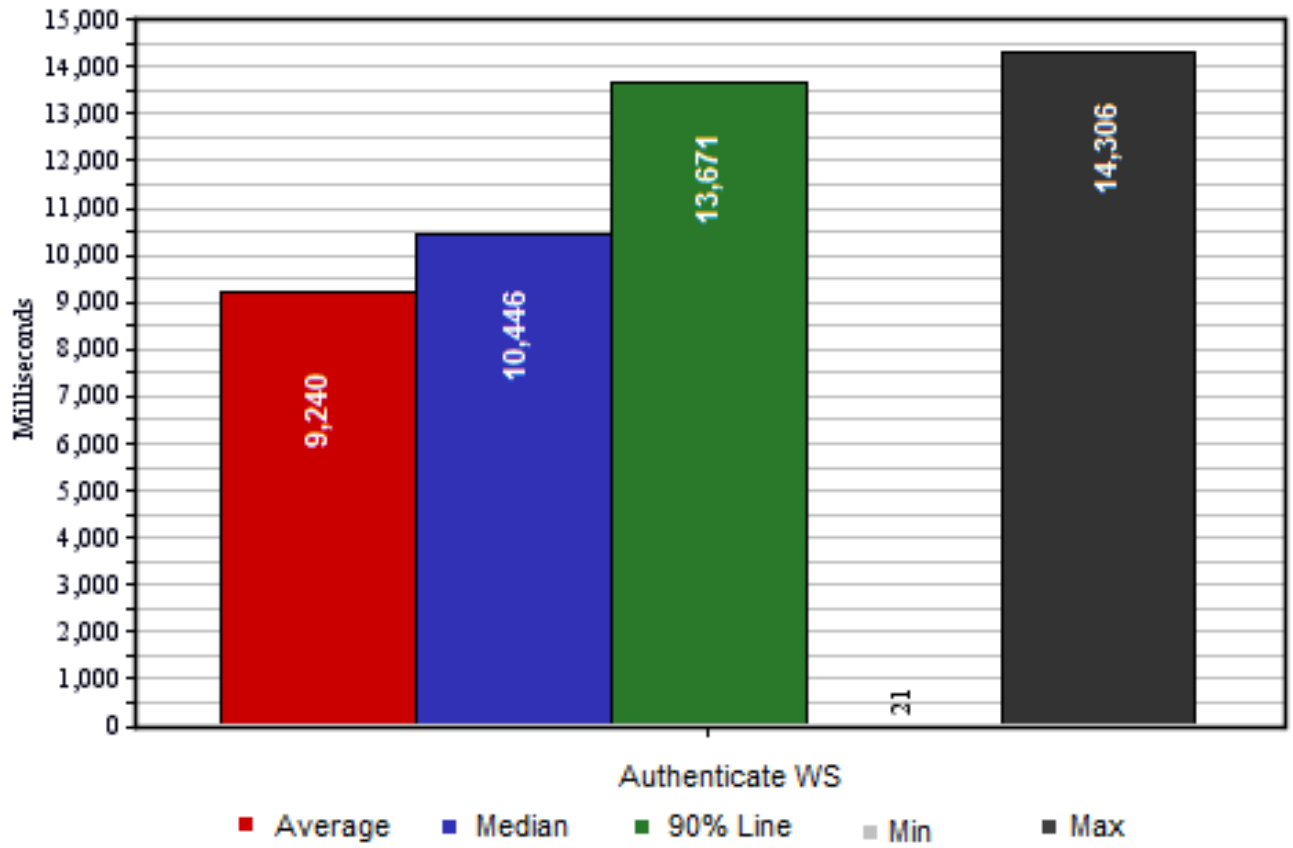
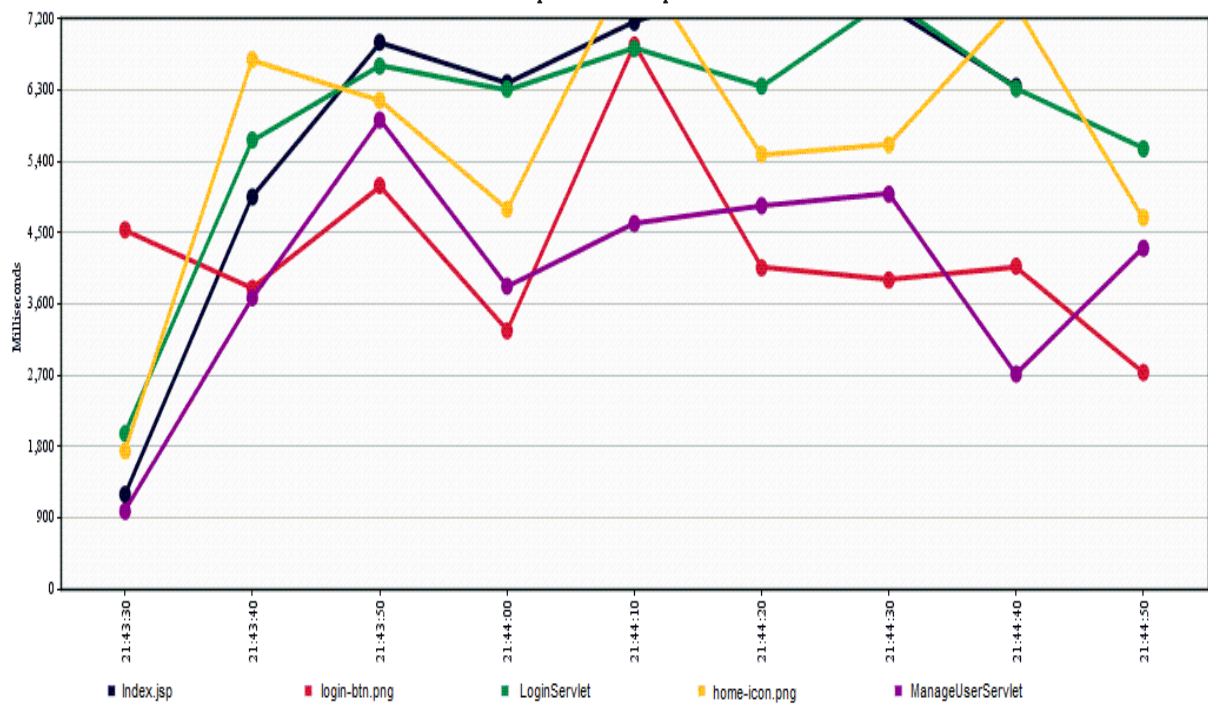


## Chapter 3

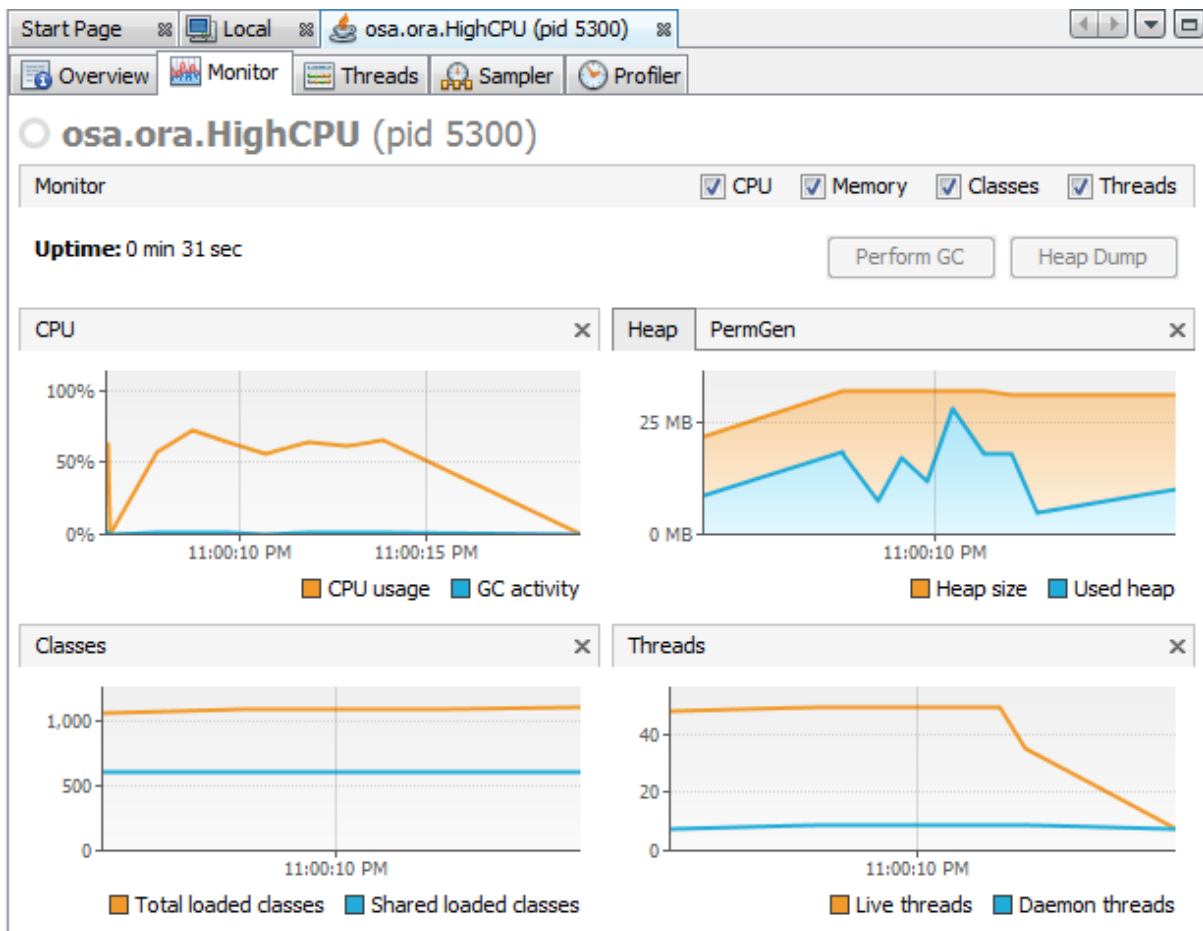
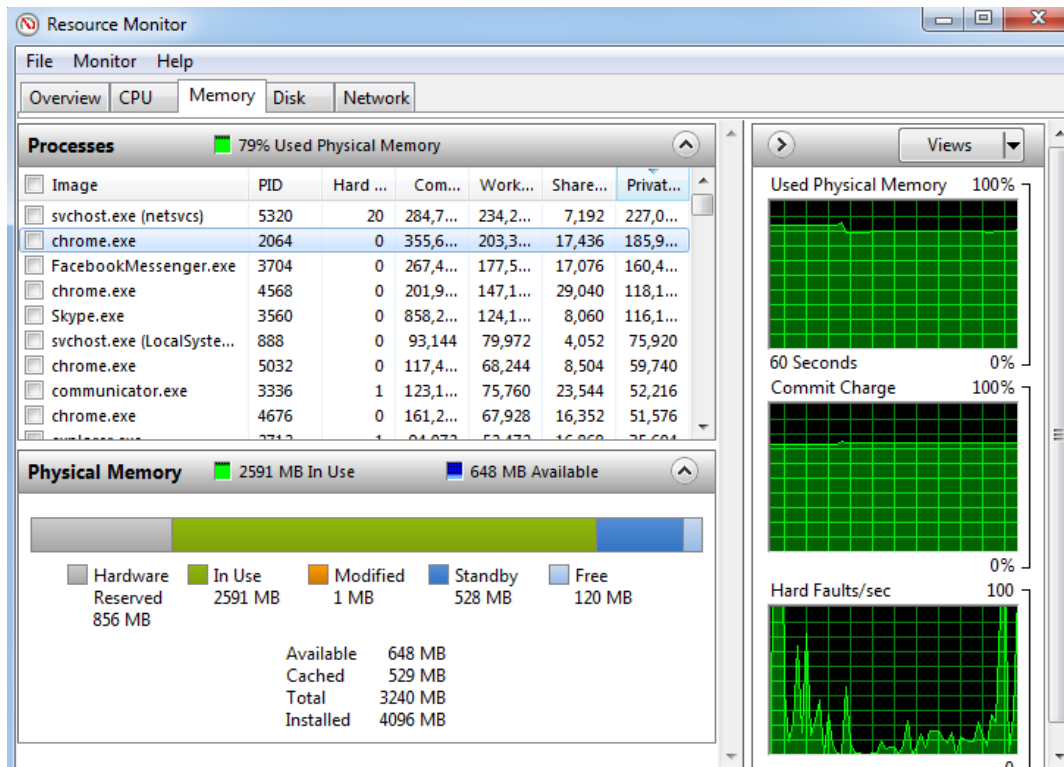
### Aggregate Graph

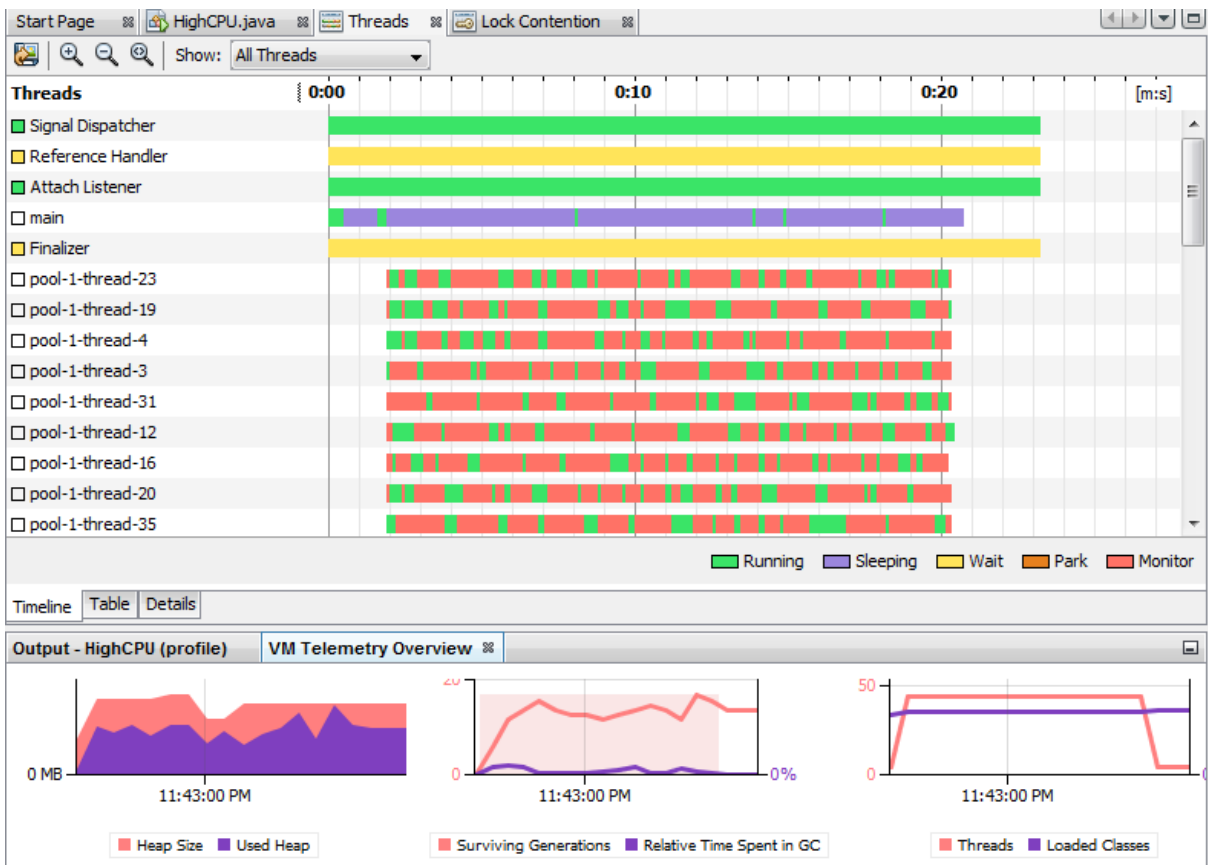
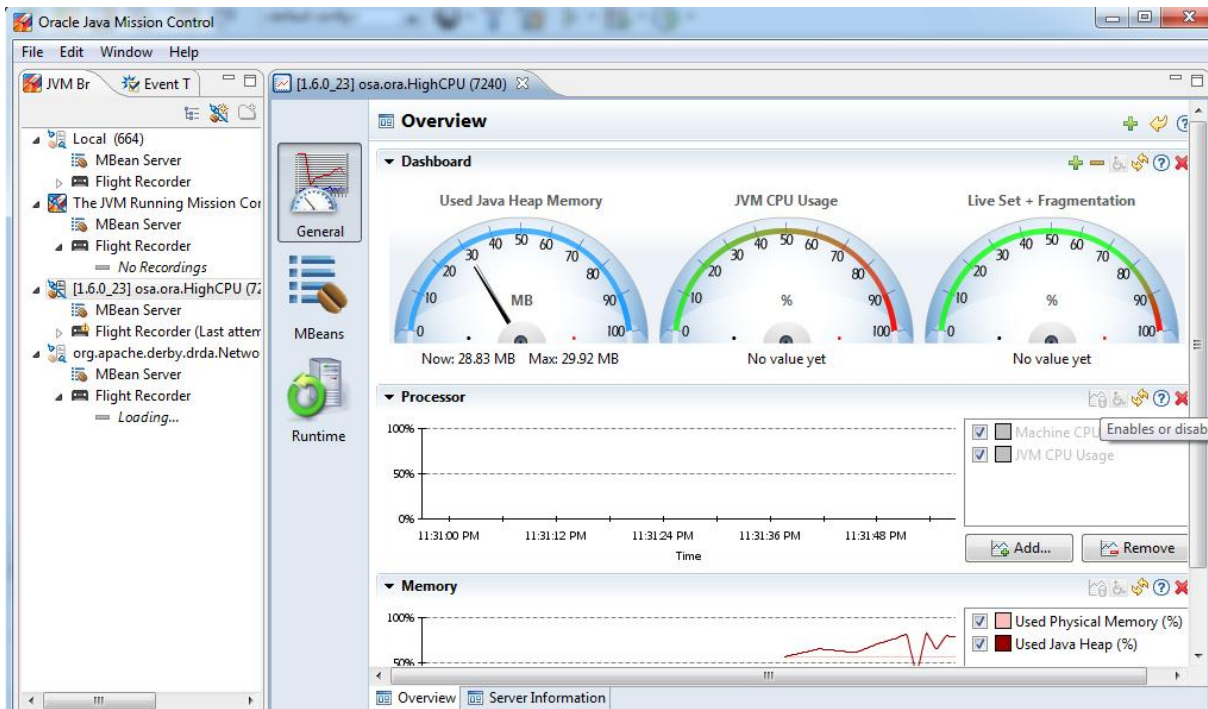


### Response Time Graph



# Chapter 4



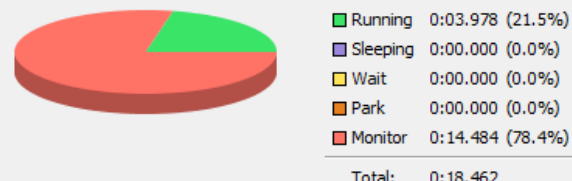


Locks and Threads	Time [%]	Time	Waits
<b>pool-1-thread-2</b>		18,982,567 ms (25.1%)	6
java.io. <b>PrintStream</b> (1e78fc6)		18,982,556 ms (25.1%)	5
java.lang.ref. <b>Reference\$Lock</b> (60991f)		11.4 ms (0%)	1
<b>pool-1-thread-3</b>		5,196,125 ms (6.9%)	10
java.io. <b>PrintStream</b> (1e78fc6)		5,168,033 ms (6.8%)	9
java.lang.ref. <b>Reference\$Lock</b> (60991f)		28,092 ms (0%)	1
<b>pool-1-thread-39</b>		3,169,952 ms (4.2%)	5
java.io. <b>PrintStream</b> (1e78fc6)		3,169,952 ms (4.2%)	5
<b>pool-1-thread-15</b>		2,990,584 ms (4%)	4
java.io. <b>PrintStream</b> (1e78fc6)		2,990,584 ms (4%)	4
<b>pool-1-thread-10</b>		2,891,710 ms (3.8%)	5
java.io. <b>PrintStream</b> (1e78fc6)		2,891,710 ms (3.8%)	5
<b>pool-1-thread-9</b>		2,833,022 ms (3.7%)	4

**pool-1-thread-3** [java.lang.Thread] (finished) Hide

**User thread**

General Details



Running 0:03.978 (21.5%)  
Sleeping 0:00.000 (0.0%)  
Wait 0:00.000 (0.0%)  
Park 0:00.000 (0.0%)  
Monitor 0:14.484 (78.4%)  
 Total: 0:18.462

00 0:05 0:10 0:15 [m:s]

Timeline Table Details

Class Name - Live Allocated Objects	Live Bytes ...	Live Bytes	Live Objects	Allocated Ob...	Avg. Age	Generations
java.util. <b>Random</b>		6,265... (40.9%)	261,0... (49.6%)	15,937,406	2.0	5
<b>int[]</b>		4,800... (31.4%)	6 (0%)	72	6.3	6
java.util.concurrent.atomic. <b>AtomicLong</b>		4,233... (27.7%)	264,5... (50.3%)	15,909,058	2.0	5
java.util.concurrent. <b>LinkedBlockingQueue\$...</b>		576 B (0%)	36 (0%)	98	138.0	1
java.lang. <b>Thread</b>		448 B (0%)	4 (0%)	4	141.8	3
<b>char[]</b>		384 B (0%)	8 (0%)	24	142.1	3
osa.ora. <b>MyThread</b>		336 B (0%)	42 (0%)	104	138.0	1
java.nio. <b>HeapCharBuffer</b>		288 B (0%)	6 (0%)	268	2.2	2
java.util.concurrent. <b>ThreadPoolExecutor\$W...</b>		160 B (0%)	5 (0%)	5	141.0	4
java.util. <b>HashMap\$Entry</b>		144 B (0%)	6 (0%)	6	141.5	3
java.util. <b>HashMap\$Entry[]</b>		144 B (0%)	1 (0%)	1	143.0	1
java.security. <b>AccessControlContext</b>		120 B (0%)	5 (0%)	5	141.4	4
java.util.concurrent.locks. <b>ReentrantLock\$No...</b>		120 B (0%)	5 (0%)	5	141.0	4
java.util.concurrent.locks. <b>ReentrantLock</b>		80 B (0%)	5 (0%)	5	141.4	4
java.security. <b>ProtectionDomain[]</b>		80 B (0%)	5 (0%)	5	140.6	4
java.util.concurrent. <b>ThreadPoolExecutor</b>		72 B (0%)	1 (0%)	1	143.0	1

Class Name Filter (Contains)

Memory Results Allocation Stack Traces Info

Start Page HighCPU.java Live Results cpu: 11:08:27 AM \* PrintStream.java

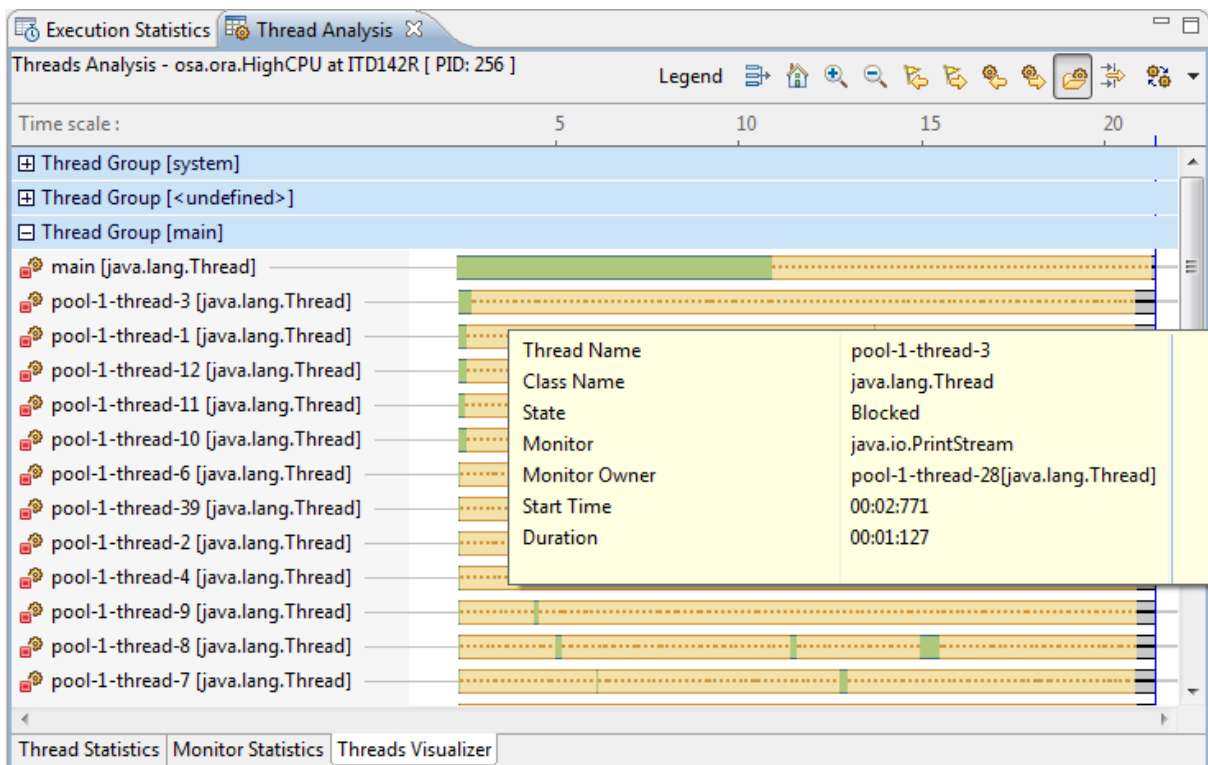
View: Methods <All Threads>

Hot Spots - Method

Method	Self Time [%]	Self Time	Self Time (CPU)	Total Time	Total Time (CPU)
java.io.PrintStream.println (String)	71.8%	572,797 ms	6,722 ms	572,797 ms	6,722 ms
osa.ora.MyThread.run ()	7.9%	62,902 ms	44,724 ms	777,344 ms	185,394 ms
java.util.Random.nextInt (int)	7.6%	60,232 ms	60,232 ms	60,232 ms	60,232 ms
java.util.Arrays.sort (int[])	6.8%	54,513 ms	54,513 ms	54,513 ms	54,513 ms
java.util.Random.<init> ()	3.4%	26,714 ms	19,201 ms	26,714 ms	19,201 ms
java.lang.Thread.sleep (long)	2.4%	19,466 ms	0.000 ms	19,466 ms	0.000 ms
java.util.concurrent.ThreadPoolExecutor.shutdown ()	0%	287 ms	121 ms	287 ms	121 ms
java.util.concurrent.ThreadPoolExecutor.execute (Runnable)	0%	254 ms	254 ms	254 ms	254 ms
org.netbeans.lib.profiler.server.ProfilerRuntime.monitorEntry (Thread, ...)	0%	184 ms	0.000 ms	184 ms	0.000 ms
java.lang.ClassLoader.loadClass (String)	0%	39.8 ms	39.8 ms	39.8 ms	39.8 ms
java.util.concurrent.Executors.newFixedThreadPool (int)	0%	20.0 ms	20.0 ms	20.0 ms	20.0 ms
java.util.concurrent.ThreadPoolExecutor\$Worker.run ()	0%	0.000 ms	0.000 ms	777,344 ms	185,394 ms
java.lang.Thread.run ()	0%	0.000 ms	0.000 ms	777,344 ms	185,394 ms
java.util.concurrent.ThreadPoolExecutor\$Worker.runTask (Runnable)	0%	0.000 ms	0.000 ms	777,344 ms	185,394 ms
osa.ora.HighCPU.main (String[])	0%	0.000 ms	0.000 ms	20,067 ms	435 ms

Method Name Filter (Contains)

Call Tree Hot Spots Combined Info



Start Center Attach Save Snapshot Session Settings Start Recordings Stop Recordings Start Tracking Run GC Add Bookmark Export View Settings Help Record CPU Back Forward Show Graph

Session Profiling View specific

Live memory Heap walker CPU views

Call Tree Hot Spots Call Graph Method Statistics Call Tracer Threads Monitors & locks

Thread selection: All thread groups Thread status: Runnable

Aggregation level: Methods View mode: Tree

- 49.0% - 13,090 ms URL: /ExampleOne/LoginServlet
- 49.0% - 13,069 ms osa.ora.servlet.LoginServlet.doPost
- 49.0% - 13,069 ms osa.ora.servlet.LoginServlet.processRequest
- 22.0% - 5,864 ms osa.ora.helper.\_EJB31\_Generated\_\_DataHelperSessionBean\_\_Intf\_\_Bean\_\_authenticateUserObject
- 22.0% - 5,864 ms com.sun.proxy.\$Proxy158.authenticateUserObject
- 18.4% - 4,914 ms osa.ora.helper.DataHelperSessionBean.authenticateUserObject
- 11.2% - 2,994 ms org.eclipse.persistence.internal.jpa.QueryImpl.getResultList
- 6.8% - 1,827 ms com.sun.enterprise.container.common.impl.EntityManagerWrapper.createQuery
- 0.3% - 71,177 μs java.lang.Thread.sleep
- 0.1% - 14,138 μs org.eclipse.persistence.internal.jpa.EJBQueryImpl.setParameter
- 0.0% - 4,994 μs osa.ora.entities.Account.\_persistence\_getPropertyChangeListener
- 16.8% - 4,471 ms org.apache.catalina.core.ApplicationDispatcher.forward
- 9.7% - 2,583 ms osa.ora.helper.\_EJB31\_Generated\_\_DataHelperSessionBean\_\_Intf\_\_Bean\_\_loadAllUserRoles
- 0.3% - 80,706 μs org.apache.catalina.connector.RequestFacade.getRequestDispatcher
- 0.2% - 58,917 μs org.apache.catalina.session.StandardSessionFacade.setAttribute
- 21.7% - 5,791 ms java.lang.Thread.run
- 2.2% - 595 ms osa.ora.servlet.LoginServlet.doPost
- 0.4% - 114 ms /index.jsp [org.apache.jsp.index\_jsp]
- 0.3% - 87,998 μs osa.ora.servlet.ManageUserServlet.doPost
- 15.6% - 4,170 ms URL: /ExampleOne/ManageUserServlet
- 9.5% - 2,529 ms direct calls to methods of filtered classes
- 4.2% - 1,112 ms URL: /ExampleOne/index.jsp

View Filters: Reset View Filters

0 active recordings VM #1 02:07 Detached

Threads Monitors & locks Telemetries Databases JDBC

Time Line Connections Hot Spots Telemetries Evt JDBC connections and execution of statements

Thread selection: All thread groups Thread status: All states

Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
UPDATE account SET roleId = ? WHERE (id = ?)	319 ms (46 %)	3,467 μs	92
SELECT id, active, password, username, roleId FROM account W...	227 ms (33 %)	1,088 μs	209
SELECT id, role_name FROM user_role	139 ms (20 %)	1,075 μs	130

## Chapter 5

HighCPU.java Lock Contention Threads

Show: All Threads

Threads

pool-1-thread-38  
pool-1-thread-9  
pool-1-thread-24  
pool-1-thread-3  
main  
pool-1-thread-49  
pool-1-thread-28  
pool-1-thread-27  
Reference Handler  
pool-1-thread-42  
pool-1-thread-45  
pool-1-thread-34

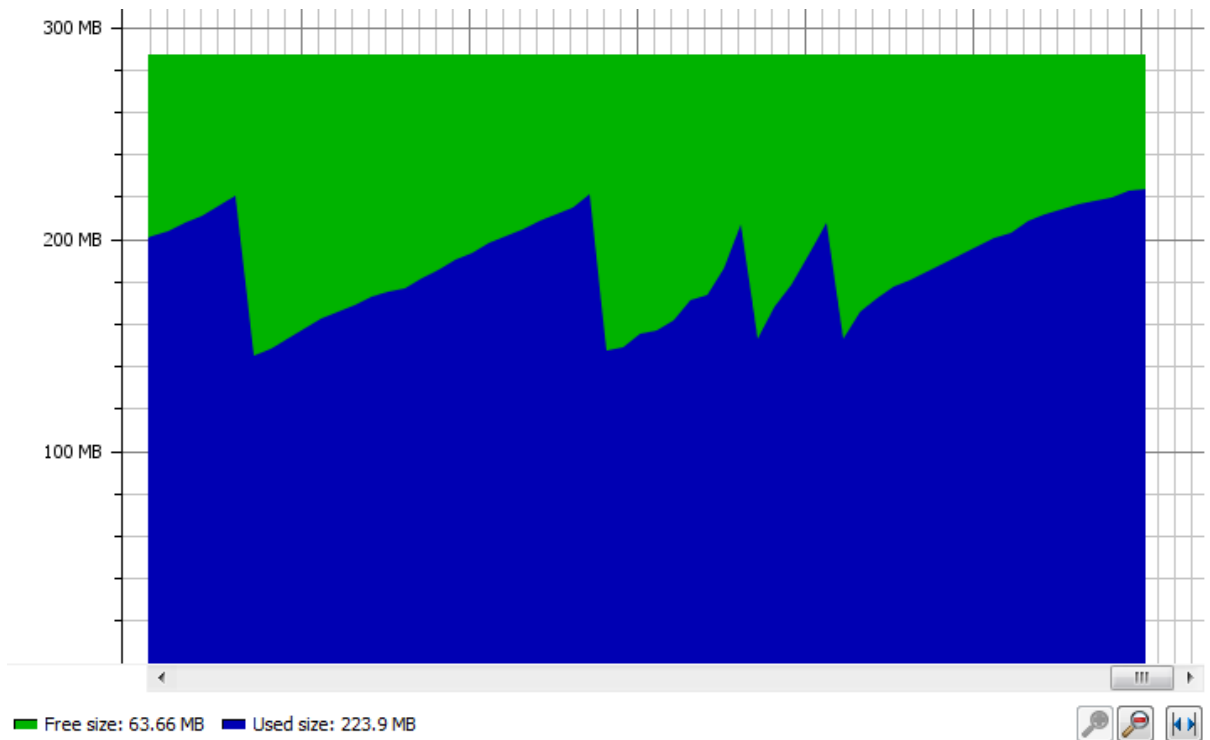
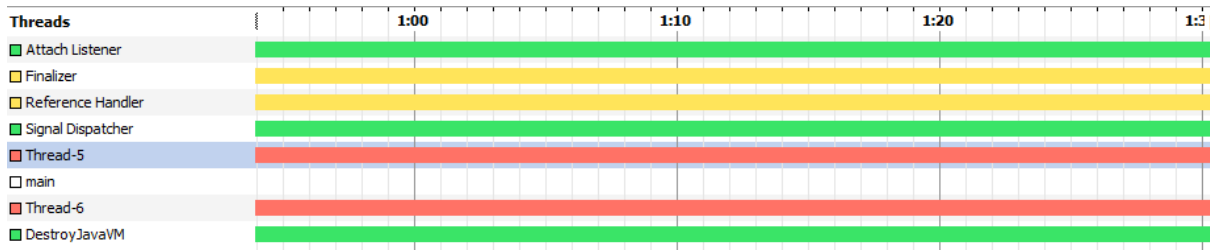
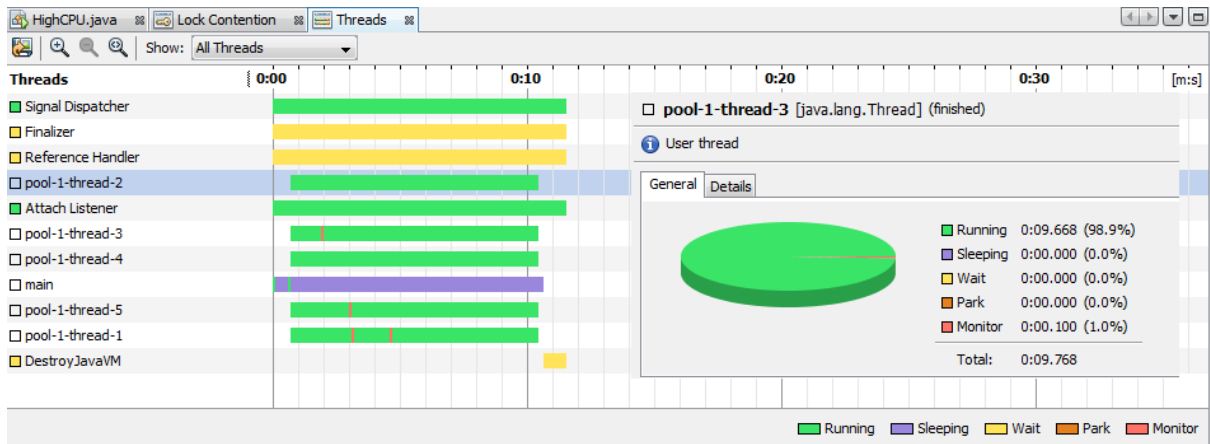
pool-1-thread-3 [java.lang.Thread] (finished)

User thread

General Details

State	Time	Percentage
Running	0:02.202	(23.4%)
Sleeping	0:00.000	(0.0%)
Wait	0:00.000	(0.0%)
Park	0:00.100	(1.0%)
Monitor	0:07.080	(75.4%)
<b>Total</b>	<b>0:09.382</b>	

Running Sleeping Wait Park Monitor





Thread selection: All thread groups

Thread status: All states

Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
UPDATE product_stock SET stock_size = ? WHERE (id = ?)	449 s (89 %)	42,980 µs	10,465
SELECT id, name, parent_category FROM category	36,302 ms (7 %)	2,027 µs	17,905
SELECT id, stock_size, product_id FROM product_stock	18,905 ms (3 %)	1,806 µs	10,465
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id}) */...	140 ms (0 %)	10,797 µs	13
SELECT id, active, description, image, name, price, shipping_days...	111 ms (0 %)	22,281 µs	5
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id}) */...	18,425 µs (0 %)	1,417 µs	13
SHOW COLLATION	12,115 µs (0 %)	931 µs	13
SELECT id, active, description, image, name, price, shipping_days...	3,684 µs (0 %)	736 µs	5
SELECT id, comment, date, name, stars, product_id FROM produ...	2,321 µs (0 %)	386 µs	6
SELECT id, active, description, image, name, price, shipping_days...	2,216 µs (0 %)	2,216 µs	1

localhost:8080/ExampleTwo/Browse?Continue=

Product Categories

All

Price All

Search

Refresh



(0)

Smart Mobile 1234



(4)

Mobile 3237



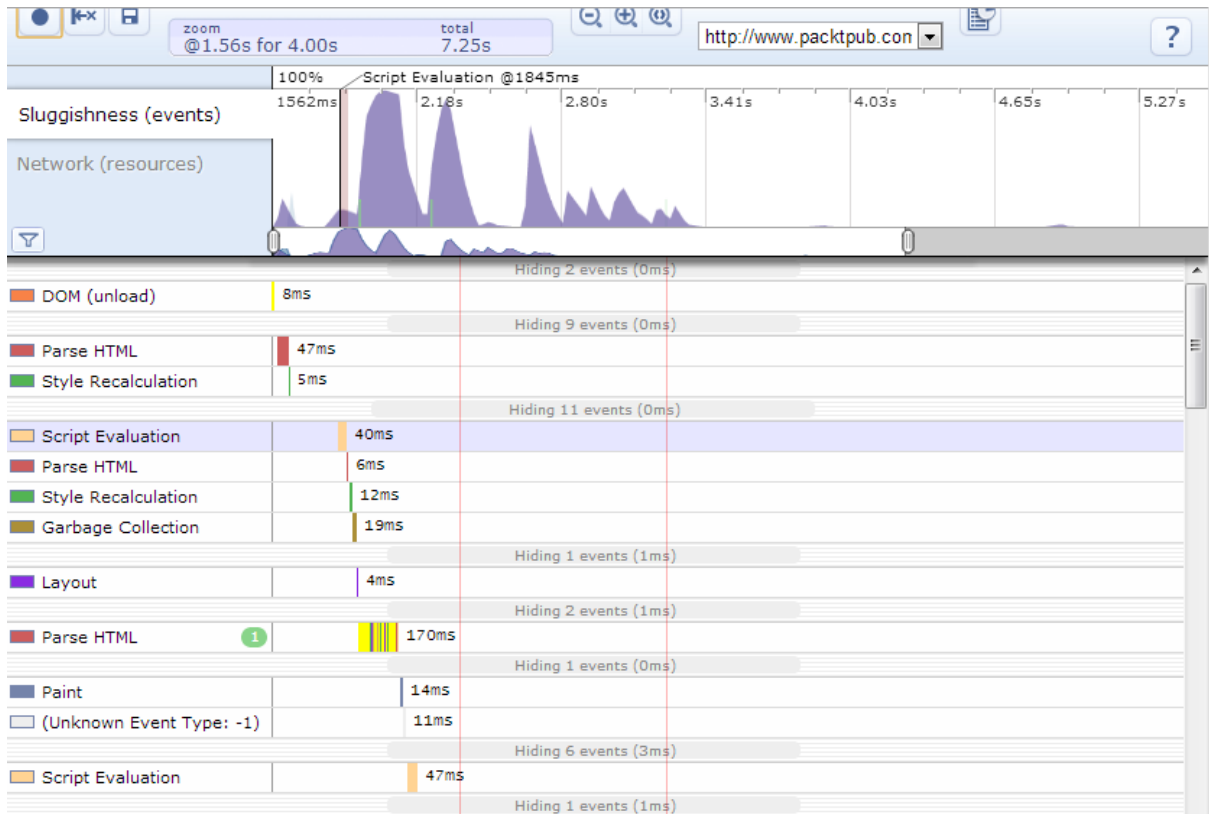
(0)

Elements Resources Network Sources Timeline Profiles Audits Console

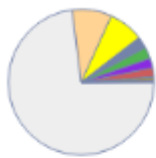
Name Path	Meth...	Status Text	Type	Initiator	Size Conten	Time Latency	Timeline
Browse?Continue=/ExampleTwo	GET	200 OK	text/...	Other	8.3 KB	459 ms	400 ms
ajax_call.js /ExampleTwo/js	GET	304 Not Mo	text/j...	Browse:13 Parser	0 B	144 ms	600 ms
4stars.png /ExampleTwo/images	GET	304 Not Mo	imag...	Browse:80 Parser	0 B	79 ms	
2stars.png /ExampleTwo/images	GET	304 Not Mo	imag...	Browse:129 Parser	0 B	149 ms	
5stars.png /ExampleTwo/images	GET	304 Not Mo	imag...	Browse:150 Parser	0 B	165 ms	
0stars.png /ExampleTwo/images	GET	304 Not Mo	imag...	Browse:94 Parser	0 B	72 ms	

All Documents Stylesheets Images Scripts XHR Fonts WebSockets Other





## Summary Report for Selection: 1562ms - 5.56s (4.00s)



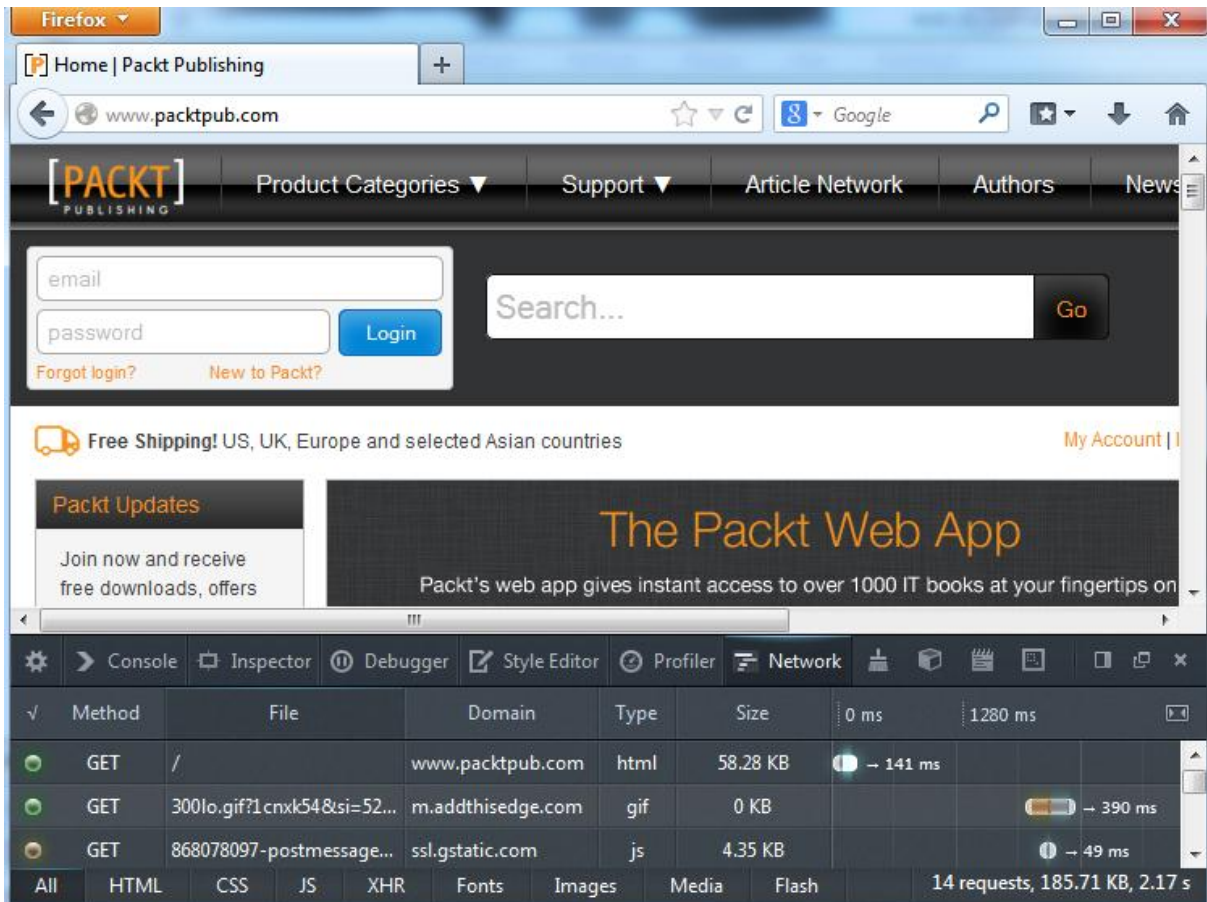
- 73.0% UI Thread Available (2.89s)
- 8.8% Script Evaluation (348ms)
- 7.8% JavaScript Callback (307ms)
- 2.6% Paint (102ms)
- 2.6% Style Recalculation (102ms)
- 2.1% Layout (83ms)
- 2.0% Parse HTML (78ms)
- 0.8% Garbage Collection (31ms)
- 0.2% Resource Data Received (6ms)
- 0.1% Timer Fire (4ms)
- 0.1% XMLHttpRequest (4ms)
- 0.1% Dom Event (2ms)

## Hints

All Rule **Severity**

3 Info

Time ▼	RuleName	Description
1932ms	Long Duration Events	Event lasted: 170ms. Exceeded threshold: 100ms
2.24s	Long Duration Events	Event lasted: 118ms. Exceeded threshold: 100ms
3.24s	Uncompressed Resource	URL <a href="https://ssl.gstatic.com/accounts/o/1088796616-postmessengerelay.js">https://ssl.gstatic.com/accounts/o/1088796616-postmessengerelay.js</a> was not compressed with gzip or bzip2



## Chapter 6

Start Page | Live Results | cpu: 11:26:58 PM \*

Hot Spots - Method | Take Snapshot of Collected Results (Ctrl+F2)

Method	Self Time [%]	Self Time	Self Time (CPU)	Total Time	Total Time (CPU)
osa.ora.servlets.BrowseServlet. <b>processRequest</b> (javax.servlet.http.Http...	39.1%	905 ms	442 ms	1,941 ms	1,283 ms
osa.ora.dao.ProductCatalogSessionBean. <b>loadAllActiveProductCatalog</b> ()	35.2%	813 ms	657 ms	813 ms	657 ms
osa.ora.dao.ProductCatalogSessionBean. <b>loadAllActiveCategories</b> ()	5.5%	126 ms	126 ms	126 ms	126 ms
osa.ora.dao.CommonDAO. <b>&lt;init&gt;</b> ()	4.5%	103 ms	103 ms	103 ms	103 ms
org.apache.jsp.home_jsp. <b>_jspService</b> (javax.servlet.http.HttpServletRe...	3.9%	90.9 ms	61.0 ms	90.9 ms	61.0 ms
org.apache.jsp.index_jsp. <b>_jspService</b> (javax.servlet.http.HttpServletRe...	3.9%	89.8 ms	89.8 ms	89.8 ms	89.8 ms
org.apache.jsp.specs_jsp. <b>_jspService</b> (javax.servlet.http.HttpServletRe...	1.7%	40.0 ms	40.0 ms	79.8 ms	79.8 ms
osa.ora.jpa.ProductSpecifications. <b>_persistence_get_specifications</b> ()	1.7%	39.8 ms	39.8 ms	39.8 ms	39.8 ms
osa.ora.dao.ProductCatalogSessionBean. <b>loadAllActiveProductCatalogBy</b>	1.4%	32.7 ms	32.7 ms	32.7 ms	32.7 ms
org.apache.jsp.index_jsp. <b>&lt;clinit&gt;</b>	1.3%	30.1 ms	30.1 ms	30.1 ms	30.1 ms

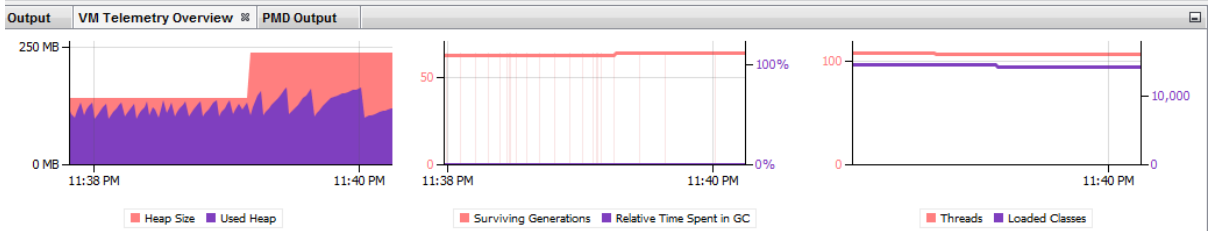
Method Name Filter (Contains)

Start Page | Live Results

Hot Spots - Method

Method	Self Time [%]	Self Time	Self Time (CPU)	Total Time	Total Time (CPU)
osa.ora.dao._EJB31_Generated_ProductCatalogSessionBean__Intf__Bean__updateStock (osa.ora.jpa.ProductStock, ...)	53.2%	1,103,033 ms	816,033 ms	1,351,057 ms	818,292 ms
osa.ora.dao.ProductCatalogSessionBean.loadAllStocks ()	30.9%	641,300 ms	21,111 ms	641,531 ms	21,268 ms
osa.ora.dao.ProductCatalogSessionBean.updateStock (osa.ora.jpa.ProductStock, int)	11.9%	247,000 ms	1,906 ms	247,347 ms	2,183 ms
osa.ora.dao.ProductCatalogSessionBean.loadAllActiveCategories ()	1.8%	38,200 ms	36,477 ms	38,382 ms	36,658 ms
osa.ora.servlets.BrowseServlet.processRequest (javax.servlet.http.HttpServletRequest, javax.servlet.http.HttpServletRe...)	1.1%	22,950 ms	17,277 ms	74,461 ms	64,306 ms
osa.ora.cache._EJB31_Generated_CacheSessionBean__Intf__Bean__getFromCache (osa.ora.beans.SearchCriteria)	0.3%	5,488 ms	3,063 ms	5,548 ms	3,123 ms

Method Name Filter (Contains)



Start Page | Live Results | cpu: 11:40:23 PM \*

View: Methods

Call Tree - Method

Method	Total Time [%]	Total Time	Total Time (CPU)
http-listener-1(3)		415,475 ms (100%)	182,533 ms
http-listener-1(4)		415,351 ms (100%)	183,307 ms
http-listener-1(2)		414,433 ms (100%)	180,647 ms
http-listener-1(1)		413,884 ms (100%)	183,676 ms

Method Name Filter (Contains)

Hot Spots - Method

Method	Self Time [%]	Self Time	Self Time (CPU)	Total Time	Total Time (C...
com.sun.proxy.\$Proxy304.updateStock (osa.ora.jpa.ProductStock, int)	53.6%	221,845 ms	165,431 ms	269,835 ms	165,884 ms
org.eclipse.persistence.internal.jpa.QueryImpl.getResultList ()	32.8%	135,727 ms	10,895 ms	135,789 ms	10,958 ms
com.sun.enterprise.container.common.impl.EntityManagerWrapper.find...	11.6%	47,841 ms	314 ms	47,862 ms	336 ms
org.apache.catalina.core.ApplicationDispatcher.forward (javax.servlet...)	0.8%	3,355 ms	2,822 ms	4,237 ms	3,704 ms

Method Name Filter (Contains)

Call Tree | Hot Spots | Combined | Info

recording.jfr

### Call Tree

Events
  Operative Set
 Interval: 9 s 776 ms (all)
  Synchronize Selection

5/2/14 12:52:17 PM ← ↻ ↻ ↻ → 5/2/14 12:52:27 PM

#### Method Profiler

Stack Trace	Sample C...	Percentage
java.lang.Thread.run()	1,005	99.90%
java.util.concurrent.ThreadPoolExecutor\$Worker.run()	1,005	99.90%
java.util.concurrent.ThreadPoolExecutor.runWorker()	1,005	99.90%
osa.ora.MyThread.run()	1,004	99.80%
java.util.Arrays.sort(int[])	775	77.04%
java.util.Random.nextInt(int)	98	9.74%
java.util.concurrent.ThreadLocalRandom.current()	88	8.75%
java.io.PrintStream.println(String)	7	0.70%
java.util.concurrent.ThreadPoolExecutor.runWorker()	1	0.10%
osa.ora.HighCPU.main(String[])	1	0.10%

Overview
  Hot Methods
  Call Tree
  Exceptions
  Compilations
 >> 1

View: Methods

#### Call Tree - Method

Method	Total Time [%]	Total Time	Invocations
pool-1-thread-5		11,058 ms (100%)	1
pool-1-thread-4		11,189 ms (100%)	1
pool-1-thread-3		11,092 ms (100%)	1
pool-1-thread-2		11,215 ms (100%)	1
pool-1-thread-1		11,018 ms (100%)	1
main		25.9 ms (100%)	1

Method Name Filter (Contains)

#### Hot Spots - Method

Method	Self Time [%]	Self Time	Total Time	Invocations
osa.ora.HighCPU.main (String[])		21.5 ms (82.9%)	25.9 ms	1
osa.ora.MyThread.<init> ()		4.44 ms (17.1%)	4.44 ms	1,000

Method Name Filter (Contains)

Call Tree
  Hot Spots
  Combined
  Info

#### Hot Spots - Method

Method	Self Time [%]	Self Time	Self Time (CPU)	Total Time	Total Time (CPU)
java.util.Arrays.sort (int[])		38,146 ms (57.3%)	38,146 ms	38,146 ms	38,146 ms
java.lang.Thread.sleep (long)		11,272 ms (16.9%)	0.000 ms	11,272 ms	0.000 ms
java.util.Random.nextInt (int)		8,293 ms (12.5%)	8,293 ms	8,293 ms	8,293 ms
java.util.concurrent.ThreadLocalRandom.current ()		5,967 ms (9%)	5,967 ms	5,967 ms	5,967 ms
osa.ora.MyThread.run ()		2,152 ms (3.2%)	2,152 ms	55,238 ms	54,792 ms

Method Name Filter (Contains)

Call Tree
  Hot Spots
  Combined
  Info

Live memory  
Heap walker  
CPU views  
Call Tree  
Hot Spots  
Call Graph

Thread selection: All thread groups Thread status: Runnable  
Aggregation level: Methods View mode: Tree

- 100.0% - 160 s - 5 inv. java.util.concurrent.ThreadPoolExecutor\$Worker.run
- 99.7% - 159 s - 1,000 inv. osa.ora.MyThread.run
- 19.9% - 31,908 ms - 1,000 inv. java.util.Arrays.sort
- 18.9% - 30,356 ms - 200,000,000 inv. java.util.concurrent.ThreadLocalRandom.current
- 18.8% - 30,214 ms - 200,000,000 inv. java.util.concurrent.ThreadLocalRandom.nextInt
- 0.2% - 331 ms - 2,000 inv. java.io.PrintStream.println
- 0.0% - 35,215 μs - 1 inv. osa.ora.HighCPU.main

View Filters: Reset View Filters

2 overhead hot spots 4 active recordings Auto-update 5 s VM #2 02:26 Profiling

Live memory  
Heap walker  
CPU views  
Call Tree  
Hot Spots  
Call Graph  
Method Statistics  
Call Tracer  
Threads

Thread selection: All thread groups Thread status: All states  
Aggregation level: Methods Filtered classes: Show separately

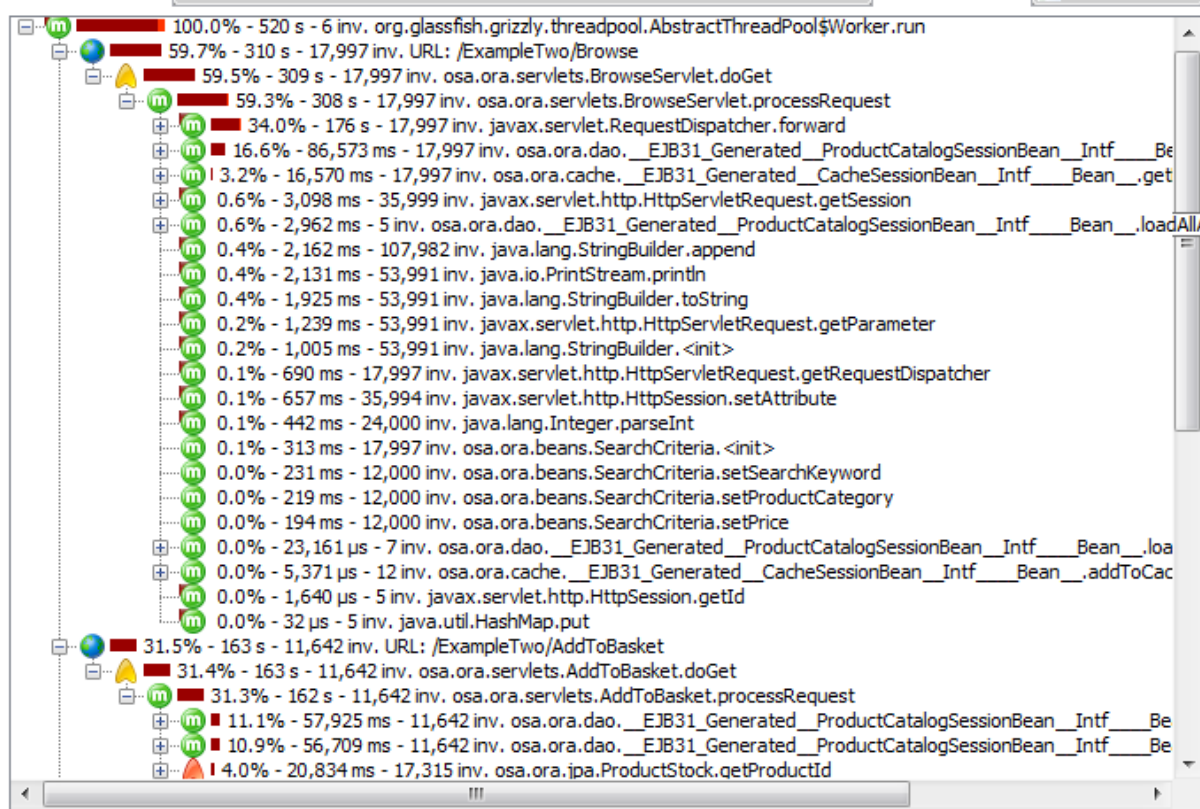
Hot spot	Inherent time	Average Ti...	Invocations
java.lang.Thread.sleep	74,145 ms (31%)	545 ms	136
osa.ora.MyThread.run	66,990 ms (28%)	66,990 μs	1,000
java.util.concurrent.ThreadPoolExecutor\$Worker.run	28.6% - 66,990 ms - 1,000 hot spot inv.		
java.util.Arrays.sort	31,908 ms (13%)	31,908 μs	1,000
osa.ora.MyThread.run	13.6% - 31,908 ms - 1,000 hot spot inv.		
java.util.concurrent.ThreadPoolExecutor\$Worker.run	13.6% - 31,908 ms - 1,000 hot spot inv.		
java.util.concurrent.ThreadLocalRandom.current	30,356 ms (12%)	0 μs	200,000,000
java.util.concurrent.ThreadLocalRandom.nextInt	30,214 ms (12%)	0 μs	200,000,000
java.util.concurrent.ThreadPoolExecutor\$Worker.run	562 ms (0%)	112 ms	5
java.io.PrintStream.println	416 ms (0%)	208 μs	2,001
osa.ora.HighCPU.main	11,988 μs (0%)	11,988 μs	1
java.util.concurrent.Executors.newFixedThreadPool	8,719 μs (0%)	8,719 μs	1
java.util.concurrent.ExecutorService.execute	6,404 μs (0%)	6 μs	1,000
osa.ora.MyThread.<init>	4,261 μs (0%)	4 μs	1,000
java.util.concurrent.ExecutorService.shutdown	3,676 μs (0%)	27 μs	136
java.util.Date.<init>	18 μs (0%)	9 μs	2
java.lang.StringBuilder.append(long)	15 μs (0%)	15 μs	1
java.util.concurrent.ExecutorService.isTerminated	14 μs (0%)	0 μs	137

View Filters: Reset View Filters

2 overhead hot spots 4 active recordings Auto-update 5 s VM #2 07:52 Profiling



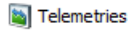
Thread selection: All thread groups Thread status: Runnable  
 Aggregation level: Methods View mode: Tree



Time Line Connections **Hot Spots** Telemetries JDBC  
 JDBC connections and execution of statements

Thread selection: All thread groups Thread status: All states  
 Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
UPDATE product_stock SET stock_size = ? WHERE (id = ?)	418 s (87 %)	35,922 µs	11,642
osa.ora.dao.__EJB31_Generated_ProductCatalogSessionBean_Intf__Bean...	87.4% - 418 s - 11,642 hot spot inv.		
osa.ora.servlets.AddToBasket.processRequest	87.4% - 418 s - 11,642 hot spot inv.		
osa.ora.servlets.AddToBasket.doGet	87.4% - 418 s - 11,642 hot spot inv.		
org.glassfish.grizzly.threadpool.AbstractThreadPool\$Worker.run	87.4% - 418 s - 11,642 hot spot inv.		
SELECT id, name, parent_category FROM category	40,718 ms (8 %)	2,262 µs	17,997
javax.persistence.Query.getResultList	8.5% - 40,718 ms - 17,997 hot spot inv.		
osa.ora.dao.ProductCatalogSessionBean.loadAllActiveCategories	8.5% - 40,718 ms - 17,997 hot spot inv.		
com.sun.proxy.\$Proxy247.loadAllActiveCategories	8.5% - 40,718 ms - 17,997 hot spot inv.		
osa.ora.dao.__EJB31_Generated_ProductCatalogSessionBean_Intf__	8.5% - 40,718 ms - 17,997 hot spot inv.		
osa.ora.servlets.BrowseServlet.processRequest	8.5% - 40,718 ms - 17,997 hot spot inv.		
osa.ora.servlets.BrowseServlet.doGet	8.5% - 40,718 ms - 17,997 hot spot inv.		
URL: /ExampleTwo/Browse	8.5% - 40,718 ms - 17,997 hot spot inv.		
org.glassfish.grizzly.threadpool.AbstractThreadPool\$Work	8.5% - 40,718 ms - 17,997 hot spot inv.		
SELECT id, stock_size, product_id FROM product_stock	18,825 ms (3 %)	1,617 µs	11,642
SELECT id, active, description, image, name, price, shipping...	260 ms (0 %)	52,015 µs	5
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id...)	169 ms (0 %)	6,295 µs	27
SELECT id, comment, date, name, stars, product_id FROM p...	119 ms (0 %)	19,839 µs	6
SHOW COLLATION	22,881 µs (0 %)	847 µs	27
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id...)	9,528 µs (0 %)	352 µs	27
SELECT id, active, description, image, name, price, shipping...	4,786 µs (0 %)	2,393 µs	2
SELECT id, active, description, image, name, price, shipping...	3,656 µs (0 %)	731 µs	5



JPA/Hibernate



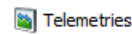
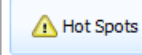
JPA/Hibernate operations and statistics

Thread selection: All thread groups

Thread status: All states

Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
Get: osa.ora.jpa.ProductStock	409 s (100 %)	17,573 µs	23,284
100.0% - 409 s - 23,284 hot spot inv. Direct operations			
100.0% - 409 s - 23,284 hot spot inv. javax.persistence.EntityManager.find			
100.0% - 409 s - 23,284 hot spot inv. osa.ora.dao.ProductCatalogSessionBean.updateStock			
100.0% - 409 s - 23,284 hot spot inv. com.sun.proxy.\$Proxy247.updateStock			
100.0% - 409 s - 23,284 hot spot inv. osa.ora.dao._EJB31_Generated_ProductCatalogSessionBean__Intf__Be			
98.6% - 403 s - 11,642 hot spot inv. osa.ora.servlets.AddToBasket.processRequest			
98.6% - 403 s - 11,642 hot spot inv. osa.ora.servlets.AddToBasket.doGet			
98.6% - 403 s - 11,642 hot spot inv. URL: /ExampleTwo/AddToBasket			
98.6% - 403 s - 11,642 hot spot inv. org.glassfish.grizzly.threadpool.AbstractThreadPool\$Worker.ru			
1.4% - 5,579 ms - 11,642 hot spot inv. osa.ora.listener.SessionListener.sessionDestroyed			
1.4% - 5,579 ms - 11,642 hot spot inv. org.apache.catalina.core.ContainerBase\$ContainerBackgroundProcessor.run			



Servlets

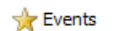
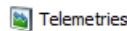
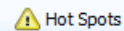
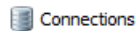
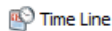
URLs from servlet and JSP invocations

Thread selection: All thread groups

Thread status: All states

Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
/ExampleOne/LoginServlet	404 s (69 %)	269 ms	1,500
69.5% - 404 s - 1,500 hot spot inv. filtered or direct call			
/ExampleOne/ManageUserServlet	175 s (30 %)	116 ms	1,500
30.2% - 175 s - 1,500 hot spot inv. filtered or direct call			
/ExampleOne/index.jsp	1,972 ms (0 %)	1,314 µs	1,500
0.3% - 1,972 ms - 1,500 hot spot inv. filtered or direct call			



JDBC

JDBC connections and execution of statements

Thread selection: All thread groups

Thread status: All states

Aggregation level: Methods

Hot spot	Inherent time	Average Time	Events
UPDATE account SET roleId = ? WHERE (id = ?)	16,788 ms (72 %)	24,835 µs	676
SELECT id, active, password, username, roleId FROM account WHERE (((username = ...	5,541 ms (23 %)	3,694 µs	1,500
SELECT id, role_name FROM user_role	499 ms (2 %)	555 µs	900
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id}) */SHOW VARIABLES W...	241 ms (1 %)	7,102 µs	34
SELECT id, role_name FROM user_role WHERE (id = ?)	107 ms (0 %)	107 ms	1
SHOW COLLATION	85,414 µs (0 %)	2,512 µs	34
/* mysql-connector-java-5.1.23 (Revision: \${bzd.revision-id}) */SELECT @@session....	25,140 µs (0 %)	739 µs	34

Thread selection: All thread groups

Thread status: Runnable

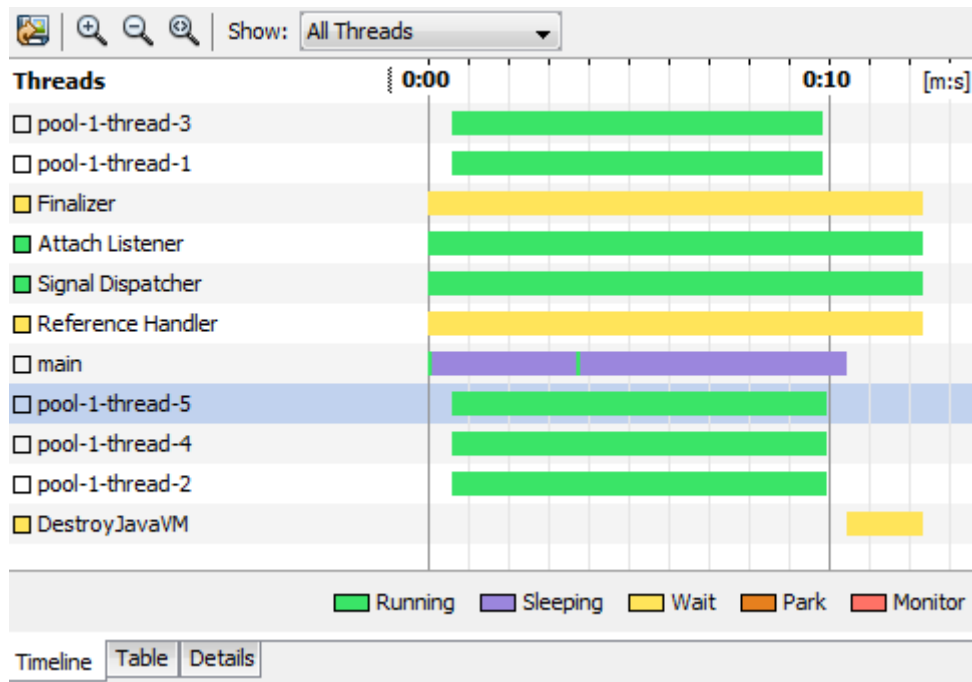
Aggregation level: Methods

Filtered classes: Show separately

Hot spot	Inherent time	Average Time	Invocations
org.glassfish.grizzly.threadpool.AbstractThreadPool\$Worker.run	6,414 ms (27 %)	1,282 ms	5
javax.persistence.Query.getResultList	3,006 ms (13 %)	1,252 µs	2,400
6.8% - 1,566 ms - 1,500 hot spot inv. osa.ora.helper.DataHelperSessionBean.authenticateUserObject			
6.2% - 1,440 ms - 900 hot spot inv. osa.ora.helper.DataHelperSessionBean.loadAllUserRoles			
javax.servlet.RequestDispatcher.forward	2,077 ms (8 %)	692 µs	3,000
5.5% - 1,261 ms - 1,500 hot spot inv. osa.ora.servlet.LoginServlet.processRequest			
3.5% - 815 ms - 1,500 hot spot inv. osa.ora.servlet.ManageUserServlet.processRequest			
com.sun.proxy.\$Proxy221.saveAccount	2,036 ms (8 %)	2,262 µs	900
javax.persistence.EntityManager.find	1,145 ms (4 %)	636 µs	1,800
osa.ora.entities.Account._persistence_checkFetched	667 ms (2 %)	20 µs	32,380



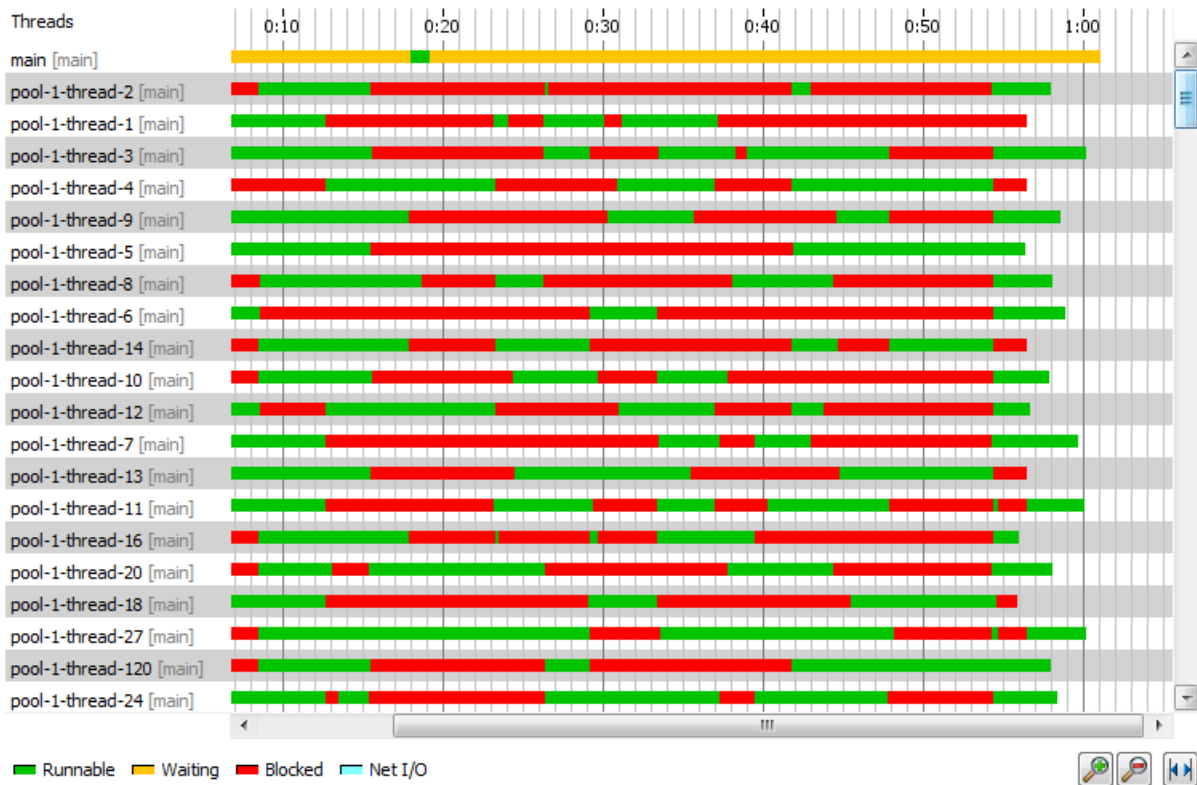
# Chapter 7



Threads Lock Contention

View by: Threads

Locks and Threads	Time [%]	Time	Waits
<b>pool-1-thread-125</b>		1,679,721 ms (6.7%)	3
java.io.PrintStream (dd95f6)		1,679,721 ms (6.7%)	3
<b>pool-1-thread-135</b>		1,359,793 ms (5.4%)	1
java.io.PrintStream (dd95f6)		1,359,793 ms (5.4%)	1
<b>pool-1-thread-106</b>		1,237,147 ms (4.9%)	1
java.io.PrintStream (dd95f6)		1,237,147 ms (4.9%)	1
<b>pool-1-thread-113</b>		1,204,879 ms (4.8%)	1
<b>pool-1-thread-105</b>		1,172,856 ms (4.7%)	1
<b>pool-1-thread-129</b>		1,140,388 ms (4.6%)	1
<b>pool-1-thread-79</b>		1,091,890 ms (4.4%)	6
<b>pool-1-thread-119</b>		1,037,815 ms (4.2%)	1
<b>pool-1-thread-145</b>		1,037,753 ms (4.2%)	1
<b>pool-1-thread-123</b>		1,004,617 ms (4%)	1
<b>pool-1-thread-194</b>		961,324 ms (3.8%)	1
<b>pool-1-thread-152</b>		959,821 ms (3.8%)	1
<b>pool-1-thread-157</b>		927,752 ms (3.7%)	1



Show monitors: Waiting and block... Threshold in ms: 0 Filter by All text fields ? Reset Filters

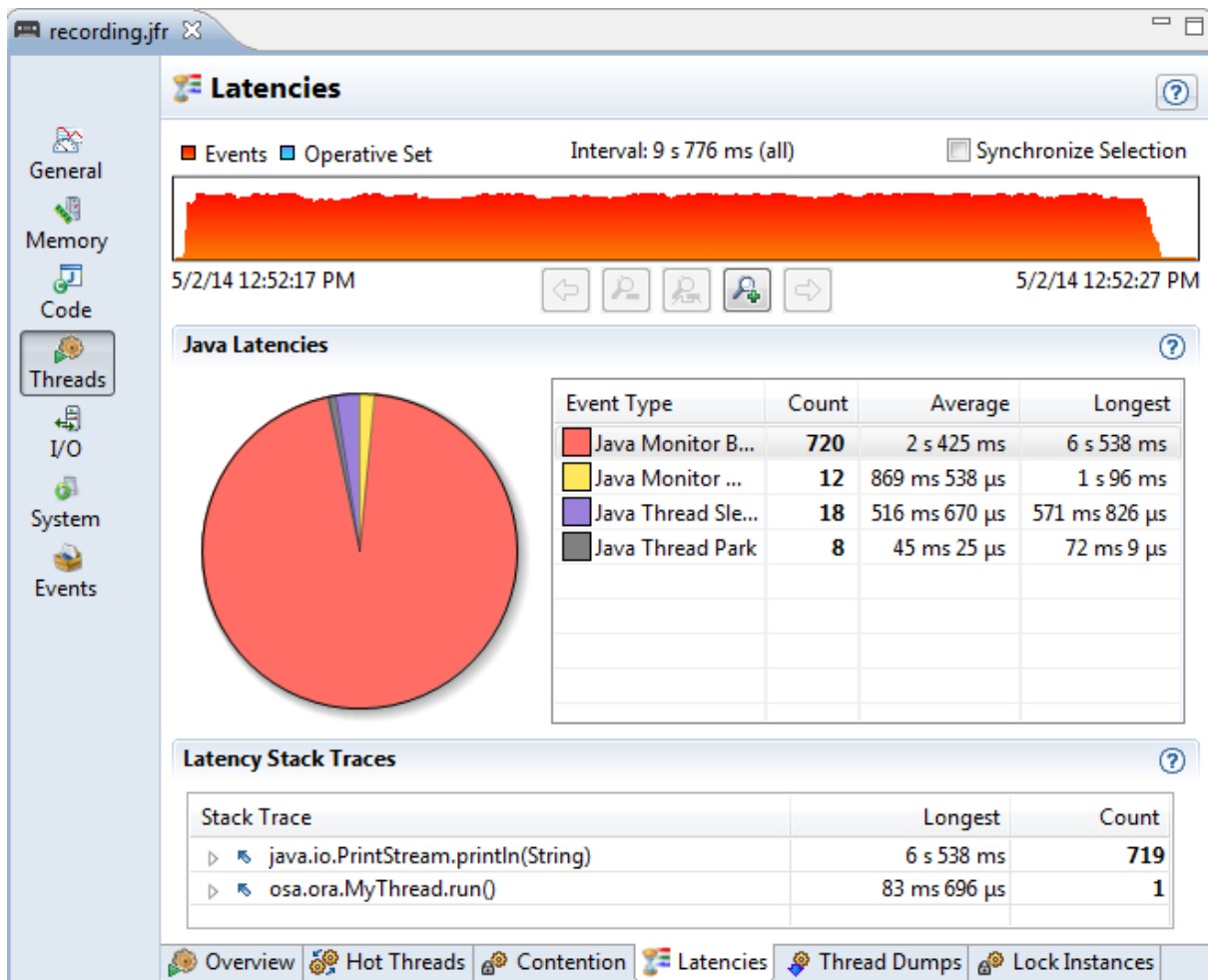
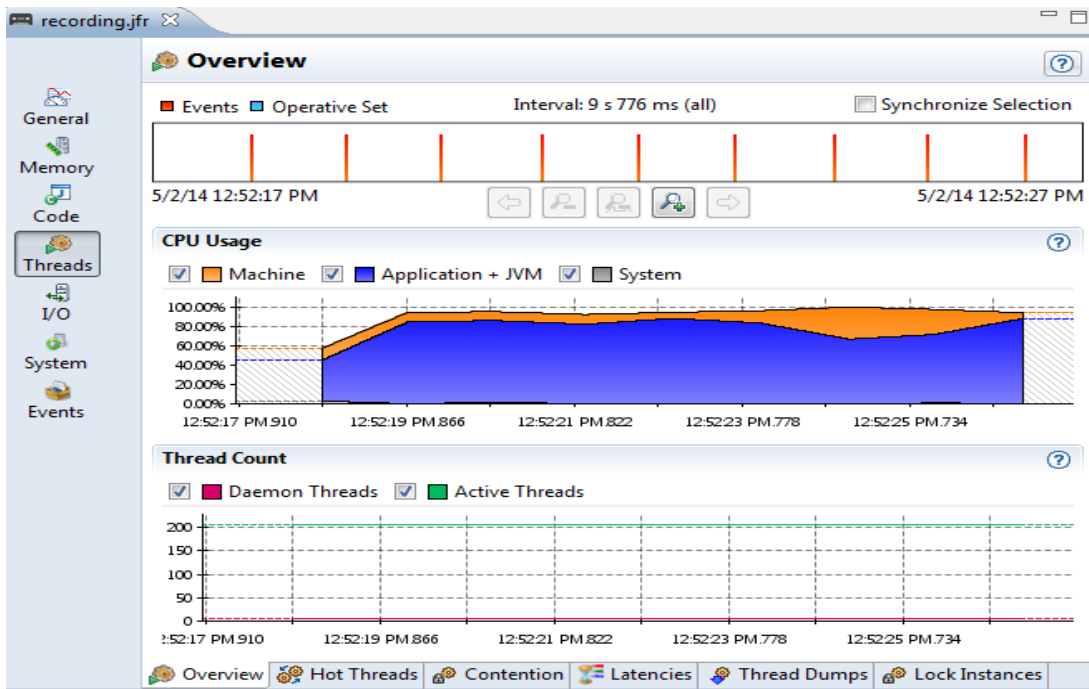
Time	Duration	Type	Monitor ID	Monitor Class	Waiting Thread	Owning Thread
0:09.347 [Jan 1, ...	4775 ms	Blocked	1	java.io.PrintStream	pool-1-thread-126 [main]	pool-1-thread-55 [main]
0:09.347 [Jan 1, ...	4775 ms	Blocked	1	java.io.PrintStream	pool-1-thread-171 [main]	pool-1-thread-55 [main]
0:09.347 [Jan 1, ...	4775 ms	Blocked	1	java.io.PrintStream	pool-1-thread-130 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-152 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-180 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-101 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-11 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-97 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-93 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-89 [main]	pool-1-thread-55 [main]
0:09.374 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-85 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4748 ms	Blocked	1	java.io.PrintStream	pool-1-thread-81 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4747 ms	Blocked	1	java.io.PrintStream	pool-1-thread-73 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4747 ms	Blocked	1	java.io.PrintStream	pool-1-thread-69 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4747 ms	Blocked	1	java.io.PrintStream	pool-1-thread-77 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4747 ms	Blocked	1	java.io.PrintStream	pool-1-thread-65 [main]	pool-1-thread-55 [main]
0:09.375 [Jan 1, ...	4747 ms	Blocked	1	java.io.PrintStream	pool-1-thread-61 [main]	pool-1-thread-55 [main]
<b>Total:</b>	353 s					

Filtered stack trace for waiting thread:

```
java.io.PrintStream.println(java.lang.String)
osa.ora.MyThread.run()
java.util.concurrent.ThreadPoolExecutor$Worker.run()
```

Filtered stack trace for owning thread:

```
java.io.PrintStream.println(java.lang.String)
osa.ora.MyThread.run()
java.util.concurrent.ThreadPoolExecutor$Worker.run()
```



recording.jfr

### Lock Instances

Events
  Operative Set
  GC
 Interval: 9 s 776 ms (all)
  Synchronize Selection

5/2/14 12:52:17 PM 5/2/14 12:52:27 PM

#### Lock Instances

Histogram of lock instance events per address.

Monitor A...	Monitor Class	Count	Total Dura
0x14B2C...	java.io.PrintStream	719	29 min 6 s 241
0x14B10F0	java.lang.ref.Reference\$Lo...	1	83 ms 690

#### Trace Tree

Aggregated traces for the selected monitor(s).

```

Stack Trace
└─ java.io.PrintStream.println(String)
   └─ osa.ora.MyThread.run()
      └─ java.util.concurrent.ThreadPoolE
         └─ java.util.concurrent.ThreadPc
  
```

#### Top Threads

The top list of threads blocking on the selected monitor(s)

Thread	C...
pool-1-thread-7	2
pool-1-thread-5	2
pool-1-thread-183	2

Overview
  Hot Threads
  Contention
  Latencies
  Thread Dumps
  Lock Instances

General **Details**

Running	3:42.385 (35.1%)
Sleeping	0:00.000 (0.0%)
Wait	4:09.389 (39.3%)
Park	2:26.958 (23.2%)
Monitor	0:14.651 (2.3%)
<b>Total:</b>	<b>10:33.383</b>

Lock Contention

View by: **Threads**

Locks and Threads	Time [%]	Time	Waits
http-listener-1(5)		1,398,058,3... (29.3%)	210
http-listener-1(4)		1,185,274,9... (24.9%)	231
http-listener-1(1)		785,889,255 ... (16.5%)	183
http-listener-1(2)		749,443,317 ... (15.7%)	79
http-listener-1(3)		646,894,691 ... (13.6%)	139
Thread-10		634,277 ms (0%)	170

ProductCatalogSessionBean.java

Show: Selected Threads

**http-listener-1(2)** [org.glassfish.grizzly.threadpool.DefaultWorkerThread] (alive) Hide

User thread

General Details

Running	0:10.240	(0.5%)
Sleeping	3:22.597	(9.9%)
Wait	0:00.000	(0.0%)
Park	6:57.575	(20.5%)
Monitor	23:22.797	(68.9%)
<b>Total:</b>	<b>33:53.209</b>	

Timeline Table Details

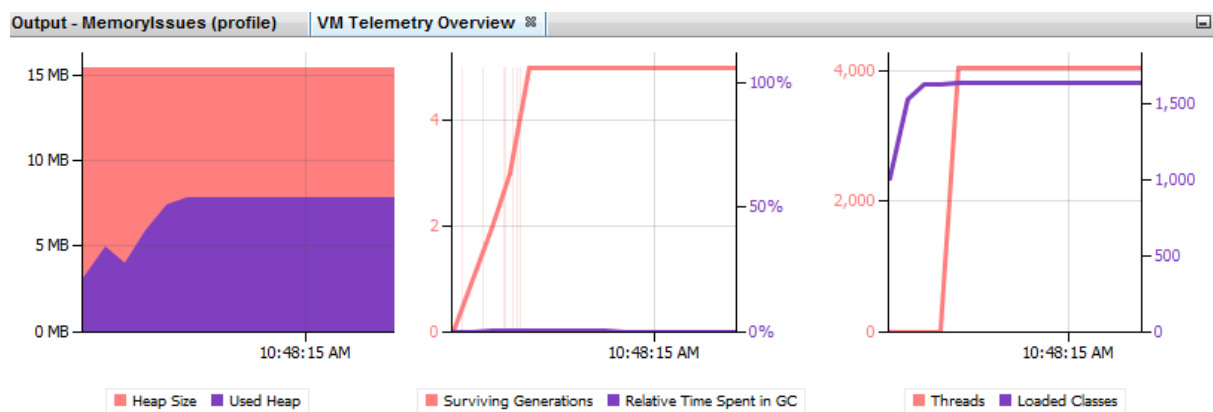
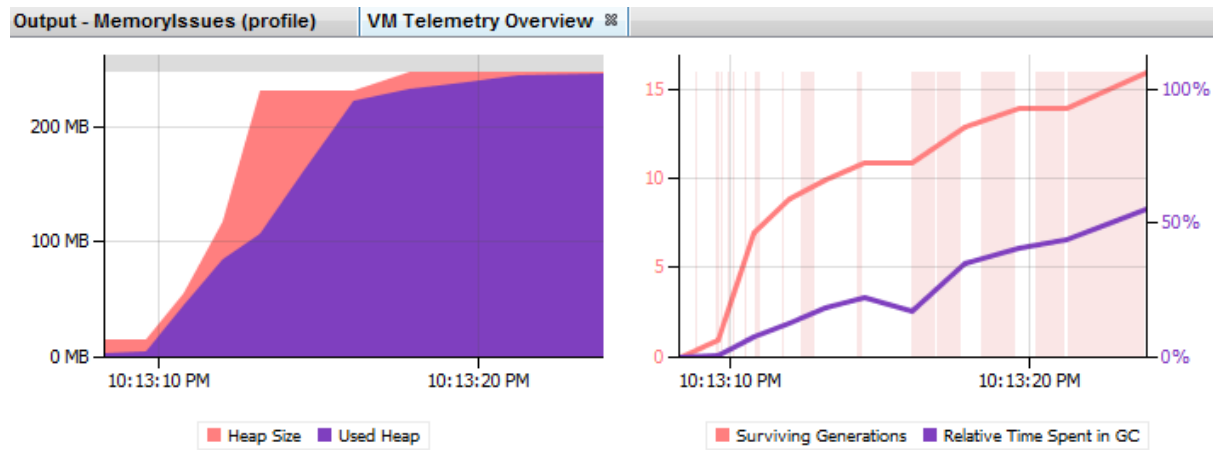
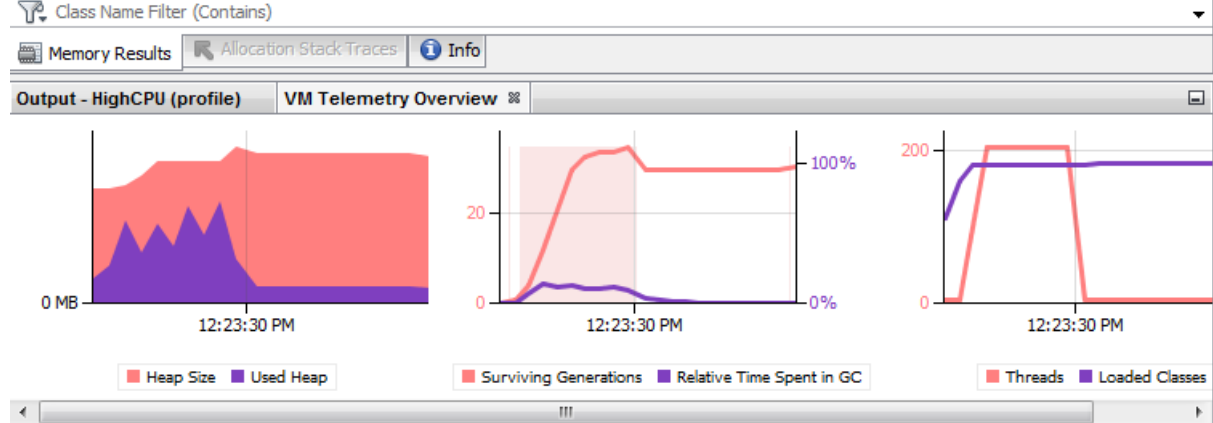
Thread selection: All thread groups

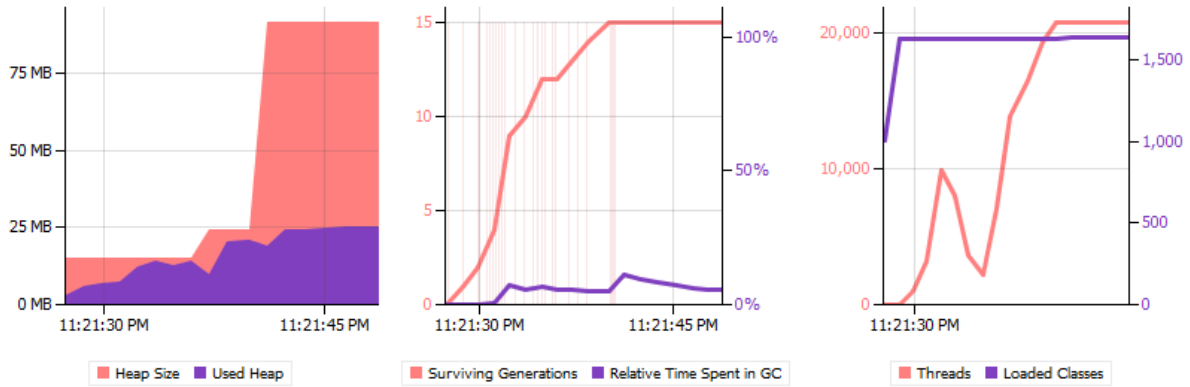
Aggregation level: Methods

- 100.0% - 83,994 ms - 2 inv. osa.ora.beans.Transfer.run
  - 100.0% - 83,994 ms - 2 inv. osa.ora.beans.Account.transfer
  - 0.1% - 98,742 μs - 2 inv. java.lang.Thread.sleep
- 0.0% - 11,499 μs - 1 inv. osa.ora.BankOperation.main
  - 0.0% - 11,397 μs - 1 inv. osa.ora.BankOperation.settleTransfers
    - 0.0% - 783 μs - 2 inv. java.io.PrintStream.println
    - 0.0% - 739 μs - 2 inv. java.lang.Thread.start
      - 0.0% - 253 μs - 2 inv. java.lang.Thread.<init>
      - 0.0% - 85 μs - 2 inv. java.lang.StringBuilder.append(double)
      - 0.0% - 81 μs - 2 inv. osa.ora.beans.Transfer.<init>
      - 0.0% - 33 μs - 2 inv. osa.ora.beans.Account.<init>

# Chapter 8

Class Name - Live Allocated Objects	Live Bytes ...	Live Bytes	Live Objects	Allocated O...	Avg. Age	Generations
java.lang.Thread		2,390,000 (40.5%)	23 (16.8%)	23	136.0	10
char[]		1,300,000 (22.1%)	28 (20.4%)	91	137.2	8
java.lang.reflect.Field		256 B (4.3%)	4 (2.9%)	4	147.0	1
java.lang.Object		208 B (3.5%)	26 (19%)	26	132.2	11
java.lang.reflect.Field[]		128 B (2.2%)	1 (0.7%)	1	147.0	1
byte[]		128 B (2.2%)	1 (0.7%)	2	148.0	1
java.util.concurrent.ConcurrentHashMap...		96 B (1.6%)	4 (2.9%)	4	148.0	1
java.util.HashMap\$Entry[]		80 B (1.4%)	1 (0.7%)	1	148.0	1
java.lang.reflect.Method		80 B (1.4%)	1 (0.7%)	1	148.0	1
java.lang.String		72 B (1.2%)	3 (2.2%)	34	147.3	2
java.util.concurrent.locks.ReentrantLock\$...		72 B (1.2%)	3 (2.2%)	3	148.0	1
java.util.concurrent.ConcurrentHashMap...		64 B (1.1%)	2 (1.5%)	2	148.0	1





Aggregation level:

Name	Instance count	Size
java.lang.String	4,785,652	114 MB
char[]	6,629	401 kB
short[]	1,542	87,568 bytes
java.lang.Object[]	1,422	41,082 kB
byte[]	1,361	211 kB
java.lang.Class	1,213	455 kB
java.util.TreeMap\$Entry	1,059	33,888 bytes
java.lang.Class[]	989	16,584 bytes
java.util.Hashtable\$Entry	895	21,480 bytes
<b>Total:</b>	<b>4,815,013</b>	<b>159 MB</b>

- Live memory
- All Objects
- Recorded Objects
- Allocation Call Tree
- Allocation Hot Spots
- Class Tracker
- Heap walker

Recorded allocations of: **All classes**

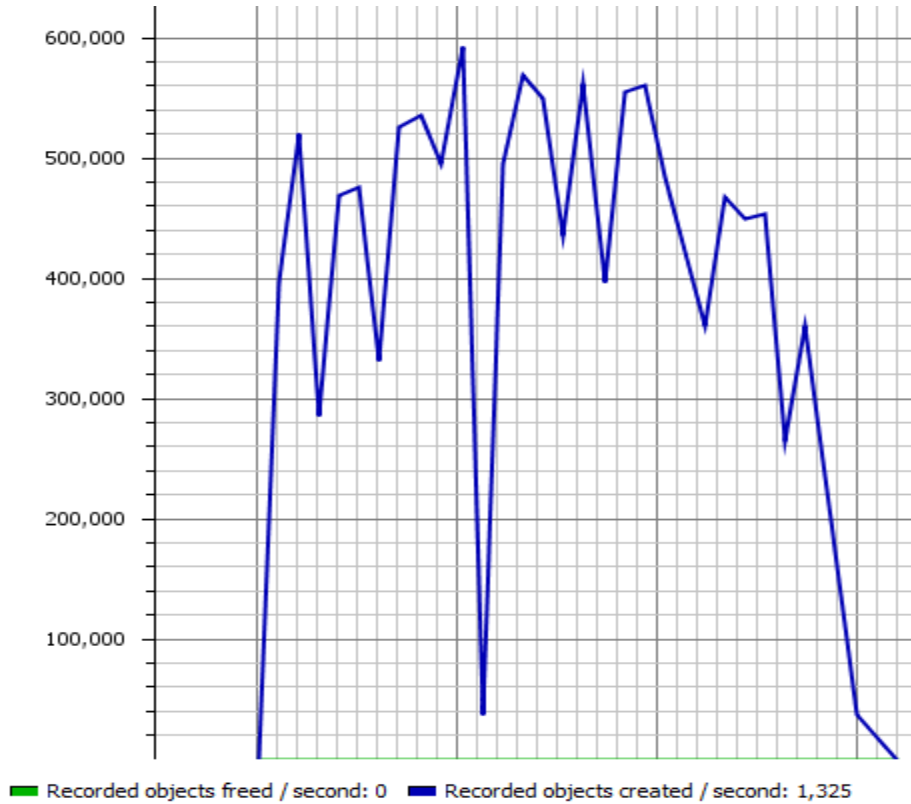
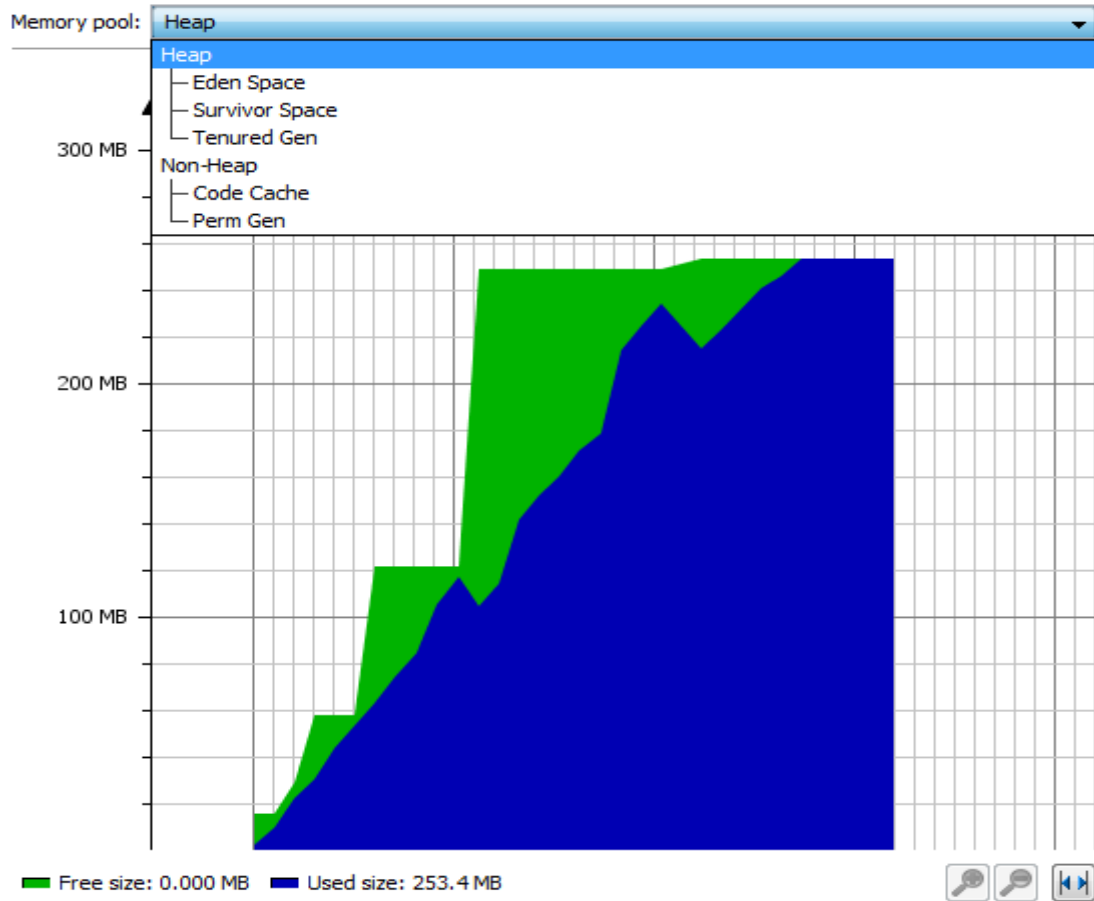
Liveness mode: **Live objects**

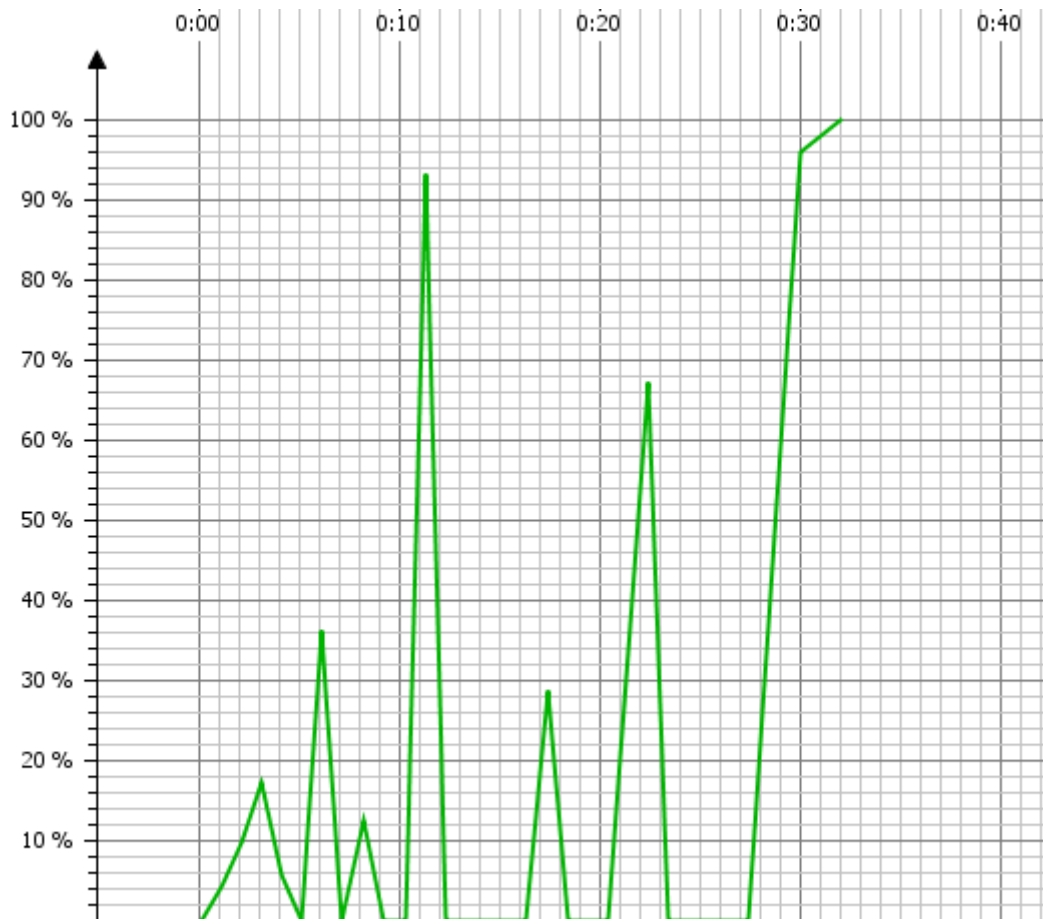
Aggregation level:  View mode:

- 100.0% - 212 MB - 7,321,654 alloc. osa.ora.MemoryIssues.main
- 100.0% - 212 MB - 7,321,634 alloc. osa.ora.outofmemory.ManyObjects.addObject
- 82.6% - 175 MB - 7,321,626 alloc. java.lang.String.<init>
- 17.4% - 36,920 kB - 1 alloc. java.util.ArrayList.add
- 0.0% - 24 bytes - 1 alloc. java.util.ArrayList.<init>

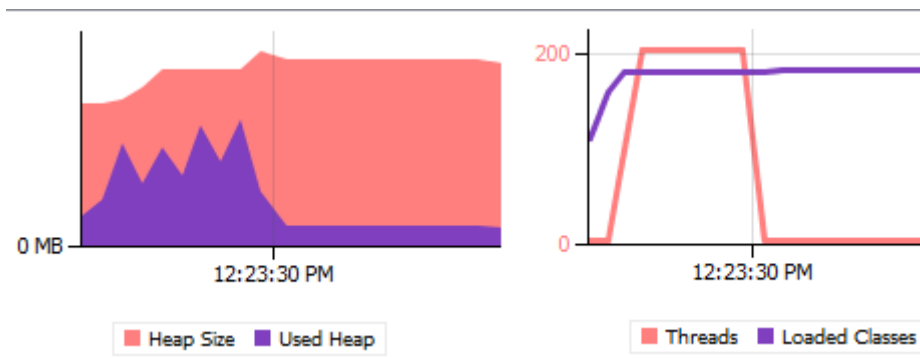
View Filters:  ? Reset View Filters



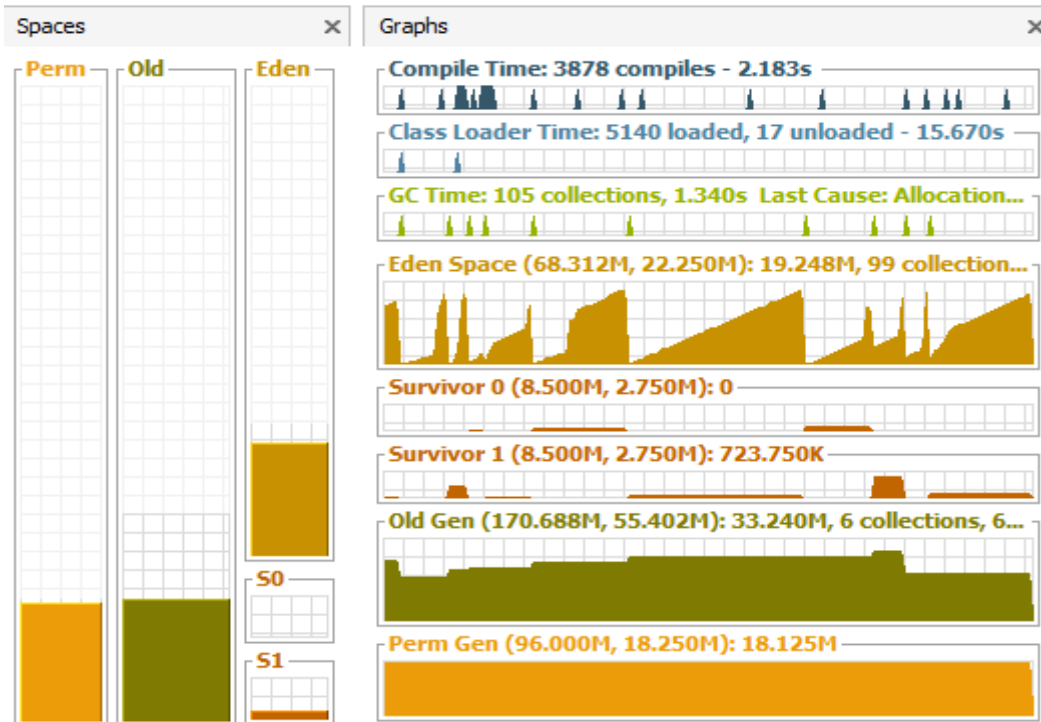




■ Garbage collector activity: 100.0 %



Refresh rate:  msec.



## VisualVM

Heap Dump

Summary **Classes** Instances OQL Console

Classes [Compare with another heap dump](#)

Class Name	Instances [%]	Instances	Size
char[]	[Bar]	29,826 (17.2%)	1,909,272 (18.6%)
java.lang.String	[Bar]	29,614 (17%)	592,280 (5.8%)
byte[]	[Bar]	24,703 (14.2%)	1,582,964 (15.4%)
java.util.HashMap\$Entry	[Bar]	14,010 (8.1%)	336,240 (3.3%)
short[]	[Bar]	8,895 (5.1%)	457,632 (4.5%)
int[]	[Bar]	4,107 (2.4%)	3,340,272 (32.6%)
java.util.HashMap	[Bar]	3,269 (1.9%)	143,836 (1.4%)
java.lang.Object	[Bar]	3,224 (1.9%)	25,792 (0.3%)
java.lang.Object[]	[Bar]	3,100 (1.8%)	138,080 (1.3%)
java.util.Hashtable\$Entry	[Bar]	2,972 (1.7%)	71,328 (0.7%)
java.util.concurrent.Concurre...	[Bar]	2,636 (1.5%)	63,264 (0.6%)
java.util.HashMap\$Entry[]	[Bar]	2,388 (1.4%)	200,268 (2%)
java.lang.ref.WeakReference	[Bar]	1,789 (1%)	42,936 (0.4%)
java.lang.Integer	[Bar]	1,629 (0.9%)	19,548 (0.2%)
java.util.ArrayList	[Bar]	1,559 (0.9%)	31,180 (0.3%)
org.openide.modules.Depend...	[Bar]	1,399 (0.8%)	33,576 (0.3%)
java.util.HashSet	[Bar]	1,378 (0.8%)	16,536 (0.2%)
java.lang.ref.SoftReference	[Bar]	1,024 (0.6%)	32,768 (0.3%)
java.lang.String[]	[Bar]	971 (0.6%)	28,160 (0.3%)
java.util.WeakHashMap\$Ent...	[Bar]	916 (0.5%)	32,976 (0.3%)
org.openide.util.WeakListe...	[Bar]	718 (0.4%)	20,104 (0.2%)

Class Name Filter (Contains)

Overview default\_report org.eclipse.mat.api:suspects

(a) 190.3 MB (b) 571.5 KB

Total: 190.9 MB

▼ **Problem Suspect 1**

The thread **java.lang.Thread @ 0x28ec4a50 main** keeps local variables with total size **199,540,920 (99.71%)** bytes.

The memory is accumulated in one instance of "**java.lang.Object[]**" loaded by "**<system class loader>**".

The stacktrace of this Thread is available. [See stacktrace.](#)

Live memory

Heap walker

CPU views

Threads

Monitors & locks

Telemetries

Databases

JEE & Probes

JProfiler

Classes Allocations Biggest Objects References Time In ▶

Current object set: **13236 objects in 347 classes, 6277 arrays**  
1 selection step, 32 MB shallow size

Classes Use ... Group By Class Loaders [Calculate estimated retained sizes](#)

Name	Instance count	Size
char []	4,109	257 kB
java.lang.String	3,873	92,952 bytes
osa.ora.MyThread	947	7,576 bytes
java.lang.Class	885	283 kB
java.lang.Object []	871	39,200 bytes
java.util.Hashtable\$Entry	830	19,920 bytes
java.util.concurrent.LinkedBlockingQueue\$Node	748	11,968 bytes
java.util.HashMap\$Entry	403	9,672 bytes
java.lang.Object	291	2,328 bytes
java.util.ArrayList	265	6,360 bytes

[Selection step 1](#): All objects after full GC  
13236 objects in 347 classes, 6277 arrays

Classes

Allocations

Biggest Objects

References



### Current object set: 1622086 objects in 329 classes, 5584 arrays

1 selection step, 46 MB shallow size

Cumulated allocation tree of Methods Use Selected

Allocation call stack are only approximate when sampling is used. Use instrumentation for exact call stacks. ✕

	98.1%	- 45,992 kB	- 1,612,500 alloc.	osa.ora.MemoryIssues.main
	98.1%	- 45,987 kB	- 1,612,259 alloc.	osa.ora.outofmemory.ManyObjects.addObject
	0.0%	- 5,736 bytes	- 238 alloc.	java.lang.ClassLoader.loadClass
	1.9%	- 870 kB	- 14,963 alloc.	unrecorded objects
	0.0%	- 9,040 bytes	- 197 alloc.	sun.launcher.LauncherHelper.checkAndLoadMain
	0.0%	- 152 bytes	- 6 alloc.	sun.launcher.LauncherHelper.makePlatformString
	0.0%	- 104 bytes	- 4 alloc.	direct calls to methods of filtered classes

[Selection step 1](#): All objects after full GC

1622086 objects in 329 classes, 5584 arrays

← tions

Biggest Objects

References

Time

Inspections →

### Current object set: 1590037 objects in 1 classes, 1 array of type java.lang.Object[]

2 selection steps, 45 MB shallow size, [Calculate retained and deep sizes](#) [Use retained](#)

Outgoing references Use ... Apply filter ... Show In Graph i

Object	Retained size	Shallow Size	Allocation Time
java.lang.Object[]	45,992 kB	7,292 kB	
element → java.lang.String ["Osama Oransa"]			
element → java.lang.String ["Osama Oransa"]			
element → java.lang.String ["Osama Oransa"]			
element → java.lang.String ["Osama Oransa"]			
element → java.lang.String ["Osama Oransa"]			
element → java.lang.String ["Osama Oransa"]			

[Selection step 2](#): Allocation spot, cumulated

Aggregation level: Methods

Allocated at:

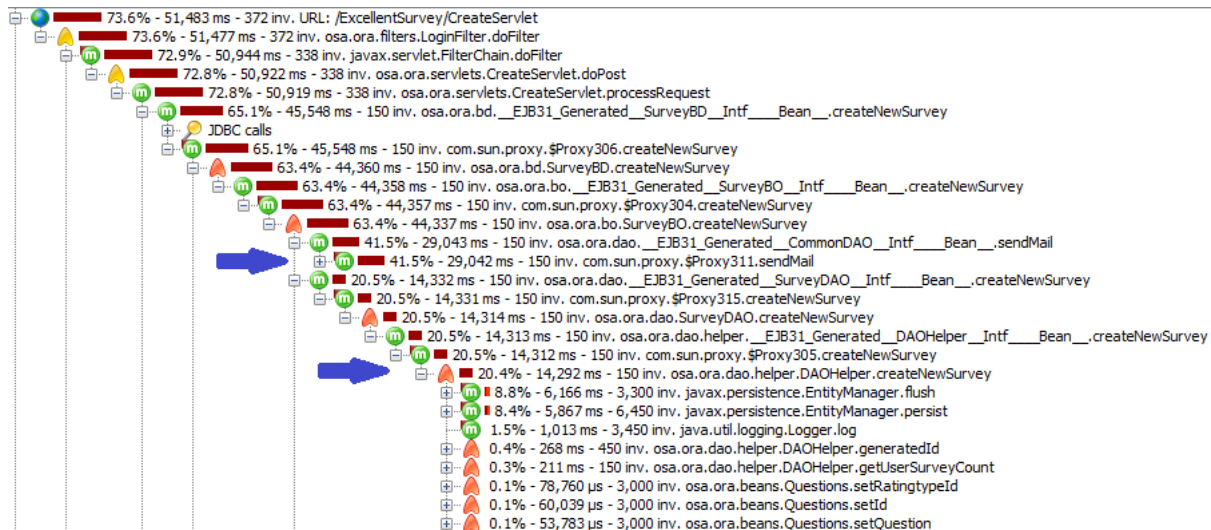
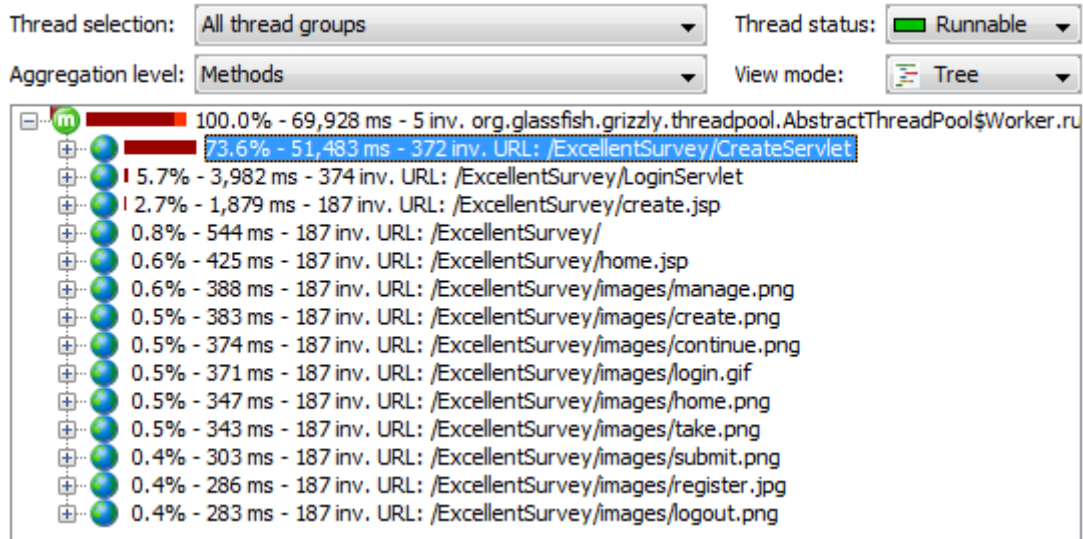
```

java.lang.String.<init>
osa.ora.outofmemory.ManyObjects.addObject
osa.ora.MemoryIssues.main

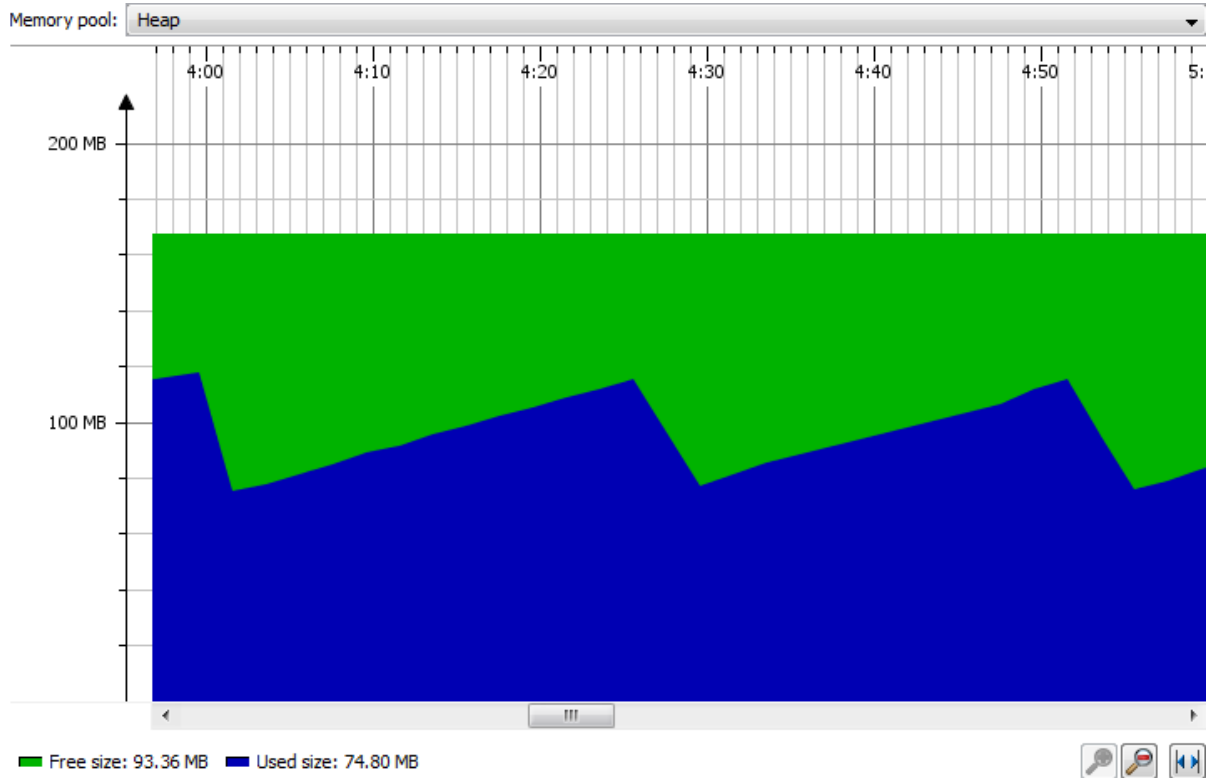
```

1590037 objects in 1 classes, 1 array of type java.lang.Object[]

# Chapter 12



Hot spot	Inherent time	Average ...	Invocations
osa.ora.util.EmailSender.sendMail	28,912 ms (41 %)	192 ms	150
osa.ora.dao.helper.DAOHelper.createNewSurvey	10,054 ms (14 %)	67,028 μs	150
org.glassfish.grizzly.threadpool.AbstractThreadPool...	8,529 ms (12 %)	1,705 ms	5
osa.ora.filters.LoginFilter.log	4,063 ms (5 %)	456 μs	8,902
osa.ora.filters.LoginFilter.doFilter	2,763 ms (3 %)	924 μs	2,990
osa.ora.servlets.CreateServlet.processRequest	2,605 ms (3 %)	7,707 μs	338
osa.ora.dao.helper.DAOHelper.getUserSurveyCount	1,094 ms (1 %)	1,354 μs	808
osa.ora.bd._EJB31_Generated_SurveyBD_Intf_...	785 ms (1 %)	5,237 μs	150
/submitquestions.jsp [org.apache.jsp.submitquestio...	783 ms (1 %)	5,221 μs	150



Thread selection: **All thread groups**    Thread status: **All states**

Aggregation level: **Methods**

	Hot spot	Inherent time	Average T...	Events
⊕	⚠ UPDATE autogen SET tab_value = ? WHERE (tab_key ...	817 s (98 %)	1,062 ms	770
⊕	⚠ INSERT INTO questions (body, question, rating_type...	4,551 ms (0 %)	1,517 μs	3,000
⊕	⚠ INSERT INTO survey_questions (sequence, survey_q...	2,409 ms (0 %)	803 μs	3,000
⊕	⚠ SELECT LAST_INSERT_ID()	2,259 ms (0 %)	599 μs	3,770
⊕	⚠ INSERT INTO audit_trail (action_id, date, reason, user...	1,256 ms (0 %)	3,926 μs	320
⊕	⚠ SELECT count(*) FROM survey s where owner_id=?	894 ms (0 %)	1,106 μs	808
⊕	⚠ SELECT id, active, email, name, password, roleId FRO...	353 ms (0 %)	1,889 μs	187
⊕	⚠ INSERT INTO survey_emails (email, submitted, survey...	345 ms (0 %)	1,151 μs	300
⊕	⚠ SELECT action_id, body, subject FROM notification_te...	335 ms (0 %)	2,235 μs	150
⊕	⚠ INSERT INTO survey (description, max_participation, ...	228 ms (0 %)	1,524 μs	150
⊕	⚠ SELECT tab_key, tab_value FROM autogen WHERE (t...	222 ms (0 %)	13,074 μs	17
⊕	⚠ SELECT id, description, type FROM question_rating_type	73,288 μs (0 %)	488 μs	150
⊕	⚠ SELECT id, role FROM user_roles WHERE (id = ?)	44,328 μs (0 %)	44,328 μs	1
⊕	⚠ SELECT Config_key, config_value FROM configuration ...	4,864 μs (0 %)	972 μs	5
⊕	⚠ /* mysql-connector-java-5.1.23 ( Revision: \${bzs.revi...	2,675 μs (0 %)	891 μs	3
⊕	⚠ SHOW COLLATION	1,413 μs (0 %)	471 μs	3
⊕	⚠ /* mysql-connector-java-5.1.23 ( Revision: \${bzs.revi...	469 μs (0 %)	156 μs	3



Hot Spots

Telemetries

Events

JPA/Hibernate

JPA/Hibernate operations and statistics



Thread selection: All thread groups

Thread status: All states

Aggregation level: Methods

	Hot spot	Inherent time	Average...	Events
+	Insert: osa.ora.beans.Questions	5,047 ms (39 %)	1,682 $\mu$ s	3,000
+	Insert: osa.ora.beans.SurveyQuestions	2,790 ms (21 %)	930 $\mu$ s	3,000
+	Get: osa.ora.beans.Autogen	2,424 ms (18 %)	3,148 $\mu$ s	770
+	Insert: osa.ora.beans.AuditTrail	1,492 ms (11 %)	4,665 $\mu$ s	320
+	Get: osa.ora.beans.NotificationTemplate	426 ms (3 %)	2,840 $\mu$ s	150
+	Insert: osa.ora.beans.SurveyEmails	395 ms (3 %)	1,318 $\mu$ s	300
+	Insert: osa.ora.beans.Survey	246 ms (1 %)	1,643 $\mu$ s	150
+	Get: osa.ora.beans.Configuration	8,725 $\mu$ s (0 %)	1,745 $\mu$ s	5