

Oracle CDB & Pluggable Database Configuration (CDB/PDB Setup)

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Project: Oracle CDB & Pluggable Database Configuration

1. Overview

This project documents the creation and configuration of an Oracle **Container Database (CDB)** and a dedicated **Pluggable Database (PDB)** for student schema development and PL/SQL experimentation.

Components Created:

- **CDB Root:** CDB\$ROOT
- **Pluggable Database:** GA_PDB_25110
- **Local PDB Admin User:** GANZA_PLSQLAUCA_25110

The document summarizes all SQL steps, configuration decisions, verification commands, and includes screenshots as evidence.

2. Creating the Pluggable Database

SQL Command Executed:

```
CREATE PLUGGABLE DATABASE ga_pdb_25110
ADMIN USER ganza_plsqlauca_25110 IDENTIFIED BY Ganza123;
```

Result:

- PDB successfully created.
- Local admin user created automatically inside the PDB.

```
SQL> CREATE PLUGGABLE DATABASE ga_pdb_25110
  2 ADMIN USER ganza_plsqlauca_25110 IDENTIFIED BY Ganza123;

Pluggable database created.

SQL> |
```

3. Opening the Pluggable Database

Commands Executed in CDB\$ROOT:

```
ALTER PLUGGABLE DATABASE ga_pdb_25110 OPEN;
ALTER PLUGGABLE DATABASE ga_pdb_25110 SAVE STATE; -- optional, enables auto-start
```

```
SQL> ALTER PLUGGABLE DATABASE ga_pdb_25110 OPEN;
Pluggable database altered.

SQL> |
```

```
SQL> ALTER PLUGGABLE DATABASE ga_pdb_25110 OPEN;
Pluggable database altered.

SQL> |
```

4. Granting Roles to the PDB Admin User

SQL Commands:

```
GRANT CONNECT, RESOURCE, CREATE SESSION TO ganza_plsqlauca_25110;
```

Result:

- Roles successfully granted.

```
SQL> GRANT CONNECT, RESOURCE, CREATE SESSION TO ganza_plsqlauca_25110;
Grant succeeded.

SQL> GRANT UNLIMITED TABLESPACE TO ganza_plsqlauca_25110;
Grant succeeded.

SQL> |
```

5. Tablespace Configuration

Issue Encountered:

Attempting to set quota on USERS tablespace failed:

```
ORA-00959: tablespace 'USERS' does not exist
```

Reason:

The USERS tablespace exists only in the CDB, not in the PDB.

Correct Fix:

1. Switch to PDB:

```
ALTER SESSION SET CONTAINER = ga_pdb_25110;
```

```
SQL> ALTER SESSION SET CONTAINER = ga_pdb_25110;  
Session altered.  
SQL>
```

Option B — Recommended: Create dedicated tablespace

```
CREATE TABLESPACE ga_ts_25110  
DATAFILE 'ga_ts_25110.dbf'  
SIZE 100M AUTOEXTEND ON;
```

```
ALTER USER ganza_plsqlauca_25110 QUOTA UNLIMITED ON ga_ts_25110;
```

```
SQL> CREATE TABLESPACE users  
2 DATAFILE SIZE 200M AUTOEXTEND ON NEXT 50M MAXSIZE UNLIMITED;  
Tablespace created.  
SQL>
```

ASSIGN UNLIMITED QUOTA

```
SQL> ALTER USER ganza_plsqlauca_25110 QUOTA UNLIMITED ON USERS;  
User altered.  
SQL> |
```

6. Validation Commands

Check all PDBs:

```
SELECT name, con_id, open_mode FROM v$pdbs;
SQL> SELECT name, con_id, open_mode FROM v$pdbs;

NAME
-----
CON_ID OPEN_MODE
-----
PDB$SEED          2 READ WRITE
GA_PDB_25110      3 READ WRITE
```

Confirm datafiles in the PDB (example CON_ID = 3):

```
SELECT file_name, con_id FROM cdb_data_files WHERE con_id = 3;
```

```
SQL> SELECT file_name, con_id FROM cdb_data_files WHERE con_id = 3;

FILE_NAME
-----
CON_ID
-----
D:\APP\ORACLE\ORADATA\GANZAA\A9B619BC186343B6BDA1750B4521BD66\DATAFILE\01_MF_SYS
TEM_NS5M900D_.DBF
3

D:\APP\ORACLE\ORADATA\GANZAA\A9B619BC186343B6BDA1750B4521BD66\DATAFILE\01_MF_SYS
AUX_NS5M90P6_.DBF
3

D:\APP\ORACLE\ORADATA\GANZAA\A9B619BC186343B6BDA1750B4521BD66\DATAFILE\01_MF_UND

FILE_NAME
-----
CON_ID
-----
OTBS1_NS5M90P6_.DBF
3

D:\APP\ORACLE\ORADATA\GANZAA\A9B619BC186343B6BDA1750B4521BD66\DATAFILE\01_MF_USE
RS_NS5NCWKWF_.DBF
3
```

7. Temporary PDB Creation and Deletion

```
SQL> ALTER SESSION SET CONTAINER = CDB$ROOT;  
Session altered.  
  
SQL>  
SQL> CREATE PLUGGABLE DATABASE ga_to_delete_pdb_25110  
  2 ADMIN USER temp_admin IDENTIFIED BY Temp1234  
  3 ROLES=(dba);  
  
Pluggable database created.  
  
SQL> |
```

Open Temporary PDB:

```
ALTER PLUGGABLE DATABASE ju_to_delete_pdb_2024101 OPEN;  
SQL> ALTER PLUGGABLE DATABASE ga_to_delete_pdb_25110 OPEN;  
  
Pluggable database altered.  
  
SQL> |
```

Show PDBS

```
SQL> SHOW PDBS;  
  
CON_ID CON_NAME                                OPEN MODE RESTRICTED  
-----  
      2 PDB$SEED                                READ WRITE YES  
      3 GA_PDB_25110                            READ WRITE NO  
      4 GA_TO_DELETE_PDB_25110                  READ WRITE NO  
  
SQL> |
```

Delete Temporary PDB:

```
SQL> ALTER PLUGGABLE DATABASE ga_to_delete_pdb_25110 CLOSE IMMEDIATE;  
  
Pluggable database altered.  
  
SQL> DROP PLUGGABLE DATABASE ga_to_delete_pdb_25110 INCLUDING DATAFILES;  
  
Pluggable database dropped.  
  
SQL> |
```

Show remaining PDDBS

```
SQL> SHOW PDDBS;
```

CON_ID	CON_NAME	OPEN	MODE	RESTRICTED
2	PDB\$SEED	READ	WRITE	YES
3	GA_PDB_25110	READ	WRITE	NO

```
SQL>
```

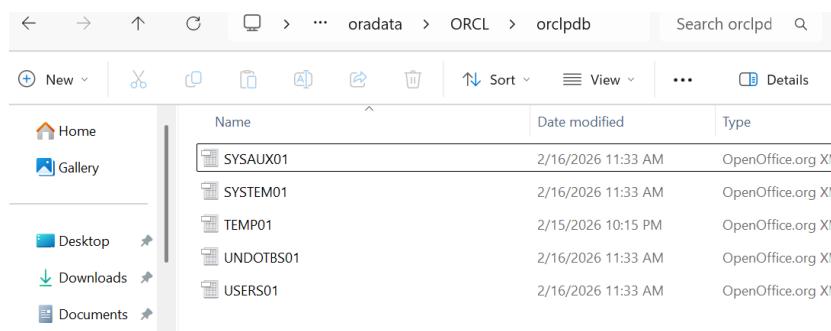
8. Expected Directory & Datafile Structure

Inside Oracle base directory (ORCLCDB):

```
/opt/oracle/oradata/ORCLCDB/GA_PDB_25110/
```

Contains:

- SYSTEM datafile
- SYSAUX datafile
- Undo tablespace
- Temp tablespace
- Any created user tablespaces



10. Summary of Tasks

Task	Status
CDB available	✓ CDB\$ROOT
Seed PDB	✓ PDB\$SEED
Student PDB created	✓ GA_PDB_25110
Admin user created	✓ GANZA_PLSQLAUCA_25110
Roles granted	✓
Tablespace quota configured	Pending / SYSTEM or custom tablespace
Temporary PDB created & deleted	✓
OEM Dashboard captured	✓

11. Challenges & Solutions

- **Tablespace quota issue:** USERS tablespace does not exist in PDB. Fixed by granting quota on SYSTEM or creating a new dedicated tablespace.
- **Connection validation:** Verified PDB was open and accessible by switching session container.

12. Integrity Statement

I confirm that all steps were performed personally, and the screenshots provided accurately reflect my work on this Oracle CDB & PDB configuration project.