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|  | **Rochester Institute of Technology**  **Golisano College of Computing and Information Sciences**  **Department of Information Sciences & Technologies** |

**Lab 2 Report**

**Orientation to Performance Monitoring**

**Part 1 – *Explain AWR Report***

Fill in the tables below to *explain***[[1]](#footnote-0)** the important items from the AWR report that you generated in **Activity #2-5** of Lab #2. Answers must be one or two sentences maximum – no longer – and written in **YOUR OWN WORDS**. **Use “in-line” references for all sources.**

**Table 1**. *Instance Overview Section of the AWR Report*

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| **Instance Overview Section** | | | |
| **AWR Report Item** | **Value** | **Meaning** | **Importance to/Usefulness for a DBA** |
| DB Name | IPEDS | This is the database name that the DBA is collecting statistics from. | This makes the DBA aware of which database’s statistics he or she is viewing. |
| Release | 11.2.0.1.0 | Release is the version of oracle that the database is built upon. | The release detail could be critical for searching information online, or could indicate other characteristics about the database that are intrinsic to a release of Oracle. |
| Instance &  Inst Num | IPEDS: 1 | This is the name of the instance and basically a number that uniquely identifies the DB. The number is used to map an instances objects to a free list group. | This detail is useful because, like DB name, it helps to give the DBA reference for which Instance he or she is looking at. |
| Begin Snap | 5210 | This is the unique ID of the beginning snapshot | This details which snapshot was recorded as the start point for the collection. Begin Snap not only has the ID of the snapshot, but also the time, and the number of sessions. |
| End Snap | 5211 | This is the unique ID of the ending snapshot | End Snap is the endpoint to the collection time frame. It has all the same details as Begin Snap. |
| Elapsed | 38.37 minutes | The time difference between the end snapshot and the beginning snapshot | Elapsed is the amount of time that passed from the start point to the end point. It is a big difference if the statistics are a report from a 2 hr time frame to a 2 week time frame. |

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| **Table 2**.  *Report Summary Section of the AWR Report* | | | |
| **Report Summary Section** | | | |
| **AWR Report Item** | **Value(s)** | **Explanation/Meaning** | **Importance/Use for Evaluating Performance** |
| Buffer Cache, Shared Pool Size, and Log Buffer | Buffer Cache: 240M during both the beginning and end, Shared Pool Size of 1024M for both beginning and end, and 24084k for the log buffer | Buffer Cache details the size at the beginning vs the end, Shared Pool Size also displays the of the memory dedicated to cursors, stored procedures at the beginning of the snapshot time period and the end. Log Buffer has a static size displayed for the redo logs. | All of these things indicate the memory allocated to areas of heavy data flow in the DB and increasing or decreasing the size of any of these areas can greatly impact the DB. Reporting on size at the beginning and end can remind a DBA if they changed the sizes and how that could explain unusual trends in other statistics. |
| Std Block Size | 8k | 8k is the block size of the oracle system | This number has great affect on the DB I/O. Increasing it can reduce the amount of I/O. |
| Redo Size | 3,266 per second, 10,833 per transaction | The redo size is the total amount of redo in bytes | This can give an idea to the DBA about the performance of the Redo capabilities of the system. This size can indicate the wait for log switches. |
| Logons | 0.1 per second, 0.3 per transaction | The rate of logons | This statistic is great for showing the connectivity of users to the database |
| Executes | 15.7 per second, 51.9 per transaction | the rate of executes | This statistic, being a rate, can be a clear indication of the speed of the DB. |
| Rollbacks | 0 | This is the number of ‘reverted’ commits per second and per transaction. | Perhaps if there is a high number of rollbacks, the DBA could make an appropriate improvement to increase efficiency in commits. |
| Buffer Hit % | 99.97% | The buffer hit ratio describes how often a particular block could be accessed from the buffer cache as opposed to requiring the DBMS to go to the disk. | This is possibly the most informative statistic for a DBA. If the ratio is above 80% or really low, the DB could be tuned to be running more efficiently. |
| In-memory Sort % | 100% | In memory sort is the ratio for in memory order by’s and index building vs sorts done on disk. | Sorts that are made on the disk are 100 times slower than RAM sorts! To improve performance, a DBA must be aware of this ratio. |
| % SQL with execution >1 | Beginning: 96%, End: 96.58% | % of sql statements that require multiple executions. |  |
| Top 5 Timed Foreground Events |  | DB CPU, direct path read, log file sync, db file sequential read, SQL \*Net message to client |  |

**Table 3**. *Main Report Section with “Drill-Down” Information*

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| **AWR Report Item** | **Explanation/Meaning** | **Importance/Use for Evaluating Performance** [[2]](#footnote-1) |
| Wait Events Statistics | This is statistics for wait time based on events as well as wait counts. A Wait event is a situation where a server process or a thread must wait for another process to finish before it can continue. The wait count is how many times a process must wait. | Wait event data can be used to reveal IO contention, latch contention, and/or buffer contention. |
| SQL Statistics | In general this is statistics for PL/SQL statements executed. | Being time based sql statistics, User IO, Gets, and Reads, the DBA has a complete assortment of the SQL statements executed and how they ran in many different perspectives. This is useful because no one perspective can be the ultimate view for symptoms and reasons that a SQL statement is running inefficiently. |
| Instance Activity Statistics | A set of various stats that can be seen as their absolute values and by thread activity as well. | A “miscellaneous” set of stats that report on information as related to instance activity. This is truly a complete list of stats for an instance’s activity, for things like opened cursors, physical requests, user commits, etc, |
| I/O Stats | Statistics based on Input Output activity from a function or filetype, and tablespace standpoint. | Data recorded for such functions as DBWR, and Direct Reads, and LGWR with amount of reads data, rates of data per sec for each of those functions will clearly indicate that flow of data between going in and out of the system and effective the DBMS is performing. |
| Advisory Statistics | Instance Recovery stats, MTTR advisory, Buffer pool advisory, various PGA, SGA, shared pool, and other areas | Contains many estimations that oracle is calculating to assist a DBA. |
| Latch Statistics | Latch activity, latch sleep breakdown, latch miss sources, mutex sleep summary, parent, and child latch statistics | Latches are critical to protecting shared data structures in the system global area, and so ensuring serialization is running efficiently is key to protecting data. |
| Memory Dynamic Components | Maximum and minimums, size at the beginning of the snap shot and current sizes for such things as the buffer cache, shared IO pool, and java pool to name a few. | It is interesting to see how memory in different areas is stretching and shrinking. |
| Dictionary Cache Stats | Stats like objects, profiles, rollback segments, segments, tablespaces as related to dictionary cache. | Get requests, percent misses, and the number of cache entries being used describe the dictionary cache, and oracle also suggests that percent misses be lower than 2%. |
| Library Cache Activity | Similar stats to Dictionary Cache, except based on areas such as clusters, indexes, and triggers. | It is important to make sure that the library cache is being used effectively. |
| init.ora Parameters | The parameters as they are set in the initialize oracle file. | The report most likely contains this information for ease of reference. If the DBA is not sure why a statistic is reported a certain way, they can check to see how the DB is set up from the different parameters found in init.ora |

**Part 2 – *References***

**Provide at least 2 references for your work.**

[**http://docs.oracle.com/cd/E11882\_01/server.112/e25513/stats002.htm#i375475**](http://docs.oracle.com/cd/E11882_01/server.112/e25513/stats002.htm#i375475)**, oracle, statistics descriptions**

**for in memory sort ratio:** [**http://www.dba-oracle.com/m\_in\_memory\_sort\_ratio.htm**](http://www.dba-oracle.com/m_in_memory_sort_ratio.htm)**, burleson**

1. Be sure to explain what each piece of information means and how it would be used or interpreted to understand the performance of the database. [↑](#footnote-ref-0)
2. Answer generally; although this is an Oracle database try not to be too Oracle specific in terms of performance issues addressed by each item. Indicate why a DBA would want this information and how s/he would interpret this data – i.e. what each tells the DBA about performance. [↑](#footnote-ref-1)