Site:

|  |
| --- |
| Hosts Name: odevx2db01, odevx2db02 |
| Virtual IP: odevx2db01-vip, odevx2db02-vip |
| Scan Address: odevx2-scan  OS User: oracle |
| Scan Listener: LISTENER\_SCAN1, LISTENER\_SCAN2, LISTENER\_SCAN3 |
| Primary Database Name: IGAPROD |
| Primary Database unique name: IGAPROD |
| Primary Database local listener: LISTENER  Primary Database local listener port#: 1523  Primary Database scan listener port#: 1523  Primary Database binary install owner: oracle  ASM HOME: /u01/app/11.2.0.3/grid  ASM & GRID owner:  ORACLE\_BASE: /u01/app/oracle  ORACLE\_HOME: /u01/app/oracle/product/11.2.0.3/dbhome\_1  Storage: ASM  ASM Disk Groups: DATA\_ODEVX2, RECO\_ODEVX2, DBFS\_DG |

Standby Site:

|  |
| --- |
| Hosts Name: odevx3db01, odevx3db02 |
| Virtual IP: odevx3db01-vip, odevx3db02-vip |
| Scan Address: odevx3-scan  OS User: oracle |
| Scan Listener: LISTENER\_SCAN1, LISTENER\_SCAN2, LISTENER\_SCAN3 |
| Standby Database Name: IGAPROD |
| Standby database unique name: IGAPRODSB |
| Standby Database local listener: LISTENER  Standby Database local listener port#: 1523  Standby Database remote listener port#: 1523  Standby Database binary install owner: oracle  ASM HOME: /u01/app/11.2.0.3/grid  ASM & GRID owner:  ORACLE\_BASE: /u01/app/oracle  ORACLE\_HOME: /u01/app/oracle/product/11.2.0.3/dbhome\_1  Storage: ASM  ASM Disk Groups: DATA\_ODEVX3, RECO\_ODEVX3, DBFS\_DG |

* 1. On the Primary Database
     1. Enable Force logging

SQL> **ALTER DATABASE FORCE LOGGING;**

* + 1. Create standby logs

Sufficient standby logs must be created for redo apply.

1. Each standby redo log file must be at least as large as the largest redo log file in the primary database. It is recommended that all redo log files in the primary database and the standby redo logs in the respective standby database(s) be of the same size.
2. The recommended number of SRLs is: (number of online redo logs per instance + 1) \* number of instances. The primary database 2 node RAC database will have 8 redo groups per instance, hence number of SRLs needed (8 + 1) X 2 = 18
3. Do not multiplex SRL. This will lead to performance issues.
4. While the standby site only uses standby redo logs, they should be defined on both the primary as well as the standby sites.
5. This will ensure that if the two databases change their roles (primary-> standby and standby -> primary) then no extra configuration will be required.
6. The standby database must be mounted before SRLs are created.
7. SRLs are created as follows (the size given below is just an example and has to be adjusted to the current environment):

Primary: odevx2db01

export ORACLE\_SID= IGAPROD

sqlplus / as sysdba

SELECT STATUS from V$INSTANCE;

SELECT GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS

FROM V$STANDBY\_LOG;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 ‘+RECO\_ODEVX2’ size 1024M;

For Standby Site: ODEVX3DB02 , add standby redo logs

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 ‘+RECO\_ODEVX2’ size 1024M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 ‘+RECO\_ODEVX2’ size 1024M;

SELECT GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS

FROM V$STANDBY\_LOG;

SELECT GROUP#,THREAD#, SEQUENCE#,ARCHIVED,STATUS

FROM V$STANDBY\_LOG;

1. **On primary adjust following parameters**

SQL> alter system set standby\_file\_management='AUTO' scope=both;

SQL> alter system set fal\_server='IGAPRODSB' scope=both;

SQL> alter system set fal\_client='IGAPROD' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_1='LOCATION= +RECO\_ODEVX2 VALID\_FOR=(ALL\_LOGFILES,ALL\_ROLES) DB\_UNIQUE\_NAME=IGAPROD' scope=both;

SQL> alter system set log\_archive\_config='DG\_CONFIG=(IGAPROD,IGAPRODSB)' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_2='SERVICE=IGAPRODSB LGWR ASYNC VALID\_FOR=(ONLINE\_LOGFILES,PRIMARY\_ROLE) DB\_UNIQUE\_NAME=IGAPRODSB NOAFFIRM NET\_TIMEOUT=30 REOPEN=30 max\_failure=0 max\_connections=1' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_STATE\_1=ENABLE scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_STATE\_2=ENABLE scope=both;

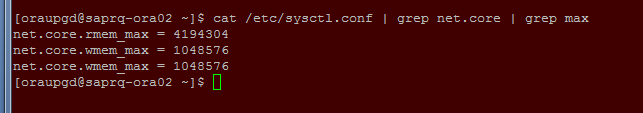
1. Complete this step on all DR/Standby nodes (later after building standby)
   1. On Primary and Standby databases.
      1. Setup entries in listener.ora & tnsnames.ora
      2. Configure listeners on each site of data guard configuration.
      3. Each Site will have a listener defined which will be running from grid home (on Exadata).

|  |
| --- |
| Primary Site Listeners: |
| LISTENER |
| Standby site Listeners: |
| LISTENER |

* + 1. **Static registration**
       1. Oracle should be able to access all instances of both databases in all modes (open, mount and nomount)
       2. In order to do this, you must add static listener entries for database.
       3. Before configure listener and TNS entries make sure to calculate correct kernel network settings, system TCP settings, session data unit (SDU) and bandwidth delay protocol (BDP) to be used. BDP will vary depending on network latency for each DR.
       4. **SDU Size**: Oracle net buffers data into session data unit (SDU), with default size of 8192 bytes (usually size of db\_block). These data units are then sent to network layer. Data Guard usually send much larger size than the default, hence this default size is insufficient as a result data is sent in small chunks. Since large amount of data are usually shipped to standby sites, increasing SDU size improves the performance and network utilization. To configure SDU globally add the following line in sqlnet.ora file. The maximum size of SDU will be 32767 bytes in version 11.1 and 65535 in version 11.2.

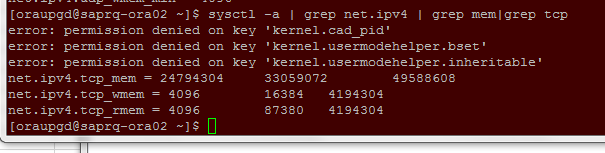
**DEFAULT\_SDU\_SIZE=32767**

* + - 1. **TCP Tuning**
         1. Setting the Oracle Net SDU is the first part, the Oracle part. But the large amount of redo data should be handled by TCP network layer. Of several aspects of TCP layer, the most important is the amount of system memory a single TCP connection can use. All systems have limitations on how much memory can be used at TCP layer called the *maximum TCP buffer space.* This is OS dependent.
         2. Use OS command to see what the values of TCP buffers. This shows maximum memory that a TCP connection can use. For most data guard configuration it may be sufficient, but it could be necessary to have system administrator increase the maximum.



These parameters define the values, that a TCP connection will use for its send and receive buffers. Check with System Admin to see what maximum values should be set for these kernel parameters.

For example see the highlighted table values below.



* + - 1. **Bandwidth Delay Product (BDP)**

BDP = Bandwidth X Latency X 3

Suppose if bandwidth is 45 Mbits/sec and latency is 5 sec then

BDP = 128 X 0.005 X 3 Mbits

BDP = 128 X 0.005 X 3 X 1000,000 Bits

BDP = 128 X 0.005 X 3 X 1000,000/8 Bytes

BDP = 240,000 bytes

Assuming same bandwidth capacity requirement locally with latency of 1 ms.

BDP = 128 X 0.001 X 3 X 1000,000/8 Bytes

BDP= 48,000 bytes

Use this BDP to configure listener with send buffer and receive buffer sizes. And these values may vary for each DR site depending on latency. Use actual bandwidth for BDP calculation, this is an example. And local standby will use much smaller BDP value considering very low latency usually < =1 ms within same data center. Below values should be set on Oracle listener.

SEND\_BUF\_SIZE=<BDP Value>

RECEV\_BUF\_SIZE==<BDP Value>

For example:

On Primary Site: ODEVX2DB01

IGAPROD =

(DESCRIPTION\_LIST =

(DESCRIPTION =

**(SEND\_BUFF\_SIZE=84375)**

**(RECV\_BUFF\_SIZE=84375)**

(ADDRESS = (PROTOCOL = TCP)(HOST = odevx2db01-vip)(PORT = 1521))

(ADDRESS = (PROTOCOL = TCP)(HOST = odevx2db01)(PORT = 1521))

)

)

SID\_LIST\_ LISTENER\_ODEVX2DB01 =

(SID\_LIST =

(SID\_DESC =

**(SDU=32767)**

(ORACLE\_HOME= /u01/app/oracle/product/11.2.0.3/dbhome\_1)

**(GLOBAL\_DBNAME= IGAPROD\_DGMGRL)**

(SID\_NAME = IGAPROD)

)

)

On Primary Site: ODEVX2DB02

IGAPROD =

(DESCRIPTION\_LIST =

(DESCRIPTION =

**(SEND\_BUFF\_SIZE=84375)**

**(RECV\_BUFF\_SIZE=84375)**

(ADDRESS = (PROTOCOL = TCP)(HOST = odevx2db02-vip)(PORT = 1521))

(ADDRESS = (PROTOCOL = TCP)(HOST = odevx2db02)(PORT = 1521))

)

)

SID\_LIST\_ LISTENER\_ODEVX2DB02 =

(SID\_LIST =

(SID\_DESC =

**(SDU=32767)**

(ORACLE\_HOME= /u01/app/oracle/product/11.2.0.3/dbhome\_1)

**(GLOBAL\_DBNAME= IGAPROD\_DGMGRL)**

(SID\_NAME = IGAPROD)

)

)

On Standby site: ODEVX3DB01

LISTENER\_ODEVX3DB01=

(DESCRIPTION=

**(SEND\_BUFF\_SIZE=240000)**

**(RECV\_BUFF\_SIZE=240000)**

(ADDRESS\_LIST=

(ADDRESS=(PROTOCOL=TCP)(HOST=odevx3db01-vip)(PORT=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=10.10.127.12)(PORT=1521)(IP=FIRST))))

**SID\_LIST\_ LISTENER\_ODEVX3DB01 =**

**(SID\_LIST =**

**(SID\_DESC =**

**(SDU=32767)**

**(GLOBAL\_DBNAME= IGAPRODSB\_DGMGRL)**

**(SID\_NAME = IGAPRODSB)**

**(ORACLE\_HOME = /u01/app/oracle/product/11.2.0.3/dbhome\_1)**

**)**

**)**

On Standby site: ODEVX3DB02

LISTENER\_ODEVX3DB02=

(DESCRIPTION=

**(SEND\_BUFF\_SIZE=240000)**

**(RECV\_BUFF\_SIZE=240000)**

(ADDRESS\_LIST=

(ADDRESS=(PROTOCOL=TCP)(HOST=odevx3db02-vip)(PORT=1521))(ADDRESS=(PROTOCOL=TCP)(HOST=10.10.127.13)(PORT=1521)(IP=FIRST))))

**SID\_LIST\_ LISTENER\_ODEVX3DB02 =**

**(SID\_LIST =**

**(SID\_DESC =**

**(SDU=32767)**

**(GLOBAL\_DBNAME= IGAPRODSB\_DGMGRL)**

**(SID\_NAME = IGAPRODSB)**

**(ORACLE\_HOME = /u01/app/oracle/product/11.2.0.3/dbhome\_1)**

**)**

**)**

Sample TNS entries on primary odevx2db01. Complete similar TNS entries on all primary and standby nodes accordingly.

On Primary set following entries in tnsnames.ora

IGAPROD=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx2-scan)(PORT=1521))

(CONNECT\_DATA=

(SID=IGAPROD)

))

IGAPRODSB=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx3-scan)(PORT=1521))

(CONNECT\_DATA=

(SERVER = DEDICATED)

(SERVICE\_NAME = IGAPRODSB)

(UR=A)

))

Add similar entries on all other primary nodes.

**On Standby sites**. Add/Modify tnsnames.ora

On standby node **ODEVX3DB01**

update /u01/app/oracle/product/11.2.0.3/dbhome\_1/network/admin/tnsnames.ora with following entry.

IGAPROD=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx2-scan)(PORT=1523))

(CONNECT\_DATA=

(SID=IGAPROD)

))

IGAPRODSB=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx3-scan)(PORT=1523))

(CONNECT\_DATA=

(SERVER = DEDICATED)

(SERVICE\_NAME = IGAPRODSB)

(UR=A)

))

#RMAN catalog DB entry (Connecting to catalog optional)

On standby node ODEVX3DB02

update /u01/app/oracle/product/11.2.0.3/dbhome\_1/network/admin/tnsnames.ora with following entry.

IGAPROD=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx2-scan)(PORT=1523))

(CONNECT\_DATA=

(SID=IGAPROD)

))

IGAPRODSB=

(DESCRIPTION=

(SEND\_BUFF\_SIZE=240000)

(RECV\_BUFF\_SIZE=240000)

(ADDRESS=(PROTOCOL=tcp)(HOST= odevx3-scan)(PORT=1523))

(CONNECT\_DATA=

(SERVER = DEDICATED)

(SERVICE\_NAME = IGAPRODSB)

(UR=A)

))

#RMAN catalog DB entry (Connecting to catalog optional)

* 1. **On the Primary Database Node – ODEVX2DB01 (Node1 if it’s a RAC)**
     1. Copy password file from Primary to Standby site(s)

cd $ORACLE\_HOME/dbs

scp orapwIGAPROD  [oracle@ODEVX3DB01:/u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs/orapwIGAPRODSB](mailto:oracle@saqaexadbadm01:/u01/app/oracle/product/11.2.0.4/dbhome_1/dbs/orapwEBSPH01)

scp orapwIGAPROD oracle@ODEVX3DB02:/u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs/orapwIGAPRODSB

* 1. **On the Standby Database**
     1. Setup a dummy pfile
     2. Name the file as “initIGAPRODSB.ora”
     3. You will later create initIGAPRODSB1.ora and initIGAPRODSB2.ora for 2 node RAC database instances.

Standby Init file:

initIGAPRODSB.ora

~~~~~~~~~~~~~~

IGAPROD2.\_\_db\_cache\_size=721420288

IGAPROD1.\_\_db\_cache\_size=754974720

IGAPROD2.\_\_java\_pool\_size=16777216

IGAPROD1.\_\_java\_pool\_size=16777216

IGAPROD2.\_\_large\_pool\_size=16777216

IGAPROD1.\_\_large\_pool\_size=16777216

IGAPROD1.\_\_oracle\_base='/u01/app/oracle'#ORACLE\_BASE set from environment

IGAPROD2.\_\_oracle\_base='/u01/app/oracle'#ORACLE\_BASE set from environment

IGAPROD2.\_\_pga\_aggregate\_target=1677721600

IGAPROD1.\_\_pga\_aggregate\_target=1677721600

IGAPROD2.\_\_sga\_target=2147483648

IGAPROD1.\_\_sga\_target=2147483648

IGAPROD2.\_\_shared\_io\_pool\_size=0

IGAPROD1.\_\_shared\_io\_pool\_size=0

IGAPROD2.\_\_shared\_pool\_size=1241513984

IGAPROD1.\_\_shared\_pool\_size=1207959552

IGAPROD2.\_\_streams\_pool\_size=0

IGAPROD1.\_\_streams\_pool\_size=0

\*.audit\_file\_dest='/u01/app/oracle/admin/IGAPROD/adump'

\*.audit\_trail='none'

\*.cluster\_database=FALSE

IGAPROD1.cluster\_interconnects='192.168.10.1'

IGAPROD2.cluster\_interconnects='192.168.10.2'

\*.compatible='11.2.0.2.0'

\*.db\_block\_checksum='FULL'

\*.db\_block\_size=8192

\*.fast\_start\_mttr\_target=300

IGAPROD1.instance\_number=1

IGAPROD2.instance\_number=2

\*.job\_queue\_processes=10

\*.listener\_networks='((NAME=network2) (LOCAL\_LISTENER=LISTENER\_IBLOCAL)(REMOTE\_LISTENER=LISTENER\_IBREMOTE))','((NAME=network1)(LOCAL\_LISTENER=LISTENER\_IPLOCAL)(REMOTE\_LISTENER=LISTENER\_IPREMOTE))'

\*.log\_buffer=134217728

\*.open\_cursors=1000

\*.parallel\_adaptive\_multi\_user=FALSE

\*.parallel\_force\_local=TRUE

\*.parallel\_max\_servers=44

\*.parallel\_threads\_per\_cpu=1

\*.pga\_aggregate\_target=1677721600

\*.processes=5000

\*.remote\_listener='odevx2-scan:1523'

\*.remote\_login\_passwordfile='exclusive'

\*.sec\_case\_sensitive\_logon=FALSE

\*.session\_cached\_cursors=200

\*.sga\_max\_size=2147483648

\*.sga\_target=2147483648

IGAPROD2.thread=2

IGAPROD1.thread=1

IGAPROD1.undo\_tablespace='UNDOTBS1'

IGAPROD2.undo\_tablespace='UNDOTBS2'

\*.use\_large\_pages='ONLY'

#Standby Configuration

\*.fal\_server='IGAPROD'

\*.fal\_client='IGAPRODSB'

\*.standby\_file\_management='AUTO'

\*.log\_file\_name\_convert='+RECO\_ODEVX2/IGAPROD','+RECO\_ODEVX3/IGAPRODSB'

\*.log\_archive\_config='dg\_config=(IGAPRODSB,IGAPROD)'

\*.log\_archive\_dest\_1='location=+RECO\_ODEVX3','valid\_for=(ALL\_LOGFILES, ALL\_ROLES) DB\_UNIQUE\_NAME=IGAPRODSB'

\*.log\_archive\_format='%t\_%s\_%r.dbf'

\*.log\_archive\_max\_processes=10

\*.log\_archive\_min\_succeed\_dest=1

\*.remote\_login\_passwordfile='exclusive'

\*.db\_create\_file\_dest='+DATA\_ODEVX3'

\*.db\_file\_name\_convert='+DATA\_ODEVX2/IGAPROD','+DATA\_ODEVX3/IGAPRODSB'

\*.db\_recovery\_file\_dest='+RECO\_ODEVX3'

\*.db\_recovery\_file\_dest\_size=10737418240

\*.db\_unique\_name='IGAPRODSB'

\*.db\_create\_online\_log\_dest\_1='+DATA\_ODEVX3'

\*.db\_create\_online\_log\_dest\_2='+RECO\_ODEVX3'

\*.db\_domain=''

\*.db\_files=1024

\*.db\_name='IGAPROD'

\*.db\_recovery\_file\_dest\_size=107374182400

\*.db\_recovery\_file\_dest='+RECO\_ODEVX3'

\*.diagnostic\_dest='/u01/app/oracle'

\*.control\_files='+DATA\_ODEVX3/IGAPRODSB/controlfile/control01.ctl','+RECO\_ODEVX3/IGAPRODSB/controlfile/control02.ctl'

Copy the file initIGAPRODSB.ora to $ORACLE\_HOME/dbs on standby if not already exist in dbs directory.

* 1. **On the Standby Database**
     1. Using the dummy parameter file start up the instance

**SQL> startup nomount /u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs/ initIGAPRODSB.ora**

* + 1. Repeat on node 2 and start the instance 2. - Optional
  1. **Test Connections**
     1. **On both primary and Standby Sites test sql\*net connections.**

Sqlplus “sys/<pwd>@ IGAPRODSB as sysdba”

Sqlplus “sys/<pwd>@IGAPROD as sysdba”

* + 1. **You should be able to connect to database using tnsnames and with SYS user with password on both primary and standby databases.**
  1. **On the Standby Database**
     1. **Perform RMAN duplicate**
        1. **Duplicate from active database.**
           1. **Adjust and Use the following sample code.**

mkdir –p /u01/app/oracle/diag/rdbms/IGAPRODSB/IGAPRODSB/adump

duplicate target database for standby from active database

spfile

parameter\_value\_convert 'IGAPROD','IGAPRODSB'

set db\_unique\_name='IGAPRODSB'

set db\_file\_name\_convert='+DATA\_ODEVX2/IGAPROD','+DATA\_ODEVX3/IGAPRODSB/'

set log\_file\_name\_convert='+DATA\_ODEVX2/IGAPROD','+DATA\_ODEVX3/IGAPRODSB/'

set control\_files='+DATA\_ODEVX3/IGAPRODSB/controlfile/control01.ctl','+RECO\_ODEVX3/IGAPRODSB/controlfile/control01.ctl'

set standby\_file\_management='AUTO'

set db\_recovery\_file\_dest='+RECO\_ODEVX3'

set audit\_file\_dest='/u01/app/oracle/diag/rdbms/IGAPRODSB/IGAPRODSB/adump'

* + - 1. **Using RMAN backup to build data guard.**
         1. **Take a full backup of primary + archivelogs to NFS mount visible o both Primary and Standby Databases.**

For example:

run{

allocate channel oem\_backup\_disk1 type disk format '/orabackup/odevx2db01/rman/IGAPROD\_db/20140716/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk2 type disk format '/orabackup/odevx2db01/rman/IGAPROD\_db/20140716/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk3 type disk format '/orabackup/odevx2db01/rman/IGAPROD\_db/20140716/level\_0/IGAPROD\_level\_0\_%U';

BACKUP DATABASE INCLUDE CURRENT CONTROLFILE FOR STANDBY PLUS ARCHIVELOG;

SQL “ALTER SYSTEM ARCHIVE LOG CURRENT”;

}

OR use existing level 0 back script, switch logfile and create standby controlfile.

Run {

BACKUP DATABASE PLUS ARCHIVELOG;

SQL “ALTER SYSTEM ARCHIVE LOG CURRENT”;

BACKUP CURRENT CONTROLFILE FOR STANDBY format ‘/localorabkp/odevx2db01/rman/IGAPROD\_db/20140717/level\_0/stby\_control\_file\_071914.ctl’;

}

#**Note sometime RMAN does not recognize old backup with “backup current controlfile for standby ... command” user below command to fix that issue.**

SQL> ALTER DATABASE CREATE STANDBY CONTROLFILE AS ‘/localorabkp/odevx2db01/rman/IGAPROD\_db/20140717/level\_0/stby\_control\_file\_071914.ctl';

* + - * 1. **Once backup is complete. Standby DB restore can be started.**

export ORACLE\_HOME=IGAPRODSB

Create rman script rman\_dup.rcv.

CATALOG CONTROLFILECOPY '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/stby\_control\_file.ctl';

run{

allocate channel oem\_backup\_disk1 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk2 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk3 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk4 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk5 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate channel oem\_backup\_disk6 type disk format '/orabackup/odevx2db01/rman/IGAPROD/20140820/level\_0/IGAPROD\_level\_0\_%U';

allocate auxiliary channel stby1 type disk;

set newname for datafile 1 to '+DATA\_ODEVX3';

set newname for datafile 2 to '+DATA\_ODEVX3';

set newname for datafile 3 to '+DATA\_ODEVX3';

set newname for datafile 4 to '+DATA\_ODEVX3';

set newname for datafile 5 to '+DATA\_ODEVX3';

set newname for datafile 6 to '+DATA\_ODEVX3';

set newname for datafile 7 to '+DATA\_ODEVX3';

set newname for datafile 8 to '+DATA\_ODEVX3';

set newname for datafile 9 to '+DATA\_ODEVX3';

set newname for datafile 10 to '+DATA\_ODEVX3';

set newname for datafile 11 to '+DATA\_ODEVX3';

set newname for datafile 12 to '+DATA\_ODEVX3';

set newname for datafile 13 to '+DATA\_ODEVX3';

set newname for tempfile 1 to '+DATA\_ODEVX3';

duplicate target database for standby nofilenamecheck dorecover;

release channel oem\_backup\_disk1;

release channel oem\_backup\_disk2;

release channel oem\_backup\_disk3;

release channel oem\_backup\_disk4;

release channel oem\_backup\_disk5;

release channel oem\_backup\_disk6;

release channel stby1;

}

#Run in back ground.

nohup rman target sys/password@IGAPROD auxiliary sys/password@IGAPRODSB catalog rman/password@oemr1 cmdfile='/home/oracle/rman\_dup.rcv' log='/home/oracle/rman\_dup\_082014.log’ &

Monitor the progress of the restore. Check files are being copied into ASM disk groups.

* 1. **On the Standby Database**
     1. Validate the Database Role on standby instance IGAPRODSB

SQL> select name, database\_role from v$database;

* 1. **On the Primary and Standby Database**
     1. Configure Log Transport Method to be used.
     2. Enable REDO Transport and REDO Apply.
        1. On the standby site use following command to place standby database into managed recovery.

export ORACLE\_SID=IGAPROD

sqlplus / as sysdba

SQL> alter database recover managed standby database disconnect;

Use Real Time Apply when SRLs are configured.

SQL> alter database recover managed standby database using current logfile disconnect;

* 1. **On the Standby Database**
     1. Once standby is created check if they have been mounted.

SQL> select instance\_number, instance\_name from gv$instance;

* 1. **Add Standby Redo Logs on Standby Site.**

1. On each database instance log in as sysdba and do following.

For Standby Site: ODEVX3DB01

export ORACLE\_SID= IGAPROD

sqlplus / as sysdba

SELECT STATUS from V$INSTANCE;

SELECT GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS

FROM V$STANDBY\_LOG;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 1 '+RECO\_ODEVX3' size 4096M;

For Standby Site: ODEVX3DB02 , add standby redo logs

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '+RECO\_ODEVX3' size 4096M;

SELECT GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS

FROM V$STANDBY\_LOG;

* 1. **Check for any heartbeat issues and errors on primary and standby alert log.**

On Primary this was experienced.

SQL> select severity,error\_code,message,timestamp from v$dataguard\_status where dest\_id=2

SQL> col severity for a20

SQL> col message for a60

#Archiver error

SEVERITY ERROR\_CODE MESSAGE TIMESTAMP

-------------------- ---------- -------------------------------------------------------------------------------- --------------------

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 FAL[server, ARC3]: Error 16058 creating remote archivelog file 'IGAPRODSB' 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

Error 16058 PING[ARC2]: Heartbeat failed to connect to standby 'IGAPRODSB'. Error is 16058. 17-JUL-14

* 1. **Monitoring both Primary and Standby Sites for log shipping & log Apply.**

**On primary**

SQL> set lines 180

SQL> col instance\_name for a30

SQL> col host\_name for a30

SQL> select instance\_name,host\_name from v$instance;

INSTANCE\_NAME HOST\_NAME

------------------------------ ------------------------------

IGAPROD odevx2db01

SQL> archive log list

Database log mode Archive Mode

Automatic archival Enabled

Archive destination +RECO\_ODEVX2

Oldest online log sequence 219

Next log sequence to archive 222

Current log sequence 222

SQL> col CURRENT\_SCN for 999999999999999

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

---------------- -------------------- -------------------- ----------------

PRIMARY MAXIMUM PERFORMANCE FAILED DESTINATION 6112663458179

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

STATUS PROCESS

------------ ---------

OPENING ARCH

CLOSING ARCH

CONNECTED ARCH

OPENING ARCH

CLOSING ARCH

OPENING ARCH

CLOSING ARCH

OPENING ARCH

CLOSING ARCH

OPENING ARCH

OPENING LNS

11 rows selected.

#On Standby

SQL> set lines 180

SQL> col instance\_name for a30

SQL> col host\_name for a30

SQL> select instance\_name,host\_name from v$instance;

INSTANCE\_NAME HOST\_NAME

------------------------------ ------------------------------

IGAPRODSB ODEVX3DB01

SQL> archive log list

Database log mode Archive Mode

Automatic archival Enabled

Archive destination +RECO\_ODEVX3

Oldest online log sequence 0

Next log sequence to archive 221

Current log sequence 221

SQL> col CURRENT\_SCN for 999999999999999

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

---------------- -------------------- -------------------- ----------------

PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6112662810240

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

STATUS PROCESS

------------ ---------

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

APPLYING\_LOG MRP0

11 rows selected.

* 1. **Heartbeat errors on Primary**
     1. **Correct any connection errors and cancel recover or make log shipping to defer state if necessary.**

Add any issues here.

* 1. **Create SPFILE Standby Database**
     1. Create spfile from pfile.
     2. SQL> CREATE SPFILE=’ +DATA\_ODEVX3/IGAPRODSB/PARAMETERFILE/spfileIGAPRODSB.ora’ from pfile=’/u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs/initIGAPRODSB.ora’;
     3. Check spfile is create in ASM disk group.
     4. On standby node1 ODEVX3DB01:

cd $ORACLE\_HOME/dbs

mv initIGAPRODSB1.ora.old

echo “spfile=’ +DATA\_ODEVX3/IGAPRODSB/spfileIGAPRODSB.ora’” > initIGAPRODSB1.ora

scp initIGAPRODSB1.ora ODEVX3DB02:$ORACLE\_HOME/dbs/ initIGAPRODSB2.ora

* 1. **Converting to RAC database.**
     1. **If you started standby in managed recover with standby and assuming you are using spfile. The following steps should be updated in spfile.**

SQL> alter system set local\_listener='(DESCRIPTION = (ADDRESS=(PROTOCOL=TCP)(HOST=odevx3db01-vip)(PORT=1544)) (ADDRESS=(PROTOCOL=TCP)(HOST=10.10.127.12)(PORT=1544)) (CONNECT\_DATA = (SERVER = DEDICATED) (SERVICE\_NAME = IGAPRODSB) (UR=A)))' sid='IGAPRODSB1' scope=both;

SQL> alter system set local\_listener='(DESCRIPTION = (ADDRESS=(PROTOCOL=TCP)(HOST=odevx3db02-vip)(PORT=1544)) (ADDRESS=(PROTOCOL=TCP)(HOST=10.10.127.13)(PORT=1544)) (CONNECT\_DATA = (SERVER = DEDICATED) (SERVICE\_NAME = IGAPRODSB) (UR=A)))' sid='IGAPRODSB2' scope=both;

SQL> alter system set cluster\_database=TRUE sid='\*' scope=spfile;

SQL> alter system set instance\_number=1 sid='IGAPRODSB1' scope=spfile;

SQL> alter system set instance\_number=2 sid='IGAPRODSB2' scope=spfile;

SQL> ALTER SYSTEM SET undo\_tablespace='APPS\_UNDOTS1' SID='IGAPRODSB1' SCOPE=SPFILE;

SQL> create undo tablespace APPS\_UNDOTS2 datafile '+DATA\_ODEVX2' size 2048M autoextend on;

**--This step should be carried out after standby become primary and opened**

SQL> ALTER SYSTEM SET undo\_tablespace='APPS\_UNDOTS2' SID='IGAPRODSB2' SCOPE=SPFILE;

**--This step may be carried out after standby become primary and opened and**

**APPS\_UNDOTS2 is created.**

SQL> alter system set thread=1 sid='IGAPRODSB1' scope=spfile;

SQL> alter system set thread=2 sid='IGAPRODSB2' scope=spfile;

SQL> alter system set diagnostic\_dest='/u01/app/oracle' sid='\*' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_2='SERVICE=IGAPROD LGWR ASYNC VALID\_FOR=(ONLINE\_LOGFILES,PRIMARY\_ROLE) DB\_UNIQUE\_NAME=IGAPROD NOAFFIRM NET\_TIMEOUT=30 REOPEN=30 max\_failure=0 max\_connections=1' sid ='\*' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_STATE\_1=ENABLE sid ='\*' scope=both;

SQL> alter system set LOG\_ARCHIVE\_DEST\_STATE\_2=ENABLE sid ='\*' scope=both;

SQL> alter system set fal\_client='IGAPRODSB' sid ='\*' scope=both;

SQL> alter system set fal\_server='IGAPROD' sid ='\*' scope=both;

Add the entry in /etc/oratab.

[oracle@ODEVX3DB01 dbs]$ grep IGAPRODSB1 /etc/oratab

IGAPRODSB1:/u01/app/oracle/product/11.2.0.3/dbhome\_1:N # line added by Agent

[oracle@ODEVX3DB02 ~]$ grep IGAPRODSB2 /etc/oratab

IGAPRODSB2:/u01/app/oracle/product/11.2.0.3/dbhome\_1:N # line added by Agent

Create a pfile under dbs pointing to SPFILE on ASM disk group.

[oracle@ODEVX3DB01 dbs]$ pwd

/u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs

[oracle@ODEVX3DB01 dbs]$ cp initIGAPRODSB.ora initIGAPRODSB1.ora

[oracle@ODEVX3DB01 dbs]$ cat initIGAPRODSB1.ora

SPFILE='+DATA\_ODEVX3/IGAPRODSB/PARAMETERFILE/spfileIGAPRODSB.ora' # line added by Agent

[oracle@ODEVX3DB01 dbs]$ scp initIGAPRODSB1.ora ODEVX3DB02:/u01/app/oracle/product/11.2.0.3/dbhome\_1/dbs/initIGAPRODSB2.ora

initIGAPRODSB1.ora

Cancel Recovery process:

SQL> ALTER DATABASE RECOVER MANAGED STANDBY DATABASE CANCEL;

Database altered.

SQL> shutdown immediate

Database closed.

Database dismounted.

ORACLE instance shut down.

SQL>

* 1. **Bring up both instances using spfile.**

shutdown immediate -- and startup instances on both nodes to check.

[oracle@ODEVX3DB01 dbs]$ . oraenv

ORACLE\_SID = [IGAPRODSB1] ?

The Oracle base remains unchanged with value /u01/app/oracle

[oracle@ODEVX3DB01 dbs]$ sqlplus / as sysdba

SQL\*Plus: Release 11.2.0.4.0 Production on Mon Jul 21 15:17:05 2014

Copyright (c) 1982, 2013, Oracle. All rights reserved.

Connected to an idle instance.

SQL> startup mount

[oracle@ODEVX3DB02 ~]$ . oraenv

ORACLE\_SID = [oracle] ? IGAPRODSB2

SQL> startup mount

ORACLE instance started.

SQL> select INSTANCE\_NUMBER,INSTANCE\_NAME,HOST\_NAME,THREAD#,STATUS from gv$instance;

INSTANCE\_NUMBER INSTANCE\_NAME HOST\_NAME THREAD# STATUS

--------------- ---------------- ---------------------------------------------------------------- ---------- ------------

1 IGAPRODSB1 ODEVX3DB01 1 MOUNT

2 IGAPRODSB2 ODEVX3DB02 2 MOUNT

* 1. **Register Standby Database Resources with Clusterware**
     1. **Add standby database & instances to cluster registry**

On Primary:

alter system set log\_archive\_dest\_state\_2='defer' scope=both;

shutdown standby instances and add standby to cluster registry.

[oracle@ODEVX3DB01 trace]$ srvctl add database -d IGAPRODSB -o /u01/app/oracle/product/11.2.0.3/dbhome\_1 -p '+DATA\_ODEVX3/IGAPRODSB/PARAMETERFILE/spfileIGAPRODSB.ora' -r PHYSICAL\_STANDBY –n IGAPROD

[oracle@ODEVX3DB01 trace]$ srvctl modify database -d IGAPRODSB -a "DATA\_ODEVX3,RECO\_ODEVX3"

[oracle@ODEVX3DB01 trace]$ srvctl modify database -d IGAPRODSB -s MOUNT

[oracle@ODEVX3DB01 trace]$ srvctl add instance -d IGAPRODSB -i IGAPRODSB1 -n ODEVX3DB01

[oracle@ODEVX3DB01 trace]$ srvctl add instance -d IGAPRODSB -i IGAPRODSB2 -n ODEVX3DB02

[oracle@ODEVX3DB01 dbs]$ srvctl status database -d IGAPRODSB

Instance IGAPRODSB1 is not running on node ODEVX3DB01

Instance IGAPRODSB2 is not running on node ODEVX3DB02

[oracle@ODEVX3DB01 dbs]$ srvctl config database -d IGAPRODSB

Database unique name: IGAPRODSB

Database name:

Oracle home: /u01/app/oracle/product/11.2.0.3/dbhome\_1

Oracle user: oracle

Spfile: +DATA\_ODEVX3/IGAPRODSB/PARAMETERFILE/spfileIGAPRODSB.ora

Domain:

Start options: mount

Stop options: immediate

Database role: PHYSICAL\_STANDBY

Management policy: AUTOMATIC

Server pools: IGAPRODSB

Database instances: IGAPRODSB1,IGAPRODSB2

Disk Groups: DATA\_ODEVX3,RECO\_ODEVX3

Mount point paths:

Services:

Type: RAC

Database is administrator managed

[oracle@ODEVX3DB01 dbs]$ srvctl start database -d IGAPRODSB

[oracle@ODEVX3DB01 dbs]$ srvctl status database -d IGAPRODSB

Instance IGAPRODSB1 is running on node ODEVX3DB01

Instance IGAPRODSB2 is running on node ODEVX3DB02

[oracle@ODEVX3DB01 dbs]$

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from gv$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6.1127E+12

PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6.1127E+12

SQL> alter database recover managed standby database using current logfile disconnect;

On Primary:

SQL> alter system set log\_archive\_dest\_state\_2='enable' scope=both;

System altered.

Check Redo shipping and apply status on Primary & Standby:

* 1. **Setup Active Data Guard.**
     1. On primary:

SQL>select status,instance\_name,database\_role from v$instance,v$database;

* + 1. On Standby:

SQL>select status,instance\_name,database\_role from v$database,v$instance;

* + 1. Check if the Managed Recovery Process (MRP) is active on the physcial standby database.

SQL>select process,status,sequence# from v$managed\_standby;

* + 1. Cancel the MRP on the physical standby database and open the standby database. The standby database would be opened in the READ-ONLY Mode to make it Active DataGuard.

SQL> alter database recover managed standby database cancel;

SQL> **ALTER DATABASE OPEN READ ONLY;**

SQL> select status,instance\_name,database\_role,open\_mode from v$database,v$instance;

* + 1. Now start the MRP on the physical standby database.

SQL> alter database recover managed standby database disconnect from session;

**OR**

SQL> alter database recover managed standby database using current logfile disconnect; (FOR REAL TIME APPLY)

* 1. Monitor Standby REDO APPLY.
     1. **On primary**

SQL>select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

SQL>SELECT SEQUENCE#, FIRST\_TIME, NEXT\_TIME FROM V$ARCHIVED\_LOG ORDER BY SEQUENCE#;

SQL>SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

SQL>SELECT SEQUENCE#,APPLIED FROM V$ARCHIVED\_LOG ORDER BY SEQUENCE#;

SQL>archive log list

SQL>select timestamp, message from v$dataguard\_status;

* + 1. **on Standby**

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

SQL> SELECT SEQUENCE#, FIRST\_TIME, NEXT\_TIME FROM V$ARCHIVED\_LOG ORDER BY SEQUENCE#;

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

SQL> archive log list

SQL> select timestamp, message from v$dataguard\_status;

* 1. **Verify Standby Database**
     1. **On Primary**

SQL> ALTER SYSTEM ARCHIVE LOG CURRENT;

* + 1. **On Standby**

SQL> SELECT sequence#, first\_time, next\_time, applied FROM v$archived\_log ORDER BY sequence#;

* + 1. Add redo log groups and drop old log groups. This step is only necessary if you need to adjust redo log size, redo log group numbers for any standards.

--Add logfile groups for each thread and drop old groups. - may have to do some of log switches to drop old groups.

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 11 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 12 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 13 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 14 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 21 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 22 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 23 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 24 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

* 1. **Enable Data Guard Broker (Optional)**
     1. Enable Data Guard Broker
     2. On the primary and standby issue following command

Alter system set dg\_broker\_start=true scope=both sid=’\*’;

* + 1. On Primary Node

SQL>alter system set dg\_broker\_config\_file1='/u01/app/oracle/product/11.2.0.3/dbhome\_1/dr1IGAPROD.dat' scope=BOTH;

SQL> alter system set dg\_broker\_config\_file2='/u01/app/oracle/product/11.2.0.3/dbhome\_1/ dr2IGAPROD.dat' scope=BOTH;

On Standby Node

SQL> alter system set dg\_broker\_config\_file1='+DATA\_ODEVX3/ IGAPRODSB/BROKER/dr1IGAPRODSB.dat' scope=BOTH;

SQL> alter system set dg\_broker\_config\_file2='+DATA\_ODEVX3/ IGAPRODSB/BROKER/dr2IGAPRODSB.dat' scope=BOTH;

* + 1. On Primary Node
       1. Create Data Guard Configuration

$ export ORACLE\_HOME=IGAPROD

$ which dgmgrl

$ dgmgrl sys/<pwd>

DGMGRL> create configuration 'IGAPROD\_DG' as primary database is 'IGAPROD' connect identifier is IGAPROD;

DGMGRL> ADD DATABASE 'IGAPRODSB' AS CONNECT IDENTIFIER IS IGAPRODSB MAINTAINED AS PHYSICAL;

DGMGRL> ENABLE CONFIGURATION;

DGMGRL> SHOW CONFIGURATION;

DGMGRL> SHOW DATABASE IGAPROD\_DG VERBOSE;

DGMGRL> SHOW DATABASE IGAPRODSB VERBOSE;

* + - 1. Editing DG Broker Configuration

DGMGRL> EDIT DATABASE 'IGAPRODSB' SET PROPERTY 'DGConnectIdentifier'='IGAPRODSB\_DG';

* 1. **Test Switch Over**

Switchover is a planned event in which data guard reverses the roles of the primary and a standby database. Switch over is particularly useful for minimizing downtime during planned events, for example during migration, upgrades and patching.

On Primary:

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from gv$database;

on StandBy:

SQL> SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from gv$database;

########## Switch Over ###############

1. Prepare for switch over:

On Primary:

SQL> SELECT UNIQUE THREAD# AS THREAD, MAX(SEQUENCE#) OVER (PARTITION BY thread#) AS LAST from GV$ARCHIVED\_LOG;

On Standby:

SQL> SELECT UNIQUE THREAD# AS THREAD, MAX(SEQUENCE#) OVER (PARTITION BY thread#) AS LAST from GV$ARCHIVED\_LOG;

On Primary: Switch log file.

SQL> ALTER SYSTEM SWITCH LOGFILE;

-- This is last archivelog switch after apps are down or stopped transactions.

On StandBy Stop Apply:

SQL> ALTER DATABASE RECOVER MANAGED STANDBY DATABASE CANCEL;

On Standby Finish applying all received redo data:

SQL> ALTER DATABASE RECOVER MANAGED STANDBY DATABASE FINISH;

1. **Monitor Log Shipping & Apply**

#######After Restore completed###################

Monitor Media Recovery

SQL> alter session set nls\_date\_format='DD-MON-YYYY HH24:MI:SS';

Session altered.

#on Primary:

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PHYSICAL STANDBY MAXIMUM PERFORMANCE RECOVERY NEEDED 6.1127E+12

#On Standby:

SQL> alter session set nls\_date\_format='DD-MON-YYYY HH24:MI:SS';

Session altered.

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PHYSICAL STANDBY MAXIMUM PERFORMANCE RECOVERY NEEDED 6.1127E+12

#Standby Alert log:

Media Recovery Log +RECO\_ODEVX3/IGAPRODSB/archivelog/2014\_07\_20/thread\_1\_seq\_235.587.853399383

Sun Jul 20 07:36:58 2014

Media Recovery Waiting for thread 1 sequence 236 (in transit)

Sun Jul 20 07:39:13 2014

Archived Log entry 22 added for thread 1 sequence 236 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[8]: Opened log for thread 1 sequence 245 dbid -862314785 branch 852377577

Sun Jul 20 07:39:18 2014

Media Recovery Log +RECO\_ODEVX3/IGAPRODSB/archivelog/2014\_07\_20/thread\_1\_seq\_236.588.853399565

Sun Jul 20 07:39:30 2014

Media Recovery Waiting for thread 1 sequence 237 (in transit)

Sun Jul 20 07:39:37 2014

Archived Log entry 23 added for thread 1 sequence 245 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[8]: Opened log for thread 1 sequence 246 dbid -862314785 branch 852377577

Archived Log entry 24 added for thread 1 sequence 246 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[8]: Opened log for thread 1 sequence 247 dbid -862314785 branch 852377577

Archived Log entry 25 added for thread 1 sequence 247 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[8]: Opened log for thread 1 sequence 248 dbid -862314785 branch 852377577

Archived Log entry 26 added for thread 1 sequence 248 rlc 852377577 ID 0xcc9a9adf dest 2:

Sun Jul 20 07:41:31 2014

Archived Log entry 27 added for thread 1 sequence 237 rlc 852377577 ID 0xcc9a9adf dest 2:

Sun Jul 20 07:41:35 2014

Media Recovery Log +RECO\_ODEVX3/IGAPRODSB/archivelog/2014\_07\_20/thread\_1\_seq\_237.589.853399707

Sun Jul 20 07:41:48 2014

Media Recovery Waiting for thread 1 sequence 238 (in transit)

#Recovery is still under way - should complete log 251

#on Primary

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PRIMARY MAXIMUM PERFORMANCE TO STANDBY 6112663653233

#on Standby

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

---------------- -------------------- -------------------- -------------------

PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6112663639383

#Check logs are applied on standby

SQL> SQL> SELECT SEQUENCE#,APPLIED FROM V$ARCHIVED\_LOG ORDER BY SEQUENCE#;

SEQUENCE# APPLIED

---------- ---------

218 YES

………..

………..

246 YES

247 YES

248 YES

249 YES

250 YES

251 YES

34 rows selected.

SQL>

#On Primary:

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

STATUS PROCESS

------------ ---------

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

WRITING LNS

11 rows selected.

#On Standby

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

STATUS PROCESS

------------ ---------

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

CONNECTED ARCH

IDLE RFS

STATUS PROCESS

------------ ---------

IDLE RFS

IDLE RFS

IDLE RFS

IDLE RFS

WAIT\_FOR\_LOG MRP0

IDLE RFS

IDLE RFS

IDLE RFS

IDLE RFS

IDLE RFS

21 rows selected.

#On Primary

SQL> alter system switch logfile;

System altered.

#On Standby Alert Log

Archived Log entry 35 added for thread 1 sequence 252 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[3]: No standby redo logfiles created

RFS[3]: Opened log for thread 1 sequence 253 dbid -862314785 branch 852377577

Media Recovery Log +RECO\_ODEVX3/IGAPRODSB/archivelog/2014\_07\_20/thread\_1\_seq\_252.571.853388135

Media Recovery Waiting for thread 1 sequence 253 (in transit)

#On Stanby

SQL> SELECT SEQUENCE#,APPLIED FROM V$ARCHIVED\_LOG where sequence#=252;

SEQUENCE# APPLIED

---------- ---------

252 YES

#On Primary

SQL> SELECT MAX(SEQUENCE#) FROM V$ARCHIVED\_LOG WHERE APPLIED='YES';

MAX(SEQUENCE#)

--------------

252

#On Standby

SQL> SELECT MAX(SEQUENCE#) FROM V$ARCHIVED\_LOG WHERE APPLIED='YES';

MAX(SEQUENCE#)

--------------

252

#Switch Log Again

#On Primary

SQL> alter system switch logfile;

#On Standby Alert log

Archived Log entry 36 added for thread 1 sequence 253 rlc 852377577 ID 0xcc9a9adf dest 2:

RFS[3]: No standby redo logfiles created

RFS[3]: Opened log for thread 1 sequence 254 dbid -862314785 branch 852377577

Media Recovery Log +RECO\_ODEVX3/IGAPRODSB/archivelog/2014\_07\_20/thread\_1\_seq\_253.601.853401339

Media Recovery Waiting for thread 1 sequence 254 (in transit)

#On Standby

SQL> SELECT MAX(SEQUENCE#) FROM V$ARCHIVED\_LOG WHERE APPLIED='YES';

MAX(SEQUENCE#)

--------------

253

#On Primary

SQL> SELECT MAX(SEQUENCE#) FROM V$ARCHIVED\_LOG WHERE APPLIED='YES';

MAX(SEQUENCE#)

--------------

253

#On Primary

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

---------------- -------------------- -------------------- -------------------

PRIMARY MAXIMUM PERFORMANCE TO STANDBY 6112663662319

#On Standby

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

1. Init file configuration (Primary & Standy) –
2. **Some Issues may be encountered during standby setup/sync/RMAN duplicate**
   1. Make sure copy password from primary to standby for oracle user. scp pwdfile oracle@dest:<DBS DIR PATH ON DEST>
   2. Make sure use large large\_pool for rman restore
   3. Make sure set read permissions or all backup files, archivelog files required for rman restore/recover. And also permission on /ora/IGAPROD/arch
   4. Add IGAPRODSB to Cluster registry on standby if RMAN is stuck accessing disk group to create data files and archive log files.
   5. Check password is senstive on source and target

SQL> show parameter sec\_case\_sensitive\_logon;

SQL> alter system set sec\_case\_sensitive\_logon = false;

--whatever you have on source (true/false)

* 1. SQLNET.ORA setting to match on source and target.

1. **After Converting standby to RAC**

After standby is converted to RAC database. Both instances are opened read only however “REDO APPLY” will be active on only on of the standby nodes.

#On Primary

SQL> SELECT MAX(SEQUENCE#) FROM V$ARCHIVED\_LOG WHERE APPLIED='YES';

MAX(SEQUENCE#)

--------------

298

#On Stadby

SQL> SELECT INST\_ID,MAX(SEQUENCE#) FROM GV$ARCHIVED\_LOG WHERE APPLIED='YES' GROUP BY INST\_ID;

INST\_ID MAX(SEQUENCE#)

---------- --------------

1 298

2 298

#on Standby

#On node 1

SQL> alter database open read only;

SQL> alter database recover managed standby database using current logfile disconnect;

#On Node2

SQL> alter database open read only;

Database altered.

SQL> select inst\_id,open\_mode from gv$database;

INST\_ID OPEN\_MODE

---------- --------------------

2 READ ONLY WITH APPLY

1 READ ONLY WITH APPLY

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from v$database;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PRIMARY MAXIMUM PERFORMANCE SESSIONS ACTIVE 6.1127E+12

SQL> select DATABASE\_ROLE,PROTECTION\_MODE,SWITCHOVER\_STATUS,CURRENT\_SCN from GV$DATABASE;

DATABASE\_ROLE PROTECTION\_MODE SWITCHOVER\_STATUS CURRENT\_SCN

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PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6.1127E+12

PHYSICAL STANDBY MAXIMUM PERFORMANCE NOT ALLOWED 6.1127E+12

#On Primary add SRLs for thread 2(instance 2) - This is not required if Primary is single instance

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '/ora/IGAPROD/redo/stbylog16.dbf' size 1024M reuse;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '/ora/IGAPROD/redo/stbylog11.dbf' size 1024M reuse;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '/ora/IGAPROD/redo/stbylog18.dbf' size 1024M reuse;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '/ora/IGAPROD/redo/stbylog19.dbf' size 1024M reuse;

ALTER DATABASE ADD STANDBY LOGFILE THREAD 2 '/ora/IGAPROD/redo/stbylog20.dbf' size 1024M reuse;

SQL> SELECT INST\_ID,GROUP#,THREAD#,SEQUENCE#,ARCHIVED,STATUS FROM GV$STANDBY\_LOG;

INST\_ID GROUP# THREAD# SEQUENCE# ARC STATUS

---------- ---------- ---------- ---------- --- ----------

2 1 1 300 YES ACTIVE

2 2 1 0 NO UNASSIGNED

2 7 1 0 YES UNASSIGNED

2 8 1 0 YES UNASSIGNED

2 9 1 0 YES UNASSIGNED

1 1 1 300 YES ACTIVE

1 2 1 0 NO UNASSIGNED

1 7 1 0 YES UNASSIGNED

1 8 1 0 YES UNASSIGNED

1 9 1 0 YES UNASSIGNED

10 rows selected.

SQL> SELECT STATUS,PROCESS FROM V$MANAGED\_STANDBY;

STATUS PROCESS

------------ ---------

CLOSING ARCH

CONNECTED ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

OPENING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

CLOSING ARCH

WRITING LNS

11 rows selected.

SQL>

SQL> SELECT INST\_ID,STATUS,PROCESS FROM GV$MANAGED\_STANDBY ORDER BY 1;

INST\_ID STATUS PROCESS

---------- ------------ ---------

1 CLOSING ARCH

1 IDLE RFS

1 IDLE RFS

1 IDLE RFS

1 IDLE RFS

**1 APPLYING\_LOG MRP0**

1 CONNECTED ARCH

1 CONNECTED ARCH

1 CLOSING ARCH

1 CONNECTED ARCH

1 CONNECTED ARCH

1 CONNECTED ARCH

1 IDLE RFS

1 CONNECTED ARCH

1 CLOSING ARCH

1 CLOSING ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

2 CONNECTED ARCH

26 rows selected.

SQL>

SQL> create undo tablespace APPS\_UNDOTS2 datafile '+DATA\_ODEVX3' size 2048M autoextend on;

SQL> ALTER SYSTEM SET undo\_tablespace='APPS\_UNDOTS2' SID=’ ESLPERF2’ SCOPE=SPFILE;

System altered.

##This step is needed to enable node2 if you have not already done when converting.

SQL> ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 11 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 12 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 13 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 1 GROUP 14 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 21 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 22 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 23 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

ALTER DATABASE ADD LOGFILE THREAD 2 GROUP 24 ('+DATA\_ODEVX3','+RECO\_ODEVX3') size 10240M;

SQL> alter database enable thread 2;

Database altered.

--drop old logfiles after several switch

drop old database from registry and add new database in cluster registry.

srvctl remove instance –d OAGPRODSB –i OAGPRODSB1

srvctl remove instance –d OAGPRODSB –i OAGPRODSB2

srvctl remove database –d OAGPRODSB

Add new database to registry.

[oracle@ODEVX3DB01 trace]$ srvctl add database -d ESLPERF -o /u01/app/oracle/product/11.2.0.3/dbhome\_1 -p '+DATA\_ODEVX3/ESLPERF/PARAMETERFILE/spfileESLPERF.ora' -r PHYSICAL\_STANDBY –n IGAPROD

[oracle@ODEVX3DB01 trace]$ srvctl modify database -d ESLPERF -a "DATA\_ODEVX2,RECO\_ODEVX2"

[oracle@ODEVX3DB01 trace]$ srvctl modify database -d ESLPERF -s MOUNT

[oracle@ODEVX3DB01 trace]$ srvctl add instance -d ESLPERF -i ESLPERF1 -n ODEVX3DB01

[oracle@ODEVX3DB01 trace]$ srvctl add instance -d ESLPERF -i ESLPERF2 -n ODEVX3DB02

[oracle@ODEVX3DB01 dbs]$ srvctl status database -d ESLPERF

Instance ESLPERF1 is not running on node ODEVX3DB01

Instance ESLPERF2 is not running on node ODEVX3DB02