



Performance Testing Course : JMeter - Listener

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Agenda

- Introduction about several popular listener.
- Showcases.
- Exercice : Use listener for previous lessons.

Definition

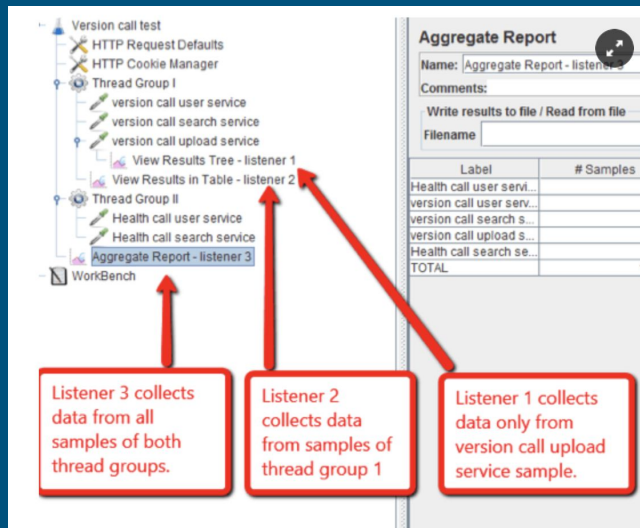
Listeners are the JMeter component that displays test results. But there is more to them than just that. The variety of JMeter listeners enables performance engineers to monitor the requests sent from JMeter as well as to analyze the responses received from the system under test.

They have 4 basics functionalities:

- Debug
- Display basic data
- Data aggregation/Calculate distribution
- Support custom scripting

Execution order

If a listener is added to the script as a child element, it will only show the data related to its parent. If a listener is added under a thread group of a script that has a few thread groups, that listener will display the data of all the samplers that belong to that thread group. If you need to review reports of all the samplers in a script, place the listener at the same level of all thread groups in the script.



Debug - View Result Tree

The **View Results Tree** listener displays samples that the JMeter samplers generate, and the assertion results that are related to these samples. This listener displays the samples in the order they are generated by the JMeter script, and provides parameters and data for each of them.

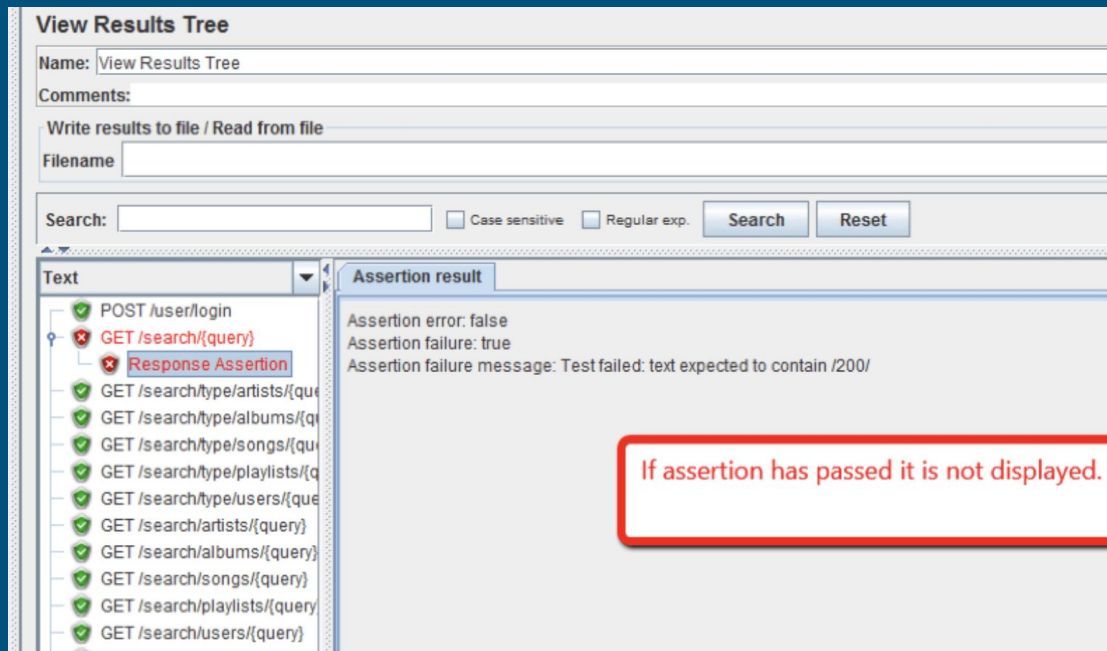
For instance, for each sample the HTTP sampler produces, the **View Results Tree** listener provides the request parameters, response parameters and the response data. This is displayed under the corresponding tabs: sampler result, request, and response data.

The Sampler result tab contains the response code, headers, cookies and information about time, latency, response size in bytes - separately for the headers, the body and the error count.

View Result Tree

One of the most useful elements of the **View Results Tree** listener is a tab that renders information transmitted in the sample body into the required format: simple text, HTML, or XML. It also filters substrings, by using RegEx patterns, specific XPath, JSON Path or CSS. This helps constructing and validating the following corresponding PostProcessors in the script.

View Result Tree



Debug - Assertion Results

The **Assertion Results** listener displays results of all the assertions in its scope. This listener displays samples as they go and failed assertions for related samples, if there are any. Passed assertions are not shown.

Assertion Results

Name: Assertion Results

Comments:

Write results to file / Read from file

Filename

Log/Display Only: ☒ Errors ☐ Successes

Assertions:

Get current weather data of London

Response Assertion – Verify response code : Test failed: code expected to equal /

***** received : 20[[[0]]]

***** comparison: 20[[[1]]]

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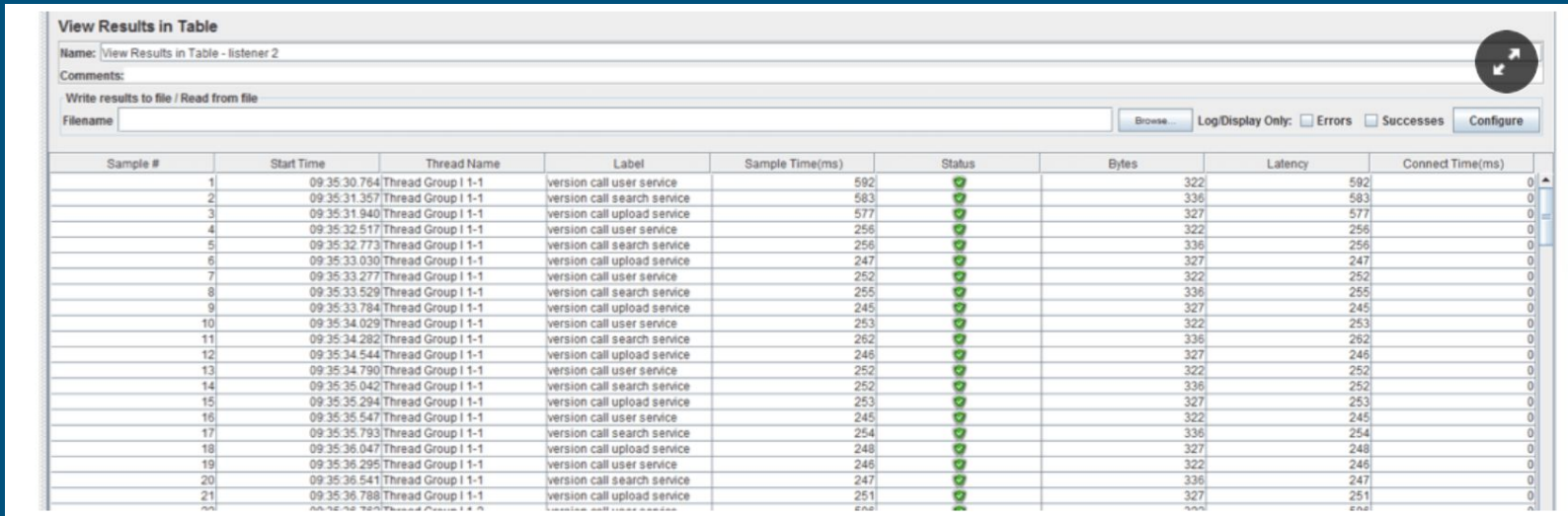
***** received : 20[[[0]]]

***** comparison: 20[[[1]]]

/

Basic info - View Result Table

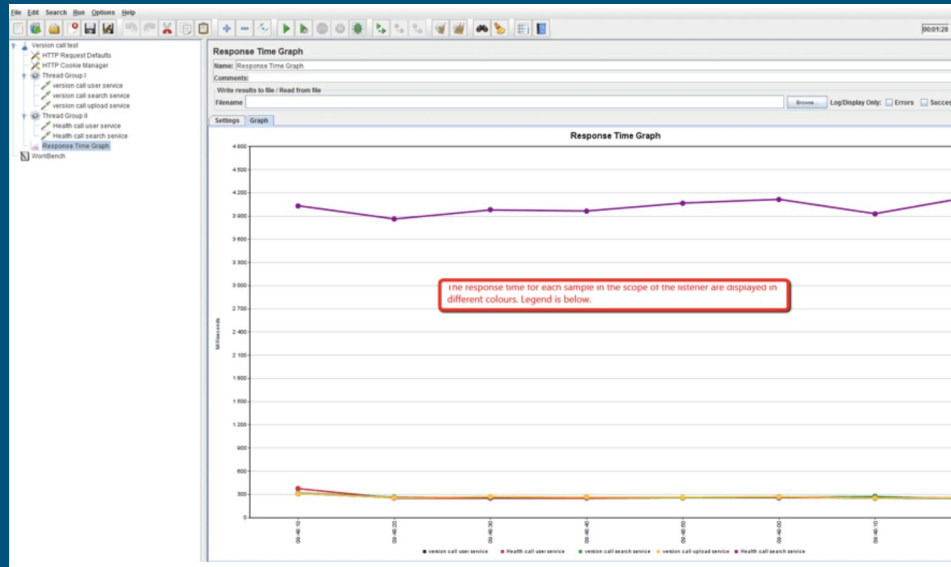
The **View Result in Table** listener displays information about each sample in the form of a table. The table shows time related data for each sample, the payload data, the thread number and the sample execution result. Results in the table are in the order the time samples were issued. This listener is useful for getting a quick estimation of the behaviour of the system under test.



Name: View Results in Table - listener 2									
Comments:									
Write results to file / Read from file									
Filename						Browse		Log/Display Only: <input type="checkbox"/> Errors <input type="checkbox"/> Successes Configure	
Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Latency	Conned Time(ms)	
1	09:35:30.764	Thread Group 1 1-1	version call user service	592	✓	322	592	0	
2	09:35:31.357	Thread Group 1 1-1	version call search service	583	✓	336	583	0	
3	09:35:31.940	Thread Group 1 1-1	version call upload service	577	✓	327	577	0	
4	09:35:32.517	Thread Group 1 1-1	version call user service	256	✓	322	256	0	
5	09:35:32.773	Thread Group 1 1-1	version call search service	256	✓	336	256	0	
6	09:35:33.030	Thread Group 1 1-1	version call upload service	247	✓	327	247	0	
7	09:35:33.277	Thread Group 1 1-1	version call user service	252	✓	322	252	0	
8	09:35:33.529	Thread Group 1 1-1	version call search service	255	✓	336	255	0	
9	09:35:33.784	Thread Group 1 1-1	version call upload service	245	✓	327	245	0	
10	09:35:34.029	Thread Group 1 1-1	version call user service	253	✓	322	253	0	
11	09:35:34.282	Thread Group 1 1-1	version call search service	262	✓	336	262	0	
12	09:35:34.544	Thread Group 1 1-1	version call upload service	246	✓	327	246	0	
13	09:35:34.790	Thread Group 1 1-1	version call user service	252	✓	322	252	0	
14	09:35:35.042	Thread Group 1 1-1	version call search service	252	✓	336	252	0	
15	09:35:35.294	Thread Group 1 1-1	version call upload service	253	✓	327	253	0	
16	09:35:35.547	Thread Group 1 1-1	version call user service	245	✓	322	245	0	
17	09:35:35.793	Thread Group 1 1-1	version call search service	254	✓	336	254	0	
18	09:35:36.047	Thread Group 1 1-1	version call upload service	248	✓	327	248	0	
19	09:35:36.295	Thread Group 1 1-1	version call user service	246	✓	322	246	0	
20	09:35:36.541	Thread Group 1 1-1	version call search service	247	✓	336	247	0	
21	09:35:36.788	Thread Group 1 1-1	version call upload service	251	✓	327	251	0	

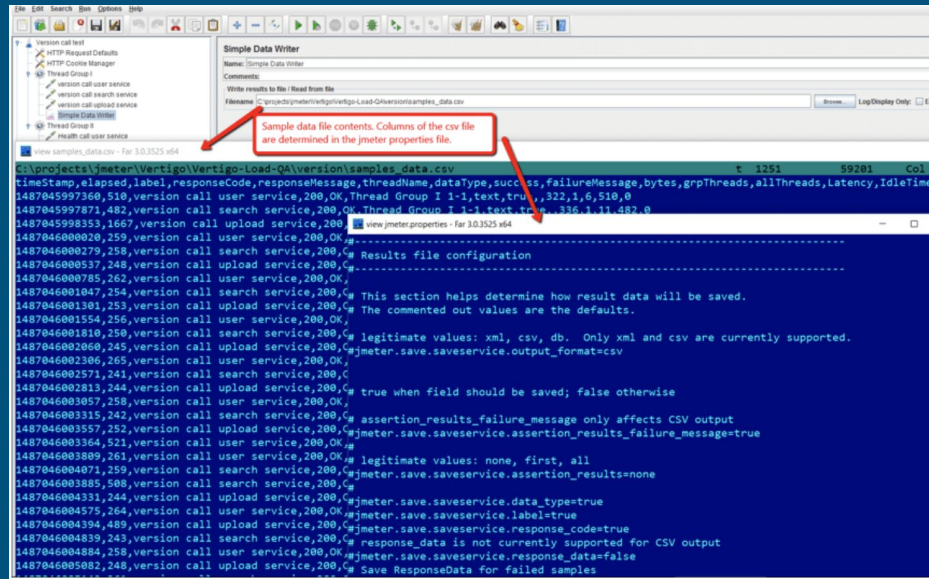
Basic info - Response Time Graph

An additional listener that plots a graph of the samples' response time over the course of the test is the **Response Time Graph** listener. This listener is able to plot a graph either for all samples or for selected ones. This is demonstrated in the screenshot below.



Basic info - Simple Data Writer

This listener can write results only to the file name as provided. The contents of the file and its format are determined in the **jmeter.properties** file, which is located in JMeter's 'bin' folder. In the screenshot below you can see the contents of the JMeter properties file and the saved data

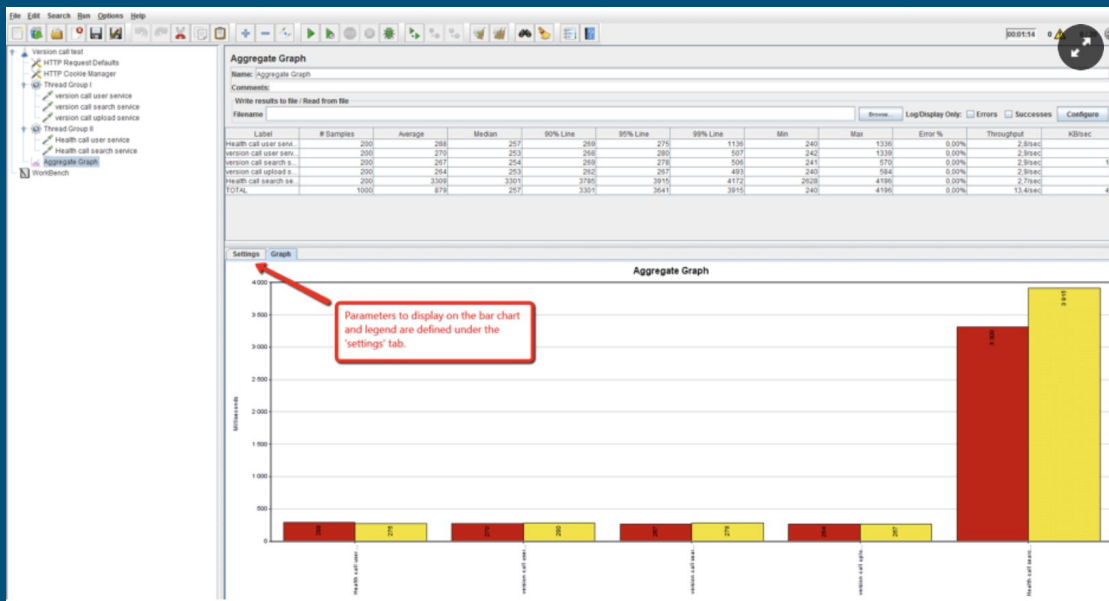


Aggregate Report

The **Aggregate Report** listener shows the aggregated and statistical data for each sample of the script. The report table displays the following KPIs for each sample: the number of times it was executed in the script, minimum, maximum, average response times, percentages, response time, throughput, the number of samples per time unit, Kbytes per second and error percentage. These KPIs are useful for tracking your test performance as well as your system's health and for monitoring trends.

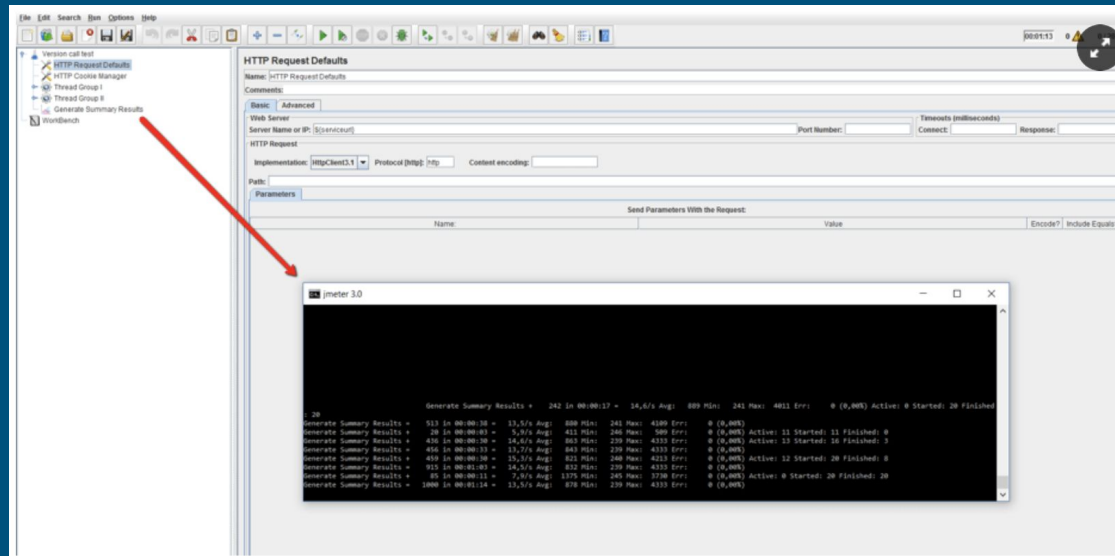
Aggregate Graph

The **Aggregate Graph** is similar to the Aggregate Report, only in addition to the aggregated data table, it plots a bar chart for the response time metrics for each sample.



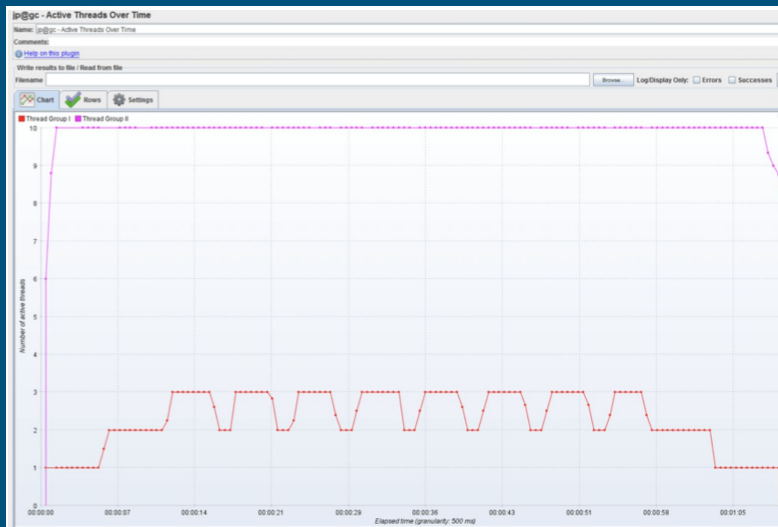
Generate Summary Results

The **Generate Summary Results** listener generates the summary report to a log file and to the JMeter log. The report format and the report file are defined in the JMeter properties file. A screenshot of what this looks like is shown below.



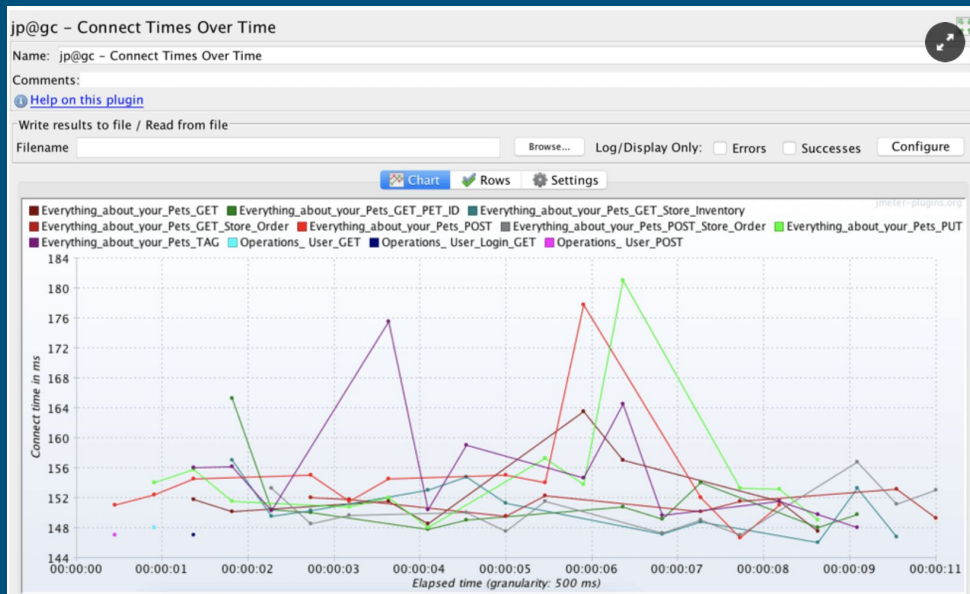
Distribution Metrics - Active Thread Over Time

The **Active Threads Over Time** listener shows how the number of active threads change over the course of the test, for each thread group in the test. The 'chart' tab shows the results in line chart format, and the 'rows' tab shows the results in bar format as well. In the 'settings' tab you can configure the graph plotting display. Through this graph you can monitor the simultaneous connections in your scenario and discover bottlenecks.



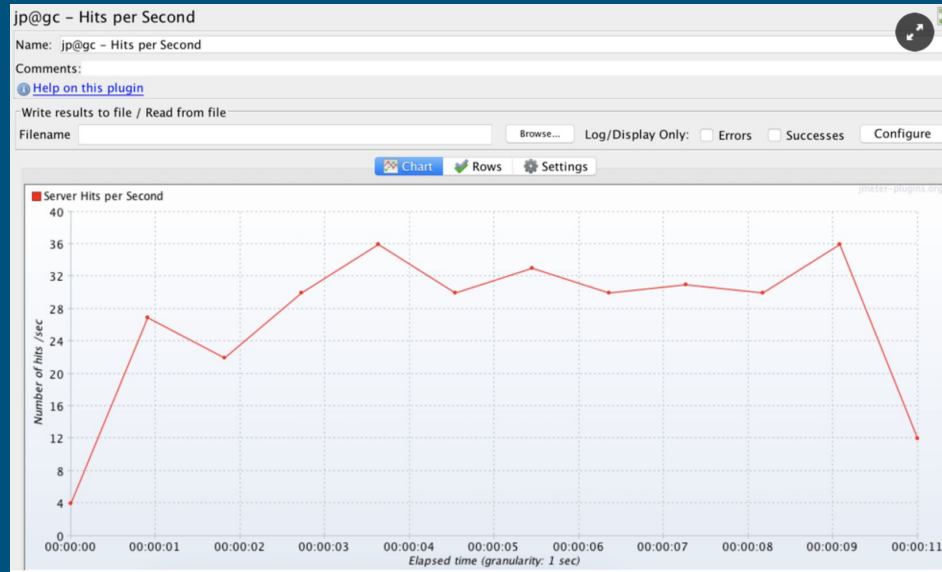
Distribution Metrics - Connect Time Over Time

This listener shows the connect times for every sample of the script throughout the test, i.e the time it takes to establish connection over the test for each sampler. Connection time should be as low as possible, and its success rate should be defined according to your business goals.



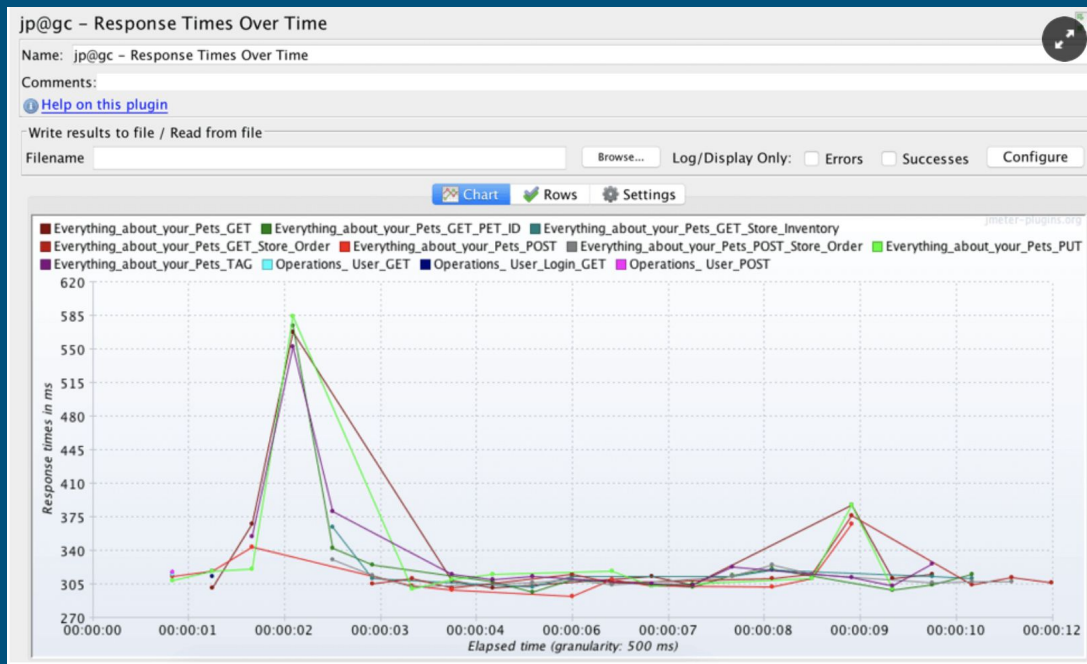
Distribution Metrics - Hits Per Second

The **Hits per Second** listener provides data about the number of samples executed over the period of time. Correlating the Number of Users and Hits per Second lets us simulate and measure the types and loads of usage of the website.



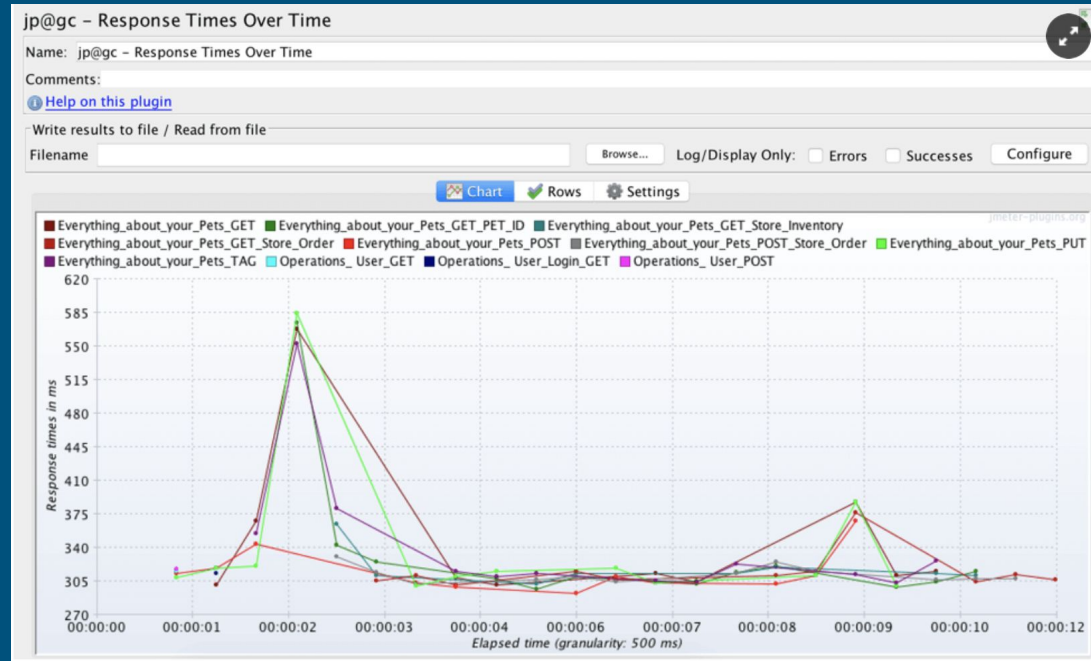
Distribution Metrics - Response Times Over Time

This listener shows the response time variation for each sample over the period of the test.



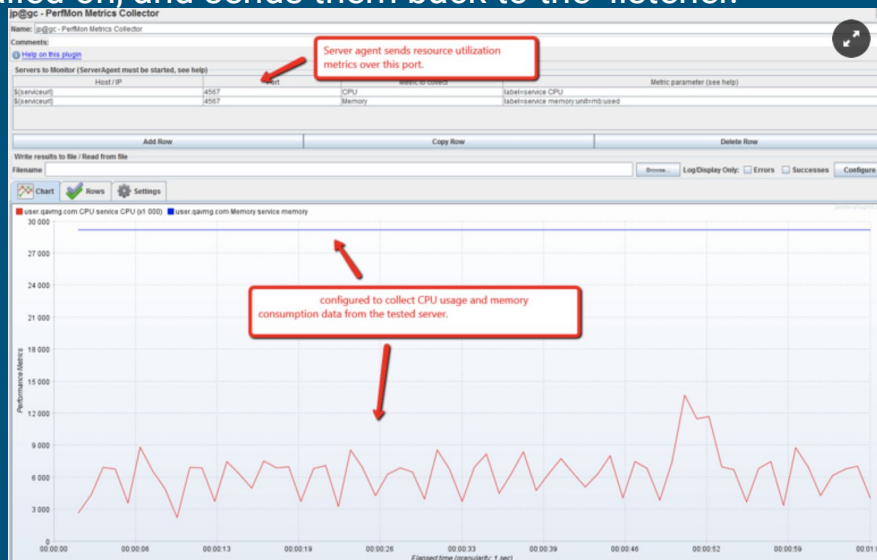
Distribution Metrics - Response Times Over Time

This listener shows the response time variation for each sample over the period of the test.



Support scripting,enable test and system management

The **PerfMon Metrics Collector** listener receives CPU usage, memory consumption, disk and network utilization metrics and provides reports. The data is received from the server agent, which is installed on the servers of the system under the test. The server agent utility collects the resource consumption data of the servers it is installed on, and sends them back to the listener.



Support scripting,enable test and system management

Composite Graph listener, available through JMeter plugins, is useful for finding the cause of bottlenecks or understanding the real capacity of the system under the test. For example, correlating response time charts and resource utilization charts or response time charts and throughput related charts.

