



Oracle 11g R2 Node Addition

Adding a third node to a 2-node 11.2.0.2 RAC cluster on OEL 5u5

Table of Contents

1. Install OS	2
2. Update packages	2
3. Create users and groups	3
4. Create directories	3
5. Installing the cvuqdisk Package for Linux.....	4
6. Configure the Linux Servers for Oracle	5
7. Start ISCSI daemon and configure ISCSI disks.	6
8. Pre-Node addition checks	8
9. Add the node to the cluster.	8
Adding Administrator-Managed Oracle RAC Database Instances to Target Nodes	19

1. Install OS

I am using 32-bit oracle enterprise linux 5 update 5. Configure all networking (public, private, storage) and configure proper DNS entries in the DNS server.

2. Update packages

```
#for 32-bit
cd /software/linux/package

rpm -Uvh binutils-2.17.50.0.6-14.el5.i386.rpm
rpm -Uvh compat-libstdc++-33-3.2.3-61.i386.rpm
rpm -Uvh compat-libstdc++-296-2.96-138.i386.rpm
rpm -Uvh elfutils-libelf-0.137-3.el5.i386.rpm
rpm -Uvh elfutils-libelf-devel-static-0.137-3.el5.i386.rpm
rpm -Uvh elfutils-libelf-devel-0.137-3.el5.i386.rpm
rpm -Uvh elfutils-libelf-devel-static-0.137-3.el5.i386.rpm
rpm -Uvh elfutils-libelf-devel-0.137-3.el5.i386.rpm
rpm -Uvh gcc-4.1.2-48.el5.i386.rpm
rpm -Uvh gcc-c++-4.1.2-48.el5.i386.rpm
rpm -Uvh glibc-2.5-49.i386.rpm
rpm -Uvh glibc-2.5-49.i686.rpm
rpm -Uvh glibc-common-2.5-49.i386.rpm
rpm -Uvh glibc-devel-2.5-49.i386.rpm
rpm -Uvh glibc-devel-2.5-49.i386.rpm
rpm -Uvh glibc-headers-2.5-49.i386.rpm
rpm -Uvh kernel-headers-2.6.18-194.el5.i386.rpm
rpm -Uvh ksh-20100202-1.el5.i386.rpm
rpm -Uvh libaio-0.3.106-5.i386.rpm
rpm -Uvh libaio-devel-0.3.106-5.i386.rpm
rpm -Uvh libaio-devel-0.3.106-5.i386.rpm
rpm -Uvh libgcc-4.1.2-48.el5.i386.rpm
rpm -Uvh libgomp-4.4.0-6.el5.i386.rpm
rpm -Uvh libstdc++-4.1.2-48.el5.i386.rpm
rpm -Uvh libstdc++-4.1.2-48.el5.i386.rpm
rpm -Uvh libstdc++-devel-4.1.2-48.el5.i386.rpm
rpm -Uvh make-3.81-3.el5.i386.rpm
rpm -Uvh numactl-devel-0.9.8-11.el5.i386.rpm
rpm -Uvh sysstat-7.0.2-3.el5.i386.rpm
rpm -Uvh unixODBC-2.2.11-7.1.i386.rpm
rpm -Uvh unixODBC-devel-2.2.11-7.1.i386.rpm

# Iscsi initiator
rpm -Uvh iscsi-initiator-utils-*

# Asm support
# This one needs to be downloaded
```

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Oracle 11g R2 Node Addition

```
cp oracleasm-lib-2.0.4-1.el5.i386.rpm /software/linux/package
```

```
rpm -Uvh oracleasm-support-2.1.3-1.el5.i386.rpm  
rpm -Uvh oracleasm-2.6.18-194.el5PAE-2.0.5-1.el5.i686.rpm  
rpm -Uvh oracleasm-lib-2.0.4-1.el5.i386.rpm
```

```
# Audit vault agent packages.
```

```
rpm -Uvh compat-libstdc++-33-3.2.3-61.i386  
rpm -Uvh compat-db-4.2.52-5.1.i386.rpm  
rpm -Uvh pdksh-5.2.14-36.el5.i386.rpm
```

3. Create users and groups

```
# Create all the groups
```

```
groupadd -g 501 oinstall  
groupadd -g 502 dba  
groupadd -g 503 oper  
groupadd -g 504 asmoper  
groupadd -g 505 asmadmin  
groupadd -g 506 asmdba  
groupadd -g 507 avadmin
```

```
# Create all the users
```

```
#1. Create account 'grid' to be owning clusterware and ASM
```

```
useradd -m -u 501 -g oinstall -G asmadmin,asmdba,asmoper -d /home/grid -s /bin/bash -c "Grid  
Infrastructure Owner" grid  
echo "set the password for grid"  
passwd grid
```

```
#2. Create 'oracle'
```

```
useradd -m -u 502 -g oinstall -G dba,oper,asmdba -d /home/oracle -s /bin/bash -c "Oracle  
Software Owner" oracle
```

```
echo "Set the password for oracle"  
passwd oracle
```

```
#3. Create user 'adtvault'
```

```
useradd -m -u 503 -g oinstall -G avadmin,dba -d /home/adtvault -s /bin/bash -c "Audit vault  
Software Owner" adtvault
```

4. Create directories

```
# ORACLE_BASE and ORACLE_HOME for 'grid'
```

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Oracle 11g R2 Node Addition

```
mkdir -p /u01/app/grid  
mkdir -p /u01/app/11.2.0/grid  
chown -R grid:oinstall /u01
```

```
# ORACLE_BASE and ORACLE_HOME for 'oracle'  
mkdir -p /u01/app/oracle  
chown oracle:oinstall /u01/app/oracle  
chmod -R 775 /u01
```

5. Installing the cvuqdisk Package for Linux

Available in the binary of grid infrastructure

Install the operating system package `cvuqdisk`. Without `cvuqdisk`, Cluster Verification Utility cannot discover shared disks, and you receive the error message "Package `cvuqdisk` not installed" when you run Cluster Verification Utility. Use the `cvuqdisk` rpm for your hardware (for example, `x86_64`, or `i386`).

To install the `cvuqdisk` RPM, complete the following procedure:

Note:

If you prefer, you can choose to disable Cluster Verification Utility shared disk checks by adding the following line to the file `grid_home/cv/admin/cvuconfig`:

```
CV_RAW_CHECK_ENABLED=FALSE
```

1. Locate the `cvuqdisk` RPM package, which is in the directory `rpm` on the installation media. If you have already installed Oracle grid infrastructure, then it is located in the directory `grid_home/rpm`.
2. Copy the `cvuqdisk` package to each node on the cluster. You should ensure that each node is running the same version of Linux.
3. Log in as `root`.
4. Use the following command to find if you have an existing version of the `cvuqdisk` package:
5.

```
# rpm -qi cvuqdisk
```

If you have an existing version, then enter the following command to deinstall the existing version:

```
# rpm -e cvuqdisk
```

6. Set the environment variable `CVUQDISK_GRP` to point to the group that will own `cvuqdisk`, typically `oinstall`. For example:
7.

```
# CVUQDISK_GRP=oinstall; export CVUQDISK_GRP
```

Oracle 11g R2 Node Addition

8. In the directory where you have saved the cvuqdisk rpm, use the following command to install the cvuqdisk package:
9. `rpm -iv package`

For example:

```
[root@tslinrac03 package]# rpm -iv cvuqdisk-1.0.9-1.rpm
Preparing packages for installation...
cvuqdisk-1.0.9-1
```

6. Configure the Linux Servers for Oracle

- Set the installation software owner user (grid, oracle) default file mode creation mask (umask) to 022 in the shell startup file. Setting the mask to 022 ensures that the user performing the software installation creates files with 644 permissions.
- Set ulimit settings for file descriptors and processes for the installation software owner (grid, oracle)
- Set the software owner's environment variable DISPLAY environment variables in preparation for the Oracle grid infrastructure installation

```
cat>> /etc/security/limits.conf<<EOF
grid soft nproc 2047
grid hard nproc 16384
grid soft nofile 1024
grid hard nofile 65536
oracle soft nproc 2047
oracle hard nproc 16384
oracle soft nofile 1024
oracle hard nofile 65536
EOF
```

```
cat>> /etc/pam.d/login <<EOF
# Added for Oracle Shell Limits
session required /lib/security/pam_limits.so
session required pam_limits.so
EOF
```

- Depending on your shell environment, make the following changes to the default shell startup file, to change ulimit setting for all Oracle installation owners (note that these examples show the users oracle and grid):

Oracle 11g R2 Node Addition

For the Bourne, Bash, or Korn shell, add lines similar to the following to the `/etc/profile` file (or the file on SUSE systems) `/etc/profile.local`

```
if [ $USER = "oracle" ] || [ $USER = "grid" ]; then
if [ $SHELL = "/bin/ksh" ]; then
ulimit -p 16384
ulimit -n 65536
else
ulimit -u 16384 -n 65536
fi
umask 022
fi
```

During an Oracle grid infrastructure installation, OUI uses SSH to run commands and copy files to the other nodes. During the installation, hidden files on the system (for example, `.bashrc` or `.cshrc`) will cause makefile and other installation errors if they contain `stty` commands.

To avoid this problem, you must modify these files in each Oracle installation owner user home directory to suppress all output on `STDERR`, as in the following examples:

Bourne, Bash, or Korn shell:

```
if [ -t 0 ]; then
sttyintr ^C
fi
```

7. Start ISCSI deamon and configure ISCSI disks.

```
serviceiscsid start
chkconfigiscsid on
chkconfigiscsi on
```

--Discover already configured ISCSI disks. These disks are already configured on the ISCSI target and being used by the existing 2 nodes.

```
iscsiadm -m discovery -t sendtargets -p tsstore01-stg
```

--Manual login into Iscsiluns

```
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgcrs1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgdb1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgdb2 -p 192.168.70.10 -l
```

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Oracle 11g R2 Node Addition

```
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgfra1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgafs -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgcrs1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgdb1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgdb2 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgfra1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgafs -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgcrs1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgdb1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgdb2 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgfra1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgafs -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgdb1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgdb2 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgfra1 -p 192.168.70.10 -l
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgafs -p 192.168.70.10 -l
```

■ Automatic login into ISCSI luns

```
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgcrs1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgdb1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgdb2 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgfra1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdavgafs -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgcrs1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgdb1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgdb2 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgfra1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdbvgafs -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgcrs1 -p 192.168.70.10 --op update -n
node.startup -v automatic
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgdb1 -p 192.168.70.10 --op update -n
node.startup -v automatic
```

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Oracle 11g R2 Node Addition

```
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgdb2 -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgfra1 -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sdcvgafs -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgdb1 -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgdb2 -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgfra1 -p 192.168.70.10 --op update -n  
node.startup -v automatic  
iscsiadm -m node -T iqn.2006-01.com.openfiler:sddvgafs -p 192.168.70.10 --op update -n  
node.startup -v automatic
```

8. Pre-Node addition checks

On tslinrac01: (existing node 1 of 2)

```
Cd /u01/app/11.2.0/grid/bin  
./cluvfy stage -post hwos -n tslinrac01,tslinrac02,tslinrac03
```

--Refer to file node_addition_cluvfy_stage_post_hwos.log for details of the output.

Compare the nodes 2 and 3 with node 1 as the reference node.

```
./cluvfy comp peer -refnode tslinrac01 -n tslinrac02,tslinrac03 -orainvinstall -osdbadba>  
/tmp/cluvfy_comp_peer.dat
```

--Refer to the file node_addition_cluvfy_comp_peer.log for details of the output.

```
./cluvfy stage -pre nodeadd -n tslinrac03 > /tmp/node_addition_cluvfy_pre_nodeadd.log
```

---- I don't have the output from this command since the saved file was removed. When I check it now, it says the node is already part of the cluster.

9. Add the node to the cluster.

Login as 'grid' on node1 tslinrac01.

```
cd/u01/app/11.2.0/grid/oui/bin
```

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```
export IGNORE_PREADDNODE_CHECKS=Y
```

```
./addNode.sh "CLUSTER_NEW_NODES={tslinrac03}"  
"CLUSTER_NEW_VIRTUAL_HOSTNAMES={tslinrac03-vip}"
```

```
[grid@tslinrac01 bin]$ ./addNode.sh "CLUSTER_NEW_NODES={tslinrac03}"  
"CLUSTER_NEW_VIRTUAL_HOSTNAMES={tslinrac03-vip}"  
Starting Oracle Universal Installer...
```

```
Checking swap space: must be greater than 500 MB. Actual 3888 MB Passed  
Checking monitor: must be configured to display at least 256 colors  
>>> Could not execute auto check for display colors using command /usr/bin/xdpyinfo. Check if the  
DISPLAY variable is set. Failed <<<<
```

Some requirement checks failed. You must fulfill these requirements before

continuing with the installation,

Continue? (y/n) [n] n

User Selected: No

```
Exiting Oracle Universal Installer, log for this session can be found at  
/u01/app/oralInventory/logs/installActions2011-07-09_10-41-28AM.log  
[grid@tslinrac01 bin]$ export DISPLAY=192.168.1.106:0.0  
[grid@tslinrac01 bin]$ xclock  
[grid@tslinrac01 bin]$ ./addNode.sh "CLUSTER_NEW_NODES={tslinrac03}"  
"CLUSTER_NEW_VIRTUAL_HOSTNAMES={tslinrac03-vip}"  
Starting Oracle Universal Installer...
```

```
Checking swap space: must be greater than 500 MB. Actual 3888 MB Passed  
Checking monitor: must be configured to display at least 256 colors. Actual 16777216 Passed  
Oracle Universal Installer, Version 11.2.0.2.0 Production  
Copyright (C) 1999, 2010, Oracle. All rights reserved.
```

```
Performing tests to see whether nodes tslinrac02,tslinrac03 are available  
..... 100% Done.
```

.

Cluster Node Addition Summary
Global Settings
Source: /u01/app/11.2.0/grid

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Oracle 11g R2 Node Addition

New Nodes

Space Requirements

New Nodes

tslinrac03

/: Required 5.61GB : Available 90.76GB

Installed Products

Product Names

Oracle Grid Infrastructure 11.2.0.2.0

Sun JDK 1.5.0.24.08

Installer SDK Component 11.2.0.2.0

Oracle One-Off Patch Installer 11.2.0.0.2

Oracle Universal Installer 11.2.0.2.0

Oracle USM Deconfiguration 11.2.0.2.0

Oracle Configuration Manager Deconfiguration 10.3.1.0.0

Enterprise Manager Common Core Files 10.2.0.4.3

Oracle DBCA Deconfiguration 11.2.0.2.0

Oracle RAC Deconfiguration 11.2.0.2.0

Oracle Quality of Service Management (Server) 11.2.0.2.0

Installation Plugin Files 11.2.0.2.0

Universal Storage Manager Files 11.2.0.2.0

Oracle Text Required Support Files 11.2.0.2.0

Automatic Storage Management Assistant 11.2.0.2.0

Oracle Database 11g Multimedia Files 11.2.0.2.0

Oracle Multimedia Java Advanced Imaging 11.2.0.2.0

Oracle Globalization Support 11.2.0.2.0

Oracle Multimedia Locator RDBMS Files 11.2.0.2.0

Oracle Core Required Support Files 11.2.0.2.0

Bali Share 1.1.18.0.0

Oracle Database Deconfiguration 11.2.0.2.0

Oracle Quality of Service Management (Client) 11.2.0.2.0

Expat libraries 2.0.1.0.1

Oracle Containers for Java 11.2.0.2.0

Perl Modules 5.10.0.0.1

Secure Socket Layer 11.2.0.2.0

Oracle JDBC/OCI Instant Client 11.2.0.2.0

Oracle Multimedia Client Option 11.2.0.2.0

LDAP Required Support Files 11.2.0.2.0

Character Set Migration Utility 11.2.0.2.0

Perl Interpreter 5.10.0.0.1

PL/SQL Embedded Gateway 11.2.0.2.0

OLAP SQL Scripts 11.2.0.2.0

Database SQL Scripts 11.2.0.2.0

Oracle Extended Windowing Toolkit 3.4.47.0.0

SSL Required Support Files for InstantClient 11.2.0.2.0

SQL*Plus Files for Instant Client 11.2.0.2.0

Oracle Net Required Support Files 11.2.0.2.0

Oracle Database User Interface 2.2.13.0.0

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Oracle 11g R2 Node Addition

RDBMS Required Support Files for Instant Client 11.2.0.2.0
RDBMS Required Support Files Runtime 11.2.0.2.0
XML Parser for Java 11.2.0.2.0
Oracle Security Developer Tools 11.2.0.2.0
Oracle Wallet Manager 11.2.0.2.0
Enterprise Manager plugin Common Files 11.2.0.2.0
Platform Required Support Files 11.2.0.2.0
Oracle JFC Extended Windowing Toolkit 4.2.36.0.0
RDBMS Required Support Files 11.2.0.2.0
Oracle Ice Browser 5.2.3.6.0
Oracle Help For Java 4.2.9.0.0
Enterprise Manager Common Files 10.2.0.4.3
Deinstallation Tool 11.2.0.2.0
Oracle Java Client 11.2.0.2.0
Cluster Verification Utility Files 11.2.0.2.0
Oracle Notification Service (eONS) 11.2.0.2.0
Oracle LDAP administration 11.2.0.2.0
Cluster Verification Utility Common Files 11.2.0.2.0
Oracle Clusterware RDBMS Files 11.2.0.2.0
Oracle Locale Builder 11.2.0.2.0
Oracle Globalization Support 11.2.0.2.0
Buildtools Common Files 11.2.0.2.0
Oracle RAC Required Support Files-HAS 11.2.0.2.0
SQL*Plus Required Support Files 11.2.0.2.0
XDK Required Support Files 11.2.0.2.0
Agent Required Support Files 10.2.0.4.3
Parser Generator Required Support Files 11.2.0.2.0
Precompiler Required Support Files 11.2.0.2.0
Installation Common Files 11.2.0.2.0
Required Support Files 11.2.0.2.0
Oracle JDBC/THIN Interfaces 11.2.0.2.0
Oracle Multimedia Locator 11.2.0.2.0
Oracle Multimedia 11.2.0.2.0
HAS Common Files 11.2.0.2.0
Assistant Common Files 11.2.0.2.0
PL/SQL 11.2.0.2.0
HAS Files for DB 11.2.0.2.0
Oracle Recovery Manager 11.2.0.2.0
Oracle Database Utilities 11.2.0.2.0
Oracle Notification Service 11.2.0.2.0
SQL*Plus 11.2.0.2.0
Oracle Netca Client 11.2.0.2.0
Oracle Net 11.2.0.2.0
Oracle JVM 11.2.0.2.0
Oracle Internet Directory Client 11.2.0.2.0
Oracle Net Listener 11.2.0.2.0
Cluster Ready Services Files 11.2.0.2.0

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Oracle 11g R2 Node Addition

Oracle Database 11g 11.2.0.2.0

Instantiating scripts for add node (Saturday, July 9, 2011 11:42:00 AM EDT)

. 1% Done.

Instantiation of add node scripts complete

Copying to remote nodes (Saturday, July 9, 2011 11:42:04 AM EDT)

..... 96% Done.

Home copied to new nodes

Saving inventory on nodes (Saturday, July 9, 2011 12:02:05 PM EDT)

. 100% Done.

Save inventory complete

WARNING:

The following configuration scripts need to be executed as the "root" user in each cluster node.

/u01/app/11.2.0/grid/root.sh #On nodes tslnrac03

To execute the configuration scripts:

1. Open a terminal window
2. Log in as "root"
3. Run the scripts in each cluster node

The Cluster Node Addition of /u01/app/11.2.0/grid was successful.

Please check '/tmp/silentInstall.log' for more details.

Login to tslnrac03 and run root.sh only on one node.

```
[root@tslnrac03 grid]# ./root.sh
```

Running Oracle 11g root script...

The following environment variables are set as:

ORACLE_OWNER= grid

ORACLE_HOME= /u01/app/11.2.0/grid

Enter the full pathname of the local bin directory: [/usr/local/bin]:

Copying dbhome to /usr/local/bin ...

Copying oraenv to /usr/local/bin ...

Copying coraenv to /usr/local/bin ...

Creating /etc/oratab file...

Entries will be added to the /etc/oratab file as needed by

Database Configuration Assistant when a database is created

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Oracle 11g R2 Node Addition

Finished running generic part of root script.
Now product-specific root actions will be performed.
Using configuration parameter file: /u01/app/11.2.0/grid/crs/install/crsconfig_params
Creating trace directory
LOCAL ADD MODE
Creating OCR keys for user 'root', privgrp 'root'..
Operation successful.
OLR initialization - successful
Adding daemon to inittab
ACFS-9200: Supported
ACFS-9300: ADVM/ACFS distribution files found.
ACFS-9307: Installing requested ADVM/ACFS software.
ACFS-9308: Loading installed ADVM/ACFS drivers.
ACFS-9321: Creating udev for ADVM/ACFS.
ACFS-9323: Creating module dependencies - this may take some time.
ACFS-9327: Verifying ADVM/ACFS devices.
ACFS-9309: ADVM/ACFS installation correctness verified.
CRS-4402: The CSS daemon was started in exclusive mode but found an active CSS daemon on node
tslinrac01, number 1, and is terminating
An active cluster was found during exclusive startup, restarting to join the cluster
clscfg: EXISTING configuration version 5 detected.
clscfg: version 5 is 11g Release 2.
Successfully accumulated necessary OCR keys.
Creating OCR keys for user 'root', privgrp 'root'..
Operation successful.
Configure Oracle Grid Infrastructure for a Cluster ... succeeded

If you have an Oracle RAC or Oracle RAC One Node database configured on the cluster and you have a non-shared Oracle home, then do the following to extend the Oracle database home to node3:

On tslinrac03, login as oracle

(Create the ORACLE_HOME if the directory has not been created)

```
mkdir -p /u01/app/oracle/product/11.2.0/11.2.0.2
```

Login as oracle on tslinrac01 (first node)

```
/u01/app/oracle/product/11.2.0/11.2.0.2/oui/bin
```

```
# Set the display
```

```
export DISPLAY=192.168.1.106:0.0
```

Oracle 11g R2 Node Addition

```
./addNode.sh "CLUSTER_NEW_NODES={tslinrac03}"
```

Lot of messages

```
[26344@tslinrac01] [main] [ 2011-07-09 12:22:07.258 EDT ] [ResultSet.traceResultSet:342]
```

```
*** results BEFORE node purge...  
Overall Status->SUCCESSFUL
```

```
tslinrac03-->SUCCESSFUL
```

```
[26344@tslinrac01] [main] [ 2011-07-09 12:22:07.258 EDT ] [ResultSet.traceResultSet:342]
```

```
*** results AFTER node purge...  
Overall Status->SUCCESSFUL
```

```
tslinrac03-->SUCCESSFUL
```

Pre-check for node addition was successful.

```
[26344@tslinrac01] [main] [ 2011-07-09 12:22:07.258 EDT ] [CluvfyDriver.main:325] ==== cluvfy exiting  
normally.
```

Starting Oracle Universal Installer...

Checking swap space: must be greater than 500 MB. Actual 3361 MB Passed

Checking monitor: must be configured to display at least 256 colors. Actual 16777216 Passed

Oracle Universal Installer, Version 11.2.0.2.0 Production

Copyright (C) 1999, 2010, Oracle. All rights reserved.

Performing tests to see whether nodes tslinrac02,tslinrac03 are available

..... 100% Done.

Pre-check for node addition was successful.

```
[26344@tslinrac01] [main] [ 2011-07-09 12:22:07.258 EDT ] [CluvfyDriver.main:325] ==== cluvfy exiting  
normally.
```

Starting Oracle Universal Installer...

Khwaja Imran Mohammed

Senior Oracle DBA

Wells Fargo - PSG Infrastructure Engineering & Architecture

Oracle 11g R2 Node Addition

Checking swap space: must be greater than 500 MB. Actual 3361 MB Passed
Checking monitor: must be configured to display at least 256 colors. Actual 16777216 Passed
Oracle Universal Installer, Version 11.2.0.2.0 Production
Copyright (C) 1999, 2010, Oracle. All rights reserved.

Performing tests to see whether nodes tslnrac02,tslnrac03 are available
..... 100% Done.

..

Cluster Node Addition Summary

Global Settings

Source: /u01/app/oracle/product/11.2.0/11.2.0.2

New Nodes

Space Requirements

New Nodes

tslnrac03

/: Required 3.78GB : Available 87.89GB

Installed Products

Product Names

Oracle Database 11g 11.2.0.2.0

Sun JDK 1.5.0.24.08

Installer SDK Component 11.2.0.2.0

Oracle One-Off Patch Installer 11.2.0.0.2

Oracle Universal Installer 11.2.0.2.0

Oracle USM Deconfiguration 11.2.0.2.0

Oracle Configuration Manager Deconfiguration 10.3.1.0.0

Oracle DBCA Deconfiguration 11.2.0.2.0

Oracle RAC Deconfiguration 11.2.0.2.0

Oracle Database Deconfiguration 11.2.0.2.0

Oracle Configuration Manager Client 10.3.2.1.0

Oracle Configuration Manager 10.3.3.1.1

Oracle ODBC Driverfor Instant Client 11.2.0.2.0

LDAP Required Support Files 11.2.0.2.0

SSL Required Support Files for InstantClient 11.2.0.2.0

Bali Share 1.1.18.0.0

Oracle Extended Windowing Toolkit 3.4.47.0.0

Oracle JFC Extended Windowing Toolkit 4.2.36.0.0

Oracle Real Application Testing 11.2.0.2.0

Oracle Database Vault J2EE Application 11.2.0.2.0

Oracle Label Security 11.2.0.2.0

Oracle Data Mining RDBMS Files 11.2.0.2.0

Oracle OLAP RDBMS Files 11.2.0.2.0

Oracle OLAP API 11.2.0.2.0

Platform Required Support Files 11.2.0.2.0

Oracle Database Vault option 11.2.0.2.0

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Oracle 11g R2 Node Addition

Oracle RAC Required Support Files-HAS 11.2.0.2.0
SQL*Plus Required Support Files 11.2.0.2.0
Oracle Display Fonts 9.0.2.0.0
Oracle Ice Browser 5.2.3.6.0
Oracle JDBC Server Support Package 11.2.0.2.0
Oracle SQL Developer 11.2.0.2.0
Oracle Application Express 11.2.0.2.0
XDK Required Support Files 11.2.0.2.0
RDBMS Required Support Files for Instant Client 11.2.0.2.0
SQLJ Runtime 11.2.0.2.0
Database Workspace Manager 11.2.0.2.0
RDBMS Required Support Files Runtime 11.2.0.2.0
Oracle Globalization Support 11.2.0.2.0
Exadata Storage Server 11.2.0.1.0
Provisioning Advisor Framework 10.2.0.4.3
Enterprise Manager Database Plugin -- Repository Support 11.2.0.2.0
Enterprise Manager Repository Core Files 10.2.0.4.3
Enterprise Manager Database Plugin -- Agent Support 11.2.0.2.0
Enterprise Manager Grid Control Core Files 10.2.0.4.3
Enterprise Manager Common Core Files 10.2.0.4.3
Enterprise Manager Agent Core Files 10.2.0.4.3
RDBMS Required Support Files 11.2.0.2.0
regexp 2.1.9.0.0
Agent Required Support Files 10.2.0.4.3
Oracle 11g Warehouse Builder Required Files 11.2.0.2.0
Oracle Notification Service (eONS) 11.2.0.2.0
Oracle Text Required Support Files 11.2.0.2.0
Parser Generator Required Support Files 11.2.0.2.0
Oracle Database 11g Multimedia Files 11.2.0.2.0
Oracle Multimedia Java Advanced Imaging 11.2.0.2.0
Oracle Multimedia Annotator 11.2.0.2.0
Oracle JDBC/OCI Instant Client 11.2.0.2.0
Oracle Multimedia Locator RDBMS Files 11.2.0.2.0
Precompiler Required Support Files 11.2.0.2.0
Oracle Core Required Support Files 11.2.0.2.0
Sample Schema Data 11.2.0.2.0
Oracle Starter Database 11.2.0.2.0
Oracle Message Gateway Common Files 11.2.0.2.0
Oracle XML Query 11.2.0.2.0
XML Parser for Oracle JVM 11.2.0.2.0
Oracle Help For Java 4.2.9.0.0
Installation Plugin Files 11.2.0.2.0
Enterprise Manager Common Files 10.2.0.4.3
Expat libraries 2.0.1.0.1
Deinstallation Tool 11.2.0.2.0
Oracle Quality of Service Management (Client) 11.2.0.2.0
Perl Modules 5.10.0.0.1

Oracle 11g R2 Node Addition

JAccelerator (COMPANION) 11.2.0.2.0
Oracle Containers for Java 11.2.0.2.0
Perl Interpreter 5.10.0.0.1
Oracle Net Required Support Files 11.2.0.2.0
Secure Socket Layer 11.2.0.2.0
Oracle Universal Connection Pool 11.2.0.2.0
Oracle JDBC/THIN Interfaces 11.2.0.2.0
Oracle Multimedia Client Option 11.2.0.2.0
Oracle Java Client 11.2.0.2.0
Character Set Migration Utility 11.2.0.2.0
Oracle Code Editor 1.2.1.0.0i
PL/SQL Embedded Gateway 11.2.0.2.0
OLAP SQL Scripts 11.2.0.2.0
Database SQL Scripts 11.2.0.2.0
Oracle Locale Builder 11.2.0.2.0
Oracle Globalization Support 11.2.0.2.0
SQL*Plus Files for Instant Client 11.2.0.2.0
Required Support Files 11.2.0.2.0
Oracle Database User Interface 2.2.13.0.0
Oracle ODBC Driver 11.2.0.2.0
Oracle Notification Service 11.2.0.2.0
XML Parser for Java 11.2.0.2.0
Oracle Security Developer Tools 11.2.0.2.0
Oracle Wallet Manager 11.2.0.2.0
Cluster Verification Utility Common Files 11.2.0.2.0
Oracle Clusterware RDBMS Files 11.2.0.2.0
Oracle UNIX 2.2.24.6.0
Enterprise Manager plugin Common Files 11.2.0.2.0
HAS Common Files 11.2.0.2.0
Precompiler Common Files 11.2.0.2.0
Installation Common Files 11.2.0.2.0
Oracle Help for the Web 2.0.14.0.0
Oracle LDAP administration 11.2.0.2.0
Buildtools Common Files 11.2.0.2.0
Assistant Common Files 11.2.0.2.0
Oracle Recovery Manager 11.2.0.2.0
PL/SQL 11.2.0.2.0
Generic Connectivity Common Files 11.2.0.2.0
Oracle Database Gateway for ODBC 11.2.0.2.0
Oracle Programmer 11.2.0.2.0
Oracle Database Utilities 11.2.0.2.0
Enterprise Manager Agent 10.2.0.4.3
SQL*Plus 11.2.0.2.0
Oracle Netca Client 11.2.0.2.0
Oracle Multimedia Locator 11.2.0.2.0
Oracle Call Interface (OCI) 11.2.0.2.0
Oracle Multimedia 11.2.0.2.0

Oracle 11g R2 Node Addition

Oracle Net 11.2.0.2.0
Oracle XML Development Kit 11.2.0.2.0
Database Configuration and Upgrade Assistants 11.2.0.2.0
Oracle JVM 11.2.0.2.0
Oracle Advanced Security 11.2.0.2.0
Oracle Internet Directory Client 11.2.0.2.0
Oracle Enterprise Manager Console DB 11.2.0.2.0
HAS Files for DB 11.2.0.2.0
Oracle Net Listener 11.2.0.2.0
Oracle Text 11.2.0.2.0
Oracle Net Services 11.2.0.2.0
Oracle Database 11g 11.2.0.2.0
Oracle OLAP 11.2.0.2.0
Oracle Spatial 11.2.0.2.0
Oracle Partitioning 11.2.0.2.0
Enterprise Edition Options 11.2.0.2.0

Instantiating scripts for add node (Saturday, July 9, 2011 12:22:36 PM EDT)

. 1% Done.

Instantiation of add node scripts complete

Copying to remote nodes (Saturday, July 9, 2011 12:22:42 PM EDT)

..... 96% Done.

Home copied to new nodes

Saving inventory on nodes (Saturday, July 9, 2011 12:33:36 PM EDT)

. 100% Done.

Save inventory complete

WARNING:

The following configuration scripts need to be executed as the "root" user in each cluster node.

/u01/app/oracle/product/11.2.0/11.2.0.2/root.sh #On nodes tslnrac03

To execute the configuration scripts:

1. Open a terminal window
2. Log in as "root"
3. Run the scripts in each cluster node

The Cluster Node Addition of /u01/app/oracle/product/11.2.0/11.2.0.2 was successful.

Please check '/tmp/silentInstall.log' for more details.

Login to tslnrac03 as root and execute /u01/app/oracle/product/11.2.0/11.2.0.2/root.sh

```
[root@tslnrac03 grid]# cd /u01/app/oracle/product/11.2.0/11.2.0.2/
```

```
[root@tslnrac03 11.2.0.2]# pwd
```

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Oracle 11g R2 Node Addition

```
/u01/app/oracle/product/11.2.0/11.2.0.2  
[root@tslinrac03 11.2.0.2]# ls -ltr root.sh  
-rwxr-x--- 1 oracle oinstall 518 Jul 9 12:24 root.sh  
[root@tslinrac03 11.2.0.2]# ./root.sh  
Running Oracle 11g root script...
```

The following environment variables are set as:

```
ORACLE_OWNER= oracle  
ORACLE_HOME= /u01/app/oracle/product/11.2.0/11.2.0.2
```

Enter the full pathname of the local bin directory: [/usr/local/bin]:
The contents of "dbhome" have not changed. No need to overwrite.
The contents of "oraenv" have not changed. No need to overwrite.
The contents of "coraenv" have not changed. No need to overwrite.

Entries will be added to the /etc/oratab file as needed by
Database Configuration Assistant when a database is created
Finished running generic part of root script.
Now product-specific root actions will be performed.
Finished product-specific root actions.

Repeat the above steps for each RDBMS oracle home installed on the first node.

Check whether either a policy-managed or administrator-managed Oracle RAC database is configured to run on `node3` (the newly added node). If you configured an administrator-managed Oracle RAC database, you may need to use DBCA to add an instance to the database to run on this newly added node.

Adding Administrator-Managed Oracle RAC Database Instances to Target Nodes

Using DBCA in Interactive Mode to Add Database Instances to Target Nodes

On the first node `tslinrac01`:

Login as oracle

Set `ORACLE_HOME` to the one that you want (databases that you need to extend to the new node)

Oracle 11g R2 Node Addition

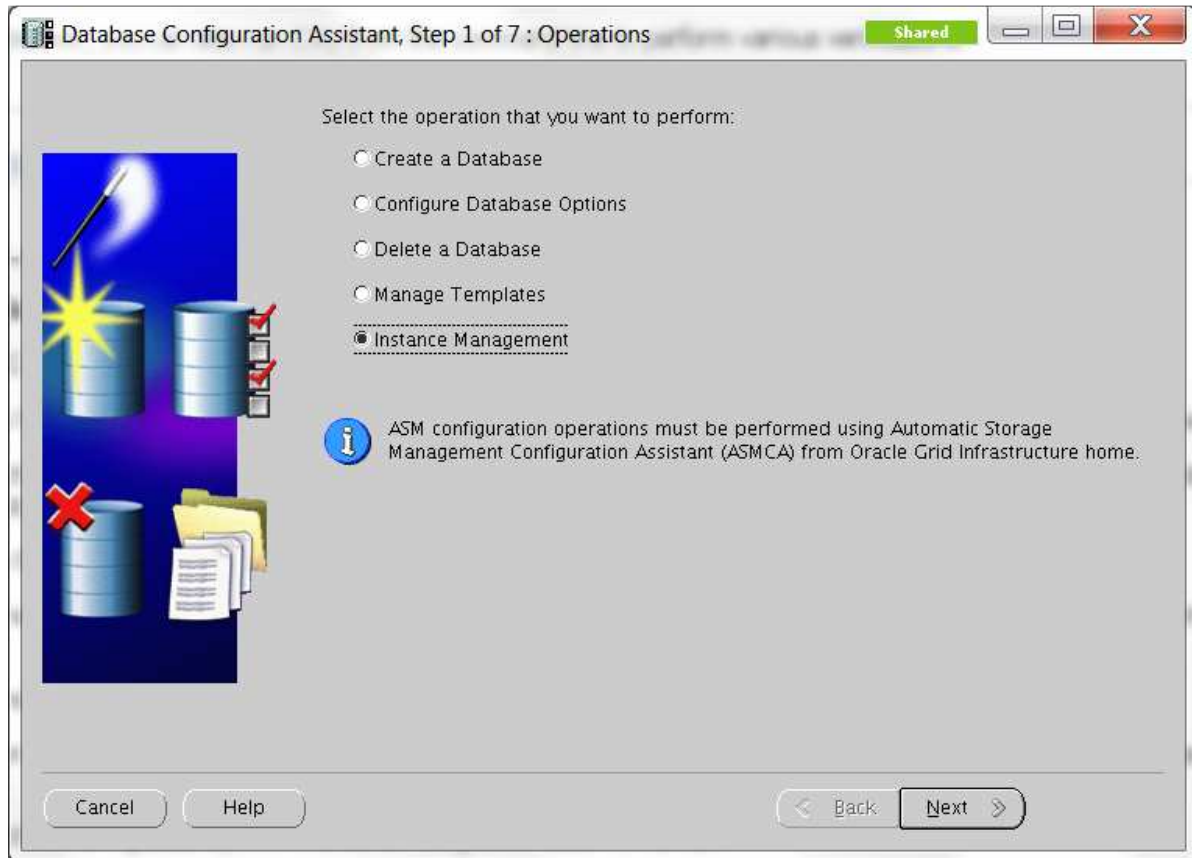
```
[oracle@tslinrac01 ~]$ echo $ORACLE_HOME
/u01/app/oracle/product/11.2.0/11.2.0.2
[oracle@tslinrac01 ~]$ echo $ORACLE_SID
racdb1
[oracle@tslinrac01 ~]$ xclock
[oracle@tslinrac01 ~]$ which dbca
/u01/app/oracle/product/11.2.0/11.2.0.2/bin/dbca

dbca&
```



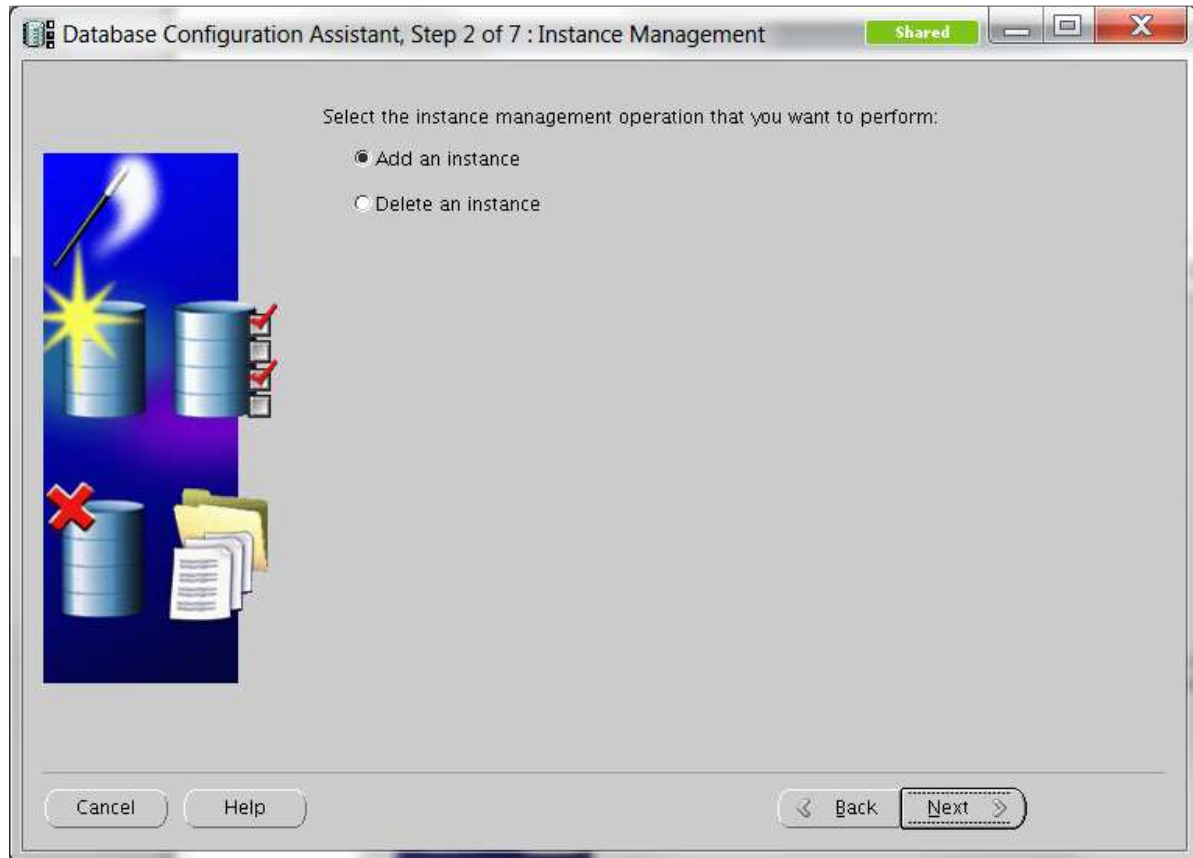
Select "instance management"

Oracle 11g R2 Node Addition

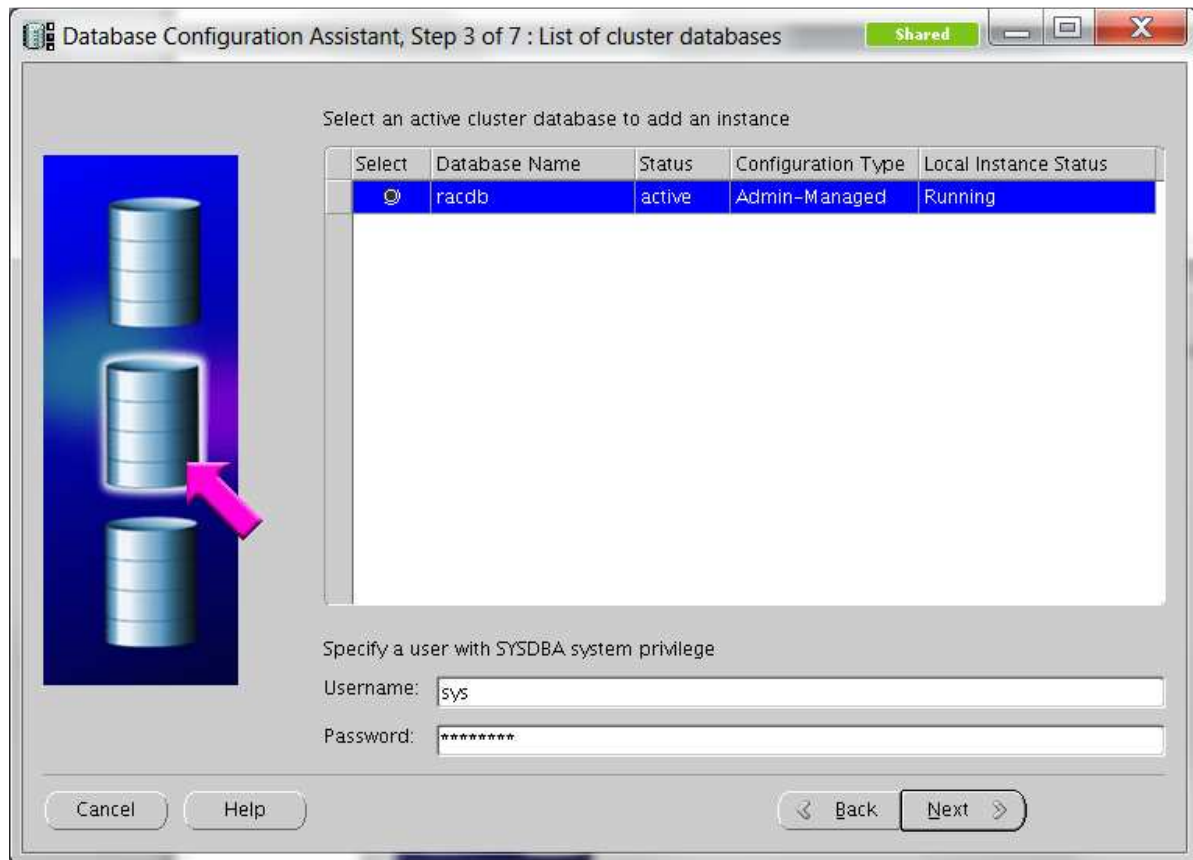


Select add a instance

Oracle 11g R2 Node Addition

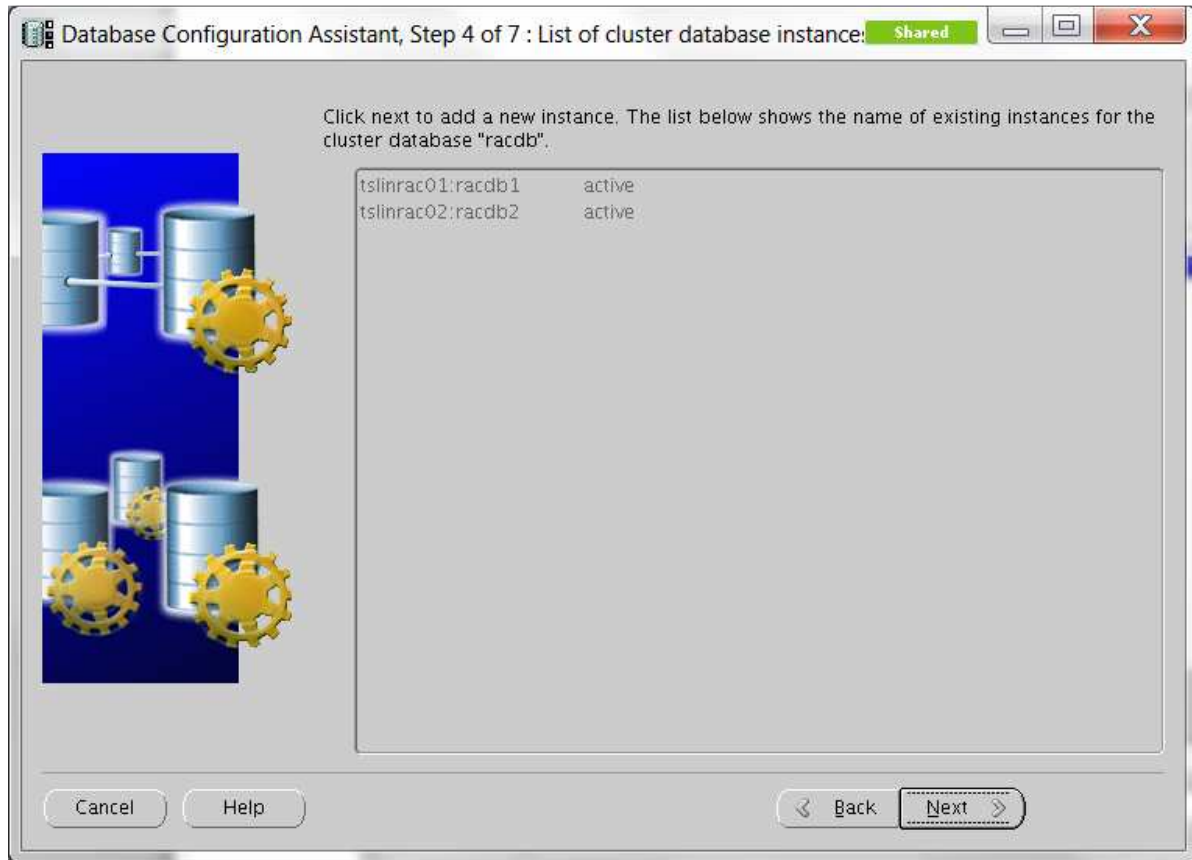


Oracle 11g R2 Node Addition



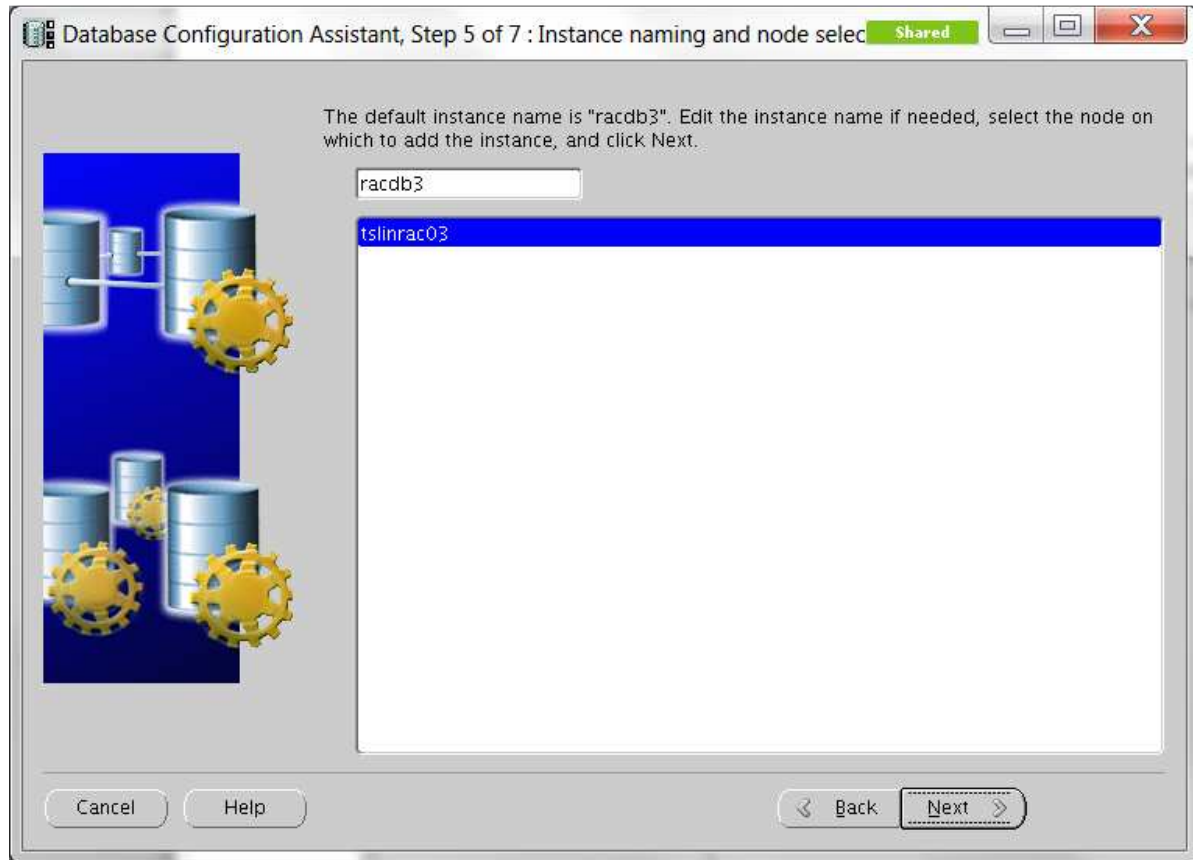
Pick the database that you want to extend and specify the SYS id and password.

Oracle 11g R2 Node Addition



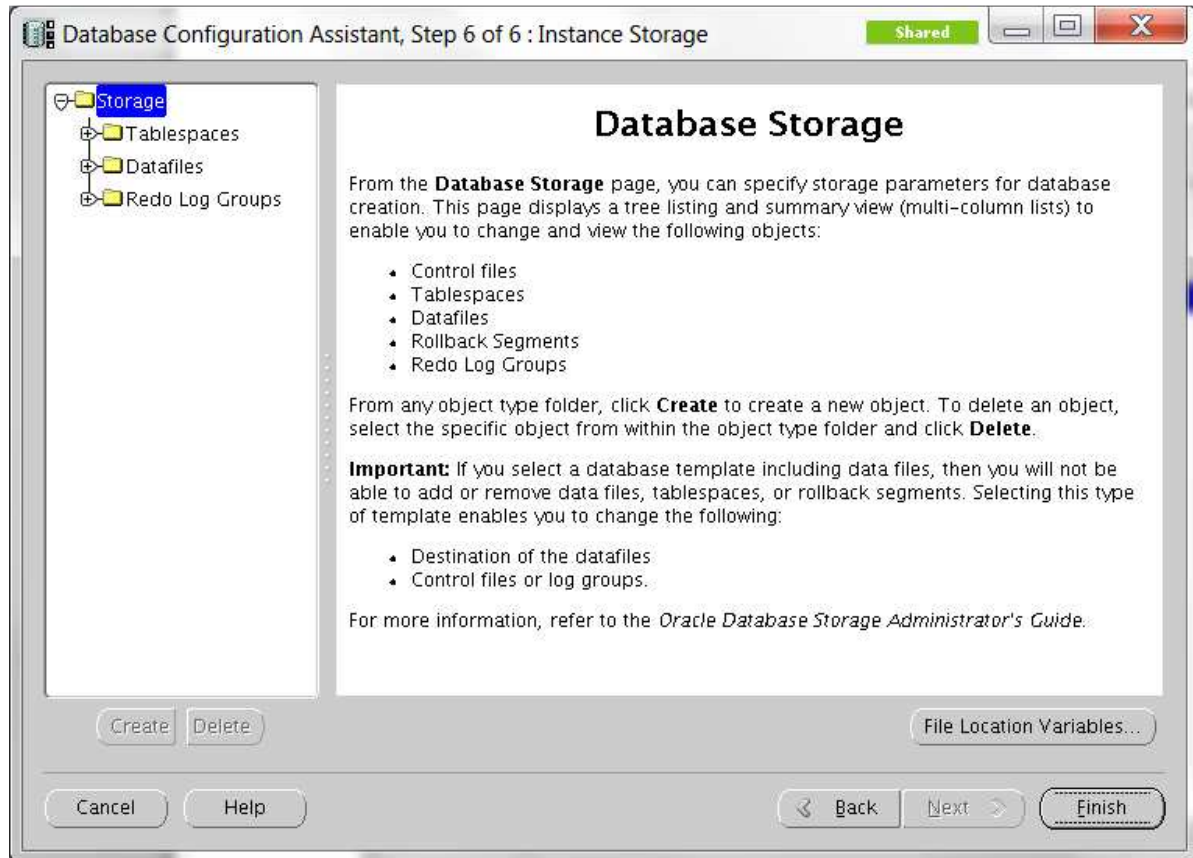
Click next

Oracle 11g R2 Node Addition

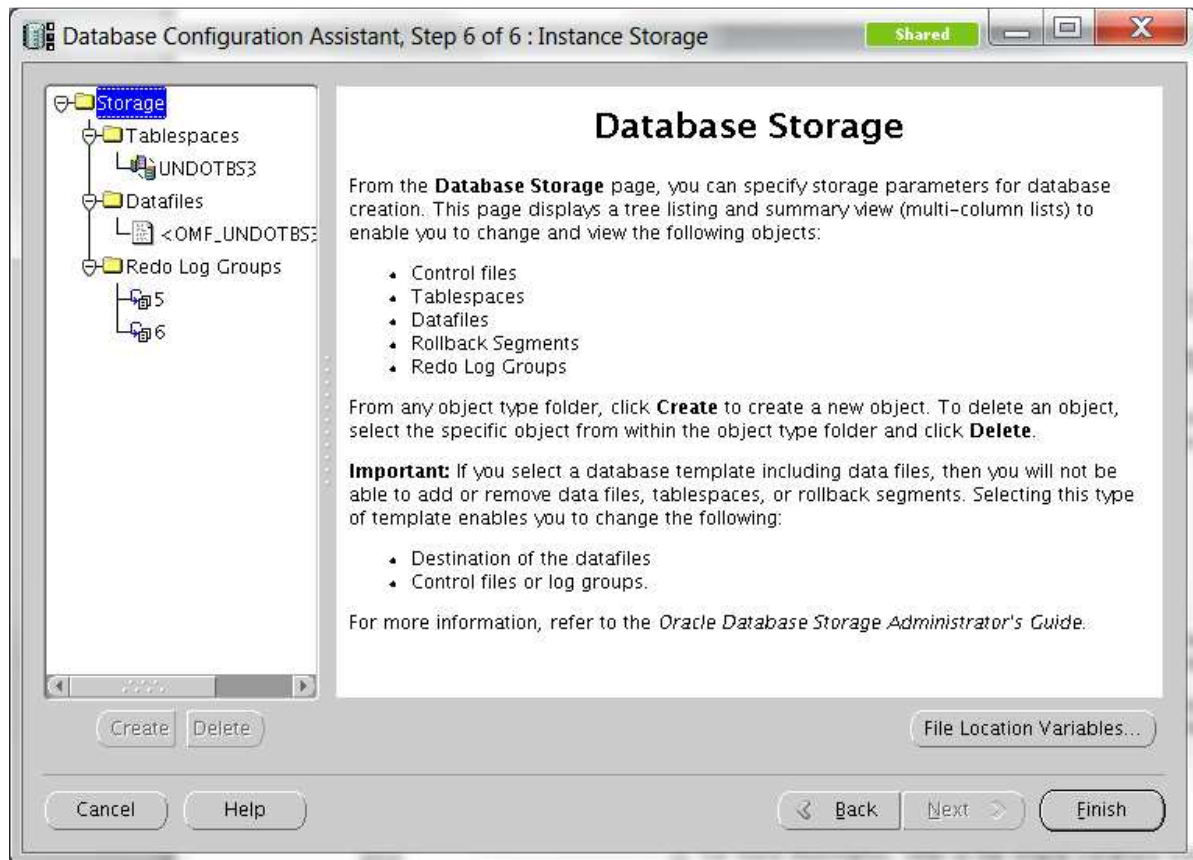


Pick the node you want to extend to and specify/verify the instance name

Oracle 11g R2 Node Addition



Oracle 11g R2 Node Addition



Oracle 11g R2 Node Addition

Database Configuration Assistant: Summary Shared X

The following add instance operation will be performed.
Add instance "racdb3" on node "tslinrac03".

Add instance "racdb3" on node "tslinrac03".

Initialization Parameters

Instance	Name	Value
racdb3	instance_number	3
racdb3	thread	3
racdb3	undo_tablespace	UNDOTBS3

Tablespaces

Name	Type	Extent Management
UNDOTBS3	PERMANENT , UNDO	LOCAL

Data Files

Name	Tablespace	Size(M)
<OMF_UNDOTBS3_DATAFILE_0>	UNDOTBS3	840

Redo Log Groups

Group	Size(K)	Thread
5	51200	3

Save as an HTML file...

OK Cancel Help

Oracle 11g R2 Node Addition

Database Configuration Assistant: Summary Shared X

The following add instance operation will be performed.
Add instance "racdb3" on node "tslinrac03".

"tslinrac03".

Initialization Parameters

Instance	Name	Value
racdb3	instance_number	3
racdb3	thread	3
racdb3	undo_tablespace	UNDOTBS3

Tablespaces

Name	Type	Extent Management
UNDOTBS3	PERMANENT , UNDO	LOCAL

Data Files

Name	Tablespace	Size(M)
<OMF_UNDOTBS3_DATAFILE_0>	UNDOTBS3	840

Redo Log Groups

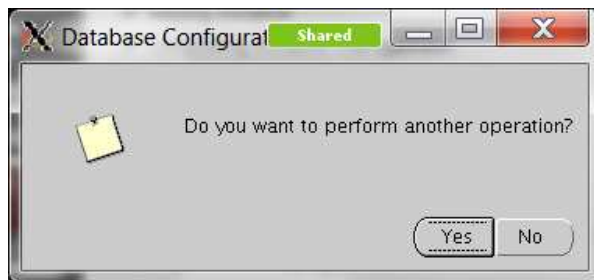
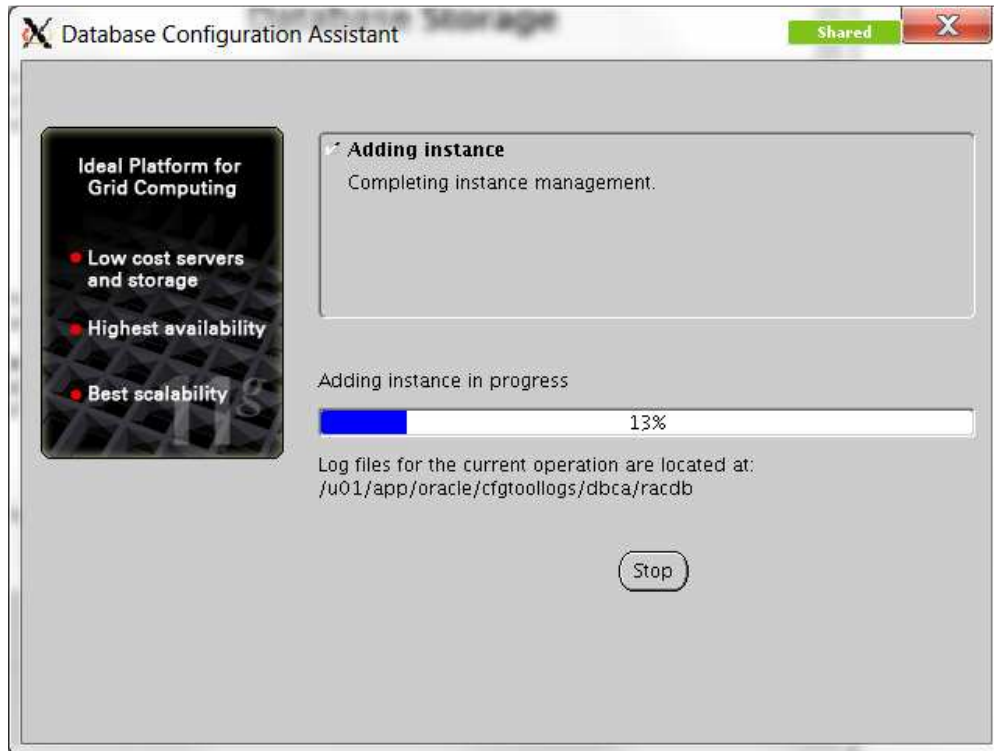
Group	Size(K)	Thread
5	51200	3
6	51200	3

Save as an HTML file...

OK Cancel Help

Click ok

Oracle 11g R2 Node Addition



Click no

This will start the instance on 3rd node. Use `srvctl` to verify

```
[oracle@tslinrac01 ~]$ srvctl status database -d racdb  
Instance racdb1 is running on node tslinrac01  
Instance racdb2 is running on node tslinrac02  
Instance racdb3 is running on node tslinrac03
```

After you terminate your DBCA session, run the following command to verify the administrative privileges on the target node and obtain detailed information about these privileges where `node1list` consists of the names of the nodes on which you added database instances:

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Wells Fargo - PSG Infrastructure Engineering & Architecture

Oracle 11g R2 Node Addition

Login to tslinrac01 as 'oracle' and run the cluvfy command.

```
cluvfy comp admprv -o db_config -d /u01/app/oracle/product/11.2.0/11.2.0.2 -n  
tslinrac01,tslinrac02,tslinrac03
```

The output is huge. Only the last portion shown below.

```
Target ResultSet BEFORE Upload===>  
Overall Status->UNKNOWN
```

```
[1177@tslinrac01] [main] [ 2011-07-09 12:50:57.816 EDT ] [ResultSet.traceResultSet:342]
```

```
Source ResultSet ===>  
Overall Status->SUCCESSFUL
```

```
tslinrac03-->SUCCESSFUL  
tslinrac02-->SUCCESSFUL  
tslinrac01-->SUCCESSFUL
```

```
[1177@tslinrac01] [main] [ 2011-07-09 12:50:57.816 EDT ] [ResultSet.traceResultSet:342]
```

```
Target ResultSet AFTER Upload===>  
Overall Status->SUCCESSFUL
```

```
tslinrac03-->SUCCESSFUL  
tslinrac02-->SUCCESSFUL  
tslinrac01-->SUCCESSFUL
```

Membership check for user "oracle" in group "dba" passed

```
[1177@tslinrac01] [main] [ 2011-07-09 12:50:57.817 EDT ] [ResultSet.traceResultSet:342]
```

```
Target ResultSet BEFORE Upload===>  
Overall Status->UNKNOWN
```

```
[1177@tslinrac01] [main] [ 2011-07-09 12:50:57.818 EDT ] [ResultSet.traceResultSet:342]
```

```
Source ResultSet ===>  
Overall Status->SUCCESSFUL
```

Oracle 11g R2 Node Addition

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.818 EDT] [ResultSet.traceResultSet:342]

Target ResultSet AFTER Upload===>
Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.819 EDT] [ResultSet.traceResultSet:342]

Target ResultSet BEFORE Upload===>
Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.820 EDT] [ResultSet.traceResultSet:342]

Source ResultSet ===>
Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [Worker 0] [2011-07-09 12:50:57.821 EDT] [Semaphore.acquire:109]
SyncBufferFull:Acquire called by thread Worker 0 m_count=0
[1177@tslinrac01] [main] [2011-07-09 12:50:57.821 EDT] [ResultSet.traceResultSet:342]

Target ResultSet AFTER Upload===>
Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

Oracle 11g R2 Node Addition

Administrative privileges check passed

[1177@tslinrac01] [main] [2011-07-09 12:50:57.822 EDT] [ResultSet.traceResultSet:342]

Target ResultSet BEFORE Upload===>

Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL

tslinrac02-->SUCCESSFUL

tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.822 EDT] [ResultSet.traceResultSet:342]

Source ResultSet ===>

Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL

tslinrac02-->SUCCESSFUL

tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.822 EDT] [ResultSet.traceResultSet:342]

Target ResultSet AFTER Upload===>

Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL

tslinrac02-->SUCCESSFUL

tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.822 EDT] [Task.perform:411]

TaskAdminPrivileges:AdministrativePrivileges:TASK_SUMMARY:SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.822 EDT] [ResultSet.traceResultSet:342]

Target ResultSet BEFORE Upload===>

Overall Status->UNKNOWN

[1177@tslinrac01] [main] [2011-07-09 12:50:57.823 EDT] [ResultSet.traceResultSet:342]

Source ResultSet ===>

Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL

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Oracle 11g R2 Node Addition

tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

[1177@tslinrac01] [main] [2011-07-09 12:50:57.823 EDT] [ResultSet.traceResultSet:342]

Target ResultSet AFTER Upload==>
Overall Status->SUCCESSFUL

tslinrac03-->SUCCESSFUL
tslinrac02-->SUCCESSFUL
tslinrac01-->SUCCESSFUL

Verification of administrative privileges was successful.

[1177@tslinrac01] [main] [2011-07-09 12:50:57.823 EDT] [CluvfyDriver.main:325] ==== cluvfy exiting normally.