How to Install Oracle Database 12c on CentOS 7

Oracle Database is an object-relational database management system (RDBMS) developed by Oracle Corporation. The Oracle Database is available under a Proprietary and OTN Standard License. The supported operating systems are Redhat Enterprise Linux (x86-64), SUSE and Oracle Linux, Microsoft Windows x86-64 and IBM Linux.

On this page

In this tutorial, I will show you step-by-step how to install Oracle 12c on a CentOS 7 x86-64 machine. This includes the preparation and configuration of the CentOS 7 machine for the Oracle 12c installation, the Oracle 12c installation and testing the database with the Oracle Database command line utility 'sqlplus' and the web-based Oracle Enterprise Manager.

```
fs.aio-max-nr = 1048576
fs.file-max = 6815744
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048586
```

Save the file and exit the editor.

Now run the commands below to display all kernel parameter and apply the new values.

```
sysctl -p
sysctl -a
```

Next, we need to configure some limits for the oracle user. Specify the max number process and max number of open files descriptors.

Edit '**limits.conf**' file with vim.

```
vim /etc/security/limits.conf
```

Paste the configuration below.

```
oracle soft nproc 2047
oracle hard nproc 16384
oracle soft nofile 1024
oracle hard nofile 65536
```

Save the file and exit vim.

New user and system configuration is finished.

Step 3 - Configure Desktop

The Oracle installation requires GUI access, so the fastest way for this is by installing a X Window System on the server, and then access the GUI app with **ssh -X** option.

Install X Window System with yum command below.

```
yum groupinstall -y "X Window System"
```

When the installation is done, open a new terminal and connect to the server as oracle user with the ssh command option below. Try to run the GUI application and you will get the application screen.

```
chown -R oracle:oinstall /stage/
```

Next, create new directories for the Oracle installation files and Oracle database files.

Directory '**u01**' is for the Oracle installation files and '**u02**' for the Oracle database files.

```
mkdir -p /u01 /u02
```

Change owner and group of the new directories and set permissions to '755'.

```
chown -R oracle:oinstall /u01 /u02
chmod -R 775 /u01 /u02
```

Step 5 - Install Oracle Database 12c

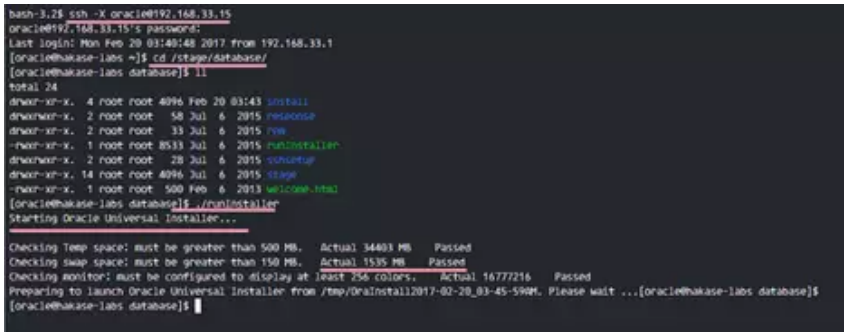
Open a new terminal and connect to the CentOS 7 server with the ssh command below.

```
ssh -X oracle@192.168.33.15
```

Go to the stage database directory and run the installer file.

```
cd /stage/database/
./runInstaller
```

The script will check the server, make sure all tests are passed.



And you will see the GUI installation screen below, there click '**Next**'.

Prerequisites

- CentOS 7 64-bit.
- At least 1 GB RAM Memory.
- Root Privileges.

Step 1 - Install required Packages

As the first step, we have to install a lot of packages required by Oracle database, like GCC, Binutils, Glibc etc. We will install them from the Centos repository with the yum command.

```
yum install -y binutils.x86_64 compat-libcap1.x86_64 gcc.x86_64 gcc-c++.x86_64 glibc.i6
86 glibc.x86_64 \
glibc-devel.i686 glibc-devel.x86_64 ksh compat-libstdc++-33 libaio.i686 libaio.x86_64 l
ibaio-devel.i686 libaio-devel.x86_64 \
libgcc.i686 libgcc.x86_64 libstdc++.i686 libstdc++.x86_64 libstdc++-devel.i686 libstdc+
+-devel.x86_64 libXi.i686 libXi.x86_64 \
libXtst.i686 libXtst.x86_64 make.x86_64 sysstat.x86_64
```

Step 2 - Configure User and System

Oracle Database will run under a normal Linux user and not with root privileges. In this step, we will create a new user and group for Oracle.

Create new groups named '**oinstall**' and '**dba**', then create a new user '**oracle**' and add it to the 'oinstall' group.

```
groupadd oinstall
groupadd dba
useradd -g oinstall -G dba oracle
passwd oracle
TYPE THE PASSWORD
```

New user and group are created, now we need to configure our system for the Oracle installation. There are some kernel parameters that we must configure for the Oracle installation.

Edit '**sysctl.conf**' file with vim.

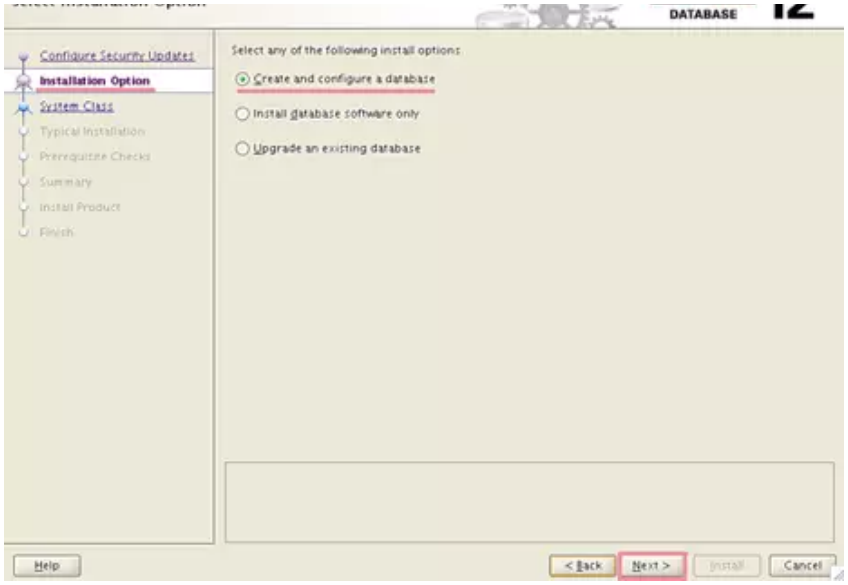
```
vim /etc/sysctl.conf
```

Paste configuration below.

X

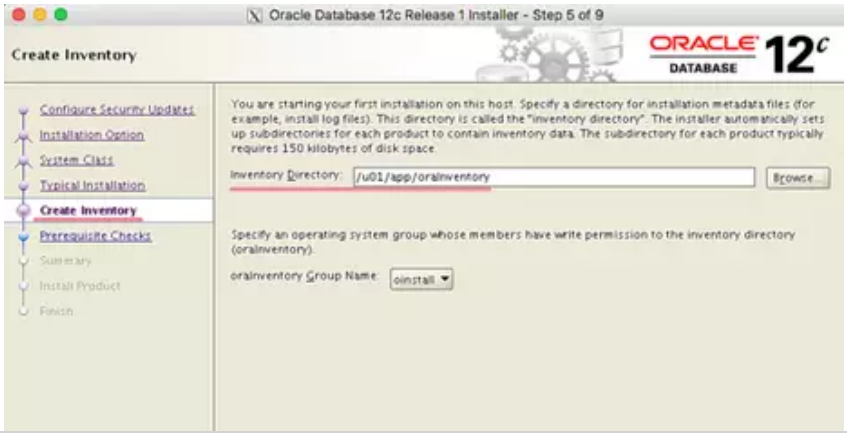
Oracel Installation: Configure Security Update

X



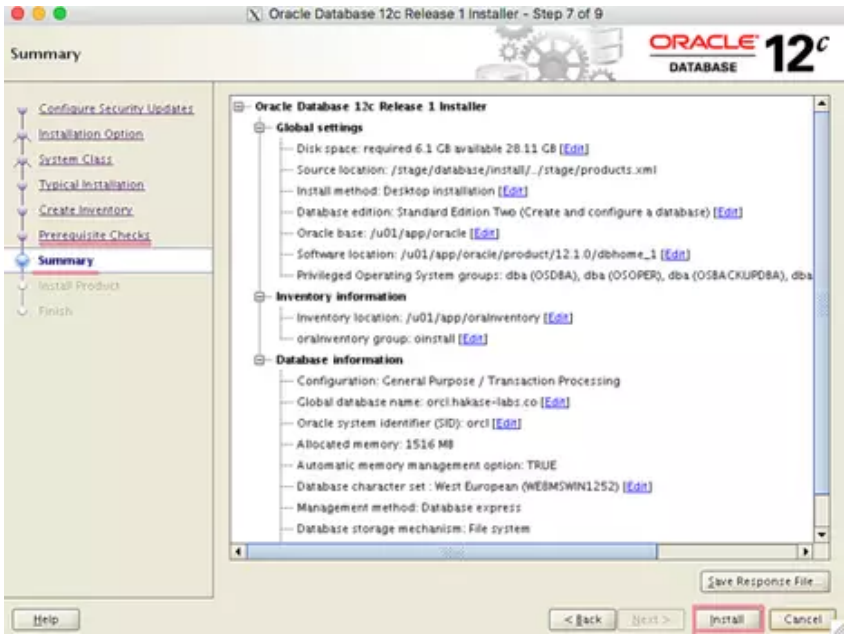
Under the '**System Class**' section, choose '**Desktop Class**' and click '**Next**' again.

Click '**Next**'.



Make sure all checks completed without an error, then you will see a summary of the Oracle configuration.

Click '**Install**'.



Installation process.

Oracle Database Installation Process

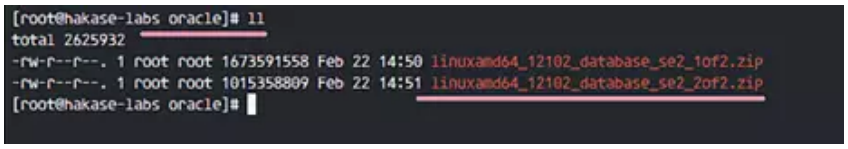
During installation process, you will be asked to execute some scripts as root.

Run Command as Root Oracle Installation

If you do not have an Oracle account yet, register one and then log in to download 12c for Linux.

Below are my oracle files.

```
cd ~/oracle/
ll
```



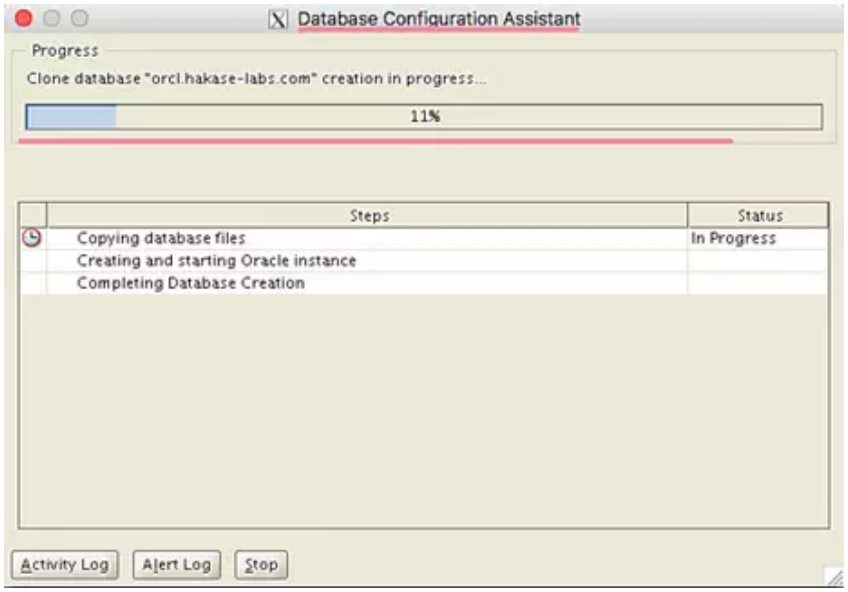
Install zip and unzip to extract the archives.

```
yum -y install zip unzip
```

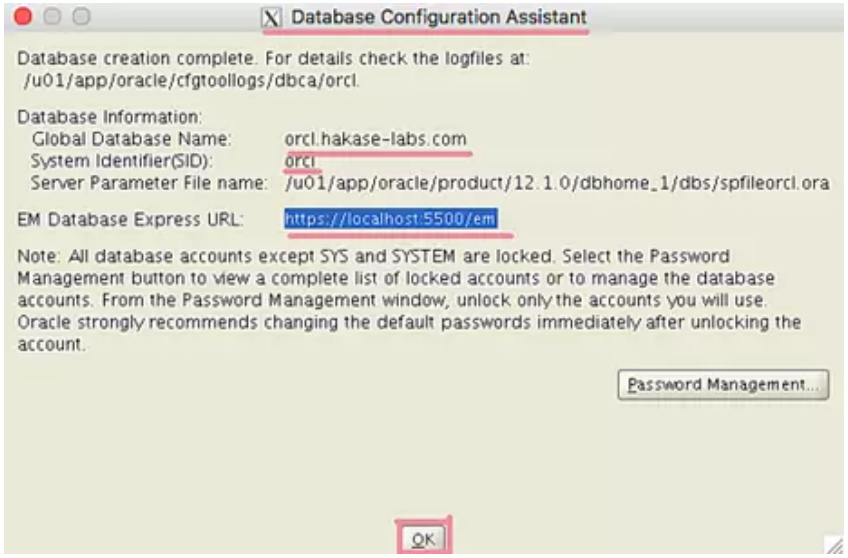
Extract the Oracle files to a new directory named '**stage**'.


```
unzip linuxamd64_12102_database_se2_1of2.zip -d /stage/
unzip linuxamd64_12102_database_se2_2of2.zip -d /stage/
```

Change owner and group of the '/**stage**/' directory to the oracle user and oinstall group.

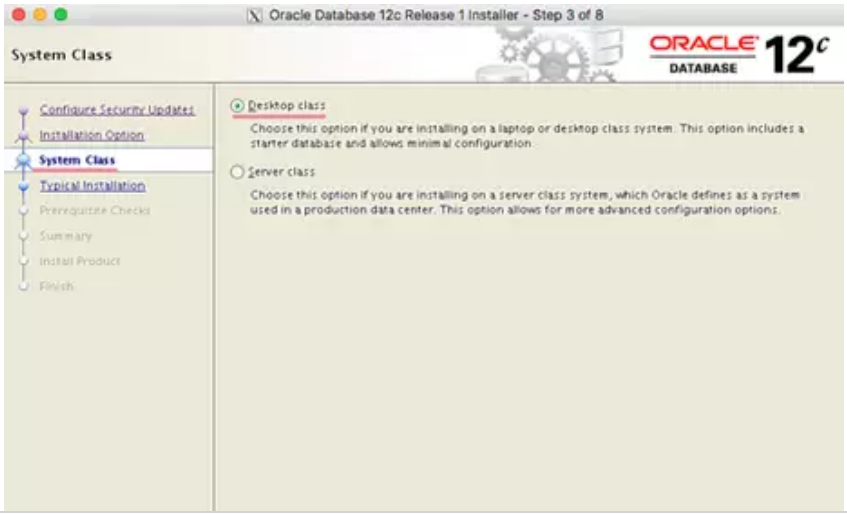


When the 'Database Configuration Assistant' is finished, you will see the info below:



Click '**Ok**' and the Oracle database installation is done.

Click '**Close**'.



'**Typical Installation**' info.

- Oracle base: '**/u01/app/oracle**'
- Software location: **/u01/app/oracle/product/12.1.0/dbhome_1**
- Database file location: **/u02**
- Database edition: Default
- Character set: Default
- OSDBA group: **dba**
- Global database name: Type your own name
- Administrative password: Type your own password
- Confirm password: Type again
- Uncheck the '**Create as Container database**'

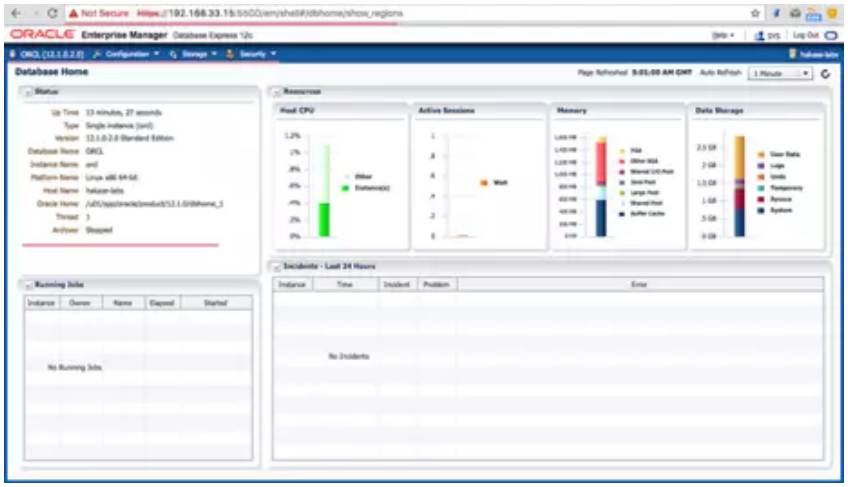
Click **Next**.

Oracle Database Typical Installation

At '**Create Inventory**', enter the path below:

Inventory Directory: **/u01/app/oraInventory**

oraInventory Group Name: use '**oinstall**' group.



The Oracle Database 12c installation and configuration is done.

Oracle database utility and Oracle Enterprise manager are working.

Reference

- https://wiki.centos.org/HowTos/Oracle12onCentos7

About Muhammad Arul

Muhammad Arul is a freelance system administrator and technical writer. He is working with Linux Environments for more than 5 years, an Open Source enthusiast and highly motivated on Linux installation and troubleshooting. Mostly working with RedHat/CentOS Linux and Ubuntu/Debian, Nginx and Apache web server, Proxmox, Zimbra Administration, and Website Optimization. Currently learning about OpenStack and Container Technology.

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Comments

By: phillip brown Reply

's/CentOS 7/Oracle Linux 7/g'
then replace steps 1 and 2 with 'yum install oracle-rdbms-server-12cR1-preinstall'

By: enam Reply

the value of this article is close to 0 because it's author is confused and instead of performing some basic preliminary research he publishes this article to confuse everyone else who's going to follow his steps. Muhammad, i assure you, your step 3 is not required and is absolutely unnecessary. your statement "The Oracle installation requires GUI access" is not true. it seem to me you simply was not able to follow istructions on Installing and Configuring Oracle Database Using Response Files from an amazing Oracle Database Installation Guide

By: Beto Reply

hi.
I have this error :
alter user sys identified by oracle12 ERROR at line 1:ORA-01034: ORACLE not availableProcess ID: 0Session ID: 0 Serial number: 0
and when I put : startup have this other :
ORA-09925: Unable to create audit trail fileLinux-x86_64 Error: 2: No such file or directoryAdditional information: 9925

By: vw Reply

[oracle@localhost database]$ ./runInstaller
Starting Oracle Universal Installer...

Checking Temp space: must be greater than 500 MB. Actual 14978 MB Passed
Checking swap space: must be greater than 150 MB. Actual 3071 MB Passed
Checking monitor: must be configured to display at least 256 colors
>>> Could not execute auto check for display colors using command /usr/bin/xdpyinfo. Check if the DISPLAY variable is set. Failed <<<<

Some requirement checks failed. You must fulfill these requirements before

continuing with the installation,

Continue? (y/n) [n] y

>>> Ignoring required pre-requisite failures. Continuing...
Preparing to launch Oracle Universal Installer from /tmp/OraInstall2017-09-07_04-13-34PM. Please wait ...[oracle@localhost database]$
Exception in thread "main" java.lang.NoClassDefFoundError: Could not initialize class sun.awt.X11.XToolkit
at java.lang.Class.forName0(Native Method)
at java.lang.Class.forName(Class.java:171)
at java.awt.Toolkit$2.run(Toolkit.java:834)
at java.security.AccessController.doPrivileged(Native Method)

Step 6 - Testing

The Oracle installation is finished and ready for testing. I will try to access Oracle from the command line first.

Log in to the server and access the **oracle** user.

```
ssh root@192.168.33.15
TYPE YOUR PASSWORD
```

Login to the oracle user.

```
su - oracle
```

Execute the commands below to set the oracle environment.

```
export ORACLE_SID=orcl
export ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1/
export PATH=$PATH:$ORACLE_HOME/bin
```

Open a new terminal and execute the files.

```
ssh root@192.168.33.15
/u01/app/oraInventory/orainstRoot.sh
/u01/app/oracle/product/12.1.0/dbhome_1/root.sh
```

You will get the results below.


```
[root@hakase-labs ~]# /u01/app/oraInventory/orainstRoot.sh
Changing permissions of /u01/app/oraInventory.
Adding read,write permissions for group.
Removing read,write,execute permissions for world.

Changing groupname of /u01/app/oraInventory to oinstall.
The execution of the script is complete.
[root@hakase-labs ~]# /u01/app/oracle/product/12.1.0/dbhome_1/root.sh
Performing root user operation.

The following environment variables are set as:
    ORACLE_OWNER= oracle
    ORACLE_HOME=  /u01/app/oracle/product/12.1.0/dbhome_1

Enter the full pathname of the local bin directory: [/usr/local/bin]:
   Copying dbhome to /usr/local/bin ...
   Copying oraenv to /usr/local/bin ...
   Copying coraenv to /usr/local/bin ...


Creating /etc/oratab file...
Entries will be added to the /etc/oratab file as needed by
Database Configuration Assistant when a database is created
Finished running generic part of root script.
Now product-specific root actions will be performed.
[root@hakase-labs ~]#
```

Next, you will be shown a new pop-up from the database configuration assistant, please wait, it takes a time.

X

at java.awt.Toolkit.getDefaultToolkit(Toolkit.java:826)
at com.jgoodies.looks.LookUtils.isLowResolution(LookUtils.java:484)
at com.jgoodies.looks.LookUtils.<clinit>(LookUtils.java:249)
at com.jgoodies.looks.plastic.PlasticLookAndFeel.<clinit>(PlasticLookAndFeel.java:135)
at java.lang.Class.forName0(Native Method)
at java.lang.Class.forName(Class.java:249)
at javax.swing.SwingUtilities.loadSystemClass(SwingUtilities.java:1852)
at javax.swing.UIManager.setLookAndFeel(UIManager.java:557)
at oracle.install.commons.util.Application.startup(Application.java:792)
at oracle.install.commons.flow.FlowApplication.startup(FlowApplication.java:181)
at oracle.install.commons.flow.FlowApplication.startup(FlowApplication.java:198)
at oracle.install.commons.base.driver.common.Installer.startup(Installer.java:355)
at oracle.install.ivw.db.driver.DBInstaller.startup(DBInstaller.java:130)
at oracle.install.ivw.db.driver.DBInstaller.main(DBInstaller.java:161)

By: VitalGrapher Reply

Thank you for useful contents
It works ..

By: SAS Reply

Please, do you know if there is any type of penalty or if any property law is broken if Oracle is installed under CentOS in a production environment? Thanks.

By: Eero Reply

You should remove the slash from the end of "export ORACLE_HOME=/u01/app/oracle/product/12.1.0/dbhome_1/" - "export PATH=$PATH:$ORACLE_HOME/bin" would result ...dbhome_1//bin, which is not correct.

By: headmax Reply

About error on limit of stack that block you on checking prerequesite, just ignored this step to start install.
Regards
headmax.

By: John Tobin Reply

some suggestions for updates....updates on implementatoin on 6/23/2018
I installed 12.2.0 on centos 7.5 on the way to installing Oracles Identity manager.
vim /etc/sysctl.conf:
Kernel.shmmax = 8265609216
vim /etc/security/limits/conf
oracle soft stack 10240
oracle hard stack 32768
there is a small problem at the moment with the port 5500 when you run the install:
to avoid it simple edit /etc/hosts and add the ipaddress and fully qualified followed by the simple name of the system:
xxx.yyy.zzz.1550 nightcircus.hello,.net nightcircus [or whatever your machine name is]
there is a second bug that can show up stating that the permissions for the oui file won't allow execution...
there are multiple ways to fix this on the net. [google].
but an undeciplined approach would be to :
chmod -R 777
Identity manager does not like container databases [I sure that is in the documentation somewhere... but I missed it.]

By: Eugene Poole Reply

Having recently rebuilt this machine using CentOS 7.5 I found out rather quickly that Oracle 11gR2 would not work, so I started researching Oracle 12cR2.
I never install more than just the software, then I use netca and dbca. Using 11gR2 I have a service script called dbora to do the automatic start and stop during reboots. But CentOS 7 requires a different direction, but that was not included here.

Access the oracle database utility '**sqlplus**', log in as '**sysdba**' privileges.

```
sqlplus / as sysdba
```

Oracle comes with some default users. Run the query below if you want to change the default user named 'sys'.

```
alter user sys identified by yourpassword;
```

SQLPlus Oracle Database

Sqlplus is working fine.

Next, try to access the web-based '**Oracle Enterprise Manager**'. Open your web browser and type the https URL below on port 5500. Use the IP of your server!

https://192.168.33.55:5500/em/

Login with user '**system**', and the password you have setup as '**Administrative Password**' in step 5. Or you can use the 'sys' user and your password.

After login, you will see the 'Oracle Enterprise Manager' dashboard below.

X

By: Callori Reply

Your tutorial worked fine for me man, thanks, it was the best one that i could find around the internet.

By: Wael Ahmed Reply

If I installs oracle as above . What is the licence required to use it and how I get it and how much I should pay

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