Download Software

Download the Oracle software from OTN or MOS depending on your support status.

* [OTN: Oracle Database 19c (19.3) Software (64-bit)](https://www.oracle.com/technetwork/database/enterprise-edition/downloads/oracle19c-linux-5462157.html)
* [edelivery: Oracle Database 19c (19.3) Software (64-bit)](http://edelivery.oracle.com/)

## Hosts File

The "/etc/hosts" file must contain a fully qualified name for the server.

<IP-address> <fully-qualified-machine-name> <machine-name>

For example.

127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4

192.168.56.107 ol7-19.localdomain ol7-19

Set the correct hostname in the "/etc/hostname" file.

ol7-19.localdomain

### **Automatic Setup**

If you plan to use the "oracle-database-preinstall-19c" package to perform all your prerequisite setup, issue the following command.

# yum install -y oracle-database-preinstall-19c

It is probably worth doing a full update as well, but this is not strictly speaking necessary.

# yum update -y

 It's worth running the all the YUM commands listed in the manual setup section. Depending on the OS package groups you have selected, some additional packages might also be needed.

If you are using RHEL7 or CentOS7, you can pick up the PRM from the OL7 repository and install it. It will pull the dependencies from your normal repositories.

# yum install -y https://yum.oracle.com/repo/OracleLinux/OL7/latest/x86\_64/getPackage/oracle-database-preinstall-19c-1.0-1.el7.x86\_64.rpm

### **Manual Setup**

If you have not used the "oracle-database-preinstall-19c" package to perform all prerequisites, you will need to manually perform the following setup tasks.

Add the following lines to the "/etc/sysctl.conf" file, or in a file called "/etc/sysctl.d/98-oracle.conf".

fs.file-max = 6815744

kernel.sem = 250 32000 100 128

kernel.shmmni = 4096

kernel.shmall = 1073741824

kernel.shmmax = 4398046511104

kernel.panic\_on\_oops = 1

net.core.rmem\_default = 262144

net.core.rmem\_max = 4194304

net.core.wmem\_default = 262144

net.core.wmem\_max = 1048576

net.ipv4.conf.all.rp\_filter = 2

net.ipv4.conf.default.rp\_filter = 2

fs.aio-max-nr = 1048576

net.ipv4.ip\_local\_port\_range = 9000 65500

Run one of the following commands to change the current kernel parameters, depending on which file you edited.

/sbin/sysctl -p

# Or

/sbin/sysctl -p /etc/sysctl.d/98-oracle.conf

Add the following lines to a file called "/etc/security/limits.d/oracle-database-preinstall-19c.conf" file.

oracle soft nofile 1024

oracle hard nofile 65536

oracle soft nproc 16384

oracle hard nproc 16384

oracle soft stack 10240

oracle hard stack 32768

oracle hard memlock 134217728

oracle soft memlock 134217728

The following packages are listed as required. Many of the packages should be installed already.

yum install -y bc

yum install -y binutils

yum install -y compat-libcap1

yum install -y compat-libstdc++-33

#yum install -y dtrace-modules

#yum install -y dtrace-modules-headers

#yum install -y dtrace-modules-provider-headers

yum install -y dtrace-utils

yum install -y elfutils-libelf

yum install -y elfutils-libelf-devel

yum install -y fontconfig-devel

yum install -y glibc

yum install -y glibc-devel

yum install -y ksh

yum install -y libaio

yum install -y libaio-devel

yum install -y libdtrace-ctf-devel

yum install -y libXrender

yum install -y libXrender-devel

yum install -y libX11

yum install -y libXau

yum install -y libXi

yum install -y libXtst

yum install -y libgcc

yum install -y librdmacm-devel

yum install -y libstdc++

yum install -y libstdc++-devel

yum install -y libxcb

yum install -y make

yum install -y net-tools # Clusterware

yum install -y nfs-utils # ACFS

yum install -y python # ACFS

yum install -y python-configshell # ACFS

yum install -y python-rtslib # ACFS

yum install -y python-six # ACFS

yum install -y targetcli # ACFS

yum install -y smartmontools

yum install -y sysstat

# Added by me.

yum install -y unixODBC

Create the new groups and users.

groupadd -g 54321 oinstall

groupadd -g 54322 dba

groupadd -g 54323 oper

#groupadd -g 54324 backupdba

#groupadd -g 54325 dgdba

#groupadd -g 54326 kmdba

#groupadd -g 54327 asmdba

#groupadd -g 54328 asmoper

#groupadd -g 54329 asmadmin

#groupadd -g 54330 racdba

useradd -u 54321 -g oinstall -G dba,oper oracle

Uncomment the extra groups you require.

### **Additional Setup**

The following steps must be performed, whether you did the manual or automatic setup.

Set the password for the "oracle" user.

passwd oracle

Set secure Linux to permissive by editing the "/etc/selinux/config" file, making sure the SELINUX flag is set as follows.

SELINUX=permissive

Once the change is complete, restart the server or run the following command.

# setenforce Permissive

If you have the Linux firewall enabled, you will need to disable or configure it, as shown [here](https://oracle-base.com/articles/linux/linux-firewall-firewalld). To disable it, do the following.

# systemctl stop firewalld

# systemctl disable firewalld

Create the directories in which the Oracle software will be installed.

mkdir -p /u01/app/oracle/product/19.0.0/dbhome\_1

mkdir -p /u02/oradata

chown -R oracle:oinstall /u01 /u02

chmod -R 775 /u01 /u02

Putting mount points directly under root without mounting separate disks to them is typically a bad idea. It's done here for simplicity, but for a real installation "/" storage should be reserved for the OS.

Unless you are working from the console, or using SSH tunnelling, login as root and issue the following command.

xhost +<machine-name>

Create a "scripts" directory.

mkdir /home/oracle/scripts

Create an environment file called "setEnv.sh". The "$" characters are escaped using "\". If you are not creating the file with the cat command, you will need to remove the escape characters.

cat > /home/oracle/scripts/setEnv.sh <<EOF

# Oracle Settings

export TMP=/tmp

export TMPDIR=\$TMP

export ORACLE\_HOSTNAME=ol7-19.localdomain

export ORACLE\_UNQNAME=cdb1

export ORACLE\_BASE=/u01/app/oracle

export ORACLE\_HOME=\$ORACLE\_BASE/product/19.0.0/dbhome\_1

export ORA\_INVENTORY=/u01/app/oraInventory

export ORACLE\_SID=cdb1

export PDB\_NAME=pdb1

export DATA\_DIR=/u02/oradata

export PATH=/usr/sbin:/usr/local/bin:\$PATH

export PATH=\$ORACLE\_HOME/bin:\$PATH

export LD\_LIBRARY\_PATH=\$ORACLE\_HOME/lib:/lib:/usr/lib

export CLASSPATH=\$ORACLE\_HOME/jlib:\$ORACLE\_HOME/rdbms/jlib

EOF

Add a reference to the "setEnv.sh" file at the end of the "/home/oracle/.bash\_profile" file.

echo ". /home/oracle/scripts/setEnv.sh" >> /home/oracle/.bash\_profile

Create a "start\_all.sh" and "stop\_all.sh" script that can be called from a startup/shutdown service. Make sure the ownership and permissions are correct.

cat > /home/oracle/scripts/start\_all.sh <<EOF

#!/bin/bash

. /home/oracle/scripts/setEnv.sh

export ORAENV\_ASK=NO

. oraenv

export ORAENV\_ASK=YES

dbstart \$ORACLE\_HOME

EOF

cat > /home/oracle/scripts/stop\_all.sh <<EOF

#!/bin/bash

. /home/oracle/scripts/setEnv.sh

export ORAENV\_ASK=NO

. oraenv

export ORAENV\_ASK=YES

dbshut \$ORACLE\_HOME

EOF

chown -R oracle:oinstall /home/oracle/scripts

chmod u+x /home/oracle/scripts/\*.sh

Once the installation is complete and you've edited the "/etc/oratab", you should be able to start/stop the database with the following scripts run from the "oracle" user.

~/scripts/start\_all.sh

~/scripts/stop\_all.sh

You can see how to create a Linux service to automatically start/stop the database [here](https://oracle-base.com/articles/linux/linux-services-systemd#creating-linux-services).

## Installation

Log into the oracle user. If you are using X emulation then set the DISPLAY environmental variable.

DISPLAY=<machine-name>:0.0; export DISPLAY

Switch to the ORACLE\_HOME directory, unzip the software directly into this path and start the Oracle Universal Installer (OUI) by issuing one of the following commands in the ORACLE\_HOME directory. The interactive mode will display GUI installer screens to allow user input, while the silent mode will install the software without displaying any screens, as all required options are already specified on the command line.

# Unzip software.

cd $ORACLE\_HOME

unzip -oq /path/to/software/LINUX.X64\_193000\_db\_home.zip

# Silent mode.

./runInstaller -ignorePrereq -waitforcompletion -silent \

-responseFile ${ORACLE\_HOME}/install/response/db\_install.rsp \

oracle.install.option=INSTALL\_DB\_SWONLY \

ORACLE\_HOSTNAME=${ORACLE\_HOSTNAME} \

UNIX\_GROUP\_NAME=oinstall \

INVENTORY\_LOCATION=${ORA\_INVENTORY} \

SELECTED\_LANGUAGES=en,en\_GB \

ORACLE\_HOME=${ORACLE\_HOME} \

ORACLE\_BASE=${ORACLE\_BASE} \

oracle.install.db.InstallEdition=EE \

oracle.install.db.OSDBA\_GROUP=dba \

oracle.install.db.OSBACKUPDBA\_GROUP=dba \

oracle.install.db.OSDGDBA\_GROUP=dba \

oracle.install.db.OSKMDBA\_GROUP=dba \

oracle.install.db.OSRACDBA\_GROUP=dba \

SECURITY\_UPDATES\_VIA\_MYORACLESUPPORT=false \

DECLINE\_SECURITY\_UPDATES=true

Run the root scripts when prompted.

As a root user, execute the following script(s):

1. /u01/app/oraInventory/orainstRoot.sh

2. /u01/app/oracle/product/19.0.0/dbhome\_1/root.sh

Interactive Mode:

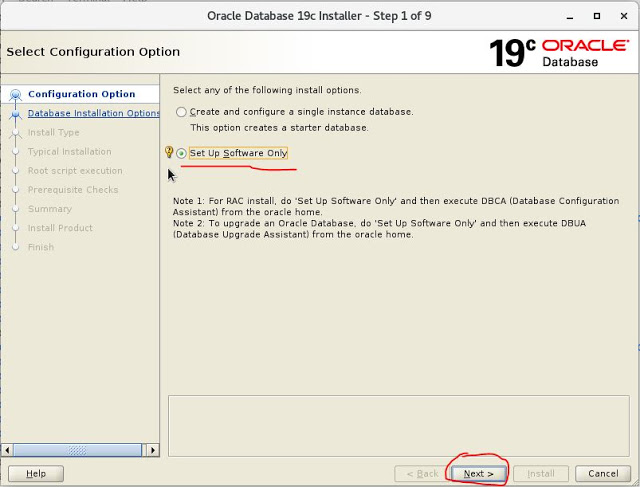
### **Run the Installer**

Log into the oracle user, start the Oracle Universal Installer (OUI) by issuing the following command and follow the GUI guided steps

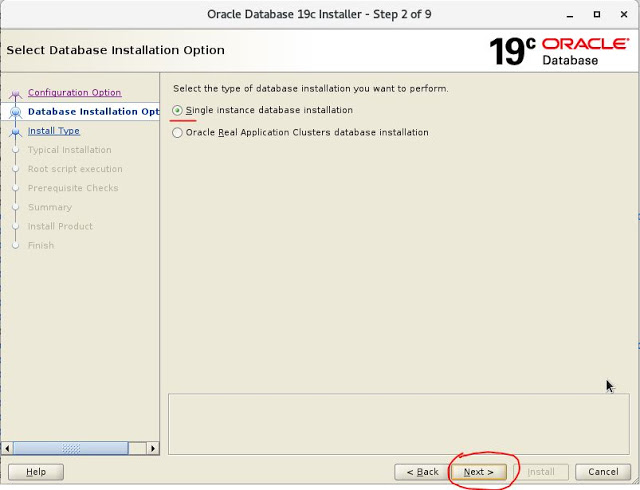
$ cd $ORACLE\_HOME

$ ./runInstaller

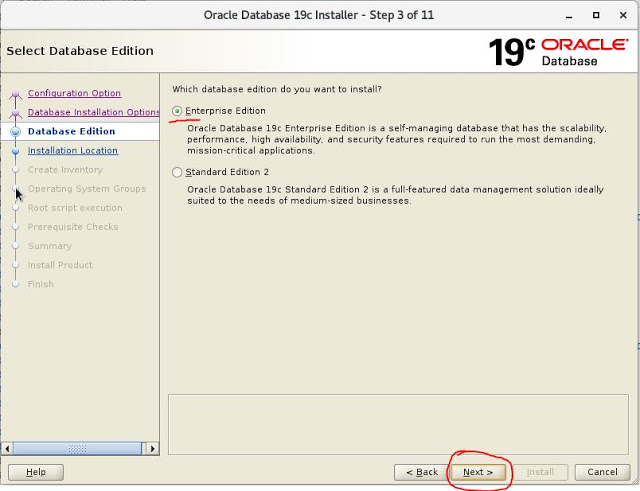
Select the install option **Set Up Software Only**and click **Next**:

[](https://1.bp.blogspot.com/-ECMEXRgJzMA/XR33veDpb2I/AAAAAAAADuE/7AQCtZUJwfsW672EVkGhz9Fson9_zgHGwCLcBGAs/s1600/instal_op.JPG)

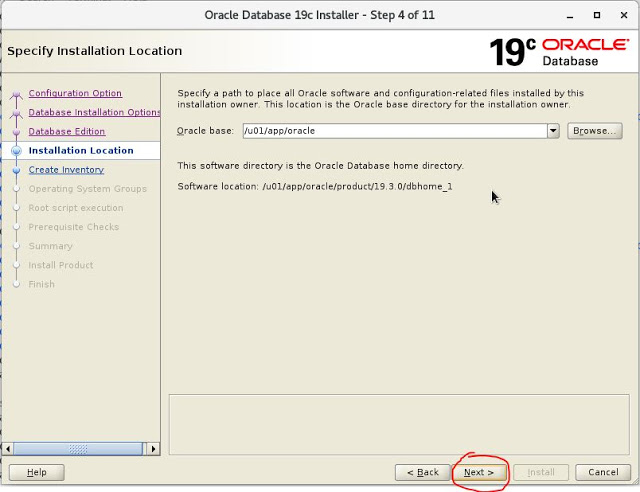
Select the install option **Single Instance database installation**and click **Next**:

[](https://1.bp.blogspot.com/-eMsNhi3hD_k/XR34T1Y--2I/AAAAAAAADuM/U--fwZhkbzwMzdzl12R3KNty0YYTeIp4ACLcBGAs/s1600/type_db.JPG)

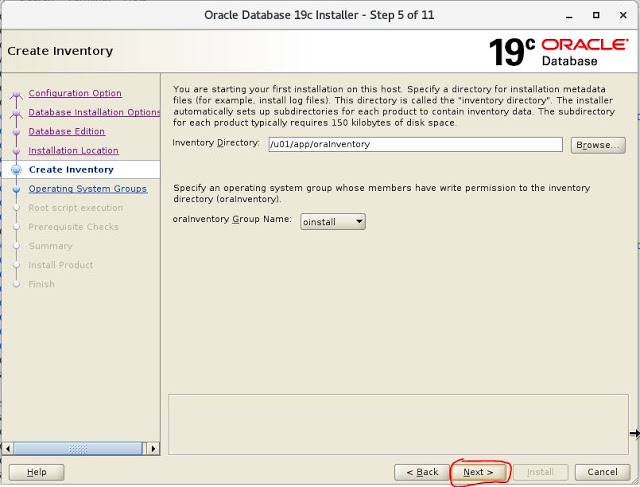
Select the install option **Enterprise Edition**and click **Next**:

[](https://1.bp.blogspot.com/-3iSvcmg9ik4/XR34xsBWzXI/AAAAAAAADuU/xRQhuX5O-ZwGBJCHRMRoMignCr0oEG1RACLcBGAs/s1600/db_ee.JPG)

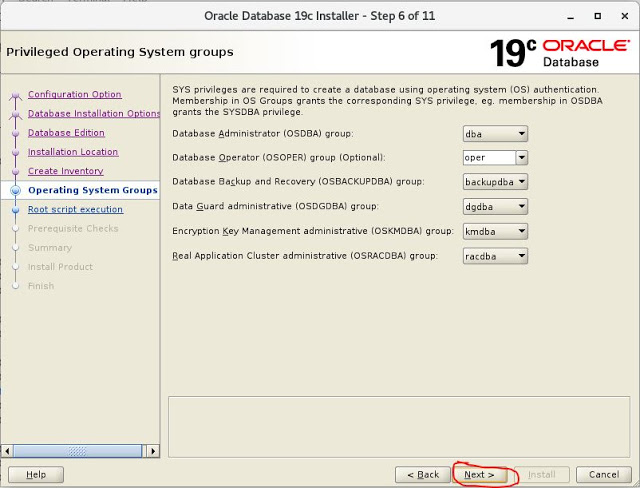
 Click **Next.**

**[](https://1.bp.blogspot.com/-H6VehWLwR3w/XR39qr48W8I/AAAAAAAADug/nczTC5WnwdcBtx7ITp_16BQETnfr9EC5QCLcBGAs/s1600/ol_base.JPG)**

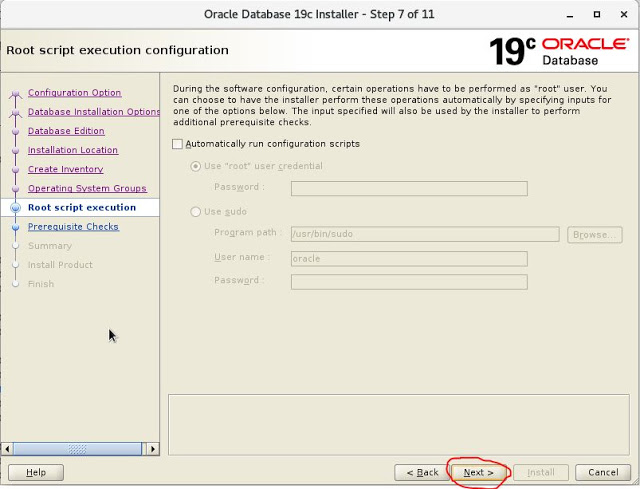
 Click **Next.**

[](https://1.bp.blogspot.com/-suFQ4cnXE-8/XR3-CtnwHhI/AAAAAAAADuo/2UcyZpFnCnI4JEmNB1dnOrTsYxXnH0aeQCLcBGAs/s1600/oraInventory.JPG)

 Click **Next.**

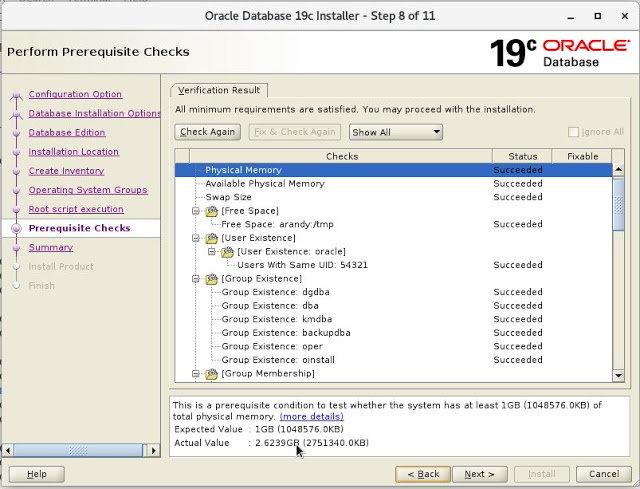
[](https://1.bp.blogspot.com/--vva3U_Er2s/XR3-mnLrUdI/AAAAAAAADu0/K6DMD_crS2Q_r7n5dphYGb9AIlCtjoDsACLcBGAs/s1600/os_grps.JPG)

 Click **Next.**

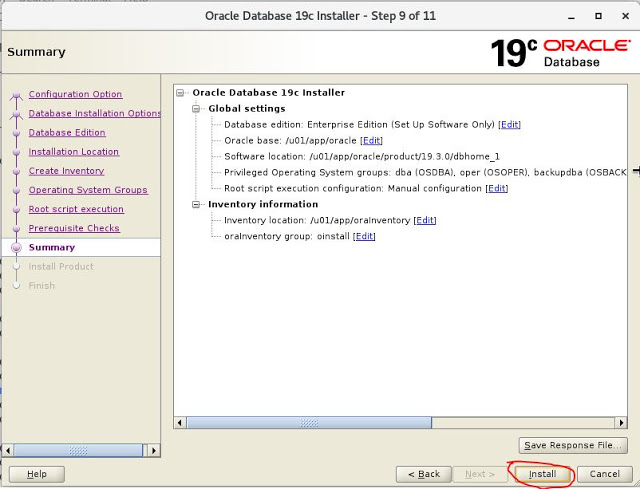
[](https://1.bp.blogspot.com/-uDaz3YPpK7w/XR3-6P9A2ZI/AAAAAAAADu8/dyLarBF1Rksu-35vJZUbQ579Bjzmg86bQCLcBGAs/s1600/rt_scripts.JPG)

 Click **Next.**

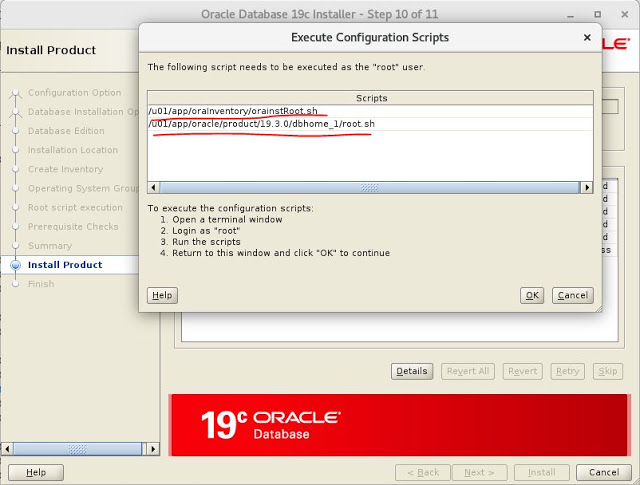
Make sure all Prerequisite Checks Succeeded.

[](https://1.bp.blogspot.com/-ZqeZ4O1YH6g/XR3_m8AVZHI/AAAAAAAADvI/Dj-boedehHMum8tFJ2dvXZTE7hvSOOqewCLcBGAs/s1600/pre_check.JPG)

Click **Install.**

[](https://1.bp.blogspot.com/-CpSxSrGt3Bg/XR4ADmkkraI/AAAAAAAADvQ/z9YhbEjIi48pCqiUCoQrqaILnbZH9vokwCLcBGAs/s1600/sw_install.JPG)

Run the root scripts when prompted.

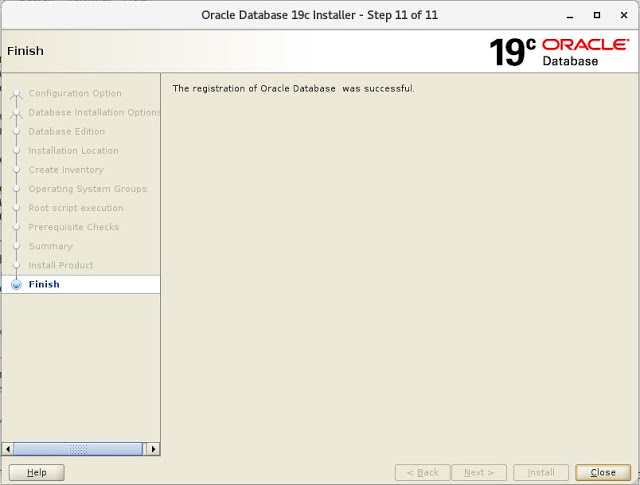
[](https://1.bp.blogspot.com/-06imS4p_6A4/XR4BfFH2VhI/AAAAAAAADvc/q70SsYhVDdMR3Pkdii1tgxJcReB-2MNDwCLcBGAs/s1600/run_install_scripts.JPG)

As a root user, execute the following script(s):

# /u01/app/oraInventory/orainstRoot.sh

# /u01/app/oracle/product/19.0.0/dbhome\_1/root.sh

Click **Close.**

[](https://1.bp.blogspot.com/-t2Yago1j17U/XR4CP2AmvcI/AAAAAAAADvo/xuywzRRdzNc-rmJRjkixqJlbD33c1p2AQCLcBGAs/s1600/install_success.JPG)

You are now ready to create a database.

### Database Creation

You create a database using the Database Configuration Assistant (DBCA). The interactive mode will display GUI screens to allow user input.

After successfully installing the database software, start the listener:

# Start the listener

$ lsnrctl start

# Silent mode.

dbca -silent -createDatabase \

-templateName General\_Purpose.dbc \

-gdbname ${ORACLE\_SID} -sid ${ORACLE\_SID} -responseFile NO\_VALUE \

-characterSet AL32UTF8 \

-sysPassword SysPassword1 \

-systemPassword SysPassword1 \

-createAsContainerDatabase true \

-numberOfPDBs 1 \

-pdbName ${PDB\_NAME} \

-pdbAdminPassword PdbPassword1 \

-databaseType MULTIPURPOSE \

-memoryMgmtType auto\_sga \

-totalMemory 2000 \

-storageType FS \

-datafileDestination "${DATA\_DIR}" \

-redoLogFileSize 50 \

-emConfiguration NONE \

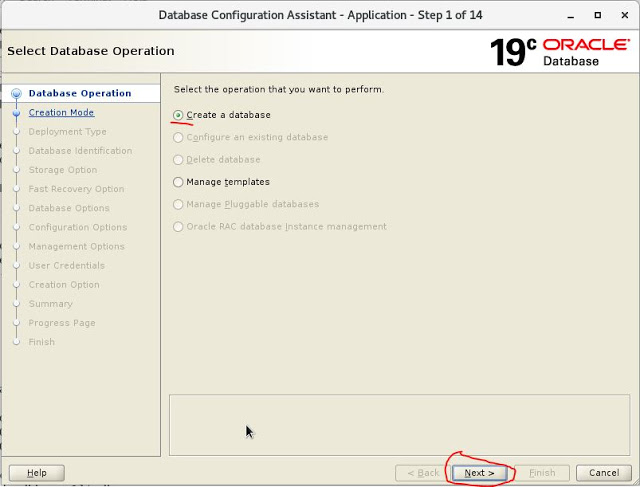
-ignorePreReqs

To create the database using the interactive mode, start the Database Configuration Assistance (dbca) by issuing the following command and follow the GUI guided steps

# Interactive mode.

$ dbca

Click **Next.**

[](https://1.bp.blogspot.com/-fCdF8WOsRN0/XR4GnaOaHTI/AAAAAAAADv0/LyLIllglm788uz-XsuJGpZilVS5_uP63QCLcBGAs/s1600/create_db.JPG)

**Typical configuration:**

Global database name: **cdb1**

Storage type: **File System**

Database file location:**/u02/oradata**

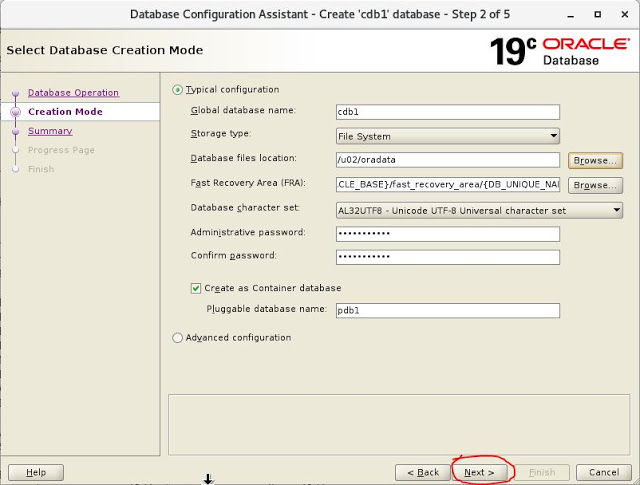
Fast Recovery Area (FRA): **{ORACLE\_BASE}/fast\_recovery\_area/{DB\_UNIQUE\_NAME}**

Database character set: **AL32UTF8**

Adminitrative password: **SysOracle\_47**

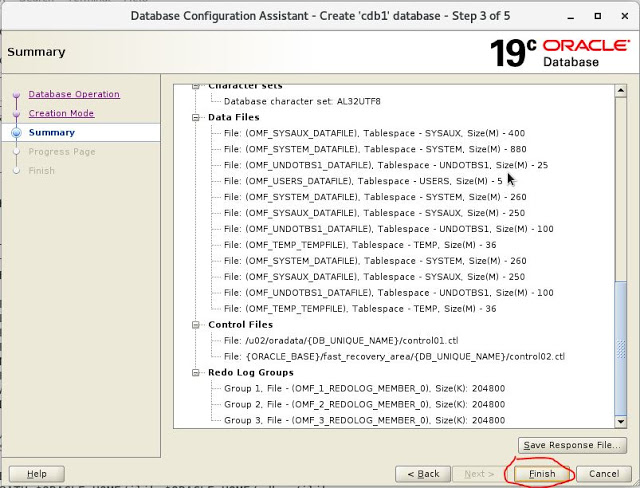
Pluggable database name: **pdb1**

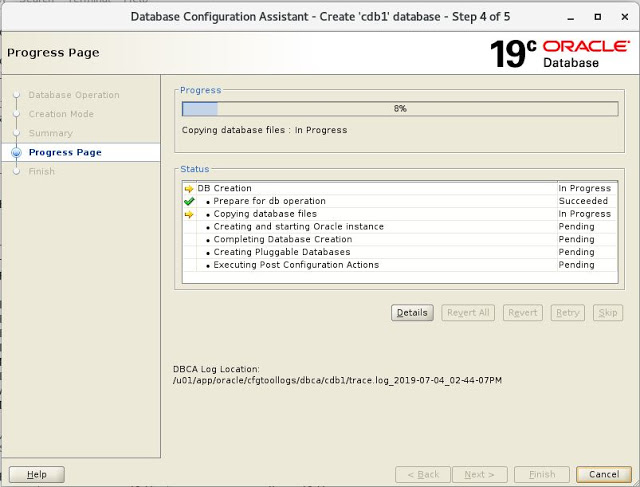
Click **Next.**

[](https://1.bp.blogspot.com/-l450_5S2Ib8/XR4LhX6H3fI/AAAAAAAADwA/0Ry2uXFOo4spylsIOF0c11da2-C4uLkRQCLcBGAs/s1600/db_config.JPG)

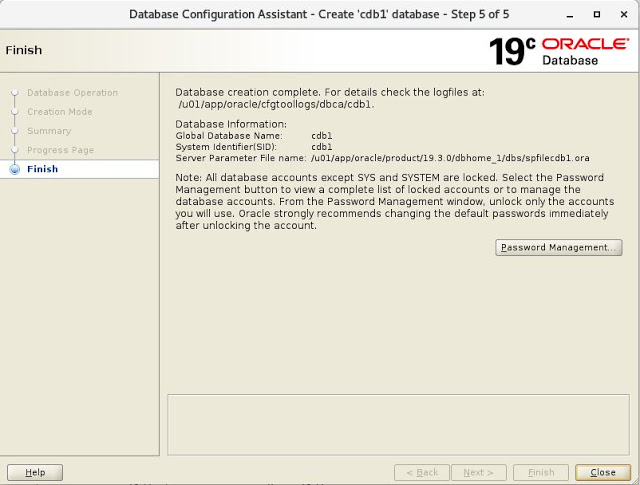
Click **Finish.**

Database Summary.

[](https://1.bp.blogspot.com/-kuomObQlihw/XR4NivYG7vI/AAAAAAAADwM/Gs0-Qw6uU7Qf-V306fzox45gvpWfFevSQCLcBGAs/s1600/db_summary.JPG)

[](https://1.bp.blogspot.com/-0TLyKRVy2BA/XR4N7Ey8bqI/AAAAAAAADwU/J4eLBfic5YkyVhP_6sg_jl9mJYxUjrm-wCLcBGAs/s1600/installation_process.JPG)

Database creation finish.

[](https://1.bp.blogspot.com/-Eukadd8rjXM/XR4W69NEfHI/AAAAAAAADwg/gI2yz8QsASkip2_7s8rvNKGy10629uC-gCLcBGAs/s1600/db_finish.JPG)

Edit the "/etc/oratab" file setting the restart flag for each instance to 'Y'.

cdb1:/u01/app/oracle/product/19.0.0/db\_1:Y

Enable Oracle Managed Files (OMF) and make sure the PDB starts when the instance starts.

sqlplus / as sysdba <<EOF

alter system set db\_create\_file\_dest='${DATA\_DIR}';

alter pluggable database ${PDB\_NAME} save state;

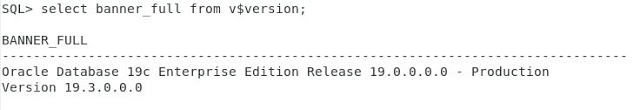
exit;

EOF

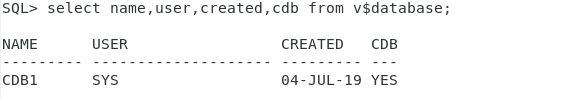
Once the Database 19c successfully created, validate the database using the following command.

$ sqlplus / as sysdba

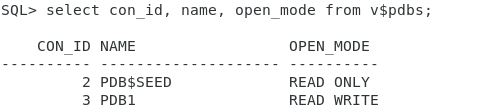
SQL> select banner\_full from v$version;

[](https://1.bp.blogspot.com/-U0AslNeHMNE/XR4X-LPL2FI/AAAAAAAADws/30Lz6j5uQ0gRCSO9mr8cfBpuhogEukR0ACLcBGAs/s1600/db_version.JPG)

SQL> select instance\_name,status from v$instance;

[](https://1.bp.blogspot.com/-uEE-VMU3H4k/XR4Y1mBq1rI/AAAAAAAADw4/DNTEnfvB9Uc4lurLMseiPtzaeMt0-3ZNQCLcBGAs/s1600/sql_dbname.JPG)

SQL> select con\_id, name, open\_mode from v$pdbs;

[](https://1.bp.blogspot.com/-iErb_EgpKXs/XR4aOnhMvyI/AAAAAAAADxE/P8wAXDHQ5s8WSM8Jp_8TxrBfgIGNgAEfACLcBGAs/s1600/sql_pdbname.JPG)