

# Oracle Administrator Workshop I

## (LAB)

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**DOB: 04 April 1995**

### Lab 1: Install Oracle

Add domain and change hostname.

```
[root@ol7-19 admin]# cat /etc/hosts
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
10.0.2.15 ol7-19.localhost ol7-19
[root@ol7-19 admin]# cat /etc/hostname
ol7-19.localhost
[root@ol7-19 admin]#
```

Now we install using Automatic setup.

```
yum install -y oracle-database-preinstall-19c
yum update -y

curl -o oracle-database-preinstall-19c-1.0-1.el7.x86_64.rpm https://yum.oracle.com/repo/OracleLinux/OL7/latest/x86_64/getPackage/oracle-database-preinstall-19c-1.0-1.el7.x86_64.rpm
yum -y localinstall oracle-database-preinstall-19c-1.0-1.el7.x86_64.rpm
```

```

> INVENTORY_LOCATION=${ORA_INVENTORY}
> SELECTED_LANGUAGES=en,en_GB
> ORACLE_HOME=${ORACLE_BASE}
> 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
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. installActions2024-04-01_06-54-19AM.log
  ACTION: Identify the list of failed prerequisite checks from the log: installActions2024-04-01_06-54-19AM.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/19.0.0/dbhome_1/install/response/db_2024-04-01_06-54-19AM.rsp

You can find the log of this install session at:
  /tmp/InstallActions2024-04-01_06-54-19AM/installActions2024-04-01_06-54-19AM.log

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

Execute /u01/app/oraInventory/orainstRoot.sh on the following nodes:
[ol7-19]
Execute /u01/app/oracle/product/19.0.0/dbhome_1/root.sh on the following nodes:
[ol7-19]

Successfully Setup Software with warning(s).
Moved the install session logs to:
  /u01/app/oraInventory/logs/InstallActions2024-04-01_06-54-19AM
[oracle@ol7-19 dbhome_1]$ $ password.

```

Figure 1. Setting UP Software

```
$ passwd oracle
```

Set secure Linux to permissive.

```
$ vi /etc/selinux/config
```

```
SELINUX=permissive
```

Addional configuration

```
systemctl stop firewalld
systemctl disable firewalld
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
```

Now let's install Oracle Database Using silent mode:

- ❖ Update /home/oracle/scripts/.bash\_profile as the following

```
[root@ol7-19 admin]# cat /home/oracle/.bash_profile
# .bash_profile
```

```

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# User specific environment and startup programs
PATH=$PATH:$HOME/.local/bin:$HOME/bin:/usr/bin

export PATH


#Oracle Settings
export TMP=/tmp
export TMPDIR=$TMP

export ORACLE_HOSTNAME=ol7-19.localhost
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

```

Upload LINUX.X64\_193000\_db\_home.zip to Linux server path: /home/scott then unzip the software

```

cd $ORACLE_HOME
. .bash_profile
unzip -oq /home/scott/LINUX.X64_193000_db_home.zip

```

let's install Oracle Database

```

./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

```

The screenshot shows the Oracle Database Configuration Assistant (DBCA) interface. The title bar says "localhost (scott)". The main window displays the following command-line output:

```

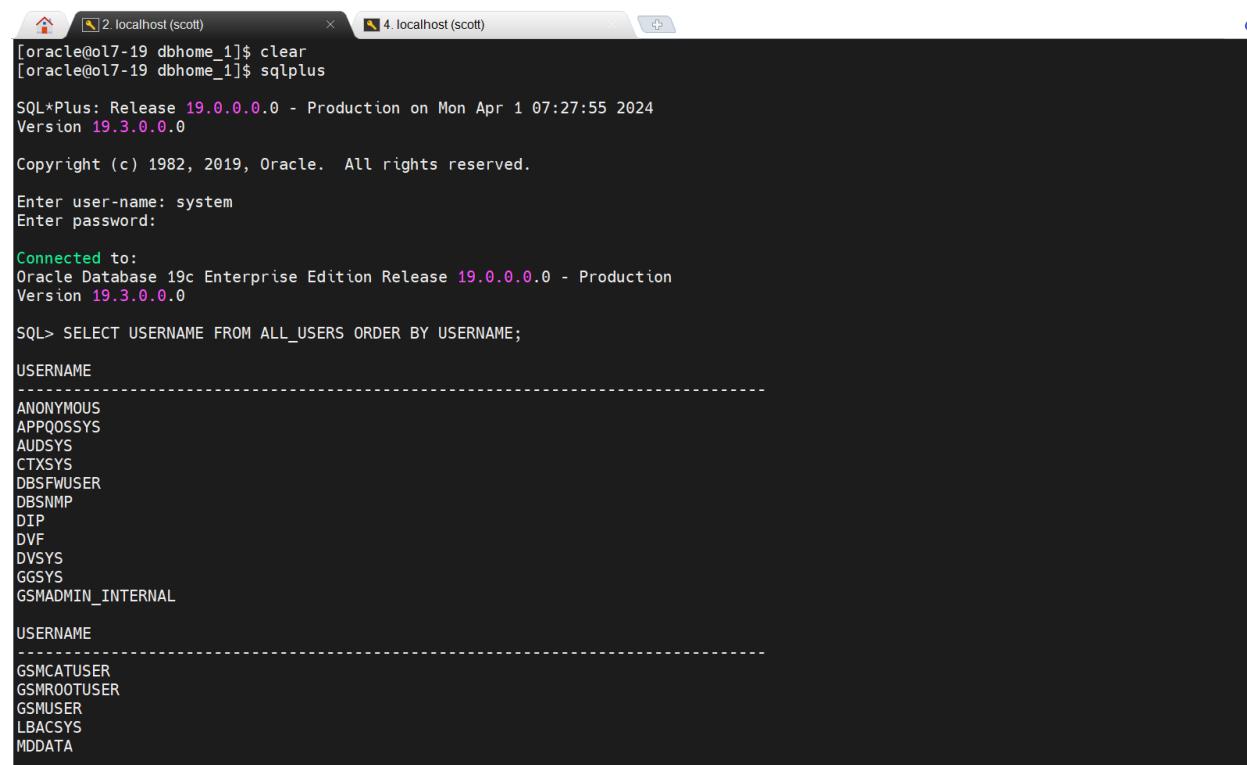
> -createAsContainerDatabase true
> -numberofPDBs 1
> -pdbName ${PDB_NAME}
> -pdbAdminPassword PdbPassword1
> -databaseType MULTIPURPOSE
> -memoryMgmtType auto_sga
> -totalMemory 2000
> -storageType FS
> -datafileDestination "${DATA_DIR}"
> -redoLogFilesize 50
> -emConfiguration NONE
> -ignorePreReqs
Prepare for db operation
8% complete
Copying database files
31% complete
Creating and starting Oracle instance
32% complete
36% complete
40% complete
43% complete
46% complete
Completing Database Creation
51% complete
53% complete
54% complete
Creating Pluggable Databases
58% complete
77% complete
Executing Post Configuration Actions
100% complete
Database creation complete. For details check the logfiles at:
/u01/app/oracle/cfgtoollogs/dbca/cdb1.
Database Information:
Global Database Name:cdb1
System Identifier(SID):cdb1
Look at the log file "/u01/app/oracle/cfgtoollogs/dbca/cdb1/cdb1.log" for further details.
[oracle@ol7-19 dbhome_1]$ 

```

*Figure 2. Install Oracle*

Create a container Database.

```
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
```



The screenshot shows a terminal window with two tabs open, both titled "localhost (scott)". Tab 2 contains the command history and session details:

```
[oracle@ol7-19 dbhome_1]$ clear
[oracle@ol7-19 dbhome_1]$ sqlplus

SQL*Plus: Release 19.0.0.0.0 - Production on Mon Apr 1 07:27:55 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Enter user-name: system
Enter password:

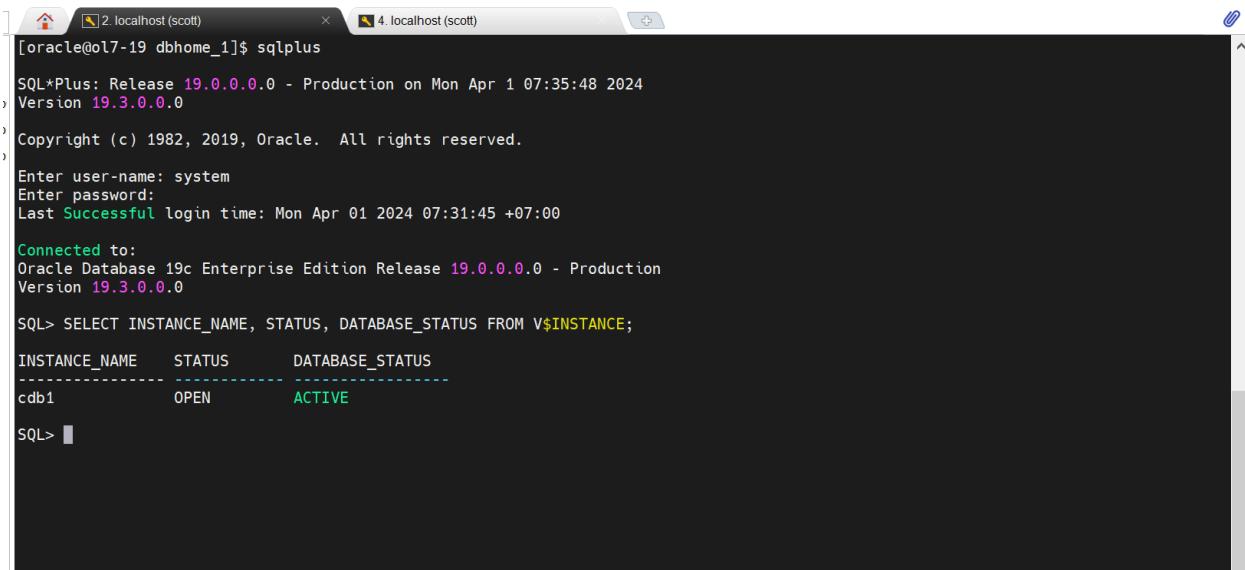
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> SELECT USERNAME FROM ALL_USERS ORDER BY USERNAME;
```

Tab 4 shows the output of the query:

```
USERNAME
-----
ANONYMOUS
APPQOSSYS
AUDSYS
CTXSYS
DBSNMP
DIP
DVF
DV$SYS
GGSYS
GSMADMIN_INTERNAL

USERNAME
-----
GSMCATUSER
GSMROOTUSER
GSMUSER
LBACSYS
MDATA
```



The screenshot shows a terminal window titled '4. localhost (scott)' displaying the output of an Oracle SQL\*Plus session. The session starts with the Oracle release information: 'SQL\*Plus: Release 19.0.0.0.0 - Production on Mon Apr 1 07:35:48 2024 Version 19.3.0.0.0'. It then prompts for a user name ('Enter user-name: system') and password. After successful login, it shows the last successful login time: 'Last Successful login time: Mon Apr 01 2024 07:31:45 +07:00'. The connection details are listed as 'Connected to: Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production Version 19.3.0.0'. A query is run to select instance name, status, and database status from V\$INSTANCE, resulting in a single row: cdb1, OPEN, ACTIVE.

```
[oracle@ol7-19 dbhome_1]$ sqlplus
SQL*Plus: Release 19.0.0.0.0 - Production on Mon Apr 1 07:35:48 2024
Version 19.3.0.0.0
Copyright (c) 1982, 2019, Oracle. All rights reserved.

Enter user-name: system
Enter password:
Last Successful login time: Mon Apr 01 2024 07:31:45 +07:00

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0

SQL> SELECT INSTANCE_NAME, STATUS, DATABASE_STATUS FROM V$instance;
INSTANCE_NAME      STATUS      DATABASE_STATUS
-----  -----  -----
cdb1            OPEN          ACTIVE

SQL>
```

Figure 3. Pluggable Database

## Lab 2. Spool Query Results

Snapshot to prevent issue before process the Lab 2.

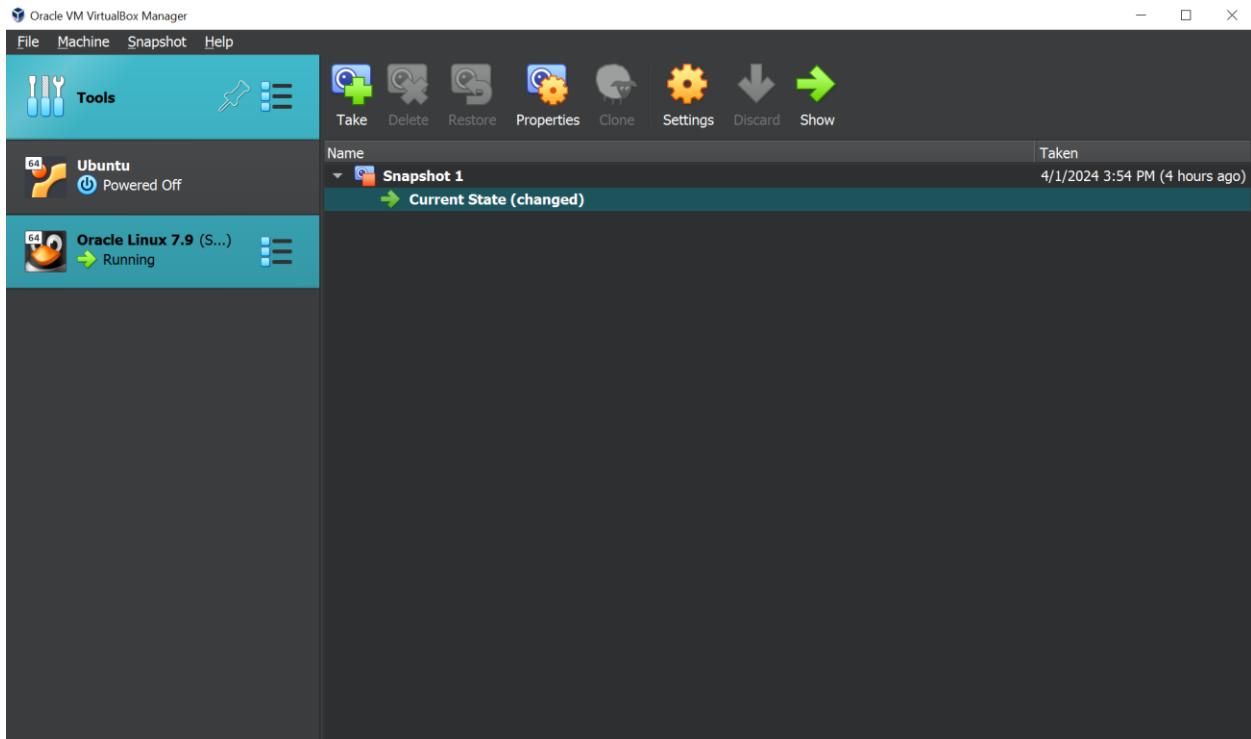


Figure 4. VM Snapshot

Create non-container database.

```
[oracle@ol7-19 ~]$ vi .bash_profile
[oracle@ol7-19 ~]$ cat .bash_profile
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# User specific environment and startup programs
PATH=$PATH:$HOME/.local/bin:$HOME/bin:/usr/bin

export PATH

#Oracle Settings
export TMP=/tmp
export TMPDIR=$TMP

export ORACLE_HOSTNAME=ol7-19.localhost
export ORACLE_UNQNAME=SDB
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=SDB
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

[oracle@ol7-19 ~]$ . .bash_profile
```

```

dbca -silent -createDatabase
  -templateName General_Purpose.dbc
  -gdbname ${ORACLE_SID} -sid ${ORACLE_SID} -responseFile NO_VALUE
  -characterSet AL32UTF8
  -sysPassword SysPassword1
  -systemPassword SysPassword1
  -createAsContainerDatabase false
  -numberOfPDBs 1
  -pdbName ${PDB_NAME}
  -pdbAdminPassword PdbPassword1
  -databaseType MULTIPURPOSE
  -memoryMgmtType auto_sga
  -totalMemory 2000
  -storageType FS
  -datafileDestination "${DATA_DIR}"
  -redoLogFileSize 50
  -emConfiguration NONE
  -ignorePreReqs

```

The screenshot shows a terminal window titled '2.localhost (scott)'. The session starts with the command:

```
[oracle@ol7-19 human_resources]$ sqlplus hr
```

Output from SQL\*Plus:

```
SQL*Plus: Release 19.0.0.0.0 - Production on Mon Apr 1 21:10:49 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Enter password:
ERROR:
ORA-01005: null password given; logon denied

Enter user-name: hr
Enter password:

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> select tname from tab;

TNAME
-----
COUNTRIES
DEPARTMENTS
EMPLOYEES
EMP_DETAILS_VIEW
JOBS
JOB_HISTORY
LOCATIONS
REGIONS

8 rows selected.

SQL>
```

At the bottom of the terminal window, there is a watermark:

Support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

*Figure 5. Demo Table*

```
[oracle@ol7-19 scripts]$ ll
total 8
-rw-r--r--. 1 oracle oinstall 81 Apr 1 21:24 query.sql
-rw-r--r--. 1 oracle oinstall 2744 Apr 1 21:30 results.log
[oracle@ol7-19 scripts]$ cat query
cat: query: No such file or directory
[oracle@ol7-19 scripts]$ clear
[oracle@ol7-19 scripts]$ ll
total 8
-rw-r--r--. 1 oracle oinstall 81 Apr 1 21:24 query.sql
-rw-r--r--. 1 oracle oinstall 2744 Apr 1 21:30 results.log
[oracle@ol7-19 scripts]$ cat query.sql
set pagesize 900;
SELECT DEPARTMENT_ID, DEPARTMENT_NAME from DEPARTMENTS;
/
exit
[oracle@ol7-19 scripts]$ cat results.log
SQL> select * from DEPARTMENTS;

DEPARTMENT_ID DEPARTMENT_NAME           MANAGER_ID LOCATION_ID
-----  -----
      10 Administration                 200        1700
      20 Marketing                      201        1800
      30 Purchasing                     114        1700
      40 Human Resources                203        2400
      50 Shipping                       121        1500
      60 IT                             103        1400
      70 Public Relations               204        2700
      80 Sales                          145        2500
      90 Executive                      100        1700
     100 Finance                       108        1700
     110 Accounting                     205        1700

DEPARTMENT_ID DEPARTMENT_NAME           MANAGER_ID LOCATION_ID
-----  -----
     120 Treasury                      1700
     130 Corporate Tax                 1700
     140 Control And Credit            1700
```

Figure 6. Query Select

## Lab 3. PDB Clone

Restore from the previous snapshot.

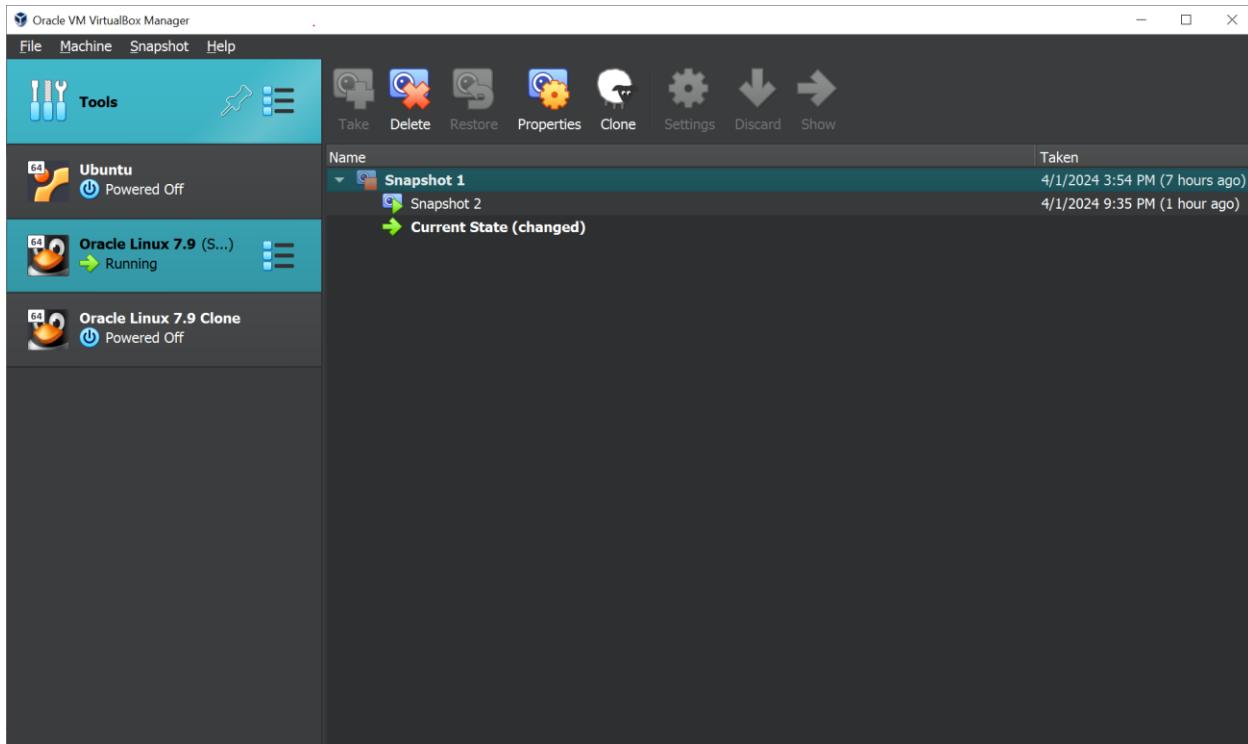


Figure 7. The previous snapshot

```
[oracle@ol7-19 ~]$ sqlplus / as sysdba
SQL*Plus: Release 19.0.0.0 - Production on Mon Apr 1 23:38:22 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area 1577055360 bytes
Fixed Size          9135232 bytes
Variable Size       385875968 bytes
Database Buffers    1174405120 bytes
Redo Buffers        7639040 bytes
Database mounted.
Database opened.

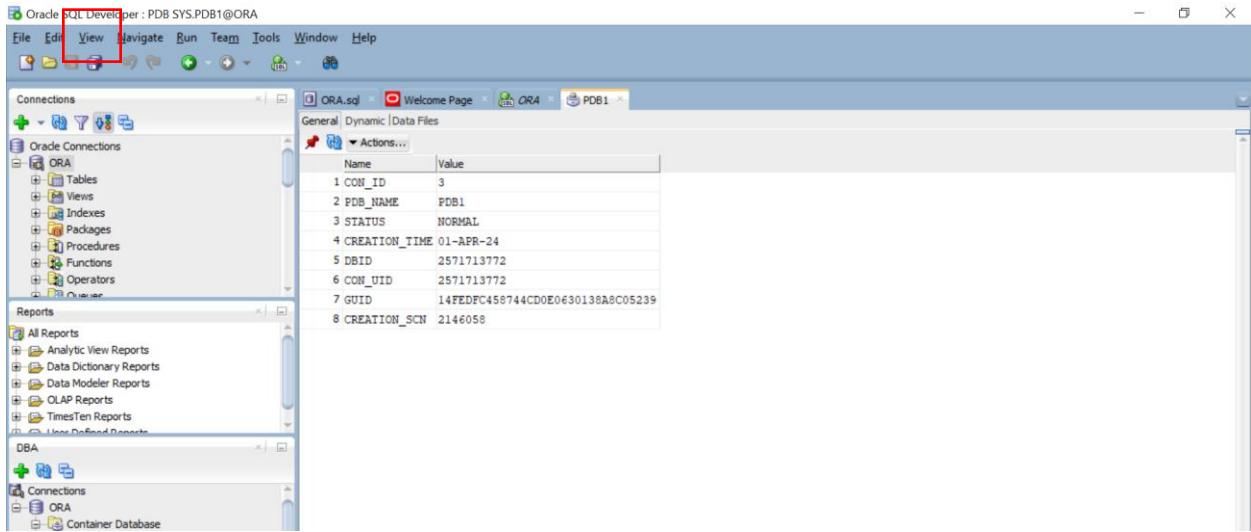
SQL> show pdbs;

  CON_ID CON_NAME           OPEN MODE  RESTRICTED
----- -----
        2 PDB$SEED          READ ONLY  NO
        3 PDB1               READ WRITE NO

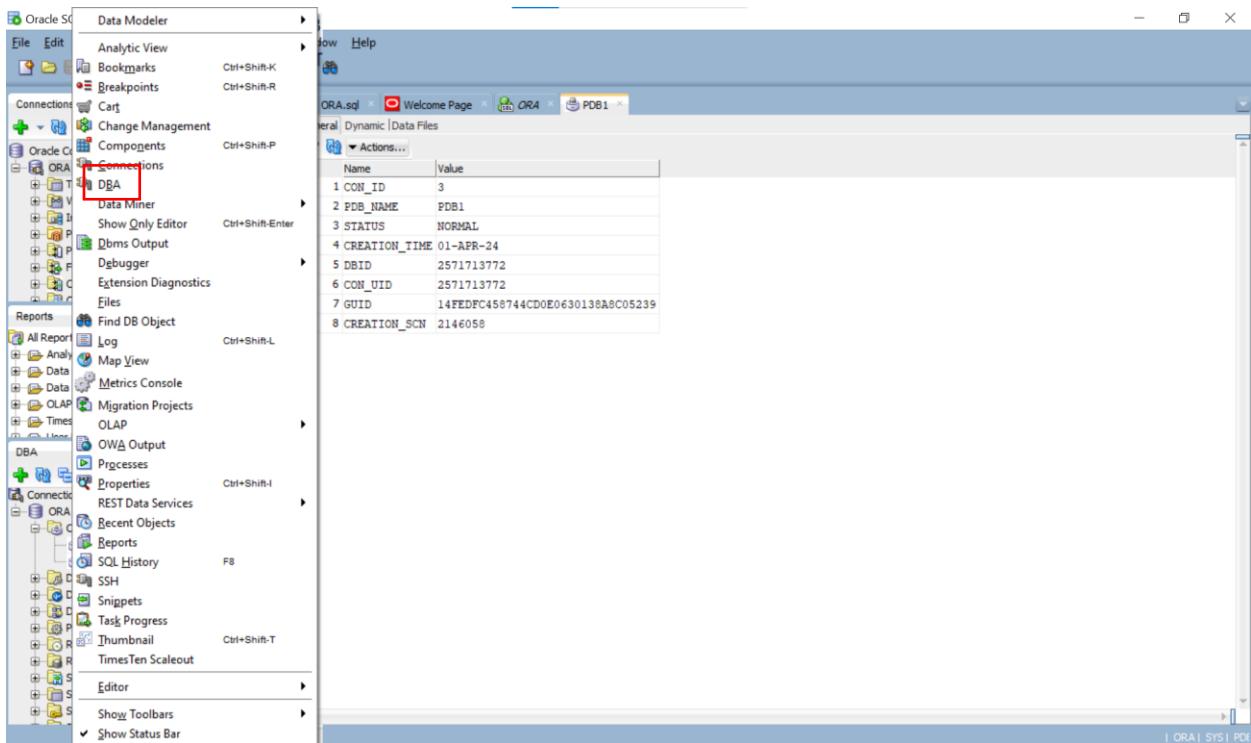
SQL>
```

Figure 8. Pluggable Database

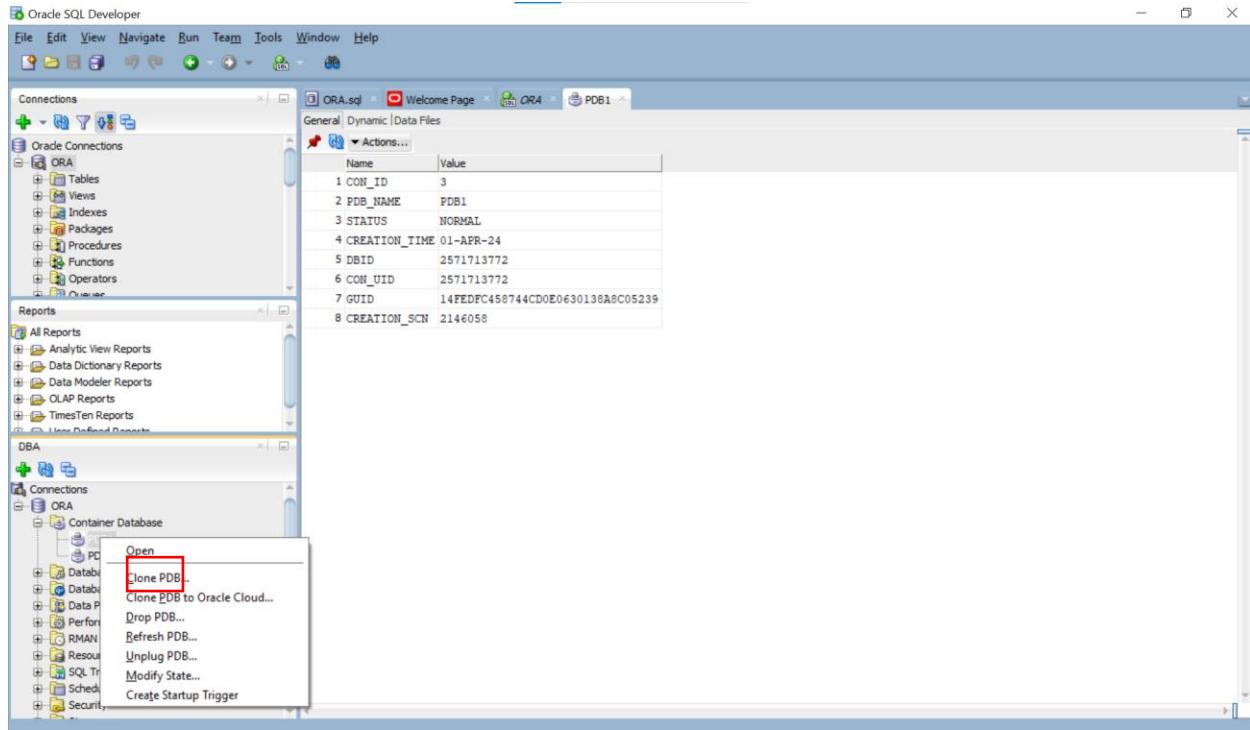
## Clone Using SQL Developer by Click on “View”



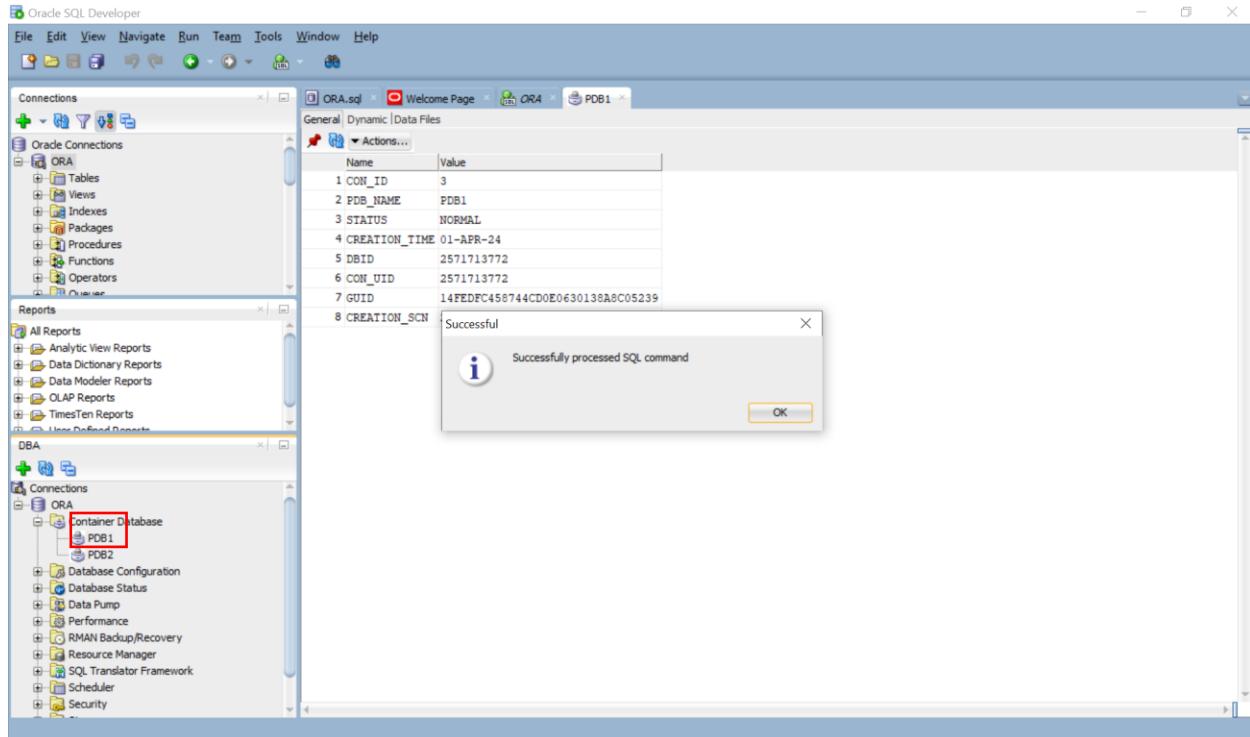
## Click on “DBA”



## Extent Container Database and Right Click on “PDB1” then Clone PDB



Now We Clone PDB successfully.



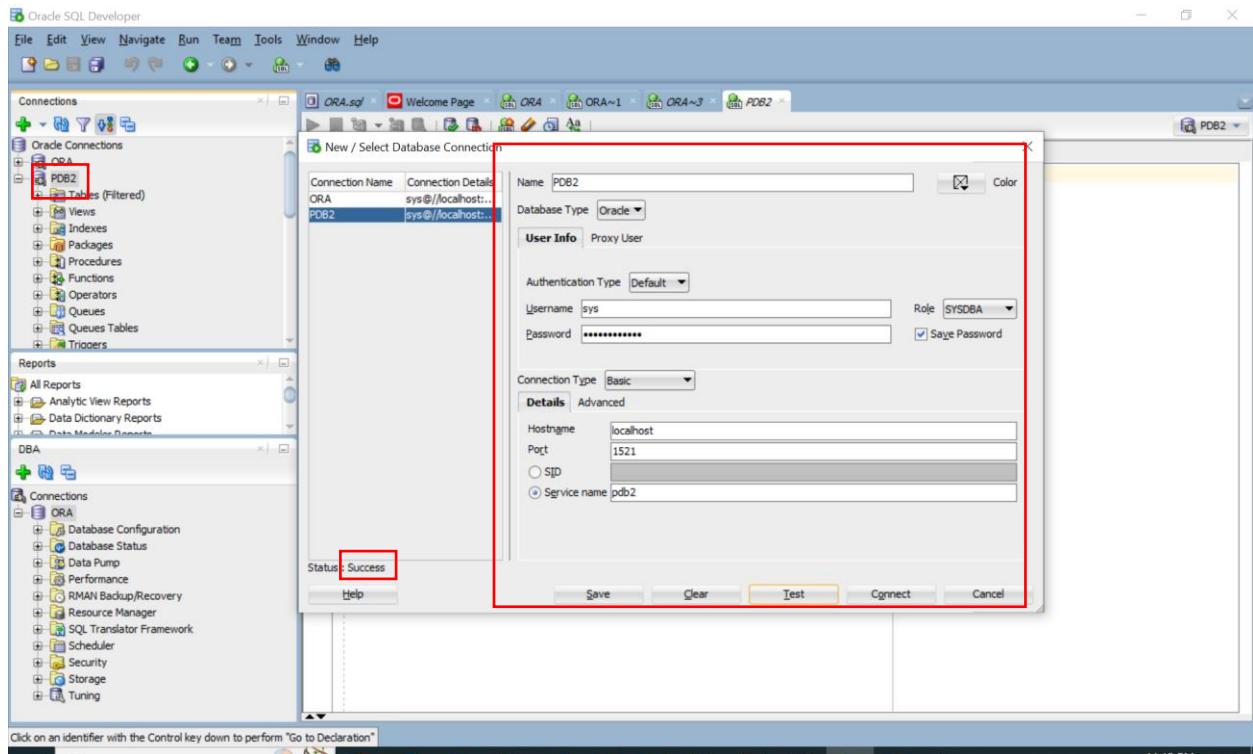
Add tns entry to tnsnames.ora

```
PDB2 =
(DESCRIPTION =
  (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP)(HOST = ol7-19.localhost)(PORT = 1521))
  )
  (CONNECT_DATA =
    (SERVICE_NAME = pdb2)
  )
)
```

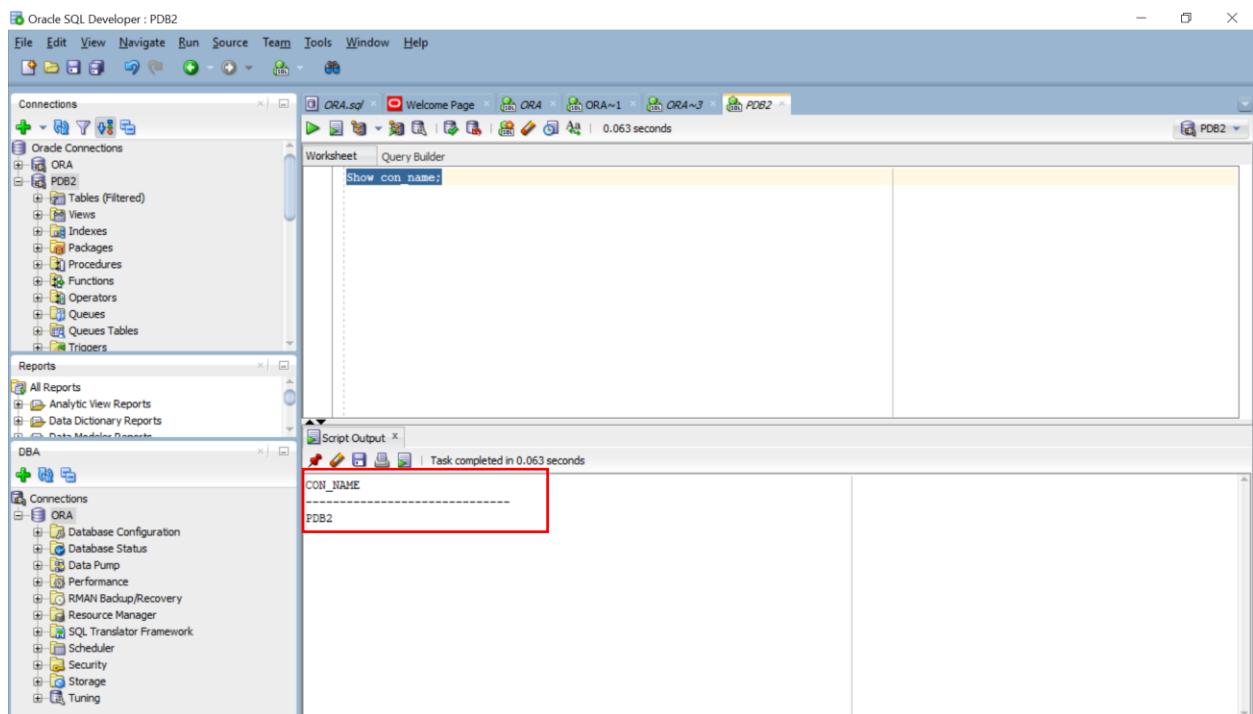
```
[oracle@ol7-19 admin]$ ll
total 20
-rw-r--r--. 1 oracle oinstall 4377 Apr  3 23:08 listener.ora
drwxr-xr-x. 2 oracle oinstall 4096 Apr  1 11:30 samples
-rw-r--r--. 1 oracle oinstall 1536 Feb 14  2018 shrept.lst
-rw-r--r--. 1 oracle oinstall  166 Apr  3 22:15 tnsnames.ora
[oracle@ol7-19 admin]$ cat tnsnames.ora
```

```
PDB2 =
(DESCRIPTION =
  (ADDRESS_LIST =
    (ADDRESS = (PROTOCOL = TCP)(HOST = ol7-19.localhost)(PORT = 1521))
  )
  (CONNECT_DATA =
    (SERVICE_NAME = pdb2)
  )
)
```

Add new connection to test in SQL Developer



Show connection name.



# Lab 4. Tablespace + RAM

Check default tablespace of PDB2.

The screenshot shows the Oracle SQL Developer interface. In the left sidebar, under 'Connections', there is a tree view with 'ORA' and 'PDB2' expanded. Under 'PDB2', 'Tables (Filtered)' is selected. In the central workspace, a query is being run:

```
show user;
show con_name;
select * from v$tablespace;
```

The output shows the following table:

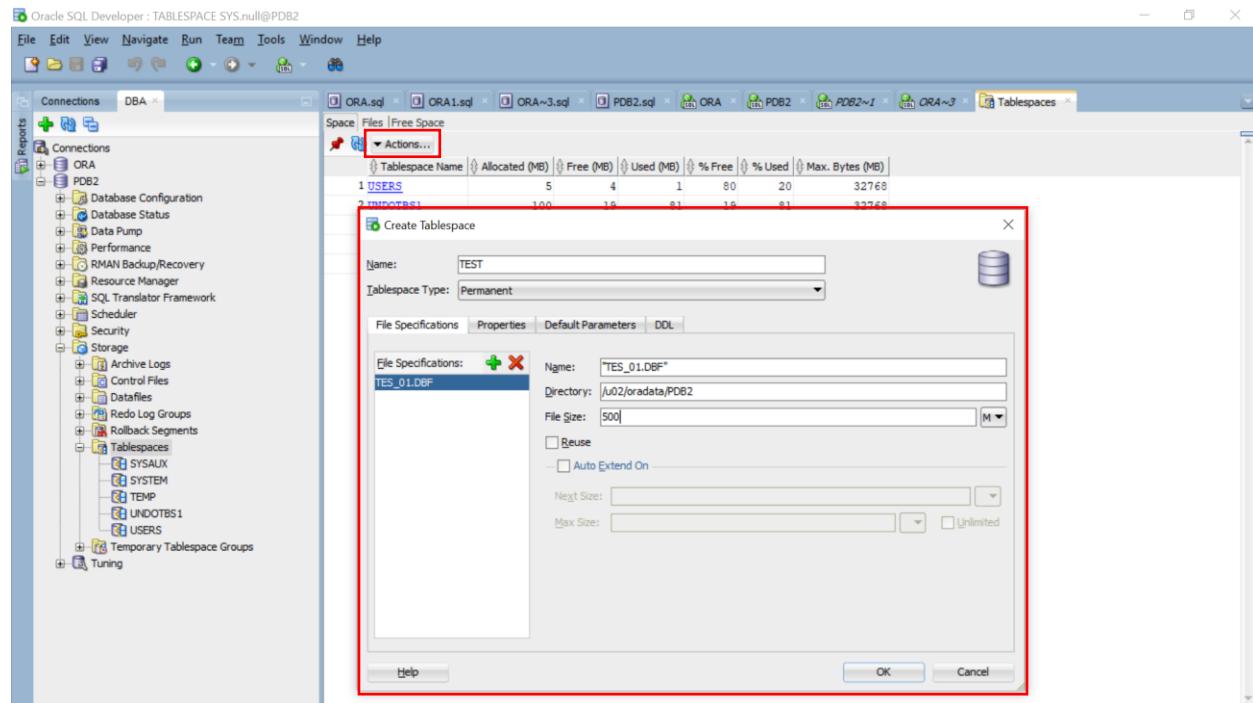
TS#	NAME	INC	BIG	FLA	ENC	CON_ID
0	SYSTEM	YES	NO	YES		4
1	SYSAUX	YES	NO	YES		4
2	UNDOTBS1	YES	NO	YES		4
3	TEMP	NO	NO	YES		4
5	USERS	YES	NO	YES		4

View as DBA

The screenshot shows the Oracle SQL Developer interface with the 'DBA' connection selected in the left sidebar. Under 'Storage' > 'Tablespaces', a tree view shows 'ORA' and 'PDB2'. Under 'PDB2', 'Tablespaces' is selected, revealing five entries: 'SYSAUX', 'SYSTEM', 'TEMP', 'UNDOTBS1', and 'USERS'. A red box highlights this list. In the central workspace, a table displays the space usage for these tablespaces:

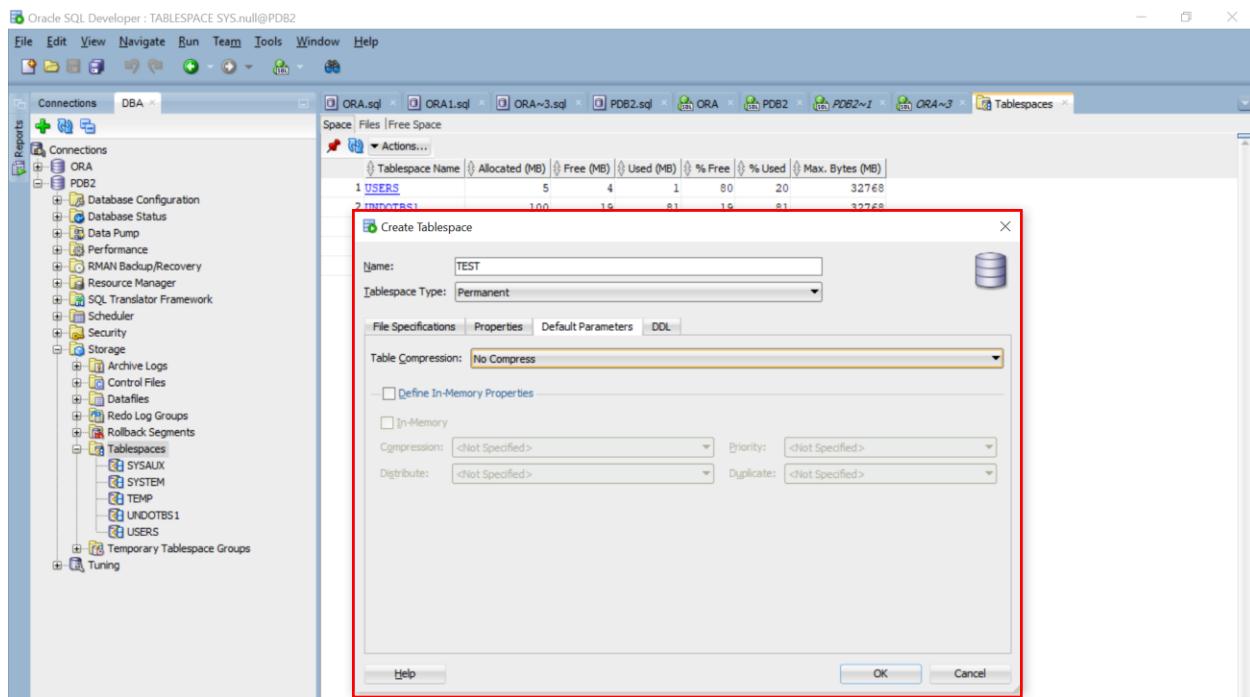
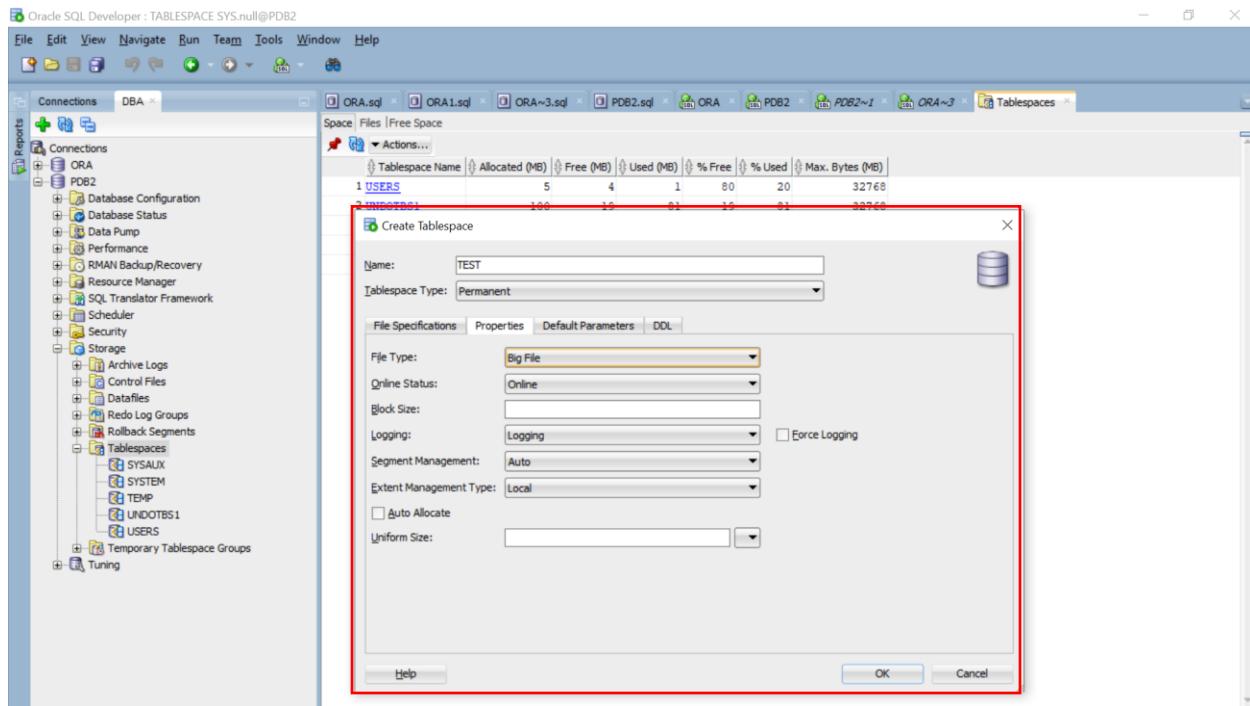
Tablespace Name	Allocated (MB)	Free (MB)	Used (MB)	% Free	% Used	Max. Bytes (MB)
1 USERS	5	4	1	80	20	32768
2 UNDOTBS1	100	19	81	19	81	32768
3 TEMP	128	127	1	99	1	32768
4 SYSTEM	270	7	263	2	98	32768
5 SYSAUX	330	16	314	5	95	32768

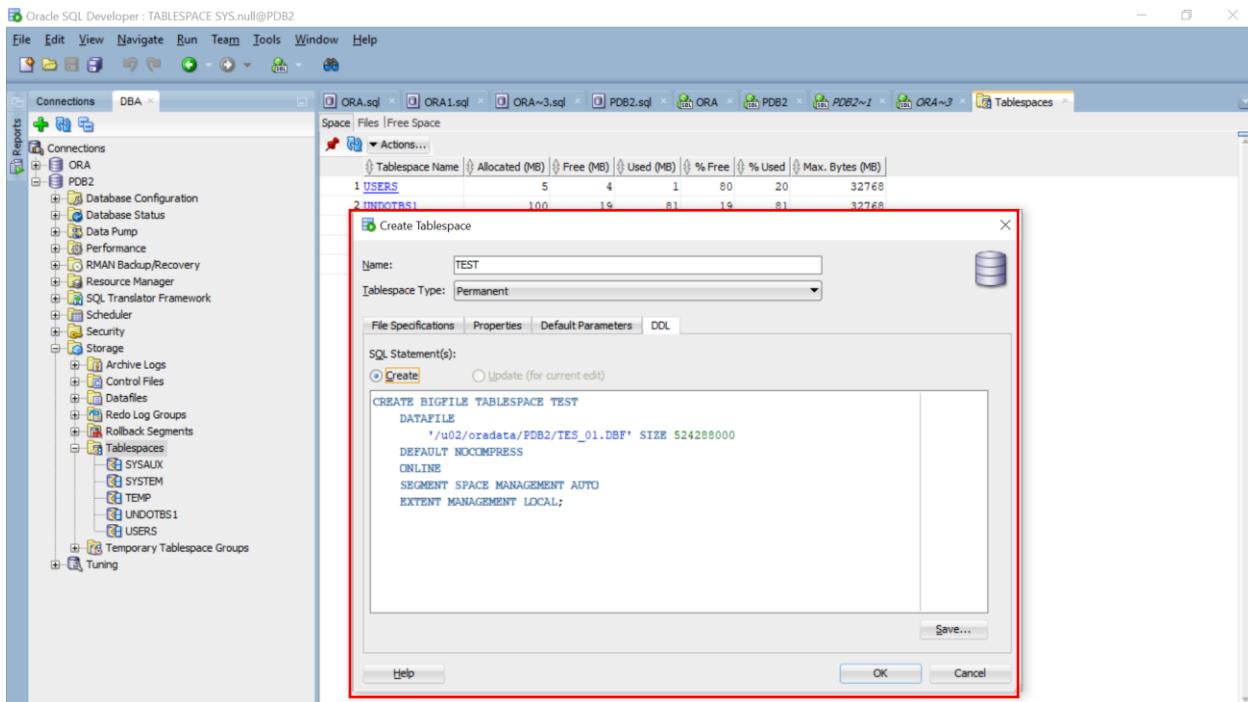
## Create new tablespace using SQL Developer



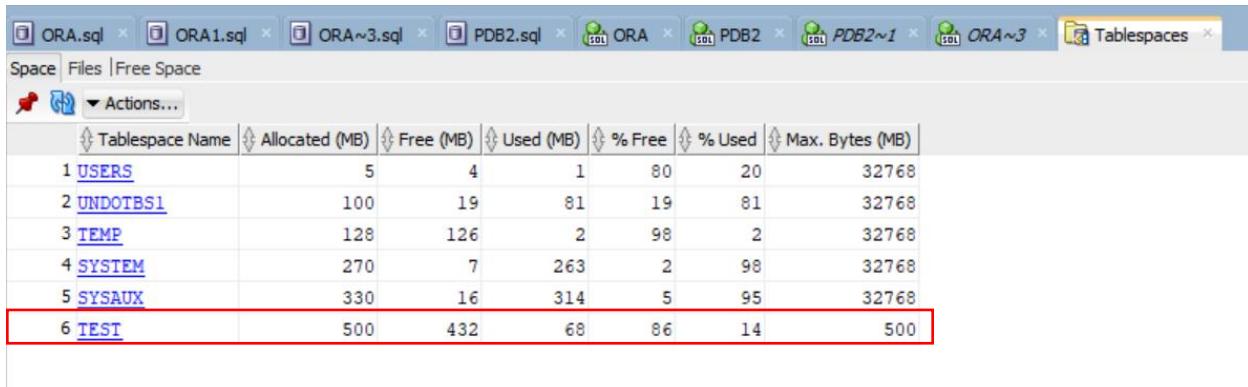
The screenshot shows a terminal window on a Linux system. The command history shows:

```
[oracle@ol7-19 oradata]$ pwd  
/u02/oradata  
[oracle@ol7-19 oradata]$ ll  
total 8  
drwxr-x---. 5 oracle oinstall 4096 Apr  3 20:47 CDB1  
drwxr-xr-x. 2 oracle oinstall 4096 Apr  5 11:26 PDB2  
[oracle@ol7-19 oradata]$
```



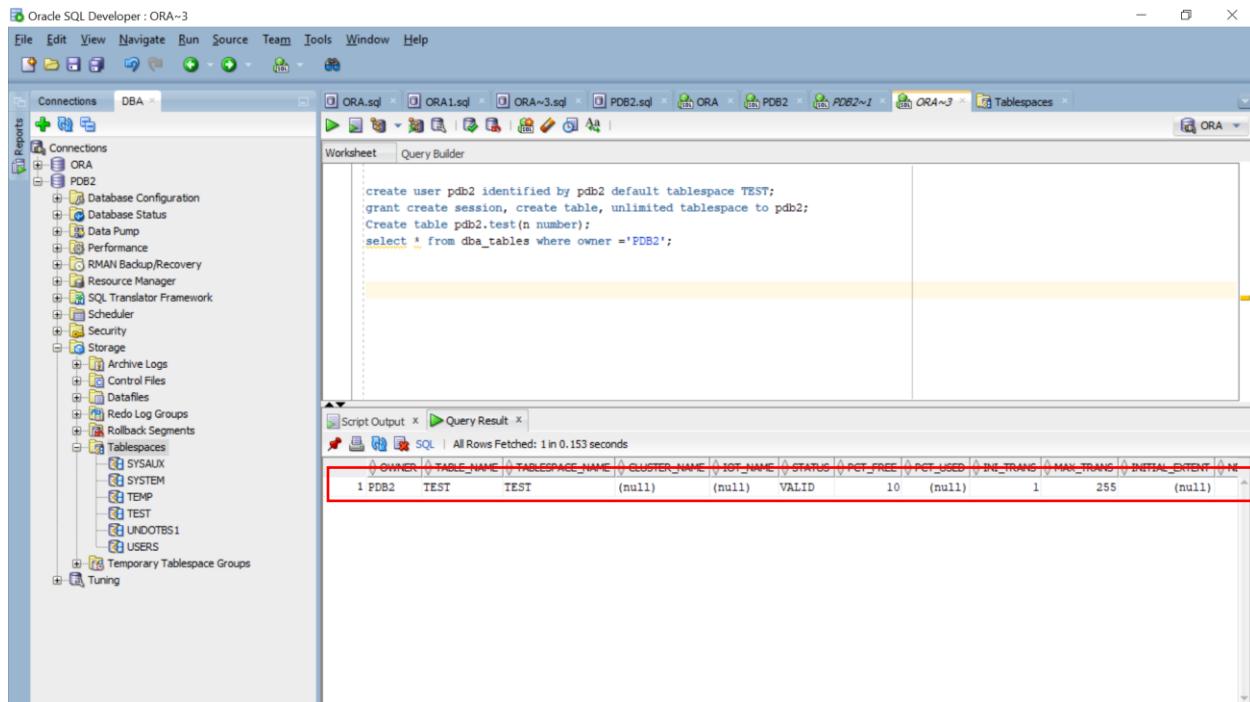


Click On Ok



Create a user and assign tablespace to the user.

```
CREATE USER PDB2 IDENTIFIED BY PDB2 DEFAULT TABLESPACE TEST;
GRANT CREATE SESSION, CREATE TABLE, UNLIMITED TABLESPACE TO PDB2;
CREATE TABLE PDB2.TEST(N NUMBER);
SELECT * FROM DBA_TABLES WHERE OWNER ='PDB2';
```



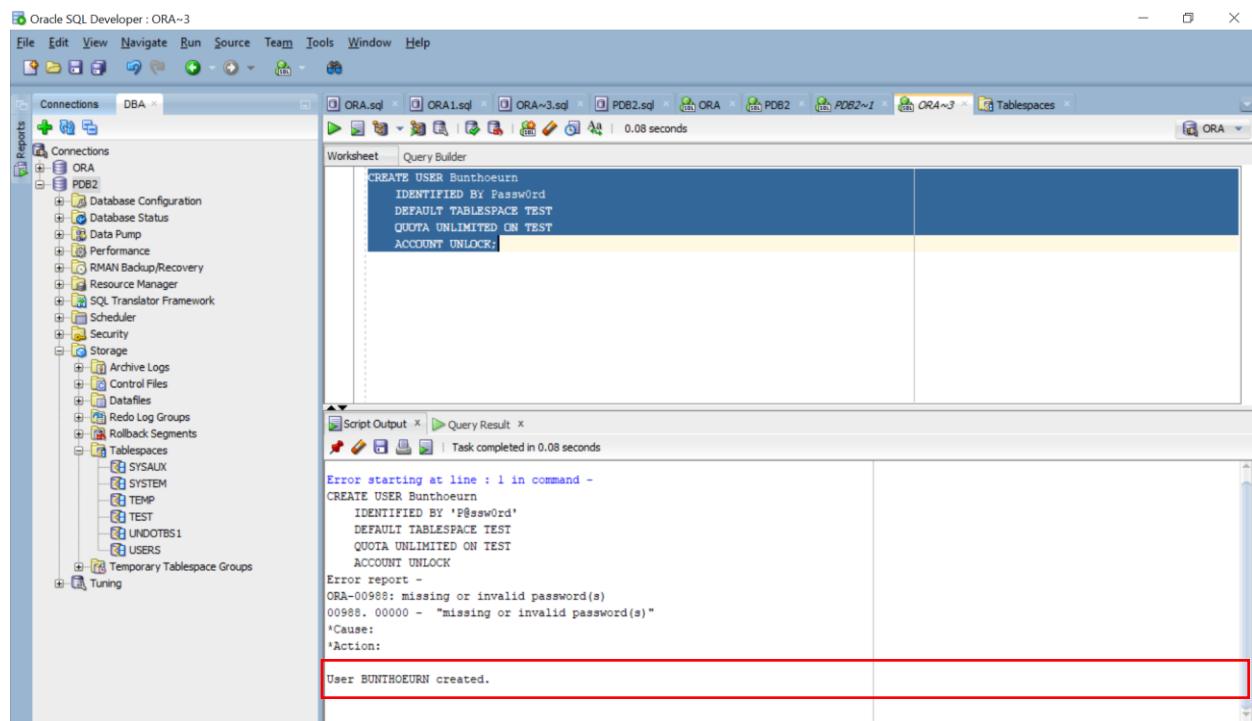
## Lab 5. User Creation

Basic syntax:

```
CREATE USER username
  IDENTIFIED BY password
  [DEFAULT TABLESPACE tablespace]
  [QUOTA {size | UNLIMITED} ON tablespace]
  [PROFILE profile]
  [PASSWORD EXPIRE]
  [ACCOUNT {LOCK | UNLOCK}];
```

*Example 1:*

```
CREATE USER Bunthoeurn
  IDENTIFIED BY Passw0rd
  DEFAULT TABLESPACE TEST
  QUOTA UNLIMITED ON TEST
  ACCOUNT UNLOCK;
```



```
SELECT
    username,
    default_tablespace,
    profile,
    authentication_type
FROM
    dba_users
WHERE
    account_status = 'OPEN';
```

Oracle SQL Developer : ORA~3

File Edit View Navigate Run Source Team Tools Window Help

Connections DBA

ORA PDB2

Database Configuration Database Status Data Pump Performance RMAN Backup/Recovery Resource Manager SQL Translator Framework Scheduler Security Storage Archive Logs Control Files Datafiles Redo Log Groups Rollback Segments Tablespace SYSAUX SYSTEM TEMP TEST UNDOTBS1 USERS Temporary Tablespace Groups Tuning

Worksheet Query Builder

```
SELECT
    username,
    default_tablespace,
    profile,
    authentication_type
FROM
    dba_users
WHERE
    account_status = 'OPEN';
```

Script Output | Query Result | All Rows Fetched: 6 in 0.047 seconds

USERNAME	DEFAULT_TABLESPACE	PROFILE	AUTHENTICATION_TYPE
1 SYS	SYSTEM	DEFAULT	PASSWORD
2 SYSTEM	SYSTEM	DEFAULT	PASSWORD
3 PDBADMIN	USERS	DEFAULT	PASSWORD
4 MUSER	TEST	DEFAULT	PASSWORD
5 BUNTHOEURN	TEST	DEFAULT	PASSWORD
6 PDB2	TEST	DEFAULT	PASSWORD

GRANT CREATE SESSION TO BUNTHOEURN;

Oracle SQL Developer : ORA~3

File Edit View Navigate Run Source Team Tools Window Help

Connections DBA

ORA PDB2

Database Configuration Database Status Data Pump Performance RMAN Backup/Recovery Resource Manager SQL Translator Framework Scheduler Security Storage Archive Logs Control Files Datafiles Redo Log Groups Rollback Segments Tablespace SYSAUX SYSTEM TEMP TEST UNDOTBS1 USERS Temporary Tablespace Groups Tuning

Worksheet Query Builder

```
GRANT CREATE SESSION TO BUNTHOEURN;
```

Script Output | Query Result | Task completed in 0.109 seconds

```
IDENTIFIED BY "PESBMWQ"
DEFAULT TABLESPACE TEST
QUOTA UNLIMITED ON TEST
ACCOUNT UNLOCK
```

Error report -  
ORA-00988: missing or invalid password(s)  
00988. 00000 - "missing or invalid password(s)"  
\*Cause:  
\*Action:

User BUNTHOEURN created.

Grant succeeded.

```
[oracle@ol7-19 oradata]$ sqlplus
SQL*Plus: Release 19.0.0.0.0 - Production on Fri Apr 5 15:04:03 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

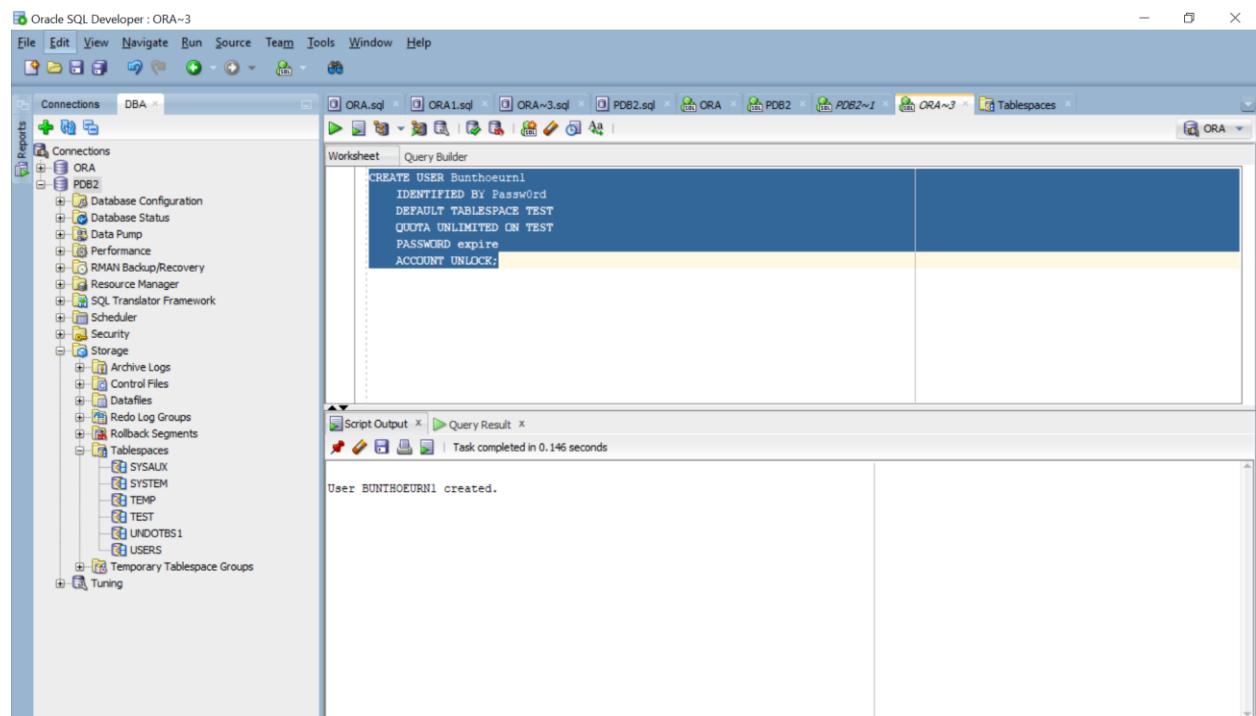
Enter user-name: Bunthoeurn@pdb2
Enter password:

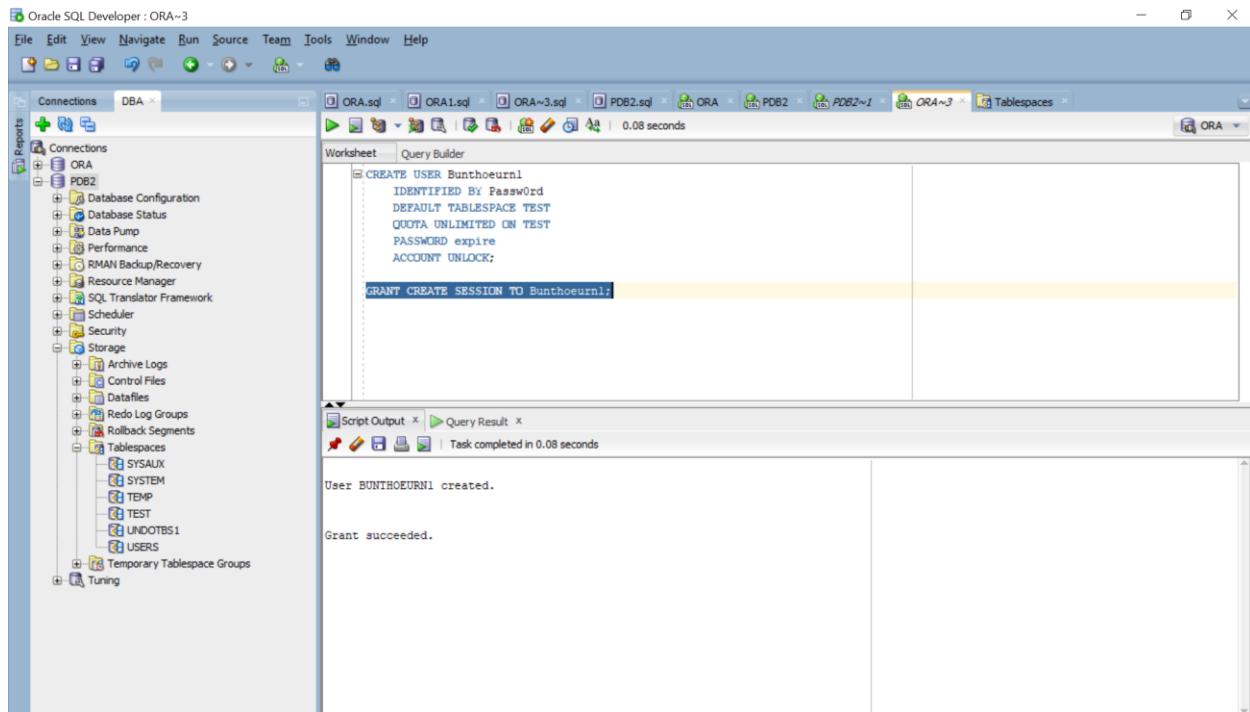
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> 
```

Example 2:

```
CREATE USER Bunthoeurn1
IDENTIFIED BY Passw0rd
DEFAULT TABLESPACE TEST
QUOTA UNLIMITED ON TEST
PASSWORD EXPIRE
ACCOUNT UNLOCK;
```





```
[oracle@ol7-19 oradata]$ sqlplus
SQL*Plus: Release 19.0.0.0.0 - Production on Fri Apr 5 15:15:37 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Enter user-name: Bunthoeurn1@PDB2
Enter password:
ERROR:
ORA-28001: the password has expired

Changing password for Bunthoeurn1
New password:
Retype new password:
Password changed

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

SQL> 
```

## Lab 6: Move Segment

## Lab 7: User Role & Profile Policy

Now we are working on PDB4.

```
[oracle@ol7-19 schema]$ cd $ORACLE_HOME/demo/schema/human_resources  
[oracle@ol7-19 human_resources]$ clear  
[oracle@ol7-19 human_resources]$ sqlplus / as sysdba
```

```
SQL*Plus: Release 19.0.0.0.0 - Production on Sat Apr 6 18:06:35 2024  
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 pdbs
```

CON_ID	CON_NAME	OPEN	MODE	RESTRICTED
2	PDB\$SEED	READ ONLY	NO	
3	PDB3	MOUNTED		
4	PDB4	READ WRITE	NO	

```
SQL> alter session set container = PDB4;
```

```
Session altered.
```

```
SQL> @hr_main.sql
```

Then input value:

```
1 value=hr  
2 value=user  
3 value=temp  
4 value= $ORACLE_HOME/demo/schema/log
```

Go to login on SQL developer:

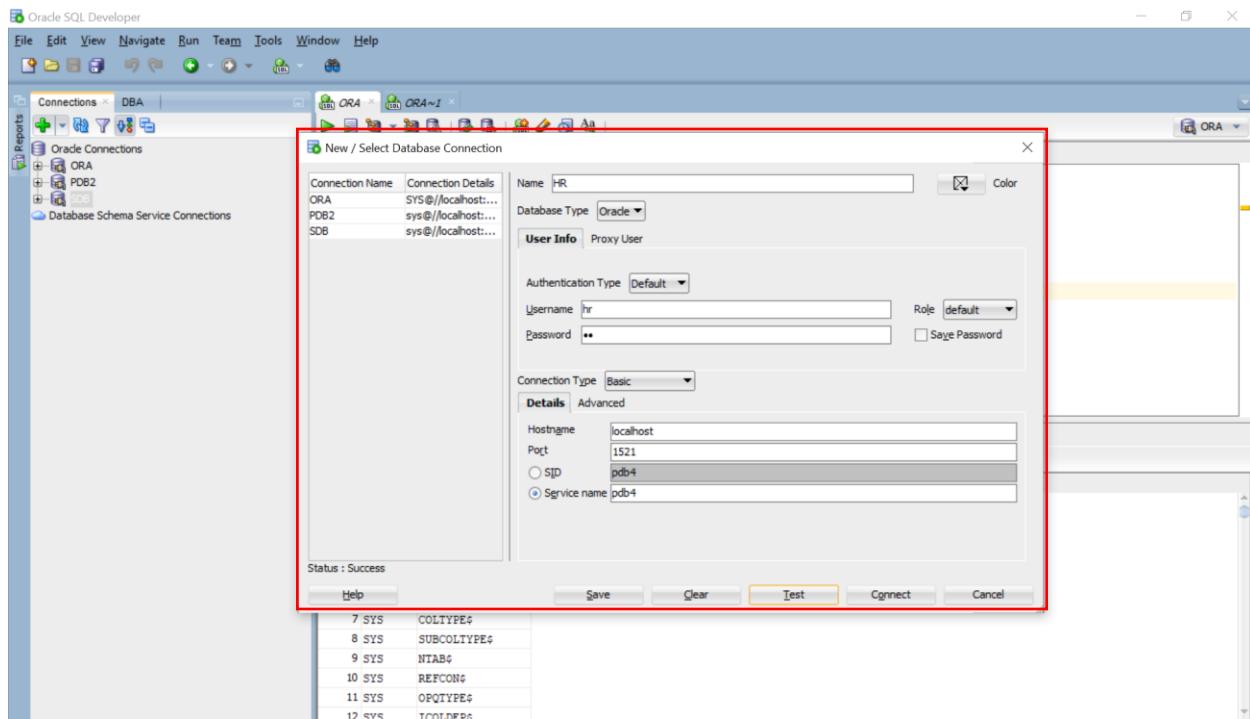


Figure 9. Connect to database

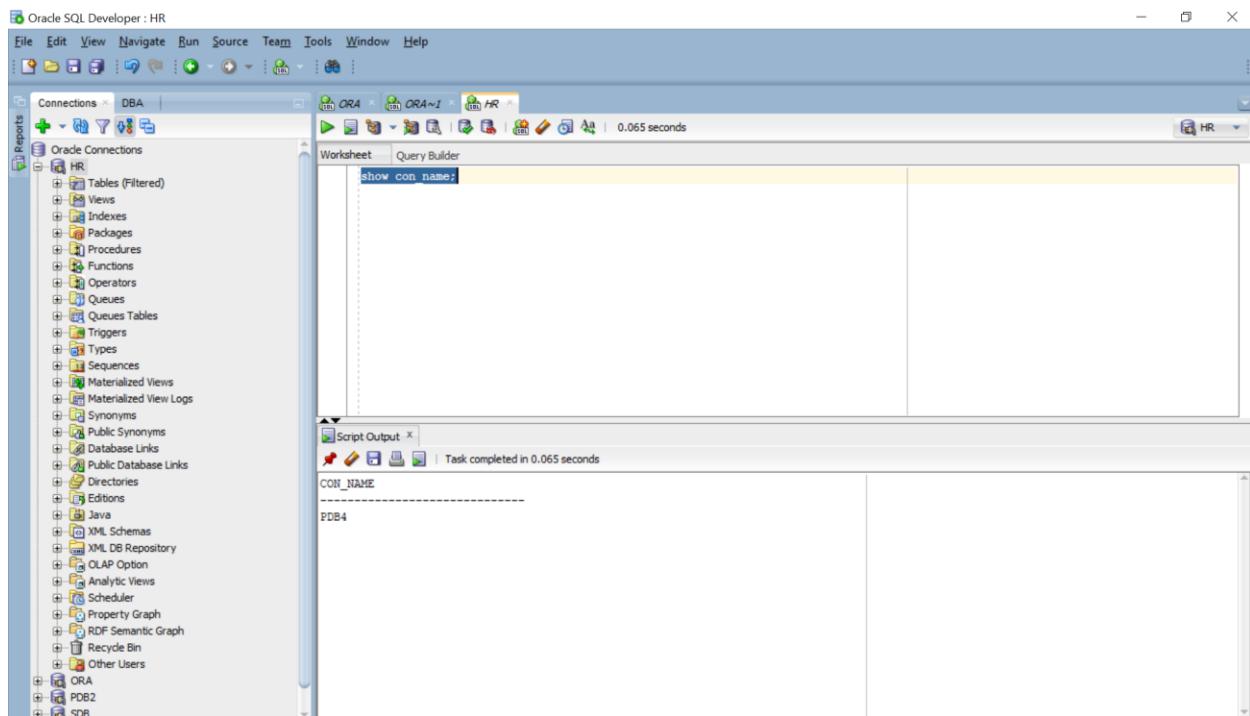


Figure 10. Connect to database

Show all privileges.

The screenshot shows the Oracle SQL Developer interface. In the top menu bar, the connection is set to 'ORA~2'. The 'Connections' panel on the left shows three database connections: ORA, PDB2, and SDB. The 'Worksheet' tab is active in the main area, displaying the following SQL code:

```
show con_name;
select * from session_privs;
```

The output window, titled 'Query Result', displays a list of privileges. A red box highlights the first 25 rows of the results. The columns in the result set are labeled 'PRIVILEGE' and 'NUMBER'. The highlighted rows are numbered 28 through 46. The last row visible is 47.

PRIVILEGE	NUMBER
28 SET CONTAINER	
29 CREATE PLUGGABLE DATABASE	
30 INHERIT ANY REMOTE PRIVILEGES	
31 TRANSLATE ANY SQL	
32 INHERIT ANY PRIVILEGES	
33 EXEMPT REDACTION POLICY	
34 FLASHBACK ARCHIVE ADMINISTER	
35 PURGE DBA_RECYCLEBIN	
36 EM EXPRESS CONNECT	
37 KEEP SYSGUID	
38 KEEP DATE TIME	
39 ADMINISTER KEY MANAGEMENT	
40 DROP ANY SQL TRANSLATION PROFILE	
41 USE ANY SQL TRANSLATION PROFILE	
42 ALTER ANY SQL TRANSLATION PROFILE	
43 CREATE ANY SQL TRANSLATION PROFILE	
44 CREATE SQL TRANSLATION PROFILE	
45 ALTER DATABASE LINK	
46 ALTER PUBLIC DATABASE LINK	
47 ADMINISTER SESSION PRIVILEGES	

Figure 11. Show all privileges

Let's dev into create user roles base on Figure 2 below.

B	C	D	E
Role :	Developer	- can be connect to db - manage own resource - select, update all exclude salary on EMP table - select on table DEPT	
Role :	BI_report	- can be connect to db - manage own resource - select on all table & view in HR schema	
User :	dev01 , dev02 , dev03	with Role dev	
User :	Bi01	with Role BI	
User :	dba_jonh	role Dba	
User:	Bi01	Password must be complex : min(10char) Password need to be change on next 90days Fail attempt login 3time session idle only 5mins Password grace 3 days	

Figure 12. User Role and Profile Policy

```
[oracle@ol7-19 human_resources]$ sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Sat Apr 6 18:14:21 2024
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> Create role BI_report;
Create role BI_report
*
ERROR at line 1:
ORA-65096: invalid common user or role name
```

```

SQL> alter session set container=PDB4;

Session altered.

SQL> CREATE ROLE BI_report;

Role created.

SQL> Create role Developer;

Role created.

SQL>

```

We also can go to SQL Developer to grant permission to **Developer**.

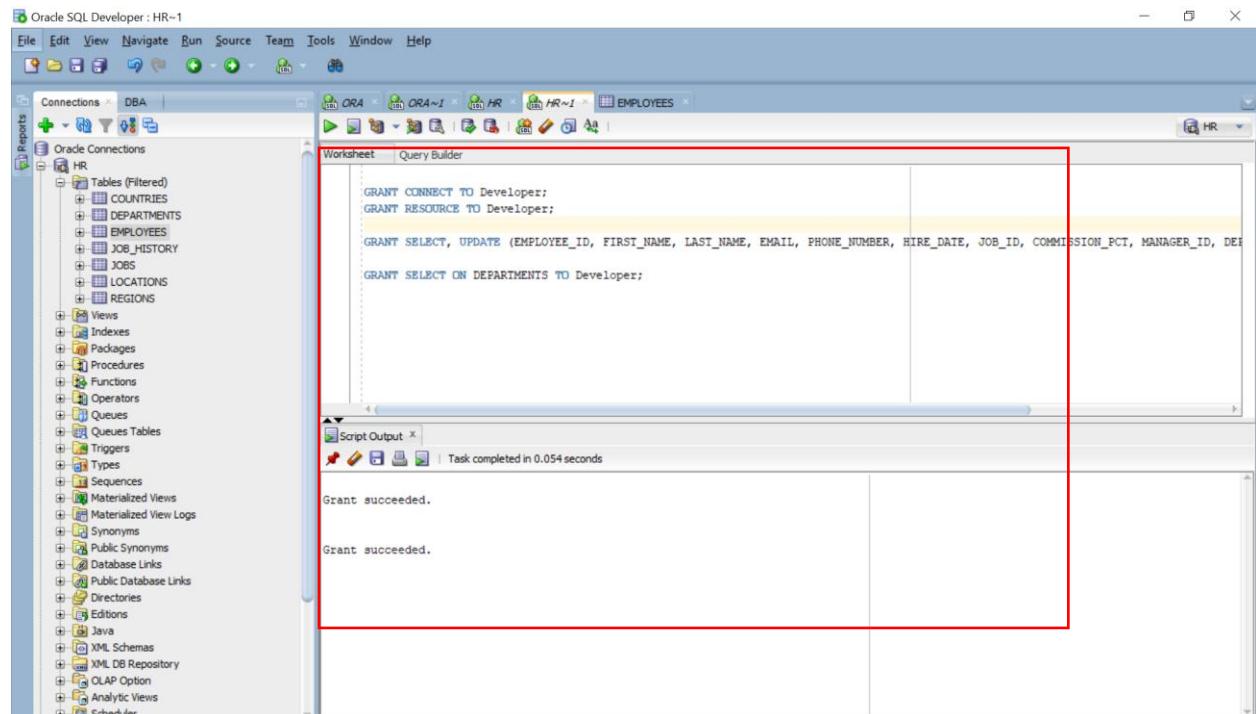


Figure 13. Grant permission to role Developer

```

GRANT CONNECT TO Developer;
GRANT RESOURCE TO Developer;

GRANT SELECT, UPDATE (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER,
HIRE_DATE, JOB_ID, COMMISSION_PCT, MANAGER_ID, DEPARTMENT_ID) ON EMPLOYEES TO
Developer;

GRANT SELECT ON DEPARTMENTS TO Developer;

```

Grant permission to **BI\_report**.

```
SQL> GRANT CONNECT TO BI_report;
Grant succeeded.

SQL> GRANT RESOURCE TO BI_report;
Grant succeeded.

SQL> BEGIN
  2   FOR tab IN (SELECT table_name FROM all_tables WHERE owner = 'HR')
  LOOP
    EXECUTE IMMEDIATE 'GRANT SELECT ON HR.' || tab.table_name || ' TO BI_report';
  END LOOP;

  FOR view_tab IN (SELECT view_name FROM all_views WHERE owner = 'HR')
  LOOP
    EXECUTE IMMEDIATE 'GRANT SELECT ON HR.' || view_tab.view_name || ' TO BI_report';
  END LOOP;
END;
/  3   4   5   6   7   8   9   10  11  12

PL/SQL procedure successfully completed.

SQL> ■
```

```
GRANT CONNECT TO BI_report;
GRANT RESOURCE TO BI_report;
BEGIN
  FOR tab IN (SELECT table_name FROM all_tables WHERE owner = 'HR')
  LOOP
    EXECUTE IMMEDIATE 'GRANT SELECT ON HR.' || tab.table_name || ' TO BI_report';
  END LOOP;

  FOR view_tab IN (SELECT view_name FROM all_views WHERE owner = 'HR')
  LOOP
    EXECUTE IMMEDIATE 'GRANT SELECT ON HR.' || view_tab.view_name || ' TO
BI_report';
  END LOOP;
END;
/
```

**Create user:**

User: **dev01 , dev02 , dev03** with role **Developer**

```
CREATE USER dev01 IDENTIFIED BY password01;
CREATE USER dev02 IDENTIFIED BY password02;
CREATE USER dev03 IDENTIFIED BY password03;

GRANT Developer TO dev01;
GRANT Developer TO dev02;
GRANT Developer TO dev03;
```

```

SQL> CREATE USER dev01 IDENTIFIED BY password01;
User created.

SQL> CREATE USER dev02 IDENTIFIED BY password02;
User created.

SQL> CREATE USER dev03 IDENTIFIED BY password03;
User created.

SQL> GRANT Developer TO dev01;
GRANT Developer TO dev02;
GRANT Developer TO dev03;
Grant succeeded.

SQL>
Grant succeeded.

```

*Figure 14. Assign permission*

#### User: **Bi01**

```

CREATE USER Bi01 IDENTIFIED BY password01;
GRANT BI_report TO Bi01;

```

```

SQL> CREATE USER Bi01 IDENTIFIED BY password01;
User created.

SQL> GRANT BI_report TO Bi01;
Grant succeeded.

```

*Figure 15. Assign permission*

#### User: **dba\_jonh** role **DBA**

```

CREATE USER dba_jonh IDENTIFIED BY password01;
GRANT SYSDBA TO dba_jonh;

```

```

SQL> CREATE USER dba_jonh IDENTIFIED BY password01;
User created.

SQL> GRANT SYSDBA TO dba_jonh;
Grant succeeded.

```

*Figure 16. Assign permission*

#### Profile Policy user “Bi01”

- ❖ Password must be complex : min(10char)
- ❖ Fail attempt login 3time
- ❖ session idle only 5mins
- ❖ Password grace 3 days

```

CREATE PROFILE bi_user_profile LIMIT
  PASSWORD_LIFE_TIME 90
  FAILED_LOGIN_ATTEMPTS 3
  PASSWORD_GRACE_TIME 3

```

```
IDLE_TIME 5;
```

```
SQL> CREATE PROFILE bi_user_profile LIMIT  
  PASSWORD_LIFE_TIME 90  
  FAILED_LOGIN_ATTEMPTS 3  
  PASSWORD_GRACE_TIME 3  
  IDLE_TIME 5;  
  2   3   4   5  
Profile created.  
  
SQL> ALTER USER Bi01 PROFILE bi_user_profile;  
User altered.
```

Figure 17. Apply profile

```
[oracle@ol7-19 admin]$ sqlplus  
SQL*Plus: Release 19.0.0.0.0 - Production on Sat Apr 6 20:08:04 2024  
Version 19.3.0.0.0  
  
Copyright (c) 1982, 2019, Oracle. All rights reserved.  
  
Enter user-name: Bi01@pdb4  
Enter password:  
  
Connected to:  
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production  
Version 19.3.0.0.0  
  
SQL> ■
```

Figure 18. Try to login

## Complex password

```
SQL> CREATE OR REPLACE FUNCTION verify_function_name(  
  username VARCHAR2,  
  password VARCHAR2,  
  old_password VARCHAR2  
) RETURN BOOLEAN IS  
BEGIN  
  IF LENGTH(password) < 10 THEN  
    RETURN FALSE;  
  ELSE  
    RETURN TRUE;  
  END IF;  
END;  
/ 2   3   4   5   6   7   8   9   10  11  12  13  
  
Function created.  
  
SQL> ALTER PROFILE bi_user_profile LIMIT PASSWORD_VERIFY_FUNCTION verify_function_name;  
Profile altered.
```

Figure 19. Apply complexity password

```
CREATE OR REPLACE FUNCTION verify_function_name(  
  username VARCHAR2,  
  password VARCHAR2,  
  old_password VARCHAR2  
) RETURN BOOLEAN IS  
BEGIN  
  IF LENGTH(password) < 10 THEN  
    RETURN FALSE;  
  ELSE  
    RETURN TRUE;
```

```
END IF;
END;
/
ALTER PROFILE bi_user_profile LIMIT PASSWORD_VERIFY_FUNCTION
verify_function_name;
```

### Now force user to reset password

```
ALTER USER Bi01 PASSWORD EXPIRE;
```

```
[oracle@ol7-19 admin]$ sqlplus
SQL*Plus: Release 19.0.0.0.0 - Production on Sat Apr 6 20:09:51 2024
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Enter user-name: Bi01@pdb4
Enter password:
ERROR:
ORA-28001: the password has expired

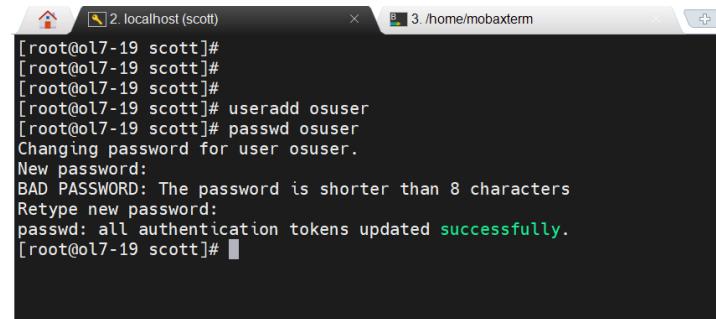
Changing password for Bi01
New password:
Retype new password:
ERROR:
ORA-28003: password verification for the specified password failed

Password unchanged
Enter user-name: ■
```

Figure 20. Check Result

## Lab 8: User OS/Password File

```
useradd osuser
passwd osuser
```



The screenshot shows a terminal window with three tabs. Tab 2 is active and displays the command history for creating a user and changing its password:

```
[root@ol7-19 scott]# useradd osuser
[root@ol7-19 scott]# passwd osuser
Changing password for user osuser.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ol7-19 scott]# ■
```

Remove prefixes for the oracle user.

```
[oracle@ol7-19 ~]$ sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Fri Apr 5 17:05:37 2024
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> create pfile='/tmp/pfile.txt' from spfile;

File created.

SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.

SQL> startup
ORACLE instance started.

Total System Global Area 1577055360 bytes
Fixed Size          9135232 bytes
Variable Size       385875968 bytes
Database Buffers   1174405120 bytes
Redo Buffers        7639040 bytes
Database mounted.
Database opened.

SQL> show parameter os_authent_prefix

NAME                      TYPE        VALUE
-----
os_authent_prefix          string      ops$


SQL> create spfile from pfile='/tmp/pfile.txt';
create spfile from pfile='/tmp/pfile.txt'
*
ERROR at line 1:
ORA-32002: cannot create SPFILE already being used by the instance

SQL> shutdown immediate;
Database closed.
Database dismounted.
```

```
ORACLE instance shut down.  
SQL> create spfile from pfile='/tmp/pfile.txt';  
  
File created.  
  
SQL> startup  
ORACLE instance started.  
  
Total System Global Area 1577055360 bytes  
Fixed Size          9135232 bytes  
Variable Size       385875968 bytes  
Database Buffers   1174405120 bytes  
Redo Buffers        7639040 bytes  
Database mounted.  
Database opened.  
SQL> show parameter os_authent_prefix  
  
NAME                      TYPE        VALUE  
----  
os_authent_prefix          string  
SQL>
```

#### Create User and Login to Oracle

```
SQL> ALTER SESSION SET CONTAINER = PDB2;  
SQL> CREATE USER osuser IDENTIFIED EXTERNALLY;  
SQL> GRANT CREATE SESSION TO osuser;  
SQL> exit  
$ su osuser  
$ sqlplus /  
  
SQL*Plus: Release 19.0.0.0.0 - Production on Sat Apr 6 16:21:28 2024  
Version 19.3.0.0.0  
  
Copyright (c) 1982, 2019, Oracle. All rights reserved.  
  
Last Successful login time: Sat Apr 06 2024 15:18:41 +07:00  
  
Connected to:  
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production  
Version 19.3.0.0.0  
  
SQL>
```