Oracle Database 18c

Vagrant + Oracle Linux 7.4 + Oracle Database 18c + Create DB
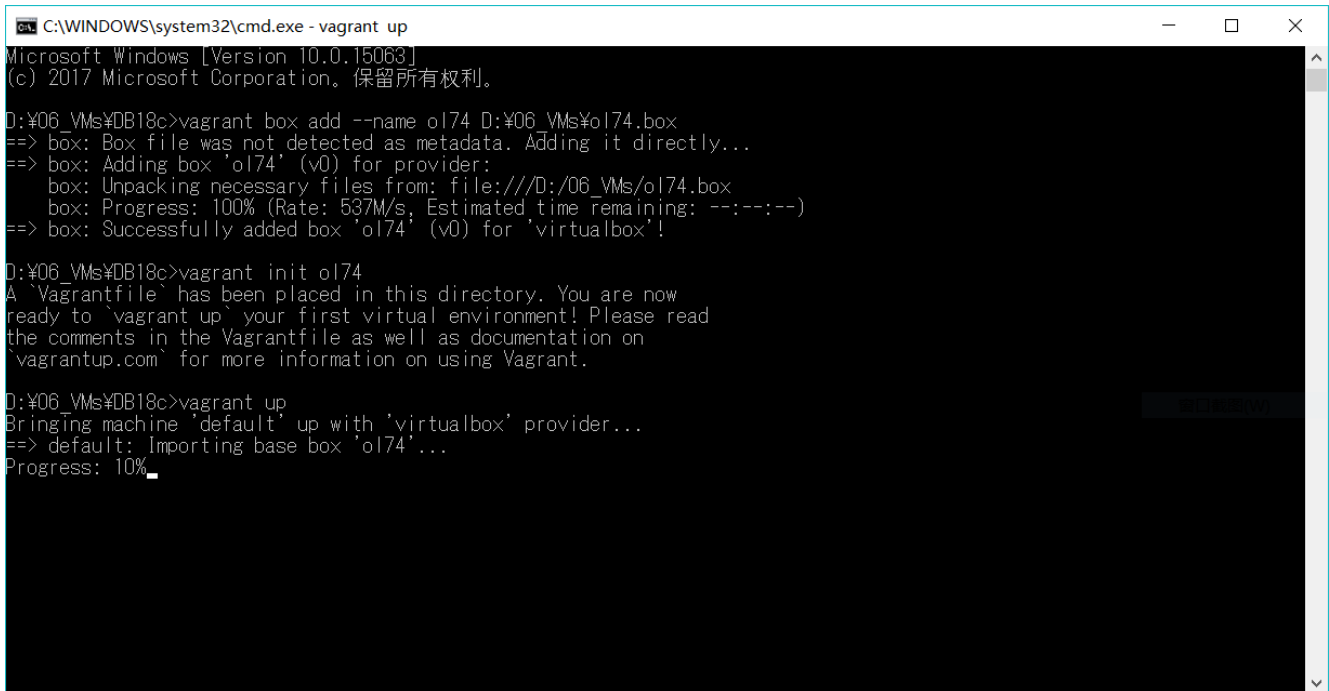
Oracle Linux 7.4 Install

Use vagrant box to install

http://yum.oracle.com/boxes/

Oracle Linux 6.9 (8-FEB-2018) 367MB

Oracle Linux 7.4 (26-JAN-2018) 425MB ===========>**Download this and Use this One.**

```
C:\WINDOWS\system32\cmd.exe - vagrant up                                    —    □    ×

Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation。保留所有权利。

D:\06_VMs\DB18c>vagrant box add --name ol74 D:\06_VMs\ol74.box
==> box: Box file was not detected as metadata. Adding it directly...
==> box: Adding box 'ol74' (v0) for provider:
    box: Unpacking necessary files from: file:///D:/06_VMs/ol74.box
    box: Progress: 100% (Rate: 537M/s, Estimated time remaining: --:--:--)
==> box: Successfully added box 'ol74' (v0) for 'virtualbox'!

D:\06_VMs\DB18c>vagrant init ol74
A `Vagrantfile` has been placed in this directory. You are now
ready to `vagrant up` your first virtual environment! Please read
the comments in the Vagrantfile as well as documentation on
`vagrantup.com` for more information on using Vagrant.

D:\06_VMs\DB18c>vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'ol74'...
Progress: 10%
```
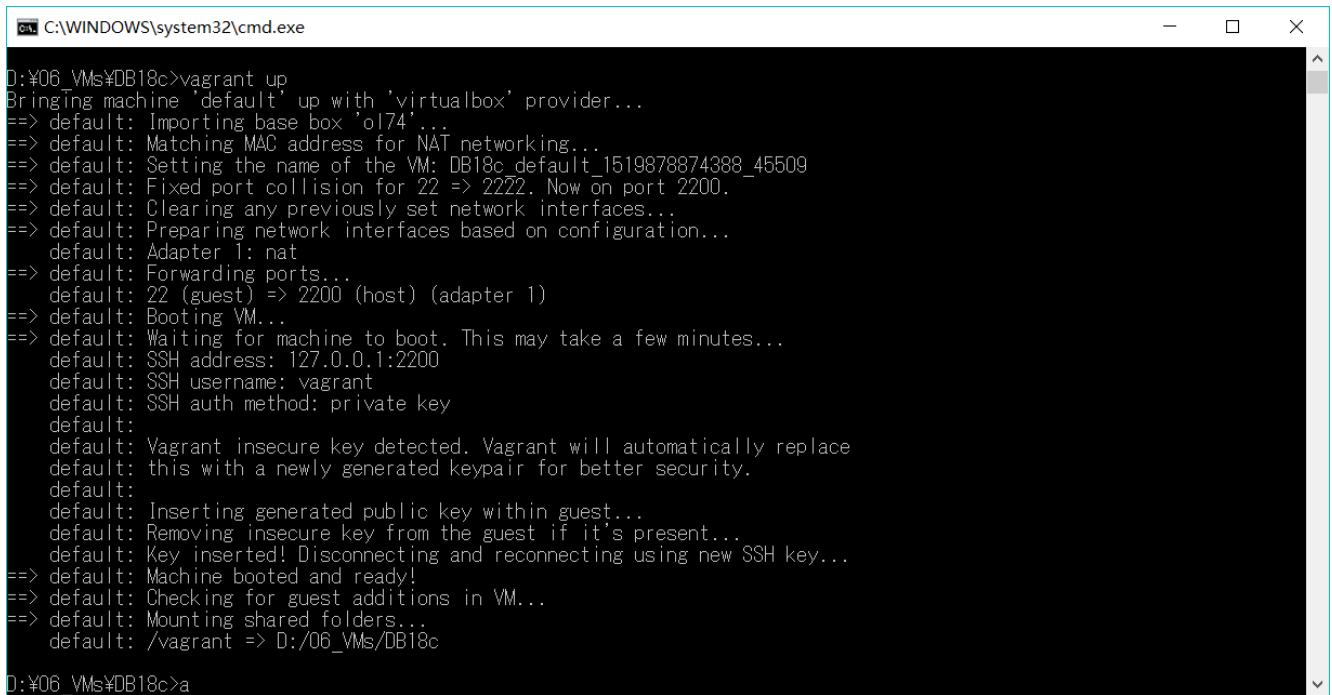
Edit the Vagrantfile

Sample:

```
######################################################################
Vagrant.configure("2") do |config|
 config.vm.box = "ol74"
 config.vm.hostname = "database18c"
 config.vm.provider "virtualbox" do |vb|
  vb.memory = "4096"
 config.vm.network :forwarded_port, guest: 1521, host: 1234
 end
end
######################################################################
```

You can edit the vagrantfile to customermize your env.

Startup Box

```
C:\WINDOWS\system32\cmd.exe

D:\06_VMs\DB18c>vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'ol74'...
==> default: Matching MAC address for NAT networking...
==> default: Setting the name of the VM: DB18c_default_1519878874388_45509
==> default: Fixed port collision for 22 => 2222. Now on port 2200.
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
==> default: Forwarding ports...
    default: 22 (guest) => 2200 (host) (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
    default: SSH address: 127.0.0.1:2200
    default: SSH username: vagrant
    default: SSH auth method: private key
    default:
    default: Vagrant insecure key detected. Vagrant will automatically replace
    default: this with a newly generated keypair for better security.
    default:
    default: Inserting generated public key within guest...
    default: Removing insecure key from the guest if it's present...
    default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
==> default: Mounting shared folders...
    default: /vagrant => D:/06_VMs/DB18c

D:\06_VMs\DB18c>a
```
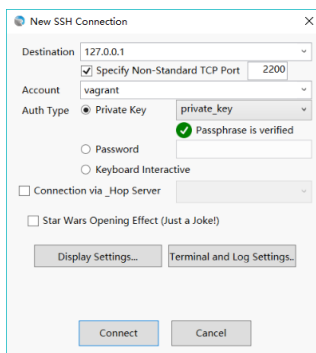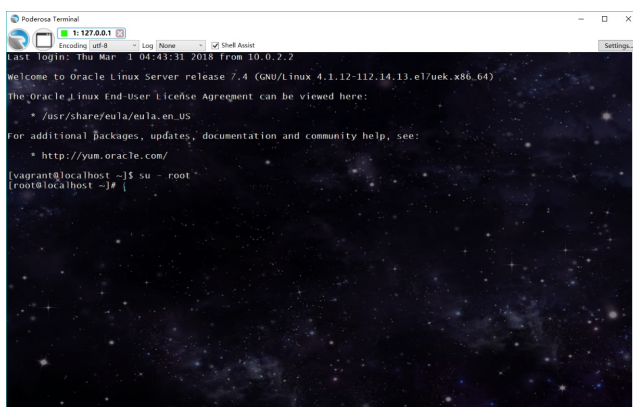
vagrant ssh-config

Sample:

Account: vagrnt

Private Key: D:\06_VMs\DB18c\.vagrant\machines\default\virtualbox\private_key

TCP Port: check the log(2222 or 2200)

The terminal like this.

Oracle Database 18c's Installation

Download

Unitl now, regarding oracle 18c, only the exadata packages are available.

[Oracle Software Delivery Cloud](https://edelivery.oracle.com/)

Oracle Database 18.0.0.0.0

 Oracle Database Client 18.0.0.0.0 (1.3 GB)

 Oracle Database (Exadata Only) 18.0.0.0.0 (3.5 GB)

 Oracle Database Grid Infrastructure 18.0.0.0.0 (3.3 GB)

The document:

Linux Installation Guides / Database Installation Guide for Linux

https://docs.oracle.com/en/database/oracle/oracle-database/18/install-and-upgrade.html

Linux Env's setting

Proxy

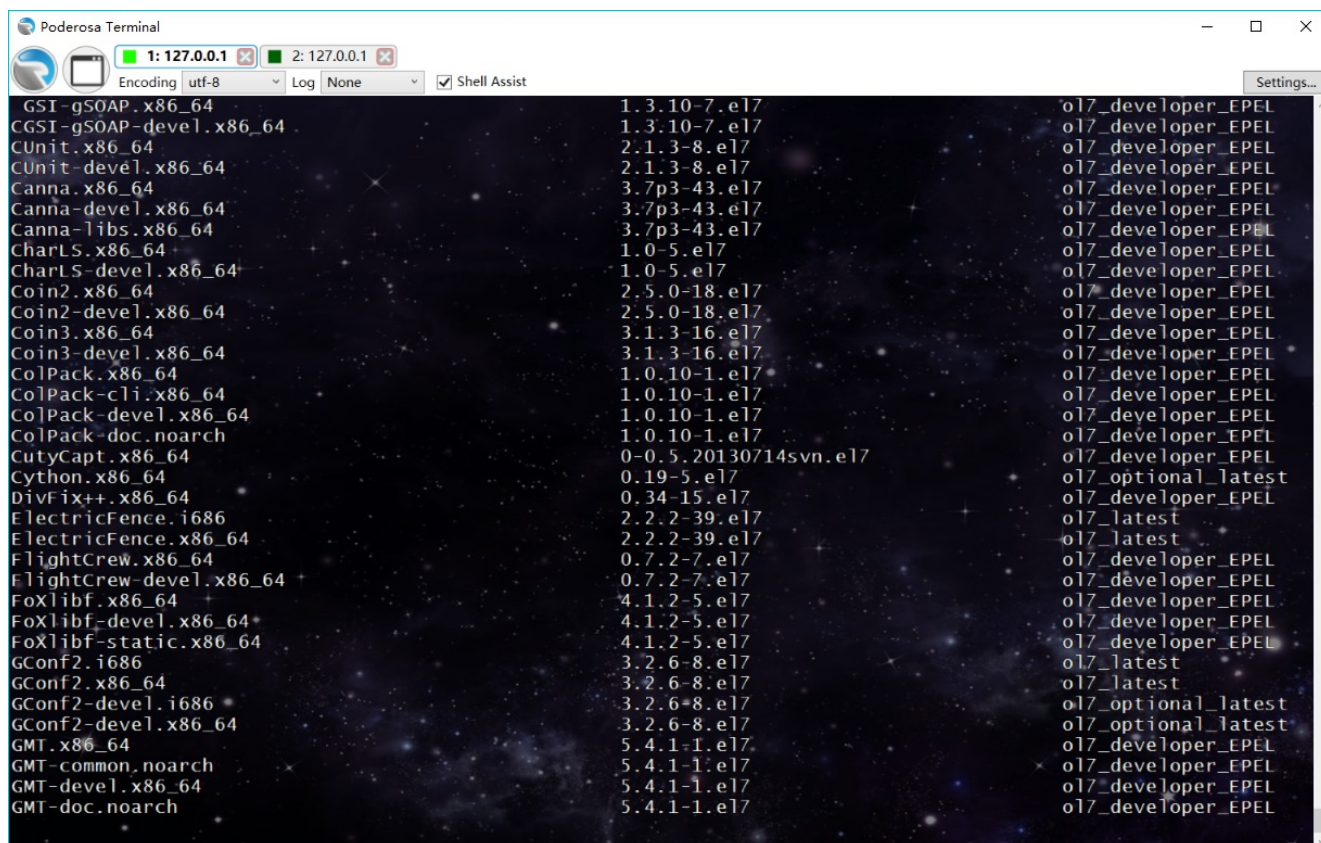*root:(export the env if there is proxy setting in your network.)*

export http_proxy=http://xxxxxxxx:xx

export https_proxy=http://xxxxxxxx:xx

Update package via yum

yum list

yum -y localinstall https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm

The document:

Server Configuration Checklist for Oracle Database Installation

Installing the Oracle Preinstallation RPM From Unbreakable Linux Network

https://docs.oracle.com/en/database/oracle/oracle-database/18/ladbi/installing-the-oracle-preinstallation-rpm-from-unbreakable-linux-network.html#GUID-555F704E-BD48-4E0E-AC9D-038596601194

Attention! Can NOT use the 18c's file now so we use oracle-database-server-12cR2-preinstall.x86_64

~~yum -y install oracle-database-server-18c-preinstall~~

yum install -y oracle-database-server-12cR2-preinstall.x86_64

Prepare the folder and unzip the install file to dbhome folder

mkdir -p /u01/app/oraInventory

mkdir -p /u01/app/base

mkdir -p /u01/app/oracle/product/18.0.0/dbhome_1

chown -R oracle: /u01/app/base

chown -R oracle: /u01/app/oraInventory

chown -R oracle: /u01/app/oracle/product/18.0.0/dbhome_1

Use db_install.rsp file to install Database 18c

find /u01/app/oracle/product/18.0.0/dbhome_1 -name *.rsp

[oracle@database18c vagrant]$ cp /u01/app/oracle/product/18.0.0/dbhome_1/inventory/response/db_install.rsp /vagrant/

[oracle@database18c vagrant]$ cd /vagrant

[oracle@database18c vagrant]$ ls -ltr *.rsp

-rwxrwxrwx. 1 vagrant vagrant 17835 Mar 1 14:47 db_install.rsp

```
[oracle@database18c vagrant]$
[oracle@database18c vagrant]$ cat db_install.rsp | grep -v "^$" | grep -v "^#" | sort > db_install_18c.rsp
[oracle@database18c vagrant]$ vi db_install_18c.rsp
[oracle@database18c vagrant]$ cat db_install_18c.rsp | grep -v "^#" | grep -v "^$" | sort
[oracle@database18c vagrant]$
INVENTORY_LOCATION=/u01/app/oraInventory
ORACLE_BASE=/u01/app/base
ORACLE_HOME=/u01/app/oracle/product/18.0.0/dbhome_1
oracle.install.db.CLUSTER_NODES=
oracle.install.db.config.asm.ASMSNMPPassword=
oracle.install.db.config.asm.diskGroup=
oracle.install.db.config.PDBName=
oracle.install.db.config.starterdb.characterSet=
oracle.install.db.config.starterdb.emAdminPassword=
oracle.install.db.config.starterdb.emAdminUser=
oracle.install.db.config.starterdb.enableRecovery=
oracle.install.db.config.starterdb.fileSystemStorage.dataLocation=
oracle.install.db.config.starterdb.fileSystemStorage.recoveryLocation=
oracle.install.db.config.starterdb.globalDBName=
oracle.install.db.config.starterdb.installExampleSchemas=
oracle.install.db.config.starterdb.managementOption=
oracle.install.db.config.starterdb.memoryLimit=
oracle.install.db.config.starterdb.memoryOption=
oracle.install.db.config.starterdb.omsHost=
oracle.install.db.config.starterdb.omsPort=
oracle.install.db.config.starterdb.password.ALL=
oracle.install.db.config.starterdb.password.DBSNMP=
oracle.install.db.config.starterdb.password.PDBADMIN=
oracle.install.db.config.starterdb.password.SYS=
oracle.install.db.config.starterdb.password.SYSTEM=
oracle.install.db.config.starterdb.SID=
oracle.install.db.config.starterdb.storageType=
oracle.install.db.config.starterdb.type=
oracle.install.db.ConfigureAsContainerDB=
oracle.install.db.InstallEdition=EE
oracle.install.db.OSBACKUPDBA_GROUP=backupdba
oracle.install.db.OSDBA_GROUP=dba
oracle.install.db.OSDGDBA_GROUP=dgdba
oracle.install.db.OSKMDBA_GROUP=kmdba
oracle.install.db.OSOPER_GROUP=
oracle.install.db.OSRACDBA_GROUP=racdba
oracle.install.option=INSTALL_DB_SWONLY
oracle.install.responseFileVersion=/oracle/install/rspfmt_dbinstall_response_schema_v18.0.0
UNIX_GROUP_NAME=oinstall
[oracle@database18c vagrant]$ /u01/app/oracle/product/18.0.0/dbhome_1/runInstaller -silent -ignorePrereq  -waitforcompletion -
responseFile /vagrant/db_install_18c.rsp
[oracle@database18c vagrant]$ /u01/app/oracle/product/18.0.0/dbhome_1/runInstaller -silent -ignorePrereq  -waitforcompletion -
responseFile /vagrant/db_install_18c.rsp
Launching Oracle Database Setup Wizard...
[WARNING] [INS-13014] Target environment does not meet some optional requirements.
   CAUSE: Some of the optional prerequisites are not met. See logs for details. installActions2018-03-01_03-26-10PM.log
   ACTION: Identify the list of failed prerequisite checks from the log: installActions2018-03-01_03-26-10PM.log. Then either
from the log file or from installation manual find the appropriate configuration to meet the prerequisites and fix it manually.
The response file for this session can be found at:
 /u01/app/oracle/product/18.0.0/dbhome_1/install/response/db_2018-03-01_03-26-10PM.rsp
You can find the log of this install session at:
 /tmp/InstallActions2018-03-01_03-26-10PM/installActions2018-03-01_03-26-10PM.log
As a root user, execute the following script(s):
        1. /u01/app/oraInventory/orainstRoot.sh
        2. /u01/app/oracle/product/18.0.0/dbhome_1/root.sh


Execute /u01/app/oraInventory/orainstRoot.sh on the following nodes:
[database18c]
Execute /u01/app/oracle/product/18.0.0/dbhome_1/root.sh on the following nodes:
[database18c]
Successfully Setup Software with warning(s).
Moved the install session logs to:
 /u01/app/oraInventory/logs/InstallActions2018-03-01_03-26-10PM
```

[oracle@database18c vagrant]$

/u01/app/oraInventory/orainstRoot.sh

/u01/app/oracle/product/18.0.0/dbhome_1/root.sh

[oracle@database18c ~]$ sqlplus /nolog

SQL*Plus: Release 18.0.0.0.0 Production on Thu Mar 1 15:51:06 2018

Version 18.1.0.0.0

Copyright (c) 1982, 2017, Oracle. All rights reserved.

SQL>

Oracle Database 18c Create Database

The specific methods for creating a database are:

- With Database Configuration Assistant (DBCA), a graphical tool.
- With the CREATE DATABASE SQL statement.

This time, I use create database sql statement to create oracle 18c database.

The document:

2.4 Creating a Database with the CREATE DATABASE Statement

https://docs.oracle.com/en/database/oracle/oracle-database/18/admin/creating-and-configuring-an-oracle-database.html#GUID-18B03451-5C74-4B53-A892-656C3E8A2556

Step 0. Modify the env file.

[oracle@database18c ~]$ cat .bashrc

.bashrc

Source global definitions

if [-f /etc/bashrc]; then

        . /etc/bashrc

fi

Uncomment the following line if you don't like systemctl's auto-paging feature:

export SYSTEMD_PAGER=

User specific aliases and functions

export ORACLE_BASE=/u01/app/base

export ORACLE_HOME=/u01/app/oracle/product/18.0.0/dbhome_1

export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/OPatch/:/usr/sbin:/usr/local/bin:/usr/bin

```
export LD_LIBRARY_PATH=/u01/app/oracle/product/18.0.0/dbhome_1/lib:/lib:/usr/lib
alias sqlplus='rlwrap sqlplus'
[oracle@database18c ~]$
```

Step 1. create orapwd file.

```
[oracle@database18c ~]$ orapwd file='$ORACLE_HOME/dbs/orapwPRODCDB' password=oracle force=y
OPW-00029: Password complexity failed for SYS user : Password must contain at least 8 characters.
[oracle@database18c ~]$
[oracle@database18c ~]$ orapwd file='$ORACLE_HOME/dbs/orapwPRODCDB.001' password=oracle force=y format=12
[oracle@database18c ~]$ orapwd file='$ORACLE_HOME/dbs/orapwPRODCDB' input_file='$ORACLE_HOME/dbs/orapwPRODCDB.001'
[oracle@database18c ~]$
```

Step 2 create init.ora file.

```
[oracle@database18c ~]$ cd $ORACLE_HOME/dbs
[oracle@database18c dbs]$ ls
init.ora  orapwPRODCDB  orapwPRODCDB.001
[oracle@database18c dbs]$ cat init.ora | grep -v '^#' | grep -v '^$'
db_name='ORCL'
memory_target=1G
processes = 150
audit_file_dest='<ORACLE_BASE>/admin/orcl/adump'
audit_trail ='db'
db_block_size=8192
db_domain=''
db_recovery_file_dest='<ORACLE_BASE>/fast_recovery_area'
db_recovery_file_dest_size=2G
diagnostic_dest='<ORACLE_BASE>'
dispatchers='(PROTOCOL=TCP) (SERVICE=ORCLXDB)'
open_cursors=300
remote_login_passwordfile='EXCLUSIVE'
undo_tablespace='UNDOTBS1'
control_files = (ora_control1, ora_control2)
compatible ='11.2.0'
[oracle@database18c dbs]$
[oracle@database18c dbs]$ cat init.ora | grep -v '^$' | grep -v '^#' > initPRODCDB.ora
[oracle@database18c dbs]$ vi initPRODCDB.ora
[oracle@database18c dbs]$ cat initPRODCDB.ora
db_name='PRODCDB'
memory_target=800m
processes = 150
audit_file_dest='/u01/app/oracle/admin/prodcdb/adump'
audit_trail ='db'
db_block_size=8192
db_domain=''
db_recovery_file_dest='/u01/app/oracle/fast_recovery_area'
db_recovery_file_dest_size=2G
diagnostic_dest='/u01/app/oracle'
dispatchers='(PROTOCOL=TCP) (SERVICE=ORCLXDB)'
open_cursors=300
remote_login_passwordfile='EXCLUSIVE'
undo_tablespace='UNDOTBS1'
control_files = ('/u01/app/oracle/oradata/PRODCDB/ora_control01.ctl', '/u01/app/oracle/oradata/PRODCDB/ora_control02.ctl')
compatible ='18.0.0'
_exadata_feature_on=true
[oracle@database18c dbs]$
```

Beacuse the installfile is only use in Exadata, so we should add the following parameter in Linux env.
_exadata_feature_on=true

```
[root@database18c oracle]# mkdir -p /u01/app/oracle/admin/prodcdb/adump
[root@database18c oracle]# chown -R oracle: /u01/app/oracle/
[oracle@database18c ~]$ mkdir /u01/app/oracle/oradata/PRODCDB -p
[oracle@database18c ~]$ mkdir /u01/app/oracle/fast_recovery_area
[oracle@database18c ~]$
[oracle@database18c dbs]$ sqlplus / as sysdba
SQL*Plus: Release 18.0.0.0.0 Production on Thu Mar 1 16:21:00 2018
Version 18.1.0.0.0
```

```
Copyright (c) 1982, 2017, Oracle.  All rights reserved.
Connected to an idle instance.
SQL> create spfile from pfile;
File created.
SQL> !ls -ltr
total 32
-rw-r--r--. 1 oracle oinstall  3079 May 14  2015 init.ora
-rw-r-----. 1 oracle oinstall  2048 Mar  1 16:04 orapwPRODCDB.001
-rw-r-----. 1 oracle oinstall 11264 Mar  1 16:05 orapwPRODCDB
-rw-rw----. 1 oracle oinstall  1544 Mar  1 16:19 hc_PRODCDB.dat
-rw-r--r--. 1 oracle oinstall   578 Mar  1 16:20 initPRODCDB.ora
-rw-r-----. 1 oracle oinstall  2560 Mar  1 16:21 spfilePRODCDB.ora
SQL>
```

Step 3. Issue create database sql.

```
SQL> startup nomount;
ORACLE instance started.
Total System Global Area  838856896 bytes
Fixed Size                  8663232 bytes
Variable Size             562036736 bytes
Database Buffers          260046848 bytes
Redo Buffers                8110080 bytes
SQL>
SQL> host vi createdb.sql


SQL> host cat createdb.sql
CREATE DATABASE PRODCDB
  USER SYS IDENTIFIED BY sys_password
  USER SYSTEM IDENTIFIED BY system_password
  LOGFILE GROUP 1 ('/u01/app/oracle/oradata/PRODCDB/redo01a.log','/u01/app/oracle/oradata/PRODCDB/redo01b.log')
                    SIZE 100M BLOCKSIZE 512,
             GROUP 2 ('/u01/app/oracle/oradata/PRODCDB/redo02a.log','/u01/app/oracle/oradata/PRODCDB/redo02b.log')
                    SIZE 100M BLOCKSIZE 512,
             GROUP 3 ('/u01/app/oracle/oradata/PRODCDB/redo03a.log','/u01/app/oracle/oradata/PRODCDB/redo03b.log')
                    SIZE 100M BLOCKSIZE 512
  MAXLOGHISTORY 1
  MAXLOGFILES 16
  MAXLOGMEMBERS 3
  MAXDATAFILES 1024
  CHARACTER SET AL32UTF8
  NATIONAL CHARACTER SET AL16UTF16
  EXTENT MANAGEMENT LOCAL
  DATAFILE '/u01/app/oracle/oradata/PRODCDB/system01.dbf'
       SIZE 700M REUSE AUTOEXTEND ON NEXT 10240K MAXSIZE UNLIMITED
  SYSAUX DATAFILE '/u01/app/oracle/oradata/PRODCDB/sysaux01.dbf'
       SIZE 550M REUSE AUTOEXTEND ON NEXT 10240K MAXSIZE UNLIMITED
  DEFAULT TABLESPACE deftbs
        DATAFILE '/u01/app/oracle/oradata/PRODCDB/deftbs01.dbf'
        SIZE 500M REUSE AUTOEXTEND ON MAXSIZE UNLIMITED
  DEFAULT TEMPORARY TABLESPACE tempts1
        TEMPFILE '/u01/app/oracle/oradata/PRODCDB/temp01.dbf'
        SIZE 20M REUSE AUTOEXTEND ON NEXT 640K MAXSIZE UNLIMITED
  UNDO TABLESPACE undotbs1
        DATAFILE '/u01/app/oracle/oradata/PRODCDB/undotbs01.dbf'
        SIZE 200M REUSE AUTOEXTEND ON NEXT 5120K MAXSIZE UNLIMITED
  ENABLE PLUGGABLE DATABASE
        SEED
          FILE_NAME_CONVERT = ('/u01/app/oracle/oradata/PRODCDB/',
                                            '/u01/app/oracle/oradata/pdbseed/')
        LOCAL UNDO ON;

SQL>
SQL> host mkdir /u01/app/oracle/oradata/pdbseed
SQL>
SQL> show parameter enable_pluggable


NAME                             TYPE         VALUE
```

```
-------------------------------------- ----------- ------------------------------
enable_pluggable_database              boolean     FALSE
```
SQL> alter system set enable_pluggable_database=true;

alter system set enable_pluggable_database=true

                *

ERROR at line 1:

ORA-02095: specified initialization parameter cannot be modified

SQL> alter system set enable_pluggable_database=true scope=spfile;

System altered.

SQL> shu immediate;

ORA-01507: database not mounted

ORACLE instance shut down.

SQL> startup nomount;

ORACLE instance started.

Total System Global Area 838857288 bytes

Fixed Size   8901192 bytes

Variable Size   562036736 bytes

Database Buffers   260046848 bytes

Redo Buffers   7872512 bytes

SQL> show parameter enable_pluggable

```
NAME                                 TYPE        VALUE
-------------------------------------- ----------- ------------------------------
enable_pluggable_database              boolean     TRUE
```
SQL>

SQL> @createdb

Database created.

SQL>

Step 4. Execute the scripts
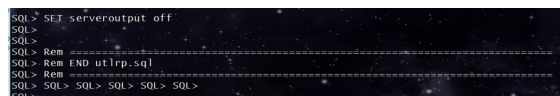

SQL> host vi dbv.sql

SQL> host cat dbv.sql

@?/rdbms/admin/catalog.sql

@?/rdbms/admin/catproc.sql

@?/rdbms/admin/utlrp.sql

SQL> @dbv.sql

It will take some time to execute this sql to build Data Dictionary Views.Please keep your patience.

Script	Description
catalog.sql	Creates the views of the data dictionary tables, the dynamic performance views, and public synonyms for many of the views. Grants PUBLIC access to the synonyms.
catproc.sql	Runs all scripts required for or used with PL/SQL.
utlrp.sql	Recompiles all PL/SQL modules that are in an invalid state, including packages, procedures, and types.
pupbld.sql	Required for SQL*Plus. Enables SQL*Plus to disable commands by user.

Completed!

SQL> conn system/system_password

Connected.

SQL> show user

USER is "SYSTEM"

SQL> @?/sqlplus/admin/pupbld.sql

~

SQL> Rem   BEGIN SQL_FILE_METADATA

SQL> Rem   SQL_SOURCE_FILE: rdbms/admin/sqlsessend.sql

SQL> Rem   SQL_SHIPPED_FILE: rdbms/admin/sqlsessend.sql

SQL> Rem   SQL_PHASE: SQLSESSEND

SQL> Rem   SQL_STARTUP_MODE: NORMAL

SQL> Rem   SQL_IGNORABLE_ERRORS: NONE

SQL> Rem   END SQL_FILE_METADATA

SQL> Rem

SQL> Rem   MODIFIED   (MM/DD/YY)

SQL> Rem   surman   03/08/13 - 16462837: Common start and end scripts

SQL> Rem   surman   03/08/13 - Created

SQL> Rem

SQL>

```
SQL> alter session set "_ORACLE_SCRIPT" = false;
Session altered.
SQL>
```

All the works are done!

```
[oracle@database18c ~]$
[oracle@database18c ~]$ export ORACLE_SID=PRODCDB; sqlplus / as sysdba
SQL*Plus: Release 18.0.0.0.0 Production on Thu Mar 1 17:28:53 2018
Version 18.1.0.0.0
Copyright (c) 1982, 2017, Oracle.  All rights reserved.
Connected to:
Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production
Version 18.1.0.0.0
SQL> select * from v$version;
BANNER
--------------------------------------------------------------------------------
BANNER_FULL
--------------------------------------------------------------------------------
BANNER_LEGACY
--------------------------------------------------------------------------------
    CON_ID
----------
Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production
Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production
Version 18.1.0.0.0
Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 - Production
BANNER
--------------------------------------------------------------------------------
BANNER_FULL
--------------------------------------------------------------------------------
BANNER_LEGACY
--------------------------------------------------------------------------------
    CON_ID
----------
SQL> show pdbs;
    CON_ID CON_NAME                       OPEN MODE  RESTRICTED
---------- ------------------------------ ---------- ----------
         2 PDB$SEED                       READ ONLY  NO
SQL>
```