

Oracle Tuning

How database parameter can you use for tuning?

```
STATISTICS_LEVEL={TYPICAL | ALL} (not BASIC!)
SGA_TARGET
SGA_MAX_SIZE
PGA_AGGREGATE_TARGET
WORK_AREA_SIZE_POLICY=AUTO (not MANUAL!)

OPTIMIZER_INDEX_COST_ADJ=20      # was set for 1 query only,
                                  # developers need to fix this query
PARALLEL_MAX_SERVERS=16          # to take advantage of 8 CPUs
                                  # (set to twice the number of CPUs)
LOG_PARALLELISM=8                # to reduce redo latch contention (big impact)
PARALLEL_AUTOMATIC_TUNING=true   # at request of TNorth
FILESYSTEMIO_OPTIONS=asynch       # (big impact)

HASH_JOIN_ENABLED=true

FILESYSTEMIO_OPTIONS=SETALL

CURSOR_SHARING={EXACT | SIMILAR | FORCE}
```

What else can you do to improve a batch run?

- Run batch without SRDF replication (on remote mirror) and resync afterwards.
- Run batch without archive log mode.
- Increase the DB_KEEP_CACHE_SIZE hold all small lookup tables to make sure they are not flushed out by a big batch run.
- Increase the large pool for parallel queries.

What Unix commands do you use to investigate bad performance?

```
top                  # for memory, top processes

sar
sar -u 2 50          # for CPU
sar -d 2 50          # for hot disks
sar -r 2 50          # for memory

iostat 2 50
vmstat 2 50

free                 # memory

truss                # find out if the process is spinning
```

What Oracle tools do you use to investigate bad performance?

- AWR report
- ASH report
- Check alert.log and trace files

- explain plan
- tkprof # trace file formatter
- OEM

What Views do you use to investigate bad performance?

V\$SESSION

Shows current sessions.

V\$SQL

Shows current SQL statements.

V\$SQLSTATS

Shows statistics of current SQL statements.

V\$SQL_PLAN_STATISTICS

Shows statistics of current SQL execution plans.

V\$ACTIVE_SESSION_HISTORY

Shows statistics for current sessions.

DBA_HIST_SQLTEXT

Shows historical SQL statements.

DBA_HIST_SQL_PLAN

Shows historical SQL execution plans.

DBA_HIST_SQLSTAT

Shows statistics of past SQL.

What are indications that you need to increase the SHARED_POOL_SIZE?

- Low library cache hit ratio.
- Low data dictionary cache hit ratio.
- Increased parsing of SQL statements.

How can you decrease paging and swapping?

- Decrease the shared_pool_size.

What do you do when a user tells you the system is slow?

- Ask questions to the user to get more information, e.g.
 - ~ Is a session / query slow or does it affect the whole system?
 - ~ How many users are affected by the performance issue?
 - ~ Have changes mage to the system?
 - ~ Are unusual things happening?
 - Higher load, more users, moth end processing, ...

- Investigate

~ **What are the wait events?**

~ Is there an OS process spinning?

~ How many users are logged on to the database?

- ~ Is a database process using all resources?
- ~ **Check if the problem is CPU, IO or memory bound.**
- ~ Does the schema/table need analyzing?
- ~ Does the SQL use indexes?
- ~ Have any system settings changed that cause the problem.

How do you fix performance issues?

- To many I/O waits
 - Try to spread I/O to several disks.
- Too many Log Buffer Waits
 - Increase log_buffer.
- Too many sorts on disk.
 - Increase sort_area_size.
- An OS process spinning.
 - Kill the process.

What is the cache hit ratio and what is involved in tuning it?

- Percentage of when data that is found in the cache.
- Cache is faster than disk reads.
- Increase the size of db_buffer_cache if cach hit ratio is low.

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