# Selenium Grid:

Selenium Grid is a component of the Selenium testing framework that allows you to run tests in parallel on multiple machines and browsers simultaneously. This helps in reducing the overall test execution time and allows for better scalability.

**Start the hub:** java -jar selenium-server-standalone.jar -role hub

**Start a node:**

java -jar selenium-server-standalone.jar -role node -hub
http://localhost:4444/grid/register

Running Tests on Selenium Grid:

- When running tests, you need to specify the hub's URL in your test scripts so that they connect to the hub. The hub then routes the test execution to an available node based on the desired capabilities specified in the test script.

DesiredCapabilities capabilities = DesiredCapabilities.chrome();

WebDriver driver = new RemoteWebDriver(new
URL("http://localhost:4444/wd/hub"), capabilities);

Using Selenium Grid is beneficial when you have a large suite of tests that need to be executed across different browsers and operating systems, providing a cost-effective way to achieve parallel test execution and reduce overall test execution time.

Name

📄 hub

📄 node

📄 selenium-server-4.13.0.jar

📄 TestSeleniumGridStandAlone

```
A:\[REDACTED]\Project\Project01\POMFramework-S3\SeliniumGrid>java -jar selenium-server-4.13.0.jar standalone --port 1234
13:05:48.910 INFO [LoggingOptions.configureLogEncoding] - Using the system default encoding
13:05:48.921 INFO [OpenTelemetryTracer.createTracer] - Using OpenTelemetry for tracing
13:05:50.234 INFO [NodeOptions.getSessionFactories] - Detected 8 available processors
13:05:50.237 INFO [NodeOptions.discoverDrivers] - Looking for existing drivers on the PATH.
13:05:50.238 INFO [NodeOptions.discoverDrivers] - Add '--selenium-manager true' to the startup command to setup drivers automatically
.
13:05:52.197 WARN [SeleniumManager.lambda$runCommand$1] - There was an error managing chrome (Unable to discover proper chromedriver
version in offline mode); using driver found in the cache
13:05:52.892 WARN [SeleniumManager.lambda$runCommand$1] - There was an error managing edge (Unable to discover proper msedgedriver ve
rsion in offline mode); using driver found in the cache
13:05:53.766 WARN [SeleniumManager.lambda$runCommand$1] - Unable to discover proper geckodriver version in offline mode
13:05:54.455 WARN [SeleniumManager.lambda$runCommand$1] - Unable to discover proper IEDriverServer version in offline mode
13:05:54.513 INFO [NodeOptions.report] - Adding Chrome for {"browserName": "chrome","goog:chromeOptions": {"args": ["--remote-allow-o
rigins=*"]},"platformName": "Windows 11"} 8 times
13:05:54.517 INFO [NodeOptions.report] - Adding Edge for {"browserName": "MicrosoftEdge","ms:edgeOptions": {"args": ["--remote-allow-
origins=*"]},"platformName": "Windows 11"} 8 times
13:05:54.600 INFO [Node.<init>] - Binding additional locator mechanisms: relative
```

## Selenium Grid
### 4.13.0 (revision ba948ece5b*)

- Overview
- Sessions
- Help

URI: http://192.168.1.3:1234

**Stereotypes**

Sessions: 0          Max. Concurrency: 8

0%

Queue size: 0

- Selenium-Learn
  - src/main/java
  - src/main/resources
  - src/test/java
    - com.TestNg.DataDrivenTest
    - com.TestNg.ExtentReport
    - com.TestNg.Listerners
    - com.TestNg.Selenium
    - com.TestNg.TDD
    - in.amazon.project
    - Seleniumdemo
    - SeleniumFinal
    - SeleniumGrid
      - TestSeleniumGridStandAlone.java
  - src/test/resources
  - JRE System Library [JavaSE-1.7]
  - Maven Dependencies
  - Referenced Libraries
  - TestNG
  - target/generated-sources/annotations
  - target/generated-test-sources/test-annotations
  - Screenshots
  - src
  - target

```java
package SeleniumGrid;
import java.net.MalformedURLException;
Run All
public class TestSeleniumGridStandAlone {

    WebDriver driver;

    @Test
    Run | Debug
    public void GridDemo1() throws MalformedURLException
    {

        ChromeOptions cap = new ChromeOptions();


        driver = new RemoteWebDriver(new URL("http://localhost:4449/wd/hub"),cap);

        driver.manage().window().maximize();
        driver.get("https://tutorialsninja.com/demo/");
        String title = driver.getTitle();
        System.out.println(title);



    }



}
```

GitHub repository : https://github.com/Karthick-Office/Project01.git  My "Selenium Grid" Project is present under the "POMFramework-S3" folder in the GitHub