Automation Testing

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TECHNOLOGY

JMeter Basics and Features

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A Day in the Life of an Automation Test Engineer

Alex has decided to use the JMeter tool for his non-functional testing, which is used for a lot of varieties.

To begin with, he wants to understand the JMeter Graphical User Interface.

Let’s assist Alex to explore the JMeter interface and their properties.

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Learning Objectives

By the end of this lesson, you will be able to:

- Describe the features of the JMeter graphical user interface
- Explain JMeter's windows and their behavior
- Enumerate test plans and test scenarios
- Describe test plan elements

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JMeter Graphical User Interface

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JMeter Interface

JMeter is primarily divided into three major parts:

Left Pane

All types of testing execution will take place in the left pane.

Configuration Window

All types of settings and control are implemented under this window.

Menu Bar

To perform various functions, this section is used.

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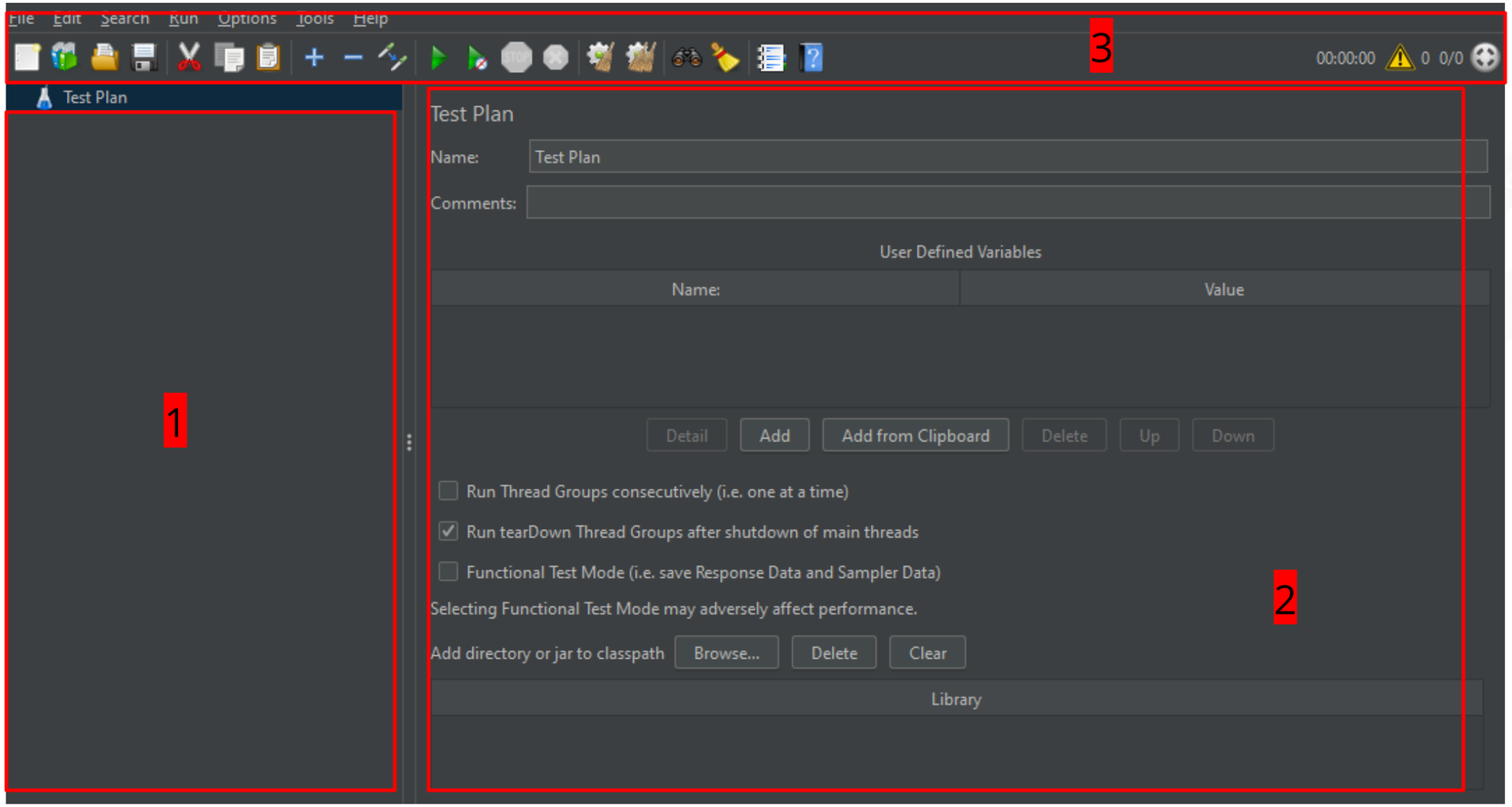
JMeter Interface

The JMeter window looks like this:



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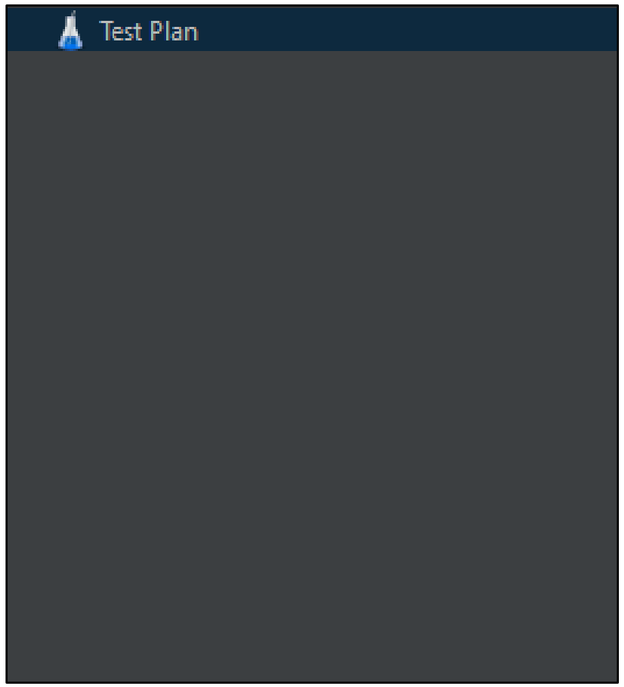
JMeter Left Pane

In the left pane, one of the most essential nodes is the Test Plan. A test plan is like a container that contains all test scenarios as well as test data.



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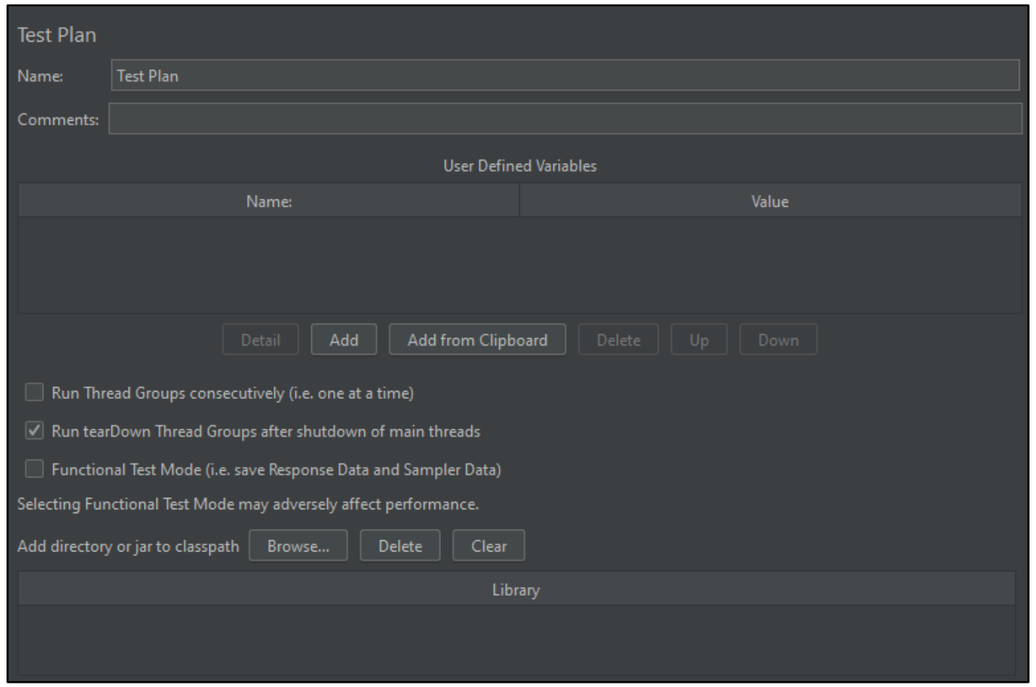
Configuration Window

The configuration window allows the user to configure all the required elements, such as user-defined variables and the test plan properties.



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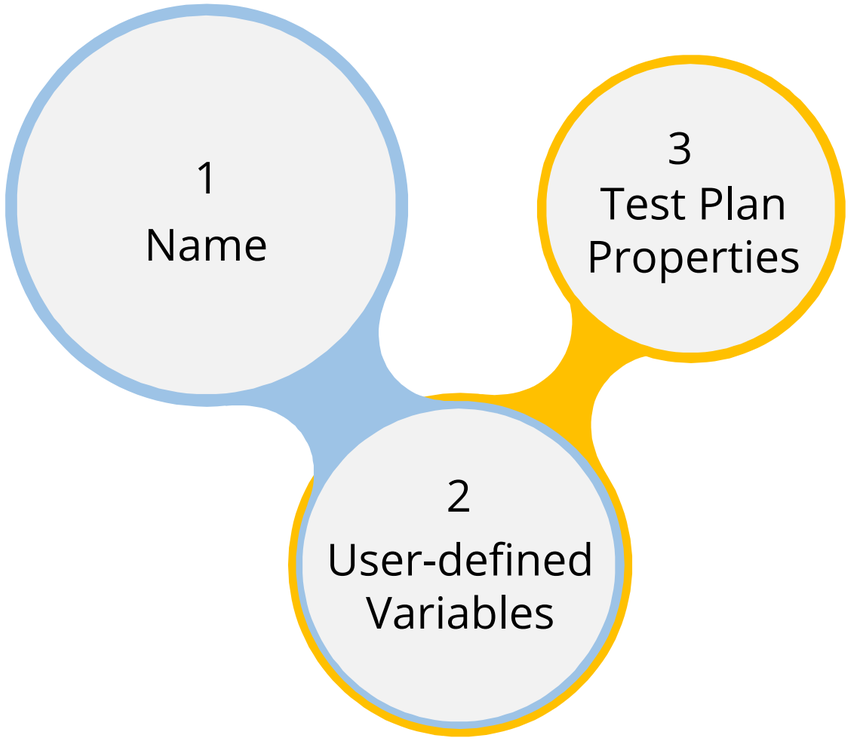
Configuration Window

JMeter configuration window consists of three major parts:



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Configuration Window (Name)

Every test plans need to declare with a name. New test plans can be created, saved, and renamed under the menu bar or File option.

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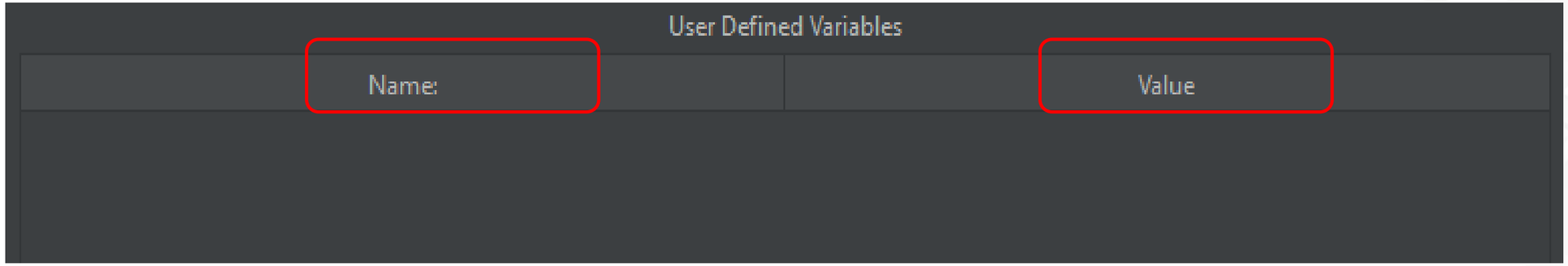
Configuration Window (User-Defined Variables)

A user-defined variable is like name-value pair:



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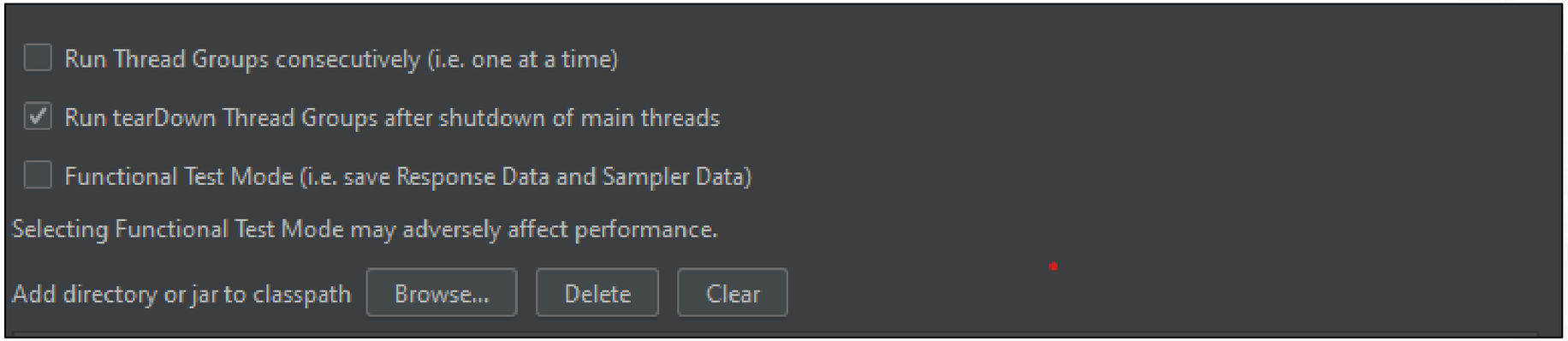
Configuration Window (Test Plan Properties)

There are three major configuration properties of a test plan which the users use to control the test plan's behavior as per requirement.



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Menu Bar

In JMeter, the top bar is called the Menu Bar. It has a lot of buttons that enable us to perform various functions by clicking each button.

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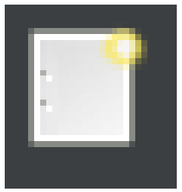

New

Save

Open

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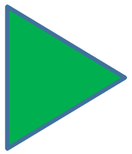
Menu Bar

Test plans can be executed and stopped using JMeter's menu bar start and stop buttons.



Start

Start with no pause

Stop

Shutdown

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JMeter Test Elements

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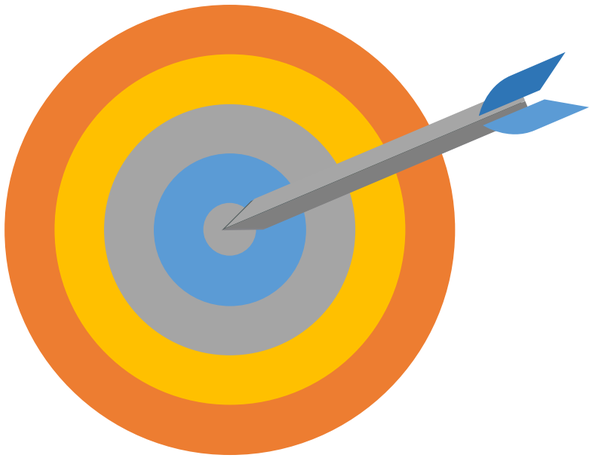
JMeter Test Elements

To execute a single test on JMeter, a test plan must be created along with other components and elements.



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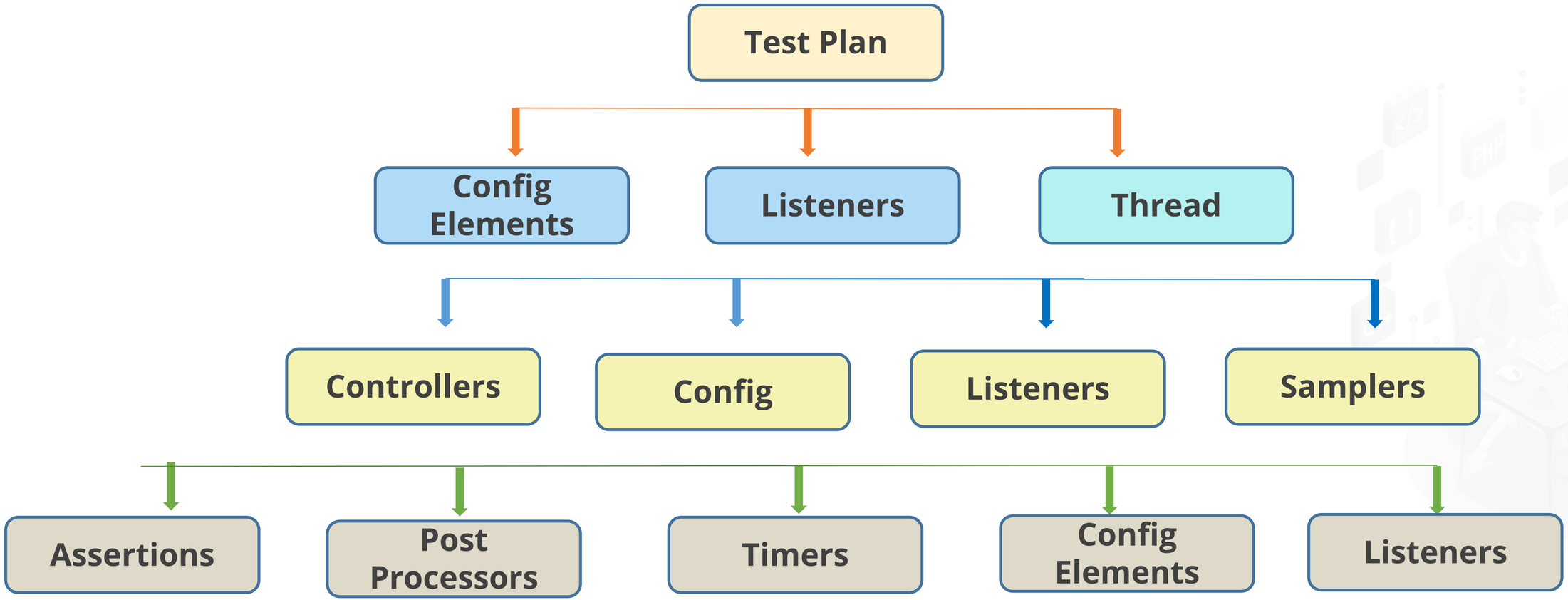
Test Plan Elements

JMeter has a variety of components which are known as test elements.



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Building a Test Plan

A test plan is like a container that contains all test scenarios as well as test data. A complete test plan consists of various steps which can be added or removed using right-click.

Add Test Element
Right-click to add the test element.

Open/Merge
Elements can be loaded from a file and loaded by choosing merge options.

Remove Test Element
Right-click to remove the test element.

Save
Save the test plan after adding test elements.

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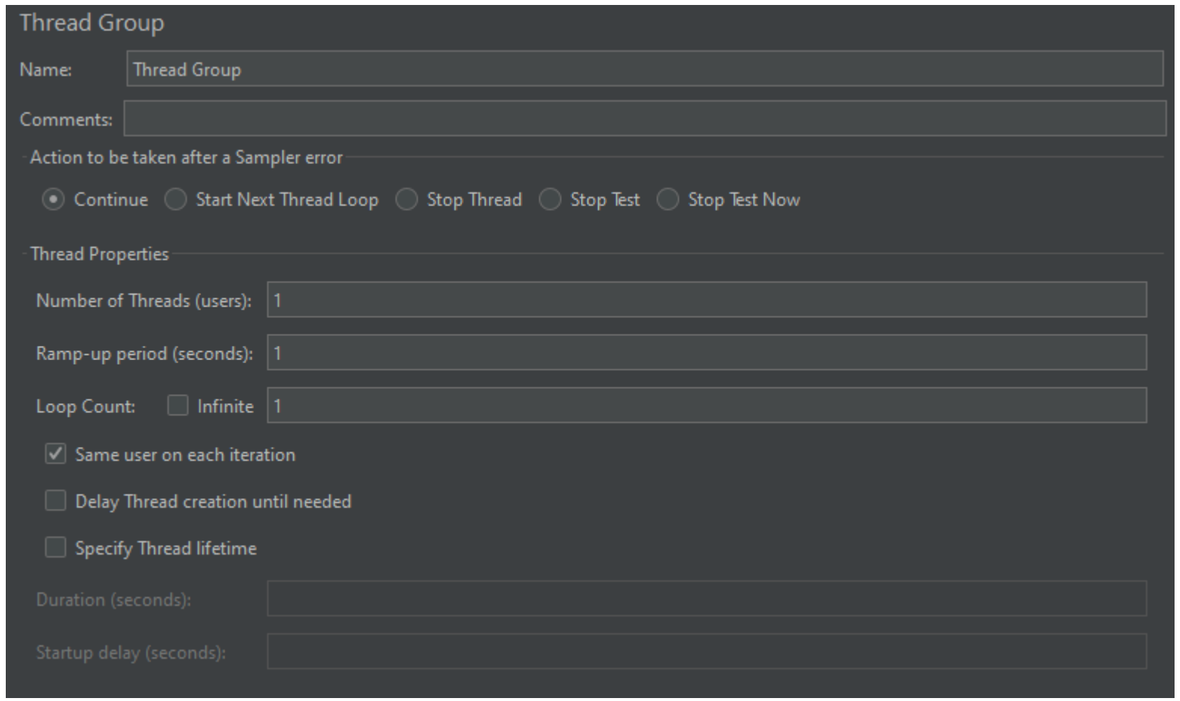
Thread Group

A thread group is a set of threads executing the same scenario. It is the base element for every JMeter test plan.



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Controllers

JMeter has two types of controllers: samplers and logical controllers.

Samplers

Logic Controllers

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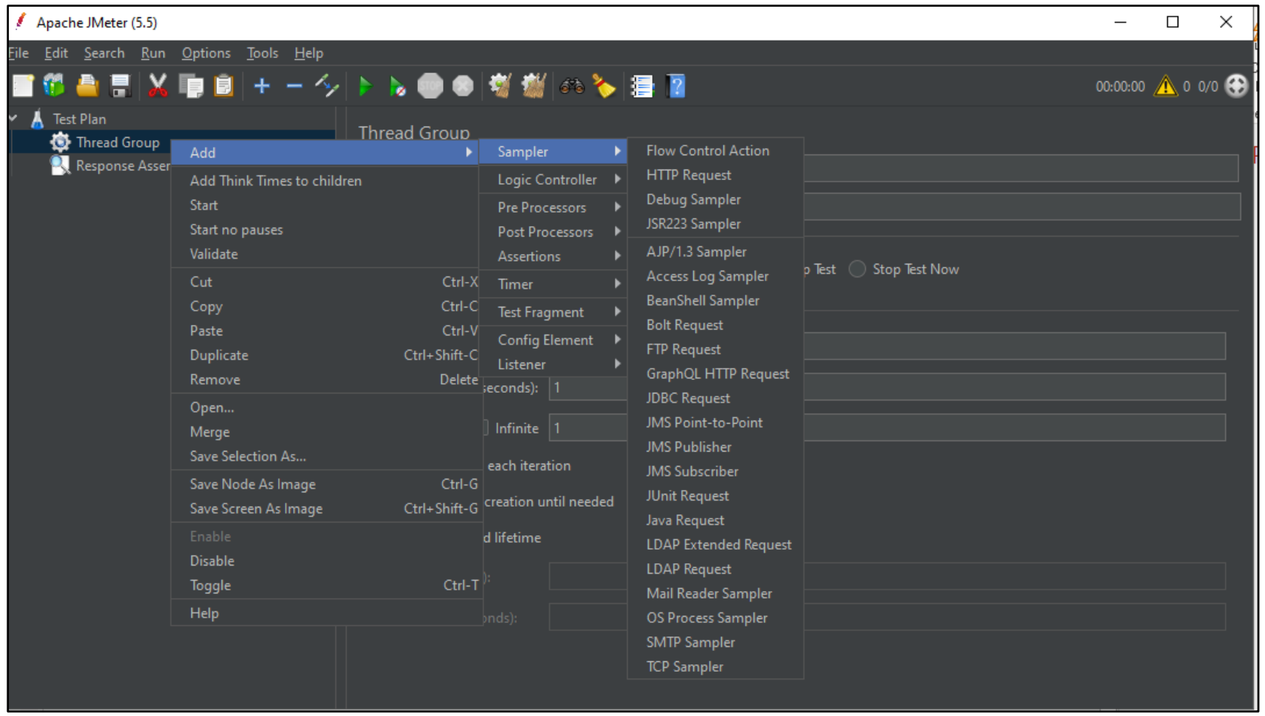
Samplers

A sampler instructs JMeter to send HTTP requests to a server and wait for a response.



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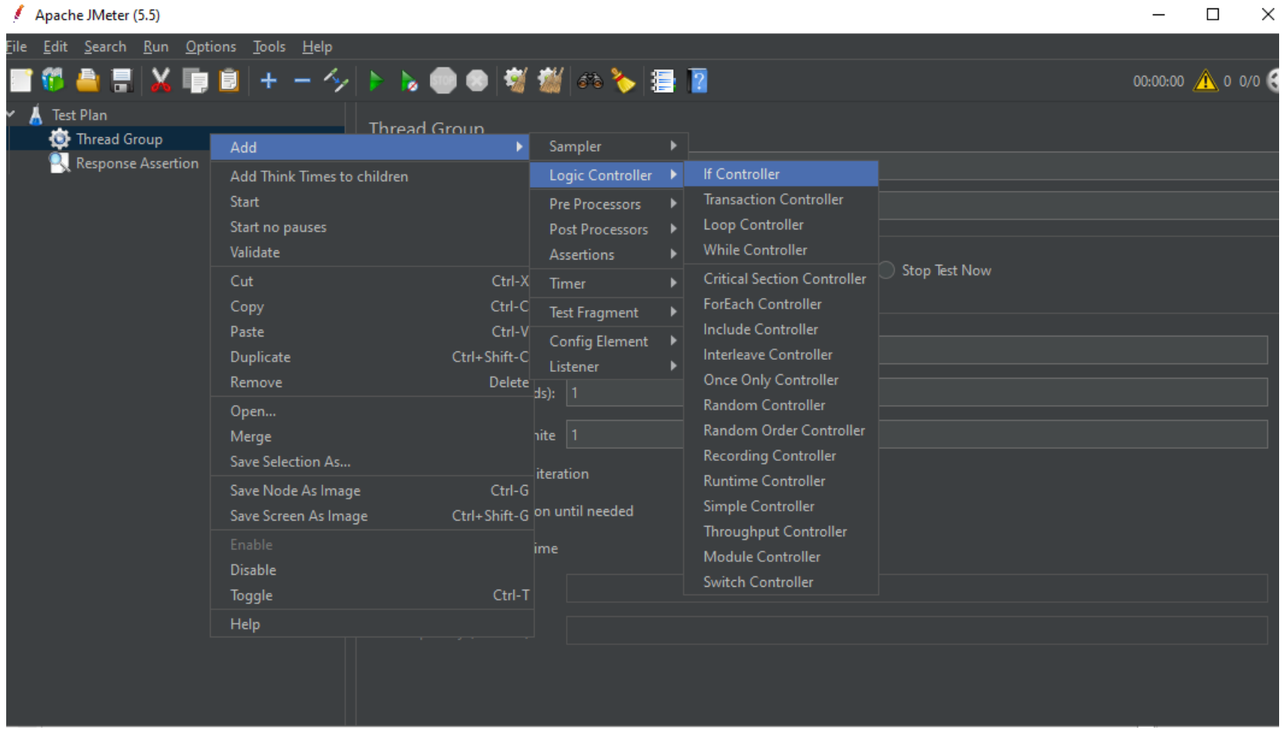
Logic Controllers

The logic controller allows the user to control the order in which samples are processed in a thread.



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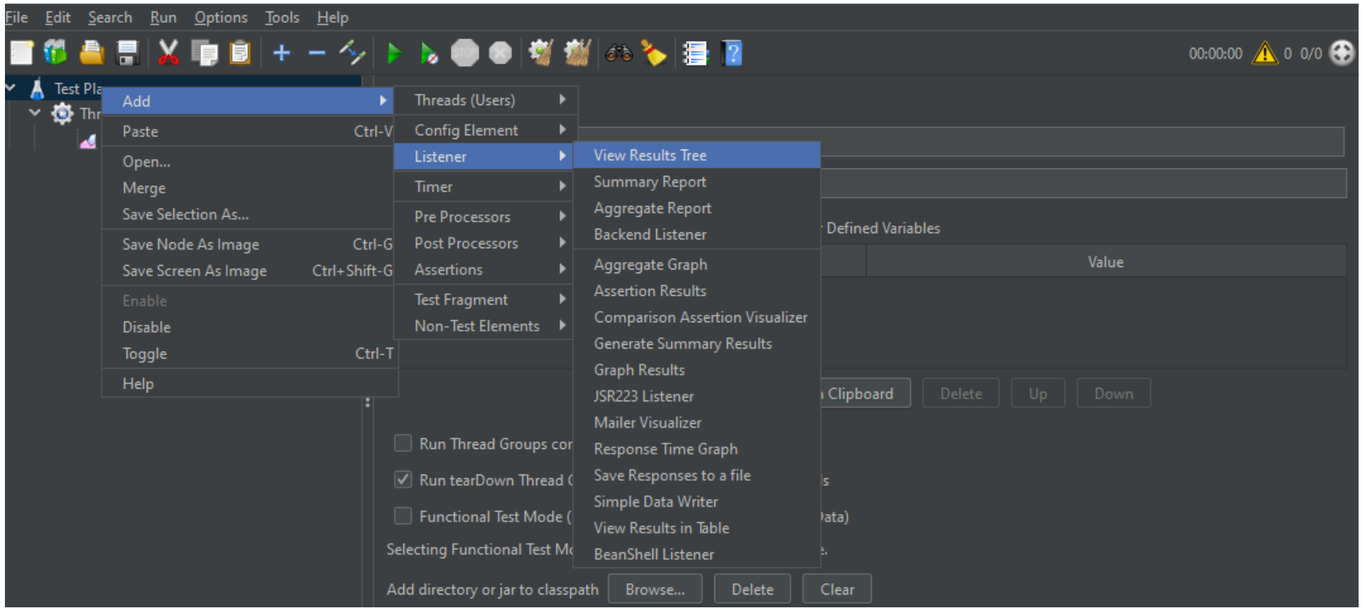
Listeners

Listeners receive information about test cases and showcase in graph ,HTML ,XML, CSV, or XML format.



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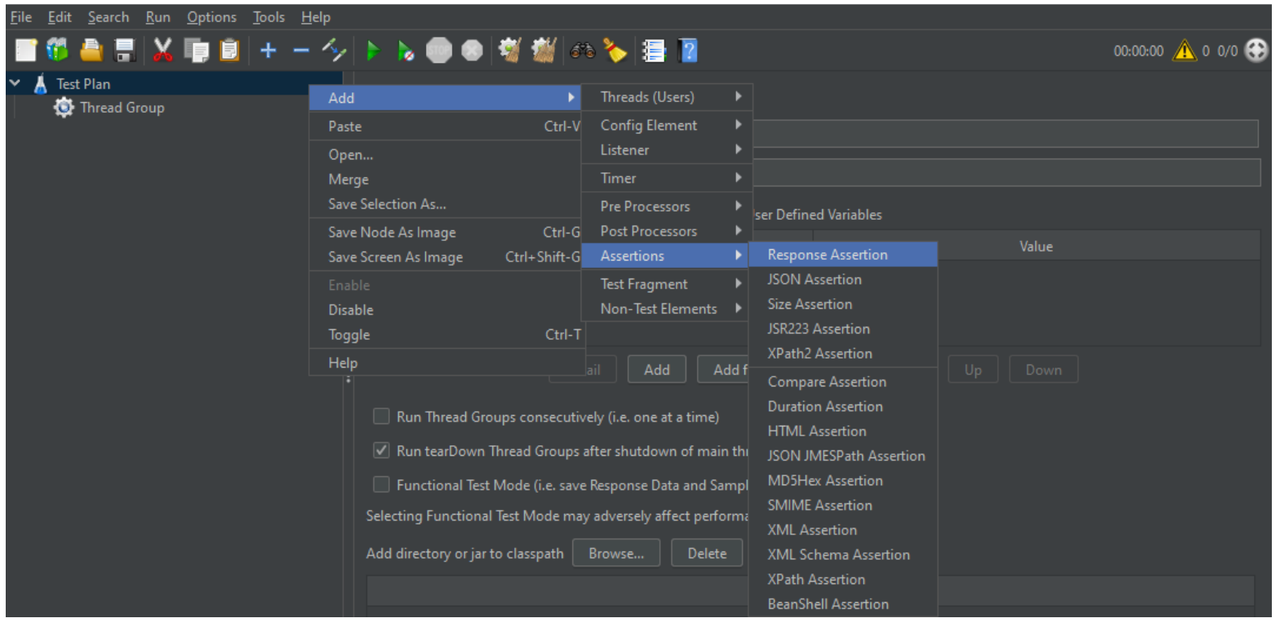
Assertions

Assertions describe facts about responses from the server under test. They are useful for ensuring that the application delivers the result per expectations.



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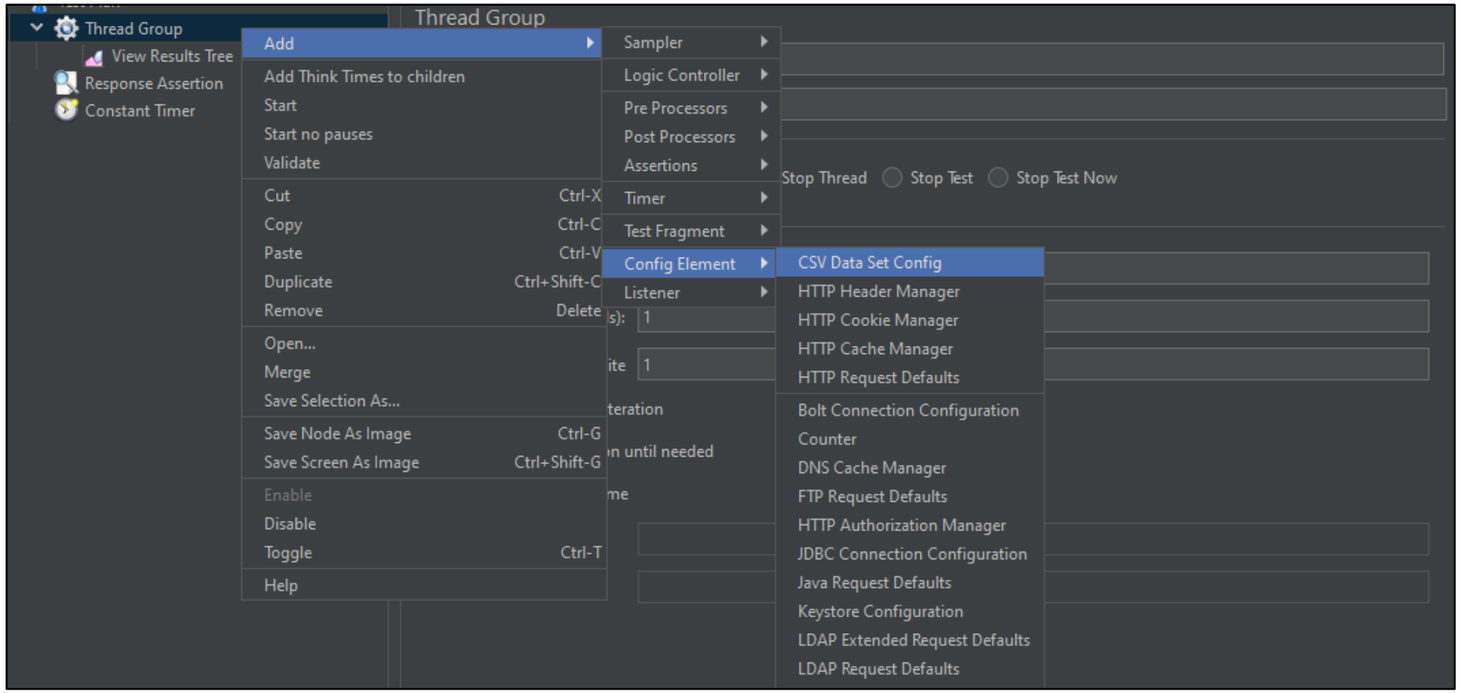
Configuration Elements

Configuration elements in JMeter are used to configure or modify the sampler requests made to the server.



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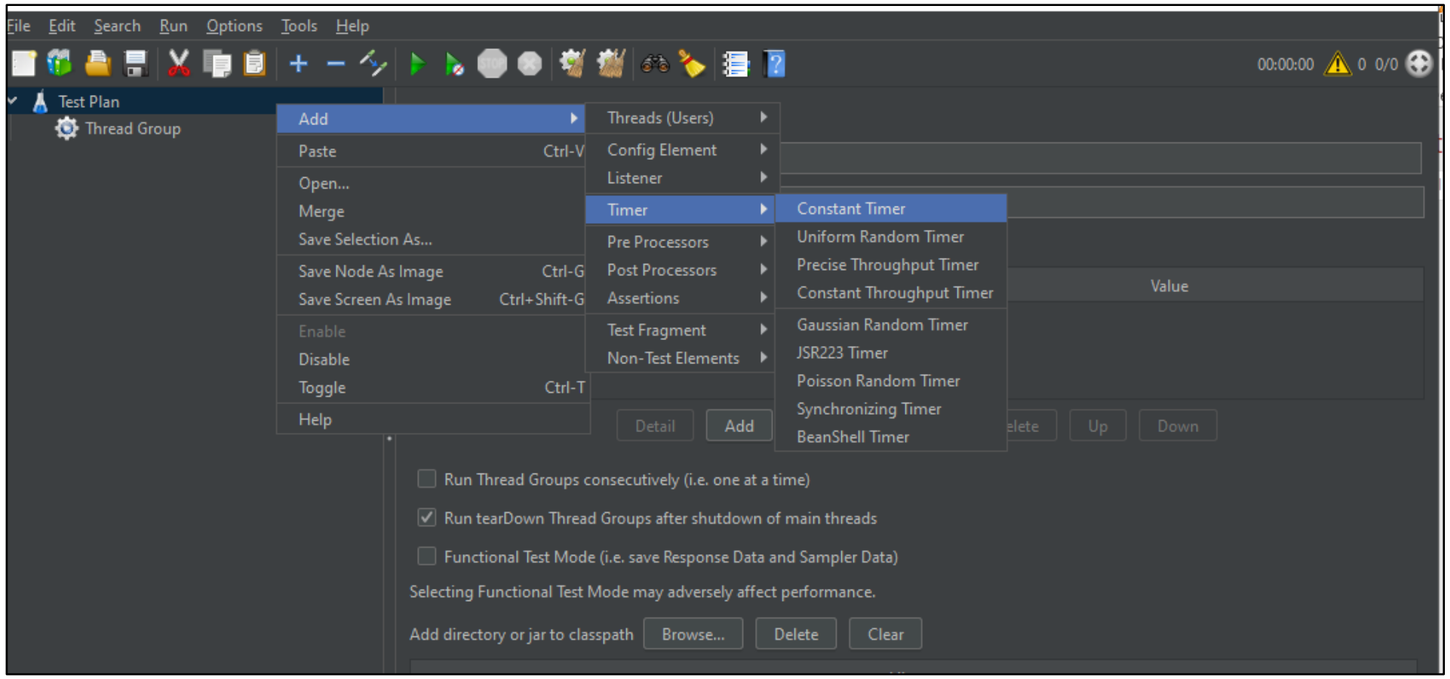
Timers

In a test plan, a timer element can be used to apply a wait between each sampler or request.



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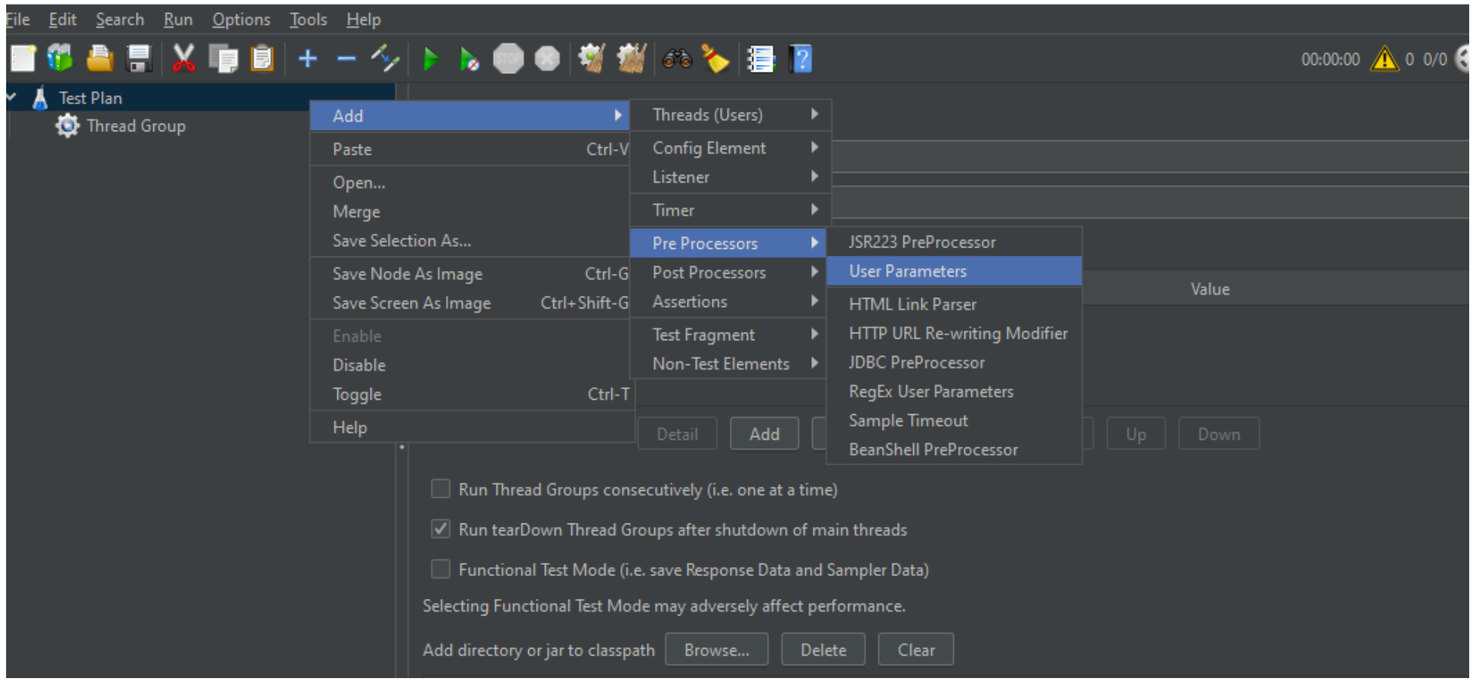
Pre-Processors

In a test plan, sampler settings can be altered using the Pre-Processor element.



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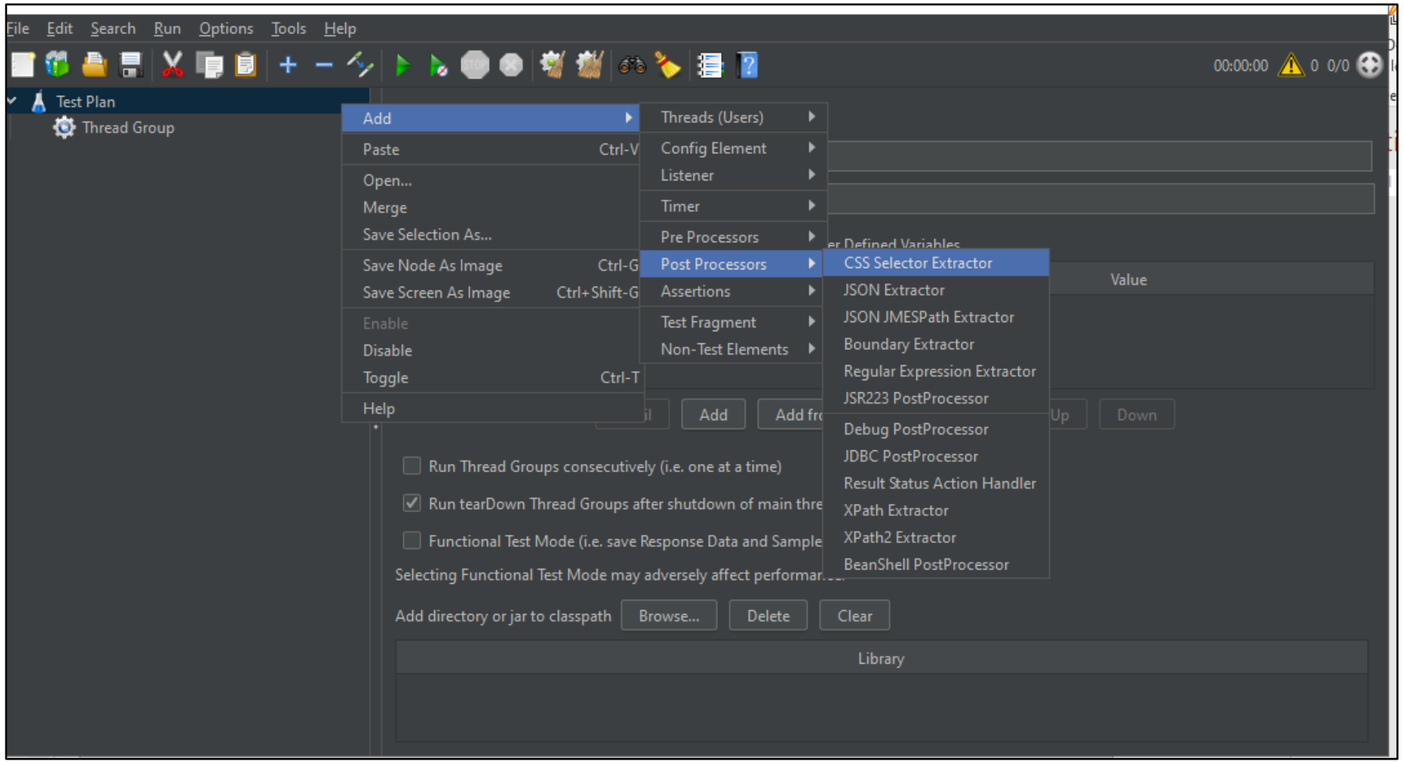
Post Processors

A post-processor acts after receiving a sampler request.



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Test Execution Order

To remember the execution order, use the acronym CONF-PTS-PAL.

01 Configuration Elements 

02 Pre-Processors 

03 Timer 

04 Sampler 

05 Post Processors 

06 Assertion 

07 Listener 

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How Does JMeter Work?

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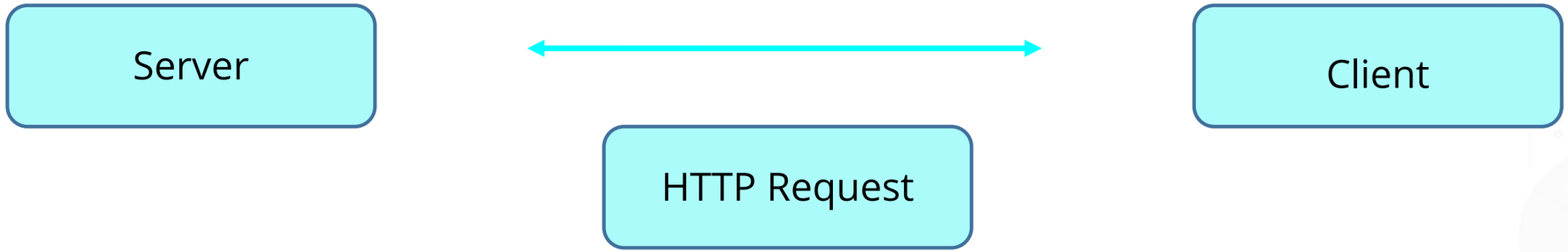
JMeter Working

JMeter simulates visitors to your application or service by allowing users to create and send HTTP (Hypertext Transfer Protocol) requests.



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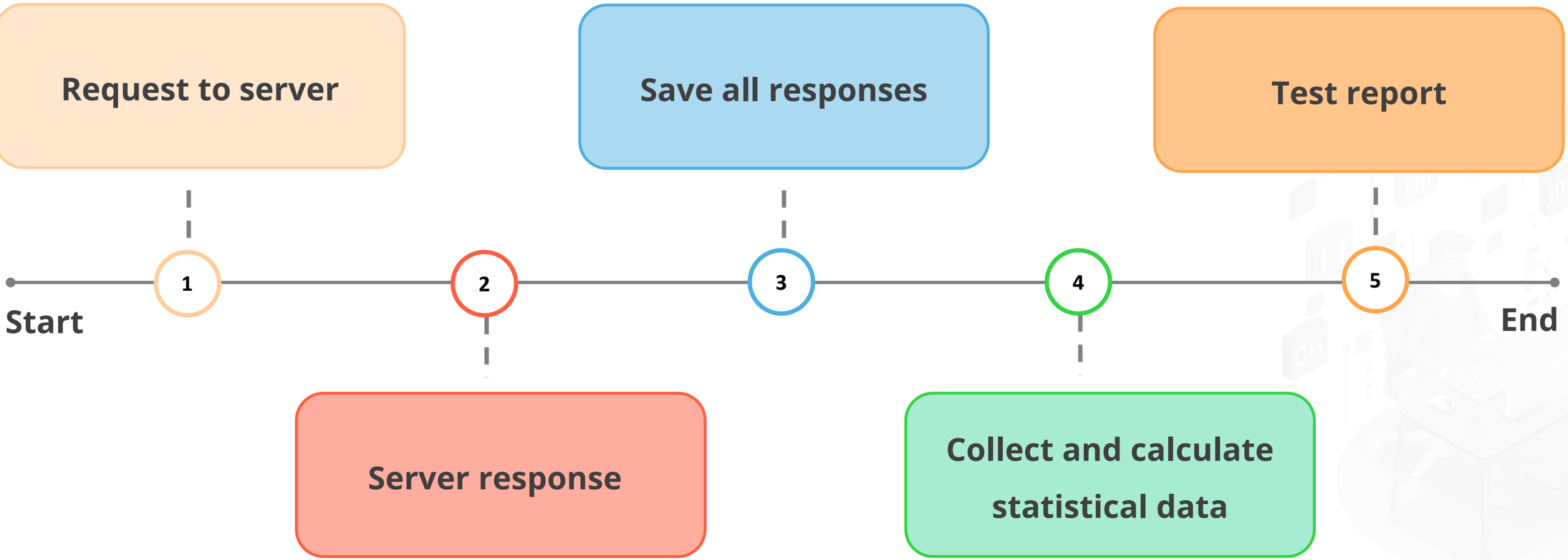
JMeter Working

JMeter performs the following steps during testing:



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Recording a Simple JMeter Script on a Website

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Test Script Recorder

Record testing is a method of script recording that helps the tester to run their activity against the test target.

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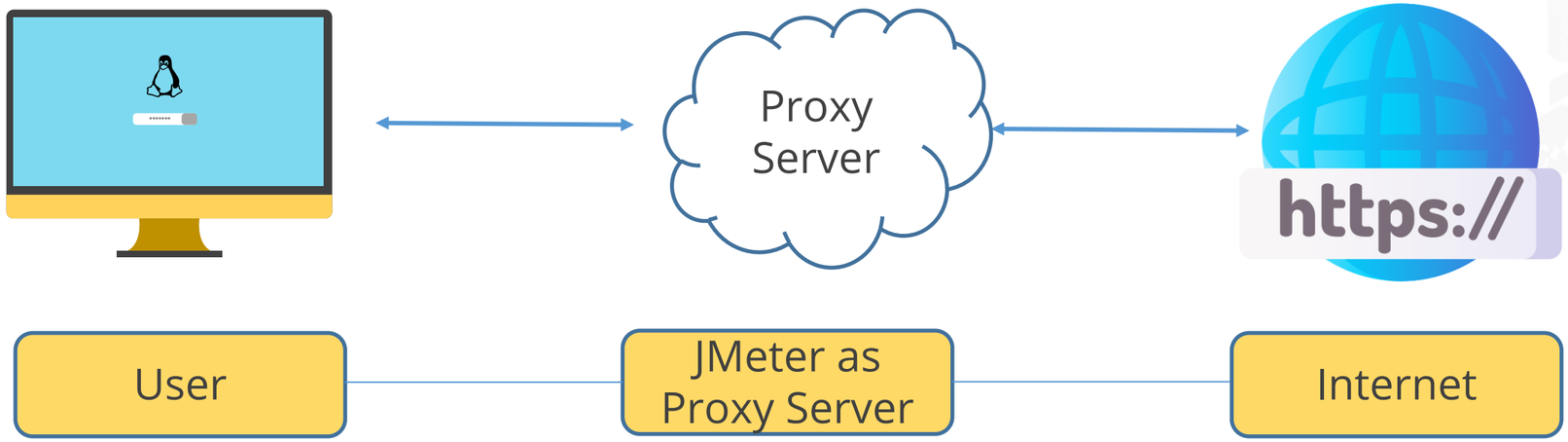
Proxy Principle

Proxy servers act as middlemen between the user and remote computers.



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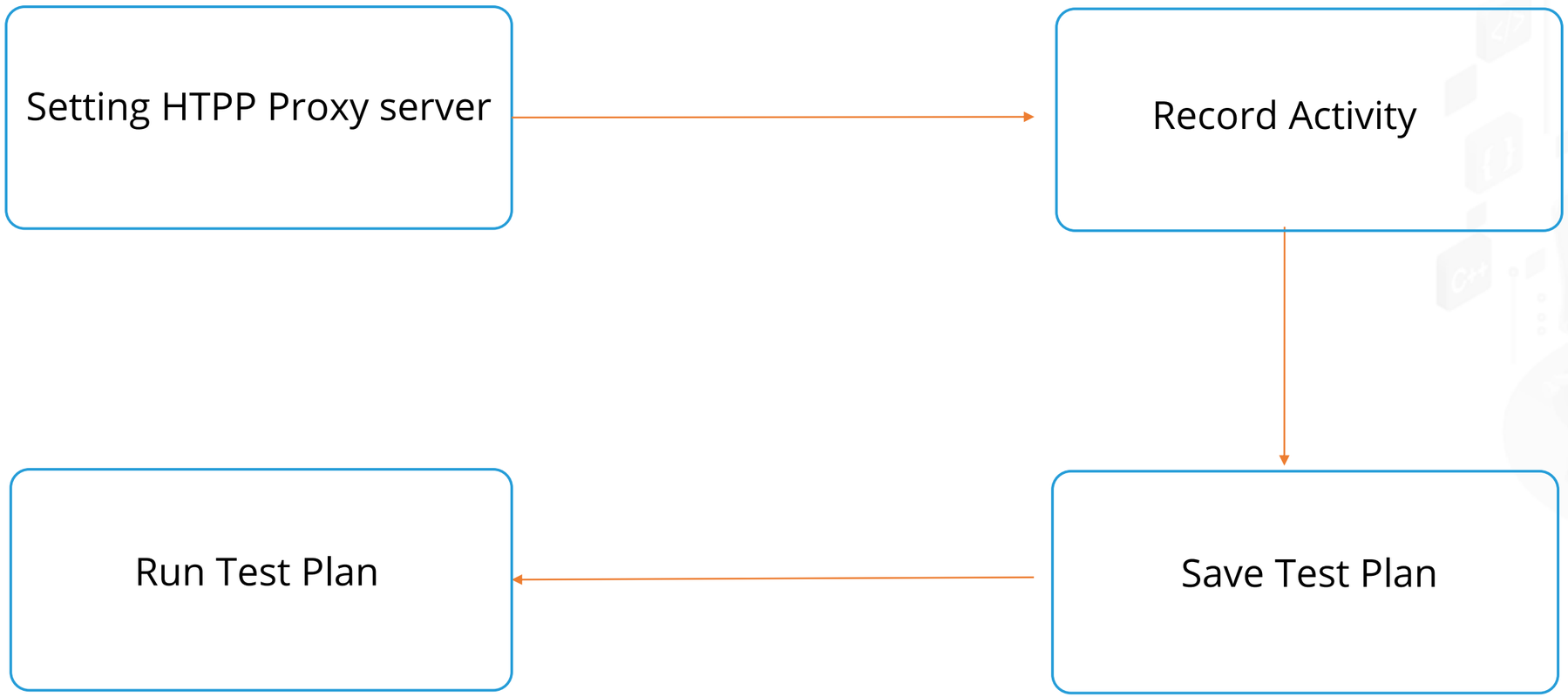
Steps to Record a Script

Script recording involves a few basic steps. For JMeter to gather browser interactions, users must perform several tasks.



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JMeter Demo Steps

The steps required for recording a script are:

Start JMeter and create the test plan

Create a thread group

Create HTTP Request and enter the server's name or IP of the website for which users are recording the script

Select sampler and add HTTP request

Add a recording controller

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JMeter Demo Steps

The steps required for recording a script are:

Add HTTP(s) Test script recorder

Add proxy server and set port number and target controller

Set the browser proxy settings

Open JMeter and check the events under the recording controller

Check the recorded script

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Key Takeaways

- The JMeter Interface consists of three main parts, a left window for executing tests, a configuration window for configuring and controlling tests, and the menu bar containing all the testing functions.
- The JMeter test plan describes the steps, which include thread groups, logic controllers, sample generators, listeners, timers, assertions, and configuration at the time of execution.
- For testing purposes, JMeter simulates visitors and allows users to send HTTP (Hypertext Transfer Protocol) requests.
- The JMeter application gathers web browser interactions and automates several tasks, such as recording test scripts, setting up HTPP proxy servers, monitoring activity, and saving test plans.

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