

JMeter Quiz Test Plan

Mar. 19th, 2020

1. Summary

This is a JMeter test plan file (JMX file) for simulating the behavior of simultaneous quiz on the Moodle 3.x. By default, the start time range for students is 5 seconds, and the range for sending responses is 60 seconds. The quiz has 20 questions.

2. Test plan for simultaneous quiz

By default, load-testing proceeds based on the following behavior:

- (1) JMeter spawns specified number of threads in 60 seconds.
- (2) Generated threads login to the Moodle site.
- (3) Each thread visits sample Moodle course.
- (4) Each thread visits quiz summary page.
- (5) All threads are synchronized.
- (6) Each thread waits randomly between 0 and 5 seconds, and starts the quiz.
- (7) Each thread pauses for 5 minutes.
- (8) All threads are synchronized.
- (9) Each thread waits randomly between 0 and 60 seconds, and transmits an answer.
- (10) Each thread receives the review page.
- (11) Each thread waits randomly between 60 and 120 seconds, and logs off.

3. Requirements

- Moodle 3.x.
- Apache JMeter
- Oracle Java Runtime (or Open JDK) 8.0 or later version.
- Non Windows PC (ex. Linux, macOS, etc.) for JMeter Client.

4. Installation

4.1 Download files from GitHub repository

At first, download the test plan file (JMX file), user list (CSV file), and Moodle course backup file (MBZ file).

4.2 Restore sample course

Please restore the course backup file to your Moodle site. We recommend using a Moodle site for testing. After the restore, write down a course ID of the sample course and a module ID of quiz.

(Course ID)

<https://localhost.localdomain/moodle/course/view.php?id=32>

(Module ID)

<http://localhost.localdomain/moodle/mod/quiz/view.php?id=94>

The sample course is very simple, it has two content (news forum and quiz). If you want to increase server's load about loading of the course page, you can other content in the course.

4.3 Create Moodle users

Next, create Moodle users by using the CSV file. Before the uploading of users, you can change the contents of the CSV file (username, firstname, lastname, password, email address).

Please visit "Site administration" > "Users" > "Accounts" > "Upload users".

Then, drag and drop the CSV file to the file uploading area, and click "Upload users" button.

Upload users

Upload

Example text file [example.csv](#)

File [Choose a file...](#)

[testuser.csv](#)

CSV delimiter [,](#)

Encoding [UTF-8](#)

Preview rows [10](#)

[Upload users](#) Click

Next, you should choose the "Field required in file" for "New user password", and "None" for "Force password change".

8	testuser007	Te-St_007	007	testuser	test007@jmeter.com
9	testuser008	Te-St_008	008	testuser	test008@jmeter.com
10	testuser009	Te-St_009	009	testuser	test009@jmeter.com
11	testuser010	Te-St_010	010	testuser	test010@jmeter.com
...

▼ Collapse all

▼ Settings

Upload type: Add new only, skip existing users

New user password: Field required in file **Select**

Force password change: None **Select**

Standardise usernames: Yes

Select for bulk user actions: No

Next, click "Upload users" button is placed bottom of screen.

▼ Default values

Email display: Allow only other course members to see my email address

Forum auto-subscribe: Yes: when I post, subscribe me to that forum discussion

City/town:

ID number:

Institution:

Department:

Show more...

Click

Upload users Cancel

There are required fields in this form marked ! .

After uploading results are printed, click "Continue" button.

user								
New user	999	1002	testuser998	998	testuser	test998@jmeterest.com	Te-St_998	manual
New user	1000	1003	testuser999	999	testuser	test999@jmeterest.com	Te-St_999	manual
New user	1001	1004	testuser1000	1000	testuser	test1000@jmeterest.com	Te-St_1000	manual

Users created: 1000
Users having a weak password: 0
Errors: 0

[Continue](#) **Click**

After the uploading, please visit the sample course, and enroll the users to the sample course. In order to enroll many students at once, please visit "Course administration" > "Users" > "Enroll method". And, please click human icon.

Quiz sample course

[Home](#) / [Courses](#) / [Quiz sample course](#) / [Users](#) / [Enrolment methods](#)

Enrolment methods

Name	Users	Up/Down	Edit
Manual enrolments	2	↓	<div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> </div>
Guest access	0	↑ ↓	<div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div>
Self enrolment (Student)	0	↑	<div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div></div> <div></div> </div>

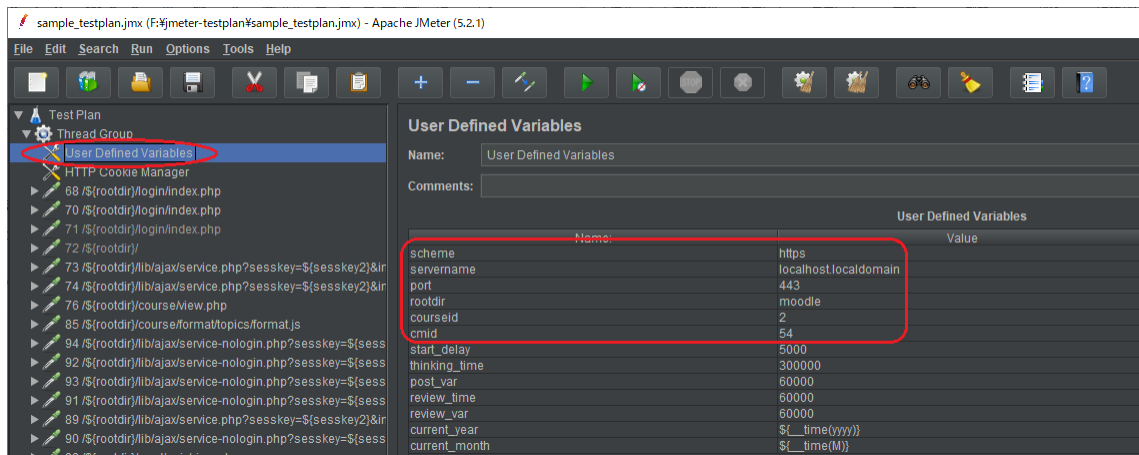
Add method

4.4 Configuration of parameters

Please execute JMeter with GUI mode. For the Microsoft Windows, execute "jmeterw.cmd" in "bin" directory. For Linux, execute "jmeter".

Then, please open the test plan file on the Apache JMeter.

Next, you could change the parameters ("scheme", "servername", "port", "rootdir", "courseid", and "cmid") according to your environment.



The "scheme" is communication protocol (http or https). The "port" value is usually 80 (http) or 443 (https). The "rootdir" is the path (without slash of top) of your moodle site. After the setting, please save the test plan file.

5. Execution of load test

At first, you should place the test plan file and CSV file into same directory.

Next, please execute the Apache JMeter using the sample test plan. For example, enter the following to execute the JMeter. Note that, "#" is a command prompt.

```
# jmeter -n -t sample_testplan.jmx -l report.jtl -Jclient=100 -Jloop=1
```

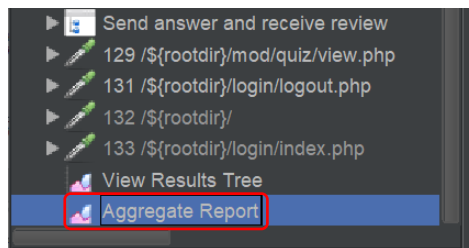
Here, "sample_testplan.jmx" is test plan file. And, results of load test are written in "report.jtl".

The "client" is a number of client (number of JMeter's thread), and the "loop" is a loop count of the load test.

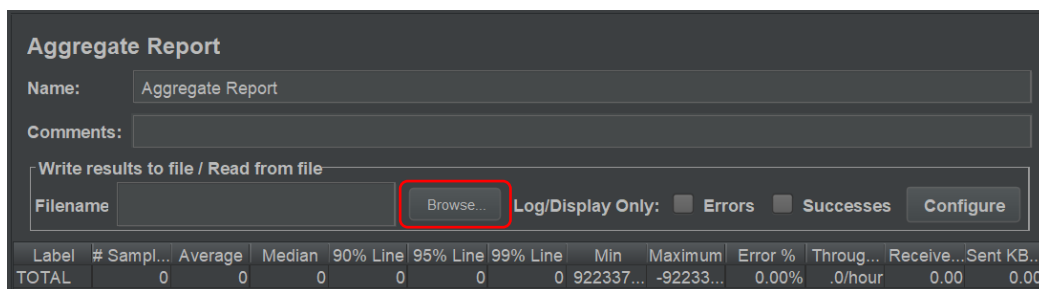
After starting the load test, wait until the command prompt appears again.

6. View result of load test

At first, open the test plan file using the JMeter. Next, please click "Aggregate Report" in the test plan.



Then, please click a file selection button.

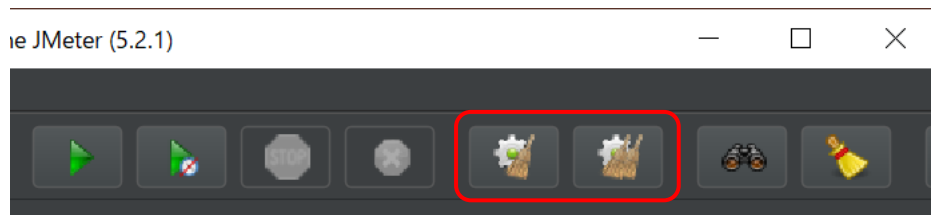


Next, please see row of "Send answer and receive review". This row present response time about transmission of answer of quiz and receive of review from your Moodle server.

Label	# Sampl...	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throug...	Receive...	Sent KB...
TOTAL	0	0	0	0	0	0	922337...	-92233...	0.00%	.0/hour	0.00	0.00
91 /moodle/lib/ajax/service-nologi...	1						21	21			21	21
89 /moodle/lib/ajax/service.php?s...	1						32	32			32	32
90 /moodle/lib/ajax/service-nologi...	1						21	21			21	21
99 /moodle/lib/ajax/service.php?s...	1						35	35			35	35
Start quiz	10						749	667			1221	1221
Send answer and receive review	10						952	757			1417	1417
129 /moodle/mod/quizview.php	10						292	238			385	385
131 /moodle/login/logout.php	10						167	155			196	196
TOTAL	190						208	40			662	893

Remarks

- Don't save the test plan file after you see the result of load test.
- Before you open another result file (JTL file), you should clear current reports.



Click either button to clear current report

- The JMeter does not interpret or display received web pages. In actual operating environments, the time required for interpreting and displaying web pages is added.