# JMETER

## To run jmeter script from command line the command is below:

Jmeter –n –t /path/filename.jmx –l /path/xl\_filename\_tostore\_result.xml

## To know all the commands used from Jmeter

Jmeter –h

## To know all the options with Jmeter

Jmeter -?

## How to test FTP upload and download

If you are working on a single server for upload or download then you can add config element named FTP request defaults, here you can specify the FTP server name and need to mention the server name in all the FTP requests in the project. This can be useful interms of changing the server, we can change it at only one place instead of all the requests in the project.

## Testing Web services-API

Rest API can be tested in Http request sampler or SOAP/XML-RPC Request Sampler

SOAP API can be tested using SOAP/XML-RPC Request Sampler

## How to create HTML Dashboard Reports from command line

(This feature will work in jmeter 3.0 and later ver.)

Step 1 : Create Test Plan and save it (and close).

Step 2 : Open command line and change dir to jmeter/bin

Step 3 : Execute command:

to create report at the end of the test

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jmeter -n -t “location of the jmeter script” -l “location of result file”

-e -o “location of the output folder”

create report from a standalone csv file

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jmeter -g “location of csv file” -o “location of output folder”

Step 4 : Analyse HTML (Dashboard) Reports

## Manage Plugins - Quick & Easy

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Install new plugins

Remove old plugins

Upgrade existing plugins

Information on plugins

Step 1 : Download jmeter plugin manager jar and add to jmeter/lib/ext folder

(Restart Jmeter)

Step 2 : Find Plugin Manager under options Menu

## Parameterization

Step 1 : Add config element - CSV Data Set Config

Step 2 : Add details in CSV Data Set Config

Step 3 : Update value fields: ${variable\_name}

Step 4 : Run and validate

## Functions and Variables

functions : any method that can populate a field in any other element of a test plan

syntax : ${\_\_functionName}

${\_\_functionName(var1, var2, …..)}

variable : container that can store a value which can be referenced by any other element within the thread. (local to a thread)

syntax : ${variableName}

function - caseSensitive | camelCasing

Functions:

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1. log - ${\_\_log(“message”)}

2. time -

3. threadNum

4. intSum

Options - Jmeter Function Helper

## How to setup realistic performance test-PACING

What is a real-world performance test

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Think Time - simulate actual user actions with timings/delays

Pacing - controlled ramp-up and down of virtual users

- control timing between iterations

- achieve x iterations in y mins/sec

Step 1 - Add Plugin - Stepping Thread Group

Step 2 - Setup load with required settings

Step 3 - Run and validate

## TIMERS (How to add Think Time)

Purpose - to pause thread (v.user) for some time

- to add delay between threads

- to avoid over flooding the server and achieve real time behaviour by pacing the load

(to simulate v. user’s THINK TIME)

Constant Timer

Uniform Random Timer

Random Delay Max

Constant Delay Offset

formula:

0.X \* Random Delay Max + Constant Delay Offset

X : 0-9

example:

0.X \* 100 + 0

0 - 99 milli sec

## How to parameterize FTP test

(To upload files with different names to FTP)

Step 1 : add CSV Data Set Config

Step 2 : create a csv file and provide its location in CSV Data Set Config

Step 3 : parametrize FTP PUT request to take value from csv file

Step 4 : Run and Validate

## How to run Scheduled + Sequential execution

HOW TO RUN A TEST FOR SPECIFIC DURATION

Thread Group - Forever - Scheduler - Duration

HOW TO RUN PERFORMANCE TEST SEQUENTIALLY

Test Plan - Run Thread Group Consecutively

HOW TO ADD WEBSITES SEQUENTIALLY TO A PERFORMANCE TEST

Thread Group - Forever - Scheduler - Duration + Startup Delay

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HOW TO RUN A TEST FOR SPECIFIC DURATION

Thread Group - Forever - Scheduler - Duration

Step 1 : Thread Group - make loop count = forever

Step 2: Select Scheduler checkbox

Step 3 : Add duration (sec)

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HOW TO RUN PERFORMANCE TEST SEQUENTIALLY

Test Plan - Run Thread Group Consecutively

Step 1 : Test Plan - select Run Thread Groups consecutively

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HOW TO ADD WEBSITES SEQUENTIALLY TO A PERFORMANCE TEST

Thread Group - Forever - Scheduler - Duration + Startup Delay

Step 1 : Add duration (max) to first thread group - 30 sec

Step 2 : To consecutive thread groups add delay

example (for a 30 sec test plan):

1st Thread Group : delay = 0 sec | duration = max duration of the test = 30 sec

2nd Thread Group : delay = 10 sec | duration = max - delay = 30 - 10 = 20 sec

3rd Thread Group : delay = 20 sec | duration = max - delay = 30 - 20 = 10 sec

## Correlation (with Regular Expression Extractor)

How to use Regular Expression Extractor

Step 1 : Create a Test Plan where you want to do dynamic referencing in JMeter

Step 2 : Add Regular Expression Extractor in the Step from where response value(s) needs to be extracted

Step 3 : Refer the extracted value (referred by Reference Name) into a subsequent step

Step 4 : Run and validate

references : <http://regexr.com/>

## How to use TEMPLATES

1 What are JMeter Templates

Reusable project scripts

User can select any template and it will generate a Test Plan with basic and necessary components

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2 How to use Templates

File - Templates - select a template and start building over it.

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3 How to create your own Template

Step 1 : save your test plan as .jmx file

Step 2 : place the .jmx inside jmeter/bin/templates

Step 3 : edit templates.xml file to add your template

Step 4 : restart JMeter and check

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templates.xml

template

isTestPlan=”true” : template will create a new test plan

isTestPlan=”false” : templat will be merged into existing test plan

name : Name of the template

fileName : location of .jmx file

description : description will be displayed in html

## How to use Test Script Recorder

helpful tips

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1 What is Test Script Recorder

is a workbench element

used to record user actions on browser

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2 How to record with Test Script Recorder

Step 1 : Add Test Script Recorder in WorkBench

WorkBench - Non-Test Elements - HTTP(S) Test Script Recorder

Step 2 : In a Thread Group add

Logic Controller - Recording Controller

Step 3 : Add the values in Test Script Recorder parameters

Step 4 : Set Browser Proxy Configuration

Step 5 : Install the certificate in your browser (if required)

Step 6 : Start Recording

Step 7 : Run and validate

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Helpful Tips:

Use JMeter’s inbuilt Recording template

You can use the in-built template - Recording

to start quickly

to save time and effort

## How to test File Upload

1 How to create test for File Upload

Step 1 : Create a Test Plan - Thread Group - HTTP Request

Step 2 : Add values in HTTP Request sampler

Step 3 : Add File Upload details

Step 4 : Add Listeners to view results

Step 5 : Run and Validate

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2 How to record test for File Upload

Step 1 : Add Template - Recording

Step 2 : Provide a port number (e.g. 8181)

Step 3 : Set browser to listen to this port

Step 4 : Start Recording

Step 5 : Filter the samples you need from recorded samples

Step 6 : Run and Validate

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Helpful Tips:

In case you face any issues..

Check the following :

Method is POST

Use multipart/form-data for POST Box is checked

File location | Parameter | Mime Type are correct

Check the logs for any other error

## How to test File Download

Step 1: Add Thread Group - HTTP Request sampler

Step 2 : Add values in HTTP Request sampler

Step 3 : Add Listeners to view results

Step 4 : Add Listener - Save Responses to a file

Step 5 : Add values to this Listener

Step 6 : Run and Validate

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Helpful Tips

How to avoid overwriting downloaded files.

in a multi-user test

Use function : ${\_\_threadNum} as Prefix

References :

<ftp://speedtest.tele2.net/>

## How to DEBUG

Step 1 : Analyse with Listener - View Results Tree

Step 2 : Analyse information in Log Viewer

Step 3 : Add Listner - Debug Sampler

Helpful Tips

How to use Debug PostProcessor

Enable Debug for elements

Using external plugins for Debugging

## How to Monitor Server Health with PerfMon | How to add PerfMon

PerfMon

1. How to add PerfMon plugin in JMeter

2. How to start PerfMon server

3. How to monitor server health with JMeter PerfMon plugin

Response

Time

Avg Time

Connect Time

Size

Bytes

Server - machine where your test application is hosted

CPU, Memory, Disk I/O, Network

10000 users

9000 users, high CPU usage

Suggest hardware infrastructure

Step 1 : Add perfmon plugin in JMeter

1. Download and add to JMeter lib and ext folder https://jmeter-plugins.org/wiki/PerfMon/

2. Plugins Manager

Step 2 : On server

Download perform server agent https://github.com/undera/perfmon-age...

Step 3 : Start the perfmon server agent

Mac/linux - terminal - sh startAgent.sh

Windows - startAgent.bat

Check client can talk to server via port 4444

Step 4 : Create JMeter test to monitor Server Health

Step 5 : Run and Validate

## Remote Testing | Master Slave | Distributed Testing

Step 1 : SetUp Master

added remote system’s ip in jmeter.properties

Step 2 : create keystore file

run create-rmi-keystore.bat / create-rmi-keystore.sh

name : rmi

password : changeit

Step 3 : run jmeter-server file on slave (remote) system

Step 4 : Run and Validate

GUI and Commandline

Helpful Tips:

- all systems (master and slaves) have same ver of JMeter

- all systems have java (preferably same ver)

- all systems can connect to each other (are in same subnet)

- no need to copy jmeter script (jmx) to slave systems

- If you want to have 100 users and using 2 slaves. Give no as 50

References

https://jmeter.apache.org/usermanual/...

<https://www.google.co.in/search?q=jme>...

## JMeter How To Use Recording

Different approaches:

Using JMeter's HTTP(s) Test Script Recorder

Using Blazemeter plugin

## JMeter Selenium Webdriver sampler

Step 1: Open JMeter

Step 2: Add plugin

JMeter - Plugin Manager - Selenium/WebDriver Support https://github.com/undera/jmeter-plug...

https://github.com/undera/jmeter-plug...

Step 3: Create a test plan - add thread group

Step 4: Add

Config Element - jp@gc - Chrome Driver Config

Sampler - jp@gc - Web Driver Sampler

Listener - View Results Tree

Step 5: Download chromedriver.exe and provide the location in Chrome Driver Config e.g. - D:\Desktop\drivers\chromedriver\chromedriver.exe

Step 6 : Add scripts in Web Driver Sampler

e.g:

WDS.sampleResult.sampleStart()

WDS.browser.get('https://google.com')

WDS.sampleResult.sampleEnd()

WDS.sampleResult.sampleStart()

WDS.browser.get("https://www.google.com/");

var searchBox = WDS.browser.findElement(org.openqa.selenium.By.name("q"));

searchBox.click();

searchBox.sendKeys('Test');

searchBox.sendKeys(org.openqa.selenium.Keys.ENTER);

WDS.sampleResult.sampleEnd()

Step 7 : Run & Validate

Notes:

1. WebDriver Sampler automates the execution and collection of Performance metrics on the Browser (client-side)

2. While using WebDriver sampler each thread will have a single browser instance and each browser consumes significant amount of resources.

## JMX Checker tool - An automated way to check jmx files

Step 1 : Download and install jmx checker tool in JMeter

https://jmeter-plugins.org/wiki/TestP...

2 ways

Download from above link

OR

Get through plugins manager

Step 2 : Run commands

TestPlanCheck.bat --jmx "Thread Group.jmx"

TestPlanCheck.bat --jmx "Thread Group.jmx" --stas

TestPlanCheck.bat --jmx "Thread Group.jmx" --tree-dump

TestPlanCheck.bat --jmx "Thread Group.jmx" --stats --tree-dump

References:

Plugins manager - <https://jmeter-plugins.org/wiki/Plugi>...

## How to install JMeter on Linux | amazon aws ec2

Step 1 : Check java is installed

Step 2 : Get JMeter

wget http://www-eu.apache.org/dist//jmeter...

Step 3 : Extract jmeter

tar -xf apache-jmeter-4.0.tgz

Step 4 : Run a sample test

References

How to install Java on amazon aws linux ec2

https://www.youtube.com/watch?v=XGVOf...

<https://jmeter.apache.org/download_jm>...