

EFFECTIVE USE OF SQL TRACE OUTPUT

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OVERVIEW

- Basics
- Forward Attribution
- Cursors
- Timing
- 'Idle' Events
- Case Studies
- Session Focus
 - Real life experience
 - Lightly documented issues
- Use of Hotsos Profiler[®] by permission of Hotsos Enterprises, Ltd. www.hotsos.com
 - Output from Profiler[®] modified for presentation purposes

WHY EXAMINE TRACE FILES?

- All tools provide the author's perspective on what is important
- They record what actually happens
- They isolate what happens at the database level
- Extremely detailed information
- Can be used to 'brew benchmarks'

BASICS

- Enabling/Disabling Trace
- Calls and Events
- Fields

ENABLING/DISABLING TRACE

- Methods
 - Triggers
 - Command Line
 - Other sessions
- Parameters
 - **max_dump_file_size**
 - Setting to 'unlimited' not possible with all methods
 - **tracefile_identifier**
 - If it is changed mid-trace, the old trace file is closed and a new one opened
 - Can be used to separate application calls without logout/login

TRACE ISSUES

- Permission issues with logon triggers
 - 'alter session' must be granted directly to user
 - 'alter session' must be granted directly to trigger owner if trigger is database logon
- Tracing may alter performance
 - Heisenberg Uncertainty Principle
 - Cursor sharing & bind variable peeking theorized

TRACE ENTRIES

- Calls
- Events
- Informational

STAT

- The actual execution plan
 - autotrace, explain plan and tkprof not 100% accurate
- Indicates a cursor is closed
 - Except
 - Certain statements in logon triggers
 - Create table as select query
 - Inserts

FETCH

- Data presented to calling application
- First FETCH always 1 row
 - # of rows returned is the array_size
- Some sql will not have a fetch
 - INSERT

WAIT

- Timed Event
- Documentation of events can be found in Reference Documentation and “Oracle Wait Interface”
- Always written ***after*** event completes
 - Trace file cannot tell you what is the current wait

TRACE FIELDS

- c – total cpu time consumed
 - Incremented if process is ‘on’ CPU at clock tick
- e/ela – elapsed time
 - Difference in ‘wall’ clock
- dep – recursive depth of cursor
 - 0 – parent
 - >0 – child
- p – physical read requests
- cr & cu – logical read requests
- r – rows processed

KEY CONCEPTS

- Forward Attribution
- Cursors
- Timing
- ‘Idle’ Events

FORWARD ATTRIBUTION

- A Call/Event is not written until it completes
 - The duration of an event cannot be determined until it terminates
- Calls/Events motivated by an action will be written ***before*** the motivating call

CURSORS

- Statements are parsed 'into' cursors
- Each cursor is given a number
 - Numbers are reused when cursor is closed
 - Calls and events are assigned to a cursor
- Cursor #0
 - Does not exist
 - Events may be associated with it

TIMING

- Timestamps
- Resolution
- CPU v. Elapsed
- Recursive Double Counting
- Missing Time

TIMESTAMPS

- Will be written under certain conditions
 - Beginning of trace file
 - Period of Inactivity
- Can be used to correct for drifting of elapsed time

RESOLUTION

- 8i – centiseconds
 - 1/100th of a second
 - e=123 (1.23 seconds)
- 9i+ - microseconds
 - 1/1000000th of a second
 - e=1234567 (1.234567 seconds)
 - If the O/S does not support microseconds, the value is multiplied to keep them consistent

CPU V. ELAPSED

- CPU – time spent actually using CPU cycles
 - All or nothing
 - Digital clock
- Elapsed
 - Time differential
 - Watch with second hand

RECURSIVE DOUBLE COUNTING

- Time for an operation is the total time the operation required
 - Parent operations include all time spent in child operations
- When calculating duration do not count child time

MISSING TIME

- Sum of CPU will not usually equal Sum of Elapsed
 - Granularity and method of collection
- Significant differences
 - Miscalculation
 - Time not spent doing work

‘IDLE’ EVENTS

- An event is only idle if it does not contribute to the end user response time
- Identify
 - When the event occurs
 - Why the event occurs

CASE STUDIES

- Benchmark
- Batch Job
- Web Server
- Chatty Java

BENCHMARK

- Poorly performing customer benchmark
 - ‘Same’ tests run against existing and proposed systems
 - Statspack revealed troubling differences
- [Majority of time in ‘Idle’ event](#)
- Tests were spooling output that was discarded
 - [Changed to spool to /dev/null](#)

BATCH JOB

- Overnight processing gradually slowing
 - Process runs 5 parallel threads
- Environment
 - Oracle 8i
 - 4 databases on server
 - 8g of RAM

[CPU Starvation](#)

WEB SERVER

- Poor performance for customized pages
- Tracing of web server indicated most of time spent in SQL*Net Message From Client
 - Idle or Not?
- [Web Server](#)

CHATTY JAVA

- Poor performance processing batch input
- 70,000 repeats of same transaction
 - 7 step transaction
 - Each step separate external call
- SQL*Net Message From Client between steps
- [Chatty Java](#)

RESOURCES

- Oracle – Technet and metalink
- “Optimizing Oracle Performance” Millsap with Holt
- www.hotsos.com
- Setting Trace
 - http://www.petefinnigan.com/ramblings/how_to_set_trace.htm
- “Oracle Wait Interface” Shee, Deshpande and Gopalakrishnan
- daniel.fink@optimaldba.com



Hotsos Profiler Session-Level Resource Profile

Hotsos Profiler Release 4.0.10

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Interval Resource Profile

Response Time Component	Duration	# Calls	----- Duration Per Call -----			
			Avg	Min	Max	
(i) SQL*Net message from client	2,161.311635s	93.0%	473,149	0.004568s	0.000657s	0.534772s
(i) CPU service	74.810000s	3.2%	473,242	0.000158s	0.000000s	0.020000s
(i) unaccounted-for	62.887587s	2.7%				
(i) db file scattered read	24.228258s	1.0%	589	0.041135s	0.000967s	0.211396s
(i) SQL*Net message to client	0.875612s	0.0%	473,149	0.000002s	0.000000s	0.161150s
(i) latch free	0.723973s	0.0%	50	0.014479s	0.000035s	0.123938s
(i) db file sequential read	0.131987s	0.0%	57	0.002316s	0.000348s	0.052568s
(i) library cache pin	0.000514s	0.0%	3	0.000171s	0.000052s	0.000294s
(i) enqueue	0.000306s	0.0%	1	0.000306s	0.000306s	0.000306s
Total	2,324.969872s	100.0%				

Trace File Content

```

PARSING IN CURSOR #1 len=125 dep=0 uid=20 oct=3 lid=20 tim=72711559952 hv=1554281672 ad='8da21158'
select *SOME COLUMNS*
from *SOME TABLE*
END OF STMT
PARSE #1:c=30000,e=45858,p=1,cr=86,cu=0,mis=1,r=0,dep=0,og=4,tim=116902285708
EXEC #1:c=0,e=8028,p=0,cr=0,cu=0,mis=0,r=0,dep=0,og=4,tim=1169022863977
WAIT #1: nam='SQL*Net message to client' ela= 6 p1=1650815232 p2=1 p3=0
WAIT #1: nam='db file sequential read' ela= 6900 p1=58 p2=777 p3=1
WAIT #1: nam='db file scattered read' ela= 62704 p1=58 p2=778 p3=128
FETCH #1:c=0,e=113411,p=129,cr=4,cu=0,mis=0,r=1,dep=0,og=4,tim=1169022977562
WAIT #1: nam='SQL*Net message from client' ela= 1550 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 2 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=1630,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=1169022982437
WAIT #1: nam='SQL*Net message from client' ela= 3427 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 2 p1=1650815232 p2=1 p3=0

```

RAID-5 output

```
FETCH #1:c=0,e=203,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=1169022986258
WAIT #1: nam='SQL*Net message from client' ela= 3091 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=131,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=1169022989762
WAIT #1: nam='SQL*Net message from client' ela= 3073 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=125,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=1169022993057
WAIT #1: nam='SQL*Net message from client' ela= 3066 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=129,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=1169022996342
```



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Interval Resource Profile

Response Time Component	Duration	# Calls	Duration Per Call			
			Avg	Min	Max	
(i) SQL*Net message from client	1,050.439912s	88.8%	473,149	0.002220s	0.000357s	0.223943s
(i) CPU service	68.560000s	5.8%	473,153	0.000145s	0.000000s	0.020000s
(i) unaccounted-for	44.294784s	3.7%				
(i) db file scattered read	18.939066s	1.6%	561	0.033759s	0.006604s	0.226034s
(i) SQL*Net message to client	0.573104s	0.0%	473,149	0.000001s	0.000000s	0.000150s
(i) db file sequential read	0.008904s	0.0%	3	0.002968s	0.000500s	0.007678s
Total	1,182.815770s	100.0%				

Trace File Content

```

PARSE #1:c=0,e=170,p=0,cr=0,cu=0,mis=0,r=0,dep=0,og=4,tim=157342795589
EXEC #1:c=0,e=105,p=0,cr=0,cu=0,mis=0,r=0,dep=0,og=4,tim=157342795875
WAIT #1: nam='SQL*Net message to client' ela= 2 p1=1650815232 p2=1 p3=0
WAIT #1: nam='db file sequential read' ela= 7678 p1=58 p2=777 p3=1
WAIT #1: nam='db file scattered read' ela= 77395 p1=58 p2=778 p3=128
FETCH #1:c=0,e=91687,p=129,cr=4,cu=0,mis=0,r=1,dep=0,og=4,tim=157342887690
WAIT #1: nam='SQL*Net message from client' ela= 649 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 3 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=148,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=157342888678
WAIT #1: nam='SQL*Net message from client' ela= 2248 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=181,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=157342891209
WAIT #1: nam='SQL*Net message from client' ela= 2110 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 2 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=118,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=157342893529
WAIT #1: nam='SQL*Net message from client' ela= 2096 p1=1650815232 p2=1 p3=0

```

No Spool Output

```
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=118,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=157342895828
WAIT #1: nam='SQL*Net message from client' ela= 2181 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
FETCH #1:c=0,e=119,p=0,cr=1,cu=0,mis=0,r=15,dep=0,og=4,tim=157342898211
WAIT #1: nam='SQL*Net message from client' ela= 2098 p1=1650815232 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 1 p1=1650815232 p2=1 p3=0
```



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Interval Resource Profile

Response Time Component	Duration		# Calls	----- Duration Per Call -----		
				Avg	Min	Max
(i) unaccounted-for	4,482.70s	51.6%				
(i) SQL*Net message from client	2,067.27s	23.8%	773,934	0.002671s	0.00s	12.26s
(i) CPU service	1,741.70s	20.0%	654,847	0.002660s	0.00s	0.12s
(i) log file sync	133.38s	1.5%	3,452	0.038638s	0.00s	0.54s
(i) buffer busy waits	107.52s	1.2%	7,439	0.014454s	0.00s	0.64s
(i) enqueue	70.44s	0.8%	2,954	0.023846s	0.00s	0.88s
(i) db file sequential read	60.62s	0.7%	5,517	0.010988s	0.00s	0.25s
(i) log file switch completion	11.64s	0.1%	77	0.151169s	0.00s	0.67s
(i) latch free	9.83s	0.1%	1,835	0.005357s	0.00s	0.16s
(i) SQL*Net message to client	4.89s	0.1%	773,935	0.000006s	0.00s	0.32s
(i) row cache lock	2.80s	0.0%	102	0.027451s	0.00s	0.14s
(i) SQL*Net more data from client	0.30s	0.0%	3	0.100000s	0.10s	0.10s
(i) buffer deadlock	0.12s	0.0%	137	0.000876s	0.00s	0.07s
(i) file open	0.01s	0.0%	14	0.000714s	0.00s	0.01s
(i) library cache pin	0.00s	0.0%	1	0.000000s	0.00s	0.00s
Total	8,693.22s	100.0%				

vmstat Output

	procs			memory				page				disk				faults		cp			
	r	b	w	swap	free	re	mf	pi	po	fr	de	sr	s6	s9	s1	sd	in	sy	cs	us	sy
18:32:00	1	0	0	2737176	1119832	227	1217	415	3	3	0	0	0	7	7	0	1136	260483	1940	59	20
18:37:00	1	0	0	2748360	1066096	159	1069	23	2	2	0	0	0	5	4	0	890	281599	1127	60	18
18:42:00	1	0	0	2748256	1061384	221	1668	6	5	5	0	0	0	5	5	0	917	275436	1187	60	20
18:47:00	1	0	0	2742472	1036704	167	1159	30	2	2	0	0	0	5	5	0	935	274114	1229	61	19

CPU Starvation

18:52:00	0	0	0	2748888	1034312	147	987	4	2	2	0	0	0	5	4	0	880	286784	1075	59	18
18:57:00	1	0	0	2748032	1030448	165	1157	32	3	3	0	0	0	6	6	0	907	280692	1147	59	19
19:02:00	4	0	0	2738080	1039216	548	1576	2743	4	4	0	0	0	7	6	0	1405	212843	2529	65	21
19:07:00	7	0	0	2733416	1151944	1429	1151	10186	4	4	0	0	0	7	6	0	2187	96876	5214	77	23
19:12:00	10	0	0	2732608	1153568	1473	2179	9699	5	5	0	0	0	8	8	0	2151	89795	5182	75	25
19:17:00	10	0	0	2722360	1147832	1513	2245	9862	9	9	0	0	0	11	11	0	2160	83730	5336	75	25
19:22:00	9	0	0	2730056	1148808	1464	1814	9935	5	5	0	0	0	8	7	0	2116	92544	5170	76	24
19:27:00	8	0	0	2731376	1141912	1403	1438	9770	5	5	0	0	0	6	6	0	2285	95857	5080	76	24
19:32:00	8	0	0	2717440	1130088	1424	1427	9827	5	5	0	0	0	9	9	0	2319	94926	5237	76	24
19:37:00	8	0	0	2704192	1112440	1378	1105	9765	4	4	0	0	0	7	7	0	2294	93848	5311	77	23



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Interval Resource Profile

Response Time Component	Duration		# Calls	Duration Per Call		
				Avg	Min	Max
(i) SQL*Net message from client	10,113.70s	94.4%	2,526	4.003840s	0.00s	5,406.75s
(i) CPU service	301.10s	2.8%	92,112	0.003269s	0.00s	4.15s
(i) direct path write	240.24s	2.2%	14,564	0.016495s	0.00s	0.48s
(i) direct path read	73.67s	0.7%	21,101	0.003491s	0.00s	0.44s
(i) db file scattered read	11.58s	0.1%	55,762	0.000208s	0.00s	0.01s
(i) log file sync	2.02s	0.0%	128	0.015781s	0.00s	0.12s
(i) db file sequential read	1.50s	0.0%	29,856	0.000050s	0.00s	0.01s
(i) enqueue	0.46s	0.0%	33	0.013939s	0.00s	0.05s
(i) SQL*Net more data to client	0.26s	0.0%	2,143	0.000121s	0.00s	0.01s
(i) SQL*Net message to client	0.01s	0.0%	2,526	0.000004s	0.00s	0.01s
(i) direct path read (lob)	0.01s	0.0%	35	0.000286s	0.00s	0.01s
(i) SQL*Net more data from client	0.00s	0.0%	6	0.000000s	0.00s	0.00s
(i) file open	0.00s	0.0%	5	0.000000s	0.00s	0.00s
(i) unaccounted-for	-26.21s	-0.2%				
Total	10,718.34s	100.0%				

Contribution to Response Time Component by SQL Statement

(i) SQL*Net message from client

SQL Statement Id	Duration		# Calls	Duration Per Call		
				Avg	Min	Max
No Text For Cursor #0	9,517.18s	94.1%	792	12.016641s	0.00s	5,406.75s
1285052034	576.73s	5.7%	243	2.373374s	0.00s	12.26s
2798956608	9.50s	0.1%	230	0.041304s	0.00s	0.19s
781680320	4.90s	0.0%	480	0.010208s	0.00s	0.12s
4127361278	1.91s	0.0%	480	0.003979s	0.00s	0.33s

Web Server Cache

13 others	3.48s	0.0%	301	0.011561s	0.00s	0.21s
<hr/>						
Total	10,113.70s	100.0%	2,526	4.003840s	0.00s	5,406.75s



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Interval Resource Profile

Response Time Component	Duration		# Calls	Duration Per Call		
				Avg	Min	Max
(i) SQL*Net message from client	1,675.66s	43.1%	435,008	0.003852s	0.00s	29.29s
(i) CPU service	1,373.05s	35.3%	265,474	0.005172s	0.00s	0.35s
(i) unaccounted-for	355.13s	9.1%				
(i) log file sync	311.78s	8.0%	28,525	0.010930s	0.00s	1.03s
(i) db file scattered read	56.15s	1.4%	314,646	0.000178s	0.00s	0.06s
(i) db file sequential read	44.89s	1.2%	544,630	0.000082s	0.00s	0.15s
(i) latch free	36.41s	0.9%	41,206	0.000884s	0.00s	0.19s
(i) buffer busy waits	20.94s	0.5%	41,241	0.000508s	0.00s	0.12s
(i) library cache load lock	12.55s	0.3%	10	1.255000s	0.00s	3.08s
(i) enqueue	1.59s	0.0%	238	0.006681s	0.00s	0.17s
(i) SQL*Net message to client	1.22s	0.0%	435,008	0.000003s	0.00s	0.01s
(i) SQL*Net more data from client	0.30s	0.0%	3	0.100000s	0.09s	0.11s
(i) log file switch completion	0.27s	0.0%	3	0.090000s	0.05s	0.15s
(i) library cache pin	0.05s	0.0%	7	0.007143s	0.00s	0.03s
(i) file open	0.00s	0.0%	12	0.000000s	0.00s	0.00s
(i) buffer deadlock	0.00s	0.0%	5	0.000000s	0.00s	0.00s
Total	3,889.99s	100.0%				

Contribution to Response Time Component by SQL Statement

(i) SQL*Net message from client

SQL Statement Id	Duration		# Calls	Duration Per Call		
				Avg	Min	Max
2810939534	831.88s	49.6%	39,678	0.020966s	0.00s	1.49s
No Text For Cursor #0	394.97s	23.6%	26,456	0.014929s	0.00s	29.29s
398134605	84.74s	5.1%	66,130	0.001281s	0.00s	1.91s

Chatty Java

134245352	57.96s	3.5%	39,680	0.001461s	0.00s	1.52s
1743117204	56.34s	3.4%	52,904	0.001065s	0.00s	2.17s
18 others	249.77s	14.9%	210,160	0.001188s	0.00s	1.48s

Total	1,675.66s	100.0%	435,008	0.003852s	0.00s	29.29s

Trace File Contents

```
=====
PARSING IN CURSOR #1 len=36 dep=0 uid=19 oct=3 lid=19 tim=145005139 hv=398134605 ad='82390c54'
  SELECT
END OF STMT
PARSE #1:c=0,e=0,p=0,cr=0,cu=0,mis=0,r=0,dep=0,og=4,tim=145005139
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=0,cu=0,mis=0,r=0,dep=0,og=4,tim=145005139
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
FETCH #1:c=0,e=0,p=0,cr=1,cu=4,mis=0,r=1,dep=0,og=4,tim=145005139
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
STAT #1 id=1 cnt=1 pid=0 pos=0 obj=0 op='SEQUENCE '
STAT #1 id=2 cnt=1 pid=1 pos=1 obj=195 op='TABLE ACCESS FULL DUAL '
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 1 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=148 dep=0 uid=19 oct=2 lid=19 tim=145005140 hv=1743117204 ad='8236b79c'
  INSERT_1
END OF STMT
PARSE #1:c=1,e=0,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005140
BINDS #1:
EXEC #1:c=0,e=1,p=0,cr=3,cu=5,mis=0,r=1,dep=0,og=4,tim=145005141
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 3 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 pl=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=91 dep=0 uid=19 oct=2 lid=19 tim=145005144 hv=2810939534 ad='8236713c'
  INSERT_2
END OF STMT
PARSE #1:c=1,e=0,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005144
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=1,cu=1,mis=0,r=1,dep=0,og=4,tim=145005144
WAIT #1: nam='SQL*Net message to client' ela= 0 pl=675562835 p2=1 p3=0
```

Chatty Java

```
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 1 p1=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=160 dep=0 uid=19 oct=2 lid=19 tim=145005145 hv=2824216492 ad='823637d0'
  INSERT_3
END OF STMT
PARSE #1:c=0,e=0,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005145
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=1,cu=3,mis=0,r=1,dep=0,og=4,tim=145005145
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=311 dep=0 uid=19 oct=2 lid=19 tim=145005145 hv=3343157120 ad='82361210'
  INSERT_4
END OF STMT
PARSE #1:c=0,e=1,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005146
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=1,cu=3,mis=0,r=1,dep=0,og=4,tim=145005146
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=117 dep=0 uid=19 oct=2 lid=19 tim=145005146 hv=2023366123 ad='8235d904'
  INSERT_5
END OF STMT
PARSE #1:c=1,e=0,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005146
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=1,cu=1,mis=0,r=1,dep=0,og=4,tim=145005146
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 1 p1=675562835 p2=1 p3=0
XCTEND rlbk=0, rd_only=0
WAIT #0: nam='log file sync' ela= 0 p1=513 p2=0 p3=0
WAIT #0: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #0: nam='SQL*Net message from client' ela= 1 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
=====
PARSING IN CURSOR #1 len=118 dep=0 uid=19 oct=6 lid=19 tim=145005148 hv=134245352 ad='8235b674'
  UPDATE_1
END OF STMT
PARSE #1:c=1,e=0,p=0,cr=0,cu=0,mis=1,r=0,dep=0,og=4,tim=145005148
BINDS #1:
EXEC #1:c=0,e=0,p=0,cr=3,cu=7,mis=0,r=1,dep=0,og=4,tim=145005148
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
```

Chatty Java

```
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
STAT #1 id=1 cnt=1 pid=0 pos=0 obj=0 op='UPDATE XML_IN_LIST '
STAT #1 id=2 cnt=2 pid=1 pos=1 obj=46118 op='TABLE ACCESS FULL XML_IN_LIST '
WAIT #1: nam='SQL*Net message to client' ela= 0 p1=675562835 p2=1 p3=0
WAIT #1: nam='SQL*Net message from client' ela= 0 p1=675562835 p2=1 p3=0
XCTEND rlbk=0, rd_only=0
```