Understanding the JVM

JVM and the main method

Produced by: Dr. Siobhán Drohan
Mr. Colm Dunphy
Mr. Diarmuid O'Connor
Dr. Frank Walsh

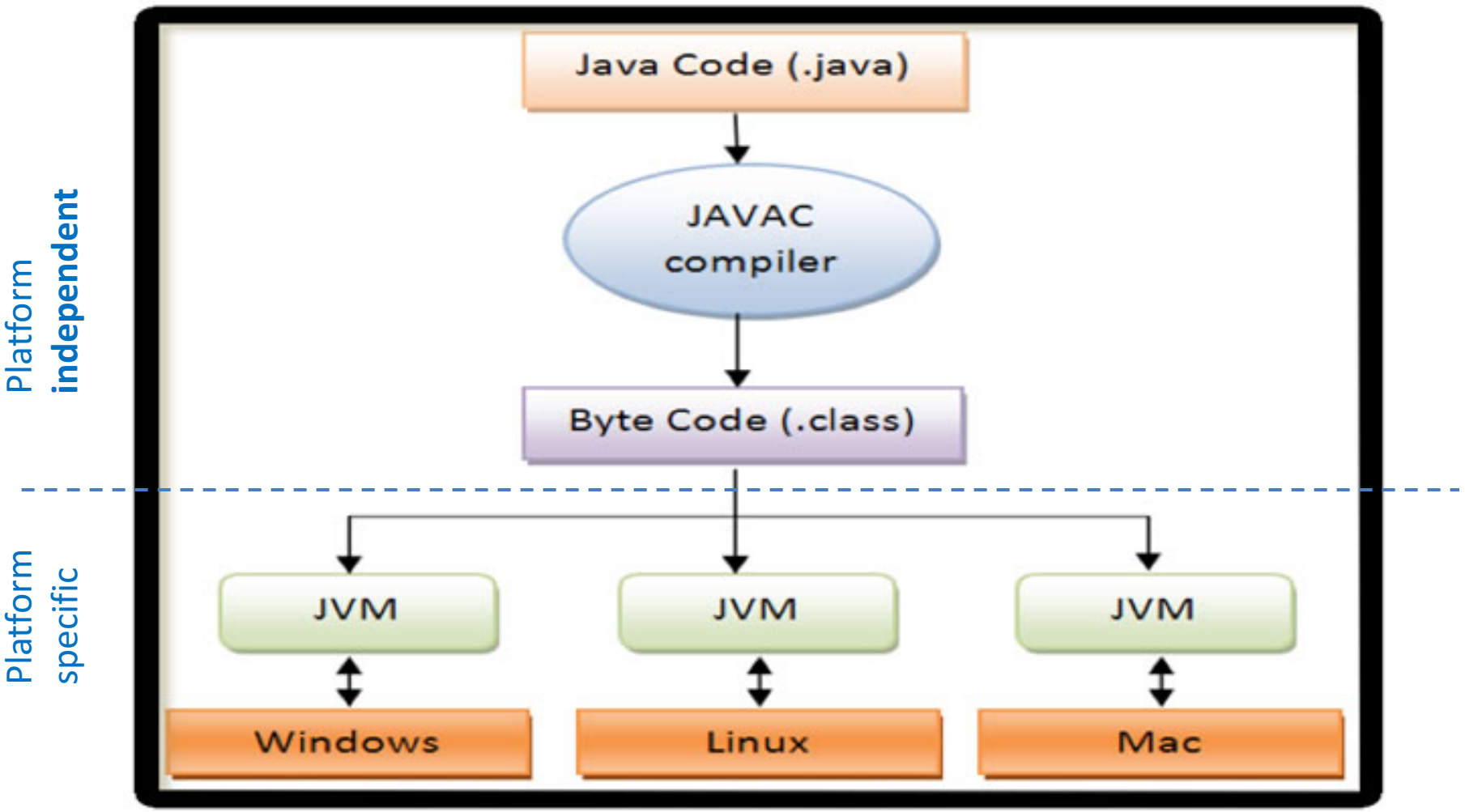
Waterford Institute *of* Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Department of Computing and Mathematics
http://www.wit.ie/

Topics list

1. **Files** in Java.
2. Java Virtual Machine (**JVM**).
3. **main()** method.
4. Installing **JDK 9**.

Files in Java (1)



http://viralpatel.net/blogs/java-virtual-machine-an-inside-story/

Files in Java (2)

- **Java code** is written in **.java** file.
  - code contains one or more Java language constructs e.g. Classes, Methods, Variable, Objects etc.
- **Compiling** this code generates a **.class** file
- A **.class** file
  - is also known as "**byte code**"
  - it is the input to Java Virtual Machine (JVM)
  - The **JVM** *(for a specific platform)*
    - **reads** this byte code
    - **interprets** it as machine code instructions *(for that platform)*
    - and **executes** the program *(on that platform)*

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Java Virtual Machine (JVM)

- Java Virtual Machine (**JVM**)
  - is a "**virtual**" computer that resides in the "real" computer as a software process.
- The JVM gives Java the flexibility of **platform independence**.
- The **.class** files can be run on any OS, once a JVM has been installed
  - (NB: JVM is installed when you install the JDK).

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main() method

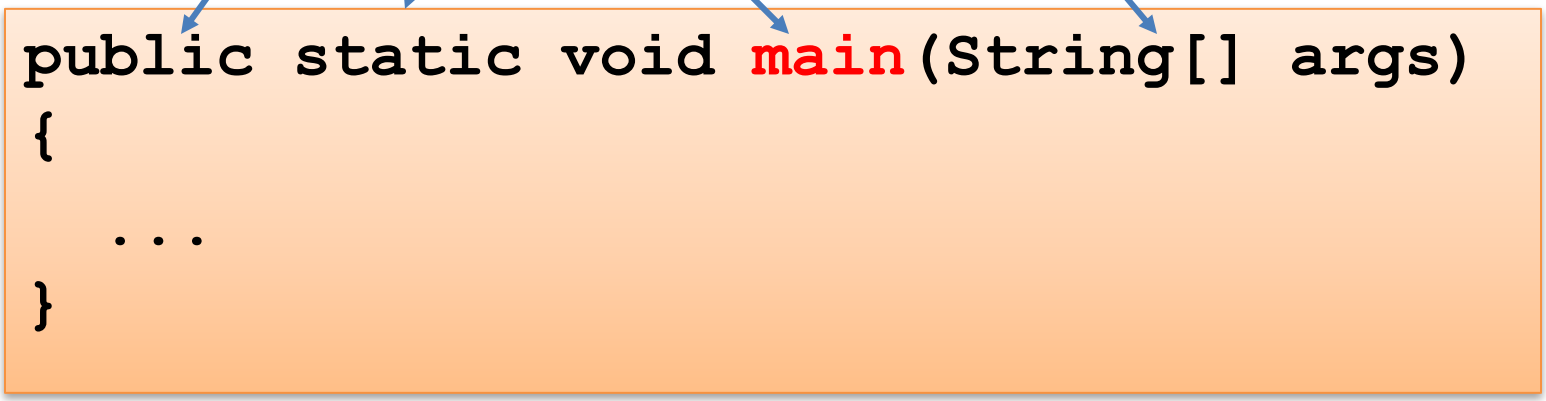
- When you want to run a java project, the Java Virtual Machine (JVM) invokes the **main()** method in the project.

- For the JVM to recognise it, the main() method must have a specific method **signature**.

```
public static void main(String[] args)
{
   ...
}
```

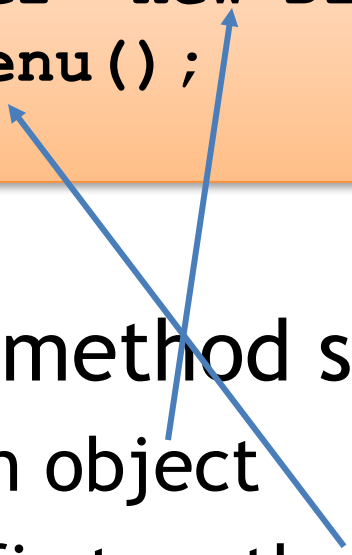
main() method - **signature**

- "main" must exist
- "main" must be **public**
- "main" must be **static** (class method)
- "main" must have a **String array parameter**
- Only "main" can be invoked automatically.



main() method

```
public static void main(String[] args)
{
    Driver driver= new Driver();
    driver.runMenu();
}
```



- The main method should
  - create an object
  - call the first method

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What is a **JDK**?

- Java Development Kit (JDK).
- It includes **tools** for developing Java applications.
- It also includes a Runtime Environment (**JRE**)
  - **JRE** is the implementation of the JVM.
  - It is a subset of the JDK
- Free from **Oracle** website.

Note

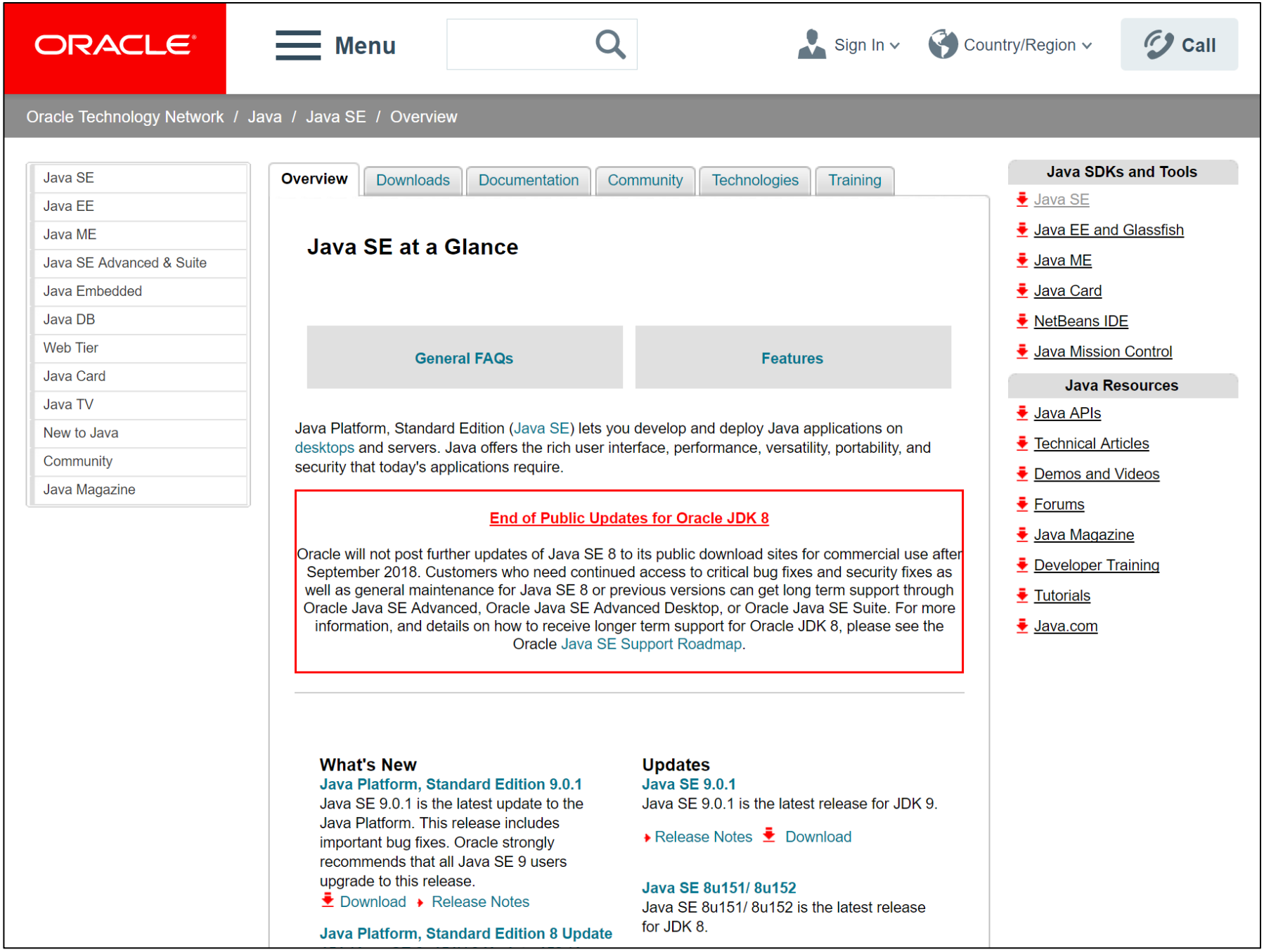
- If you are installing the JDK on a **windows** platform, **USE Internet Explorer!**

- There are **issues** with installing the JDK using the following browsers:
  - Firefox
  - Chrome
  - Microsoft Edge

Note

- If you are installing the JDK on the **OSX** platform, **USE Safari!**

- There are **issues** with installing the JDK using the following browsers:
  - Firefox
  - Chrome



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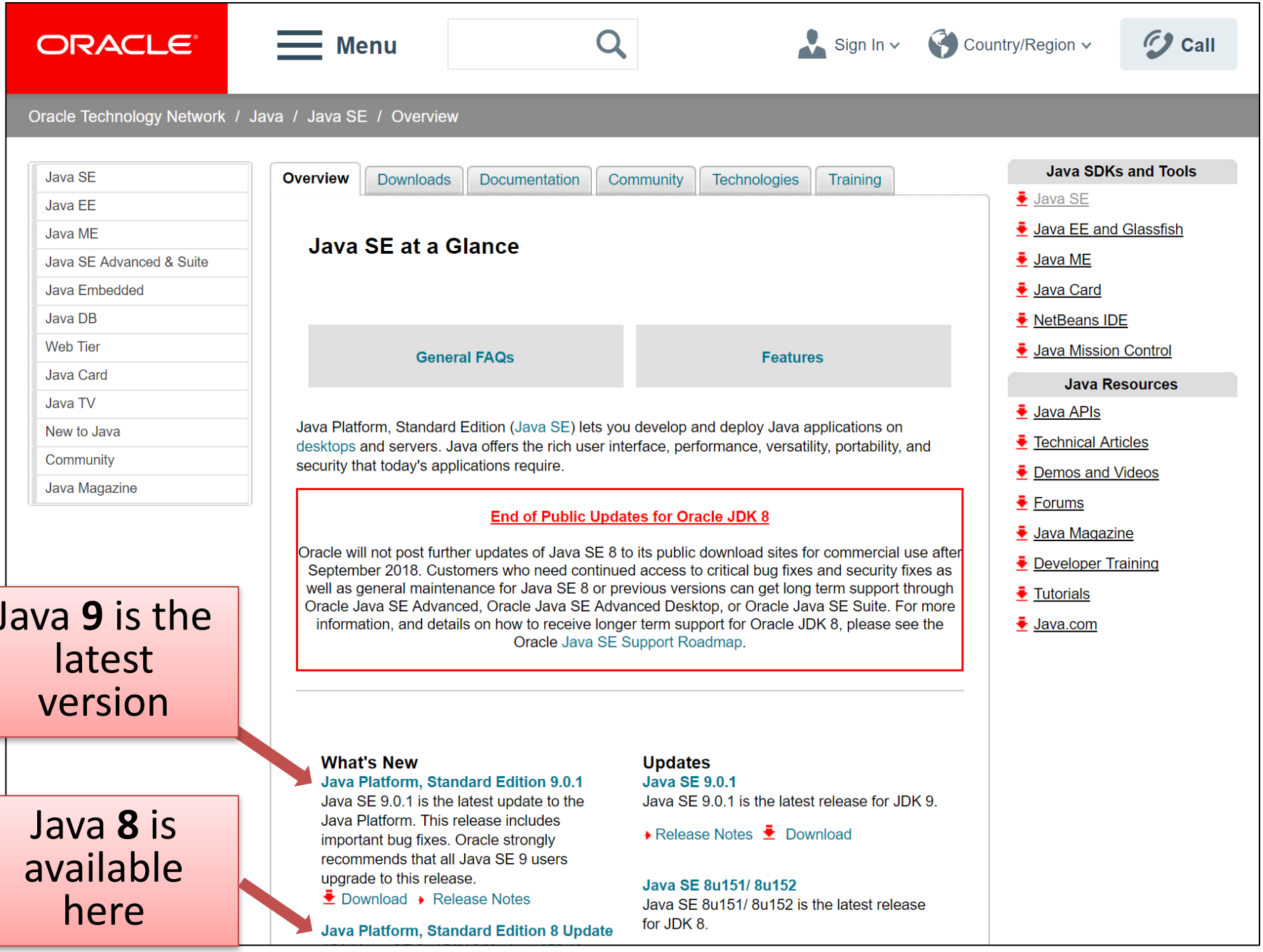


Java **9** is the latest version

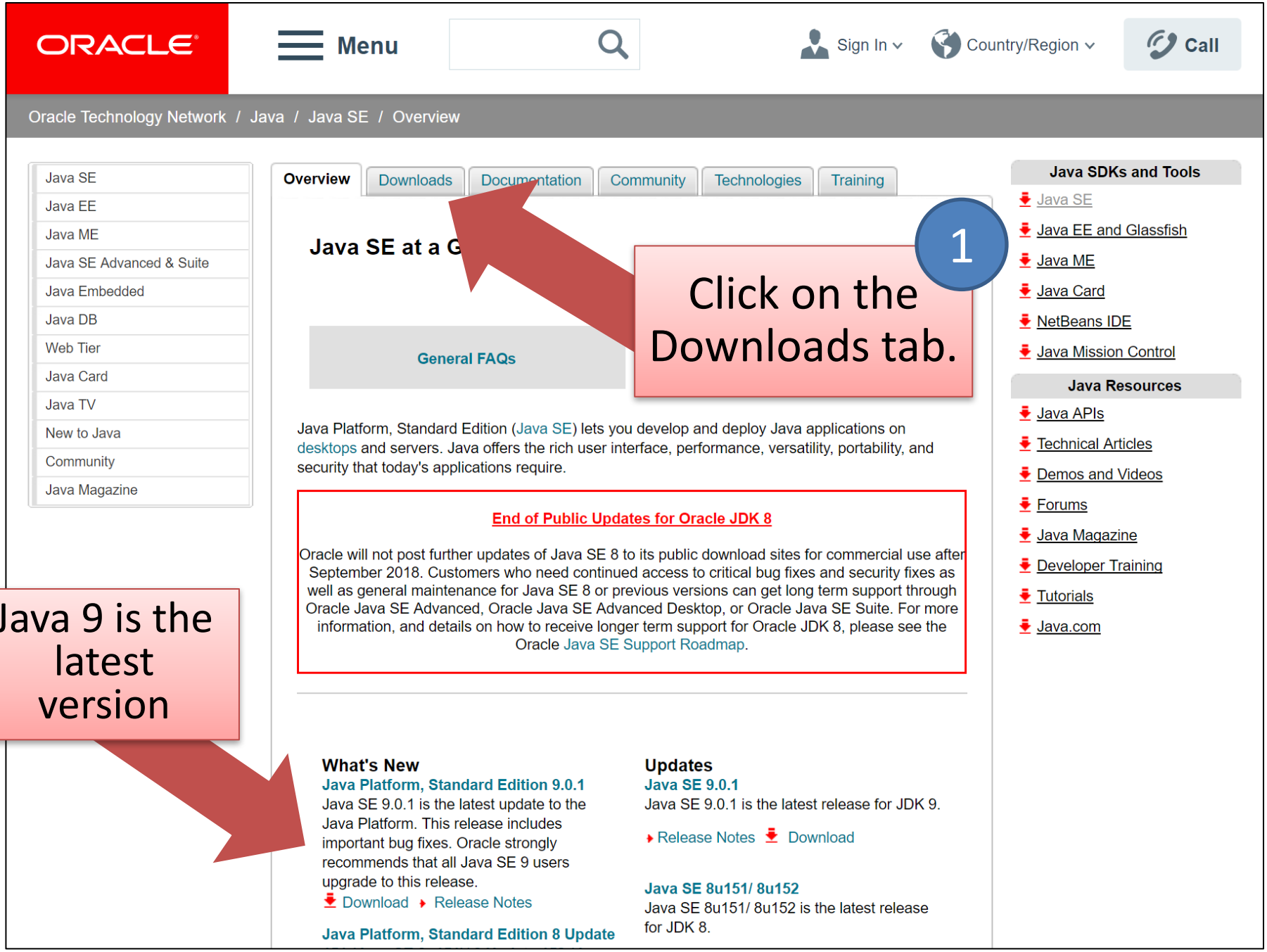
Java **8** is available here

http://www.oracle.com/technetwork/java/javase/overview/index.html#close

NOTE: Mar 2018

we are using **JDK version 8**
in order to maintain compatibility
with content being delivered in the
Web Development module.

The following slides are included for
future reference



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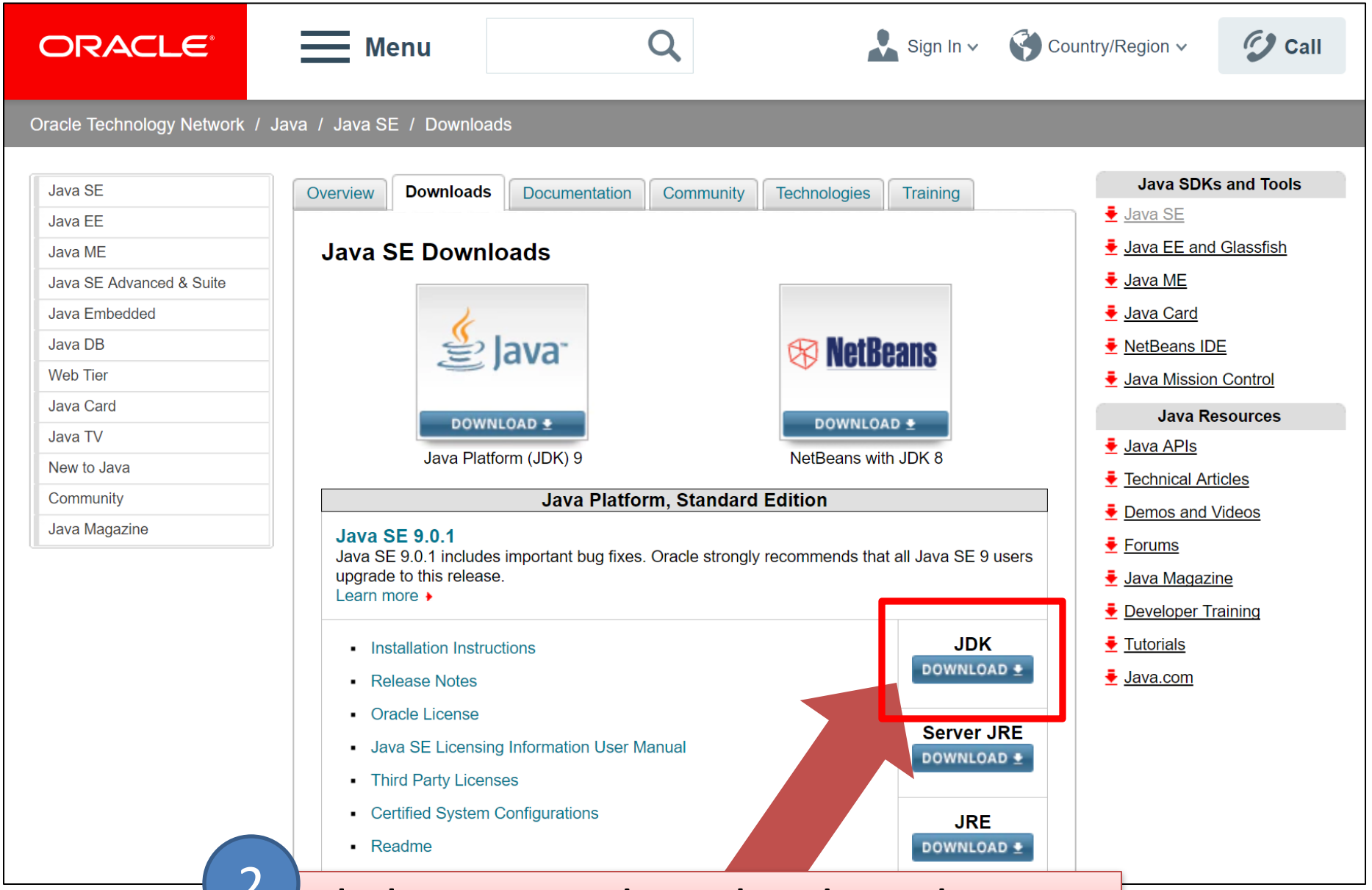

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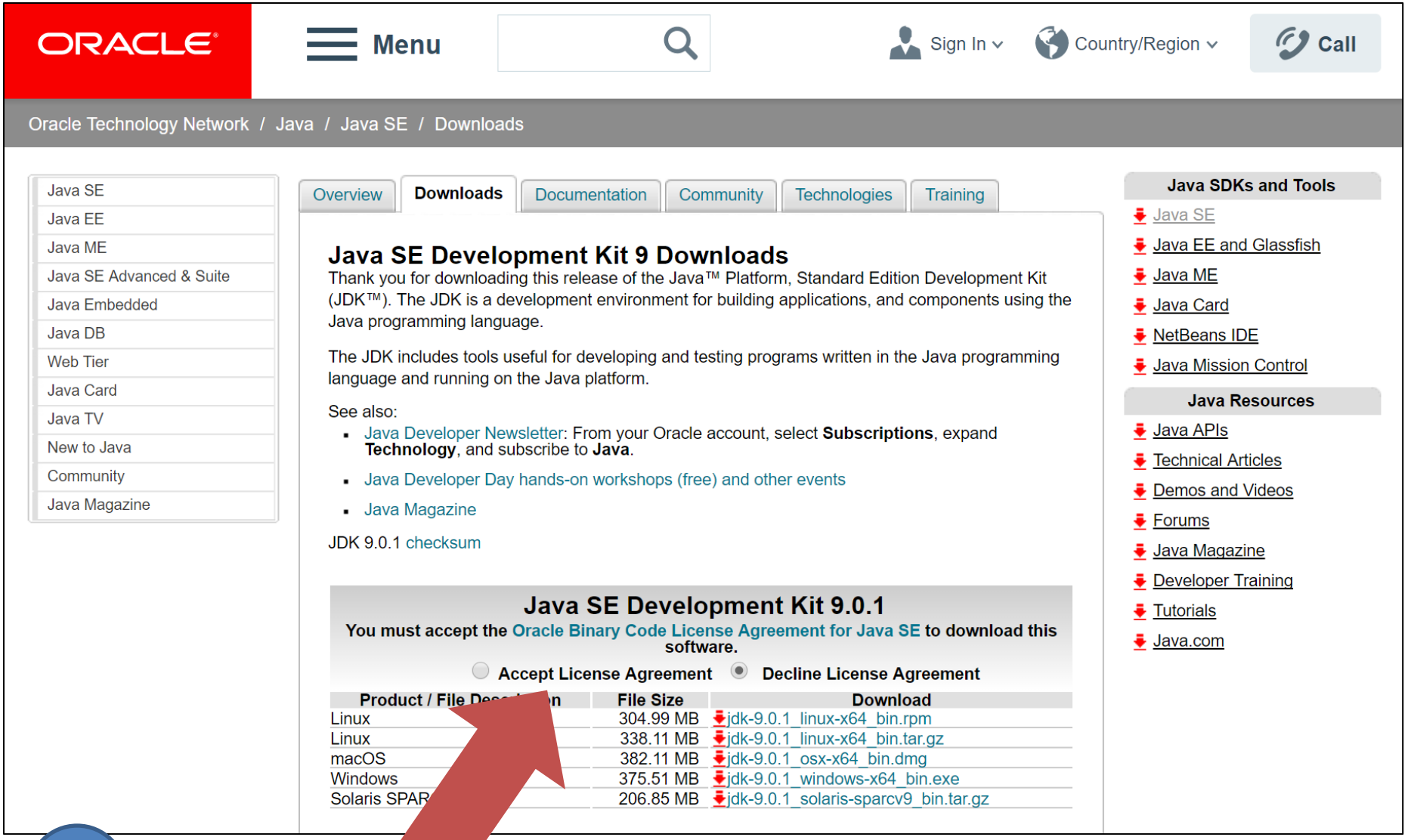
Click to start downloading the JDK.



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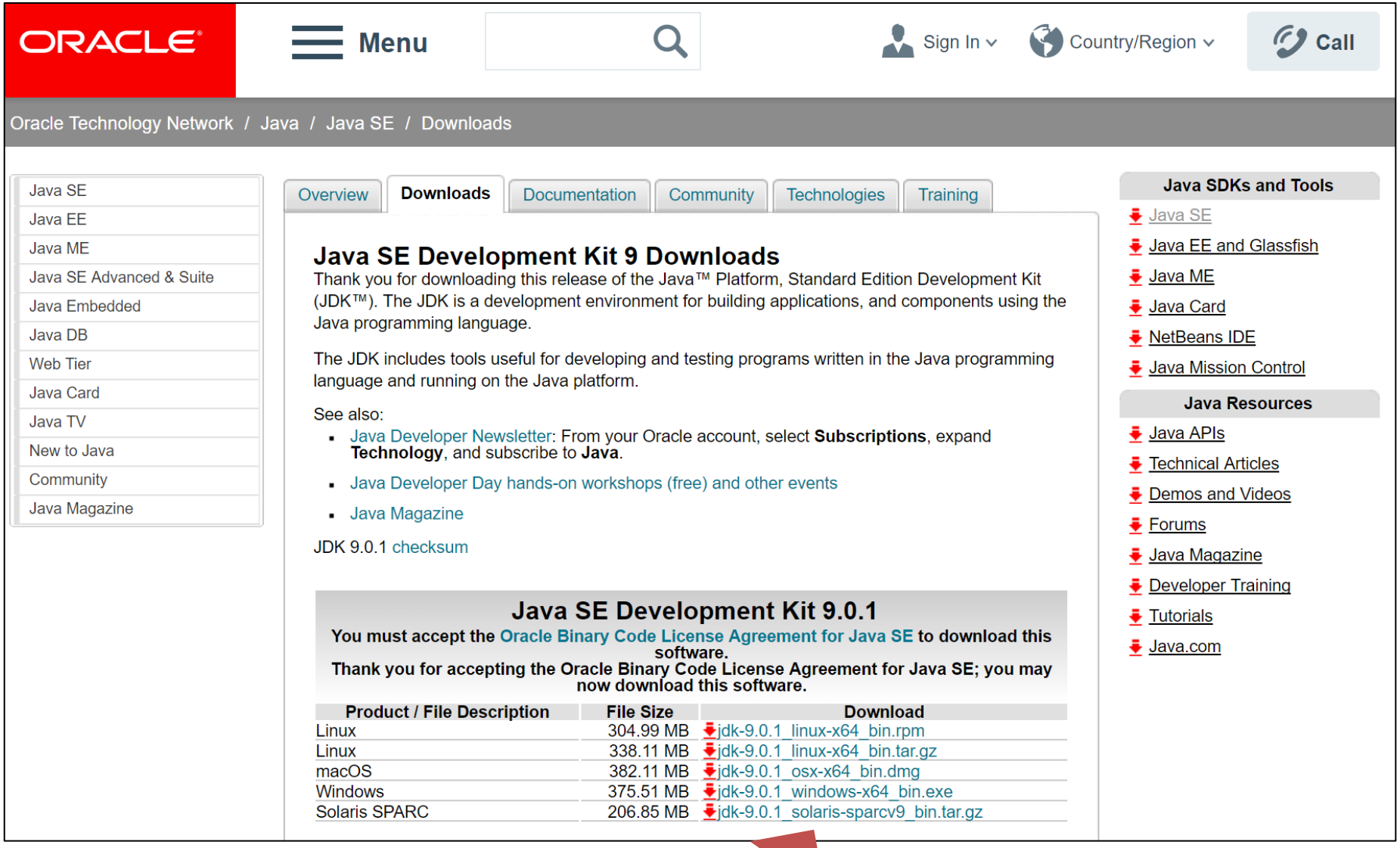
Accept the Licence Agreement.

http://www.oracle.com/technetwork/java/javase/downloads/jdk9-downloads-3848520.html



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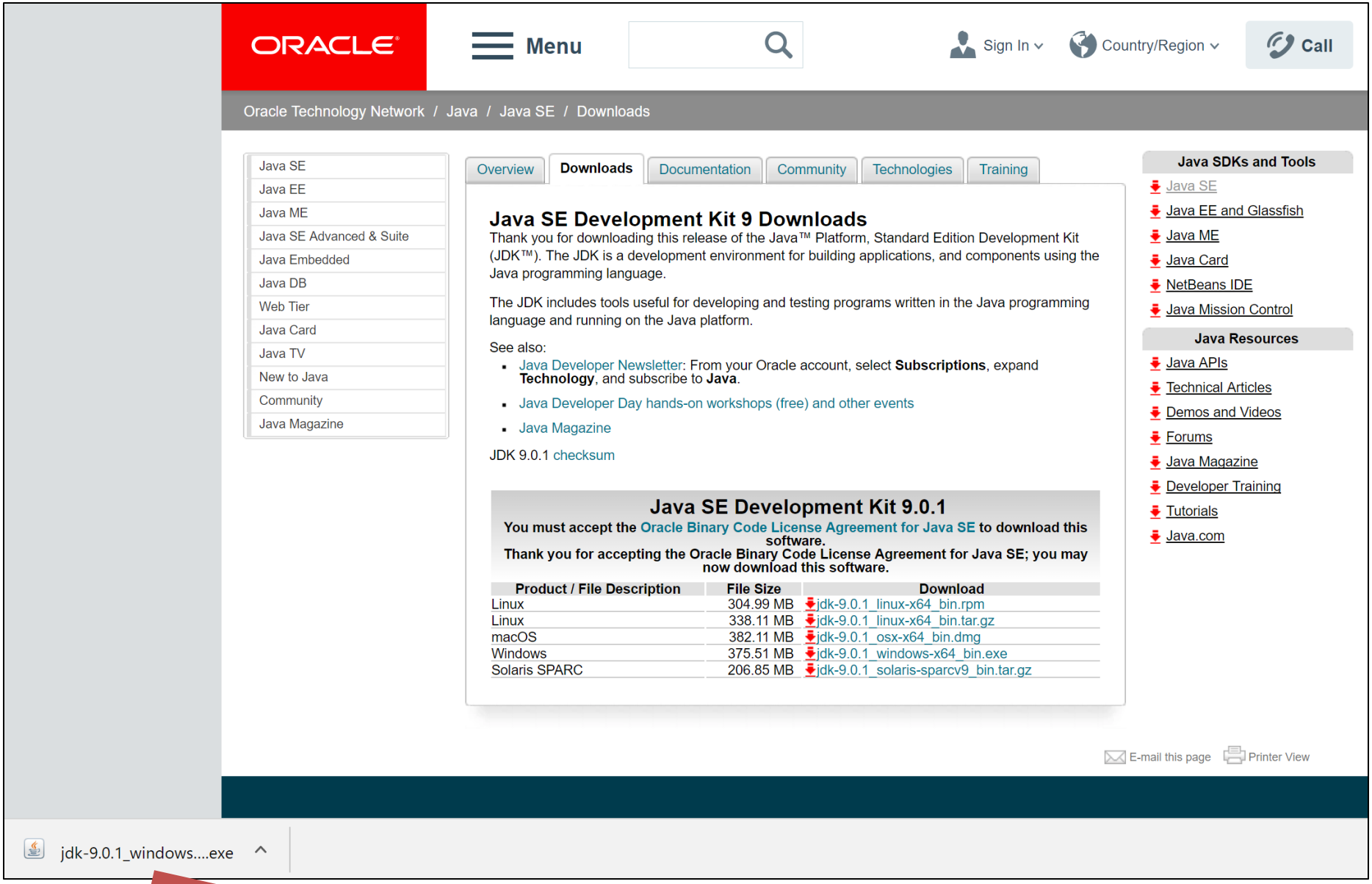
Download the Kit for your operating system.



Click on the downloaded file to start the JDK installation.

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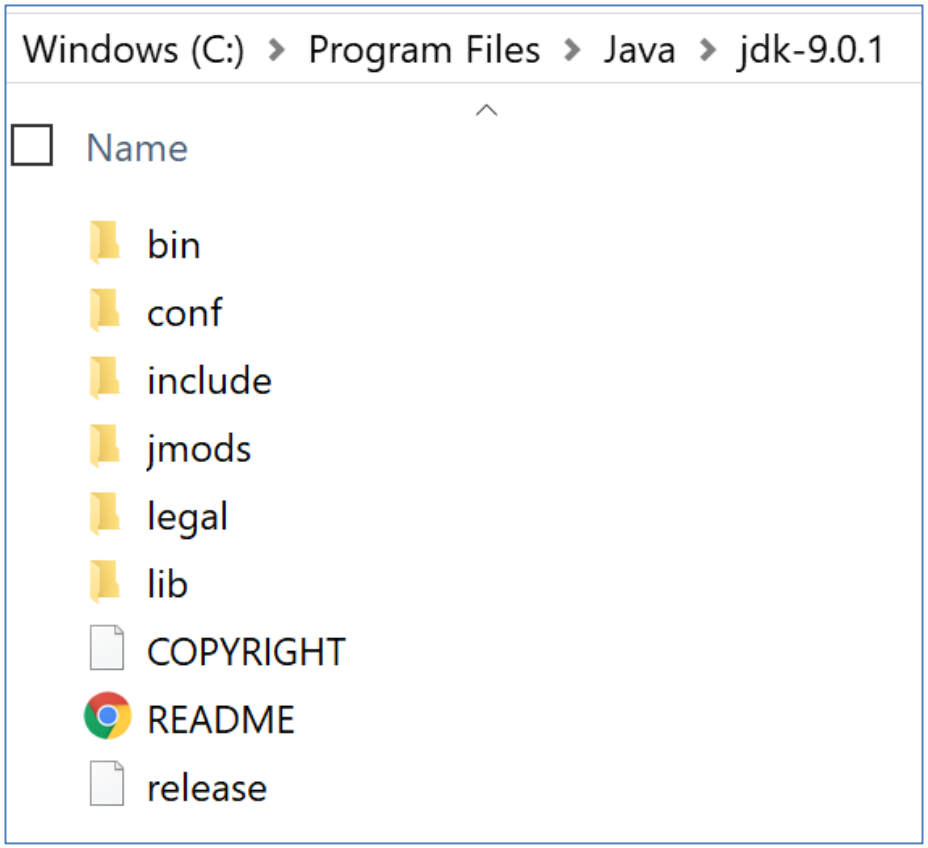
Once JDK9 is installed,
you should have a folder structure
similar to this one:



Questions?