

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 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_CACH_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 to 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 made to the system?
 - ~ Are unusual things happening?
Higher load, more users, more 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?

- Too 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 cache hit ratio is low.

Table of Contents

How database parameter can you use for tuning?.....	1
What else can you to to improve a batch run?.....	1
What Unix commands do you use to investigate bad performance?.....	1
What Oracle tools do to you use to investigate bad performance?.....	1
What Views do you use to investigate bad performance?.....	2
What are indications that you need to increase the SHARED_POOL_SIZE?.....	2
How can you decrease paging and swapping?.....	2
What do you do when a user tells you the system is slow?.....	2
How do you fix performance issues?.....	3
What is the cache hit ratio and what is involved in tuning it?.....	3