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Project: Oracle 21c PDB and OEM Express Setup

Oracle Database Configuration and OEM Express Management Report

1. Introduction

This report documents the complete process of configuring an Oracle 21c Pluggable Database (PDB), setting up Oracle Enterprise Manager (OEM) Express, troubleshooting common issues, and verifying successful access to the OEM dashboard. Each step is supported by relevant screenshots and explanations.

2. System Overview

Environment: Oracle Database 21c (64-bit, Windows), Oracle Listener, XDB services, SQL*Plus client

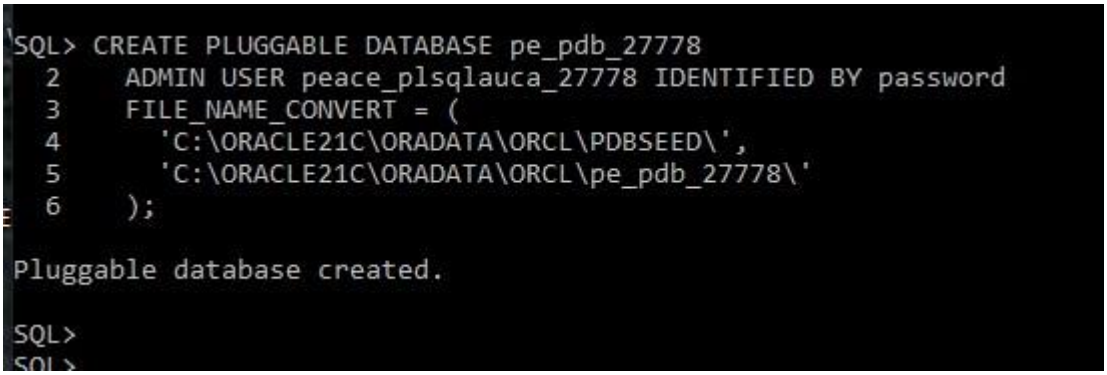
CDB: ORCL

PDB: pe_PDB_27778

Users: SYS (admin), SYSTEM (standard admin)

3. Configuration Steps with Screenshots

3.1. Create a Pluggable Database (PDB) Screenshot:



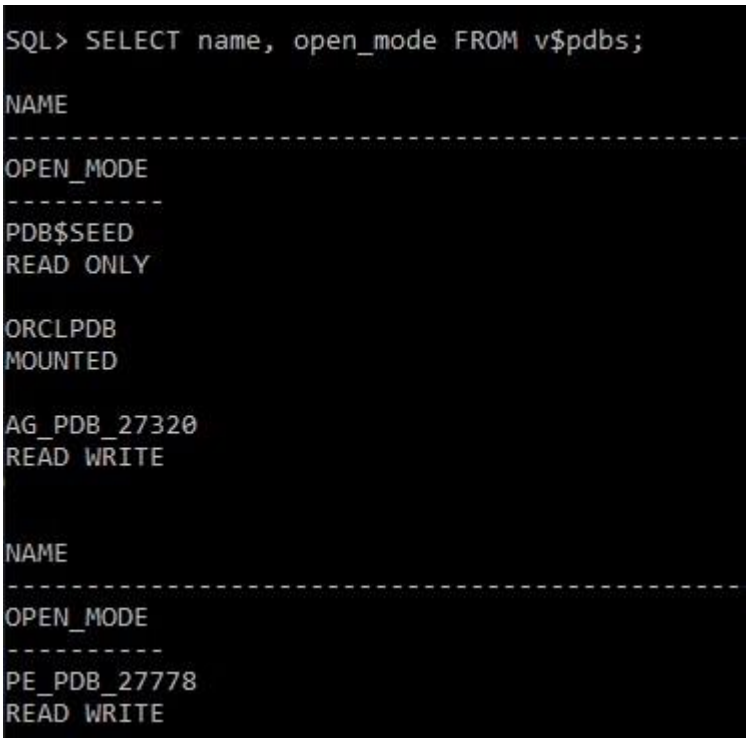
Explanation:

This screenshot shows the successful creation of a pluggable database named pe_PDB_27778 using the PDB$SEED template. The admin user peace_plsql_27778 was

created with a default password. The FILE_NAME_CONVERT clause ensures the datafiles are copied to the correct directory.

3.2. Verify PDB Creation

Screenshot: view the pluggable database.png



Explanation:

The query SELECT NAME, OPEN_MODE FROM V$PDBS; confirms that the PDB

pe_PDB_27778 was created and is in READ WRITE mode, indicating it is open and operational.

3.3. Check Current HTTP and HTTPS Ports

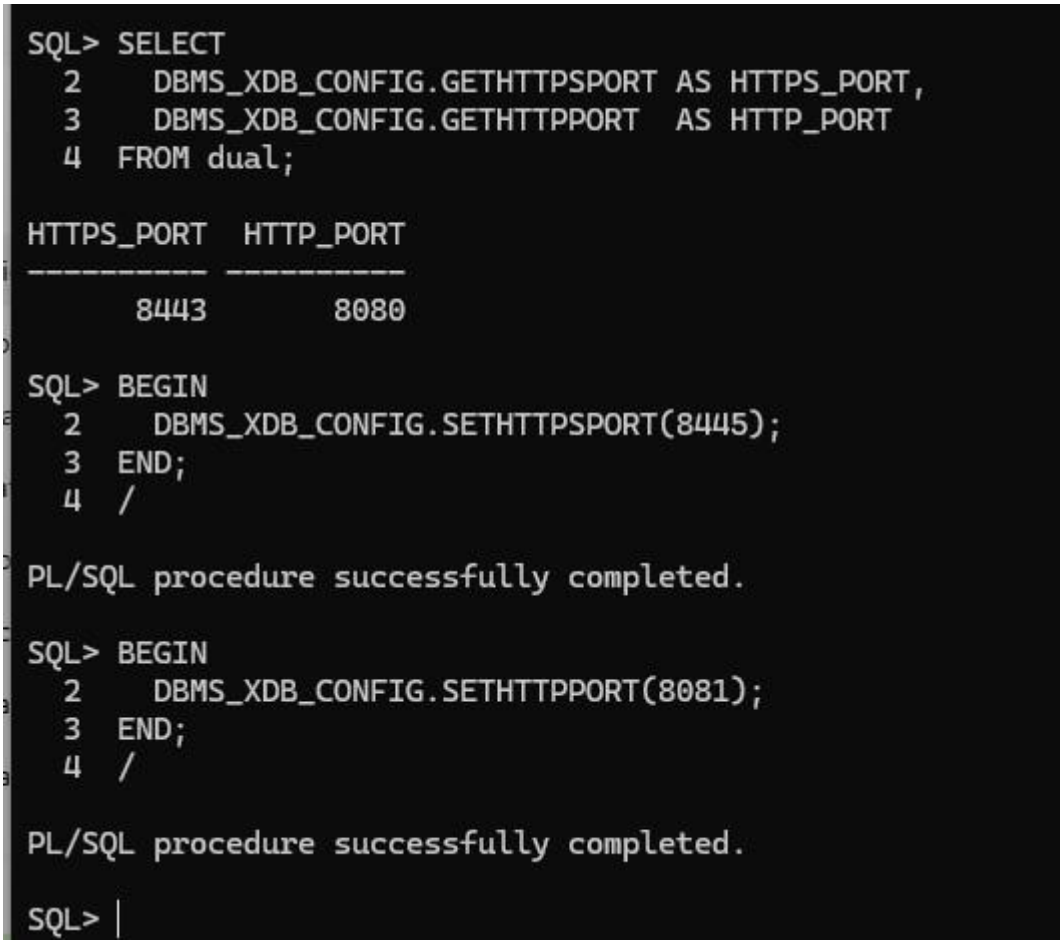
Screenshot: changing ports to the free ones.png

```
SQL> SELECT
  2    DBMS_XDB_CONFIG.GETHTTPSPORT AS HTTPS_PORT,
  3    DBMS_XDB_CONFIG.GETHTTPPORT  AS HTTP_PORT
  4  FROM dual;

HTTPS_PORT  HTTP_PORT
----------  ----------
      8443        8080

SQL> BEGIN
  2    DBMS_XDB_CONFIG.SETHTTPSPORT(8445);
  3  END;
  4  /

PL/SQL procedure successfully completed.

SQL> BEGIN
  2    DBMS_XDB_CONFIG.SETHTTPPORT(8081);
  3  END;
  4  /

PL/SQL procedure successfully completed.

SQL>
```

Explanation:
This output shows the initial HTTP and HTTPS ports (8680 and 8443) before reconfiguration. The ports were later changed to avoid conflicts.

3.4. Change HTTP and HTTPS Ports

Screenshot: verify the changed ports.png



Explanation:

After executing DBMS_XDB_CONFIG.SETHTTPSPORT and SETHTTPPORT, the new ports (8450 and 8081) are confirmed. This step resolves port conflicts and enables OEM Express access.

3.5. Change OEM Express Port for PDB

Screenshot: command to change ports from 8445 to a free working port 8450.png

```
SQL> ALTER SESSION SET CONTAINER = BP_PDB_27778;

Session altered.

SQL> EXEC DBMS_XDB_CONFIG.SETHTTPSPORT(8450);

PL/SQL procedure successfully completed.

SQL> SELECT DBMS_XDB_CONFIG.GETHTTPSPORT() FROM dual;

DBMS_XDB_CONFIG.GETHTTPSPORT()
------------------------------
                          8450

SQL>
```

Explanation:
The session container is set to PE_PDB_27778, and the HTTPS port is changed to 8450 using DBMS_XDB_CONFIG.SETHTTPSPORT. The change is verified with a SELECT query.

3.6. Create Additional PDB for Testing

Screenshot: created second database for deletion.png

```
SQL> -- Step 1: Create a temporary PDB to delete
SQL> CREATE PLUGGABLE DATABASE pe_to_delete_pdb_27778
  2    ADMIN USER peace_admin IDENTIFIED BY admin123
  3    FILE_NAME_CONVERT = (
  4      'C:\ORACLE21C\ORADATA\ORCL\PDBSEED\',
  5      'C:\ORACLE21C\ORADATA\ORCL\pe_to_delete_pdb_27778\'
  6    );

Pluggable database created.
```

Explanation:
A second PDB named bizima_PDB_27778 is created for demonstration and deletion purposes. This shows the flexibility of managing multiple PDBs.

3.7. Drop the Test PDB

Screenshot: drop the created database.png

```
NAME
--------------------------------
OPEN_MODE
----------
PE_PDB_27778
READ WRITE

PE_TO_DELETE_PDB_27778
READ WRITE
```

```
SQL>
SQL> -- Step 4: Close and delete it
SQL> ALTER PLUGGABLE DATABASE pe_to_delete_pdb_27778 CLOSE IMMEDIATE;

Pluggable database altered.

SQL> DROP PLUGGABLE DATABASE pe_to_delete_pdb_27778 INCLUDING DATAFILES;

Pluggable database dropped.

SQL>
```

Explanation:
The test PDB PE_TO_delete_PDB_27778 is dropped using the DROP PLUGGABLE DATABASE command with the INCLUDING DATAFILES option to remove all associated files.

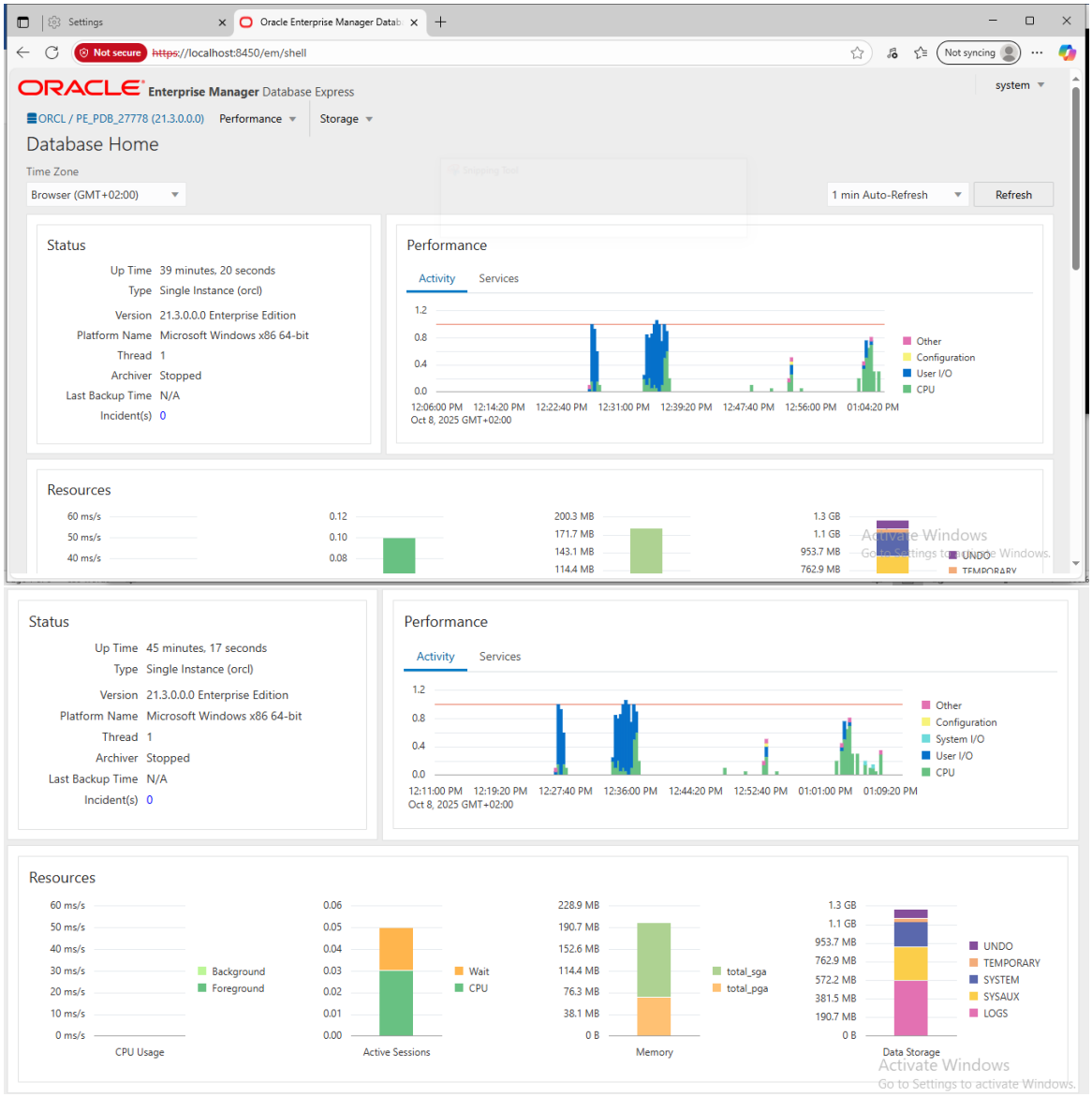
3.8. Access OEM Express Dashboard

Screenshot: dashboard OEM.png

Explanation:
This is the main OEM Express dashboard for the PDB PE_PDB_27778. It displays database status, performance metrics, resource usage, and storage information.

3.9. Monitor OEM Activities and SQL Queries

Screenshot: sources and monitor the OEM activities.png

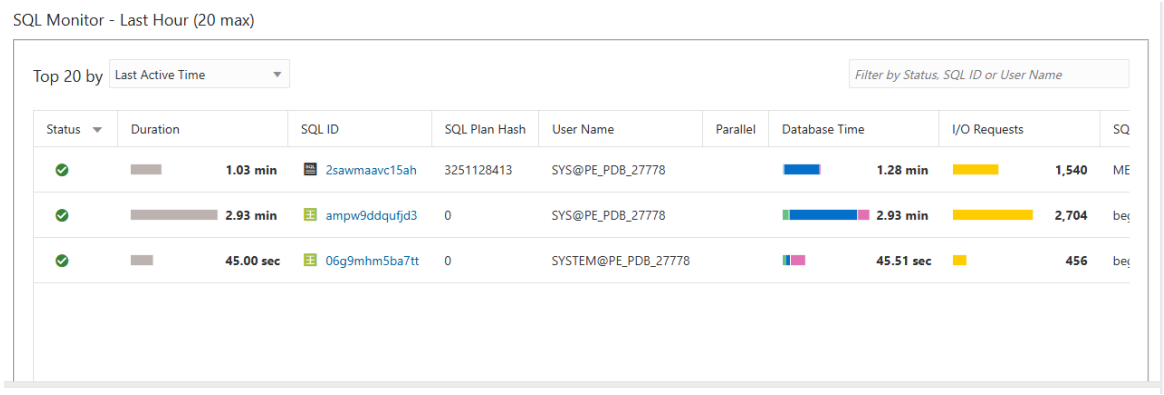


Explanation:

This view shows real-time resource usage (CPU, memory, storage) and active SQL sessions. It helps in performance monitoring and identifying long-running queries.

3.10. OEM Dashboard with User Context

Screenshot: OEM dashboard with my username and id.png



Explanation:

This screenshot highlights SQL monitoring details, including active sessions and user-specific queries. It shows SYS@PE_PDB_27778 executing a query with significant I/O requests.

4. Troubleshooting and Resolution

ORA-44718 (Port Conflict): Resolved by reassigning HTTP/HTTPS ports to free ones.

ORA-12541 (No Listener): Fixed by using the host IP address instead of localhost.

5. Results Summary

Test	Expected Outcome	Result
Listener Status	Active on 1521	Passed
Database Connection	Successful via SYS/SYSTEM	Passed OEM
Port Configuration	HTTPS 8450 Enabled	Passed OEM
Dashboard Access	Web Access Works	Passed

6. Conclusion

The project successfully demonstrated the end-to-end setup of an Oracle 21c PDB, configuration of OEM Express, and resolution of common issues. The screenshots provide clear evidence of each step, from database creation to dashboard access and monitoring. This report can serve as a reference for future Oracle DB deployments and troubleshooting.

7. References

1. Oracle Corporation. (2023). *Oracle Database 21c Documentation*. Retrieved from https://docs.oracle.com/en/database/oracle/oracledatabase/21/index.html

2. Oracle Help Center. (2023). *Using Oracle Enterprise Manager Database Express*. Retrieved from https://docs.oracle.com/en/database/oracle/oracledatabase/21/emxug/index.html

3. Stack Overflow. (n.d.). *ORA-44718: Port conflict in XDB Configuration file – Solutions*. Retrieved from https://stackoverflow.com/

4. Oracle Base. (2022). *Multitenant : Create and Configure a Pluggable Database (PDB)*. Retrieved from https://oracle-base.com/articles/12c/multitenant-create-andconfigure-pluggable-database-12cr1