Lab 12.1: Creating a New PDB from the PDB Seed

Objective

To create a pluggable database (PDB) from the PDB seed in a newly created CDB using SQL*Plus. The new PDB will be named `PDB3` and will have the following characteristics:

- Users SYS and SYSTEM will have the same password as in the CDB.
- The DBA user for the PDB is `pdb3_admin` with the same password as SYS and SYSTEM.
- The PDB datafiles will be located in the `/u01/app/oracle/oradata/` directory.

Assumptions

The CDB and listener have been started.

Steps

Part A: Creating a New CDB

1. **Create a New CDB**

   a. Open a terminal and set the environment variables:

   ```
   . oraenv
   ORACLE_SID = [orclcdb] ? NEWCDB
   The Oracle base remains unchanged with value /u01/app/oracle
   ```

   b. Run DBCA in silent mode to create the new CDB:

   ```
   dbca -silent -createDatabase \
   -templateName General_Purpose.dbc \
   -gdbName NEWCDB -sid NEWCDB \
   -createAsContainerDatabase true \
   -numberOfPDBs 0 \
   -responseFile NO_VALUE \
   -characterSet AL32UTF8 \
   -memoryMgmtType auto_sga \
   -totalMemory 2048 \
   -emConfiguration NONE \
   -datafileDestination '/u01/app/oracle/oradata' \
   -sysPassword YourPassword \
   -systemPassword YourPassword
   ```

   c. Verify the new CDB creation by connecting to it:

   ```
   sqlplus / as sysdba
   SQL> select con_id, name, open_mode from v$pdbs;
   ```

Part B: Creating a New PDB from the PDB Seed

1. **Open a Terminal and Set the Environment Variables for NEWCDB**

   Open a terminal and set the environment variables for the `NEWCDB` database:

   ```
   . oraenv
   ORACLE_SID = [NEWCDB] ? NEWCDB
   ```

```
The Oracle base remains unchanged with value /u01/app/oracle
```

2. **Create the New PDB**

a. Log in to SQL*Plus and connect to the CDB root with a user with the CREATE PLUGGABLE DATABASE privilege:

```
sqlplus / as sysdba
```

b. Execute the CREATE PLUGGABLE DATABASE command:

```
CREATE PLUGGABLE DATABASE PDB3
ADMIN USER pdb3_admin IDENTIFIED BY YourPassword
ROLES=(CONNECT)
CREATE_FILE_DEST='/u01/app/oracle/oradata';
```

Expected Output:

```
Pluggable database created.
```

3. **Check the Status of the New PDB**

```
column pdb_name format a16
SELECT pdb_id, pdb_name, status FROM cdb_pdbs;
```

Expected Output:

```
PDB_ID PDB_NAME        STATUS
------ ------------- ----------
2      PDB$SEED        NORMAL
3      PDB3            NEW
```

4. **Open the New PDB and Check the Status Again**

```
ALTER PLUGGABLE DATABASE PDB3 OPEN;
```

Expected Output:

```
Pluggable database altered.
```

```
SELECT pdb_id, pdb_name, status FROM cdb_pdbs;
```

Expected Output:

```
PDB_ID PDB_NAME        STATUS
------ ------------- ----------
2      PDB$SEED        NORMAL
3      PDB3            NORMAL
```

Exit SQL*Plus:

```
exit
```

5. **Create a Net Service Name for the New PDB**

a. Launch Oracle Net Manager:

```
netmgr
```

b. In Oracle Net Manager:

- Expand Local and select Service Naming.
- Click the plus sign to add a new service.
- Enter Net Service Name: `PDB3` and click Next.
- Select TCP/IP (Internet Protocol) and click Next.
- Enter Host Name: `localhost`, verify the Port Number is 1521, and click Next.
- Enter Service Name: `PDB3`.
- For Connection Type, select Dedicated Server and click Next.
- Click Finish.
- Click File > Save Network Configuration.
- Click File > Exit.

6. **Connect to the PDB and Verify the Datafiles**

a. Connect to the new PDB using SQL*Plus:

```
sqlplus system@PDB3
Enter password: YourPassword
```

b. Verify the datafiles are in the correct location:

```
SELECT name FROM v$datafile;
```

Expected Output:

```
NAME
--------------------------------------
/u01/app/oracle/oradata/CDBLAB/<unique_id>/datafile/o1_mf_system_<unique_id>.dbf

/u01/app/oracle/oradata/CDBLAB/<unique_id>/datafile/o1_mf_sysaux_<unique_id>.dbf

/u01/app/oracle/oradata/CDBLAB/<unique_id>/datafile/o1_mf_undotbs1_<unique_id>.db
```

7. **Verify the Service**

Verify that the service is `PDB3`:

```
column name format a15
SELECT name FROM v$services;
```

Expected Output:

```
NAME
---------------
PDB3
```

Exit SQL*Plus:

```
exit
```

8. **Exit the Terminal**

```
exit
```

Summary

In this lab, you created a new pluggable database (PDB) named `PDB3` from the PDB seed in `CDBLAB` using SQL*Plus. You configured the new PDB with specific characteristics, created a net service name for it, and verified its datafiles and service configuration. This practice ensures you understand how to create and manage PDBs in an Oracle database environment.