

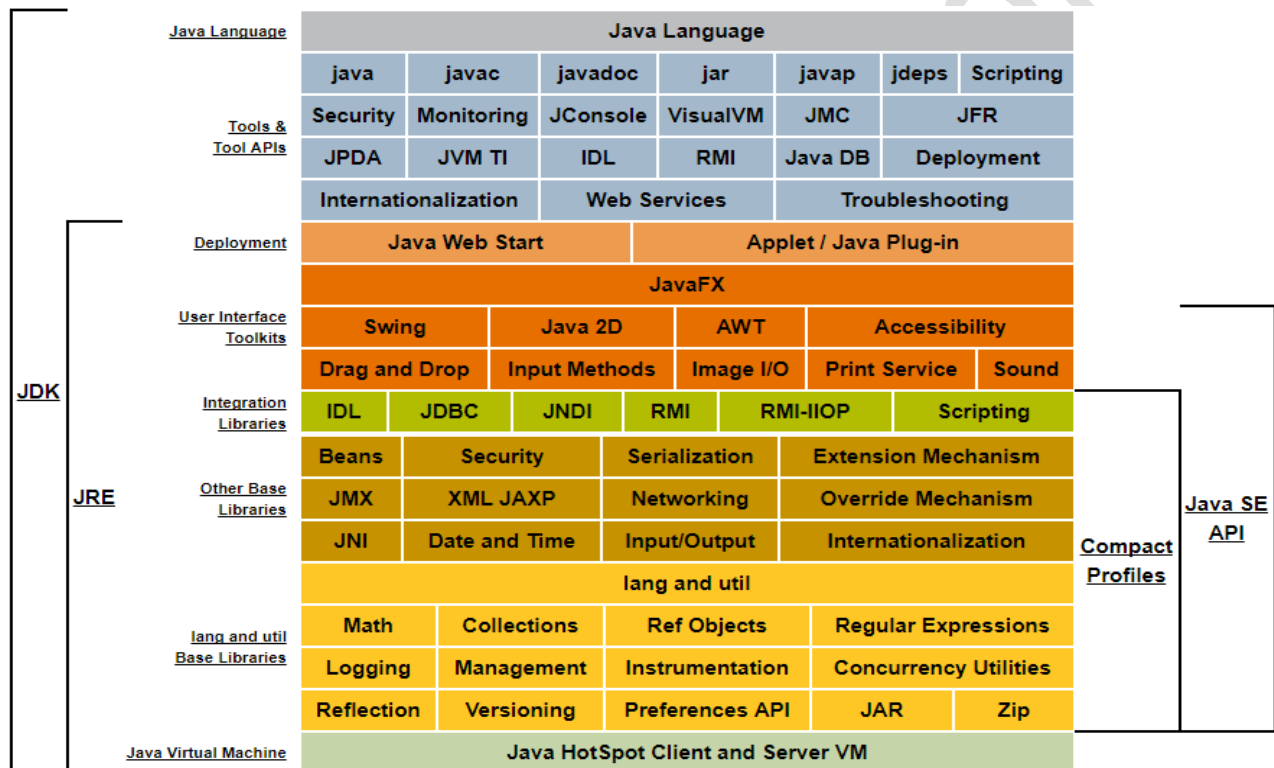
Java Software Introduction and Installation

The Java programming language is a high-level language. Oracle has two products that implement Java Platform

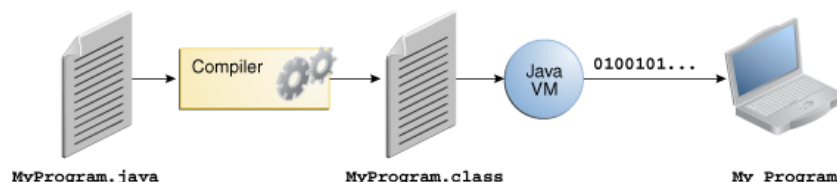
- Java SE Development Kit (JDK)
- Java SE Runtime Environment (JRE)

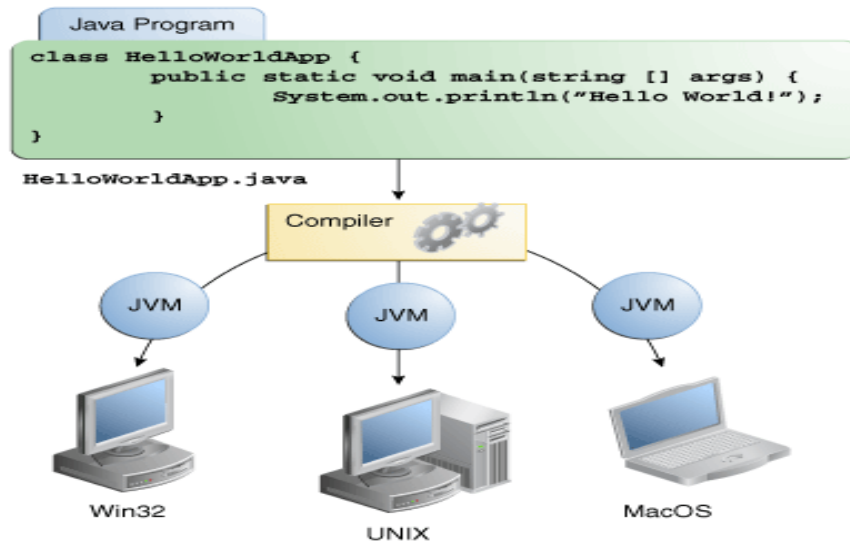
JDK is a superset of JRE, and contains everything that is in JRE, plus tools such as the compilers and debuggers necessary for developing applets and applications.

JRE provides the libraries, the Java Virtual Machine (JVM), and other components to run applets and applications written in the Java programming language.



In the Java programming language, all source code is first written in plain text files ending with the .java extension. Those source files are then compiled into .class files by the javac compiler. A .class file does not contain code that is native to your processor; it instead contains bytecodes — the machine language of the Java Virtual Machine (Java VM). The java launcher tool then runs your application with an instance of the Java Virtual Machine.





Because the Java VM is available on many different operating systems, the same .class files are capable of running on Microsoft Windows, the Solaris™ Operating System (Solaris OS), Linux, or Mac OS. Through the Java VM, the same application is capable of running on multiple platforms.

Installing Java

- Download JDK:
 - Goto <http://www.oracle.com/technetwork/java/javase/downloads/index.html>
 - Under Java SE 8u144
 - Click on Download at JDK
 - Select "Accept License Agreement"
 - Click on jdk-8u144-*****.exe file based on OS and Bit size
 - To find bit version goto My Computer -> Right click -> properties
 - It downloads an exe file
- Double click on it
- Click on next button until you see close
- In between it will ask to install JRE
- Click next until close/finish
- After installation you should have two folders in
- C:\Program Files\Java
 - JRE folder
 - JDK Folder
 - If you see java folder in C:\Program Files (x86) folder then uninstall java and install 64 bit version
- We must have minimum JAVA 8 from Selenium 3 onwards
- If you have Java 7 then uninstall it and install new version
- Check the installed java version:
 - Open run dialog (Window key+r)
 - type cmd -> enter
 - type command java -version -> enter

- This should display version number
- Some software doesn't find where is java installed
- For that purpose we have to create system environment variables
 - Goto Run Dialog -> Type sysdm.cpl
 - It will open system properties dialog
 - Goto Advanced Tab
 - Click on Environment variables
 - Click on New under User Variables
 - Give variable name as JAVA_HOME
 - Give Variable Value as the path of installed **JDK** (like C:\Program Files\Java\jdk1.8.0_131)
 - Click on OK
 - Again Click on New under User Variables
 - Give variable name as Path (If already path exist edit it)
 - Give Variable Value as the path of installed **bin** folder of **JDK** (like C:\Program Files\Java\jdk1.8.0_131\bin)
- Note: If already Path variable is exist edit that variable -> Do not delete existing values -> And follow below steps (**Do not delete existing values of Path variable**)
- For windows 10 users:
 - Click on new in edit variable dialog -> give or Paste path
- For Windows 7,8 Users:
 - You will not find edit variable dialog. Instead it will ask you to type in text box
 - Append the bin folder path using a ; seperator
 - existing values;binfolderpath
- Incase if java version is not displayed in command prompt after installation, It should display after environment variable configuration

Writing "Hello World" Program

- Create a Source File
 - Launch the Notepad editor
 - Type the following code:

```
class HelloWorldApp {  
    public static void main(String[] args) {  
        System.out.println("Hello World!");  
    }  
}
```

- Save the code in a file with the name HelloWorldApp.java.
 - File > Save As
 - Give file name as "HelloWorldApp.java" (with double quotes)
 - Click on Save

Compile the Source File into a .class File

- Open Command Prompt
- Using cd command change directory to the folder where above .Java source file created
- Type **javac HelloWorldApp.java** -> Enter
- Observe that it create .class file
- Type **java HelloWorldApp** -> Enter
- Observe that it displayed **Hello World!**

Note: Above program works only if you set the JDK Bin path in path Environment Variable. Because compiler is part of JDK not JRE.