

Basic Administration Tasks

By Ahmed Baraka

Objectives

By the end of this lecture, you should be able to:

- Switch the current container
- Change the CDB and PDB states
- Save the PDB open states
- Change a PDB initialization parameter
- Drop a PDB



Ahmed Baraka
Oracle Database Administrator

Switching the Current Container

- As a CDB Administrator:

```
ALTER SESSION SET CONTAINER= pdb1;
```

- You cannot open a new transaction, if the transaction of the previous current container was not closed
- To use it in a client (OCI or JDBC) to switch to a 12.2 container, use a 12.2 client
- [BEFORE | AFTER] SET CONTAINER triggers



Ahmed Baraka
Oracle Database Administrator

Displaying Current Container

- In SQL*Plus

```
show CON_ID CON_NAME
```

- In SQL

```
select SYS_CONTEXT('USERENV','CON_ID') CON_ID,  
       SYS_CONTEXT('USERENV','CON_NAME') CON_NAME  
FROM   DUAL;
```



Ahmed Baraka
Oracle Database Administrator

CDB and PDB States

State	Description
NOMOUNT (CDB only)	CDB instance only is up. Control files are not read (therefore the CDB does not what PDBs associated with it)
MOUNTED	Users cannot connect. Only administrators to perform some administrative activities. Data is not accessible.
MIGRATE	Taken during an upgrade or a applying patches
READ ONLY	Users can connect for reading only operations
READ WRITE	Full accessible to users



Ahmed Baraka
Oracle Database Administrator

Startup and Shutdown a CDB

- Same as starting up and shutting down a non-CDB

```
sqlplus / as sysdba  
startup  
shutdown immediate
```



Ahmed Baraka
Oracle Database Administrator

Startup and Shutdown a PDB

- Affecting the current container:

```
ALTER PLUGGABLE DATABASE OPEN [READ ONLY];  
ALTER PLUGGABLE DATABASE OPEN UPGRADE RESTRICTED;  
ALTER PLUGGABLE DATABASE CLOSE [IMMEDIATE];
```

- Affecting a named container (from root):

```
ALTER PLUGGABLE DATABASE pdb1 OPEN;  
ALTER PLUGGABLE DATABASE ALL OPEN;  
ALTER PLUGGABLE DATABASE ALL EXCEPT pdb1 OPEN;
```



Ahmed Baraka
Oracle Database Administrator

Startup and Shutdown a PDB (cont)

- Using the STARTUP command (from root):

```
STARTUP PLUGGABLE DATABASE pdb1 [OPEN] [READ ONLY]  
[RESTRICT] [FORCE]
```

- After connecting as PDB admin:

```
STARTUP  
SHUTDOWN
```

- To view the state of the PDBs:

```
SELECT NAME, OPEN_MODE, RESTRICTED FROM V$PDBS
```



Ahmed Baraka
Oracle Database Administrator

Saving the PDB Open State

- After CDB restarted, PDBs are in MOUNT state.
- If you want to change the default restart state, switch the PDB to the desired state and save its state:

```
ALTER PLUGGABLE DATABASE pdb1 SAVE STATE;  
ALTER PLUGGABLE DATABASE ALL SAVE STATE;
```

- To query the saved states:

```
SELECT CON_NAME, STATE FROM DBA_PDB_SAVED_STATES;  
  
-- to clear the setting:  
ALTER PLUGGABLE DATABASE pdb1 discard state ;
```



Making Modifications on PDBs

- No change in managing the tablespaces, datafiles, or taking them online or offline
- Limit maximum size of all tablespaces and the amount consumed from the CDB-temporary tablespace:

```
ALTER PLUGGABLE DATABASE STORAGE ( MAXSIZE 2G  
                                     MAX_SHARED_TEMP_SIZE 100M);
```



Ahmed Baraka
Oracle Database Administrator

PDB Initialization Parameters

- SPFile is used only in the CDB level
- PDB parameter values are saved in PDB_SPFILE\$
- PFILE can be created in the PDB, but cannot be used to start it up
- For the parameters where ISPDB_MODIFIABLE=YES, they can be changed in the PDB level
- To make a change on a parameter take effect immediately:

```
ALTER SYSTEM SET TEMP_UNDO_ENABLED=TRUE CONTAINER=ALL SCOPE=BOTH;
```


Listing the Initialization Parameters that are Modifiable in PDBs

1. Connect to the PDB
2. Run the following query:

```
SELECT NAME FROM V$SYSTEM_PARAMETER  
WHERE ISPDB_MODIFIABLE = 'TRUE'  
ORDER BY NAME;
```



Ahmed Baraka
Oracle Database Administrator

Modifying a Parameter in a PDB: Example

1. In the PDB:

```
SQL> CONNECT sys@pdb1 AS SYSDBA
SQL> ALTER SYSTEM SET ddl_lock_timeout=12 ;
```

2. In the CDB root:

```
SQL> SELECT CON_ID, NAME, VALUE
       FROM V$SYSTEM_PARAMETER
       WHERE NAME='ddl_lock_timeout';
```

CON_ID	NAME	VALUE
0	ddl_lock_timeout	0
3	ddl_lock_timeout	12

Defining the PDB in the Dynamic SQL

```
Declare
    salary NUMBER := 1000;
    cursor_name INTEGER;
    rows_processed INTEGER;
BEGIN
    cursor_name := dbms_sql.open_cursor;
    DBMS_SQL.PARSE(c=>cursor_name, statement =>'DELETE FROM emp WHERE
sal > :x',
    language_flag => DBMS_SQL.NATIVE,
    container =>'PDB1' );
    DBMS_SQL.BIND_VARIABLE(cursor_name, ':x', salary);
    rows_processed := DBMS_SQL.EXECUTE(cursor_name);
    DBMS_SQL.CLOSE_CURSOR(cursor_name);
END;
```



Ahmed Baraka
Oracle Database Administrator

Obtaining the PDB Operation History

- History of the operations performed on PDBs are saved in CDB_PDB_HISTORY

```
SELECT PDB_NAME, OP_TIMESTAMP, OPERATION  
FROM CDB_PDB_HISTORY  
ORDER BY 1,2 DESC
```



Ahmed Baraka
Oracle Database Administrator

Dropping a PDB

- The PDB must be closed (MOUNTED)
- Must be done from the root
- Datafiles cannot be kept unless the PDB is unplugged.

```
DROP PLUGGABLE DATABASE PDB1 [INCLUDING DATAFILES];
```



Ahmed Baraka
Oracle Database Administrator

Summary

In this lecture, you should have learnt how to:

- Switch the current container
- Change the CDB and PDB states
- Save the PDB open states
- Change a PDB initialization parameter
- Drop a PDB



Ahmed Baraka
Oracle Database Administrator