Performance Testing Course : JMeter config elements

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Agenda

- Definition of config elements
- Showcase
- Exercise

Definition

Configuration elements drive pre-execution activities and they are activated at the start of any test. During test initialization, respective values are assigned to them. They are used to set up defaults and variables which are used by Samplers during the test.

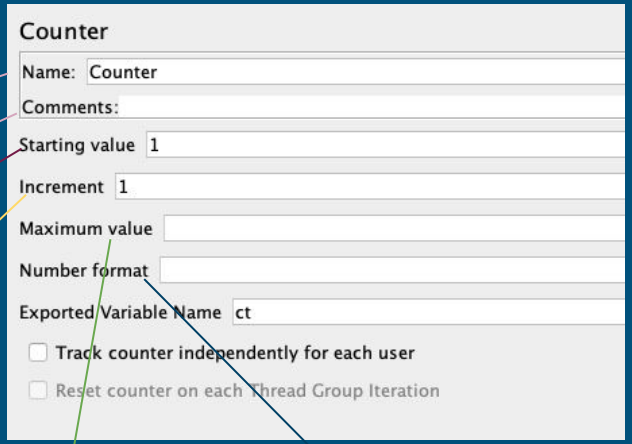
Note: *Note that config elements are scope specific. They are processed before any samplers in the same scope and limited to used only for those samplers, and cannot be accessed by outside samplers.*

Config element - Counter

Allow user to generate an incremental number that can be referenced anywhere in the Thread Group(TG).

Range = [-2^63, (2^63) -1]

Attribute:



- Name: name of counter.
- Comments: Provide comments.
- Start: Starting number for the counter.
- Increment: How much to increment the counter after each iteration.
- Maximum: Maximum number till that if the counter reaches, it is reset to Start value.
- Format: Optional field. It denotes the format of the counter. This is passed to decimal format so any valid formats can be used. If there is a problem interpreting the format, then it is ignored.

Config element - Counter

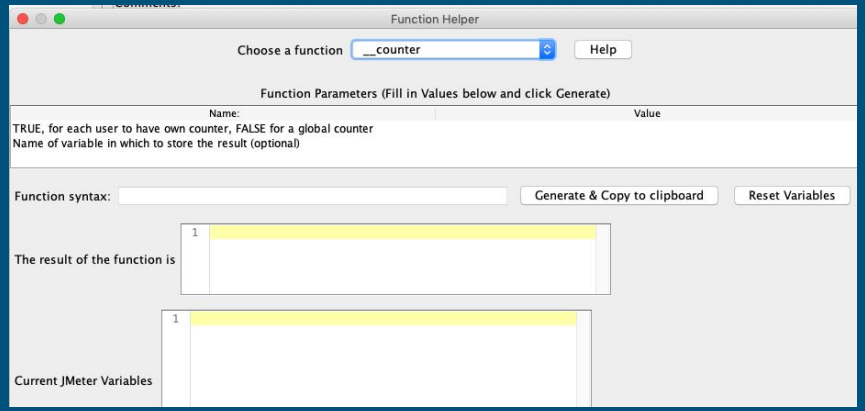
Attribute(continued):

- Reference Name: How we refer to the counter value in other elements. Syntax of calling counter value from other element in TG : ${referenceName}
- Track Counter Independently for each User: If you checked this option(when a counter is global) then each thread will have independent counter starting from *Start* value.
- Reset counter on each Thread Group Iteration: It is available when counter is tracked per user, and if checked, counter will be reset to *Start* value on each TG iteration.

Config element - Counter

Tips:

- If we pass ${__time(ddhhmmssSSS)} in *Start,* in each test a unique value can be generated.
- JMeter had custom function __counter(arg1,arg2) which returns a number starting from 1 and step = 1. Arg1 = True -> each thread has its own counter; False then all threads shares same counter. Arg2 is name of variable to store the result(optional).



Config element - Counter

Showcase:

- Use Dummy Sampler and counter with Track Counter Independently for each User uncheck to demo.

Exercice:

- Use Dummy Sampler and counter with Track Counter Independently for each User checked and compare.
- Use Dummy Sampler and counter with other configurations and check result.

Config element - CSV Data Set Config

- Allow to read data from csv or txt file.
- Read line from file and split them into variables.

Note: *Generating unique or random values at run-time is expensive in terms of CPU and memory, so just create data in advance for the test. If necessary, “random” data from file can be used in conjunction with run-time parameter to create different sets of values for each run - e.g. using concatenation - which is much cheaper than generating everything at run-time.*

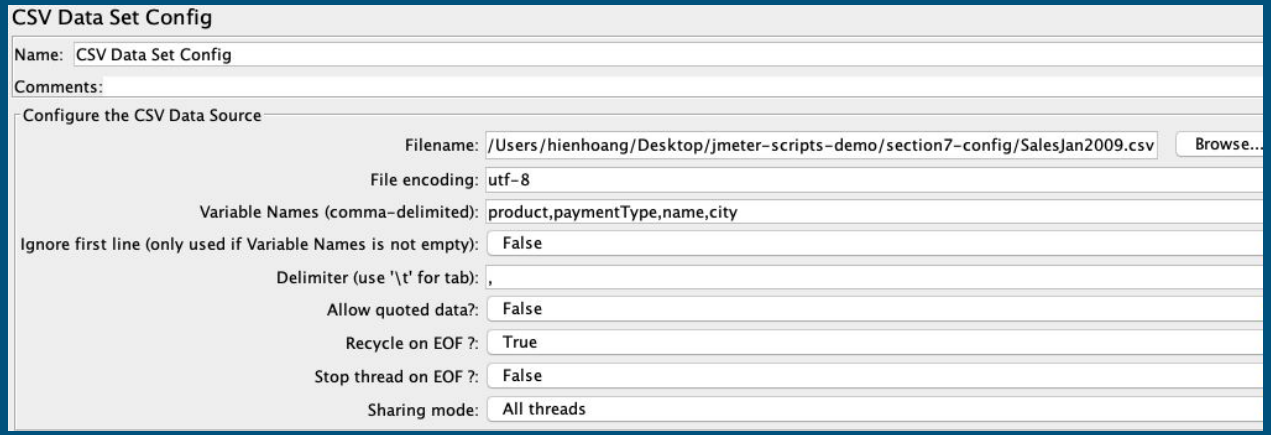
Config element - CSV Data Set Config(continued)

Attributes:

- Name: To provide "CSV Data Set Config" name.
- Comments: To provide comments (if any)
- File Name: Name or absolute path of the file to be read.
- File Encoding: The encoding to be used to read the file, if not the platform default.
- Variable Names: List of

variable names separated by

the comma.



Config element - CSV Data Set Config(continued)

Attributes:

- Ignore the first line: If True then JMeter will skip the first line of the file.
- Delimiter: The character to separate 2 or many columns.
- Allow quoted data: If true then Jmeter will read the content inside double quote.Otherwise, it will treat the quote and the text inside as single element.
- Recycle at EOF: If true then when we reach the end of file(EOF), JMeter will start again from the first line.
- Stop Thread at EOF: If true then when we reach the end of file, JMeter will stop the test after the last line is read.

Config element - CSV Data Set Config(continued)

Attributes:

- Sharing mode: All thread(file will be shared between all thread and each request picks one line in sequential order), Current Thread(each thread read the CSV file separately so read the file from beginning to the end for all threads), Current Thread group(each thread group will read the file separately)

Config element - CSV Data Set Config(continued)

Showcase:

- Demo with file Sales2009.csv

Exercise:

- Play around with configuration of CSV Data Set config element.

Config element - HTTP Authorization Manager

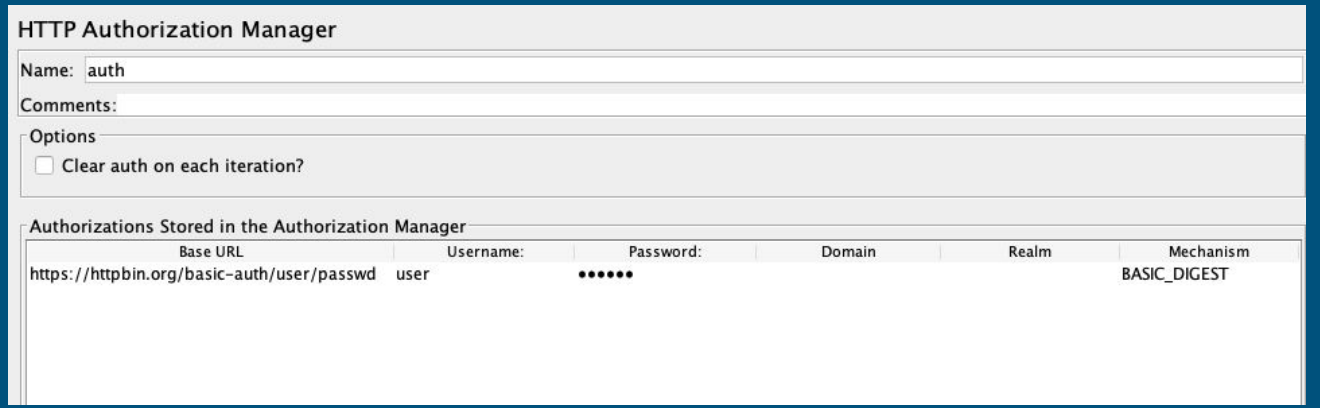
Purpose:

- Lets you specify one or more user logins to Web pages that are restricted using server authentication. You see this style of authentication when you attempt to access a restricted page, and your browser displays a login dialog box.

Config element - HTTP Authorization Manager

Attributes:

- Name: Name of the config element.
- Comments: Comment for the config element.
- Clear auth on each iteration: When checked then cookie will be cleared when new iteration starts.
- Authorizations stored in Authorization Manager: Where we define the properties of the HTTP Authorization Manager.



Config element - HTTP Authorization Manager

Showcase:

- Demo HTTP Authorization Manager with httpbin.org.

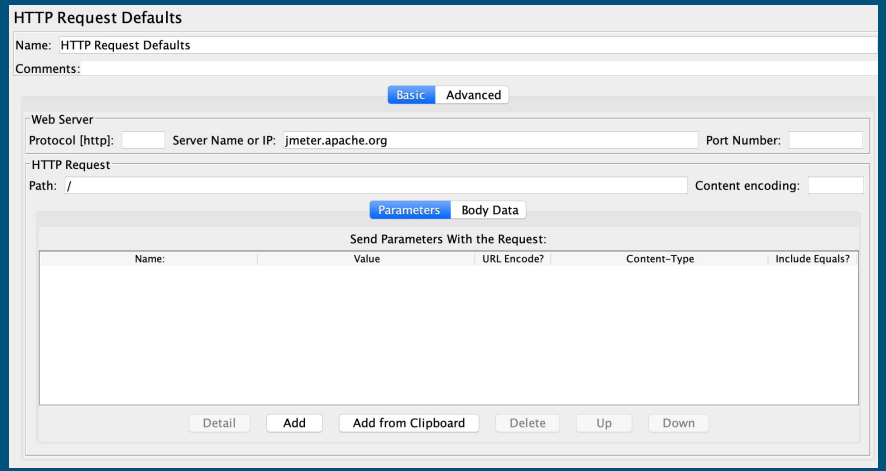
Exercise:

- Use HTTP Authorization Manager with https://jigsaw.w3.org/HTTP/Basic/ and https://jigsaw.w3.org/HTTP/Disgest/

Config element - HTTP Request Defaults

Purpose:

- The main goals of using the HTTP Default Request is to:
  - Avoid data duplication in tests.
  - Make test scripts more (easily) maintainable.



Config element - HTTP Request Defaults

Attributes:

- Name: Name of the config element.
- Comment: Comment
- Protocol: Be default it is http. If your application protocol is https then input https into it.
- Server name or IP: Server name or IP where your application resides.
- Content encoding: Encoding of characters to be used.

Config element - HTTP Request Defaults

Showcase:

- Use HTTP Request Defaults for parameterize URL of tested page : jmeter.apache.org.

Exercise:

- Update your test script for Restool sample page by adding HTTP Request Defaults. Verify your results again.

Config element - HTTP Cache Manager

Purpose:
HTTP Cache manager” is used to simulate the browser caching behaviour in JMeter by adding caching functionality to HTTP requests within its scope.

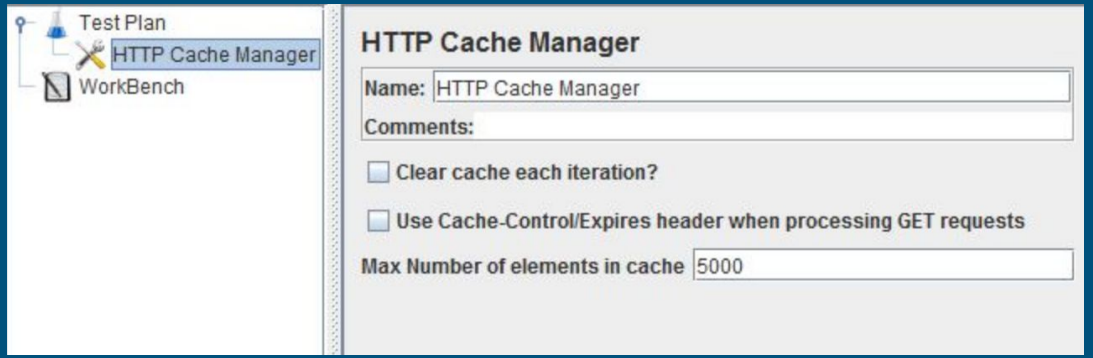
In general, a browser caches files locally, including any documents that make up a website, such as HTML files, CSS style sheets, JavaScript scripts, as well as graphic images and other multimedia content. When you revisit a website, the browser checks which content was updated in the meantime and only downloads updated files or what is not available in the cache.

Config element - HTTP Cache Manager

Attributes:

- Name: To provide element name
- Comments: To provide arbitrary comments (if any)
- Clear cache each iteration?: If selected, then the cache is cleared at the start of iteration.
- Use Cache Control/Expires header when processing GET requests**:** If selected, then the Cache-Control/Expires value is checked against the current time.
- ***Max Number of elements in cache***:

By default value is set to 5000,which indicates that the cache manager will store 5000 items in the cache.



Config element - HTTP Cache Manager

Showcase:

- Add HTTP Cache Manager to the test script of JMeter home page.
- Check Clear cache each iteration and uncheck and compare result.

Exercise:

- Play with HTTP Cache Manager in any script.

Config element - HTTP Cookie Manager

Cookie?: Cookies are text files stored on the client computer and they are kept for various information tracking purpose.

How HTTP Cookie Manager handle cookie?:

- Store and send: If an HTTP request and the response contains a cookie, then Cookie Manager automatically stores that cookie and will use it for all future requests to that particular web site. In this way, it simulates the real browser. Each JMeter thread has its own "cookie storage area". Also one more good thing in JMeter is that you can store received Cookies in a JMeter thread variable. To save cookies as variables, define the property "CookieManager.save.cookies=true".
- Manually add: Manny add a cookie to Cookie Manager.

Config element - HTTP Cookie Manager

Attributes:

- Name: To provide element name
- Comments: To provide arbitrary comments (if any)
- Clear cookies each iteration?: If selected, then the cookie is cleared at the start of iteration. Any cookie defined in the GUI are not cleared.
- Cookie Policy: The cookie policy that will be used to manage the cookies.
- User-Defined Cookies:

This option is used for

adding cookie manually.

Config element - HTTP Cookie Manager

- Showcase:
  - Add HTTP Cookie Manager to the script to test Jmeter home page.
  - Check result.

- Exercise:
  - Play with HTTP Cookie Manager in any script.

Config element - HTTP Header Manager

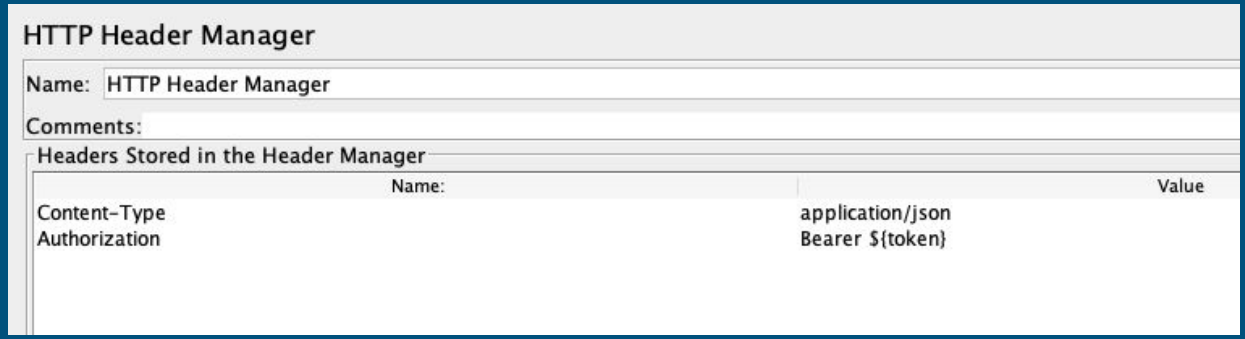
Header?:

- The HTTP request header is sent to the server from the browser with some additional information which is required to fulfil the server requirements to respond to that particular request. Each time the browser sends a request to a server attaching the headers with information like Accept-Language, Accept-Encoding, User-Agent, Referer etc.

Config element - HTTP Header Manager

Attribute?:

- Name: To provide element name
- Comments: To provide arbitrary comments (if any)
- Tag (Name): Name of the tag. You can pass below tags in the header.
  - ***Content-Type:*** It shows the type of content . e.g. application/json;charset=UTF-8
  - ***Accept:*** The type of response which browser accept and display without any issue. e.g. application/json, text/plain, */*
  - etc...



Config element - HTTP Header Manager

Showcase:

- Demo HTTP Header Manager with test.nextjuris.com

Exercise:

- Use HTTP Header Manager to login to restdb.io page.

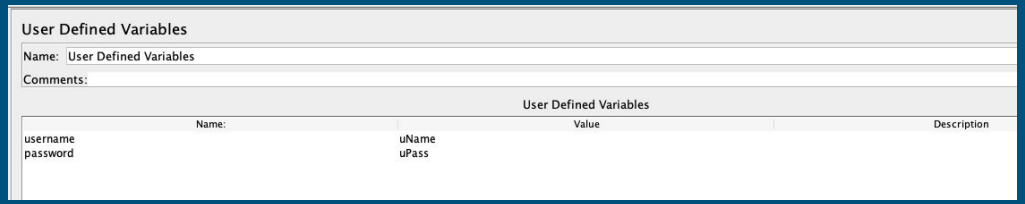
Config element - User Defined Variable

Purpose:

- Define a set of key and values that would be shared and used by ALL threads of one thread group.

Attributes:

- Name: To provide element name
- Comments: To provide arbitrary comments (if any)
- User Defined Variables: Where we define list of variable name and value.



Config element - User Defined Variable

Showcase:

- Use UDV with Dummy Sampler.

Exercise:

- Use UDV to all scripts we learned today.