Practice-Hybrid Read-Only Mode for PDBs

Practice Target

Enable and validate Hybrid Read-Only Mode for a pluggable database using HR schema objects, and switch back to standard Read-Write mode.

Practice Overview

In this practice you will demonstrate using Hybrid Read-only feature in Oracle database 23ai.

Demonstrating Hybrid Read-Only Mode for PDBs

1. Open Putty and connect to the CDB root as SYSDBA, close the PDB, and open it in hybrid readonly mode.

```
-- Connect as SYSDBA unset
TWO_TASK
sqlplus sys/oracle@//localhost/free as sysdba


-- Close the target PDB immediately
ALTER PLUGGABLE DATABASE freepdb1 CLOSE IMMEDIATE;


-- Open the PDB in Hybrid Read-Only mode
ALTER PLUGGABLE DATABASE freepdb1 OPEN HYBRID READ ONLY;
```

2. Create a common HR administrator and a local HR user, granting each the DBA role.

```
-- Stay in root, create common user
CREATE USER C##HRADMIN IDENTIFIED BY hradmin CONTAINER=ALL; GRANT
DBA TO C##HRADMIN CONTAINER=ALL;


-- Switch to the PDB
ALTER SESSION SET CONTAINER=freepdb1;


-- Create local user
CREATE USER hr_local IDENTIFIED BY hr_local;
GRANT DBA TO hr_local;
```

3. Verify Open Modes

   Query the PDB open mode from each user's session and check the hybrid flag.

```
-- As common user
CONNECT C##HRADMIN/hradmin@//localhost:1521/freepdb1


COLUMN name        FORMAT A15
COLUMN open_mode   FORMAT A15
SELECT name, open_mode
  FROM v$pdbs;


COLUMN con_name               FORMAT A15
COLUMN is_hybrid_read_only    FORMAT A3
SELECT con_name,        open_mode,
is_hybrid_read_only    FROM
v$container_topology;
```

```
-- As local user
CONNECT hr_local/hr_local@//localhost:1521/freepdb1;

SELECT name, open_mode
  FROM v$pdbs;

SELECT con_name,
open_mode,
       is_hybrid_read_only
FROM v$container_topology;
```

4. Test DDL/DML as Common User

Perform HR-schema operations as the common user; all should succeed.

```
-- Connected as C##HRADMIN
CONNECT C##HRADMIN/hradmin@//localhost:1521/freepdb1

-- Backup first five employees
CREATE TABLE hr.employee_backup AS
  SELECT employee_id, first_name, last_name
    FROM hr.employees
   WHERE ROWNUM <= 5;

DROP TABLE hr.employee_backup PURGE;
```

5. Test DDL/DML as Local User

Attempt the same operations as the local user; expect ORA-16000 for modifications.

```
-- Connected as hr_local
```

```
CONNECT hr_local/hr_local@//localhost:1521/freepdb1;
CREATE TABLE hr.employee_backup AS SELECT * FROM hr.employees;
```

6. Revert to Read-Write Mode

    Return the PDB to standard Read-Write mode when practice is complete.

```
CONNECT sys/oracle@//localhost/free as sysdba
ALTER PLUGGABLE DATABASE freepdb1 CLOSE IMMEDIATE;
ALTER PLUGGABLE DATABASE freepdb1 OPEN READ WRITE;
```

7. As a cleanup, drop the created users.

```
DROP USER C##HRADMIN CASCADE;
ALTER SESSION SET CONTAINER=freepdb1;
DROP USER hr_local CASCADE;
```

Summary

Oracle 23ai lets you open pluggable databases in a hybrid read-only mode, enabling common users to perform read-write operations while local and common application accounts are limited to read-only access.