Oracle RAC 11.2.0.4.0 on SUSE Linux Enterprise Server 12 - x86_64
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Introduction

This documentation provides the details for install Oracle RAC 11.2.0.4.0 on SUSE Linux Enterprise Server 12 OS. Here, x86_64 version of both Oracle Database 11gR2 Enterprise and SUSE Linux Enterprise Server is used. Similar steps applies to other platforms(x86, ia64, etc.). If you encounter any problem or have general question, please post your query to suse-oracle@listx.novell.com.

The oracle official product documentation available at: http://docs.oracle.com/en/

Hardware and Software Requirements

Hardware Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>32 GB</td>
</tr>
<tr>
<td>Swap space</td>
<td>Approx. twice the size of RAM</td>
</tr>
<tr>
<td>Disk space in /tmp</td>
<td>8 GB</td>
</tr>
<tr>
<td>Disk space for software files</td>
<td>8 GB</td>
</tr>
<tr>
<td>Disk space for database files</td>
<td>8 GB</td>
</tr>
</tbody>
</table>

Software Requirements

SuSE

• SUSE Linux Enterprise Server 12 SP1 (x86_64) (http://download.suse.de/install)

Oracle

• Oracle Database 11g Release 2 (11.2.0.4.0) x86_64 (http://www.oracle.com/technetwork/indexes/downloads/index.html#database)

Testing 4-node cluster information

HP DL360 Gen9 Server (Intel Xeon 2x12 core ~ 48 CPU), 64GB RAM
4 NIC per server (two bonded as active/passive) + Static IP Address
Local HDD (500 GB)
Three shared SAN Partition (ASM: 30GB & NFS:400 GB, Other:600GB)
SUSE Linux Enterprise Server 12 SP1 (x86_64)
Kernel version: 3.12.49-11-default
**Prerequisites**

1. **Install SUSE Linux Enterprise Server 12 on each cluster node.**

   Follow the SUSE official document (URL: [https://www.suse.com/documentation/sles-12/](https://www.suse.com/documentation/sles-12/)) to Install SLES 12 (x86_64) on each node in the cluster.

2. **Network configuration for Oracle RAC installation as follows:**

   ```
   # Private:
   10.1.1.1    c2n1-priv
   10.1.1.2    c2n2-priv
   10.1.1.3    c2n3-priv
   10.1.1.4    c2n4-priv

   # Public:
   137.65.135.72 c2n1.provo.novell.com c2n1
   137.65.135.73 c2n2.provo.novell.com c2n2
   137.65.135.74 c2n3.provo.novell.com c2n3
   137.65.135.75 c2n4.provo.novell.com c2n4

   # Virtual
   137.65.135.76    c2n1-vip     c2n1-vip.provo.novell.com
   137.65.135.77    c2n2-vip     c2n2-vip.provo.novell.com
   137.65.135.78    c2n3-vip     c2n3-vip.provo.novell.com
   137.65.135.79    c2n4-vip     c2n4-vip.provo.novell.com

   # SCAN:
   c2-scan.provo.novell.com (137.65.135.87)
   c2-scan.provo.novell.com (137.65.135.148)
   c2-scan.provo.novell.com (137.65.135.149)
   ```
Oracle RAC Installation

1. Installing Oracle Grid Infrastructure.

1-1. Login to the SLES 12 64-bit OS as a non-admin user. Download the Oracle Database 11g Release 2 Grid Infrastructure (11.2.0.4.0) for Linux x86-64.

1-2. Extract grid.zip and run the installer ‘/runInstaller’ from Grid ShipHome.

Install Flow:

1). Download Software Updates.

Select one of the options, then click Next to continue.
2). Select Installation Option.

Choose option "Install and Configure Oracle Grid Infrastructure for a Cluster", then click Next to continue.
3). Select Installation Type.

Choose option "Advanced Installation", then click Next to continue.
4). Select Product Languages.

Select all languages, then click **Next** to continue.
5). Grid Plug and Play Information.

Fill in the information as seen above, then click Next to continue.

(More details for GNS configuration please see Oracle official document.)
6). Cluster Node Information.

Provide the list of nodes with their public hostname and virtual hostname, then click Next to continue.
7). Specify Network Interface Usage.

Provide interfaces are used by Oracle Grid for public and private traffic, then click Next to continue.
Choose option **"Oracle Automatic Storage Management (Oracle ASM)"**, then click **Next** to continue.
9). Create ASM Disk Group.

Depending on your needs to create ASM Disk Group, then click **Next** to continue.
10). Specify ASM Password.

Fill in ASM Password as shown above, then click Next to continue.
11). Failure Isolation Support.

Choose option "Do not use IPMI", then click **Next** to continue.

Selected by default, then click **Next** to continue.
13). Specify Installation Location.

Fill in **Oracle base** and **Software location**, then click **Next** to continue.
Specify a directory for installation metadata files if this is your first installation on this host, then click Next to continue.
Perform Prerequisite Checks.

Perform Pre-Check as shown above;

Select option "Ignore All", then click Next to continue.
Ignore the information, click Yes to continue.
16). Summary.

Installation Summary as shown above, click **Install** to continue.
17. Install Product.

Completed ‘prepare for configuration steps’. Here to stay and install Oracle Patch 18370031 first, then execute the configuration scripts as the "root" user in each new cluster node.
Performing root user operation for Oracle 11g

The following environment variables are set as:

ORACLE_OWNER=root
ORACLE_HOME=/home/grid

Enter the full pathname of the local bin directory: [/usr/local/bin]
The file "dbhome" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y
Copying dbhome to /usr/local/bin ...
The file "oracmd" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y
Copying oraenv to /usr/local/bin ...
The file "coraenv" already exists in /usr/local/bin. Overwrite it? (y/n) [n]: y
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
Finishes running generic part of root script:
Now product-specific root actions will be performed.
Using configuration parameter file: /home/grid/crs/install/crsconfig_params
Creating trace directory
User ignored Prerequisites during installation
Installing Trace File Analyzer
OCR Initialization - successful
root wallet
root wallet cert
root cert export
peer wallet
profile reader wallet
pa wallet
peer wallet keys
pa wallet keys
peer cert request
pa cert request
peer cert
pa cert
peer root cert TP

Adding Clusterware entries to oracle-ohasd.service
CRS-2672: Attempting to start 'ora.mdnsd' on 'c2nl'
CRS-2675: Start of 'ora.mdnsd' on 'c2nl' succeeded
CRS-2672: Attempting to start 'ora.gpnpd' on 'c2nl'
CRS-2672: Start of 'ora.gpnpd' on 'c2nl' succeeded
CRS-2672: Attempting to start 'ora.cssdmonitor' on 'c2nl'
CRS-2672: Attempting to start 'ora.cssdmonitor' on 'c2nl'
CRS-2672: Start of 'ora.cssdmonitor' on 'c2nl' succeeded
CRS-2672: Attempting to start 'ora.cssd' on 'c2nl'
CRS-2672: Attempting to start 'ora.diskmon' on 'c2nl'
CRS-2672: Start of 'ora.diskmon' on 'c2nl' succeeded
CRS-2672: Start of 'ora.cssd' on 'c2nl' succeeded
ASM created and started successfully.

Disk Group SUSETEST created successfully.
clsconf: -install mode specified
Successfully accumulated necessary OCR keys.
Creating OCR keys for user 'root', privgrp 'root'
Operation successful.
CRS-4250: Updating the profile
Successfull addition of voting disk 51663f3e0a44f1b0fd99e376b5b9f5f5
Successfull addition of voting disk 7441122d771f4f0f4939e969191edacb
Successfull addition of voting disk aada3a8d1e3f70f2e361b1b5958243
Successfully replaced voting disk group with SUSETEST.
CRS-4255: Updating the profile
CRS-4255: Voting file(s) successfully replaced

## STATE File Universal Id File Name Disk group
1. ONLINE 51663f3e0a44f1b0fd99e376b5b9f5f5 ([dev/oradata/disk1] SUSETEST)
2. ONLINE 7441122d771f4f0f4939e969191edacb ([dev/oradata/disk2] SUSETEST)
3. ONLINE aada3a8d1e3f70f2e361b1b5958243 ([dev/oradata/disk3] SUSETEST)

Located 3 voting disk(s).

CRS-2672: Attempting to start 'ora.asm' on 'c2nl'
CRS-2672: Start of 'ora.asm' on 'c2nl' succeeded
CRS-2672: Attempting to start 'ora.SUSETEST doping' on 'c2nl'
CRS-2672: Start of 'ora.SUSETEST doping' on 'c2nl' succeeded

Configure Oracle Grid Infrastructure for a Cluster ... succeeded
After the configuration scripts completed and succeeded in each cluster node, then click OK to continue.
The installation of Oracle Grid Infrastructure for a Cluster is Finished. Click **Close** to dismiss the screen.
1-3. Post-Install Checks.

1) **Check Oracle Clusterware health.**

```
oracle@c2n1:~> /home/grid/bin/crsctl check cluster -all
******************************************************************************
c2n1:
CRS-4537: Cluster Ready Services is online
CRS-4529: Cluster Synchronization Services is online
CRS-4533: Event Manager is online
******************************************************************************
c2n2:
CRS-4537: Cluster Ready Services is online
CRS-4529: Cluster Synchronization Services is online
CRS-4533: Event Manager is online
******************************************************************************
c2n3:
CRS-4537: Cluster Ready Services is online
CRS-4529: Cluster Synchronization Services is online
CRS-4533: Event Manager is online
******************************************************************************
c2n4:
CRS-4537: Cluster Ready Services is online
CRS-4529: Cluster Synchronization Services is online
CRS-4533: Event Manager is online
******************************************************************************
```

2) **Check Oracle Clusterware resources.**

```
oracle@c2n1:~> /home/grid/bin/srvctl status nodeapps
VIP c2n1-vip is enabled
VIP c2n1-vip is running on node: c2n1
VIP c2n2-vip is enabled
VIP c2n2-vip is running on node: c2n2
VIP c2n3-vip is enabled
VIP c2n3-vip is running on node: c2n3
VIP c2n4-vip is enabled
VIP c2n4-vip is running on node: c2n4
Network is enabled
Network is running on node: c2n1
Network is running on node: c2n2
Network is running on node: c2n3
Network is running on node: c2n4
GSD is disabled
GSD is not running on node: c2n1
GSD is not running on node: c2n2
GSD is not running on node: c2n3
GSD is not running on node: c2n4
ONS is enabled
ONS daemon is running on node: c2n1
ONS daemon is running on node: c2n2
ONS daemon is running on node: c2n3
ONS daemon is running on node: c2n4
```
3). Check status of designated resources.

```bash
oracle@c2n1:~> /home/grid/bin/crsctl stat res -t
```

<table>
<thead>
<tr>
<th>NAME</th>
<th>TARGET</th>
<th>STATE</th>
<th>SERVER</th>
<th>STATE_DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER.lsnr</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER.lsnr</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER.lsnr</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER.lsnr</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td>ora.SUSETEST.dg</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.SUSETEST.dg</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.SUSETEST.dg</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.SUSETEST.dg</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td>ora.asm</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n1</td>
<td>Started</td>
</tr>
<tr>
<td>ora.asm</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n2</td>
<td>Started</td>
</tr>
<tr>
<td>ora.asm</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n3</td>
<td>Started</td>
</tr>
<tr>
<td>ora.asm</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n4</td>
<td>Started</td>
</tr>
<tr>
<td>ora.gsd</td>
<td>OFFLINE</td>
<td>OFFLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.gsd</td>
<td>OFFLINE</td>
<td>OFFLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.gsd</td>
<td>OFFLINE</td>
<td>OFFLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.gsd</td>
<td>OFFLINE</td>
<td>OFFLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td>ora.net1.network</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.net1.network</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.net1.network</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.net1.network</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td>ora.ons</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.ons</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.ons</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.ons</td>
<td>ONLINE</td>
<td>ONLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td><strong>Cluster Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER_SCAN1.lsnr</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER_SCAN2.lsnr</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.LISTENER_SCAN3.lsnr</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.c2n1.vip</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.c2n2.vip</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n2</td>
<td></td>
</tr>
<tr>
<td>ora.c2n3.vip</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n3</td>
<td></td>
</tr>
<tr>
<td>ora.c2n4.vip</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n4</td>
<td></td>
</tr>
<tr>
<td>ora.cvu</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
<tr>
<td>ora.oc4j</td>
<td>1</td>
<td>ONLINE</td>
<td>c2n1</td>
<td></td>
</tr>
</tbody>
</table>
4). Check OCR and Voting disk files.

```
oracle@c2n1:~> /home/grid/bin/ocrcheck
Status of Oracle Cluster Registry is as follows:
    Version : 3
    Total space (kbytes) : 262120
    Used space (kbytes) : 2892
    Available space (kbytes) : 259228
    ID : 203023517
    Device/File Name : +SUSETEST
                  Device/File integrity check succeeded
                  Device/File not configured
                  Device/File not configured
                  Device/File not configured
                  Device/File not configured
Cluster registry integrity check succeeded
Logical corruption check bypassed due to non-privileged user

oracle@c2n1:~> /home/grid/bin/crsctl query css votedisk
##  STATE    File Universal Id                File Name Disk group
--  -----    -----------------                --------- ---------
1. ONLINE   51663f3ea0a44ff1bfd99e370bb9f5f5 (/dev/oradata/disk1) [SUSETEST]
2. ONLINE   744112dd771f4f04bf93e961916edacb (/dev/oradata/disk2) [SUSETEST]
3. ONLINE   aada3a8b1ebf4f70bfe361b1b536e243 (/dev/oradata/disk3) [SUSETEST]
Located 3 voting disk(s).
```
2. Installing Oracle Database.

1-1. Login to the SLES 12 64-bit OS as a non-admin user. Download the Oracle Database 11g Release 2 (11.2.0.4.0) for Linux x86-64.

1-2. Extract grid.zip and run the installer `./runInstaller` from Database ShipHome.

Install Flow:

1). Configure Security Updates.

Provide your email address to be informed of security issues, then click Next to continue.
2). Download Software Updates.

Select one of the options, then click Next to continue.
3. Select Installation Option.

Choose option "Install database software only.", then click Next to continue.
4). Grid Installation Options.

Choose option "**Oracle Real Application Clusters database installation**", and select all nodes in the cluster, then click **Next** to continue.
5). Select Product Languages.

Select all languages, then click **Next** to continue.

Choose option "Enterprise Edition", then click Next to continue.
7). Specify Installation Location.

Fill in **Oracle base** and **Software location** as shown above, then click **Next** to continue.
8). Privileged Operating System groups.

Selected by default, then click **Next** to continue.
9). Perform Prerequisite Checks.

Perform Pre-Check as shown above;

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

<table>
<thead>
<tr>
<th>Checks</th>
<th>Status</th>
<th>Fixable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package: libaio-0.3.104</td>
<td>Warning</td>
<td>No</td>
</tr>
<tr>
<td>Package: libaio-9.3</td>
<td>Warning</td>
<td>No</td>
</tr>
<tr>
<td>Package: libaio-9.2</td>
<td>Warning</td>
<td>No</td>
</tr>
<tr>
<td>Package: libaio-9.1</td>
<td>Warning</td>
<td>No</td>
</tr>
</tbody>
</table>

This is a prerequisite condition to test whether the package "libaio-0.3.104" is available on the system. (more details)

Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]

Select option "Ignore All", then click Next to continue.
Installation Summary as shown above, click **Install** to continue.
11). Install Product.

Oracle Database installation in progress.
(Note:

Linking Error - "ins_emagent.mk" - Fix & Retry

To solve this issue do following changes as user Oracle: Edit
$ORACLE_HOME/sysman/lib/ins_emagent.mk, search for the line

$(MK_EMAGENT_NMECTL) and replace the line with
$(MK_EMAGENT_NMECTL) -lnnz11

Then click Retry to continue.
)
Oracle Database 11g Release 2 Installer - Installing database - Step 11 of 12

Install Product

Configure Security Updates
Download Software Updates
Installation Options
Grid Installation Options
Product Languages
Database Edition
Installation Location
Operating System Groups
Prerequisite Checks
Summary
Install Product
Finish

Progress

Copying Oracle home '/home/oracle/app/product/11.2.0/dbhome_3' to remote nodes 'c2n2,c2n3,c2n4'.

Status

☑ Oracle Database Installation
☑ Prepare
☑ Copy Nets
☑ Link binaries
☑ Setup files
☑ Execute Root Scripts

Succeeded
Succeeded
Succeeded
Succeeded
Pending

oracle11g

Manage More Data
Compress Data
Access Data Faster

< Back Next > Install Cancel

Help

Oracle Database 11g Release 2 Installer - Installing database - Step 11 of 12

Install Product

Execute Configuration scripts

The following configuration scripts need to be executed as the "root" user in each new cluster node. Each script in the list below is followed by a list of nodes.

Scripts to be executed:

<table>
<thead>
<tr>
<th>Number</th>
<th>Script Location</th>
<th>Nodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>/home/oracle/app/product/11.2.0/dbhome_4/root.sh</td>
<td>c2n1,c2n2,c2n3,c2n4</td>
</tr>
</tbody>
</table>

To execute the configuration scripts:

1. Open a terminal window
2. Log in as "root"
3. Run the scripts in each cluster node
4. Return to this window and click "OK" to continue

Help OK
Execute root.sh as the "root" user in each cluster node, then click OK to continue.

The installation of Oracle Database is finished, click Close to dismiss the screen.
1-3. Use ASMCA to create ASM disk group for datafile storage.

1-4. Using DBCA to create Oracle RAC 11.2.0.4 Database.

1). DBCA - Welcome.

Select the db type that you would like to create, then click **Next** to continue.
2). DBCA - Operations.

Choose option "Create a Database", then click Next to continue.
3). DBCA - Database Templates.

Templates that include datafiles contain pre-created databases. They allow you to create a new database in minutes, as opposed to an hour or more. Use templates without datafiles only when necessary, such as when you need to change attributes like block size, which cannot be altered after database creation.

Select the type of database you want to configure, then click **Next** to continue.
4). DBCA - Database Identification.

Fill in **Global Database Name** and **SID** as shown above, then click **Next** to continue.
5). DBCA - Management Options.

Specify the management options for the database, then click **Next** to continue.
6). DBCA - Database Credentials.

Specify administrative password for DB users, then click **Next** to continue.

Specify database files storage information as shown above, then click **Next** to continue.

Specify ASMSNMP password specific to ASM, then click **OK** to continue.
According to your needs to choose the recovery options for the database, then click **Next** to continue.
Specify whether or not to add the schemas to your database, then click **Next** to continue.
10). DBCA - Initialization Parameters.

Choose option "Typical" and adjust parameters to meet your requirements, then click Next to continue.

Check the info as shown above, then click **Next** to continue.
12). DBCA - Creation Options.

Select the database creation options as shown above, then click **Next** to continue.

A warning window as shown above, click **Ignore** to continue.
13). DBCA - Summary.

Create database with db name "SUSEDB".

Create Database – Summary

Database Configuration Summary

**Global Database Name:** SUSEDB

**Database Configuration Type:** Admin-Managed Cluster Database

**Node List:** c2n1,c2n2,c2n3,c2n4

**SID List:** SUSEDB1,SUSEDB2,SUSEDB3,SUSEDB4

**Management Option Type:** Database Control

**Storage Type:** Automatic Storage Management (ASM)

**Memory Configuration Type:** Automatic Shared Memory Management

Database Configuration Details

Database Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Selected</th>
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</thead>
<tbody>
<tr>
<td>Oracle JVM</td>
<td>true</td>
</tr>
<tr>
<td>Oracle Text</td>
<td>true</td>
</tr>
<tr>
<td>Oracle XML DB</td>
<td>true</td>
</tr>
</tbody>
</table>

Save as an HTML file...

OK  Cancel  Help

Database Configuration Summary as shown above, check the information, then click **OK** to continue.
Database creating progress as shown above, waiting until the creation is complete.
15). DBCA - Finish.

Database creation complete, some information as shown above. Click Exit to dismiss the screen.
1-5. Post-Install Checks.

1). Verify database status and configuration.

```
oracle@c2n1:~> export ORACLE_HOME=/home/oracle/app/product/11.2.0/dbhome_1/
oracle@c2n1:~> /home/oracle/app/product/11.2.0/dbhome_1/bin/srvctl status database -d SUSEDB
Instance SUSEDB1 is running on node c2n1
Instance SUSEDB2 is running on node c2n2
Instance SUSEDB3 is running on node c2n3
Instance SUSEDB4 is running on node c2n4
```

```
oracle@c2n1:~> /home/oracle/app/product/11.2.0/dbhome_1/bin/srvctl config database -d SUSEDB -a
Database unique name: SUSEDB
Database name: SUSEDB
Oracle home: /home/oracle/app/product/11.2.0/dbhome_1
Oracle user: oracle
Spfile: +SUSEDATA/SUSEDB/spfileSUSEDB.ora
Domain:
Start options: open
Stop options: immediate
Database role: PRIMARY
Management policy: AUTOMATIC
Server pools: SUSEDB
Database instances: SUSEDB1,SUSEDB2,SUSEDB3,SUSEDB4
Disk Groups: SUSEDATA
Mount point paths:
Services:
Type: RAC
Database is enabled
Database is administrator managed
```

```
oracle@c2n1:~> /home/grid/bin/crsctl stat res -t
--------------------------------------------------------------------------------
NAME           TARGET  STATE        SERVER                   STATE_DETAILS
--------------------------------------------------------------------------------
Local Resources
--------------------------------------------------------------------------------
ora.LISTENER.lsnr
  ONLINE ONLINE  c2n1
  ONLINE ONLINE  c2n2
  ONLINE ONLINE  c2n3
  ONLINE ONLINE  c2n4
ora.SUSEDATA.dg
  ONLINE ONLINE  c2n1
  ONLINE ONLINE  c2n2
  ONLINE ONLINE  c2n3
  ONLINE ONLINE  c2n4
ora.SUSETEST.dg
  ONLINE ONLINE  c2n1
  ONLINE ONLINE  c2n2
  ONLINE ONLINE  c2n3
  ONLINE ONLINE  c2n4
ora.asm
  ONLINE ONLINE  c2n1     Started
  ONLINE ONLINE  c2n2     Started
  ONLINE ONLINE  c2n3     Started
--------------------------------------------------------------------------------
```
<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Node</th>
</tr>
</thead>
<tbody>
<tr>
<td>ora.gsd</td>
<td>OFFLINE</td>
<td>c2n1</td>
</tr>
<tr>
<td></td>
<td>OFFLINE</td>
<td>c2n2</td>
</tr>
<tr>
<td></td>
<td>OFFLINE</td>
<td>c2n3</td>
</tr>
<tr>
<td></td>
<td>OFFLINE</td>
<td>c2n4</td>
</tr>
<tr>
<td>ora.net1.network</td>
<td>ONLINE</td>
<td>c2n1</td>
</tr>
<tr>
<td></td>
<td>ONLINE</td>
<td>c2n2</td>
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<tr>
<td></td>
<td>ONLINE</td>
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<tr>
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<td>ONLINE</td>
<td>c2n4</td>
</tr>
<tr>
<td>ora.ons</td>
<td>ONLINE</td>
<td>c2n1</td>
</tr>
<tr>
<td></td>
<td>ONLINE</td>
<td>c2n2</td>
</tr>
<tr>
<td></td>
<td>ONLINE</td>
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<tr>
<td></td>
<td>ONLINE</td>
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**Cluster Resources**

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<th>Node</th>
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<tbody>
<tr>
<td>ora.LISTENER_SCAN1.lsnr</td>
<td>ONLINE</td>
<td>c2n2</td>
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<tr>
<td>ora.LISTENER_SCAN2.lsnr</td>
<td>ONLINE</td>
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</tr>
<tr>
<td>ora.LISTENER_SCAN3.lsnr</td>
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<td>c2n1</td>
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</tr>
<tr>
<td>ora.c2n1.vip</td>
<td>ONLINE</td>
<td>c2n1</td>
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<tr>
<td>ora.c2n2.vip</td>
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<tr>
<td>ora.c2n3.vip</td>
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<td>ora.c2n4.vip</td>
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<td>ora.cvu</td>
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<td>ora.oc4j</td>
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<td>ora.scan1.vip</td>
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<td>c2n1</td>
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<tr>
<td>ora.scan2.vip</td>
<td>ONLINE</td>
<td>c2n2</td>
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<tr>
<td>ora.scan3.vip</td>
<td>ONLINE</td>
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<td>ora.susedb.db</td>
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<td>c2n4</td>
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</tbody>
</table>
2). Verify Oracle Enterprise Manager.
### Additional Comments

- Edit `CV_ASSUME_DISTID=SUSE11` parameter in database/stage/cvu/cv/admin/cvu_config & grid/stage/cvu/cv/admin/cvu_config

- Apply Patch 18370031 (see MOS Note 1951613.1; this patch is applicable on SLES12 also)

- Install libcap1 (libcap2 libraries are installed by default); i.e. `libcap1-1.10-59.61.x86_64` & `libcap1-32bit-1.10-59.61.x86_64`

- `ksh` is replaced by `mksh`; e.g. `mksh-50-2.13.x86_64`

- `libaio` has been renamed to `libaio1` (i.e. `libaio1-0.3.109-17.15.x86_64`); ensure that `libaio1` is installed

- `OUI` may be invoked with `-ignoreSysPreqs` to temporarily workaround ongoing CVU check failures

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SuSE ISV Engineering Team  
April 26, 2016  
https://www.suse.com/