

# Performance Testing

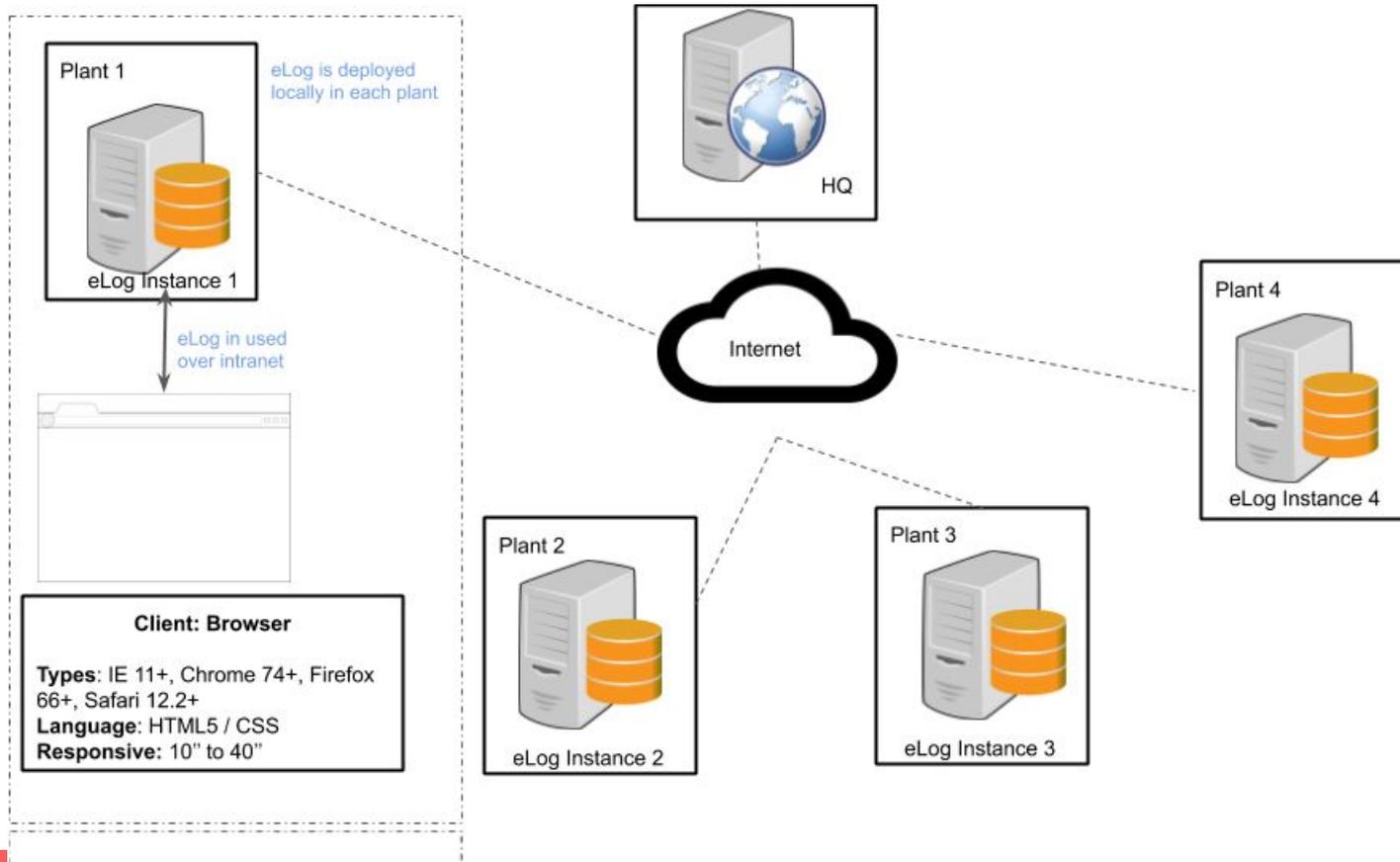
eLog

# Application Brief

eLog Pharma system will replace the manual log book/ log sheets maintained at pharmaceutical production plant for managing production activities.

The deployment of the eLog system is distributed, i.e. an instance of the eLog system will be installed in each plant. Central deployment of the eLog system is ruled out as the connectivity to central data centre is unreliable and the eLog system being a critical production floor system needs to be available at all times.

# Typical installation of eLog Pharma system



# Performance testing of Operation module

The Apache Jmeter version 5.1 was used to run the Performance test of Operation module. The application was run on a server whose specification is as follows:

Machine Type : f1 Micro (shared-core machine), Virtual CPU : 1, Memory : 0.6 GB, Hard Disk : 10 GB

A thread group with the following parameters was set up.

Number of Threads(users) : 1500

Ramp up time (seconds) : 180 (3 minutes)

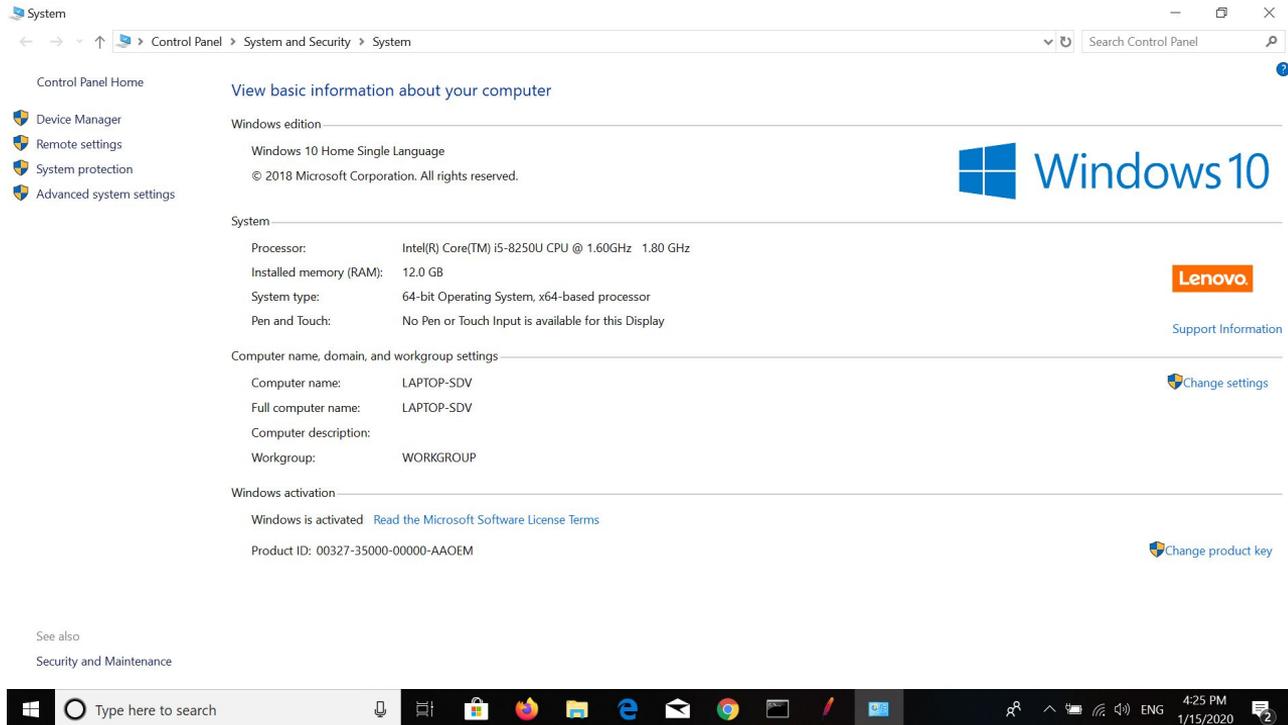
Duration of test (seconds) : 600 (10 minutes)

Server :

Port : 80

# Contd.

The application was run on the server with jmeter running locally on a machine.



The screenshot displays the Windows System control panel window. The title bar reads "System" and the address bar shows the navigation path: "Control Panel > System and Security > System". A search bar on the right contains the text "Search Control Panel".

**Control Panel Home**

- Device Manager
- Remote settings
- System protection
- Advanced system settings

**View basic information about your computer**

**Windows edition**

Windows 10 Home Single Language  
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**System**

Processor:	Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz 1.80 GHz
Installed memory (RAM):	12.0 GB
System type:	64-bit Operating System, x64-based processor
Pen and Touch:	No Pen or Touch Input is available for this Display

**Computer name, domain, and workgroup settings**

Computer name:	LAPTOP-SDV
Full computer name:	LAPTOP-SDV
Computer description:	
Workgroup:	WORKGROUP

**Windows activation**

Windows is activated [Read the Microsoft Software License Terms](#)  
Product ID: 00327-35000-00000-AAOEM

**See also**

[Security and Maintenance](#)

The taskbar at the bottom shows the Start button, a search bar with the text "Type here to search", and several application icons including File Explorer, Microsoft Edge, and Google Chrome. The system tray on the right displays the time as 4:25 PM on 1/15/2020, along with icons for network, volume, and power.

# Apache Jmeter Configurations

A 4G Airtel network with an average download speed 7 mbps (megabit per second) was used to run all the tests.

The screenshot shows the Apache JMeter interface with the following configuration for a Thread Group:

- Name:** Thread Group
- Comments:** (Empty)
- Action to be taken after a Sampler error:**  Continue,  Start Next Thread Loop,  Stop Thread,  Stop Test,  Stop Test Now
- Thread Properties:**
  - Number of Threads (users):** 1500
  - Ramp-Up Period (in seconds):** 180
  - Loop Count:**  Forever,  1
  - Delay Thread creation until needed
  - Scheduler
- Scheduler Configuration:**
  - Duration (seconds):** 600
  - Startup delay (seconds):** (Empty)
  - Note:** ⚠️ If Loop Count is not -1 or Forever, duration will be min(Duration, Loop Count \* iteration duration)

The left sidebar shows a Test Plan tree with the following items: Thread Group, HTTP Request Defaults, Recording Controller, Summary Report, View Results Tree, View Results in Table, HTTP Cookie Manager, HTTP(S) Test Script Recorder, View Results Tree, Summary Report, and Generate Summary Results.

# Contd.

Test Plan-SMHS.jmx (C:\Users\sanchayita\Downloads\apache-jmeter-5.1.1\apache-jmeter-5.1.1\bin\Test Plan-SMHS.jmx) - Apache JMeter (5.1.1 r1855137)

File Edit Search Run Options Tools Help

00:00:00 0 0/0

Test Plan

- Thread Group
  - HTTP Request Defaults**
  - Recording Controller
    - 1 /login/userlogin
    - 124 /Production/makefinishlog
  - Summary Report
  - View Results Tree
  - View Results in Table
- HTTP Cookie Manager
- HTTP(S) Test Script Recorder
  - View Results Tree
  - Summary Report
  - Generate Summary Results

### HTTP Request Defaults

Name: HTTP Request Defaults

Comments:

Basic  Advanced

Web Server

Protocol [http]:  Server Name or IP:  Port Number: 80

HTTP Request

Path:  Content encoding:

Parameters  Body Data

Send Parameters With the Request:

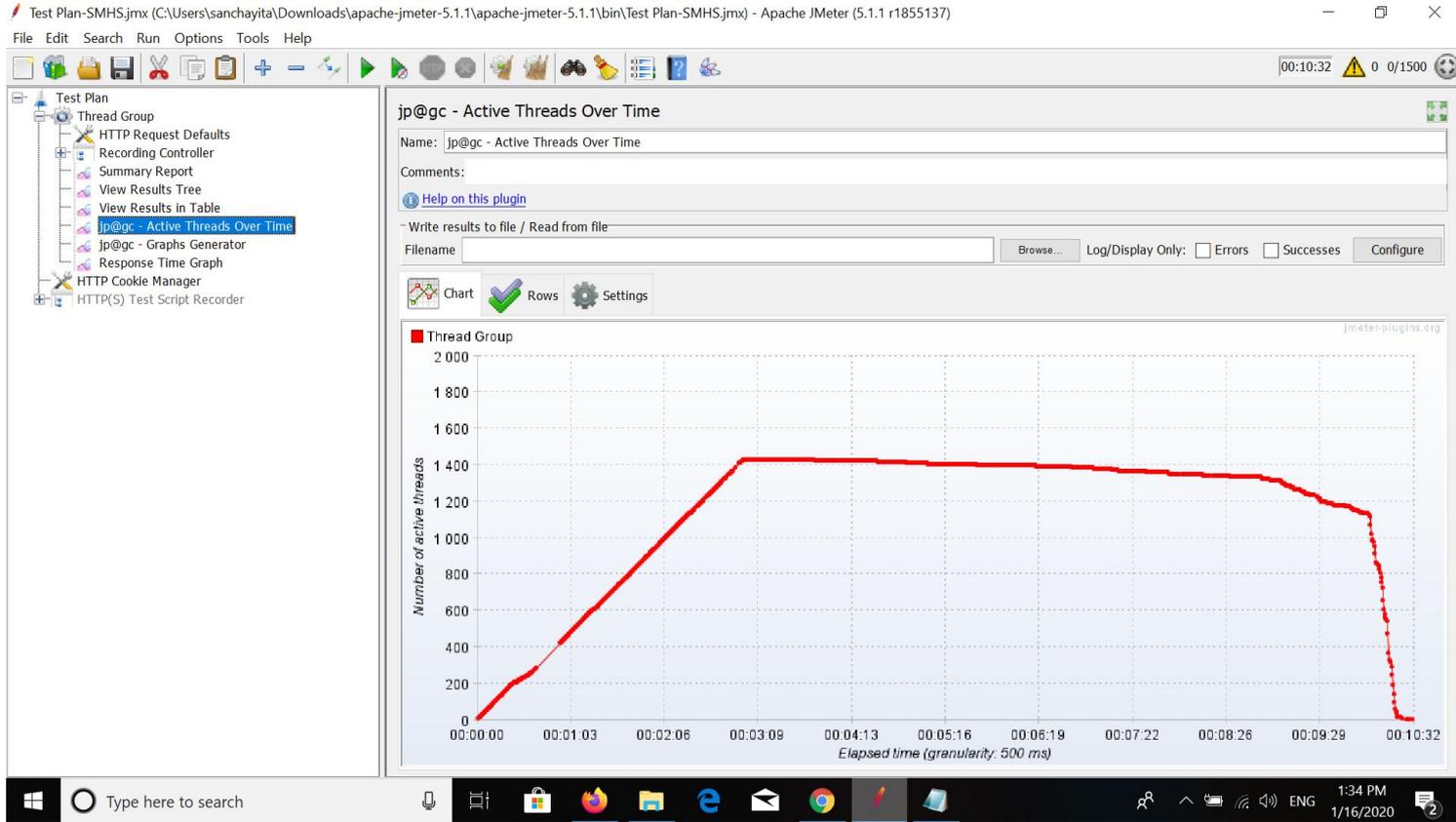
Name:	Value	URL Encode?	Content-Type	Include Equals?
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Detail Add Add from Clipboard Delete Up Down

Type here to search

4:41 PM 1/15/2020

# Active threads over time (1500 threads)



# Next set

A thread group with the following parameters was set up.

Number of Threads(users) : 2260

Ramp up time (seconds) : 180 (3 minutes)

Duration of test (seconds) : 600 (10 minutes)

Server :

Port : 80

# Summary Report for 2260 threads (virtual users)

Test Plan-SMHS.jmx (C:\Users\sanchayita\Downloads\apache-jmeter-5.1.1\apache-jmeter-5.1.1\bin\Test Plan-SMHS.jmx) - Apache JMeter (5.1.1 r1855137)

File Edit Search Run Options Tools Help

00:10:54 0/2260

Test Plan

- Thread Group
  - HTTP Request Defaults
  - Recording Controller
  - Summary Report
  - View Results Tree
  - View Results in Table
  - jp@gc - Active Threads Over Time
  - Generate Summary Results
  - HTTP Cookie Manager
  - HTTP(S) Test Script Recorder

### Summary Report

Name: Summary Report

Comments:

- Write results to file / Read from file

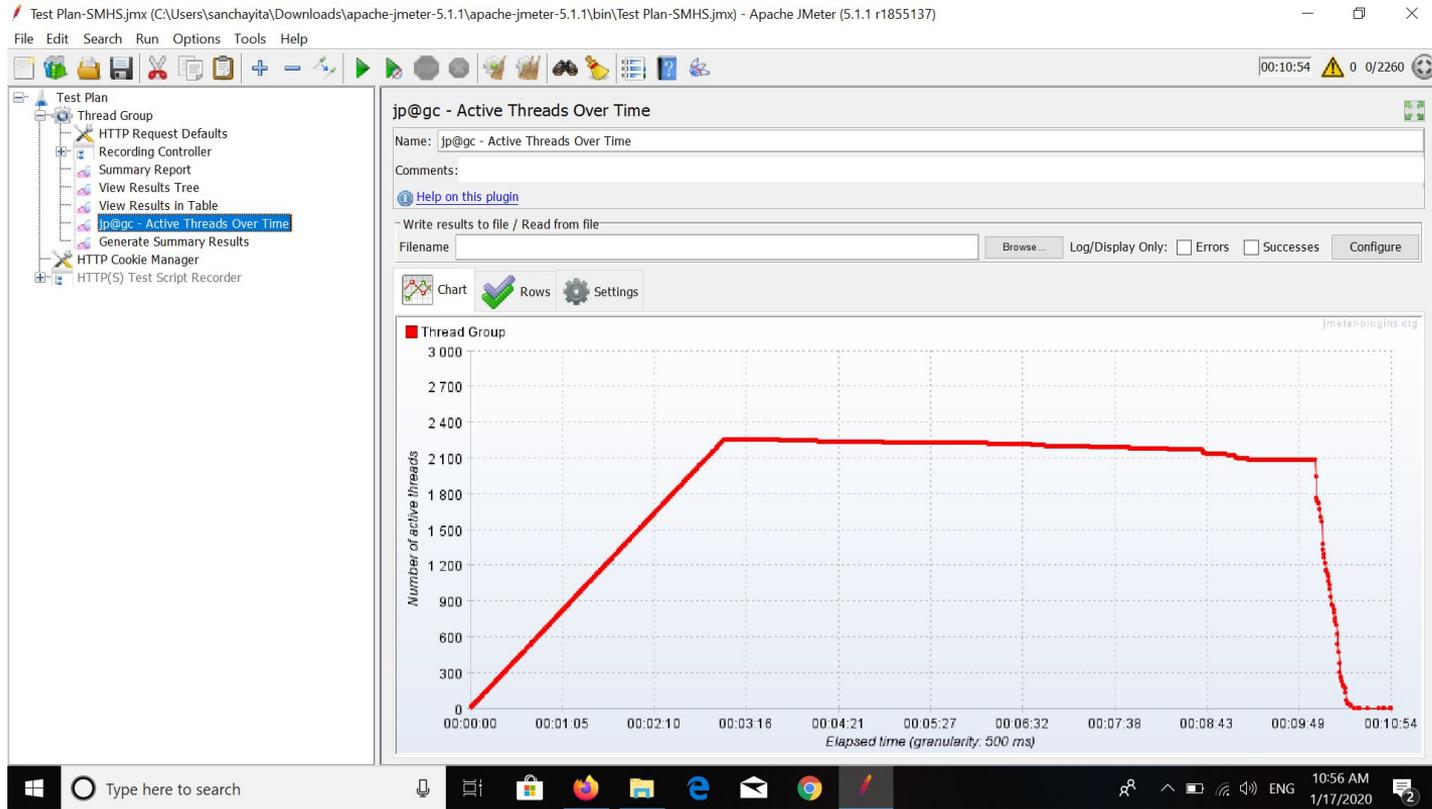
Filename: jmeter2260threads180rampup10minutesSummaryReport-new

Log/Display Only:  Errors  Successes

Label	# Samples	Average	Min	Max	Std. Dev.	Error %	Throughput	Received K...	Sent KB/sec	Avg. Bytes
61 /Production/batchcode	408	2296	283	24550	3612.94	0.00%	48.7/min	2.66	0.61	3350.0
62 /Production/batchcode	375	1885	281	20012	2994.83	0.00%	44.8/min	2.42	0.56	3313.0
64 /Production/batchcode	326	2337	281	28089	3627.72	0.00%	38.6/min	1.93	0.47	3067.4
63 /Production/batchcode	288	2149	279	62349	4698.52	0.00%	30.6/min	1.54	0.38	3099.3
65 /Production/batchcode	287	3159	278	55982	7772.14	0.00%	28.2/min	1.40	0.35	3057.3
66 /Production/batchcode	310	4065	276	61660	7662.85	0.00%	30.0/min	1.53	0.37	3129.9
67 /Production/batchcode	300	4472	281	61703	7824.32	0.00%	29.4/min	1.39	0.35	2900.1
68 /Production/batchcode	283	4717	278	61267	8298.36	0.00%	27.7/min	1.33	0.34	2938.3
69 /Production/batchcode	275	5029	282	62487	9323.79	0.00%	27.0/min	1.30	0.33	2955.0
70 /Production/batchcode	225	5470	280	55656	9818.83	0.00%	22.1/min	0.94	0.26	2615.0
71 /Production/batchcode	218	6940	279	61573	11917.21	0.00%	21.4/min	0.81	0.24	2330.7
72 /Production/batchdata	204	7134	277	55766	11690.19	0.00%	20.1/min	0.79	0.22	2427.4
73 /Production/chkcleaning2	177	5897	282	61614	11042.34	0.00%	17.5/min	0.58	0.19	2027.6
74 /Production/operation	139	6873	311	55870	12213.76	0.00%	13.2/min	2.16	0.51	10110.4
87 /mod_pagespeed beacon?ur...	154	4847	275	52736	8247.33	0.00%	15.4/min	0.05	0.16	200.7
88 /Production/makeinitiallog	70	4910	332	61573	8780.68	0.00%	7.1/min	0.27	0.10	2374.1
89 /Production/operation	78	6612	306	55455	12062.62	0.00%	7.5/min	1.29	0.29	10655.8
103 /css	183	14179	257	31512	11328.89	0.00%	18.5/min	0.41	0.13	1352.0
110 /vendor/@fortawesome/font...	61	5057	1477	25229	4979.76	0.00%	7.1/min	8.55	0.10	74182.5
118 /vendor/@fortawesome/font...	63	6814	617	25666	6761.96	0.00%	7.1/min	1.76	0.10	15174.0
120 /s/sourcesanspro/v13/6xKyd...	72	14078	227	31405	10786.03	0.00%	8.0/min	2.16	0.07	16519.9
121 /s/sourcesanspro/v13/6xK3d...	73	12501	47	31364	12541.88	0.00%	8.3/min	2.26	0.07	16683.0
124 /Production/makefinishlog	62	4571	305	24417	6998.09	0.00%	8.1/min	0.10	0.07	762.0
123 /mod_pagespeed beacon?ur...	21	3910	592	10003	3407.14	0.00%	3.0/min	0.01	0.03	201.0
TOTAL	9423	3796	47	62487	6971.12	0.00%	14.4/sec	57.71	10.32	4103.4

Include group name in label?   Save Table Header

# Active threads over time (2260 threads)



# Overall Summary

1. The application will work optimally upto 2260 users simultaneously logging to start an Operation in Production.
2. This is on the current server configuration of one virtual CPU and 0.6 GB Ram.
3. Beyond 2260 users the server's response showed significant lag due to the limitation of the server's capacity in terms of its memory and processing power.
4. It will be safe to assume that a server with more memory and processing power will be able to handle user numbers more than 2260.