# Practices for Lesson 32: Tuning Database Memory

Practices for Lesson 32: Overview

Overview

In this practice, you will view the memory configuration of a database.

Practice 32-1: Viewing Memory Configurations

Overview

In this practice, you use SQL\*Plus to query various views concerning instance memory configuration.

Assumptions

You are logged in as the oracle user and the orclcdb database is running.

Tasks

Open a new terminal window and source the oraenv script, then log into sqlplus as sysdba.

Determine if the database is using Automatic Memory Management (AMM) or Automatic Shared Memory Management (ASMM).

With no values set for memory\_target and memory\_max\_target, the database is not using Automatic Memory Management (AMM). The values in sga\_target and sga\_max\_size indicate that Automatic Shared Memory Management (ASMM) is in use.

Determine if there are any setting for the various memory pools/caches in the sga.

The values of zero indicates that the database instance is managing the memory in the caches/pools automatically. If any of those contained a nonzero value, the value is used as the minimum setting for that component where the database instance cannot dynamically decrease the size of the pool/cache below that value. However, the database instance can dynamically increase the component to sizes above that specified value.

Examine the view v$memory\_dynamic\_components

Determine how much memory is assigned to each pool/cache in the instance by querying the view v$memory\_dynamic\_components

SQL> column component format a30

SQL> **select component, current\_size, min\_size, max\_size, last\_oper\_type from v$memory\_dynamic\_components order by 1 desc;**

Both ASMM and AMM update the spfile with the current memory configuration information. Create a readable version of the spfile to view the contents.

Display the contents of /tmp/initorclcdb.ora using the cat command.

\*.db\_block\_size=8192

\*.db\_name='orclcdb'

\*.db\_recovery\_file\_dest='/u01/app/oracle/fast\_recovery\_area'

\*.db\_recovery\_file\_dest\_size=14970m

\*.diagnostic\_dest='/u01/app/oracle'

\*.disk\_asynch\_io=FALSE

\*.dispatchers='(PROTOCOL=tcp)(MULTIPLEX=on)'

\*.enable\_pluggable\_database=true

\*.job\_queue\_processes=15

\*.local\_listener='LISTENER\_ORCLCDB,LISTENER2'

\*.nls\_language='AMERICAN'

\*.nls\_territory='AMERICA'

\*.open\_cursors=300

\*.optimizer\_use\_sql\_plan\_baselines=TRUE

\*.pga\_aggregate\_target=640m

\*.processes=300

\*.remote\_listener='LISTENER\_CMAN'

\*.remote\_login\_passwordfile='EXCLUSIVE'

\*.sec\_max\_failed\_login\_attempts=2#Reduce for tighter security.

\*.sga\_target=1920m

\*.shared\_servers=3

\*.undo\_tablespace='UNDOTBS1'

SQL>

The parameters that begin with a double underscore (highlighted in red above) are the current memory pool/cache sizes. Oracle updates the spfile file every time it changes memory so that if the database is shutdown and restarted, the instance would not have to relearn the optimal memory configuration and will continue with the last memory configuration.

Describe the view v$memory\_resize\_ops

Display the history of all memory resize operation from v$memory\_resize\_ops.

The history shows an increasing demand for space by the shared\_pool (i.e. GROW oper\_type) and the memory used for the growth has been coming from DEFAULT buffer cache (i.e. with the SHRINK oper\_type). If this behavior persists, it is a good indication that either more memory is needed for the database instance or, more likely, a minimum needs to be set on the DEFAULT buffer cache.

Exit SQL\*plus.

Close all terminals.