

Oracle Database 19c on SUSE Linux Enterprise Server 15 SP5

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Introduction

This document is not a replacement for official Oracle install document, but to help you understand minor difference you may encounter while installing Oracle Database 19c on SUSE Linux Enterprise Server 15 SP5. This document covers x86_64 version but installation steps are same for other platforms. We will use latest versions of Oracle Database Enterprise version 19c.

Oracle Database Software

Oracle Database Enterprise Edition 19c is available for public download at:

<https://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html>

SUSE Linux Software

Download SUSE Linux Enterprise Server 15 SP5 here, you can use 60 Day's free trial:

<https://www.suse.com/products/server/download/>

SUSE Linux Installation

Install SUSE Linux Enterprise Server 15 SP5 with “**Enhanced Base System, Software Management, X Window System, Oracle Server Base**” pattern. Please note that SLES15 SP5 comes with SLE-15-SP5-Online-x86_64-GM-Media1.iso and SLE-15-SP5-Full-x86_64-GM-Media1.iso. Use Online version if you are connected to internet & ready to register your server with SUSE Customer Center (scc.suse.com).

You can follow the official Oracle Installation manual for selective SLES OS required rpms, however **Oracle Server Base** pattern from SUSE will fulfil minimum setup required for Oracle Database Installation.

```
oracle@sles15sp5:~> uname -a
Linux sles15sp5 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:5
6:26 UTC 2023 (b630043) x86_64 x86_64 x86_64 GNU/Linux
oracle@sles15sp5:~> cat /etc/os-release
NAME="SLES"
VERSION="15-SP5"
VERSION_ID="15.5"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP5"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp5"
DOCUMENTATION_URL="https://documentation.suse.com/"
oracle@sles15sp5:~> env |grep ORA
ORA_NLS10=/opt/oracle/19c_db/nls/data
ORACLE_SID=orcl
ORACLE_BASE=/opt/oracle
ORACLE_HOME=/opt/oracle/19c_db
oracle@sles15sp5:~>
```

Installing Oracle Database 19c (19.3)

Installing Oracle Database 19c on SLES15 SP5 is straightforward, please follow:

1. Download Oracle SW (LINUX.X64_193000_db_home.zip)
 - a. unzip in `$ORACLE_HOME` directory.
 - b. `cd $ORACLE_HOME`
 - c. `./runInstaller`

Note: There is a change in Oracle Database 19c Installation process. Now `runInstaller` is a script, please check Oracle Official document for explanation.

2. Watch for following minor error/warning messages (**Fix before starting Installer**):

1. Make sure server is assigned static IP address.
2. Make sure you have enabled oracle user & logged-in as user “**oracle**”.
3. Install (or verify) any missing packages i.e.

`zypper` in `libcap1 libcap1-32bit libcap-ng-utils libcap-ng0-32bit libXtst6-32bit nfs-kernel-server`

Note: `libcap1` & `libcap1-32bit` are part of **SLES 15 Legacy Module**. Refer <https://documentation.suse.com/sles/15-SP2/html/SLES-all/cha-register-sle.html> on how to enable Legacy Module.

4. **DBCA Error:** ORA-27104: system-defined limits for shared memory was misconfigured

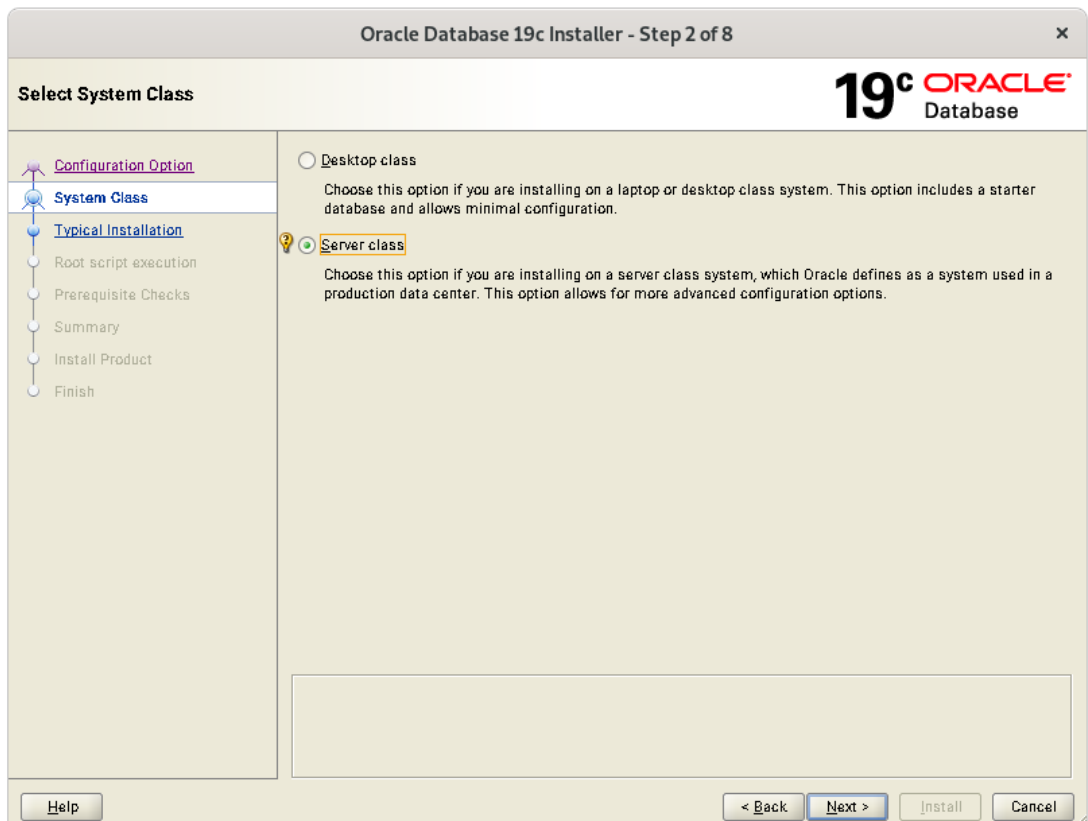
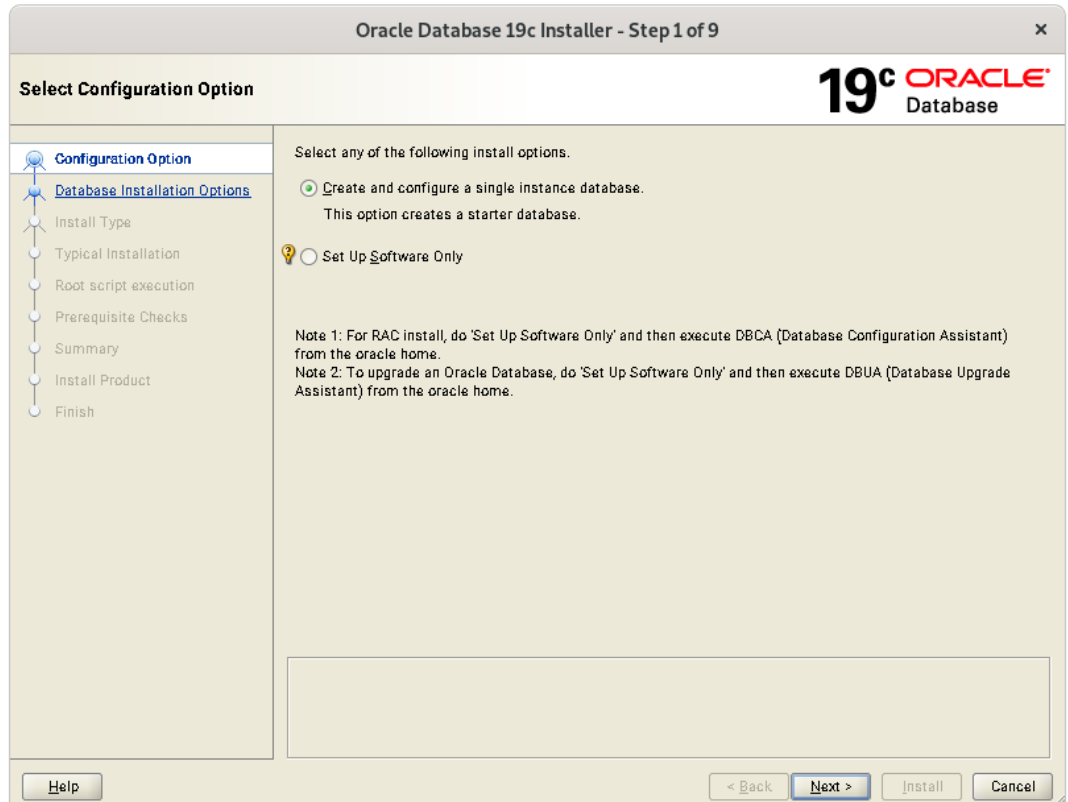
Fix: Increase `kernel.shmmax` & `kernel.shmall` based on your Server RAM in `/etc/sysconfig/oracle` & run “`systemctl restart oracle-setup`”.

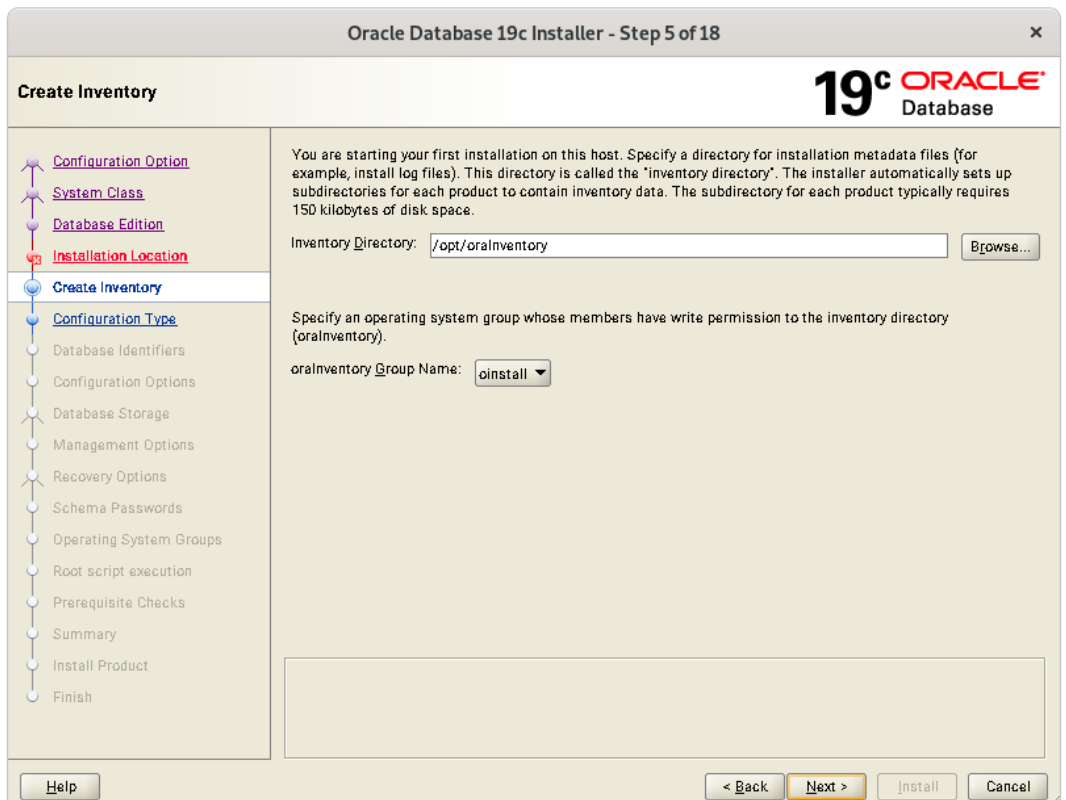
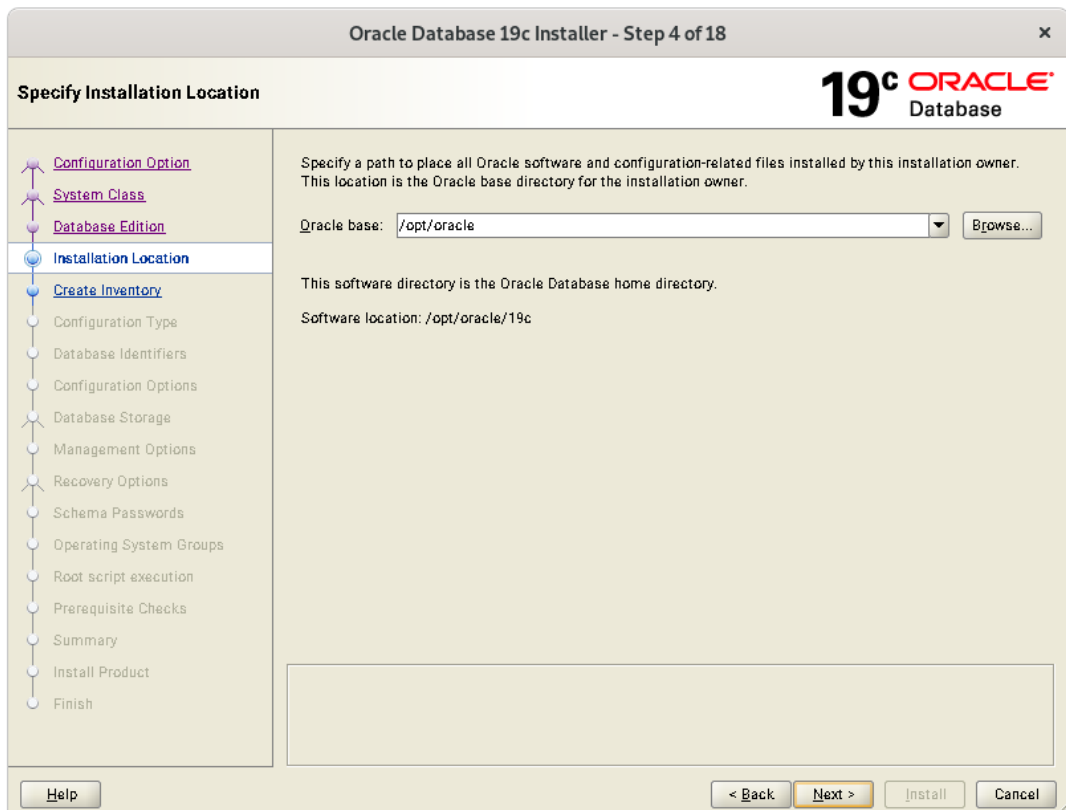
Please refer Oracle Metalink Note [ID 567506.1] - Maximum SHMMAX values for Linux x86 and x86-64

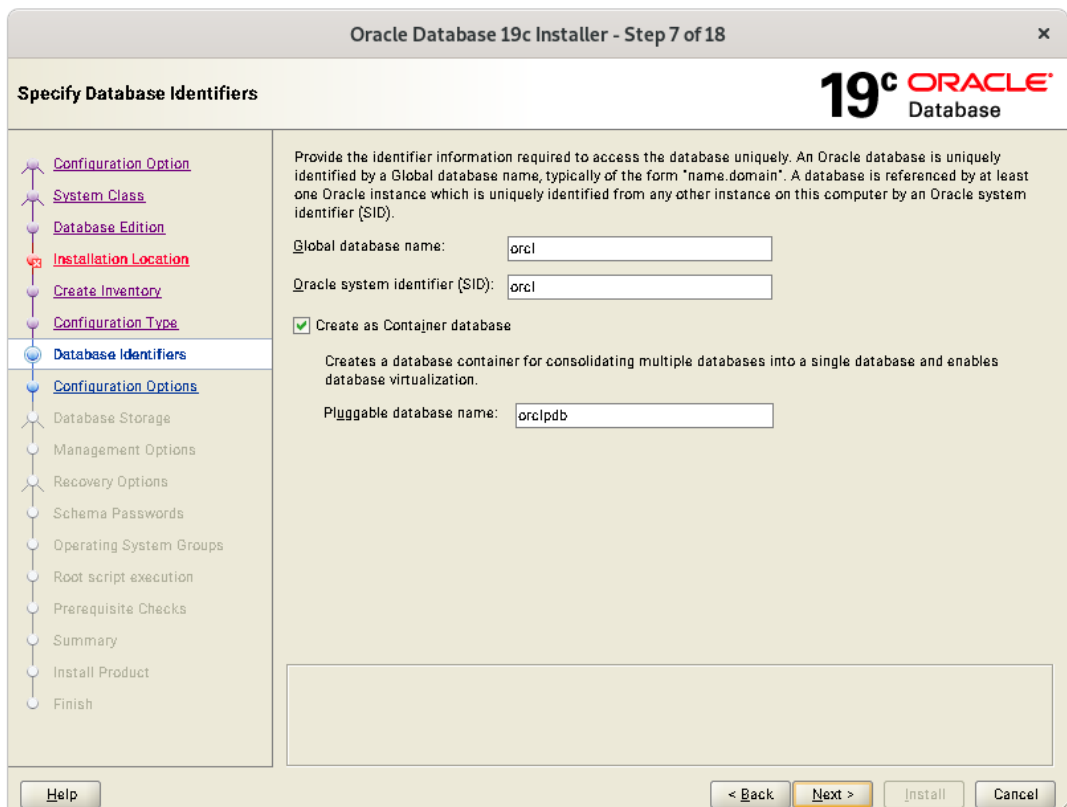
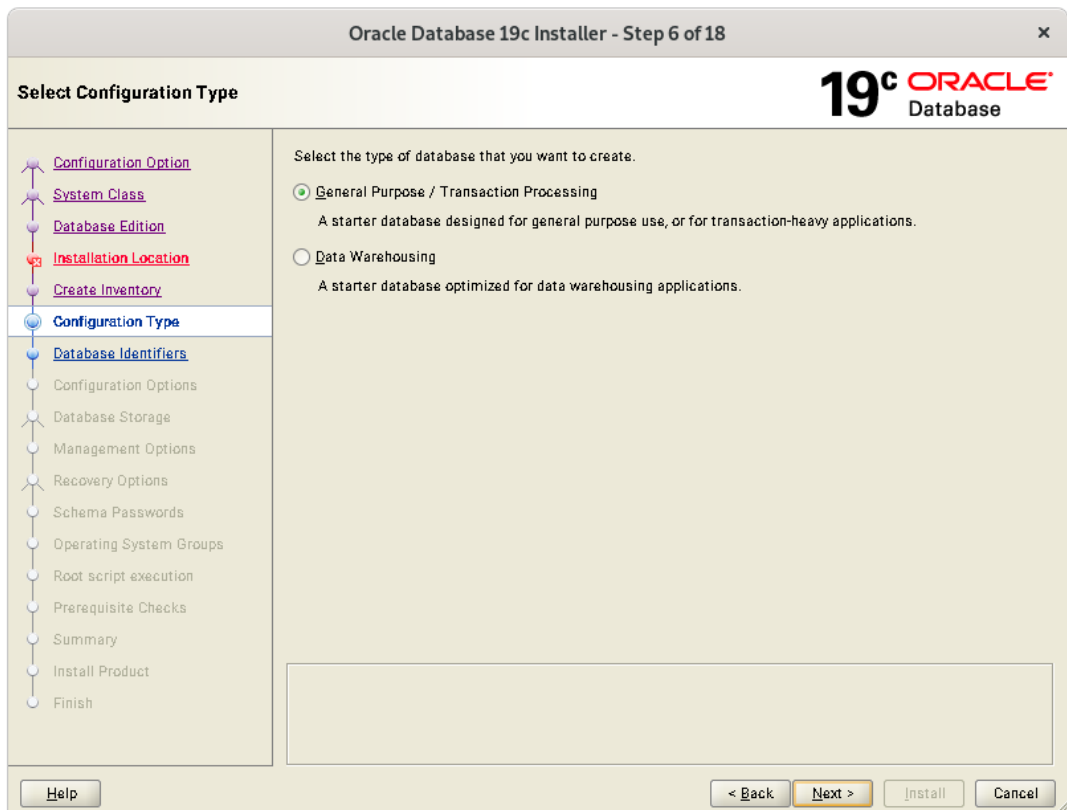
Example values for x86_64 Server with 32GB RAM:

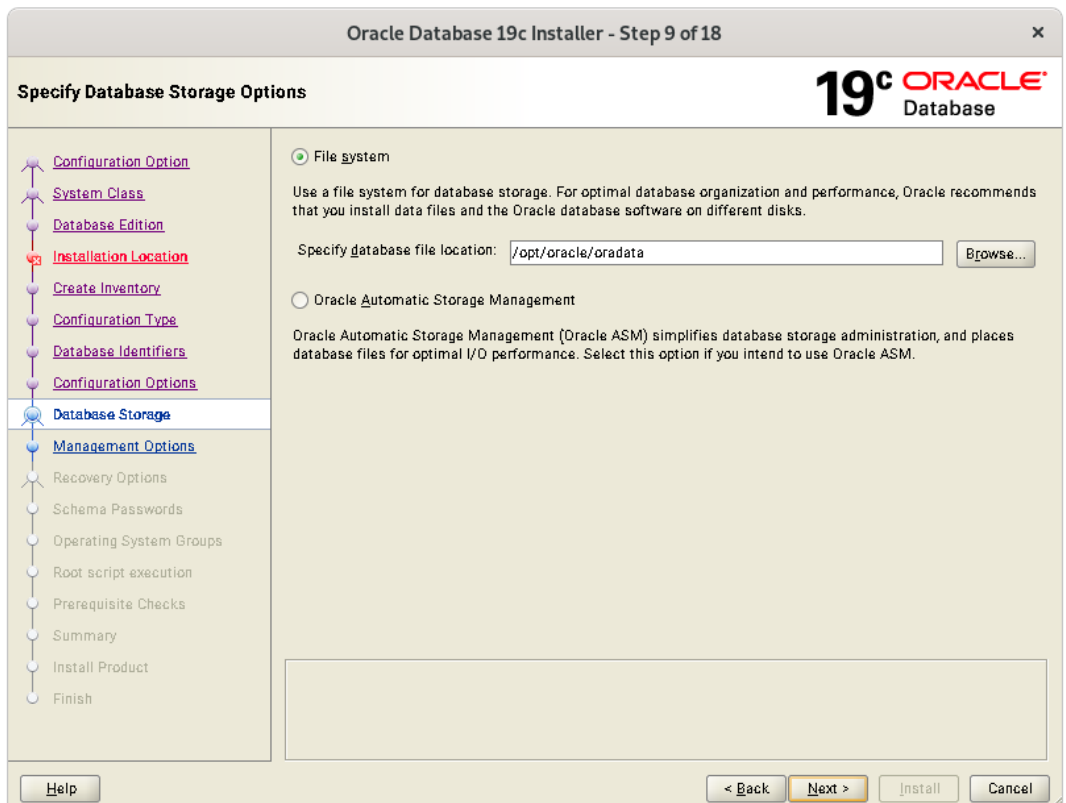
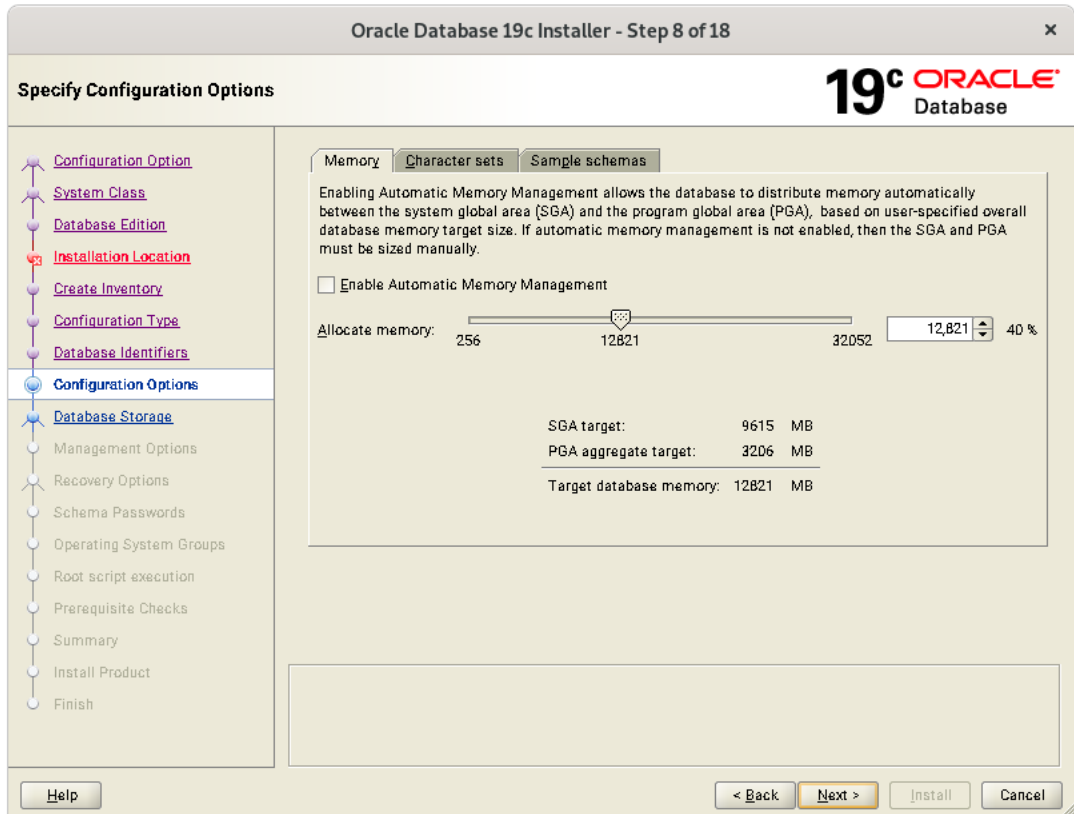
`shmmax=16833714176, shmall=3287834`

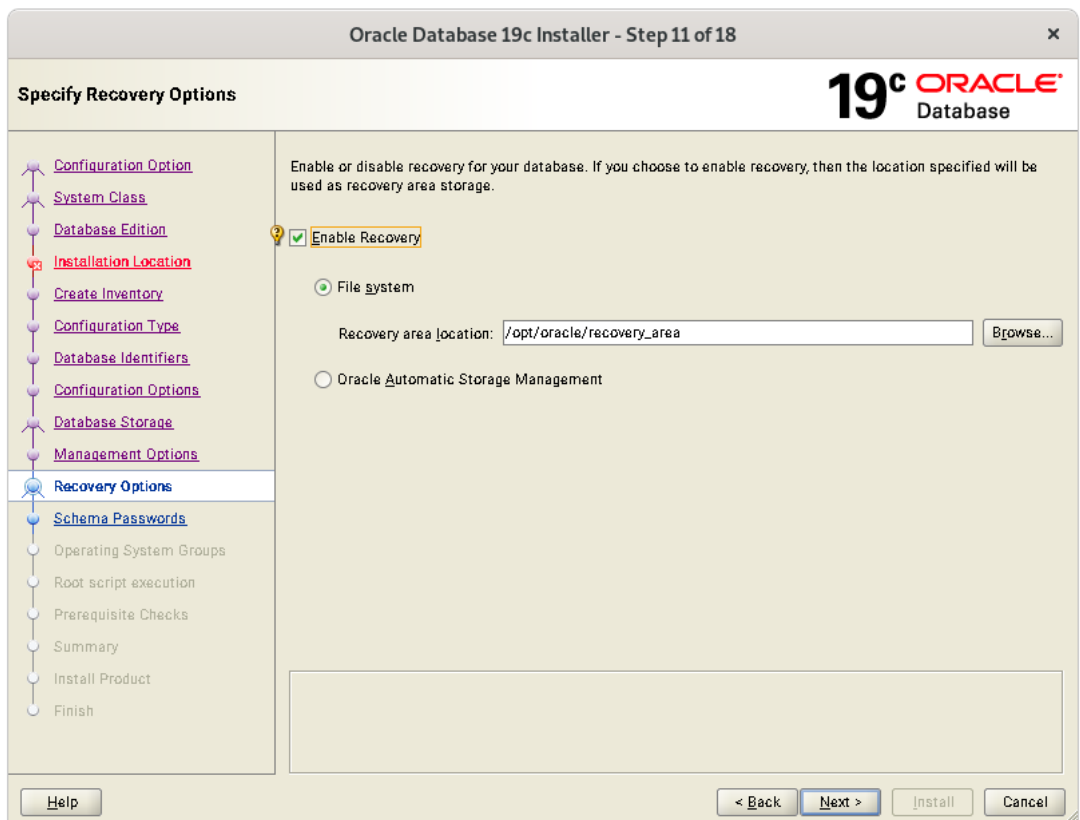
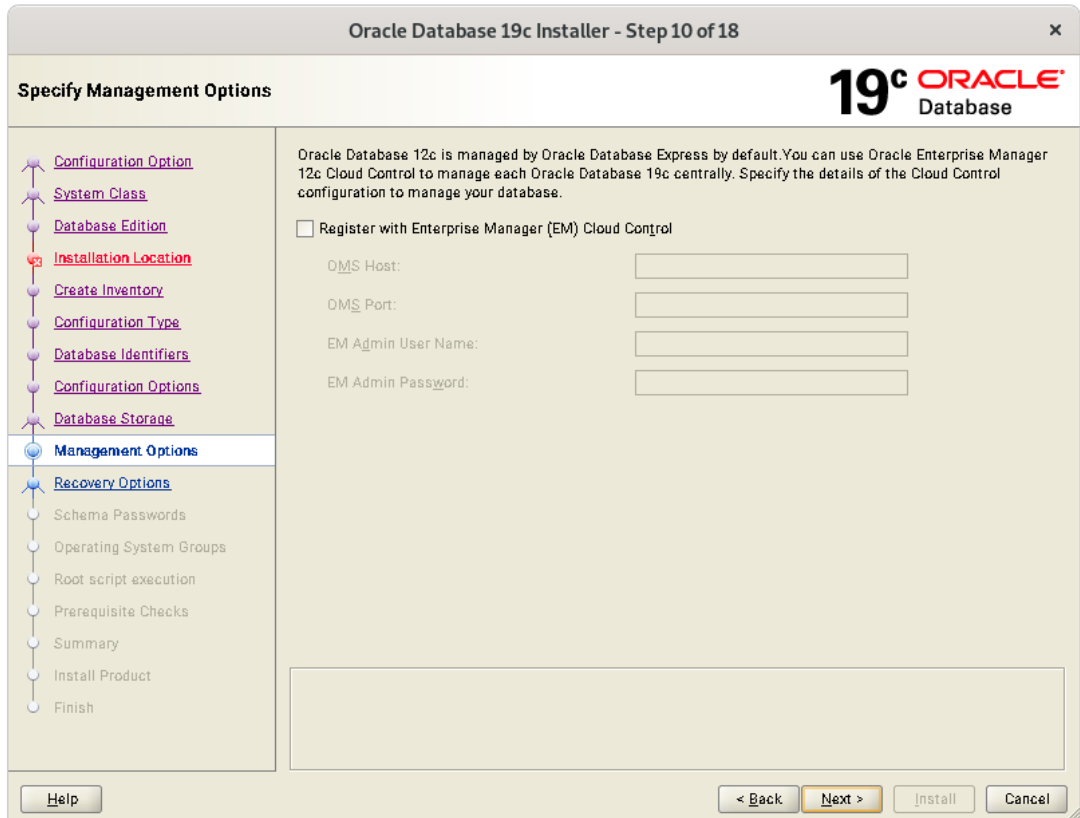
3. Login as user `oracle` and Start Oracle Universal Installer (OUI):
`$ORACLE_HOME/runInstaller`











Oracle Database 19c Installer - Step 12 of 18

Specify Schema Passwords

- [Configuration Option](#)
- [System Class](#)
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- [Configuration Type](#)
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Database

The starter database contains pre-loaded schemas, most of which have passwords that are expired and locked at the end of installation. After installation is complete, you must unlock and set new passwords for those accounts you want to use. Schemas used for database management and postinstallation functions are left unlocked, and passwords for these accounts will not expire. Specify the passwords for these accounts.

Use different passwords for these accounts

	Password	Confirm password
SYS	<input type="text"/>	<input type="text"/>
SYSTEM	<input type="text"/>	<input type="text"/>
PDBADMIN	<input type="text"/>	<input type="text"/>

Use the same password for all accounts

Help
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Next >
Install
Cancel

Oracle Database 19c Installer - Step 13 of 18

Privileged Operating System groups

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- [System Class](#)
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- [Create Inventory](#)
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Database

SYS privileges are required to create a database using operating system (OS) authentication. Membership in OS Groups grants the corresponding SYS privilege, eg. membership in OSDBA grants the SYSDBA privilege.

Database Administrator (OSDBA) group:

Database Operator (OSOPER) group (Optional):

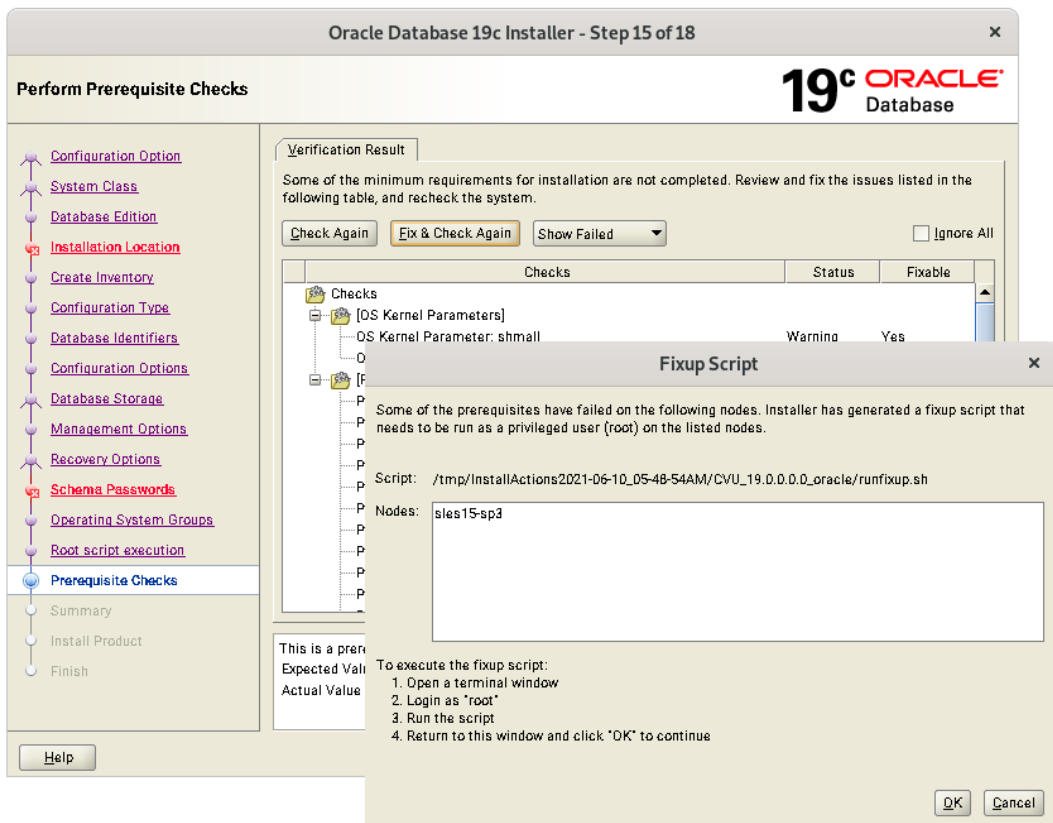
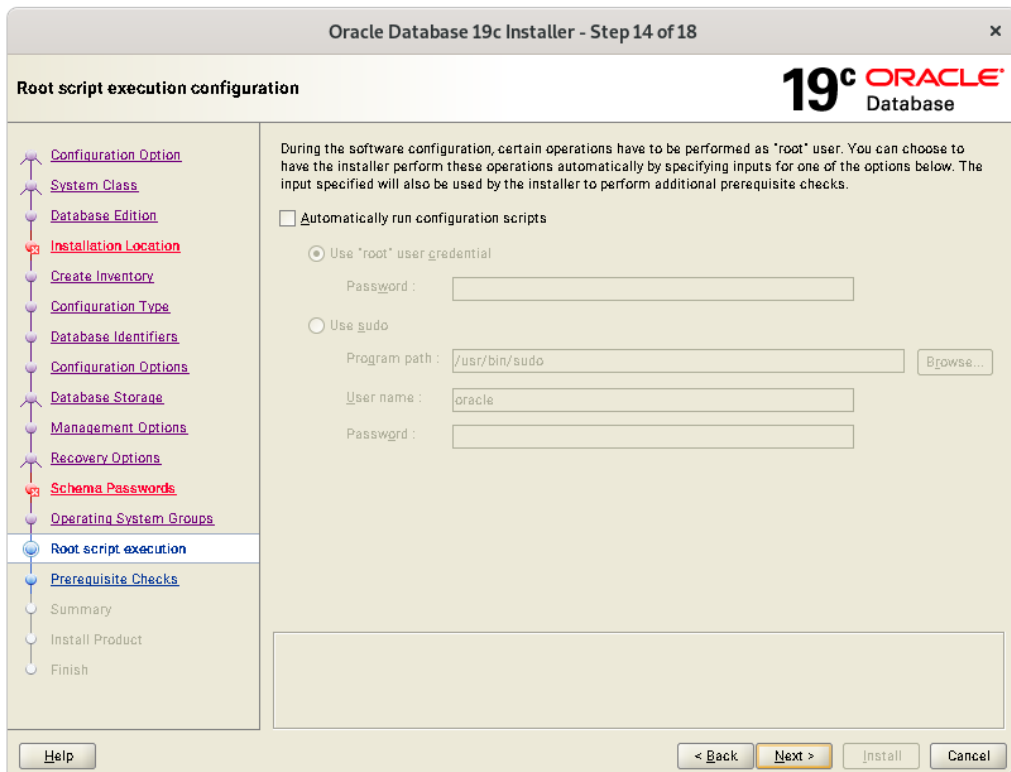
Database Backup and Recovery (OSBACKUPDBA) group:

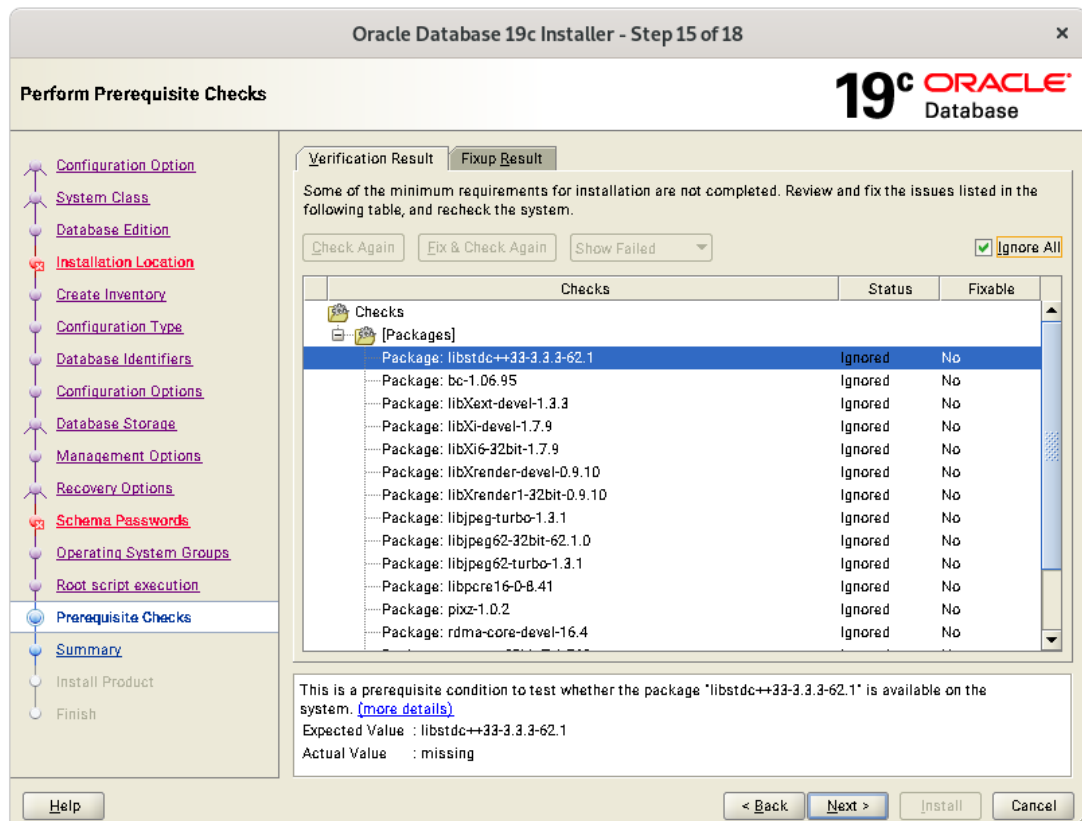
Data Guard administrative (OSDGDBA) group:

Encryption Key Management administrative (OSKMDBA) group:

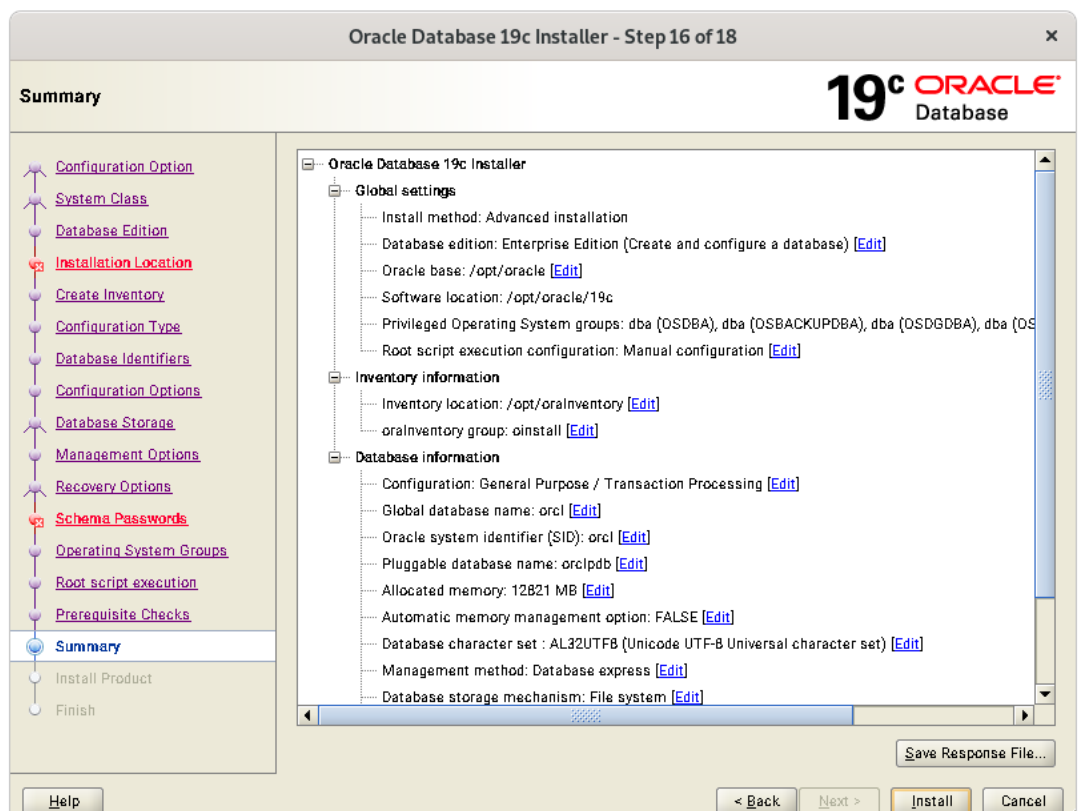
Real Application Cluster administrative (OSRACDBA) group:

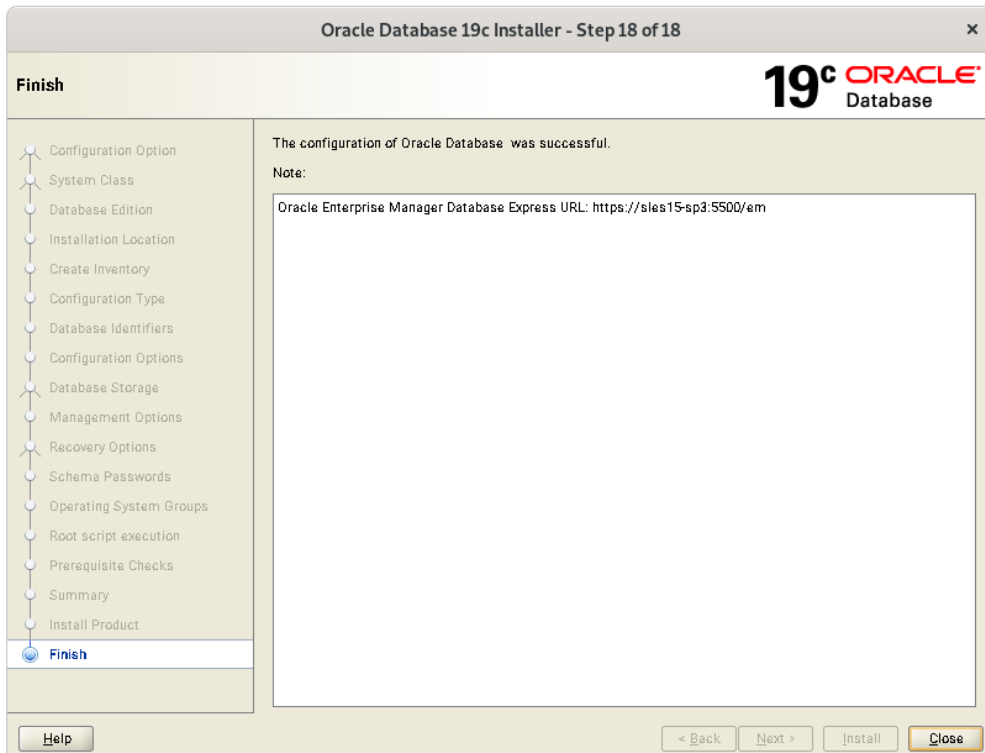
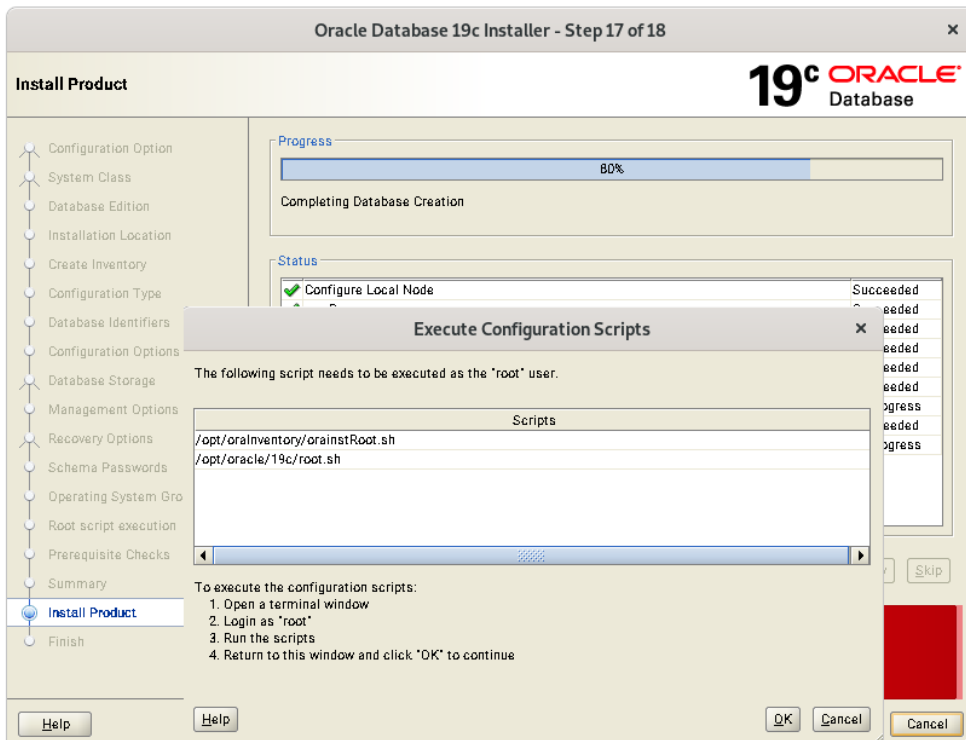
Help
< Back
Next >
Install
Cancel





- Verify these packages are installed, then select “Ignore All”





Verify successful Database Installation using sqlplus:

```

root@sles15sp5:~
oracle@sles15sp5:~> sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Wed Jun 28 14:37:51 2023
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> show sga

Total System Global Area 2.0066E+10 bytes
Fixed Size                  19763888 bytes
Variable Size               2751463424 bytes
Database Buffers            1.7247E+10 bytes
Redo Buffers                 47341568 bytes
SQL> exit
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Pr
oduction
Version 19.3.0.0.0
oracle@sles15sp5:~>

```

SUSE SLES 15 SP5 setup (After successful Oracle DB Install)

Please do following changes for successful Oracle Database start after reboot:

1. Edit “orcl:/opt/oracle/19c:Y” in /etc/oratab
2. Set START_ORACLE_DB & START_ORACLE_DB_LISTENER to “yes” in /etc/sysconfig/oracle setup file.
3. Check status using **systemctl** commands:

```

sles15sp5:/opt/oracle # systemctl status oracle-setup
● oracle-setup.service - Setup environment for the Oracle database
   Loaded: loaded (/usr/lib/systemd/system/oracle-setup.service; static)
   Active: active (exited) since Thu 2023-06-29 04:14:23 PDT; 12min ago
     Process: 3079 ExecStart=/usr/lib/orarun/oracle-setup (code=exited, status=0/SUCCESS)
    Main PID: 3079 (code=exited, status=0/SUCCESS)

Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Shared memory:      SHMMAX=6294967296 SHMNI=4096 SHMALL=8219587
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Semaphore values:  SEMMSL=1250 SEMMNS=32000 SEMOPM=100 SEMMNI=>
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Other values:      FILE_MAX_KERNEL=6815744 IP_LOCAL_PORT_RANGE=>
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: RMEM_DEFAULT=262144 WMEM_DEFAULT=262144 RMEM_MAX=4194304 WME>
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Huge Pages:      SHM_GROUP=dba NR_HUGE_PAGES=0
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: ULIMIT values:    MAX_CORE_FILE_SIZE_SHELL=unlimited
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]:                   FILE_MAX_SHELL=65536 PROCESSES_MAX_SHELL=163>
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Checking sysctl.conf to overwrite previous kernel settings...
Jun 29 04:14:23 sles15sp5 oracle-setup[3079]: Kernel parameters set for Oracle:
Jun 29 04:14:23 sles15sp5 systemd[1]: Finished Setup environment for the Oracle database.
sles15sp5:/opt/oracle #

```

```

• oracle.service - Oracle Database
  Loaded: loaded (/usr/lib/systemd/system/oracle.service; enabled; vendor preset: enabled)
  Active: active (running) since Thu 2023-06-29 04:15:19 PDT; 20min ago
  Process: 3687 ExecStart=/usr/lib/orarun/oracle start (code=exited, status=0/SUCCESS)
  Tasks: 109
  CGroup: /system.slice/oracle.service
          └─ 300 ora_m000_orcl
             893 ora_w005_orcl
            1215 ora_w006_orcl
            1538 ora_w007_orcl
            1830 ora_w008_orcl
            2123 ora_w009_orcl
            2437 ora_w00a_orcl
            2731 ora_w00b_orcl
            3023 ora_w00c_orcl
            3336 ora_w00d_orcl
            3669 ora_w00e_orcl
            3985 ora_w00f_orcl
            4278 ora_w00g_orcl
            4330 ora_p000_orcl
            4332 ora_p001_orcl
            4334 ora_p002_orcl
            4336 ora_p003_orcl
            25108 ora_lg00_orcl
            25110 ora_smon_orcl
            25112 ora_lg01_orcl
            25114 ora_smco_orcl
            25116 ora_reco_orcl
            25118 ora_w000_orcl
            25120 ora_lreg_orcl
            25135 ora_w001_orcl
            25181 ora_pxmn_orcl
            25216 ora_mmon_orcl
            25240 ora_mml_orcl
            25262 ora_d000_orcl
            25288 ora_s000_orcl
            25314 ora_tmon_orcl

Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting Application Server Console.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting Agent.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting Enterprise Manager.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting iSQLPLUS Manager.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting Oracle Internet Filesystem.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: - Starting Oracle Internet Directory.....unused
Jun 29 04:15:19 sles15sp5 oracle[3687]: #####
Jun 29 04:15:19 sles15sp5 oracle[3687]: #                               End of  O R A C L E  section
Jun 29 04:15:19 sles15sp5 oracle[3687]: #####
Jun 29 04:15:19 sles15sp5 systemd[1]: Started Oracle Database.
sles15sp5:/opt/oracle #

```

Update Oracle Database to latest version

SLES 15 SP5 is certified with Oracle Database 19.4.x (or above). Above instructions covers 19.3 (available for public download). Download and install latest Oracle update i.e. Oracle DB Release Update 19.19.0.0 (April, 2023) - p35042068_190000_Linux-x86-64.zip.

In production environment, please apply latest SUSE and Oracle Patches.

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