Azure DevOps Kubernetes Integration with Jenkins Selenium

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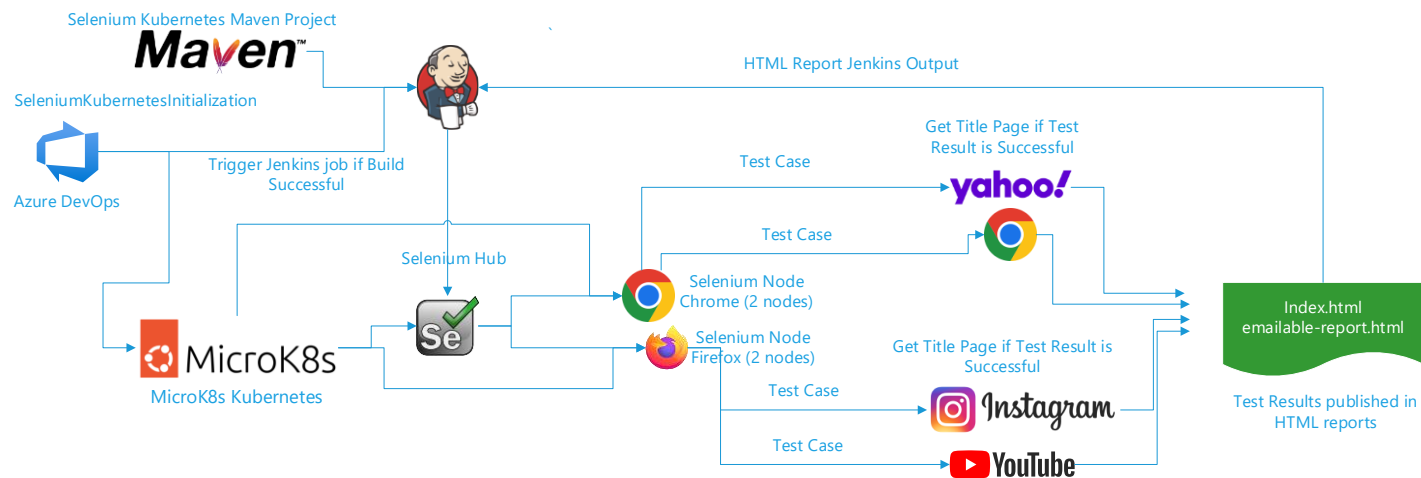
Objective

To perform sample integration of Azure Dev Ops and Jenkins

Architecture Design

Please see below diagram a sample case to test integration of Azure Dev Ops, Kubernetes, Jenkins, Maven, and Selenium:

Azure Dev Ops Initializes Selenium hub and Selenium Chrome and Firefox Nodes via MicroK8s Kubernetes. Selenium Hub grid console contains 2 Firefox Nodes and 2 Chrome Nodes. Each node has test cases. After Azure Dev Ops completed the initialization successfully, it will trigger Jenkins Selenium Kubernetes Maven Project to execute test cases for each node. If the test cases are successful, each will display the title page of the URL. Test results are published in index.html and emailable-report.html using Maven-Surefire Plugin. The reports can be shown in Jenkins job by clicking HTML report.

Specifications

- Windows 10 OS Home Edition version 22H2
- WSL2 Ubuntu version 22.04
- Azure DevOps Free = Self-hosted (SelfHostedWSL), project: TestRonProject
- Microk8s v1.27.2 revision 5372
- Github = https://github.com/ronslim/dockerjenkins
- Localtunnel link: https://ronjenkins.loca.lt
- Jenkins (version 2.410) in WSL2
- Eclipse IDE for Java Developers version 2023-06 (4.28.0) for creating Selenium Maven Project
- Maven version 3.9.2

Pre-requisites

- WSL Ubuntu 22.04 packages
  - npm (For installing Localtunnel)
  - Localtunnel (install using npm)
  - Jenkins.war = For installing and running Jenkins
  - Microk8s snaps
  - java
    openjdk version "11.0.19" 2023-04-18
    OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1)
    OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu122.04.1, mixed mode, sharing)
  - Eclipse IDE for Java Developers for creating Selenium Maven Project
  - Maven version 3.9.2

Initializations

1. Jenkins in WSL2

```
ron@DESKTOP-JLEGGJC:/mnt/d/Jenkins$ java -Dhudson.model.DirectoryBrowserSupport.CSP="" -jar jenkins.war
Running from: /mnt/d/Jenkins/jenkins.war
webroot: /mnt/d/Jenkins/.jenkins/war
2023-07-08 03:48:41.667+0000 [id=1]      INFO    winstone.Logger#logInternal: Beginning extraction from war file
2023-07-08 03:48:43.332+0000 [id=1]      WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
2023-07-08 03:48:44.082+0000 [id=1]      INFO    org.eclipse.jetty.server.Server#doStart: jetty-10.0.15; built: 2023-0
ubuntu122.04.1
2023-07-08 03:49:27.303+0000 [id=1]      INFO    o.e.j.w.StandardDescriptorProcessor#visitServlet: NO JSP Support for
2023-07-08 03:49:30.006+0000 [id=1]      INFO    o.e.j.s.s.DefaultSessionIdManager#doStart: Session workerName=node0
2023-07-08 03:50:03.896+0000 [id=1]      INFO    hudson.WebAppMain#contextInitialized: Jenkins home directory: /mnt/d/
2023-07-08 03:50:17.487+0000 [id=1]      INFO    o.e.j.s.handler.ContextHandler#doStart: Started w.@6ab72419{Jenkins v
2023-07-08 03:50:17.851+0000 [id=1]      INFO    o.e.j.server.AbstractConnector#doStart: Started ServerConnector@28200
2023-07-08 03:50:19.558+0000 [id=1]      INFO    org.eclipse.jetty.server.Server#doStart: Started Server@6b53e23f{STAR
2023-07-08 03:50:19.560+0000 [id=56]     INFO    winstone.Logger#logInternal: Winstone Servlet Engine running: control
2023-07-08 03:50:41.819+0000 [id=64]     INFO    jenkins.InitReactorRunner$1#onAttained: Started initialization
2023-07-08 03:54:01.828+0000 [id=78]     INFO    jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2023-07-08 03:59:43.082+0000 [id=69]     INFO    jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2023-07-08 03:59:49.235+0000 [id=68]     INFO    jenkins.InitReactorRunner$1#onAttained: Started all plugins
2023-07-08 03:59:49.249+0000 [id=70]     INFO    jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.codehaus.groovy.vmplugin.v7.Java7$1 (file:/mnt/d/Jenkins/.jenkins/war/WEB-I
lass,int)
WARNING: Please consider reporting this to the maintainers of org.codehaus.groovy.vmplugin.v7.Java7$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
2023-07-08 04:00:20.229+0000 [id=68]     INFO    h.p.b.g.GlobalTimeOutConfiguration#load: global timeout not set
2023-07-08 04:00:22.293+0000 [id=68]     WARNING o.j.p.d.DockerBuilder$DescriptorImpl#<init>: Docker URL is not set, d
2023-07-08 04:00:37.318+0000 [id=74]     INFO    jenkins.InitReactorRunner$1#onAttained: System config loaded
2023-07-08 04:00:37.319+0000 [id=71]     INFO    jenkins.InitReactorRunner$1#onAttained: System config adapted
2023-07-08 04:00:47.255+0000 [id=71]     INFO    jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2023-07-08 04:00:47.792+0000 [id=71]     INFO    jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs up
2023-07-08 04:00:49.424+0000 [id=90]     INFO    hudson.util.Retrier#start: Attempt #1 to do the action check updates
2023-07-08 04:00:52.943+0000 [id=78]     INFO    jenkins.InitReactorRunner$1#onAttained: Completed initialization
2023-07-08 04:00:54.870+0000 [id=24]     INFO    hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
```

2. Localtunnel in WSL2

Note: Please use your own subdomain and not mine

```
root@DESKTOP-JLEGGJC:/mnt/d/localtunnelserver/server# lt --port 8080 --subdomain ████████
your url is: https://████ ███.loca.lt
```

Note, if there is a need to initialize, get your Public IP Address at https://ipv4.icanhazip.com/ and put that on Endpoint IP

```
←  C  🔒 https://ipv4.icanhazip.com

180.190.32.39
```
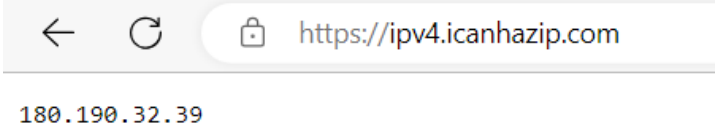
Fill-out the Endpoint IP in the main website and use the retrieved Public IP as Endpoint IP. Then click "Click to Submit".
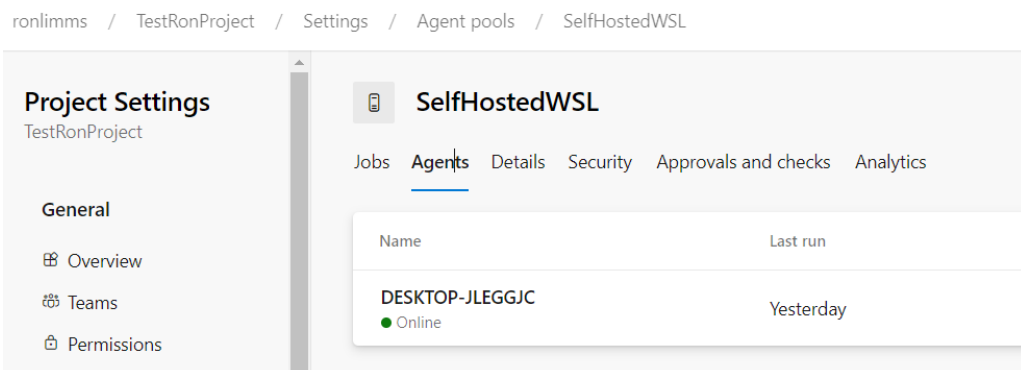
Now Jenkins is available via Public Internet
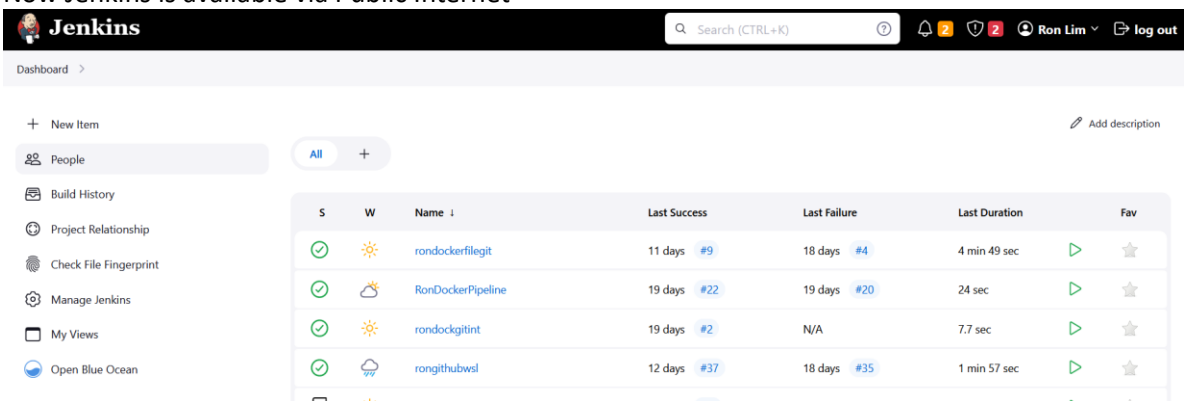
3. Azure DevOps Self-Hosted

```
ron@DESKTOP-JLEGGJC:/mnt/d/AzureDevOps/wslagent$ ./run.sh
Scanning for tool capabilities.
Connecting to the server.
2023-07-08 04:08:13Z: Listening for Jobs
```
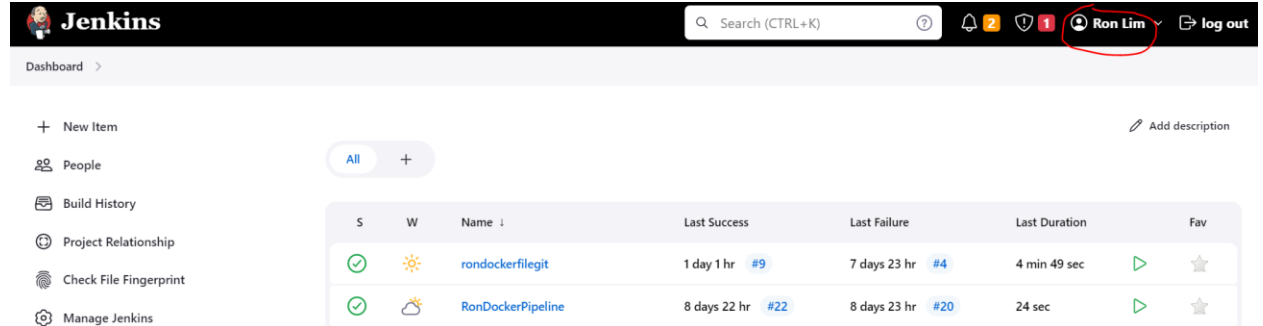
Verify in Azure DevOps Agent Pool in Agent tab that Self-hosted agent is online
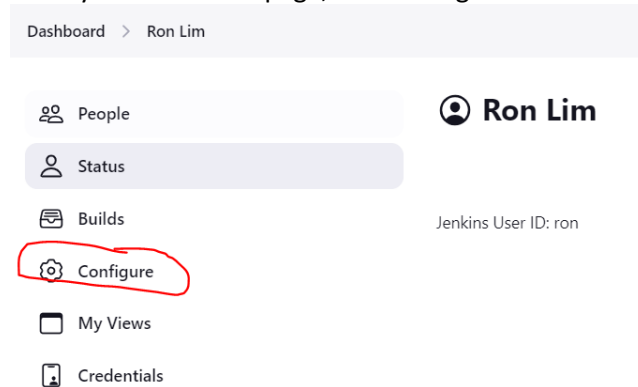
Additional Setup

1. ## Jenkins API Token for Azure DevOps

   Click your username, it will go to your main user page

   From your main user page, click Configure

   It will go to Configure page, go to the API Token section and click Add New Token

   Then specify token name and click Generate, it will generate the password

Please save the password on the right side as this password is no longer visible afterwards. After saving password, click Save to save changes on new API Token

Build/Implementation
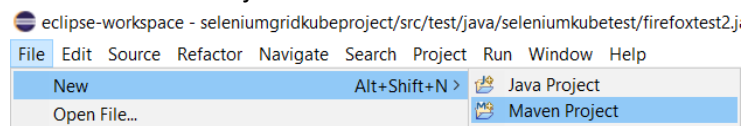
1. Eclipse Selenium Project

Need to Specify a new Workspace folder.

Create a Maven Project

Note: Please see structure and codes below. Specify your own Project

Structure:
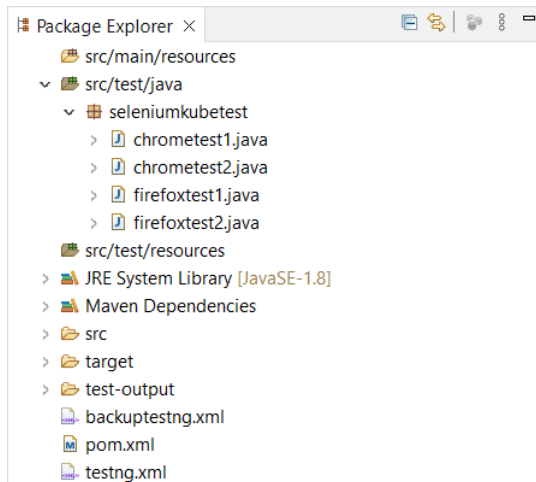
Codes:

Pom.xml (for dependencies)

```xml
<project xmlns="http://maven.apache.org/POM/4.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
https://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>seleniummavengridpackage</groupId>
  <artifactId>seleniummavengridproject</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <dependencies>
      <dependency>
              <groupId>org.seleniumhq.selenium</groupId>
              <artifactId>selenium-java</artifactId>
              <version>3.8.0</version>
      </dependency>
      <dependency>
              <groupId>org.testng</groupId>
              <artifactId>testng</artifactId>
              <version>6.5.1</version>
      </dependency>
      <dependency>
       <groupId>org.slf4j</groupId>
       <artifactId>slf4j-api</artifactId>
       <version>1.7.5</version>
      </dependency>
      <dependency>
       <groupId>org.slf4j</groupId>
       <artifactId>slf4j-log4j12</artifactId>
       <version>1.7.5</version>
      </dependency>
  </dependencies>
  <build>
      <plugins>
              <plugin>
                      <groupId>org.apache.maven.plugins</groupId>
              <artifactId>maven-compiler-plugin</artifactId>
```

```xml
            <version>3.9.0</version>
            <configuration>
                    <source>1.8</source>
                    <target>1.8</target>
            </configuration>
            </plugin>

            <plugin>
                    <groupId>org.apache.maven.plugins</groupId>
            <artifactId>maven-surefire-plugin</artifactId>
            <version>2.20</version>
            <configuration>
                    <suiteXmlFiles>
                            <suiteXmlFile>testng.xml</suiteXmlFile>
                            <!--
<suiteXmlFile>src/main/resources/testng.xml</suiteXmlFile> -->
                    </suiteXmlFiles>
            </configuration>
            </plugin>
        </plugins>
    </build>
</project>
```

Testng.xml (Note: Parallelization may not work when executing pom.xml test in Jenkins)

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">
<suite parallel="classes" name="Suite">
  <test thread-count="4" parallel="classes" name="Test">
    <classes>
      <class name="seleniumkubetest.chrometest1"/>
      <class name="seleniumkubetest.chrometest2"/>
      <class name="seleniumkubetest.firefoxtest1"/>
      <class name="seleniumkubetest.firefoxtest2"/>
    </classes>
  </test> <!-- Test -->
</suite> <!-- Suite -->
```

chrometest1.java
package seleniumkubetest;

import org.testng.annotations.Test;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.concurrent.TimeUnit;

import org.openqa.selenium.UnexpectedAlertBehaviour;
import org.openqa.selenium.chrome.ChromeOptions;
import org.openqa.selenium.remote.CapabilityType;
import org.openqa.selenium.remote.RemoteWebDriver;

public class chrometest1 {

```java
        @Test
        public void test1() throws MalformedURLException
        {
                ChromeOptions cap = new ChromeOptions();
                cap.setCapability(CapabilityType.UNEXPECTED_ALERT_BEHAVIOUR,
                        UnexpectedAlertBehaviour.IGNORE);

                RemoteWebDriver driver = new RemoteWebDriver(new
URL("https://<DesiredSubdomain>.loca.lt/wd/hub"),cap);
                driver.manage().timeouts().implicitlyWait(180, TimeUnit.SECONDS);
                driver.get("http://yahoo.com");
                System.out.println("Chrome Title = " + driver.getTitle());

                driver.quit();
        }
}
```

chrometest2.java
```java
package seleniumkubetest;

import org.testng.annotations.Test;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.concurrent.TimeUnit;

import org.openqa.selenium.UnexpectedAlertBehaviour;
import org.openqa.selenium.chrome.ChromeOptions;
import org.openqa.selenium.remote.CapabilityType;
import org.openqa.selenium.remote.RemoteWebDriver;

public class chrometest2 {


        @Test
        public void test2() throws MalformedURLException
        {
                ChromeOptions cap = new ChromeOptions();
                cap.setCapability(CapabilityType.UNEXPECTED_ALERT_BEHAVIOUR,
                        UnexpectedAlertBehaviour.IGNORE);

                RemoteWebDriver driver = new RemoteWebDriver(new
URL("https://<DesiredSubdomain>.loca.lt/wd/hub"),cap);
                driver.manage().timeouts().implicitlyWait(180, TimeUnit.SECONDS);
                driver.get("http://google.com");
                System.out.println("Chrome Title = " + driver.getTitle());
```

```
                    driver.quit();
            }
}

firefoxtest1.java
package seleniumkubetest;

import org.testng.annotations.Test;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.concurrent.TimeUnit;

import org.openqa.selenium.UnexpectedAlertBehaviour;
import org.openqa.selenium.firefox.FirefoxOptions;
import org.openqa.selenium.remote.CapabilityType;
import org.openqa.selenium.remote.RemoteWebDriver;

public class firefoxtest1 {


        @Test
        public void test3() throws MalformedURLException
        {
                FirefoxOptions cap = new FirefoxOptions();
                cap.setCapability(CapabilityType.UNEXPECTED_ALERT_BEHAVIOUR,
                        UnexpectedAlertBehaviour.DISMISS);

                RemoteWebDriver driver = new RemoteWebDriver(new
URL("<DesiredSubdomain>.loca.lt/wd/hub"),cap);
                driver.manage().timeouts().implicitlyWait(180, TimeUnit.SECONDS);
                driver.get("http://youtube.com");
                System.out.println("Firefox Title = " + driver.getTitle());

                driver.quit();
        }
}

firefoxtest2.java
package seleniumkubetest;

import org.testng.annotations.Test;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.concurrent.TimeUnit;

import org.openqa.selenium.UnexpectedAlertBehaviour;
import org.openqa.selenium.firefox.FirefoxOptions;
import org.openqa.selenium.remote.CapabilityType;
```

import org.openqa.selenium.remote.RemoteWebDriver;

public class firefoxtest2 {

```
        @Test
        public void test4() throws MalformedURLException
        {
                FirefoxOptions cap = new FirefoxOptions();
                cap.setCapability(CapabilityType.UNEXPECTED_ALERT_BEHAVIOUR,
                    UnexpectedAlertBehaviour.DISMISS);

                RemoteWebDriver driver = new RemoteWebDriver(new
URL("<DesiredSubdomain>.loca.lt/wd/hub"),cap);
                driver.manage().timeouts().implicitlyWait(180, TimeUnit.SECONDS);
                driver.get("http://instagram.com");
                System.out.println("Firefox Title = " + driver.getTitle());

                driver.quit();
        }
}
```

2. Jenkins Build

Now that the Jenkinsfile is available, we can start the build on Jenkins. On Jenkins Dashboard, click + New Item

Enter a name. I entered ronseleniumkubernetesmavenproj and choose Maven Project and click OK

Enter an item name

ronseleniumkubernetesmavenproj

» *Required field*

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

OK

a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a

In Source Code Management Section, choose None

Source Code Management

○ None

○ Git ?

For the Build Part, click Advanced to expand Advanced section and check "Use Custom Workspace" then specify your eclipse workspace with project folder and not the Jenkins project folder. The folder I used is from D drive but in case of WSL, it is /mnt/d/…
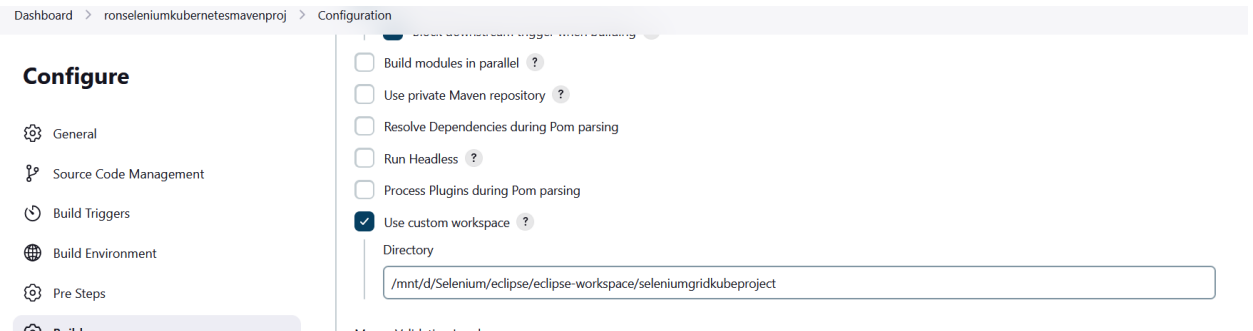
Go to Post-build Actions and add Publish HTML reports
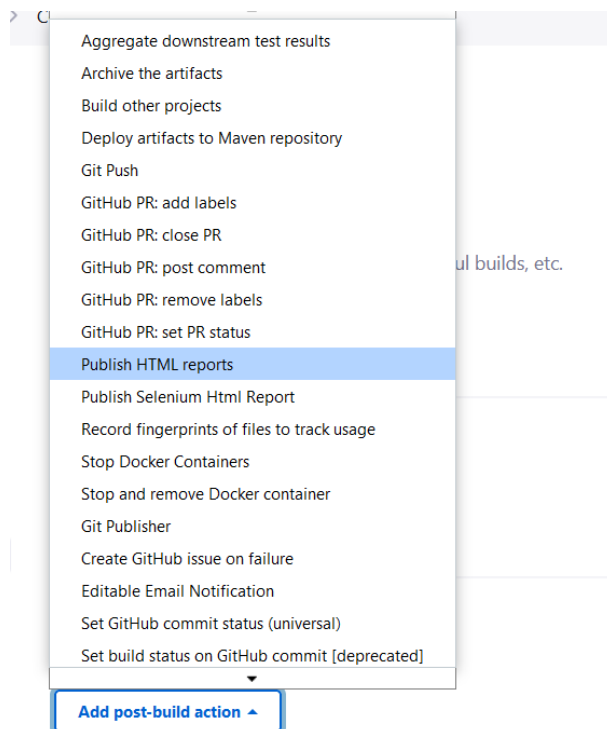
Publish html report:
Html directory to archive = target/surefire-reports
Index Page(s): index.html,emailable-report.html

Then click Publishing Options and check Allow Missing Reports so that even if the report is not existing, build will still be successful.

After saving, it will automatically run the Scan Repository and go to project main page

3. Azure DevOps Build
Go to Pipelines and click New Pipeline
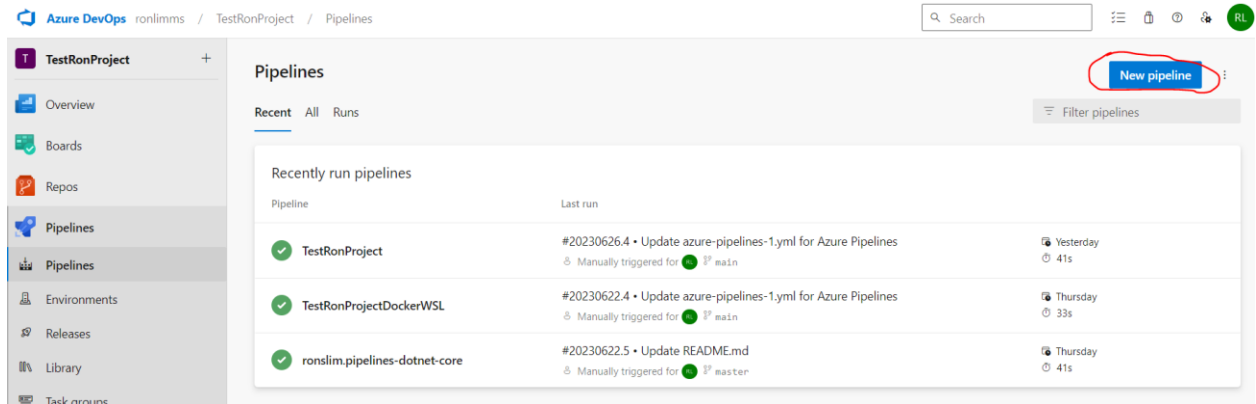
Choose Azure Repos Git
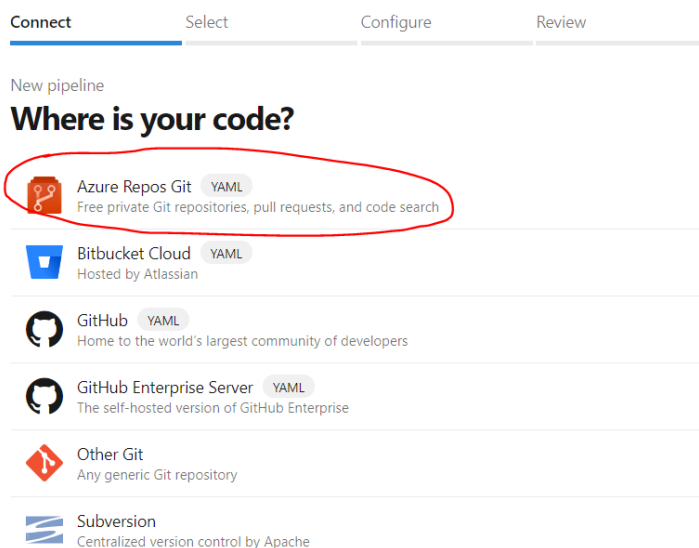
Click the Repository or choose a repository
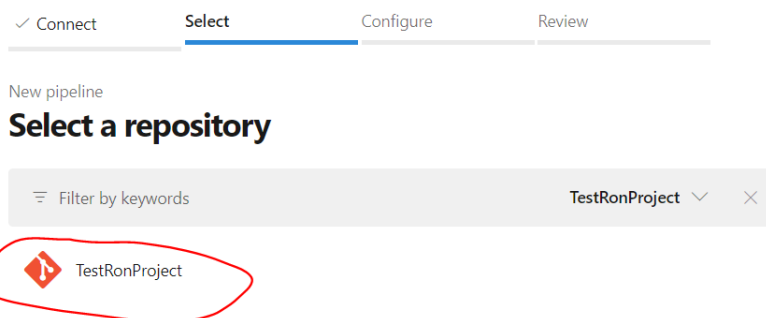
Click Starter pipeline as we will only use sample build to test integration between Azure DevOps and Jenkins

Since we will use the self-hosted agent, we need to change the pool section

Initial:

Modified to use self-hosted. Then modify the YAML file like below to initialize the Kubernetes needed using microk8s.

```yaml
# Starter pipeline
# Start with a minimal pipeline that you can customize to build and deploy
 your code.
# Add steps that build, run tests, deploy, and more:
# https://aka.ms/yaml

trigger:
- main

pool:
  name: SelfHostedWSL

steps:
- script: echo Hello, world!
  displayName: 'Run a one-line script'

- task: CmdLine@2
  inputs:
    script: |
      echo Start Initializing Selenium Hub and Firefox and Google Chrome N
ode Grids
```

```
microk8s.kubectl create deployment selenium-hub --
image selenium/hub:3.9.0 --port 4444
microk8s.kubectl expose deployment selenium-hub --type=ClusterIP
microk8s.kubectl create deployment selenium-node-chrome --
image selenium/node-chrome:3.9.1
microk8s.kubectl expose deployment selenium-node-chrome --
type=ClusterIP --port 4444
microk8s.kubectl set env deployment/selenium-node-chrome --
env="HUB_PORT_4444_TCP_ADDR=selenium-hub" --
env="HUB_PORT_4444_TCP_PORT=4444"
microk8s.kubectl create deployment selenium-node-firefox --
image selenium/node-firefox:3.9.1
microk8s.kubectl expose deployment selenium-node-firefox --
type=ClusterIP --port 4444
microk8s.kubectl set env deployment/selenium-node-firefox --
env="HUB_PORT_4444_TCP_ADDR=selenium-hub" --
env="HUB_PORT_4444_TCP_PORT=4444"
microk8s.kubectl scale deployment --replicas 2 selenium-node-chrome
microk8s.kubectl scale deployment --replicas 2 selenium-node-firefox
sleep 180
```

Click Save and run

Save and run ✕

Saving will commit azure-pipelines-2.yml to the repository.

Commit message

Set up CI with Azure Pipelines

Optional extended description

Add an optional description...

🔘 Commit directly to the main branch
⚪ Create a new branch for this commit

Save and run

Let it run to test that the job is working as expected. Then execute below in WSL2 to delete the initialized Kubernetes.

microk8s.kubectl delete service selenium-node-chrome
microk8s.kubectl delete service selenium-node-firefox
microk8s.kubectl delete service selenium-hub
microk8s.kubectl delete deployment selenium-node-chrome
microk8s.kubectl delete deployment selenium-node-firefox
microk8s.kubectl delete deployment selenium-hub

4. Auto trigger Jenkins build job using Azure DevOps Service Hook

Since both Azure DevOps job, Jenkins Build job, and Eclipse Selenium Maven Project are created, we can automate that after the successful build of Azure DevOps, it will execute the Jenkins Build Job using Service Hook

In Azure DevOps Project Settings, click Service hooks

Click + green Icon

Choose Jenkins

NEW SERVICE HOOKS SUBSCRIPTION

Service

Select a service to integrate with. Discover more integrations

- App Center
- AppVeyor
- Azuqua
- Azure App Service
- Azure Service Bus
- Azure Storage
- Bamboo
- Campfire
- Datadog
- Flowdock
- Grafana
- HipChat
- HockeyApp
- Jenkins

App Center

App Center allows you to automate the lifecycle of your iOS, Android, Windows, and macOS apps. Connect your repo and within minutes build in the cloud, test on thousands of real devices, distribute to beta testers and app stores, and monitor real-world usage with crash and analytics data, all in one place.

Supported events:
Work item updated

Supported actions:
Send notification

Learn more about this service

Previous Next Test Finish Cancel

Click Next

NEW SERVICE HOOKS SUBSCRIPTION

Service

Select a service to integrate with. Discover more integrations

- App Center
- AppVeyor
- Azuqua
- Azure App Service
- Azure Service Bus
- Azure Storage
- Bamboo
- Campfire
- Datadog
- Flowdock
- Grafana
- HipChat
- HockeyApp
- Jenkins

Jenkins

Jenkins is an open source continuous integration service.

Install the Azure DevOps Server Plugin on Jenkins to enhance traceability and integration.

Supported events:
Build completed
Code pushed
Pull request merge attempted
Release deployment completed

Supported actions:
Trigger generic build
Trigger Git build

Learn more about this service

Previous Next Test Finish Cancel

22

Then choose your pipeline for Initializing Selenium Kubernetes for FILTERS section Build pipeline and choose Succeeded in Build Status and click Next

NEW SERVICE HOOKS SUBSCRIPTION

Trigger

Select an event to trigger on and configure any filters.

Trigger on this type of event

Build completed

ⓘ Remember that selected events are visible to users of the target service, even if they don't have permission to view the related artifact.

FILTERS

Build pipeline ⓘ   optional

SeleniumKubernetesInitialization   ✔

Build Status ⓘ   optional

Succeeded   ✔

Then fill-out the fields, for User API token (or password), use the API Token retrieved and saved from your user's API Token in Jenkins. Use your project for Selenium Kubernetes Grid testing for the Build field and click Finish.

NEW SERVICE HOOKS SUBSCRIPTION   ✕

SETTINGS

Jenkins base URL ⓘ   required

https://~~~~~~~loca.lt/   ✔

User name ⓘ   required

ron   ✔

User API token (or password) ⓘ   required

●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●   ✔

Build ⓘ   required

ronseleniumkubernetesmavenproj   ✔

Integration level ⓘ   optional

Built-in Jenkins API   ✔

Build token ⓘ   optional

☐ Accepts parameters ⓘ

Build parameters ⓘ   optional

Previous   Next   Test   Finish   Cancel

Then click Pipelines to go back to Pipeline lists

Then click your Selenium Kubernetes Grid Project

Then click Run pipeline

Run pipeline

Select parameters below and manually run the pipeline

Branch/tag

⌥ main ⌄

Select the branch, commit, or tag

Advanced options

Variables	
This pipeline has no defined variables	›

Stages to run	
Run as configured	›

Resources	
Use latest version of all resources	›

☐ Enable system diagnostics   Cancel   **Run**

🕐 **#20230708.5 • Update azure-pipelines.yml for Azure Pipelines**   Cancel   ⋮
📊 SeleniumKubernetesInitialization

Summary

Manually run by 🟢 Ron Lim   **View change**

Repository and version   Time started and elapsed   Related   Tests and coverage
🐙 ronslim/apache_build   🗓 Just now   📋 0 work items   👤 Get started
⌥ main   ◇ e53f2f91   -   🗂 0 artifacts

Jobs

Name	Status	Duration
🕐 Job	Queued	

Then click while running, check immediately the progress at least for selenium-hub Kubernetes as we need immediately the pod ip address of selenium-hub to initialize the local-host parameter of localtunnel during run as this will be used by Jenkins job.

Command for monitoring:
microk8s.kubectl get all -o wide or microk8s.kubectl get pods -o wide

NAME	READY	STATUS	RESTARTS	AGE	IP	NODE	NOMINATED NODE	READINE
pod/selenium-node-chrome-6d7744fc5-cbzx5	0/1	ContainerCreating	0	42s	<none>	desktop-jleggjc	<none>	<none>
pod/selenium-node-firefox-5985456478-9fw9t	0/1	Pending	0	22s	<none>	desktop-jleggjc	<none>	<none>
pod/selenium-node-chrome-85f9b9d4b8-94q4n	0/1	ContainerCreating	0	24s	<none>	desktop-jleggjc	<none>	<none>
pod/selenium-hub-56696b9ddc-k4xgv	1/1	Running	0	55s	10.1.138.101	desktop-jleggjc	<none>	<none>

Format of localtunnel:
lt --port 4444 --subdomain <Desired Subdomain> --local-host <IP Address of Selenium-hub>

Sample:

```
ron@DESKTOP-JLEGGJC:/mnt/d/Jenkins$ lt --port 4444 --subdomain ⬛⬛⬛ --local-host 10.1.138.101
your url is: https://⬛⬛⬛.loca.lt
```

Then after initialization, continue monitoring until success

✅ **#20230708.5 • Update azure-pipelines.yml for Azure Pipelines**   [Run new] ⋮
    🏗 SeleniumKubernetesInitialization

ⓘ   This run is being retained as one of 3 recent runs by main (Branch).   **View retention leases**

Summary

Manually run by 🟢RL Ron Lim

Repository and version	Time started and elapsed	Related	Tests and coverage
⬡ ronslim/apache_build	🗓 Today at 4:26 PM	🗂 0 work items	☒ Get started
⑂ main ◇ e53f2f91	⏱ 4m 26s	☒ 0 artifacts	

Jobs

Name	Status	Duration
✅ Job	Success	⏱ 4m 6s

Then monitor Jenkins job. It should automatically trigger since build completed successfully in Azure Dev Ops

Jenkins job is now triggered and running

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Status	**Maven project ronseleniumkubernetesmavenproj**
Changes	
Workspace	
Build Now	
Configure	**HTML Report**
Delete Maven project	
Modules	**Latest Test Result** (1 failure / +1)
Favorite	**Permalinks**
HTML Report	
Open Blue Ocean	• Last build (#4), 15 min ago
Rename	• Last stable build (#3), 30 min ago
	• Last successful build (#4), 15 min ago
	• Last unstable build (#4), 15 min ago
	• Last unsuccessful build (#4), 15 min ago
	• Last completed build (#4), 15 min ago

Build History   trend ∨

Filter builds...   /

① **#5**   Jul 8, 2023, 4:31 PM

Monitor the Jenkins Job until completed

Status	✓ **Console Output**
Changes	
Console Output	Started by user Ron Lim
View as plain text	Running as SYSTEM
Edit Build Information	Building in workspace /mnt/d/Selenium/eclipse/eclipse-workspace/seleniumgridkubeproject
Monitor Maven Process	Parsing POMs
Open Blue Ocean	Established TCP socket on 37033
← Previous Build	[seleniumgridkubeproject] $ java -cp /mnt/d/Jenkins/.jenkins/plugins/maven-plugin/WEB-INF/lib/maven35-agent-1.1
	/hudson.tasks.Maven_MavenInstallation/ronmaven/boot/plexus-classworlds-2.7.0.jar:/mnt/d/Jenkins/.jenkins/tools/
	/ronmaven/conf/logging jenkins.maven3.agent.Maven35Main /mnt/d/Jenkins/.jenkins/tools/hudson.tasks.Maven_Maven
	/.jenkins/war/WEB-INF/lib/remoting-3107.v665000b_51092.jar /mnt/d/Jenkins/.jenkins/plugins/maven-plugin/WEB-INF
	/mnt/d/Jenkins/.jenkins/plugins/maven-plugin/WEB-INF/lib/maven3-interceptor-commons-1.14.jar 37033
	<===[JENKINS REMOTING CAPACITY]===>channel started
	Executing Maven: -B -f /mnt/d/Selenium/eclipse/eclipse-workspace/seleniumgridkubeproject/pom.xml install
	[INFO] Scanning for projects...
	[INFO]
	[INFO] ---------< seleniummavengridpackage:seleniummavengridproject >----------
	[INFO] Building seleniummavengridproject 0.0.1-SNAPSHOT
	[INFO] from pom.xml

Sample Output: Console

```
Started by user Ron Lim
Running as SYSTEM
Building in workspace /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject
Parsing POMs
Established TCP socket on 37033
[seleniumgridkubeproject] $ java -cp
/mnt/d/Jenkins/.jenkins/plugins/maven-plugin/WEB-INF/lib/maven35-agent-
1.14.jar:/mnt/d/Jenkins/.jenkins/tools/hudson.tasks.Maven_MavenInstallat
ion/ronmaven/boot/plexus-classworlds-
```

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```
2.7.0.jar:/mnt/d/Jenkins/.jenkins/tools/hudson.tasks.Maven_MavenInstalla
tion/ronmaven/conf/logging jenkins.maven3.agent.Maven35Main
/mnt/d/Jenkins/.jenkins/tools/hudson.tasks.Maven_MavenInstallation/ronma
ven /mnt/d/Jenkins/.jenkins/war/WEB-INF/lib/remoting-
3107.v665000b_51092.jar /mnt/d/Jenkins/.jenkins/plugins/maven-
plugin/WEB-INF/lib/maven35-interceptor-1.14.jar
/mnt/d/Jenkins/.jenkins/plugins/maven-plugin/WEB-INF/lib/maven3-
interceptor-commons-1.14.jar 37033
<===[JENKINS REMOTING CAPACITY]===>channel started
Executing Maven:  -B -f /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/pom.xml install
[INFO] Scanning for projects...
[INFO]
[INFO] ---------< seleniummavengridpackage:seleniummavengridproject >---
-------
[INFO] Building seleniummavengridproject 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]-------------------------
-------
[INFO]
[INFO] --- resources:3.3.0:resources (default-resources) @
seleniummavengridproject ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered
resources, i.e. build is platform dependent!
[INFO] Copying 0 resource
[INFO]
[INFO] --- compiler:3.9.0:compile (default-compile) @
seleniummavengridproject ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- resources:3.3.0:testResources (default-testResources) @
seleniummavengridproject ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered
resources, i.e. build is platform dependent!
[INFO] Copying 0 resource
[INFO]
[INFO] --- compiler:3.9.0:testCompile (default-testCompile) @
seleniummavengridproject ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- surefire:2.20:test (default-test) @ seleniummavengridproject
---
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running TestSuite
log4j:WARN No appenders could be found for logger
(org.apache.http.client.protocol.RequestAddCookies).
log4j:WARN Please initialize the log4j system properly.
log4j:WARN See http://logging.apache.org/log4j/1.2/faq.html#noconfig for
more info.
Jul 08, 2023 4:31:41 PM org.openqa.selenium.remote.ProtocolHandshake
createSession
INFO: Detected dialect: OSS
Chrome Title = Yahoo | Mail, Weather, Search, Politics, News, Finance,
Sports & Videos
```

```
Jul 08, 2023 4:31:59 PM org.openqa.selenium.remote.ProtocolHandshake
createSession
INFO: Detected dialect: OSS
Chrome Title = Google
Jul 08, 2023 4:32:19 PM org.openqa.selenium.remote.ProtocolHandshake
createSession
INFO: Detected dialect: W3C
Firefox Title = YouTube
Jul 08, 2023 4:32:45 PM org.openqa.selenium.remote.ProtocolHandshake
createSession
INFO: Detected dialect: W3C
Firefox Title = Instagram
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed:
80.83 s - in TestSuite
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[JENKINS] Recording test results
[INFO]
[INFO] --- jar:3.3.0:jar (default-jar) @ seleniummavengridproject ---
[INFO]
[INFO] --- install:3.1.0:install (default-install) @
seleniummavengridproject ---
[INFO] Installing /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/pom.xml to
/home/ron/.m2/repository/seleniummavengridpackage/seleniummavengridproje
ct/0.0.1-SNAPSHOT/seleniummavengridproject-0.0.1-SNAPSHOT.pom
[INFO] Installing /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/target/seleniummavengridproject-0.0.1-
SNAPSHOT.jar to
/home/ron/.m2/repository/seleniummavengridpackage/seleniummavengridproje
ct/0.0.1-SNAPSHOT/seleniummavengridproject-0.0.1-SNAPSHOT.jar
[INFO] ------------------------------------------------------------
-------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------
-------
[INFO] Total time:  01:32 min
[INFO] Finished at: 2023-07-08T16:32:58+08:00
[INFO] ------------------------------------------------------------
-------
[WARNING]
[WARNING] Plugin validation issues were detected in 3 plugin(s)
[WARNING]
[WARNING]  * org.apache.maven.plugins:maven-compiler-plugin:3.9.0
[WARNING]  * org.apache.maven.plugins:maven-surefire-plugin:2.20
[WARNING]  * org.apache.maven.plugins:maven-resources-plugin:3.3.0
[WARNING]
[WARNING] For more or less details, use 'maven.plugin.validation'
property with one of the values (case insensitive): [BRIEF, DEFAULT,
VERBOSE]
[WARNING]
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/pom.xml to
```

```
seleniummavengridpackage/seleniummavengridproject/0.0.1-
SNAPSHOT/seleniummavengridproject-0.0.1-SNAPSHOT.pom
[JENKINS] Archiving /mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/target/seleniummavengridproject-0.0.1-
SNAPSHOT.jar to seleniummavengridpackage/seleniummavengridproject/0.0.1-
SNAPSHOT/seleniummavengridproject-0.0.1-SNAPSHOT.jar
channel stopped
[htmlpublisher] Archiving HTML reports...
[htmlpublisher] Archiving at PROJECT level
/mnt/d/Selenium/eclipse/eclipse-
workspace/seleniumgridkubeproject/target/surefire-reports to
/mnt/d/Jenkins/.jenkins/jobs/ronseleniumkubernetesmavenproj/htmlreports/
HTML_20Report
Finished: SUCCESS
```

Go back to main page and click HTML Report
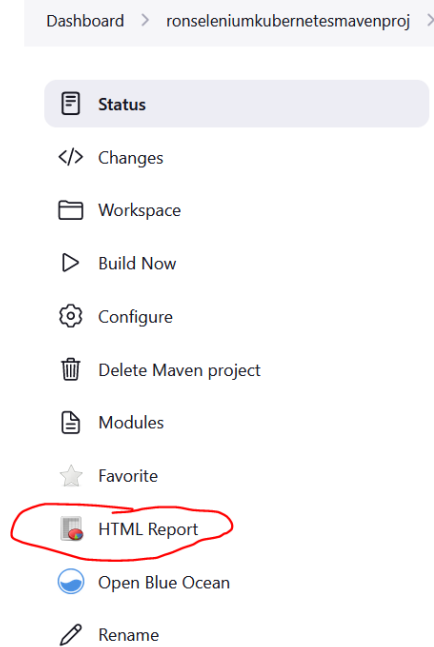
Index.html

Test results
1 suite

All suites

Suite

Info
- testng.xml
- 1 test
- 0 groups
- Times
- Reporter output
- Ignored methods
- Chronological view

Results
- 4 methods, 4 passed
- Passed methods (show)

emailable-report.html

Test	Methods Passed	Scenarios Passed	# skipped	# failed	Total Time	Included Groups	Excluded Groups
Test	4	4	0	0	78.9 seconds		

Class	Method	# of Scenarios	Start	Time (ms)
Test — passed				
seleniumkubetest.chrometest1	test1	1	1688805093045	21547
seleniumkubetest.chrometest2	test2	1	1688805114594	13699
seleniumkubetest.firefoxtest1	test3	1	1688805128295	23302
seleniumkubetest.firefoxtest2	test4	1	1688805151598	20246

Sample grid console = To check if nodes are associated and running

Grid Console v.3.9.0

Help

DefaultRemoteProxy (version : 3.9.1)
id : http://10.1.138.110:5555, OS : LINUX

Browsers | Configuration

WebDriver
v:64.0.3282.140

DefaultRemoteProxy (version : 3.9.1)
id : http://10.1.138.120:5555, OS : LINUX

Browsers | Configuration

WebDriver
v:64.0.3282.140

DefaultRemoteProxy (version : 3.9.1)
id : http://10.1.138.121:5555, OS : LINUX

Browsers | Configuration

WebDriver
v:58.0.1

DefaultRemoteProxy (version : 3.9.1)
id : http://10.1.138.122:5555, OS : LINUX

Browsers | Configuration

WebDriver
v:58.0.1

view config

URL: <localtunnel URL>/grid/console

Cleanup

- Terminate localtunnel for Jenkins and Selenium Grid by Ctrl + C.
- Terminate Jenkins.war by Ctrl + C.
- Terminate Azure Dev Ops Agent by Ctrl + C.
- Delete all deployed Kubernetes

  microk8s.kubectl delete service selenium-node-chrome
  microk8s.kubectl delete service selenium-node-firefox
  microk8s.kubectl delete service selenium-hub
  microk8s.kubectl delete deployment selenium-node-chrome
  microk8s.kubectl delete deployment selenium-node-firefox
  microk8s.kubectl delete deployment selenium-hub