

Requirements for Installing Oracle Database/Client 19c on OL8 or RHEL8 64-bit (x86-64) (Doc ID 2668780.1)

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APPLIES TO:

Oracle Database Cloud Exadata Service - Version N/A and later
Oracle Database - Enterprise Edition - Version 19.6.0.0.0 and later
Oracle Database Backup Service - Version N/A and later
Oracle Database Cloud Service - Version N/A and later
Gen 1 Exadata Cloud at Customer (Oracle Exadata Database Cloud Machine) - Version N/A and later
Linux x86-64

PURPOSE

This note explains the requirements that need to be met for a successful installation of Oracle Database 19c release On Oracle Linux 8 (or higher) or Red Hat Enterprise Linux 8 (or higher) 64-bit (x86-64).

It is NOT the purpose of this NOTE to repeat every "how-to" step that is presented in the Oracle Database 19c Installation Guide. For example this NOTE does not include how to create the Linux OS account named "oracle", nor does it cover how to set environment variables. Both are adequately covered in "Oracle® Database Installation Guide 19c for Linux"

SCOPE

This procedure is meant for those Planning / Installing Oracle Database 19c on Oracle Linux 8 (or higher) or RHEL 8 (or higher) on the 64-bit (x86-64) platform. Since it is the expressed goal to keep Oracle Linux (OL) functionally IDENTICAL to RHEL, this NOTE is also completely applicable to 64-bit (x86-64) OL 8

Oracle Grid Infrastructure & RAC 19c are also certified on OL / RHEL 8. However, In view of differences in the RPM & other requirements, This procedure is not to be followed for Planning / Installing Grid Infrastructure (GI) or any other Oracle products.

DETAILS

Requirements for installing Oracle Database 19c release 64-bit on OL8 64-bit or RHEL8 (x86_64)

Before you proceed with Installation, please take time to review every below requirement carefully to avoid any obvious issues during Installation of binaries.

- Download the Oracle Database 19c Software

-Download the Oracle Database 19c software from OTN - <https://www.oracle.com/technetwork/database/enterprise-edition/downloads/oracle19c-linux-5462157.html>

-After you download the Software, Verify the integrity of the Downloaded Software

Note [549617.1](#) How To Verify The Integrity Of A Patch/Software Download? [Video]

-If you have downloaded the Software on other Machine, please transfer the zip file on the Server being Installed using Binary Mode and unzip with the Oracle Software user.

Hardware

Minimum Hardware Requirements

a. Ensure that your system meets the following Physical Memory requirements:

Minimum: 1 GB of RAM

Recommended: 2 GB of RAM or more

b. Swap space allocation relative to RAM

| RAM | Swap Space |
|------------------------|-------------------------------|
| Between 1 GB and 2 GB | 1.5 times the size of the RAM |
| Between 2 GB and 16 GB | Equal to the size of the RAM |
| More than 16 GB | 16 GB |

NOTE: The above recommendations (from the Oracle® Database Installation Guide 19c for Linux) are MINIMUM recommendations for installations. Further RAM and swap space may be required to tune/improve RDBMS performance.

c. 1.0 GB (1024MB) of disk space (and less than 2TB of disk space) in the /tmp directory.

d. If the free space available in the /tmp directory is less than what is required, then complete one of the following steps:

- Delete unnecessary files from the /tmp directory to meet the disk space requirement.
- Set the TMP and TMPDIR environment variables when setting the oracle user's environment.

e. Approximately 7.2 GB of local disk space for the Database Software Files.

f. If you intend to create a preconfigured database during the installation, then the file system (or file systems) that you choose must have at least 2 GB of free disk space.

For production databases, you must estimate the disk space requirement depending on the use of the database.

2. Oracle Database is supported on ext2, ext3 and ext4 file systems (see Note: [236826.1](#) for further information)

Software

Certified Operating System

Oracle Linux 8/8.1 (Please see exact Requirements below)

Red Hat Enterprise Linux 8

a. For Minimal Linux Installation :

A minimal Linux installation option is either a custom installation where you select the Minimal option from Package Group Selection, or where you deselect all packages except for the Base pack. A minimal Linux installation lacks many RPMs required for database installation, so you must use an RPM package for your Oracle Linux release to install the required packages. The package you use depends on your Linux release

b. For a Default Linux Installation

Oracle recommends that you install your Linux operating system with the default software packages (RPMs).

A default Linux installation includes most of the required packages and helps you limit manual verification of package dependencies. Oracle recommends that you do not customize the RPMs during installation.

Kernel requirements

The following kernels are supported:

Oracle Linux 8.1 with the Unbreakable Enterprise Kernel 6: 5.4.17-2011.0.7.el8uek.x86_64 or later
Oracle Linux 8 with the Red Hat Compatible kernel: 4.18.0-80.el8.x86_64 or later
Red Hat Enterprise Linux 8: 4.18.0-80.el8.x86_64 or later

NUMA can be turned ON.No issues reported on OL8.x/RHEL8.x when NUMA is ON.

Oracle Universal Installer requires an X Window System (for example, libx)

The libx packages are part of a default Linux installation.

If you perform an install on a system with a reduced set of packages, then you must ensure that libx or a similar X Window System package is installed

At least 1 GB of space in the /tmp directory.

Runlevel : 3 or 5

Oracle User Environment Configuration Checklist :

For new installs, if you have not configured an oraInventory directory, then the installer creates an Oracle inventory that is one directory level up from the Oracle base for the Oracle Grid Infrastructure install, and designates the installation owner's primary group as the Oracle Inventory group.

The **oinstall** group must be the primary group of all Oracle software installation owners on the server. It should be writable by any Oracle installation owner.

Oracle recommends that you create groups and user accounts required for your security plans before starting installation. Installation owners have resource limits settings and other requirements.

If you have an existing Oracle software installation, and you are using the same user to install this installation, then unset the following environment variables: \$ORACLE_HOME,\$ORA_NLS10, and \$TNS_ADMIN, \$ORACLE_BASE, \$ORACLE_SID

By default, your operating system includes an entry in /etc/fstab to mount /dev/shm. However, if your Cluster Verification Utility (CVU) or Oracle Universal Installer (OUI) checks fail, ensure that the /dev/shm mount area is of type tmpfs and is mounted with the following options:

rw and exec permissions set on it

Without noexec or nosuid set on it

Set the default file mode creation mask (umask) to 022 in the shell startup file.

Storage Checklist for Oracle Database

At least 7.5 GB for Oracle Database Standard Edition 2.

Database Pre-Install RPM Download Links(External & Internal Repositories)

https://public-yum.oracle.com/repo/OracleLinux/OL8/appstream/x86_64/getPackage/oracle-database-preinstall-19c-1.0-2.el8.x86_64.rpm

https://public-yum.oracle.com/repo/OracleLinux/OL8/appstream/x86_64/getPackage/oracle-database-preinstall-19c-1.0-1.el8.x86_64.rpm

https://yum.oracle.com/repo/OracleLinux/OL8/appstream/x86_64/getPackage/oracle-database-preinstall-19c-1.0-2.el8.x86_64.rpm

https://yum.oracle.com/repo/OracleLinux/OL8/appstream/x86_64/getPackage/oracle-database-preinstall-19c-1.0-1.el8.x86_64.rpm

The download for the oracle-database-preinstall-19c RPM can be done with below commands (without the need to provide version numbers)

```
# dnf update -y
# dnf install oracle-database-preinstall-19c -y
```

Note - On OL8 (especially Update 5 and later) the full update will fix the repo files (baseos vs appstream)

Minimum Operating System Resource Parameter Settings

```
semmsl 250
semmns 32000
semopm 100
semmni 128
shmall Greater than or equal to the value of shmmax, in pages /proc/sys/kernel/shmall
shmmax Half the size of physical memory in bytes /proc/sys/kernel/shmmax
shmmni 4096
panic_on_oops 1
file-max 6815744
aio-max-nr 1048576
ip_local_port_range Minimum: 9000
ip_local_port_range Maximum: 65500
rmem_default 262144
rmem_max 4194304
wmem_default 262144
wmem_max 1048576
```

Verify the latest version of PAM is loaded, then add or edit the following line in the /etc/pam.d/login file, if it does not already exist:

```
session required pam_limits.so
```

Minimum Operating System Software/RPM Requirements

Note - The default RPM Versions that come with OL/RHEL 8/8.1 are OK.Hence,the minimum recommended versions for each RPM,have not been documented.This is an intended change with 19c.

| Pre-Req Software/RPMs | |
|--|--|
| Item | Requirements |
| SSH Requirement | Ensure that OpenSSH is installed on your servers. Op |
| Packages for Oracle Linux 8.1 (with UEK 6) | bc binutils |

| | |
|---|--|
| Packages for Oracle Linux 8(with RHCK) | <p>elfutils-libelf elfutils-libelf-devel fontconfig-devel glibc glibc-devel ksh libaio libaio-devel libXrender libX11 libXau libXi libXtst libgcc libnsl librdmacm libstdc++ libstdc++-devel libxcb libibverbs make smartmontools sysstat</p> <p>Note - For 64-Bit Oracle Database Client Installs,below libnsl2 libnsl2-devel</p> |
| Packages for Red Hat Enterprise Linux 8 | <p>bc binutils elfutils-libelf elfutils-libelf-devel fontconfig-devel glibc glibc-devel ksh libaio libaio-devel libXrender libX11 libXau libXi libXtst libgcc libnsl librdmacm libstdc++ libstdc++-devel libxcb libibverbs make smartmontools sysstat</p> <p>Note - For 64-Bit Oracle Database Client Installs,below libnsl2 libnsl2-devel</p> |

The Oracle ORAchk utility provides system checks that can help to prevent issues before and after installation. These checks include kernel requirements, operating system resource allocations, and other system requirements.

Before you perform a fresh database installation:

```
./orachk -profile preinstall
```

Running Oracle Database Setup Wizard to Install Oracle Database

Log in as the Oracle installation owner user account (oracle) that you want to own the software binaries.

To install Oracle Database 19c on Oracle Linux 8 or Red Hat Enterprise Linux 8, download the 19.3 Oracle Database software binaries from Oracle Technology Network (OTN), and then apply the 19.6 or 19.7 release updates (RUs) during the the Oracle Database installation or upgrade process.*****Installation of the mentioned Patches is mandatory******

Create the Oracle home directory and extract the image files that you have downloaded in to this Oracle home directory. For example:

```
$ mkdir -p /u01/app/oracle/product/19c/dbhome_1
$ chgrp oinstall /u01/app/oracle/product/19c/dbhome_1
$ cd /u01/app/oracle/product/19c/dbhome_1
$ unzip -q /tmp/db_home.zip
```

During the Oracle Database installation process,execute the runInstaller command with the -applyRU and -applyOneOffs options to install the latest 19.6 RU & required One offs or 19.7 RU for Oracle Linux 8 and Red Hat Enterprise Linux 8:

Users are strongly recommended to go with latest DB RU (19.9 or later) to minimize the number of Patches to be installed.Latest OJVM & OCW (19.9 or Later) RU Patches are also recommended to be applied,during/after the Installation.

```
$ export CV_ASSUME_DISTID=OL7
$ ./runInstaller -applyRU <Latest 19c DBRU Patch unzip location> -applyOneOffs <Latest 19c OJVM
RU Patch unzip location>,<Latest 19c OCWRU Patch unzip location>
```

For eg-

```
$ ./runInstaller -applyRU /u01/app/30557433 -applyOneOffs
/u01/app/30484981,/u01/app/30501910/30489227
```

Note -

- a. EM Express One-Off Patch 30150710 is fixed in October 2020 19.9 DBRU Patch 31771877
- b. OCW RU Patches are not separately available for download from MOS Patches & Updates.Download latest GI RU & then unzip to locate the OCWRU Patch
- c. EM Express One-Off Patch 30150710 is fixed in October 2020 19.9 DBRU Patch 31771877. If DB RU earlier than 19.9 is being applied,then Patch 30150710 needs to be downloaded separately & applied as shown below-

```
$ ./runInstaller -applyRU <Latest 19c DBRU Patch unzip location> -applyOneOffs <Latest 19c
OJVM RU Patch unzip location>,<Latest 19c OCWRU Patch unzip location>,<Oneoff patch 30150710
unzip location>
```

For eg -

```
$ ./runInstaller -applyRU /u01/app/30557433 -applyOneOffs
/u01/app/30484981,/u01/app/30501910/30489227,/u01/app/30150710
```

d. Latest RU Patch Numbers can be obtained from the below MOS Note -

Assistant: Download Reference for Oracle Database/GI Update, Revision, PSU, SPU(CPU), Bundle Patches, Patchsets and Base Releases (Doc ID [2118136.2](#))

Known Issues

1. Since 19c(19.3) is already released a while ago,It does not contain Pre-req checks specific to OL /RHEL 8. Installer will fail with below Error,as there are no Pre-req checks specific to OL / RHEL 8-

[WARNING] [INS-08101] Unexpected error while executing the action at state:'supportedOSCheck'
CAUSE: No additional information available.
ACTION: Contact Oracle Support Services or refer to the software manual.
SUMMARY:
- java.lang.NullPointerException

Hence, there is a need to direct the Installer to assume the installed OS to be OL 7 & perform related checks. Therefore, the below Variable needs to be set, prior to launching Installer-

```
$ export CV_ASSUME_DISTID=OL7
```

Note - Updated Pre-req check file for OL/RHEL 8 is provided by OCW RU 19.6 & later.

2. Without 19.6 OJVM, DB creation using DBCA would encounter the below errors -

```
-> Error at line 183503: script md/admin/catmdloc.sql
- ORA-29532: Java call terminated by uncaught Java exception:
- oracle.aurora.server.tools.loadjava.ToolsError:
- Error during loadjava: Failures occurred during processing.
- Check trace file for details
```

3. Without Oneoff patch 30150710, EM Express Home Page is shown Blank after the Install.

4. Both the above mentioned Bugs are fixed in 19.9 DB RU Patch 30869156

5. During deinstall/removal of Oracle Home Software, the below error might be noticed-

```
$ ./deinstall
Checking for required files and bootstrapping ...
Please wait ...
Location of logs /tmp/deinstall2020-05-27_06-01-49PM/logs/

##### ORACLE DECONFIG TOOL START #####

##### DECONFIG CHECK OPERATION START #####
## [START] Install check configuration ##

Checking for existence of the Oracle home location <ORACLE_HOME>
Oracle Home type selected for deinstall is: Oracle Single Instance Database
Oracle Base selected for deinstall is: /refresh/app/oracle
Checking for existence of central inventory location /refresh/app/oraInventory
ERROR: null
```

Deinstall Logs would show a Java Null Pointer Exception Error-

```
java.lang.reflect.InvocationTargetException
  at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
  at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
  at java.lang.reflect.Method.invoke(Method.java:498)
  at oracle.install.db.deinstall.wrapper.Deinstall.callCheckImpl(Deinstall.java:1449)
  at oracle.install.db.deinstall.wrapper.Deinstall.main(Deinstall.java:732)
Caused by: java.lang.ExceptionInInitializerError
  at oracle.ops.verification.framework.util.Assert.assertPath(Assert.java:601)
  at oracle.cluster.verification.ClusterVerification.setPreReqXmlFile(ClusterVerification.java:9059)
  at oracle.install.db.deinstall.core.CheckInstall.checkConfig(CheckInstall.java:1083)
  ... 6 more
Caused by: java.lang.NullPointerException
  at oracle.ops.verification.framework.storage.StorageUtil.<clinit>(StorageUtil.java:194)
  ... 9 more
```

The solution is to install 19.7 OCW RU Patch & then try the deinstall.

6. For RPM based Installs, Installation succeeds with the standard RPM provided, But it is strongly recommended to apply the latest DB RU(19.9 or later), OJVM(19.9 or later) & OCW RU(19.9 or later).

In the Select Configuration Option screen, select Create and configure a single instance database.

Select your installation type & complete the Installation.

Steps to install Oracle Client 19c on OL/RHEL 8.x

Abstract - applyRU and applyOneOffs options are not supported for Client, so patches need to be applied using opatch utility after 19.3 client home is installed.

a) Steps to apply patch on Client Admin, Runtime or Custom

- 1) \$export CV_ASSUME_DISTID=OL7
- 2) Install 19.3 Client (Admin/Runtime/Custom) using runInstaller (Make sure all OS Pre-reqs are in-place and invoke runInstaller with -ignoreSysPrereqs -ignorePrereq options)
- 3) Download Latest DBRU Patch.
- 4) You must use the OPatch utility version 12.2.0.1.17 or later to apply this patch. Oracle recommends that you use the latest released OPatch version for 19c, which is available for download from My Oracle Support patch 6880880 by selecting the 19.0.0.0.0 release.
- 5) unzip p30557433_190000_Linux-x86-64.zip
- 6) cd 30557433
- 7) opatch apply (for Admin/Runtime/Custom)
- 8) Verify patch binaries are installed using \$CLIENT_HOME/Opatch/opatch lsinventory
- 9) Connect to the database using sqlplus utility

b) Steps to apply patch on Instant Client:

Oracle Instant Client is not a full Client installation. It has only few libraries needed to connect to Oracle Database. It cannot be patched directly. So here are the details how to patch Oracle Instant Client

- 1) \$export CV_ASSUME_DISTID=OL7
- 2) Install 19.3 Instant Client (Make sure all OS Pre-reqs are in-place and invoke runInstaller with -ignoreSysPrereqs -ignorePrereq options)
- 3) Apply the Latest DBRU Patch patch to the full client installation an example admin client
- 4) Copy the following libraries from client admin to Instant client
libsqora.so.19.1, libociei.so, libclntshcore.so.19.1, libclntsh.so.19.1, libnnz19.so, libons.so and libociicus.so
- 5) Connect to the database using sqlplus utility.

ADDITIONAL NOTES

1. Starting from Oracle Database 12.1 32-bit Oracle Database Software is not available.
2. Supported distributions of the 32-bit (x86) Oracle Database Client Linux OS can run on on AMD64/EM64T and Intel Processor Chips that adhere to the x86_64 architecture. Oracle 32-bit Database Client running on AMD64/EM64T with 64-bit OS is expected to be supported, but is NOT covered by this NOTE.
3. Asynchronous I/O on ext2 and ext3 file systems is supported if your scsi/fc driver supports that functionality.

Note : Asynchronous I/O on Ext4 file system is supported with Oracle 10g onwards on OEL5.6 and later.
Reference : Oracle Linux, Filesystem & I/O Type Supportability (Note 279069.1)[This section is not visible to customers.]
4. No extra patch is required for the DIRECTIO support for x86_64.
5. No LD_ASSUME_KERNEL value should be used with the Oracle Database 19c product.
6. The following rpm command can be used to distinguish between a 32-bit or 64-bit package.

```
# rpm -qa --queryformat "%{NAME}-%{VERSION}-%{RELEASE} (%{ARCH})\n" | grep glibc-devel
glibc-devel-2.12-1.7.el6 (x86_64)
glibc-devel-2.12-1.7.el6 (i686)
```


7. Oracle Universal Installer requires an X Window System (for example, libx). The libx packages are part of a default Linux installation. If you perform an install on a system with a reduced set of packages, then you must ensure that libx or a similar X Window System package is installed.

8. 32-bit packages (i686 rpm) in these requirements lists are needed only if you intend to use 32-bit client applications to access 64-bit servers.

9. Oracle Database 12c Release 2 (12.2) and later does not require the compiler packages gcc and gcc-c++ on Oracle Linux and Red Hat Enterprise Linux for Oracle Database or Oracle Grid Infrastructure installations.

REFERENCES

Didn't find what you are looking for?