

JMeter.

О программе, создание простого запроса.

JMeter

- Инструмент нагрузочного тестирования
- Кроссплатформенный
- Бесплатный



Инструменты



LoadComplete



The Grinder

Преимущества в JMeter.

- Графический интерфейс
- Кроссплатформенность
- Бесплатно весь функционал
- Генерация отчетов
- Работа в консоли
- Возможность расширения и тонкой настройки

Возможности

- Эмуляция одновременной работы пользователей
- Распределенная нагрузка
- Снятие метрик

JMeter - это не браузер!

Установка и настройка

100% Java приложение - установить java и готов к использованию.

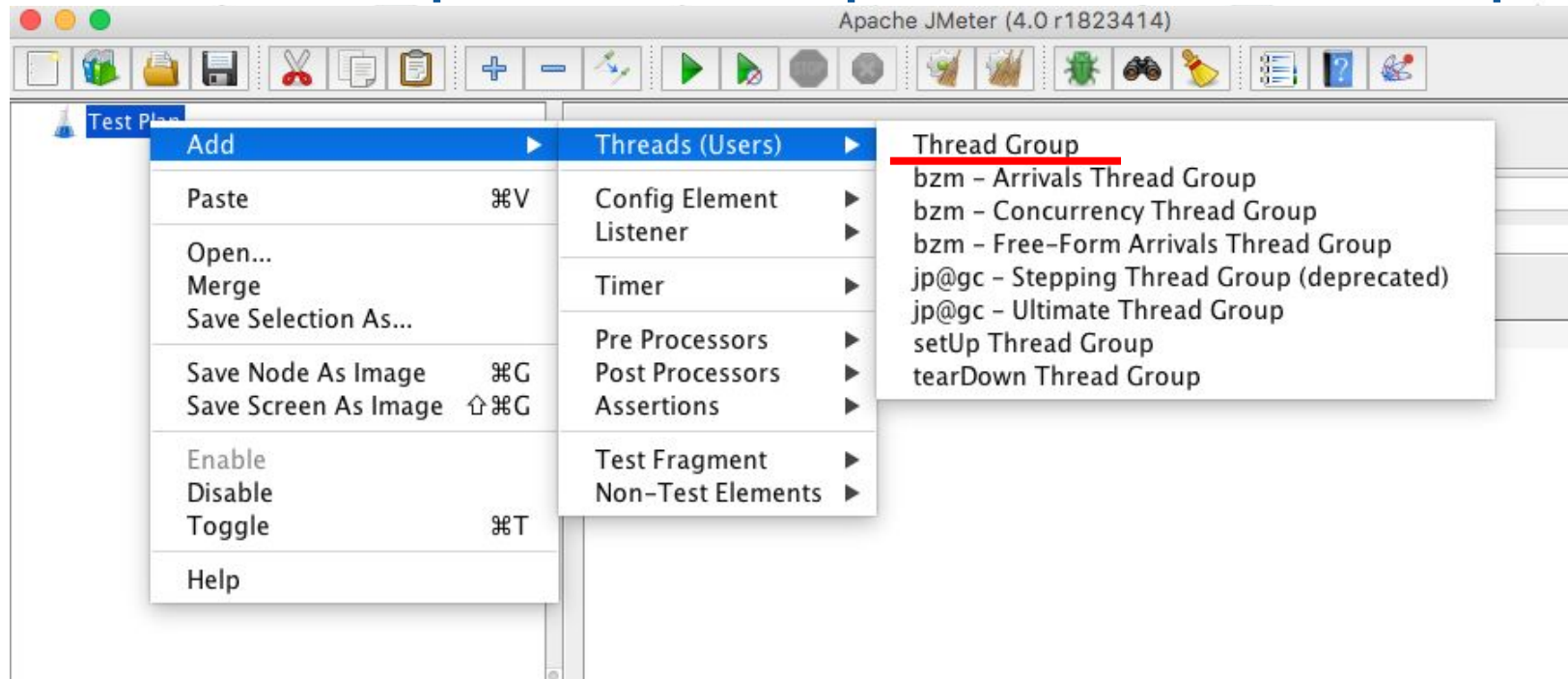
<https://www.java.com/ru/download/>

http://jmeter.apache.org/download_jmeter.cgi

<http://jmeter-plugins.org/downloads/all/>

<https://github.com/search?utf8=%E2%9C%93&q=Jmeter>

Создание простого запроса. Thread Group



Создание простого запроса. Thread Group

Test Plan - состоит из одной или нескольких групп потоков Thread Group, конфигурационных элементов, проверок и отчетов. Все тесты пишутся внутри тест плана, тест план является наивысшей точкой от которой тест "растет" вниз.

Thread Group - тестовый поток, в JMeter исполняется то, что находится внутри Thread Group, в тесте может быть несколько Thread Group, при запуске теста все Thread Group будут выполняться независимо и одновременно, при определенных настройках возможен последовательный запуск Thread Group находящихся внутри Test Plan.

Создание простого запроса. Thread Group

Thread Properties

- Number of Threads (users): 1 **Number of Threads** - это количество юзеров которые будут заходить на сайт.
- Ramp-Up Period (in seconds): 1 **Rump-Up period** - это период за который все наши юзеры зайдут на сайт.
- Loop Count: Forever 1 **Loop Count** - это кол-во циклов исполнения юзерами действий в Thread Group.

То есть, если установить:

Number of Threads = 10
Rump-Up period = 15 sec
Loop Count = 100

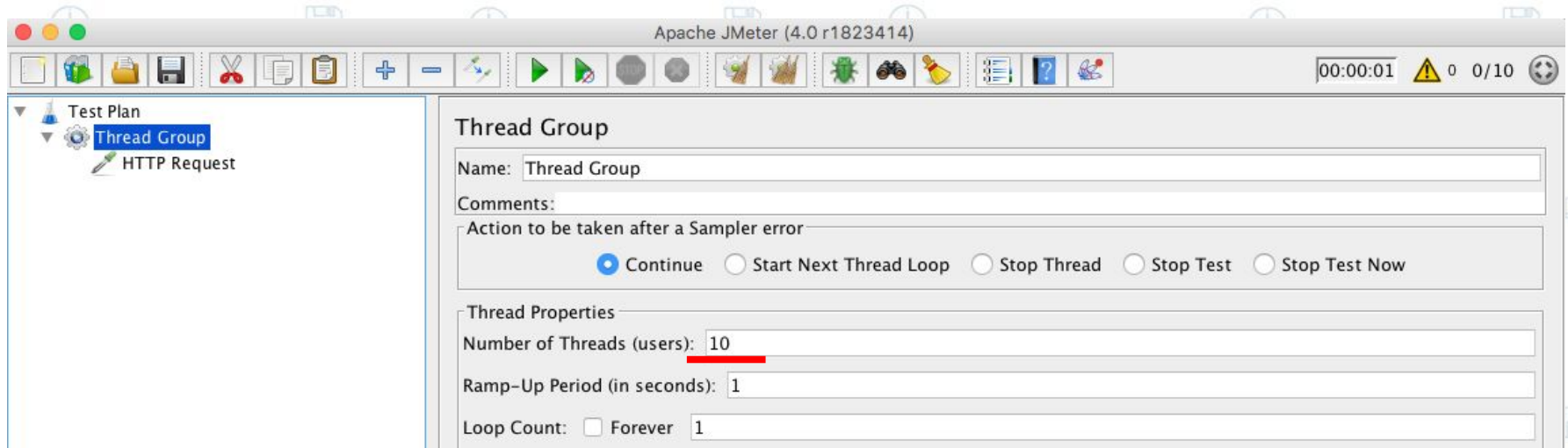
Total requests = Number of Threads * Loop Count = 1000

Total time = (Rump-Up period / Number of Threads) * Loop Count = 150 sec

То есть выходит, что будет осуществлено 100 повторений запросов, одновременно работающих 10 юзеров за 15 секунд. 1 юзер = 1.5 сек * 100 повторений = 1000 запросов за 150 сек.

Создание простого запроса. Thread Group

Но мы пока что установим 10 одновременно работающих юзеров



Создание простого запроса. Thread Group

Thread Group

Name: **1 название группы**

Comments:

Action to be taken after a Sampler error **2 что делать с неуспешно пройденной группой**

Continue Start Next Thread Loop Stop Thread Stop Test Stop Test Now

Thread Properties

Number of Threads (users):

Ramp-Up Period (in seconds):

Loop Count: Forever

Delay Thread creation until needed **3 активирует задержку**

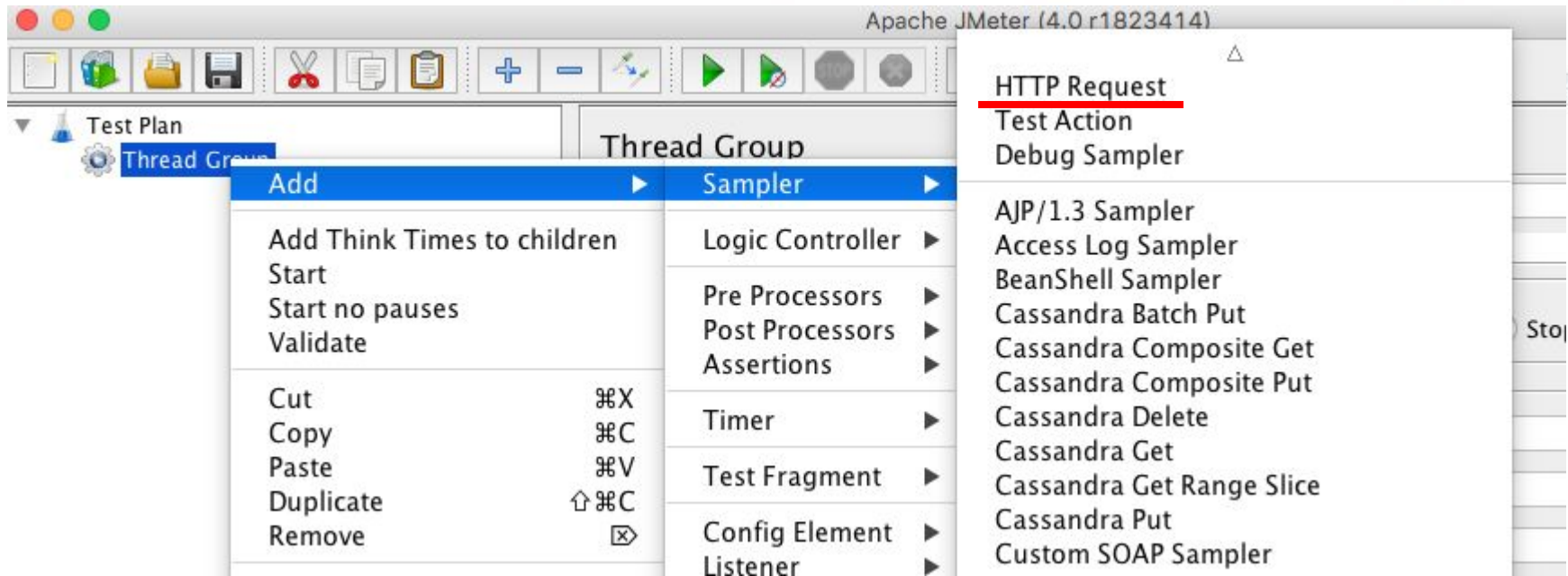
Scheduler **4 активирует планировщик**

Scheduler Configuration

Duration (seconds) **5 время выполнения тестов**

Startup delay (seconds) **6 время задержки перед стартом**

Создание простого запроса. Sampler



Создание простого запроса. Sampler

HTTP Request

Name:

Comments:

Basic Advanced

Web Server

Protocol [http]: Server Name or IP: Port Number:

HTTP Request

Method: Path: Content encoding:

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

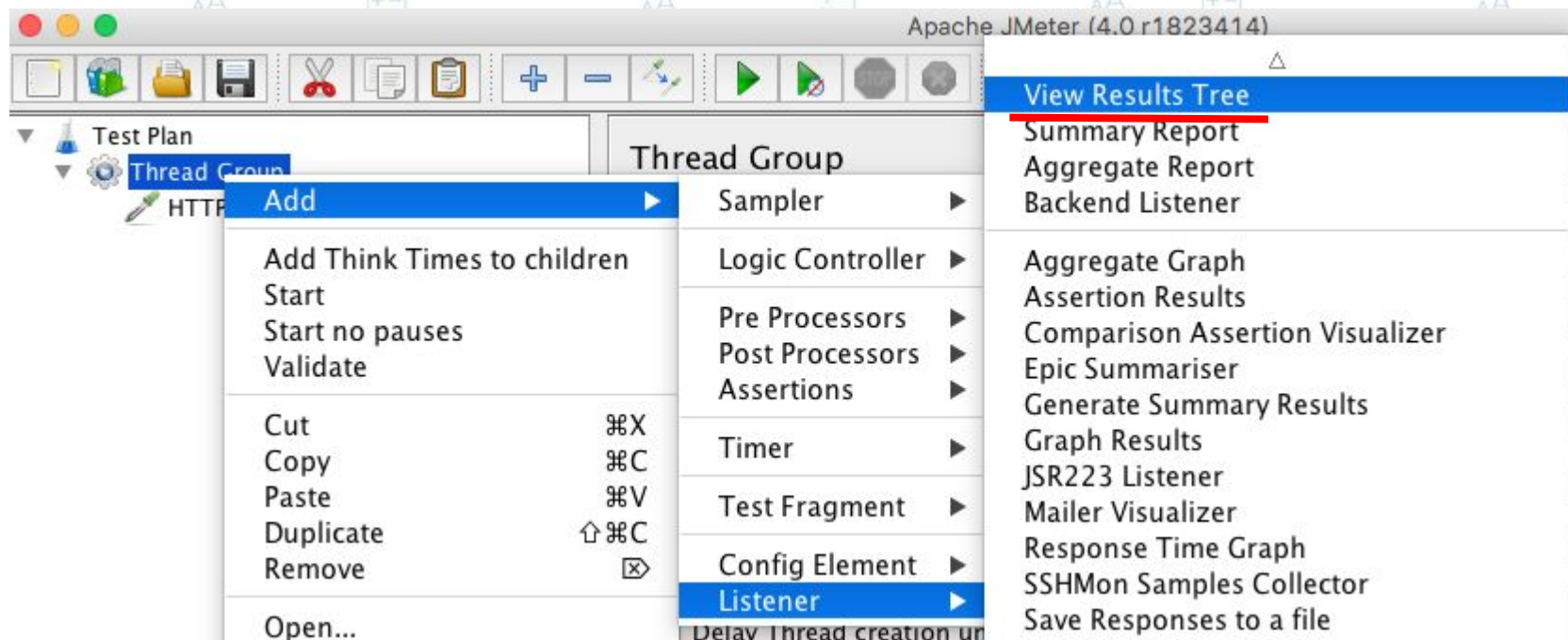
Parameters Body Data Files Upload

Создание простого запроса. Sampler

Sampler - образцы (элементы теста)

HTTP Request - используется для отправки HTTP/HTTPS запросов, позволяет отправлять файлы различных типов.

Создание простого запроса. Listener



Создание простого запроса. Listener

Listeners - слушатели (отчеты), собраны различные варианты отчетов

View Results Tree - показывает дерево ответов на все семплы. В дополнение к ответам можно увидеть, которое понадобилось для получения ответа и код ответа.

Создание простого запроса. Result

The image shows a screenshot of a web browser's developer tools. On the left, a list of 'HTTP Request' entries is visible, with the top one selected. A red box highlights the 'HTML' tab in the top-left corner of the developer tools. On the right, the 'Response data' tab is selected, also highlighted with a red box. The main content area displays the HTML of a Google search page in Ukrainian, featuring a search bar and buttons for 'Пошук Google' and 'Мені пощастить'.

Простой Test

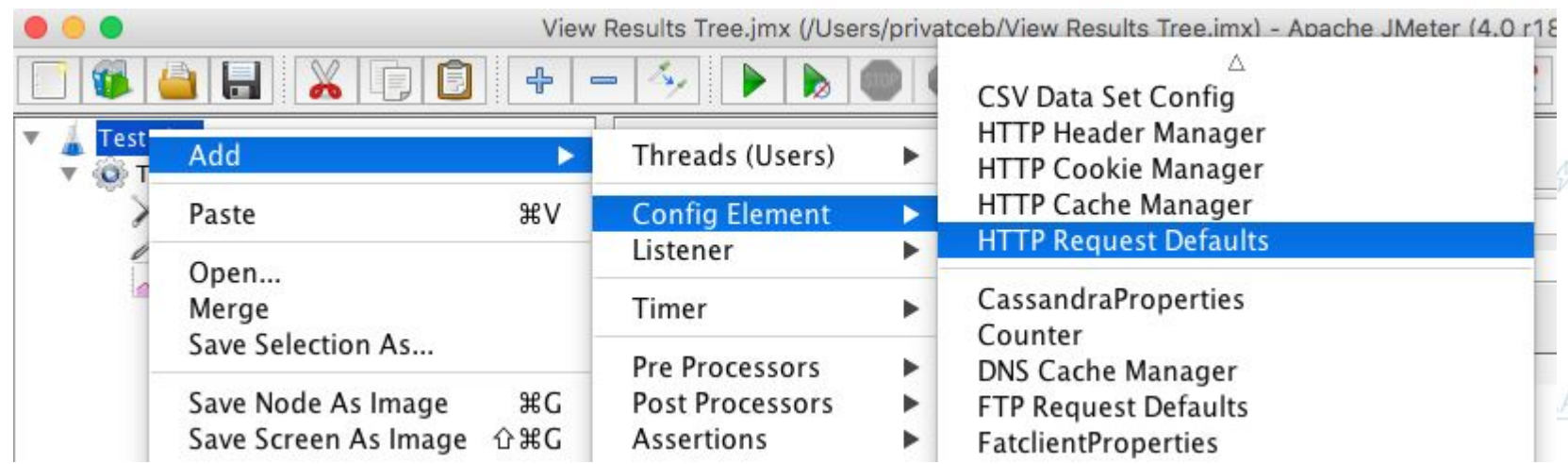
JSONPlaceholder

Fake Online REST API for Testing and Prototyping

Powered by [JSON Server](#) and [LowDB](#)

<https://jsonplaceholder.typicode.com>

Простой Test



Простой Test

HTTP Request Defaults

Если вы собираетесь отправить несколько запросов на один веб сервер, рекомендуется использовать HTTP Request Defaults, не придется вводить одну и ту же информацию для каждого запроса HTTP.

View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)

The screenshot shows the Apache JMeter interface. On the left, the Test Plan tree is expanded to show 'Test' > 'HTTP Request Defaults', which is highlighted with a red box. The main panel displays the 'HTTP Request Defaults' configuration. The 'Basic' tab is selected. The 'Web Server' section is highlighted with a red box and contains two red arrows pointing to the 'Protocol' and 'Server Name or IP' fields. The 'Protocol' is set to 'https' and the 'Server Name or IP' is 'jsonplaceholder.typicode.com'.

Test Plan

- Test
 - HTTP Request Defaults**
 - HTTP Request
 - View Results Tree

HTTP Request Defaults

Name: HTTP Request Defaults

Comments:

Basic Advanced

Web Server

Protocol [http]: **https** Server Name or IP: **jsonplaceholder.typicode.com**

View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)

The screenshot shows the Apache JMeter interface. On the left, the Test Plan tree is expanded to show 'Test' > 'HTTP Request Defaults' > 'HTTP Request', which is highlighted with a blue box. The main panel displays the 'HTTP Request' configuration. The 'Basic' tab is selected. The 'Thread Properties' section on the left is highlighted with a red box and contains a red arrow pointing to the 'Number of Threads (users)' field, which is set to '1'. The 'HTTP Request' section is highlighted with a red box and contains a red arrow pointing to the 'Method' field, which is set to 'GET'. The 'Path' field is set to 'posts'. A red box highlights the text 'И переименуем в GET' (And we'll rename it to GET) next to the 'Name' field.

Test Plan

- Test
 - HTTP Request Defaults
 - HTTP Request**
 - View Results Tree

HTTP Request

Name: HTTP Request **И переименуем в GET**

Comments:

Basic Advanced

Web Server

Protocol [http]: Server Name or IP:

HTTP Request

Method: **GET** Path: **posts**

Thread Properties

Number of Threads (users): **1**

Ramp-Up Period (in seconds): 1

Loop Count: Forever 1

Простой Test

The screenshot shows the Apache JMeter 4.0 interface. The title bar reads "View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)". The left sidebar shows a tree view with "Test Plan" expanded to "Test", which contains "HTTP Request Defaults", "GET", and "View Results Tree" (highlighted in blue). The main panel is titled "View Results Tree" and contains the following sections:

- Name:** View Results Tree
- Comments:** (empty)
- Write results to file / Read from file:** Includes a "Filename" field, a "Browse..." button, and checkboxes for "Log/Display Only: Errors" and "Successes". A "Configure" button is also present.
- Search:** Includes a search input field, checkboxes for "Case sensitive" and "Regular exp.", and "Search" and "Reset" buttons.
- Response data:** A tabbed view showing the response of the selected sampler. The selected sampler is a "Text" sampler (indicated by a dropdown menu) with a "GET" method (indicated by a green checkmark icon). The response body is a JSON object:

```
{  "userId": 1,  "id": 1,  "title": "sunt aut facere repellat provident occaecati excepturi optio reprehenderit",  "body": "quia et suscipit\nsuscipit recusandae consequuntur expedita et cum\nreprehenderit molestiae ut ut quas totam\nnostrum rerum est autem sunt rem\nveniet architecto"},
```

Простой Test

HTTP Request

Name: POST

Comments:

Basic Advanced

Web Server

Protocol [http]: Server Name or IP: Port Number:

HTTP Request

Method: POST Path: posts Content encoding:

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

Parameters Body Data Files Upload

Send Parameters With the Request:

Name:	Value	Encode?	Include Equals?	Equals?
userid	333	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
id	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
title	Тестовый запрос Post	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

View Res

Test Plan

Test

HTTP Request Defaults

GET

POST

View Results Tree

Detail

Add

Add from Clipboard

Delete

Up

Down

Простой Test

View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)

00:00:03 0 0/1

- Test Plan
 - Test
 - HTTP Request Defaults
 - GET
 - POST
 - View Results Tree**

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename Browse... Log/Display Only: Errors Successes

Search: Case sensitive Regular exp.

Text

Sampler result Request **Response data**

```

{
  "title": "foo",
  "body": "bar",
  "userId": "1",
  "id": 101
}
    
```


Простой Test

Web Server

Protocol [http]: Server Name or IP:

HTTP Request

Method: **PUT** Path: **posts/1**

Redirect Automatically Follow Redirects Use KeepAlive Use multipart/form-data

Parameters Body Data Files Upload

```
1 {  
2   id: 1,  
3   title: 'foo',  
4   body: 'bar',  
5   userId: 1  
6 }
```

Test Plan

- Test
 - HTTP Request Defaults
 - GET
 - POST
 - PUT**
 - DELETE
 - View Results Tree

Web Server

Protocol [http]: Server Name or IP:

HTTP Request

Method: **DELETE** Path: **posts/1**

Redirect Automatically Follow Redirects Use KeepAlive Use multipart/form-data

Parameters Body Data Files Upload

```
1 {id: 1}
```

Test Plan

- Test
 - HTTP Request Defaults
 - GET
 - POST
 - PUT
 - DELETE**
 - View Results Tree

Простой Test

View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)

00:00:01 0 0/1

Test Plan

- Test
 - HTTP Request Defaults
 - GET
 - POST
 - PUT
 - DELETE
 - View Results Tree**

View Results Tree

Name: View Results Tree

Comments:

Write results to file / Read from file

Filename Browse... Log/Display Only: Errors Successes

Search: Case sensitive Regular exp.

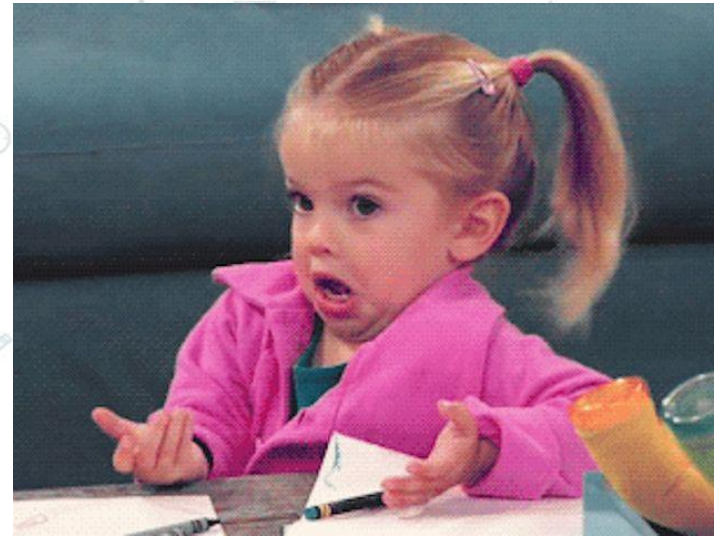
Text

- GET
- POST
- PUT
- DELETE**

Thread Name: Test 1-1
 Sample Start: 2018-07-25 00:01:00 EEST
 Load time: 726
 Connect Time: 0

Простой Test

Но что это за тест без проверки
результата?



Простой Test. Assertions - проверки

The screenshot shows the Apache JMeter 4.0 interface. The main window title is "View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)". The left sidebar shows a tree view with "Test Plan" > "Test" > "HTTP Request Defaults" > "GET" selected. A context menu is open over the "GET" element, with the "Add" option selected. The "Add" submenu is open, showing "Assertions" > "Response Assertion" highlighted in red. Other options in the "Add" menu include "Insert Parent", "Cut", "Copy", "Paste", "Duplicate", "Remove", "Open...", "Merge", "Save Selection As...", "Save as Test Fragment", "Save Node As Image", "Save Screen As Image", "Enable", and "Disable". The "Response Assertion" submenu lists various assertion types: JSON Assertion, Size Assertion, JSR223 Assertion, XPath Assertion, Binary Response Assertion, Compare Assertion, Duration Assertion, HTML Assertion, MD5Hex Assertion, SMIME Assertion, SOAP XPath Assertion, XML Assertion, XML Schema Assertion, jp@gc - JSON Path Assertion, and BeanShell Assertion. The main panel shows the "HTTP Request" configuration with "Name: GET" and "Redirect Automatically" checked. The "Advanced" tab is active, showing "Data" and "Files Upload" sections.

Простой Test. Assertions - проверки

View Results Tree.jmx (/Users/privatceb/View Results Tree.jmx) - Apache JMeter (4.0 r1823414)

Test Plan

- Test
 - HTTP Request Defaults
 - GET
 - Response Assertion
 - Duration Assertion**
 - POST
 - PUT
 - DELETE
 - View Results Tree

Duration Assertion

Name: Duration Assertion

Comments:

Apply to:

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

Duration to Assert

Duration in milliseconds: 100

Text

- GET
- Duration Assertion**
- POST
- PUT
- DELETE

Assertion result

Assertion error: false
 Assertion failure: true
 Assertion failure message: The operation lasted too long: It took 313 milliseconds, but should not have lasted longer than 100 milliseconds.

Простой Test. Assertions - проверки

Response Assertion

Name: Response Assertion

Comments:

Apply to:

Main sample and sub-samples Main sample only Sub-samples only JMeter Variable Name to use

Field to Test

Text Response Response Code Response Message Response Headers

Request Headers URL Sampled Document (text) Ignore Status

Request Data

Pattern Matching Rules

Contains Matches Equals Substring Not Or

Patterns to Test

	Patterns to Test
1	userId1

- Text
- ✖ GET
 - ✖ **Response Assertion**
 - ✔ POST
 - ✔ PUT
 - ✔ DELETE

Assertion result

```
Assertion error: false
Assertion failure: true
Assertion failure message: Test failed: text expected to contain /userId1/
```

Text

GET
Response Assertion
POST
PUT
DELETE

Assertion result

Assertion error: false
Assertion failure: true
Assertion failure message: Test failed: code expected to equal /

***** received : [[[2]]]00
***** comparison: [[[3]]]00

main sample and sub-samples main sample only sub-samples only JMeter variable name to use

Field to Test

Text Response Response Code Response Message Response Headers
 Request Headers URL Sampled Document (text) Ignore Status
 Request Data

Pattern Matching Rules

Contains Matches Equals Substring Not Or

Patterns to Test

Patterns to Test	
1	300

Простой Test. Assertions - проверки

Домашнее задание

Добавить 5 запросов для <https://api.nasa.gov/> запросов с assertions. Сохранить Test Plan, файл будем иметь расширение .jmx

Читать и практиковать:

[JMeter. Основные элементы.](#)

[Введение в JMeter](#)

[Приручаем JMeter](#)