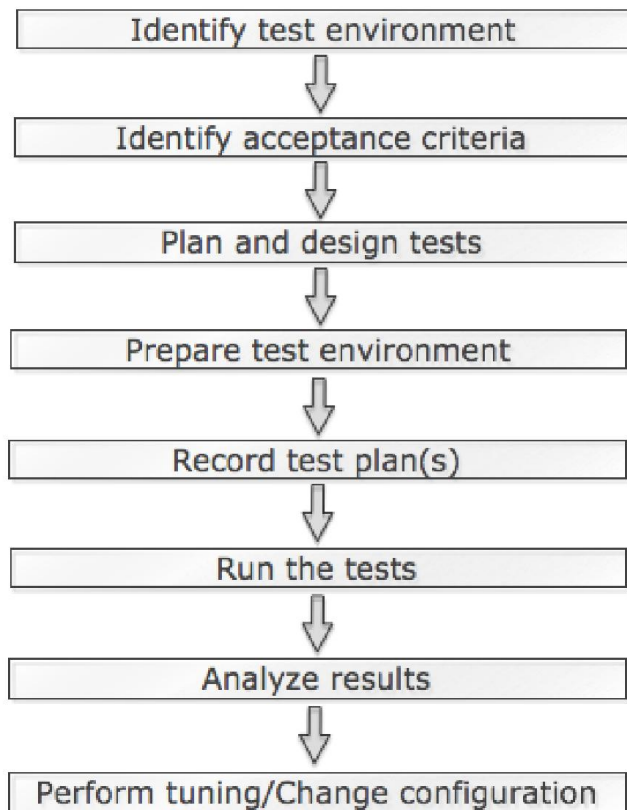
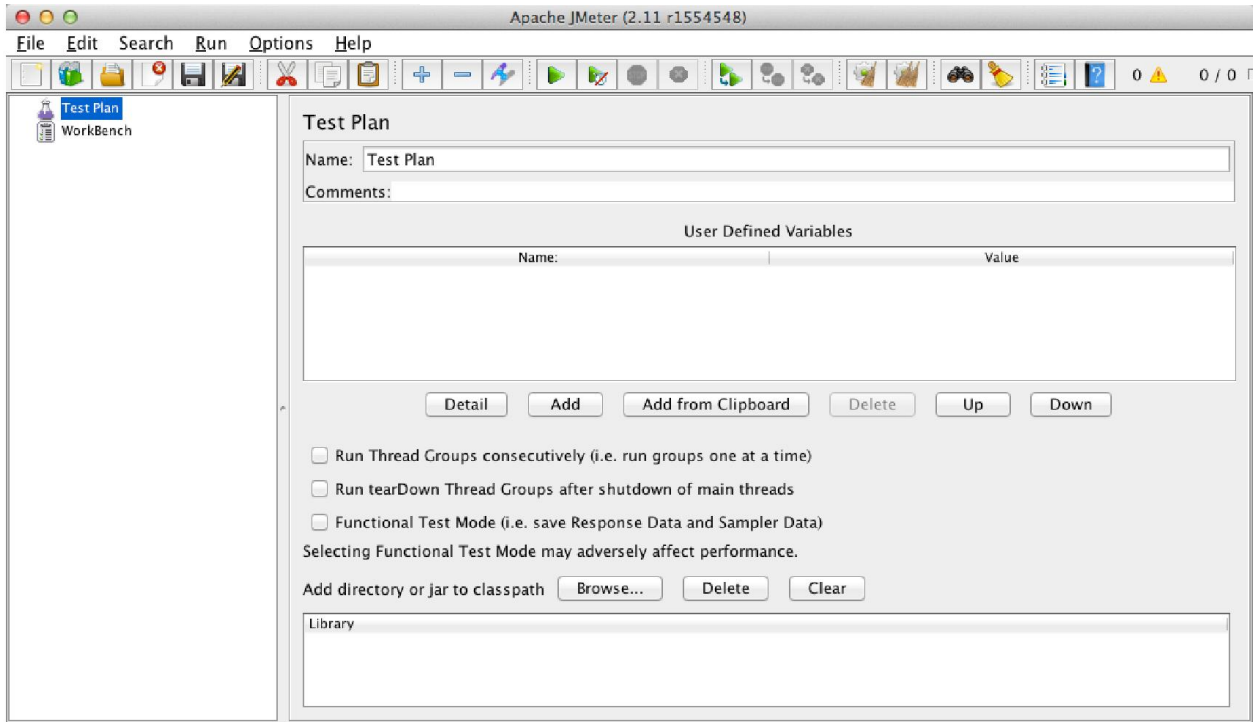


Chapter 1: Performance Testing Fundamentals



```
.
├── bin
│   ├── examples
│   │   └── jsp
│   └── templates
├── docs
│   └── resources
├── extras
├── lib
│   ├── ext
│   └── junit
├── licenses
│   ├── bin
│   └── src
└── printable_docs

187 directories
```



Chapter 2: Recording Your First Test

HTTP(S) Test Script Recorder

Name:

Comments:

Global Settings

Port: **1** HTTPS Domains :

Test plan content

Target Controller: **2**

Grouping: **3** Capture HTTP Headers Add Assertions Regex matching

HTTP Sampler settings

Type: Redirect Automatically Follow Redirects Use KeepAlive Retrieve All Embedded Resources

Content-type filter

Include: Exclude:

URL Patterns to Include

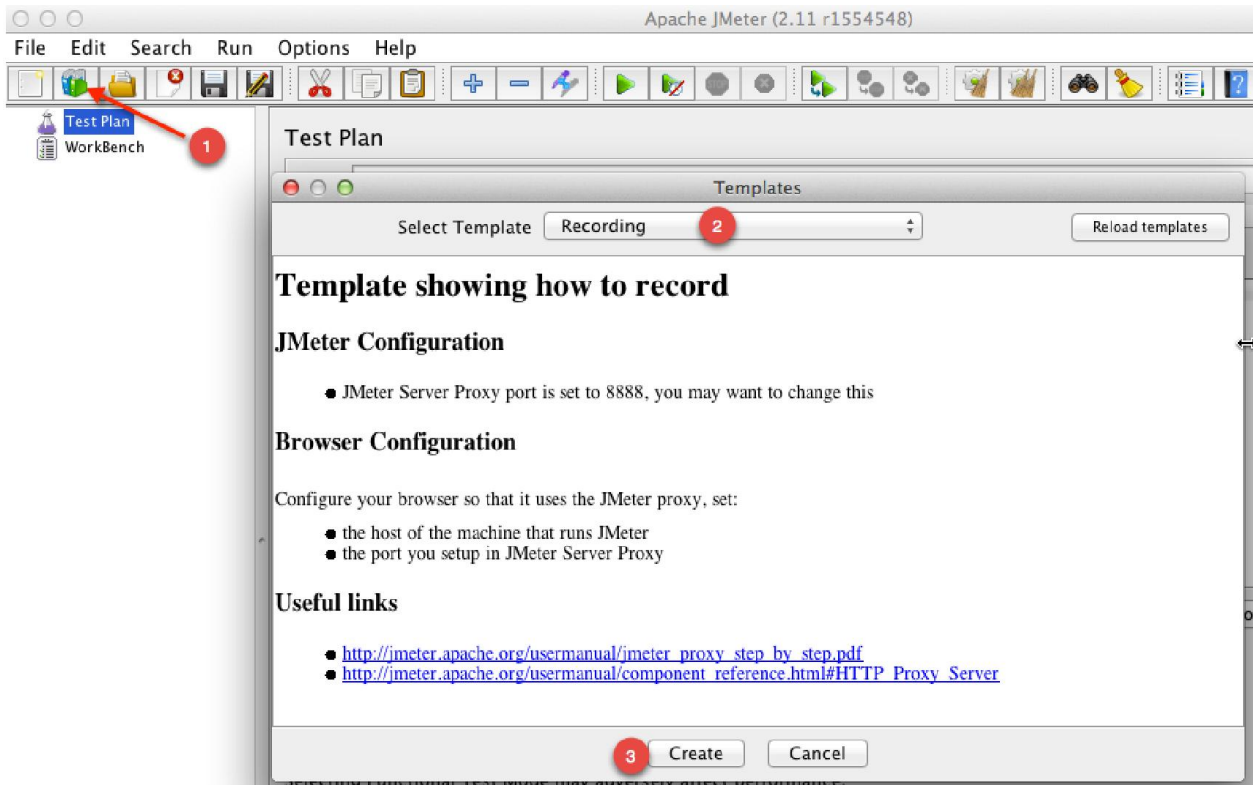
URL Patterns to Include

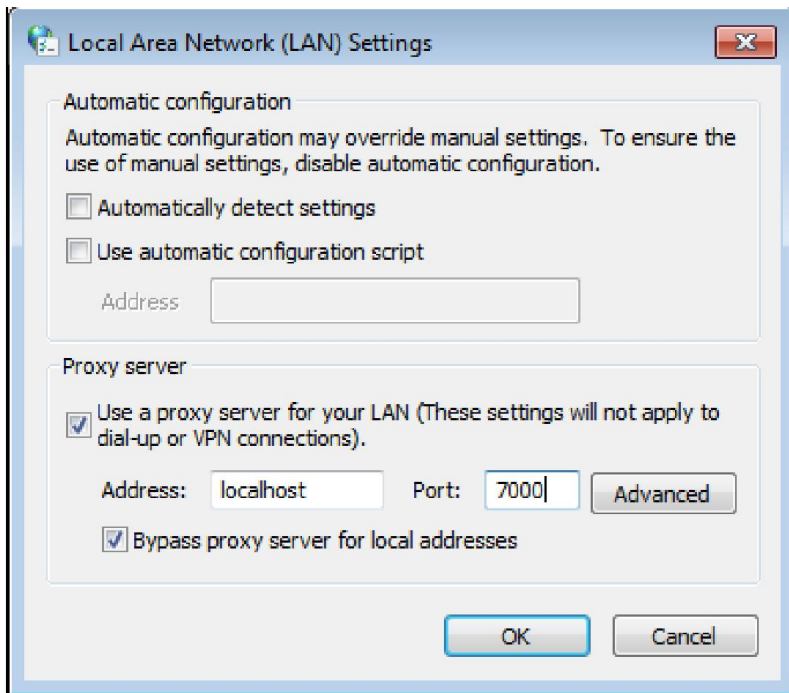
URL Patterns to Exclude

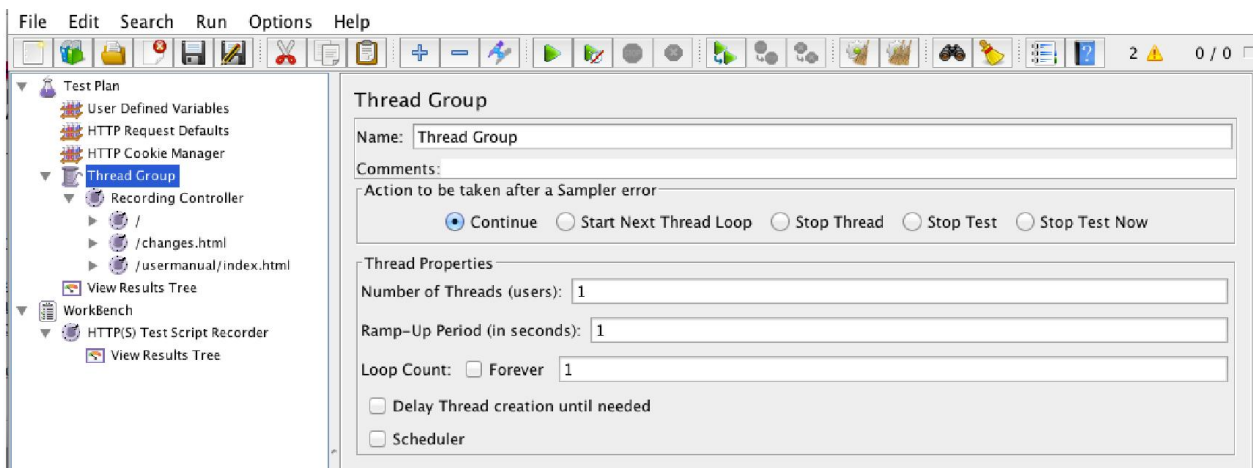
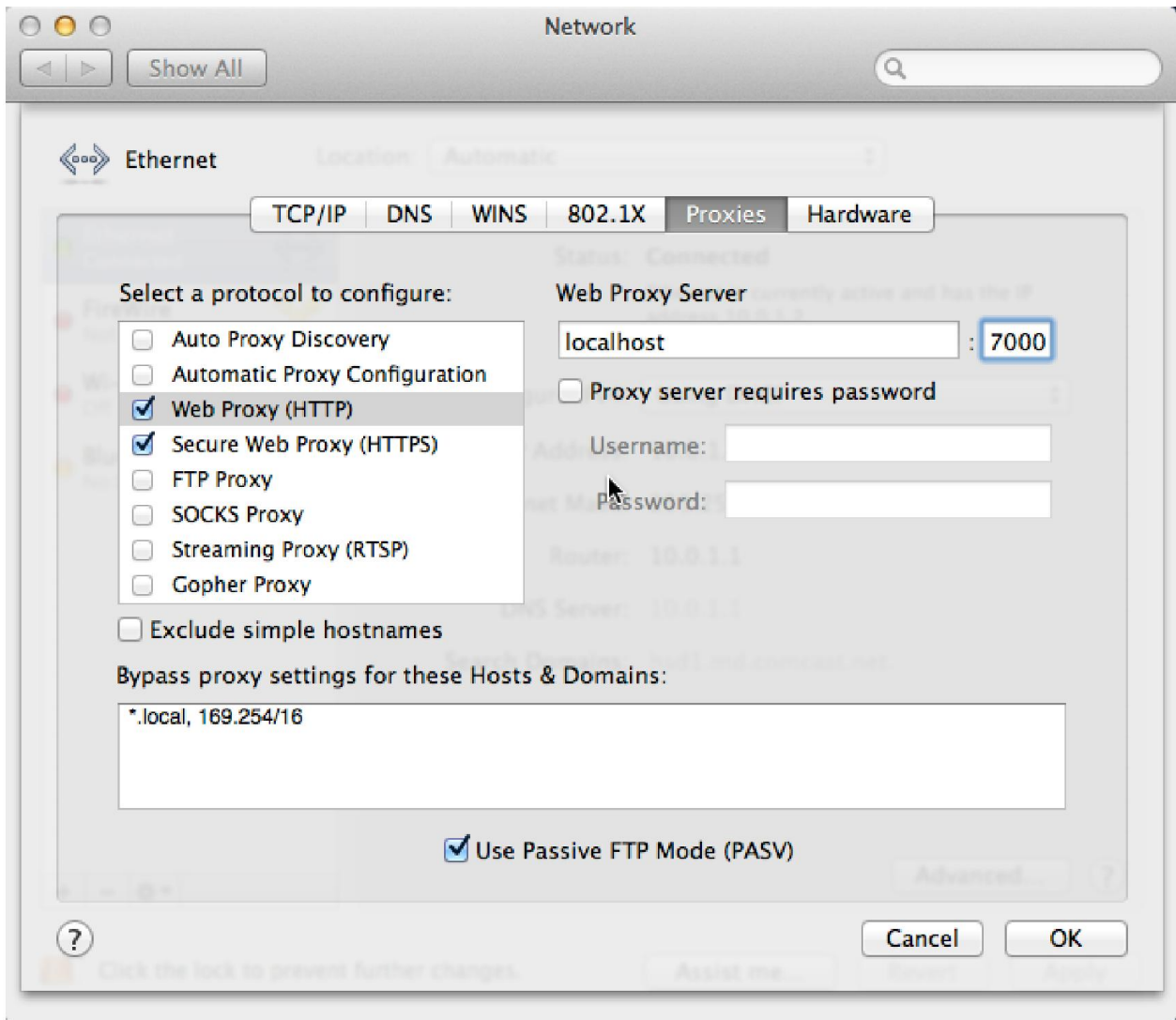
URL Patterns to Exclude

 4

5







Aggregate Report

Name:

Comments:

Write results to file / Read from file

Filename

Log/Display Only: Errors

Successes

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	600	550	378	1123	263	3681	0.00%	8.4/sec	36.9
/ads/butt...	300	150	110	122	107	2347	0.00%	4.3/sec	2.5
/changes....	600	548	527	1090	264	2369	0.00%	8.5/sec	55.6
/userman...	600	489	270	1017	264	3175	0.00%	8.5/sec	43.9
TOTAL	2100	475	272	1049	107	3681	0.00%	29.2/sec	136.9

scenario-1.jmx (/Users/berinle/workspace/packtpub/ptwj-code/scenario-1.jmx) - Apache JMeter (2.12 r1636949)

Test Plan

- Thread Group
 - /
 - /ads/halfbann
 - /changes.html
 - /changes.html
 - /ads/halfbann
 - /usermanual/inde
 - /usermanual/i
 - /ads/halfbann
- Graph Results
- View Results Tree**
- Aggregate Report
- WorkBench

View Results Tree

Name:

Comments:

Write results to file / Read from file

Filename

Log/Display Only: Errors Successes

Text

8

```
org.apache.http.NoHttpResponseException: The target server failed to respond
    at org.apache.http.impl.conn.DefaultHttpResponseParser.parseHead(DefaultHttpResponseParser.java:95)
    at org.apache.http.impl.conn.DefaultHttpResponseParser.parseHead(DefaultHttpResponseParser.java:61)
    at org.apache.http.impl.io.AbstractMessageParser.parse(AbstractMessageParser.java:25)
    at org.apache.http.impl.AbstractHttpClientConnection.receiveResponseHeader(AbstractHttpClientConnection.java:289)
    at org.apache.http.impl.conn.DefaultClientConnection.receiveResponseHeader(DefaultClientConnection.java:252)
    at org.apache.http.impl.conn.ManagedClientConnectionImpl.receiveResponseHeader(ManagedClientConnectionImpl.java:191)
    at org.apache.http.protocol.HttpRequestExecutor.doReceiveResponse(HttpRequestExecutor.java:300)
    at org.apache.http.protocol.HttpRequestExecutor.execute(HttpRequestExecutor.java:12)
    at org.apache.http.impl.client.DefaultRequestDirector.tryExecute(DefaultRequestDirector.java:715)
    at org.apache.http.impl.client.DefaultRequestDirector.execute(DefaultRequestDirector.java:520)
    at org.apache.http.impl.client.AbstractHttpClient.execute(AbstractHttpClient.java:906)
    at org.apache.http.impl.client.AbstractHttpClient.execute(AbstractHttpClient.java:805)
    at org.apache.jmeter.protocol.http.sampler.HTTPHC4Impl.executeRequest(HTTPHC4Impl.java:505)
    at org.apache.jmeter.protocol.http.sampler.HTTPHC4Impl.sample(HTTPHC4Impl.java:32)
```

Search: Case sensitive Regular exp.

Scroll automatically?

Graph Results

Name:

Comments:

Write results to file / Read from file

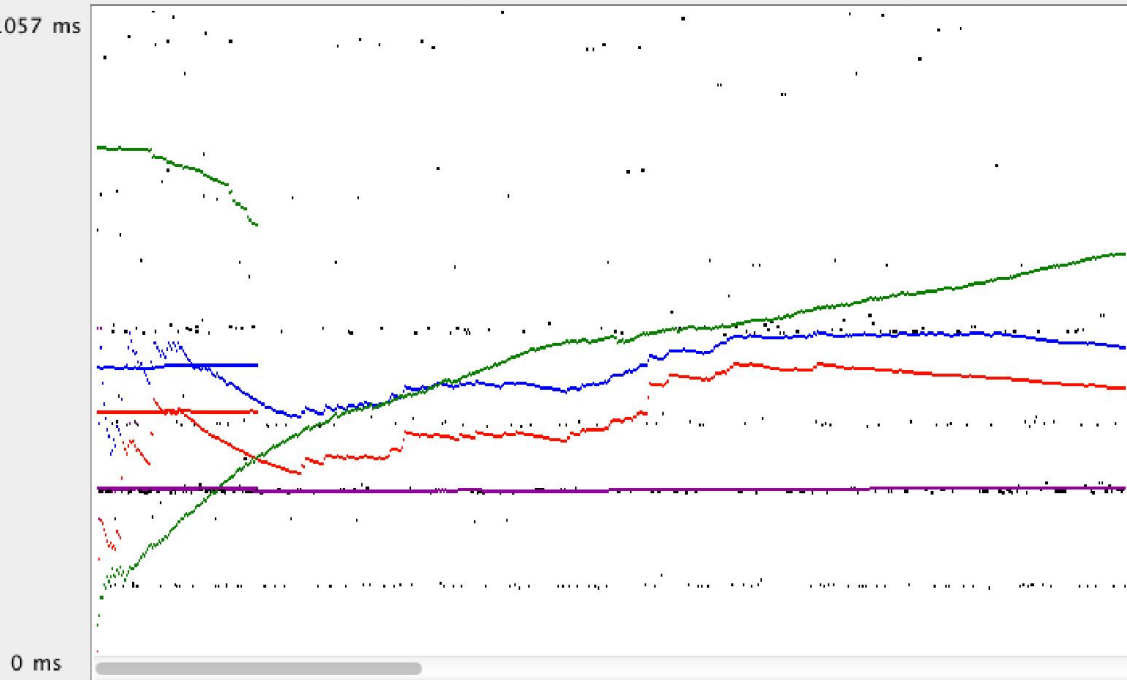
Filename

Log/Display Only: Errors

Successes

Graphs to Display Data Average Median Deviation Throughput

1057 ms



0 ms

No of Samples 2100

Deviation 398

Latest Sample 270

Throughput 1,753.507/minute

Average 475

Median 272

CSV Data Set Config

Name:

Comments:

Configure the CSV Data Source

Filename:

File encoding:

Variable Names (comma-delimited):

Delimiter (use '\t' for tab):

Allow quoted data?:

Recycle on EOF?:

Stop thread on EOF?:

Sharing mode:

Name:	Value	Encode?	Include Equals?
username	\$(user)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
password	\$(password)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only: Errors Successes

Configure

- /login
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /public/login.html
- /public/login.html
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /login
- /private/bank/account/ACC4,
- /private/bank/accounts.html
- /login
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /private/bank/accounts.html
- /private/bank/accounts.html
- /private/bank/accounts.html
- /private/bank/account/ACC4**
- /private/bank/account/ACC4,
- /private/bank/account/ACC4,
- /logout
- /private/bank/account/ACC4,

Sampler result | Request | Response data

[Accounts](#)

Log out
Yassine Ben Khaled

My Accounts > PERSONNAL_CHECKING ACC10

PERSONNAL_CHECKING
ACC10

Balance on 11/02/2011 87968.00 €
Total Pending 1968.00 €
Estimated balance 89936.00 €

[Operations](#)

[Cards](#)

[Transfers](#)

- [September](#)
- [October](#)
- [November](#)
- [December](#)
- [January](#)

HTML

Scroll automatically?

Search:

Find

Case sensitive

Regular exp.

Regular Expression Extractor

Name: Regular Expression Extractor

Comments:

Apply to:

Main sample and sub-samples Main sample only Sub-samples only JMeter Variable

Response Field to check

Body Body (unescaped) Body as a Document Headers URL Response Code Response Message

Reference Name:

account_id

Regular Expression:

<td class="number">ACC(\d+)</td>

Template:

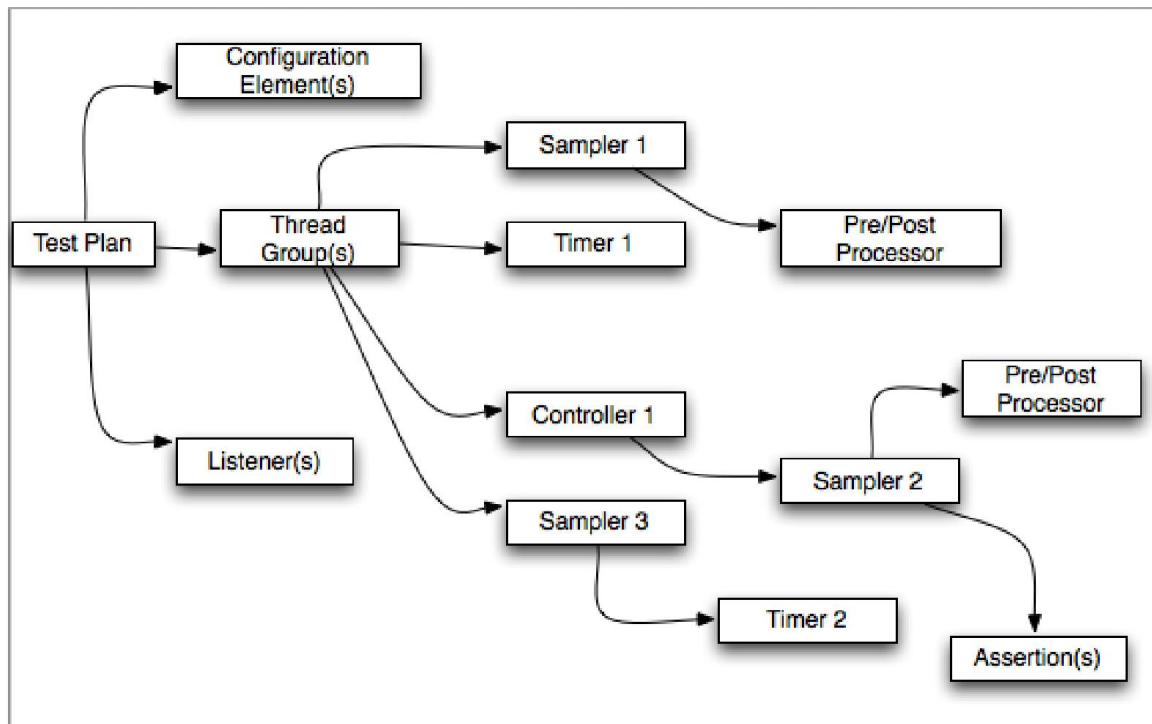
\$1\$

Match No. (0 for Random):

1

Default Value:

NOT_FOUND



Chapter 3: Submitting Forms

HTTP Request

Name:

Comments:

Web Server

Server Name or IP: 1 Port Number: Timeouts (milliseconds)

Connect: Response:

HTTP Request

Implementation: Protocol [http]: Method: Content encoding:

Path: 2

Redirect Automatically Follow Redirects Use KeepAlive Use multipart/form-data for POST Browser-compatible headers

3

```
1E{
2  "firstName": "Bob",
3  "lastName": "Jones",
4  "jobs": [
5    {
6      "id": "3"
7    }
8  ]
9 }
```

4

Chapter 4: Managing Sessions

HTTP Cookie Manager

Name:

Comments:

Options

Clear cookies each iteration?

Cookie Policy: Implementation:

User-Defined Cookies

Name:	Value	Domain	Path:	Secure
-------	-------	--------	-------	--------

HTTP URL Re-writing Modifier

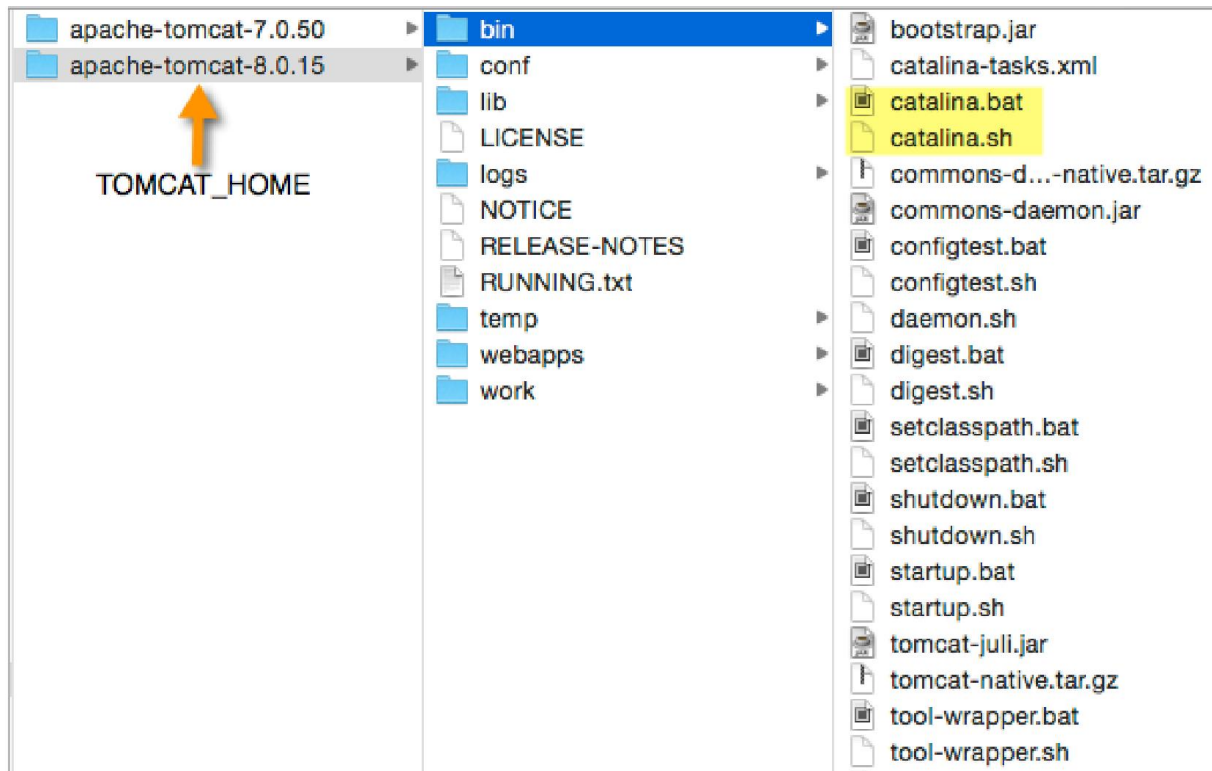
Name: HTTP URL Re-writing Modifier

Comments:

Session Argument Name: jsessionid

- Path Extension (use ";" as separator)
- Do not use equals in path extension (Intershop Enfinity compatibility)
- Do not use questionmark in path extension (Intershop Enfinity compatibility)
- Cache Session Id?

Chapter 5: Resource Monitoring



Apache Tomcat/8.0.15



If you're seeing this, you've successfully installed Tomcat. Congratulations!



Recommended Reading:
[Security Considerations HOW-TO](#)
[Manager Application HOW-TO](#)
[Clustering/Session Replication HOW-TO](#)

- [Server Status](#)
- [Manager App](#)
- [Host Manager](#)

Developer Quick Start

- [Tomcat Setup](#)
- [Realms & AAA](#)
- [Examples](#)
- [Servlet Specifications](#)
- [First Web Application](#)
- [JDBC DataSources](#)
- [Tomcat Versions](#)

Managing Tomcat

For security, access to the `manager.webapp` is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 8.0 access to the manager application is split between different users. [Read more...](#)

- [Release Notes](#)
- [Changelog](#)
- [Migration Guide](#)
- [Security Notices](#)

Documentation

- [Tomcat 8.0 Documentation](#)
- [Tomcat 8.0 Configuration](#)
- [Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

- [Tomcat 8.0 Bug Database](#)
- [Tomcat 8.0 JavaDocs](#)
- [Tomcat 8.0 SVN Repository](#)

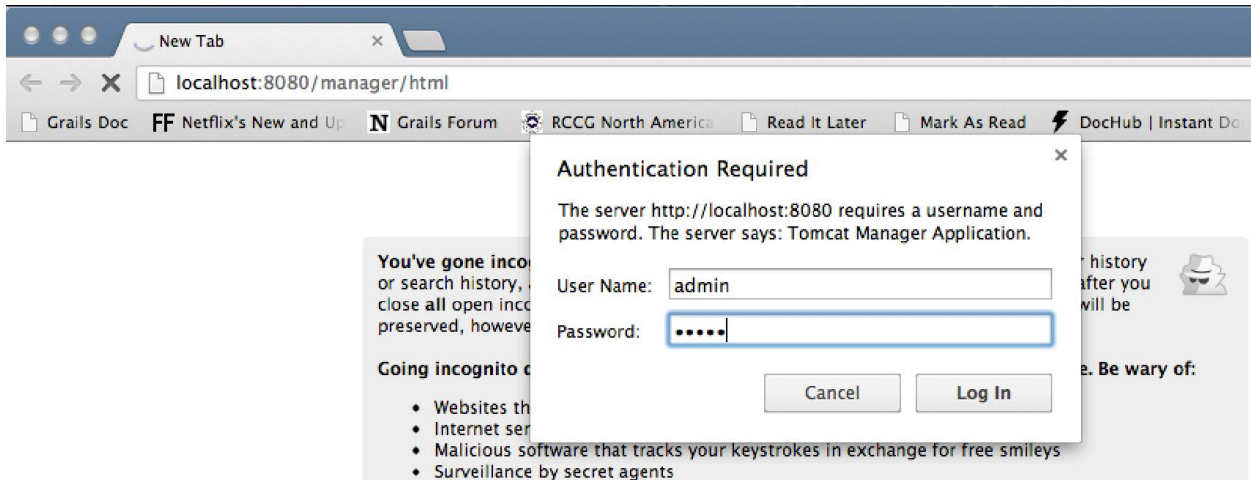
Getting Help

FAQ and Mailing Lists

The following mailing lists are available:

- [tomcat-announce](#)
Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#)
User support and discussion
- [taglibs-user](#)
User support and discussion for Apache Taglibs
- [tomcat-dev](#)
Development mailing list, including commit messages

Other Downloads Tomcat Connectors Tomcat Native Taglibs Deployer	Other Documentation Tomcat Connectors mod_jk Documentation Tomcat Native Deployer	Get Involved Overview SVN Repositories Mailing Lists Wiki	Miscellaneous Contact Legal Sponsorship Thanks	Apache Software Foundation Who We Are Heritage Apache Home Resources
-----------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------



Health Performance

● Healthy ● Active ● Warning ● Dead Load

http://localhost:8080 ● 12/15/14 6:09 PM

Monitor Results

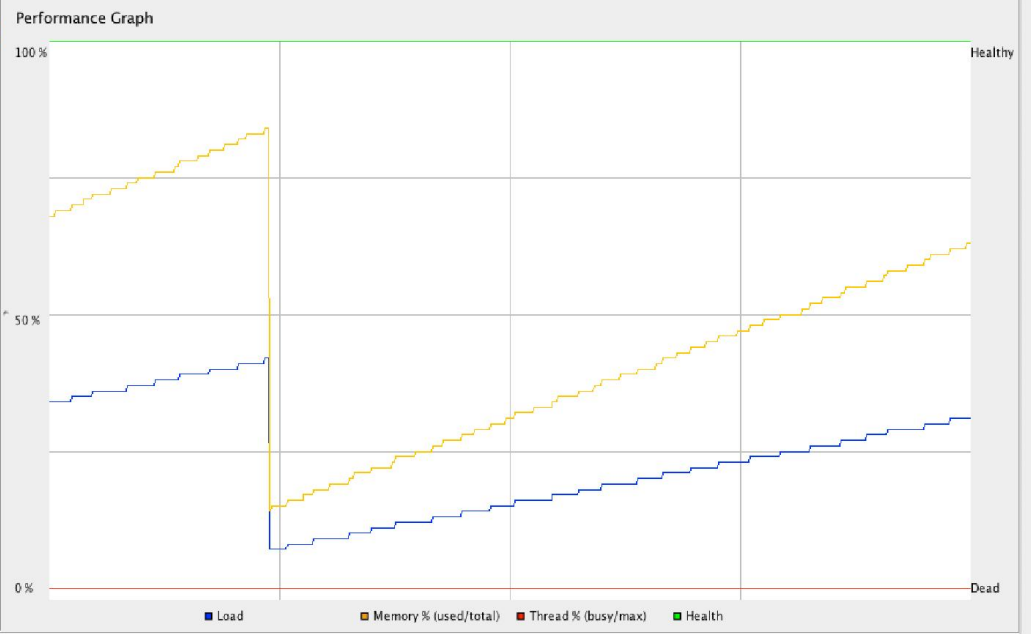
Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: Errors Successes

- Servers
 - <http://localhost>



Connection Prefix

jp@gc - PerfMon Metrics Collector

Name: jp@gc - PerfMon Metrics Collector

Comments: [Help on this plugin](#) v1.2.0

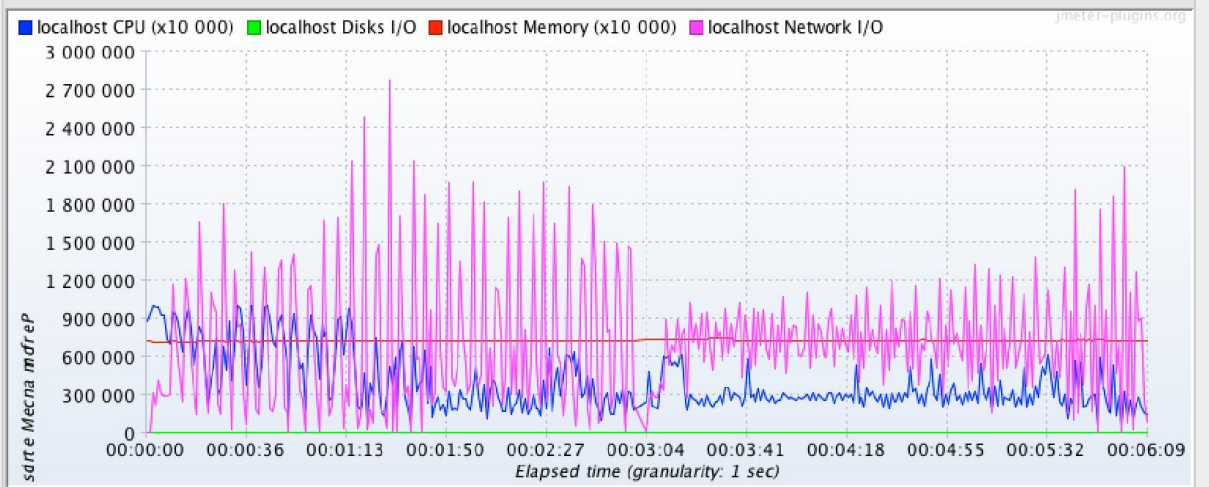
Servers to Monitor (ServerAgent must be started, see help)

Host / IP	Port	Metric to collect	Metric parameter (see help)
localhost	4444	CPU	
localhost	4444	Memory	
localhost	4444	Network I/O	
localhost	4444	Disks I/O	

Add Row Copy Row Delete Row

Write results to file / Read from file
Filename Browse... Log/Display Only: Errors Successes

Chart Rows Settings

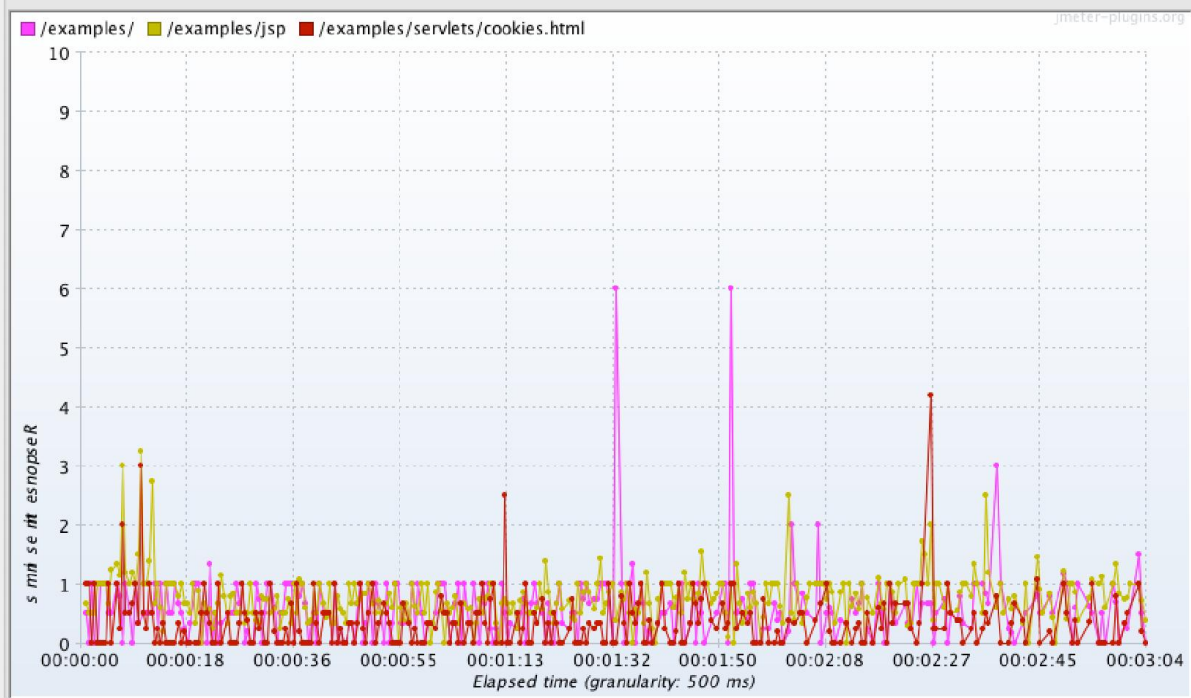


jp@gc - Response Times Over Time

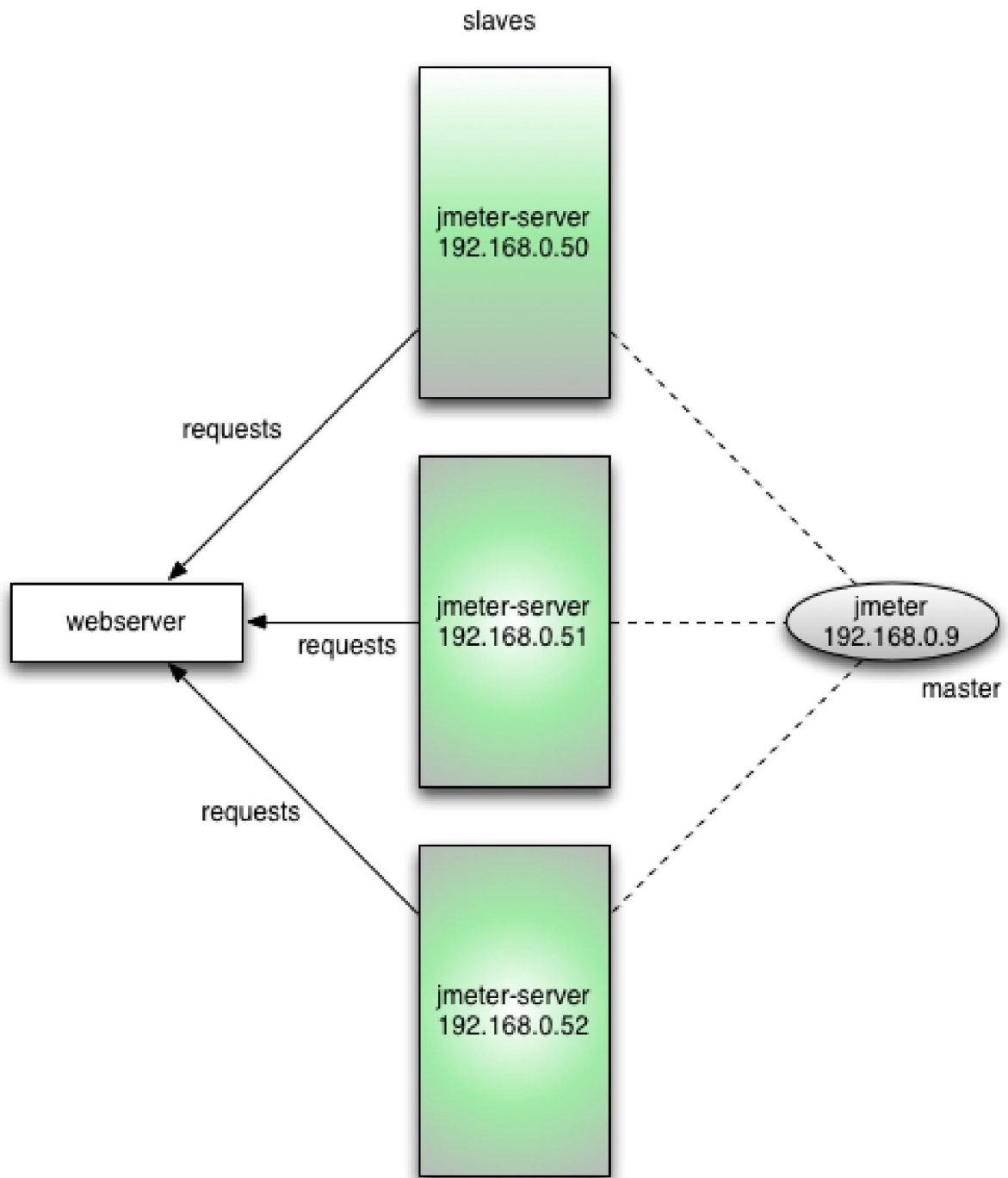
Name:

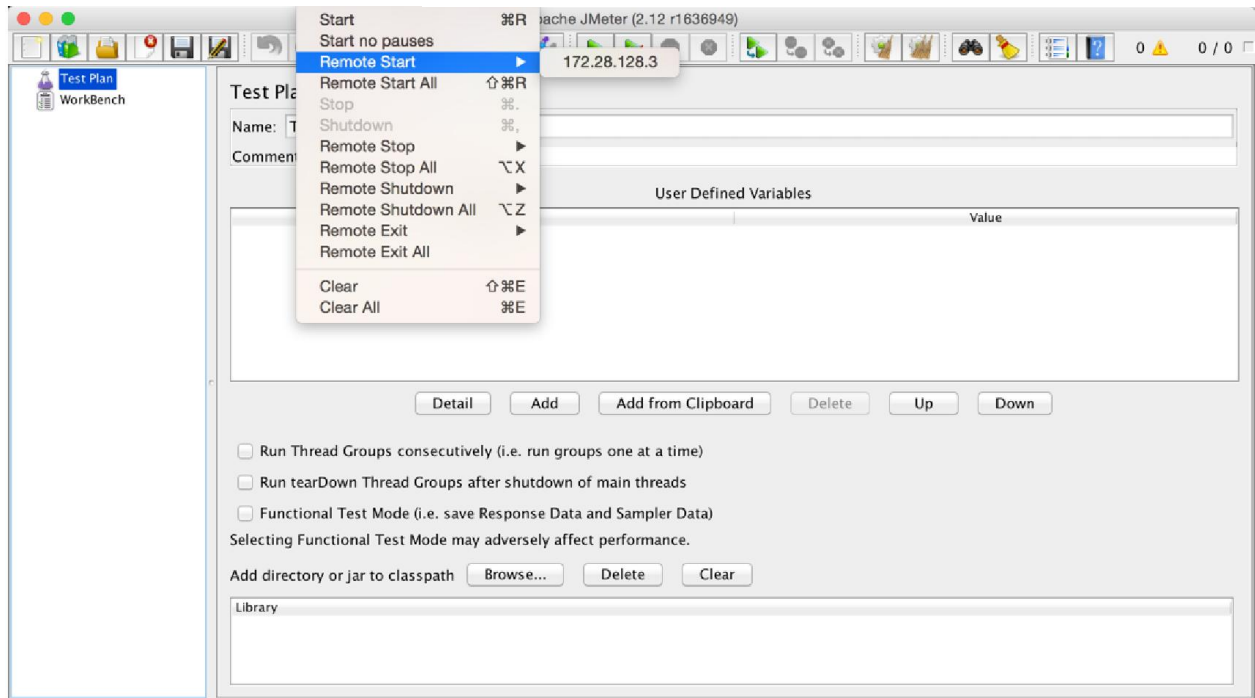
Comments: [Help on this plugin](#) v1.2.0

Write results to file / Read from file
Filename Log/Display Only: Errors Successes



Chapter 6: Distributed Testing





Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
Apple Home	900	1321	857	2554	518	7695	0.00%	8.6/sec	630.4
iTunes	900	1104	772	2083	542	5524	0.11%	8.6/sec	204.2
Featured	900	637	450	1321	336	5086	0.00%	8.9/sec	116.0
Songs	900	715	470	1676	329	12980	0.00%	8.0/sec	132.8
Albums	900	200	63	327	18	4607	0.00%	8.1/sec	108.5
TV Shows	900	672	436	1766	308	4895	0.00%	8.0/sec	132.1
Movies	900	214	56	317	18	12474	0.00%	8.1/sec	95.8
Movie Rentals	900	217	57	317	19	12429	0.00%	8.1/sec	102.0
Free Apps	900	267	61	428	16	12574	0.00%	8.1/sec	99.1
Paid Apps	900	322	62	832	17	4700	0.00%	8.1/sec	99.9
Music Videos	900	371	72	1014	17	12668	0.00%	8.2/sec	108.5
TOTAL	9900	549	341	1502	16	12980	0.01%	76.6/sec	1524.9

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
Apple Home	90	2519	1857	3170	564	16798	0.00%	41.3/min	50.4
iTunes	90	2365	1814	3899	611	9138	0.00%	43.8/min	17.5
Featured	90	1333	1083	2203	329	9340	0.00%	45.9/min	10.0
Songs	90	1948	1285	2880	320	18510	0.00%	46.7/min	13.0
Albums	90	570	473	1211	20	1674	0.00%	47.6/min	11.2
TV Shows	90	1243	1116	2120	322	3445	0.00%	47.7/min	13.5
Movies	90	600	471	1214	19	5291	0.00%	48.5/min	9.6
Movie Rentals	90	521	474	1088	22	1655	0.00%	48.9/min	9.7
Free Apps	90	696	409	1113	20	15982	0.00%	49.2/min	10.1
Paid Apps	90	604	315	1089	23	12594	0.00%	49.6/min	10.1
Music Videos	90	497	375	1126	19	1537	0.00%	50.1/min	11.1
TOTAL	990	1172	818	2268	19	18510	0.00%	7.0/sec	140.7

Summary Report

Name:

Comments:

Write results to file / Read from file

Filename

Log/Display Only: Errors Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	KB/sec	Avg. Bytes
Apple Home	2400	3357	413	16013	1931.38	0.00%	17.0/sec	1244.04	75083.5
iTunes	2400	2996	604	10933	1695.84	0.00%	19.1/sec	457.05	24451.0
Featured	2400	1878	315	9489	1397.97	0.00%	19.2/sec	256.21	13648.4
Songs	2400	1675	295	8861	1207.71	0.00%	19.2/sec	325.76	17338.4
Albums	2400	359	4	6248	590.50	0.00%	19.3/sec	261.36	13889.0
TV Shows	2400	1612	287	7565	1219.42	0.00%	19.3/sec	293.01	15569.9
Movies	2400	333	4	9763	608.44	0.00%	19.4/sec	227.19	11978.0
Movie Rentals	2400	392	4	4005	636.43	0.00%	19.5/sec	225.84	11845.0
Free Apps	2400	397	4	5208	665.48	0.00%	19.6/sec	241.07	12586.0
Paid Apps	2400	392	4	6760	671.94	0.00%	19.7/sec	243.28	12676.8
Music Videos	2400	371	4	4613	606.73	0.00%	19.7/sec	277.73	14419.5
TOTAL	26400	1251	4	16013	1557.90	0.00%	172.4/sec	3421.14	20316.9

Create User

Your 1 User(s) have been created successfully.

This is the last time these User security credentials will be available for download.

You can manage and recreate these credentials any time.

▼ [Hide User Security Credentials](#)

 tester

Access Key ID: AKIAJPIF4LUA35SPK7GA

Secret Access Key: 

[Close](#)



RESPONSE TIME



577 ms

CONCURRENCY



50 users

TRANSACTION RATE

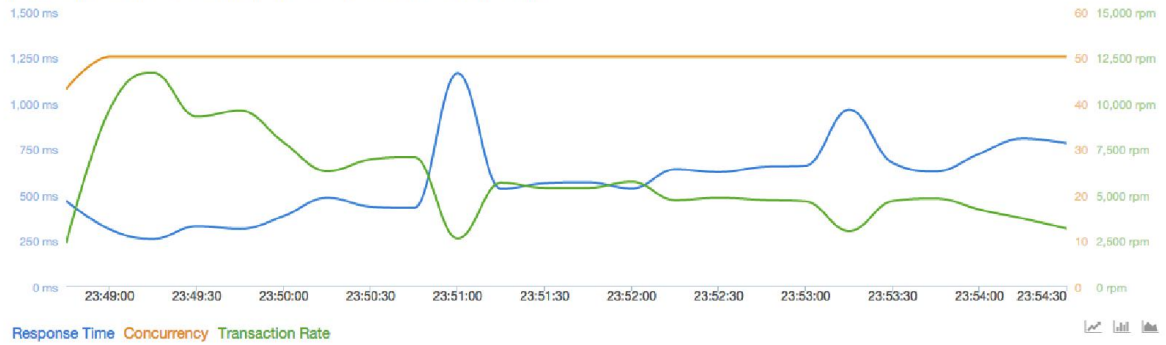


6,851 rpm

Summary Report: railway_2



This test simulated up to 50 concurrent users for 6 minutes starting on 2015-01-19 23:48:45 UTC from US East (Virginia). A mean response time of 577 ms was observed with a standard deviation of 213 ms. The 95th percentile was 961 ms and the 50th percentile (median) was 562 ms. The Apdex was Excellent 1.0 [3000]. A mean throughput of 247.70 Mbps was observed with a peak of 372.48 Mbps. A total of 10.9 GB was transferred. A total of 34,258 requests were successfully simulated with no errors observed. The mean request rate was 6,851.00 rpm.



Test Report for: railway

These reports are a result of running a test named: **railway** on Fri, 01/23/2015 - 06:07.

 **Print**  **Tweet**

- LOAD RESULTS**
- WATERFALL
- MONITORING
- LOGS

This report is a result of spawning numerous servers in the cloud, executing a **JMeter** test-script using distributed **JMeter** architecture. All graphs represent KPIs (Key Performance Indicators) measured during the load.

- ALL**
- Cars
- Home
- Stations

Trains

Active Users

Max Users

Response Time

Latency

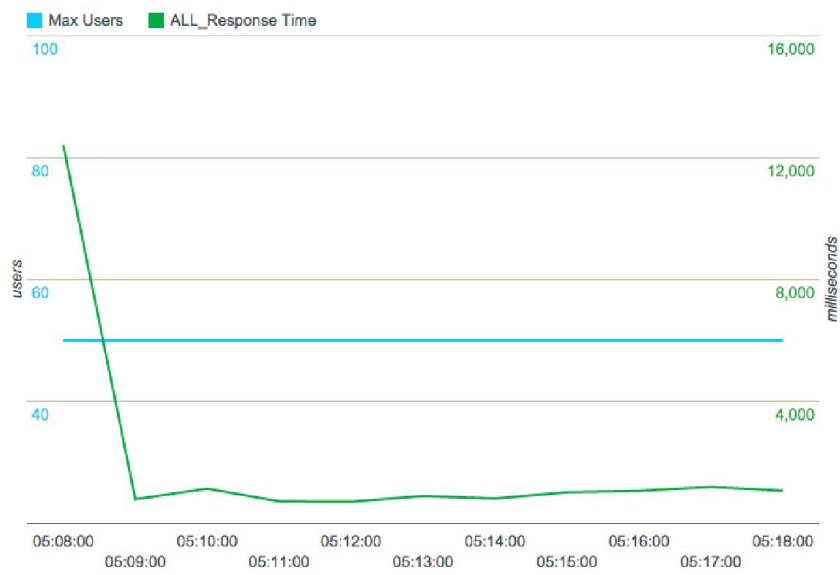
Hits/s

KB/s

Errors

200

Embedded Resources



Active Users

Max Users

Response Time

Latency

Hits/s

KB/s

Errors

200

Embedded Resources

Chapter 7: Helpful Tips

View Results Tree

Name:

Comments:

Write results to file / Read from file

Filename Log/Display Only: Errors Successes

RegEx Tester

```
<h1></h1>
<p class="intro">New content arrives on iTunes all the time. Here you can
see what's new this week and browse the top 100 songs, albums, TV shows, movies,
apps, and more. <a href="https://itunes.apple.com/us/store" class="morelarge">Shop
the iTunes Store now</a></p>
<ul class="subnav">
  <li class="featured"><a
href="/itunes/charts/">Featured</a></li>
  <li class="songs"><a
href="/itunes/charts/songs/">Songs</a></li>
  <li class="albums"><a
href="/itunes/charts/albums/">Albums</a></li>
  <li class="shows"><a
href="/itunes/charts/tv-shows/">TV Shows</a></li>
  <li class="movies"><a
href="/itunes/charts/movies/">Movies</a></li>
  <li class="books"><a
href="/itunes/charts/books/">Books</a></li>
  <li class="podcasts"><a
href="/itunes/charts/podcasts/">Podcasts</a></li>
  <li class="more"><a href="#">More</a></li>
</ul>
```

Regular expression:

Match count: 22
Match[1][0]=li class="featured"> Featured
Match[1][1]=featured
Match[2][0]=li class="songs"> Songs
Match[2][1]=songs
Match[3][0]=li class="albums"> Albums

Scroll automatically?

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only: Errors Successes

Configure

- ▶ Apple Home
- ▶ iTunes
- ▶ Featured
- ▶ Songs
- ▶ Albums
- ▶ TV Shows
- ▶ Movies
- ▶ Movie Rentals
- ▶ Free Apps
- ▶ Paid Apps
- ▶ Music Videos
- ▶ Debug Sampler

Sampler result Request Response data

```
linkclass_5_g0=li class="movies"><a href="/itunes/charts/movies/">Movies</a></li>
linkclass_5_g1=movies
linkclass_6=videorentals ←
linkclass_6_g=1
linkclass_6_g0=li class="videorentals"><a href="/itunes/charts/movie-rentals/">Movie f
entals</a></li>
linkclass_6_g1=videorentals
linkclass_7=freeapps ←
linkclass_7_g=1
linkclass_7_g0=li class="freeapps"><a href="/itunes/charts/free-apps/">Free Apps</a>
</li>
linkclass_7_g1=freeapps
linkclass_8=paidapps ←
linkclass_8_g=1
linkclass_8_g0=li class="paidapps"><a href="/itunes/charts/paid-apps/">Paid Apps</a>
</li>
linkclass_8_g1=paidapps
linkclass_9=musicvideos ←
linkclass_9_g=1
linkclass_9_g0=li class="musicvideos"><a href="/itunes/charts/music-videos/">Music \
ideos</a></li>
linkclass_9_g1=musicvideos ←
linkclass_matchNr=22
```

Text

Scroll automatically?

Search:

Find

Case sensitive

Regular exp.

English

Preferences Tools Help

Login

Saved Settings:

Generic H2 (Server)

Setting Name:

Generic H2 (Server)

Save

Remove

Driver Class:

org.h2.Driver

JDBC URL:

jdbc:h2:tcp://localhost/tmp/test;MVCC=TRUE

User Name:

sa

Password:

Connect

Test Connection

Auto commit Max rows: 1000 Auto complete Normal

- jdbc:h2:tcp://localhost/tmp/test;w
- TEST
- INFORMATION_SCHEMA
- Users
- H2 1.3.171 (2013-03-17)

Run (Ctrl+Enter) Clear SQL statement:

```
DROP TABLE IF EXISTS TEST;  
CREATE TABLE TEST(ID INT PRIMARY KEY, NAME VARCHAR(255));  
INSERT INTO TEST VALUES(1, 'Hello');  
INSERT INTO TEST VALUES(2, 'World');
```

Important Commands

Displays this Help Page...

JDBC Connection Configuration

Name:

Comments:

Variable Name Bound to Pool

Variable Name:

Connection Pool Configuration

Max Number of Connections:

Pool Timeout:

Idle Cleanup Interval (ms):

Auto Commit:

Transaction Isolation:

Connection Validation by Pool

Keep-Alive:

Max Connection age (ms):

Validation Query:

Database Connection Configuration

Database URL:

JDBC Driver class:

Username:

Password:

jp@gc - Dummy Sampler

Name:

Comments:

[Help on this plugin](#)

v1.0.0

Successfull sample:

Response Code (eg 200):

Response Message (eg OK):

Latency (milliseconds):

Response Time (milliseconds):

Simulate Response Time (sleep):

Request Data:

Response Data:

```
<html>
<head>
    <title>Welcome to Debug Sampler</title>
</head>
<body>
This is a test
</body>
</html>
```

```
➔ ~ mongod berinle@bayo-imac
2015-03-09T11:45:23.276-0400 I CONTROL [initandlisten] MongoDB starting : pid=41194 port=27017 dbpath=/usr/local/var/mongodb 64-bit host=bayo-imac
2015-03-09T11:45:23.277-0400 I CONTROL [initandlisten] db version v3.0.0
2015-03-09T11:45:23.277-0400 I CONTROL [initandlisten] git version: nogitversion
2015-03-09T11:45:23.277-0400 I CONTROL [initandlisten] build info: Darwin miniyosemite.local 14.1.0 Darwin Kernel Version 14.1.0: Mon Dec 22 23:10:38 PST 2014; root:xnu-2782.10.72~2/RELEASE_X86_64 x86_64 BOOST_LIB_VERSION=1_49
2015-03-09T11:45:23.277-0400 I CONTROL [initandlisten] allocator: system
2015-03-09T11:45:23.277-0400 I CONTROL [initandlisten] options: { storage: { dbPath: "/usr/local/var/mongodb" } }
2015-03-09T11:45:23.317-0400 I JOURNAL [initandlisten] journal dir=/usr/local/var/mongodb/journal
2015-03-09T11:45:23.317-0400 I JOURNAL [initandlisten] recover : no journal files present, no recovery needed
2015-03-09T11:45:23.337-0400 I JOURNAL [durability] Durability thread started
2015-03-09T11:45:23.338-0400 I JOURNAL [journal writer] Journal writer thread started
2015-03-09T11:45:24.512-0400 I NETWORK [initandlisten] waiting for connections on port 27017
█
```

[1]

1:mongod*

"bayo-imac" 11:45 09-Mar-15