



swatij81 · Jul 14, 2022 · 3 min read



## Run JMeter and generate HTML Dashboard Report from command line (non GUI mode)

★★★★★ 5.0 | 2 Ratings

The **Apache JMeter** is open-source software, a 100% pure Java application designed for performance testing. The GUI mode of JMeter is perfect for adding and editing new configuration elements, thread groups, and samplers. However, the GUI mode consumes a lot of memory and resources while running the recorded script. GUI mode is not recommended for heavy load testing.

Once your Test Plan is ready, use CLI mode (Command-line mode previously called Non-GUI mode) to run it for the Load Test. Using CLI mode, you can generate a CSV file containing results and have JMeter generate an HTML report at end of load test. By executing script at command line it can be easily integrated with other systems (Jenkins/Other CI tools).

In this blog, we will see how to run JMeter test from command line and generate an HTML report.

### Prerequisite:

Apache JMeter installed on your system.  
A test plan built and available in JMeter.

**You can follow my previous blog to install JMeter, start JMeter in GUI mode and build a test plan.**

<https://www.numpyninja.com/post/rest-api-load-testing-using-jmeter>

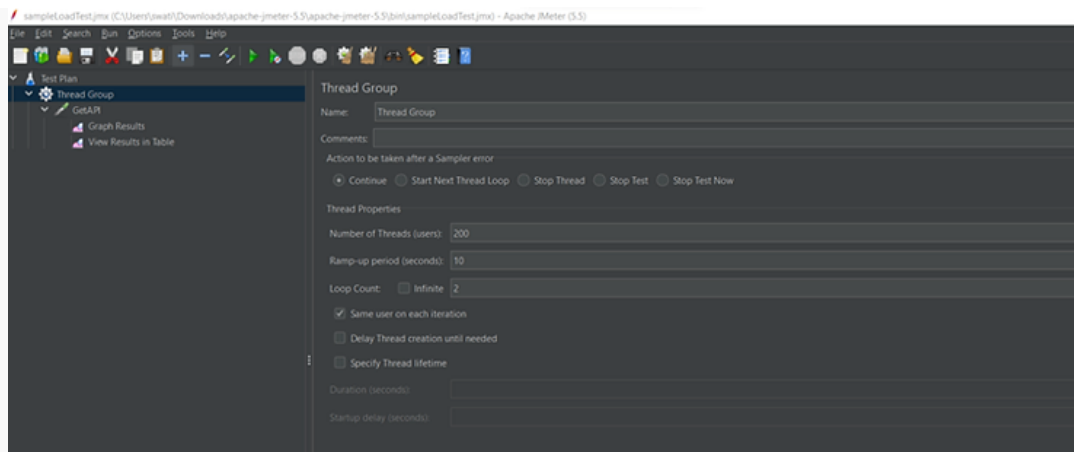
### Steps to run JMeter in command line mode:

1. Open command prompt.
2. Go into JMeter's bin folder
3. Enter the following Command to run JMeter test

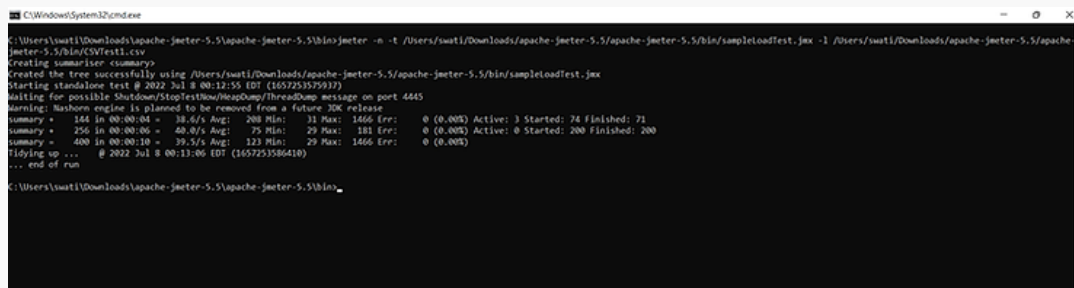
```
jmeter -n -t <location of jmeter script> -l <location of result file>
```

- -n specifies the JMeter is to run in cli mode.
- -t specifies name of JMX file that contains the Test Plan.
- -l specifies name of result file to log sample results to. The result file must not exist or be empty.

Screenshot of JMeter test plan, which we will run from command line:

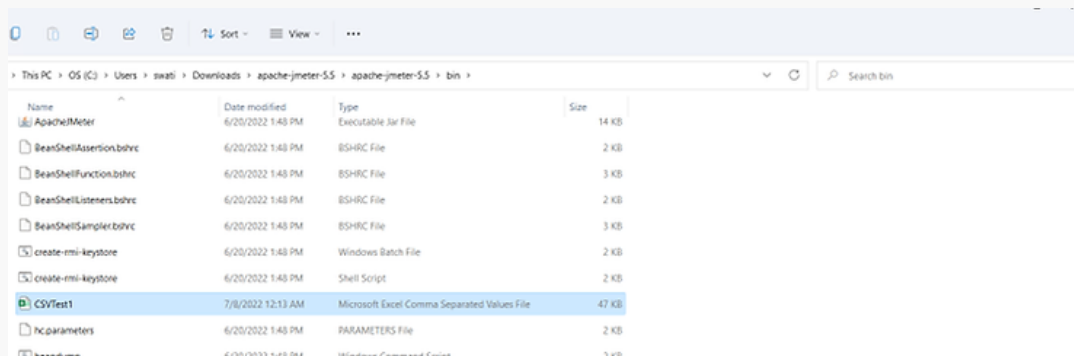


JMeter Test Plan



Run JMeter script from command line

Go to the specified location of result file and see if the csv file (in this case, file CSVTest1.csv) is created.



Now open the CSV file to check whether the results are logged into it.

File Home Insert Page Layout Formulas Data Review View Help																	Comments Share									
Calibri -11 A A Wrap Text																	General Conditional Formatting Format as Table Cell Styles Insert Delete Format									
Undo Clipboard Font Font Alignment Number Styles																	Editing Analysis Sensitivity									
A1 X fx TimeStamp																										
1	TimeStamp	elapsed	label	responseCode	responseSize	threadName	dataType	success	failureMessage	bytesSent	bytesReceived	group	threadID	allThreads	URL	latency	idleTime	connect	Q	R	S	T	U	V	W	
2	1.666+12	1027	GetAPI	200 OK	Thread Gr text	TRUE		1846	130	22	22	https://rec	1022	0	981											
3	1.666+12	434	GetAPI	200 OK	Thread Gr text	TRUE		1845	130	22	22	https://rec	429	0	365											
4	1.666+12	786	GetAPI	200 OK	Thread Gr text	TRUE		1850	130	22	22	https://rec	785	0	739											
5	1.666+12	1075	GetAPI	200 OK	Thread Gr text	TRUE		1847	130	22	22	https://rec	1075	0	1040											
6	1.666+12	41	GetAPI	200 OK	Thread Gr text	TRUE		1843	130	22	22	https://rec	41	0	0											
7	1.666+12	47	GetAPI	200 OK	Thread Gr text	TRUE		1852	130	22	22	https://rec	47	0	0											
8	1.666+12	53	GetAPI	200 OK	Thread Gr text	TRUE		1844	130	21	21	https://rec	53	0	0											
9	1.666+12	51	GetAPI	200 OK	Thread Gr text	TRUE		1849	130	20	20	https://rec	51	0	0											
10	1.666+12	885	GetAPI	200 OK	Thread Gr text	TRUE		1845	130	20	20	https://rec	885	0	836											
11	1.666+12	323	GetAPI	200 OK	Thread Gr text	TRUE		1854	130	18	18	https://rec	323	0	291											
12	1.666+12	536	GetAPI	200 OK	Thread Gr text	TRUE		1849	130	18	18	https://rec	536	0	493											
13	1.666+12	408	GetAPI	200 OK	Thread Gr text	TRUE		1846	130	18	18	https://rec	407	0	269											
14	1.666+12	1054	GetAPI	200 OK	Thread Gr text	TRUE		1853	130	18	18	https://rec	1054	0	1008											
15	1.666+12	33	GetAPI	200 OK	Thread Gr text	TRUE		1844	130	19	19	https://rec	33	0	0											
16	1.666+12	34	GetAPI	200 OK	Thread Gr text	TRUE		1845	130	19	19	https://rec	34	0	0											
17	1.666+12	59	GetAPI	200 OK	Thread Gr text	TRUE		1849	130	18	18	https://rec	59	0	0											
18	1.666+12	44	GetAPI	200 OK	Thread Gr text	TRUE		1845	130	17	17	https://rec	44	0	0											
19	1.666+12	47	GetAPI	200 OK	Thread Gr text	TRUE		1846	130	16	16	https://rec	47	0	0											
20	1.666+12	854	GetAPI	200 OK	Thread Gr text	TRUE		1848	130	16	16	https://rec	851	0	812											
21	1.666+12	94	GetAPI	200 OK	Thread Gr text	TRUE		1846	130	22	22	https://rec	94	0	0											
22	1.666+12	453	GetAPI	200 OK	Thread Gr text	TRUE		1852	130	22	22	https://rec	452	0	360											
23	1.666+12	796	GetAPI	200 OK	Thread Gr text	TRUE		1842	130	22	22	https://rec	796	0	484											
24	1.666+12	878	GetAPI	200 OK	Thread Gr text	TRUE		1852	130	21	21	https://rec	878	0	574											
25	1.666+12	1341	GetAPI	200 OK	Thread Gr text	TRUE		1847	130	21	21	https://rec	1340	0	1209											
26	1.666+12	1208	GetAPI	200 OK	Thread Gr text	TRUE		1849	130	21	21	https://rec	1208	0	1075											
27	1.666+12	662	GetAPI	200 OK	Thread Gr text	TRUE		1846	130	21	21	https://rec	662	0	345											
28	1.666+12	784	GetAPI	200 OK	Thread Gr text	TRUE		1842	130	21	21	https://rec	783	0	460											
CSVTest1																										

CSVTest1.csv file

## Generating Report Dashboard:

JMeter supports dashboard report generation to get graphs and statistics from a test plan. The dashboard generator reads and processes samples from CSV files to generate HTML files containing graph views. It can generate the report at end of a load test or on demand.

Lets see how to use the dashboard generator.

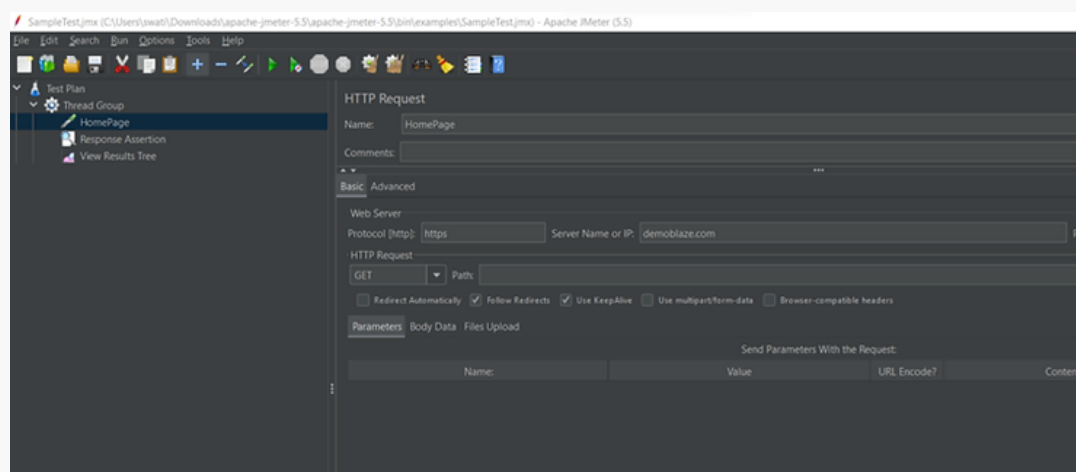
**Option 1:** You can create a dashboard report at the end of test case execution.

Command to run JMeter script and generate a dashboard report is as follows:

```
jmeter -n -t <location of jmeter script> -l <location of result file> -e -o
<location of output folder>
```

- -e specifies generate report dashboard after load test
- -o specifies output folder where to generate the report dashboard after load test. Folder must not exist or be empty.

Screenshot of JMeter test plan, which we will run from command line and generate report.

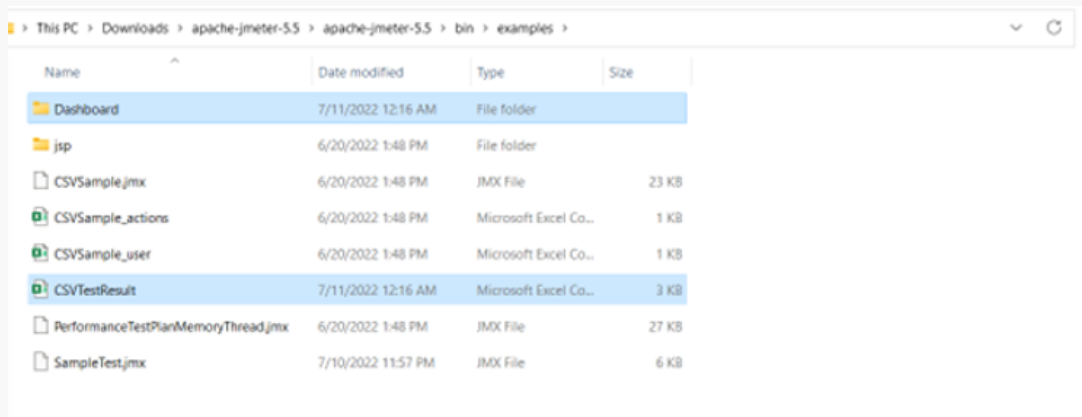


JMeter Test Plan

```
C:\Windows\System32\cmd.exe
C:\Users\sutali\Downloads\apache-jmeter-5.5\apache-jmeter-5.5\bin\jmeter -n -t /Users/sutali/Downloads/apache-jmeter-5.5/apache-jmeter-5.5/bin/examples/SampleTest.jmx -l /Users/sutali/Downloads/apache-jmeter-5.5/apache-jmeter-5.5/bin/examples/CSVTestResult.csv -e -o /Users/sutali/Downloads/apache-jmeter-5.5/apache-jmeter-5.5/bin/examples/Dashboard
Creating summariser (summary)
Created the tree successfully using /Users/sutali/Downloads/apache-jmeter-5.5/apache-jmeter-5.5/bin/examples/SampleTest.jmx
Starting standalone test # 2022 Jul 11 00:16:06 (DT (1657512966610))
Waiting for possible Shutdown/StopTestNow/HeapDump/ThreadDump message on port 4445
Running: Hashion engine is planned to be removed from a future JMX release
Summary = 20 in 00:00:01 = 20.3/s Avg: 816 Min: 799 Max: 829 Err: 0 (0.00%)
Tidying up ... @ 2022 Jul 11 00:16:07 (DT (1657512967861))
... end of run
C:\Users\sutali\Downloads\apache-jmeter-5.5\apache-jmeter-5.5\bin\
```

Command to run JMeter test and generate HTML report

Go to the specified location and check whether the CSV test result file (CSVTestResult.csv) and output folder (Dashboard) are created.



"CSVTestResult.csv" file and output folder "Dashboard" created at specified location

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	timestamp	label	responseCode	message	threadName	dataType	success	failureMessage	bytesSent	bytesReceived	threadID	URL	latency	idleTime	connect							
2	1.666E+12	759 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	20	20	https://den	702	0	623							
3	1.666E+12	787 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	19	19	https://den	708	0	631							
4	1.666E+12	801 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	18	18	https://den	724	0	635							
5	1.666E+12	802 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	17	17	https://den	723	0	626							
6	1.666E+12	820 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	16	16	https://den	754	0	641							
7	1.666E+12	823 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	16	16	https://den	756	0	646							
8	1.666E+12	822 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	16	16	https://den	756	0	673							
9	1.666E+12	820 HomePage	200 OK	Thread Gr1text	TRUE			19934	118	15	15	https://den	794	0	659							
10	1.666E+12	820 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	778	0	653							
11	1.666E+12	819 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	778	0	654							
12	1.666E+12	819 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	793	0	701							
13	1.666E+12	820 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	778	0	650							
14	1.666E+12	824 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	797	0	668							
15	1.666E+12	824 HomePage	200 OK	Thread Gr1text	TRUE			19934	118	10	10	https://den	784	0	641							
16	1.666E+12	823 HomePage	200 OK	Thread Gr1text	TRUE			19934	118	6	6	https://den	787	0	637							
17	1.666E+12	828 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	6	6	https://den	803	0	706							
18	1.666E+12	829 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	14	14	https://den	762	0	654							
19	1.666E+12	827 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	3	3	https://den	811	0	701							
20	1.666E+12	826 HomePage	200 OK	Thread Gr1text	TRUE			19902	118	3	3	https://den	810	0	681							
21	1.666E+12	827 HomePage	200 OK	Thread Gr1text	TRUE			19934	118	1	1	https://den	818	0	674							

CSVTestResult.csv

To view the dashboard report, go to Dashboard folder and open index.html.

This PC > Downloads > apache-jmeter-5.5 > apache-jmeter-5.5 > bin > examples > Dashboard

Name	Date modified	Type	Size
content	7/11/2022 12:16 AM	File folder	
sbadmin2-1.0.7	7/11/2022 12:16 AM	File folder	
index	7/11/2022 12:16 AM	Chrome HTML Do...	10 KB
statistics	7/11/2022 12:16 AM	JSON File	1 KB

Apache JMeter Dashboard

Dashboard

Charts

Customs Graphs

#### Test and Report information

Source file	"CSVTestResult.csv"
Start Time	"7/11/22, 12:16 AM"
End Time	"7/11/22, 12:16 AM"
Filter for display	**

#### APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.500	500 ms	1 sec 500 ms	Total
0.500	500 ms	1 sec 500 ms	HomePage

#### Requests Summary



HTML Dashboard Report

#### Response Time Percentiles Over Time (successful responses)

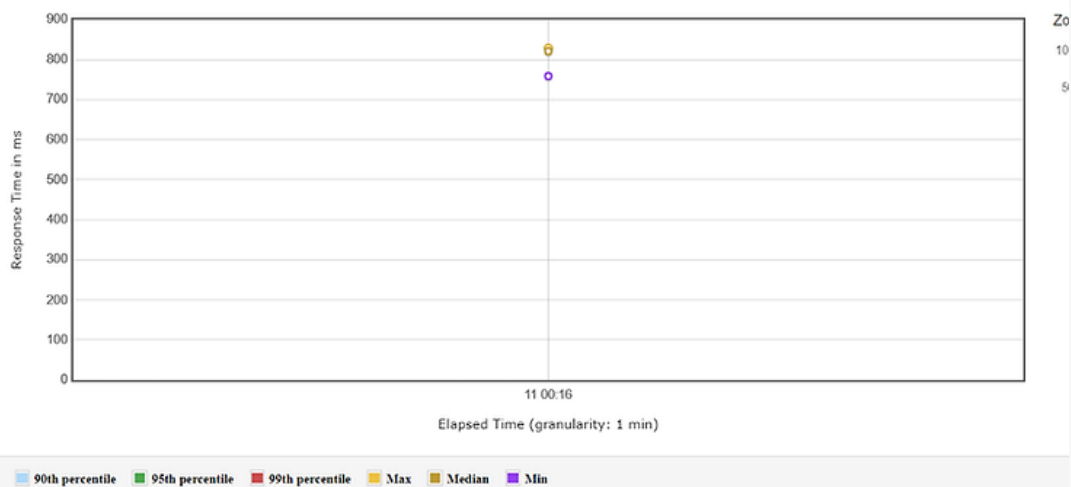


Chart of type "Over Time"

This report provides different metrics e.g. APDEX table, request summary graph showing the Success and failed requests percentage, different charts etc. Toleration threshold and Frustration threshold values are configurable.

#### Configuring Dashboard Generation:

Dashboard generation uses JMeter properties to customize the report. All report generator properties can be found in file **reportgenerator.properties**. To customize these properties, you should copy them in **user.properties**

file and modify them.

```
#####
#####
# Apache JMeter Property file for Report Generator
#####
#####

#####
#####
#
#
# THIS FILE SHOULD NOT BE MODIFIED
#
# This avoids having to re-apply the modifications when upgrading
JMeter
# Instead only user.properties should be modified:
# 1/ copy the property you want to modify to user.properties from
here
# 2/ Change its value there
#
#####
#####

#-----
# Reporting configuration
#-----

# Sets the satisfaction threshold for the APDEX calculation (in
milliseconds).
#jmeter.reportgenerator.apdex_satisfied_threshold=500

# Sets the tolerance threshold for the APDEX calculation (in
milliseconds).
#jmeter.reportgenerator.apdex_tolerated_threshold=1500

# Sets satisfaction and tolerance threshold to specific samples.
# Use sample names or regular expression.
# Format is : sample_name:satisfaction[tolerance[;]
```

reportgenerator.properties file inside JMeter/bin folder

Go to JMeter/bin folder, you will find user.properties file. Open that file.

```
- - - - -
# Sets the size of the sliding window used by percentile
evaluation.
# Caution : higher value provides a better accuracy but needs
more memory.
#jmeter.reportgenerator.statistic_window = 20000

# Change this parameter if you want to change the granularity of
Response time distribution
# Set to 100 ms by default
#jmeter.reportgenerator.graph.responseTimeDistribution.property.s
et_granularity=100

# Change this parameter if you want to keep only some samples.
# Regular Expression which Indicates which samples to keep for
graphs and statistics generation.
# Empty value means no filtering
#jmeter.reportgenerator.sample_filter=

# Change this parameter if you want to override the APDEX
satisfaction threshold.
# Set to 500 ms by default
#jmeter.reportgenerator.apdex_satisfied_threshold=500

# Change this parameter if you want to override the APDEX
tolerance threshold.
# Set to 1500 ms by default
#jmeter.reportgenerator.apdex_tolerated_threshold=1500

# Indicates which graph series are filtered (regular expression)
# In the below example we filter on Search and Order samples
# Note that the end of the pattern should always include (-
success|-failure)?$
# TransactionsPerSecondGraphConsumer suffixes transactions with
"-success" or "-failure" depending
# on the result
#jmeter.reportgenerator.exporter.html.series_filter=^(Search|Orde
r)(-success|-failure)?$
```

user.properties file inside JMeter/bin folder

If needed, you can change the tolerated and satisfied threshold values in **user.properties** file. Then run your JMeter at command line and generate a dashboard report. Now those updated threshold values will be reflected in the dashboard.

**Option 2:** Create a dashboard report from a standalone CSV file.

Suppose, you have already executed JMeter test from command line and generated CSV result. You can create a dashboard from CSV file using below command.

```
jmeter -g <location of csv file> -o <location of output folder>
```

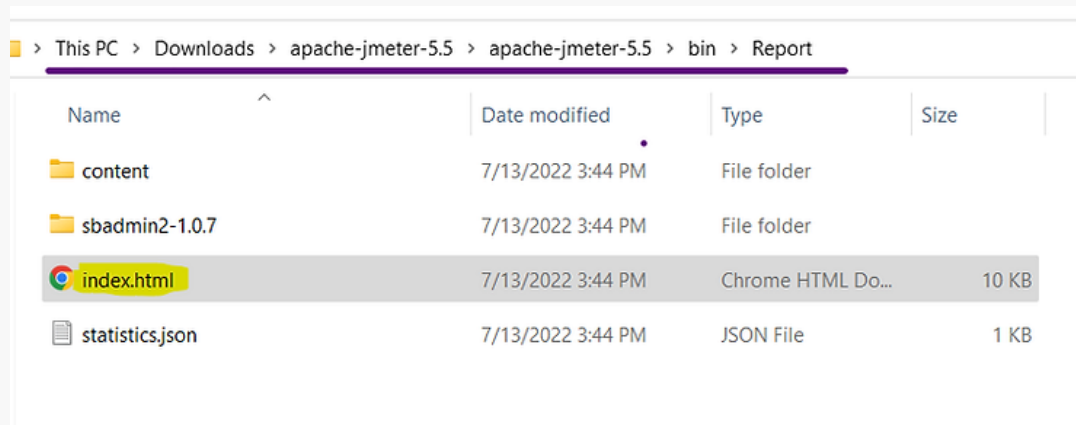
We will use the csv file generated on run of JMeter in command line mode at the beginning of this blog.

```
C:\Users\swati\Downloads\apache-jmeter-5.5\apache-jmeter-5.5\bin>jmeter -g CSVTest1.csv -o Report
C:\Users\swati\Downloads\apache-jmeter-5.5\apache-jmeter-5.5\bin>
```

Run command to generate dashboard from CSV file

**Note:** My CSV file and output folder are at the same location (JMeter/bin), so I have just specified their names.

Go to the specified location and check if output folder (Report) is created. Go inside the output folder and you can see HTML report file i.e. index.html file.



index.html file inside Report folder

Screenshot of HTML report:

f X in e

36,975 views 2 comments

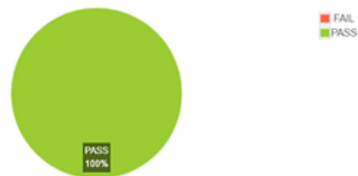
3 ❤️



## APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.978	500 ms	1 sec 500 ms	Total
0.978	500 ms	1 sec 500 ms	GetAPI

## Requests Summary

[See All](#)

## Statistics

Requests	Executions			Response Times (ms)							Throughput	Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent
Total	400	0	0.00%	123.20	29	1466	96.00	156.70	432.70	1207.52	40.40	72.86	5.13
GetAPI	400	0	0.00%	123.20	29	1466	96.00	156.70	432.70	1207.52	40.40	72.86	5.13

**Conclusion:**

GUI mode of JMeter is not recommended for heavy load testing. GUI mode should only be used for creating the test script, CLI mode (NON GUI) must be used for load testing.

Following points covered in this blog:

- Steps to Run JMeter in command line mode
- Generating report dashboard: generate the report at end of a load test or on demand.

**References:** <https://jmeter.apache.org/usermanual/>

**Happy Load Testing !!**