



**Compiler:** In order to run a program written in a high level language such as Java, we need a software program that will translate the source code written in the high level language (that we saved as a text file) into **the native machine language** version of a computer's processor.

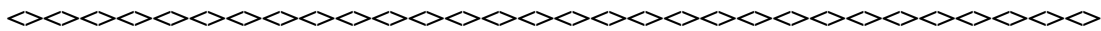
Sun Microsystems (<http://www.sun.com>), who owns and maintains the copyright to the Java programming language, offers a compiler and extensive documentation for free. You just have to download it. (Note that, even if you plan to use a fancy IDE such as JCreator or BlueJ, you must still install Sun's Java compiler which JCreator and BlueJ both use.)

The first time that you download Java's "development kit" can be a bit confusing. The following box of instructions will take you "by the hand" through those many, tiny steps.

## DOWNLOADING JAVA'S DEVELOPMENT KIT

**Create a directory to save files that you download from the Internet. Call it "dl".**

Click My Computer → Local Disk C: → File → New → Folder → Type "dl" ("download").



**Download the *latest* JDK (Java Development Kit) from Sun Microsystems.**

This example will download the standard version of JDK1.4.1 in July of 2002. Be alert to adapting the following instructions to later modifications at Sun's web site.

**Launch your browser** (probably Internet Explorer, Netscape or Opera).

- Type the URL address **<http://www.javasoft.com/>**
- Watching the left side of the screen, scroll until you see the heading **The Java Platform** just above a scroll box.
- Click the scroll box scroll button ▼
- Click: - **Standard Edition**
- Click: **Java™ 2 SDK, Standard Edition, v 1.4.1 (SDK)**
- Click the name of your platform: **Microsoft Windows**
- Scroll the screen downward until you see the title: **Download Java 2 SDK, v 1.4.1 Software for Windows 95 / 98 / 2000 / NT 4.0 / ME / XP (Intel Platform)**
- Click the **continue** button under that title.
- Scroll to the bottom of the *License Agreement*.
- Click the **ACCEPT** button.
- Click a download button such as: **FTP download**
- When the "File Download" window appears, ensure that downloading is chosen by clicking:  **Save this program to disk radio button**
- Click: **OK**
- **Save in C:\dl.** The name of the file will be something like **j2sdk-1\_4\_1-win.exe**

# INSTALLING JAVA'S DEVELOPMENT KIT

Now it is time to install your JDK (Java Development Kit). Here are more baby steps.

## Installation of the JDK (Java Development Kit)

The following instructions refer to installing version 1.4.1 of the JDK in July of 2002. Be alert to adapting the following instructions to later JDK versions from the Sun web site.

Start → Run... → Browse... → Look in: C:\dl → Click **j2sdk1\_4\_1-win.exe** → Click **O**pen → Click **O**K → The installation splash screen appears. → A **W**elcome dialogue box appears beginning with the words "Welcome to the Java Development Kit setup program." → Click **N**ext> → The **S**oftware License Agreement dialogue box appears. → Click **Y**es → The **C**hoose Destination Location dialogue box appears. → Accept the default **D**estination Folder (example only: C:\jdk1.4.1) because installations of other files such as help files look for the same default path. → Click **N**ext> → The **S**elect Components dialogue box may or may not appear. If it does, then **A**cept all Components by leaving the boxes checked  and Click **N**ext> → The **S**etup Complete dialogue box appears. → Click **F**inish → All JDK dialogue boxes disappear. The installation is complete. → You may delete the installation file that you downloaded if you wish to reclaim disk space.

## PERMANENTLY SETTING THE PATH VARIABLE

Now permanently **set the JDK PATH, such as C:\jdk1.4.1\bin**. This lets you run JDK executable files from any directory without typing the entire path of the file. You only have to type the file name itself. Such files are *javac.exe*, *java.exe*, and *javadoc.exe*.

Permanently Set the PATH Variable				
WIN 95/98	WIN NT	WIN 2000	WIN ME	WIN XP
Open <b>AUTOEXEC.BAT</b> → Add or change the PATH statement with:  <b>PATH</b> <b>C:\JDK1.4.1\BIN</b>	Start → Settings → Control Panel → System → Environm't Vars → New OR Edit: Add: <b>C:\JDK1.4.1\BIN</b> → Click <i>Set</i> OR <i>OK</i>	Start → Settings → Control Panel → System → Advanced → New OR Edit: Add: <b>C:\JDK1.4.1\BIN</b> → Click <i>OK</i>	Start → programs → accessories → system tools → system information → tools menu → system configuration utility → Environment tab → <b>PATH</b> → Edit button → <b>C:\JDK1.4.1\BIN</b> → Save changes → Reboot computer	Start → programs → Control Panel → System → Advanced → Environment Variables → Path → Edit button → <b>C:\JDK1.4.1\BIN</b> → Save changes → Reboot computer

## PERMANENTLY SET THE CLASSPATH VARIABLE

Now permanently **set the CLASSPATH VARIABLE to three paths**. This helps the Java compiler find the Java class library and other class files that a program might use. A class is a chunk of programming code that can contain many types of information and directions that a program uses to accomplish its objectives. These chunks of code must be stored somewhere until a program integrates that code into the rest of its code. At that point it must know the names of the directories where the classes of programming code are saved.

The full command is **SET CLASSPATH=**

You should list four separate paths (directories) where classes will be found, separating each path with a semi-colon. The compiler will then search for a particular class in the same order that you list the paths until it finds the class. The four paths that you should list for JDK version 1.3.1 are:

- 1<sup>st</sup>     .
  - 2<sup>nd</sup>    **c:\jdk1.4.1\lib\tools.jar**
  - 3<sup>rd</sup>    **c:\jdk1.4.1**
  - 4<sup>th</sup>    **c:\javaclasses**
- (Note: A single dot (period) refers to the *current* path.)

For WIN95/98 users, type the following line. **Do not put any spaces after CLASSPATH!**  
**SET CLASSPATH=%CLASSPATH%;.;c:\jdk1.3.1\lib\tools.jar;c:\jdk1.3.1**

For WIN NT/2000/ME users, type the variable name without '=' as:   **SET CLASSPATH**

Permanently Set the CLASSPATH Variable				
WIN 95/98	WIN NT	WIN 2000	WIN ME	WIN XP
Open <b>AUTOEXEC.BAT</b> → Add or change the CLASSPATH statement, using no spaces after CLASSPATH, with: <b>SET CLASSPATH=%CLASSPATH%;.;c:\jdk1.4.1\lib\tools.jar;c:\jdk1.4.1;c:\javaclasses</b>	Start → Settings → Control Panel → System → Environm't Vars → New <b>OR</b> Edit → Variable <u>N</u> ame: <b>SET CLASSPATH</b> → Variable <u>V</u> alue: <b>.;c:\jdk1.4.1\lib\tools.jar;c:\jdk1.4.1;c:\javaclasses</b> → Click <i>Set</i> <b>OR</b> <i>OK</i>	Start → Settings → Control Panel → System → Advanced → New <b>OR</b> Edit → Variable <u>N</u> ame: <b>SET CLASSPATH</b> → Variable <u>V</u> alue: <b>.;c:\jdk1.4.1\lib\tools.jar;c:\jdk1.4.1;c:\javaclasses</b> → Click <i>OK</i>	Start → programs → accessories → system tools → system information → tools menu → system configuration utility → Environment tab: <b>SET CLASSPATH=</b> → Edit button: <b>.;c:\jdk1.4.1\lib\tools.jar;c:\jdk1.4.1;c:\javaclasses</b> → Save changes → Reboot computer	Start → programs → System → Advanced → Environment Variables → CLASSPATH → Edit button: <b>.;c:\jdk1.4.1\lib\tools.jar;c:\jdk1.4.1;c:\javaclasses</b> → Save changes → Reboot computer

# COMPILE YOUR FIRST JAVA PROGRAM

If you have proceeded sequentially through this article, then you already wrote your first program (HelloWorldApp) in a text editor and saved it under the name **HelloWorldApp.java**. If you have not done so, then go back to the beginning of this article and do so now.

Go to a command line prompt. **In WIN95/98:** Start → Programs → MS-DOS Prompt  
**In WIN NT/2000/NT:** Start → Programs → Accessories → Command Prompt

Change the prompt to show the name of the directory where your file (**HelloWorldApp.java**) is located. You should get in the habit of saving all related files in the same directory. For now, you might create and save all of your Java source code (text) files in the directory: **c:\source**

Later, when you develop projects containing many different source code files, you will generally save most of those files in a directory that holds only files belonging to a particular project.

## Create & Navigate Among Directory With DOS Commands

PROMPT	COMMAND	COMMAND FUNCTION
C:\WINDOWS>	<b>dir</b> ←	<b>list files</b> in current directory
C:\WINDOWS>	<b>cd \</b> ←	<b>change directory</b> to disk drive's <b>root directory</b> '\'
C:\>	<b>md source</b> ←	<b>make directory</b> called "source"
C:\>	<b>cd source</b> ←	<b>change directory</b> to directory called "source"
C:\SOURCE>	<b>dir</b> ←	<b>list files</b> in current directory

The command prompt should now contain the path of the file holding your java source code.



Now run the java compiler (javac) by typing its name and get it to compile your particular source file by then typing a space followed by the name of your particular source file.



## DOWNLOADING SUN'S JAVA DOCUMENTATION

Sun Microsystems provides over oodles of hyperlinked documentation for JDK1.3.1. This documentation can be viewed separately or can be integrated into an IDE such as Jcreator. This is a good time to download and install Sun's documentation for Java.

### Download Sun's Documentation for JDK1.4.1

**Launch your browser** (probably Internet Explorer, Netscape or Opera).

- Type the URL address <http://javasoft.com/>
- Watching the left side of the screen, scroll until you see the heading **The Java Platform** just above a scroll box.
- Click the scroll box scroll button ▼
- Click: - **Standard Edition**
- Click: [Java™ 2 Platform, Standard Edition, v 1.4.1 Documentation \(Docs\)](#)
- Scroll the screen downward until you see the title:  
**Download Java™ 2 SDK 1.4.1 Docs - HTML Format**
- Click the **continue** button under that title.
- Scroll to the bottom of the *License Agreement*.
- Click the **ACCEPT** button.
- Click a download button such as: **FTP download**
- When the "File Download" window appears, ensure that downloading is chosen by clicking:  **Save this program to disk radio button** → Click: **OK**
- It is crucial that you now save this file in the directory where you installed the JDK.
- **Save in c:\jdk1.4.1**. The name of the file will be something like **j2sdk-1\_4\_1-doc.zip**

## INSTALLING SUN'S JAVA DOCUMENTATION

Now unbundle (unzip) your Java documentation. Doing so creates a **docs** directory in the current directory, putting all the documentation inside the **docs** directory. That is why it was so convenient to have saved **j2sdk-1\_4\_1-doc.zip** in java's root directory: **c:\jdk1.4.1**

### Install Sun's Documentation for JDK1.4.1

This is easiest if you have already installed Winzip. Simply go Start → Run... → Click box for Open: → Type **j2sdk-1\_4\_1-doc.zip** → Click OK → Winzip's nag screen appears. → Click **I agree** → Click **Extract** → In the window "Extract to" type: **c:\jdk1.4.1**