

# Oracle Database 19c (19.3) on SUSE Linux Enterprise Server 12 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 12 SP5. This document covers x86\_64 version but installation steps are same for other platforms.

## 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 12 SP5 (use 60 Day's free trial):  
<https://www.suse.com/products/server/download/>

## Installation

Install SUSE Linux Enterprise Server 12 SP5 with “**Oracle Server Base**” pattern. You can follow official Oracle Installation manual for selective required rpms, however **Oracle Server Base** pattern from SUSE will fulfil minimum setup required for Oracle Database Installation.

```
oracle@Arun1:~> uname -a
Linux Arun1 4.12.14-122.12-default #1 SMP Thu Dec 19 12:19:34 UTC 2019 (6c5578e)
 x86_64 x86_64 x86_64 GNU/Linux
oracle@Arun1:~> cat /etc/os-release
NAME="SLES"
VERSION="12-SP5"
VERSION_ID="12.5"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP5"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp5"
oracle@Arun1:~> env |grep ORA
ORACLE_SID=orcl
ORACLE_BASE=/opt/oracle
ORACLE_HOME=/opt/oracle/SW
oracle@Arun1:~> id
uid=109(oracle) gid=114(oinstall) groups=114(oinstall),115(dba)
oracle@Arun1:~>
```

## Installing Oracle Database 19c (19.3)

Installing Oracle Database 19c on SLES12 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

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**

Select Configuration Option

-  [Configuration Option](#)
-  [Database Installation Options](#)
-  Install Type
-  Typical Installation
-  Root script execution
-  Prerequisite Checks
-  Summary
-  Install Product
-  Finish

Select any of the following install options.









- Create and configure a single instance database.  
This option creates a starter database.
-   Set Up Software Only


Note 1: For RAC install, do 'Set Up Software Only' and then execute DBCA (Database Configuration Assistant) from the oracle home.  
Note 2: To upgrade an Oracle Database, do 'Set Up Software Only' and then execute DBUA (Database Upgrade Assistant) from the oracle home.

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Select System Class

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- Desktop class  
Choose this option if you are installing on a laptop or desktop class system. This option includes a starter database and allows minimal configuration.
-   **Server class**  
Choose this option if you are installing on a server class system, which Oracle defines as a system used in a production data center. This option allows for more advanced configuration options.

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Select Database Edition



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Which database edition do you want to install?

- Enterprise Edition**  
Oracle Database 19c Enterprise Edition is a self-managing database that has the scalability, performance, high availability, and security features required to run the most demanding, mission-critical applications.
- Standard Edition 2**  
Oracle Database 19c Standard Edition 2 is a full-featured data management solution ideally suited to the needs of medium-sized businesses.

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Specify Installation Location



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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:  [Browse...](#)

This software directory is the Oracle Database home directory.

Software location: /opt/oracle/SW

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Create Inventory



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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:

Select Configuration Type



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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.

Specify Database Identifiers



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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:

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Specify Configuration Options



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Memory   Character sets   Sample schemas

Enabling Automatic Memory Management allows the database to distribute memory automatically between the system global area (SGA) and the program global area (PGA), based on user-specified overall database memory target size. If automatic memory management is not enabled, then the SGA and PGA must be sized manually.

Enable Automatic Memory Management

Allocate memory:  12,842 40 %

SGA target: 9631 MB

PGA aggregate target: 3211 MB

Target database memory: 12842 MB

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Specify Database Storage Options



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File system

Use a file system for database storage. For optimal database organization and performance, Oracle recommends that you install data files and the Oracle database software on different disks.

Specify database file location:

Oracle Automatic Storage Management

Oracle Automatic Storage Management (Oracle ASM) simplifies database storage administration, and places database files for optimal I/O performance. Select this option if you intend to use Oracle ASM.

Specify Management Options



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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

OMS Host:

OMS Port:

EM Admin User Name:

EM Admin Password:



Specify Recovery Options



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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

Specify Schema Passwords



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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**

Password:  Confirm password:

Privileged Operating System groups



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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:

Root script execution configuration



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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 credential

Password :

Use sudo

Program path :

User name :

Password :

**Perform Prerequisite Checks**

- Configuration Option
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- Install Product
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Verification Result

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

Ignore All

Checks	Status	Fixable
Checks		
Swap Size	Warning	No
[OS Kernel Parameters]		
OS Kernel Parameter: shmall	Warning	Yes
OS Kernel Parameter: panic_on_cops	Warning	Yes
[Packages]		
Package: libstdc++33-3.3.3-62.1 (x86_64)	Failed	No

This is a prerequisite condition to test whether sufficient total swap space is available on the system. [\[more details\]](#)

Expected Value : 16GB (1.6777216E7KB)  
Actual Value : 2.0059GB (2103292.0KB)

**Perform Prerequisite Checks**

- Configuration Option
- System Class
- Database Edition
- Installation Location**
- Create Inventory
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- Configuration Option
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- Root script executi
- Prerequisite Check**
- Summary
- Install Product
- Finish

Verification Result

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

Ignore All

**Fixup Script**

Some of the prerequisites have failed on the following nodes. Installer has generated a fixup script that needs to be run as a privileged user (root) on the listed nodes.

Script: /tmp/InstallActions2020-01-18\_01-29-55PM/CVU\_19.0.0.0.0\_oracle/runfixup.sh

Nodes: 

brun1

To execute the fixup script:

1. Open a terminal window
2. Login as 'root'
3. Run the script
4. Return to this window and click 'OK' to continue

**Perform Prerequisite Checks**

- Configuration Option
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- Install Product
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Verification Result    Fixup Result

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

Ignore All

Checks	Status	Fixable
Checks		
Swap Size	Ignored	No
[Packages]		
Package: libstdc++33-3.3.3-62.1 (x86_64)	Ignored	No

This is a prerequisite condition to test whether sufficient total swap space is available on the system. [more details](#)

Expected Value : 16GB (1.6777216E7KB)  
 Actual Value : 2.0059GB (2103292.0KB)

**Summary**

- Configuration Option
- System Class
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Oracle Database 19c Installer

- Global settings
  - Install method: Advanced installation
  - Database edition: Enterprise Edition (Create and configure a database) [\[Edit\]](#)
  - Oracle base: /opt/oracle [\[Edit\]](#)
  - Software location: /opt/oracle/SW
  - Privileged Operating System groups: dba (OSDBA), dba (OSBACKUPDBA), dba (OSDGDBA), dba (OSOPER)
  - Root script execution configuration: Manual configuration [\[Edit\]](#)
- Inventory information
  - Inventory location: /opt/orainventory [\[Edit\]](#)
  - orainventory group: oinstall [\[Edit\]](#)
- Database information
  - Configuration: General Purpose / Transaction Processing [\[Edit\]](#)
  - Global database name: orcl.provo.novell.com [\[Edit\]](#)
  - Oracle system identifier (SID): orcl [\[Edit\]](#)
  - Pluggable database name: orclpdb [\[Edit\]](#)
  - Allocated memory: 12842 MB [\[Edit\]](#)
  - Automatic memory management option: FALSE [\[Edit\]](#)
  - Database character set : AL32UTF8 (Unicode UTF-8 Universal character set) [\[Edit\]](#)
  - Management method: Database express [\[Edit\]](#)
  - Database storage mechanism: File system [\[Edit\]](#)

Install Product



**Progress**

12%

Completed 'Prepare for configuration steps'

**Status**

Configure Local Node	Succeeded
• Prepare	Succeeded
	Succeeded
	Succeeded
	Succeeded
	Succeeded
	In Progress
	Pending

**Execute Configuration Scripts**

The following script needs to be executed as the 'root' user.

Scripts

- /opt/orainventory/orainstRoot.sh
- /opt/oracle/SW/root.sh

To execute the configuration scripts:

1. Open a terminal window
2. Login as 'root'
3. Run the scripts
4. Return to this window and click 'OK' to continue

Help OK Cancel

Revert All Revert Retry Skip

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Install Product



**Progress**

74%

Creating and starting Oracle instance

**Status**

Configure Local Node	Succeeded
• Prepare	Succeeded
• Link binaries	Succeeded
• Setup	Succeeded
Setup Oracle Base	Succeeded
Execute Root Scripts	Succeeded
Oracle Database configuration	In Progress
• Oracle Net Configuration Assistant	Succeeded
• Oracle Database Configuration Assistant	In Progress

Details Revert All Revert Retry Skip

**19c ORACLE Database**

Help

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## Finish

**19<sup>c</sup> ORACLE<sup>®</sup>**  
Database

The configuration of Oracle Database was successful.

Note:

Oracle Enterprise Manager Database Express URL: <https://Arun1.provo.novell.com:5500/em>

Configuration Option

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**Finish**

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Install

Close

**Verify successful Database Installation using sqlplus:**

```
File Edit View Search Terminal Help
oracle@Arun1:~/SW> sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Sat Jan 18 15:43:19 2020
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

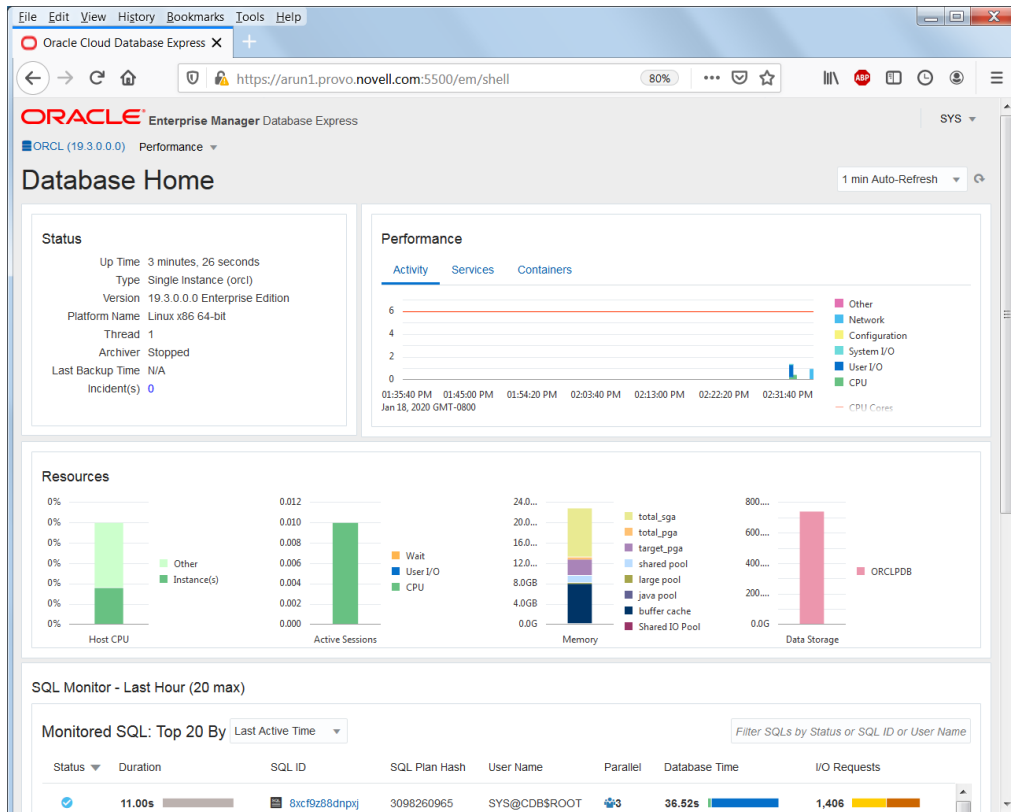
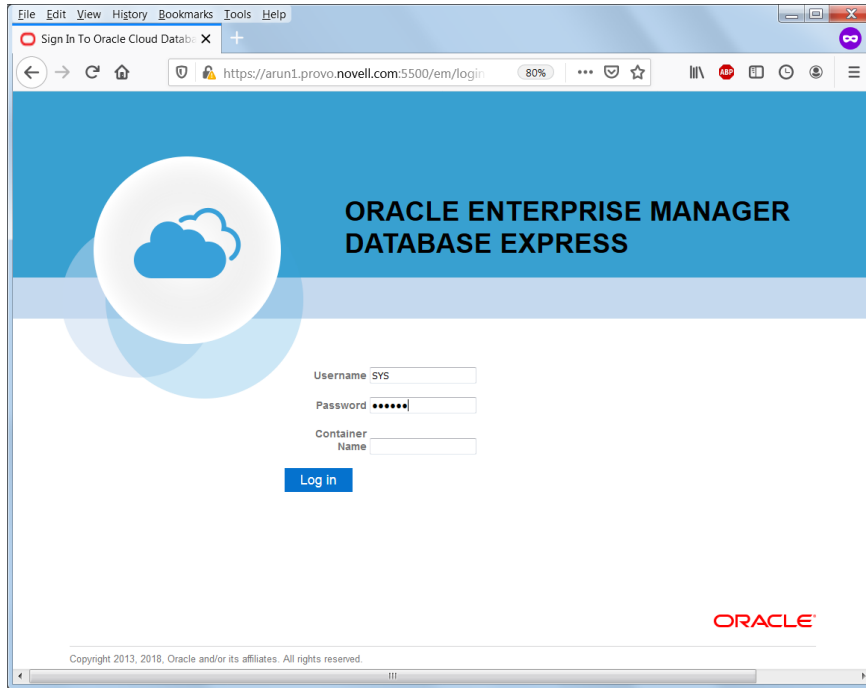
SQL> show sga

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@Arun1:~/SW> █
```

## Oracle Enterprise Manager Screen:

You can use Oracle Enterprise Manager to manage your database:

<https://arun1.provo.novell.com:5500/em>



**SUSE SLES12 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.

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