

## **The difference in JDK/JRE & JVM**

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### **Introduction**

To start with we are going to give a full definition of JDK, JRE and JVM.

- JDK: Java Development Kit
- JRE: Java Runtime Environment
- JVM: Java Virtual Machine

All these are software required in running Java Application. However, they are differentiated and able to run java according to the different roles in running this application.

### **What is the Java Development Kit(JDK)?**

JDK is a software development kit used for making applet and the java application. It is used in coding and running java programs. It contains tools to write java codes and tools such as JRE to execute them.

### **What is the Java Runtime Environment(JRE)?**

It is a software mainly designed to run other software. It contains class Libraries, Loader class and JVM. Its main purpose is running java programs. This software is not necessary to install it separately with JDK in the PC for developers. This is because JDK comes bundled with JRE.

### **What is the Java Virtual Machine(JVM)?**

JVM as an engine provides a runtime environment used for driving java application. It cannot be downloaded separately rather it requires to install JRE which comes bundled with JVM. It converts Java bytecode into machine language.

### **Differences between JDK/JRE/JVM?**

- JDK stands for Java development Kit whereas JRE stands for Java Runtime Environment whereas JVM stands for Java Virtual Machine.
- JDK itself is a development and debugging tool whereas JRE is a tool containing all class Libraries whereas JRE contains no software development tools.
- JDK and JRE are both platform dependent whereas JVM is an independent platform.
- JDK comes with the installer whereas JRE comes with an environment for executing codes whereas JVM comes bundled in both JDK and JRE.
- JDK is for software development whereas JRE is a bundled software that allows running of Java programs whereas JVM is an environment for executing bytecode.

**References:**

www.javatpoint.com. 2021. *Difference Between JDK, JRE And JVM - Javatpoint*. [online] Available at: <<https://www.javatpoint.com/difference-between-jdk-jre-and-jvm>> [Accessed 17 January 2021].

JournalDev. 2021. *Difference Between JDK, JRE, And JVM - Journaldev*. [online] Available at: <<https://www.journaldev.com/546/difference-jdk-vs-jre-vs-jvm>> [Accessed 17 January 2021].