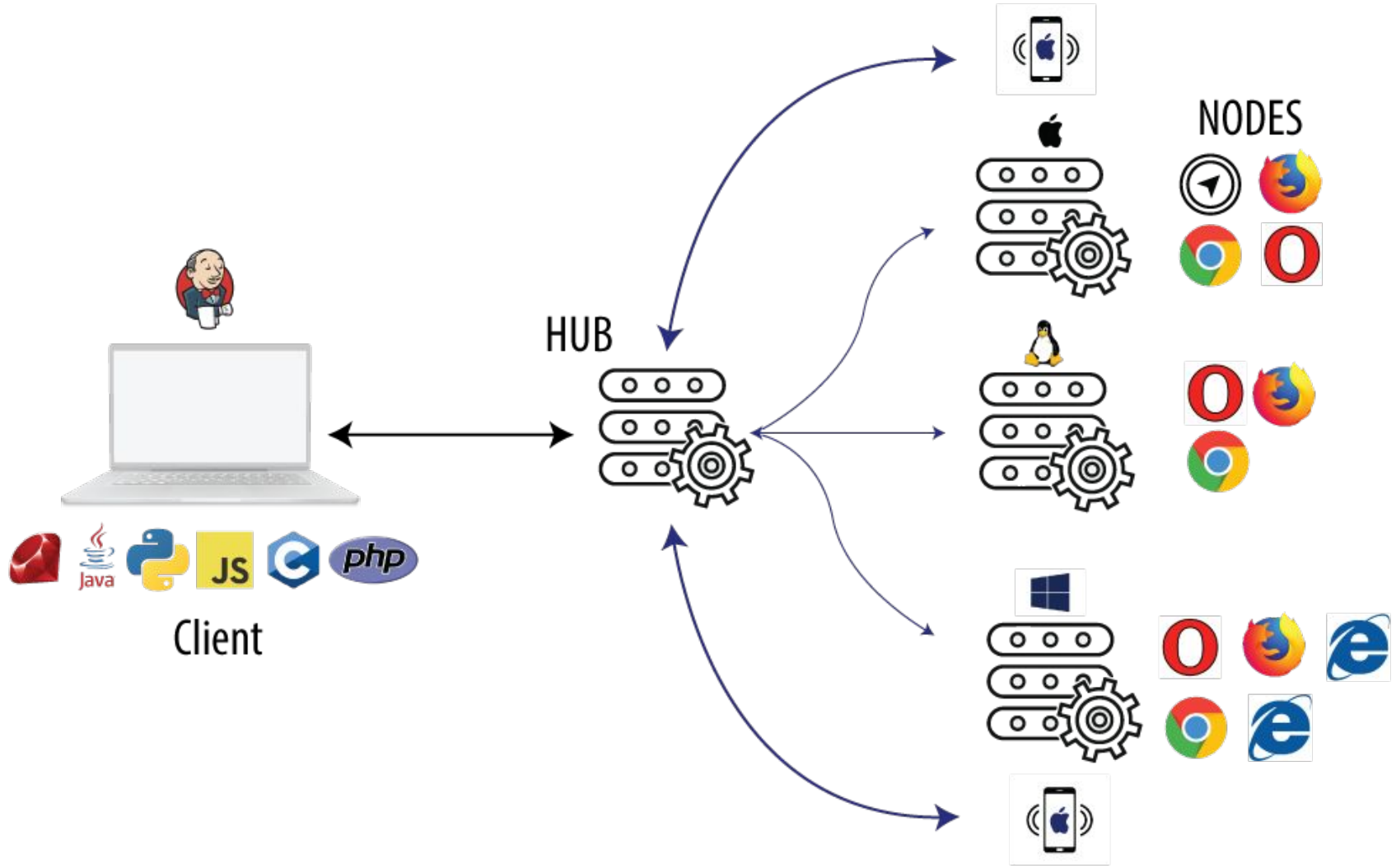
iamneo

Selenium Grid

Selenium Grid

- The Selenium Grid is a testing tool which allows us to run our tests on different machines against different browsers.
- It is a part of the Selenium Suite which specialise in running multiple tests across different browsers, operating system and machines.
- It is achieved by routing the commands of remote browser instances where a server acts as a hub.
- A user needs to configure the remote server in order to execute the tests.

Selenium Grid Architecture



Selenium Grid -HUB

- The hub is a computer which is the central point where we can load our tests into.
- Hub also acts as a server because of which it acts as a central point to control the network of Test machines.
- The Selenium Grid has only one hub and it is the master of the network.
- The hub is launched only on a single machine, say, a computer whose OS is Windows 7 and whose browser is IE.
- The machine containing the hub is where the tests will be run, but you will see the browser being automated on the node.

Selenium Grid -NODE

- A *node* is referred to a Test Machine which opts to connect with the Hub.
- This test machine will be used by Hub to run tests on.
- A Grid network can have multiple nodes.
- A node is supposed to have different platforms i.e. different operating system and browsers.
- The node does not need the same platform for running as that of hub.

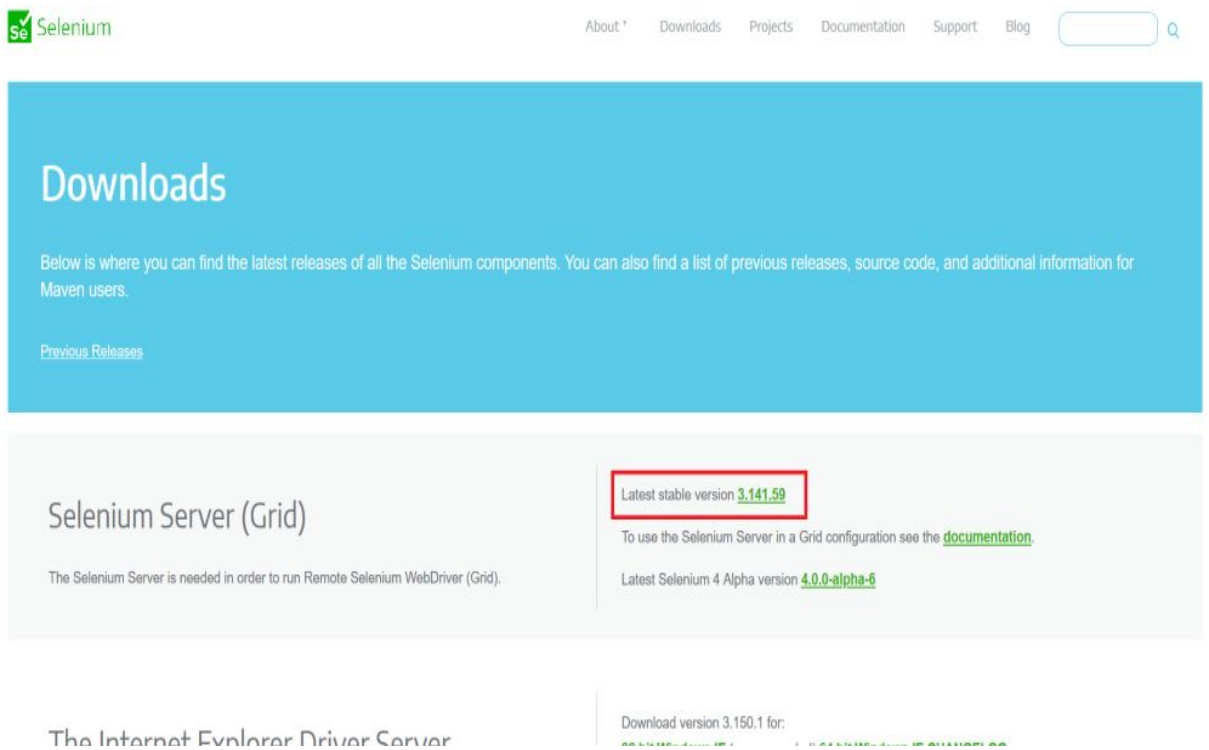
Note:

Selenium Grid uses a hub-node concept where you only run the test on a single machine called a hub, but the execution will be done by different machines called nodes.

Selenium Grid- HUB Setup

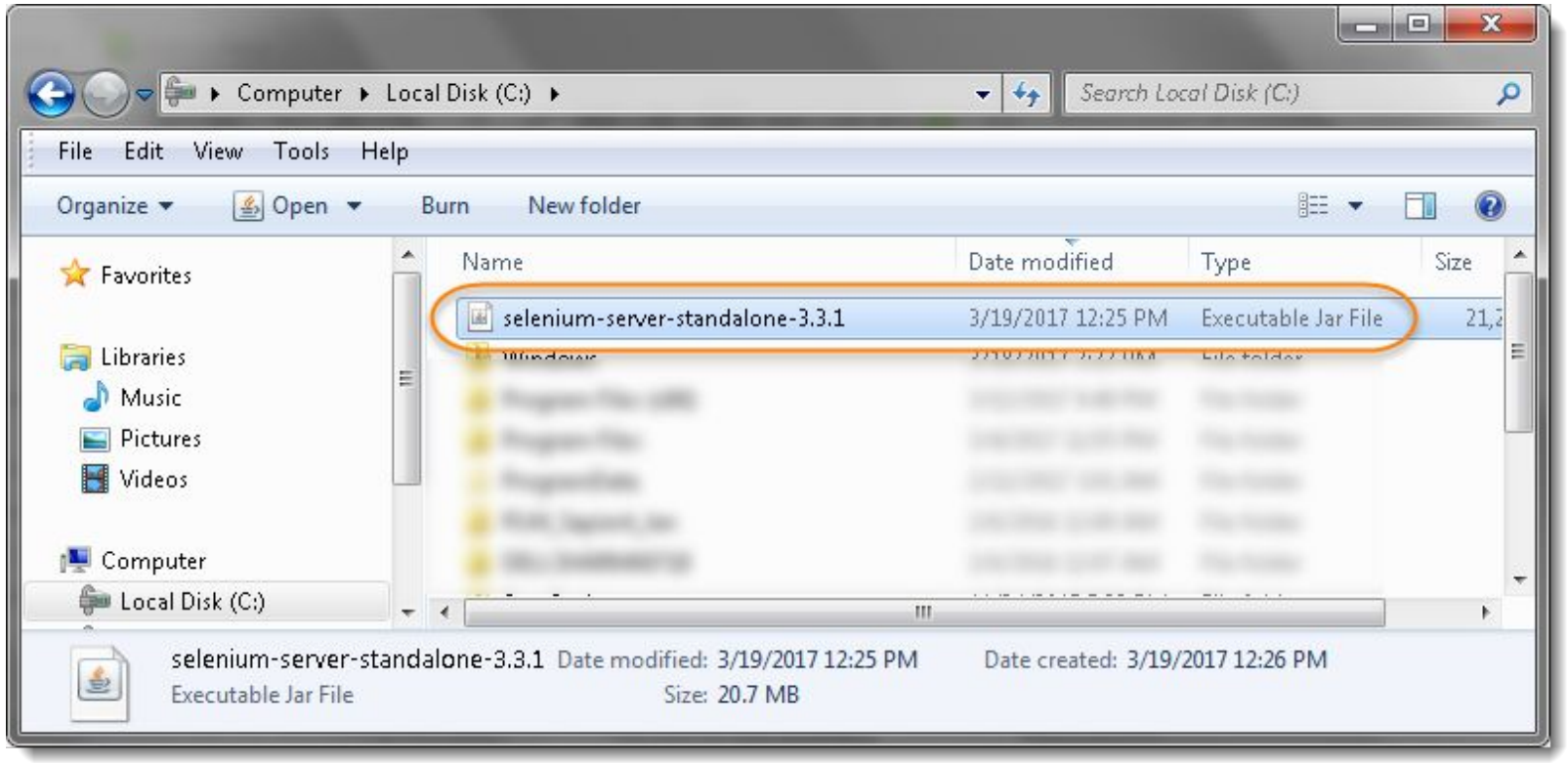
Let us call the machine where the hub runs as "Machine A" while the machine where the node runs will be "Machine B." It is also important to note their IP addresses. Let us say that Machine A has an IP address of 192.168.1.3 while Machine B has an IP of 192.168.1.4.

Step:1.Download the Selenium Server from the official website - https://www.selenium.dev/downloads/



Selenium Grid- HUB Setup

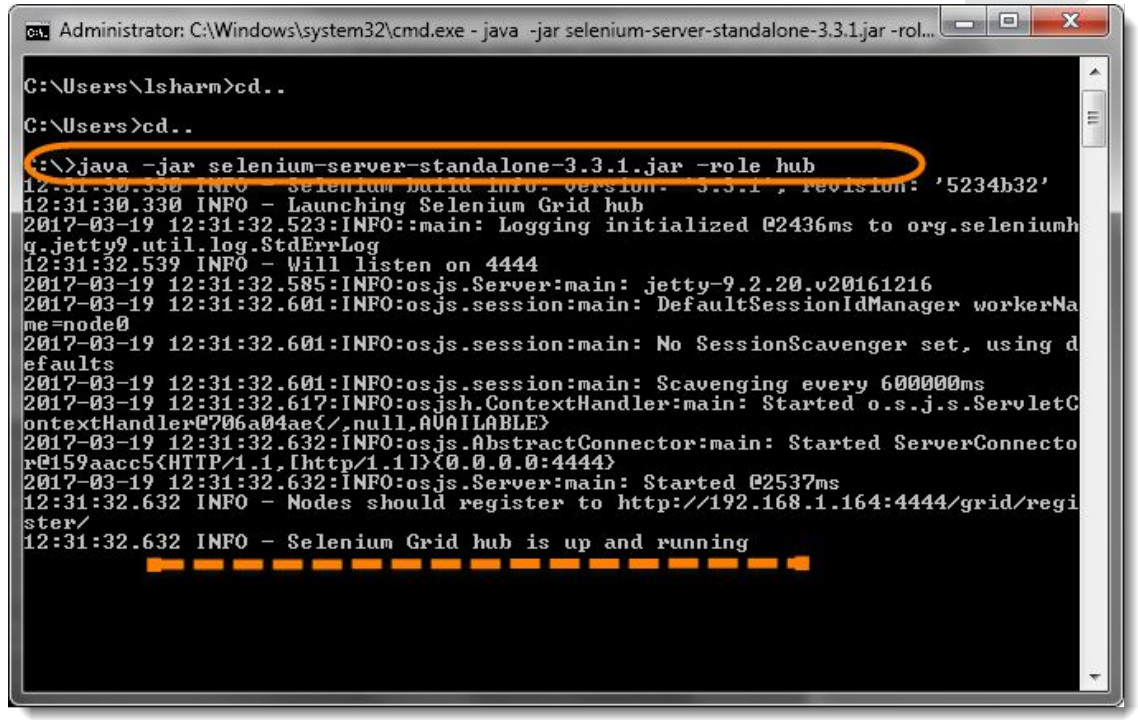
Step : 2. You can place the Selenium Server .jar file on the C drive of both Machine A and Machine B.After doing this, you are now done installing Selenium Grid.



Selenium Grid- HUB Setup

Step : 3. We are now going to launch a hub. Go to Machine A. Using the command prompt, navigate to the root of Machine A's – C drive, because that is the directory where we placed the Selenium Server.

- On the command prompt, type java -jar selenium-server-standalone-3.14.0 jar -role hub
- The hub should successfully be launched.

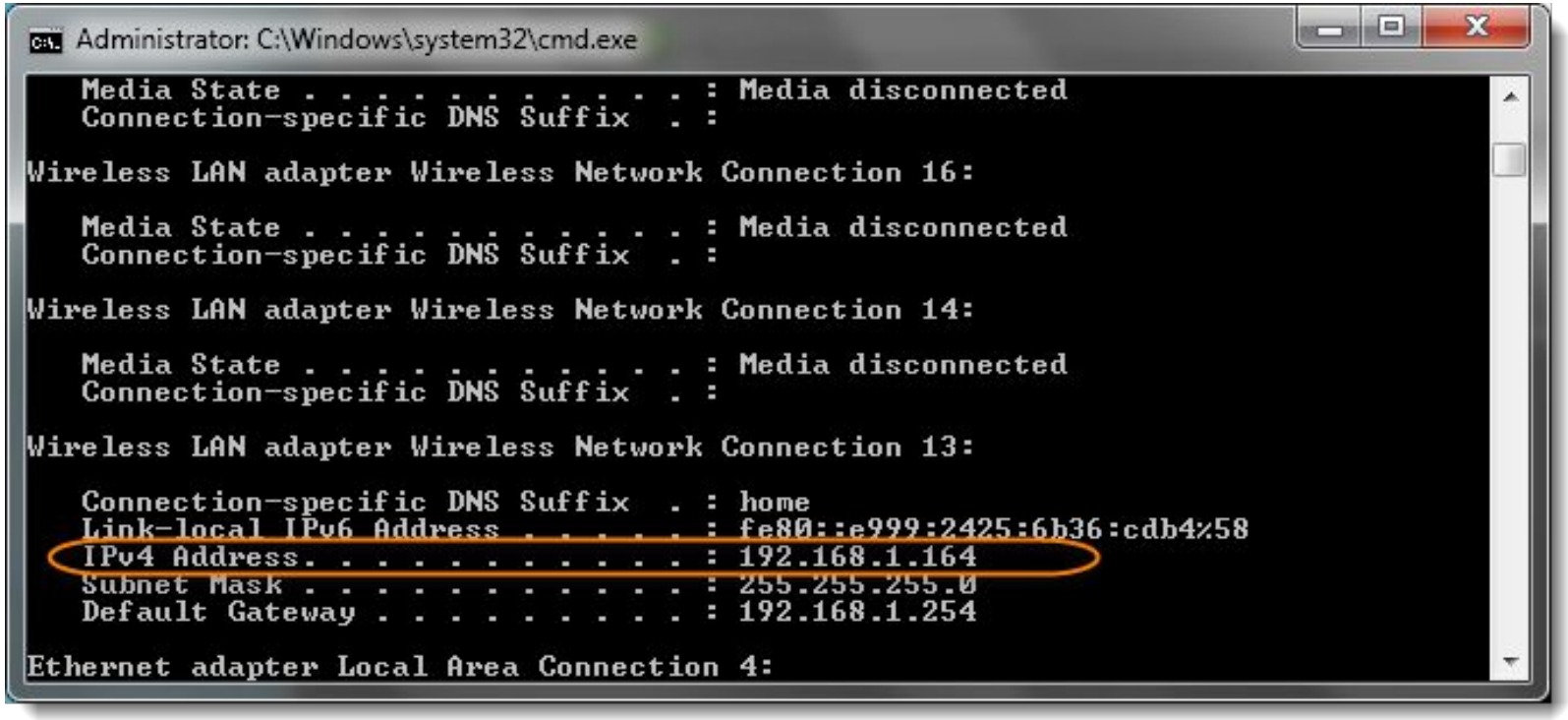


Selenium Grid- HUB Setup

Step : 4. To verify whether hub is running, open the browser and navigate to *http://localhost:4444.*Now click the *Console* link and then click *View Config.* The config of the hub would be displayed like this.

Selenium Grid-Node Setup

Step 1 : Also we need to find out the IP Address of the Hub Machine. Go to Command Prompt and type IPCONFIG to find out the IP Address.

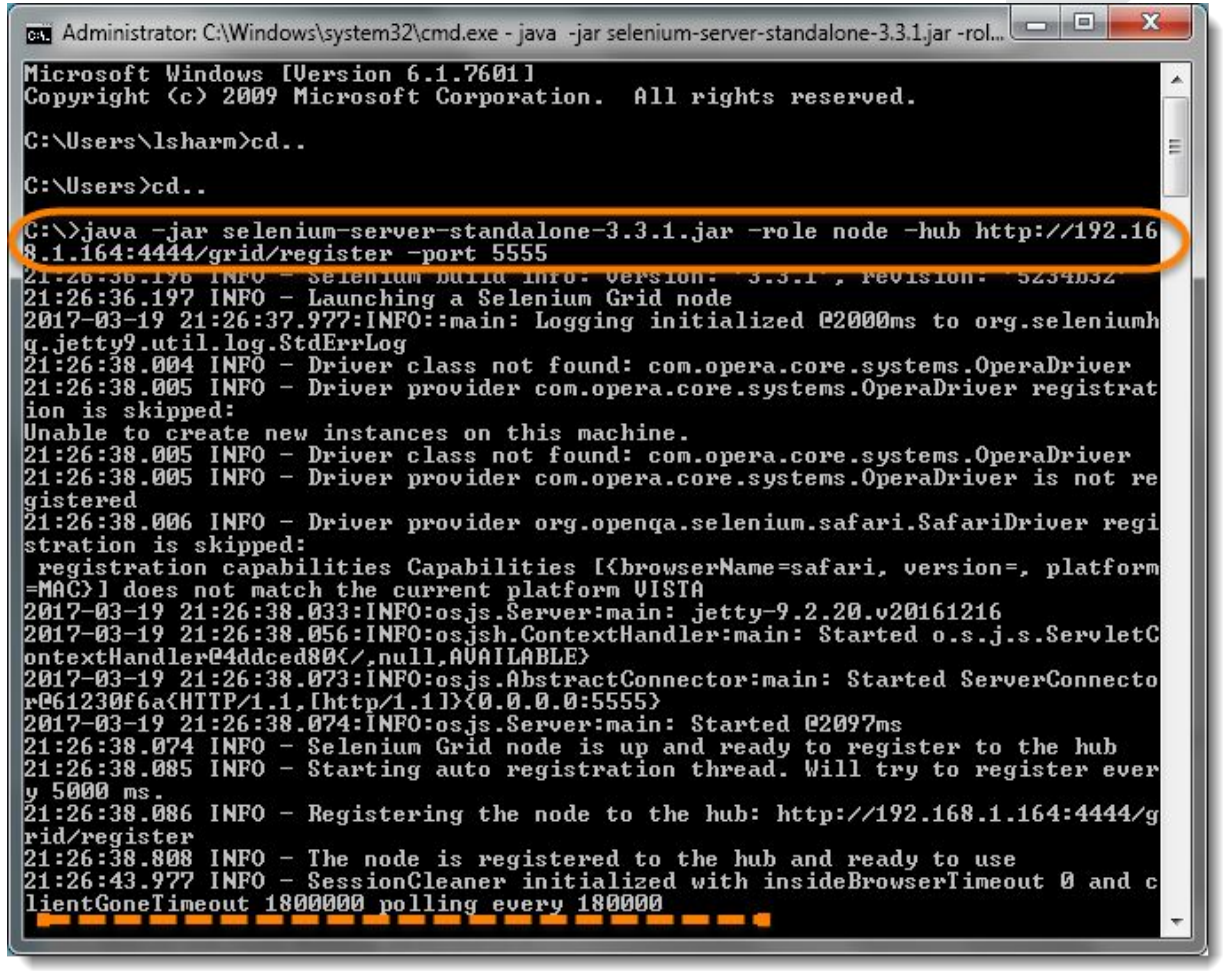


Selenium Grid-Node Setup

Step: 2. It is required to download the Selenium Server jar on the Node Machine as well. *As i am setting up the Node on the same machine, i do not need to download the Selenium Server jar again.*

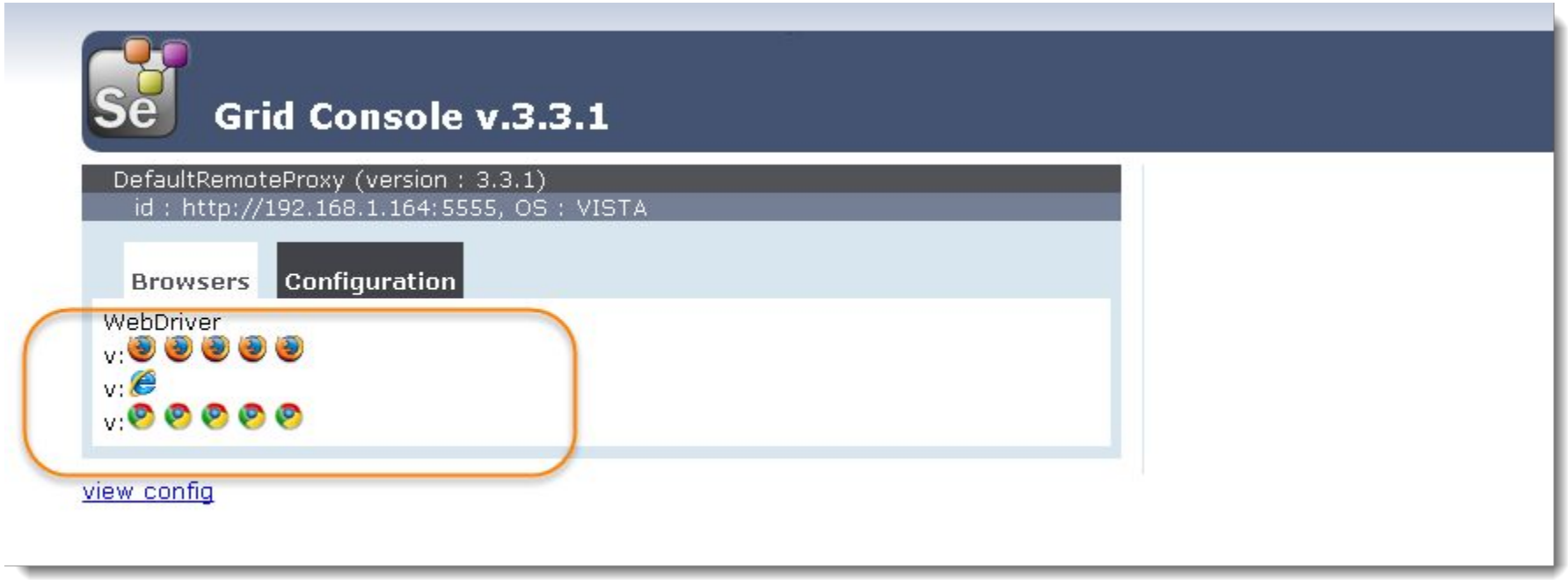
- Open Command Prompt. If you are setting up Node on different machine, log on to that machine and open Command Prompt.
- To register Hub Machine with Node Machine,

  java -jar selenium-server-standalone-3.3.1.jar -role node -hub http://192.168.1.164:4444/grid/register -port 5555



Selenium Grid-Node Setup

Step : 3 . After executing the command then return to the Hub and navigate the URL http://localhost:4444 or http://192.168.1.164:4444 and the hub will now display the node which is attached to it.



Selenium Grid-Test Script

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.remote.RemoteWebDriver;

import java.net.MalformedURLException;
import java.net.URL;

public class Grid_SetUp {
	public static WebDriver driver;

	public static void main(String[]  args) throws MalformedURLException, InterruptedException{

		String URL = "https://www.facebook.com";
		String Node = "https://192.168.1.164:4444/wd/hub";
		DesiredCapabilities cap = DesiredCapabilities.chrome();

		driver = new RemoteWebDriver(new URL(Node), cap);

		driver.navigate().to(URL);
		Thread.sleep(5000);
		driver.quit();
	}

}
```