ITEM 5: PERFORMANCE REPORT

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DELIVERABLE 11 ITEM 5: PERFORMANCE REPORT

1. INTRODUCTION

The aim of this report is to show the information related to our project performance attained through the performance tests that our group has carried out. It is important to take into account the fact the we already tested the performance of our project in our previous deliverable, therefore, the maximum workload of our project may be affected by the results obtained in our previous performance testing. We will analyze the results obtained after testing the new functionalities added to our system and compare them to the functionality that determined our maximum workload in the last deliverable, which was listing all the users of the system. It is also worth pointing out the fact that we came to the conclusion that the maximum workload our system could handle was 100 concurrent users and 100 loops, which means that we will not do any performance tests with more than 100 concurrent users. Tests have been run in five different computers, the features of each machine will be detailed when showing their corresponding tests.

2. TESTS RAN IN MACHINE 1

This computer has the following features:

Processor: Intel(R) Core(TM) i7-7700HQ CPU @2.80GHz 2.81GHz

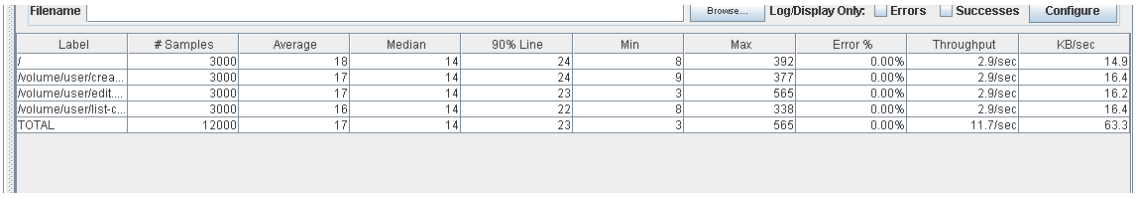
RAM memory: 12GB

Hard Disk: 765GB HDD

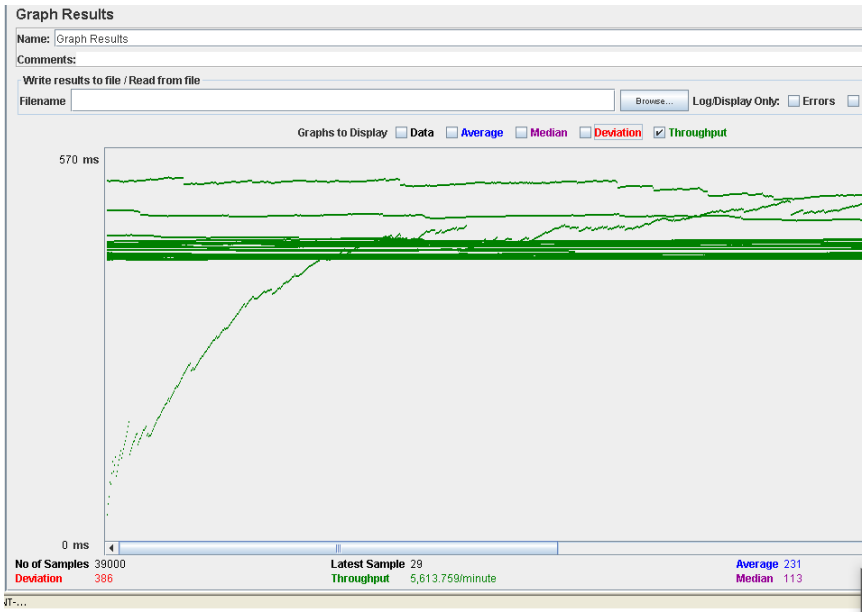
Wireless adapter: Intel (R) Dual Band Wireless-AC 7260.

Test 1: Create volumes.

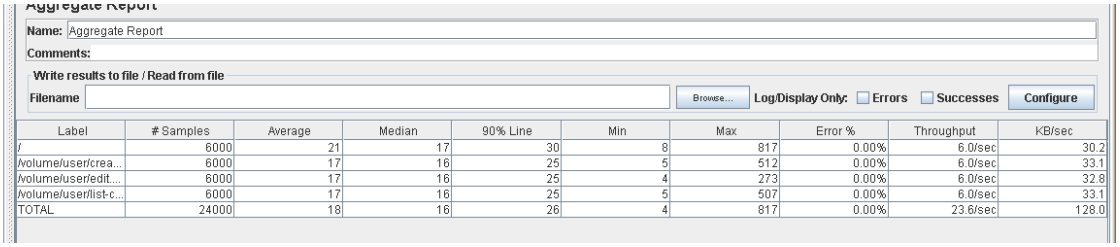
With 30 concurrent users and 100 loops:


Filename Browse... Log/Display Only: Errors Successes Configure

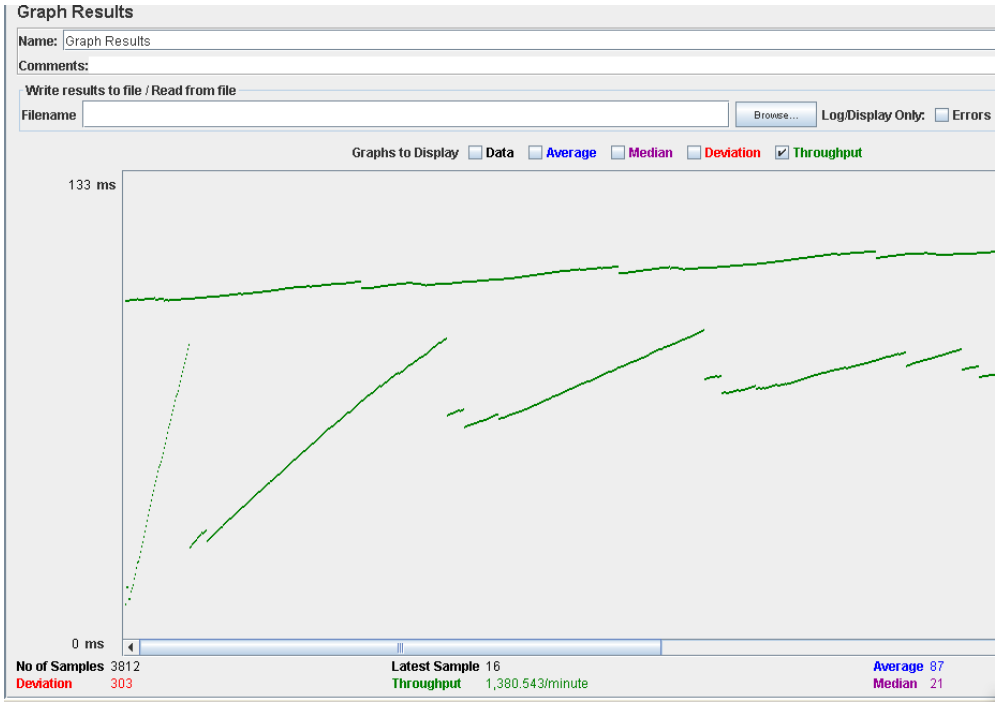
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	3000	18	14	24	8	392	0.00%	2.9/sec	14.9
/volume/user/crea...	3000	17	14	24	9	377	0.00%	2.9/sec	16.4
/volume/user/edit....	3000	17	14	23	3	565	0.00%	2.9/sec	16.2
/volume/user/list-c...	3000	16	14	22	8	338	0.00%	2.9/sec	16.4
TOTAL	12000	17	14	23	3	565	0.00%	11.7/sec	63.3



With 60 concurrent users and 100 loops:

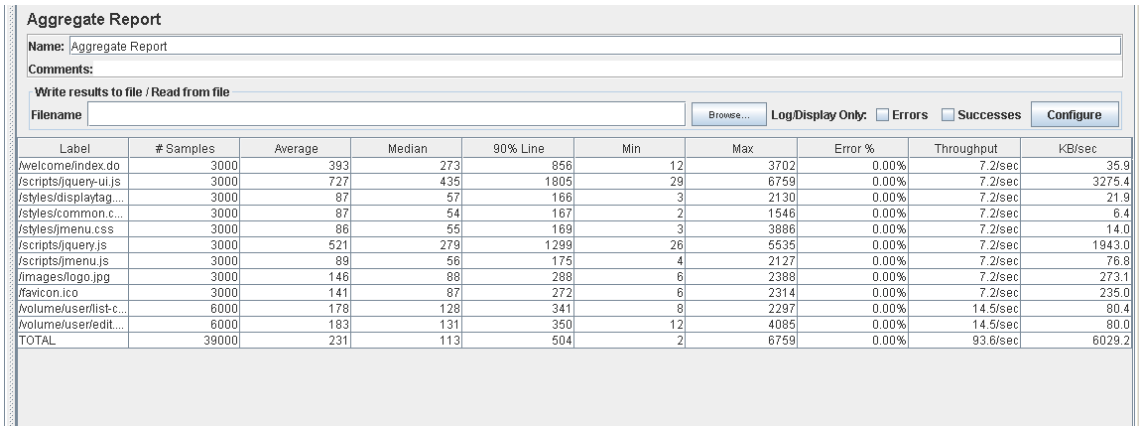


Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	6000	21	17	30	8	817	0.00%	6.0/sec	30.2
/volume/user/crea...	6000	17	16	25	5	512	0.00%	6.0/sec	33.1
/volume/user/edit....	6000	17	16	25	4	273	0.00%	6.0/sec	32.8
/volume/user/list-c...	6000	17	16	25	5	507	0.00%	6.0/sec	33.1
TOTAL	24000	18	16	26	4	817	0.00%	23.6/sec	128.0



Test 2: Edit volumes.

With 30 concurrent users and 100 loops:



Aggregate Report

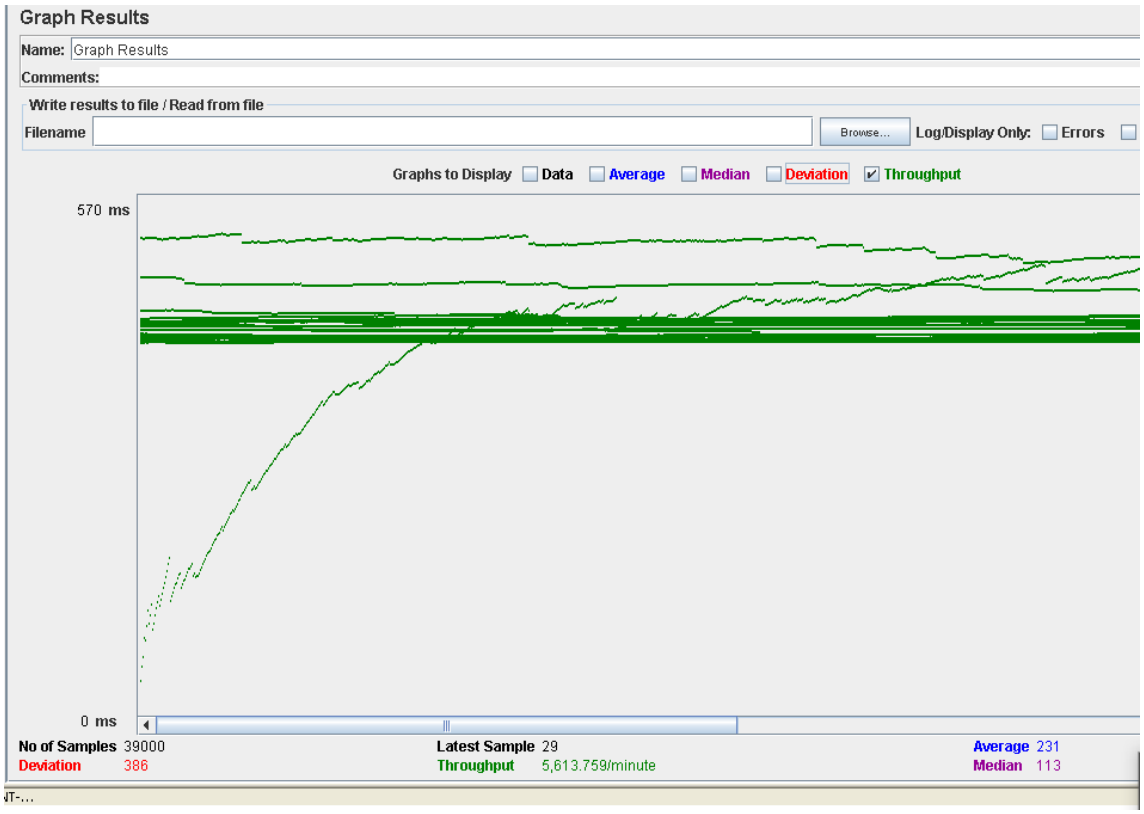
Name: Aggregate Report

Comments:

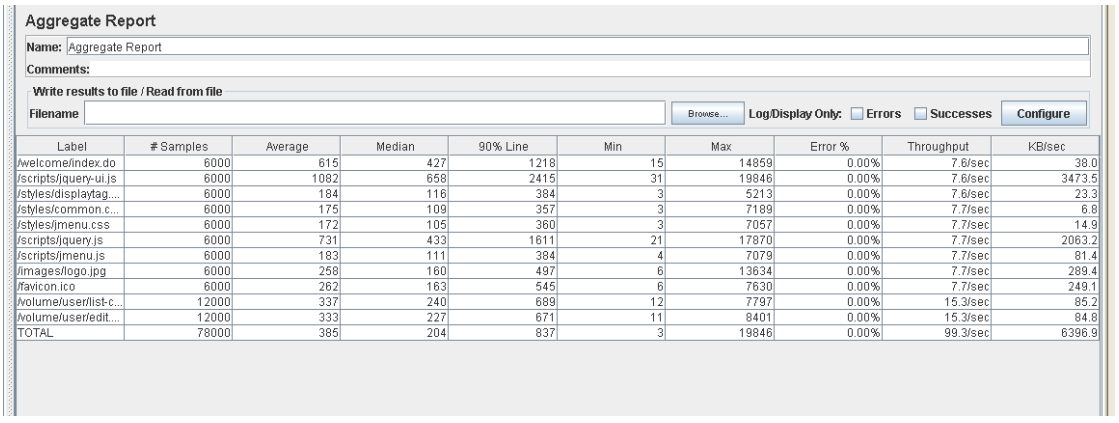
Write results to file / Read from file

Filename | Browse... | Log/Display Only: Errors Successes | Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	3000	393	273	856	12	3702	0.00%	7.2/sec	35.9
/scripts/jquery-ui.js	3000	727	435	1805	29	6759	0.00%	7.2/sec	3275.4
/styles/displaytag....	3000	87	57	166	3	2130	0.00%	7.2/sec	21.9
/styles/common.c...	3000	87	54	167	2	1546	0.00%	7.2/sec	6.4
/styles/jmenu.css	3000	86	55	169	3	3886	0.00%	7.2/sec	14.0
/scripts/jquery.js	3000	521	279	1299	26	5535	0.00%	7.2/sec	1943.0
/scripts/jmenu.js	3000	89	56	175	4	2127	0.00%	7.2/sec	76.8
/images/logo.jpg	3000	146	88	288	6	2388	0.00%	7.2/sec	273.1
/favicon.ico	3000	141	87	272	6	2314	0.00%	7.2/sec	235.0
/volume/user/list-c...	6000	178	128	341	8	2297	0.00%	14.5/sec	80.4
/volume/user/edit....	6000	183	131	350	12	4085	0.00%	14.5/sec	80.0
TOTAL	39000	231	113	504	2	6759	0.00%	93.6/sec	6029.2



With 60 concurrent users and 100 loops:



Aggregate Report

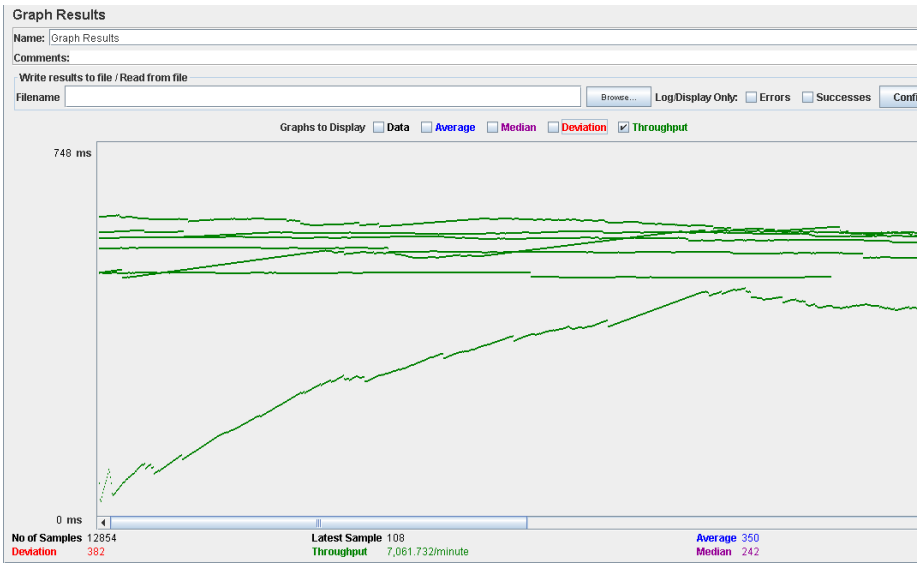
Name: Aggregate Report

Comments:

Write results to file / Read from file

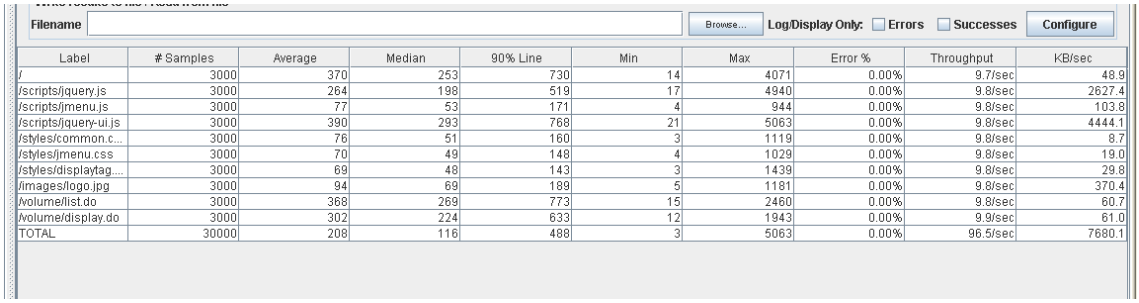
Filename | Browse... | Log/Display Only: Errors Successes | Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	6000	615	427	1218	15	14859	0.00%	7.6/sec	38.0
/scripts/jquery-ui.js	6000	1082	658	2415	31	19846	0.00%	7.6/sec	3473.5
/styles/displaytag....	6000	184	116	384	3	5213	0.00%	7.6/sec	23.3
/styles/common.c...	6000	175	109	357	3	7189	0.00%	7.7/sec	6.8
/styles/jmenu.css	6000	172	105	360	3	7057	0.00%	7.7/sec	14.9
/scripts/jquery.js	6000	731	433	1611	21	17870	0.00%	7.7/sec	2063.2
/scripts/jmenu.js	6000	183	111	384	4	7079	0.00%	7.7/sec	81.4
/images/logo.jpg	6000	258	160	497	6	13634	0.00%	7.7/sec	289.4
/favicon.ico	6000	262	163	545	6	7630	0.00%	7.7/sec	249.1
/volume/user/list-c...	12000	337	240	689	12	7797	0.00%	15.3/sec	85.2
/volume/user/edit....	12000	333	227	671	11	8401	0.00%	15.3/sec	84.8
TOTAL	78000	385	204	837	3	19846	0.00%	99.3/sec	6396.9



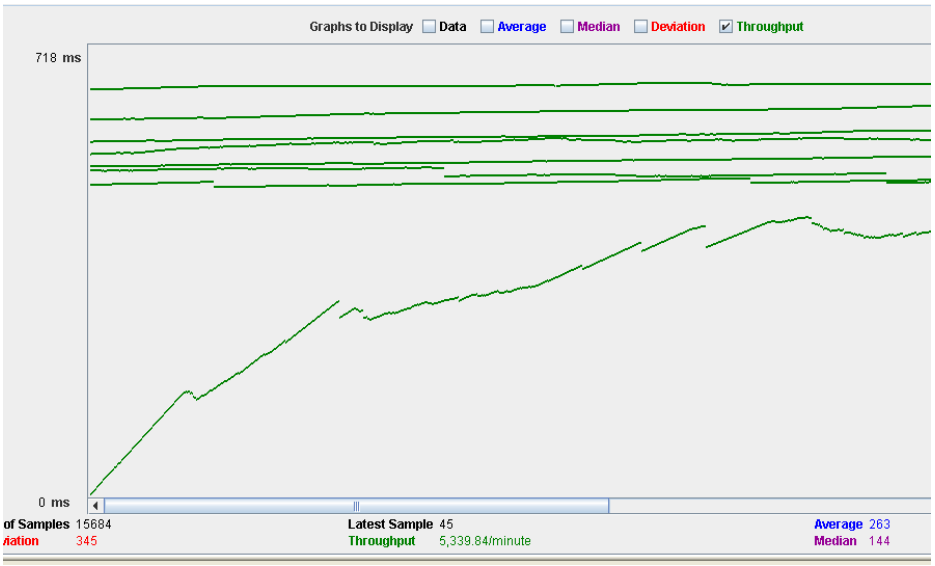
Test 3: List volumes.

With 30 users and 100 loops:



Filename Browse... Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	3000	370	253	730	14	4071	0.00%	9.7/sec	48.9
/scripts/jquery.js	3000	264	198	519	17	4940	0.00%	9.8/sec	2627.4
/scripts/jmenu.js	3000	77	53	171	4	944	0.00%	9.8/sec	103.8
/scripts/jquery-ui.js	3000	390	293	768	21	5063	0.00%	9.8/sec	4444.1
/styles/common.c...	3000	76	51	160	3	1119	0.00%	9.8/sec	8.7
/styles/jmenu.css	3000	70	49	148	4	1029	0.00%	9.8/sec	19.0
/styles/displaytag....	3000	69	48	143	3	1439	0.00%	9.8/sec	29.8
/images/logo.jpg	3000	94	69	189	5	1181	0.00%	9.8/sec	370.4
/volume/list.do	3000	368	269	773	15	2460	0.00%	9.8/sec	60.7
/volume/display.do	3000	302	224	633	12	1943	0.00%	9.9/sec	61.0
TOTAL	30000	208	116	488	3	5063	0.00%	96.5/sec	7680.1



With 60 users and 100 loops:

Aggregate Report

Name: Aggregate Report

Comments:

Write results to file / Read from file

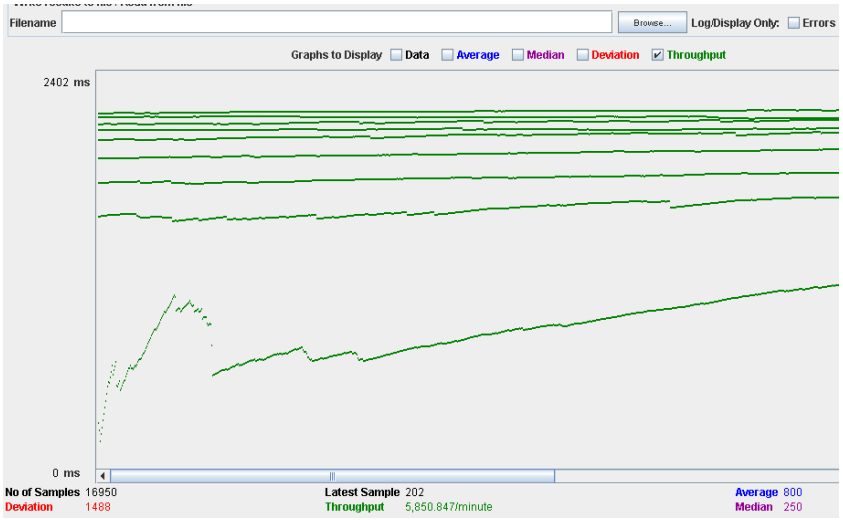
Filename | Browse... | Log/Display Only: Errors Successes | Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	6000	1270	823	2961	12	12691	0.00%	7.5/sec	38.1
/scripts/jquery.js	6000	705	426	1593	15	8773	0.00%	7.5/sec	2027.6
/scripts/jmenu.js	6000	161	93	359	3	5511	0.00%	7.5/sec	80.0
/scripts/jquery-ui.js	6000	990	569	2304	20	10007	0.00%	7.5/sec	3420.9
/styles/common.c...	6000	156	92	333	3	6248	0.00%	7.5/sec	6.7
/styles/jmenu.css	6000	155	82	327	3	6835	0.00%	7.5/sec	14.6
/styles/displaytag....	6000	149	83	317	2	6633	0.00%	7.5/sec	22.9
/images/logo.jpg	6000	218	120	473	6	7296	0.00%	7.5/sec	284.7
/volume/list.do	6000	1328	842	3093	19	12915	0.00%	7.5/sec	46.7
/volume/display.do	6000	1205	729	2885	16	12743	0.00%	7.5/sec	46.6
TOTAL	60000	634	236	1707	2	12915	0.00%	75.2/sec	5982.0

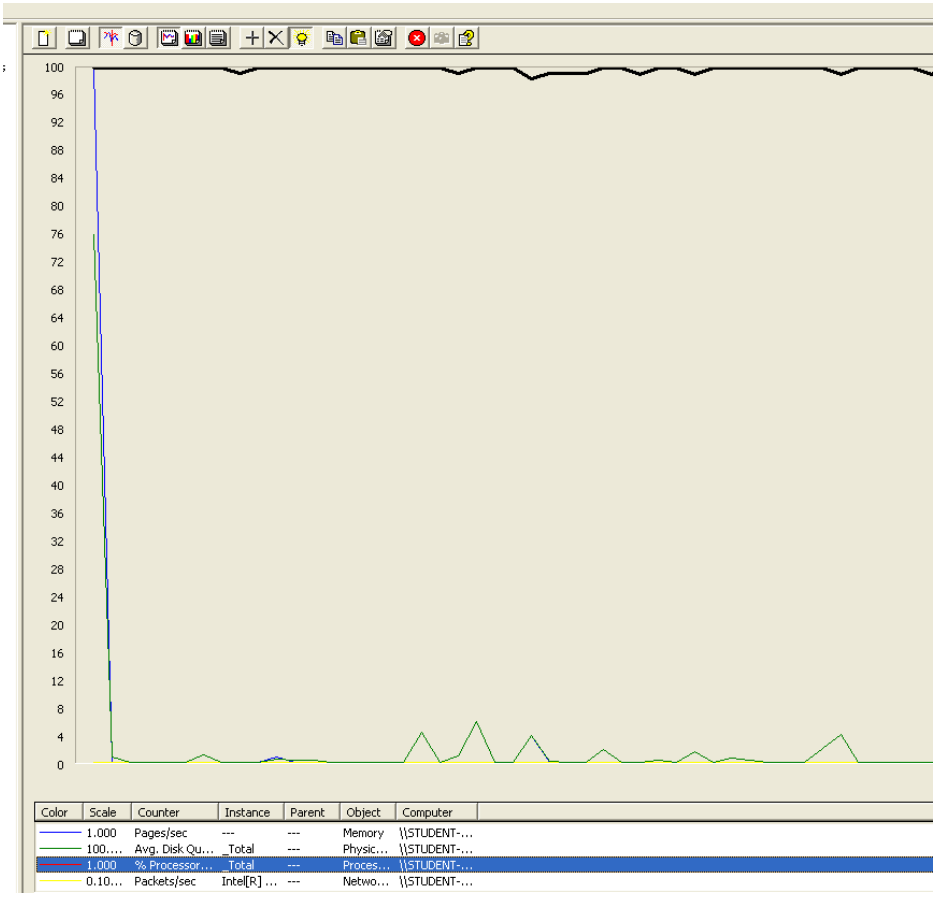
Because this use case seems to be a possible cause of performance issues (it takes about 3 seconds to list the volumes when there are 60 concurrent users) we will test what happens when there are 100 concurrent users.

With 100 users and 100 loops:

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	10000	2665	1568	6640	12	42071	0.00%	8.5/sec	43.0
/scripts/jquery.js	10000	530	387	1045	13	7413	0.00%	8.5/sec	2289.3
/scripts/jmenu.js	10000	145	105	293	3	3878	0.00%	8.5/sec	90.4
/scripts/jquery-ui.js	10000	756	555	1472	33	9221	0.00%	8.5/sec	3863.8
/styles/common.c...	10000	145	106	291	2	2776	0.00%	8.5/sec	7.6
/styles/jmenu.css	10000	138	101	284	2	3286	0.00%	8.5/sec	16.5
/styles/displaytag....	10000	138	100	282	4	3361	0.00%	8.5/sec	25.9
/images/logo.jpg	10000	188	140	371	8	3862	0.00%	8.5/sec	321.4
/volume/list.do	10000	2671	1606	6496	16	33952	0.00%	8.5/sec	52.7
/volume/display.do	10000	2553	1445	6294	18	35835	0.00%	8.5/sec	52.6
TOTAL	100000	993	249	2823	2	42071	0.00%	84.9/sec	6757.2



Due to these results, this use case will be later compared to the list all users use case.



We can observe that in this case, the processor is the most stressed component and it will become the system bottleneck.

Test 4: Adding a newspaper to a volume.

With 30 users and 100 loops:

Aggregate Report

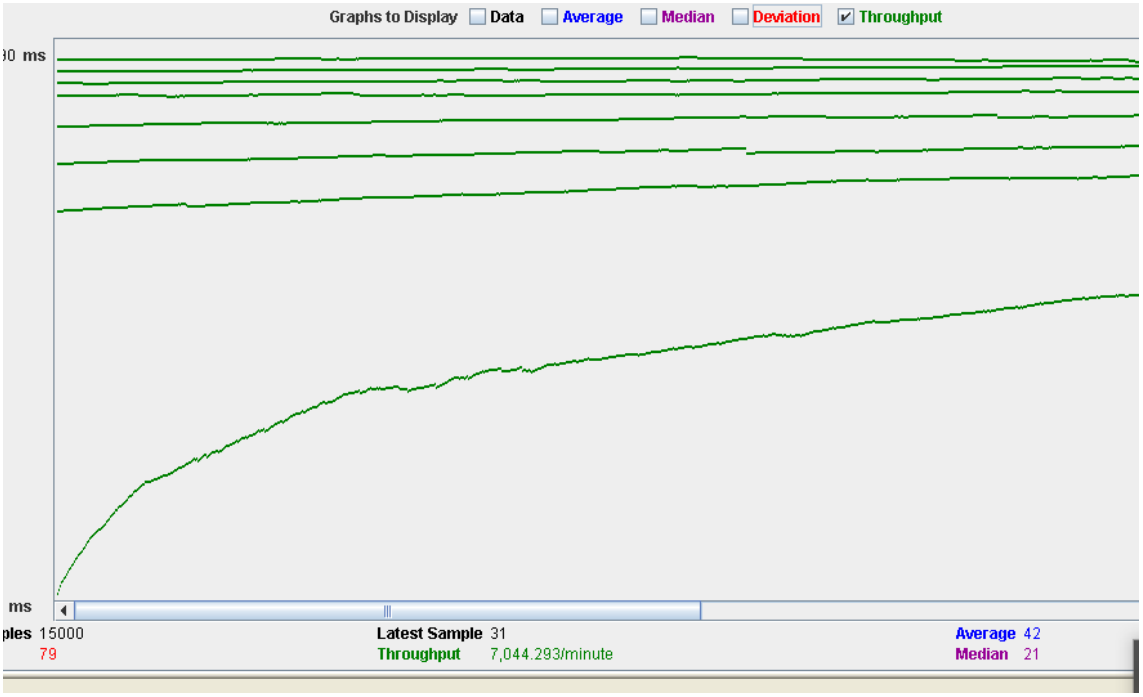
Name: Aggregate Report

Comments:

Write results to file / Read from file

Filename Browse... Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	3000	58	24	110	7	1787	0.00%	23.7/sec	120.0
/volume/user/list-c...	3000	40	20	80	6	1365	0.00%	23.9/sec	132.9
/newspaper/user/l...	6000	36	20	71	7	799	0.00%	47.9/sec	266.2
/volume/user/add-...	3000	37	20	74	7	695	0.00%	24.0/sec	133.3
TOTAL	15000	42	21	81	6	1787	0.00%	117.4/sec	641.0

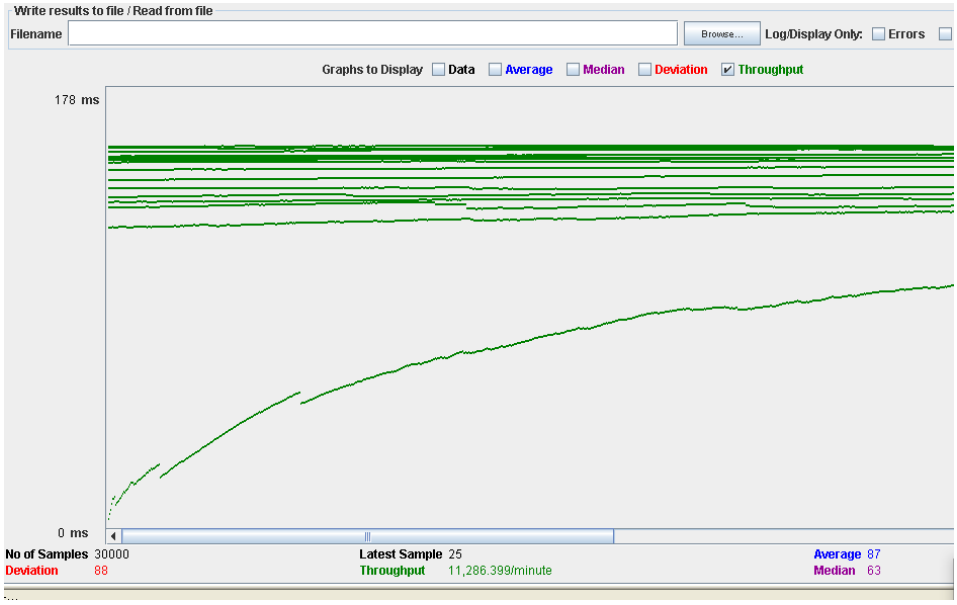


With 60 users and 100 loops:

Write results to file / Read from file

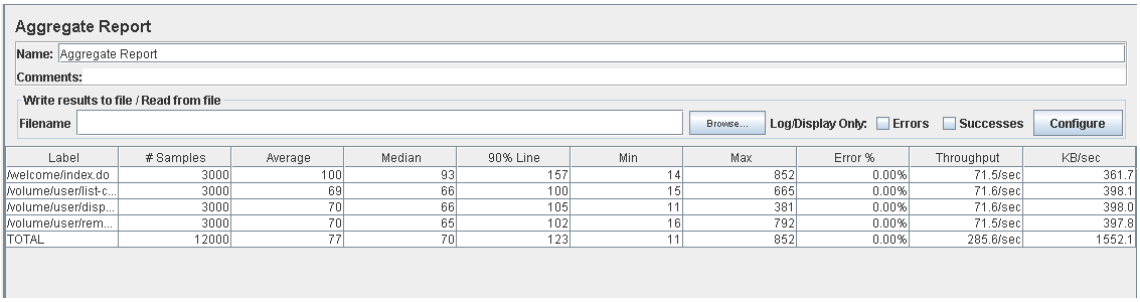
Filename Browse... Log/Display Only: Errors Successes Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	6000	136	104	270	8	1861	0.00%	37.9/sec	191.6
/volume/user/list-c...	6000	76	56	145	8	1264	0.00%	37.9/sec	210.9
/newspaper/user/l...	12000	74	57	145	8	720	0.00%	75.9/sec	422.1
/volume/user/add-...	6000	74	57	145	8	725	0.00%	38.2/sec	212.1
TOTAL	30000	87	63	174	8	1861	0.00%	188.1/sec	1027.0



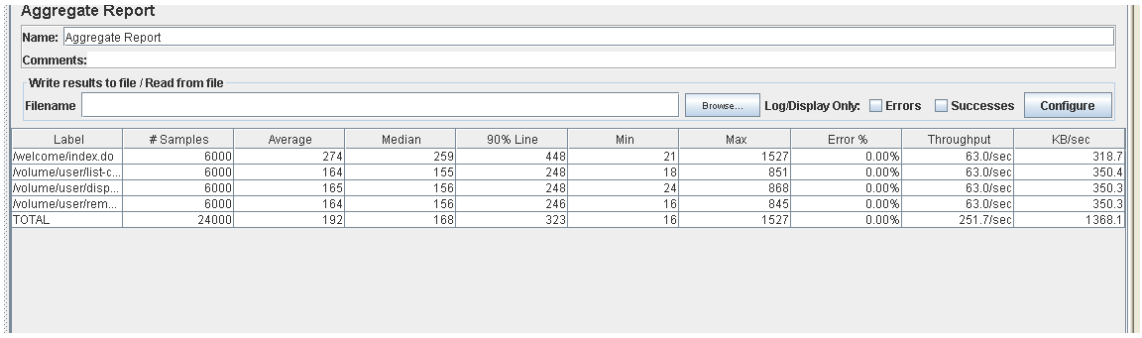
Test 5: Removing a newspaper from a volume.

With 30 users and 100 loops:

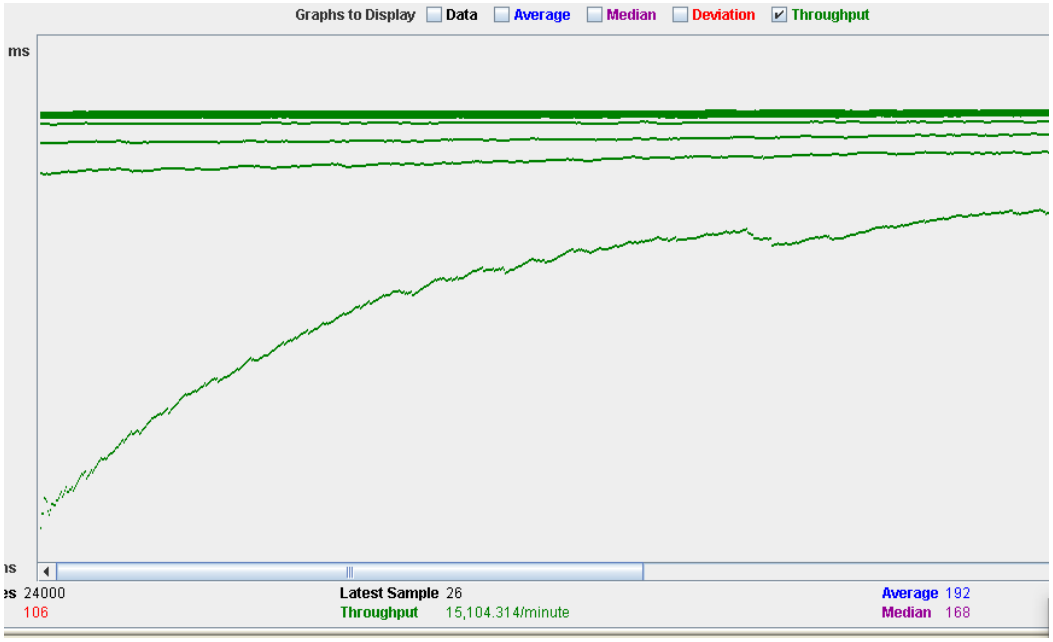


Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	3000	100	93	157	14	852	0.00%	71.5/sec	361.7
/volume/user/list-c...	3000	69	66	100	15	665	0.00%	71.6/sec	398.1
/volume/user/disp...	3000	70	66	105	11	381	0.00%	71.6/sec	398.0
/volume/user/rem...	3000	70	65	102	16	792	0.00%	71.5/sec	397.8
TOTAL	12000	77	70	123	11	852	0.00%	285.6/sec	1552.1

With 60 users and 100 loops:



Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/welcome/index.do	6000	274	259	448	21	1527	0.00%	63.0/sec	318.7
/volume/user/list-c...	6000	164	155	248	18	851	0.00%	63.0/sec	350.4
/volume/user/disp...	6000	165	156	248	24	868	0.00%	63.0/sec	350.3
/volume/user/rem...	6000	164	156	246	16	845	0.00%	63.0/sec	350.3
TOTAL	24000	192	168	323	16	1527	0.00%	251.7/sec	1368.1



3. TESTS RAN IN MACHINE 2

This computer has the following features:

Processor: Intel(R)Core(TM) i5-7200U 2.5GHz with Turbo Boost up to 3.1GHz

RAM memory: 8GB DDR4

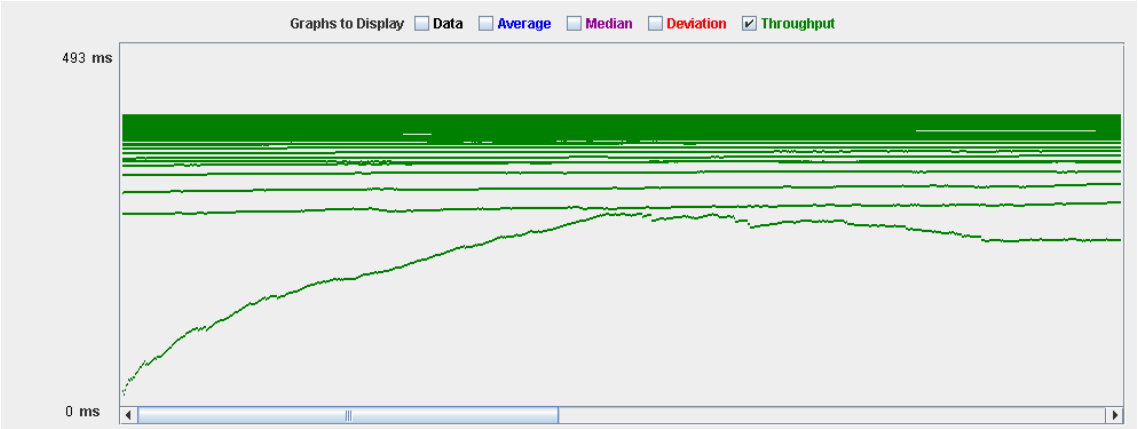
Hard Disk: 1000 GB HDD

Wireless adapter: Intel(R) Dual Band Wireless-AC 3168.

Test 6: Create a new folder in the root directory:

With 60 users and 100 loops:

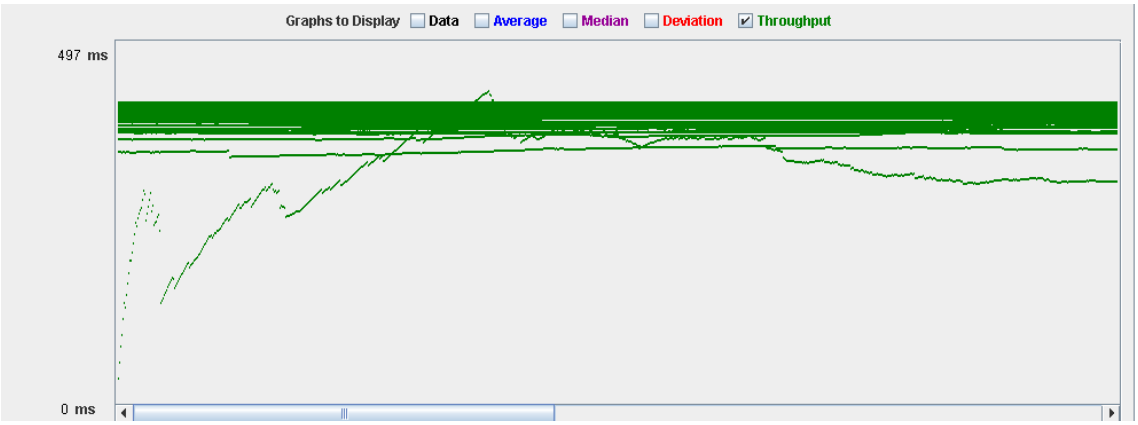
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	12000	284	161	616	9	7347	0.00%	10.1/sec	61.9
/styles/jmenu.css	6000	61	40	126	3	2178	0.00%	5.1/sec	9.9
/styles/displayta...	6000	58	40	124	3	1511	0.00%	5.1/sec	15.5
/styles/common...	6000	60	39	123	3	4258	0.00%	5.1/sec	4.5
/scripts/jmenu.js	6000	65	42	133	3	4336	0.00%	5.1/sec	54.3
/scripts/jquery.js	6000	219	157	428	11	4171	0.00%	5.1/sec	1375.9
/scripts/jquery-u...	6000	320	238	645	22	3509	0.00%	5.1/sec	2322.0
/images/logo.jpg	6000	83	58	167	5	1494	0.00%	5.1/sec	193.0
/favicon.ico	6000	85	58	176	5	1468	0.00%	5.1/sec	166.1
/images/arrow_...	6000	58	39	123	3	1515	0.00%	5.1/sec	2.6
/security/login.do	6000	77	50	149	7	2810	0.00%	5.1/sec	27.3
/j_spring_secur...	6000	536	383	1126	32	6836	0.00%	5.1/sec	37.6
/folder/actor/list....	6000	391	247	906	29	7803	0.00%	5.1/sec	43.1
/folder/actor/sav...	6000	452	288	1052	36	6629	0.00%	5.1/sec	43.2
TOTAL	90000	202	91	493	3	7803	0.00%	76.0/sec	4318.2



Test 6: Create a child folder.

With 60 users and 100 loops:

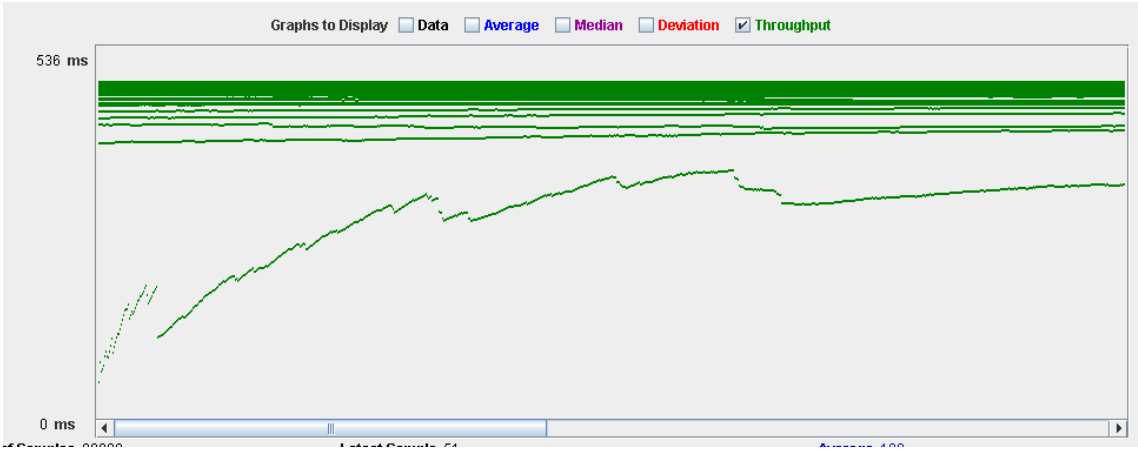
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	12000	270	183	593	11	3698	0.00%	11.5/sec	70.0
/styles/common.css	6000	42	29	86	3	1129	0.00%	5.8/sec	5.1
/styles/jmenu.css	6000	41	28	82	2	908	0.00%	5.8/sec	11.2
/styles/displaytag.css	6000	42	28	84	2	1422	0.00%	5.8/sec	17.6
/scripts/jquery-ui.js	6000	269	215	527	21	3065	0.00%	5.8/sec	2622.6
/scripts/jmenu.js	6000	45	31	92	2	1042	0.00%	5.8/sec	61.4
/scripts/jquery.js	6000	184	143	353	14	2040	0.00%	5.8/sec	1555.1
/images/logo.jpg	6000	65	47	124	6	1754	0.00%	5.8/sec	218.3
/images/arrow_down.png	6000	45	30	91	3	1226	0.00%	5.8/sec	2.9
/security/login.do	6000	52	37	98	7	1321	0.00%	5.8/sec	30.8
/j_spring_security_check	6000	544	422	1061	26	5119	0.00%	5.8/sec	42.4
/folder/actor/list.do	12000	297	223	609	18	3414	0.00%	11.6/sec	87.3
/folder/actor/save.do	6000	333	243	713	23	4065	0.00%	5.8/sec	40.8
TOTAL	90000	186	87	472	2	5119	0.00%	86.0/sec	4733.4



Test 7: Move folder.

With 60 users and 100 loops:

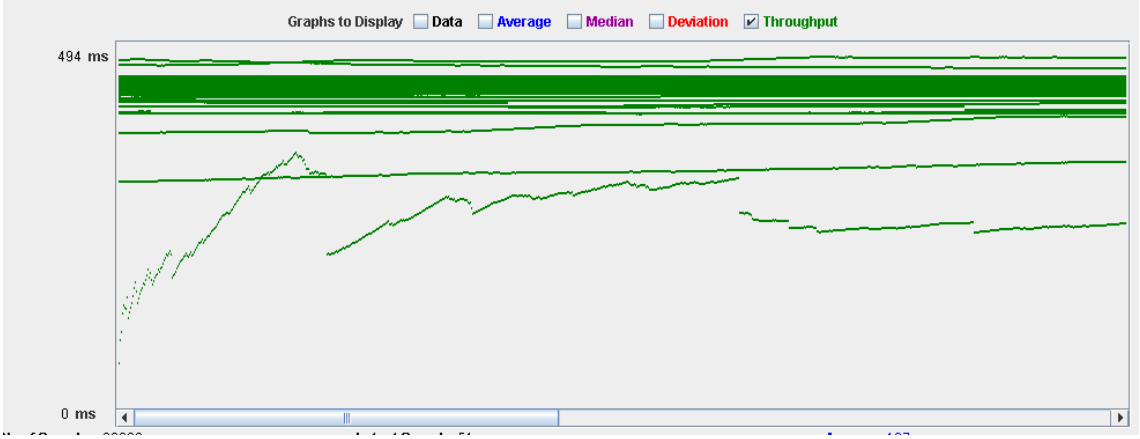
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	12000	265	189	562	13	5236	0.00%	11.4/sec	69.4
/styles/jmenu.css	6000	41	31	78	3	1889	0.00%	5.7/sec	11.1
/scripts/jquery.js	6000	165	129	299	14	3534	0.00%	5.7/sec	1540.6
/styles/displayta...	6000	42	32	82	3	1082	0.00%	5.7/sec	17.4
/styles/common...	6000	43	32	84	3	919	0.00%	5.7/sec	5.1
/scripts/jmenu.js	6000	42	32	82	3	739	0.00%	5.7/sec	60.9
/scripts/jquery-u...	6000	236	192	442	21	3360	0.00%	5.7/sec	2605.2
/images/logo.jpg	6000	59	46	108	6	1071	0.00%	5.7/sec	216.7
/images/arrow_...	6000	43	32	86	3	930	0.00%	5.7/sec	2.9
/security/login.do	6000	49	39	91	7	508	0.00%	5.7/sec	30.7
/j_spring_secur...	6000	513	436	951	22	2885	0.00%	5.7/sec	42.2
/folder/actor/list....	6000	317	250	623	28	2482	0.00%	5.7/sec	44.4
/folder/actor/mo...	6000	328	256	671	24	3992	0.00%	5.7/sec	38.2
/folder/actor/mo...	6000	422	337	857	30	3157	0.00%	5.7/sec	40.0
TOTAL	90000	189	88	496	3	5236	0.00%	85.2/sec	4682.6



Test 8: Rename folder.

With 60 users and 100 loops:

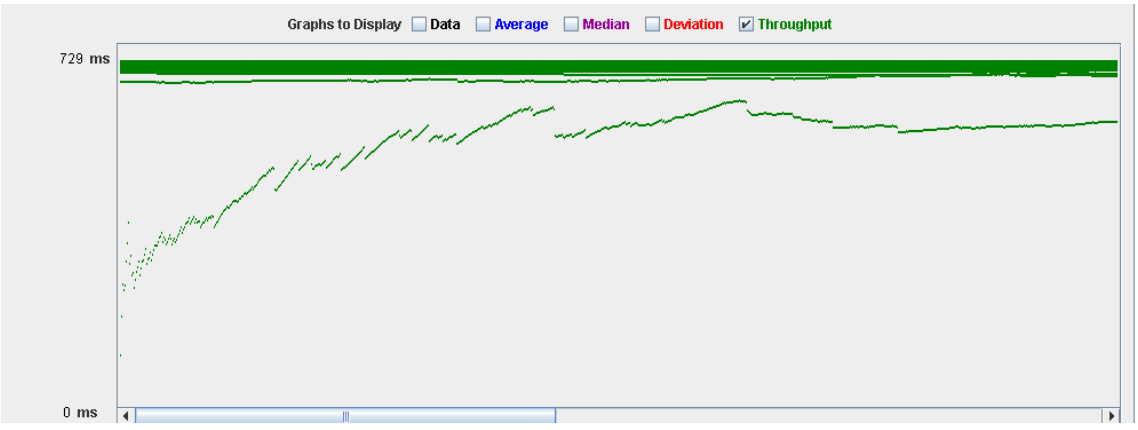
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	12000	258	163	570	10	4912	0.00%	10.6/sec	64.4
/styles/common...	6000	38	26	73	3	1770	0.00%	5.3/sec	4.7
/scripts/jquery.js	6000	184	143	343	13	3511	0.00%	5.3/sec	1430.5
/styles/jmenu.css	6000	40	26	78	2	1165	0.00%	5.3/sec	10.3
/styles/displayta...	6000	42	27	83	2	963	0.00%	5.3/sec	16.2
/scripts/jmenu.js	6000	40	27	75	3	1662	0.00%	5.3/sec	56.5
/scripts/jquery-u...	6000	266	211	501	24	3680	0.00%	5.3/sec	2416.6
/images/logo.jpg	6000	60	42	110	6	3307	0.00%	5.3/sec	200.9
/images/arrow_...	6000	41	26	81	3	1671	0.00%	5.3/sec	2.7
/security/login.do	6000	51	35	97	7	3244	0.00%	5.3/sec	28.5
/j_spring_secur...	6000	529	377	1082	24	7752	0.00%	5.3/sec	39.2
/folder/actor/list...	6000	336	242	686	32	5791	0.00%	5.3/sec	43.0
/folder/actor/edit...	6000	239	160	493	15	5617	0.00%	5.3/sec	35.0
/folder/actor/sav...	6000	418	297	892	36	4393	0.00%	5.3/sec	35.0
TOTAL	90000	187	80	471	2	7752	0.00%	79.0/sec	4344.0



Test 9: Delete folder.

With 60 users and 100 loops:

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	12000	421	311	911	11	4167	0.00%	12.0/sec	72.9
/styles/jmenu.css	6000	53	39	105	2	1795	0.00%	6.0/sec	11.7
/styles/common...	6000	51	37	103	2	862	0.00%	6.0/sec	5.3
/scripts/jquery.js	6000	233	191	424	13	2695	0.00%	6.0/sec	1618.9
/styles/displayta...	6000	58	41	119	2	1809	0.00%	6.0/sec	18.3
/scripts/jquery-u...	6000	340	287	622	22	3373	0.00%	6.0/sec	2731.0
/scripts/jmenu.js	6000	54	40	105	3	749	0.00%	6.0/sec	63.9
/images/logo.jpg	6000	77	59	143	4	992	0.00%	6.0/sec	227.0
/images/arrow_...	6000	55	39	111	2	991	0.00%	6.0/sec	3.0
/security/login.do	6000	66	48	123	6	1804	0.00%	6.0/sec	32.1
/j_spring_secur...	6000	816	708	1489	34	4587	0.00%	6.0/sec	44.2
/folder/actor/list...	6000	485	381	976	26	4128	0.00%	6.0/sec	46.6
/folder/actor/edit...	6000	267	188	563	11	3686	0.00%	6.0/sec	76.6
/folder/actor/del...	6000	264	190	540	11	3221	0.00%	6.0/sec	76.6
TOTAL	90000	244	110	643	2	4587	0.00%	89.6/sec	4998.5



4. TESTS RAN IN MACHINE 3

This computer has the following features:

Processor: Intel Core i5-7300HQ (2,5 GHz-3,5 GHz, 6 MB cache, 4 cores)

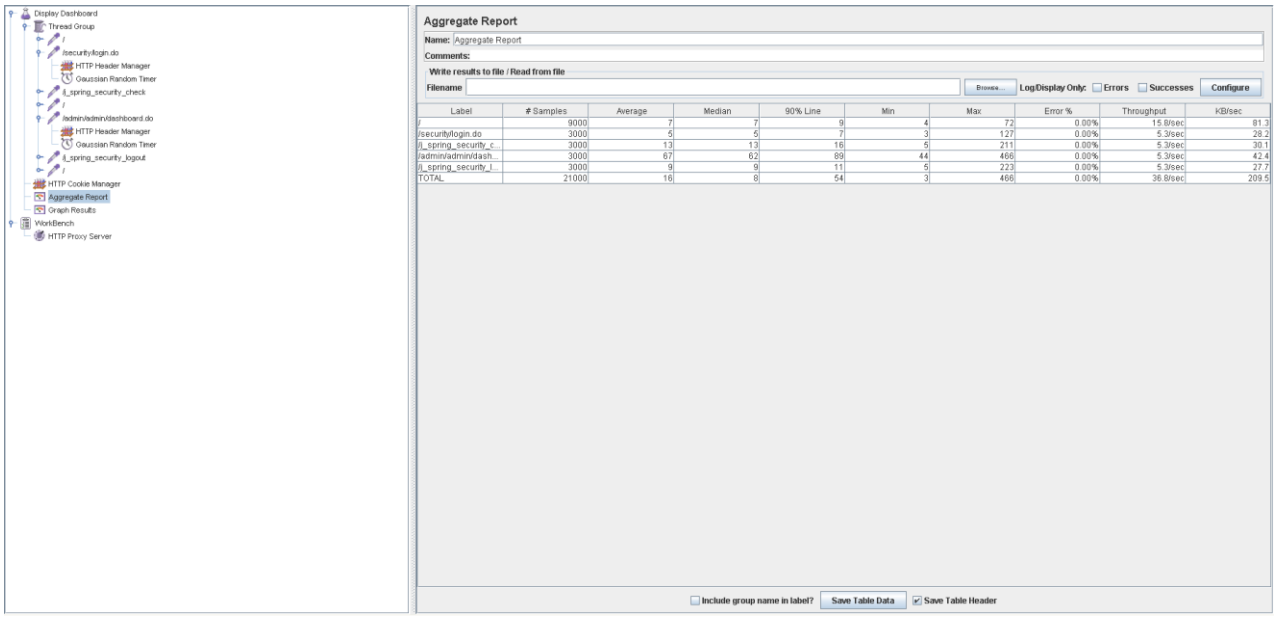
RAM memory: SDRAM 8 GB DDR4-2400 (1 x 8 GB)

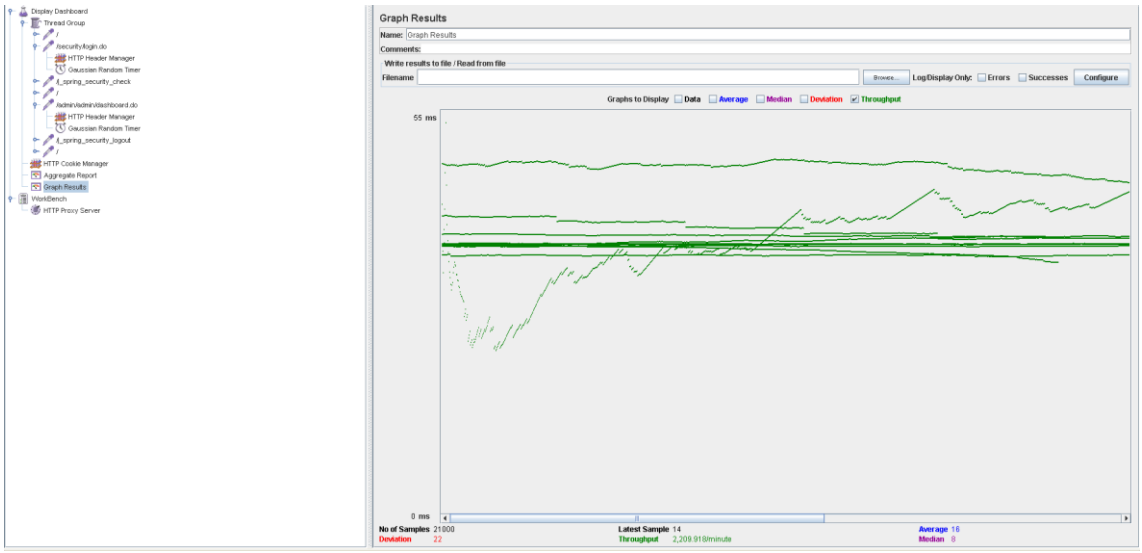
Hard Disk: SATA 1 TB 7200 rpm

Wireless adapter: Intel(R) Dual Band Wireless-AC 7265

Test 10: Display the dashboard as an administrator.

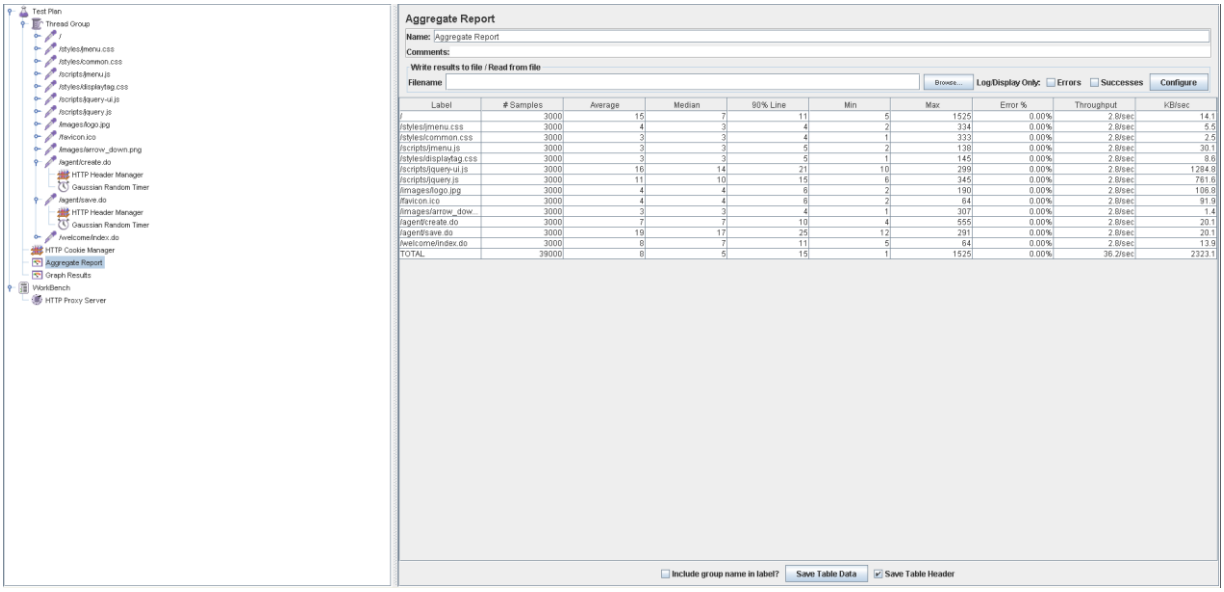
With 30 users and 100 loops.

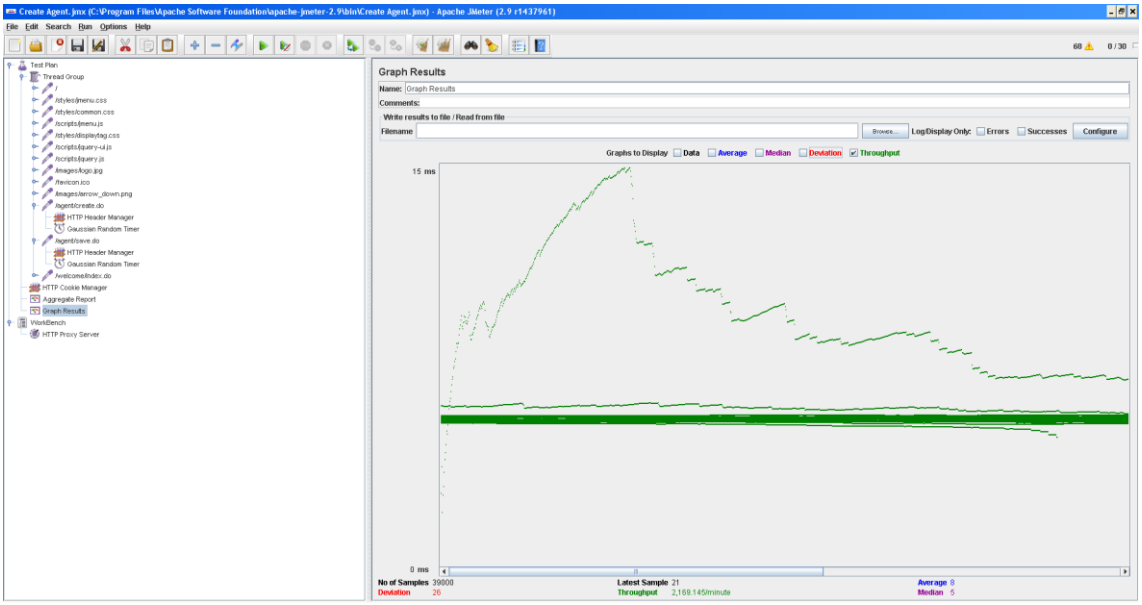




Test 11: Register as an agent.

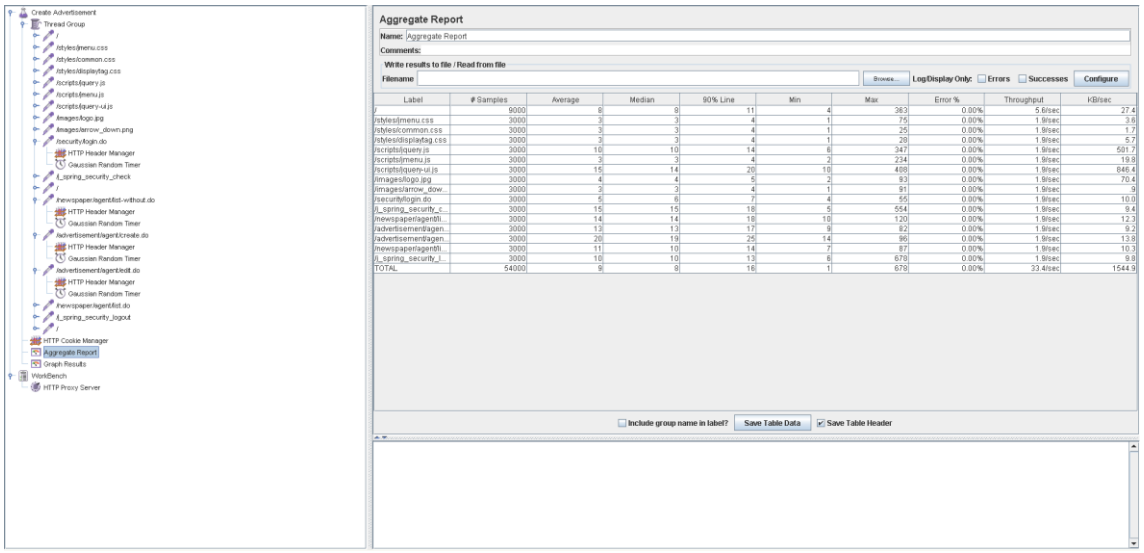
With 30 users and 100 loops

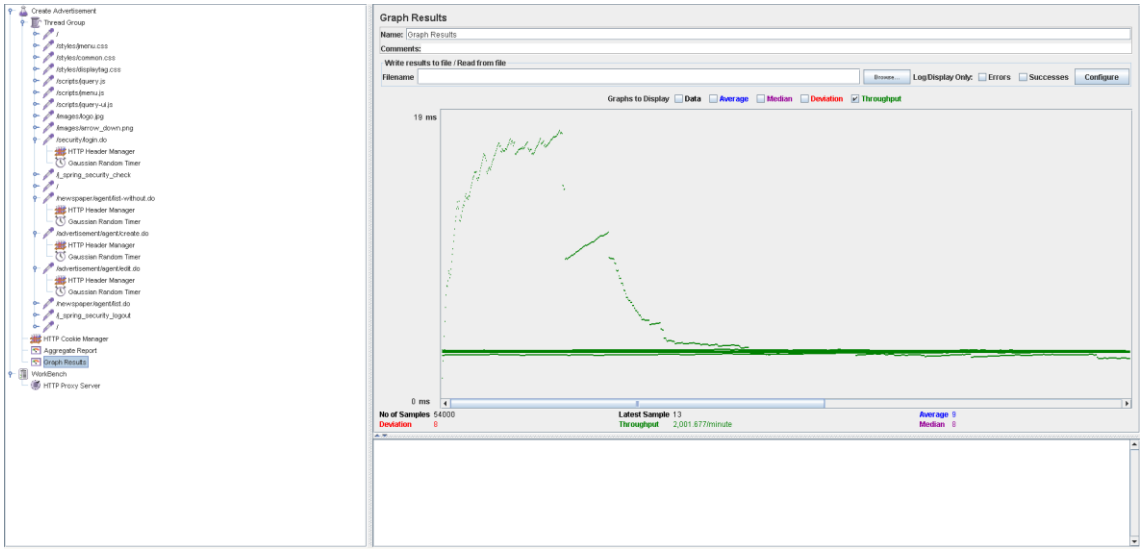




Test 12: Create an advertisement.

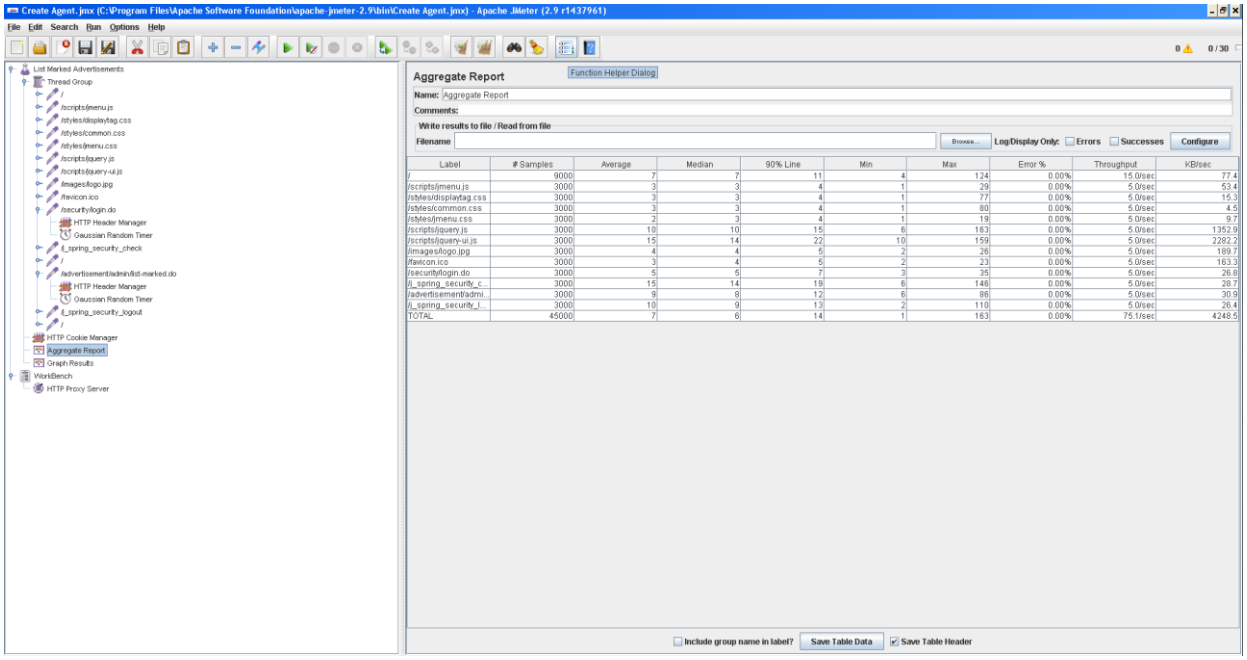
With 30 users and 100 loops:

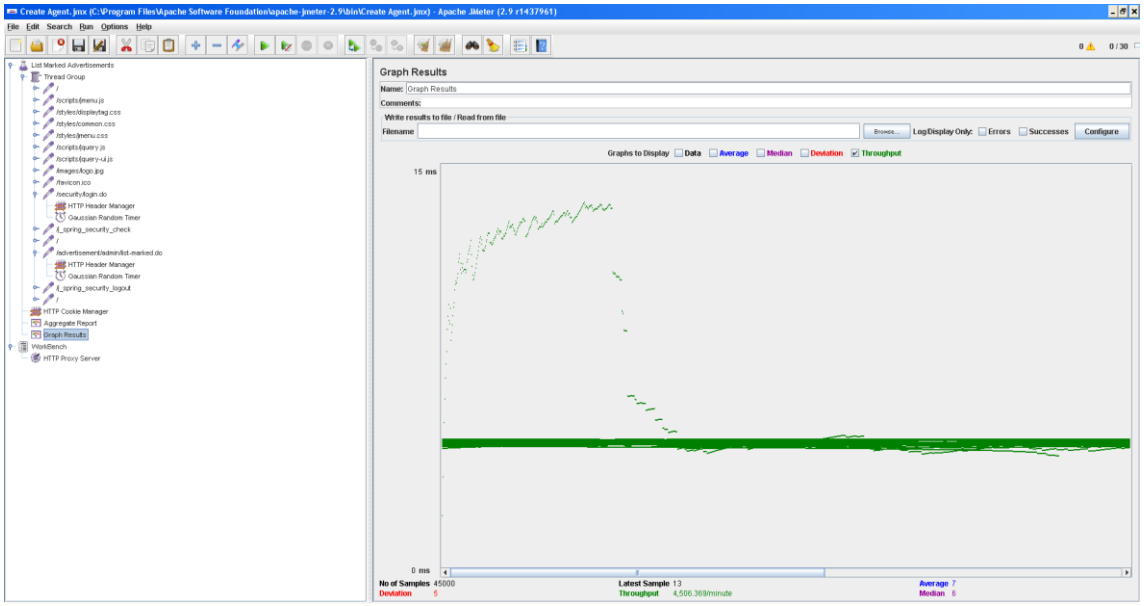

Create Advertisement
Thread Group
/
/styles/jmenu.css
/styles/common.css
/styles/displaytag.css
/scripts/jquery.js
/scripts/jmenu.js
/scripts/jquery-ui.js
/images/logo.jpg
/images/arrow_down.png
/security/login.do
HTTP Header Manager
Gaussian Random Timer
/j_spring_security_check
/
/newspaper/agent/list-without.do
HTTP Header Manager
Gaussian Random Timer
/advertisement/agent/create.do
HTTP Header Manager
Gaussian Random Timer
/advertisement/agent/edit.do
HTTP Header Manager
Gaussian Random Timer
/newspaper/agent/list.do
/j_spring_security_logout
/
HTTP Cookie Manager
Aggregate Report
Graph Results
WorkBench
HTTP Proxy Server
Aggregate Report
Name: Aggregate Report
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Label # Samples Average Median 90% Line Min Max Error % Throughput KB/sec
/ 9000 8 8 11 4 383 0.00% 5.6/sec 27.4
/styles/jmenu.css 3000 3 3 4 1 75 0.00% 1.9/sec 3.6
/styles/common.css 3000 3 3 4 1 25 0.00% 1.9/sec 1.7
/styles/displaytag.css 3000 3 3 4 1 20 0.00% 1.9/sec 5.7
/scripts/jquery.js 3000 10 10 14 6 347 0.00% 1.9/sec 501.7
/scripts/jmenu.js 3000 3 3 4 2 234 0.00% 1.9/sec 19.8
/scripts/jquery-ui.js 3000 15 14 20 10 408 0.00% 1.9/sec 846.4
/images/logo.jpg 3000 4 4 5 2 93 0.00% 1.9/sec 70.4
/images/arrow_dow... 3000 3 3 4 1 91 0.00% 1.9/sec 9
/security/login.do 3000 5 6 7 4 55 0.00% 1.9/sec 10.0
/j_spring_security_c... 3000 15 15 18 5 554 0.00% 1.9/sec 9.4
/newspaper/agent/li... 3000 14 14 18 10 120 0.00% 1.9/sec 12.3
/advertisement/agen... 3000 13 13 17 9 82 0.00% 1.9/sec 9.2
/advertisement/agen... 3000 20 19 25 14 96 0.00% 1.9/sec 13.8
/newspaper/agent/li... 3000 11 10 14 7 87 0.00% 1.9/sec 10.3
/j_spring_security_l... 3000 10 10 13 8 678 0.00% 1.9/sec 9.8
TOTAL 54000 9 8 16 1 679 0.00% 33.4/sec 1544.9
Include group name in label?
Save Table Data
Save Table Header


Create Advertisement
Thread Group
/
/styles/jmenu.css
/styles/common.css
/styles/displaytag.css
/scripts/jquery.js
/scripts/jmenu.js
/scripts/jquery-ui.js
/images/logo.jpg
/images/arrow_down.png
/security/login.do
HTTP Header Manager
Gaussian Random Timer
/j_spring_security_check
/
/newspaper/agent/list-without.do
HTTP Header Manager
Gaussian Random Timer
/advertisement/agent/create.do
HTTP Header Manager
Gaussian Random Timer
/advertisement/agent/edit.do
HTTP Header Manager
Gaussian Random Timer
/newspaper/agent/list.do
/j_spring_security_logout
/
HTTP Cookie Manager
Aggregate Report
Graph Results
WorkBench
HTTP Proxy Server
Graph Results
Name: Graph Results
Comments:
Write results to file / Read from file
Filename
Browse...
Log/Display Only: Errors Successes
Configure
Graphs to Display Data Average Median Deviation Throughput
19 ms
0 ms
No of Samples 54000
Latest Sample 13
Average 9
Deviation 8
Throughput 2,001.677/minute
Median 8

Test 13: List marked advertisements.

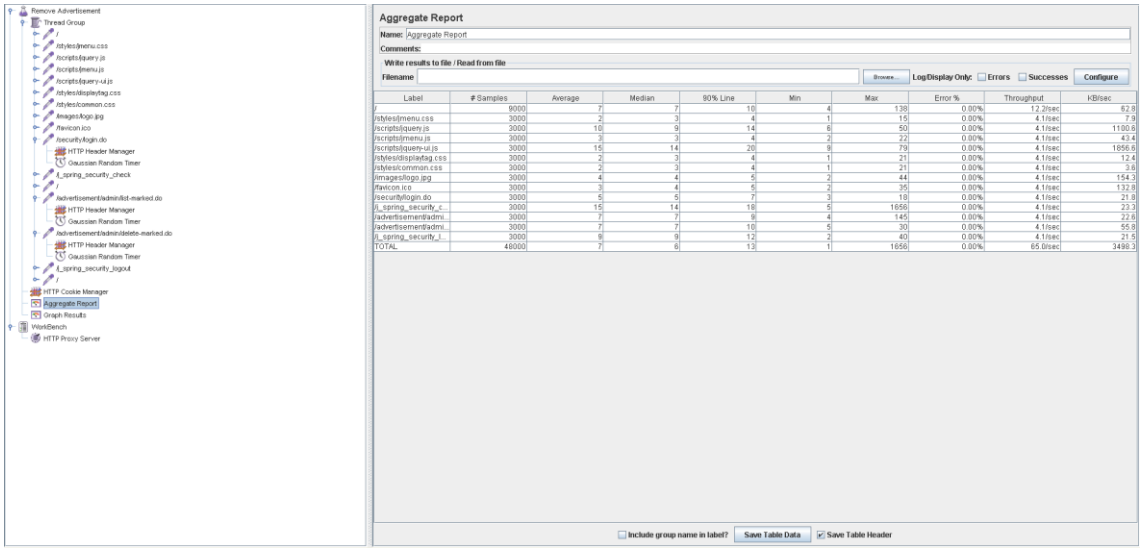
With 30 users and 100 loops:





Test 14: Delete an advertisement.

With 30 users and 100 loops:



5. TESTS RAN IN MACHINE 4

This computer has the following features:

Processor: Intel Core i7-6500U (2-core,2.50-3.10 GHz, 4MB cache)

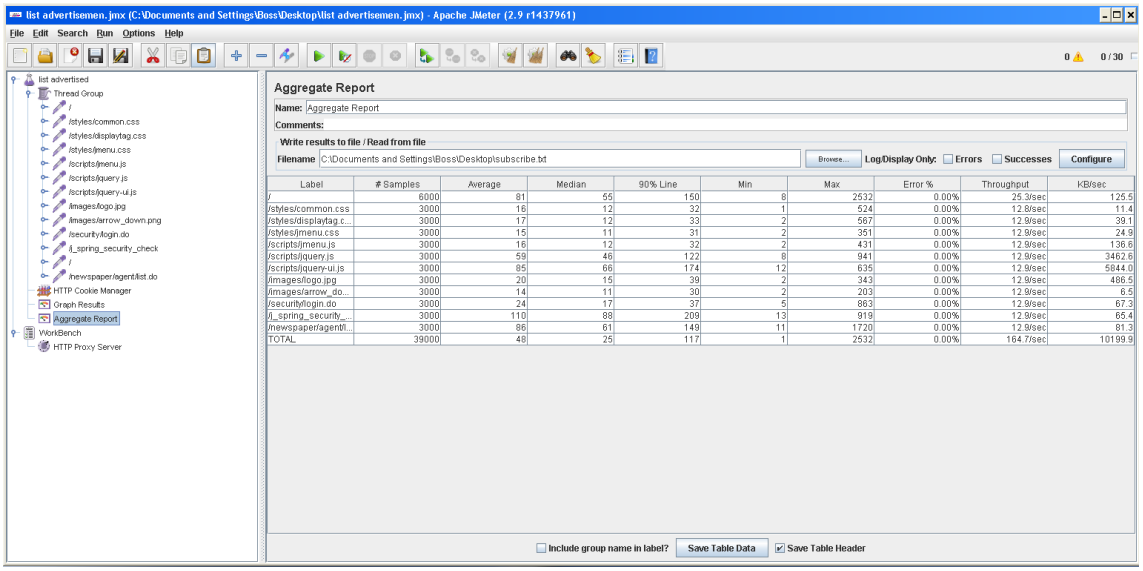
RAM memory: 8GB DDR3.

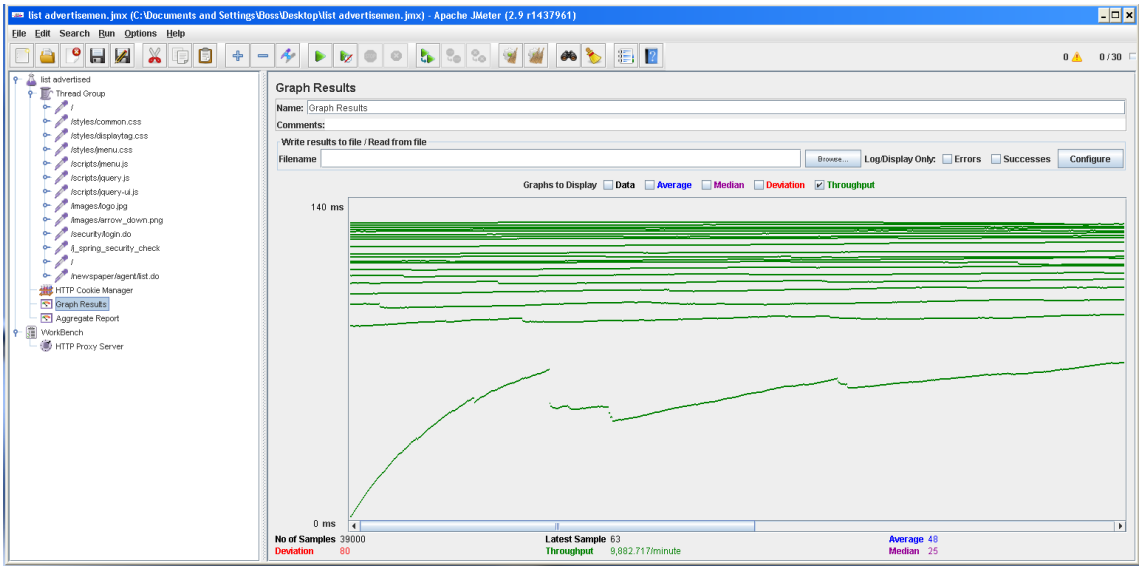
Hard Disk: 1000 GB HDD.

Wireless adapter: Qualcomm Atheros QCA61x4A Wireless Network Adapter.

Test 15: List advertised newspapers.

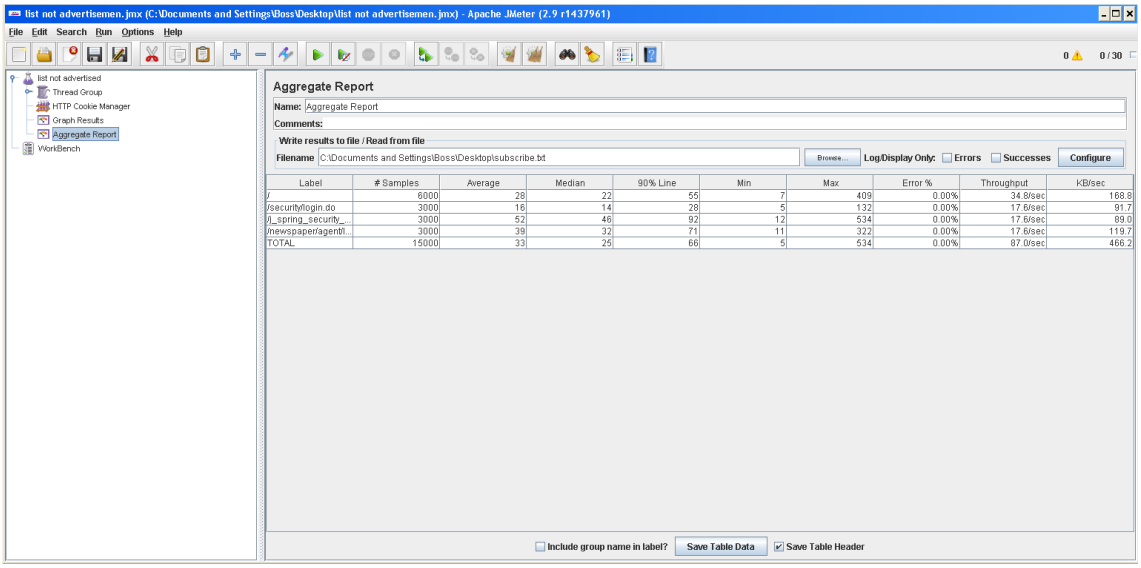
With 30 users and 100 loops:

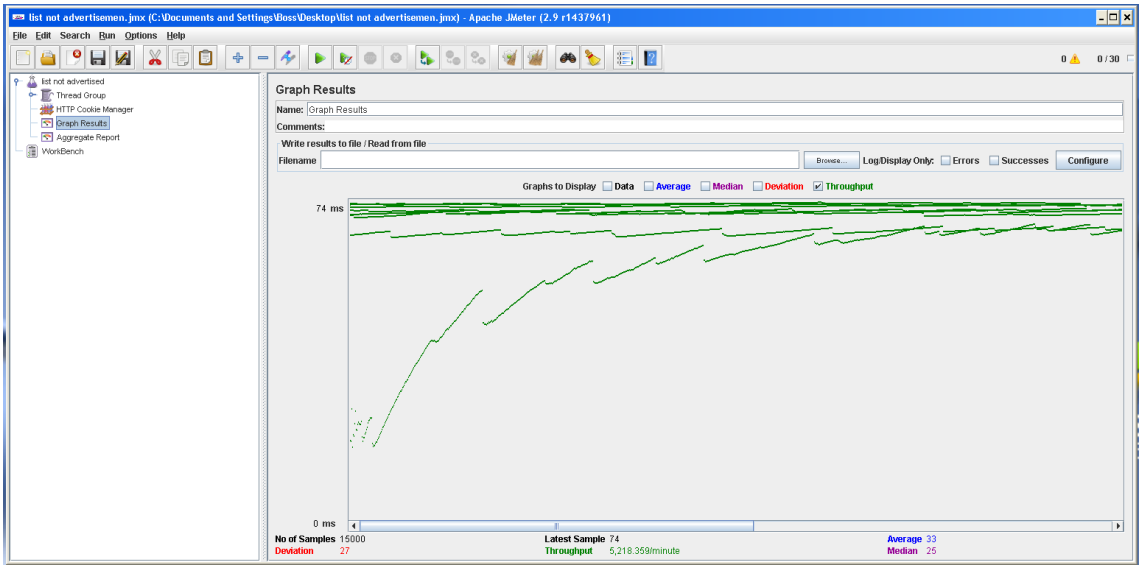




Test 16: List non advertised newspapers.

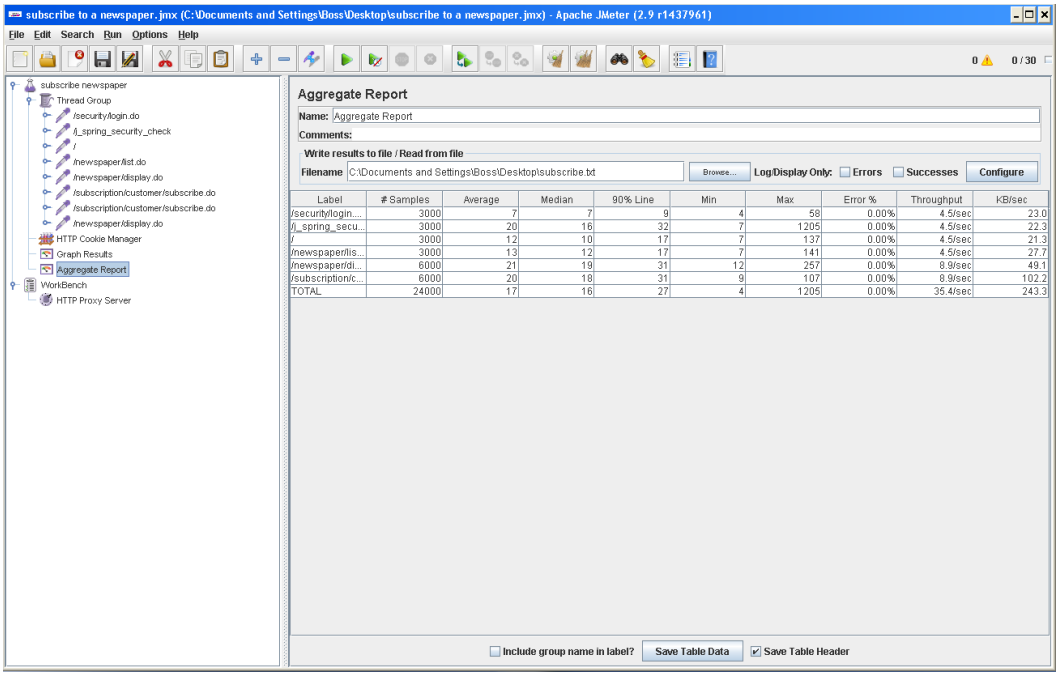
With 30 users and 100 loops:

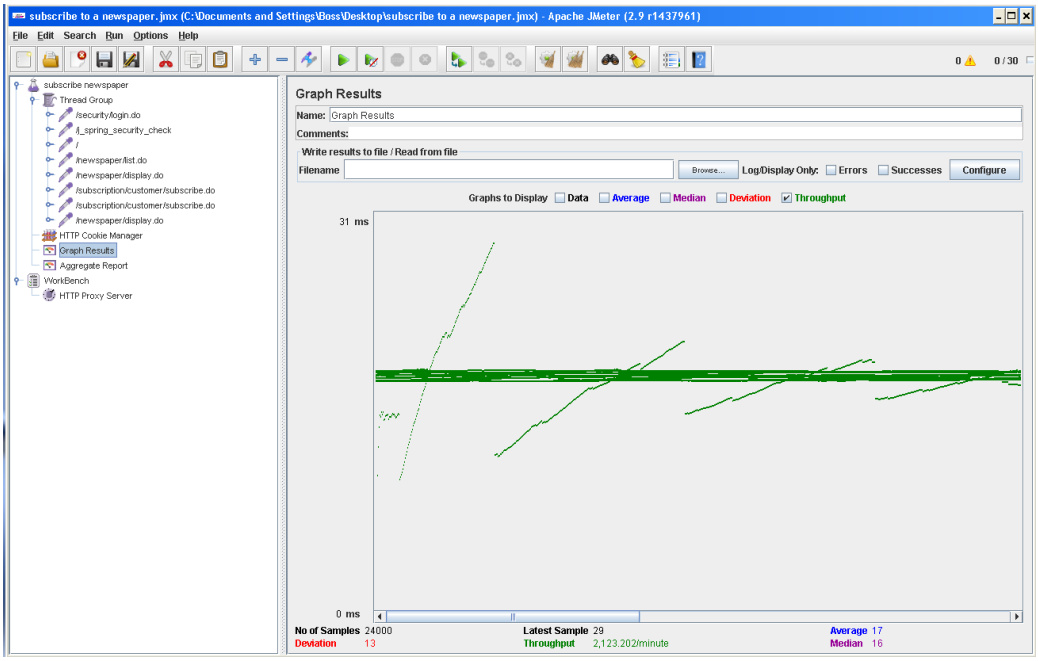




Test 17: Subscribe to a newspaper.

With 30 users and 100 loops:

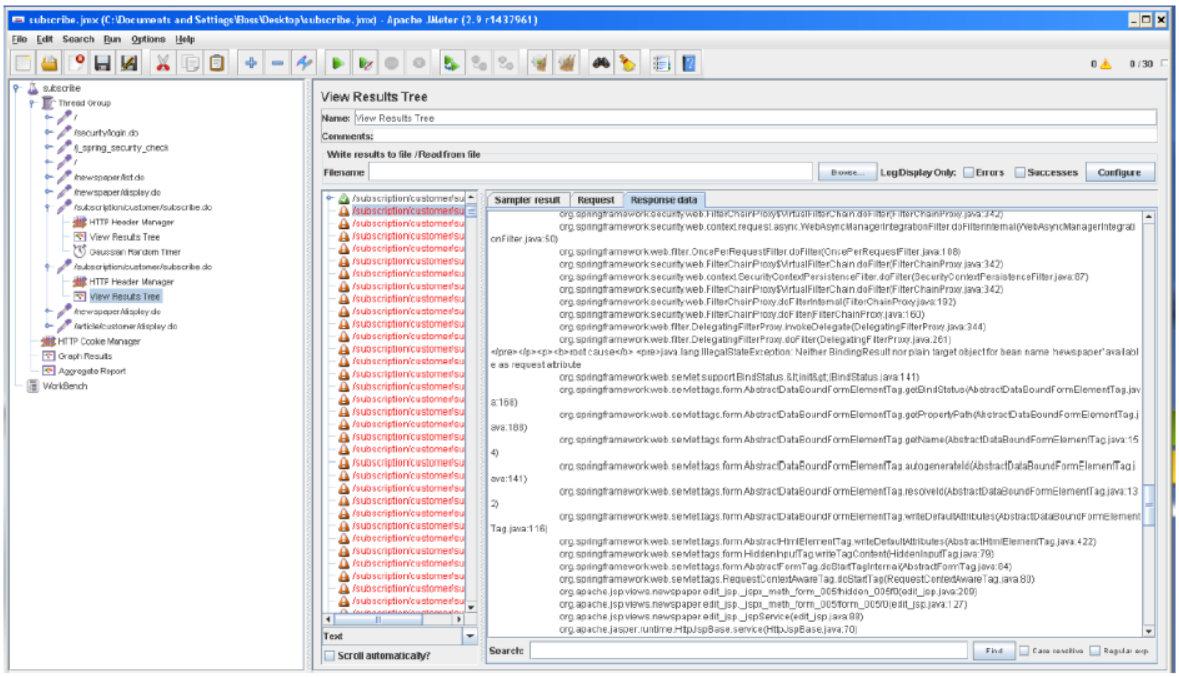




This test belongs to a use case from the previous deliverable. The reason why we have included this test again is because in the last deliverable, an http error appeared when only when executing the performance test related to subscribing to a newspaper, due to the fact that in the test there was a point where we were trying to make a subscription to a newspaper the user was already subscribed to.

The error was explained in the previous performance report. Here is a screenshot belonging to said report:

There are errors in this test. The reason why this happens is because we are always using the same customer and the same newspaper, and because a user can't subscribe to a newspaper he is already subscribed to, the following error appears:

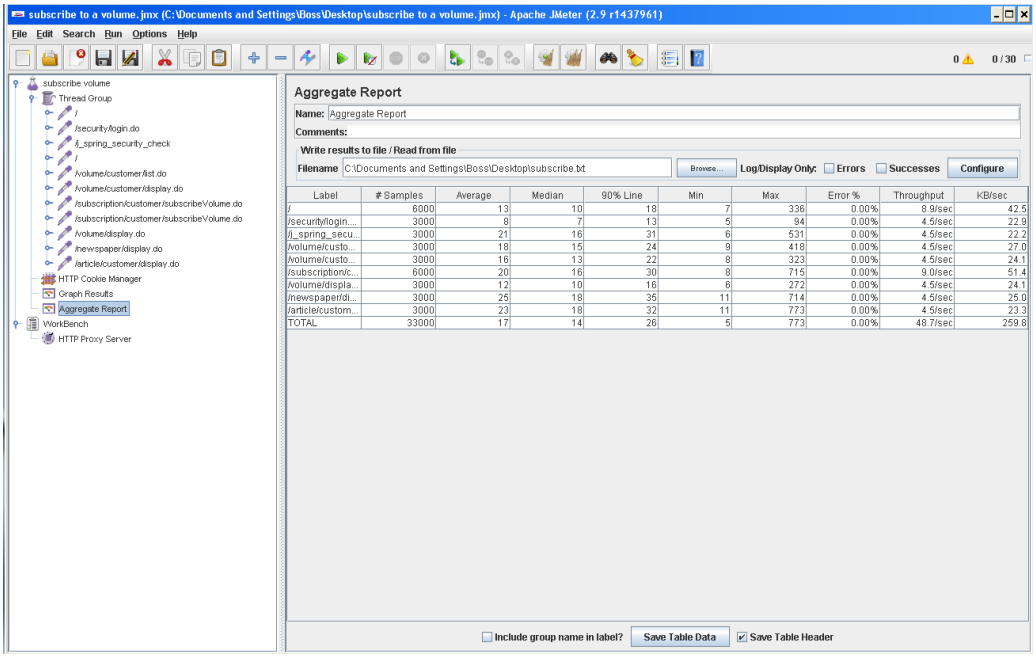


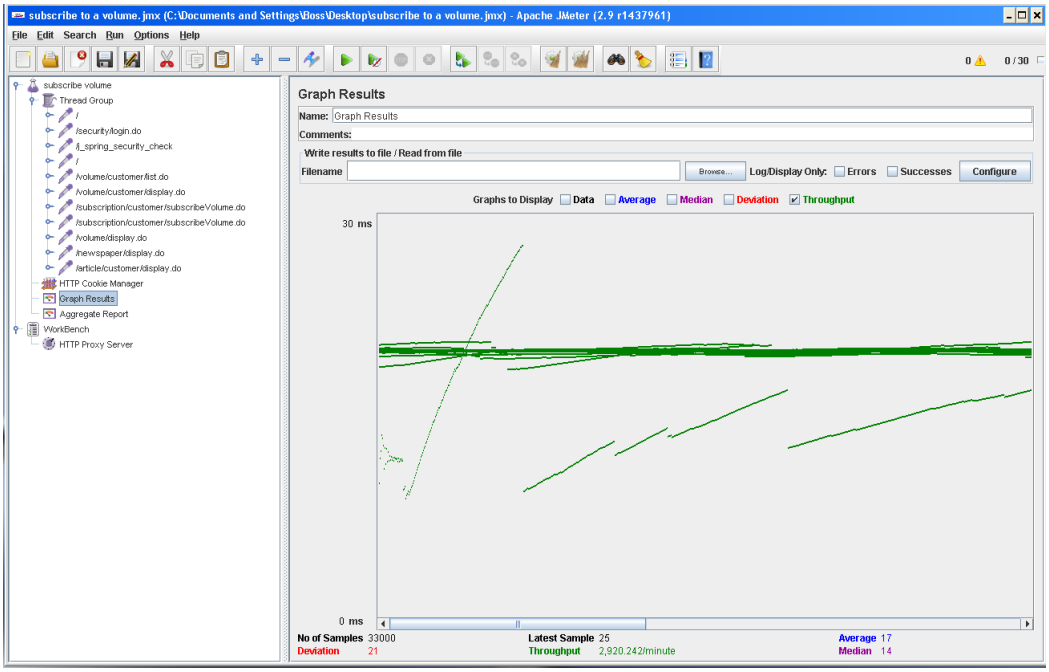
The process of subscribing to a newspaper is divided in a GET request and a POST request. When a customer tries to subscribe to a newspaper he is already subscribed to, an assertion in the controller related to the GET request will fail, and return a panic message. Because this test forces a POST action regardless the outcome of the GET request, this error happens.

Because we managed to solve the issue, we wanted to show the test working correctly.

Test 18: Subscribe to a volume.

With 30 users and 100 loops:





6. TESTS RAN IN MACHINE 5

This computer has the following features:

Processor: Intel(R) Core(TM) i7-7700HQ (2.8 GHz, Turbo Boost up to 3.8 GHz, 6 MB cache, 4 cores)

RAM: SDRAM 8 GB DDR4-2400 (2x4 GB)

HDD: 1 TB SATA 7200 rpm

Network Adapter: Intel(R) Dual Band Wireless-AC 7265

Test 19: Create a message.

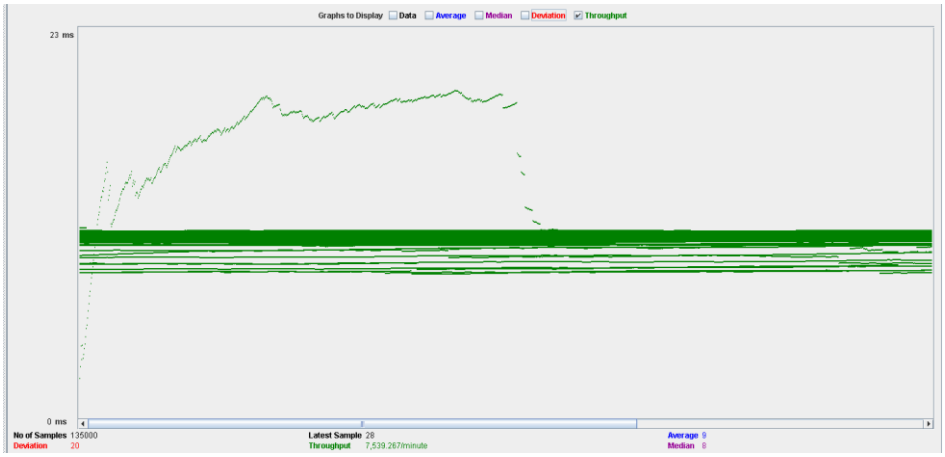
With 75 users and 100 loops.

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	15000	222	43	641	6	8608	0.00%	8.0/sec	49.7
/styles/common.css	7500	27	7	74	1	943	0.00%	4.0/sec	3.6
/scripts/jquery-ui.js	7500	198	50	636	9	3221	0.00%	4.0/sec	1832.1
/scripts/jmenu.js	7500	29	7	76	1	1030	0.00%	4.0/sec	42.9
/styles/displaytag.css	7500	26	7	75	1	994	0.00%	4.0/sec	12.3
/styles/jmenu.css	7500	25	7	70	1	659	0.00%	4.0/sec	7.8
/scripts/jquery.js	7500	129	36	383	6	1468	0.00%	4.0/sec	1086.7
/images/logo.jpg	7500	42	11	120	2	1118	0.00%	4.0/sec	152.4
/favicon.ico	7500	40	11	114	2	1119	0.00%	4.0/sec	131.2
/images/arrow_down.png	7500	24	7	70	1	974	0.00%	4.0/sec	2.0
/security/login.do	7500	37	13	98	3	853	0.00%	4.0/sec	21.5
/j_spring_security_check	7500	374	97	1088	8	10053	0.00%	4.0/sec	29.6
/folder/actor/list.do	7500	403	151	1178	14	5312	0.00%	4.0/sec	32.8
/message/actor/create.do	7500	271	68	855	10	4370	0.00%	4.0/sec	29.4
/message/actor/edit.do	7500	719	267	2059	17	10813	0.00%	4.0/sec	35.5
/message/actor/list.do	7500	334	134	948	11	6641	0.00%	4.0/sec	34.8
TOTAL	127500	184	30	528	1	10813	0.00%	67.7/sec	3462.0

Test 20: Move message

With 75 users and 100 loops.

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	15000	10	9	16	3	739	0.00%	14.0/sec	85.4
/styles/common.css	7500	3	3	4	1	116	0.00%	7.0/sec	6.3
/styles/jmenu.css	7500	3	3	4	1	364	0.00%	7.0/sec	13.7
/styles/displaytag.css	7500	3	3	4	1	157	0.00%	7.0/sec	21.4
/scripts/jmenu.js	7500	3	3	5	1	310	0.00%	7.0/sec	74.8
/scripts/jquery.js	7500	12	10	18	5	433	0.00%	7.0/sec	1895.4
/scripts/jquery-ui.js	7500	17	15	26	8	368	0.00%	7.0/sec	3197.6
/images/logo.jpg	7500	4	4	7	2	249	0.00%	7.0/sec	265.8
/images/arrow_down.png	7500	3	3	4	1	126	0.00%	7.0/sec	3.5
/security/login.do	7500	7	6	12	3	257	0.00%	7.0/sec	37.6
/j_spring_security_check	7500	20	17	27	4	2223	0.00%	7.0/sec	51.7
/folder/actor/list.do	7500	16	14	24	8	200	0.00%	7.0/sec	57.1
/message/actor/list.do	15000	10	9	16	5	173	0.00%	14.0/sec	100.8
/images/arrow_off.png	7500	2	3	4	1	28	0.00%	7.0/sec	3.5
/message/actor/move.do	7500	12	11	21	6	144	0.00%	7.0/sec	44.9
/message/actor/moveT...	7500	24	21	32	9	2495	0.00%	7.0/sec	47.2
TOTAL	135000	9	8	20	1	2495	0.00%	125.7/sec	5861.0



Test 21: Broadcast message.

With 75 users and 100 loops.

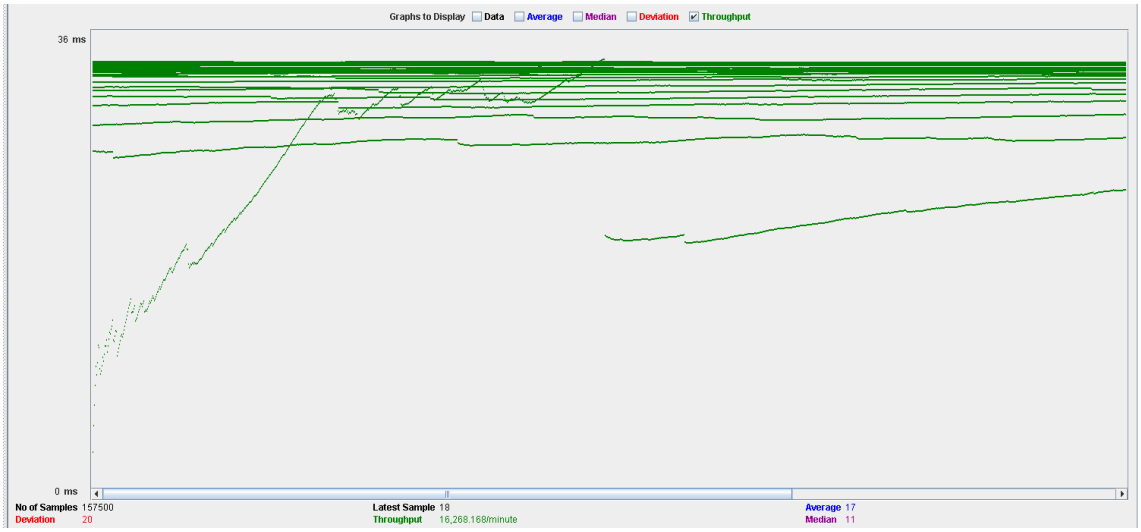
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	15000	104	16	242	3	5505	0.00%	8.5/sec	45.0
/styles/jmenu.css	7500	15	5	37	1	749	0.00%	4.3/sec	8.3
/styles/displaytag.css	7500	14	5	36	1	770	0.00%	4.3/sec	13.0
/scripts/jmenu.js	7500	15	5	36	1	759	0.00%	4.3/sec	45.5
/styles/common.css	7500	14	5	37	1	462	0.00%	4.3/sec	3.8
/scripts/jquery.js	7500	67	22	185	6	1288	0.00%	4.3/sec	1152.6
/scripts/jquery-ui.js	7500	95	33	267	9	1293	0.00%	4.3/sec	1944.4
/images/logo.jpg	7500	20	6	53	2	487	0.00%	4.3/sec	161.6
/images/arrow_down.png	7500	14	4	37	1	984	0.00%	4.3/sec	2.1
/security/login.do	7500	22	11	51	3	588	0.00%	4.3/sec	22.8
/j_spring_security_check	7500	202	36	534	9	5917	0.00%	4.3/sec	24.4
/folder/actor/list.do	7500	305	147	771	11	5492	0.00%	4.3/sec	32.7
/message/admin/create....	7500	116	23	262	6	6614	0.00%	4.3/sec	27.9
/message/admin/edit.do	7500	939	228	3288	21	12192	0.00%	4.3/sec	35.3
/message/actor/list.do	7500	196	82	489	7	4034	0.00%	4.3/sec	36.3
TOTAL	120000	140	18	267	1	12192	0.00%	67.8/sec	3520.9

Because this use case seems to be a possible cause of performance issues (it takes about 3 seconds to list the volumes when there are 60 concurrent users) we will later test what happens when there are 100 concurrent users.

Test 22: Delete messages.

With 75 users and 100 loops.

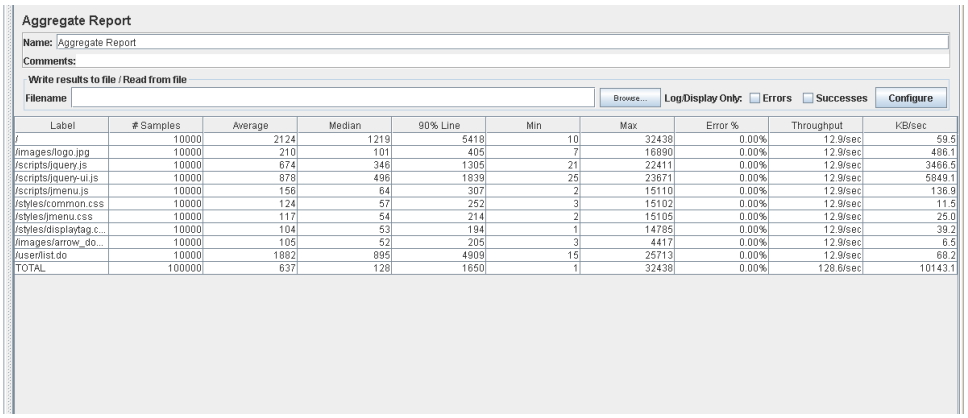
Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	15000	21	14	44	3	1616	0.00%	25.8/sec	157.5
/scripts/jquery.js	7500	21	17	39	5	384	0.00%	13.1/sec	3519.1
/scripts/jquery-ui.js	7500	31	25	56	8	458	0.00%	13.1/sec	5936.4
/scripts/jmenu.js	7500	5	4	9	1	205	0.00%	13.1/sec	138.9
/styles/common.css	7500	5	4	9	1	197	0.00%	13.1/sec	11.6
/styles/jmenu.css	7500	4	4	9	1	177	0.00%	13.1/sec	25.4
/styles/displaytag.css	7500	5	4	9	1	165	0.00%	13.1/sec	39.8
/images/logo.jpg	7500	7	6	13	2	196	0.00%	13.1/sec	493.6
/images/arrow_down.png	7500	5	4	9	1	85	0.00%	13.1/sec	6.5
/security/login.do	7500	8	7	12	3	122	0.00%	13.0/sec	69.5
/j_spring_security_check	7500	40	31	78	4	459	0.00%	13.0/sec	95.6
/folder/actor/list.do	15000	31	25	61	8	274	0.00%	26.0/sec	209.4
/message/actor/list.do	30000	21	16	41	5	412	0.00%	52.0/sec	354.6
/images/arrow_off.png	7500	4	4	9	1	177	0.00%	13.0/sec	6.5
/message/actor/delete.do	15000	13	11	24	4	365	0.00%	26.0/sec	359.4
TOTAL	157500	17	11	38	1	1616	0.00%	271.1/sec	11297.2



7.TESTING THE MAXIMUM PERFORMANCE OF THE SYSTEM

At this point, it is clear that listing volumes is the most demanding use case for our systems out of the new use cases that have been implemented in this deliverable. We will now compare it to the results obtained from the test related to the listing of all users in our previous deliverable:

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	10000	2665	1568	6640	12	42071	0.00%	8.5/sec	43.0
/scripts/jquery.js	10000	530	387	1045	13	7413	0.00%	8.5/sec	2289.3
/scripts/jmenu.js	10000	145	105	293	3	3878	0.00%	8.5/sec	90.4
/scripts/jquery-ui.js	10000	756	555	1472	33	9221	0.00%	8.5/sec	3863.8
/styles/common.c...	10000	145	106	291	2	2776	0.00%	8.5/sec	7.6
/styles/jmenu.css	10000	138	101	284	2	3286	0.00%	8.5/sec	16.5
/styles/displaytag....	10000	138	100	282	4	3361	0.00%	8.5/sec	25.9
/images/logo.jpg	10000	188	140	371	8	3862	0.00%	8.5/sec	321.4
/volume/list.do	10000	2671	1606	6496	16	33952	0.00%	8.5/sec	52.7
/volume/display.do	10000	2553	1445	6294	18	35835	0.00%	8.5/sec	52.6
TOTAL	100000	993	249	2823	2	42071	0.00%	84.9/sec	6757.2



Aggregate Report

Name: Aggregate Report

Comments:

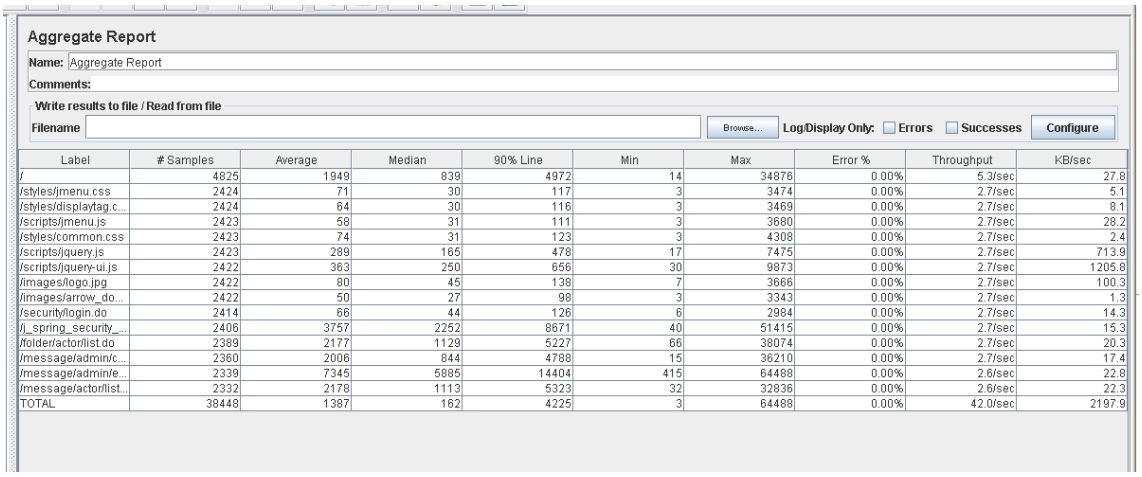
Write results to file / Read from file

Filename | Browse... | Log/Display Only: Errors Successes | Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	10000	2124	1219	5418	10	32438	0.00%	12.9/sec	59.5
/images/logo.jpg	10000	210	101	405	7	16890	0.00%	12.9/sec	486.1
/scripts/jquery.js	10000	674	346	1305	21	22411	0.00%	12.9/sec	3466.5
/scripts/jquery-ui.js	10000	878	496	1839	25	23671	0.00%	12.9/sec	5849.1
/scripts/jmenu.js	10000	156	64	307	2	15110	0.00%	12.9/sec	136.9
/styles/common.css	10000	124	57	252	3	15102	0.00%	12.9/sec	11.5
/styles/jmenu.css	10000	117	54	214	2	15105	0.00%	12.9/sec	25.0
/styles/displaytag.c...	10000	104	53	194	1	14785	0.00%	12.9/sec	39.2
/images/arrow_do...	10000	105	52	205	3	4417	0.00%	12.9/sec	6.5
/user/list.do	10000	1882	895	4909	15	25713	0.00%	12.9/sec	68.2
TOTAL	100000	637	128	1650	1	32438	0.00%	128.6/sec	10143.1

As it can be seen listing all the volumes takes approximately 1.5 seconds more than listing all the users, which makes this use case the most critical one when studying the maximum amount of workload our system can handle. However, we have not tried executing the performance test related to broadcasting a message with 100 users and 100 loops yet.

After executing the broadcast message test in the machine 1, which was the same used to run the list all users and list volumes with 100 concurrent users, the result is clear: Broadcasting a message is by far the most demanding use case for our system. While with concurrent 75 users, as it was previously shown, our system can still work, with 100 concurrent users our computer is struggling to execute the test, and the time it takes to send the broadcast message gradually increases as the test goes on:



Aggregate Report

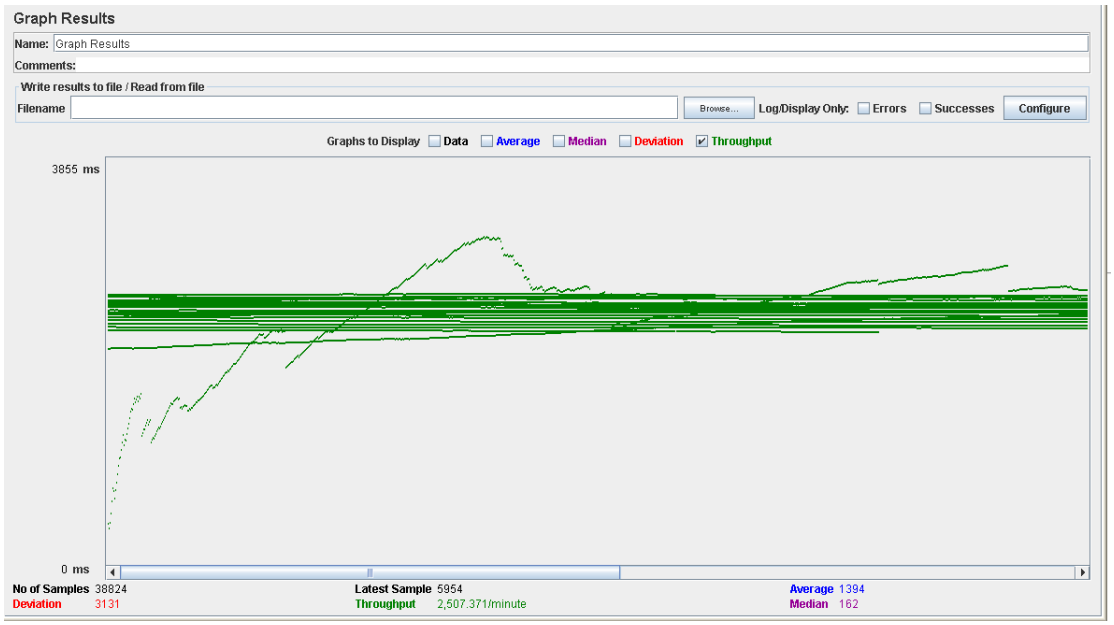
Name: Aggregate Report

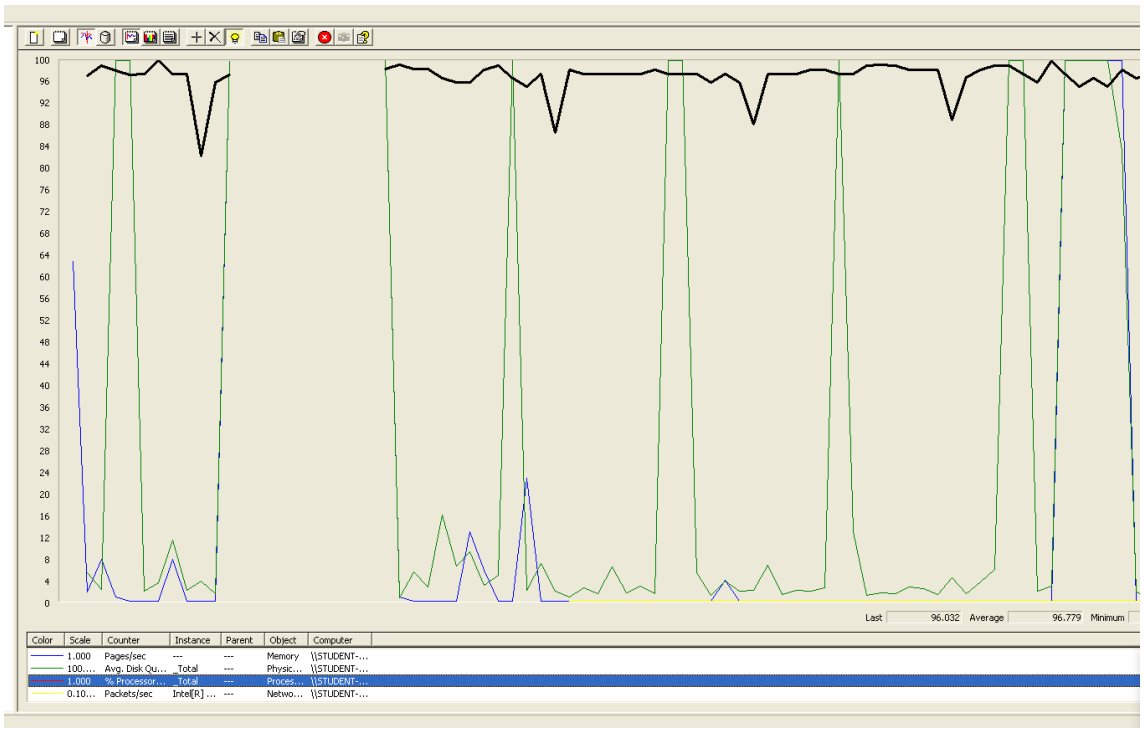
Comments:

Write results to file / Read from file

Filename | Browse... | Log/Display Only: Errors Successes | Configure

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	4825	1949	839	4972	14	34876	0.00%	5.3/sec	27.8
/styles/jmenu.css	2424	71	30	117	3	3474	0.00%	2.7/sec	5.1
/styles/displaytag.c...	2424	64	30	116	3	3469	0.00%	2.7/sec	8.1
/scripts/jmenu.js	2423	58	31	111	3	3680	0.00%	2.7/sec	28.2
/styles/common.css	2423	74	31	123	3	4308	0.00%	2.7/sec	2.4
/scripts/jquery.js	2423	289	165	478	17	7475	0.00%	2.7/sec	713.9
/scripts/jquery-ui.js	2422	363	250	656	30	9873	0.00%	2.7/sec	1205.8
/images/logo.jpg	2422	80	45	138	7	3666	0.00%	2.7/sec	100.3
/images/arrow_do...	2422	50	27	98	3	3343	0.00%	2.7/sec	1.3
/security/login.do	2414	66	44	126	6	2984	0.00%	2.7/sec	14.3
/j_spring_security_...	2406	3757	2252	8671	40	51415	0.00%	2.7/sec	15.3
/folder/actor/list.do	2389	2177	1129	5227	66	38074	0.00%	2.7/sec	20.3
/message/admin/c...	2360	2006	844	4788	15	36210	0.00%	2.7/sec	17.4
/message/admin/e...	2339	7345	5885	14404	415	64488	0.00%	2.6/sec	22.8
/message/actor/list...	2332	2178	1113	5323	32	32836	0.00%	2.6/sec	22.3
TOTAL	38448	1387	162	4225	3	64488	0.00%	42.0/sec	2197.9





We can also observer, that while the processor is still the main bottleneck, the RAM memory and the Hard Disk still have some moments of very high usage.