Oracle RAC 19c(19.4) on SUSE Linux Enterprise Server 15 SP1 - x86_64



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Introduction

This documentation provides the details for install Oracle RAC 19c on SUSE Linux Enterprise Server 15 SP1 OS. Here, x86_64 version of both Oracle Database 19c 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: http://docs.oracle.com/en/

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 15 SP1 (x86_64) (<u>http://download.suse.de/install</u>)

Oracle

Oracle Grid Infrastructure 19c (19.3) (x86_64)
Oracle Database 19c (19.3) (x86_64) (<u>https://www.oracle.com/database/technologies/oracle-database-software-downloads.html#19c</u>)

• Grid Infrastructure Release Update 19.4.0.0.190716 - Patch 29708769 (Includes DB Patch) (x86_64) (https://support.oracle.com)

Cluster(4-node) Information

HP DL360 Gen9 Server (Intel Xeon 2x12 core ~ 48 CPU), 96GB RAM 4 NIC per server (two bonded as active/passive) + Static IP Address Local HDD (2x600 GB) Shared SAN Partition (2TB) SUSE Linux Enterprise Server 15 SP1(x86_64) Kernel version: 4.12.14-197.21-default

Prerequisites

1. Install SUSE Linux Enterprise Server 15 SP1 on each cluster node.

Follow the official document (URL:<u>https://documentation.suse.com/sles/15-SP1/</u>) to Install SLES 15 SP1(x86_64) on each node of the cluster.

2. Cluster Network configuration

Public

137.65.135.90 c1n1 c1n1.provo.novell.com // Node1 137.65.135.91 c1n2 c1n2.provo.novell.com // Node2 137.65.135.92 c1n3 c1n3.provo.novell.com // Node3 137.65.135.93 c1n4 c1n4.provo.novell.com // Node4

Private 10.1.1.11 c1n1-priv 10.1.1.12 c1n2-priv 10.1.1.13 c1n3-priv 10.1.1.14 c1n4-priv

Virtual

137.65.135.94 c1n1-vip c1n1-vip.provo.novell.com 137.65.135.95 c1n2-vip c1n2-vip.provo.novell.com 137.65.135.96 c1n3-vip c1n3-vip.provo.novell.com 137.65.135.97 c1n4-vip c1n4-vip.provo.novell.com

SCAN c1c1-scan.provo.novell.com (137.65.135.89)

Oracle RAC Installation

1. Installing Oracle Grid Infrastructure.

1-1. Login to the SLES 15 SP1 64-bit OS as a non-admin user. Download the Oracle Database 19c Grid Infrastructure (19.3) for Linux x86-64 from <u>https://www.oracle.com/database/technologies/oracle_database-software-downloads.html#19c</u>.

1-2. Extract LINUX.X64_193000_grid_home.zip and run the installer './gridSetup.sh' from Gird ShipHome.

Install Flow:

1). Select Configuration Option.

	Oracle Grid Infrastructure 19c Installer - Step 1 of 9 ×
Select Configuration Option	19° ORACLE' Grid Infrastructure
Configuration Option Cluster Configuration Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	Select an option to configure the software. The wizard will register the home in the central inventory and then perform the selected configuration. Configure Oracle Grid Infrastructure for a New <u>O</u> luster Configure Oracle Grid Infrastructure for a Standalone Server (Oracle <u>B</u> estart) Upgrade Oracle Grid Infrastructure Set Up Software <u>O</u> nly
Help	< Back Next > Install Cancel

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

2). Select Cluster Configuration.

r	Oracle Grid Infrastructure 19c Installer - Step 2 of 9 ×
Select Cluster Configuration	19° ORACLE Grid Infrastructure
Configuration Option Cluster Configuration Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	Choose the required cluster configuration. Choose the required cluster configure an Oracle Standalone Cluster Configure an Oracle Domain Services Cluster Configure an Oracle Member Cluster for Oracle Databases Configure an Oracle Member Cluster for Applications Oracle Extended clusters are special purpose clusters that constitute nodes which span across multiple sites. Specify a minimum of 3 site names and a maximum of 5 (e.g., siteA, siteB, siteC). Configure as an Oracle Extended cluster Site names:
Help	Section Sectio

Choose option "Configure an Oracle Standalone Cluster", then click Next to continue.

3). Grid Plug and Play Information.

	Oracle Grid Infrastructure 19c Installer - Step 3 of 17 ×			
Gri	d Plug and Play Information		19 °	ORACLE Grid Infrastructure
平	Configuration Option	Single Client Acces cluster as a whole.	s Name (SCAN) allows clients to use one name in connection strin Client connect requests to the SCAN name can be handled by any o	gs to connect to the cluster node.
- 4	Cluster Configuration	Oreate Local SC/	AN .	
	Grid Plug and Play	<u>C</u> luster Name:	c1-cluster]
Ý	Cluster Node Information	SCAN Name:	c1c1-scan.provo.novell.com]
ψ	Network Interface Usage	SCAN Port:	1521]
卜卜	Storage Option	O Use Shared SCA	ч	
卜卜	Create Grid Infrastructure Manag	SCAN Client Da	ta:	B <u>r</u> owse
ψ	Grid Infrastructure Management	Configure GNS		
ψ	Create ASM Disk Group	0 Configure n	vies Virtual IDs as assigned by the Dynamic Natworks	
ļΎ	ASM Password		and a mittal in a basigned by the bynamic recivority	
ļγ	Operating System Groups	 Create a net 	√ GNS	
ļγ	Installation Location	GNS <u>V</u> IP A		
卜卜	Root script execution	<u>G</u> NS Sub D	omain:	
ļΎ	Prerequisite Checks	O Use Shared	GNS	
ļΎ	Summary	GNS Client	Data:	
ļΎ	Install Product			Browse
Ó	Finish			
4				
	Help		< <u>B</u> ack <u>N</u> ext >	Install Cancel

In the **Cluster Name** and **SCAN Name** fields, enter the names for your cluster and cluster scan that are unique throughout your entire enterprise network, then click **Next** to continue.

(More details for GNS configuration please see Oracle official document.)

4). The 'Cluster Node Information' screen appears.

r	Oracle Grid Infrastructure 19c In:	staller - Step 4 of 17	×
Cluster Node Information		19° ORACLE Grid Infrastruc	cture
Cluster Configuration	Provide the list of nodes to be managed by Or Hostname.	acle Grid Infrastructure with their Public Hostname and Virtual	I
Crid Plug and Play	Public Hostname	Virtual Hostname	
	c1n1.provo.novell.com	c1n1-vip.provo.novell.com	
Cluster Node Information	c1n2.provo.novell.com	c1n3-vip.provo.novell.com	
Network Interface Usage	c1n4.provo.novell.com	c1n4-vip.provo.novell.com	
🔍 Storage Option			
Q Create Grid Infrastructure Mana	a		
Grid Infrastructure Management			
Create ASM Disk Group			
ASM Password			
Operating System Groups			
 Installation Location 			
Root script execution			
Prerequisite Checks			
Summary			
Install Product	SSH <u>c</u> onnectivity	Use Cluster Configuration File Add Edit Rer	move
Ö Finish			
Help		Seck Next > Install Ca	ancel

In the Public Hostname column of the table of cluster nodes, you should see your local node. Click **Add** to add another node to the cluster. Enter the second node's public name(node2), and virtual IP name (node2-vip), then click OK. Make sure all nodes are selected, then click the SSH Connectivity button at the bottom of the window. After a short period, another message window appears indicating that passwordless SSH connectivity has been established between the cluster nodes. Click **OK** to continue. When returned to the Cluster Node Information window, click **Next** to continue.

(**Note:** Passwordless SSH connectivity check will be failed as shown below, although you have configured it correctly.

		Oracle Grid Infrastructure 19c Installer - Step 4 of 17		
Clu	ster Node Informa	ation 19° ORACLE Grid Infrastructure		
个	Configuration Option	Provide the list of nodes to be managed by Oracle Grid Infrastructure with their Public Hostname and Virtual Hostname.		
Ť	Crid Plug and Play	Public Hostname Virtual Hostname		
Ť	Ghu Piùg and Piay	c1n1.provo.novell.com c1n1-vip.provo.novell.com		
	Cluster Node Informa	Oracle Grid Infrastructure 19c Installer		
Ý	Network Interface Us			
Ŕ				
×		[INS-44000] Passwordless SSH connectivity is not setup from the local node		
÷Υ	Grid Infrastructure	[c1n2, c1n3, c1n4]		
÷ψ	Create ASM Disk G	These nodes will be innored and not participate in the configured Grid		
- U		Infrastructure.		
		Are you sure you want to continue ?		
Ť				
ľΎ		Yes Details		
Y		Action - Refer to the logs for more details or contact Oracle Support Services.		
Ý		Additional Information:		
Ý	Install Product	Summary of node specific errors		
		cln2		
		cln3		
		- [INS-06006] Passwordless SSH connectivity not set up between the fo		
•				
	<u>H</u> elp	< <u>Back</u> Next > Install Cancel		

Work-around: A temporary solution is by downgrading openssh to earlier version(openssh-7.6p1-7.8.x86_64) on the node(c1n1), then retry.



)

5). Specify Network Interface Usage.

	Oracle Grid Infrastructure 19c Installer - Step 5 of 17 ×			
Specify Network Interface Usage	2	1	19° ORACLE' Grid Infrastructure	
Configuration Option	Private interfaces are used by Oracl	e Grid Infrastructure for internode tra	ffic.	
Grid Plug and Play	Interface Name	Subnet	Use for	
Cluster Node Information	bond0 bond1	10.1.1.0	ASM & Private	
Network Interface Usage			(abito	
Storage Option				
Create Grid Infrastructure Manag				
Grid Infrastructure Management				
Create ASM Disk Group				
ASM Password				
Operating System Groups				
Installation Location				
Root script execution				
Prerequisite Checks				
Summary				
Unstall Product				
ំ Finish				
Help		< Back	Next > Install Cancel	

Verify that each interface has the correct interface type associated with it. If you have network interfaces that should not be used by Oracle Clusterware, then set the network interface type to **Do Not Use**. For example, if you have only two network interfaces, then set the public interface to have a Use For value of **Public** and set the private network interface to have a Use For value of **ASM & Private**, then click **Next** to continue.

6). Storage Option Information.

Storage Option Information	19° ORACLE Grid Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manage Grid Infrastructure Management Create ASM Disk Group ASM Password Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	You can place Oracle Cluster Registry (OCR) files and voting disk files on Oracle ASM storage, or on a file system. • Use Oracle Flex ASM for storage Choose this option to configure OCR and voting disks on ASM storage. ASM instance will be configured on reduced number of cluster nodes. • Use Shared File System Choose this option to configure OCR and voting disk files on an existing shared file system.
Help	< Back Next > Install Cancel

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

7). Grid Infrastructure Management Repository Option.

Oracle Grid Infrastructure 19c Installer - Step 7 of 17 ×			
Create Grid Infrastructure Man	agement Repository Option 19° ORACLE [®] Grid Infrastructure		
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage	The Grid Infrastructure Management Repository is an essential component for complete operation of the Autonomous Health Framework, that offers enhanced real time diagnostics and performance management, and Rapid Homes Provisioning for patching. The components that depend on the repository in whole or in part are Cluster Health Advisor, Cluster Health Monitor, QoS Management, Rapid Homes Provisioning and Cluster Activity Log. It is best practice to install this option and failure to do so could compromise timely resolution of issues as well as available functionality for patching. Configure Grid Infrastructure Management Repository		
Storage Option	<u>○ Y</u> es		
Create Grid Infrastructure Manag	⊙ No		
Grid Infrastructure Management			
Create ASM Disk Group			
ASM Password			
Operating System Groups			
Installation Location			
Root script execution			
Prerequisite Checks			
 Summary 			
 Install Product 			
Ü Finish			
Help	Section Sectio		

Choose whether you want to store the Grid Infrastructure Management Repository in a separate Oracle ASM disk group, then click **Next** to continue.

8). Create ASM Disk Group.

Oracle Grid Infrastructure 19c Installer - Step 8 of 16 ×					
Create ASM Disk Group			1		RACLE [®]
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manage Create ASM Disk Group ASM Password Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	OCR and Voting dis Disk group. Disk group name Redundancy Allocation Unit Size Select Disks ✓ /dev/asm/dis ✓ /dev/asm/dis Ø /dev/asm/dis Disk Discovery Pat Change Discovery Configure Oracl Select this option t by Oracle ASM.	k data will be stored in the following ASM Dis SUSEDEMO Flex High Normal External Joisk Path k7 k8 k9 kplus1 kolus2 th://dev/asm/* y Path e ASM Eilter Driver o configure ASM Filter Driver(AFD) to simplify	sk group. Select Size (in MB) 92160 92160 92160 92160 92160	Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate Candidate	A Infrastructure
< Help			< Back	Next >	Install

Depending on your needs to creat ASM Disk Group, then click **Next** to continue.

9). Specify ASM Password.

~

r	Oracle Grid Infrastructure 19c Installer - Step 9 of	F 16 ×
Specify ASM Password		19° ORACLE Grid Infrastructure
Cluster Configuration Grid Plug and Play	The new Oracle Automatic Storage Management (Oracle ASM) insta privileges for administration. Oracle recommends that you create a privileges to monitor the ASM instance. Specify the password for these user accounts.	ance requires its own SYS user with SYSASM less privileged ASMSNMP user with SYSDBA
Network Interface Usage Storage Option Create Grid Infrastructure Manage Create ASM Disk Group	Use different passwords for these accounts Password Confirm P SYS	Password
ASM Password Operating System Groups Installation Location Root script execution	Use <u>same</u> passwords for these accounts Specify <u>P</u> assword:	Password:
 Prerequisite Checks Summary Install Product Finish 		
< · · · · · · · · · · · · · · · · · · ·		
Help		Back Next > Install Cancel

Choose the same password for the Oracle ASM SYS and ASMSNMP account, or specify different passwords for each account, then click **Next** to continue.

10). Failure Isolation Support.

r	Oracle Grid Infrastructure 19c Installer - Step 10 of 18 ×
Failure Isolation Support	19° ORACLE' Grid Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manag Create ASM Disk Group ASM Password	Choose one of the following Failure Isolation Support options. Use Intelligent Platform Management Interface (IPMI) To ensure successful installation with IPMI enabled, ensure your IPMI drivers are properly installed and enabled. User Name : Password : O 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	Section Sectio

Select the option **"Do not use Intelligent Platform Management Interface** (IPMI)", then click **Next** to continue.

11). Specify Management Options.

Oracle Grid Infrastructure 19c Installer - Step 11 of 18			
Specify Management Options	19° ORACLE' Grid Infrastructure		
Configuration Option	You can configure to have this instance of Oracle Grid Infrastructure and Oracle Automatic Storage Management to be managed by Enterprise Manager Cloud Control. Specify the details of the Cloud Control configuration to perform the registration.		
	OMS host:		
Failure Isolation Management Options Operating System Groups Installation Location Root script execution Prerequisite Checks Summary			
↓ Install Product ↓ Finish	< Back Next > Install Cancel		

Selected/Deselected the option "Register with EM...", then click Next to continue.

12). Privileged Operating System Groups.

Oracle Grid Infrastructure 19c Installer - Step 12 of 18 ×			
Privileged Operating System G	Groups 19° ORACLE Grid Infrastructure		
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manage Create ASM Disk Group ASM Password Failure Isolation Management Options	Select the name of the operating system group, that you want to use for operating system authentication to Oracle Automatic Storage Management. Oracle ASM Administrator (OSASM) Group asmadmin Oracle ASM DBA (OSDBA for ASM) Group asmdba Oracle ASM Operator (OSOPER for ASM) Group (Optional)		
Operating System Groups			
Installation Location Root script execution Prerequisite Checks Summary Install Product Finish			
Help	Section Sectio		

Accept the default operating system group names for Oracle ASM administration, then click **Next** to continue.

13). Specify Installation Location.

	Oracle Grid Infrastructure 19c Installer - Step 13 of 18 ×
Specify Installation Location	19° ORACLE' Grid Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manage Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Root script execution Prerequisite Checks	Specify the Oracle base. The Oracle base directory for the Oracle Grid Infrastructure installation is the location where diagnostic and administrative logs, and other logs associated with Oracle ASM and Oracle Clusterware are stored. This location would also contain files pertaining to the configuration of Oracle Clusterware. Oracle base? /home/oracle/grid_base This software directory is the Oracle Grid Infrastructure home directory. Software location: /home/oracle/grid_19c
Contract Con	
< <u>H</u> elp	< <u>Back</u> Next > Install Cancel

Specify the directory to use for the Oracle base for the Oracle Grid Infrastructure installation, then click **Next** to continue. The Oracle base directory must be different from the Oracle home directory.

14). Root script execution configuration.

Oracle Grid Infrastructure 19c Installer - Step 14 of 18 ×			
Root script execution configu	ration 19° ORACLE Grid Infrastructure		
	During the software configuration, certain operations have to be performed as "root" user. You can choose to have the installer perform these operations automatically by specifying inputs for one of the options below. The input specified will also be used by the installer to perform additional prerequisite checks. Automatically run configuration scripts Use "root" user gredential Password: Use gudo User name: oracle Password: Current in the sector is a structure Current in the sector is a structure Current in the sector is a structure Current in the sector is a structure		

Select the option to **Automatically run configuration scripts**. Enter the credentials for the root user or a sudo account, then click **Next** to continue.

Alternatively, you can Run the scripts manually as the root user at the end of the installation process when prompted by the installer.

15). Perform Prerequisite Checks.

Oracle Grid Infrastructure 19c Installer - Step 15 of 18			
Perform Prerequisite Checks	19		ACLE Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information	Verification Result Some of the minimum requirements for installation are not completed. Review a following table, and recheck the system. Check Again Fix & Check Again Show Failed Image: All Nodes	and fix the issu	es listed in the
<u>Network Interface Usage</u> <u>Storage Option</u>	Checks	Status	Fixable
Create Grid Infrastructure Manad	OS Kernel Parameter: panic_on_oops	Warning	Yes
	 Packages] Package: libstdc++33-3.3.3-62.1 Package: libjpeg-turbo-1.3.1 Package: libjpeg62-32bit-62.1.0 Package: libjpeg62-turbo-1.3.1 Package: libjper16-0-8.41 Package: libgfortran3-4.8.3 zeroconf check Pavice Checks for ASM] Device Checks for ASM I/O scheduler Metwork Time Protocol (NTP) Network Time Protocol (NTP) 	Warning Warning Warning Warning Warning Warning Warning Warning Warning Failed	No No No No No No No No
Finish	This is a prerequisite condition to test whether the OS kernel parameter "panic_o details) Check Failed on Nodes: [c1n4, c1n3, c1n2, c1n1]	on_oops" is pro	perly set. (more
Help	< Back	iext >i	Istall

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

	Oracle Grid Infrastructure 19c Installer - Step 15 of 18		×
Perform Prerequisite Checks	1		ACLE.
Configuration Option	Verification Result Some of the minimum requirements for installation are not completed. Revie following table, and recheck the system.	w and fix the issues	listed in the
Cluster Node Infor Network Interface Some of the needs to be r storage Option	Fixup Script prerequisites have failed on the following nodes. Installer has generated a fixup s un as a privileged user (root). Installer will run the fixup script	script that	Ignore All Fixable
Create Grid Infrast	stupActions2019-11-04_11-21-08PM/CVU_19.0.0.0_oracle/runtxup.sh) on the lis illeged user credentials provided earlier. Click "OK" to proceed.	ited nodes	io
ASM Password c1n Failure Isolation c1n Management Opti	1 3 2	1 1 1	10 10 10 10
Operating System Installation Locati Root script execut	Ōĸ	Cancel	10 10 10
Prerequisite Checks	Device Unecks for ASM	Warning N	lo lo
Summary Install Product	[Network Time Protocol (NTP)] [Network Time Protocol (NTP)]	Failed N	40 T
U Finish	This is a prerequisite condition to test whether the OS kernel parameter "pani details).	ic_on_oops" is prope	rly set. <u>(more</u>
Help	seck sectors and s	<u>N</u> ext > <u>Inst</u>	all Cancel

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

cln1:/opt/oracle # /tmp/GridSetupActions2019-11-04_11-21-08PM/CVU_19.0.0.0.0_oracle/runfixup.sh All Fix-up operations were completed successfully. cln1:/opt/oracle # []

	Oracle Grid Infrastructure 19c Installer - Step 15 of 18		×
Perform Prerequisite Checks	19	C OR/ Grid In	ACLE [®] frastructure
Cluster Configuration Grid Plug and Play Cluster Node Information	Verification Result Fixup Result Some of the minimum requirements for installation are not completed. Review and following table, and recheck the system. Check Again Eix & Check Again Show Failed Image: All Nodes	fix the issues	listed in the
<u>Network Interface Usage</u>	Checks	Status	Fixable
Storage Uption Create Grid Infrastructure Manag Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Root script execution	 Packages] Package: libstdc++33-3.3.3-62.1 Package: libjpeg-turbo-1.3.1 Package: libjpeg62-32bit-62.1.0 Package: libjpeg62-turbo-1.3.1 Package: libjper16-0-8.41 Package: JDK-1.8.0.5.151 Package: libgfortran3-4.8.3 zeroconf check Package: libgfortran3-4.8.3 Device Checks for ASM Uo scheduler 	Warning Warning Warning Warning Warning Warning Warning Warning Warning	No No No No No No No No
Prerequisite Checks	Metwork Time Protocol (NTP) Network Time Protocol (NTP)	Failed	No
Summary Install Product Finish	This is a prerequisite check to verify that the specified devices meet the requirement	nts for ASM. (r	nore details)
Help	Sector Nex	t >insta	all Cancel

Check each error and warning message, try to fix manually, then click **Check Again**.

r	Oracle Grid Infrastructure 19c Installer - Step 15 of 18		×
Perform Prerequisite Checks	19	C ORA Grid In	CLE frastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manag Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Root script execution Prerequisite Checks Summary	Verification Result Fixup Result Some of the minimum requirements for installation are not completed. Review and following table, and recheck the system. Check Again Fix & Check Again Show Failed Image: All Nodes Checks Checks Packages] Package: libstdc++33-3.3-62.1 Package: libjpeg-turbo-1.3.1 Package: libjpeg62-32bit-62.1.0 Package: libjpeg62-turbo-1.3.1 Package: libjper16-0-8.41 Package: libjper16-0-8.41 Package: libjfortran3-4.8.3 zeroconf check Zeroconf check	fix the issues Status Ignored Ignored Ignored Ignored Ignored Ignored Ignored Ignored	listed in the
Finish	This is a prerequisite condition to test whether the package "libstdc++33-3.3.3-62.1" system. (more details) Check Failed on Nodes: [c1n4, c1n3, c1n2, c1n1]	' is available or	n the
Help	< <u>B</u> ack <u>N</u> ex	t >	all Cancel

(**Note:** There are still some warning messages, please refer to the details of **Additional Comments** in the last section of the document.)

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



Installation Summary as shown above, click Install to continue.

r	Oracle Grid Infrastructure 19c Installer - Step 17 of 18	×
Install Product	19° Gri	RACLE [®] d Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information	Progress 5% Linking RDBMS Executables	
 Storage Option Create Grid Infrastructure Manag Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Root script execution 	Configure Local Node Prepare Link binaries Setup Copy Files to Remote Nodes Configure Remote Nodes Configure Remote Nodes Prepare Setup Setup Oracle Base Execute Root Scripts Configure Oracle Grid Infrastructure for a Cluster	In Progress Succeeded In Progress Pending Pending Pending Pending Pending Pending Pending Pending Pending
Prerequisite Checks Summary Install Product Finish	Details Revert All Rever 19° ORACLE' Grid Infrastructure	t <u>R</u> etry <u>S</u> kip
▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	<pre>< Back Next ></pre>	Install Cancel

Installer prompted you to run the orainstRoot.sh and root.sh scripts. Click Yes.

	Oracle Grid Infrastructure 19c Installer - Step 17 of 18	×
Install Product	19° Gri	RACLE [®]
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information	Progress 32% Saving Cluster Inventory	
Network Interface Usage Storage Option Create Grid Infrastructure Manag Create ASM Disk Group ASM Password Failure Isolation	Status Configure Local Node Prepare Link binaries Setup Copy Files to Remote Nodes Oracle Grid Infrastructure 19c Installer	Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded
Management Options Operating System Groups Installation Location	Configuration scripts generated by the Installer need to be run as a privileged user (root). Installer will run these scripts using the privileged user credentials provided earlier.	Succeeded Succeeded In Progress Pending Pending
updating 'home/oracle/g updating 'home/oracle/g updating 'home/oracle/g Saving inventory Starting 'Prepare for configuration Completed 'Prepare for configuration	Are you sure you want to continue ?	rt <u>R</u> etry <u>S</u> kip
Copying /home/oracle/grid_19c to Loading products list. Please wait Instantiating root scripts for add n Saving Cluster Inventory	remote nodes ode Infrastructure ✓ < <u>Back</u> <u>Next</u> >	Install

Continue monitoring the installation until the Finish window appears.

18). Finish.

Oracle Grid Infrastructure 19c Installer - Step 18 of 18 × 19° ORACLE Grid Infrastructure Finish Configuration Option The configuration of Oracle Grid Infrastructure for a Cluster was successful. শ Ĭ Ĭ Ĭ Storage Option 7 Ĭ Ĭ Ϊ Ĭ Υ Finish • • Close <u>H</u>elp < <u>B</u>ack

Click Close to complete the installation process and exit the installer.

1-3. Oracle Database 19c(19.3) Grid Infrastructure Post-Install Checks.

1). Check Oracle Clusterware health.

oracle@c1n1:~> /home/oracle/grid 19c/bin/crsctl check cluster -all c1n1: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ***** c1n2: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ****** c1n3: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ****** c1n4: 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@c1n1:~> /home/oracle/grid_19c/bin/srvctl status nodeapps VIP 137.65.135.94 is enabled VIP 137.65.135.94 is running on node: c1n1 VIP 137.65.135.95 is enabled VIP 137.65.135.95 is running on node: c1n2 VIP 137.65.135.96 is enabled VIP 137.65.135.96 is running on node: c1n3 VIP 137.65.135.97 is enabled VIP 137.65.135.97 is running on node: c1n4 Network is enabled Network is running on node: c1n1 Network is running on node: c1n2 Network is running on node: c1n3 Network is running on node: c1n4 ONS is enabled ONS daemon is running on node: c1n1 ONS daemon is running on node: c1n2 ONS daemon is running on node: c1n3 ONS daemon is running on node: c1n4

3). Check status of designated resources.

oracle@c1n1:~> /home/oracle/grid_19c/bin/crsctl stat res -t

Name	Target State	Server	State details	
Local Resources				
ora.LIST	ENER.lsnr			
	ONLINE ONLINE	c1n1	STABLE	
	ONLINE ONLINE	c1n2	STABLE	
	ONLINE ONLINE	c1n3	STABLE	
	ONLINE ONLINE	c1n4	STABLE	
ora.chad				
	ONLINE ONLINE	c1n1	STABLE	
	ONLINE ONLINE	c1n2	STABLE	
	ONLINE ONLINE	c1n3	STABLE	
ora not1	ONLINE ONLINE	C1114	STADLE	
Ula.net i		c1n1	STARI E	
		c1n2	STABLE STABLE	
	ONLINE ONLINE	c1n2	STABLE STABLE	
	ONLINE ONLINE	c1n4	STABLE	
ora.ons		onna	ONBEL	
	ONLINE ONLINE	c1n1	STABLE	
	ONLINE ONLINE	c1n2	STABLE	
	ONLINE ONLINE	c1n3	STABLE	
	ONLINE ONLINE	c1n4	STABLE	
Cluster F	Resources			
		nr(ora acmo		
	ONI INE ONI INE		JIOUP) STADIE	
ו כ		c1n2		
2		c1n2	STABLE STABLE	
oraLIST	ENER SCAN1 Isnr	0 m	ONDEE	
1	ONI INF ONI INF	c1n2	STABLE	
ora.LIST	ENER SCAN2.lsnr	01112	011.022	
1	ONLINE ONLINE	c1n3	STABLE	
ora.LIST	ENER SCAN3.lsnr			
1	ONLINE ONLINE	c1n4	STABLE	
ora.SUS	EDEMO.dg(ora.asm	group)		
1	ONLINE ONLINE	c1n1	STABLE	
2	ONLINE ONLINE	c1n2	STABLE	
3	ONLINE ONLINE	c1n4	STABLE	
ora.asm	(ora.asmgroup)			
1	ONLINE ONLINE	c1n1	Started,STABLE	
2	ONLINE ONLINE	c1n2	Started,STABLE	
3	ONLINE ONLINE	c1n4	Started,STABLE	
ora.asmi	net1.asmnetwork(ora	a.asmgroup))	
1	ONLINE ONLINE	c1n1	STABLE	
2	UNLINE ONLINE	c1n2	SIABLE	
3		c1n4	STABLE	
		01-1		
I ora o1e0		CINI	STABLE	
1		c1n2	STARI F	
ora.c1n3		0112	UNDEL	
	r -			

1	ONLINE ONLINE	E c1n3	STABLE
ora.c1n4	1.vip		
1	ONLINE ONLINE	E c1n4	STABLE
ora.cvu			
1	ONLINE ONLINE	E c1n1	STABLE
ora.qosr	nserver		
1	ONLINE ONLINE	E c1n1	STABLE
ora.scar	n1.vip		
1	ONLINE ONLINE	E c1n2	STABLE
ora.scar	n2.vip		
1	ONLINE ONLINE	E c1n3	STABLE
ora.scar	n3.vip		
1	ONLINE ONLINE	E c1n4	STABLE

4). Check OCR and Voting disk files.

-- -----

oracle@c1n1:~> /home/oracle/grid_19c/bin/ocrcheck Status of Oracle Cluster Registry is as follows :

Version : 4 Total space (kbytes) : 491684 Used space (kbytes) : 84292 Available space (kbytes) : 407392 ID : 133237046 Device/File Name : +SUSEDEMO 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@c1n1:~> /home/oracle/grid_19c/bin/crsctl query css votedisk ## STATE File Universal Id File Name Disk group

1. ONLINE 8e9f4007ed084febbf4396ad829929b5 (/dev/asm/disk7) [SUSEDEMO]

2. ONLINE 9939abd8ffe64fb1bf3c6fbb92270e5d (/dev/asm/disk8) [SUSEDEMO]

3. ONLINE 7acc9906dd504f00bf5e5bd419228808 (/dev/asm/disk9) [SUSEDEMO] Located 3 voting disk(s).

2. Installing Oracle Database.

1-1. Login to the SLES 15 SP1 64-bit OS as a non-admin user. Download the Oracle Database 19c (19.3) for Linux x86-64 from <u>https://www.oracle.com/database/technologies/oracle-database-software-downloads.html#19c</u>.

1-2. Extract LINUX.X64_193000_db_home.zip and run the installer './runInstaller' from Database ShipHome.

Install Flow:

1). Select Configuration Option.

	Oracle Database 19c Installer - Step 1 of 9 ×
Select Configuration Option	19° Database
Configuration Option Database Installation Options Install Type Typical Installation Root script execution Prerequisite Checks Summary Install Product Finish	Select any of the following install options. Create and configure a single instance database. This option creates a starter database. This option creates a starter database. This option creates a starter database. Set Up Software Only Note 1: For RAC install, do 'Set Up Software Only' and then execute DBCA (Database Configuration Assistant) from the oracle home. Note 2: To upgrade an Oracle Database, do 'Set Up Software Only' and then execute DBUA (Database Upgrade Assistant) from the oracle home. Note 3: To upgrade an Oracle Database, do 'Set Up Software Only' and then execute DBUA (Database Upgrade Assistant) from the oracle home.
Help	< Back Install Cancel

Select option "Set Up Software Only", then click Next to continue.

2). Select Database Installation Option.

Oracle Database 19c Installer - Step 2 of 9 ×				
Se	Select Database Installation Option 19° Database			
	Configuration Option	Select the type of database installation you want to perform.		
Ŕ	Database Installation Options	○ Single instance database installation		
4	Install Type	Oracle <u>R</u> eal Application Clusters database installation		
ļψ	Typical Installation			
ψ	Root script execution			
Ý	Prerequisite Checks			
Ý	Summary			
Ý	Install Product			
Ó	Finish			
			1	
	Help	Sector Se		

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

3). Select List of Nodes.

Oracle Database 19c Installer - Step 3 of 10 ×			
Select List of Nodes 19° DRACLE			
Configuration Option	Select nodes (in addition to the local node) in the cluster where the installer should install Oracle RAC or Orac RAC One.	le	
Nuclea Calcular	Node name	4	
 Install Type Typical Installation Root script execution Prerequisite Checks Summary install Product Finish 	▼ 1 CIII1 ▼ 2 c1n2 ▼ 3 c1n3 ▼ 4 c1n4		
	SSH <u>c</u> onnectivity <u>S</u> elect all <u>D</u> eselect al		
Help	< <u>Back Install</u>	el	

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

4). Select Database Edition.

~

Oracle Database 19c Installer - Step 4 of 11				
Select Database Edition	19° Database	,		
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Which database edition do you want to install? Enterprise Edition Oracle Database 19c Enterprise Edition is a self-managing database that has the scalability, performance, high availability, and security features required to run the most demanding, mission-critical applications. Standard Edition 2 Oracle Database 19c Standard Edition 2 is a full-featured data management solution ideally suited to the needs of medium-sized businesses. 			
Help	< Back Next > Install Cancel			

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

5). Specify Installation Location.

	Oracle Database 19c Installer - Step 5 of 11 ×
Specify Installation Location	19 ° Database
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Specify a path to place all Oracle software and configuration-related files installed by this installation owner. This location is the Oracle base directory for the installation owner. Oracle base // home/oracle/grid_base // Browse This software directory is the Oracle Database home directory. Software location: /home/oracle/db_19c
Help	Sector Install Cancel

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

6). Privileged Operating System groups.

Oracle Database 19c Installer - Step 6 of 11 ×					
Privileged Operating System groups 19° DRACLE Database					
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	SYS privileges are required to create a database using operating Groups grants the corresponding SYS privilege, eg. membership Database <u>A</u> dministrator (OSDBA) group: Database <u>Operator</u> (OSOPER) group (Optional): Database Ba <u>o</u> kup and Recovery (OSBACKUPDBA) group: Data <u>G</u> uard administrative (OSDGDBA) group: Encryption <u>K</u> ey Management administrative (OSKMDBA) group: <u>R</u> eal Application Cluster administrative (OSRACDBA) group:	g system (OS) authentication. Membership in OS on OSDBA grants the SYSDBA privilege. dba oper dba dba dba dba dba			
Help		< Back Next > Install Cancel			

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

7). Root script execution configuration.

Root script execution configur	ation 19° Database
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	During the software configuration, certain operations have to be performed as 'root' user. You can choose to have the installer perform these operations automatically by specifying inputs for one of the options below. The input specified will also be used by the installer to perform additional prerequisite checks.
Help	Section Sectio

Select the option to **Automatically run configuration scripts**. Enter the credentials for the root user or a sudo account, then click **Next** to continue. Alternatively, you can Run the scripts manually as the root user at the end of the installation process when prompted by the installer.

Oracle Database 19c Installer - Step 7 of 11

×

8). Perform Prerequisite Checks.

Oracle Database 19c Installer - Step 8 of 11 ×				
Perform Prerequisite Checks	1	 9° 	RACLE [®] tabase	
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Verification Result Some of the minimum requirements for installation are not completed. Review an following table, and recheck the system. Check Again Eix & Check Again Show Failed Image: All Nodes Checks Checks Package: Image: Packages] Package: Image: Package: Package: Package: Image: Package: Image: Package: Image: Package:	d fix the issues Status Failed Warning Warning Warning Warning Warning Warning Warning	s listed in the Ignore All Fixable No No No No No No No Yes nn the	
Help	< <u>B</u> ack Nex	t >Insta	all Cancel	

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

r L	Oracle Database 19c Installer - Step 8 of 11	×
Perform Prerequisite Checks	19 °	ORACLE [.] Database
Configuration Option Database Installation Options	Verification Result Some of the minimum requirements for installation are not completed. Review and fix the infollowing table, and recheck the system.	ssues listed in the
Database Edition	Fixup Script ×	Ignore All
	prerequisites have failed on the following nodes. Installer has generated a fixup script that un as a privileged user (root). Installer will run the fixup script Actions2019-11-05_00-25-40AM/CVU_19.0.0.0_oracle/runfixup.sh) on the listed nodes ileged user credentials provided earlier. Click "OK" to proceed.	tus Fixable No No
V Summary V Install Product V Finish		NO NO NO NO NO Yes
	<u>O</u> K <u>Cancel</u>	
This is a prerequisite condition to test whether the package "libstdc++33-3.3.3-62.1" is available on the system. (more details) Check Failed on Nodes: [c1n4, c1n3, c1n2, c1n1]		
Help	<u>Seck</u> <u>Next</u> >	Install Cancel

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

clnl:/home/oracle # /tmp/InstallActions2019-11-05_00-25-40AM/CVU_19.0.0.0.0_oracle/runfixup.sh
All Fix-up operations were completed successfully.
clnl:/home/oracle # []

×



(Note: There are still some unsatisfied items, please refer to the details of Additional Comments in the last section of the document.)

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

40

9). Summary.

Oracle Database 19c Installer - Step 9 of 11 × 19° DRACLE Summary Configuration Option Global settings Database Installation Options Database edition: Enterprise Edition (Set Up Software Only) [Edit] Nodes Selection Oracle base: /home/oracle/grid_base [Edit] Database Edition Software location: /home/oracle/db_19c Installation Location Privileged Operating System groups: dba (OSDBA), oper (OSOPER), dba (OSBACKUPDBA), dba (OSDG Root script execution configuration: Root user credential [Edit] Operating System Groups Grid Options Root script execution Cluster Nodes: c1n1, c1n2, c1n3, c1n4 [Edit] Prerequisite Checks Summary • ۲ Save Response File.. Help < Back Install Cancel

Installation Summary as shown above, click Install to continue.

10). Install Product.

	Oracle Database 19c Installer - Step 10 of 11	
tall Product	19 °	Database
Configuration Option Database Installation Options Nodes Selection Database Edition	Progress 12% Copying files for 'Oracle Notification Service 19.0.0.0 '	
Installation Location Operating System Groups	Status	In Progress
Root script execution Prerequisite Checks	Prepare Link binaries Setup	In Progress Pending Pending
Summary Install Product	Copy Files to Remote Nodes Configure Remote Nodes • Prepare	Pending Pending Pending
Finish	Setup Setup Oracle Base Execute Root Scripts	Pending Pending Pending
	Details Revert All Reve	ert <u>R</u> etry <u>S</u> k
	10° ORACLE	
	Database	
<u>H</u> elp	< <u>Back</u> <u>Next</u> >	install Car

Installer prompted you to run the orainstRoot.sh and root.sh scripts. Click Yes.

	Oracle Database 19c Installer - Step 10 of 11	×
Install Product	19° 	DRACLE [®] Database
Configuration Option Database Installation Options Nodes Selection Database Edition	Progress 92% Saving Cluster Inventory	
Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product	Status Configure Local Node Configure Local Node Configure Local Node Configure Local Node Configure Local Nodes Configure Remote Nodes Prepare Configure Remote Nodes Prepare	Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded
Finish	Oracle Database 19c Installer Are you sure you want to continue ? Yes Oracle Database 19c Installer	A peded y press ing i ils <u>Skip</u>
Help	Close	stall Cancel

Continue monitoring the installation until the Finish window appears.

11). Finish

-		Oracle Database 19c Installer - Step 11 of 11	×
Finish		19° Database	ΈE.
Configurat Database Nodes Sel Database Installation Root scrip Prerequisi Summary Install Pro	tion Option Installation Options lection Edition In Location System Groups of execution ite Checks	The registration of Oracle Database was successful.	
Help		< <u>B</u> ack <u>N</u> ext > <u>Install</u>	<u>Close</u>

The installation of Oracle Database is finished, click **Close** to dismiss the screen.

1-3. Using DBCA to create Oracle RAC DataBase.

1). Select Database Operation.

		Database Configuration Assistant - Application - Step 1 of 14		×
Select Database Operation			19 °	ORACLE [®] Database
Q	Database Operation	Select the operation that you want to perform.		
Ý	Creation Mode	<u>Create a database</u>		
Ý	Deployment Type	O Configure an existing database		
Ý	Database Identification	O Delete database		
Ý	Storage Option	O Manage templates		
Ý	Fast Recovery Option			
Ý	Database Options	O Manage <u>P</u> luggable databases		
Ý	Configuration Options	O Oracle RAC database Instance management		
Ý	Management Options			
Ý	User Credentials			
Ý	Creation Option			
4	Summary			
Ý	Progress Page			
9	Finish			
12				
	<u>H</u> elp	< <u>B</u> ack	Next >	Einish Cancel

Select option "Create a database", then click Next to continue.

2). Select Database Creation Mode.

-	Dat	tabase Configuration Assistant	t - Create a database - Step 2 of 14	×
Sel	ect Database Creation Mo	de	19° Data	ACLE.
φ	Database Operation			
	Creation Mode	<u>G</u> lobal database name:	susedb	
Ý	Deployment Type	Storage type:	Automatic Storage Management (ASM)	
9	Database Identification	Database files location:	+SUSEDEMO/{DB_UNIQUE_NAME}	Browse
Ĵ	Storage Option	F <u>a</u> st Recovery Area (FRA):	+SUSEDEMO	Browse
Ĭ	Database Options	Database <u>c</u> haracter set:	AL32UTF8 - Unicode UTF-8 Universal character set	-
4	Configuration Options	Administrative password:		
- ¢	Management Options	Confirm paceword:		
	User Credentials	commin <u>p</u> assword.		
¢	Creation Option	✓ Create as Container databas	se la	
Ý	Summary	Pluggable database name:	susedb_pdb	
ý	Progress Page Finish	○ Ad <u>v</u> anced configuration		
	<u>H</u> elp		< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

Select option "Typical configuration" and fill in administrator password. Then, click Next to continue.

3). Perform Prerequisite Checks.

Databa	se Configuration Assistant - Create 'susedb' database - Step 3 o	of 6	×
Perform Prerequisite Checks		19° 	RACLE [.] tabase
Database Operation <u>Creation Mode</u> Prerequisite Checks Summary Progress Page Finish	Verification Result Some of the minimum requirements for installation are not completed. Review an following table, and recheck the system. Check Again Ex & Check Again Show Failed Image: All Nodes Checks Checks Checks Image: Ibstdc++33-3.3.3-62.1 Package: libjtdc++33-3.3.3-62.1 Package: libjtdc++33-3.3.3-62.1 Package: libjtgcfurbo-1.3.1 Package: libjpegfc2-32bit-62.1.0 Package: libjpegfc2-32bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpegfc2-s2bit-62.1.0 Package: libjpeffc2-s2bit-62.1.0 Package: libjpeffc2-s2bit-62.1.0 Package: libjpeffc2-s2bit-62.1.0 Package: libjpeffc2-s2bit-62.1.0 Package: libjpeffc2-s2bit-62.1.8.0.5.151 Package: libgfortran3-4.8.3 This is a prerequisite condition to test whether the package "libstdc++33-3.3.3-62. system. (more details) Check Failed on Nodes: [c1n4, c1n3, c1n2, c1n1]	d fix the issues	s listed in the Ignore All Fixable No
<u>H</u> elp	< <u>B</u> ack <u>N</u> ex	t > <u>F</u> inis	sh Cancel

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

4). Summary.

	Databa	se Configuration Assistant - Create 'susedb' database - Step 4 of 6	×
Summ	nary	19° Database	LE.
	atabase Operation reation Mode rerequisite Checks ummary rogress Page nish	Database Configuration Assistant Global Settings Global database name: susedb Node List: c1n1,c1n2,c1n3,c1n4 Configuration type: Oracle Real Application Cluster (RAC) database - Admin Managed SID: susedb Create as Container database: Yes Pluggable Database Name: susedb_pdb Number of Pluggable Databases: 1 Use Local Undo tablespace for PDBs: Yes Database Files Storage Type: Automatic Storage Management (ASM) Memory Configuration Type: Automatic Shared Memory Management Template name: General Purpose mitialization Parameters audit_frile_dest: (ORACLE_BASE)/admin/{DB_UNIQUE_NAME}/adump audit_trail: db cluster_database: true compatible: 19.0.0 db_block_size: 8 KB db_create_file_dest: +SUSEDEMO/(DB_UNIQUE_NAME)/ db_name: susedb db_create_stile_dest: +SUSEDEMO/(DB_UNIQUE_NAME)/ db_name: susedb	▲
<u>H</u> e	lp	< <u>Back</u> <u>Next</u> > <u>Finish</u> Ca	incel

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

5). Progress Page.

Datab	ase Configuration Assistant - Create 'susedb' database - Step 5 of 6	×
Progress Page	19° Datab	ACLE.
Database Operation Creation Mode Prerequisite Checks Summary Progress Page	Progress 27% Creating and starting Oracle instance : In Progress Status	
U Finish	→ DB Creation In Prog ← Prepare for db operation Success ← Copying database files Success ← Creating and starting Oracle instance In Prog ← Creating cluster database views Pendin ← Completing Database Creation Pendin ← Creating Pluggable Databases Pendin ← Creating Pluggable Databases Pendin ← Executing Post Configuration Actions Pendin DBCA Log Location: /home/oracle/grid_base/cfgtoollogs/dbca/susedb/trace.log_2019-11-05_07-00-40AM Database Alert Log Location: /home/oracle/grid_base/diag/rdbms/susedb/susedb1/trace/alert_susedb1.log /home/oracle/grid_base/diag/rdbms/susedb/susedb1/trace/alert_susedb1.log	ress ded ress g g g v Skip
Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

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

```
6). Finish.
```

Da	tabase Configuration Assistant - Create 'susedb' database - Step 6 of 6 ×
Finish	19° Database
 Database Operation Creation Mode Prerequisite Checks Summary Progress Page Finish 	Database creation complete. For details check the logfiles at: /home/oracle/grid_base/cfgtoollogs/dbca/susedb. Database Information: Global Database Name: susedb System Identifier(SID) Prefix: susedb Server Parameter File name: +SUSEDEMO/SUSEDB/PARAMETERFILE/spfile.292.1023522559 Note: All database accounts except SYS, SYSTEM and DBSNMP are locked. Select the Password Management button to view a complete list of locked accounts or to manage the database accounts (except DBSNMP). 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>Back</u> <u>Next</u> > <u>Finish</u>

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

1-4. Oracle Database 19c(19.3) Post-Install Checks.

1). Verify database status and configuration.

oracle@c1n1:~> export ORACLE HOME=/home/oracle/db 19c/ oracle@c1n1:~> /home/oracle/db 19c/bin/srvctl status database -d susedb -a Instance susedb1 is running on node c1n1 Instance susedb1 is connected to ASM instance +ASM1 Instance susedb2 is running on node c1n2 Instance susedb2 is connected to ASM instance +ASM2 Instance susedb3 is running on node c1n3 Instance susedb3 is connected to ASM instance +ASM3 Instance susedb4 is running on node c1n4 Instance susedb4 is connected to ASM instance +ASM3 oracle@c1n1:~> /home/oracle/db_19c/bin/srvctl config database -d susedb -a Database unique name: susedb Database name: susedb Oracle home: /home/oracle/db 19c Oracle user: oracle Spfile: +SUSEDEMO/SUSEDB/PARAMETERFILE/spfile.292.1023522559 Password file: +SUSEDEMO/SUSEDB/PASSWORD/pwdsusedb.261.1023519963 Domain: Start options: open Stop options: immediate Database role: PRIMARY Management policy: AUTOMATIC Server pools: **Disk Groups: SUSEDEMO** 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: oper Database instances: susedb1,susedb2,susedb3,susedb4 Configured nodes: c1n1,c1n2,c1n3,c1n4 CSS critical: no CPU count: 0 Memory target: 0 Maximum memory: 0 Default network number for database services: Database is administrator managed

oracle@c1n1:~>	/home/oracle/grid_	19c/bin/crsctl	stat res -t

Name	Target State	Server	State details				
Local Re	Local Resources						
ora.LIST	ora.LISTENER.lsnr						
	ONLINE ONLINE	c1n1	STABLE				
	ONLINE ONLINE	c1n2	STABLE				
	ONLINE ONLINE	c1n3	STABLE				
	ONLINE ONLINE	c1n4	STABLE				
ora.chac	ł						
	ONLINE ONLINE	c1n1	STABLE				
	ONLINE ONLINE	c1n2	STABLE				
	ONLINE ONLINE	c1n3	STABLE				
	ONLINE ONLINE	c1n4	STABLE				
ora.net1	.network		074045				
	ONLINE ONLINE	c1n1	STABLE				
	ONLINE ONLINE	c1n2	STABLE				
	ONLINE ONLINE	c1n3	STABLE				
	ONLINE ONLINE	c1n4	STABLE				
ora.ons		a1 a1					
	ONLINE ONLINE	CINI 01:02	STABLE				
	ONLINE ONLINE		STABLE				
	ONLINE ONLINE	C1N3	STABLE				
	ONLINE ONLINE	C104	STABLE				
Cluster I	Resources						
ora ASM		or(ora asmaroup)					
1		c1n1	STARI E				
2		c1n2	STABLE STABLE				
3		c1n3	STABLE				
oraLIST	FNFR SCAN1 Isnr	01110	OWDEL				
1		c1n2	STABLE				
ora.LIST	ENER SCAN2.lsnr	01112	0 II (DEE				
1		c1n3	STABLE				
ora LIST	FNFR SCAN3 Isnr	01110	0111022				
1	ONLINE ONLINE	c1n1	STABLE				
ora.SUS	EDEMO.do(ora.asmo	aroup)	•= ==				
1	ONLINE ONLINE	c1n1	STABLE				
2	ONLINE ONLINE	c1n2	STABLE				
3	ONLINE ONLINE	c1n3	STABLE				
ora.asm	(ora.asmgroup)						
1	ONLINE ONLINE	c1n1	Started,STABLE				
2	ONLINE ONLINE	c1n2	Started, STABLE				
3	ONLINE ONLINE	c1n3	Started, STABLE				
ora.asm	net1.asmnetwork(ora	.asmgroup)					
1	ONLINE ONLINE	c1n1	STABLE				
2	ONLINE ONLINE	c1n2	STABLE				
3	ONLINE ONLINE	c1n3	STABLE				
ora.c1n1	l.vip						
1	ONLINE ONLINE	c1n1	STABLE				
ora.c1n2	2.vip						
1	ONLINE ONLINE	c1n2	STABLE				
ora.c1n3	3.vip	4.5					
1	ONLINE ONLINE	c1n3	STABLE				
ora.c1n4	ŧ.vip						

1	ONLINE	ONLINE	c1n4	STABLE
ora.cvu				
1	ONLINE	ONLINE	c1n1	STABLE
ora.qosm	server			
1	ONLINE	ONLINE	c1n1	STABLE
ora.scan1	.vip			
1	ONLINE	ONLINE	c1n2	STABLE
ora.scan2	2.vip			
1	ONLINE	ONLINE	c1n3	STABLE
ora.scan3	3.vip			
1	ONLINE	ONLINE	c1n1	STABLE
ora.susec	lb.db			
1	ONLINE	ONLINE	c1n1	Open,HOME=/home/orac
			le/db_1	9c,STABLE
2	ONLINE	ONLINE	c1n2	Open,HOME=/home/orac
			le/db_1	9c,STABLE
3	ONLINE	ONLINE	c1n3	Open,HOME=/home/orac
			le/db_1	9c,STABLE
4	ONLINE	ONLINE	c1n4	Open,HOME=/home/orac
			le/db_1	9c,STABLE

1-5. Installing Grid Infrastructure Release Update 19.4.0.0.190716 (Patch 29708769)

(Note: Patch 29708769 includes Database Release Update 19.4.0.0.190716 (Patch 29834717))

As root user, execute the following command on each node of the cluster:

c1n1:/home/oracle/grid_19c/OPatch # ./opatchauto apply /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/

OPatchauto session is initiated at Tue Nov 5 18:13:06 2019

System initialization log file is /home/oracle/grid_19c/cfgtoollogs/opatchautodb/systemconfig2019-11-05_06-13-07PM.log.

Session log file is /home/oracle/grid_19c/cfgtoollogs/opatchauto/opatchauto2019-11-05_06-13-29PM.log The id for this session is 8CCS

Executing OPatch prereq operations to verify patch applicability on home /home/oracle/grid_19c

Executing OPatch prereq operations to verify patch applicability on home /home/oracle/db_19c Patch applicability verified successfully on home /home/oracle/db_19c

Patch applicability verified successfully on home /home/oracle/grid_19c

Verifying SQL patch applicability on home /home/oracle/db_19c SQL patch applicability verified successfully on home /home/oracle/db_19c

Preparing to bring down database service on home /home/oracle/db_19c Successfully prepared home /home/oracle/db_19c to bring down database service

Bringing down CRS service on home /home/oracle/grid_19c CRS service brought down successfully on home /home/oracle/grid_19c

Performing prepatch operation on home /home/oracle/db_19c Perpatch operation completed successfully on home /home/oracle/db_19c

Start applying binary patch on home /home/oracle/db_19c Binary patch applied successfully on home /home/oracle/db_19c

Performing postpatch operation on home /home/oracle/db_19c Postpatch operation completed successfully on home /home/oracle/db_19c

Start applying binary patch on home /home/oracle/grid_19c Binary patch applied successfully on home /home/oracle/grid_19c

Starting CRS service on home /home/oracle/grid_19c CRS service started successfully on home /home/oracle/grid_19c Preparing home /home/oracle/db_19c after database service restarted No step execution required......

Trying to apply SQL patch on home /home/oracle/db_19c SQL patch applied successfully on home /home/oracle/db_19c

OPatchAuto successful.

-----Summary-----

Patching is completed successfully. Please find the summary as follows:

Host:c1n1 RAC Home:/home/oracle/db_19c Version:19.0.0.0 Summary:

==Following patches were SKIPPED:

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29851014 Reason: This patch is not applicable to this specified target type - "rac_database"

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29401763 Reason: This patch is not applicable to this specified target type - "rac_database"

==Following patches were SUCCESSFULLY applied:

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29834717 Log: /home/oracle/db_19c/cfgtoollogs/opatchauto/core/opatch/opatch/0911-05_18-17-56PM_1.log

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29850993 Log: /home/oracle/db_19c/cfgtoollogs/opatchauto/core/opatch/opatch2019-11-05_18-17-56PM_1.log

Host:c1n1 CRS Home:/home/oracle/grid_19c Version:19.0.0.0 Summary:

==Following patches were SKIPPED:

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29401763 Reason: This patch is already been applied, so not going to apply again.

==Following patches were SUCCESSFULLY applied:

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29834717 Log: /home/oracle/grid_19c/cfgtoollogs/opatchauto/core/opatch/opatch2019-11-05_18-19-37PM_1.log

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29850993 Log: /home/oracle/grid_19c/cfgtoollogs/opatchauto/core/opatch/opatch2019-11-05_18-19-37PM_1.log

Patch: /home/Oracle_SW/RAC_19c_SW/GI_Patch/29708769/29851014 Log: /home/oracle/grid_19c/cfgtoollogs/opatchauto/core/opatch/opatch2019-11-05_18-19-37PM_1.log OPatchauto session completed at Tue Nov 5 18:44:04 2019 Time taken to complete the session 30 minutes, 58 seconds

For details, please refer to the 'Read Me' file included in the patch package, make sure the installation is successful.

1-6. Installing other patches.

The following patches are also required on top of 19.4.0:

Patch 30083976 - all Database installations Patch 28321248 - all GI/ACFS installations Patch 30171454 - all GI/OCW installations Patch 29875565 - all Client installations where pro*C cobol demos are required

Ensure that the above patches are successfully installed.

oracle@clnl:/home/oracle/grid_19c/OPatch> ./opatch lspatches 29875565;PL19.3PORTSPECEFIC: PR0*C DEMOS FAIL ON SLES15 28321248;ACFS Interim patch for 28321248 30171454;OCW Interim patch for 30171454 29834717;Database Release Update : 19.4.0.0.190716 (29834717) 29401763;TOMCAT RELEASE UPDATE 19.0.0.0 (29401763) OPatch succeeded. oracle@clnl:/home/oracle/grid_19c/OPatch> [] 1-7. Oracle RAC 19c(19.4) Post-Install Checks.

1). Restart all the services (database, ASM, listeners, nodeapps, and CRS daemons), then check Oracle RAC status.

oracle@c1n1:~> /home/oracle/grid_19c/bin/crsctl check cluster -all c1n1: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online c1n2: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ******* c1n3: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ***** c1n4: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online *****

oracle@c1n1:/home/oracle/grid 19c/OPatch> /home/oracle/grid 19c/bin/srvctl status nodeapps VIP 137.65.135.94 is enabled VIP 137.65.135.94 is running on node: c1n1 VIP 137.65.135.95 is enabled VIP 137.65.135.95 is running on node: c1n2 VIP 137.65.135.96 is enabled VIP 137.65.135.96 is running on node: c1n3 VIP 137.65.135.97 is enabled VIP 137.65.135.97 is running on node: c1n4 Network is enabled Network is running on node: c1n1 Network is running on node: c1n2 Network is running on node: c1n3 Network is running on node: c1n4 ONS is enabled ONS daemon is running on node: c1n1 ONS daemon is running on node: c1n2 ONS daemon is running on node: c1n3

ONS daemon is running on node: c1n4

oracle@c1n1:~> /home/oracle/grid_19c/bin/crsctl stat res -t

Name	Target State	Server	State details
Local Resou	ırces		
ora.LISTEN Of Of Of	ER.Isnr NLINE ONLINE NLINE ONLINE NLINE ONLINE	c1n1 c1n2 c1n3	STABLE STABLE STABLE

	ONLINE	ONLINE	c1n4	STABLE
ora.chad				
	ONLINE	ONLINE	c1n1	STABLE
	ONLINE	ONLINE	c1n2	STABLE
	ONLINE	ONLINE	c1n3	STABLE
	ONLINE	ONLINE	c1n4	STABLE
ora.net1.	network	-	-	-
•••••••		ONI INF	c1n1	STABLE
			c1n2	STARI E
			c1n2	
			c1113	
	UNLINE	UNLINE	C1114	STABLE
ora.ons				
	ONLINE	ONLINE	C1n1	STABLE
	ONLINE	ONLINE	c1n2	STABLE
	ONLINE	ONLINE	c1n3	STABLE
	ONLINE	ONLINE	c1n4	STABLE
Cluster F	Resources			
ora.ASM	NET1LSN	R_ASM.lsnr((ora.asmgroup)	
1	ONLINE	ONLINE	c1n3	STABLE
2	ONLINE	ONLINE	c1n1	STABLE
3	ONLINE	ONLINE	c1n2	STABLE
ora.LIST	ENER_SC	AN1.lsnr		
1	ONLĪNE	ONLINE	c1n2	STABLE
ora.LIST	ENER SC	AN2.lsnr		
1			c1n3	STABLE
ora LIST	ENER SC	AN3 Isnr	01110	OWELL
1			c1n1	STADIE
				STADLL
018.505		g(ora.asmgro	oup)	
1	ONLINE	ONLINE	C1N3	STABLE
2	ONLINE	ONLINE	c1n1	STABLE
3	ONLINE	ONLINE	c1n2	STABLE
ora.asm(ora.asmgr	oup)		
1	ONLINE	ONLINE	c1n3	Started,STABLE
2	ONLINE	ONLINE	c1n1	Started, STABLE
3	ONLINE	ONLINE	c1n2	Started,STABLE
ora.asmr	net1.asmn	etwork(ora.a	smaroup)	
1	ONLINE	ONLINE	c1n3	STABLE
2	ONI INF	ONI INF	c1n1	STABLE
3			c1n2	STABLE
ora c1n1	vin	ONLINE	01112	OWELL
1			c1n1	STARI E
oro 0102	vin	ONLINE	CIIII	OTADLE
01a.01112			o1p0	
	UNLINE	UNLINE	CINZ	STABLE
ora.c1n3	.vip	<u></u>		
1	ONLINE	ONLINE	c1n3	STABLE
ora.c1n4	.vip			
1	ONLINE	ONLINE	c1n4	STABLE
ora.cvu				
1	ONLINE	ONLINE	c1n1	STABLE
ora.gosm	server			
1			c1n1	STABLE
ora scan	1 vin		•	C IN DEL
1			c1n2	
		UNLINE	GIIIZ	STADLE
ora.scan			o1=2	
1		UNLINE	CINS	STABLE
ora.scan	3.vip			

1	ONLINE ONLINE	c1n1	STABLE
ora.sus	edb.db		
1	ONLINE ONLINE	c1n1	Open,HOME=/home/orac
		le/db	D_19c,STABLE
2	ONLINE ONLINE	c1n2	Open,HOME=/home/orac
		le/db	_19c,STABLE
3	ONLINE ONLINE	c1n3	Open,HOME=/home/orac
		le/db	19c,STABLE
4	ONLINE ONLINE	c1n4	Open,HOME=/home/orac
		le/db	_19c,STABLE
			—

oracle@c1n1:/home/oracle/grid_19c/OPatch> export ORACLE_HOME=/home/oracle/db_19c/ oracle@c1n1:/home/oracle/grid_19c/OPatch> /home/oracle/db_19c/bin/srvctl status database -d susedb -a Instance susedb1 is running on node c1n1 Instance susedb1 is connected to ASM instance +ASM1 Instance susedb2 is running on node c1n2 Instance susedb2 is connected to ASM instance +ASM2 Instance susedb3 is running on node c1n3 Instance susedb3 is connected to ASM instance +ASM3 Instance susedb4 is running on node c1n4 Instance susedb4 is connected to ASM instance +ASM3 oracle@c1n1:/home/oracle/grid_19c/OPatch> /home/oracle/db_19c/bin/srvctl config database -d susedb -a Database unique name: susedb Database name: susedb Oracle home: /home/oracle/db 19c Oracle user: oracle Spfile: +SUSEDEMO/SUSEDB/PARAMETERFILE/spfile.292.1023522559 Password file: +SUSEDEMO/SUSEDB/PASSWORD/pwdsusedb.261.1023519963 Domain: Start options: open Stop options: immediate Database role: PRIMARY Management policy: AUTOMATIC Server pools: **Disk Groups: SUSEDEMO** 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: oper Database instances: susedb1,susedb2,susedb3,susedb4 Configured nodes: c1n1,c1n2,c1n3,c1n4 CSS critical: no CPU count: 0 Memory target: 0 Maximum memory: 0 Default network number for database services: Database is administrator managed

2). Access to Oracle Enterprise Manager.

Sign In To Oracle Cloud Database Express - Mozilla Firefox				
O Sign In To Oracle Cloud [× +				
$\leftarrow \rightarrow \ \ \ \textcircled{O} \ \ \textcircled{A} \ \ \ https://clcl-scan.provo.novell.com:5500 \ (90\%) \ \ \ \cdots \ \bigtriangledown \ \ \textcircled{O} \ \ \textcircled{A} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	₿ =			
ORACLE ENTERPRISE MANAGER DATABASE EXPRESS				
Username sys				
Password ••••••				
Container Name				
Log in				



Additional Comments

This document provides some temporary solutions and brief instructions for Oracle Database 19c on SLES 15 SP1.

• GI 19c(19.3) Installer checking Passwordless SSH connectivity failed. Actually, the Passwordless SSH connectivity is work normal on the Cluster.

Work-around: A temporary solution is by downgrading openssh to earlier version(openssh-7.6p1-7.8.x86_64) on the node(c1n1), then retry.

- Oracle Prerequisite Checks Fixup Script is workaround for some CVU check failures.
- CVU Pre-installation Check Issue "Verifying zeroconf check ...Warning". Please ignore this error, a fix will be in the next distributed CVU.
- CVU Pre-installation Check Issue Some packages are not applicable to sles15 SP1

Work-around: Manually ensure updated packages are installed.

libstdc++33-3.3.3-62.1 (Deprecated on SLES15 SP1) libjpeg-turbo-1.3.1, libjpeg62-32bit-62.1.0, libjpeg62-turbo-1.3.1 (Replaced by: libjpeg8. E.g. libjpeg8-8.1.2-5.7.1.x86_64 and libjpeg8-32bit-8.1.2-5.7.1.x86_64) libpcre16-0-8.41 (New name is libpcre16-0-8.41-4.20.x86_64) JDK-1.8.0.5.151 (New name is java-1_8_0-openjdk-1.8.0.222-3.24.2.x86_64) libgfortran3-4.8.3 (Replaced by: libgfortran4-7.4.1+r275405-4.9.2.x86_64 or libgfortran5-8.2.1+r264010-1.3.7.x86_64)

- Apply the Oracle RU 19.4.0.0.190716 (Patch 29708769 Includes Database Patch)
- The following patches are also required on top of 19.4.0: Patch 30083976 - all Database installations Patch 28321248 - all GI/ACFS installations Patch 30171454 - all GI/OCW installations Patch 29875565 - all Client installations where pro*C cobol demos are required

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