
Chapter 1

Introducing Android Studio

This chapter walks you through installing and setting up your development environment so you can follow the examples and labs in this book. First, you will install an essential prerequisite component called the Java Development Kit (JDK). Then you will download and install Android Studio as well as the Android Software Development Kit (SDK), which is a suite of software tools required to build Android apps. We will show you how to use the New Project Wizard to create a simple project called HelloWorld. Last, we will show you how to establish a connection to both an Android Virtual Device (AVD) and a physical Android device. By the end of this chapter, you will have everything you need to start developing apps in Android Studio.

Installing the Java Development Kit on Windows

This section pertains to Windows users. If you're a Mac user, skip ahead to the section titled "Installing the Java Development Kit on Mac." Android Studio uses the Java tool chain to build, so you need to make sure that you have the Java Development Kit (JDK) installed on your computer before you start using Android Studio. It's quite possible that you already have the JDK installed on your computer, particularly if you're a seasoned Android or Java developer. If you already have the JDK installed on your computer, and you're running JDK version 1.6 or higher, then you can skip this section. However, you may want to download, install, and configure the latest JDK anyway. You can download the JDK from the following Oracle site:

www.oracle.com/technetwork/java/javase/downloads/index.html

When you land on this page, click the Java Download button, shown in Figure 1-1.



Figure 1-1. The Java Download button on the Java Downloads page

Downloading the JDK on Windows

The next step in the installation, shown in Figure 1-2, requires that you accept a license agreement by clicking the Accept License Agreement radio button. Then you must choose the appropriate JDK for your operating system. If you're running Windows 7 or Windows 8, you should click the file link to the right of the Windows x64 label, also shown in Figure 1-2. Oracle makes frequent release updates to the JDK. By the time this book goes to press, a newer version of the JDK will almost certainly be available, so please be sure to download the latest version. Wait for the installation file to download. This file is usually around 125MB, so the download shouldn't take long.

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JDK MD5 Checksum

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Figure 1-2. Accept the license agreement and click the appropriate link for Windows

Executing the JDK Wizard on Windows

Before you install the JDK, create a directory in the root of your C: drive called Java. The name of this directory is arbitrary, though we call it Java because many of the tools we are going to install here are related to Java, including the JDK, Android Studio, and the Android SDK. Consistently installing the tools related to Android Studio in the C:\Java directory also keeps your development environment organized.

Navigate to the location where your browser downloaded the installation file and execute that file by double-clicking it. Once the installation begins, you will be presented with the Installation Wizard, shown in Figure 1-3. In Windows, the JDK installer defaults to C:\Program Files\Java\. To change the installation directory location, click the Change button. We recommend installing your JDK in the C:\Java directory because it contains no spaces in the path name and it's easy to remember. See Figure 1-4.



Figure 1-3. Installation Wizard for the JDK on Windows

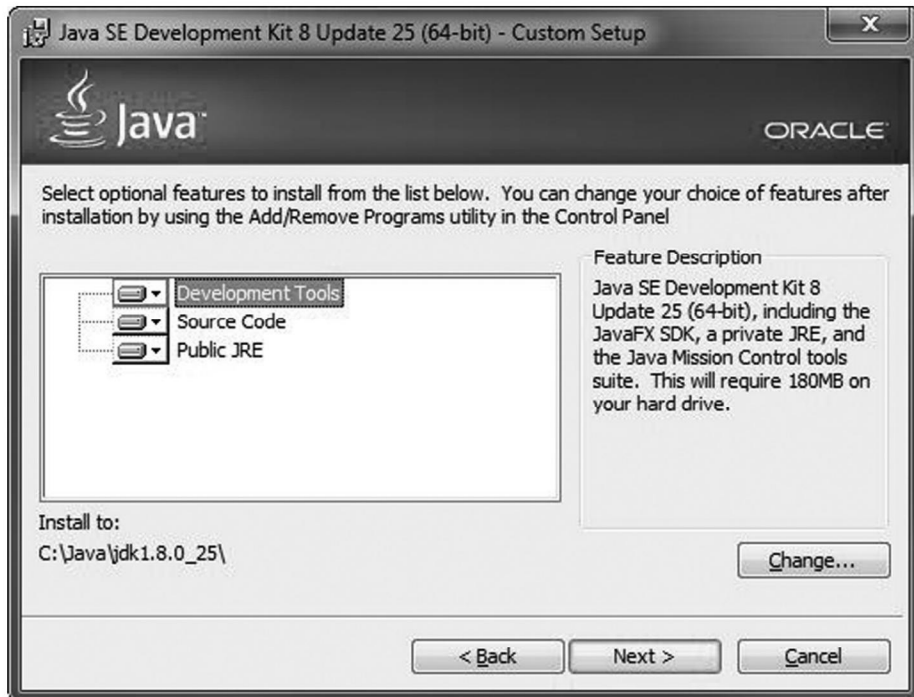


Figure 1-4. Select the JDK installation directory

Make a note of where you are installing your JDK. Follow the prompts until the installation is complete. If prompted to install the Java Runtime Edition (JRE), choose the same directory where you installed the JDK.

Configuring Environmental Variables on Windows

This section shows you how to configure Windows so that the JDK is found by Android Studio. On a computer running Windows, hold down the Windows key and press the Pause key to open the System window. Click the Advanced System Settings option, shown in Figure 1-5.



Figure 1-5. Windows System window

Click the Environmental Variables button, shown in Figure 1-6. In the System Variables list along the bottom, shown in Figure 1-7, navigate to the JAVA_HOME item. If the JAVA_HOME item does not exist, click New to create it. Otherwise, click Edit.

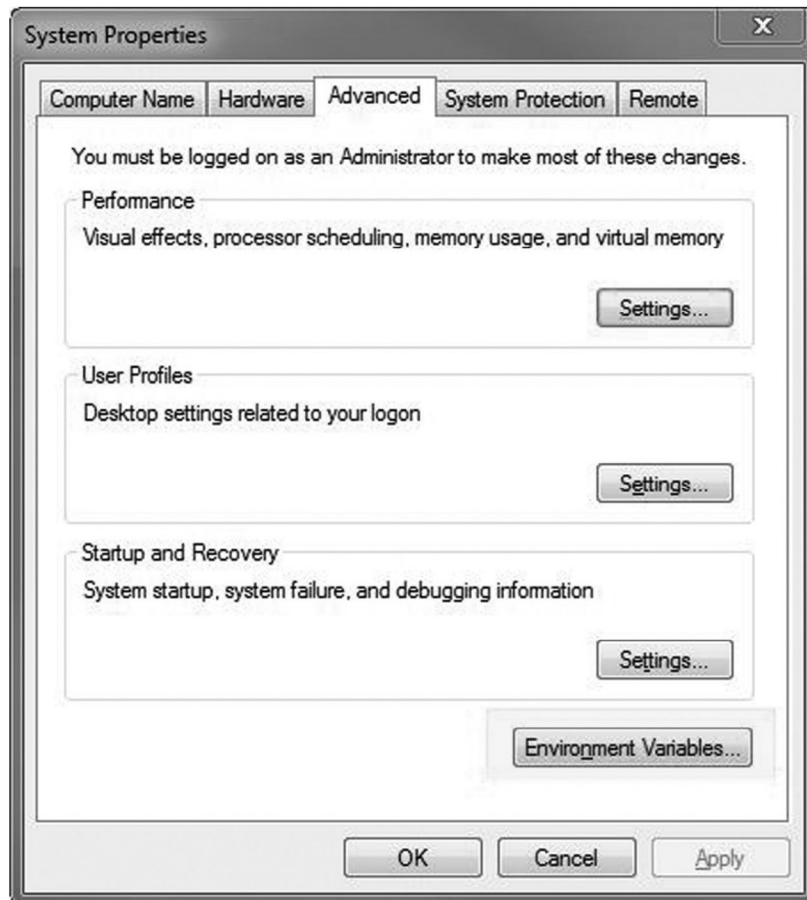


Figure 1-6. System properties

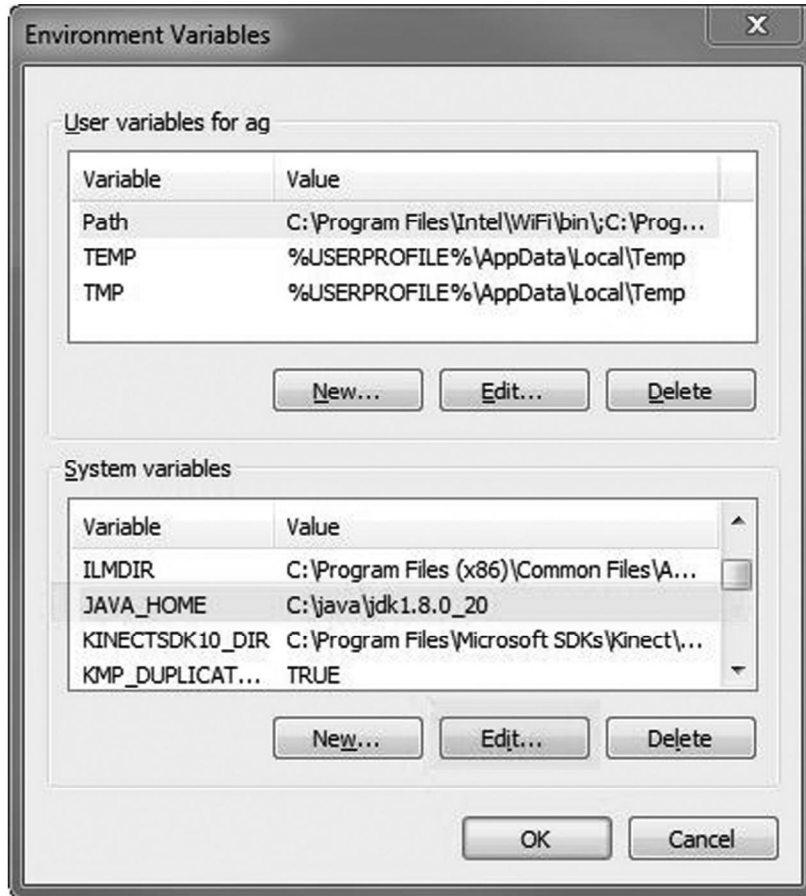


Figure 1-7. Environmental variables

Clicking either New or Edit displays a dialog box similar to Figure 1-8. Be sure to type **JAVA_HOME** in the Variable Name field. In the Variable Value field, type the location where you installed the JDK earlier (less any trailing slashes), as shown in Figure 1-4. Now click OK.

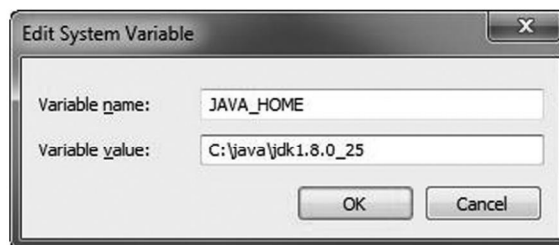


Figure 1-8. Edit the JAVA_HOME environmental variable

Just as you did with the `JAVA_HOME` environmental variable, you will need to edit the `PATH` environmental variable. See Figure 1-9. Place your cursor at the end of the Variable Value field and type the following:

```
;%JAVA_HOME%\bin
```

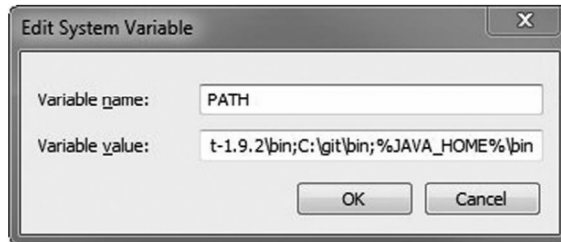


Figure 1-9. Edit the `PATH` environmental variable

Now click OK, OK, OK to accept these changes and back out of the system properties.

To test that the new JDK has been installed properly, pull up a command line by clicking the Start button, typing `cmd`, and then pressing Enter.

In the command-line window, issue the following command and press Enter:

```
java -version
```

If you get a response like the one shown in Figure 1-10, congratulations. You just installed the JDK properly.



Figure 1-10. Confirm the proper JDK installation

Installing the Java Development Kit on Mac

The first two steps in installing the JDK for Mac and Windows are identical. Point your browser to the following site:

www.oracle.com/technetwork/java/javase/downloads/index.html

When you land on this page, click the Java Download button, shown in Figure 1-11.



Figure 1-11. The Java Download button on the Java Downloads page

Downloading the JDK on Mac

Accept the license agreement, shown in Figure 1-12, by clicking the Accept License Agreement radio button. Then you must choose the appropriate JDK for your operating system. If you're running a 64-bit version of OS X, you should click the file link to the right of the Mac OS X64 label, also shown in Figure 1-12. Oracle makes frequent release updates to the JDK. By the time this book goes to press, a newer version of the JDK will almost certainly be available, so please be sure to download the latest version. Wait for the installation file to download.

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Figure 1-12. Accept the license agreement and click the appropriate link for Mac

Executing the JDK Wizard on Mac

Double-click the .dmg file to execute it. Now click the .pkg file to begin the wizard and click Continue as required, as shown in Figures 1-13 through 1-15.

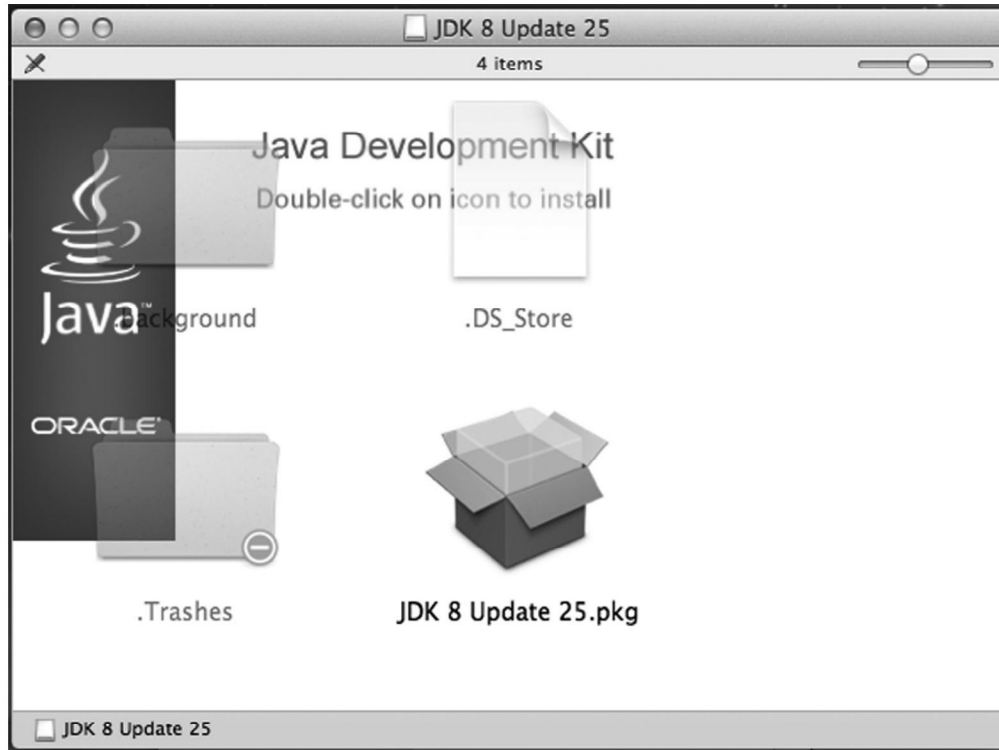


Figure 1-13. JDK 8 Update 25.pkg

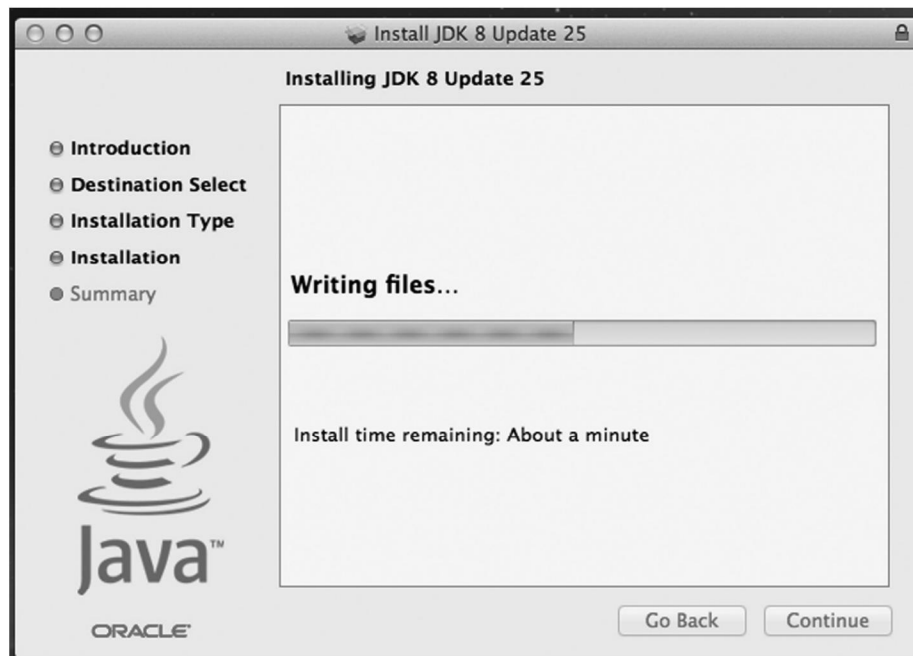


Figure 1-14. Installation Wizard



Figure 1-15. Installation success

Configuring the JDK Version on Mac

To configure your Mac so that the proper JDK is found by Android Studio, open a Finder window and choose Applications ► Utilities. From there, open Java Preferences and, as instructed, drag the new version to the top of the list so it is recognized as the preferred version.

Installing Android Studio

Before you begin downloading Android Studio, create a labs parent directory for the labs you will create in this book. We use `C:\androidBook\` as our labs' parent directory throughout the book, but you may choose or create whatever directory you see fit. For that reason, we simply call it the *labs parent directory*.

Downloading Android Studio is straightforward. Point your browser to this site:

`developer.android.com/sdk/installing/studio.html`

Now click the large green Download Android Studio for your OS button, shown in Figure 1-16. Next, select the check box labeled I Have Read and Agree with the Above Terms and Conditions. Click Download Android Studio for your OS again, and your installation file should begin downloading. Once the download is complete, execute the file you just downloaded.

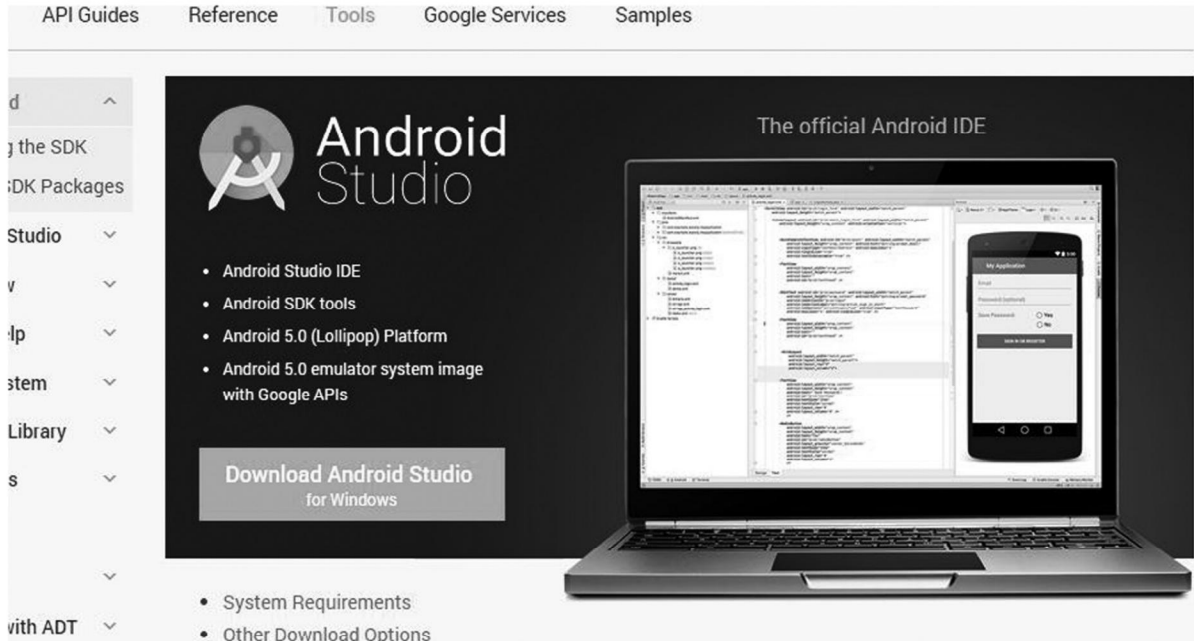


Figure 1-16. Download Android Studio

After the Installation Wizard begins, move through its screens by clicking the Next buttons until you reach the Choose Components screen. There, select all the component check boxes, shown in Figure 1-17. Then click Next. Agree to the terms and conditions once again. When you reach the Configuration Settings: Install Locations screen, shown in Figure 1-18, select the locations for Android Studio and the Android SDK. To be consistent, we chose to install Android Studio in C:\Java\astudio\ and the Android SDK in C:\Java\asdk\.

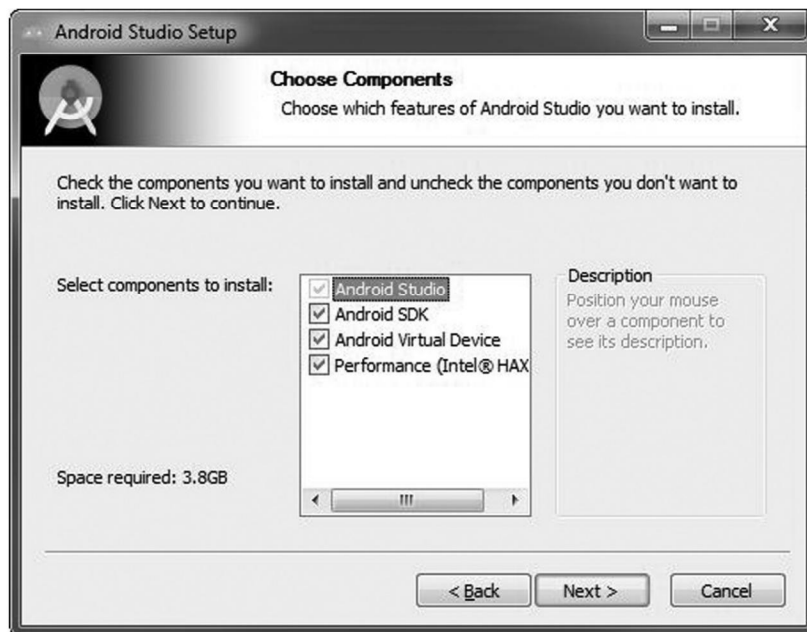


Figure 1-17. Choose components