# Chuyển đổi Single Instance 11g sang RAC 11g

## Thông tin về cơ sở dữ liệu thực nghiệm:

**Sinle Instance:**

|  |
| --- |
| IP: 192.168.4.3  Hostname=single  Version: 11.2.0.3  ORACLE\_SID=gold  ORACLE\_HOME=/u01/app/oracle/product/11.2.0/dbhome\_1  SYS password : oracle  Storage: ASM. |

**RAC:**

|  |
| --- |
| IP: 172.20.20.172 (dbhn1)  172.20.20.173 (dbhn2)  Hostname: dbhn1,dbhn2  Version: 11.2.0.3  ORACLE\_SID=gold1,gold2  ORACLE\_HOME=/u01/app/oracle/product/11.2.0/dbhome\_1  SYS password : oracle  Storage: ASM. |

## Backup Single Instance:

Bạn tạo một thư mục để chứa các file cần thiết trong quá trình chuyển đổi:

|  |
| --- |
| mkdir /home/oracle/backup  cd /home/oracle/backup |

### Copy password file

|  |
| --- |
| cp $ORACLE\_HOME/dbs/orapwgold /home/oracle/backup/  #Nếu không có passwordfile bạn có thể tạo ra bằng lệnh  orapwd file=/home/oracle/backup/orapwgold password=oracle |

### Tạo pfile:

|  |
| --- |
| sqlplus / as sysdba  Create pfile=’/home/oracle/backup/init.ora’ from spfile  File created. |

### Backup full database:

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| --- |
| rman target /  backup as backupset device type disk format ‘/home/oracle/backup/gold%U’ full database plus archivelog; |

### Backup current controlfile

|  |
| --- |
| rman target /  backup as backupset current controlfile format ‘/home/oracle/backup/controlfile.ctl’; |

## Restore database sang RAC từ backup

### Copy các file cần thiết sang RAC

|  |
| --- |
| #node1:  mkdir /home/oracle/backup/  #Single  #Copy sang Node 1:  scp /home/oracle/backup/\* dbhn1:/home/oracle/backup  Copy các file vào thư mục đúng  cd /home/oracle/backup  cp orapwgold $ORACLE\_HOME/dbs/orapwgold1 |

### Sửa lại file môi trường: (Buoc nay phai thuc hien truoc khi startup nomount)

|  |
| --- |
| #.bash\_profile  if [ -f ~/.bashrc ]; then  . ~/.bashrc  fi  alias ls="ls -FA"  ORACLE\_SID=gold1; export ORACLE\_SID  ORACLE\_UNQNAME=gold; export ORACLE\_UNQNAME  JAVA\_HOME=/usr/local/java; export JAVA\_HOME  ORACLE\_BASE=/u01/app/oracle; export ORACLE\_BASE  ORACLE\_HOME=$ORACLE\_BASE/product/11.2.0/dbhome\_1; export ORACLE\_HOME  NLS\_DATE\_FORMAT="DD-MON-YYYY HH24:MI:SS"; export NLS\_DATE\_FORMAT  ORA\_NLS11=$ORACLE\_HOME/nls/data; export ORA\_NLS11  PATH=.:${JAVA\_HOME}/bin:${PATH}:$HOME/bin:$ORACLE\_HOME/bin  PATH=${PATH}:/usr/bin:/bin:/usr/bin/X11:/usr/local/bin  PATH=${PATH}:/u01/app/common/oracle/bin  export PATH  LD\_LIBRARY\_PATH=$ORACLE\_HOME/lib  LD\_LIBRARY\_PATH=${LD\_LIBRARY\_PATH}:$ORACLE\_HOME/oracm/lib  LD\_LIBRARY\_PATH=${LD\_LIBRARY\_PATH}:/lib:/usr/lib:/usr/local/lib  export LD\_LIBRARY\_PATH  CLASSPATH=$ORACLE\_HOME/JRE  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/jlib  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/rdbms/jlib  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/network/jlib  export CLASSPATH  umask 022 |

### Start thử sqlplus sử dụng password file

|  |
| --- |
| Sqlplus / as sysdba  SQL\*Plus: Release 11.2.0.3.0 Production on Fri Oct 19 11:28:00 2012  Copyright (c) 1982, 2011, Oracle. All rights reserved.  Connected to idle instance  SQL>  🡪OK |

### Sửa lại parameter file:

|  |
| --- |
| #/home/oracle/backup/init.ora \*.audit\_file\_dest='/u01/app/oracle/admin/gold/adump'  \*.audit\_trail='db'  \*.cluster\_database=true  dbhn1.cluster\_database=FALSE  gold1.cluster\_database=TRUE  \*.compatible='11.2.0.0.0'  \*.control\_files='+DATA/gold/controlfile/current.274.794598689','+FRA/gold/controlfile/current.366.794598689'  \*.db\_block\_size=8192  \*.db\_create\_file\_dest='+DATA'  \*.db\_domain=''  \*.db\_name='gold'  \*.db\_recovery\_file\_dest='+FRA'  \*.db\_recovery\_file\_dest\_size=4558159872  \*.diagnostic\_dest='/u01/app/oracle'  \*.dispatchers='(PROTOCOL=TCP) (SERVICE=goldXDB)'  gold2.instance\_number=2  gold1.instance\_number=1  \*.log\_archive\_dest\_1='location=+FRA'  \*.log\_archive\_format='%t\_%s\_%r.dbf'  \*.open\_cursors=300  \*.pga\_aggregate\_target=209715200  \*.processes=150  \*.remote\_listener='dbhn-cluster-scan:1521'  \*.remote\_login\_passwordfile='exclusive'  \*.sga\_target=631242752  gold2.thread=2  gold1.thread=1  gold1.undo\_tablespace='UNDOTBS1'  gold2.undo\_tablespace='UNDOTBS2' |

### Tạo các đường dẫn cần thiết:

|  |
| --- |
| mkdir /u01/app/oracle/admin/gold/adump  su – grid  asmcmd  mkdir +DATA/gold/controlfile/  mkdir +DATA/gold/datafile  mkdir +DATA/gold/onlinelog  mkdir +FRA/gold/controlfile/  mkdir +FRA/gold/datafile  mkdir +FRA/gold/archivelog  Startup database nomout.  #sqlplus:  startup nomout pfile=’ /home/oracle/backup/init.ora’  ORACLE instance started.  Total System Global Area 630501376 bytes  Fixed Size 2230992 bytes  Variable Size 385877296 bytes  Database Buffers 234881024 bytes  Redo Buffers 7512064 bytes |

### Restore controlfile

|  |
| --- |
| Rman target /  Restore controlfile from ‘/home/oracle/backup/controlfile.ctl’;  ( Chú ý: Nếu sử dụng ASM, bạn nên kiểm tra lại quyền access vào ASM disk của oracle, nếu đầy đủ quyền mới có thể restore lại controlfile và database được.  Permission đúng:  [oracle@dbhn1 ~]$ ls -l /u01/app/oracle/product/11.2.0/dbhome\_1/bin/oracle  -rwsr-x--x 1 oracle asmadmin 232399431 Sep 12 15:00 /u01/app/oracle/product/11.2.0/dbhome\_1/bin/oracle\*  Nếu không, làm như sau:  su – root  cd /u01/app/oracle/product/11.2.0/dbhome\_1/bin  Chgrp asmadmin oracle  Chmod 6751 oracle  )  Sau khi đã restore xong controlfile, mount database lên:  Alter database mount; |

### Restore Database:

|  |
| --- |
| rman target /  catalog start with ‘/home/oracle/backup/’;  restore database ;  recover database; |

### Add redo log file:

|  |
| --- |
| #sqlplus  Alter database add logfile thread 1 group 5 ‘+DATA/gold/onlinelog/redo\_01\_05.log’ size 50M;  Alter database add logfile thread 1 group 6 ‘+FRA/gold/onlinelog/redo\_01\_06.log’ size 50M;  Alter database add logfile thread 1 group 7 ‘+FRA/gold/onlinelog/redo\_01\_07.log’ size 50M;  Alter database add logfile thread 2 group 8 ‘+DATA/gold/onlinelog/redo\_01\_08.log’ size 50M;  Alter database add logfile thread 2 group 9 ‘+FRA/gold/onlinelog/redo\_01\_09.log’ size 50M;  Alter database add logfile thread 2 group 10 ‘+FRA/gold/onlinelog/redo\_01\_10.log’ size 50M; |

### Tạo spfile:

|  |
| --- |
| #sqlplus  create spfile=’ +DATA/gold/spfile.ora’ from  pfile=’/home/oracle/backup/init.ora’;  vi $ORACLE\_HOME/dbs/initgold1.ora  SPFILE=’+DATA/gold/spfile.ora’;  Kiểm tra thử:  shutdown immediate;  startup mount;  Nếu không gặp lỗi gì thì bước này thành công! |

### Open Database:

Alter database open resetlogs;

## Đăng ký Database với OCR:

|  |
| --- |
| srvctl add database –d gold –o /u01/app/oracle/product/11.2.0/dbhome\_1 -p +DATA/gold/spfile.ora (thêm tham số này với bản 11gR2)  srvctl add instance –d gold –i gold1 –n dbhn1  srvctl add instance –d gold –i gold2 –n dbhn2  srvctl stop database –d gold  srvctl start database –d gold  Kiểm tra lại:  Name Type Target State Host  ------------------------------------------------------------  ora.DATA.dg ora....up.type ONLINE ONLINE dbhn1  ora.DATA\_DB.dg ora....up.type ONLINE ONLINE dbhn1  ora.FRA.dg ora....up.type ONLINE ONLINE dbhn1  ora....ER.lsnr ora....er.type ONLINE ONLINE dbhn1  ora.asm ora.asm.type ONLINE ONLINE dbhn1  ora....SM1.asm application ONLINE ONLINE dbhn1  ora....N1.lsnr application ONLINE ONLINE dbhn1  ora.dbhn1.gsd application OFFLINE OFFLINE  ora.dbhn1.ons application ONLINE ONLINE dbhn1  ora.dbhn1.vip ora....t1.type ONLINE ONLINE dbhn1  ora.gold.db ora....se.type ONLINE ONLINE dbhn1  ora.gsd ora.gsd.type OFFLINE OFFLINE  ora....network ora....rk.type ONLINE ONLINE dbhn1  ora.ons ora.ons.type ONLINE ONLINE dbhn1 |

## Tiếp tục với node 2:

### Copy password file:

cp /home/oracle/backup/orapwgold

$ORACLE\_HOME/dbs/orapwgold2

### Sửa file môi trường:

|  |
| --- |
| #.bash\_profile  if [ -f ~/.bashrc ]; then  . ~/.bashrc  fi  alias ls="ls -FA"  ORACLE\_SID=gold2; export ORACLE\_SID  ORACLE\_UNQNAME=gold; export ORACLE\_UNQNAME  JAVA\_HOME=/usr/local/java; export JAVA\_HOME  ORACLE\_BASE=/u01/app/oracle; export ORACLE\_BASE  ORACLE\_HOME=$ORACLE\_BASE/product/11.2.0/dbhome\_1; export ORACLE\_HOME  NLS\_DATE\_FORMAT="DD-MON-YYYY HH24:MI:SS"; export NLS\_DATE\_FORMAT  PATH=.:${JAVA\_HOME}/bin:${PATH}:$HOME/bin:$ORACLE\_HOME/bin  PATH=${PATH}:/usr/bin:/bin:/usr/bin/X11:/usr/local/bin  PATH=${PATH}:/u01/app/common/oracle/bin  export PATH  LD\_LIBRARY\_PATH=$ORACLE\_HOME/lib  LD\_LIBRARY\_PATH=${LD\_LIBRARY\_PATH}:$ORACLE\_HOME/oracm/lib  LD\_LIBRARY\_PATH=${LD\_LIBRARY\_PATH}:/lib:/usr/lib:/usr/local/lib  export LD\_LIBRARY\_PATH  CLASSPATH=$ORACLE\_HOME/JRE  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/jlib  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/rdbms/jlib  CLASSPATH=${CLASSPATH}:$ORACLE\_HOME/network/jlib  export CLASSPATH  umask 022 |

### Tạo pfile và startup nomount:

|  |
| --- |
| #$ORACLE\_HOME/dbs/initgold2.ora  SPFILE=’+DATA/gold/spfile.ora’  #Sqlplus:  startup nomount;  #Ở trên node1 enable redo log cho node2:  alter database enable public thread 2; |

### Open database

alter database open;

Kiểm tra lại:

|  |
| --- |
| [grid@dbhn1 ~]$ crs\_stat -t  Name Type Target State Host  ------------------------------------------------------------  ora.DATA.dg ora....up.type ONLINE ONLINE dbhn1  ora.DATA\_DB.dg ora....up.type ONLINE ONLINE dbhn1  ora.FRA.dg ora....up.type ONLINE ONLINE dbhn1  ora....ER.lsnr ora....er.type ONLINE ONLINE dbhn1  ora....N1.lsnr ora....er.type ONLINE ONLINE dbhn2  ora.asm ora.asm.type ONLINE ONLINE dbhn1  ora.cvu ora.cvu.type ONLINE ONLINE dbhn2  ora....SM1.asm application ONLINE ONLINE dbhn1  ora....N1.lsnr application ONLINE ONLINE dbhn1  ora.dbhn1.gsd application OFFLINE OFFLINE  ora.dbhn1.ons application ONLINE ONLINE dbhn1  ora.dbhn1.vip ora....t1.type ONLINE ONLINE dbhn1  ora....SM2.asm application ONLINE ONLINE dbhn2  ora....N2.lsnr application ONLINE ONLINE dbhn2  ora.dbhn2.gsd application OFFLINE OFFLINE  ora.dbhn2.ons application ONLINE ONLINE dbhn2  ora.dbhn2.vip ora....t1.type ONLINE ONLINE dbhn2  ora.gold.db ora....se.type ONLINE ONLINE dbhn1  ora.gsd ora.gsd.type OFFLINE OFFLINE  ora....network ora....rk.type ONLINE ONLINE dbhn1  ora.oc4j ora.oc4j.type ONLINE ONLINE dbhn2  ora.ons ora.ons.type ONLINE ONLINE dbhn1  ora.scan1.vip ora....ip.type ONLINE ONLINE dbhn2 |