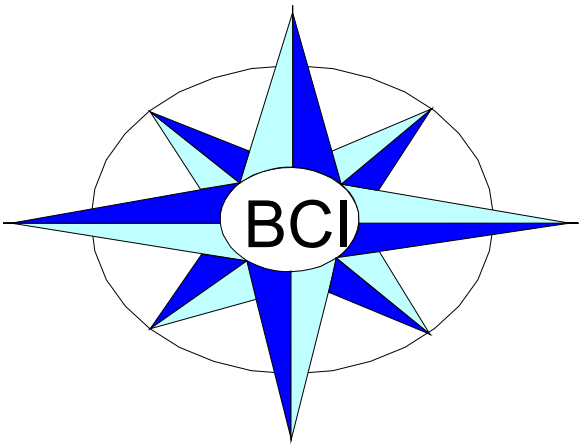
Practical Exercise
(Managing the Oracle Instance)



ORACLE DBA I PHASE I

Practical Exercise
Managing the Oracle Instance

DIRECTIONS: Follow the directions carefully. Provide your answer in the space provided. You will have 1 hours and 10 minutes to complete this exercise. DO YOUR OWN WORK! Use the orcl2 database.

In this section, you will determine the values set for the initialization parameters DB_BLOCK_SIZE and DB_CACHE_SIZE utilizing SQL*Plus, Oracle Enterprise Manager, and viewing the Server Parameter File.
Connect sys/password as sysdba;
Show parameter DB_BLOCK_SIZE;
Show parameter DB_CACHE_SIZE;
Show parameter memory_max_target

Note the DB_CACHE_SIZE. DB_CACHE_SIZE will be equal to 0 because Oracle's Automated Memory

In windows go to C:\app\oracle\product\12.2.0\dbhome_1\database directory and view the spfileorcl2.ora. In Linux you would go to /home/oracle/product/12.2.0/dbhome_1/dbs to edit the spfileorcl2. Again at the top of the file will be a ___db_cache_sizexxxxxxxxx parameter. This is the default directory where a pfile or a spfile will be created in windows.
You can also simply do a show sga to see the size of the database buffer cache when the database is up..
Restart Oracle by doing shutdown immediate and notice how the Database Buffers size corresponds with the DB_CACHE_SIZE and the memory_max_target is changed accordingly.
SQL> Startup;

1. What did you observe?

NOTE: You can also see the current db_cache_size by executing the following command:
SQL> select component, current_size from v$sga_dynamic_components or v$memory_dynamic_components;

2. Record the results for the following: Total System Global Area

Hint: or use Enterprise Manager to identify the different sizes of the SGA or do a SQL> show sga

7. What is the value for fixed size?

8. What is the value for variable size?

9. What is the value for Database Buffers?

10. What is the value for Redo Buffers?

11. How could the size of the Database Buffers be changed to show a minimum amount of memory to be allocated to this parameter? (Use the Alter system set set db_cache_size=xxxxxxxxxx). Change the db_cache_size parameter so that it will always have at least 50m for its value. Can you change this parameter dynamically?

NOTE: The memory given to the db_cache_size is the MINIMAL amount of memory allocated to the database buffer cache. To find out how big it is, go to Enterprise manager and check it's size under the Memory Parameter Menu Option in Administration.

1a. Find the pfile directory in your ORACLE system.
Using the Command Prompt
cd C:\app\oracle\admin\orcl2\pfile
or in Linux
cd /home/oracle/admin/orcl2/pfile
Why is the pfile important?
1b. List the name of your pfile below. Your pfile can be used to startup the database should the spfile be corrupted.

1c. Now let's create a new Parameter File (pfile). Must be logged in as SYS
SQL conn / as sysdba
SQL> create pfile='initorcl2.ora' from spfile;
Where was the pfile created?

Open up two sessions in SQL*Plus. Connect to the SIDPERS/password account in one session and connect as SYSDBA in the other session. In the session connected as SYSDBA, perform a shutdown of the Oracle database. Perform only a normal shutdown of the Oracle database.
SQL> shutdown normal

2. What happened and why?

Take corrective action to allow the database to be shut down.

HINT: Corrective action may be signing on as SYS in another SQL*PLUS session and issuing the following command:
SQL> shutdown abort
Now startup the database.
SQL> startup

3. Connect to the SIDPERS/password account in SQL*Plus. Create a small table and insert one row into the table. Do not commit the insertion of one row. In another session of SQL*Plus connected as SYSDBA and perform a SHUTDOWN TRANSACTIONAL.

What happened and why?
SQL> create table smalltable
(x number(1));

Insert into smalltable values (1)

4. What is the standard block size for your database?

Hint: Use show parameter db_block_size
5. Open two SQL*Plus sessions in Windows connected to your WINDOWS orcl database. In the first one, connect as sidpers/password. In the second one, logon as sys/password as sysdba.

In the sysdba session, perform the following query
SQL> select serial#, sid from v$session
where username = 'SIDPERS'

What is the serial # and sid#?

From the sysdba session, use the serial# and sid# from the question above. Issue the following statement:

SQL> alter system kill session 'SID, serial#';
Make sure you replace SID and serial# with the appropriate values. Attempt to perform the same test using Enterprise Manager.

Where you successful?

6. Create three new tablespaces each 100m in size Using SQL Developer (or SQL*PLUS if you wish) in the orcl2 database.. (You can do this as the user SYS, SYSTEM or SIDPERS). The tablespaces are to be named JERINDEX, USER_DATA, and TOOLS. Use the current default location of the tablespaces that already exist.

7. In one SQL*Plus session connect again to the SCOTT/tiiger Oracle account. Execute the dbcache.sql script.
SQL> @dbcache
Record the values for db_block_gets.
Now run the bigpart.sql script as the SCOTT user.
SQL> @bigpart
This creates significant overhead and performance issues in the Oracle instance. Find the following values in the current instance (SGA) using SQL*Plus or Oracle Enterprise Manager Database Express or SQL Developer. While the bigpart script is running, Go to Enterprise Manager and on the home page look at the Active Sessions and click on the user I/O to see the Scott users activity.

While bigpart is running. Run the script dbcache.sql again
SQL> @dbcache

What is the value for db block gets?

Show sga
Notice that the dbcache.sql script gets it's data from the dynamic performance table called v$systats which contains system statistics including the amount of effort the system is incurring by reading blocks of data.

Execute the script sorthit and identify what percentage of any sorts have been in memory. You are looking for 100% as a GOOD value. It means 100% of all your sorts have been done in memory.

8. What is the value for session logical reads?

The session logical reads Oracle metric statistic is basically db block gets + consistent gets. Run the script SQL @dbcache from sql*plus.

9. Perform a query against the dynamic performance view V$session that identifies the sid, serial#, username and osuser of anyone with a current session.
SQL> select sid, serial#, username,osuser
from v$session.

Why do some sessions have no username?.

END OF PRACTICAL EXERCISE