JDK installation

Download

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Installation guide

https://docs.oracle.com/javase/8/docs/technotes/guides/install/install_overview.html

Windows

1. Click **Start**, then **Control Panel**, then **System**.

2. Click **Advanced**, then **Environment Variables**.

3. Add the location of the bin folder of the JDK installation to the `PATH` variable in **System Variables**. The following is a typical value for the `PATH` variable:

   ```
   C:\WINDOWS\system32;C:\WINDOWS;C:\Program Files\Java\jdk1.8.0_181\bin
   ```

JDK Environment

After you install Java 8, the core *java* runtime command may appear in your path (available to run) automatically. However, many of the other commands provided with the JDK may not be available unless you add the Java *bin* directory to your execution path. The following commands show how to do this on Mac OS X and Windows. You will, of course, have to change the path to match the version of Java you have installed.

```
# Mac OS X
export JAVA_HOME=/Library/Java/JavaVirtualMachines/jdk1.7.0_09.jdk/Contents/Home
export PATH=$PATH:$JAVA_HOME/bin

# Windows
set JAVA_HOME=c:\Program Files\Java\jdk1.7.0_09
set PATH=%PATH%;%JAVA_HOME%\bin
```

Java Installation Verification

Windows

Use power shell to verify, type following command

java -version

javac -version

Mac OS

Use terminal to verify, type following command

java -version

javac -version

IDE

Download

Intellij IDEA Community

Example

Hello World

```java
public class HelloWorld {
public static void main( String[] args ) {

    System.out.println("Hello, World!");
    }

}
```

javap java.util.Stack

Java VM

A Java virtual machine (VM) is software that implements the Java runtime system and executes Java applications. It can be a standalone application like the *java* command that comes with the JDK or built into a larger application like a web browser. Usually the interpreter itself is a native application, supplied for each platform, which then bootstraps other tools written in the Java language. Tools such as Java compilers and IDEs are often implemented directly in Java to maximize their portability and extensibility.

The Java VM performs all the runtime activities of Java. It loads Java class files, verifies classes from untrusted sources, and executes the compiled bytecode. It manages mem- ory and system resources. Good implementations also perform dynamic optimization, compiling Java bytecode into native machine instructions.

Classpath

Path is an environment variable that provides an application with a list of places to look for some resource. The most common example is a path for executable programs. In a Unix shell, the PATH environment variable is a colon-separated list of directories that are searched, in order, when the user types the name of a command. The Java CLASSPATH environment variable, similarly, is a list of locations that are searched for Java class files. Both the Java interpreter and the Java compiler use the CLASSPATH when searching for packages and Java classes.