

Oracle Database 19c (19.11.0.0) on SUSE Linux Enterprise Server 15 SP3

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June 10th, 2021



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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 SP3. 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

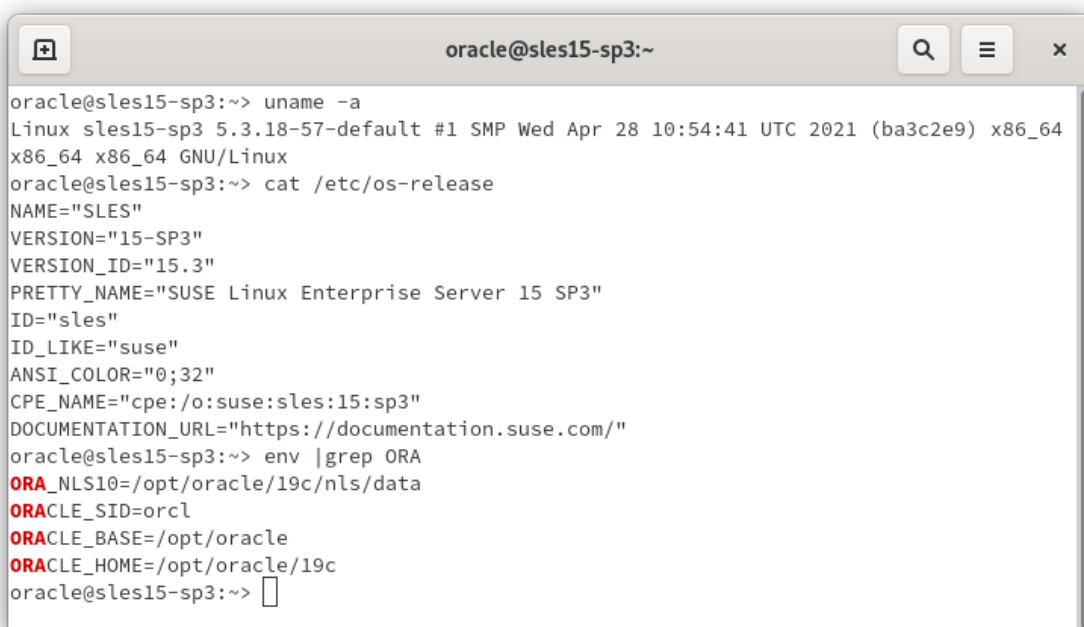
Download SUSE Linux Enterprise Server 15 SP3 here, you can use 60 Day's free trial:

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

SUSE Linux Installation

Install SUSE Linux Enterprise Server 15 SP3 with “**Enhanced Base System, Software Management, X Window System, Oracle Server Base**” pattern. Please note that SLES15 SP2 comes with SLE-15-SP3-Online-x86_64-GM-Media1.iso and SLE-15-SP3-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 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@sles15-sp3:~
oracle@sles15-sp3:~> uname -a
Linux sles15-sp3 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021 (ba3c2e9) x86_64
x86_64 x86_64 GNU/Linux
oracle@sles15-sp3:~> cat /etc/os-release
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"
DOCUMENTATION_URL="https://documentation.suse.com/"
oracle@sles15-sp3:~> env |grep ORA
ORA_NLS10=/opt/oracle/19c/nls/data
ORACLE_SID=orcl
ORACLE_BASE=/opt/oracle
ORACLE_HOME=/opt/oracle/19c
oracle@sles15-sp3:~>

```

Installing Oracle Database 19c (19.3)

Installing Oracle Database 19c on SLES15 SP3 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

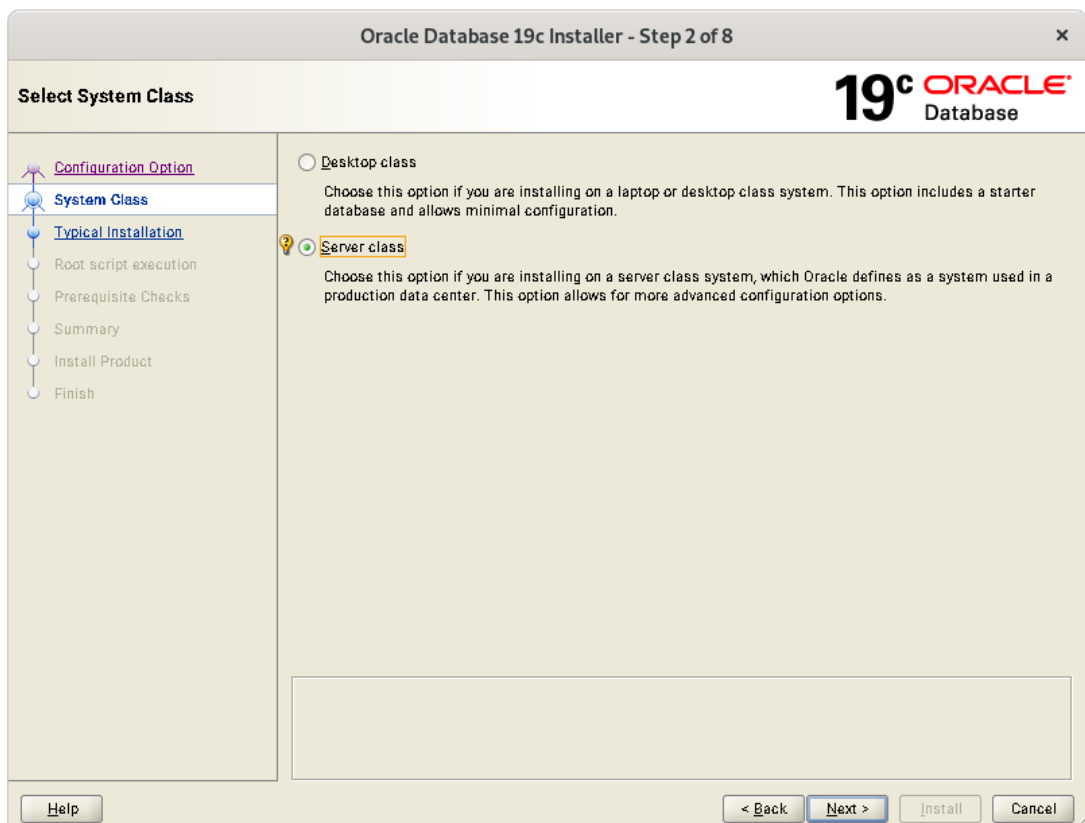
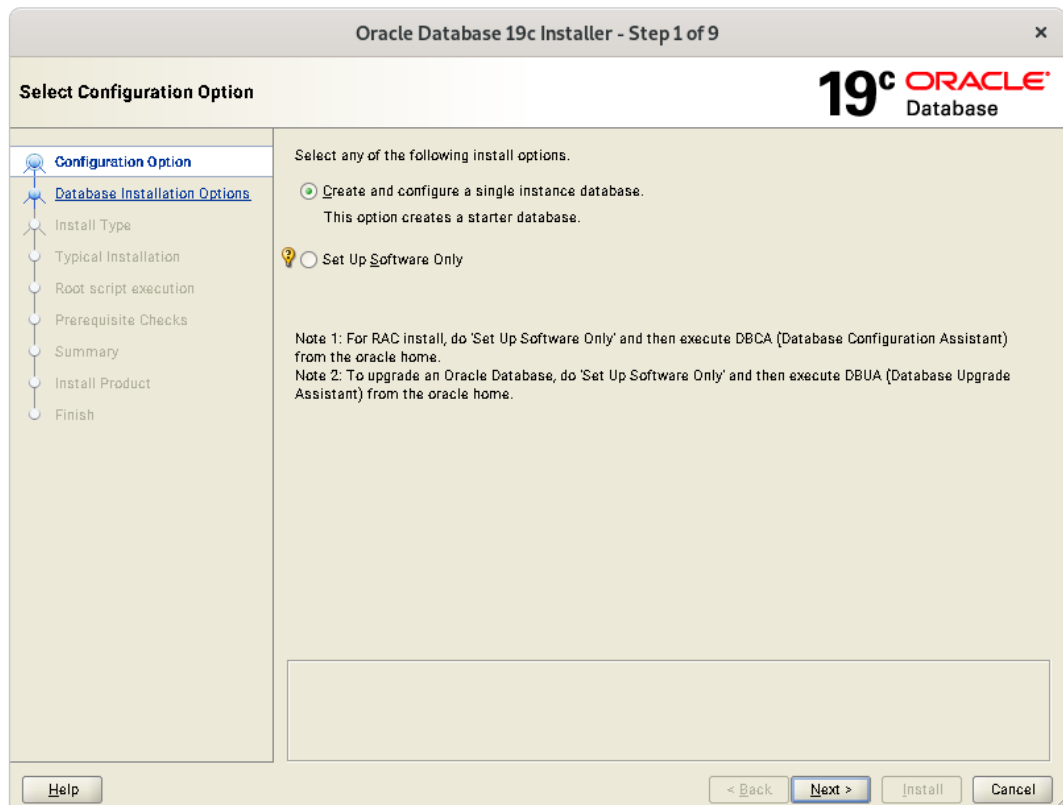
Fix: Increase kernel.shmmax & kernel.shmall based on your Server RAM in `/etc/sysconfig/oracle` & run “**systemctl restart oracle-setup**”.

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 4 of 18

Specify Installation Location

19^c ORACLE[®] Database

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:

This software directory is the Oracle Database home directory.

Software location: /opt/oracle/19c

Configuration Option
System Class
Database Edition
Installation Location
Create Inventory
Configuration Type
Database Identifiers
Configuration Options
Database Storage
Management Options
Recovery Options
Schema Passwords
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish

Help

Oracle Database 19c Installer - Step 5 of 18

Create Inventory

19^c ORACLE[®] Database

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:

Specify an operating system group whose members have write permission to the inventory directory (orainventory).

orainventory Group Name:

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Oracle Database 19c Installer - Step 6 of 18

Select Configuration Type

19^c ORACLE[®] Database

Select the type of database that you want to create.

General Purpose / Transaction Processing
 A starter database designed for general purpose use, or for transaction-heavy applications.

Data Warehousing
 A starter database optimized for data warehousing applications.

[Configuration Option](#)
[System Class](#)
[Database Edition](#)
[Installation Location](#)
[Create Inventory](#)
Configuration Type
[Database Identifiers](#)
 Configuration Options
 Database Storage
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 Prerequisite Checks
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 Install Product
 Finish

Oracle Database 19c Installer - Step 7 of 18

Specify Database Identifiers

19^c ORACLE[®] Database

Provide the identifier information required to access the database uniquely. An Oracle database is uniquely identified by a Global database name, typically of the form "name.domain". A database is referenced by at least one Oracle instance which is uniquely identified from any other instance on this computer by an Oracle system identifier (SID).

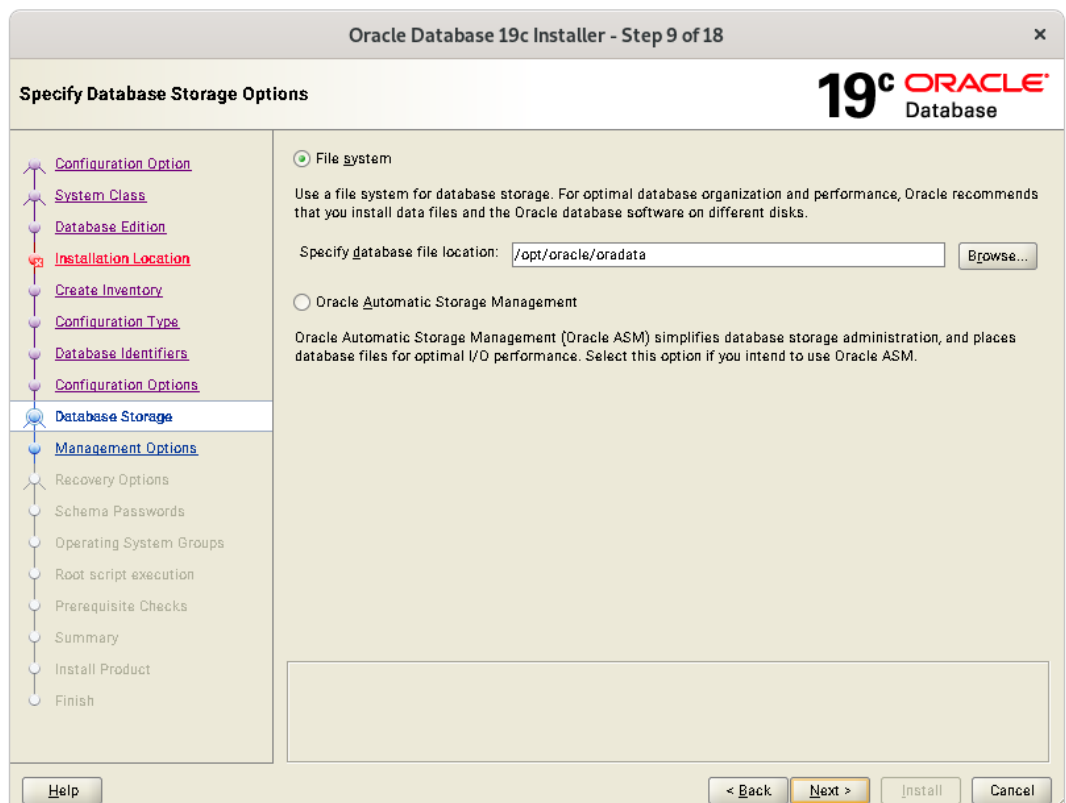
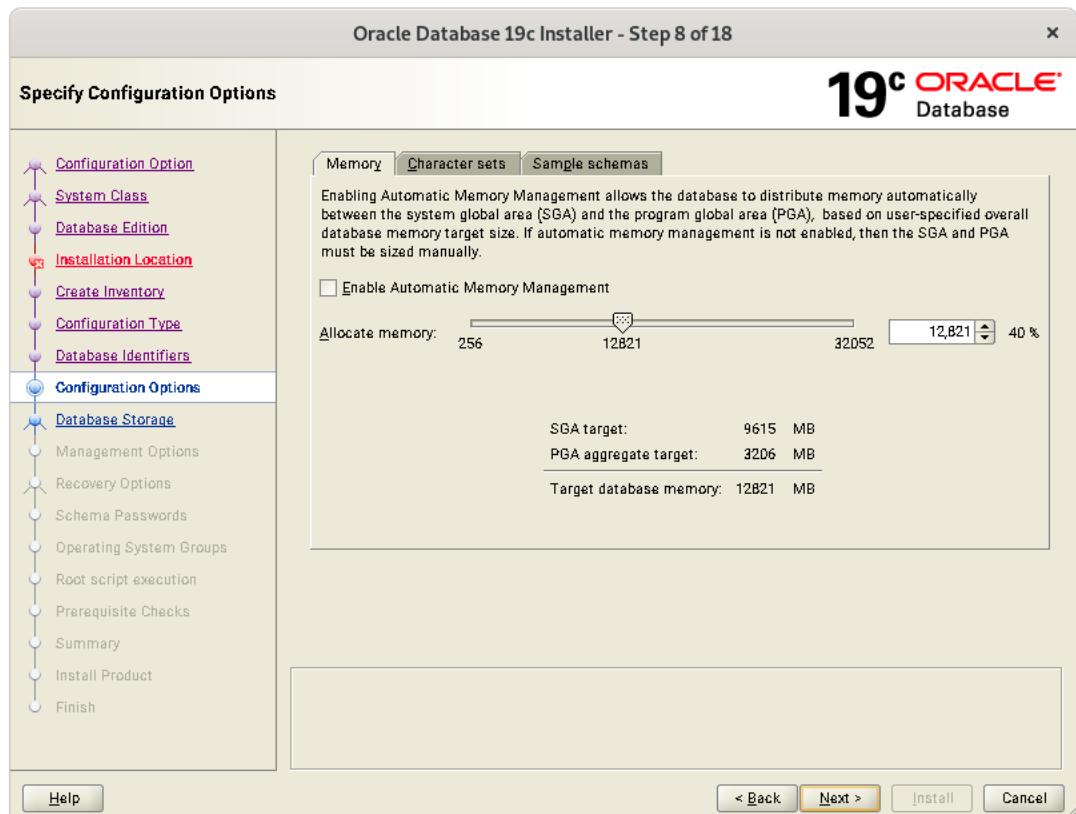
Global database name:

Oracle system identifier (SID):

Create as Container database
 Creates a database container for consolidating multiple databases into a single database and enables database virtualization.

Pluggable database name:

[Configuration Option](#)
[System Class](#)
[Database Edition](#)
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Oracle Database 19c Installer - Step 10 of 18

Specify Management Options

19^c ORACLE[®] Database

Oracle Database 12c is managed by Oracle Database Express by default. You can use Oracle Enterprise Manager 12c Cloud Control to manage each Oracle Database 19c centrally. Specify the details of the Cloud Control configuration to manage your database.

Register with Enterprise Manager (EM) Cloud Control

DMS Host:

DMS Port:

EM Admin User Name:

EM Admin Password:

Help

Oracle Database 19c Installer - Step 11 of 18

Specify Recovery Options

19^c ORACLE[®] Database

Enable or disable recovery for your database. If you choose to enable recovery, then the location specified will be used as recovery area storage.

Enable Recovery

File system

Recovery area location:

Oracle Automatic Storage Management

Help

Oracle Database 19c Installer - Step 12 of 18

Specify Schema Passwords

- [Configuration Option](#)
- [System Class](#)
- [Database Edition](#)
- [Installation Location](#)
- [Create Inventory](#)
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19^c ORACLE[®]
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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Install
Cancel

Oracle Database 19c Installer - Step 13 of 18

Privileged Operating System groups

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- [System Class](#)
- [Database Edition](#)
- [Installation Location](#)
- [Create Inventory](#)
- [Configuration Type](#)
- [Database Identifiers](#)
- [Configuration Options](#)
- [Database Storage](#)
- [Management Options](#)
- [Recovery Options](#)
- [Schema Passwords](#)
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- [Prerequisite Checks](#)
- [Summary](#)
- [Install Product](#)
- [Finish](#)

19^c ORACLE[®]
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):

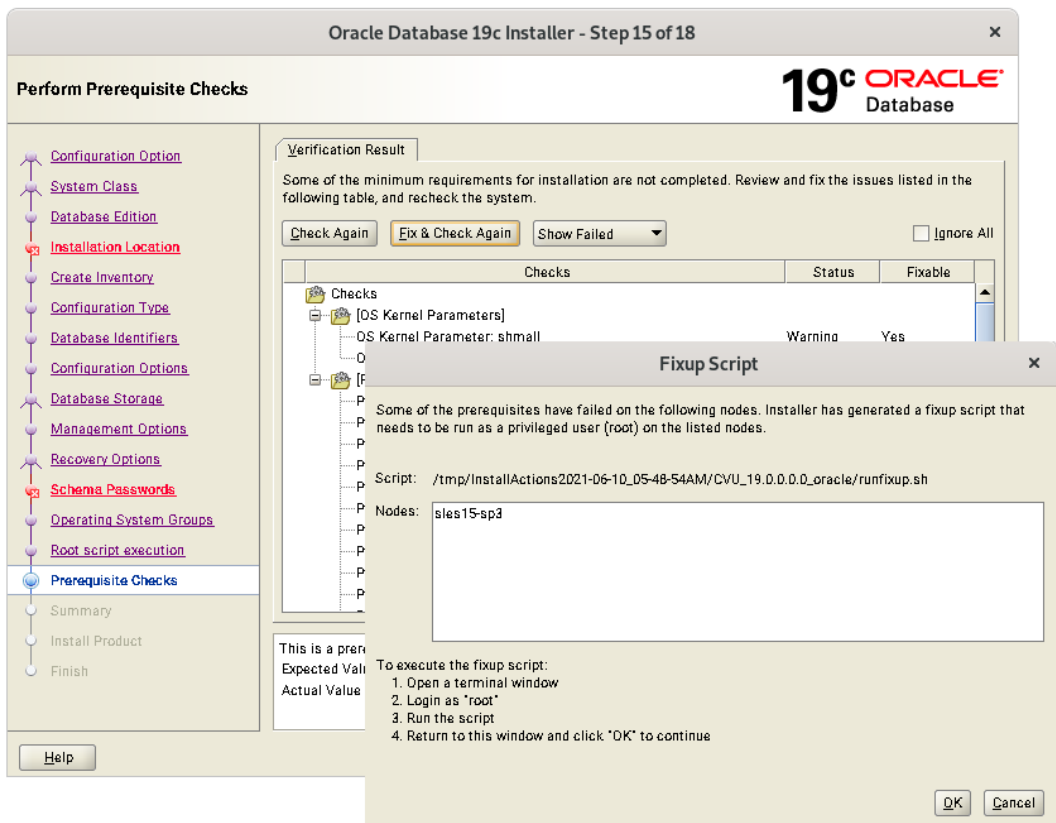
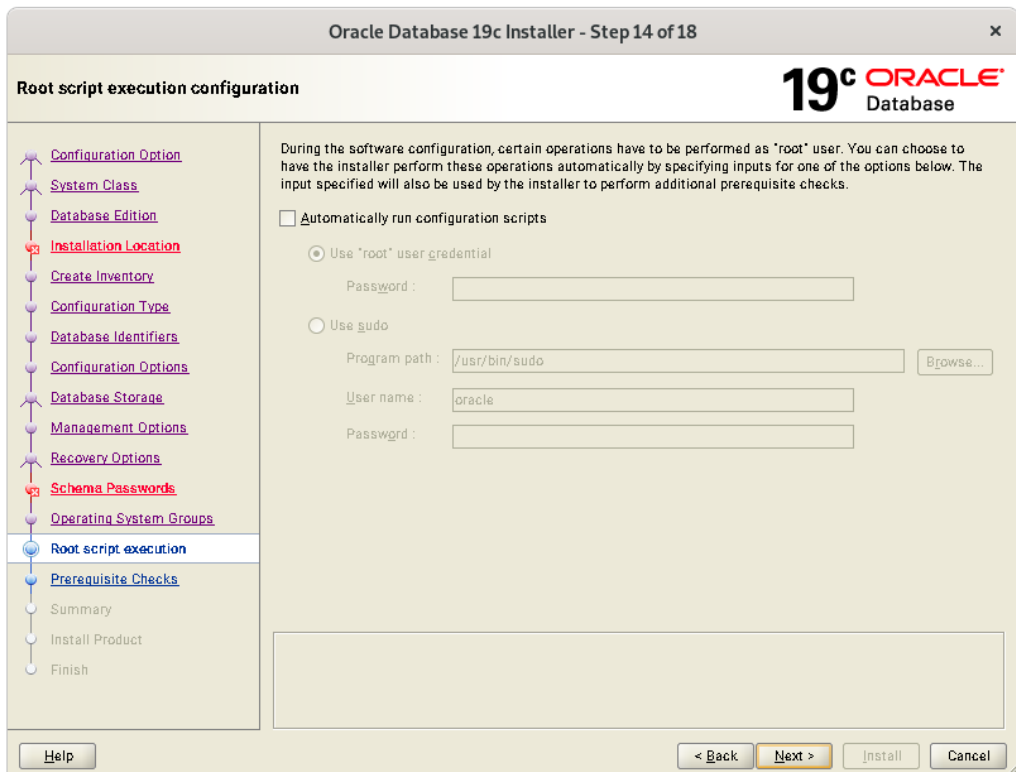
Database Backup and Recovery (OSBACKUPDBA) group:

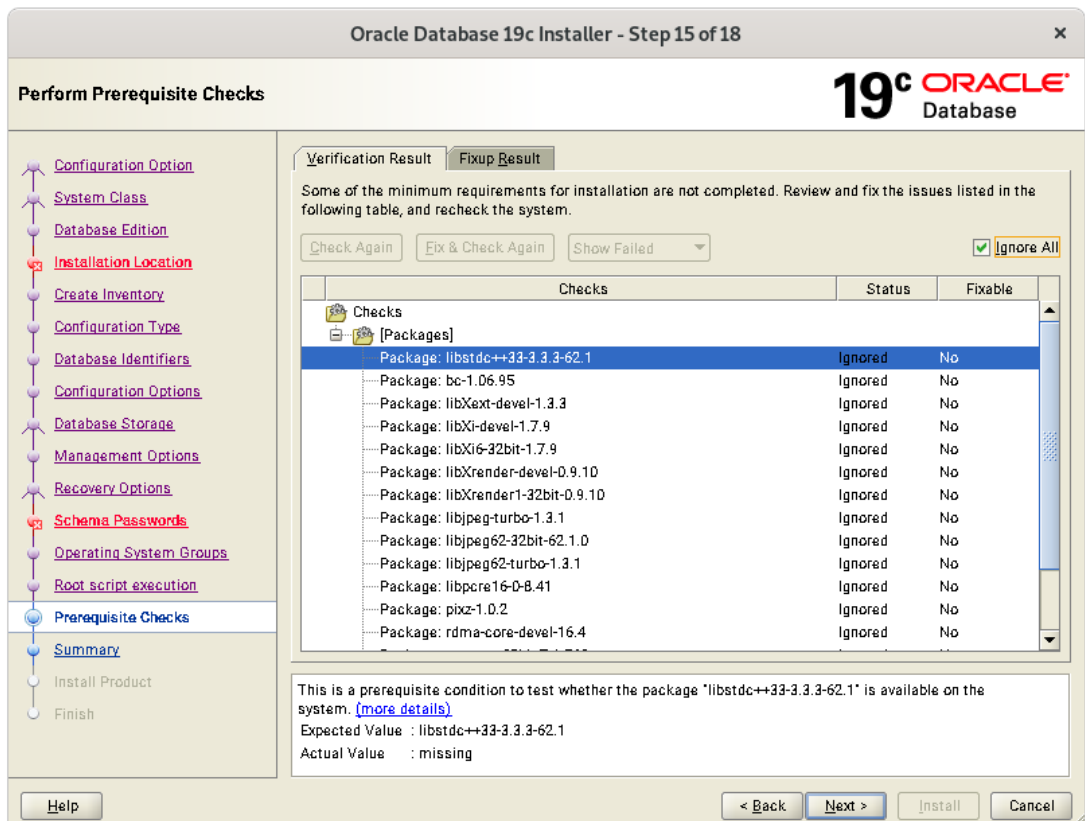
Data Guard administrative (OSDGDBA) group:

Encryption Key Management administrative (OSKMDBA) group:

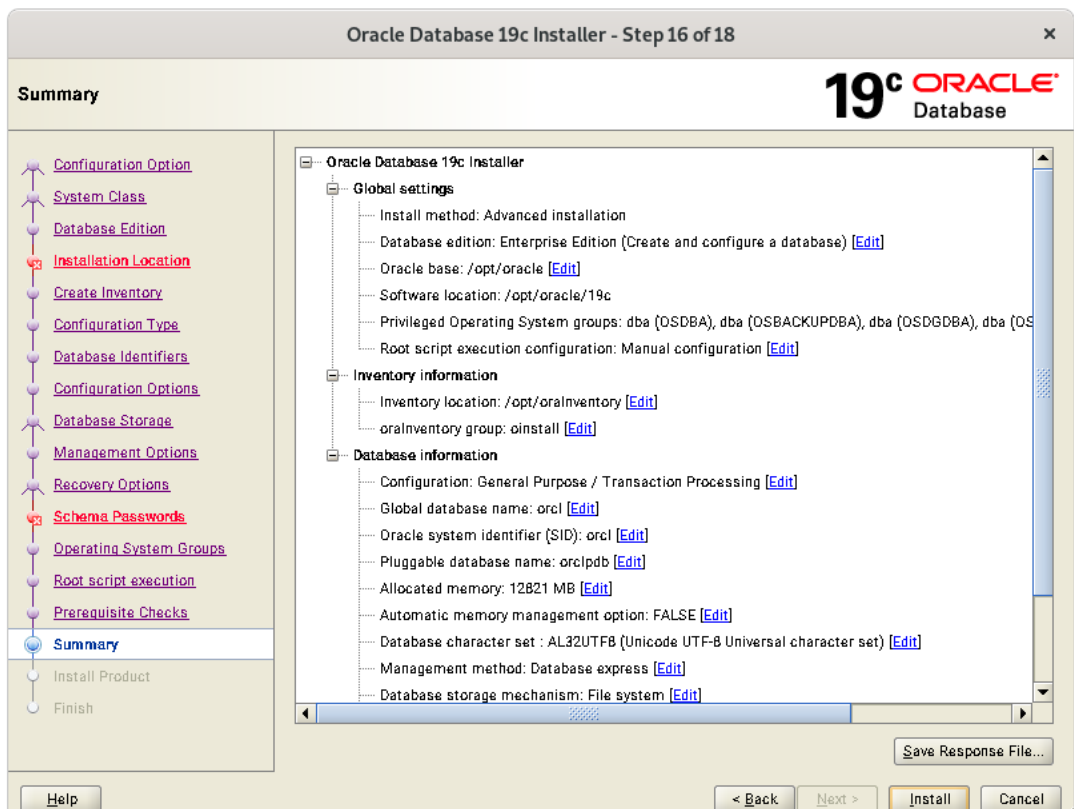
Real Application Cluster administrative (OSRACDBA) group:

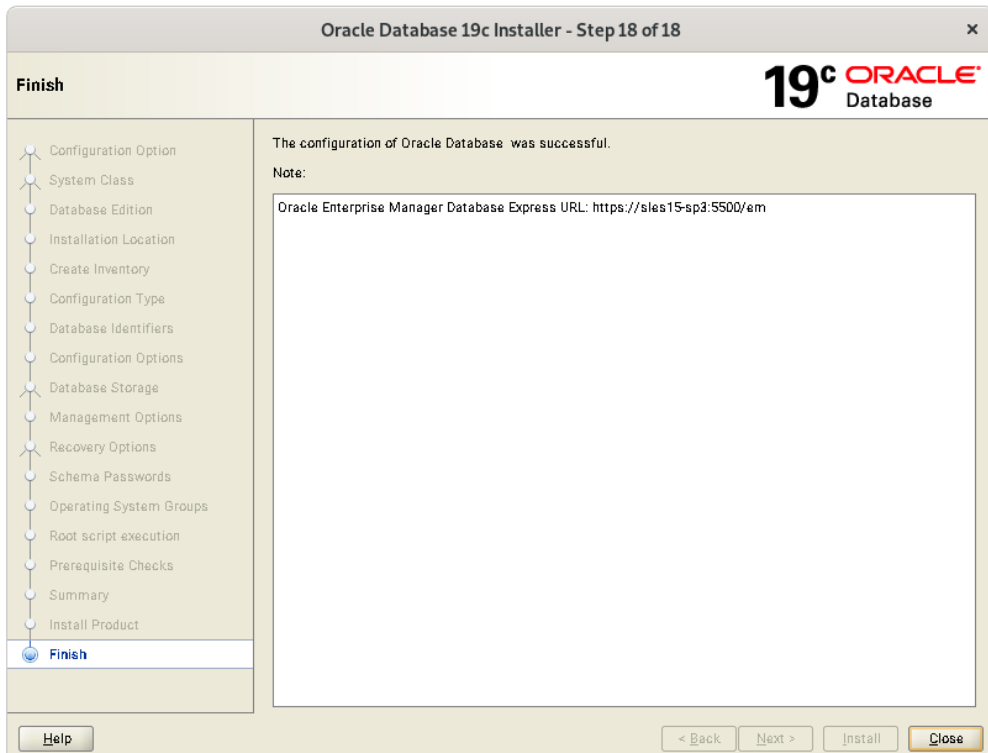
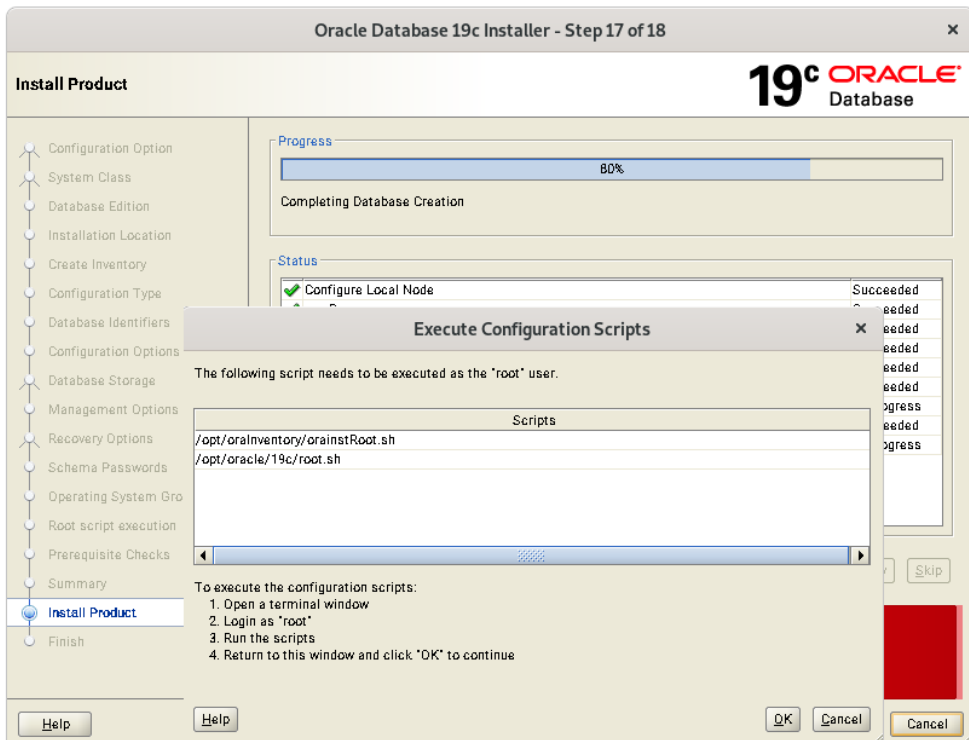
Help
< Back
Next >
Install
Cancel





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





Verify successful Database Installation using sqlplus:

```

oracle@sles15-sp3:~/19c
oracle@sles15-sp3:~/19c> sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Jun 10 07:43:29 2021
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 1.0100E+10 bytes
Fixed Size                  12685456 bytes
Variable Size               1677721600 bytes
Database Buffers           8388608000 bytes
Redo Buffers                 20865024 bytes
SQL> exit
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0
oracle@sles15-sp3:~/19c>

```

SUSE SLES 15 SP3 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:

```

oracle@sles15-sp3:/opt/oracle/19c
sles15-sp3:/opt/oracle/19c # 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 2021-06-10 04:39:02 PDT; 3h 7min ago
     Process: 2076 ExecStart=/usr/lib/orarun/oracle-setup (code=exited, status=0/SUCCESS)
    Main PID: 2076 (code=exited, status=0/SUCCESS)

Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: Semaphore values: SEMMSL=1250 SEMMNS=320>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: Other values: FILE_MAX_KERNEL=6815744>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: RMEM_DEFAULT=262144 WMEM_DEFAULT=262144 >
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: Huge Pages: SHM_GROUP=dba NR_HUG>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: ULIMIT values: MAX_CORE_FILE_SIZE_SHEL>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: FILE_MAX_SHELL=65536 P>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: Checking sysctl.conf to overwrite previous >
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: sysctl value fs.file-max=6815744 restore>
Jun 10 04:39:02 sles15-sp3 oracle-setup[2076]: Kernel parameters set for Oracle:
Jun 10 04:39:02 sles15-sp3 systemd[1]: Finished Setup environment for the Oracle database.
sles15-sp3:/opt/oracle/19c #

```

```

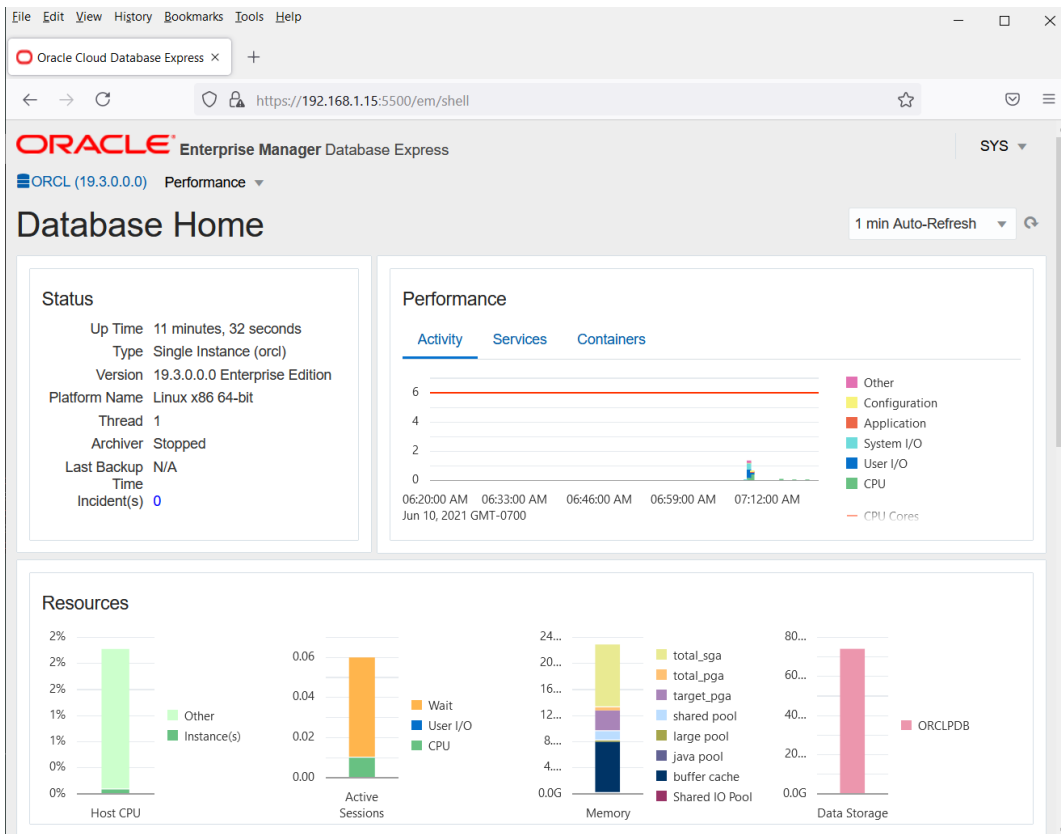
oracle@sles15-sp3:/opt/oracle/19c
sles15-sp3:/opt/oracle/19c # systemctl status oracle
● oracle.service - Start the Oracle database
   Loaded: loaded (/usr/lib/systemd/system/oracle.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2021-06-10 07:51:05 PDT; 1min 15s ago
   Process: 18339 ExecStart=/usr/lib/orarun/oracle start (code=exited, status=0/SUCCESS)
   Tasks: 60
   CGroup: /system.slice/oracle.service
           └─18467 ora_pmon_orcl
             └─18469 ora_clmn_orcl
               └─18471 ora_psp0_orcl
                 └─18473 ora_vktm_orcl
                   └─18477 ora_gen0_orcl
                     └─18479 ora_mman_orcl
                       └─18483 ora_gen1_orcl
                         └─18486 ora_diag_orcl
                           └─18488 ora_ofsd_orcl
                             └─18491 ora_dbrm_orcl
                               └─18493 ora_vkrm_orcl
                                 └─18495 ora_svcb_orcl
                                   └─18497 ora_pman_orcl
                                     └─18499 ora_dia0_orcl
                                       └─18501 ora_dbw0_orcl
                                         └─18503 ora_lgwr_orcl
                                           └─18505 ora_ckpt_orcl
                                             └─18507 ora_lg00_orcl
                                               └─18570 ora_tt01_orcl
                                                 └─18572 ora_tt02_orcl
                                                   └─18576 ora_aqpc_orcl
                                                     └─18580 ora_w002_orcl
                                                       └─18769 ora_cjq0_orcl
                                                         └─18854 ora_w003_orcl
                                                           └─18858 ora_m002_orcl
                                                             └─18860 ora_m003_orcl
                                                               └─18884 ora_m004_orcl
                                                                 └─18888 ora_qm02_orcl
                                                                   └─18892 ora_q002_orcl
                                                                     └─18894 ora_q003_orcl
                                                                       └─18896 ora_w004_orcl

Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting Application Server Console.....unused
Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting Agent.....done
Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting Enterprise Manager.....skipped
Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting iSQLPLUS Manager.....unused
Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting Oracle Internet Filesystem.....unused
Jun 10 07:51:05 sles15-sp3 oracle[18339]: - Starting Oracle Internet Directory.....unused
Jun 10 07:51:05 sles15-sp3 oracle[18339]: #####>
Jun 10 07:51:05 sles15-sp3 oracle[18339]: # End of O R A C L E section>
Jun 10 07:51:05 sles15-sp3 oracle[18339]: #####>
Jun 10 07:51:05 sles15-sp3 systemd[1]: Started Start the Oracle database.
sles15-sp3:/opt/oracle/19c #

```

Update Oracle Database to latest version 19.11

SLES 15 SP3 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 19.11.0.0 (April, 2021) - p32545013_190000_Linux-x86-64.zip.



```

oracle@sles15-sp3:~/19c
oracle@sles15-sp3:~/19c> sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Jun 10 08:14:49 2021
Version 19.11.0.0.0

Copyright (c) 1982, 2020, Oracle. All rights reserved.

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.11.0.0.0

SQL> show sga

Total System Global Area 1.0100E+10 bytes
Fixed Size 12685448 bytes
Variable Size 1677721600 bytes
Database Buffers 8388608000 bytes
Redo Buffers 20865024 bytes
SQL> exit
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.11.0.0.0
oracle@sles15-sp3:~/19c>
    
```

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

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