Technical Note No. 106
Using DrJava

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Summary: This note provides instructions on using the DrJava IDE.

Downloading and Configuring DrJava

1. **What is DrJava?**

    DrJava is a lightweight, open source Java IDE (integrated development environment) described as a "development environment . . . designed primarily for students," but with "powerful features for more advanced users" (http://www.drjava.org/). A unique feature of DrJava is the Interactions Pane, an interpreter-based pane that allows the programmer to test code snippets without writing a main method. Sun Microsystems (now owned by Oracle) is involved in funding the DrJava project, along with other open source Java IDEs such as BlueJ, Eclipse, and Sun's own NetBeans.

2. **Downloading DrJava**

    If DrJava is required software in your CPS course, you will want to download and install the most recent DrJava version to your own machine and USB drive from http://www.drjava.org. At this writing, the current stable release is **drjava-beta-20160913-225446**. I recommend using the "Jar File" rather than the "Windows App." Either one will work fine simply by clicking the file after downloading, but I have encountered compiler problems with the Windows App version on some machines. Neither download needs to be extracted in order to execute the program although you may right-click and extract the extra files if you like. The download file is about 6 MB and can be easily stored on a USB flash drive. I strongly encourage you to do this, since it will allow you to run DrJava from any machine that has a Java compiler installed.

3. **Configuring DrJava's Resource Locations**

    Like all Java IDEs, DrJava requires a Java compiler. The following instructions assume that you have installed the most recent JDK on your local drive, placing it in the "Program Files" folder. The default installation subdirectory will look like something like this: `C:\Program Files\Java\jdk1.8.0_112`. This subdirectory contains a number of important folders, but the critical one for DrJava is "lib." The "lib" folder contains the tools.jar file that DrJava needs to know about. Open DrJava and select Edit | Preferences | Categories | Resource Locations. In the Tools.jar Location textbox, browse to the lib folder, highlight the tools.jar file, and click Select. Click OK or Apply, as needed.

4. **Adding course support files to DrJava's classpath**

    Your Java textbook and/or your Java instructor may have Java files that you will need in order to complete homework and programming assignments. DrJava needs to know where you have placed those files on your M drive, your C drive, and/or your USB flash drive. In DrJava, select Edit | Preferences | Categories | Resource Locations. Click the Add button under the Extra Classpath textbox. Browse to the folder that stores your course support files and click Select. Click OK or Apply, as needed.   You may add as many Extra Classpath locations as you wish.

    Example using the Guzdial and Ericson textbook classes[1]:

    - Login with your NetID and open My Computer
    - Browse to your M drive and create/open the myjava folder
    - Create a subdirectory in myjava called intro-prog-java

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[1] The student data folders, "bookClasses" and "mediasources,"are included with the textbook. If you bought a used textbook, you will need to download the student data folders. They are available on the course Moodle.

- Open the Guzdial and Ericson CD and then open the intro-prog-java folder on the CD
- Right-drag and copy the bookClasses folder into the intro-prog-java folder on your M drive
- Add the classpath, **m:\myjava\intro-prog-java\bookClasses**, to DrJava as directed above.

N. B. In order to save space on your M drive, please do *not* drag the entire intro-prog-java folder onto your M drive. However, you might want to copy the intro-prog-java folder onto a USB drive as a handy backup.

5. **Managing the Java Class Path and Packages in DrJava**

- This section assumes basic familiarity with the Java class search path and package assignments. See http://www.kevinboone.com/PF_classpath.html for an excellent refresher on these concepts.

- Suppose you have a folder, myutils, that contains utility classes that you want to be available for importing into a given application with the import declaration, "import myutils.*;" Java expects to see *the parent of that folder* in the classpath. Assume further that myutils is a child of the "myclasses" subdirectory. Select Edit | Preferences | Categories | Resource Locations. Click the Add button under the Extra Classpath textbox. Browse to the "myclasses" folder and click Select. Click OK.

  Every Java IDE handles this situation in a slightly different way, but the important point here is that for DrJava, the classpath subdirectory is the immediate parent of the import folder.

  N. B.   Java expects package declarations to be character-for-character matches with the parent subdirectory name of the subdirectory in which the package files are stored. While some IDEs will treat the declaration as being case-insensitive, don't assume that DrJava will--it won't.