Queens University Belfast

Android Studio

CSC3054 / CSC7054

Android Installation Guide

(Source: Android Studio Development Essentials, Neil Smyth)

Introduction to Android

Welcome to Android app development! We hope whilst working through this manual you will find it informative, challenging, entertaining and rewarding!

Getting Started

In order for you to understand how to build an Android App from scratch you must first of all go through the basics. You will be working with two types of files and an IDE environment which are outlined below:

Java File	This is where you will write your programming – what you want your app to do.
XML File	This is where you will design your layouts - how you want your app to look.
APK File	Once your app is ready, you will compile all the project files and package them together into an **.apk file** that you can run on a Google device and submit to Google Play.
IDE	An Integrated Development Environment (IDE) manages all of the files you used to put your app together. The IDE is the program that will open and edit your code files and manage your projects. For the purpose of this module we will be using Android Studio.
SDK	Software Development Kit
JDK	Java Development Kit

Setting up the Android Studio Development Environment

It is really tempting to jump in and start coding straight away figuring out the different Android Features as you go along. However before you do this it is important that you set up your environment correctly. This involves a number of steps consisting of installing the **JDK**, the **Android Studio IDE** and the Android **SDK**.

It is important that you follow each step methodically. Even if you follow the steps perfectly, you may have to troubleshoot some small issue, depending on your system configuration of product versions.

Installing the JDK

The **Android SDK** was developed using the Java programming language. Similarly, Android applications are also developed suing Java therefore the first component that must be installed is the **JDK**. You might already have this even if you do not know for sure. You must have either version 6, 7 or 8 of the **JDK** installed.

Widows JDK Installation

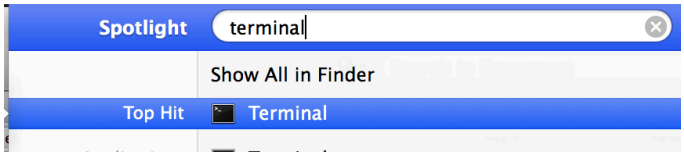
For Windows systems, the FDK may be obtained from the Oracle website via the following URL:

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Assuming that a suitable JDK is not already installed on your system, download the latest JDK from the above link, extract the file and follow the onscreen instructions to complete the installation process.

Mac OS X JDK Installations

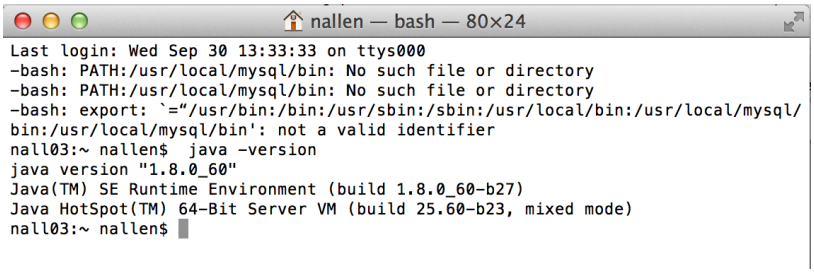
Java is not installed by default on recent versions of **Mac OS X**. Therefore you must first of all check to see if Java has been installed on your system. To do this you will use the **Terminal** app on a Mac. You can find it quite easily by using Spotlight:



Once you have found it via **Spotlight**, double click on the icon and open the **Terminal** window. Enter the following command:

```
java – version
```

Assuming that Java is currently installed, output similar to the following will appear in the terminal window



In the event that Java is not installed, a message will appear saying:

```
No Java runtime present, requesting install
```

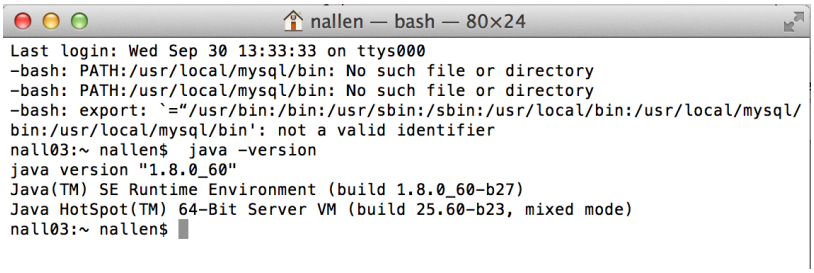
If this is the case, following the following link to the Oracle download page:

http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html

Locate and install the **Java SE 8 JDK installation package** for the **Mac OS X**.

Open the disk image (`.dmg` file) and double-click on the Java package as shown below:

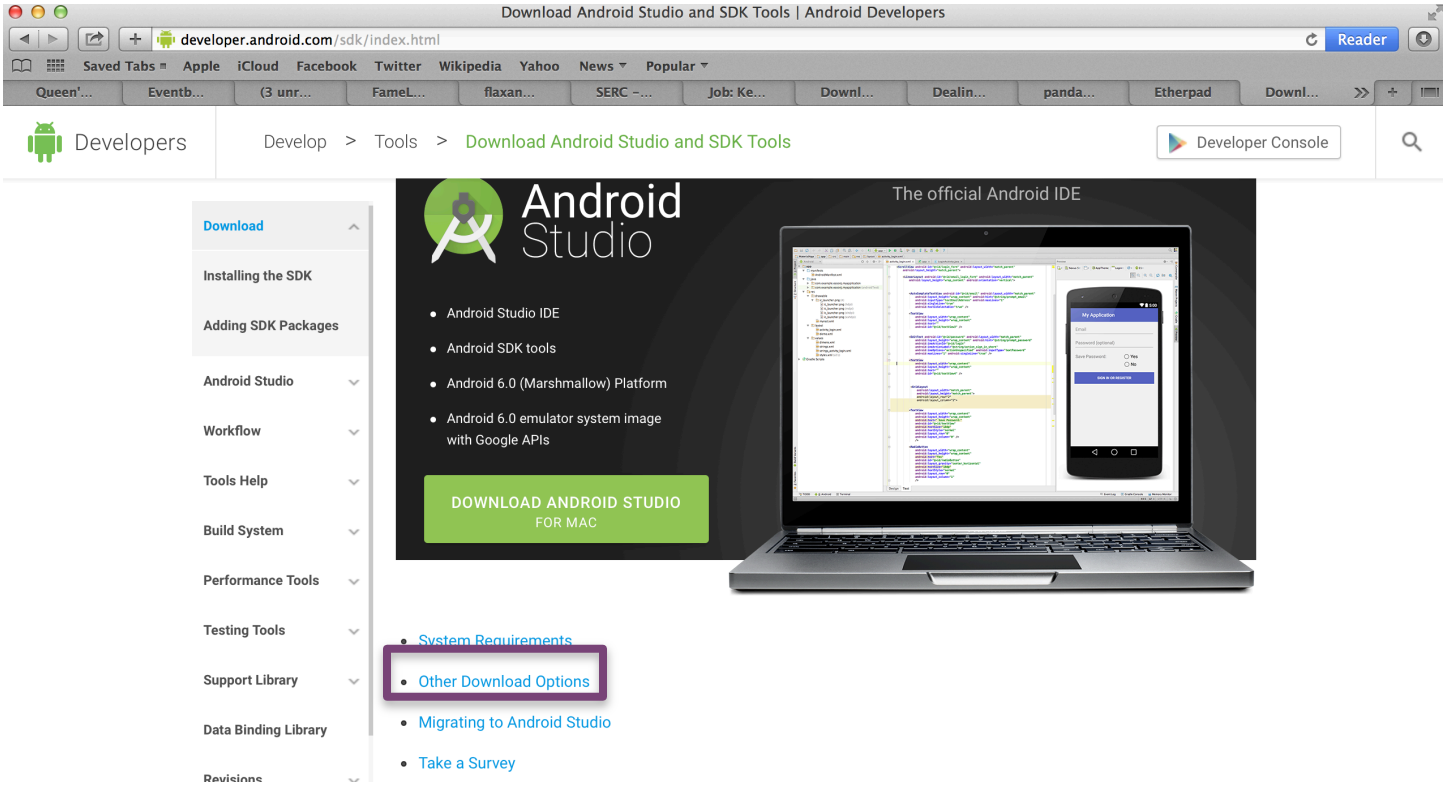
The Java for OS X installer will appear and take you through the steps involved in installing the JDK. Once this is complete, return to the Terminal app and run the `java -version` command. At which point the following information should be displayed:



Downloading the Android Studio Package

Most of the work involved in developing applications for Android will be performed using the Android Studio environment. Android Studio may be downloaded from the following web page:

http://developer.android.com/sdk/index.html

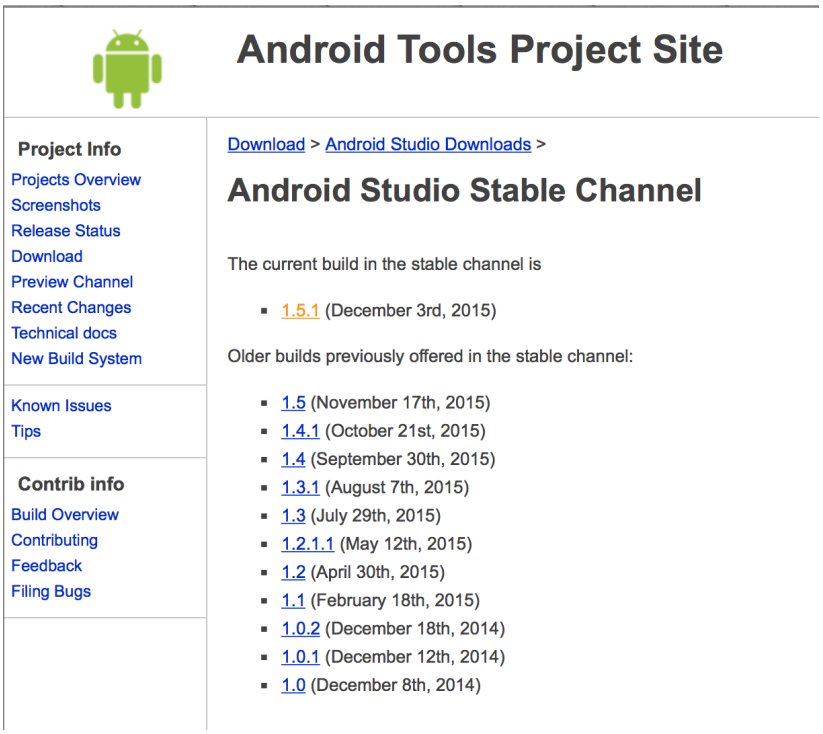


From this page, either click on the Do`wnload Android Studio` button if it lists the correct platform (for example on a Mac based web browser the button will read "`Download Android Studio for Mac`"), or select the "`Other Download Options`" link to manually select the appropriate package for your platform and operating system. On the subsequent screen, accept the terms and conditions to initiate the download. This download installs the latest version 1.5 of Android.

Installing Older Versions of Android Studio

Older version of Android Studio can be downloaded from the following link:

http://tools.android.com/download/studio/stable



Select the August / September option. On the subsequent screen, accept the terms and conditions to initiate the download.

Installing Android Studio

Once downloaded, the exact steps to install Android Studio differ depending on the operating system on which the installation is being performed.

Installation on Windows

Locate the downloaded Android Studio installation executable file (named `android-studio-bundle-<version>.exe`) in a `Windows Explorer` window and double click on it to start the installation process, clicking the `Yes` button in the `User Account Control` dialog if it appears.

Once the Android Studio setup wizard appears, work through the various screens to configure the installation to meet your requirements in terms of the file system location into which Android Studio should be installed and whether or not it should be made available to other users of the system.

Once the options have been configured, click on the `Install` button to begin the installation process.

On versions of `Windows` with a `Start` menu, the newly installed `Android Studio` can be launched from the entry added to that menu during the installation.

On `Windows 8`, the executable can be pinned to the task bar for easy access by navigating to the `android-studio\bin` directory, right-clicking on the executable and selecting the `Pin to Taskbar` menu option.

Note that the executable is provided in 32-bit `(studio)` and 64-bit `(studio64)` executable versions. If you are running a 32-bit system be sure to use the `studio` executable.

Installation on Mac OS X

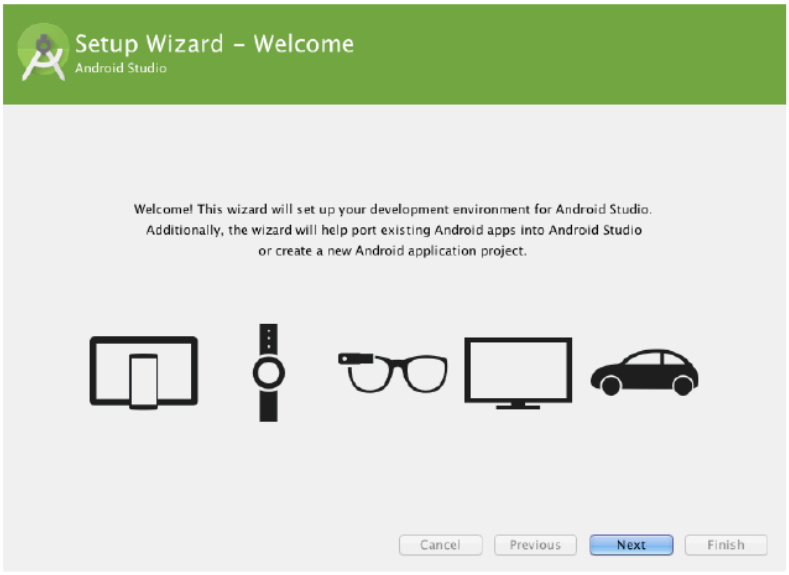
Android Studio for Mac OS X is downloaded in the form of a disk image (`.dmg`) file. Once the `android-studio-ide-<version>.dmg` file has been downloaded, locate it in a `Finder` window and double click on it to open it as shown below:

To install the package, simply drag the `Android Studio` icon and drop it onto the `Applications` folder.

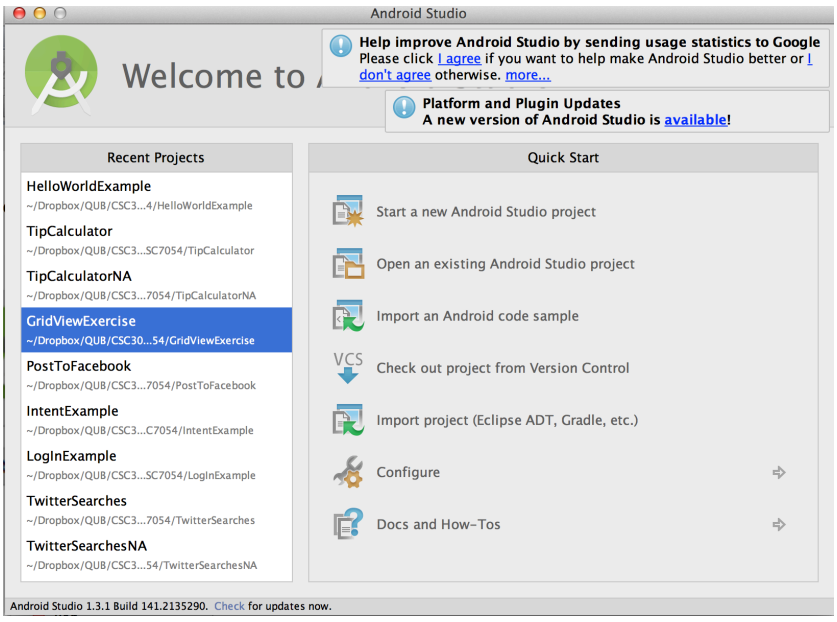
To launch `Android Studio`, locate the executable in the `Applications` folder using a `Finder` window and double click on it.

The Android Studio Setup Wizard

The first time that `Android Studio` is launched after being installed, a dialog will appear providing the option to import settings from a previous `Android Studio` version. Indicate that you do not need to import any previous settings and click on the `OK` button to proceed. After Android Studio has finished loading, the setup wizard will appear as shown below.



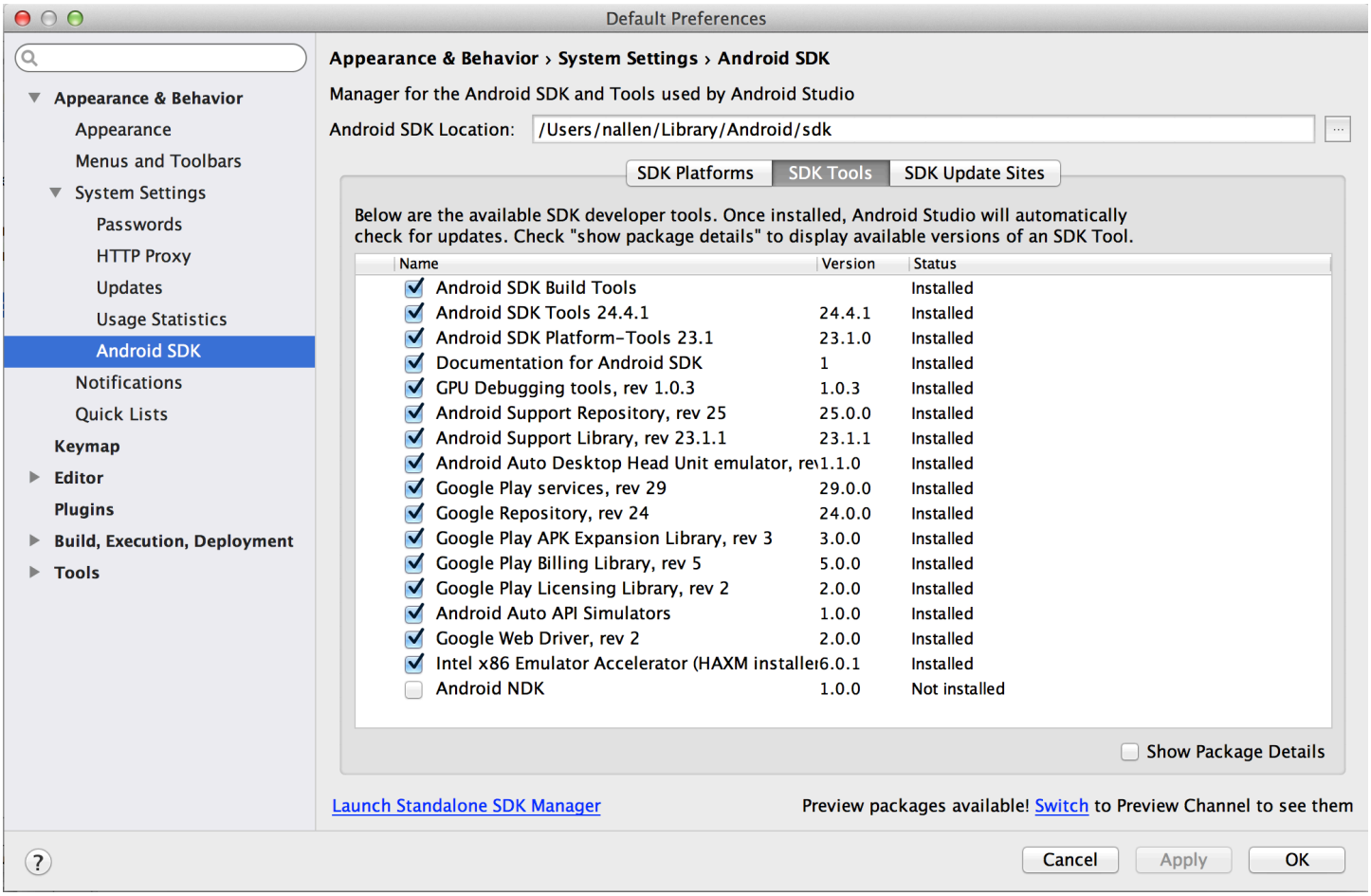
Click on the `Next` button, choose the `Standard installation` option and click on `Next` once again. On the `license agreement screen`, select and accept each of the licenses listed before clicking on `Finish` to complete the setup process. The `Welcome to Android Studio` screen should then appear:



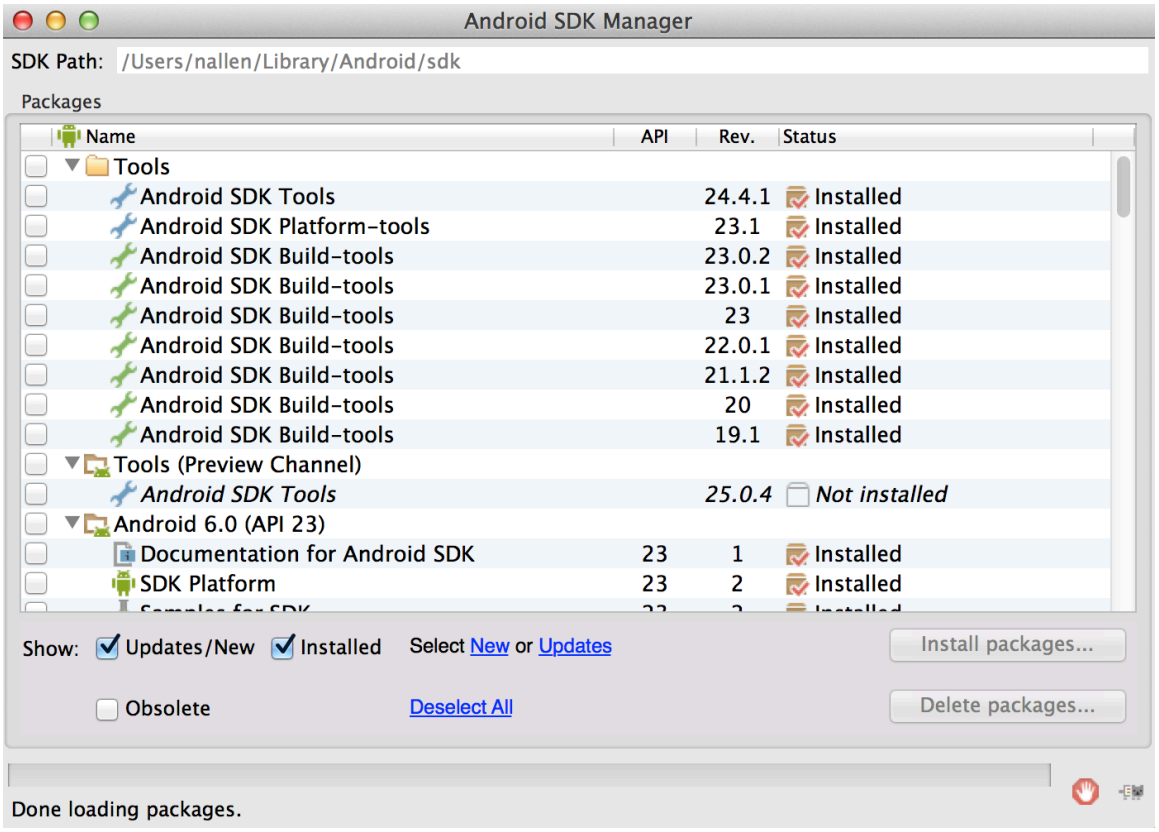
Installing the Latest Android SDK Packages

The steps performed so far have installed Java, the Android Studio IDE and the current set of default `Android SDK` packages. Before proceeding, it is worth taking some time to verify which packages are installed and to install any missing packages.

This task can be performed using the `Android SDK Manager`, which may be launched from within the `Android Studio` tool by selecting the `Tools->Android->SDK Manager`, then select `Launch Standalone SDK Manager`.



Once selected, the following dialogue will appear:



Within the `Android SDK Manager`, make sure that the following packages are listed as `Installed` in the Status column:

- `Tools > Android SDK Tools`
- `Tools > Android SDK Platform-tools`
- `Tools > Android SDK Build-tools`
- `SDK Platform (most recent version) > SDK Platform`
- `SDK Platform (most recent version) > ARM EABI v7a System Image`
- `Extras > Android Support Repository`
- `Extras > Android Support Library`
- `Extras > Google Repository`
- `Extras > Google USB Driver (Required on Windows systems only)`
- `Extras > Intel x86 Emulator Accelerator (HAXM installer)`

In the event that any of the above packages are listed as `Not Installed`, simply select the checkboxes next to those packages and click on the `Install packages` button to initiate the installation process. In the resulting dialog, accept the license agreements before clicking on the `Install` button. The `SDK Manager` will then begin to download and install the designated packages. As the installation proceeds, a progress bar will appear at the bottom of the manager window indicating the status of the installation.