Oracle RAC 12.1.0.2.0 on SUSE Linux Enterprise Server 12 - x86_64



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Introduction

This documentation provides the details for install Oracle RAC 12.1.0.2.0 on SUSE Linux Enterprise Server 12 OS. Here, x86_64 version of both Oracle Database 12c 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 offical product documentation available at: <u>http://docs.oracle.com/en/</u>

Hardware and Software Requirements

Hardware Requirements

Requirement	Minimum
RAM	32 GB
Swap space	Approx. twice the size of RAM
Disk space in /tmp	8 GB
Disk space for software files	8 GB
Disk space for database files	8 GB

Software Requirements

SuSE

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

Oracle

• Database 12c Enterprise/Standard Editions (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 official document (URL:<u>https://www.suse.com/documentation/sles-12/</u>) 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	c2	n1-priv	
10.1.1.2	c2	n2-priv	
10.1.1.3	c2	n3-priv	
10.1.1.4	c2	n4-priv	
#Public:			
137.65.135	.72	c2n1.provo.novel	.com c2n1
137.65.135	.73	c2n2.provo.novel	.com c2n2
137.65.135	.74	c2n3.provo.novel	.com c2n3
137.65.135	.75	c2n4.provo.novel	.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 12c Release 1 Grid Infrastructure (12.1.0.2.0) for Linux x86-64.

1-2. Extract grid.zip and run the installer './runInstaller' from Gird ShipHome.

Install Flow:

1). Select Installation Option.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 1 of 16		
Select Installation Option	GRID INFRASTRUCTURE	2 <i>c</i>
🙊 Installation Option	Install and Configure Oracle Crid Infrastructure for a <u>Cluster</u>	
📕 <u>Cluster Type</u>	Install and Configure Oracle Grid Infrastructure for a <u>S</u> tandalone Server	
🙀 Installation Type	O Unamada Orașela Cuid Infrastructure en Orașela Automatic Stanana Managament	
Cluster Configuration	Opprade Oracle Grid Infrastructure of Oracle Automatic storage Management	
 Network Interface Usage 	Install Oracle <u>G</u> rid Infrastructure Software Only	
Storage Option		
 OCR Storage 		
 Voting Disk Storage 		
 Management Options 		
 Operating System Groups 		
 Installation Location 		
Root script execution		
 Prerequisite Checks 		
 Summary 		
 Install Product 		
- Finish		
Help	< <u>B</u> ack <u>Next</u> Install Can	cel

Choose option "Install and Configure Oracle Grid Infrastructure for a Cluster", then click Next to continue.

2). Select Cluster Type.

	Oracle Grid Infrastructure 12c Release 1 Installer - Step 2 of 16 ×			
Se	ect Cluster Type			
1	Installation Option	Choose the type of cluster required.		
	Cluster Type	Onfigure a Standard cluster		
	Installation Type	Choose this option to configure a group of servers into a single cluster.		
ΙĻ	Cluster Configuration	○ Configure a <u>F</u> lex cluster		
ΙĻ	Network Interface Usage	Flex clusters are highly scalable clusters in which servers can be assigned specific roles to satisfy		
卜左	Storage Option	database or application functions.		
Ιų	OCR Storage			
Ιų	Voting Disk Storage			
Ιų	Management Options			
ΙÝ	Operating System Groups			
ΙÝ	Installation Location			
ΙÅ	Root script execution			
ΙÝ	Prerequisite Checks			
ΙÝ	Summary			
ΙÝ	Install Product			
l i	Finish			
	<u>H</u> elp	<u> </u>		

Choose option "Configure a Standard Cluster", then click Next to continue.

3). Select Installation Type.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 3 of 16 ×		
Select Installation Type		
🔍 Installation Option	○ <u>Typical Installation</u>	
Cluster Type	Perform a full grid infrastructure installation with basic configuration.	
🔍 Installation Type	♀ ● <u>A</u> dvanced Installation	
Cluster Configuration	Allows advanced configuration options such as alternative storage choices, additional networking flexibility, integration with IPMI	
V Network Interface Usage	newbury, meg alon with the	
Storage Option		
OCR Storage		
Yoting Disk Storage		
└ Management Options		
Operating System Groups		
ပုံ Installation Location		
Root script execution		
Y Prerequisite Checks		
y Summary		
Y Install Product		
🔆 Finish		
Help	< <u>Back</u> <u>Next</u> Install Cancel	

Choose option "Advanced Installation", then click $\ensuremath{\textit{Next}}$ to continue.

4). Select Product Languages.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 4 of 11 ×		
Select Product Languages		С
 Installation Option Cluster Type Installation Type Product Languages Operating System Croups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish 	Select the languages in which your product will run. Available languages: Arabic Bengali Bengali Brazilian Portuguese Bulgarian Canadian French Catalan Croatian Czech Danish Outch Egyptian English English English Creek Hebrew Hebrew Hungarian Creek Hebrew Hungarian Irelandir	
Help	<u>Back</u> <u>Install</u> Cancel	

Select all languages, then click $\ensuremath{\textbf{Next}}$ to continue.

5). Grid Plug and Play Information.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 5 of 18		
Grid Plug and Play Informa		
Installation Option Cluster Type Installation Type Product Languages	Single Client Access Name (SCAN) allows clients to use one name in connection strings to connect to the cluster as a whole. Client connect requests to the SCAN name can be handled by any cluster node. <u>C</u> luster Name: c2-cluster <u>S</u> CAN Name: c2-scan.provo.novell.com	
Grid Plug and Play	SCAN Port: 1521	
	 Configure GNS ✓ Configure nodes Virtual IPs as assigned by the Dynamic Networks ④ Create a new GNS GNS <u>VIP Address:</u> <u>GNS Sub Domain</u>: c2n.provo.novell.com <u>Use Shared GNS</u> <u>GNS Client Data</u>: 	
Y Prerequisite Checks Y Summary Y Install Product Y Finish	 Sack Next > Install Cancel	

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.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 6 of 18		
Cluster Node Information		
A Installation Option	Provide the list of nodes to be managed Virtual Hostname.	by Oracle Grid Infrastructure with their Public Hostname and
Cluster Type	Public Hostname	Virtual Hostname
🖕 Installation Type	c2n1.provo.novell.com	c2n1-vip.provo.novell.com
Product Languages	c2n2.provo.novell.com	c2n2-vip.provo.novell.com
Grid Plug and Play	c2n3.provo.novell.com	c2n3-vip.provo.novell.com
	c2n4.provo.novell.com	c2n4-vip.provo.noveli.com
Cluster Node Information	_	
<u>Network Interface Usage</u>		
بلر Storage Option		
OCR Storage		
Voting Disk Storage		
└ Management Options		
Operating System Groups		
└ Installation Location		
Root script execution		
Prerequisite Checks		
↓ Summary	SSH <u>c</u> onnectivity	Use Cluster Configuration File
unstall Product		
U Finish		
Help		< <u>Back</u> <u>Next</u> <u>Install</u> Cancel

Provide the list of nodes with their public hostname and virtual hostname, then click **Next** to continue.

7). Specify Network Interface Usage.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 7 of 18 ×			
Specify Network Interface	e Usage		
Markallation Option	Private interfaces are used by (Dracle Grid Infrastructure for in	ternode traffic.
Cluster Type			
Installation Type	Interface Name	Subnet	Use for
Product Languages	bondl	137.65.135.0	Public
Grid Plug and Play			, THAT
Cluster Node Information			
Setwork Interface Usage			
🔍 Storage Option	Automatic Storage Managemer	icle Cluster Registry (OCR) and i it (Oracle Flex ASM), then you m	voting disk files using Oracle Flex ust designate at least one of the private
γ OCR Storage	interface subnets either as "AS	M" or as "ASM & Private".	
Y Voting Disk Storage			
Management Options			
Operating System Groups			
Unstallation Location			
Root script execution			
Prerequisite Checks			
y Summary			
↓ ♀ Install Product			
U Finish			
Help		< <u>B</u> ac	k Next > Install Cancel

Provide interfaces are used by Oracle Grid for public and private traffic, then click **Next** to continue.

8). Storage Option Information.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 8 of 18 ×			
Storage Option Informatio			
Installation Option	You can place Oracle Cluster Registry (OCR) files and voting disk files on Oracle ASM storage, or on a file system. Oracle ASM can be configured on this cluster or can be an existing ASM on a storage server cluster.		
Installation Type	Ise Standard ASM for storage		
Product Languages	Choose this option to configure Local Oracle ASM in this cluster and store OCR and voting disk files		
Grid Plug and Play	on it. ASM instance will be configured on all nodes of the cluster.		
Cluster Node Information	○ Use Oracle Flex <u>A</u> SM for storage		
 <u>Network Interface Usage</u> 	Choose this option to configure OCR and voting disks on ASM storage. ASM instance will be configured on reduced number of cluster nodes.		
Storage Option	④ ○ Configure as ASM Client Cluster		
OCR Storage	Characteria at stars OCD and Vision distribution of Oracle ACM Starses configured on a		
Voting Disk Storage	storage server cluster.		
Management Options	ASM Client Data: Browse		
Operating System Groups			
Installation Location	Use Shared File System		
Root script execution	Choose this option to configure OCR and voting disk files on an existing shared file system.		
Prerequisite Checks			
y Summary			
↓ ♀ Install Product			
U Finish			
Help	<u>Seack</u> <u>Next</u> <u>Install</u> <u>Cancel</u>		

Choose option "Use Standard ASM for storage", then click Next to continue.

9). Create ASM Disk Group.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 9 of 18			
Create ASM Disk Group		2 ^c	
Installation Option Cluster Type Installation Type Product Languages Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create ASM Disk Group ASM Password Management Options Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	GRID INFRASTRUCTURE Select Disk Group characteristics and select disks Disk group name SUSETEST Redundancy High	th	
Help	< <u>Back</u> <u>Next</u> Install	ancel	

Depending on your needs to creat ASM Disk Group, then click $\ensuremath{\textbf{Next}}$ to continue.

10). Specify ASM Password.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 10 of 18 ×			
Specify ASM Password			
Cluster Type	The new Oracle Automatic Storage Manage SYSASM privileges for administration. Ora user with SYSDBA privileges to monitor the	ment (Oracle ASM) instance requires its own SYS user with Cle recommends that you create a less privileged ASMSNMP ASM instance.	
Installation Type	Specify the password for these user accounts.		
 Product Languages Grid Plug and Play 	Use different passwords for these acco	unts	
<u>Cluster Node Information</u> <u>Network Interface Usage</u>	Password S <u>Y</u> S	Confirm Password	
Storage Option Create ASM Disk Group			
😡 ASM Password	Use same passwords for these account	s	
	Specify <u>P</u> assword: ••••• <u>M</u> essages: Specify Password:[INS-30011] The pass standards.	<u>C</u> onfirm Password: ●●●●●● word entered does not conform to the Oracle recommended	
Help		< <u>B</u> ack <u>N</u> ext > <u>Install</u> <u>Cancel</u>	

Fill in ASM Password as shown above, then click **Next** to continue.

11). Failure Isolation Support.

Ora	cle Grid Infrastructure 12c Release 1 Installer - Step 11 of 19 ×
Failure Isolation Support	
Listallation Option	Choose one of the following Failure Isolation Support options.
Installation Type	O Use Intelligent Platform Management Interface (IPMI) To ensure successful installation with IPMI enabled, ensure your IPMI drivers are properly installed
<u>Product Languages</u> <u>Grid Plug and Play</u> <u>Tring Plug and Play</u>	and enabled. User Name :
 <u>Cluster Node Information</u> <u>Network Interface Usage</u> 	Password :
Storage Option Create ASM Disk Group	Do not use Intelligent Platform Management Interface (IPMI)
Failure Isolation	
 Management Options Operating System Groups 	
 Installation Location Root script execution 	
↓ Prerequisite Checks ↓ Summary	
│ │ Install Product │ Finish	
Help	< <u>Back</u> <u>Install</u> Cancel

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

12). Specify Management Options.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 12 of 19 ×				
Specify Management Options				
Installation Option Cluster Type	You can configure to have this insta Management to be managed by Ente Control configuration to perform th	nce of Oracle Grid Infrastructure and Oracle Automatic Storage rprise Manager Cloud Control. Specify the details of the Cloud e registration.		
http://www.communication.com	Register with Enterprise Manager	(EM) Cloud Con <u>t</u> rol		
Product Languages	O <u>M</u> S host:			
Grid Plug and Play	OMS port:			
Cluster Node Information				
 <u>Network Interface Usage</u> 	EM A <u>d</u> min User Name:			
🔍 Storage Option	EM Admin Pass <u>w</u> ord:			
Create ASM Disk Group				
😋 ASM Password				
Failure Isolation				
Management Options				
Operating System Groups				
 Installation Location 				
Root script execution				
 Prerequisite Checks 				
y Summary				
unstall Product				
U Finish				
Help		<u>Sack</u> <u>N</u> ext > <u>Install</u> Cancel		

Selected/Deselected option "Register with EM" depend on your needs, then click **Next** to continue.

13). Privileged Operating System Groups.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 13 of 19				
Privileged Operating System Groups ORACLE GRID INFRASTRUCTURE				
Installation Option Cluster Type Installation Type Product Languages Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create ASM Disk Group ASM Pass word Failure Isolation Management Options Operating System Groups Installation Location Prerequisite Checks Summary Install Product	Select the name of the operating system group, that you w authentication to Oracle Automatic Storage Management. Oracle <u>A</u> SM Administrator (OSASM) Group Oracle ASM <u>D</u> BA (OSDBA for ASM) Group Oracle ASM <u>O</u> perator (OSOPER for ASM) Group (Optional)	AND INFRASTRUCTORE		
i Finish		< Back Next > Install Cancel		

Selected by default, then click **Next** to continue.

14). Specify Installation Location.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 14 of 19 ×			
Specify Installation Locatio			
Installation Option Cluster Type Installation Type	Specify the Oracle Grid Infrastructure for a Cluster Oracle base. By default, Oracle Grid Infrastructure is installed in a path indicating the Oracle Grid Infrastructure release and grid infrastructure software owner.		
 <u>Product Languages</u> <u>Grid Plug and Play</u> <u>Cluster Node Information</u> 	Specify a location for storing Oracle software files separate from configuration files in the Oracle base directory. This software directory is the Oracle Grid Infrastructure home directory.		
 <u>Network Interface Usage</u> <u>Storage Option</u> <u>Create ASM Disk Group</u> 	Software location? /home/grid Browse		
ASM Pass word Failure Isolation Management Options			
Operating System Groups Installation Location Root script execution			
Y Prerequisite Checks Summary			
U Finish	< Back Next > Install Cancel		

Fill in Oracle base and Software location, then click Next to continue.

15). Create Inventory.

c	Dracle Grid Infrastructure 12c Release 1 Installer – Step 15 of 20 ×
Create Inventory	
Installation Option Cluster Type Installation Type Product Languages Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create ASM Disk Group ASM Pass word Failure Isolation Management Options Operating System Groups Installation Location Prerequisite Checks Summary Install Product	 You are starting your first installation on this host. Specify a directory for installation metadata files (for example, install log files). This directory is called the "inventory directory". The installer automatically sets up subdirectories for each product to contain inventory data. The subdirectory for each product typically requires 150 kilobytes of disk space. Inventory <u>Directory</u>: /home/oralnventory Browse Members of the following operating system group (the primary group) will have write permission to the inventory directory Group Name: oinstall
Help	< <u>B</u> ack <u>N</u> ext > <u>Install</u> Cancel

Specify a directory for installation metadata files if this is your first installation on this host, then click **Next** to continue.

16). Root script execution configuration.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 16 of 20 ×				
Root script execution cont	figuration			
Installation Option Cluster Type	While configuring the so to have the Installer perfo below.	tware, certain operations have to be performed as "root" user. You can choose orm these operations automatically by specifying inputs for one of the options		
Installation Type	Automatically run cor	figuration scripts		
Product Languages	● Use "root" user <u>c</u> r	edential		
Grid Plug and Play	Pass <u>w</u> ord :	•••••		
Cluster Node Information	③ ○ Lise sudo			
<u>Vetwork Interface Usage</u>	Program path :	luer/local/bin/suda		
Storage Option	rrogram part.	/usr/iocal/bin/sudo		
Ý 🖕 <u>Create ASM Disk Group</u>	. <u>U</u> ser name :	oracle		
ASM Pass word	Passw <u>o</u> rd :			
Failure Isolation				
<u>Management Options</u>				
Installation Location				
Create Inventory				
Root script execution				
Prerequisite Checks				
↓ ♀ Summary				
Y Install Product				
Help		< <u>Back</u> <u>Next</u> <u>Install</u> <u>Cancel</u>		

While configuring the software, certain operations have to be performed as "root" user. Choose the option as shown above, the Installer will perform these operations automatically. Fill in the password for "root" user, then click **Next** to continue.

17). Perform Prerequisite Checks.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 17 of 20 ×			
Perform Prerequisite Ch		_€ [•] UCTURE 12 ^C	
	Verification Result Some of the minimum requirements for installation are not completed. Review and fix in the following table, and recheck the system. Check Again Eix & Check Again Show Failed Image: All Nodes Checks Statu Checks Statu Package: cvuqdisk-10.9-1 Warning Package: libaio-0.3.104 Warning Package: libaio-0.3.104 Warning Package: libaidc++33-3.3 Warning Package: libstdc++33-3.3 Warning Package: libstdc++43-devel-4.3.3_20081022 Warning Package: libstdc++43-4.3.3_20081022 Warning	the issues listed Ignore All S Fixable Yes No No No No No No No N	
Summary Install Product Finish	This is a prerequisite condition to test whether the package "cvuqdisk-1.0.9-1" is ava system. (more details) Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]	ilable on the	
Help	< <u>B</u> ack <u>N</u> ext > In	istall Cancel	

Perform Pre-Check as shown above; Click Fix&Check Again to recheck the system.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 17 of 20 ×				
Perform Prerequisite Check				
Installation Option Cluster Type Installation Type Product Languages Grid Plug and Pla Cluster Node Infi Network Interfac Some of the that needs to (/tmp/CVU_credentials p) Create ASM Disk ASM Pass word Failure Isolation Management Opt Operating Syster Installation Locat	Verification Result Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system. Chack Again Eix & Chack Again Chack Again Eix & Chack Again Fixup Script Ignore All prerequisites have failed on the following nodes. Installer has generated a fixup script Fixable 12.1.0.2.0_oracle/runfixup.sh) on the listed nodes using the privileged user No No No 12 No 14 No 15 No 16 No 17 No 18 No 19 No 10 No 10 No 10 No 11 No 12 No 13 No 14 No 15 No 16			
Create Inventory Root script execution Prerequisite Checks Summary Install Product Finish	This is a prerequisite condition to test whether the package "cvuqdisk-1.0.9-1" is available on the system. (more details) Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]			
Help	<u> </u>			

Follow the prompts, manual run Fixup Script as "root" user on each node, then click OK.



Select option "Ignore All", then click Next to continue.

18). Summary.



Installation Summary as shown above, click Install to continue.

19). Install Product.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 19 of 20 ×		
Install Product		12 ^c
A Installation Option	Progress	
Cluster Type	6%	
Installation Type	0/1	
Y Product Languages	Processing Java Development Kit 1.6.0.75.0	
Grid Plug and Play		
Cluster Node Information	_ Status	
V Network Interface Usage	➡ Install Grid Infrastructure for a Cluster	ogress
پر Storage Option	✓ • Prepare Succ	eeded
Create ASM Disk Group	Copy files Pend Link binaries Pend	ling
A SM Password	• Setup Pend	ling
	Perform remote operations Pence Pencenc Pence Pence Pencence Pence Pence Pencen	ling
Y Failure isolation	Update Inventory Pend	ling
Management Options	Execute Root Scripts Pend	ling
Operating System Groups	Configure Oracle Grid Infrastructure for a Cluster Penc	ling
Installation Location		
Create Inventory		
Root script execution		
Prerequisite Checks	Details	LÀ FERID
y Summary		
install Product	ORACLE 190 Policy Management	
- Finish	GRID INFRASTRUCTURE Critical Resources On Demand	
Help	< <u>B</u> ack <u>N</u> ext > <u>I</u> nstall	Cancel

c	Oracle Grid Infrastructure 12c Release 1 Installer - Step 19 of 20 ×		
Install Product			
1nstallation Option			
Cluster Type			
🕂 Installation Type	81%		
↓ Product Languages	Completed 'Prepare for configuration steps'		
y Grid Plug and Play			
Cluster Node Inform	Oracle Grid Infrastructure 12c Release 1 Installer		
V Network Interface U	Succeeded		
Storage Option	Succeeded		
🔶 Create ASM Disk Gr	privileged user (root). Installer will run these scripts using the privileged Succeeded		
ASM Password	user credentials provided earlier. Succeeded		
 Failure Isolation 	Are you sure you want to continue? Succeeded		
 Management Option 	Succeeded		
Operating System G	Yes No Pending		
U Installation Location	Pending		
Create Inventory			
Root script execution			
Prerequisite Checks	Details Retry Skip		
Summary			
Install Product			
- Finish	GRID INFRASTRUCTURE Consolidate on Fast, Reliable, and Scalable Low-Cost Grids		
Help	< <u>B</u> ack <u>N</u> ext > <u>I</u> nstall Cancel		

Completed 'prepare for configuration steps'. Here to stay and install **Oracle Patch 18456643** first, then click **Yes** to run configuration scripts.

Oracle Grid Infrastructure 12c Release 1 Installer - Step 19 of 20			
Install Product		<u></u>	
Installation Option	Progress		
Installation Type Product Languages	Starting 'Oracle Cluster Verification Utility'		
Grid Plug and Play	Status		
Y Cluster Node Inform Network Interface U	Oracle Grid Infrastructure 12c Release 1 Installer	Succeeded Succeeded Succeeded	
Create ASM Disk Gr	[INS-20802] Oracle Cluster Verification Utility failed.	Succeeded Succeeded Failed	
ASM Password Failure Isolation	<u>OK</u> <u>D</u> etails	Succeeded Succeeded Succeeded	
Operating System Groups Installation Location	 Creating Container Database for Oracle Grid infrastructure Management R Setting up Oracle Grid Infrastructure Management Repository Management Database Configuration Assistant Oracle Cluster Verification Utility 	Succeeded Succeeded Succeeded Failed	
Create Inventory	Details	<u>R</u> etry <u>S</u> kip	
Prerequisite Checks Summary	GRACLE 12 ^c Manageability Maximize Performance, Availab	ility,	
	and Productivity	istall Cancel	

Oracle CVU failed. Ignore the error then click $\ensuremath{\text{OK}}$ to continue.

c	Dracle Grid Infrastructure 12c Release 1 Installer - Step 19 of 20 ×
Install Product	
イ Installation Option 人 Cluster Type	Progress
↓ ↓ Installation Type ↓ Product Languages	Setup completed with overall status as Failed
↓ ↓ Grid Plug and Play ↓ Cluster Node Information	Status
V Network Interface Usage	Setup Oracle Base Succeeded Update Inventory Succeeded
Create ASM Disk Group	Execute Root Scripts Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded
ပ္ ASM Password ၂ ၂ Failure Isolation	✓ • Update Inventory Succeeded ✓ • Oracle Net Configuration Assistant Succeeded ✓ • Automatic Storage Management Configuration Assistant Succeeded
↓ Management Options ↓ Operating System Groups	
 ↓ Installation Location ↓ Create Inventory 	Oracle Cluster Verification Utility Failed
Root script execution	<u>D</u> etails <u>R</u> etry <u>S</u> kip
Summary	GRID INFRASTRUCTURE 12 ^c Grid Computing Consolidate on Fast, Reliable, and Scalable Low-Cost Grids
Help	< <u>₿</u> ack <u>N</u> ext > <u>I</u> nstall <u>Close</u>

Setup completed, click Next to continue.

Orac	cle Grid Infrastructure 12c Release 1 Installer - Step 19 of 20 ×
Install Product	
A Installation Option	Progress
Cluster Type	100%
A Installation Type	Setup completed with overall status as Failed
Y Product Languages	
Grid Plug and Play	· · ·
Cluster Node Inform	Oracle Grid Infrastructure 12c Release 1 Installer
V Network Interface U	Succeeded
K Storage Option	[INS-32091] Software installation was successful. But some configuration Succeeded
y Create ASM Disk Gr	assistants failed, were cancelled or skipped.
Y ASM Password	Are you sure you want to continue? Succeeded
Failure Isolation	Succeeded
↓ Management Optior	Yes Details R Succeeded
Operating System Groups	• Setting up Oracle Grid intrastructure Management Repository Succeeded
 Installation Location 	Management Database Configuration Assistant Succeeded Succeeded Failed
Create Inventory	
Root script execution	Details Retry Skip
Y Prerequisite Checks	
y Summary	ORACLE 190 Application Clusters
Install Product	GRID INFRASTRUCTURE Application High Availability Using Bundled Agents
Tinink V	
Help	< Back Next > Install Close

Click Yes to confirm.

Ora	cle Grid Infrastructure 12c Release 1 Installer - Step 20 of 20 ×
Finish	
Linstallation Option	The installation of Oracle Grid Infrastructure for a Cluster was successful, but some configuration assistants failed, were cancelled or skipped.
Installation Type	
Grid Plug and Play	
Cluster Node Information	
Create ASM Disk Group	
ASM Password Eailure Isolation	
Y Management Options	
Y Operating System Groups Y Installation Location	
Create Inventory	
Prerequisite Checks	
y Install Product	
Finish Finish	< <u>B</u> ack <u>N</u> ext > <u>I</u> nstall <u>Close</u>

The installation of Oracle Grid Infrastructure for a Cluster is Finished.

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.provo.novell.com is enabled VIP c2n1-vip.provo.novell.com is running on node: c2n1 VIP c2n2-vip.provo.novell.com is enabled VIP c2n2-vip.provo.novell.com is running on node: c2n2 VIP c2n3-vip.provo.novell.com is enabled VIP c2n3-vip.provo.novell.com is running on node: c2n3 VIP c2n4-vip.provo.novell.com is enabled VIP c2n4-vip.provo.novell.com is running on node: c2n4 Network is enabled Network is running on node: c2n1 Network is running on node: c2n4 Network is running on node: c2n3 Network is running on node: c2n2 ONS is enabled ONS daemon is running on node: c2n1 ONS daemon is running on node: c2n4 ONS daemon is running on node: c2n3 ONS daemon is running on node: c2n2

3). Check status of designated resources.

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

Name	Target State	Server	State details
Local Re	esources		
ora.LIST	ENER.lsnr		
	ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
ora.SUS	ETEST.dg ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
ora.asm		- 0 - 1	
	ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	Started, STABLE Started, STABLE Started, STABLE Started, STABLE
ora.net1	.network		
	ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
ora.ons			
	ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
Cluster I	Resources		
ora.LIST	ENER_SCAN1.lsnr ONLINE ONLINE	c2n4	STABLE
	ONLINE ONLINE	c2n3	STABLE
1 ora MGN	ONLINE ONLINE	c2n1	STABLE
1	ONLINE ONLINE	c2n1	169.254.38.57 10.1.1 .1,STABLE
ora.c2n1	1.vip ONLINE ONLINE	c2n1	STABLE
ora.c2n2	2.vip ONLINE ONLINE	c2n2	STABLE
ora.c2n3	3.vip ONLINE ONLINE	c2n3	STABLE
ora.c2n4	^{1.vip} ONLINE ONLINE	c2n4	STABLE
ora.cvu	ONLINE ONLINE	c2n1	STABLE
ora.mgn 1 ora.oc4j	ONLINE ONLINE	c2n1	Open,STABLE

1	ONLINE ONLINE	c2n1	STABLE
ora.sca	n1.vip		
1	ONLINE ONLINE	c2n4	STABLE
ora.sca	n2.vip		
1	ONLINE ONLINE	c2n3	STABLE
ora.sca	n3.vip		
1	ONLINE ONLINE	c2n1	STABLE

4). Check OCR and Voting disk files.

oracle@c2n1:~> /home/grid/bin/ocrcheck

Status of Oracle Cluster Registry is as follows : Version 4 1 Total space (kbytes) 409568 1 Used space (kbytes) : 1696 Available space (kbytes) : 407872 : 1286433802 ID 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 3195ba343d234f0cbf92bf2df0f7d3b9 (/dev/oradata/disk1) [SUSETEST]

2. ONLINE 3410554dce114fa1bfb86b8cd1f3288b (/dev/oradata/disk2) [SUSETEST] 3. ONLINE 69bb2fac7bac4f71bf4b3ec63154f76c (/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 12c Release 1 (12.1.0.2.0) for Linux x86-64.

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

Install Flow:

1). Configure Security Updates.

		Oracle Database 12c Rele	ease 1 Installer – Step 1 of 9	×
Cor	nfigure Security Update	5	E See	
•	Configure Security Updates	Provide your email address to be and initiate configuration manag	informed of security issues, install the er. <u>View details</u> .	product
	Installation Option	E <u>m</u> ail:		
ト本	Grid Installation Options		Easier for you if you use your My Orac	le Support email
臣	Install Type		address/username.	
ΙΎ	Typical Installation	I wish to receive security upd	ates via My Oracle Support.	
ΙΎ	Prerequisite Checks	My Oracle Support Password:		
ΙΎ	Summary			
ΙÝ	Install Product			
5	Finish			
	Help		< <u>B</u> ack	ext > Install Cancel

Provide your email address to be informaed of security issues, then click **Next** to continue.

2). Select Installation Option.

	Oracle Database 12c Release 1 Installer – Step 2 of 9	×
Select Installation Option		
Configure Security Updates	Select any of the following install options.	
🙊 Installation Option	○ <u>C</u> reate and configure a database	
Grid Installation Options	Install database software only	
histall Type		
↓ Typical Installation	Y O Upgrade an existing database	
Prerequisite Checks		
y Summary		
unstall Product		
Finish		
Help	sack s	Next > Install Cancel

Choose option "Install database software only.", then click Next to continue.

3). Grid Installation Options.

	Oracle Database 12c Release 1 Installer – Step 3 of 9	×
Grid Installation Options		
↓ ♀ <u>Configure Security Updates</u>	Select the type of database installation you want to perform.	
Installation Option	○ <u>S</u> ingle instance database installation	
Grid Installation Options	Oracle <u>Real Application Clusters database installation</u>	
<u>install Type</u>	Oracle RAC On <u>e</u> Node database installation	
Y Typical Installation		
Y Prerequisite Checks		
y Summary		
unstall Product		
- Finish		
Help	sack s	<u>Next ></u> Install Cancel

Choose option "Oracle Real Application Clusters database installation", then click Next to continue.

4). Select List of Nodes.

	Oracle Database 12c Release 1 Installer - Step 4 of 10	×
Select List of Nodes		С
Configure Security Updates	Select nodes (in addition to the local node) in the cluster where the installer should install Oracle RAC or Oracle RAC One	
Installation Option	Node name	1
Grid Installation Options	✓ 1 c2n1	
Nodes Selection	✓ 2 c2n2 ✓ 3 c2n3	
🗼 Install Type	✓ 4 c2n4	
 Typical Installation 		
Prerequisite Checks		
y Summary		
install Product		
- Finish		
	SSH <u>connectivity</u>	
Help	<u>Sance</u> <u>Rext</u> <u>Install</u> <u>Cance</u>	:L

Select all nodes in the cluster, then click **Next** to continue.

5). Select Product Languages.

	Oracle Database 12c Release 1 Installer - Step 5 of 12 ×
Select Product Languages	
 <u>Configure Security Updates</u> <u>Installation Option</u> <u>Grid Installation Options</u> <u>Nodes Selection</u> <u>Product Languages</u> <u>Database Edition</u> Installation Location Operating System Groups Prerequisite Checks Summary Install Product Finish 	Select the languages in which your product will run. Available languages: Selected languages: Arabic Bengali Brazilian Portuguese Bulgarian Canadian French Catalan Croatian Czech Danish Dutch Egyptian English English English Estonian Finlish
Help	French German Greek Hebrew Hungarian Icelandic

Select all languages, then click $\ensuremath{\textbf{Next}}$ to continue.

6). Select Database Edition.

	Oracle Database 12c Release 1 Installer - Step 6 of 12 X
Select Database Edition	
Configure Security Updates	Which database edition do you want to install?
A Installation Option	Enterprise Edition (6.4GB)
Grid Installation Options	Oracle Database 12c Enterprise Edition is a self-managing database that has the scalability,
Wodes Selection	performance, high availability, and security features required to run the most demanding, mission-critical applications.
Product Languages	○ <u>S</u> tandard Edition (6.1GB)
Database Edition	Oracle Database 12c Standard Edition is a full-featured data management solution ideally suited to
Installation Location	the needs of medium-sized businesses. It includes Oracle Real Application Clusters for enterprise-class availability and comes complete with its own Oracle Clusterware and storage
↓ ♀ Operating System Groups	management capabilities.
Y Prerequisite Checks	
y Summary	
unstall Product	
U Finish	
Help	< <u>Back</u> <u>Next</u> Install Cancel

Choose option "Enterprise Edition", then click Next to continue.

7). Specify Installation Location.

	Oracle Database 12c Release 1 Installer - Step 7 of 12	×
Specify Installation Locatio		12 ^c
Configure Security Updates	Specify a path to place all Oracle software and configuration-related files installed by this in owner. This location is the Oracle base directory for the installation owner.	stallation B <u>r</u> owse
Nodes Selection Product Languages Database Edition	Specify a location for storing Oracle database software files separate from database configu files in the Oracle base directory. This software directory is the Oracle database home direc	iration tory.
Installation Location	Software location: /home/oracle/app/product/12.1.0/dbhome_1	Bro <u>w</u> se
 Operating System Groups Prerequisite Checks Summary Install Product Finish 		
Help	< <u>Back</u> Next >	Cancel

Fill in **Oracle base** and **Software location** as shown above, then click **Next** to continue.

8). Privileged Operating System groups.

		Oracle Database 12c Release 1 Installer - Step 8 o	f 12		×
Pri	Privileged Operating System groups				
	Configure Security Updates	SYS privileges are required to create a database using operating Membership in OS Groups grants the corresponding SYS privile SYSDBA privilege.	g system ege, eg. i	n (OS) authentication. membership in OSDBA <u>c</u>	grants the
4	Grid Installation Options	Database <u>A</u> dministrator (OSDBA) group:	dba	-	
.	Nodes Selection	Database <u>O</u> perator (OSOPER) group (Optional):		-	
ļ	<u>Product Languages</u> Database Edition	Database Backup and <u>R</u> ecovery (OSBACKUPDBA) group:	dba	y	
9	Installation Location	Data <u>G</u> uard administrative (OSDGDBA) group:	dba	-	
٢	Operating System Groups	Encryption Key Management administrative (OSKMDBA) group:	dba	-	
	Prerequisite Checks				
ΙÝ	Summary				
Ϋ́	Install Product				
0	Finish				
					ĺ
	Help	< <u>B</u> ac	k <u>N</u>	lext >	Cancel

Selected by default, then click $\ensuremath{\textbf{Next}}$ to continue.

9). Perform Prerequisite Checks.

	Oracle Database 12c Release 1 Installer - Step 9 of 12		×
Perform Prerequisite Check	s S	DRACL	E 12 ^c
Configure Security Updates Installation Option Crid Installation Options Nodes Selection Product Languages Database Edition Installation Location	Verification Result Some of the minimum requirements for installation are not completed. Revi in the following table, and recheck the system. Check Again Eix & Check Again Show Failed All Node Checks Checks Packages Pa	iew and fix th s Status Warning Warning	e issues listed Ignore All Fixable
Operating System Groups Prerequisite Checks Summary Install Product Finish	Package: ksh-93t Package: libstdc++33-3.3.3 Package: libstdc++43-devel-4.3.3_20081022 Package: libstdc++43-4.3.3_20081022 Package: libgcc43-4.3.3_20081022 //ev/shm mounted as temporary file system Maximum locked memory check	Warning Warning Warning Warning Warning Warning	No No No No Yes
Help	This is a prerequisite condition to test whether the package "libaio-0.3.104" system. <u>(more details)</u> Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]	' is available o	n the

Perform Pre-Check as shown above; Click **Fix&Check Again** to recheck the system.

	Oracle Database 12c Release 1 Installer - Step 9 of 12	×
Perform Prerequi	iisite Checks	LE 12 ^C
Configure Securi	Fixup Script Some of the prerequisites have failed on the following nodes. Installer has generated a fixup script that needs to be run as a privileged user (root) on the listed nodes.	the issues listed
Product Languac Database Edition Installation Locat Operating System Prerequisite Che Summary	Script: /tmp/CVU_12.1.0.2.0_oracle/runfixup.sh Nodes: c2n1 c2n2 c2n3 c2n4	No No No No No No No
Y Install Product	To execute the fixup script: 1. Open a terminal window 2. Login as "root" 3. Run the script 4. Return to this window and click "OK" to continue QK Cancel	No Yes
	This is a prerequisite condition to test whether the package "libaio-0.3.104" is availabl system . <u>(more details)</u> Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]	e on the
Help	< <u>Back</u> Next > [Ins	stall Cancel

Follow the prompts, manual run Fixup Script as "root" user on each node, then click **OK**.

<mark>c2nl:~ #</mark> /tmp/CV All Fix-up opera	U_12.1.0.2.0_oˈracle/runf tions were completed suc	ixup.sh cessfully.		
	Oracle Database 12c Release	1 Installer – Step 9 of 1	2	>
Perform Prerequisite Checks				
Configure Security Updates	Verification Result Fixup Result	iewfixup execution result in t	he following ta	ble.
💂 Grid Installation Options	Che	cks	Status	Reboot Required
Nodes Selection	🚽 🍇 Maximum locked memory ch	eck	Successful	No
Product Languages				
Database Edition				
Installation Location				
Operating System Groups				
Prerequisite Checks				
ý Summary				
unstall Product				
5 Finish				
	Check maximum locked memory set	ting on the system <u>(more deta</u>	<u>ils)</u>	
Help Install Cancel]				

		Oracle Database 12c Release 1 Installer – Step 9 of 12		×
Per	form Prerequisite Check	s C	DRACL	E 12 ^c
Р Т Т	Configure Security Updates Installation Option Grid Installation Options Nodes Selection	Verification Result Fixup Result Some of the minimum requirements for installation are not completed. Rev in the following table, and recheck the system. Check Again Eix & Check Again Show Failed T	iew and fix the	e issues listed
- ÷	Product Languages	Checks	Status	Fixable
- 	Database Edition	Enecks		
	Installation Location	Package: libaio-0.3.104	Ignored	No
	Operating System Croups	Package: ksh-93t	lgnored	No
Ť	operating system er oups	Package: libstdc++33-3.3.3	lgnored	No
-	Prerequisite Checks	Package: libstdc++43-devel-4.3.3_20081022	lgnored	No
- 	Summary	Package: libstdc++43-4.3.3_20081022	Ignored	No
- Ų	Install Product	Package: Ilbgcc43-4.3.3_20081022	Ignored	No
- L	Finish	Maximum locked memory check	lanored	No
		This is a prerequisite condition to test whether the package "libaio-0.3.104" system. <u>(more details)</u> Check Failed on Nodes: [c2n4, c2n3, c2n2, c2n1]	' is available o	n the
	Help	< <u>B</u> ack <u>N</u> ext	>] [Insta	Cancel

Select option "Ignore All", then click Next to continue.

10). Summary.

	Oracle Database 12c Release 1 Installer - Step 10 of 12 ×
Summary	
 <u>Configure Security Updates</u> <u>Installation Option</u> <u>Grid Installation Options</u> <u>Nodes Selection</u> <u>Product Languages</u> <u>Database Edition</u> <u>Installation Location</u> <u>Operating System Groups</u> <u>Prerequisite Checks</u> <u>Summary</u> <u>Install Product</u> Finish 	Oracle Database 12c Release 1 Installer Oracle Database 12c Release 1 Installer Ots space: required 6.4 CB available 487.77 CB [Edit] Source location: /opt/oracle/12102_21419221_SW/database/install//stage/products.xml Database edition: Enterprise Edition (Install database software only) [Edit] Oracle base: /home/oracle/app [Edit] Software location: /home/oracle/app/product/12.1.0/dbhome_1 [Edit] Software location: /home/oracle/app/product/12.1.0/dbhome_1 [Edit] Privileged Operating System groups: dba (OSBACKUPDBA), dba (OSDGDBA), dbi Grid Options Cluster Nodes: c2n1, c2n2, c2n3, c2n4 [Edit]
Help	<u>Back</u> <u>Install</u> Cancel

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

11). Install Product.

	Oracle Database 12c Release 1 Installer - Step 11 of 12	×
Install Product		С
 Configure Security Updates 	Progress	
المعامل Installation Option	8%	1
ے کے لیے کہ استان کر ہے کہ استان کر ہے کہ استان کر کر کے لیے کہ	Loading products. Please wait.	
ျိုိ မှ Nodes Selection		
↓ ♀ Product Languages	_ Status	
↓ ↓ Database Edition	Oracle Database installation In Progress	1
↓ Installation Location	 ✓ • Prepare Succeeded Succeeded 	
↓ Operating System Groups	Copyries Pending Link binaries Pending	
Prerequisite Checks	Setup Pending Perform remote operations Perform	
y Summary	Setup Oracle Base Pending	
🧅 Install Product	Update Inventory Pending Execute Root Scripts Pending	
U Finish	Execute Root scripts Pending	
	Details Retry Skin	р
<u>H</u> elp	<u>Stack</u> <u>Next</u> > <u>Install</u> Cance Oracle Database 12c Release 1 Installer - Step 11 of 12	: <u> </u>
Install Product		С
ပု Configure Security Updates	-Progress-	
L Installation Option	95%]
Grid Installation Options	Saving Cluster Inventory	
 Nodes Selection 	Execute Configuration scripts	
Y Product Languages	- The following configuration scripts need to be executed as the "root" user in each new	
O Database Edition	cluster node. Each script in the list below is followed by a list of nodes.	
Installation Location		
Coperating system Groups	Scripts to be executed:	
	Number Script Location Nodes	
Install Product		
U Finish		
	To execute the configuration scripts:	
	1. Open a terminal window	
	 Log in as "root" Run the scripts in each cluster node Return to this window and click "OK" to continue 	P
	<u>Н</u> еір ОК	
Help	<pre></pre>	el

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

c2nl:~ # /home/oracle/app/product/12.1.0/dbhome_1/root.sh
Performing root user operation.
The following environment variables are set as:
 ORACLE_OWNER= oracle
 ORACLE_HOME= /home/oracle/app/product/12.1.0/dbhome_1
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.

1

	Oracle Database 12c Release 1 Installer - Step 12 of 12		×
Finish		DATABASE	12 ^c
♀ Configure Security Updates	The installation of Oracle Database was successful.		
A Installation Option			
Grid Installation Options			
 Nodes Selection 			
 Product Languages 			
 Database Edition 			
 Installation Location 			
 Operating System Groups 			
 Prerequisite Checks 			
y Summary			
 Install Product 			
🧅 Finish			
Help		lext >Install	Close

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 12.1.0.2 DB.

1). Database Operation.

	Database Configuration Assistant - Welcome - Step 1 of 6 X
Database Operation	
Database Operation	Select the operation that you want to perform.
Creation Mode	
Prerequisite Checks	Configure Database Options
ပုံ Summary	O <u>D</u> elete Database
Y Progress Page	○ M <u>a</u> nage Templates
O Finish	O Manage Pluggable Databases
	O Instance Management
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish <u>Cancel</u>

Choose option "Create Database", then click Next to continue.

2). Creation Mode.

Creation Mode Database Configuration Assistant - Create Database - Step 2 of 14 ×			
Database OperationOreation ModeDatabase TemplateDatabase IdentificationManagement OptionsDatabase CredentialsStorage LocationsDatabase OptionsInitialization ParametersCreation OptionsPrerequisite ChecksSummaryProgress PageFinish	 ○ <u>C</u>reate a database with default constraints ○ <u>C</u>lobal Database Name: ○ <u>S</u>torage Type: ○ <u>D</u>atabase Files Location: F<u>a</u>st Recovery Area: ○ Database Character Set: Administrative Password : ○ Create As Container Database Pluggable Database Name: ○ Adyanced Mode 	Automatic Storage Management (ASM) +SUSETEST01 +SUSETEST WE8MSWIN1252 - MS Windows Code Page ase	■ ■ ■ ■ ■ ■ ■ ■ 1252 8-bit Wes ▼
 Database Template Database Identification Management Options Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary Progress Page Finish 	Storage Type: Database Files Location: Fast Recovery Area: Database Character Set: Administrative Password : Confirm Password: Image: Create As Container Database Name: Pluggable Database Name: Image: Adyanced Mode	Automatic Storage Management (ASM) +SUSETEST01 +SUSETEST WE8MSWIN1252 - MS Windows Code Page	▼ Browse Browse 1252 8-bit Wes

Choose option "Advanced Mode", then click $\ensuremath{\textit{Next}}$ to continue.

3). Database Template.

Da	tabase Template			
Ŷ	Database Operation	Select the type of da	tabase you want to configure.	
	Creation Mode	<u>D</u> atabase Type:	Oracle Real Application Clusters (RAC) data	base 🔻
-	Database Template	<u>Configuration Type:</u>	Policy-Managed	
- •	Database Identification		Toncy Manageo	
ų	Management Options			
- Y	Database Credentials	Templates that inclu	ide datafiles contain pre-created databases. Th	ney allowyou to create a new database
- Ļ	Storage Locations	in minutes, as opposition as when you need to	sed to an hour or more. Use templates without o change attributes like block size, which canno	datafiles only when necessary, such ot be altered after database creation.
4	Database Options	Select a template for	vour database.	
4	Initialization Parameters	Select Tem	plate	Includes Datafiles
ų	Creation Options	Ocene	ral Purpose or Transaction Processing	Yes
- Ļ	Prerequisite Checks	Cust	om Database Warehouse	No Yes
ų	Summary		Watchouse	
Ļ	Progress Page			
9	Finish			
				Show Details
	Help		< <u>B</u> ack	Next > Einish Cancel

Select the type of database you want to configure, then click $\ensuremath{\textbf{Next}}$ to continue.

4). Database Identification.

	Database Configuration Assistant - Create Database - Step 4 of 15		
Da	tabase Identification		
	Database Operation Creation Mode Database Template Database Identification Database Placement	Provide the identifier information required to access the database uniquely. An Oracle database is uniquely identified by a Global Database Name, typically of the form "name.domain".	
	Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary Progress Page Finish	□ Create As Container Database Creates a database container for consolidating multiple databases into a single database and enables database virtualization. A container database (CDB) can have zero or more pluggable databases (PDB). ○ Create an Empty Container Database ④ Create a Container Database with one or more PDBs Number of PDBs: 1 □ DB Name:	
	<u>H</u> elp	< <u>B</u> ack <u>N</u> ext > <u>Finish</u> Cancel	

Fill in **Global Database Name** as shown above, then click **Next** to continue.

(**Note**: Oracle Database 12C supports Container Database, you also can create CDB depend on your needs.)

5). Database Placement.

	Database Configuration Assistant - Create Database - Step 5 of 15 ×				×	
Da	tabase Placement			900		12 ^c
))))	Database Operation Creation Mode Database Template <u>Database Identification</u> Database Placement	Server Pool Server pool i Select the Ser © <u>C</u> reate N S <u>e</u> rver pool	s s a group of servers that colle rver pool from existing list or ew Server pool for this databa Nam e susepool	ectively work together to specify the detail of new use Car <u>d</u> inality	host database workload. vServer pool to be used by da 4 连	.tabase.
	Management Options	Select	Server Pool Name	Cardinality	Category	
ΙÝ	Database Credentials]			
ΙÝ	Storage Locations					
ΙÝ	Database Options					
ΙÝ	Initialization Parameters					
ΙÝ	Creation Options					
ΙÝ	Prerequisite Checks					
ΙÝ	Summary					
ΙÝ	Progress Page					
l i	Finish					
	Help			< <u>B</u> ack	<u>N</u> ext >	Cancel

Server Pools info as shown above, click **Next** to continue.

6). Management Options.

	D	atabase Configuration Assista	nt – Create Database – Step 6 o	f15 ×
Management Options				
Ŷ	Database Operation	Specify the management option	ns for the database.	
Ļ	Creation Mode	✓ <u>R</u> un Cluster Verification Util	ity (CVU) Checks Periodically	
ų.	Database Template	💡 🗹 <u>C</u> onfigure Enterprise Mana <u>c</u>	ger (EM) Database Express	
Ý	Database Identification	<u>E</u> M Database Express Port:	5500	
	Database Placement	Register with Enterprise Ma	nager (EM) Cloud Control	
	Management Options	OMS Host:		
- 🖕 1	Database Credentials	<u>o</u> ma nost.		
Ý	Storage Locations	OM <u>S</u> Port:		
Ý	Database Options	EM <u>A</u> dmin Username:		
Ý	nitialization Parameters	EM A <u>d</u> min Password:		
Ý	Creation Options			
Ý	Prerequisite Checks			
Ý	Summary			
Ý	Progress Page			
5	Finish			
Гн	eln		< Rack	Vext > Einish Cancel

Specify the management options for the database, then click **Next** to continue.

7). Database Credentials.

Oatabase Credentials				
♀ Database Operation	For security reason	s, you must specify pa	sswords for the following u	user accounts in the new databa
Creation Mode	🔵 <u>U</u> se Different Ad	lministrative Passwords		
/ Database Template	User	r Name	Password	Confirm Password
Database Identification	SYS			
2 Database Placement	DBSNMP			
Management Options				
Database Credentials				
Storage Locations				
Database Options	Use the Same Ad	Iministrative Password	for All Accounts	
Initialization Parameters	Password:	•••••		
Creation Options	<u>C</u> onfirm Passwo	ord@ •••••		
Prerequisite Checks				
> Summary				
> Progress Page				
J Finish				

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

8). Storage Locations.

Da	atabase Configuration Assistant -	Create Database - Step 8 of 15 ×
Storage Locations		
 Database Operation Creation Mode Database Template Database Identification Database Placement Management Options 	Database files Storage Type: Auto Use Database File Locations from Use Common Location for All Da File Location: Use Oracle-Managed Files	omatic Storage Management (ASM) n Template atabase Files +SUSETEST01 Multiplex Redo Logs and Control Files
Database Credentials	Choose the recovery options for th	e database.
 Database Options Initialization Parameters Creation Options Prerequisite Checks Summary Progress Page Finish 	Recovery files Storage Type: Aut Specify Fast Recovery Area Fast Recovery Area: Fast Recovery Area G Fast Recovery Are	tomatic Storage Management (ASM) +SUSETEST01 Browse 5535 MB e Mode Parameters File Location Variables
Help		< <u>Back Next ></u> Einish Cancel

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

9). Database Options.

Di	atabase Configuration Assistant - Create Database - Step 9 of 15 ×
Database Options	
♀ Database Operation	Sample Schemas Database Vault & Label Security
 မှ Creation Mode	Sample Schemas illustrate the use of a layered approach to complexity, and are used by some
↓ ♀ Database Template	demonstration programs. Installing this will give you the following schemas in your database: Human Resources, Order Entry, Online Catalog, Product Media, Information Exchange, Sales
↓ ↓ Database Identification	History. It will also create a tablespace called EXAMPLE. The tablespace will be about 150 MB.
U Database Placement	Specify whether or not to add the Sample Schemas to your database.
↓ Management Options	Sam <u>p</u> le Schemas
U Database Credentials	
Storage Locations	Specify the SQL scripts you want to run after the database is created. The scripts are run in the order they are listed below
Database Options	Select a script: Browse
Initialization Parameters	
Creation Options	
Prerequisite Checks	
y Summary	
Y Progress Page	
U Finish	
Help	< <u>Back</u> <u>Einish</u> Cancel

According to your needs to specify whether or not to add the schemas to your database, then click **Next** to continue.

10). Initialization Parameters.

Database Configuration Assistant - Create Database - Step 10 of 15 ×				
Initialization Parameters) <i>C</i>	
 Database Operation Creation Mode Database Template Database Identification Database Placement Management Options Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary 	Memory Sizing Character Sets Conne Image: Imag	ection Mode 250 MB 64180 M Show Memory Distribution c Shared Memory Management 19,230 M Bytes 6,410 M Bytes M Bytes	IB]	
Progress Page Finish	All Initialization Parameters	<back next=""> Einish Canc</back>	cel	

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

11). Creation Options.

Creation Options		E Sere	
♀ Database Operation	Select the database creatio	n options.	
↓ ♀ Creation Mode	✓ Create Database		
↓ ♀ Database Template			
↓ ♀ Database Identification	<u>G</u> enerate Database Crea	ation Scripts	
↓ ♀ Database Placement	Destination Directory:	/home/oracle/app/admin/SUSEDB/scripts	Browse
↓ ♀ Management Options		······································	
↓ ♀ Database Credentials			Customize Storage Locations
♀ Storage Locations			
♀ Database Options			
Initialization Parameters			
Creation Options			
Prerequisite Checks			
y Summary			
Y Progress Page			
U Finish			

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

12). Prerequisite Checks.

Database Configuration Assistant - Create Database - Step 12 of 15				×
Prerequisite Checks		- HORE		С
 Database Operation Creation Mode Database Template Database Identification Database Placement Management Options Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary Progress Page Finish 	Validation Results Ignore All Database Validation Checks Cluster Validation Checks Storage Checks	Validation	DATABASE Check Aga Show All Severity ✓ ✓ ✓	
Help		< <u>B</u> ack	Next > Einish Canc	el

Select option "Ignore All", then click Next to continue.

13). Summary.

Database Configuration Assistant - Create Database - Step 13 of 15				
Summary				
<u>Database Operation</u>	Database Configuration Assistant: Summary			
 <u>Creation Mode</u> 		▲		
 <u>Database Template</u> 	Create Database -	Summary		
Database Identification	Database Configuration Summary	888		
 <u>Database Placement</u> 	Global Database Name: SUSEDR	2011 - 11 - 11 - 11 - 11 - 11 - 11 - 11		
Management Options	Database Configuration Type: Policy-Mana	aged Cluster Database		
 <u>Database Credentials</u> 	Create Server Pool: susepool			
Storage Locations	Cardinality 4			
 <u>Database Options</u> 	Create As Container Database No			
 Initialization Parameters 	Storage Type: Automatics	torage Management (ASM) hared Memory Management		
Creation Options	Template Name: General Pur	pose or Transaction Processing		
Prerequisite Checks	Database Configuration Details			
🧅 Summary				
 Progress Page 	Database Components			
5 Finish	Component	Selected		
	Oracle JVM	true		
	Oracle Text	true		
	Oracle Multimedia	true		
	Oracle OLAP	true		
<u>H</u> elp		< <u>Back N</u> ext > <u>Finish</u> Cancel		

Database Configuration Summary as shown above, check the information, then click **Finish** to continue.

14). Progress Page.

Data Progress Page	base Configuration Assistant – Create Database – Step 14 of 15 ORACLE	* 12 ^c
 ↓ Database Operation ↓ Creation Mode ↓ Database Template 	Progress Clone database "SUSEDB" creation in progress 85%	
 Database Identification Database Placement Management Options Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary 	Steps St Copying database files Finished Creating and starting Oracle instance Finished Creating cluster database views Finished Completing Database Creation In Program	atus I I ess
Progress Page Finish	Activity Log Alert Log	Cancel

Database creating progress as shown above, waiting until the creation is complete.

15). Finish.

Dat	abase Configuration Assistant – Create Database – Step 15 of 15 x
Finish	
 Database Operation Creation Mode Database Template Database Identification Database Placement Management Options Database Credentials Storage Locations Database Options Initialization Parameters Creation Options Prerequisite Checks Summary Progress Page Finish 	Database creation complete. For details check the logfiles at: /home/oracle/app/cfgtoollogs/dbca/SUSEDB. Database Information: Global Database Name: SUSEDB System Identifier(SID) Prefix: Server Parameter File name: +SUSETEST01/SUSEDB/spfileSUSEDB.ora EM Database Express URL: Note: All database accounts except SYS and SYSTEM are locked. Select the Password Management button to view a complete list of locked accounts or to manage the database accounts. From the Password Management window, unlock only the accounts you will use. Oracle strongly recommends changing the default passwords immediately after unlocking the account. Password Management
Help	∠ < <u>B</u> ack <u>N</u> ext > <u>E</u> inish <u>C</u> lose

Database creation complete, some information as shown above. Click **Close** to dismiss the screen.

1-5. Post-Install Checks.

1). Verify database status and configuration.

oracle@c2n1:~> export ORACLE_HOME=/home/oracle/app/product/12.1.0/dbhome_1 oracle@c2n1:~> /home/oracle/app/product/12.1.0/dbhome_1/bin/srvctl status database -d susedb

Instance SUSEDB_1 is running on node c2n2 Instance SUSEDB_2 is running on node c2n3 Instance SUSEDB_3 is running on node c2n4 Instance SUSEDB_4 is running on node c2n1

oracle@c2n1:~> /home/oracle/app/product/12.1.0/dbhome_1/bin/srvctl config database -d susedb -a

Database unique name: SUSEDB Database name: SUSEDB Oracle home: /home/oracle/app/product/12.1.0/dbhome_1 Oracle user: oracle Spfile: +SUSETEST01/SUSEDB/PARAMETERFILE/spfile.274.908484433 Password file: +SUSETEST01/SUSEDB/PASSWORD/pwdsusedb.256.908484093 Domain: Start options: open Stop options: immediate Database role: PRIMARY Management policy: AUTOMATIC Server pools: susepool **Disk Groups: SUSETEST01** Mount point paths: Services: Type: RAC Start concurrency: Stop concurrency: Database is enabled Database is individually enabled on nodes: Database is individually disabled on nodes: OSDBA group: dba **OSOPER** group: Database instances: Configured nodes:

Database is policy managed

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

Name	Target State	Server	State details
Local Re	sources		
ora.LIST	ENER.lsnr		
	ONLINE ONLINE	c2n1	STABLE
	ONLINE ONLINE	c2n2	STABLE
	ONLINE ONLINE	c2n3	STABLE
	ONLINE ONLINE	c2n4	STABLE
ora.SUS	ETEST.dg		
	ONLINE ONLINE	c2n1	STABLE
	ONLINE ONLINE	c2n2	STABLE
	ONLINE ONLINE	c2n3	STABLE
	ONLINE ONLINE	c2n4	STABLE
ora.SUS	ETEST01.dg		

	ONLINE ONLINE ONLINE ONLINE	ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
ora.asm	ONLINE ONLINE ONLINE ONLINE	ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	Started,STABLE Started,STABLE Started,STABLE Started,STABLE
ora ons	ONLINE ONLINE ONLINE ONLINE	ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
	ONLINE ONLINE ONLINE ONLINE	ONLINE ONLINE ONLINE ONLINE	c2n1 c2n2 c2n3 c2n4	STABLE STABLE STABLE STABLE
Cluster F	Resources			
ora.LIST 1 ora.LIST	ENER_SO ONLINE ENER SO	CAN1.lsnr ONLINE CAN2.lsnr	c2n4	STABLE
1 ora.LIST	ONLINE ENER_SC	ONLINE CAN3.lsnr	c2n3	STABLE
1 ora.MGN	ONLINE ITLSNR	ONLINE	c2n1	STABLE
1	ONLINE	ONLINE	c2n1	169.254.38.57 10.1.1 .1,STABLE
ora.c2n1 1 ora.c2n2	.vip ONLINE .vip	ONLINE	c2n1	STABLE
1 ora.c2n3	ONLINE	ONLINE	c2n2	STABLE
1 ora.c2n4	.vip		c2n3	STABLE
ora.cvu 1	ONLINE	ONLINE	c2n4	STABLE
ora.mgm 1	tdb ONLINE	ONLINE	c2n1	Open,STABLE
ora.oc4j 1	ONLINE	ONLINE	c2n1	STABLE
ora.scan 1	1.vip ONLINE	ONLINE	c2n4	STABLE
1 ora scan	2.vip ONLINE 3 vin	ONLINE	c2n3	STABLE
1 ora.suse	ONLINE	ONLINE	c2n1	STABLE
1 2 3 4	ONLINE ONLINE ONLINE ONLINE	ONLINE ONLINE ONLINE ONLINE	c2n2 c2n3 c2n4 c2n1	Open,STABLE Open,STABLE Open,STABLE Open,STABLE

2). Verify Oracle Enterprise Manager.

	EM Express - Datab	ase Home – Mozilla Fir	refox	,			
🖸 EM Express - Databa 🗴 💠							
A https://c2-scan.provo.novell.com:5	500/em/shell#/dbhome/sh	now_regions 🗸 C	Q Search	☆ 自 ♣ 合 〓			
🗟 Most Visited 👻 🛅 SUSE 🗸 🌘 Getting Star	ted 🔊 Latest Headlines 🗸	/ 🛅 Mozilla Firefox	/				
ORACLE [®] Enterprise Manager Databas	e Express 12c			Help 🗸 🛛 👥 SYS 🔹 Log Out 🧲			
🖳 SUSEDB (12.1.0.2.0 RAC) 🔑 Configuration 🔻 🎕	Storage 🔻 윯 Security 👻 🏼	🖓 Performance 🥆		📃 c2			
Database Home		Page Refreshe	d 10:13:56 PM GMT-0600 Auto F	Refresh 1 Minute 🛛 🗸 🖒			
✓ Status	✓ Performance						
Up Time 1 day, 1 hour, 25 minutes, 8 seconds Type RAC - 4 instance(s) up Version 12.1.0.2.0 Enterprise Edition Database Name SUSEDB Platform Name Linux x86 64-bit Archiver Stopped Image: Second state of the seco							
No Incidents	Host CPU 1% - .8% - .8% - .4% - .2% -	Active Sessions	Memory 60 GB - PGA 40 GB - Shared IO Pool 20 GB - Java Pool Shared Pool	Data Storage			
✓ Running Jobs	0%	0	0 GB 📕 🔳 BufferCache	o GR			
Ins Owner Name Ela Started	Status Duration	T ID	User Parallel SYS	Database SQL Text			

Additional Comments

- Edit CV_ASUME_DISTID=SUSE11 parameter in database/stage/cvu/cv/admin/cvu_config & grid/stage/cvu/cv/admin/cvu_config
- Apply Patch 20737462 to address CVU issues relating to lack of reference data
- 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

SuSE ISV Engineering Team April 13, 2016 https://www.suse.com