White Paper

Oracle Database 19c (19.8.0.0) on SUSE Linux Enterprise Server 15 SP2

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SUSE

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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 SP2. 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 SP2 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 SP2 with "**Enhanced Base System, Software Management, X Window System, Oracle Server Base**" pattern. Please note that SLES15 SP2 comes with SLE-15-SP2-Online-x86_64-GM-Media1.iso and SLE-15-SP2-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@sles15sp2:~> uname -a
Linux sles15sp2 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba) x
86_64 x86_64 x86_64 GNU/Linux
oracle@sles15sp2:~> cat /etc/os-release
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"
oracle@sles15sp2:~> env |grep ORA
ORA_NLS10=/opt/oracle/19c/nls/data
ORACLE_SID=orcl
ORACLE_BASE=/opt/oracle
ORACLE_HOME=/opt/oracle/19c
oracle@sles15sp2:~>
```


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Installing Oracle Database 19c (19.3)

Installing Oracle Database19c on SLES15 SP2 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

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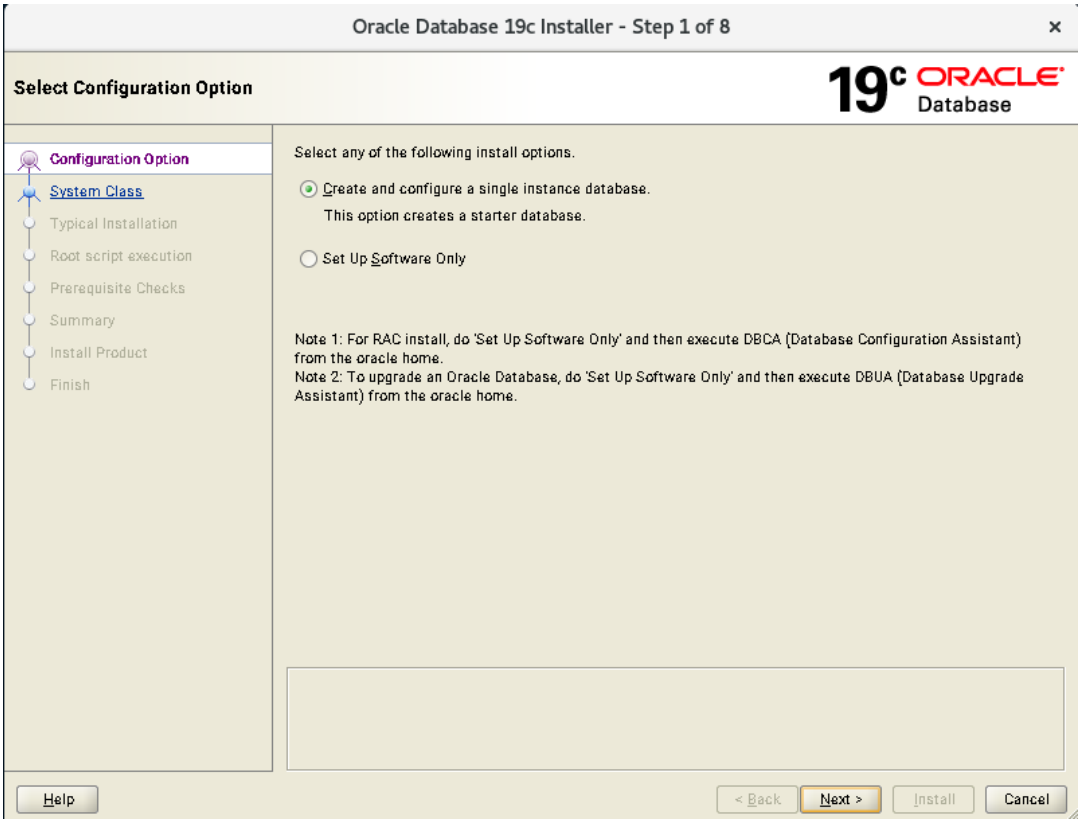

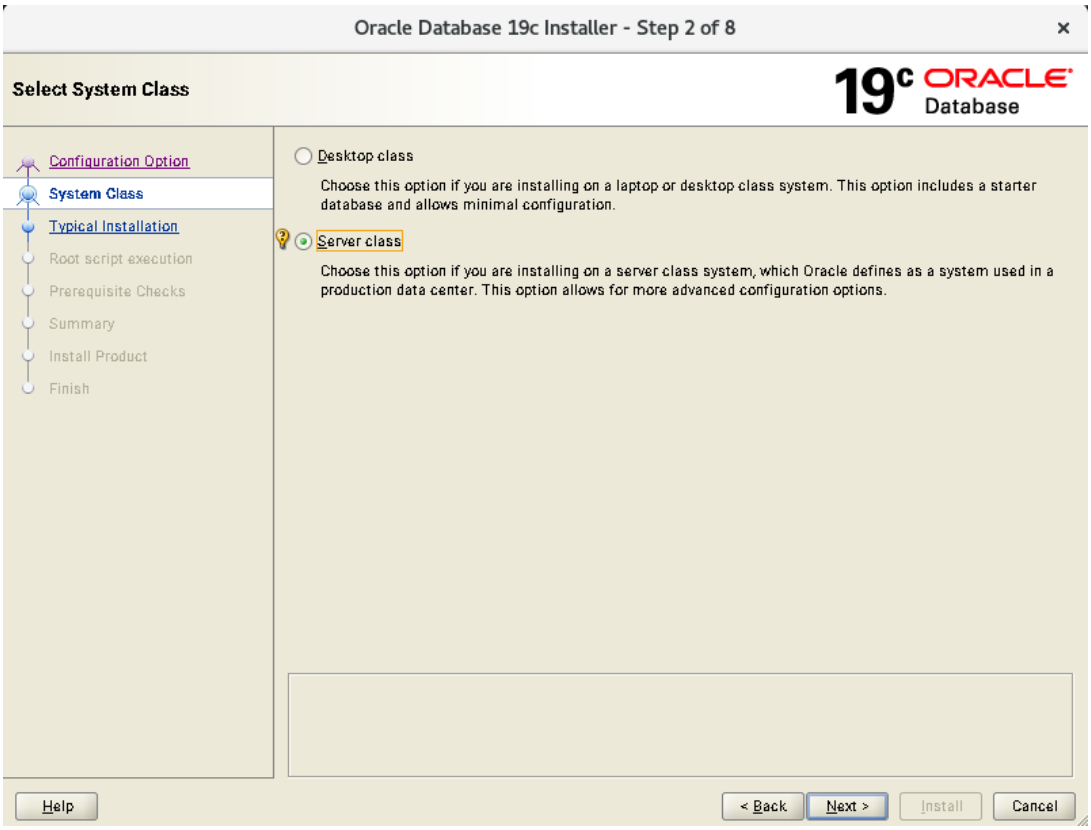

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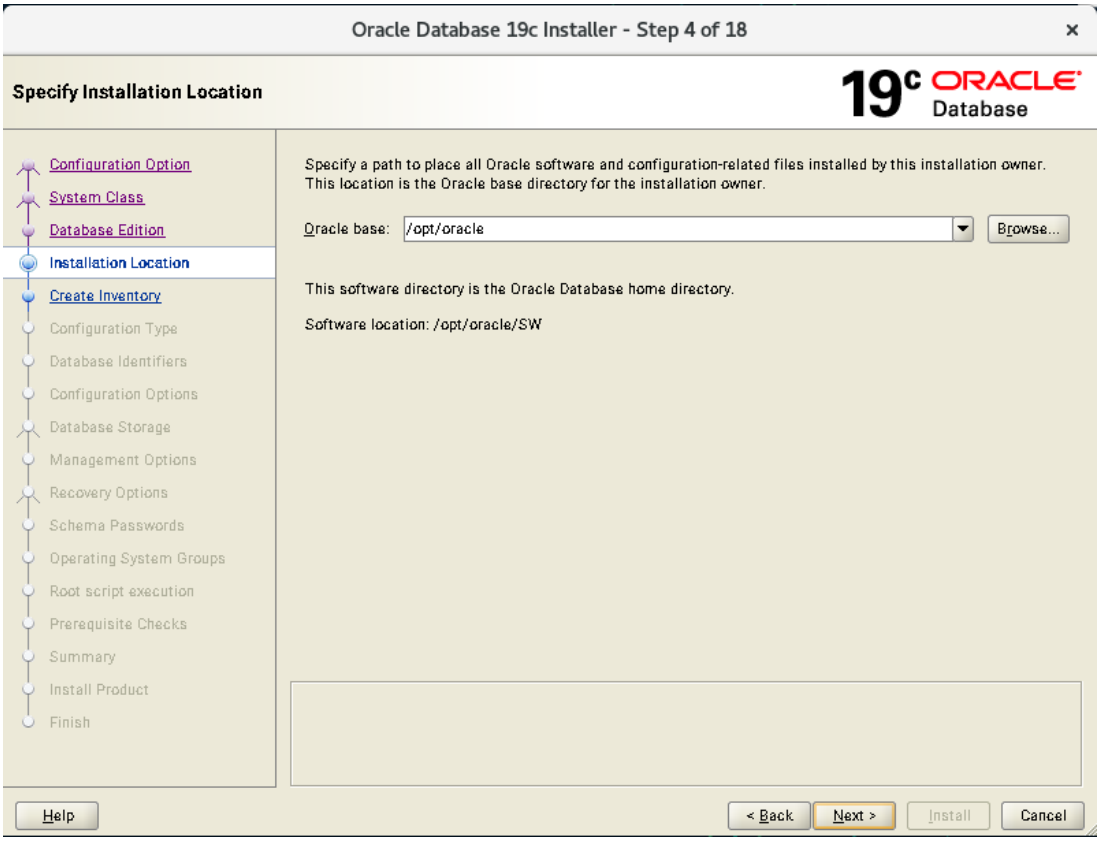

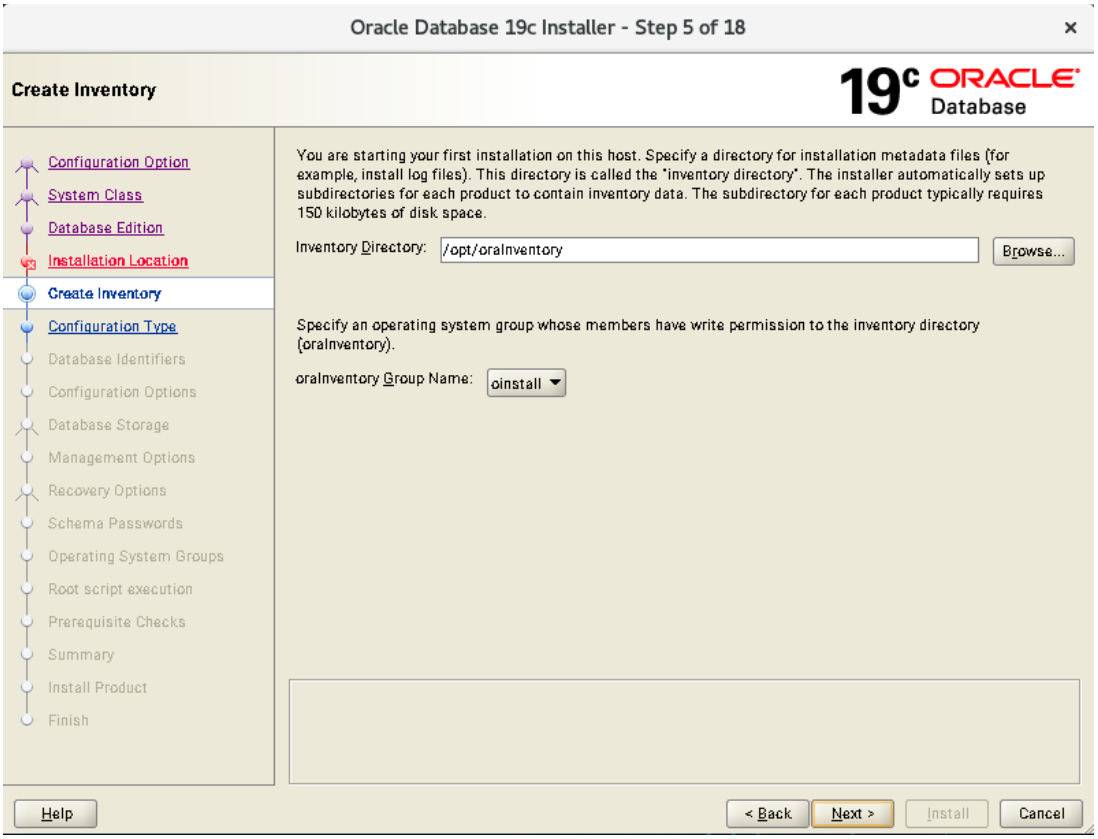

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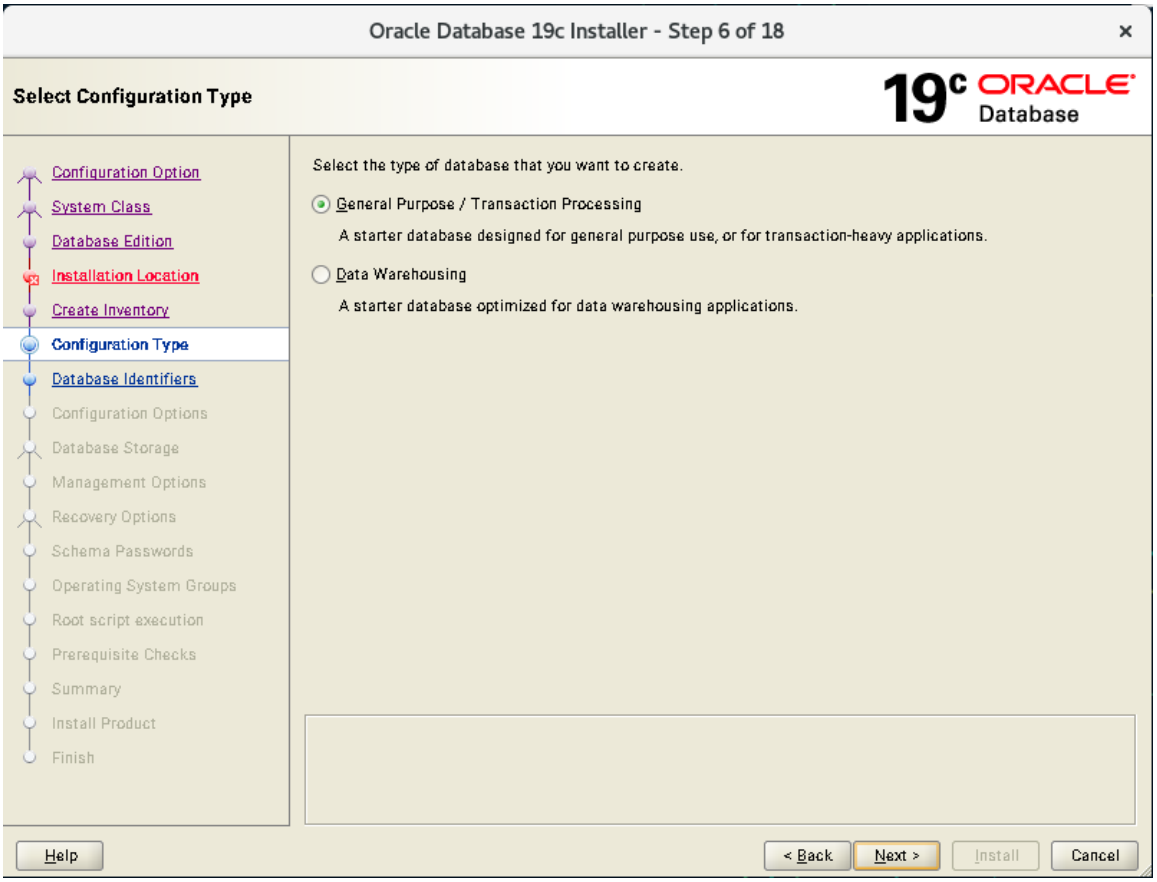

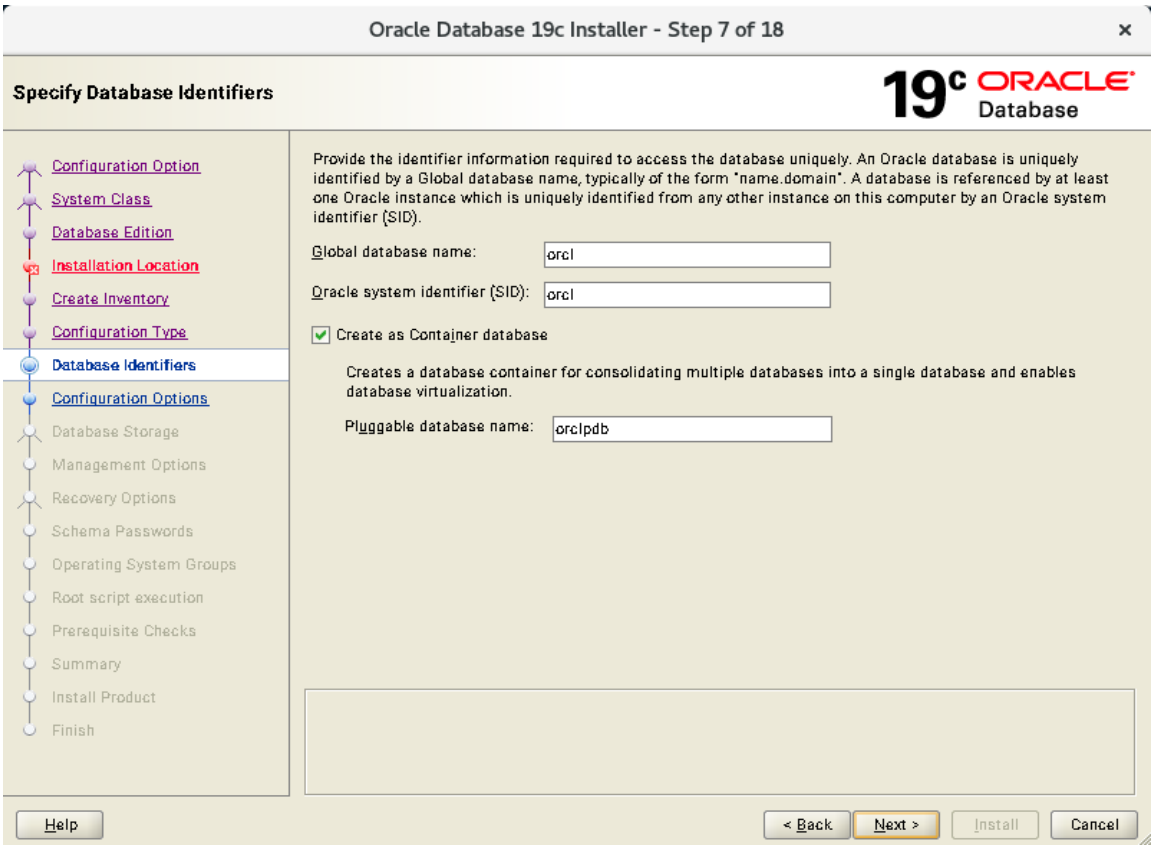

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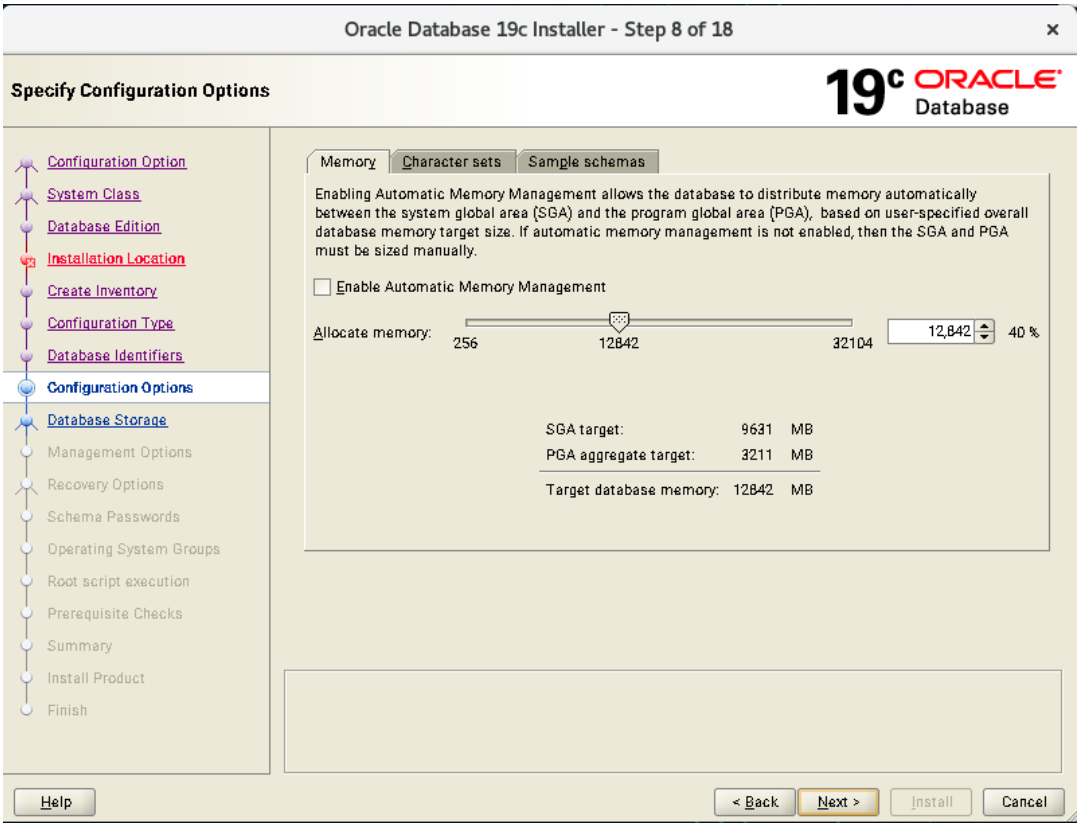

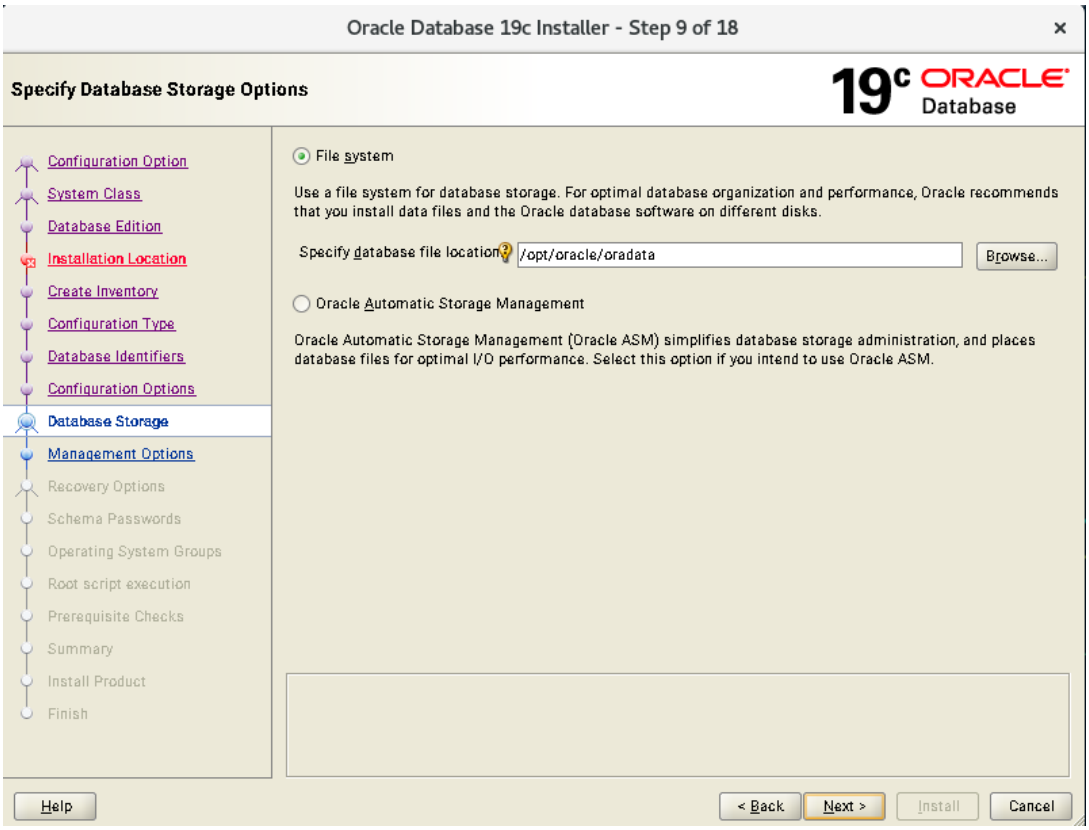

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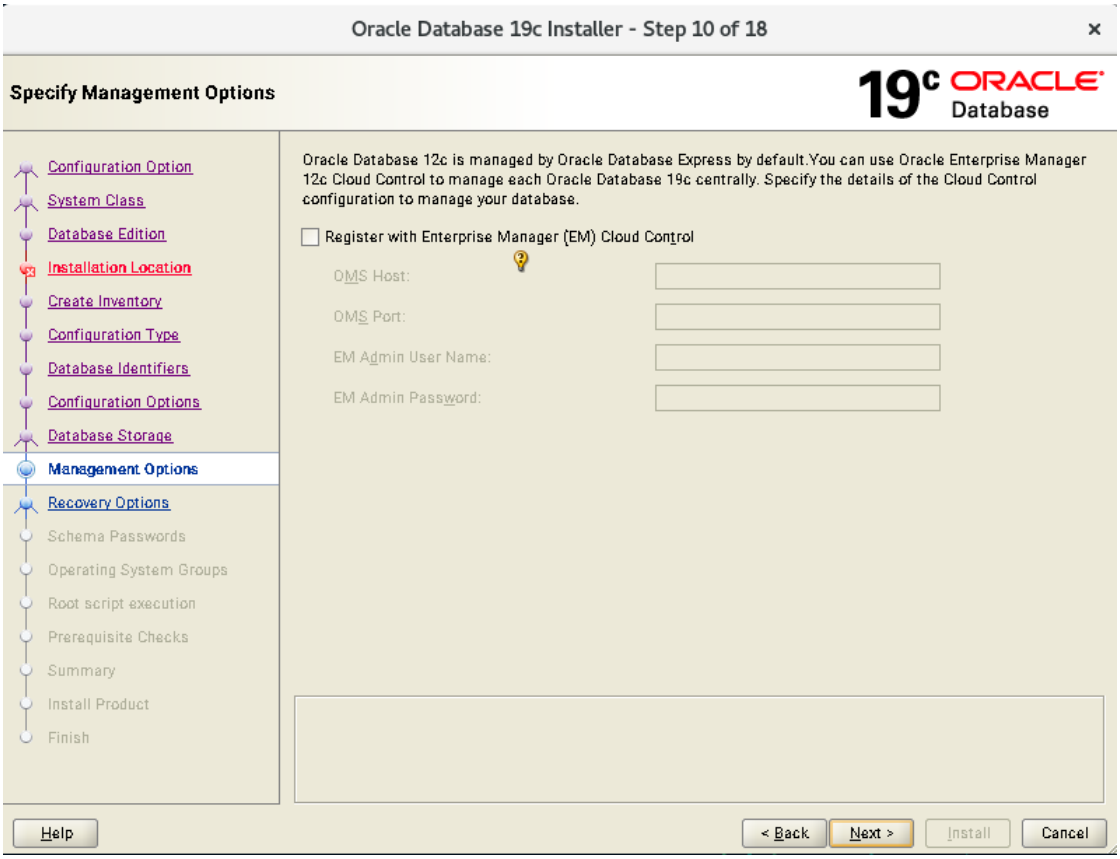

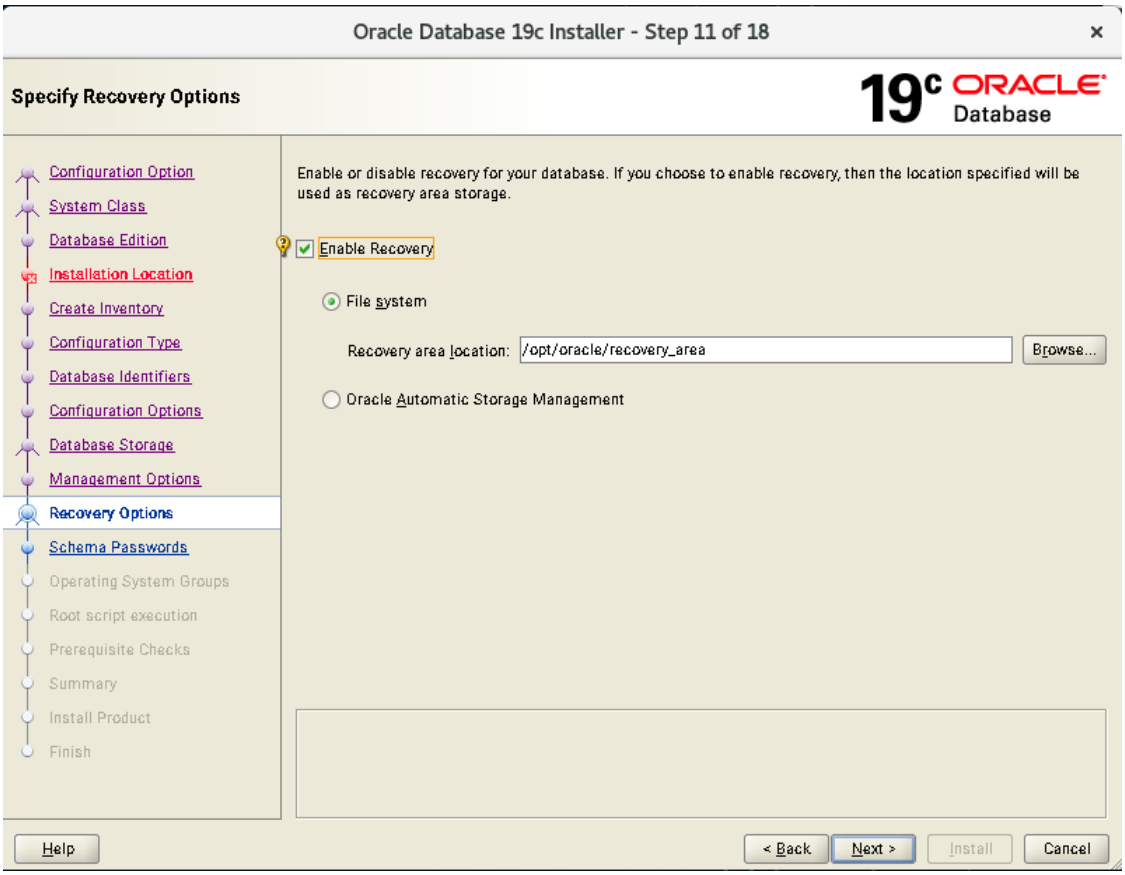

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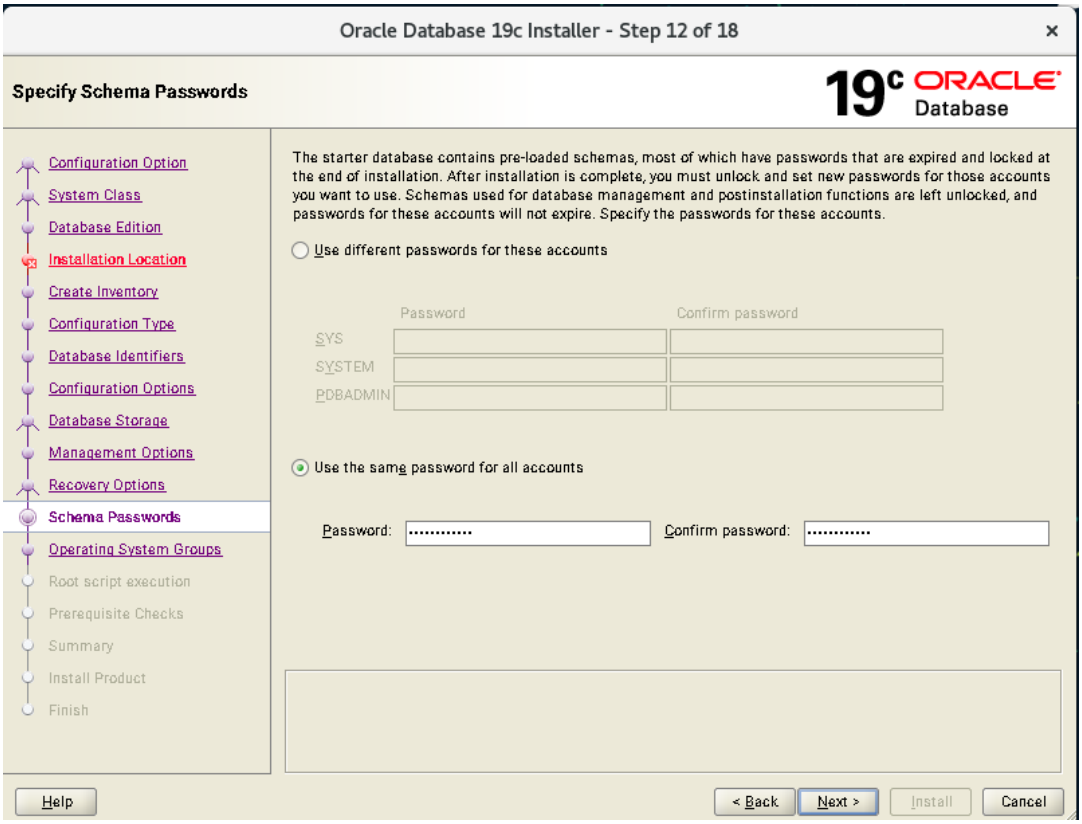

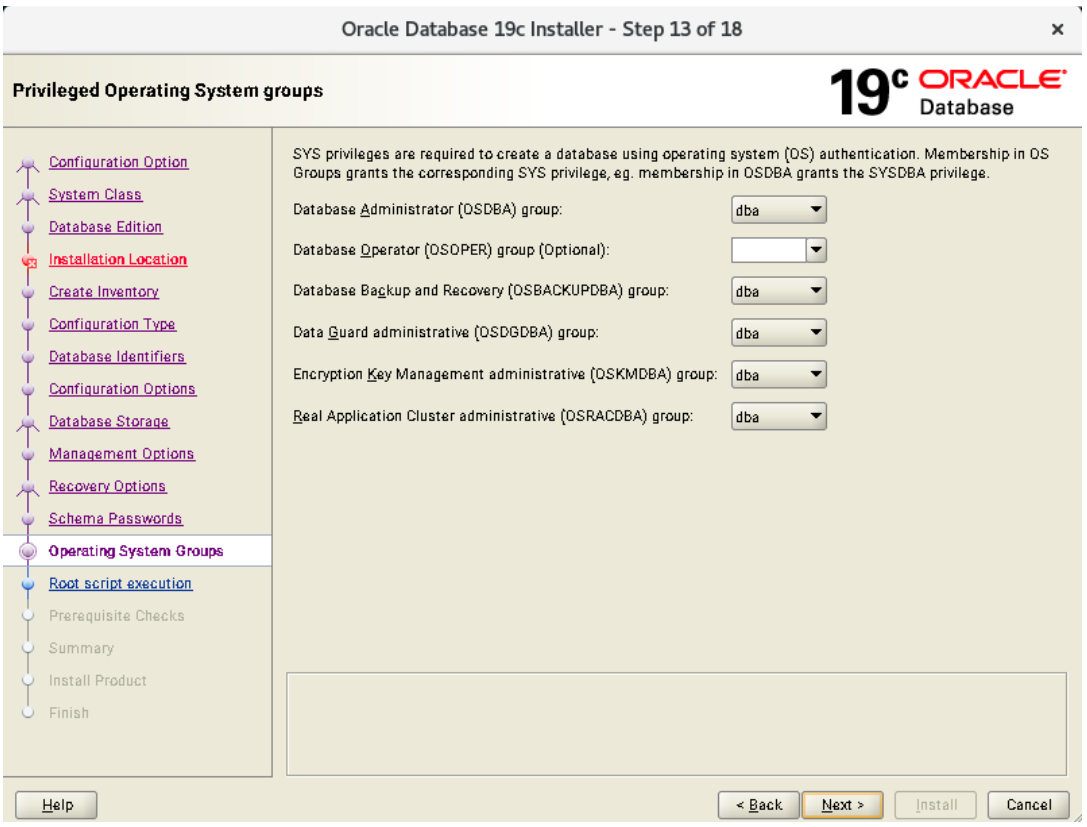

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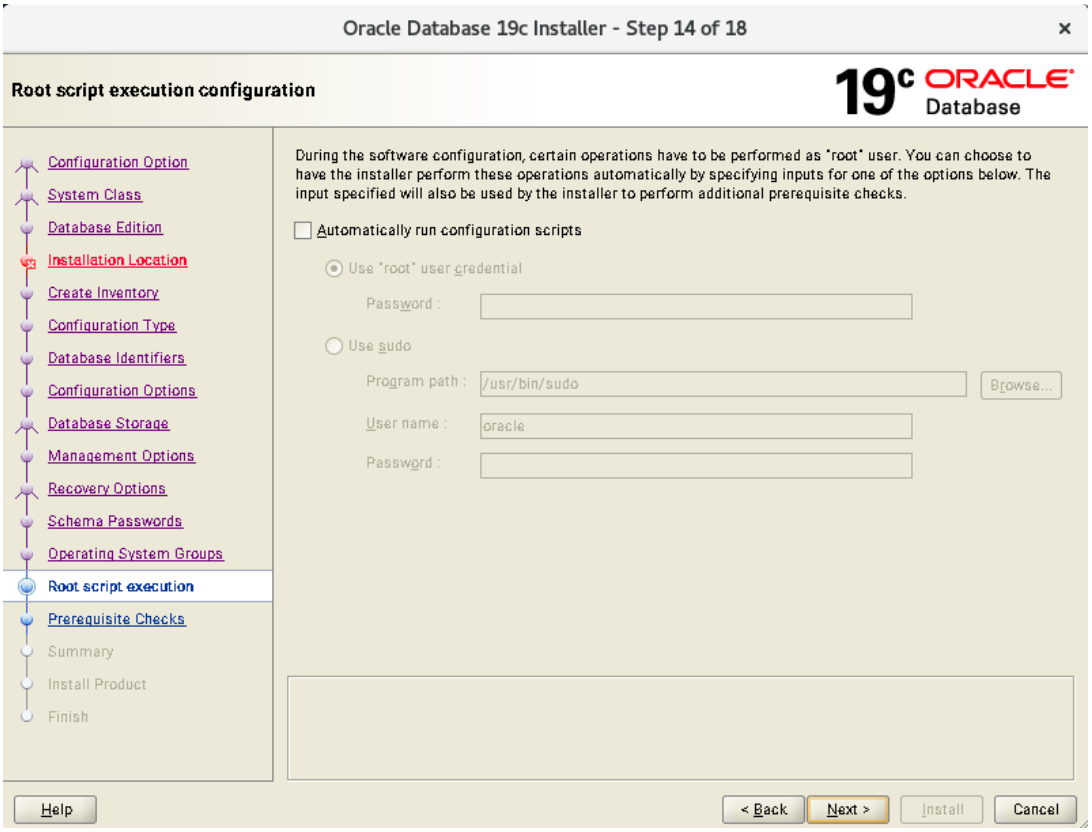

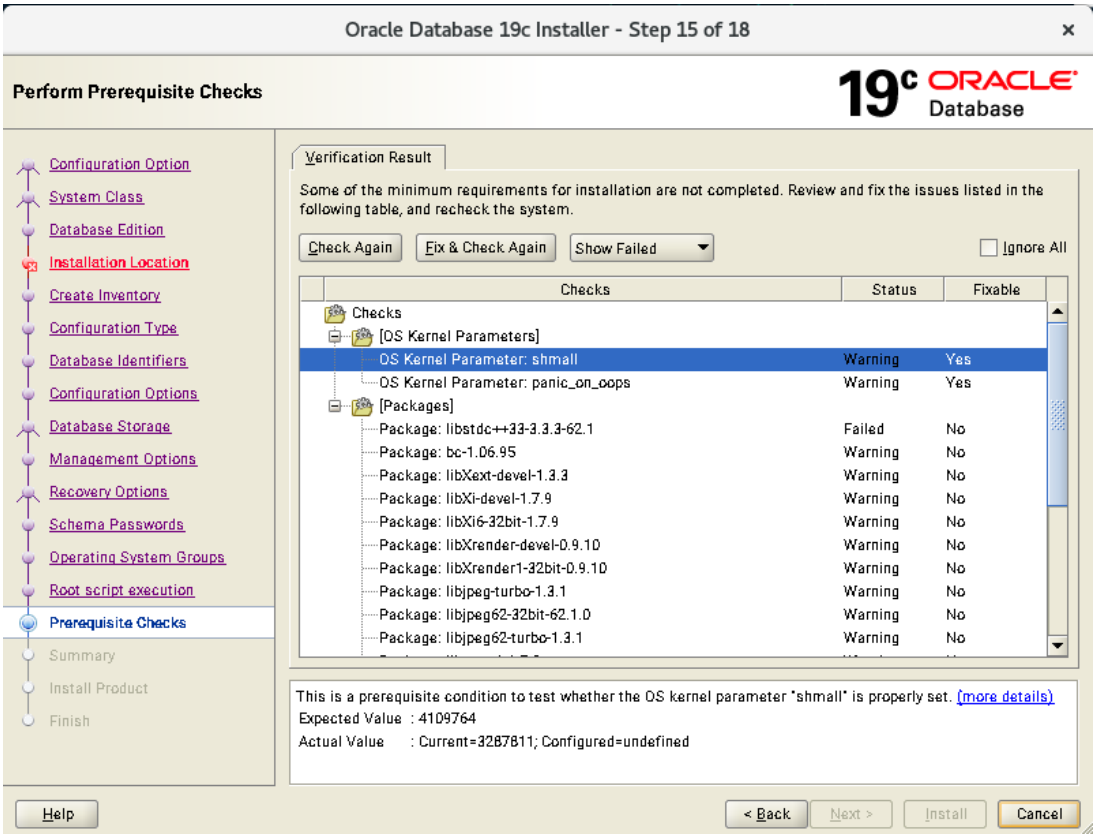

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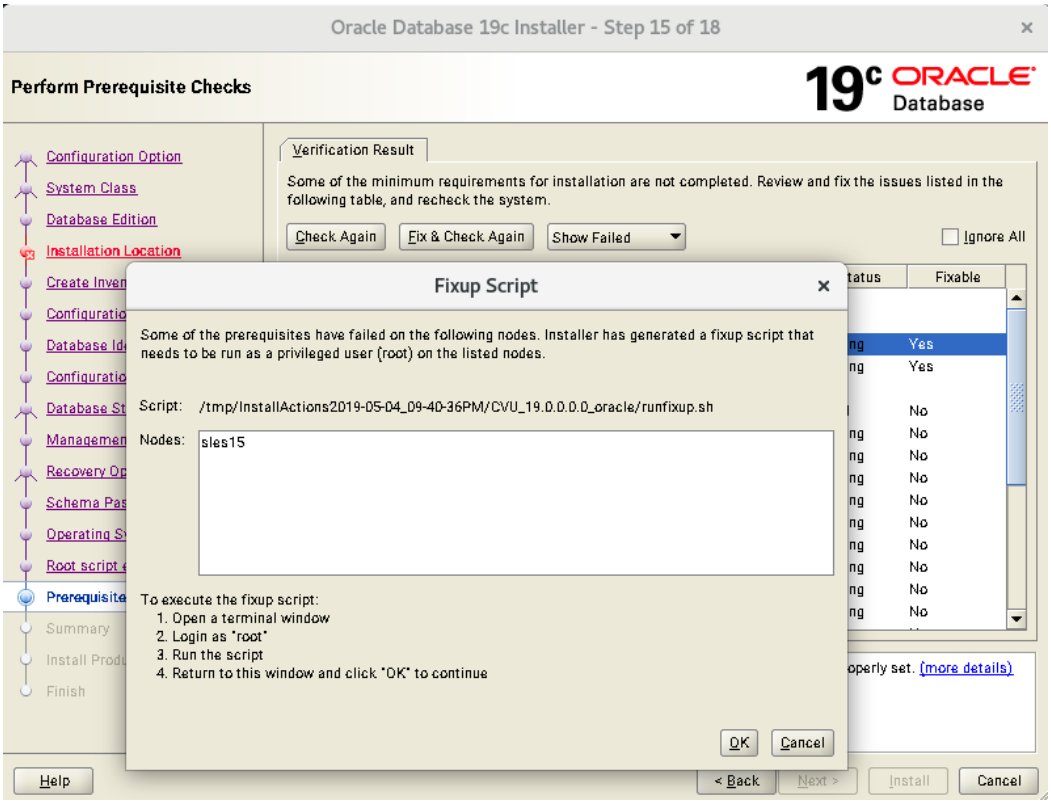

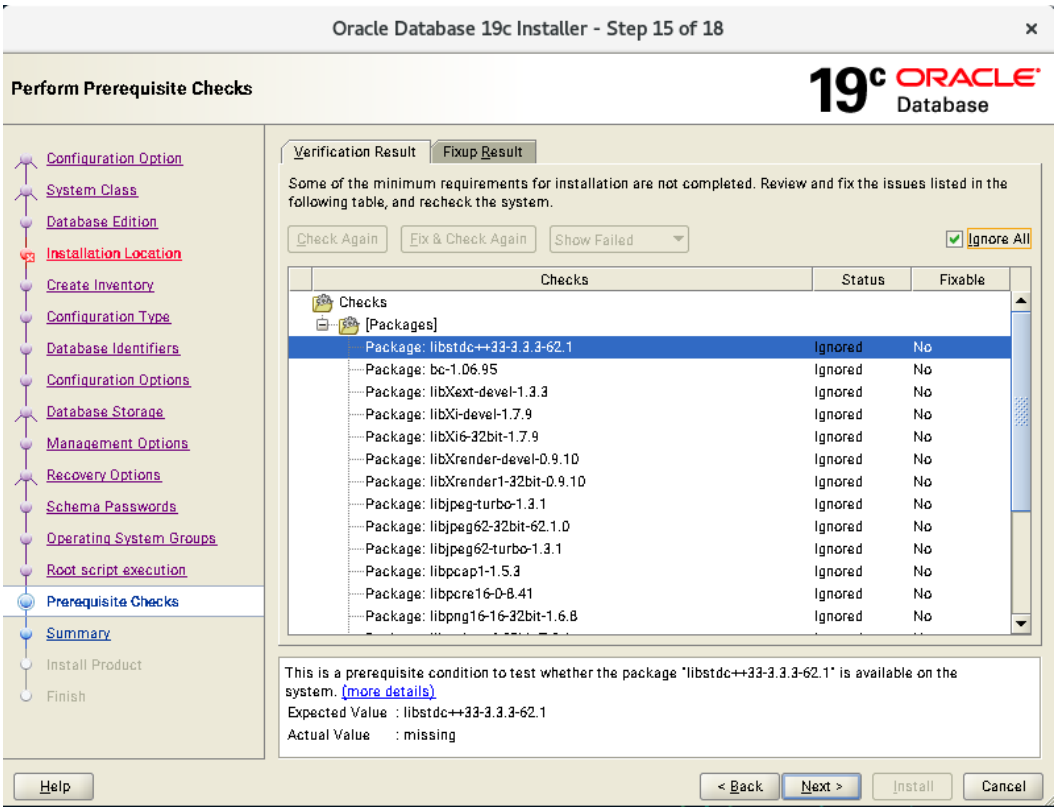

- Verify these packages are installed, then select “Ignore All”

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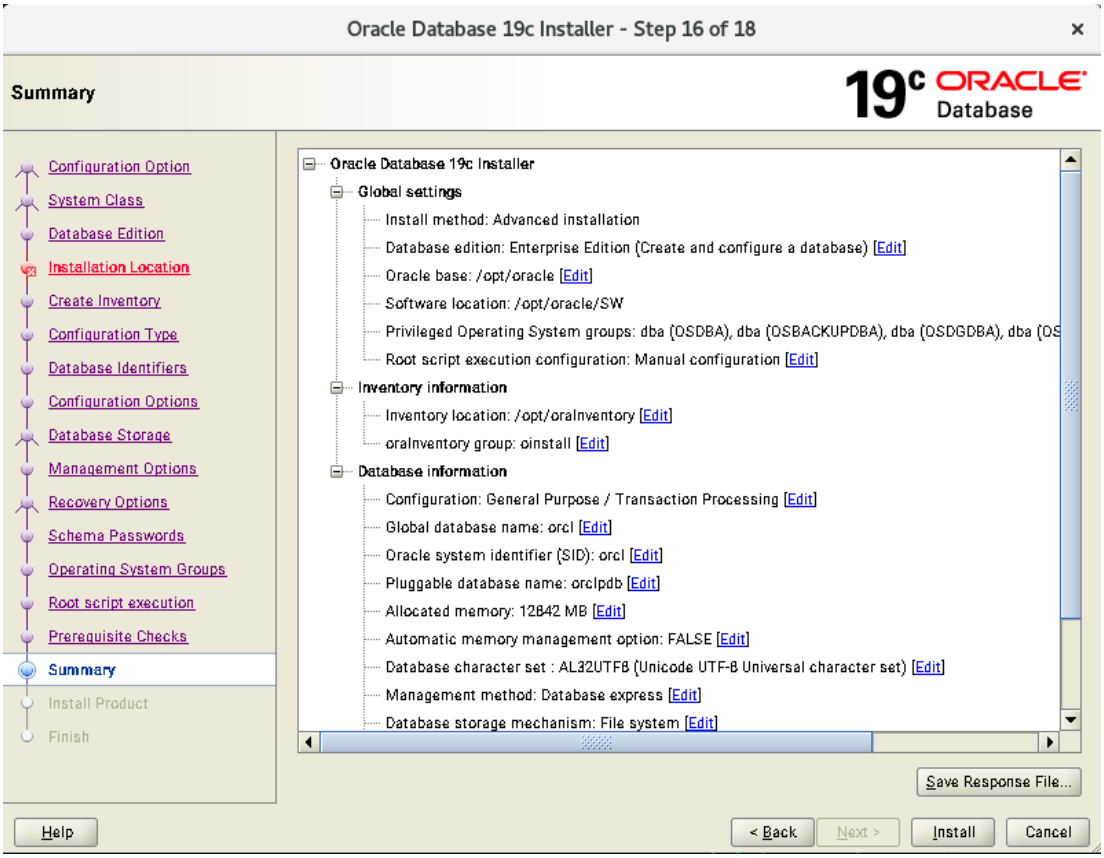

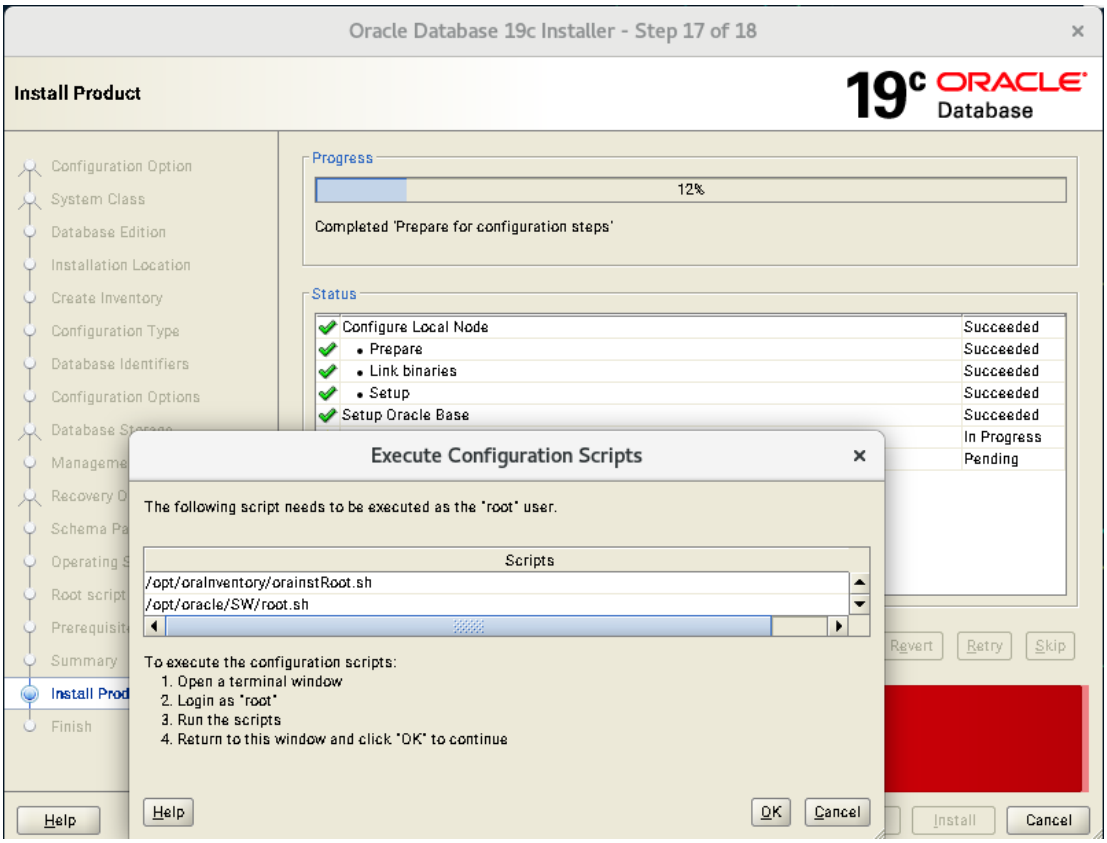

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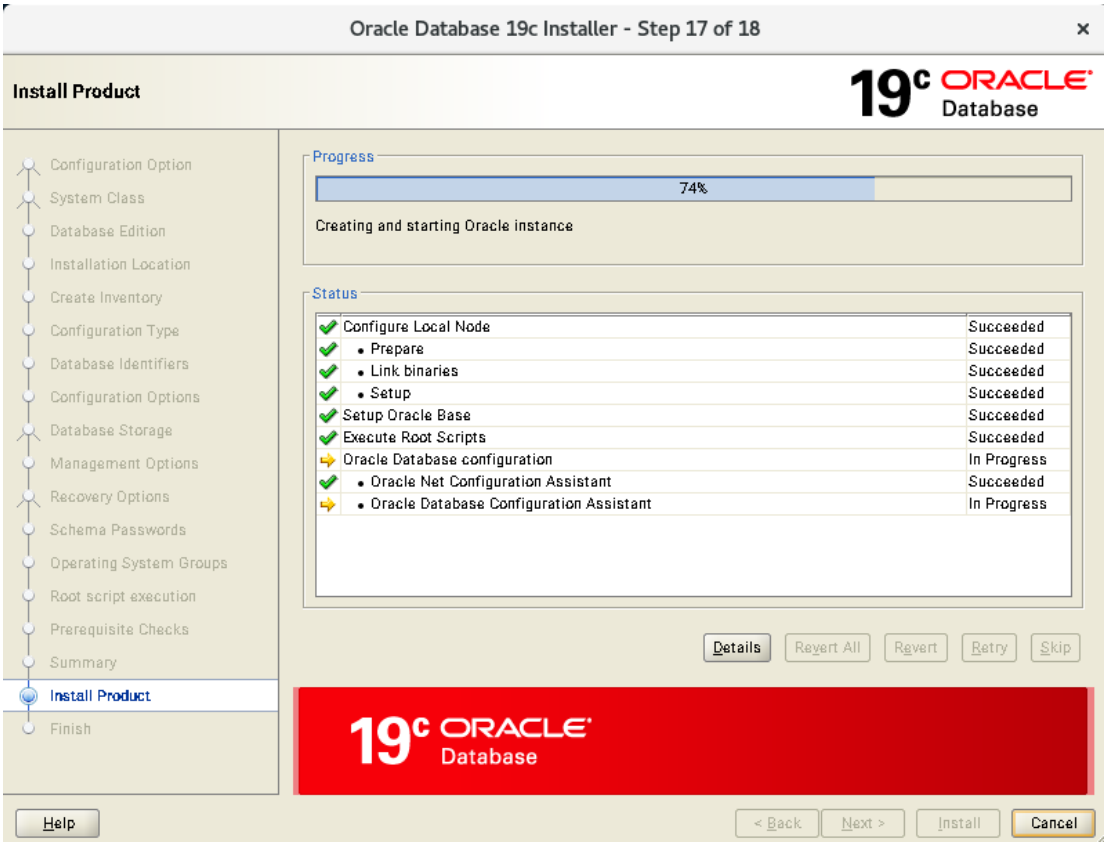

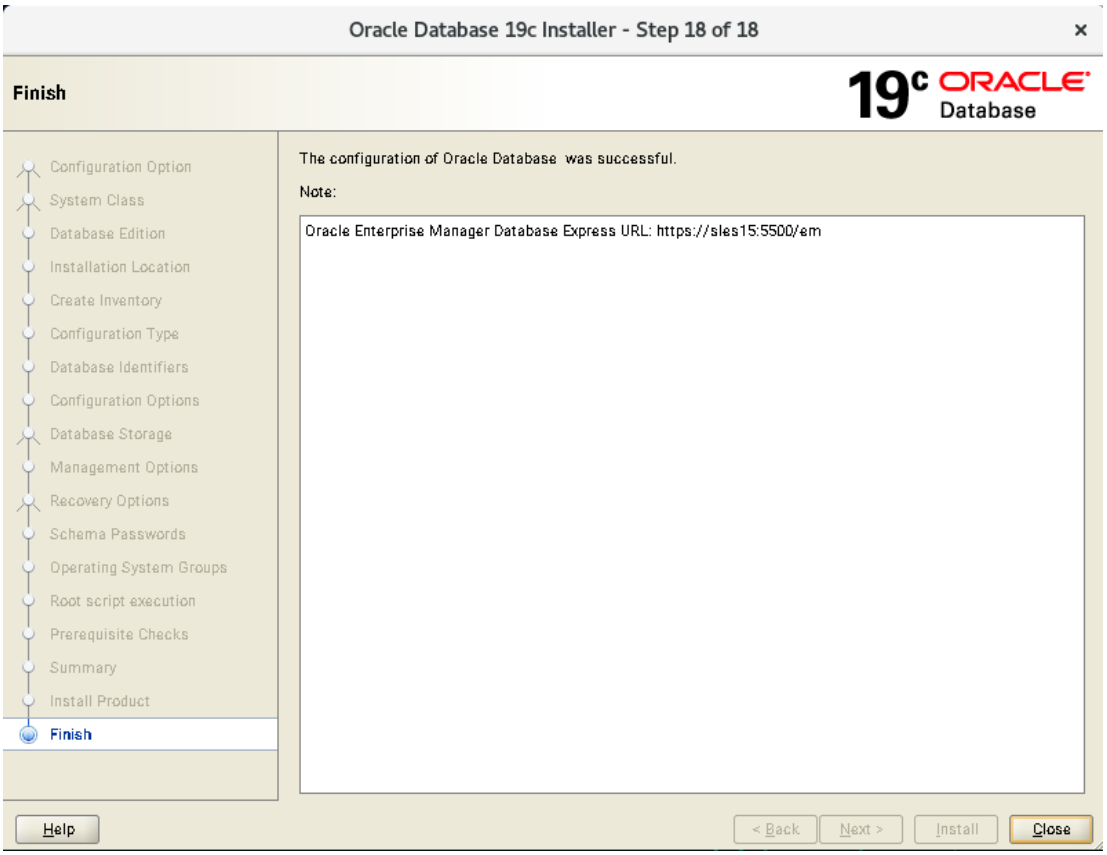

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Verify successful Database Installation using sqlplus:

```
oracle@sles15sp2:~> sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Jul 23 07:32:23 2020
Version 19.3.0.0.0

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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 2483027664 bytes
Fixed Size                  9137872 bytes
Variable Size             536870912 bytes
Database Buffers         1929379840 bytes
Redo Buffers                7639040 bytes
SQL> exit
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0
oracle@sles15sp2:~>
```

SUSE SLES 15 SP2 setup (After successful Oracle DB Install)

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

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

```
sles15sp2:/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; vendor preset: d>
   Active: active (exited) since Thu 2020-07-23 04:45:45 PDT; 2h 50min ago
  Process: 1709 ExecStart=/usr/lib/orarun/oracle-setup (code=exited, status=0/SUCCESS)
 Main PID: 1709 (code=exited, status=0/SUCCESS)
    Tasks: 0
   CGroup: /system.slice/oracle-setup.service

Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Shared memory:      SHMMAX=3294967296  SHMM>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Semaphore values:   SEMMSL=1250  SEMMNS=320>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Other values:       FILE_MAX_KERNEL=6815744>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]:   RMEM_DEFAULT=262144  WMEM_DEFAULT=262144 >
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Huge Pages:         SHM_GROUP=dba    NR_HUG>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: ULIMIT values:      MAX_CORE_FILE_SIZE_SHEL>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]:                     FILE_MAX_SHELL=65536  P>
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Checking sysctl.conf to overwrite previous >
Jul 23 04:45:45 sles15sp2 oracle-setup[1709]: Kernel parameters set for Oracle:
Jul 23 04:45:45 sles15sp2 systemd[1]: Started Setup environment for the Oracle database.
sles15sp2:/opt/oracle #
```


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```
sles15sp2:/opt/oracle # systemctl status oracle
● oracle.service - Start the Oracle database
   Loaded: loaded (/usr/lib/systemd/system/oracle.service; enabled; vendor preset: enable>
   Active: active (running) since Thu 2020-07-23 04:46:55 PDT; 2h 51min ago
  Process: 1962 ExecStart=/usr/lib/orarun/oracle start (code=exited, status=0/SUCCESS)
    Tasks: 56
   CGroup: /system.slice/oracle.service
           ├─2072 /opt/oracle/19c/bin/tnslsnr LISTENER -inherit
           ├─2317 ora_pmon_orcl
           ├─2319 ora_clmn_orcl
           ├─2321 ora_psp0_orcl
           ├─2323 ora_vktm_orcl
           ├─2327 ora_gen0_orcl
           ├─2329 ora_mman_orcl
           ├─2333 ora_gen1_orcl
           ├─2336 ora_diag_orcl
           ├─2338 ora_ofsd_orcl
           ├─2341 ora_dbrm_orcl
           ├─2343 ora_vkrm_orcl
           ├─2345 ora_svcb_orcl
           ├─2347 ora_pman_orcl
           ├─2349 ora_dia0_orcl
           ├─2351 ora_dbw0_orcl
           ├─2587 ora_w003_orcl
           ├─2597 ora_w004_orcl
           ├─2599 ora_cjq0_orcl
           ├─2605 ora_m001_orcl
           ├─2607 ora_m002_orcl
           ├─2696 ora_qm02_orcl
           ├─2716 ora_q00a_orcl
           ├─2740 ora_m003_orcl
           ├─5979 ora_m004_orcl
           ├─5983 ora_w005_orcl
           ├─5985 ora_w006_orcl
           └─5987 ora_w007_orcl

Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Application Server.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Application Server Console.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Agent.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Enterprise Manager.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting iSQLPLUS Manager.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Oracle Internet Filesystem.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]:   - Starting Oracle Internet Directory.....unused
Jul 23 04:46:55 sles15sp2 oracle[1962]: ################################################>
Jul 23 04:46:55 sles15sp2 oracle[1962]: #                      End of   O R A C L E   sec>
Jul 23 04:46:55 sles15sp2 systemd[1]: Started Start the Oracle database.
sles15sp2:/opt/oracle #
```


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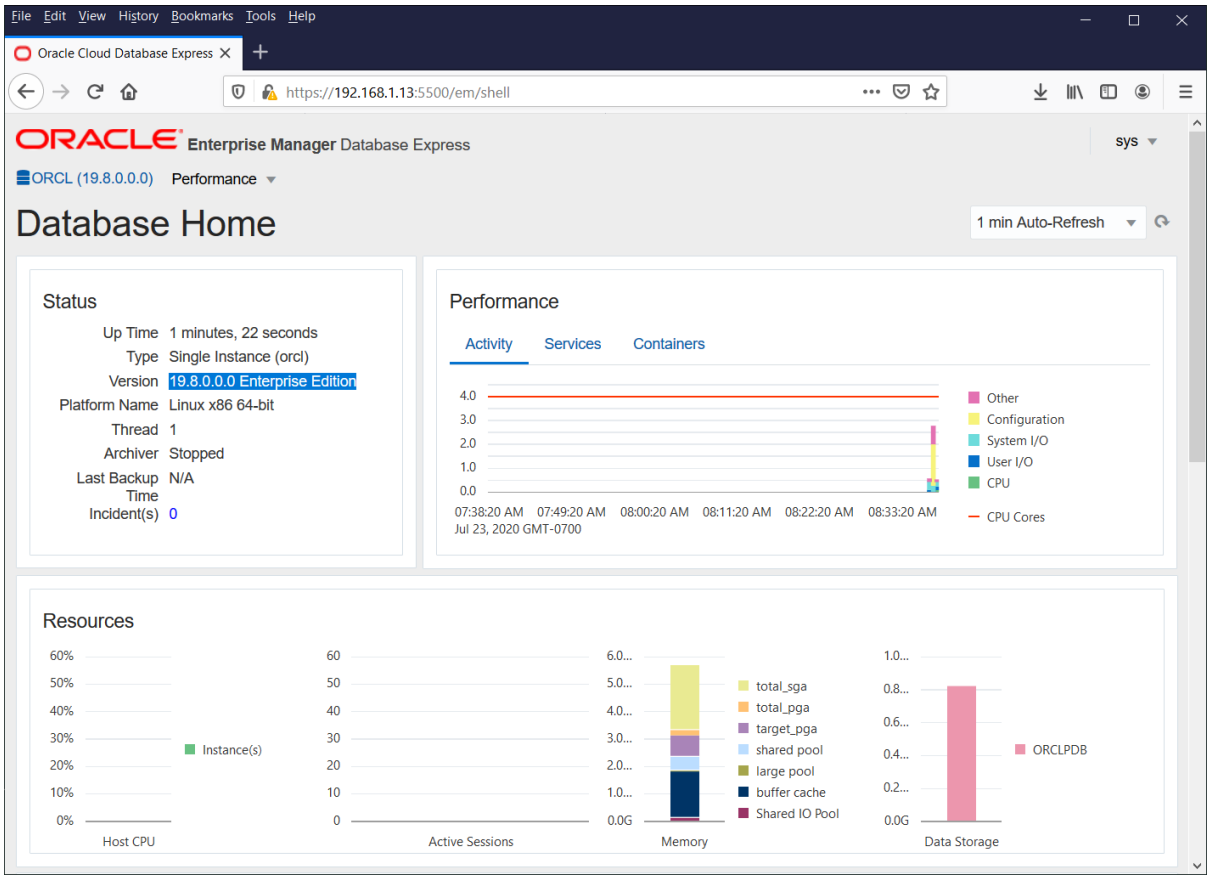
Update Oracle Database to latest version 19.8

SLES 15 SP2 is certified with Oracle Database 19.4.x (or above). Above instructions covers 19.3 (available for public download). Download and install latest update i.e. Oracle DB Release Update 19.8.0.0 (July, 2020) - p31281355_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!

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