DATABASE ADMINISTRATION

Lab 3 - Database instance management

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Implementation through SQL*Plus
1. Connect to database as sysdba.
| ```
SQL> conn
Enter user-name: sys as sysdba
Enter password:
Connected.
SQL>
``` |
| 2. Create two user accounts for testing: test_a and test_b with the password test. Default tablespace: users, limit 10m for space users. |
| ```
SQL> CREATE USER test_a IDENTIFIED BY test DEFAULT TABLESPACE users QUOTA 10m ON users
  2  ;

User created.

SQL> CREATE USER test_b IDENTIFIED BY test DEFAULT TABLESPACE users QUOTA 10m ON users
  2  ;

User created.

SQL>
``` |
| 3. Give both users the right to connect the database and create basic objects, additionally the user test_b will be granted the right RESTRICTED SESSION |
| ```
SQL> GRANT connect TO test_a
  2  ;

Grant succeeded.

SQL> GRANT connect TO test_b
  2  ;

Grant succeeded.

SQL> GRANT resource TO test_a;

Grant succeeded.

SQL> GRANT resource TO test_b;

Grant succeeded.

SQL> GRANT restricted session TO test_b;

Grant succeeded.
``` |
| 4. Connect to database in a new window as a user test_a. Create a table in this user's schema test with one character type column up to 100 characters named tekst. Then insert into the table test one record with the value of the attribute „first record" |

```
[oracle@localhost ~]$ sqlplus

SQL*Plus: Release 11.2.0.2.0 Production on Sun Oct 24 09:23:57 2021

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Enter user-name: test_a
Enter password:

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL> CREATE TABLE test (tekst varchar(100))
  2  ;

Table created.

SQL> INSERT INTO test VALUES ('first record')
  2  ;

1 row created.
```

5. Do not end user sessions or transactions test_a. In your user (administrator) window, try closing the database in transactional mode.

```
SQL> SHUTDOWN transactional;
█
```

What did you observe?

The database is waiting for the transaction to be ended.

6. Launch the third command line window and try to join in it as a user test_b.

```
[oracle@localhost ~]$ sqlplus

SQL*Plus: Release 11.2.0.2.0 Production on Sun Oct 24 09:31:41 2021

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Enter user-name: test_b
Enter password:
ERROR:
ORA-01089: immediate shutdown in progress - no operations are permitted
Process ID: 0
Session ID: 0 Serial number: 0


Enter user-name:
```

Whether the attempt to join was successful?

No.

7. Confirm the transaction in the second window (user test_a).

test_a:

```
SQL> commit
  2  ;

Commit complete.

SQL>
```

admin:

```
SQL> SHUTDOWN transactional;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> ▮
```

Whether the database has been closed?

<mark>Yes.</mark>

8. Restart the database. After starting the database in the second window, join again as the user test_a and insert the second record into the table test.

admin:

```
SQL> startup;
ORACLE instance started.

Total System Global Area  456146944 bytes
Fixed Size                  1344840 bytes
Variable Size             352324280 bytes
Database Buffers           96468992 bytes
Redo Buffers                6008832 bytes
Database mounted.
Database opened.
SQL> ▮
```

test_a:

```
SQL> conn
Enter user-name: test_a
Enter password:
Connected.
SQL> INSERT INTO test VALUES ('second record');

1 row created.

SQL>
```

9. In the first window, close the database immediately.

admin:

```
SQL> SHUTDOWN immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> ▮
```

test_a:

```
SQL> select * from test;
select * from test
            *
ERROR at line 1:
ORA-03135: connection lost contact
Process ID: 6127
Session ID: 137 Serial number: 13


SQL> █
```

What is happening with the session test_a?

Connection lost.

10. In the first window, restart the database, and in the second window, connect again as a user test_a and check the contents of the table test.

admin:
```
SQL> startup;
ORACLE instance started.

Total System Global Area  456146944 bytes
Fixed Size                  1344840 bytes
Variable Size             352324280 bytes
Database Buffers           96468992 bytes
Redo Buffers                6008832 bytes
Database mounted.
Database opened.
SQL>
```

test_a:
```
SQL> conn
Enter user-name: test_a
Enter password:
Connected.
SQL> select * from test;

TEKST
--------------------------------------------------------------------------
first record

SQL> █
```

Whether the record added in the command exists?

No.

11. End user session test_a (second window). Close the database by executing the appropriate command in the first window.

test_a:
```
SQL> disconn
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
SQL>
```

admin:
```
SQL> SHUTDOWN immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL>
```

12. In the first window, start the database in "without mounting" mode. In the second window, try to join the database as a user test_a.
admin:
| ```
SQL> startup nomount;
ORACLE instance started.

Total System Global Area  456146944 bytes
Fixed Size                   1344840 bytes
Variable Size              352324280 bytes
Database Buffers            96468992 bytes
Redo Buffers                 6008832 bytes
SQL>
``` |
| test_a: |
| ```
SQL> conn
Enter user-name: test_a
Enter password:
ERROR:
ORA-01033: ORACLE initialization or shutdown in progress
Process ID: 0
Session ID: 0 Serial number: 0


SQL>
``` |
| 13. In the first window, change the database operating mode to "mounted". Try connect as a user in the second window again test_a. |
| admin: |
| ```
SQL> ALTER DATABASE mount;

Database altered.

SQL> ▮
``` |
| test_a: |
| ```
SQL> conn
Enter user-name: test_a
Enter password:
ERROR:
ORA-01033: ORACLE initialization or shutdown in progress
Process ID: 0
Session ID: 0 Serial number: 0


SQL> ▮
``` |
| 14. In the first window, change the database operating mode to "open". Try joining as a user in the second window again test_a. |
| admin: |
| ```
SQL> ALTER DATABASE open;

Database altered.

SQL> ▮
``` |
| test_a: |

```
SQL> conn
Enter user-name: test_a
Enter password:
Connected.
SQL>
```

15. Log out the user test_a. In the first window, change the database operation mode to "logging forbidden" (hint: alter system enable restricted session;)

test_a:
```
SQL> disconn
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
SQL> █
```
admin:
```
SQL> alter system enable restricted session;

System altered.

SQL>
```

16. Try joining as a user in the second window again test_a. Then try to join as a user test_b.

test_a:
```
SQL> conn
Enter user-name: test_a
Enter password:
ERROR:
ORA-01035: ORACLE only available to users with RESTRICTED SESSION privilege


SQL>
```
test_b:
```
[oracle@localhost ~]$ sqlplus

SQL*Plus: Release 11.2.0.2.0 Production on Sun Oct 24 10:26:05 2021

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Enter user-name: test_b
Enter password:

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL>
```

What did you observe?

Test_a couldn't connect because only test_b was granted the RESTRICTED SESSION privelage. Test_b connected without any problems.

17. Log off all test users and remove them using the appropriate command. Make sure they have been removed.

test_a:
```
SQL> disconn
SQL>
```
test_b:

```
SQL> disconn
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.2.0 - Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
SQL> █
```

admin:

```
SQL> DROP USER test_a CASCADE;

User dropped.

SQL> DROP USER test_b CASCADE;

User dropped.

SQL> conn
Enter user-name: test_b
Enter password:
ERROR:
ORA-01017: invalid username/password; logon denied


Warning: You are no longer connected to ORACLE.
SQL>
```