Real-Time SQL Monitoring in Database 12c

How to generate active SQL Monitor reports for troubleshooting execution plan

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DATABASE IN-MEMORY

Real-Time SQL Monitoring was introduced in Oracle Database 11g and has been enhanced in Oracle Database 12c. This brief will explain how to use Real-Time SQL Monitoring in Oracle Database 12c and how to enable active SQL monitor reports which is the most useful tool when troubleshooting SQL execution plans.

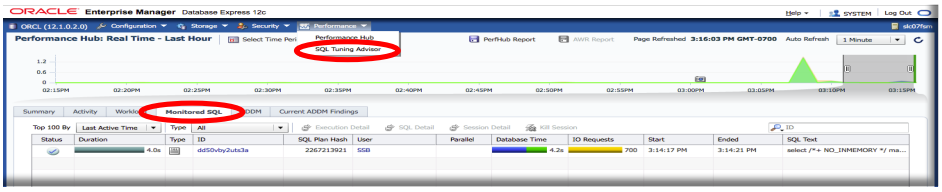
Real-Time SQL Monitoring does require the Oracle Database Tuning Pack.

What is Different in Oracle Database 12c?

In Oracle Database 12c Real-Time SQL Monitoring was moved to it's own package. Prior to Oracle Database 12c it was part of the dbms_sqltune package and now it is part of the dbms_sql_monitor package. The subprogram remains the REPORT_SQL_MONITOR function. In Oracle Database 12c Real-Time SQL Monitoring supports Database In-Memory by showing CPU consumed by Database In-Memory specifically as opposed to other types of CPU consumption.

How Do I Create SQL Monitor Active Reports?

SQL monitor active reports can be created directly from Enterprise Manager Cloud Control or Enterprise Manager Database Express (EM Express) using the "Monitored SQL" tab from the Performance Hub (accessed from the Performance menu). SQL Monitor reports can also be accessed through SQL Developer but the format is not the same as a SQL Monitor active report. The following shows how to select a SQL monitor active report from EM Express:



Alternatively, SQL monitor active reports can be created using the PL/SQL function dbms_sql_monitor.report_sql_monitor() using the "active" report type. For example, the following SQL*Plus script shows how to generate an active report for the statement that was monitored last by Oracle:

```
set trimspool on
set trim on
set pagesize 0
set linesize 32767
set long 1000000
set longchunksize 1000000
```

More Information on Real-Time SQL Monitoring can be found in the following documentation:

- Oracle Database 12c: Database SQL Tuning Guide
- Oracle Database 12c: Database PL/SQL Packages and Types Reference
- Oracle Database 11g: Real-Time SQL Monitoring (oracle.com)

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```
spool sqlmon_active.html
select dbms_sql_monitor.report_sql_monitor(type=>'active')
from dual;
spool off
```

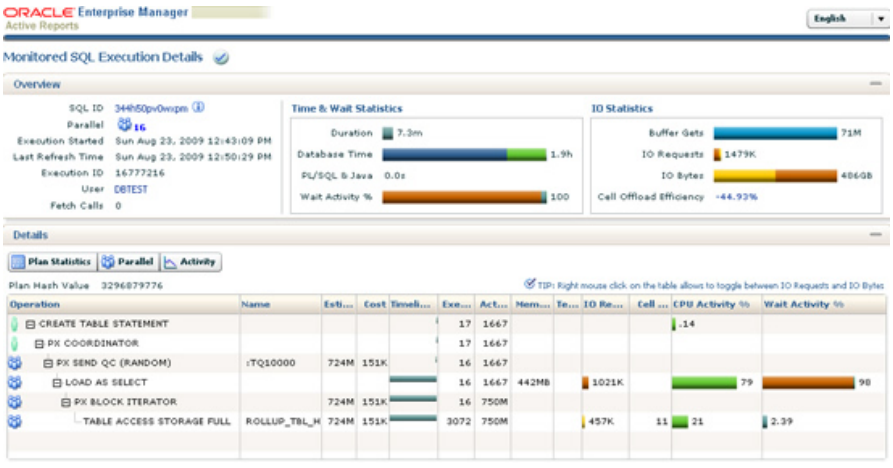
The dbms_sql_monitor.report_sql_monitor function accepts many input parameters (see the Database PL/SQL Packages and Types Reference). The following will generate an active report for a SQL statement based on sql_id:

```
set trimspool on
set trim on
set pagesize 0
set linesize 32767
set long 1000000
set longchunksize 1000000
spool sqlmon_active.html
select dbms_sql_monitor.report_sql_monitor(
sql_id=>'1n482vfrxw014',type=>'active')
from dual;
spool off
```

By default, a SQL statement will be monitored if it runs for longer than approximately 5 seconds or is executed in parallel mode. To insure that the statement you run will be monitored you can add the /*+ MONITOR */ hint to the statement or you can set the statistics level for the session (i.e. ALTER SESSION SET STATISTICS_LEVEL=ALL).

What Does a SQL Monitor Active Report Look Like?

SQL Monitor active reports use Enterprise Manager UI technology and require javascript and swf files to render the report and are hosted remotely on the Oracle Technology Network (OTN) website. A SQL monitor active report looks like the following:



If this were a real report you could click on most of the components of the report and get additional information.

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