

# Oracle, Trace Analyzer - A New Tuning Tool!

By Dan Hotka

*Editor's Note: If you liked TKProf to audit your trace files, you are going to love Trace Analyzer, Oracle's newest member of the tuning family. Released in December 2005, Trace Analyzer offers the best of both TKProf and statistical information functionality bundled together in an easy-to-read HTML report format. Complementing this new release, ORAtips consultant and trainer, Dan Hotka has developed JS Analyzer, a Java based freeware interface that offers you the choice of using either TKProf or Trace Analyzer for all your tuning needs.*

## Introduction

In or around the release of Oracle database version 7x, Oracle Corporation provided the ability to capture SQL statements from an application or a user session in a file. This facility is known as a 10046 (pronounced ten forty-six) dump, and it has options to not only capture explain plans but wait events and bind variables as well. Oracle supplied a character-mode tool called TKProf that interpreted this file into plain English and gave the individual doing tuning/

problem-solving the ability to drill into this trace file.

Until recently, TKProf was the only tool available to interpret the contents of these traces files. Fortunately Oracle released Trace Analyzer last December, and it is a nice mix of both TKProf and statistical information typically found in Statspack reports. Trace Analyzer generates a nice HTML hyper-linked report.

## Trace Analyzer

You can search MetaLink for "Trace Analyzer" and download the "trca.zip" file. This file contains the installation instructions that consists of a package and a SQL\*Plus script. Once the package is installed (Note: follow the directions in the installation.txt file carefully), simply run the script "trcanlzr.sql" in SQL\*Plus, passing it the trace file name located in the UDUMP directory on the server that SQL\*Plus is logged into.

Now that there are tuning tool choices, I developed JS Analyzer, a freeware interface that allows selection of the trace file with a click of a mouse, and enables you then to

run either TKProf or Trace Analyzer. This interface is available at <http://www.oratips.com/SoftwareSolutions.asp?menuID=17>.

**You can search MetaLink for "Trace Analyzer" and download the "trca.zip" file.**

Trace files are created using the DBMS\_SYSTEM.SQL\_TRACE calls. I still use the old way of creating trace files using the "alter session set events'10046 trace name context forever, level 12';". It is also easy to create trace files for other users' sessions. This functionality allows you to collect all the SQL, including the system-generated SQL for inspection.

Trace Analyzer will look for the trace file in the Oracle instance's UDUMP directory to the database you are logged into via SQL\*Plus. It will make the HTML file in the SQL\*Plus home directory. Figure1 illustrates using SQL\*Plus to run the Trace Analyzer script.

```

Oracle SQL*Plus
File Edit Search Options Help

SQL*Plus: Release 9.2.0.1.0 - Production on Wed May 17 21:16:22 2006

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Connected to:
Oracle9i Enterprise Edition Release 9.2.0.1.0 - Production
With the Partitioning, OLAP and Oracle Data Mining options
JServer Release 9.2.0.1.0 - Production

SQL> start c:\temp\trcanlzr Sample_SQL_Trace.trc
...generating report

Trace Analyzer Report "trcanlzr_3392_168.html" has been created in C:\oracle\admin\ora9r2\udump

...copying report
...report "trcanlzr_3392_168.html" has been copied into local directory
...exiting now (hit enter key)
    
```

Figure 1: Using Trace Analyzer in SQL\*Plus

Trace Analyzer output contains information about both the Oracle instance (i.e., Statspack kind of information) as well as detailed information including a very nice explain plan (TKProf kind of information). The HTML file produced is nicely hyper linked to easily jump to the SQL you would like to more closely inspect. Like TKProf, the interface tool JS Analyzer will interpret the information supplied. If you have produced an extended trace, then the bind variables and wait events will appear.

Figure 2 shows the same type of information about the Oracle instance as TKProf.

Figure 3 has the top 20 SQL statements organized by CPU and Elapsed time. This is probably the only shortcoming of this new tool in that you cannot see more SQL statements than just these. The SQL statements are hyper-linked by their ranking. Simply clicking on the SQL Ranking will jump you to that SQL statement, its statistics, and its explain plan.

Clicking on the SQL ranking in Figure 3 takes you right to the SQL statement associated with this information.

Along with this information is the explain plan, bind variables, and other statistics if requested when the trace file was created, as shown in Figure 4. If the SQL was using the cost-based optimizer, then the where-clause predicates will be associated with lines in the explain plan.

**Trace Analyzer Report: 3392 168**

- [Trace Identification](#)
- [Trace Header](#)
- [SQL Statements Count](#)
- [Time Summary](#)
- [User Non-Recursive Totals](#)
- [User Recursive Totals](#)
- [Internal Totals](#)
- [Top 20 SQL Statements](#)
- [List of 27 Unique SQL Statements](#)
- [Gaps of no Trace Activity \(9\)](#)
- [Non-Default Initialization Parameters](#)
- [SQL Statements Details](#)

**Trace Identification**

<b>Trace Filename:</b>	Sample_SQL_Trace.trc
<b>UDUMP Directory:</b>	C:\oracle\admin\ora9r2\udump
<b>Instance Name:</b>	ora9r2
<b>Host Name:</b>	Unknown
<b>RDBMS Version:</b>	9.2.0.1.0
<b>Trace Size (bytes):</b>	125376
<b>Trace Lines:</b>	2111
<b>Trace Start Time:</b>	11-MAY-06 13:01:55
<b>Trace End Time:</b>	11-MAY-06 13:06:44
<b>Trace Duration (tot secs):</b>	289.434
<b>9 Gaps (tot secs):</b>	258.185
<b>Analyzed on Same Instance?:</b>	Y
<b>Trace Truncated?:</b>	N
<b>Report Generated by User:</b>	USER1

Figure 2: Trace Analyzer Output

Top 20 SQL Statements (according to CPU, Elapsed and Wait Times)

#	CPU Time (secs)	Elapsed Time (secs)	Non-idle Wait (secs)	Idle Wait (secs)	Executions	Logical Reads (blocks)	Physical Reads (blocks)	Rows Returned	Parsed by	Recursive Depth	Error	Command Type	SQL Ranking
1	0.891	1.831	0.684	18.755	9	1931	1187	9	67	0		select	1
2	0.080	0.441	0.219	46.945	4	549	499	4	67	0		select	2
3	0.090	0.219	0.069	34.415	1	490	4	37	67	0		select	3
4	0.030	0.158	0.001	41.612	9	152	8	36	67	0		select	4
5	0.010	0.102	0.000	77.059	1	0	0	0	67	0		alter session	5
6	0.080	0.084	0.000	29.216	1	51	0	17	67	0		select	6
7	0.010	0.007	0.000	0.000	15	45	0	15	0	2		select	7
8	0.000	0.001	0.000	14.679	1	3	0	1	67	0		select	8
9	0.000	0.002	0.000	0.000	8	32	0	8	0	1		select	9
10	0.020	0.333	0.000	11.607	1	4	0	1	67	0		pl/sql execute	10
11	0.000	0.193	0.178	0.000	8	24	4	8	0	1		select	11
12	0.000	0.003	0.000	0.000	4	23	0	4	0	1		select	12
13	0.010	0.036	0.021	10.502	3	0	0	3	67	0		pl/sql execute	13
14	0.000	0.002	0.000	0.000	4	20	0	8	0	1		select	14

Figure 3: Trace Analyzer Top 20 SQL Statements

### JS Analyzer

JS Analyzer is a freeware interface developed to assist with running TKProf and Trace Analyzer. Figure 5 demonstrates the login procedure. Once logged in, locate the Oracle Trace File using the GUI interface and click "OK" on the Trace Analyzer tab. The interface tool will start SQL\*Plus, run the Trace Analyzer procedure, and display the output HTML in your default browser environment. The interface tool is also useful for running the command-line TKProf interface, saving you a lot of typing, and it allows you to display the output file sorted multiple ways.

JS Analyzer is a freeware tool and you can get future updates by contacting ORAtips ([www.ORAtips.com](http://www.ORAtips.com)).

```
hash:3072270129 length:149 depth:0(non-recursive) user:67(user) line:732 rank:4
```

```
select ename, sal
from emp
where sal IN (select MAX(sal)
              from emp
              where job <> 'PRESIDENT'
              group by deptno)
```

Call Summary

Call Type	Call Count	CPU Time (secs)	Elapsed Time (secs)	Disk (blocks)	Query (blocks)	Current (blocks)	Rows Returned	Cache Misses
Parse:	9	0.030	0.146	3	26	0	0	1
Execute:	9	0.000	0.002	0	0	0	0	0
Fetch:	9	0.000	0.010	5	126	0	36	0
<b>Total:</b>	<b>27</b>	<b>0.030</b>	<b>0.158</b>	<b>8</b>	<b>152</b>	<b>0</b>	<b>36</b>	<b>1</b>

Non-idle Wait Events

Non-idle Wait Event	Times Waited	Max Wait (secs)	Total Time Waited (secs)
db file scattered read:	1	0.001	0.001
<b>Total non-idle:</b>	<b>1</b>	<b>0.001</b>	<b>0.001</b>

Figure 4: Additional Information Available with the SQL and Explain Plan

### Summary

Oracle Corporation's new Trace Analyzer is a nice interface for studying the contents of Oracle Trace files. The freeware Java interface makes using both Trace Analyzer and TKProf a snap.

**Dan Hotka** – Dan is a Training Specialist who has over 28 years in the computer industry and over 23 years of experience with Oracle products. He is an internationally recognized Oracle expert with Oracle experience dating back to the Oracle V4.0 days. Dan's latest book is the Database Oracle10g Linux Administration by Oracle Press. He is also the author of Oracle9i Development By Example and Oracle8i from Scratch by Que and has co-authored six other popular books. He is frequently published in Oracle trade journals, and regularly speaks at Oracle conferences and user groups around the world. Dan may be contacted at [Dan.Hotka@ERPtips.com](mailto:Dan.Hotka@ERPtips.com).

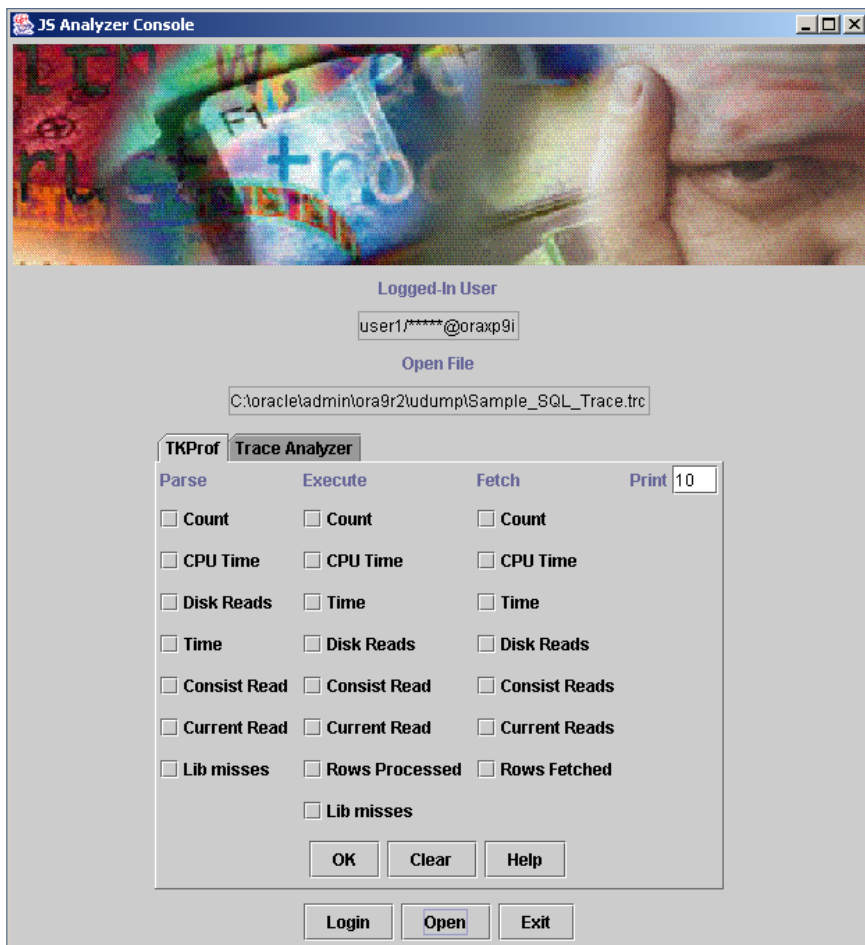


Figure 5: Java Tool Useful to Run TKProf and Trace Analyzer

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