



**TRƯỜNG ĐẠI HỌC KHOA HỌC TỰ NHIÊN**

**KHOA CÔNG NGHỆ THÔNG TIN**

**BỘ MÔN CÔNG NGHỆ PHẦN MỀM**

# **KIỂM CHỨNG PHẦN MỀM**

## **ĐỒ ÁN SUPERMARKET Performance Testing**

Giảng viên hướng dẫn: Trương Phước Lộc

Nguyễn Đức Huy

Người thực hiện: Nhóm 13 – 20CM

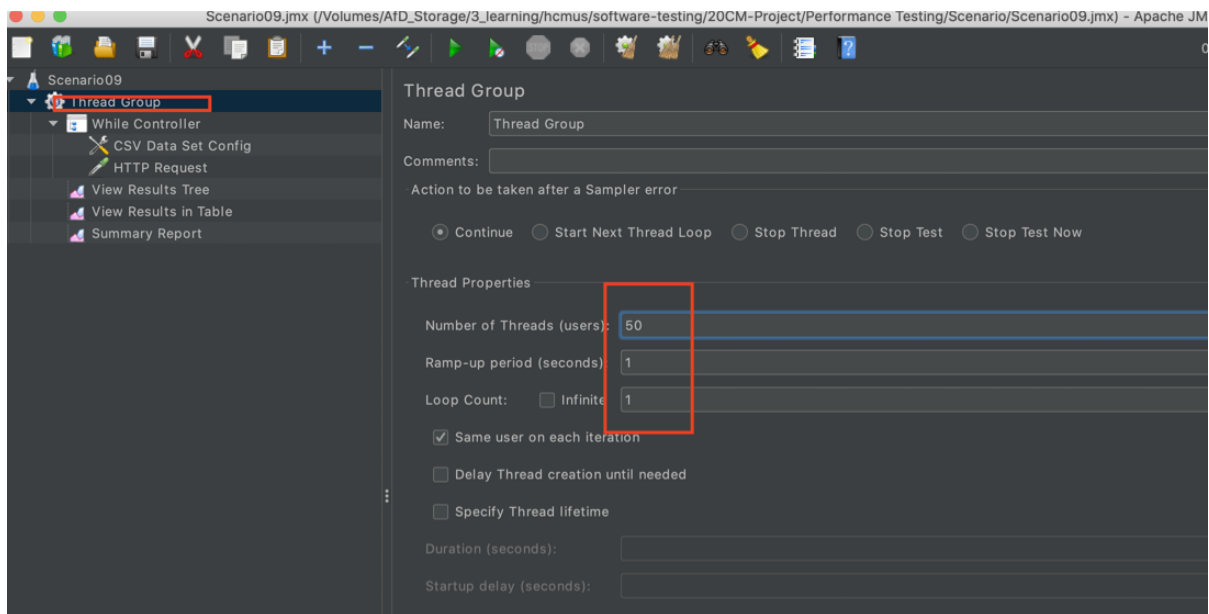
## I) Giới thiệu

- Dùng công cụ Jmeter để đo, kiểm tra hiệu năng của hệ thống
- Kiểm hiệu năng cho các chức năng
  - Đăng nhập
  - Xem chi tiết sản phẩm
  - Đăng ký
  - Tìm kiếm sản phẩm

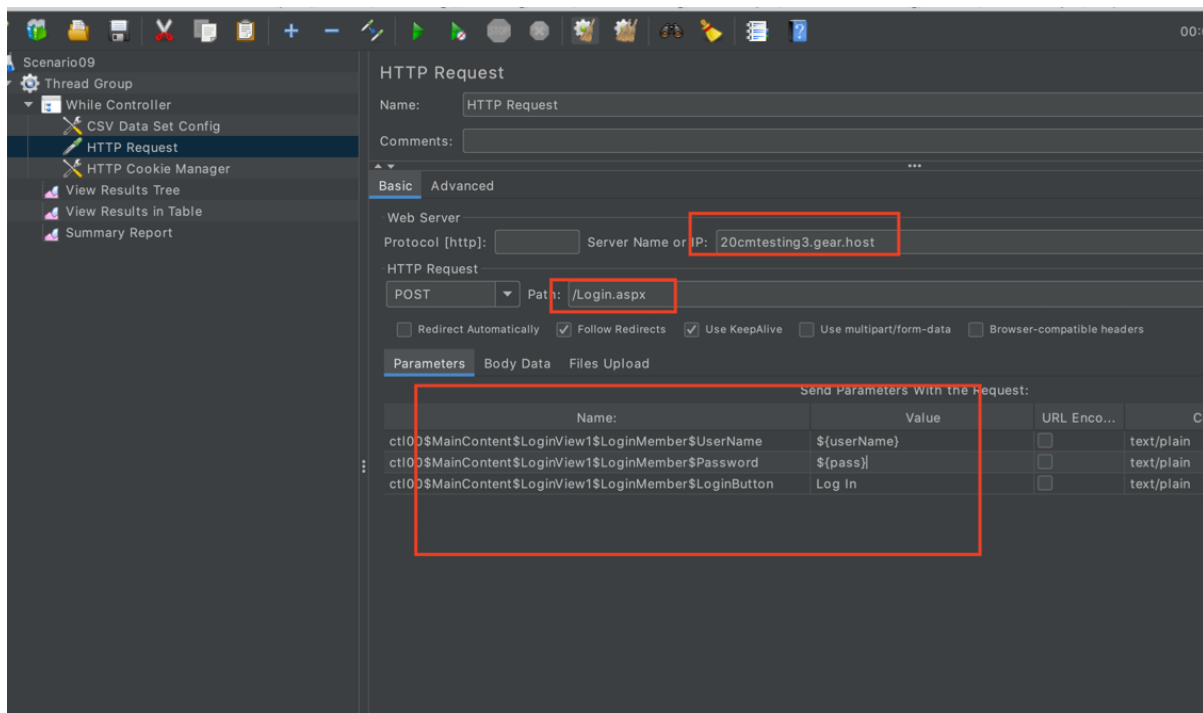
### 1) Chức năng đăng nhập

Các bước thực hiện

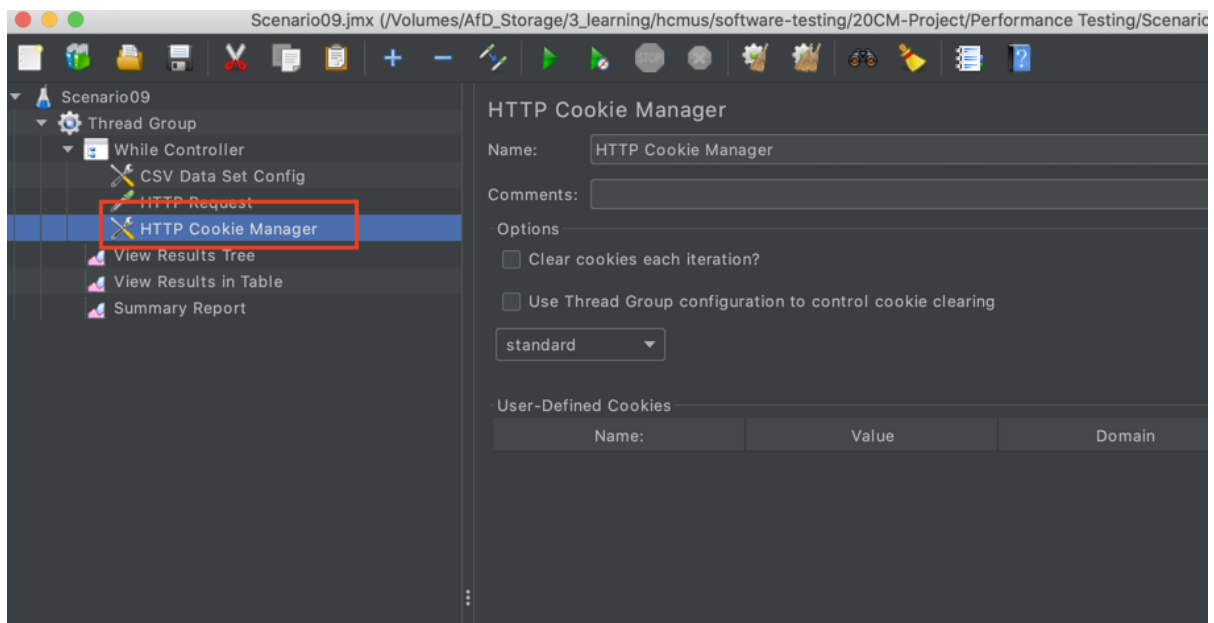
- Bước 1: Tạo 1 thread group (giả lập 50 người dùng / 1 giây)



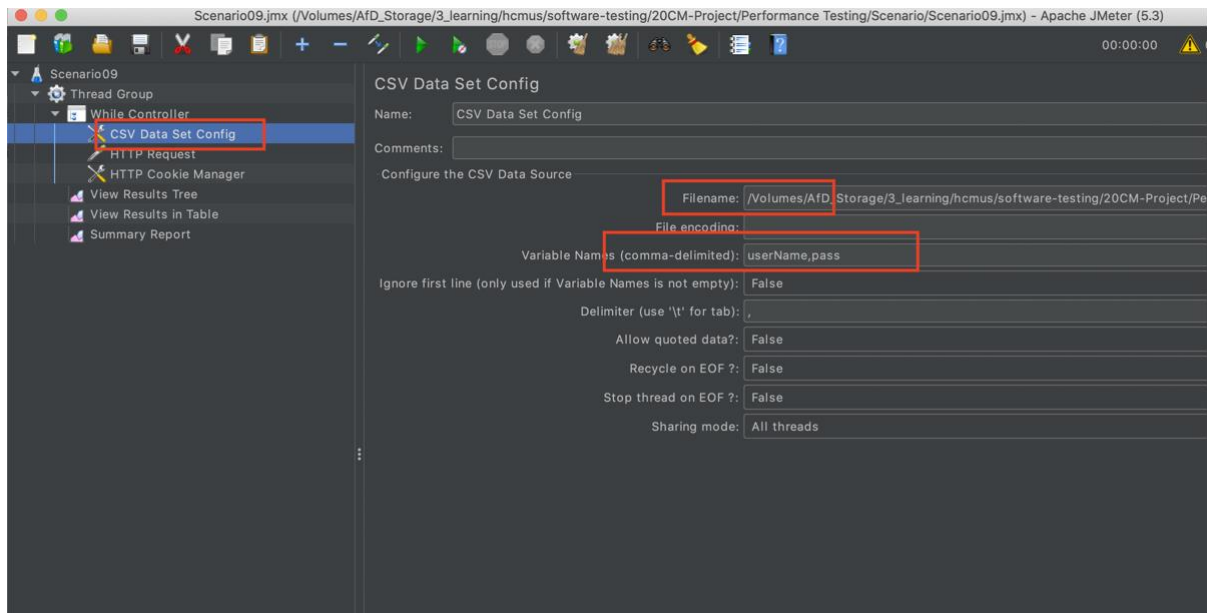
- Bước 2: Tạo HTTP Request tới trang login



- Bước 3: Tạo HTTP Cookie



- Bước 4: Tạo CSV configure và dùng file dữ liệu login để test



Home Insert Draw Page Layout Formulas Data Review View

Paste

Calibri (Body) 12 A A

B I U

Wrap Text

Merge & Center

Possible Data Loss Some features might be lost if you save this workbook in the text (.txt) format. To preserve

E8

	A	B	C	D	E	F	G
1	userName	pass					
2	UserLJJquvAvfY	bNt8d8OTSZ					
3	Userc4hs2zYgvD	F1IC1P8YU6					
4	UserFd8lnAtRQu	BRrSC4bhAs					
5	UserRregtMXNHW	gmzoMJ7eJa					
6	UsercYCOL1c9BE	VAOvaDtz5N					
7	User69rgy3MT3P	XodZF5i6sv					
8	UserPsi1JLzT6j	vrU4LqSZS6					
9	UserDTovVfAvtL	ID9DskijLo					
10	User8C6gVf0sTr	MapXmqLr8V					
11	UserGelzHE6olx	OFh8Q8M37d					
12	UserEgprLN1pYY	29XFEHbCqx					
13	UserIYLD2R8Y3i	vJ8Om6OLb					
14	UsernA8LuEG1J2	YNmO0NjW7o					
15	UseraXlxl3yla	OTmdVUUFi6					
16	UserZW011m6Te3	57Cui0JQUF					
17	UserXe0CvAmuGJ	bU2Wnl5DI0					
18	UserptvsiCNU4u	NGxp2jWdDp					
19	UserOFeNHV2B6X	jccZJ85kuD					
20	UserfXOHpLGsmg	TecqA1WBzn					
21	UserVetF5P7rRq	GH9XSg7eC1					

- Bước 5: Xem kết quả từ View Result in Table

Sample #	Start Time	Thread Name	Label	Sample Time	Status	Bytes	Sent Bytes	Latency	Connect Time
1	16:48:32.037	Thread Gro...	HTTP Request	1638	✓	38988	630	613	307
10	16:48:31.791	Thread Gro...	HTTP Request	2009	✓	38988	630	859	561
100	16:48:34.207	Thread Gro...	HTTP Request	695	✓	38240	510	689	0
1000	16:48:47.683	Thread Gro...	HTTP Request	347	✓	38240	510	329	0
1001	16:48:47.440	Thread Gro...	HTTP Request	592	✓	38240	510	262	0
1002	16:48:47.525	Thread Gro...	HTTP Request	540	✓	38240	510	255	0
1003	16:48:47.532	Thread Gro...	HTTP Request	533	✓	38240	510	250	0
1004	16:48:47.496	Thread Gro...	HTTP Request	566	✓	38240	510	268	0
1005	16:48:47.589	Thread Gro...	HTTP Request	496	✓	38240	510	248	0
1006	16:48:47.579	Thread Gro...	HTTP Request	511	✓	38240	510	268	0
1007	16:48:47.844	Thread Gro...	HTTP Request	251	✓	38240	510	246	0
1008	16:48:47.309	Thread Gro...	HTTP Request	792	✓	38240	510	335	0
1009	16:48:47.874	Thread Gro...	HTTP Request	244	✓	38240	510	240	0
101	16:48:34.248	Thread Gro...	HTTP Request	656	✓	38240	510	649	0
1010	16:48:47.675	Thread Gro...	HTTP Request	588	✓	38240	510	299	0
1011	16:48:47.676	Thread Gro...	HTTP Request	590	✓	38240	510	299	0
1012	16:48:47.484	Thread Gro...	HTTP Request	784	✓	38240	510	234	0
1013	16:48:47.706	Thread Gro...	HTTP Request	562	✓	38240	510	311	0
1014	16:48:47.714	Thread Gro...	HTTP Request	574	✓	38240	510	318	0
1015	16:48:47.706	Thread Gro...	HTTP Request	587	✓	38240	510	325	0
1016	16:48:48.007	Thread Gro...	HTTP Request	304	✓	38240	510	281	0
1017	16:48:47.671	Thread Gro...	HTTP Request	640	✓	38240	510	337	0
1018	16:48:47.737	Thread Gro...	HTTP Request	574	✓	38240	510	311	0
1019	16:48:47.719	Thread Gro...	HTTP Request	592	✓	38240	510	321	0
102	16:48:34.347	Thread Gro...	HTTP Request	574	✓	38240	510	570	0
1020	16:48:47.267	Thread Gro...	HTTP Request	1044	✓	38240	510	282	0
1021	16:48:48.037	Thread Gro...	HTTP Request	329	✓	38240	510	329	0

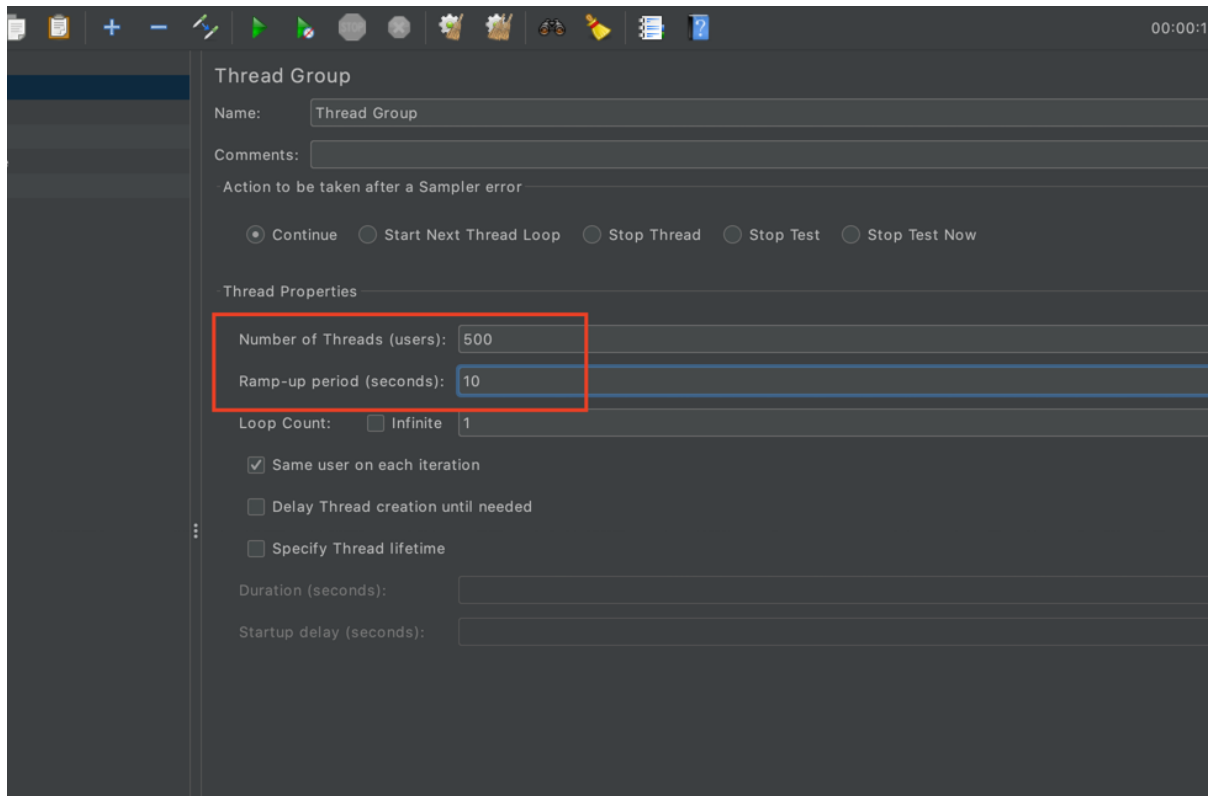
- Bước 6: Xem kết quả tổng quát

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received KB/sec	Sent KB/sec	Avg. Bytes
Login	1051	2509	1346	12144	1176.36	0.00%	19.3/sec	745.00	15.13	39528.0
TOTAL	1051	2509	1346	12144	1176.36	0.00%	19.3/sec	745.00	15.13	39528.0

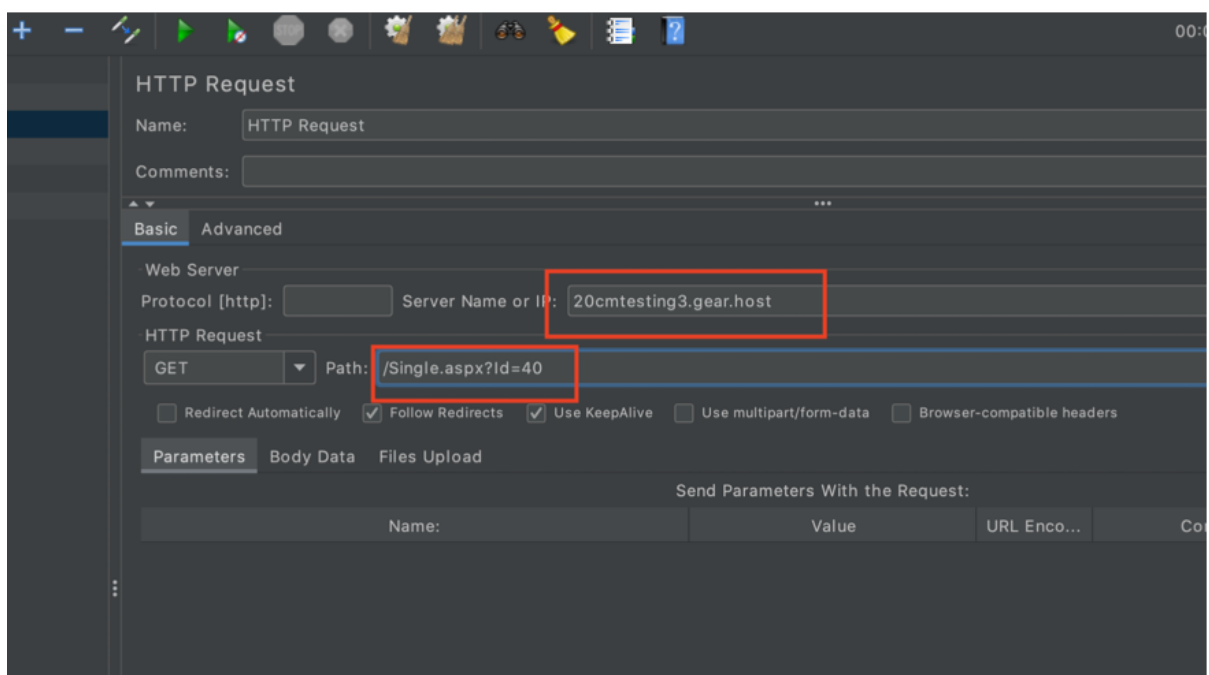
➔ Nhận xét: Hệ thống phần nào đáp ứng được kì vọng khi thời gian chờ tạm chấp nhận được khoảng 2,5 giây. Mặc dù một số trường hợp phải đợi hơi lâu (khoảng 12s)

## 2) Chức năng xem chi tiết sản phẩm

- Bước 1: Tạo 1 thread group (giả lập 500 người dùng / 10 giây)



- Bước 2: Tạo HTTP Request tới trang chi tiết sản phẩm (id = 40)



- Bước 3: Tạo HTTP Cookie

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

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

Sample #	Start Time	Thread Name	Label	Sample Time...	Status	Bytes	Sent Bytes	Latency	Connect Tim...
1	18:09:18.639	Thread Grou...	HTTP Request	1509	✓	42756	429	478	227
2	18:09:18.664	Thread Grou...	HTTP Request	1484	✓	42756	429	478	250
3	18:09:18.682	Thread Grou...	HTTP Request	1491	✓	42756	429	460	232
4	18:09:18.722	Thread Grou...	HTTP Request	1573	✓	42756	429	460	221
5	18:09:18.763	Thread Grou...	HTTP Request	1821	✓	42756	429	478	232
6	18:09:18.618	Thread Grou...	HTTP Request	1966	✓	42756	429	499	231
7	18:09:18.799	Thread Grou...	HTTP Request	1802	✓	42756	429	442	220
8	18:09:18.838	Thread Grou...	HTTP Request	1818	✓	42756	429	464	224
9	18:09:18.781	Thread Grou...	HTTP Request	1949	✓	42756	429	521	228
10	18:09:18.923	Thread Grou...	HTTP Request	1952	✓	42756	429	480	238
11	18:09:19.022	Thread Grou...	HTTP Request	1892	✓	42756	429	452	221
12	18:09:18.962	Thread Grou...	HTTP Request	1953	✓	42756	429	512	279
13	18:09:19.041	Thread Grou...	HTTP Request	1892	✓	42756	429	499	261
14	18:09:18.880	Thread Grou...	HTTP Request	2056	✓	42756	429	523	238
15	18:09:19.000	Thread Grou...	HTTP Request	1937	✓	42756	429	540	301
16	18:09:19.058	Thread Grou...	HTTP Request	1896	✓	42756	429	482	244
17	18:09:18.979	Thread Grou...	HTTP Request	1978	✓	42756	429	561	322
18	18:09:19.100	Thread Grou...	HTTP Request	2008	✓	42756	429	528	232
19	18:09:19.123	Thread Grou...	HTTP Request	1995	✓	42756	429	513	280
20	18:09:19.282	Thread Grou...	HTTP Request	2089	✓	42756	429	523	235
21	18:09:19.340	Thread Grou...	HTTP Request	2384	✓	42756	429	541	288
22	18:09:19.181	Thread Grou...	HTTP Request	2574	✓	42756	429	467	233
23	18:09:19.441	Thread Grou...	HTTP Request	2334	✓	42756	429	632	245
24	18:09:19.602	Thread Grou...	HTTP Request	2174	✓	42756	429	535	241
25	18:09:19.538	Thread Grou...	HTTP Request	2239	✓	42756	429	576	267
26	18:09:19.503	Thread Grou...	HTTP Request	2274	✓	42756	429	591	248
27	18:09:19.482	Thread Grou...	HTTP Request	2310	✓	42756	429	611	242

Scroll automatically? Child samples? No of Samples 498 Latest Sample 48362 Average 14258 Deviation 9748

- Bước 4: Xem kết quả

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

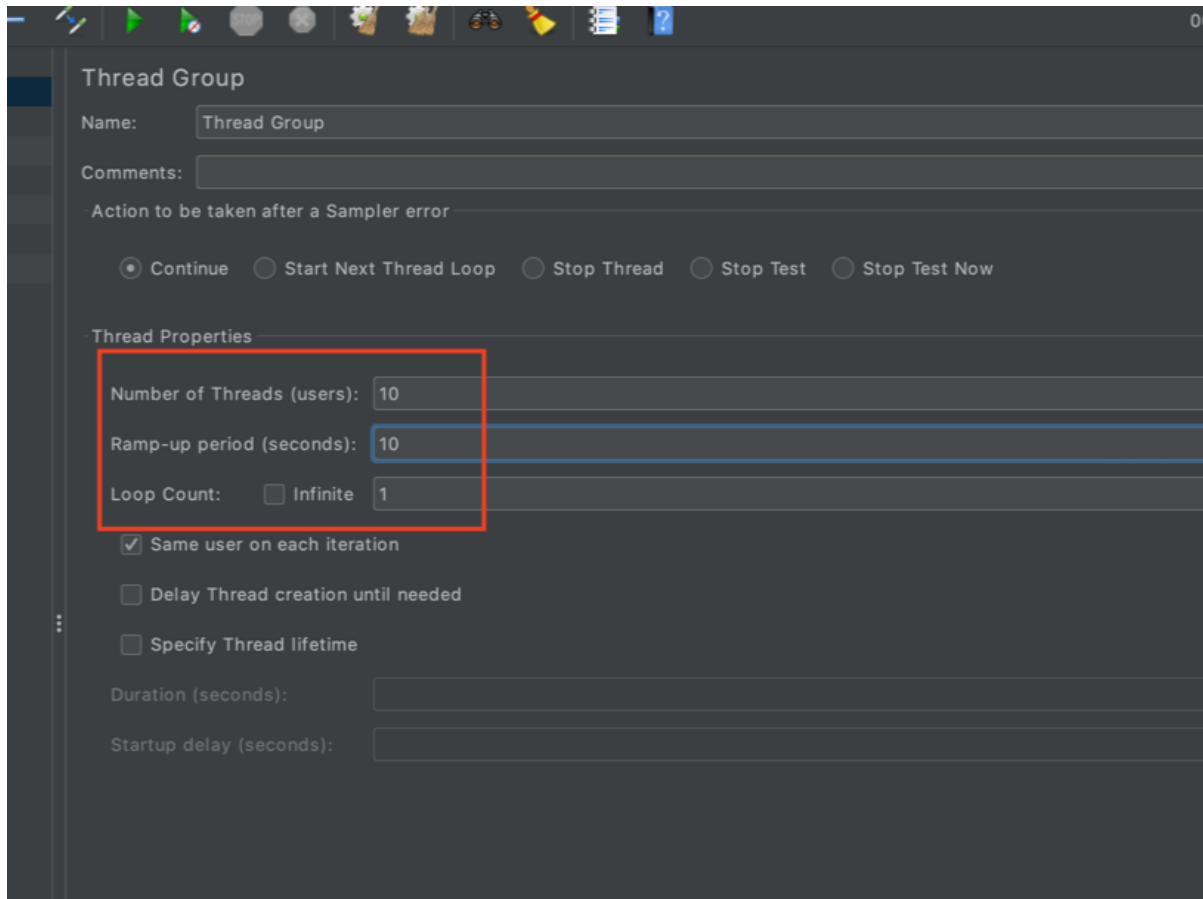
Filename: Browse... Log/Display Only: ☐ Errors ☐ Successes Configure

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. ...
HTTP Requ...	498	14258	1484	48362	5748.15	7.23%	9.0/sec	348.88	3.49	39
TOTAL	498	14258	1484	48362	5748.15	7.23%	9.0/sec	348.88	3.49	39

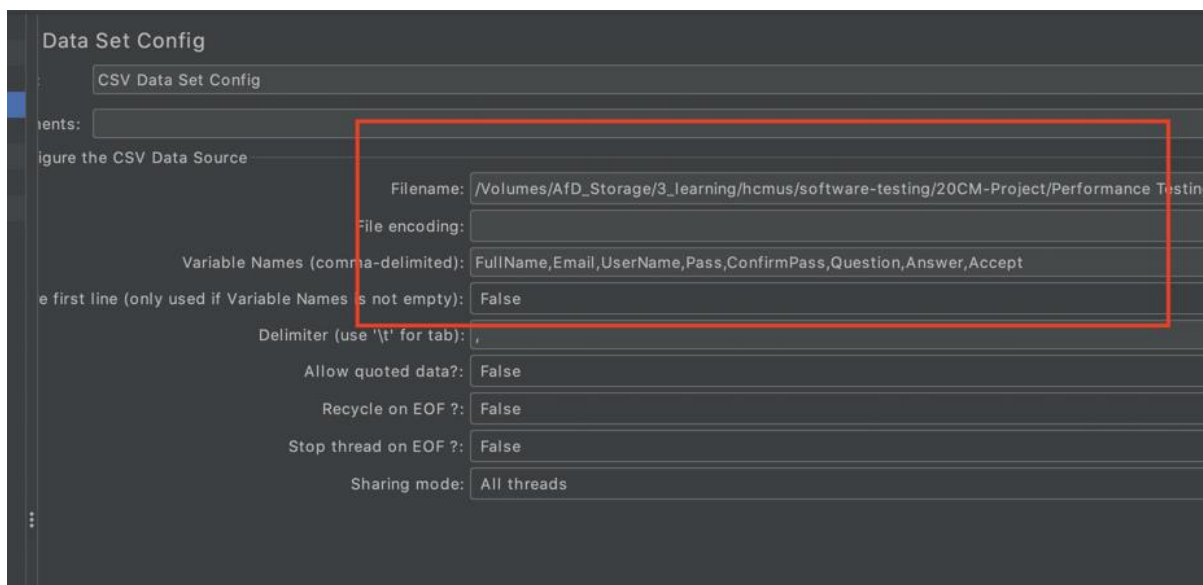
➔ Nhận xét: Với 500 người dùng truy cập cùng lúc vào xem sản phẩm thì thời gian trang phản hồi trung bình là khoảng 14 giây. Có người dùng phải đợi đến 48 giây. Do đó hệ thống cần cải thiện để cho kết quả khả thi hơn

### 3) Chức năng đăng ký

- Bước 1: Tạo 1 thread group (giả lập 10 người dùng / 10 giây)



- Bước 2: Tạo CSV configure và dùng file dữ liệu đăng ký để test





random-user-register

Possible Data Loss Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format.

	A	B	C	D	E	F	G	H	I
1	FullName	Email	UserName	Pass	ConfirmPass	Question	Answer	Accept	
2	WX1SfnfvX	WX1SfnfvX@mail.com	WX1SfnfvX	n6MLcQPhzz	n6MLcQPhzz	What is your father's nickname?	What is your father's nickname?	on	
3	Mc7RyYfbRO	Mc7RyYfbRO@mail.com	Mc7RyYfbRO	Y2ps42P3IG	Y2ps42P3IG	What is your favorite colors?	What is your favorite colors?	on	
4	RbQ5y6ia1F	RbQ5y6ia1F@mail.com	RbQ5y6ia1F	I2YIU7BtE	I2YIU7BtE	What is your favorite colors?	What is your favorite colors?	on	
5	30ki65r8gl	30ki65r8gl@mail.com	30ki65r8gl	X7tUCWJozV	X7tUCWJozV	What is your favorite colors?	What is your favorite colors?	on	
6	PAAI0BI20S	PAAI0BI20S@mail.com	PAAI0BI20S	nk2HyR5Laj	nk2HyR5Laj	What is your favorite colors?	What is your favorite colors?	on	
7	P4uUuPjvib	P4uUuPjvib@mail.com	P4uUuPjvib	Di8uZrPnh	Di8uZrPnh	What is your father's nickname?	What is your father's nickname?	on	
8	Co38KChMR	Co38KChMR@mail.com	Co38KChMR	VpIH98WAA	VpIH98WAA	What is your favorite colors?	What is your favorite colors?	on	
9	gA9IK5srCQ	gA9IK5srCQ@mail.com	gA9IK5srCQ	zxMqJHKM7I	zxMqJHKM7I	What is your favorite colors?	What is your favorite colors?	on	
10	sb1kQoTetz	sb1kQoTetz@mail.com	sb1kQoTetz	FdxAA7LT6N	FdxAA7LT6N	What is your favorite colors?	What is your favorite colors?	on	
11	qchzbEi5Sp	qchzbEi5Sp@mail.com	qchzbEi5Sp	ACA9zvcLS	ACA9zvcLS	What is your favorite colors?	What is your favorite colors?	on	
12	w1dr1XSA8	w1dr1XSA8@mail.com	w1dr1XSA8	lmHUtmS9R1	lmHUtmS9R1	What is your favorite colors?	What is your favorite colors?	on	
13	ttYI94OR4a	ttYI94OR4a@mail.com	ttYI94OR4a	bmUMPSN6aL	bmUMPSN6aL	What is your favorite colors?	What is your favorite colors?	on	
14	DIKJBriFAE	DIKJBriFAE@mail.com	DIKJBriFAE	6UZV8YIjgn	6UZV8YIjgn	What is your favorite colors?	What is your favorite colors?	on	
15	JNW0yP6fHe	JNW0yP6fHe@mail.com	JNW0yP6fHe	3NRRLPgR1f	3NRRLPgR1f	What is your father's nickname?	What is your father's nickname?	on	
16	lO4qVsVWUm	lO4qVsVWUm@mail.com	lO4qVsVWUm	k1za3RyK6I	k1za3RyK6I	What is your father's nickname?	What is your father's nickname?	on	
17	eNoG3yN3mi	eNoG3yN3mi@mail.com	eNoG3yN3mi	yN6ErA2kHh	yN6ErA2kHh	What is your favorite colors?	What is your favorite colors?	on	
18	hS1IRpoOY	hS1IRpoOY@mail.com	hS1IRpoOY	7laCkvYmis	7laCkvYmis	What is your favorite colors?	What is your favorite colors?	on	
19	uleXOhY8EC	uleXOhY8EC@mail.com	uleXOhY8EC	5GkHxHhve	5GkHxHhve	What is your father's nickname?	What is your father's nickname?	on	
20	dKJ8oOumQ0	dKJ8oOumQ0@mail.com	dKJ8oOumQ0	mOokRrCRCF	mOokRrCRCF	What is your father's nickname?	What is your father's nickname?	on	
21	dKsR62nSo	dKsR62nSo@mail.com	dKsR62nSo	Y11fIvulg	Y11fIvulg	What is your father's nickname?	What is your father's nickname?	on	
22	P4qeVTD9Wc	P4qeVTD9Wc@mail.com	P4qeVTD9Wc	eyFu5uNaRI	eyFu5uNaRI	What is your favorite colors?	What is your favorite colors?	on	
23	17IKUYHarh	17IKUYHarh@mail.com	17IKUYHarh	RyVd6MV7	RyVd6MV7	What is your father's nickname?	What is your father's nickname?	on	
24	CqDIRZK84	CqDIRZK84@mail.com	CqDIRZK84	F9fAajevCT	F9fAajevCT	What is your father's nickname?	What is your father's nickname?	on	
25	OhBHfytSLG	OhBHfytSLG@mail.com	OhBHfytSLG	gJ5NkGPyyn	gJ5NkGPyyn	What is your favorite colors?	What is your favorite colors?	on	
26	2LVOqhljse	2LVOqhljse@mail.com	2LVOqhljse	2cGfA8uqum	2cGfA8uqum	What is your favorite colors?	What is your favorite colors?	on	
27	VlirOculac	VlirOculac@mail.com	VlirOculac	PkqIEDD4dW	PkqIEDD4dW	What is your father's nickname?	What is your father's nickname?	on	

- Bước 3: Tạo HTTP Request tới trang đăng ký

HTTP Request

Name: HTTP Request

Comments:

Basic Advanced

Web Server

Protocol [http]: Server Name or IP: 20cmtesting3.gear.host Port Number:

HTTP Request

POST Path: /Register.aspx Content encoding:

☐ Redirect Automatically ☒ Follow Redirects ☒ Use KeepAlive ☐ Use multipart/form-data ☐ Browser-compatible headers

Parameters Body Data Files Upload

Send Parameters With the Request:

Name:	value	Or...	Content-Type
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$FullName	\${FullName}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$Email	\${Email}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$UserName	\${UserName}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$Password	\${Pass}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$ConfirmPassword	\${ConfirmPass}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$Question	\${Question}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$Answer	\${Answer}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$agreement	\${Accept}	<input type="checkbox"/>	text/plain
ctl00\$MainContent\$CreateUserWizardMember\$CreateUserStepContainer\$StepNextButton	Register	<input type="checkbox"/>	text/plain

- Bước 4: Tạo HTTP Cookie

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

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

Sample #	Start Time	Thread Name	Label	Sample Time...	Status	Bytes	Sent Bytes	Latency	Conne
1	19:07:10.771	Thread Grou...	HTTP Request	1420	✓	41979	1326	483	
2	19:07:12.195	Thread Grou...	HTTP Request	244	✓	41225	1272	238	
3	19:07:12.442	Thread Grou...	HTTP Request	250	✓	41225	1272	244	
4	19:07:12.694	Thread Grou...	HTTP Request	268	✓	41225	1272	258	
5	19:07:11.767	Thread Grou...	HTTP Request	1399	✓	41979	1403	462	
6	19:07:12.964	Thread Grou...	HTTP Request	244	✓	41225	1280	238	
7	19:07:13.169	Thread Grou...	HTTP Request	277	✓	41225	1272	269	
8	19:07:13.211	Thread Grou...	HTTP Request	257	✓	41225	1272	246	
9	19:07:13.449	Thread Grou...	HTTP Request	267	✓	41225	1272	253	
10	19:07:13.471	Thread Grou...	HTTP Request	249	✓	41225	1272	245	
11	19:07:13.720	Thread Grou...	HTTP Request	255	✓	41225	1272	237	
12	19:07:12.767	Thread Grou...	HTTP Request	1369	✓	41979	1395	438	
13	19:07:13.723	Thread Grou...	HTTP Request	487	✓	41225	1272	252	
14	19:07:13.978	Thread Grou...	HTTP Request	248	✓	41225	1280	245	
15	19:07:14.140	Thread Grou...	HTTP Request	243	✓	41225	1280	235	
16	19:07:14.213	Thread Grou...	HTTP Request	248	✓	41225	1272	242	
17	19:07:14.229	Thread Grou...	HTTP Request	247	✓	41225	1272	236	
18	19:07:14.386	Thread Grou...	HTTP Request	258	✓	41225	1280	252	
19	19:07:14.464	Thread Grou...	HTTP Request	253	✓	41225	1280	243	
20	19:07:14.479	Thread Grou...	HTTP Request	253	✓	41225	1280	250	
21	19:07:14.647	Thread Grou...	HTTP Request	242	✓	41225	1272	237	
22	19:07:14.735	Thread Grou...	HTTP Request	264	✓	41225	1280	241	
23	19:07:14.721	Thread Grou...	HTTP Request	278	✓	41225	1280	253	
24	19:07:14.892	Thread Grou...	HTTP Request	260	✓	41225	1272	234	
25	19:07:13.772	Thread Grou...	HTTP Request	1402	✓	41979	1395	448	
26	19:07:15.002	Thread Grou...	HTTP Request	291	✓	41225	1280	252	

- Bước 5: Xem kết quả

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

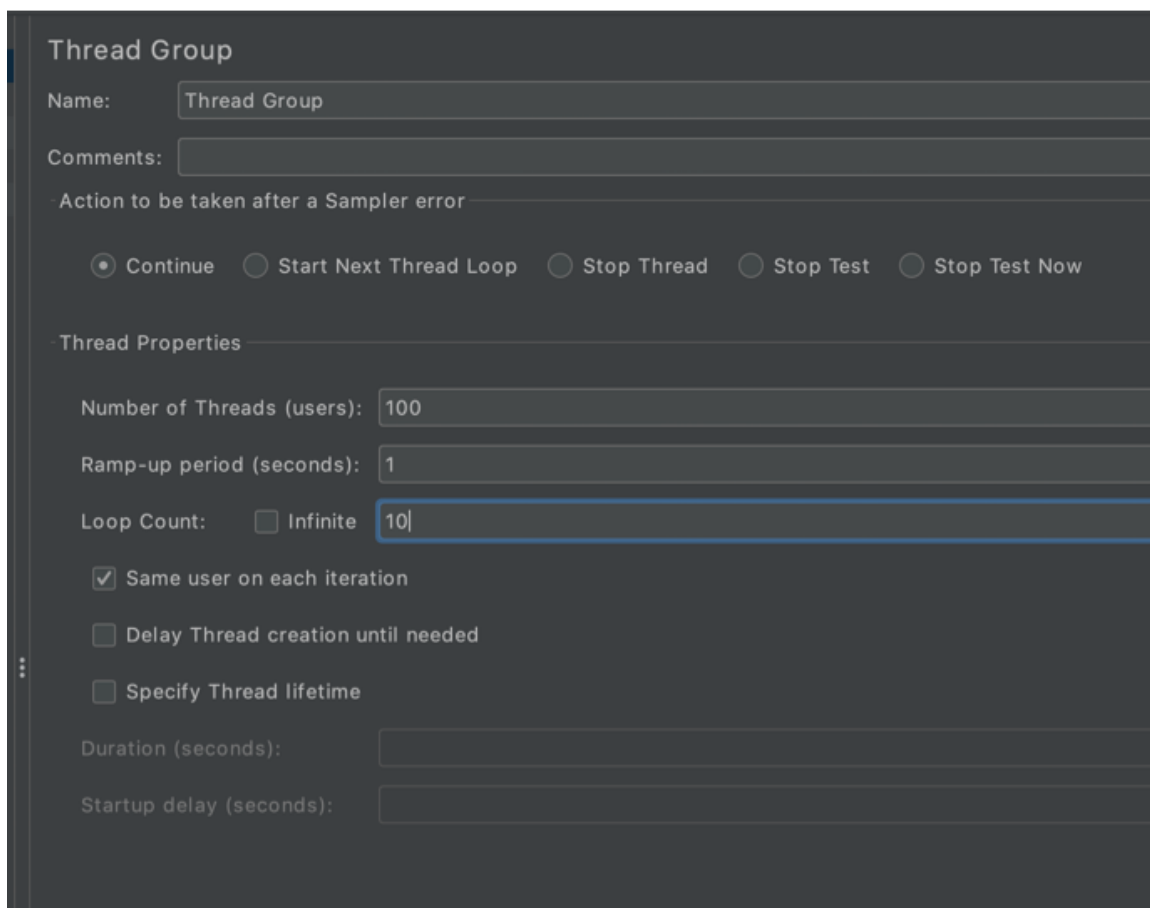
Filename  Browse... Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Byte
HTTP Requ...	2020	417	234	4545	303.04	0.15%	20.2/sec	814.05	24.64	4117
TOTAL	2020	417	234	4545	303.04	0.15%	20.2/sec	814.05	24.64	4117

➔ Nhận xét: Với 10 người dùng truy cập cùng lúc vào đăng ký tài khoản thì kết quả phản hồi chấp nhận được. Trung bình 0.4 giây và lâu nhất là 4.5 giây

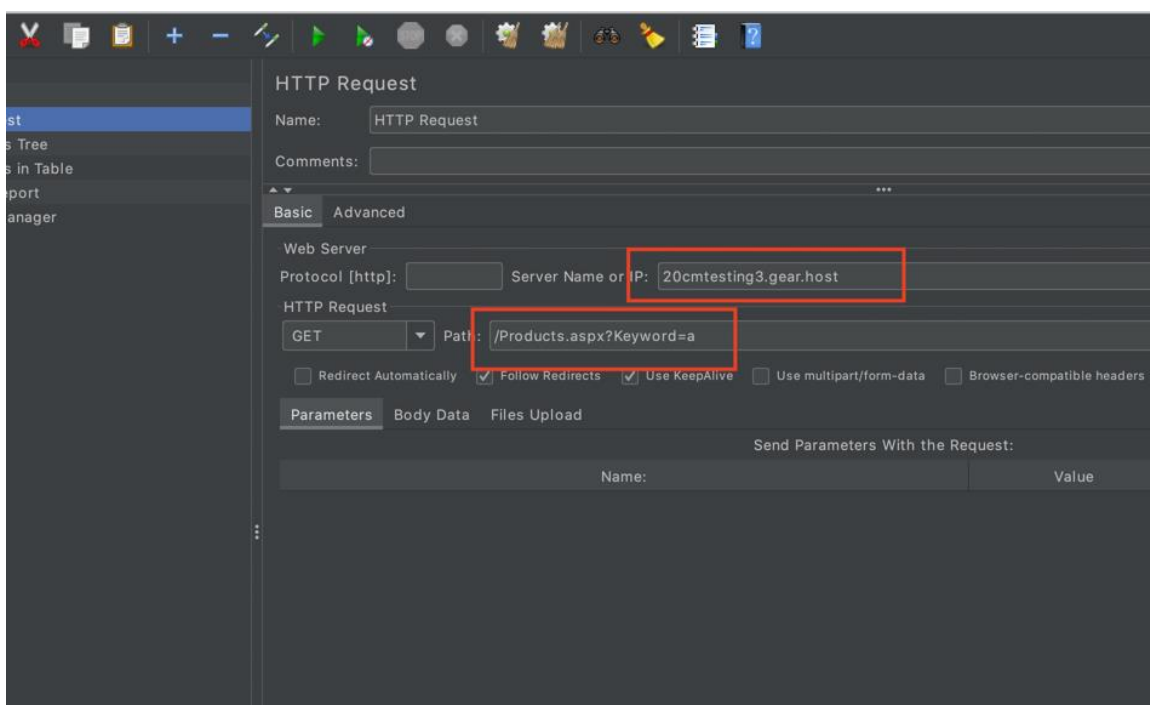
#### 4) Chức năng tìm kiếm sản phẩm

- Bước 1: Tạo 1 thread group (giả lập 100 người dùng / 1 giây lặp/lặp lại 10 lần)



The screenshot shows the 'Thread Group' configuration window. The 'Name' field is 'Thread Group'. The 'Comments' field is empty. The 'Action to be taken after a Sampler error' section has five radio buttons: 'Continue' (selected), 'Start Next Thread Loop', 'Stop Thread', 'Stop Test', and 'Stop Test Now'. The 'Thread Properties' section includes: 'Number of Threads (users):' set to 100, 'Ramp-up period (seconds):' set to 1, 'Loop Count:' with 'Infinite' unchecked and '10' entered in the adjacent field, 'Same user on each iteration' checked, 'Delay Thread creation until needed' unchecked, and 'Specify Thread lifetime' unchecked. The 'Duration (seconds):' and 'Startup delay (seconds):' fields are empty.

- Bước 2: Tạo HTTP Request tới trang tìm kiếm sản phẩm



The screenshot shows the 'HTTP Request' configuration window. The 'Name' field is 'HTTP Request'. The 'Comments' field is empty. The 'Basic' tab is selected. The 'Web Server' section has 'Protocol [http:]' set to 'http' and 'Server Name or IP:' set to '20cmtesting3.gear.host'. The 'HTTP Request' section has 'Method' set to 'GET' and 'Path:' set to '/Products.aspx?Keyword=a'. The 'Advanced' section has 'Redirect Automatically' unchecked, 'Follow Redirects' checked, 'Use KeepAlive' checked, 'Use multipart/form-data' unchecked, and 'Browser-compatible headers' unchecked. The 'Parameters' tab is selected. The 'Send Parameters With the Request:' section has a table with two columns: 'Name:' and 'Value'.

- Bước 3: Tạo HTTP Cookie

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename:  Browse...

Log/Display Only: ☐ Errors ☐ Successes

Sample #	Start Time	Thread Name	Label	Sample Time...	Status	Bytes	Sent Bytes	Latency	Connect
1	19:23:19.320	Thread Grou...	HTTP Request	2039	✓	78854	441	624	
2	19:23:19.450	Thread Grou...	HTTP Request	1915	✓	78854	441	490	
3	19:23:19.269	Thread Grou...	HTTP Request	2122	✓	78854	441	671	
4	19:23:19.368	Thread Grou...	HTTP Request	2026	✓	78854	441	587	
5	19:23:21.366	Thread Grou...	HTTP Request	317	✓	78072	308	299	
6	19:23:21.360	Thread Grou...	HTTP Request	325	✓	78072	308	304	
7	19:23:21.391	Thread Grou...	HTTP Request	300	✓	78072	308	295	
8	19:23:21.394	Thread Grou...	HTTP Request	325	✓	78072	308	307	
9	19:23:19.419	Thread Grou...	HTTP Request	2390	✓	78854	441	521	
10	19:23:19.340	Thread Grou...	HTTP Request	2529	✓	78854	441	601	
11	19:23:19.398	Thread Grou...	HTTP Request	2480	✓	78854	441	543	
12	19:23:19.177	Thread Grou...	HTTP Request	2701	✓	78854	441	764	
13	19:23:19.359	Thread Grou...	HTTP Request	2524	✓	78854	441	586	
14	19:23:19.219	Thread Grou...	HTTP Request	2667	✓	78854	441	725	
15	19:23:19.256	Thread Grou...	HTTP Request	2634	✓	78854	441	688	
16	19:23:19.298	Thread Grou...	HTTP Request	2608	✓	78854	441	647	
17	19:23:19.350	Thread Grou...	HTTP Request	2609	✓	78854	441	604	
18	19:23:19.499	Thread Grou...	HTTP Request	2516	✓	78854	441	478	
19	19:23:19.818	Thread Grou...	HTTP Request	2227	✓	78854	441	476	
20	19:23:21.691	Thread Grou...	HTTP Request	428	✓	78072	308	400	
21	19:23:21.684	Thread Grou...	HTTP Request	452	✓	78072	308	436	
22	19:23:21.686	Thread Grou...	HTTP Request	452	✓	78072	308	435	
23	19:23:21.719	Thread Grou...	HTTP Request	442	✓	78072	308	419	
24	19:23:19.809	Thread Grou...	HTTP Request	2354	✓	78854	441	490	
25	19:23:19.748	Thread Grou...	HTTP Request	2421	✓	78854	441	484	
26	19:23:19.896	Thread Grou...	HTTP Request	2284	✓	78854	441	534	
27	19:23:19.795	Thread Grou...	HTTP Request	2386	✓	78854	441	473	

- Bước 4: Xem kết quả

Summary Report

Name: Summary Report

Comments:

Write results to file / Read from file

Filename:  Browse...

Log/Display Only: ☐ Errors ☐ Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent
HTTP Requ...	1000	1810	287	12650	1626.41	0.00%	36.8/sec	2807.27	
TOTAL	1000	1810	287	12650	1626.41	0.00%	36.8/sec	2807.27	

➔ Nhận xét: Với 100 người dùng truy cập với 10 lần lặp thì kết quả phản hồi trung bình gần 2 giây (tạm chấp nhận được) nhưng một số trường hợp thì đợi quá lâu (khoảng 12 giây).

## **II) Kết luận:**

Các kết quả trên phần nào cho thấy được khả năng chịu tải của server để chúng ta có thể chọn plan phù hợp cho dự án cũng như kinh phí của mình.