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HOW ORACLE Uses Memory on AIX. Part 1 : Processes

In this post I am going to talk about how ORACLE allocates and uses memory when running on AIX, but I will also talk about the power of *approximation* and how it can sometimes be misused for ill purposes 😊

On the outset, ORACLE/AIX memory “deal” seems simple enough – obviously, ORACLE *will* use memory when it runs and many AIX commands (such as `vmstat` or `ps`) will show memory usage both system wide and specific to particular process. But, as always, the devil is in the details and the effect of those “details” may be far from subtle.

So, why don’t we go ahead and find that devil, shall we ?

The straightforward (but naive) approach

Let’s say that we have an ORACLE instance running on one of our AIX servers. How do we find out how much memory it is using ?

First of all, let’s consider what ORACLE memory consists of. Here we actually have 2 separate parts:

1. Memory used by System Global Area or **SGA**, that is implemented in AIX as a *shared memory segment*.
2. Total memory used by **ORACLE processes** that represent the instance.

Next, let’s determine how much memory is used by each part.

Fortunately, **SGA size** is readily available -> just run `ipcs -bm` command and it’s there (The size of shared segment should match `sga_max_size` in `log` or `memory_max_target` in `llg`).

Calculating “**process**” **memory** is a bit more involved as we need to sum memory used by ALL instance processes, but it is not very difficult either. `ps -l` command will show individual process memory size and a simple `awk` script can sum all of them up, such as:

```
AIX> ps -elf |  
egrep ^ oracle${ORACLE_SID} | ora_.*_${ORACLE_SID} ^ |  
grep -v egrep | awk '{sum += $10} END {print sum/1024}'
```

The sum of SGA size and process size will obviously represent *total memory usage* by ORACLE instance and you can see the entire calculation in the slide below.

How Oracle Uses Memory On Aix Part 1 Processes

Randal Michael



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