Lab 4.3: Using Automatic Diagnostic Repository (ADR) in Oracle Database

Objective:

To understand and utilize the Automatic Diagnostic Repository (ADR) for diagnosing and resolving issues in the Oracle Database environment. This lab will guide you through a use case involving ADR in the CDBDEV environment with its associated PDBs.

Steps:

1. Understanding ADR and its Components

The Automatic Diagnostic Repository (ADR) is a file-based repository for storing database diagnostic data such as traces, dumps, alert logs, and other diagnostic data. ADR simplifies diagnostics by providing tools to manage and analyze diagnostic data efficiently.

2. Accessing ADR and Configuring ADR Homes

1. **Set Oracle environment variables manually**:

```
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=/u01/app/oracle/product/19.3.0/dbhome_1
export ORACLE_SID=CDBDEV
export PATH=$ORACLE_HOME/bin:$PATH
```

2. **Connect to SQL*Plus**:

```
sqlplus / as sysdba
```

3. **Verify ADR Base and ADR Home settings**:

```
SHOW PARAMETER diagnostic_dest;
```

   The `diagnostic_dest` parameter should point to the ADR base directory, typically `$ORACLE_BASE`.

4. **Check the ADR Home structure**:

```
cd $ORACLE_BASE/diag/rdbms/cdbdev/CDBDEV
ls -l
```

3. Generating Diagnostic Data

To simulate a use case for ADR, we'll generate some diagnostic data by causing a deliberate error.

1. **Connect to PDB1**:

```
sqlplus pdbadmin/fenago@localhost:1521/pdb1
```

2. **Generate an ORA-00600 internal error**:

```
CREATE OR REPLACE PROCEDURE cause_error AS
BEGIN
  RAISE_APPLICATION_ERROR(-20001, 'Deliberate Error for ADR Lab');
END;
/

EXEC cause_error;
```

3. **Check the alert log for PDB1**:

```
cd $ORACLE_BASE/diag/rdbms/cdbdev/pdb1/trace
tail -f alert_pdb1.log
```

4. Using ADRCI (ADR Command Interpreter)

ADRCI is a command-line tool to manage and view diagnostic data in ADR.

1. **Start ADRCI**:

```
adrci
```

2. **Show ADR homes**:

```
adrci> show homes
```

This will list all ADR homes for the database and its components.

3. **Set the ADR home for CDBDEV**:

```
adrci> set home diag/rdbms/cdbdev/CDBDEV
```

4. **View the alert log**:

```
adrci> show alert -tail -f
```

5. **View recent incidents**:

```
adrci> show incident -last 10
```

6. **Package incidents for support**:

```
adrci> ips create package problem 1
adrci> ips add incident <incident_id> package <package_id>
adrci> ips generate package <package_id> in /tmp
```

7. **Exit ADRCI**:

```
adrci> exit
```

5. Managing Diagnostic Data

1. **Purge old diagnostic data**:

```
adrci
```

```
adrci> purge -age 1440
```

This command purges diagnostic data older than 24 hours (1440 minutes).

2. **Automatic purge configuration**:

```
BEGIN
  DBMS_SCHEDULER.create_job (
    job_name        => 'PURGE_OLD_DIAGNOSTICS',
    job_type        => 'PLSQL_BLOCK',
    job_action      => 'BEGIN DBMS_ADVISOR.create_task(purge); END;',
    start_date      => SYSTIMESTAMP,
    repeat_interval => 'FREQ=DAILY; BYHOUR=2; BYMINUTE=0; BYSECOND=0',
    enabled         => TRUE
  );
END;
/
```

Summary

By following these steps, you will understand how to use ADR to manage and analyze diagnostic data in your Oracle Database environment. This lab demonstrates how to generate diagnostic data, use ADRCI to manage and view this data, and automate the purging of old diagnostic data. This knowledge is crucial for effective database administration and troubleshooting.