

St. Francis Institute of Technology, Mumbai-400 103

Department Of Information Technology

A.Y. 2023-2024

Class: TE-ITA/B, Semester: V

Subject: **DevOps Lab**

Experiment – 8: To setup and run Selenium tests in Jenkins using Maven.

1. **Aim:** To setup and run Selenium tests in Jenkins using Maven
2. **Objectives:** Aim of this experiment is that, the students will learn:
 - Selenium and how to automate your test cases for testing web elements
 - Introduction to X-Path, TestNG and integrate Selenium with Jenkins and Maven.
3. **Outcomes:** After study of this experiment, the students will learn following:
 - Introduction to Selenium
 - Installing Selenium
 - Creating Test Cases in Selenium WebDriver
 - Run Selenium Tests in Jenkins Using Maven
4. **Prerequisite:** Knowledge of Software Engineering concept of testing and test cases.
5. **Requirements:** Jenkins, JDK, Eclipse IDE, Firefox browser, Personal Computer, Windows operating system, Internet Connection, Microsoft Word.
6. **Pre-Experiment Exercise:**
Brief Theory: Refer shared material
7. **Laboratory Exercise**
 - A. **Procedure:**
 - a. **Answer the following:**
 - Explain Selenium suite?
 - What are the limitations of Selenium IDE?
 - b. **Execute following (Refer the shared material) and attach screenshots:**
 - Create and run a test case on Chrome/Firefox browser with selenium IDE add-on
 - Create a Maven Project in Jenkins and run selenium tests using selenium Grid
8. **Post-Experiments Exercise**
 - A. **Extended Theory:**
 Nil
 - B. **Questions:**
 - What are Locators? Explain its types.
 - What is the benefit of using Selenium Grid with Jenkins?
 - C. **Conclusion:**
 - Write what was performed in the experiment.
 - Write the significance of the topic studied in the experiment.
 - D. **References:**
 - <https://jenkins.io/doc/>
 - <https://www.slideshare.net/abediaz/introduction-to-jenkins>
 - <https://q-automations.com/2019/09/26/selenium-grid-with-jenkins/>

EXPERIMENT 10 : OUTPUT

docker build -t: Build a Docker image with a specified name and tag.

```
C:\sherwin>docker build -t shertest .
[+] Building 34.2s (10/10) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> => transferring dockerfile: 266B                                              0.0s
=> [internal] load .dockerignore                                                  0.0s
=> => transferring context: 2B                                                    0.0s
=> [internal] load metadata for docker.io/library/ubuntu:latest                 0.0s
=> CACHED [1/5] FROM docker.io/library/ubuntu:latest                           0.0s
=> [internal] load build context                                                 0.0s
=> => transferring context: 1.39kB                                                0.0s
=> [2/5] RUN apt update -y                                                       15.1s
=> [3/5] RUN apt install nginx -y                                              18.7s
=> [4/5] COPY index.html /usr/share/nginx/html/index.html                     0.0s
=> [5/5] COPY index.html /var/www/html/index.html                             0.0s
=> exporting to image                                                            0.3s
=> => exporting layers                                                            0.3s
=> => writing image sha256:d84499c0d08e0bcfde84b6ef410c8d47bbe7ffff40792844aa5363370bc28a5b 0.0s
=> => naming to docker.io/library/shertest                                       0.0s
```

docker images: List available Docker images on the local system.

```
C:\sherwin>docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
shertest            latest             d84499c0d08e       4 minutes ago      178MB
svenc               latest             080094ad01fc       19 hours ago       178MB
ishwari             latest             02ee0a084b77       43 hours ago       178MB
jay2212004          latest             53e70f3658cc       44 hours ago       178MB
jay2212004/abc      1                  9cdbf249a962       45 hours ago       77.8MB
jay/abc             1                  e3238356d6e9       45 hours ago       77.8MB
athar/new           xyz                2de5cb9c79f0       2 weeks ago        77.8MB
athar/new           latest            09b1e196fd17       2 weeks ago        77.8MB
flamboyant_colden/example 1                  75eeb33caf53       2 weeks ago        77.8MB
sherw/example1      1                 13d9363cfae7       2 weeks ago        77.8MB
<none>              <none>            2c2d4124b98e       2 weeks ago        77.8MB
sherwinrr/example1  1                 0c1ae840064d       2 weeks ago        77.8MB
sherwinrr/example1  latest            1b295d0a1d51       2 weeks ago        77.8MB
<none>              <none>            5c11da4be3be       2 weeks ago        77.8MB
<none>              <none>            34f5d6107742       2 weeks ago        77.8MB
harikrushna07/test  latest            fd7b1c365849       3 weeks ago        77.8MB
harikrushna07/new   latest            5602ec6ae052       3 weeks ago        77.8MB
harikrushna07/newtest latest            683042af59d9       3 weeks ago        77.8MB
ubuntu              latest            c6b84b685f35       2 months ago       77.8MB
ubuntu              lunar-20230816    21098a29e034       2 months ago       70.3MB
ubuntu              <none>            a8780b506fa4       11 months ago      77.8MB
docker/getting-started latest            cb90f98fd791       18 months ago      28.8MB
```

docker inspect: Display detailed information about a Docker container, image, or network.

```
C:\sherwin>docker inspect shertest
[
  {
    "Id": "sha256:d84499c0d08e0bcfde84b6ef410c8d47bbe7ffff40792844aa5363370bc28a5b",
    "RepoTags": [
      "shertest:latest"
    ],
    "RepoDigests": [],
    "Parent": "",
    "Comment": "buildkit.dockerfile.v0",
    "Created": "2023-10-18T05:14:28.5134536Z",
    "Container": "",
    "ContainerConfig": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": null,
      "Cmd": null
    }
  }
]
```

docker history: View the history of changes in a Docker image.

```
C:\sherwin>docker history shertest
```

IMAGE	CREATED	CREATED BY	SIZE	COMMENT
d84499c0d08e	6 minutes ago	CMD ["nginx" "-g" "daemon off;"]	0B	buildkit.dockerfile.v0
<missing>	6 minutes ago	COPY index.html /var/www/html/index.html # b...	1.35kB	buildkit.dockerfile.v0
<missing>	6 minutes ago	COPY index.html /usr/share/nginx/html/index...	1.35kB	buildkit.dockerfile.v0
<missing>	6 minutes ago	EXPOSE map[80/tcp:{}]	0B	buildkit.dockerfile.v0
<missing>	6 minutes ago	RUN /bin/sh -c apt install nginx -y # buildk...	55.6MB	buildkit.dockerfile.v0
<missing>	7 minutes ago	RUN /bin/sh -c apt update -y # buildkit	44.7MB	buildkit.dockerfile.v0
<missing>	7 minutes ago	MAINTAINER "Shree Jaswal"	0B	buildkit.dockerfile.v0
<missing>	2 months ago	/bin/sh -c #(nop) CMD ["/bin/bash"]	0B	
<missing>	2 months ago	/bin/sh -c #(nop) ADD file:aa9b51e9f0067860c...	77.8MB	
<missing>	2 months ago	/bin/sh -c #(nop) LABEL org.opencontainers...	0B	
<missing>	2 months ago	/bin/sh -c #(nop) LABEL org.opencontainers...	0B	
<missing>	2 months ago	/bin/sh -c #(nop) ARG LAUNCHPAD_BUILD_ARCH	0B	
<missing>	2 months ago	/bin/sh -c #(nop) ARG RELEASE	0B	

docker run -it -p: Run a Docker container interactively with specified options, including exposing ports.

```
C:\sherwin>docker run -it -p 8888:88 shertest
```

docker ps: Show a list of currently running Docker containers.

```
C:\sherwin>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
f115488d5b93	shertest	"nginx -g 'daemon of..."	About a minute ago	Up About a minute	80/tcp, 0.0.0.0:8888->88/tcp	wizardly_keldysh

localhost:8888

This is a sample text that doesn't contain the word "Sherin".

This is another text that also doesn't contain "Sherwin".

This is a text with the word "Sherwin" in it. The background color will change when you click the button below.

Change Color

docker stop: Stop a running Docker container.

```
C:\sherwin>docker stop f115488d5b93
f115488d5b93
```

localhost:8888



This page isn't working

localhost didn't send any data.

ERR_EMPTY_RESPONSE

Reload

Images on disk					
		22 images	Total size: 455.33 MB	IN USE	UNUSED
Clean up...					
LOCAL REMOTE REPOSITORIES					
harikrushna07/newtest	latest	683042af59d9	23 days ago	77.82 MB	
harikrushna07/test	latest	fd7b1c365849	23 days ago	77.82 MB	
ishwari	IN USE latest	02ee0a084b77	2 days ago	178.13 MB	
jay/abc	IN USE 1	e3238356d6e9	2 days ago	77.82 MB	RUN
jay2212004	IN USE latest	53e70f3658cc	2 days ago	178.13 MB	
jay2212004/abc	1	9cdbf249a962	2 days ago	77.82 MB	
shertest	IN USE latest	d84499c0d08e	8 minutes ago	178.14 MB	
sherw/example1	1	13d9363cfaf7	21 days ago	77.82 MB	
sherwinrr/example1	1	0c1ae840064d	21 days ago	77.82 MB	
sherwinrr/example1	latest	1b295d0a1d51	21 days ago	77.82 MB	
svenc	IN USE latest	080094ad01fc	about 19 hours ago	178.13 MB	

```

> This PC > Local Disk (C:) > sherwin
Name      Date modified    Type
Dockerfile 17/10/2023 15:37 File
index.html 18/10/2023 10:37 Chrome H
Dockerfile
File Edit View
FROM ubuntu:latest
MAINTAINER "Sherwin"
RUN apt update -y
RUN apt install nginx -y
EXPOSE 80
COPY index.html /usr/share/nginx/html/index.html
COPY index.html /var/www/html/index.html
CMD ["nginx","-g","daemon off;"]

```

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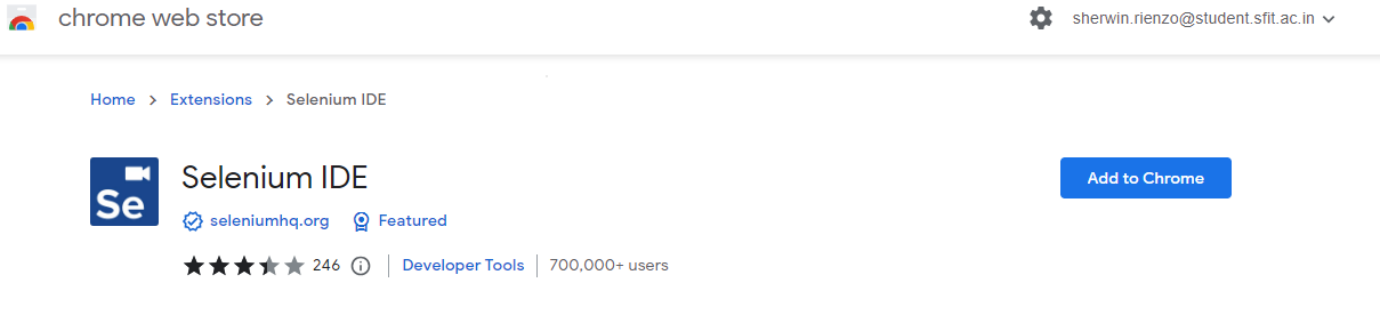
Subject: **DevOps Lab**

Experiment – 8: To setup and run Selenium tests in Jenkins using Maven.

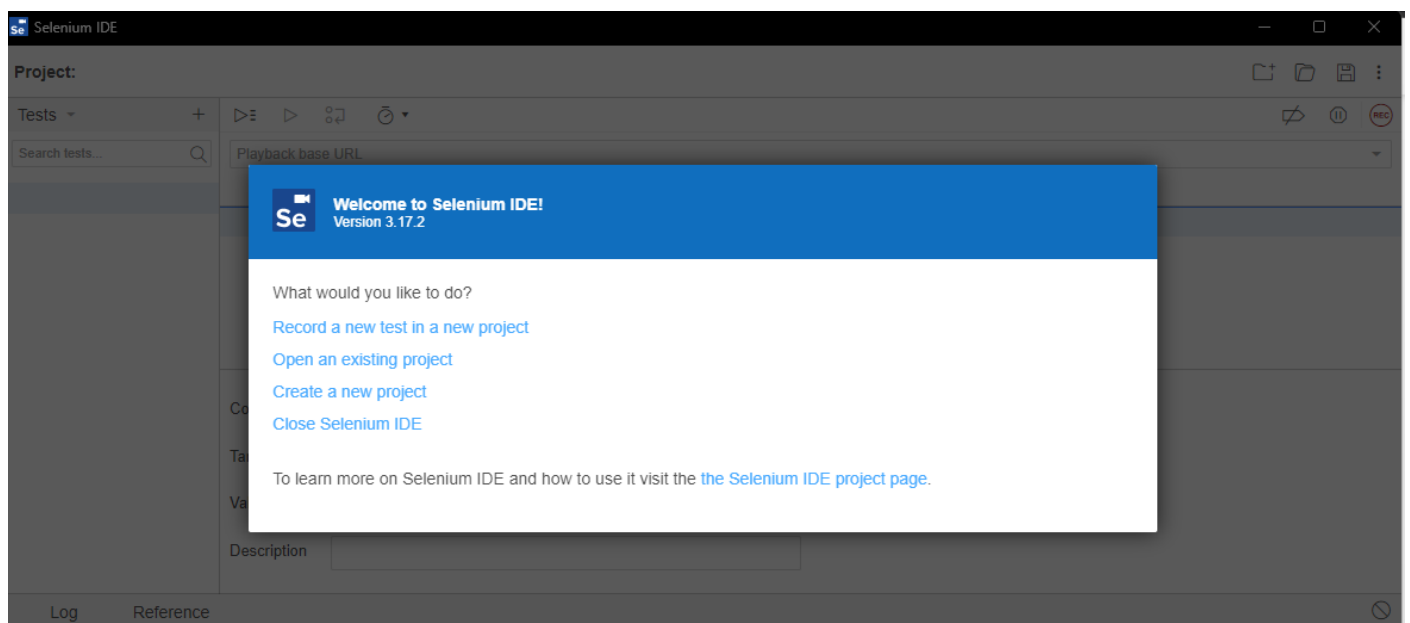
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 - <https://q-automations.com/2019/09/26/selenium-grid-with-jenkins/>

EXPERIMENT 8 : OUTPUT

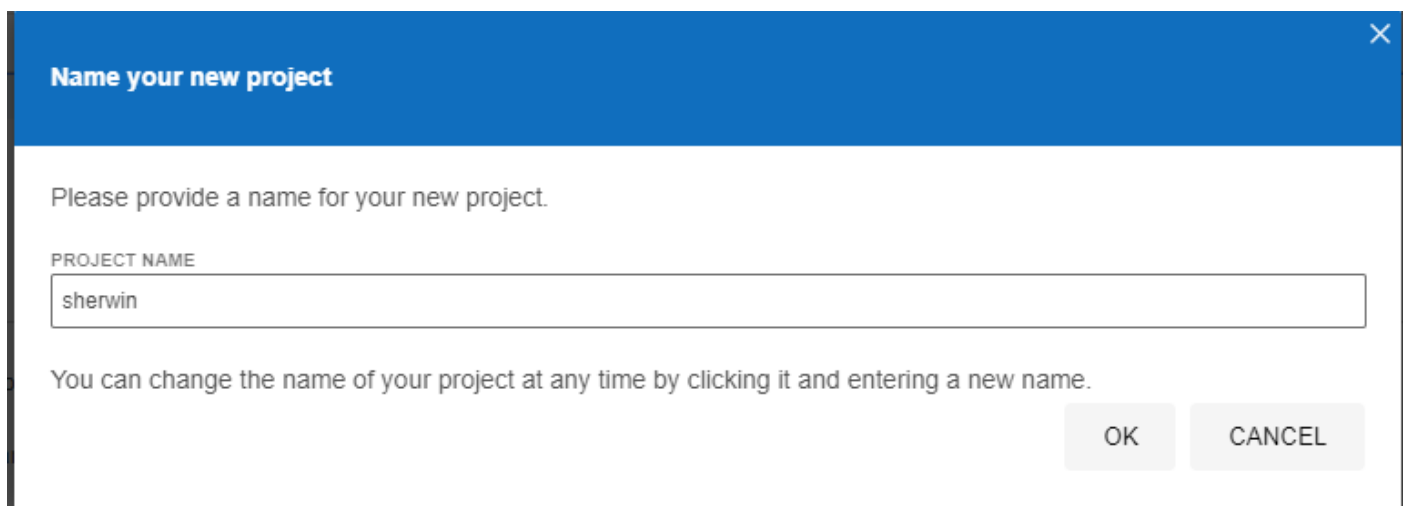
1.install selenium IDE from chrome web store



2.open selenium extension



3.create new project



4.paste any url which contains https for recording

Set your project's base URL
✕

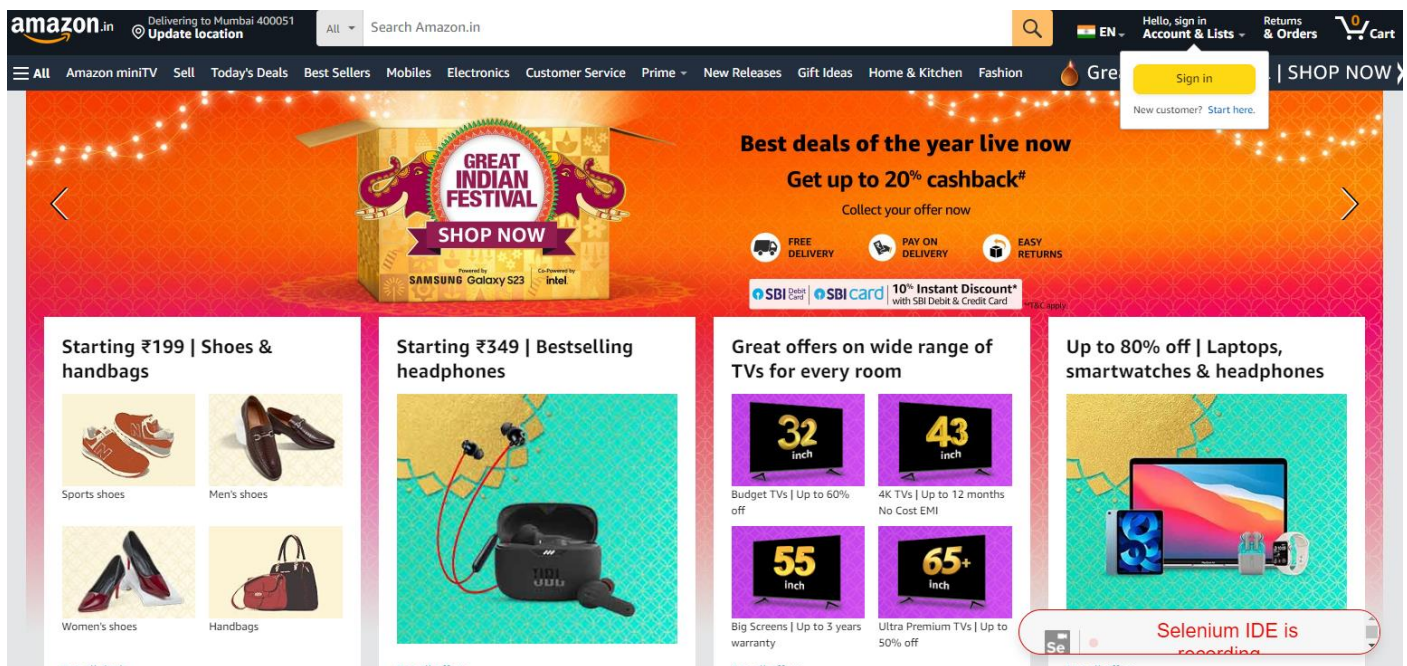
Before you can start recording, you must specify a valid base URL for your project. Your tests will start by navigating to this URL.

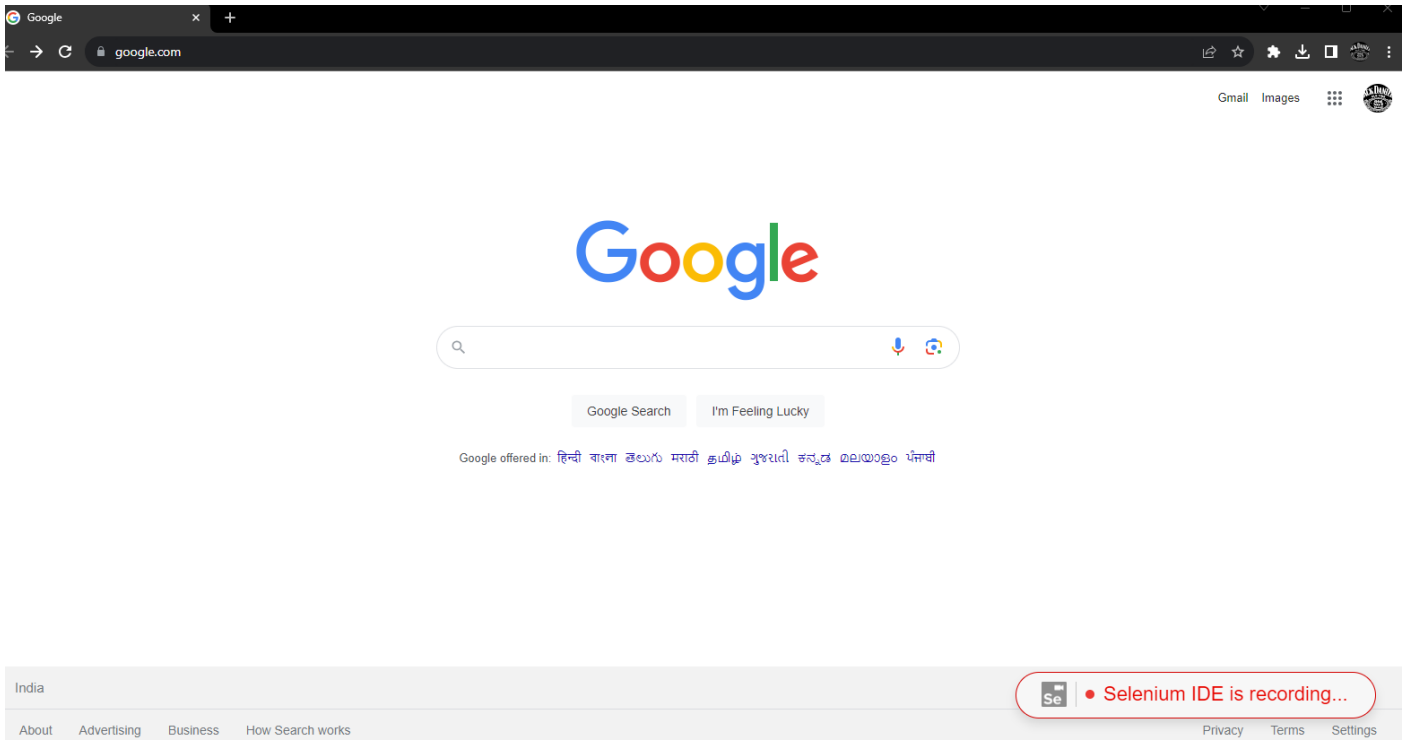
BASE URL

https://www.google.com/

START RECORDING
CANCEL

5.recorded preview with record notification on bottom





6. clicks and recorded logs of the website accessed

Project: sherwin

Executing ▾

Untitled

https://www.google.com

	Command	Target	Value
1	✓ open	/	
2	✓ set window size	1600x852	
3	✓ mouse over	linkText=Privacy	
4	click	css=MjYud.nth-child(2).LC20lb	
5	click	css=#CardInstanceZpmVoeAVbmgS_J7J8L3qVg_a-section.nth-child(1) > a-section.nth-child(2).fluid-quadr-image-label-v2_style_fluidLandscapeImage__2e uAK	
6	click	css=#sobe_d_b_6_2_a-dynamic-image	

Command: #

Target:

Value:

Description:

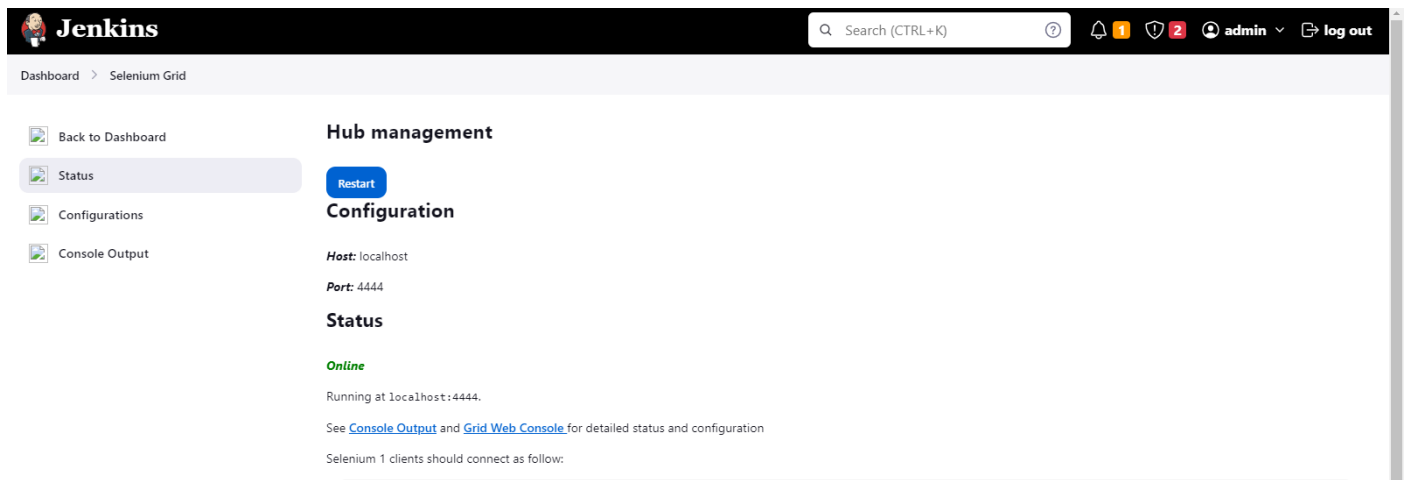
Runs: 0 Failures: 0

Log Reference

Running 'Untitled'

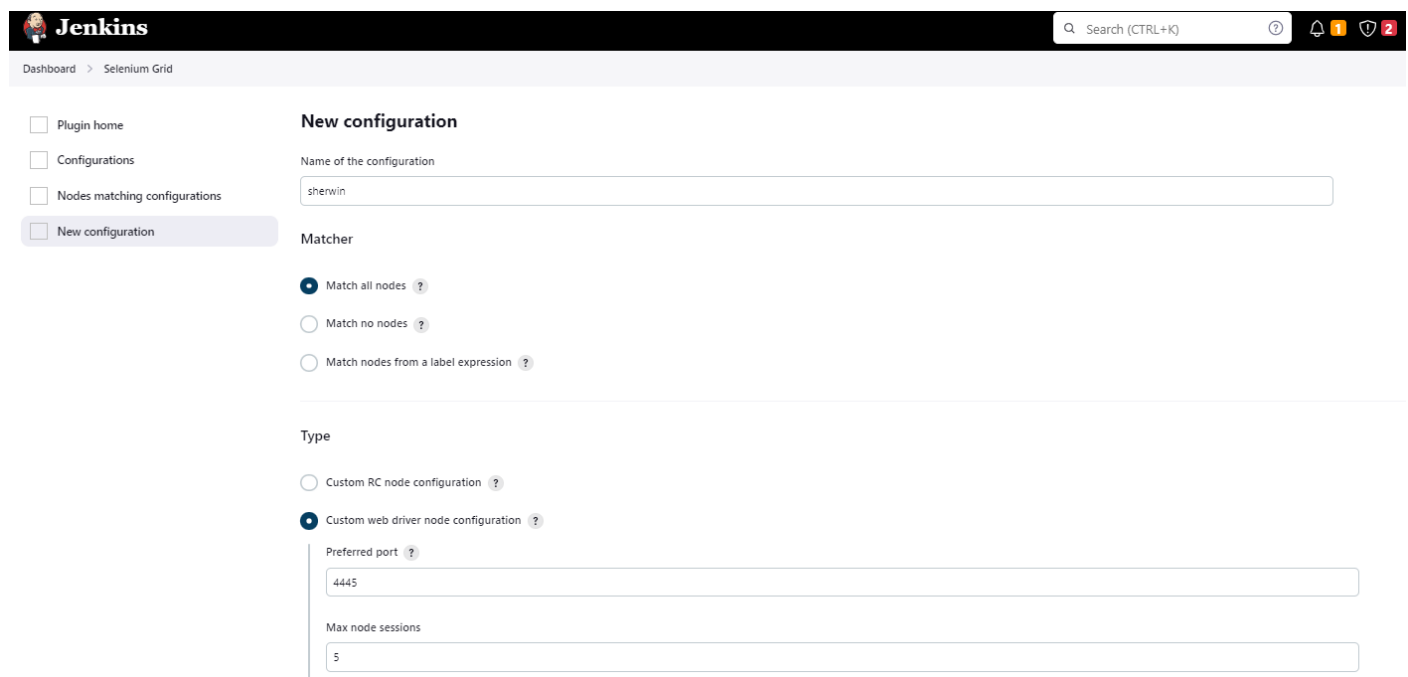
Log	Reference
1. open on / OK	11:29:30
2. setWindowSize on 1600x852 OK	11:29:30
3. mouseOver on linkText=Privacy OK	11:29:30
4. Trying to find css=MjYud.nth-child(2).LC20lb...	11:29:32

7. Open Jenkins and click on selenium grid



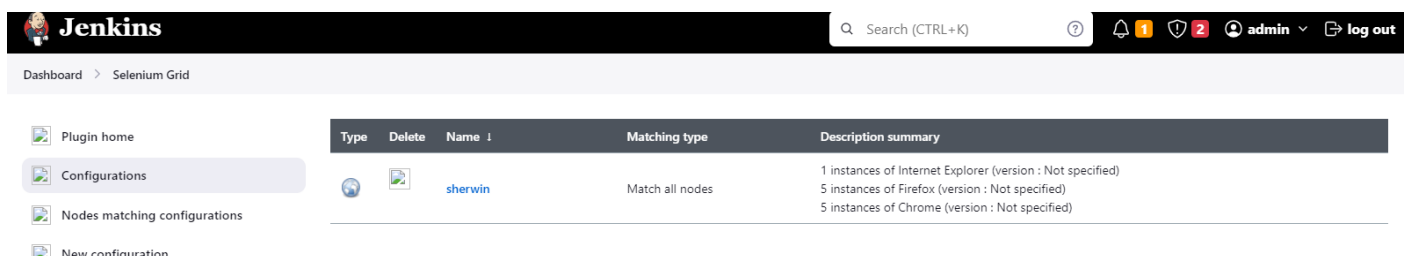
The screenshot shows the Jenkins Selenium Grid Hub management page. The top navigation bar includes the Jenkins logo, a search bar, and user information (admin). The left sidebar has links for Back to Dashboard, Status, Configurations, and Console Output. The main content area is titled 'Hub management' and 'Configuration'. It displays the host as 'localhost' and port as '4444'. The status is 'Online', indicating it is running at localhost:4444. Links for 'Console Output' and 'Grid Web Console' are provided for detailed status and configuration. A note mentions that Selenium 1 clients should connect as follows.

9. Click on New Configuration



The screenshot shows the Jenkins Selenium Grid 'New configuration' page. The left sidebar has links for Plugin home, Configurations, Nodes matching configurations, and New configuration. The main content area is titled 'New configuration'. It includes a text input for 'Name of the configuration' with the value 'sherwin'. Under the 'Matcher' section, 'Match all nodes' is selected. Under the 'Type' section, 'Custom web driver node configuration' is selected. Below this, there are input fields for 'Preferred port' (4445) and 'Max node sessions' (5).

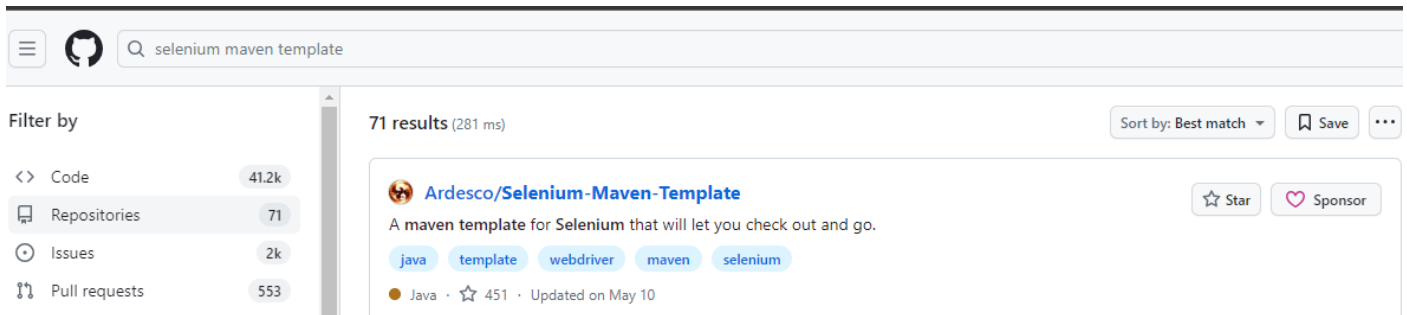
10. Created Configuration on selenium gold



The screenshot shows the Jenkins Selenium Grid 'Configurations' page. The left sidebar has links for Plugin home, Configurations, Nodes matching configurations, and New configuration. The main content area displays a table of configurations.

Type	Delete	Name	Matching type	Description summary
		sherwin	Match all nodes	1 instances of Internet Explorer (version : Not specified) 5 instances of Firefox (version : Not specified) 5 instances of Chrome (version : Not specified)

11. Go to Github Search for selenium maven template



12. Fork this repository

Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. [View existing forks.](#)

Required fields are marked with an asterisk ().*

Owner *

Srienzo

Repository name *

Selenium-Maven-Templat

✓ Selenium-Maven-Template is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

A maven template for Selenium that will let you check out and go.

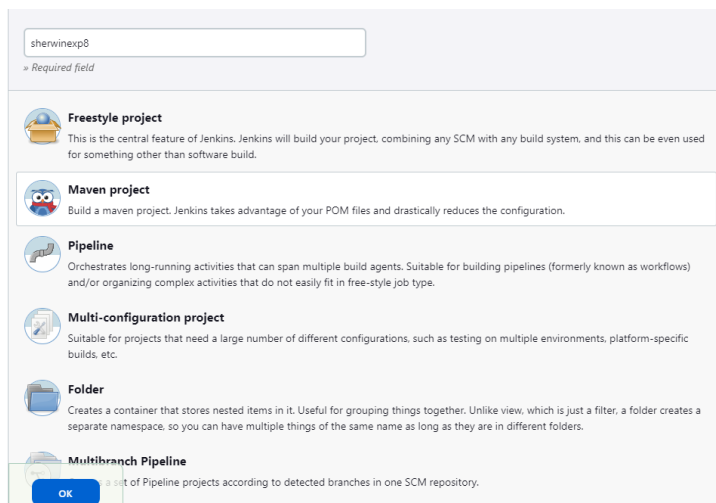
☒ Copy the **master** branch only

Contribute back to Ardesco/Selenium-Maven-Template by adding your own branch. [Learn more.](#)

You are creating a fork in your personal account.

Create fork

12.Go to jenkins and create new maven project



13. configure the Maven project and put the Forked repository link