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Automation Framework Setup Document

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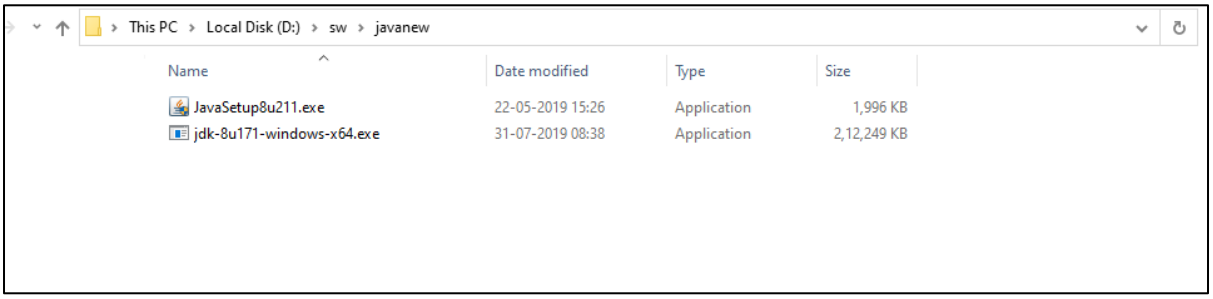
Prerequisite: JAVA, Eclipse IDE and SVN should be installed in your system.

1. Installation of JAVA

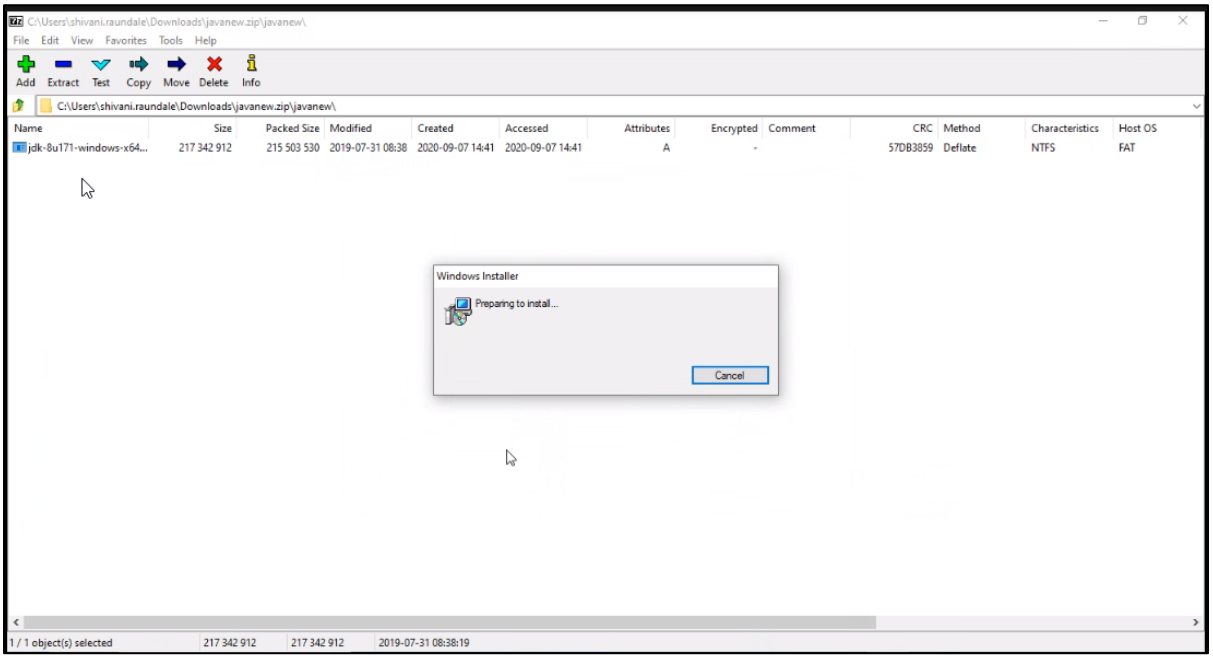
In GDC framework we are using JAVA programming language, so it's important to have JAVA properly configured in your system.

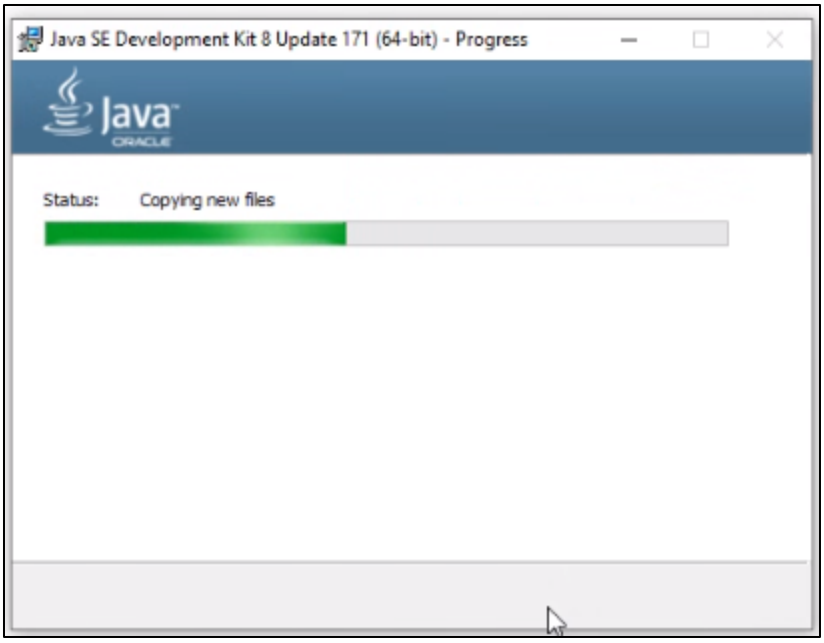
a) Download java 8 from the following link.
https://www.java.com/download/ie_manual.jsp

b) Double click on jdk-8u exe file.

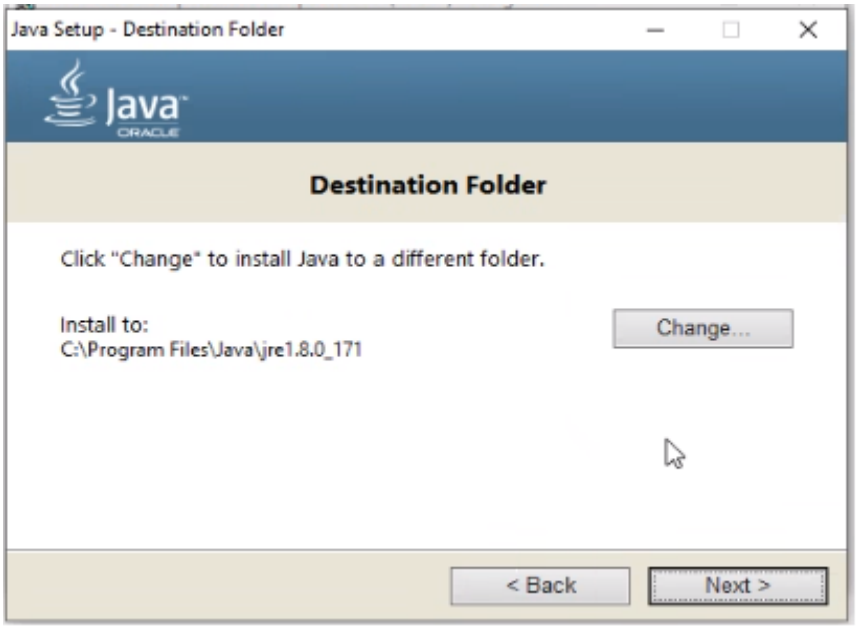


c) It will display a pop up of Installing.

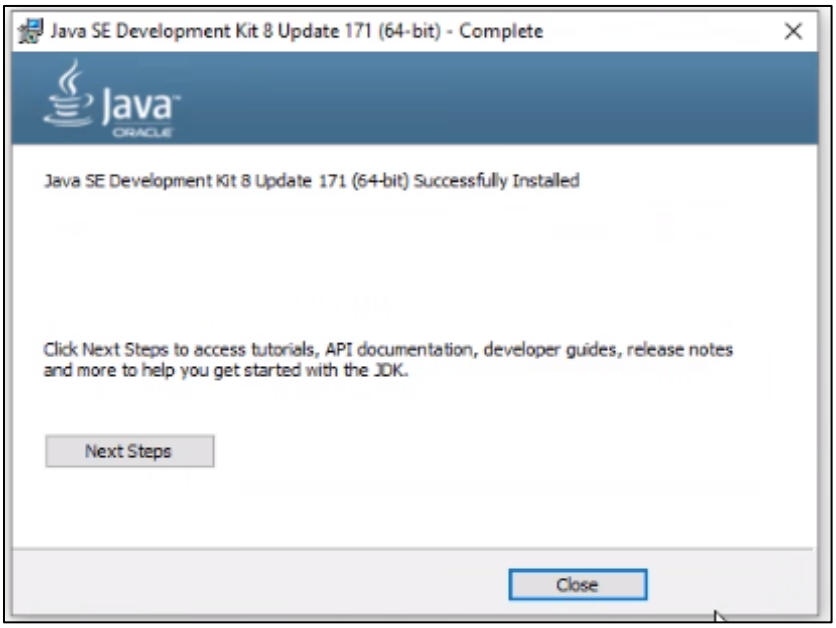




d) Click on Next if the default path is correct otherwise you can change the path by clicking on Change button.

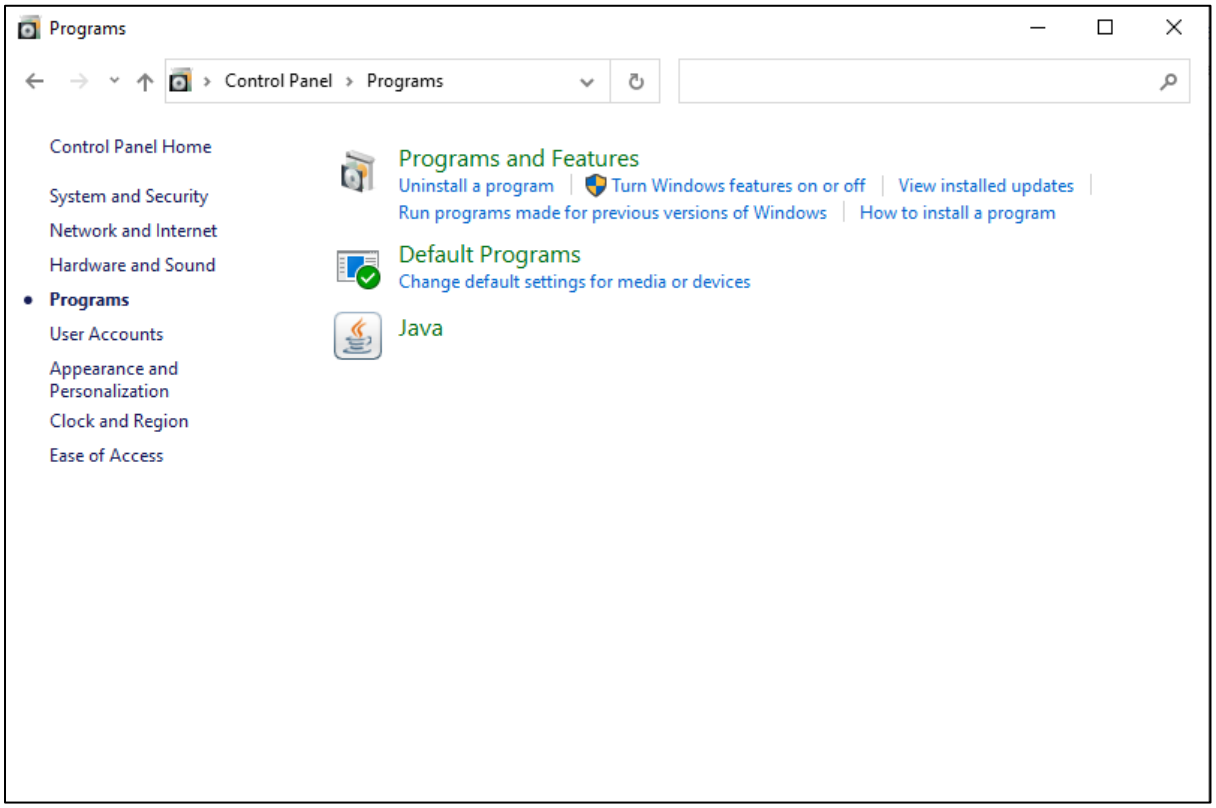


e) Click on “Close” button. The JAVA JDK is installed in your system.



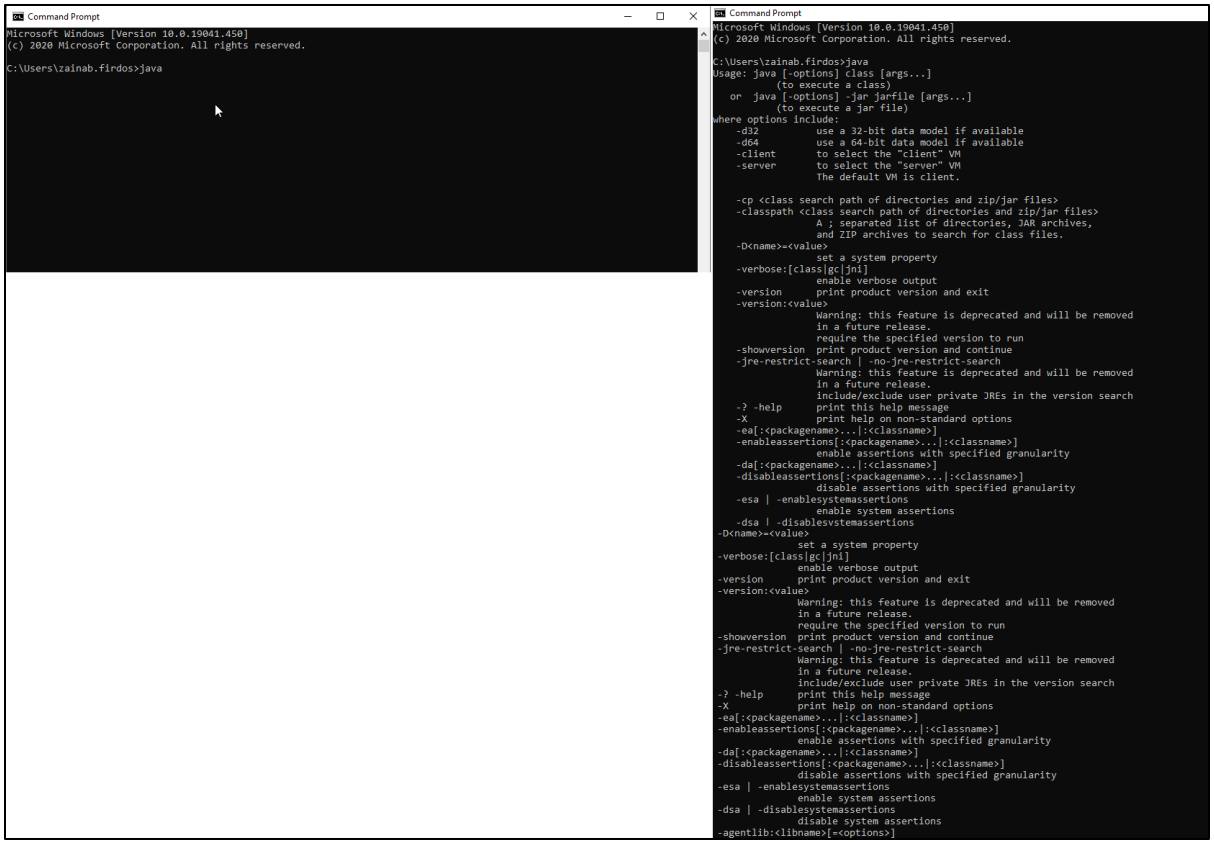
f) To check whether JAVA is already in your system, refer following steps.

1) Go to Control panel -> programs -> Java

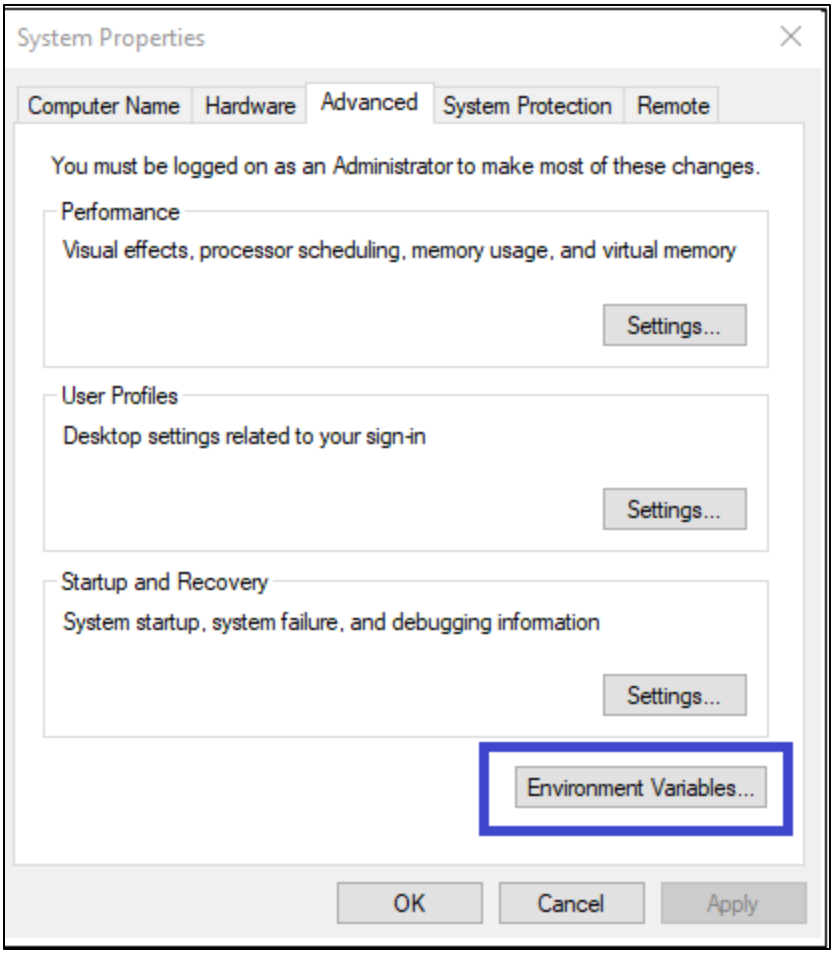


2) Another way to check java fully configured in your system, then go to Command prompt.

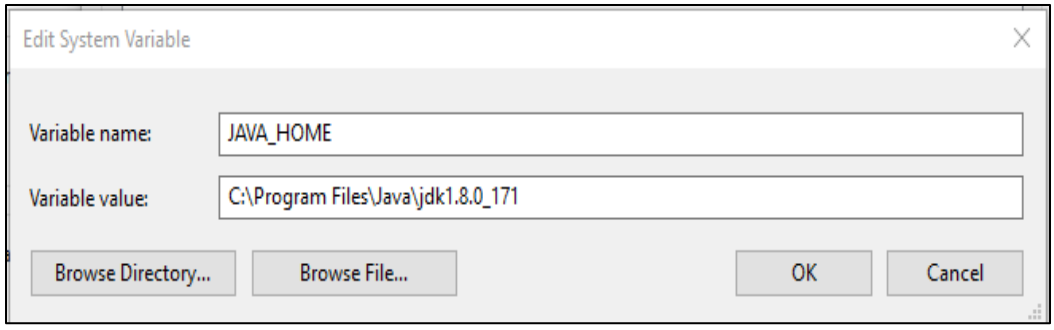
Command prompt -> java



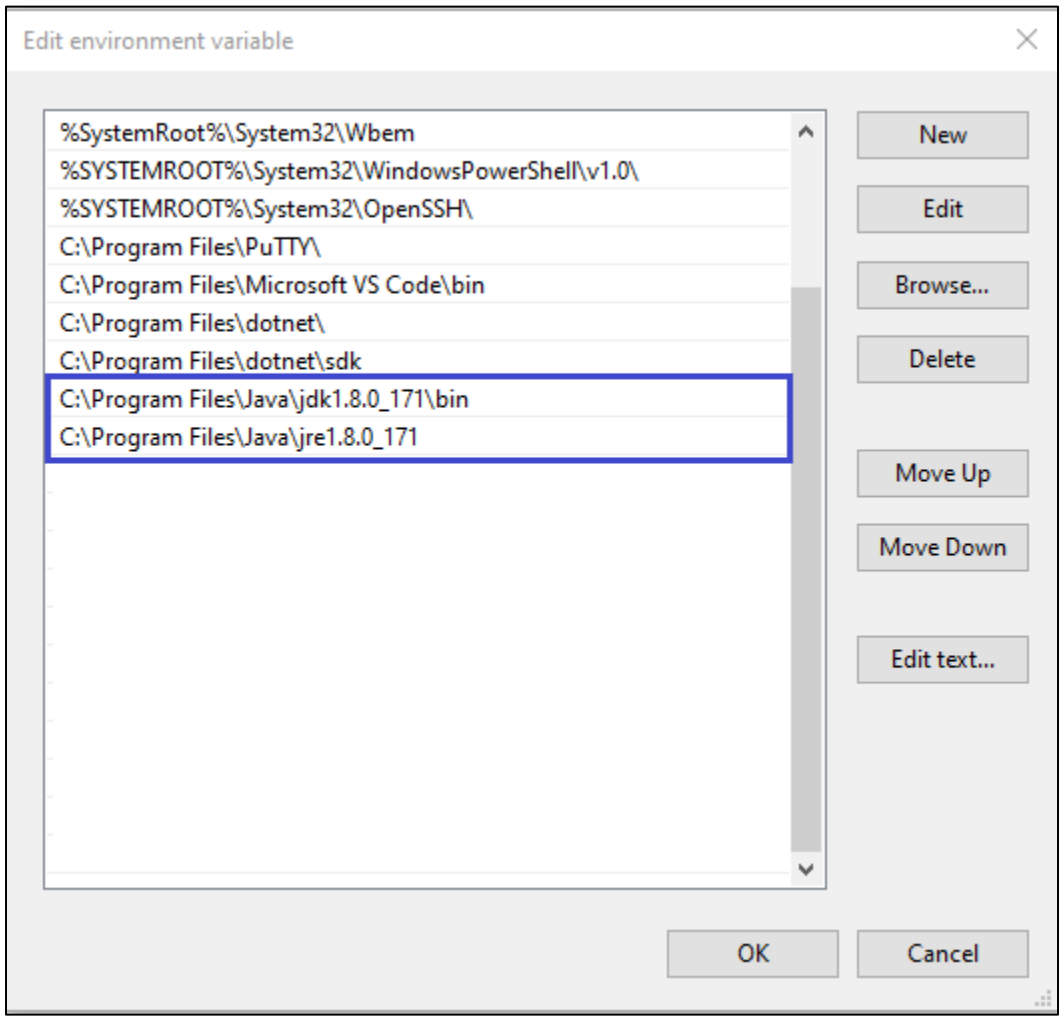
g) Set the environment variables of the Java.
Following are the steps to set the environment variables,
1) Go to File Explorer, Right click on This PC, Click on Properties.
2) Click on Advanced system settings option from Related settings. A popup will appear as shown in figure.



3) Click on Environment Variables button. You need to set 3 important variables for JAVA as listed below.
   C:\Program Files\Java\jdk1.8.0_171
   C:\Program Files\Java\jdk1.8.0_171\bin
   C:\Program Files\Java\jre1.8.0_171
4) To create 1st environment variable, click on 'New' button under System variables.
   In Variable name type – "JAVA_HOME" and in variable values type their path, where your java JDK located, usually JDK is in Programs files of C drive.



5) Then click on Path, it will give you list of building variables, there you have set the path till JDK bin and JRE path. This is how you can set the variables in your system.

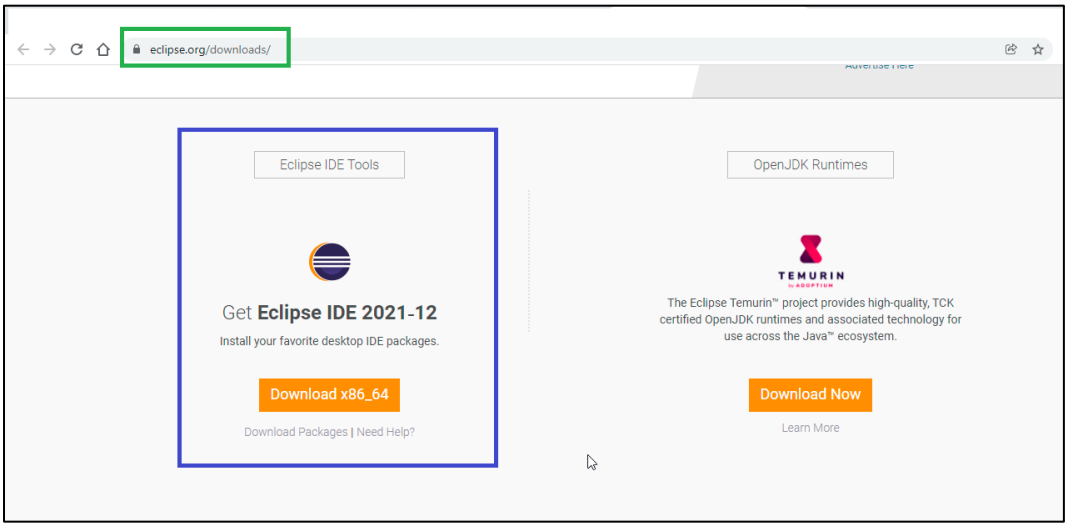


2. Installation of Eclipse IDE

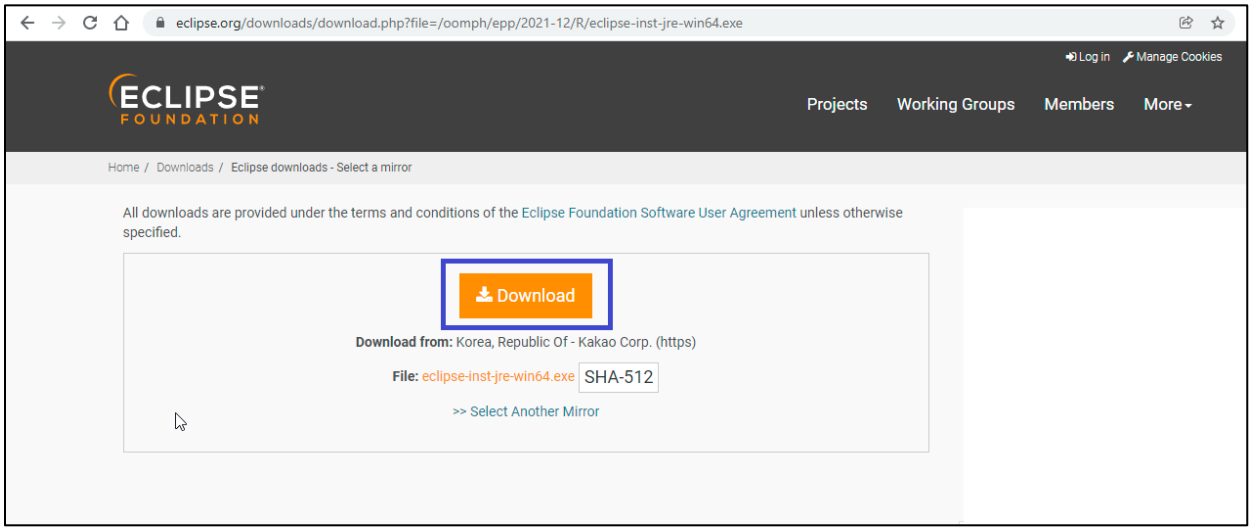
Following are the Steps to install Eclipse IDE in your system.

a) Go to URL: https://www.eclipse.org/downloads/

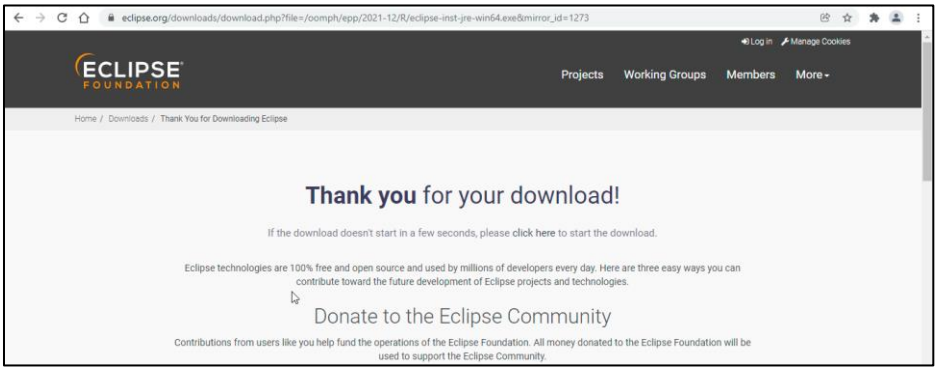
b) Click on “Download x86_64” under **Get Eclipse IDE 2021-12** section.



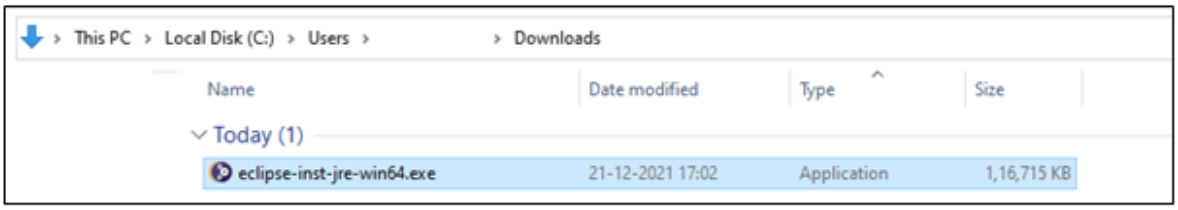
C) Click on “Download”.



d) It will show you this screen.



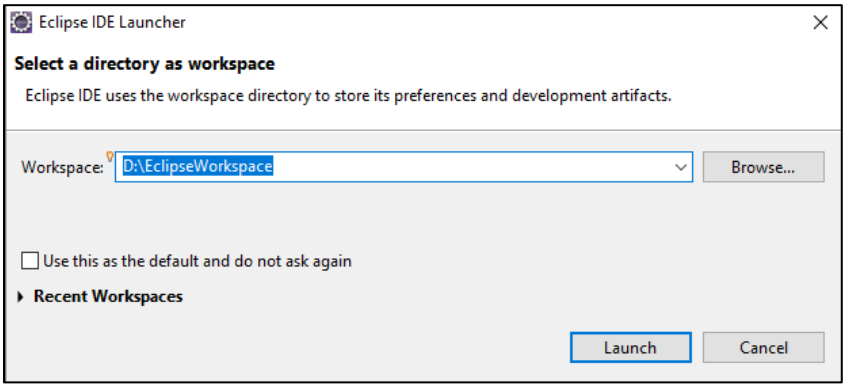
e) It will take some time. After downloading, the application will look like this. Double click on that application and install it.



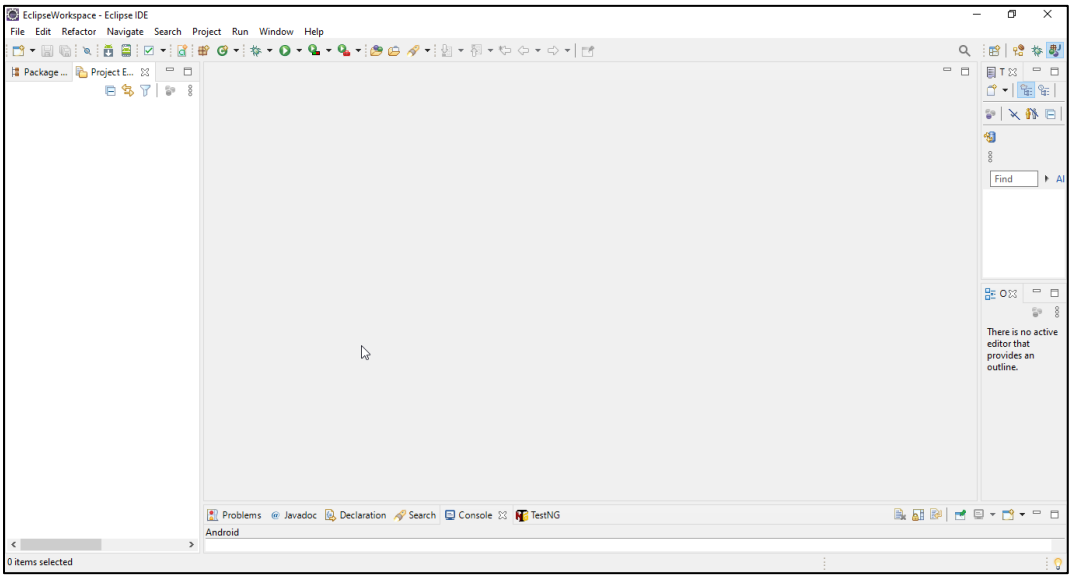
f) It will ask to choose the IDE from the list, select - Eclipse Enterprise for Java and web developers as shown in the below screenshot.

g) Click on “Install” button.

h) Let it install the IDE in your system. Then set the workspace and close the “Welcome” Screen.



i) The Eclipse IDE will look like this.



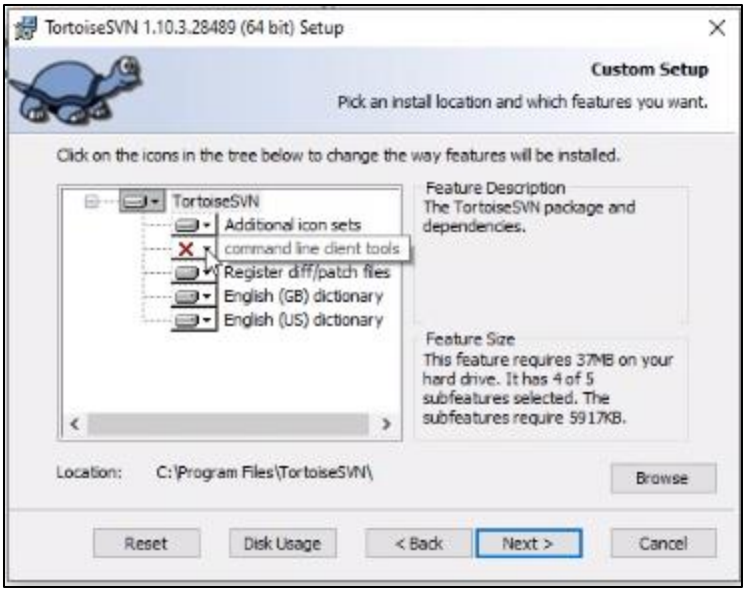
3. Installation of SVN (Subversion)

Following are the steps to install SVN in your system.

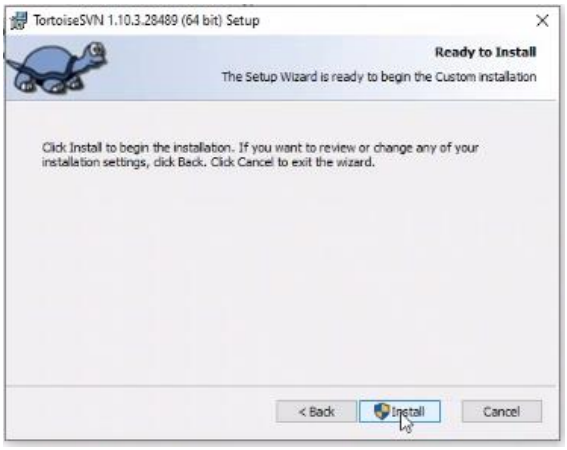
a) We are using TortoiseSVN with version number 1.10.3.

b) Double click on SVN software, it will display a pop up and then click on “Next” button.

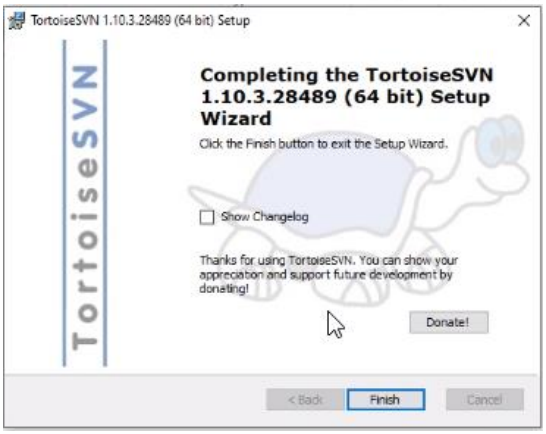
c) Click on Next.



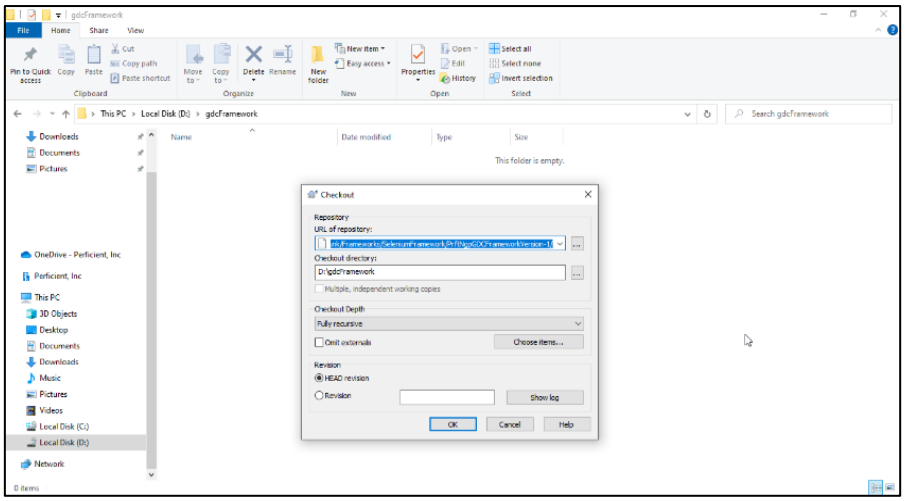
d) Click on “Install” button to install SVN in your system.



e) Click on “Finish”. The SVN is now installed in your system.



f) After SVN install you in system, you can take checkout of GDC Framework from SVN

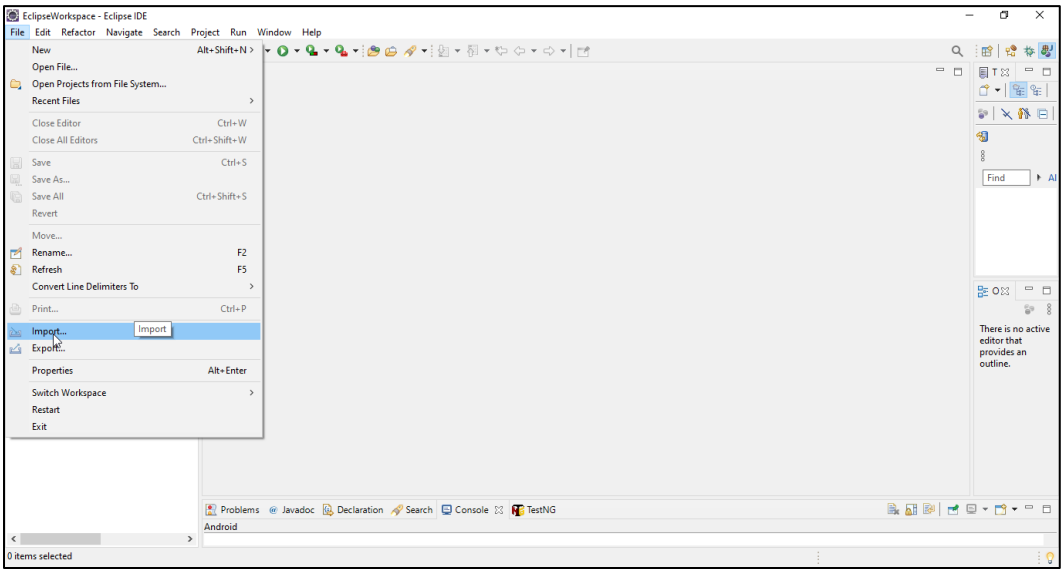


4. Framework Installation in Eclipse

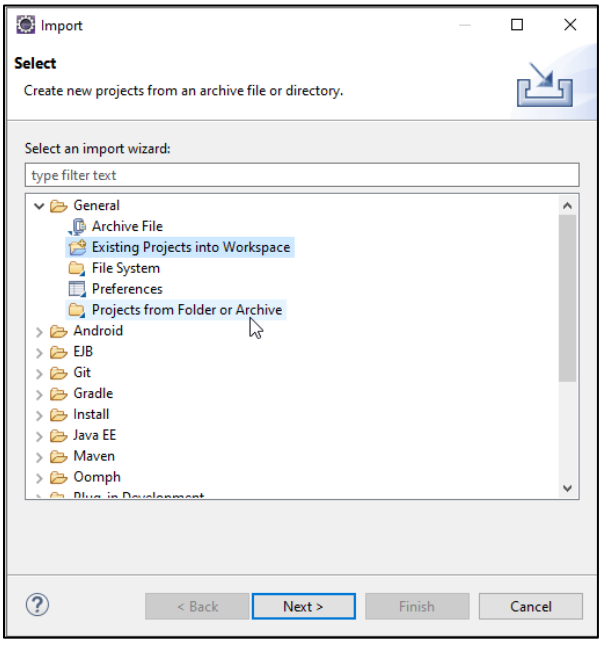
Below are the steps to install Framework in eclipse.

a) After taking checkout of the framework from SVN in any drive.

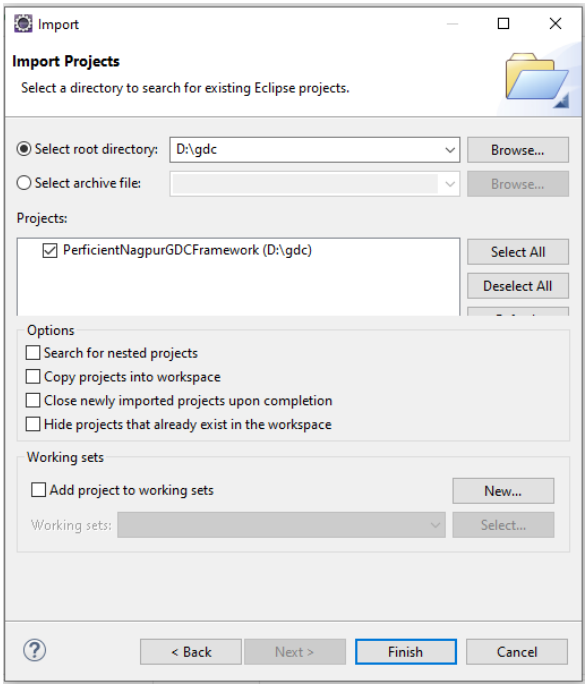
b) Open Eclipse. Go to File menu and click on “Import”.



c) Select “Existing Projects into workspace” option from the wizard and click on next.

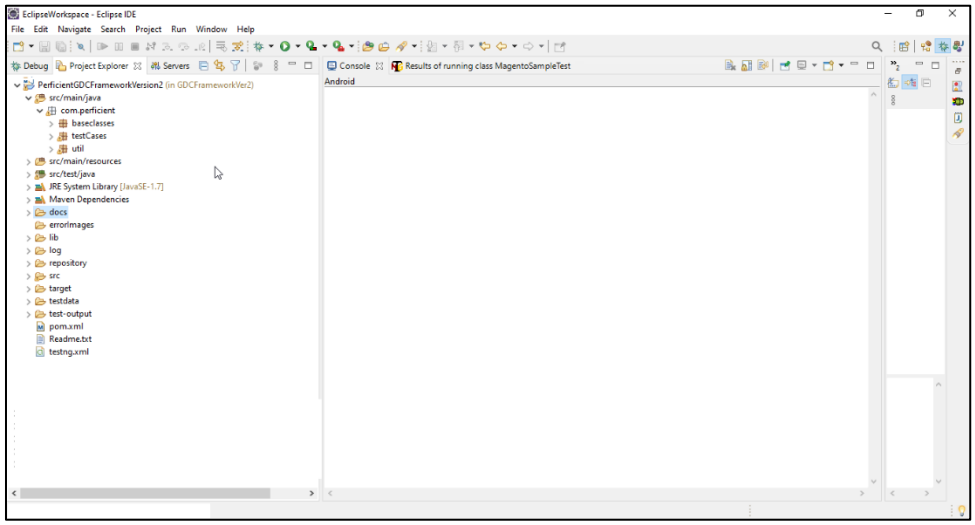


d) Click on Browse button to choose the location where you have saved the GDC Framework.



e) After selecting the Framework, click on Finish. It will take some time to load all the Maven dependency and other dependencies of the Framework.

f) After loading the Framework structure will look like this.



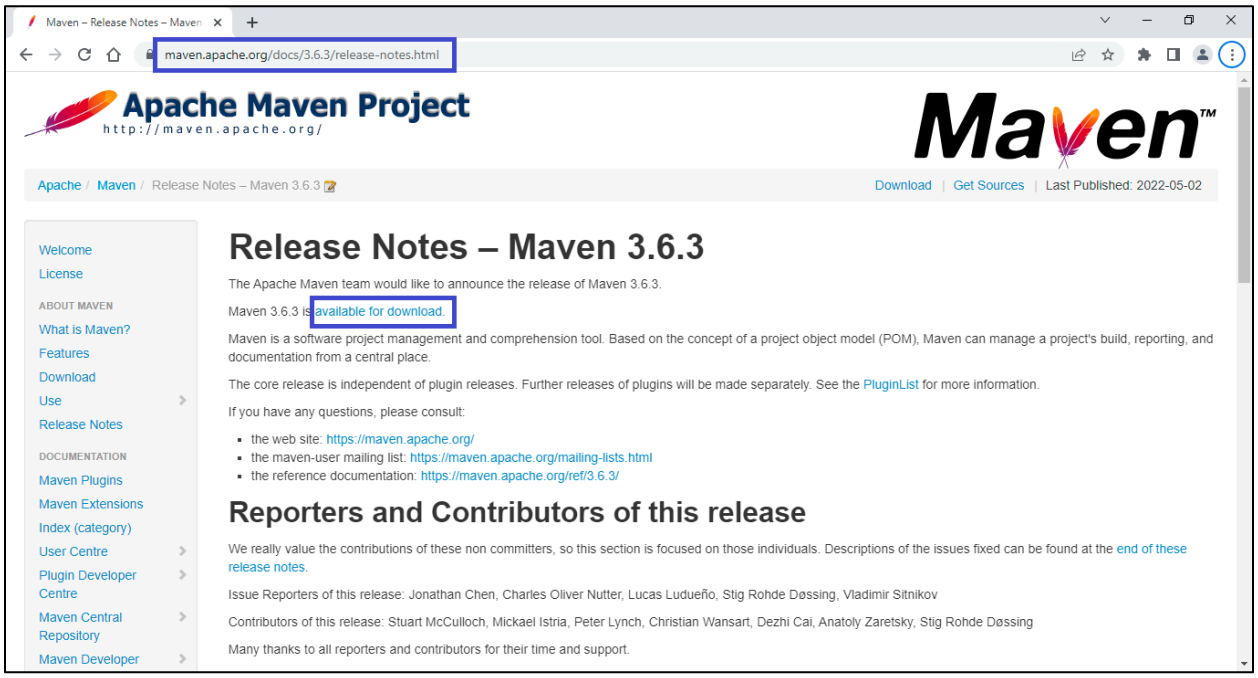
5. Maven

Maven is a tool which is used for building and managing Java Based Projects. Basically, to put it in simple words is a way to manage dependency for Java Based Project.

Sometimes it will take time to load the framework in your system because of Maven dependency. If in case, you are getting Maven error (This is optional)

Method 1: Following are the steps to install Maven in your system:

1) Go to URL: https://maven.apache.org/docs/3.6.3/release-notes.html



2) Click on “Available for download” link.

3) A Zip file gets downloaded, unzip that zip file on any secure folder of your system.
4) Create an **environment variable** of Maven in your system. Just like, “D:\Software\maven\apache-maven-3.6.3\bin” in Path folder. The maven is now set in your system. To check go to CMD (Command Prompt) and type *mvn -version.*

Method 2: Following are the steps to add Maven in your eclipse:

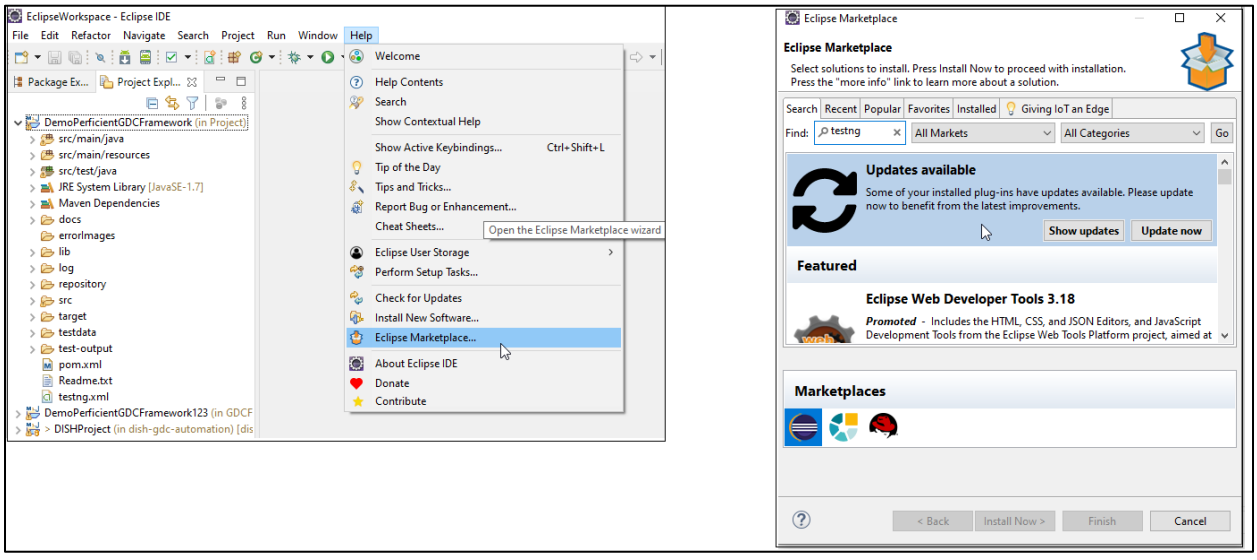
1) Open Eclipse
2) Go to Help -> Eclipse Marketplace
3) Search by Maven
4) Click "Install" button at "Maven Integration for Eclipse" section
5) Follow the instruction step by step

After successful installation do the followings in Eclipse:

1. Go to Window --> Preferences
2. Observe, Maven is enlisted at left panel

6. TestNG

TestNG is an automation testing framework in which NG stands for “Next Generation”. TestNG is inspired by JUnit which uses the annotations (@). If in case its showing “TestNg” error then, Go to Help, click on eclipse marketplace. Add TestNg in search filter and click on Install Now. The TestNg has been installed in your system.



7. Selenium 4 Features

Selenium 4 Beta 1 is the latest version of Selenium that has been released on 15th February 2021. This new tool suite comes with advanced features such as Selenium grid, W3C compliance, advanced IDE, New APIs, and many more.
In GDC Selenium Framework we have added selenium 4 features of new desired capability and relative locators.

1) **Desired capabilities** were primarily used in the test script for defining the test environment (browser name, version, operating system) for executing tests on Selenium Grid. This has now been replaced with Options. It means testers now must create an Options object, set test requirements, and pass the object to the Driver constructor. Below listed are the Options objects that have been included in Selenium 4.0.
    - Firefox – FirefoxOptions
    - Chrome – ChromeOptions
    - Internet Explorer (IE) – InternetExplorerOptions
    - Microsoft Edge – EdgeOptions
    - Safari – SafariOptions

2) Selenium 4 brings an easy way of locating elements with the inclusion of **relative locators**. This means testers can now locate specific web elements using intuitive terms that are often used by users like:
    - To left of
    - To right of
    - Above
    - Below

3) **Implicit wait** in Selenium 4, the parameters received in Waits and Timeout have changed from expecting (long time, TimeUnit unit) to expect (Duration duration) which you see a deprecation message for all our tests.
   Ex: driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));

4) **Action Class** in Selenium 4: Actions Class in Selenium provides several methods for performing a single action or a series of actions on the WebElements present in the DOM. Mouse actions (e.g., click, double click, etc.) and Keyboard actions (e.g., keyUp, keyDown, sendKeys) are the two broad categories of Actions.

    a) Click: click(WebElement) is the new method added to the Actions class and it serves as the replacement of moveToElement(onElement).click() method.

    b) DoubleClick: The method moveToElement(element).doubleClick() used for double clicking on a WebElement is replaced with a doubleClick(WebElement) method in Selenium 4.

    c) ContextClick: The method moveToElement(onElement).contextClick() used for right clicking on a WebElement is now replaced with the contextClick(WebElement) method in Selenium 4.

    d) ClickAndHold: The method moveToElement(Element).clickAndHold() used for clicking on a WebElement without performing the Release action is replaced with clickAndHold(WebElement).

    e) Release: The release() method, which is used for releasing the pressed mouse button, has been a part of the org.openqa.selenium.interactions.ButtonReleaseAction class. In Selenium 4, the method is a part of the Actions class.