Oracle RAC 19c(19.24.0.0.0) on SUSE Linux Enterprise Server 15 (SP6) for x86-64

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Introduction

This document provides details on installing Oracle Grid/Database 19c on SUSE Linux Enterprise Server 15 SP6. It covers x86 64 version but installation steps are same for other supported platforms. (x86, ia64, System z, etc.).

Official Oracle product documentation is available at: http://docs.oracle.com/en/

System Requirements and Specifications

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 SP6 GM (x86 64) (https://www.suse.com/products/server/download)

Oracle

• Oracle Grid Infrastructure 19c (19.3) (x86 64)

• Oracle Database 19c (19.3) (x86_64)

(https://www.oracle.com/database/technologies/oracle19c-linux-downloads.html)

• Patch 36582629: GI RELEASE UPDATE 19.24.0.0.0

• Patch 6880880: OPatch utility 12.2.0.1.43 for DB 23.0.0.0.0 (https://support.oracle.com)



Cluster(4-node) Information

Dell PowerEdge R750 Server (2 x CPU Intel Xeon Gold 5318Y 2.1G, 24C/48T, 11.2GT/s, 36M Cache, Turbo, HT (165W)), DDR4-2933 128GB of memory Local 2 x SSD (1TB, NVMe) 2 x NIC Intel Ethernet Converged Network Adapter X710-DA2 (10GbE SFP+, Dual Port) (two bonded as active/passive) + Static IP Address Shared SAN Partition: 100G(ASM disk group for OCR and voting disk), 600G(ASM disk group for

OS: SUSE Linux Enterprise Server 16 SP6 (x86 64) Kernel version: 6.4.0-150600.21-default

Network configuration:

Public IP:

DB data)

10.200.176.11 c3n1.oraclab.bej.suse.com c3n1 10.200.176.12 c3n2.oraclab.bej.suse.com c3n2 10.200.176.13 c3n3.oraclab.bej.suse.com c3n3 10.200.176.14 c3n4.oraclab.bej.suse.com c3n4

Private IP:

192.168.3.1	c3n1-priv c3n1-priv
192.168.3.2	c3n2-priv c3n2-priv
192.168.3.3	c3n3-priv c3n3-priv
192.168.3.4	c3n4-priv c3n4-priv

Virtual IP:

10.200.176.15	c3n1-vip.oraclab.bej.suse.com c3n1-vip
10.200.176.16	c3n2-vip.oraclab.bej.suse.com c3n2-vip
10.200.176.17	c3n3-vip.oraclab.bej.suse.com c3n3-vip
10.200.176.18	c3n4-vip.oraclab.bej.suse.com c3n4-vip

SCAN

c3-scan.oraclab.bej.suse.com - (10.200.176.30, 10.200.176.31, 10.200.176.32)



Prerequisites

1. Installing SUSE Linux Enterprise Server 15 SP6 on each cluster node

1-1. Install SUSE Linux Enterprise Server 15 SP6 with "Enhanced Base System, Software Management, X Window System, Oracle Server Base" pattern. You can follow official Oracle Grid/Database Installation manual for selective SLES OS required rpms, however "Oracle Server Base" pattern from SUSE will fulfil minimum setup required for Oracle RAC Installation.

	YaST2 — YaST2 - sw_single	@ c3n1	×
File Package Configuration Dependencies	s <u>O</u> ptions E <u>x</u> tras <u>H</u> elp		
View Search Installation Summary	Patterns <u>R</u> epositories		
Pattern 👻 🇖	•		
 Base Technologies 	▼ Package	Summary Installed (Available)	Size
	aaa_base	openSUSE Base Pac 84.87+git20180409.04c9dae-150300.10.1	2.1 270.6 KiB
Minimal Base System	bash bash	The GNU Bourne-A 4.4-150400.25.22	1.1 MiB
Tools and scripts for Common	branding-SLE	SLE Brand File 15-150600.43.4	1.6 KiB
	btrfsprogs	Utilities for the Btrfs 6.5.1-150600.2.4	4.2 MiB
Enhanced Base System	busybox-static	Static linked version 1.35.0-150500.10.3.3	2.5 MiB
	ca-certificates-mozilla	CA certificates for 0 2.62-150200.30.1	
	Children Consulting	GNUL Core Utilities 8 32,150400,19,4	6.2 MiB
KVM Virtualization Host and tools	Coreatis	Auxiliary package 4 2-150400.84 3 1	181 B
	Cronie	Cron Daemon 1.5.7-150400.84.3.1	313.7 KiB
AppArmor	dracut	Event driven initram 059+suse.521.g8412a1c0-150600.1.3	2.0 MiB
22 Bit Puptime Environment	e2fsprogs	Utilities for the Seco 1.47.0-150600.2.26	4.2 MiB
	efibootmgr	EFI Boot Manager 17-150400.3.2.2	87.8 KiB
Mobile	elfutils	Higher-level library 0.185-150400.5.3.1	2.6 MiB
	glibc	Standard Shared Lib 2.38-150600.12.1	6.5 MiB
YaST Base Utilities	glibc-locale	Locale Data for Loca 2.38-150600.12.1	214.8 MiB
VaST Deskton Utilities	glibc-locale-base	en_US Locale Data f 2.38-150600.12.1	9.9 MIB
Tust Desktop outdies	grub2	Bootloader With sup 2.12-150600.6.13	26.4 MIB
YaST Server Utilities	inroute2	Linux network confi 5 14-150400.1.8	2 9 MiB *
YaST User Interfaces	Description Technical Data	Dependencies <u>V</u> ersions File List Change Log	
Software Management			
SAP BusinessOne Server Base			
SAP HANA Server Base			
SAP NetWeaver Server Base			
 Server Functions 			
HPC Basic Compute Node			
HPC Workload Manager			
File Server	Ŧ	<u>C</u> ancel	l <u>A</u> ccept

Figure 1-1 Software Installed as shown below



	YaST2 — YaST2 - sw_single	@ c3n1	×
File Package Configuration Dependencies	Options Extras Help		
View Search Installation Summary	Patter <u>n</u> s <u>R</u> epositories		
Pattern 👻 📤			
 Server Functions 	 Package 	Summary	Installed (Available) Size
HPC Basic Compute Node	orarun	An Environment for Runr	ning Ora 2.1-150400.22.9.2 73.2 KiB
HPC Workload Manager	patterns-base-basesystem	oracle_server Oracle Server Base	20171206-150100.12
File Server			
Print Server			
Mail and News Server			
Web and LAMP Server			
Internet Gateway			
DHCP and DNS Server			
Directory Server (LDAP)			
Xen Virtual Machine Host Server			
KVM Host Server			
 Primary Functions 	Description Technical Data	Dependencies Versions File Lis	t Change Log
GEO Clustering for High Availa	<u>r</u> cennear bata	Dependencies <u>r</u> ensions the Lis	enunge Log
High Availability			
Live Patching			
SLE Real Time Module			
FIPS 140-3 specific packages			
Infiniband (OFED)			
SAP Application Server Base			
Oracle Server Base			<u>C</u> ancel <u>A</u> ccept

Figure 1-2 Software Installed as shown below

Figure 1-3 OS release information and kernel version





2. Oracle software pre-install verify

2-1. Login to the SLES 15 SP6 64-bit OS as a non-admin user.

Download Oracle Database 19c Grid Infrastructure (19.3) for Linux x86-64 from: https://www.oracle.com/database/technologies/oracle19c-linux-downloads.html.

Download GI RELEASE UPDATE 19.24.0.0.0(Patch 36582629) and OPatch utility 12.2.0.1.43(Patch 6880880) from: https://support.oracle.com.

2-2. Extract LINUX.X64 193000 grid home.zip, p36582629 190000 Linux-x86-64.zip, and p6880880 230000 Linux-x86-64.zip. Replace the OPatch directory located in the Grid 19.3 ShipHome with OPatch version 12.2.0.1.43. Then, through the Grid Installer(gridSetup.sh) to apply the patch 36582629(GI RELEASE UPDATE 19.24.0.0.0).

pracle@c3n1:/home/oracle/grid_19c> ./gridSetup.sh -applyRU /home/ORACLE_SW/patch_RU_192400/36582629/ Preparing the home to patch... Applying the patch /home/ORACLE_SW/patch_RU_192400/36582629/... Successfully applied the patch.

2-3. After successfully installing the patch, stop the grid Installer(gridSetup.sh). Run the Oracle 'runcluvfy.sh' tool to verify that the cluster setup is ready for installation. Before proceeding, resolve any issues you encounter. Please refer to the official Oracle Installation Guide for assistance.



Oracle RAC Installation

1. Installing Oracle Grid Infrastructure.

1-1. Export SRVM_DISABLE_MTTRANS=true, then run Oracle Grid 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
Select 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 Cluster Configure Oracle Grid Infrastructure for a Standalone Server (Oracle Restart) Upgrade Oracle Grid Infrastructure Set Up Software Only
Нер	< Back Next > Install Cancel

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



2). Select Cluster Configuration.

	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 configuration. 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	< Back Next > Install Cancel

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	4
Grid Plug and Play Information	19° ORACLE Grid Infrastructure	3
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create Grid Infrastructure Manage Grid Infrastructure Management	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.	
 Create ASM Disk Group ASM Password Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish 	Configure nodes Virtual IPs as assigned by the Dynamic Networks Create a new GNS GNS VIP Address: GNS Sub Domain: GNS Sub Domain: Browse Browse	
 ✓ ✓ Help 	< <u>B</u> ack <u>Next</u> <u>Install</u> Cancel	

Enter the names of the cluster and scan in the Cluster Name and SCAN Name fields, which are unique across the entire subnet, and then click Next to continue.

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



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

Oracle Grid Infrastructure 19c Installer - Step 4 of 17		×	
Cluster Node Information		19° ORACLE Grid Infrastru	E. ucture
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Cluster Node Information Cluster Node Information 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	Provide the list of nodes to be managed by Oracle Hostname. Public Hostname c3n1.oraclab.bej.suse.com c3n2.oraclab.bej.suse.com c3n3.oraclab.bej.suse.com c3n4.oraclab.bej.suse.com SSH gonnectivity	Grid Infrastructure with their Public Hostname and Virtu Virtual Hostname C3n1-vip.oraclab.bej.suse.com C3n2-vip.oraclab.bej.suse.com C3n4-vip.oraclab.bej.suse.com Use Cluster Configuration File	ial
 ↓ Help 		< Back Next > Install	Cancel

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.



5). Specify Network Interface Usage.

	Oracle Grid Infrastructu	re 19c Installer - Step 5 of	17	×
Specify Network Interface Usag	je		19° ORACL Grid Infrast	.
Configuration Option	Private interfaces are used by Or	acle Grid Infrastructure for interno	de traffic.	
Grid Plug and Play	Interface Name	Subnet	Use for	
Cluster Node Information	bond1	192 168 3 0	ASM & Private	
Network Interface Usage			(Abin a l'India	
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				
Install Product				
5 Finish				
I I I I I I I I I I I I I I I I I I I				
Help		< <u>B</u>	ack <u>N</u> ext > <u>I</u> nstall	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.

	Oracle Grid Infrastructure 19c Installer - Step 6 of 17 ×
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 Management 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 <u>A</u> SM 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	< <u>Back</u> <u>Next</u> <u>Install</u> 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 Management 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				
Create Grid Infrastructure Mana	9 (•) N <u>o</u>			
Grid Infrastructure Managemen				
ASM Decoword				
ASMI Password				
Operating System Groups				
Installation Location				
Root script execution				
 Prerequisite Checks 				
Summary				
Install Product				
- Finish				
Image: A the second				
<u>H</u> elp	< <u>B</u> ack <u>N</u> ext > <u>Install</u> Cancel			

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.

Create ASM Disk Group OCR and Voting disk data will be stored in the following ASM Disk group. Select disks and characteristics of this Disk group. Cluster Configuration OCR and Voting disk data will be stored in the following ASM Disk group. Select disks and characteristics of this Disk group. Cluster Configuration Disk group name SUSEDATA1 Grid Plug and Play Disk group. Cluster Node Information Network Interface Usage Storage Option Storage Option Create Grid Infrastructure Manage Disk Path Ocreate ASM Disk Group Disk Path ASM Password Operating System Groups Operating System Groups V/dev/asm/disk3	r	Oracle Grid Infrastructure 19c Installer - Step 8	of16	×
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage Storage Option Create ASM Disk Group ASM Password Operating System Groups OCR and Voting disk data will be stored in the following ASM Disk group. Select disks and characteristics of this Disk group. Disk group name Subsect Disks OCR and Voting disk data will be stored in the following ASM Disk group. Select disks and characteristics of this Disk group. Disk group name Disk group. Disk Path Disk Comp Disk Path Disk Path Disk Comp Disk Path Disk Path Disk Comp	Create ASM Disk Group		19^c O	RACLE [®] d Infrastructure
Storage Option Select Disks Show Candidate/Provisioned Disks Create Grid Infrastructure Manad Disk Path Size (in MB) Status Failure Group //dev/asm/disk1 30720 Candidate Image: Candidate ASM Password //dev/asm/disk2 30720 Candidate Image: Candidate Operating System Groups //dev/asm/disk3 30720 Candidate Image: Candidate	Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage	OCR and Voting disk data will be stored in the following ASM Disk Disk group. Disk group name SUSEDATA1 Redundancy Flex High Normal External Allocation Unit Size	k group. Select disks and cl	haracteristics of this
Operating System Groups Disk Path Size (in MB) Status Failure Group V /dev/asm/disk1 30720 Candidate Image: Candidate V /dev/asm/disk2 30720 Candidate Image: Candidate V /dev/asm/disk3 30720 Candidate Image: Candidate	Storage Option	Select Disks	Show Candidate	/Provisioned Disks 🔻
Installation Location //dev/asm/disk4 112640 Candidate Root script execution //dev/asm/disk5 112640 Candidate Prerequisite Checks 112640 Candidate 112640 Candidate Summary Install Product 110640 Candidate 112640 Candidate Change Discovery Path://dev/asm/disk5 112640 Candidate 112640 Candidate Summary Install Product 112640 Candidate 112640 Candidate Change Discovery Path://dev/asm/* Change Discovery Path Specify Failure Groups Configure Oracle ASM Filter Driver Select this option to configure ASM Filter Driver(AFD) to simplify configuration and management of disk devices by Oracle ASM.	Create ASM Disk Group ASM Password Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	Disk Path / dev/asm/disk1 / dev/asm/disk2 / dev/asm/disk3 / dev/asm/disk4 / dev/asm/disk5 / dev/asm/disk5 / dev/asm/disk6 / dev/asm/disk6 / dev/asm/disk6 / dev/asm/disk7 Change Discovery Path Configure Oracle ASM Eilter Driver Select this option to configure ASM Filter Driver(AFD) to simplify by Oracle ASM.	size (III MB) Status 30720 Candidate 30720 Candidate 112640 Candidate 112640 Candidate 112640 Candidate 112640 Candidate Spe	ecify Failure Groups

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



9). Specify ASM Password.

	Oracle Grid Infra	astructure 19c Installer - S	Step 9 of 16	×
Specify ASM Password			19	Grid Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play	The new Oracle Automa privileges for administr privileges to monitor th Specify the password fo	atic Storage Management (Oracle ation. Oracle recommends that yo e ASM instance. or these user accounts.	ASM) instance require u create a less privileg	is its own SYS user with SYSASM and ASMSNMP user with SYSDBA
<u>Cluster Node Information</u> <u>Network Interface Usage</u>	○ Use <u>d</u> ifferent passw	ords for these accounts		
Create Grid Infrastructure Manag	Passv S <u>Y</u> S	vord	Confirm Password	
ASM Password][
Operating System Groups Installation Location Root script execution	Use <u>same</u> password	s for these accounts		
Prerequisite Checks Summary	Specify Password:		Confirm Password:	
Install Product				
Help			< <u>B</u> ack	ext > 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.

	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 Manage Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Root script execution Prerequisite Checks Summary Install Product Finish	Choose one of the following Failure Isolation Support options.
Help	< <u>B</u> ack <u>N</u> ext > <u>Install</u> Cancel

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.
Cluster Node Information Network Interface Usage	OMS host:
Storage Option Create Grid Infrastructure Manag Create ASM Disk Group	EM Admin User Name:
ASM Password Failure Isolation	
Management Options Operating System Groups Installation Location	
Root script execution Prerequisite Checks	
Summary Install Product Finish	
<u>H</u> elp	< <u>Back</u> <u>Install</u> 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	
Root script execution Prerequisite Checks Summary Install Product Finish	
Help	< <u>Back</u> <u>Next</u> <u>Install</u> Cancel

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 Manag Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups	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. <u>O</u> racle base: /home/oracle/grid_19c_base This software directory is the Oracle Grid Infrastructure home directory. Software location: /home/oracle/grid_19c
Installation Location Root script execution	
Prerequisite Checks Summary Install Product Finish	
< ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	< <u>Back</u> <u>Next</u> > <u>Install</u> 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). Create Inventory

	Oracle Grid Infrastructure 19c Installer - Step 14 of 19 ×
Create Inventory	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 Failure Isolation Management Options Operating System Groups Installation Location	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 Directory: /home/oracle/oralnventory Browse Members of the following operating system group (the primary group) will have write permission to the inventory directory (oralnventory). oralnventory Group Name: oinstall
Create Inventory	
Root script execution Prerequisite Checks Summary Install Product Finish	
Help	< Back Next > Install Cancel

Specify a directory for installation metadata files, and then click **Next** to continue.



15). Root script execution configuration.

	Oracle Grid Infrastructure 19c Installer - Step 15 of 19 ×
Root script execution configura	ation 19° ORACLE Grid Infrastructure
Configuration Option	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.
Grid Plug and Play	Automatically run configuration scripts
<u>Cluster Node Information</u>	● Use "root" user <u>c</u> redential
 <u>Network Interface Usage</u> 	Password :
Storage Option	
Create Grid Infrastructure Manag	Program path : /usr/bin/sudo Browse
ASM Password	
Failure Isolation	
Management Options	Password :
Operating System Groups	
Installation Location	
<u>Create Inventory</u>	
Root script execution	
Prerequisite Checks	
 Summary 	
Install Product	
O Finish	
Help	< <u>B</u> ack <u>N</u> ext > <u>Install</u> Cancel

If select the option Automatically run configuration scripts, enter the credentials for the root user or a sudo account. Alternatively, run the scripts manually as the root user at the installation process when prompted by the installer. Click Next to continue.



16). Perform Prerequisite Checks.

	Oracle Grid Infrastructure 19c Installer - Step 16 of 19	×
Perform Prerequisite Checks	19	C ORACLE Grid Infrastructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information	Verification Result Fixup Result Some of the minimum requirements for installation are not completed. Review ar following table, and recheck the system. Check Again Eix & Check Again Show Failed All Nodes	nd fix the issues listed in the
<u>Network Interface Usage</u> <u>Storage Option</u> Create Grid Infrastructure Manage	Image: Sector secto	Warning No
Create ASM Disk Group ASM Password	Details ×	Info No
<u>Failure Isolation</u> <u>Management Options</u>	Package: xorg-x11-libs-7.6-45.14 - This is a prerequisite condition to test whether the package "xorg-x11-libs-7.6-45.14" is available on the system.	
Operating System Groups Installation Location Create Inventory	Verification result of failed node: c3n4 Expected Value : xorg-x11-libs-7.6-45.14	
Root script execution Prerequisite Checks	Actual value : xorg-x11-libs-7.6.1-1.16 Details: - PRVF-7533 : Proper version of package "xorg-x11-libs" is not found on node "c3n4" [Required = "xorg-x11-libs-7.6-45.14" ; Found =	
Summary Install Product Finish	*xorg-x11-libs-7.6.1-1.16"]. - Cause: Package does not meet the requirement. - Action: Upgrade the package to meet the requirement. Back to Top	4° is available on the
	Verification result of failed node: c3n3 Expected Value : xorg-x11-libs-7.6-45.14	
<u>H</u> elp	< васк	xt > Install Cancel

Resolve all the errors and warnings on all nodes in the cluster & run "**Fix & Check Again**". If the "**Fix & check again**" button is not available, try to fix manually.



Once verified, select option "Ignore All", then click Next to continue.

r	Oracle Grid Infrastructure 19c Installer - Step 16 of 19	×
Perform Prerequisite Checks	19	C 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 Create Inventory Root script execution Prerequisite Checks Summary Install Product Finish	Verification Result Fixup Result Some of the minimum requirements for installation are not completed. Review are following table, and recheck the system. @heck Again Eix & Check Again Show Failed Image: All Nodes Checks Image: Xorg-x11-libs-7.6-45.14 Package: xorg-x11-libs-7.6-45.14 Image: Xorg-x11-libs-7.6-45.14 This is a prerequisite condition to test whether the package "xorg-x11-libs-7.6-45.1 system. (more details) Check Failed on Nodes: [c3n4, c3n3, c3n2, c3n1]	And fix the issues listed in the
Help	< <u>B</u> ack <u>N</u> ex	kt > Install Cancel

(Note: The version of xorg-x11-libs in SLES15 SP6 is 7.6.1-1.16.)



16). Summary.

	Oracle Grid Infrastructure 19c Installer - Step 17 of 19	×
Summary	19° ORACLO Grid Infrastr	E' ucture
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 Create Inventory Root script execution Prerequisite Checks Summary Install Product Finish	Oracle Grid Infrastructure 19c Installer Global Settings Config Option: Configure Oracle Grid Infrastructure for a New Cluster [Edit] Oracle base for Oracle Grid Infrastructure: /home/oracle/grid_19c_base [Edit] Grid home: /home/oracle/grid_19c Privileged Operating System Groups: asmdba (OSDBA), asmadmin (OSASM) [Edit] Root script execution configuration: Manual configuration [Edit] Inventory information Inventory location: /home/oracle/oralnventory [Edit] Central inventory (oralnventory) group: oinstall [Edit] Management information Management method: None [Edit] Grid Infrastructure Settings Cluster Configuration: Standalone Cluster [Edit] Cluster Name: cluster3 [Edit] Hub nodes: c3n1,c3n2,c3n3,c3n4 [Edit] SCAN Type: Local SCAN Single Client Access Name (SCAN): c3-scan.oraclab.bej.suse.com [Edit] SCAN Port: 1521 [Edit] Public Interface(s): bond0 [Edit] ASM & Private Interface(s): bond1 [Edit] Storage Information Storage Information	
▲ ★ ★	Save Respons	e File Cancel

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



17). Install Product.

, 	Oracle Grid Infrastructure 19c Installer - Step 18 of 19	×
Install Product		LE ' astructure
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage	Progress 7% Copying /home/oracle/grid_19c to remote nodes Status	
 Storage Option Create Grid Infrastructure Manag Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Create Inventory 	✓ Configure Local Node Sur ✓ • Prepare Sur ✓ • Link binaries Sur ✓ • Setup Sur ✓ • Copy Files to Remote Nodes In F Configure Remote Nodes Per • Prepare Per • Setup Per • Setup Oracle Base Per Execute Root Scripts Per Configure Oracle Grid Infrastructure for a Cluster Per	cceeded cceeded cceeded Progress nding nding nding nding nding nding
Root script execution Prerequisite Checks Summary Install Product Finish	Details Reyert All Revert Re 19° ORACLE Grid Infrastructure	try <u>Skip</u>



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

	Oracle Grid Infrastructur	e 19c Installer - Step 18 of 19	×
Install Product		19° G	RACLE [®]
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information Network Interface Usage	Progress Saving Cluster Inventory	32%	
Storage Opti	Execute Confi	guration Scripts	× Succeeded Succeeded Succeeded
Create ASM ASM Passwo	iguration scripts need to be executed low is followed by a list of nodes on v	as the "root" user on each listed cluster node. Each which it has to be executed.	Succeeded Succeeded Succeeded
🖕 Failure Isolat	Scripts	Nodes	Succeeded
Management /home/oracle/oral	nventory/orainstRoot.sh	c3n1, c3n2, c3n3, c3n4	Succeeded
/home/oracle/grid	L19c/root.sh	c3n1, c3n2, c3n3, c3n4	Succeeded
Operating Sy Installation L			Pending
Create Invent Root script e Prerequisite Summary Create Invent To execute the cor 1. Open a termin 2. Login as "root 3. Run the script 4. Return to this	ifiguration scripts: al window " s window and click *OK* to continue		<u>R</u> etry <u>Skip</u>
Install Produ Run the script on the nodes. Finish	he local node first. After successful o	completion, you can start the script in parallel on all oth	er
Help			el
Help		< <u>B</u> ack <u>N</u> ext >	Install Cancel

c3nl:/home/oracle # /home/oracle/oraInventory/orainstRoot.sh Changing permissions of /home/oracle/oraInventory. Adding read,write permissions for group. Removing read,write,execute permissions for world.

Changing groupname of /home/oracle/oraInventory to oinstall. The execution of the script is complete.



c3nl:/home/oracle # /home/oracle/grid_l9c/root.sh
Performing root user operation. The following environment variables are set as: ORACLE_OWNER= oracle ORACLE_HOME= /home/oracle/grid_19c 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. 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. Relinking oracle with rac_on option Using configuration parameter file: /home/oracle/grid_l9c/crs/install/crsconfig_params The log of current session can be found at: /home/oracle/grid_l9c_base/crsdata/c3nl/crsconfig/rootcrs_c3nl_2024-07-3l_04-21-51PM.log 2024/07/31 16:21:57 CLSRSC-594: Executing installation step 1 of 19: 'ValidateEnv'. 2024/07/31 16:22:00 CLSRSC-594: Executing installation step 2 of 19: 'CheckFirstNode'. 2024/07/31 16:22:00 CLSRSC-594: Executing installation step 3 of 19: 'GenSiteGUIDS'. 2024/07/31 16:22:00 CLSRSC-594: Executing installation step 5 of 19: 'CheckGSConfig'. 2024/07/31 16:22:02 CLSRSC-594: Executing installation step 4 of 19: 'SetupOSD'. 2024/07/31 16:22:02 CLSRSC-594: Executing installation step 5 of 19: 'CheckGSConfig'. 2024/07/31 16:22:02 CLSRSC-594: Executing installation step 6 of 19: 'CenteRootCert'. 2024/07/31 16:22:06 CLSRSC-594: Executing installation step 9 of 19: 'ConfigOLR'. 2024/07/31 16:22:07 CLSRSC-594: Executing installation step 9 of 19: 'ConfigOLR'. 2024/07/31 16:22:07 CLSRSC-594: Executing installation step 10 of 19: 'ConfigOHASD'. 2024/07/31 16:23:26 CLSRSC-594: Executing installation step 10 of 19: 'ConfigOHASD'. 2024/07/31 16:23:26 CLSRSC-594: Executing installation step 11 of 19: 'ConfigOHASD'. 2024/07/31 16:23:55 CLSRSC-594: Executing installation step 12 of 19: 'SetupTFA'. 2024/07/31 16:23:55 CLSRSC-594: Executing installation step 13 of 19: 'InstallACFS'. 2024/07/31 16:23:55 CLSRSC-594: Executing installation step 13 of 19: 'InstallACFS'. 2024/07/31 16:23:55 CLSRSC-594: Executing installation step 13 of 19: 'InstallACFS'. 2024/07/31 16:24:03 CLSRSC-594: Executing installation step 14 of 19: 'InstallACFS'. 2024/07/31 16:24:03 CLSRSC-594: Executing in ASM has been created and started successfully. [DBT-30001] Disk groups created successfully. Check /home/oracle/grid 19c_base/cfgtoollogs/asmca/asmca-240731PM042443.log for details. 2024/07/31 16:25:24 CLSRSC-482: Running command: '/home/oracle/grid_19c/bin/ocrconfig -upgrade oracle oinstall' 2024/07/31 16:25:24 CLSRSC-482: Running command: '/home/oracle/grid_ CRS-4256: Updating the profile Successful addition of voting disk 06961cfd41524fb7bfc2c63ab431adf9. Successful addition of voting disk 2ba9f3aef1274f56bf437a6a571c0340. Successful addition of voting disk group with +SUSEDATA1. CRS-4256: Updating the profile CRS-4266: Voting file(s) successfully replaced ## STATE File Universal Id File Name Disk group
 ONLINE
 069601cfd41524fb7bfc2c63ab431adf9
 (/dev/asm/disk1)
 [SUSEDATA1]

 ONLINE
 2ba9f3aef1274f56bf437a6a571c0340
 (/dev/asm/disk2)
 [SUSEDATA1]

 ONLINE
 e8aee5064ff34fdcbff7dc3c64aff4bb
 (/dev/asm/disk3)
 [SUSEDATA1]
 3. ONLINE e8aee5064T134TdCbTf/dc3C64aTT4bb (/dev/asm/dlsk3) [SUSEDATA1] Located 3 voting disk(s). 2024/07/31 16:26:06 CLSRSC-4002: Successfully installed Oracle Trace File Analyzer (TFA) Collector. 2024/07/31 16:26:38 CLSRSC-594: Executing installation step 17 of 19: 'StartCluster'. 2024/07/31 16:27:41 CLSRSC-394: Successfully started Oracle Clusterware stack 2024/07/31 16:27:41 CLSRSC-594: Executing installation step 18 of 19: 'ConfigNode'. 2024/07/31 16:28:51 CLSRSC-594: Executing installation step 19 of 19: 'PostConfig'. 2024/07/31 16:29:13 CLSRSC-325: Configure Oracle Grid Infrastructure for a Cluster ... succeeded call: /mee/oracle.



	Oracle Grid Infrastructure 19c Installer - Step 18 of 19	×
Install Product	19° (
Configuration Option Cluster Configuration Grid Plug and Play Cluster Node Information	Progress 38% Starting 'Update Inventory'	
 Network Interface Usage Storage Option Create Grid Infrastructure Manage Create ASM Disk Group ASM Password Failure Isolation Management Options Operating System Groups Installation Location Create Inventory 	Status	Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded Succeeded In Progress In Progress Pending Deading
Root script execution	Automatic storage Management Configuration Assistant Oracle Cluster Verification Utility	Pending
 Prerequisite Checks Summary 	Details Revert All Re	evert <u>R</u> etry <u>S</u> kip
Install Product		
 Finish ▲ ▲ ➡ ➡ 	19° ORACLE Grid Infrastructure	Install Cancel

After successfully executing the above script on each node, click **OK** to continue.



r	Oracle Grid Infrastructure 19c Installer - Step 18 of 19	×
Install Product	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 Prerequisite Checks Summary Install Product Finish 	Progress 84% CTSS is in Observer_state_Switching over to clock superhead auto hand to using AIT Image: Configure coord Status Single Client Access Name (SCAN) Ourmgare coord NS/NIS name service 'c3-scan.oraclab.bej.suse.com' NS/NIS name service 'c3-scan.oraclab.bej.suse.com' NS/NIS name service 'c3-scan.oraclab.bej.suse.com' Ourmgare coord NS/NIS name service 'c3-scan.oraclab.bej.suse.com' NS/NIS name service 'c3-scan.oraclab.bej.suse.com' NS/NIS name service 'c3-scan.oraclab.bej.suse.com' Ourperie Setup Oconfigure Remo ASM disk group free spacePASSED Setup Oracle Ba ASM disk group free spacePASSED Setup Oracle Ba Configure Oracle Oracle Net Consel Cluster Verification Utility Details Reyert AII	P Succeeded Succ
 ✓ ✓ ✓ 	< <u>B</u> ack <u>N</u> ext >	Cancel

Continue monitoring the installation until the Finish window appears.



18). Finish.

	Oracle Grid Infrastructure 19c Installer - Step 19 of 19	×
Finish	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 Failure Isolation Management Options Operating System Groups Installation Location Create Inventory Root script execution Prerequisite Checks Summary Install Product Finish	The configuration of Oracle Grid Infrastructure for a Cluster was successful.	Grid Intrastructure
Help	< <u>B</u> ack <u>N</u> ext >	Install Close

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



- 1-2. Oracle Database 19c(19.24.0.0.0) Grid Infrastructure Post-Install Checks.
- 1). Check Oracle Clusterware health and resources.

oracle@c3n1:~> /home/oracle/grid_19c/bin/crsctl check cluster -all c3n1: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online *********************** c3n2: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ************** c3n3: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online c3n4: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online oracle@c3n1:~> /home/oracle/grid_19c/bin/srvctl status nodeapps VIP 10.200.176.15 is enabled VIP 10.200.176.15 is running on node: c3n1 VIP 10.200.176.16 is enabled VIP 10.200.176.16 is running on node: c3n2 VIP 10.200.176.17 is enabled VIP 10.200.176.17 is running on node: c3n3 VIP 10.200.176.18 is enabled VIP 10.200.176.18 is running on node: c3n4 Network is enabled Network is running on node: c3n1 Network is running on node: c3n2 Network is running on node: c3n3 Network is running on node: c3n4 ONS is enabled ONS daemon is running on node: c3n1 ONS daemon is running on node: c3n2 ONS daemon is running on node: c3n3 ONS daemon is running on node: c3n4 oracle@c3n1:~>



2). Check status of designated resources.

oracle@c3n1:~>	/home/o	racle/grid_19	c/bin/crsctl stat res -t	
Name	Target	State	Server	State details
Local Resources	5			
ora.LISTENER.ls	snr			
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.chad				
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.net1.netwo	rk			
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.ons				
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE



Cluster Resource	ces			
ora.ASMNET1LSN	R_ASM.ls	nr(ora.asmgrou	up)	
1	ONLINE	ONLINE	c3nl	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONLINE	ONLINE	c3n3	STABLE
ora.LISTENER_S	CAN1.lsn	r		
1	ONLINE	ONLINE	c3n2	STABLE
ora.LISTENER_S	CAN2.lsn	r		
1	ONLINE	ONLINE	c3n3	STABLE
ora.LISTENER_S	CAN3.lsn	r		
1	ONLINE	ONLINE	c3n1	STABLE
ora.SUSEDATA1.	dg(ora.a	smgroup)		
1	ONLINE	ONLINE	c3n1	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONLINE	ONLINE	c3n3	STABLE
ora.asm(ora.asm	ngroup)			
1	ONLINE	ONLINE	c3n1	Started,STABLE
2	ONLINE	ONLINE	c3n2	Started,STABLE
3	ONLINE	ONLINE	c3n3	Started,STABLE
ora.asmnet1.asm	nnetwork	(ora.asmgroup))	
1	ONLINE	ONLINE	c3nl	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONLINE	ONLINE	c3n3	STABLE
ora.c3n1.vip				
1	ONLINE	ONLINE	c3nl	STABLE
ora.c3n2.vip				
1	ONLINE	ONLINE	c3n2	STABLE
ora.c3n3.vip				
1	ONLINE	ONLINE	c3n3	STABLE
ora.c3n4.vip				
1	ONLINE	ONLINE	c3n4	STABLE
ora.cvu				
1	ONLINE	ONLINE	c3n1	STABLE
ora.qosmserver				
1	ONLINE	ONLINE	c3n1	STABLE
ora.scanl.vip				
1	ONLINE	ONLINE	c3n2	STABLE
ora.scan2.vip				
1	ONLINE	ONLINE	c3n3	STABLE
ora.scan3.vip				
1	ONLINE	ONLINE	c3n1	STABLE
oracle@c3n1:~>				



3).Check OCR and Voting disk files.

oracle@c3n1: Status of Or Ver Tot Use Ava ID Dev	<pre>~> /home/oracle/grid_; acle Cluster Registry sion al space (kbytes) d space (kbytes) ilable space (kbytes) ice/File Name</pre>	19c/bin is as : : : : : : : : : : : : : : : : : : :	n/ocrche follows 4 901284 84324 816960 0505982 SEDATA1 ice/File	eck 3 : e integrity check	k succeeded
		Dev	ice/File	e not configured	
		Dev	ice/File	e not configured	
		Dev	ice/File	e not configured	
		Dev	ice/File	e not configured	
Clu	ster registry integri	ty che	ck succe	eeded	
Log	ical corruption check	bypas	sed due	to non-privileg	ed user
oracle@c3nl: ## STATE	~> /home/oracle/grid_: File Universal Id	19c/bi	n/crsctl F	l query css voted File Name Disk g	disk roup
1. ONLINE 2. ONLINE 3. ONLINE Located 3 vo oracle@c3n1:	06961cfd41524fb7bfc20 2ba9f3aef1274f56bf433 e8aee5064ff34fdcbff70 ting disk(s). ~> []	:63ab43 7a6a57 1c3c64a	31adf9 (1c0340 (aff4bb (//dev/asm/disk1) //dev/asm/disk2) //dev/asm/disk3)	[SUSEDATA1] [SUSEDATA1] [SUSEDATA1]



2. Installing Oracle Database.

2-1. Login to the SLES 15 SP6 64-bit OS as a non-admin user. Download Oracle Database 19c (19.3) for Linux x86-64 from: https://www.oracle.com/database/technologies/oracle19c-linux-downloads.html.

2-2. Extract LINUX.X64 193000 db home.zip and replace the OPatch directory located in the Database 19.3 ShipHome with OPatch version 12.2.0.1.43.

Also, export SRVM DISABLE MTTRANS=true.

Then, run Oracle DB installer(runInstaller) from Database ShipHome with the parameters to apply the required patches:

-applyRU /home/ORACLE_SW/patch_RU_192400/36582629/36582781/ -applyOneOffs /home/ORACLE_SW/patch_RU_192400/36582629/36587798/

These parameters will apply the recommended 19.24.0.0.0 release updates (RUs) and one-off patches to the database.

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.
Help	< Back Next > 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	×
Select Database Installation C	ption	19° Database
Configuration Option	Select the type of database installation you want to perform.	
Database Installation Options	Single instance database installation	
A Install Type	Oracle <u>Real</u> Application Clusters database installation	
Y Typical Installation		
Root script execution		
Prerequisite Checks		
Q Summary		
Install Product		
Help	< <u>B</u> ack	Next > Install Cancel

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° ORACL Database	€.
Configuration Option	Select nodes (in addition to the local node) in the cluster where the installer should install Oracle RAC or Oracl RAC One.	e
Nadas Salastian	Node name	
Install Type Typical Installation Root script execution Prerequisite Checks Summary Install Product Finish	V 2 c3n2 V 3 c3n3 V 4 c3n4 SSH connectivity Select all Deselect all	
Help	< Back Next > Install Canc	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	 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 	
 Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish 	needs of medium-sized businesses.	
Help	< <u>B</u> ack <u>Next > Install</u> 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	Ξ.
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. Qracle base: /home/oracle/grid_19c_base @ Browse This software directory is the Oracle Database home directory. Software location: /home/oracle/db_19c	
Help	< <u>Back</u> <u>N</u> ext> Install Cance	=

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



6). Privileged Operating System groups.

	Oracle Database 19c Installer - Step 6 of 11	×
Privileged Operating System g	proups 19° Dat	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	SYS privileges are required to create a database using operating system (OS) authentication. Mer Groups grants the corresponding SYS privilege, eg. membership in OSDBA grants the SYSDBA privilege, eg. eq. eq. eq. eq. eq. eq. eq. eq. eq. eq	nbership in OS /ilege.
Help	< <u>Back</u> <u>N</u> ext > <u>I</u> nsta	Cancel

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



7). Root script execution configuration.

Oracle Database 19c Installer - Step 7 of 11 ×					
Root script execution configura	ation 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	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 Passyord : • Use gudo Program path : /usr/bin/sudo User name : oracle Passyord :				
Help	< Back Next > Install Cancel				

If select the option Automatically run configuration scripts, enter the credentials for the root user or a sudo account. Alternatively, run the scripts manually as the root user at the installation process when prompted by the installer. Click Next to continue.



8). Perform Prerequisite Checks.

	Oracle Database 19c Installer - Step 8 of 11	×
Perform Prerequisite Checks	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	Verification Result Some of the minimum requirements for installation are not completed. Review and fix the issue following table, and recheck the system. Check Again Ex & Check Again Checks Status Checks Status Packages: Packages: Package: xorg-x11-libs-7.6-45.14 Warning This is a prerequisite condition to test whether the package "xorg-x11-libs-7.6-45.14" is available system. (more details) Check Failed on Nodes: [c3n4, c3n3, c3n2, c3n1]	Les listed in the
Help	< <u>B</u> ack Next >	stall Cancel

Perform Pre-Check as shown above. Resolve all the errors and warnings on all nodes in the cluster & run "Fix & Check Again". If the "Fix & check again" button is not available, try to fix manually.



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

	Oracle Database 19c Installer - Step 8 of 11	×
Perform Prerequisite Checks	19° S	ORACLE [®] atabase
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups	Verification Result Some of the minimum requirements for installation are not completed. Review and fix the issufollowing table, and recheck the system. Check Again Fix & Check Again Show Failed Image: All Nodes Checks Status Checks Status	es listed in the
Root script execution	Package: xorg-x11-libs-7.6-45.14 Ignored	No
Prerequisite Checks Summary Install Product Finish	Details × Package: xorg-x11-libs-7.6-45.14 - This is a prerequisite condition to test whether the package "xorg-x11-libs-7.6-45.14" is available on the system. • Check Failed on Nodes: [c3n4, c3n3, c3n2, c3n1] • Verification result of failed node: c3n4 • Expected Value : xorg-x11-libs-7.6-45.14 • Actual Value : xorg-x11-libs-7.6-45.14 • PRVF-7533 : Proper version of package "xorg-x11-libs" is not found on node "c3n4" [Required = "xorg-x11-libs-7.6-45.14"; Found = "xorg-x11-libs-7.6-15.14"; Found = "xorg-x11-libs-7.6-15.14"; Found = "xorg-x11-libs-7.6-15.14"; Found = "xorg-x11-libs-7.6-45.14"; Found = "xorg-x11-libs-7.6-45.14; Found = "xorg-x11-libs-7.6-45.14; Fou	e on the
Help	< <u>Back</u> <u>N</u> ext> Ins	stall Cancel



9). Summary.

	Oracle Database 19c Installer - Step 9 of 11	×
Summary	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	Global settings Database edition: Enterprise Edition (Set Up Software Only) [Edit] Oracle base: /home/oracle/grid_19c_base [Edit] Software location: /home/oracle/db_19c Privileged Operating System groups: dba (OSDBA), dba (OSBACKUPDBA), dba (OSDGDBA), dba (OS Root script execution configuration: Manual configuration [Edit] Grid Options Cluster Nodes: c3n1, c3n2, c3n3, c3n4 [Edit] 	3KN
Help	< Back Next > Install Canc	el

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



10). Install Product.

	Oracle Database 19c Installer - Step 10 of 11	×
Install Product		9° ORACLE Database
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location	Progress 12% Linking OID Client	
Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Configure Local Node Prepare Link binaries Setup Copy Files to Remote Nodes Configure Remote Nodes Prepare Setup Setup Setup Setup Setup Setup Cordia Base Execute Root Scripts	In Progress Succeeded In Progress Pending Pending Pending Pending Pending Pending Pending
	Details Reyert All 19° ORACLE Database	R <u>e</u> vert <u>R</u> etry <u>S</u> kip
Help	< <u>B</u> ack <u>N</u> ex	t > Install Cancel



Installer prompted you to run the root.sh scripts.

Install Product 19° Database		Oracle Database 19c Installer - Step 10 of 11	×
Configuration Option	Install Product	19°	ORACLE [.] Database
Database Installation Options Nodes Selection Database Edition	Configuration Option Database Installation O Nodes Selection Database Edition	Progress 92% Saving Cluster Inventory	
Operating Sympositive Local Node Succeeded Root script e Execute Configuration Scripts X Succeeded Succeeded	Operating Sy Root script e	Execute Configuration Scripts ×	Succeeded Succeeded Succeeded Succeeded
Install Produ Scripts Nodes Succeeded Finish Scripts Nodes Succeeded	Install Produ Finish	wing configuration scripts need to be executed as the "root" user on each listed cluster node. Each the list below is followed by a list of nodes on which it has to be executed. Scripts Nodes oracle/db_19c/root.sh c3n1, c3n2, c3n3, c3n4	Succeeded Succeeded Succeeded Succeeded Succeeded
To execute the configuration scripts: Open a terminal window Login as "root" Run the scripts Return to this window and click "OK" to continue 	To exec 1. Op 2. Log 3. Rur 4. Ret		In Progress
	Help		astall Consol

After successfully executing the above script on each node, click **OK** to continue. Monitoring the installation until the Finish window appears.



11). Finish

	Oracle Database 19c Installer - Step 11 of 1	1 ×
Finish		19° ORACLE Database
Configuration Option Database Installation Options Nodes Selection Database Edition Installation Location Operating System Groups Root script execution Prerequisite Checks Summary Install Product	The registration of Oracle Database was successful.	
Finish		
Help		< Back Next > Install Close

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



+			oracle@c3n1:r	racle/grid_19c/bin	C	٦ =	×
		n1:home/oracle/db_19c		oracle@c3n1:racle	/grid_19c/bin	×	Ŧ
oracl	ASM Configuration Assi	n1:home/oracle/db_19c id_19c/bin> ./asmca stant Oracle ASM Configuration Assis ASM Dynamic Volume Manager file systems. In addition, you car Oracle ASM Configuration Assis • Manage disk groups • Create, configure • Add disks to and • Edit the disk group • Create, an Oracle • Monage templat • Create an Oracle • Mount or dismou • Add, list or drop c	ASM Configure Welcome to tant (ASMCA) supports (Oracle ADVM) volumin use the ASMCA common tant enables you to: or drop an Oracle ASM drop disks from the di p attributes s for the disk group ACFS file system on th the disk group use groups	ation Assistant ation Assistant to ASM Configuration Assistant s installing and configuring Oracle ASM instance es and Oracle Automatic Storage Management C mand line-line interface. A disk group sk group ne disk group for database use	/grid_19c/bin 19° ORACLE Grid Infrastru s, Oracle ASM disk groups, Ora Juster File System (Oracle ACF	× E'ucture acle rs)	•
	Helb	 Add, move or dro Manage Oracle ADVM vo Create or configu Enable or disable View status detai Resize or delete v Manage Oracle ACFS file Create or configu View status detai Mount or dismou Resize the file sys Delete the file sys Display or execut Create or delete s Hint: To perform an operation or 	p file groups lumes re an Oracle ADVM vol Oracle ADVM volume Is solumes systems re an Oracle ACFS file Is nt the file system tem tem tem tem e the security comman napshots n an item, right click or	lume system nds n the item.		Exit	

2-3. Using ASM Configuration Assistant to create ASM Disk Group for Database files.

Disk Groups					•		L E ' tructure
ASM							
🖨 🐻 ASM Instances	Disk Group Name	Size (GB)	Free (GB)	Usable (GB)	Redundancy	State	
💮 c3n1	SUSEDATA2	330.00	329.34	109.67	NORMAL	MOUNTED(3 of 4)	
	SUSEDATA1	90.00	88.86	29.43	NORMAL	MOUNTED(3 of 4)	
- (m) c3n3							
c3n4							
Disk Groups							
SUSEDATA2							
SUSEDATA1							
Settings							
	Note: Lies right click to see m	ore options					
	filter out right check to see in	ore options.					
	Create Mount All Dis	mount All <u>R</u> efresh					
Help	,						Exit

ASM Configuration Assistant: Disk Groups



×

2-4. Using DBCA to create Oracle RAC DataBase.

1). Select Database Operation.

		Database Configuration Assistant - Application - Step 1 of 14			×
Sel	ect Database Operation		19 °	ORAC Database	LE.
	Database Operation	Select the operation that you want to perform.			
Y	Creation Mode	O Create a database			
Ý	Deployment Type	O Configure an existing database			
Ý	Database Identification	O Delete database			
Ý	Storage Option	Manage templates			
Ý	Fast Recovery Option				
Ŷ	Database Options	O Manage <u>F</u> ruggable databases			
Ŷ	Configuration Options	O Oracle RAC database Instance management			
Ŷ	Management Options				
Ý	User Credentials				
Ý	Creation Option				
Ý	Summary				
Ý	Progress Page				
0	Finish				
					1
	Help	< Back	Next >	Einish C	ancel

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



2). Select Database Creation Mode.

ſ	Dat	abase Configuration Assistan	it - Create a database - Step 2 of 14	×
Se	ect Database Creation Mod	le	19 ° Data	ACLE.
	Database Operation Creation Mode Deployment Type Database Identification Storage Option Fast Recovery Option Database Options Configuration Options Management Options User Credentials Creation Option Summary Progress Page Finish	 Iypical configuration Iypical database name: Storage type: Database files location: Fast Recovery Area (FRA): Database character set: Administrative password: Confirm password: Create as Container database Pluggable database name: Advanced configuration 	Suse Automatic Storage Management (ASM) +SUSEDATA2/(DB_UNIQUE_NAME) +SUSEDATA1 AL32UTFB - Unicode UTF-8 Universal character set 	Browse Browse
	Help		< <u>B</u> ack <u>N</u> ext > Einish	Cancel

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



3). Perform Prerequisite Checks.

Datab	ase Configuration Assistant - Create 'suse' database - Step 3 o	of 6 ×
Perform Prerequisite Checks		19° ORACLE. Database
Database Operation <u>Creation Mode</u> Prerequisite Checks <u>Summary</u> Progress Page Finish	✓ Verification Result Some of the minimum requirements for installation are not completed. Review a following table, and recheck the system. ② heck Again Eix & Check Again ③ heck Again Eix & Check Again ⑥ Checks ⑥ Checks ⑧ [Packages] [Packages]	Ignore All
	Package: xorg-x11-libs-7.6-45.14	Ignored No
	Details × Package: xorg-x11-libs-7.6-45.14 · This is a prerequisite condition to test whether the package 'xorg-x11-libs-7.6-45.14' is available on the system. • Check Failed on Nodes: [c3n4, c3n3, c3n2, c3n1] • Verification result of failed node: c3n4 • Expected Value : xorg-x11-libs-7.6-45.14 • Actual Value : xorg-x11-libs-7.6-45.14 • PRVF-7533 : Proper version of package "xorg-x11-libs" is not found on node "c3n4" [Required = "xorg-x11-libs-7.6-45.14"; Found = "xorg-x11-libs-7.6-45.14"; Found = "xorg-x11-libs-7.6.1-1.16"]. • • Cause: Package does not meet the requirement. • • • Action: Upgrade the package to meet the requirement. • • • Verification result of failed node: c3n3 • • Expected Value : xorg-x11-libs-7.6-45.14 • •	14° is available on the
Help	< Back	ext > Einish Cancel

Perform Pre-Check as shown above. Select option "Ignore All", then click Next to continue.



4). Summary.

Di	atabase Configuration Assistant - Create 'suse' database - Step 4 of 6	×
Summary	19° Database	. . .
Database Operation Creation Mode Prerequisite Checks Summary Progress Page Finish	Database Configuration Assistant Global Settings Global database name: suse Node List: c3n1,c3n2,c3n3,c3n4 Configuration type: Oracle Real Application Cluster (RAC) database - Admin Managed SID: suse Create as Container database: Yes Pluggable Database Name: suse_pdb Number of Pluggable Databases in 1 Use Local Undo tablespace for PDBs: Yes Database Files Storage Type: Automatic Storage Management (ASM) Memory Configuration Type: Automatic Storage Management (ASM) duit_trail: db cluster_database: true compatible: 19.0.0 db_block_size: 8 KB db_create_file_dest: +SUSEDATA2/(DB_UNIQUE_NAME)/ db_name: suse db_recovery_file_dest: +SUSEDATA1 db_recovery_file_dest: +SUSEDATA1 db_recovery_file_dest_size: 17757 MB Save Response File	
Help	< <u>Back</u> <u>Next</u> > <u>Finish</u> Can	el

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



5). Progress Page.

Datal	base Configuration Assistant - Create 'suse' database - Step 5 of 6	×
Progress Page	19° Database	:L E .
Database Operation Creation Mode Prerequisite Checks Summary Progress Page	Progress 53% Completing Database Creation : In Progress	
Finish	Image: Prepare for db operation In Progress Prepare for db operation Succeede Copying database files Succeede Creating and starting Oracle instance Succeede Creating cluster database views Succeede Completing Database Creation In Progress Creating Pluggable Databases Pending Creating Post Configuration Actions Pending Executing Post Configuration Actions Pending DBCA Log Location: /home/oracle/grid_19c_base/cfgtoollogs/dbca/suse/trace.log_2024-08-01_01-29-21PM Database Alert Log Location: /home/oracle/grid_19c_base/diag/rdbms/suse/suse1/trace/alert_suse1.log	s d d d s s
Help	< <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel

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



6). Finish.

Dat	abase Configuration Assistant - Create 'suse' database - Step 6 of 6 ×
Finish	19° DRACLE Database
Database Operation Creation Mode Prerequisite Checks Summary Progress Page Finish	Database creation complete. For details check the logfiles at: /home/oracle/grid_19c_base/cfgtoollogs/dbca/suse. Database Information: Global Database Name: suse System Identifier(SID) Prefix: suse Server Parameter File name: +SUSEDATA2/SUSE/PARAMETERFILE/spfile.278.1175868121 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>B</u> ack <u>N</u> ext > <u>F</u> inish <u>C</u> lose

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



- 2-5. Oracle Database 19c(19.24.0.0.0) Post-Install Checks.
- 1). Checking database status and configuration.

```
oracle@c3n1:~> export ORACLE_HOME=/home/oracle/db_19c/
oracle@c3n1:~> /home/oracle/db_19c/bin/srvctl status database -d suse -a
Instance susel is running on node c3n1
Instance susel is connected to ASM instance +ASM1
Instance suse2 is running on node c3n2
Instance suse2 is connected to ASM instance +ASM2
Instance suse3 is running on node c3n3
Instance suse3 is connected to ASM instance +ASM3
Instance suse4 is running on node c3n4
Instance suse4 is connected to ASM instance +ASM3
oracle@c3n1:~> /home/oracle/db 19c/bin/srvctl config database -d suse -a
Database unique name: suse
Database name: suse
Oracle home: /home/oracle/db_19c
Oracle user: oracle
Spfile: +SUSEDATA2/SUSE/PARAMETERFILE/spfile.278.1175868121
Password file: +SUSEDATA2/SUSE/PASSWORD/pwdsuse.256.1175866793
Domain:
Start options: open
Stop options: immediate
Database role: PRIMARY
Management policy: AUTOMATIC
Server pools:
Disk Groups: SUSEDATA1, SUSEDATA2
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: suse1, suse2, suse3, suse4
Configured nodes: c3n1,c3n2,c3n3,c3n4
CSS critical: no
CPU count: 0
Memory target: 0
Maximum memory: 0
Default network number for database services:
Database is administrator managed
oracle@c3n1:~>
```



- 2-6. Oracle RAC 19c(19.24.0.0.0) Post-Install Checks.
- 1). Checking Oracle RAC status and resources.

oracle@c3n1:~> /home/oracle/grid_19c/bin/crsctl check cluster -all c3n1: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online ********************** c3n2: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online c3n3: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online c3n4: CRS-4537: Cluster Ready Services is online CRS-4529: Cluster Synchronization Services is online CRS-4533: Event Manager is online oracle@c3n1:~> /home/oracle/grid_19c/bin/srvctl status nodeapps VIP 10.200.176.15 is enabled VIP 10.200.176.15 is running on node: c3n1 VIP 10.200.176.16 is enabled VIP 10.200.176.16 is running on node: c3n2 VIP 10.200.176.17 is enabled VIP 10.200.176.17 is running on node: c3n3 VIP 10.200.176.18 is enabled VIP 10.200.176.18 is running on node: c3n4 Network is enabled Network is running on node: c3n1 Network is running on node: c3n2 Network is running on node: c3n3 Network is running on node: c3n4 ONS is enabled ONS daemon is running on node: c3n1 ONS daemon is running on node: c3n2 ONS daemon is running on node: c3n3 ONS daemon is running on node: c3n4 oracle@c3n1:~>

oracle@c3n1:~>	/home/o	racle/grid_19	c/bin/crsctl stat res -t	
Name	Target	State	Server	State details
Local Resources	5			
ora.LISTENER.ls	snr			
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.chad				
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.net1.netwo	rk			
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE
ora.ons				
	ONLINE	ONLINE	c3n1	STABLE
	ONLINE	ONLINE	c3n2	STABLE
	ONLINE	ONLINE	c3n3	STABLE
	ONLINE	ONLINE	c3n4	STABLE

Cluster Resources				
ACMNETIL SN			·····	
			up) 	STABLE
1			C301	
2			c3n2	
AFA LITETENED S			Collo	STABLE
			c2n2	STADI E
ALCO L TETENER SI			CSIIZ	STABLE
			c3n3	STARI E
ALTSTENER S	CANS len	r	63115	JTABLE
1		ONI THE	c3n1	STABLE
ora, SUSEDATA1.	do(ora.a	smaroup)	00112	OTHERE .
1	ONLINE	ONL TNE	c3n1	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONL THE	ONLINE	c3n3	STABLE
ora, SUSEDATA2.	do(ora.a	smaroup)		0
1	ONLINE	ONLINE	c3n1	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONLINE	ONLINE	c3n3	STABLE
ora.asm(ora.asm	naroup)			
1	ONLINE	ONLINE	c3n1	Started, STABLE
2	ONLINE	ONLINE	c3n2	Started, STABLE
3	ONLINE	ONLINE	c3n3	Started, STABLE
ora.asmnet1.asm	nnetwork	(ora.asmgroup)	
1	ONLINE	ONLINE	c3n1	STABLE
2	ONLINE	ONLINE	c3n2	STABLE
3	ONLINE	ONLINE	c3n3	STABLE
ora.c3n1.vip				
1	ONLINE	ONLINE	c3n1	STABLE
ora.c3n2.vip				
1	ONLINE	ONLINE	c3n2	STABLE
ora.c3n3.vip				
1	ONLINE	ONLINE	c3n3	STABLE
ora.c3n4.vip				
1	ONLINE	ONLINE	c3n4	STABLE
ora.cvu				
1	ONLINE	ONLINE	c3n1	STABLE
ora.qosmserver				
1	ONLINE	ONLINE	c3n1	STABLE
ora.scan1.vip			- 2 - 2	
1	ONLINE	ONLINE	c3n2	STABLE
ora.scan2.vip			- 2- 2	
	UNLINE	UNLINE	C3N3	STABLE
ora.scan3.vip			c2n1	
L Ars outo dh	UNLINE	UNLINE	6301	STABLE
1		ONI THE	c3n1	Open HOME-/home/area
1	ONCTINE	ONTINE	CONT	
2	ONI THE	ONI THE	c3n2	Open HOME_/home/orac
2			00/12	
3	ONI THE	ONI THE	c3n3	Open_HOME=/home/orac
	ONACTIAC		60/13	
4	ONL THE	ONLINE	c3n4	Open, HOME=/home/orac
				le/db 19c,STABLE

Sign In To Oracle Enterpri × +		~ ×
	ORACLE ENTER DATABASE EXP	RPRISE MANAGER
Col	Username sys Password •••••• Intainer Name	
Copyright 2013, 2020, Oracle and/or its affiliates. All ri	ghts reserved.	ORACLE
 ♦ Oracle Cloud Database Ex × + 		~ x
CRACLE Enterprise Manager Database Expr SUSE (19.24.0.0.0) Performance Database Home Time Zone Browser (GMT+08:00)	ress	sys ▼ 1 min Auto-Refresh ▼ Refresh
Status Up Time 42 minutes, 52 seconds Type RAC - 4 Instance(s) up CDB (1 PDB(s)) Version 19.24.0.0.0 Enterprise Edition Platform Name Linux x86 64-bit Archiver Stopped Last Backup Time N/A Incident(s) 0	Performance Activity Services Containers Inst 180	Iances suse2 @ c3n2 suse3 @ c3n3 suse4 @ c3n4 PM 02:28:00 PM 02:38:20 PM
Resources 0.24 1% 0.20 0% 0.16 0% 0.0her 0% 0ther 0% 0.8	372.5 GB 326 GB 279.4 GB 232.8 GB User I/O 139.7 GB CPU 93.1 GB	2.2 GB total_sga 1.9 GB total_pga 1.5 GB target_pga 1.1 GB shared pool large pool 762.9 MB

2). Access to Oracle Enterprise Manager.



2-7. View patch information on each node.

On c3n1:

oracle@c3n1:/home/oracle/grid_19c/OPatch> ./opatch lspatches 36758186;DBWLM RELEASE UPDATE 19.0.0.0.0 (36758186) 36648174;TOMCAT RELEASE UPDATE 19.0.0.0.0 (36648174) 36590554;ACFS RELEASE UPDATE 19.24.0.0.0 (36590554) 36587798;OCW RELEASE UPDATE 19.24.0.0.0 (36587798) 36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded. oracle@c3n1:/home/oracle/grid_19c/OPatch> cd /home/oracle/db_19c/OPatch oracle@c3n1:/home/oracle/db_19c/OPatch> ./opatch lspatches 36587798;OCW RELEASE UPDATE 19.24.0.0.0 (36587798) 36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded. oracle@c3n1:/home/oracle/db_19c/OPatch> []

On c3n2:



On c3n3:

```
oracle@c3n3:/home/oracle/grid_19c/OPatch> ./opatch lspatches
36758186;DBWLM RELEASE UPDATE 19.0.0.0.0 (36758186)
36648174; TOMCAT RELEASE UPDATE 19.0.0.0.0 (36648174)
36590554; ACFS RELEASE UPDATE 19.24.0.0.0 (36590554)
36587798;0CW RELEASE UPDATE 19.24.0.0.0 (36587798)
36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded.
oracle@c3n3:/home/oracle/grid 19c/OPatch> cd /home/oracle/db 19c/OPatch
oracle@c3n3:/home/oracle/db 19c/OPatch> ./opatch lspatches
36587798;0CW RELEASE UPDATE 19.24.0.0.0 (36587798)
36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded.
oracle@c3n3:/home/oracle/db 19c/OPatch>
```

On c3n4:

oracle@c3n4:/home/oracle/grid_19c/OPatch> ./opatch lspatches 36758186;DBWLM RELEASE UPDATE 19.0.0.0.0 (36758186) 36648174;TOMCAT RELEASE UPDATE 19.0.0.0.0 (36648174) 36590554;ACFS RELEASE UPDATE 19.24.0.0.0 (36590554) 36587798;OCW RELEASE UPDATE 19.24.0.0.0 (36587798) 36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded. oracle@c3n4:/home/oracle/grid_19c/OPatch> cd /home/oracle/db_19c/OPatch oracle@c3n4:/home/oracle/db_19c/OPatch> ./opatch lspatches 36587798;OCW RELEASE UPDATE 19.24.0.0.0 (36587798) 36582781;Database Release Update : 19.24.0.0.240716 (36582781)
OPatch succeeded. oracle@c3n4:/home/oracle/db 19c/OPatch> []

2-8. Checking database status by sqlplus.

```
oracle@c3n1:~> export ORACLE_HOME=/home/oracle/db_19c/
oracle@c3n1:~> export ORACLE_SID=suse
oracle@c3n1:~> /home/oracle/db_19c/bin/sqlplus /nolog
SQL*Plus: Release 19.0.0.0.0 - Production on Mon Aug 5 16:24:52 2024
Version 19.24.0.0.0
Copyright (c) 1982, 2024, Oracle. All rights reserved.
SQL> conn sys/
                         @c3n1:1521/suse as sysdba
Connected.
SQL> show sga
Total System Global Area 4.0265E+10 bytes
Fixed Size
                          37601016 bytes
Variable Size
                        6710886400 bytes
Database Buffers
                       3.3420E+10 bytes
Redo Buffers
                          96616448 bytes
SQL> show pdbs
                                         OPEN MODE RESTRICTED
    CON_ID_CON_NAME
      ---- ----------
                                         -----
        2 PDB$SEED
                                         READ ONLY NO
        3 SUSE_PDB
                                         READ WRITE NO
SQL>
```

Troubleshooting

GI&DB 19c(19.3) - GI/DB RunInstaller Fails with [INS-44000]&[INS-06006] Passwordless • SSH connectivity not set up between the following node(s): [node1, node2...].

Workaround: Apply GI RELEASE UPDATE 19.24.0.0.0(Patch 36582629).

#./gridSetup.sh -applyRU /home/ORACLE SW/patch RU 192400/36582629/ # ./runInstaller -applyRU /home/ORACLE SW/patch RU 192400/36582629/36582781/ -applyOneOffs /home/ORACLE_SW/patch_RU_192400/36582629/36587798/

GI&DB 19c(19.24.0.0.0) - [INS-10113] Installer encountered errors while copying...

Workaround: # export SRVM DISABLE MTTRANS=true #./gridSetup.sh # ./runInstaller

GI 19c(19.24.0.0.0) root.sh failed with error: ٠ "/home/oracle/grid 19c/crs/utl/init.ohasd.sles: line 440: /bin/chrt: No such file or directory".

Workaround: In -s /usr/bin/chrt /bin/chrt

GI 19c root.sh failed with CLSRSC-317: FAILED TO REGISTER ORACLE OHASD SERVICE IN SLES15.(or If using ASMLib)

Workaround: Install "insserv-compat" on the server. The package insserv-compat adds compatibility with System V init scripts to system.

GI 19c Installation/relink fails with:"Error in invoking target 'libasmcIntsh19.ohso • libasmperl19.ohso client sharedlib' of makefile ins rdbms.mk"

Workaround: Install 'compat-libpthread-nonshared' package.



Additional Comments

This document provides a brief instruction to install Oracle RAC Database 19c on SLES 15 SP6. You can extend this topology to make it highly available and secure so it is suitable for a production system.

Thanks for selecting SUSE Linux Enterprise Server as your Linux platform of choice!

