Lab 10.1: Configuring Shared Server Mode

Objective:

To configure shared server mode in your Oracle database.

Steps:

1. **Open a Terminal Window and Set the Environment Variables for** `CDBLAB`

   Open a terminal window and set your environment variables for the `CDBLAB` database:

   ```
   . oraenv
   ORACLE_SID = [orclcdb] ? CDBLAB
   The Oracle base remains unchanged with value /u01/app/oracle
   ```

2. **Log in to SQL*Plus as a User with SYSDBA Privileges**

   Start SQL*Plus and log in as a user with SYSDBA privileges:

   ```
   sqlplus / as sysdba
   ```

3. **Determine Whether the Shared Server Architecture is Implemented in Your Database**

   a. Check the value of the `SHARED_SERVER` initialization parameter:

   ```
   SHOW PARAMETER shared_server;
   ```

   Expected Output:

   ```
   NAME                    TYPE        VALUE
   ------------------- ----------- -------
   max_shared_servers  integer
   shared_server_sessions integer
   shared_servers      integer     1
   ```

   b. Check the value of the `DISPATCHERS` initialization parameter:

   ```
   SHOW PARAMETER dispatchers;
   ```

   Expected Output:

   ```
   NAME            TYPE    VALUE
   -------------- ------ ---------------------------
   dispatchers     string (PROTOCOL=TCP) (SERVICE=CDBLABXDB)
   max_dispatchers integer
   ```

   Explanation:

   - A shared server and dispatcher are configured for Oracle XML DB (XDB) by default if you created your Oracle database using DBCA. This configuration allows sessions that connect to the XDB service to use shared server.

4. **Enable Three Shared Servers in Your Database**

   ```
   ALTER SYSTEM SET shared_servers = 3;
   ```

Expected Output:

```
System altered.
```

5. **Determine Whether You Need to Configure Any Additional Dispatchers**

   a. Check the value of the `DISPATCHERS` initialization parameter:

```
SHOW PARAMETER dispatchers;
```

Expected Output:

```
NAME            TYPE    VALUE
-------------- ------ ----------------------------
dispatchers     string (PROTOCOL=TCP) (SERVICE=CDBLABXDB)
max_dispatchers integer
```

Explanation:

- You need to configure additional dispatchers because a dispatcher with a specified service will only connect to that service.

6. **Change the Dispatcher Service to Connect to Any Service Using TCP/IP**

```
ALTER SYSTEM SET dispatchers = "(PROTOCOL=TCP)";
```

Expected Output:

```
System altered.
```

7. **Confirm the Change**

```
SHOW PARAMETER dispatchers;
```

Expected Output:

```
NAME            TYPE    VALUE
-------------- ------ ----------------------------
dispatchers     string (PROTOCOL=TCP)
max_dispatchers integer
```

8. **Exit SQL*Plus**

```
exit
```

9. **Close All Terminals**

```
exit
```

Part B: Configuring Clients to Use a Shared Server

Overview:

In this practice, you configure a network service that uses shared server mode.

Steps:

1. **Open a Terminal Window and Set the Environment Variables for** `CDBLAB`

   Open a terminal window and set your environment variables for the `CDBLAB` database:

   ```
   . oraenv
   ORACLE_SID = [orclcdb] ? CDBLAB
   The Oracle base remains unchanged with value /u01/app/oracle
   ```

2. **Configure a Network Service That Uses a Shared Server Connection**

   a. Change the directory to `$ORACLE_HOME/network/admin` and list your current working directory:

   ```
   cd $ORACLE_HOME/network/admin
   pwd
   ```

   Expected Output:

   ```
   /u01/app/oracle/product/19.3.0/dbhome_1/network/admin
   ```

   b. Make a copy of `tnsnames.ora` :

   ```
   cp tnsnames.ora tnsnames.ora.4-2
   ```

   c. Edit the `tnsnames.ora` file to add a new service named `test_ss` that uses a dispatcher:

   ```
   vi tnsnames.ora
   ```

   Add the following entry:

   ```
   TEST_SS =
     (DESCRIPTION =
       (ADDRESS_LIST =
         (ADDRESS = (PROTOCOL=TCP)(HOST=your_fully_qualified_hostname)(PORT=1521))
       )
       (CONNECT_DATA =
         (SERVICE_NAME=CDBLAB)
         (SERVER=shared)
       )
     )
   ```

3. **Invoke SQL*Plus and Connect to the Database Using a Dispatcher**

   Open a new terminal window and connect to the `test_ss` service:

   ```
   sqlplus system@test_ss
   ```

   Enter the password when prompted.

4. **Open Another Terminal Window and Set the Environment Variables for** `CDBLAB`

   Open another terminal window and set your environment variables for the `CDBLAB` database:

```
. oraenv
ORACLE_SID = [orclcdb] ? CDBLAB
The Oracle base remains unchanged with value /u01/app/oracle
```

5. **Log in to SQL*Plus as a User with SYSDBA Privileges**

   Start SQL*Plus and log in as a user with SYSDBA privileges:

   ```
   sqlplus / as sysdba
   ```

6. **View Information About All Shared Server Connections by Querying** `V$CIRCUIT`

   ```
   SELECT dispatcher, server, saddr, queue FROM v$circuit;
   ```

   Expected Output:

   ```
   DISPATCHER        SERVER        SADDR             QUEUE
   ----------------- ------------- ----------------- -------------
   000000009F54D420  00            000000009F967A18  NONE
   ```

7. **Log out of the SQL*Plus Session Using the** `test_ss` **Service**

   In the first terminal window, log out of the SQL*Plus session:

   ```
   exit
   ```

8. **View Information About the Shared Server Connection by Querying** `V$CIRCUIT` **Again**

   In the second terminal window, query `V$CIRCUIT` again:

   ```
   SELECT dispatcher, server, saddr, queue FROM v$circuit;
   ```

   Expected Output:

   ```
   no rows selected
   ```

9. **Log out of SQL*Plus and Close Both Terminal Windows**

   In the second terminal window, log out of SQL*Plus:

   ```
   exit
   ```

   Close both terminal windows:

   ```
   exit
   ```

Summary

In this lab, you configured shared server mode in your Oracle database, enabled multiple shared servers, and set up a network service to use a shared server connection. This practice ensures that you understand how to configure and manage shared server mode to optimize database connections and resources.