

Installing the Java Programming Language

There are three steps to be able to program in Java on your computer:

1. Install a Java Software Developer Kit (required)
2. Install an Integrated Development Environment for Java (strongly recommended)
3. Get the Java Developer Kit and the Integrated Development Environment working together




Because of changes in the last year with the Java language as well as updates to the operating systems, this process is not as simple as in past. Depending on your system, this could be a few button clicks or a long process.


Installing a Java Software Developer Kit (required)

Most systems do *not* come with the Java Developer Kit (called the JDK or SDK) installed. If you do not install the JDK, you either will not be able to create a Java program, or if you can create a Java program, you will have limited access to the features we will be using in the second half of the course.

There are many versions of the Java JDK out there. **The recommended version is Amazon's Corretto 8.** If you are using the DrJava IDE, you *must* use a Java 8 version because DrJava does not work with later versions of Java. If you are using a different IDE, you can install a later version of Java, but do not use a version earlier than Java 8.

Links to some versions of the Java JDK:

- [Oracle's Java SE Downloads](#)  .
You can install Java 13, Java 11, or Java 8 from this site. Oracle has a very restrictive license that you have to agree to, and you must register on their site. If you are using DrJava, you have to install Java 8.
- [OpenJDK](#) 
This version will work well with most IDEs other than DrJava, and it has a permissive open source license. Do not use this version if you are using DrJava.
- [Amazon's Corretto 8](#)  **(recommended)**
As with other OpenJDK versions, the Amazon version has a permissive open source license.

Linux computers and open source Java: On many distributions, the OpenJDK is included in the distribution so you do not have to download from the above links. Instead, you can use the software installer for your distribution. You can find instructions for your specific linux version here: [Installing OpenJDK](#)  . If you are using DrJava, it should fine for the default Java to be Java 11 or later. DrJava should still run as long as Java 8 is installed on your system.

Installing an Integrated Development Environment

While you can write Java programs using any text editor and you can compile them from the command line, doing so is not recommended. An *Integrated Desktop Environment*, or IDE, combines many useful programming tools into one place, a program editor, the compiler, tools for debugging your programs, tools for writing documentation, and more. There are lots of IDEs for Java out there, and you can use whatever one you want. If you have never used an IDE before, I recommend that you use DrJava because it is meant for beginners and it does not require much effort to learn. You will use DrJava in the class recitations.

Some IDEs for Beginning Students

- [The DrJava IDE](#) **(recommended)**
DrJava is an IDE specifically designed to help beginning programmers learn Java. It is *strongly recommended* that you use DrJava for writing your programs in this class. DrJava works on all systems.

Important note: You should get the jar file version of DrJava. The most recent version is drjava-beta-2019-220051.jar. There are other versions that are listed as "*Windows App*" and "*Mac OS X App*", but do not use them. They only work on old versions of Java. You want to use either the 2016 jar file (if using Oracle's JDK 8) or the 2019 jar file (if using Amazon's Corretto or any other JDK version 8).

Important note: DrJava requires the Java 8 JDK and will not work with a more recent version of Java.

Apple users: Apple does not let you run programs from non-Apple vendors by default. To open DrJava the first time, you must hold the Control key down as you click on the file. This will open a menu, and choose "Open". A dialog will pop up warning you that the file may be corrupted. This is Apple's default warning for all non-Apple programs. Click that you want to open, and Apple will allow you to launch DrJava normally after that.

- [BlueJ](#)

Professional Level IDEs

While you are welcome to use these if you wish, they are not recommended for beginning programmers. These IDEs have a lot more features and take longer to learn to use and understand.

- [Eclipse](#)
- [IntelliJ](#)
- [NetBeans](#)

Getting the JDK and the IDE to work together

On most systems, the two will work by default, but many of you will have a system that requires a little more work. Here are some specific instructions for your operating systems.

- *Windows computers:* [Installing Java on Windows](#)
- *Apple computers:* [Installing Java on Mac](#)