

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

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_SYSTE M_NS5M900D_.DBF	3

D:\APP\ORACLE\ORADATA\GANZAA\A9B619BC186343B6BDA1750B4521BD66\DATAFILE\01_MF_SY 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_NS5NCKWF_.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 PDBS

```
SQL> SHOW PDBS;
```

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

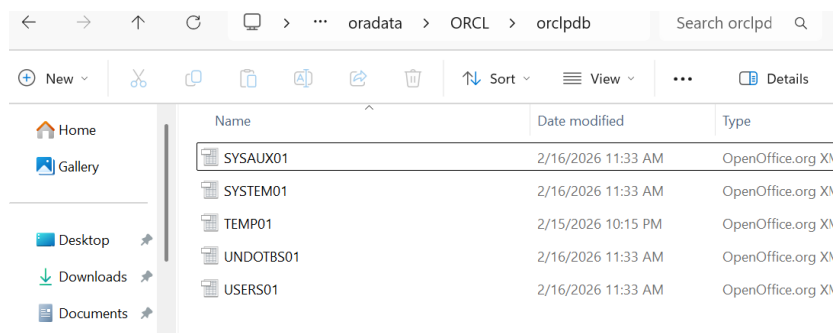
8. Expected Directory & Datafile Structure

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



Name	Date modified	Type
SYSAUX01	2/16/2026 11:33 AM	OpenOffice.org X\
SYSTEM01	2/16/2026 11:33 AM	OpenOffice.org X\
TEMP01	2/15/2026 10:15 PM	OpenOffice.org X\
UNDOTBS01	2/16/2026 11:33 AM	OpenOffice.org X\
USERS01	2/16/2026 11:33 AM	OpenOffice.org X\

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.