Docker or **Selenium Grid** (component of Selenium)

→   for //all Execution across various OS

         MAC
         Linux
         wnds10
         7
         8

→ follows (Hub–Node) Arch.
       Server   – Client

→ Selenium Standalone Server   } Cmds

(2) cmds | LAN

→ Hub

→ Node

(Server)
Start

[Sel.
Standalone
Server

(cmd
Server) (M/C)

HUB (Server) → portNo 4444 (Busy)

Node₅ 5337

(M/C)

C5

Linux
Chrome

5558
Node4 (M/C)

C4
We

↓
Edge

CF →

5355
Node1
(M/C)
(Client) 5 FF
LIE
(Linux)
FF

1) Browsers 5556
(Server)
5 Chrome
Node2
(M/C)
(Client 2)
MAC
Safari

5557
(Server)
Node3
(M/C)

C3
Wndo10
Chrome

2 Ways → 1 M/c Hub ← M/c 2 Node ✓
_____   _____
     ↓

[Sel. Standlone Server'
  Run ── Scripts)project
  Has Start cmd]

→ Std alone server
→ Browser
→ Browser driver

II Way :   1 M/C { Hub
                  ← Node 1
                  Node 2

[Server
  Code
  Browser
  Browser Drives]

Hub

1. Download Standalone Srever fom Selenium Website
2. Place that .jsr file in any folder
3. From that location (where server.jar file is placed), open cmd.

4. Create a HUb (Server)

   java -jar selenium-server-standalone-3.141.59.jar -role hub

   Selenium Hub is up and Running - Message

   java -jar selenium-server-standalone-3.141.59.jar -role hub -port 5555

   only if port 4444 is busy

5. Open the Browser and enter url:
   http://localhost:<port-no>/grid/console

For Eg:
http://localhost:4444/grid/console

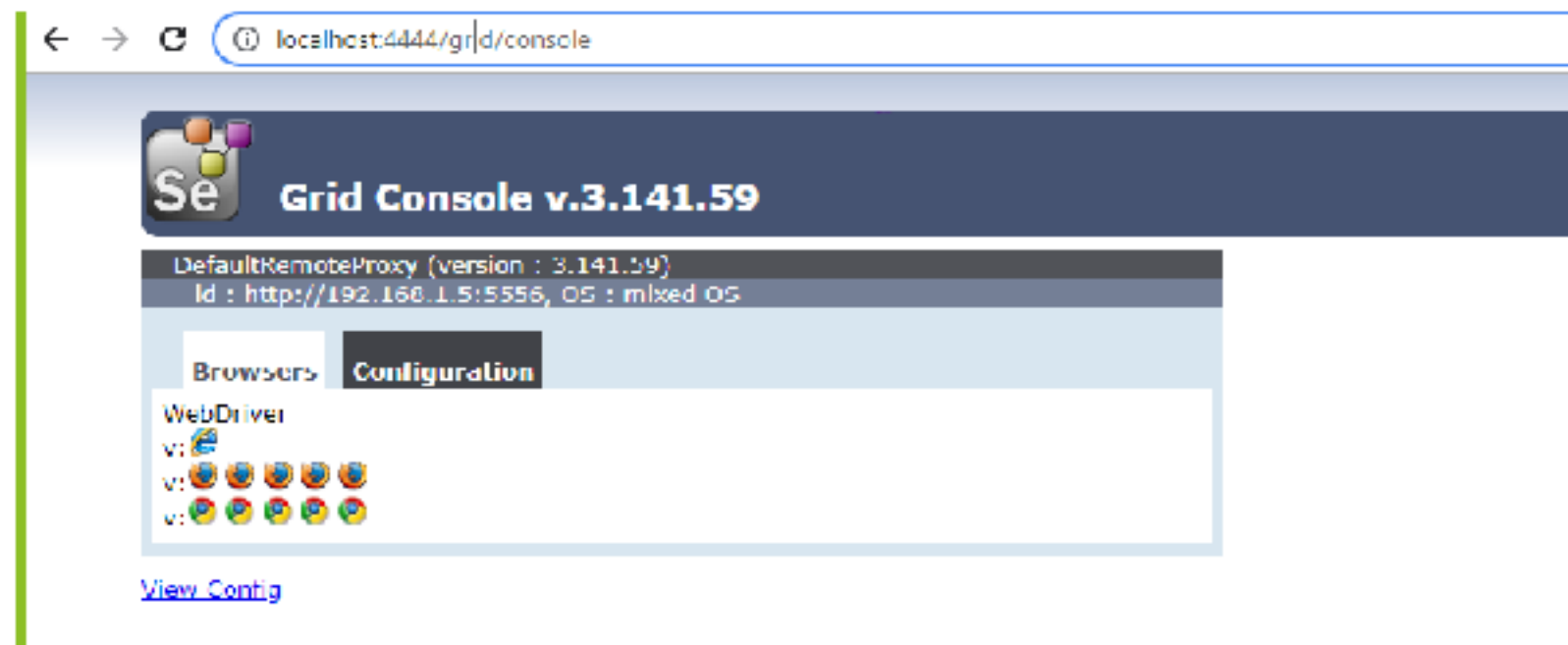# Node

1. open the new cmd from the same location where Server is placed.

java -jar selenium-server-standalone-3.141.59.jar -role webdriver -hub http://localhost:4444/grid/register -port 5556

2. Regresh the page : http://localhost:4444/grid/console on Browser

1. Drivers → Chrome, gecko]

2. Hub →

cmd ← Hub → Script → //all]
                          seq.
                          [TestNG]

cmd ← Node
            ↓
         Drivers → Browser
            ↓

Hub (G.S)

Node (Anchit)
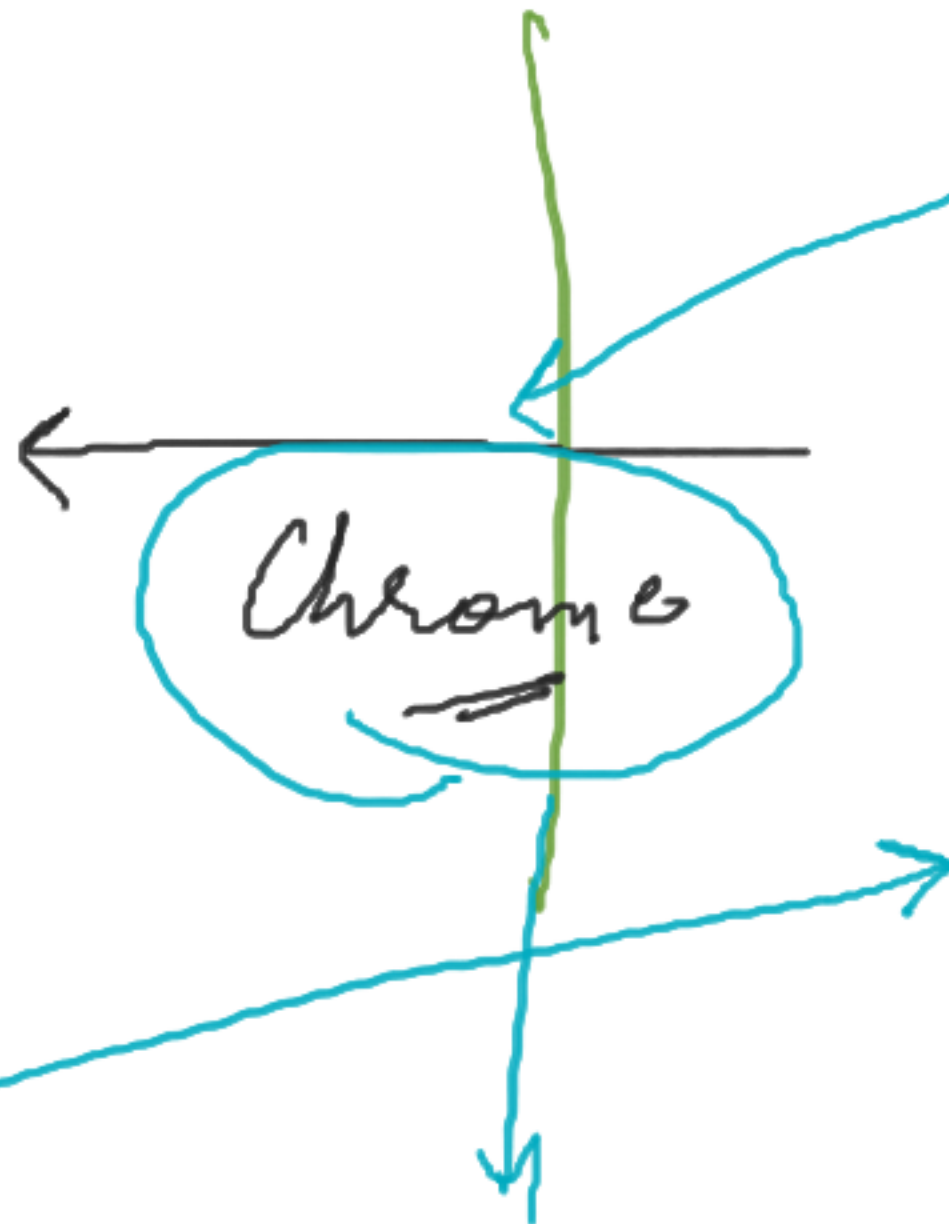
script

Run

fb

Chrome

Server
driver
Cmd

command

driverpath

Chrome
Browser

TCs

Hub:-
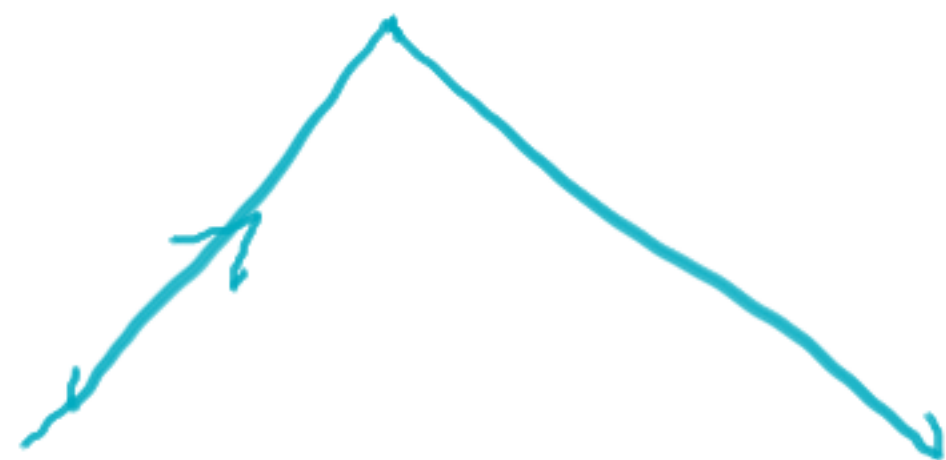java -jar selenium-server-standalone-3.141.59.jar -role hub

Node:
java -Dwebdriver.chrome.driver=D:\\2021\\Batches_DATA\\SDET_0402\\LearnSel_0402\\SelGrid\\driver\\chromedriver.exe -jar selenium-server-standalone-3.141.59.jar -role webdriver -hub http://localhost:4444/grid/register -port 5556 -browser browserName=chrome

Hub (FF, Chrome)　　Script

Null → TestNG

Node 1

(FF)

Node 2

Chrome

driver

gecko

Chromedriver

Hub:-
java -jar selenium-server-standalone-3.141.59.jar -role hub

Node1:
//For chrome Browser
----
java -Dwebdriver.chrome.driver=D:\\2021\\Batches_DATA\\SDET_0402\
\Sel_GridDemos\\chromedriver.exe -jar selenium-server-standalone-3.141.59.jar -role
webdriver -hub http://localhost:4444/grid/register -port 5556 -browser
browserName=chrome

//for firefox Browser
----
java -Dwebdriver.gecko.driver=D:\\2021\\Batches_DATA\\SDET_0402\
\Sel_GridDemos\\geckodriver.exe -jar selenium-server-standalone-3.141.59.jar -role
webdriver -hub http://localhost:4444/grid/register -port 5557 -browser
browserName=firefox

```java
URL url;
    WebDriver driver;
    DesiredCapabilities cap;

@Parameters("browser")
    @Test
    public void setUp(String browserName) throws MalformedURLException {
        ChromeOptions options = new ChromeOptions();
        if (browserName.equalsIgnoreCase("firefox")) {
            options.setCapability("browserName", "firefox");
            options.setCapability("platformName", Platform.ANY);
        } else if (browserName.equalsIgnoreCase("chrome")) {
            options.setCapability("browserName", "chrome");
            options.setCapability("platformName", Platform.ANY);
        }

        try {
            url = new URL("http://localhost:4444/wd/hub");
        } catch (MalformedURLException e) {
            e.printStackTrace();
        }
        driver = new RemoteWebDriver(url, options);
        driver.get("https://opensource-demo.orangehrmlive.com/");
    }
```

testng .xml

```xml
<suite name="Suite" parallel="tests">    none

<test thread-count="5" name="Test on Chrome">
    <parameter name="browser" value="chrome"></parameter>
    <classes>
        <class name="Sel_Grid.SelGridDemo" />
    </classes>
</test> <!-- Test -->


    <test thread-count="5" name="Testing On Firefox">
    <parameter name="browser" value="firefox"></parameter>
    <classes>
        <class name="Sel_Grid.SelGridDemo" />
    </classes>
</test> <!-- Test -->
</suite> <!-- Suite -->
```