Download and Installation Instructions
for
Android SDK and Android Development Tools (ADT)
on
Microsoft Windows

Updated October, 2012

This document will describe how to download and install the Android SDK and Android Development Tools (ADT) into your programming environment.

Before continuing, be sure that your computer already has the JDK and Eclipse software installed. You can find instructional documentation for these steps if needed from your Student Menu or in your "Installation Docs" directory.

The *TeenCoder^{TM}: Android Programming* course adds three pieces of free software to your existing JDK and Eclipse development environment: the **Android Software Development Kit (Android SDK)**, the **Android Development Tools (ADT)** for Eclipse, and the Android **Google APIs**. These pieces of software will enable you to write and test Android applications without any Android hardware!

This software is required for students in order to complete the course. Teachers who wish to view activity solutions or projects on their own computer are also encouraged to install this software.

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Let's Get Started!

You will need access to the Internet in order to complete the installation process. Some downloads are very large (100MB+) so plan time based on the speed of your Internet connection. Note that all red highlights below are added for emphasis and are not present on the actual screens.

Android components are evolving rapidly! This course is based on the Eclipse ADT version 16, Android SDK version 16, Android Platform Tools version 10, The Android Platform version 2.3.3 (10), and the Google APIs version 10. Newer software levels are likely available by the time you begin this course, but **we recommend for the smoothest possible learning experience that you stick with our original component versions**.

Should you choose to instead obtain the latest Android versions, please skip to the next chapter titled "Installing the Latest Android Versions" and follow those instructions instead. Be aware that some screen shots may no longer match our examples exactly, and some Android functions we describe in the course may change over time. **You will be responsible for understanding and overcoming those differences if you choose the latest Android versions**!

## Downloading the Original Course Android Bundles

We have created ZIP "bundles" of the Android components at the original course versions that you can download from our website. This procedure replaces a standard Eclipse-based approach that will only allow you to download the very latest Android software components.

To begin, run Windows Explorer and create a folder on your hard drive where the Android SDK and other components will be installed. We recommend the directory name "C:\android-sdk" though you may choose another location.
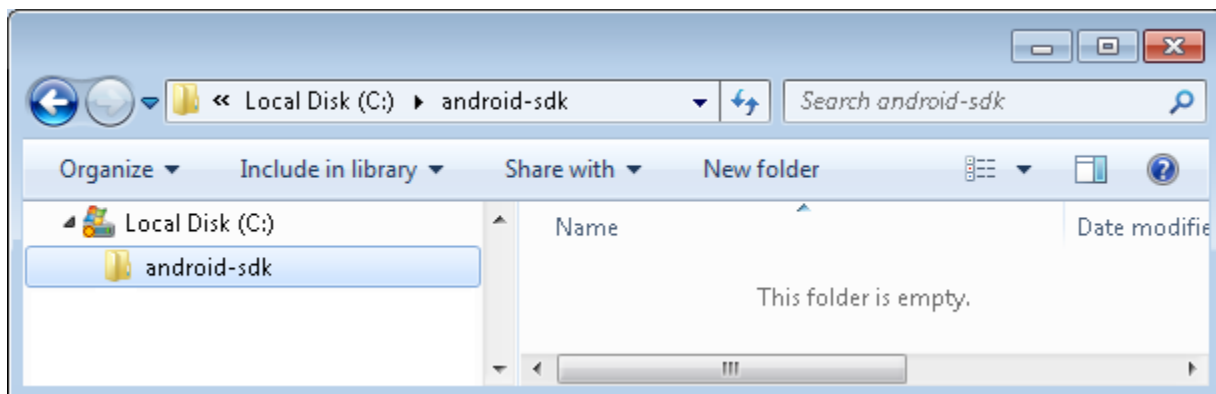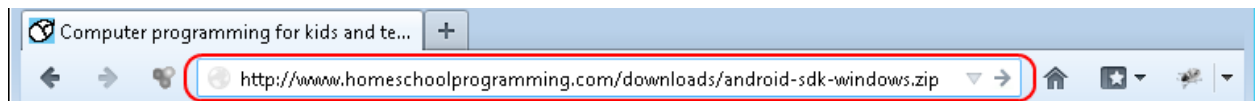
Next, launch your web browser (Internet Explorer, Firefox, Chrome, etc.) and download the following two ZIP files. You can type these addresses directly into your web browser, or navigate to the links from our "Support → Document Updates" page at www.HomeschoolProgramming.com.

http://www.homeschoolprogramming.com/downloads/ADT-16.0.1.zip (approx. 7 MB)
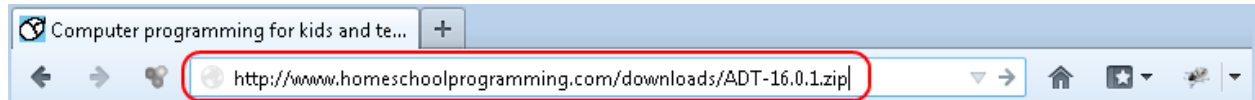
http://www.homeschoolprogramming.com/downloads/android-sdk-windows.zip (approx 188 MB)

Depending on your web browser and configuration, you may be prompted for a target download location on your local hard drive, or the ZIP file may be automatically saved to a download folder. Choose your newly created "C:\android-sdk" as your target folder if possible. If the ZIP files are automatically saved to some other folder, then simply copy them over to "C:\android-sdk" when the download is complete.

When the downloads are complete you should have the "android-sdk-windows.zip" and "ADT-16.0.1.zip" files in your "C:\android-sdk" directory
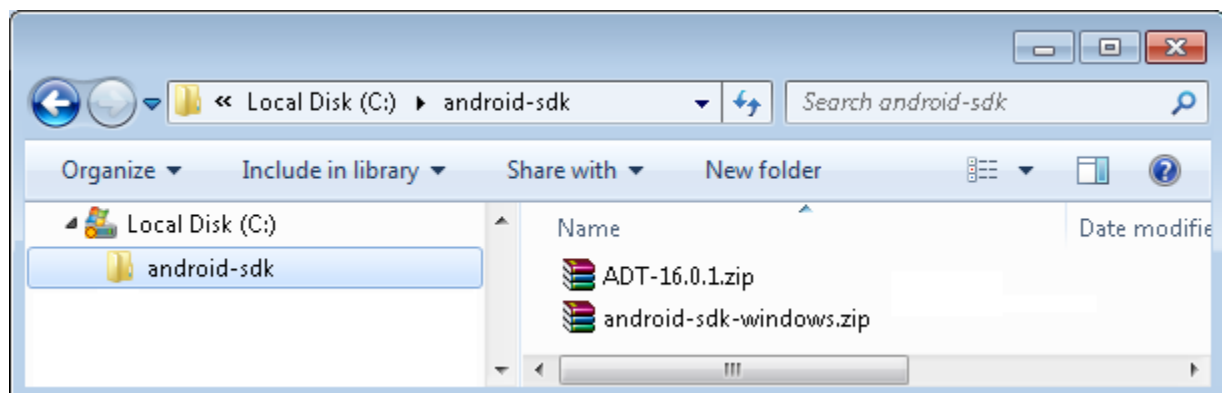
Next, un-zip the "android-sdk-windows.zip" package to the same directory. To unzip the Android SDK on Windows 7 you can simply right-click on the file in Windows Explorer and select "Extract All…", and type in the "C:\android-sdk" as the destination folder, then click "Extract".
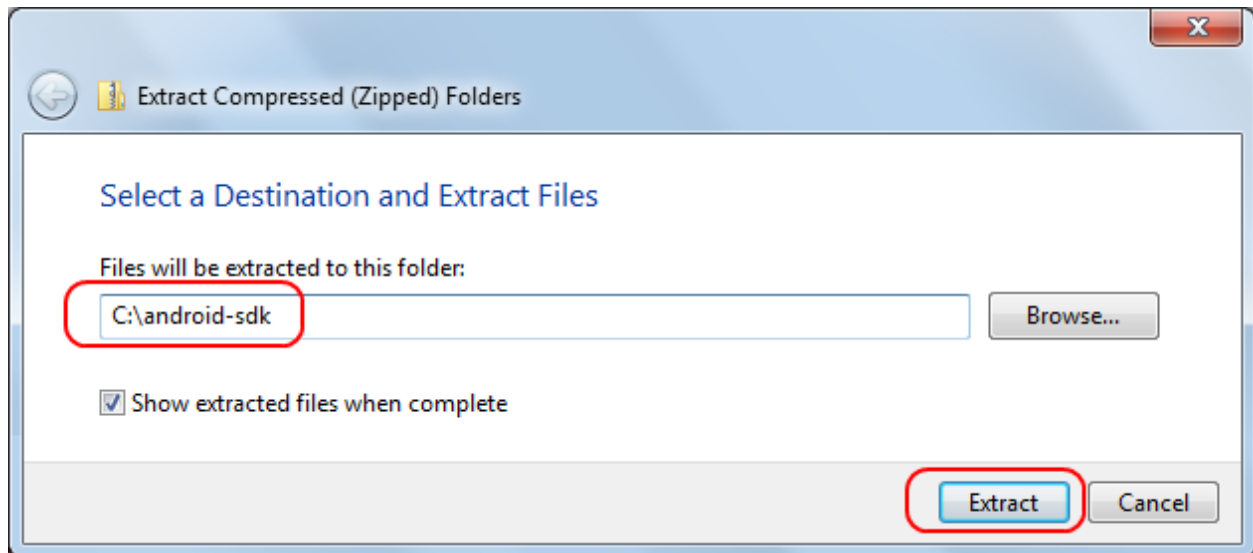

If you have an older version of Windows or have installed some other 3rd party ZIP management program such as WinZip or PKZip then your extraction process will be slightly different. When you are finished, the "C:\android-sdk" directory should contain many sub-folders and files.
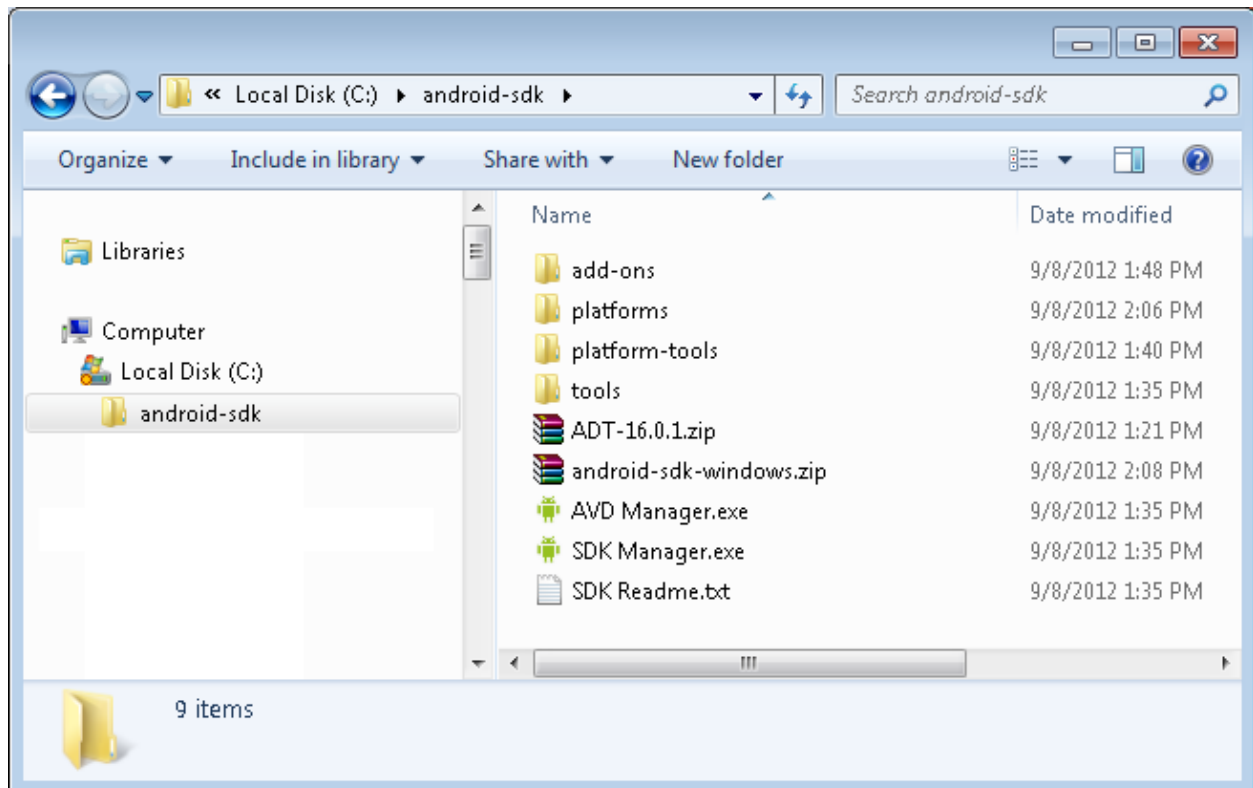
Installing the Eclipse ADT Version 16

To install the Eclipse Android Development Tools, open your Eclipse software and click on the "Help" menu item at the top of the screen. In the Help menu, find and click on the item called "Install New Software".

Once you click on the "Install New Software" item, you will see the Installation screen for available software.
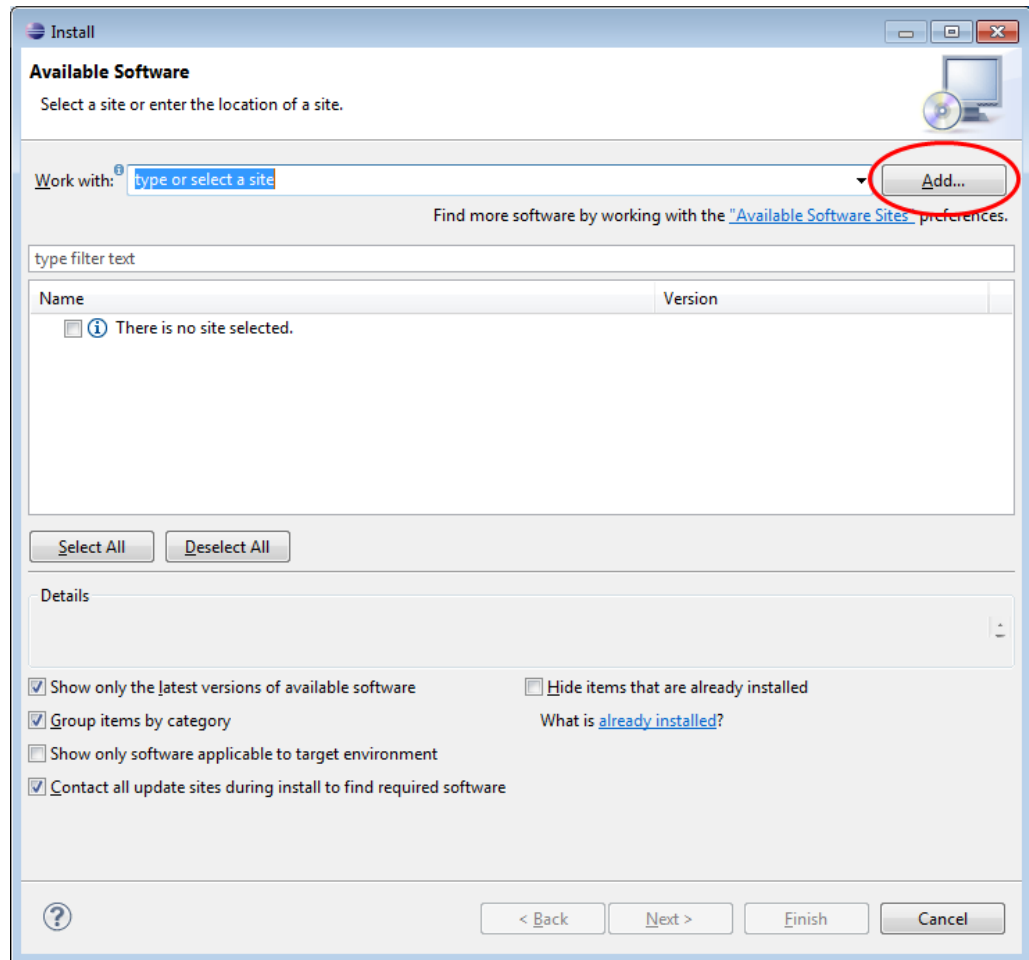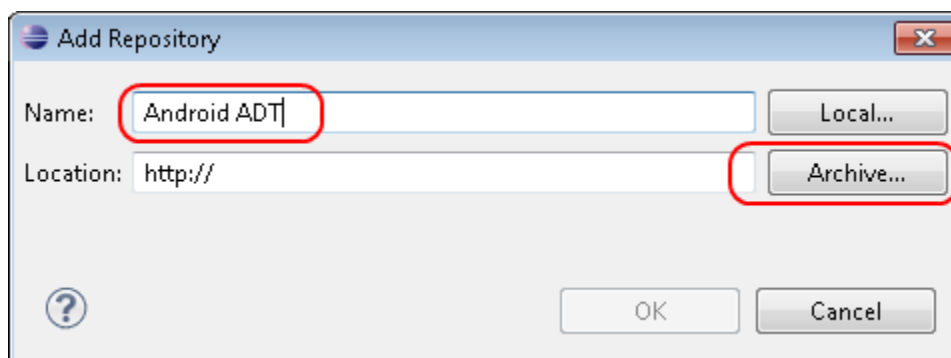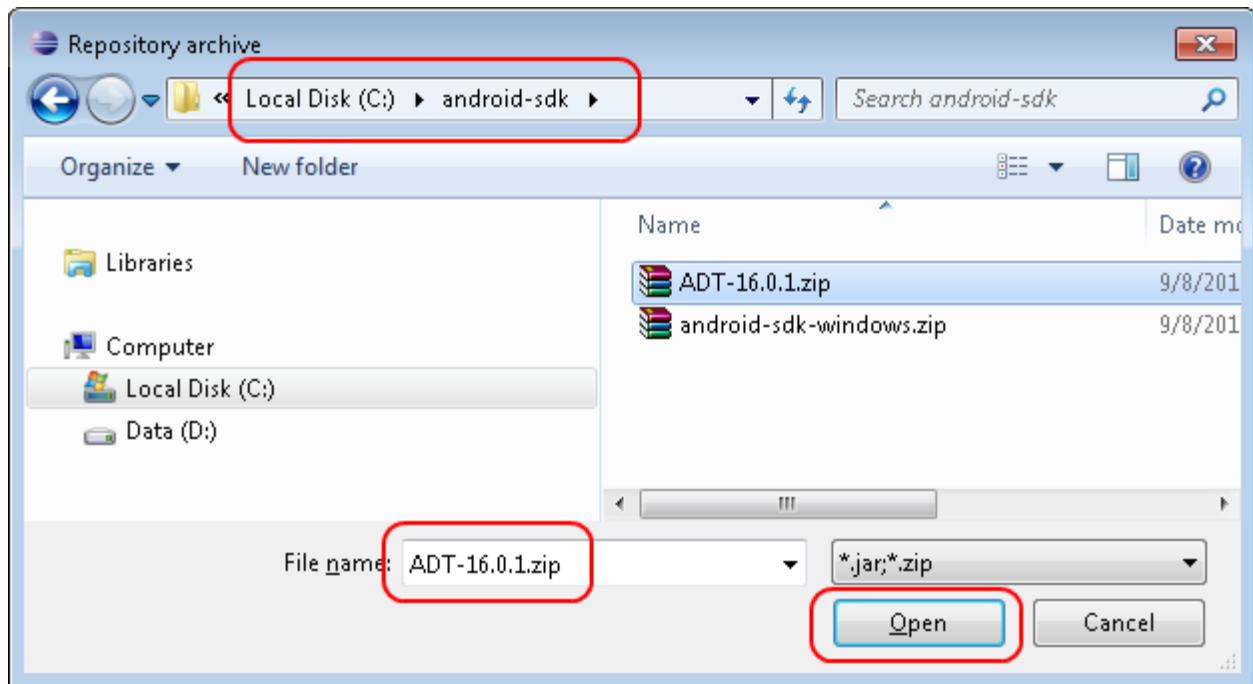

On this screen, you will need to click on the "Add" button that is circled in the upper-right corner of the screen. This will bring up the "Add Repository" screen seen below. Here, you will enter the name "Android ADT" and click on the "Archive…" button.
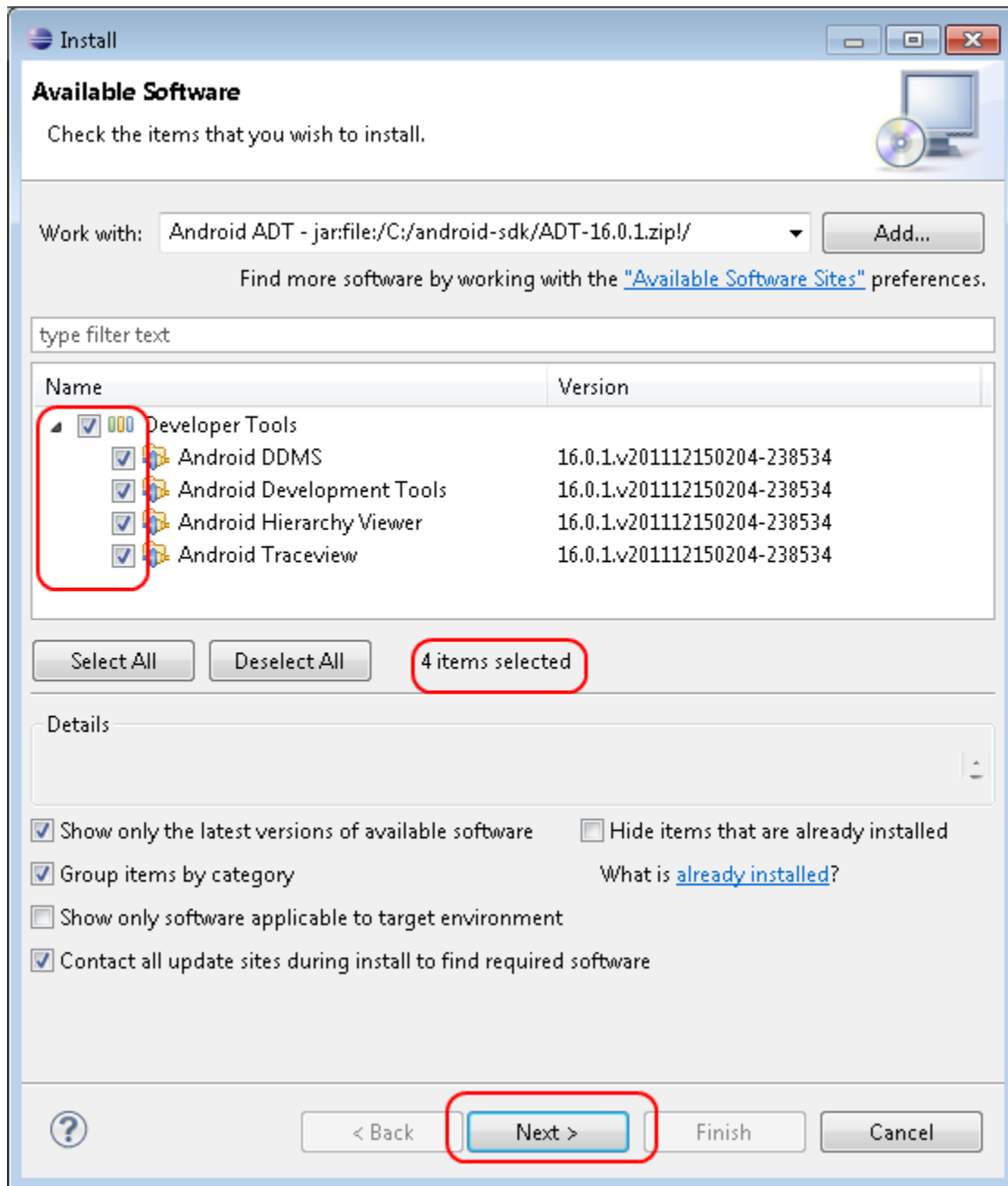
Browse to your "C:\android-sdk" folder, select the "ADT-16.0.1.zip" file, and click "Open".


Your Add Repository dialog should now have a complete Location path to your local ZIP file, so click "OK" to continue.
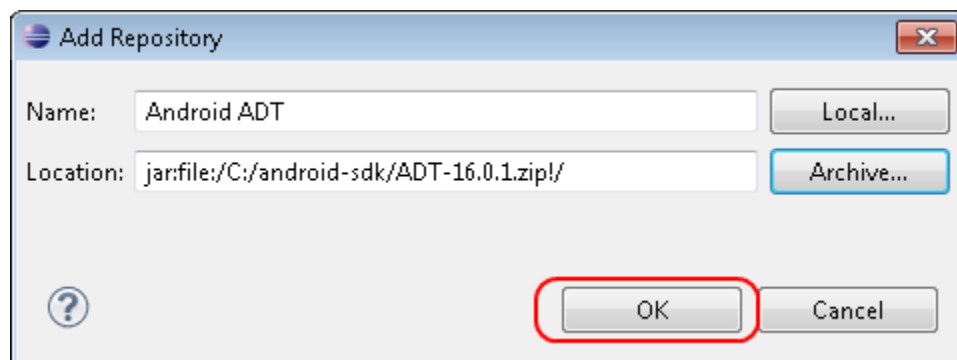
The next screen will show you the "Available Software" items for the ADT plug-in. Make sure there is a check mark in the "Developer Tools" box and then click on "Next".

The next screen will display a list of items that the Eclipse system is about to install. You should see items similar to the list seen below. To continue the installation, just click on the "Next" button at the bottom of the screen.
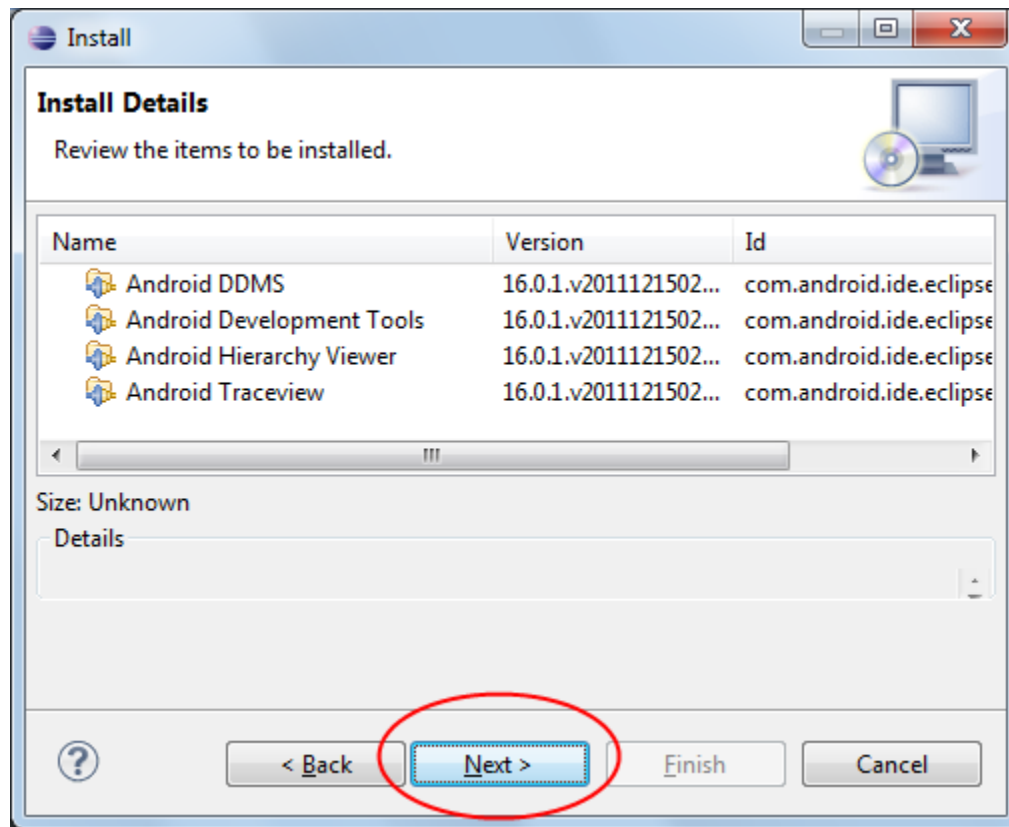
At this point, you are given an opportunity to review the license agreement for using the ADT software. You can review this agreement if you wish, and then choose the radio button that says "I accept the terms of the license agreements" and click on the "Finish" button at the bottom.
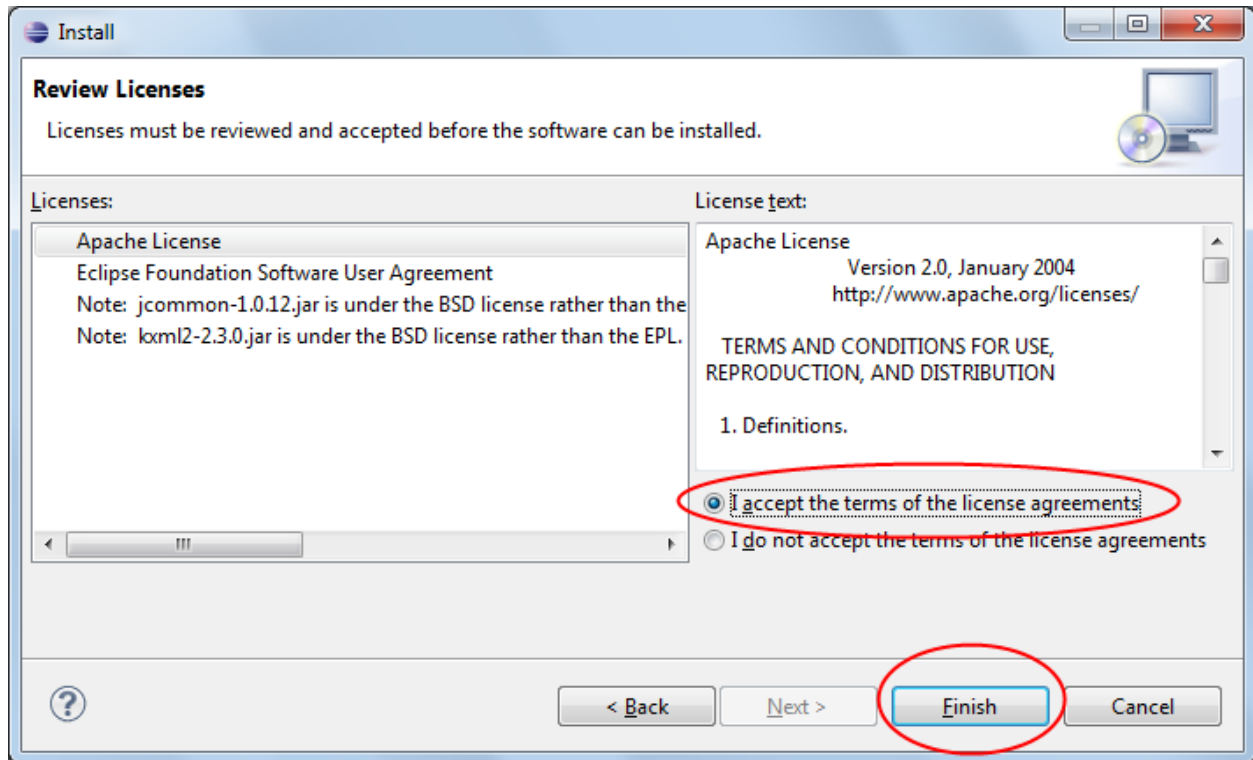
Now the ADT software will begin to install from your local "ADT-16.0.1.zip" file. This process can take a few minutes.
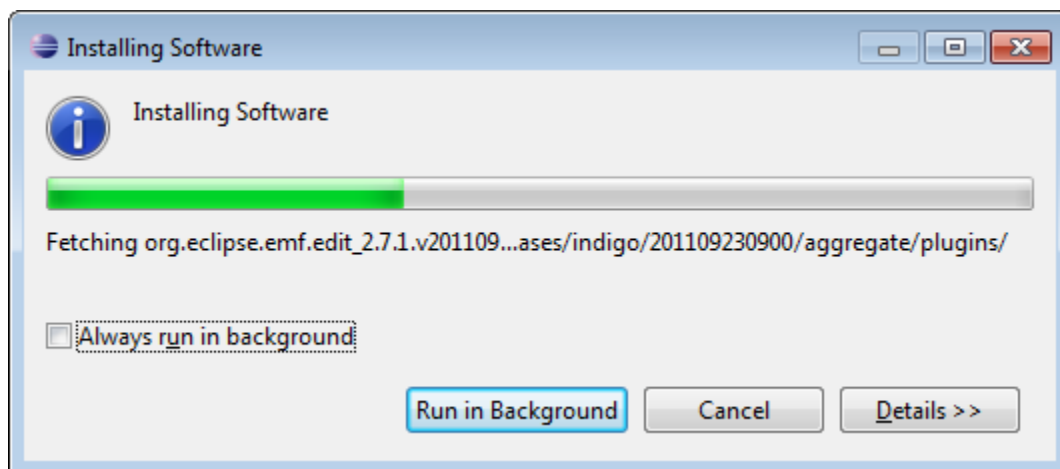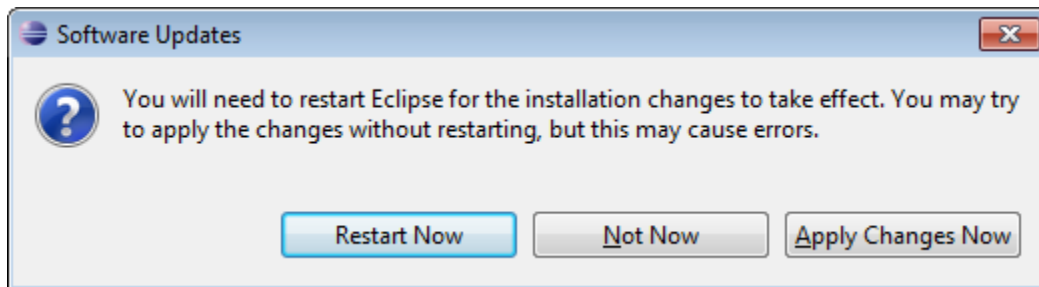
At some point in the download and installation, you may see a warning window like this one:
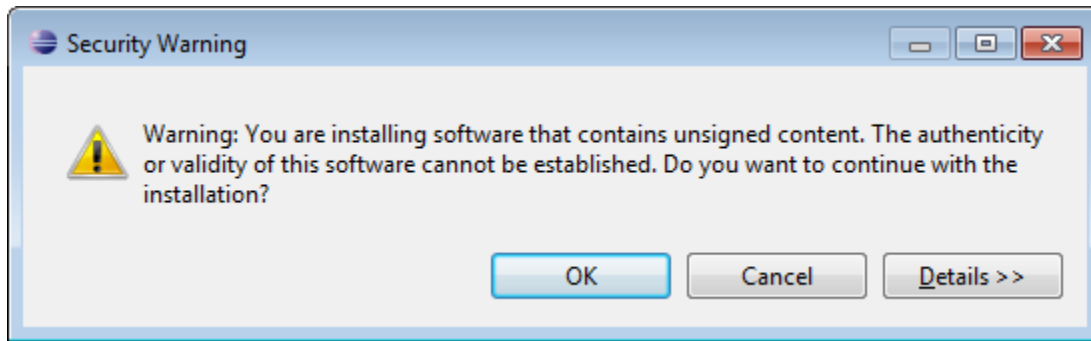
If you do see this message, you can just click on "OK" and continue the download and installation.

Once the download and installation is complete, you will see the following message:

Click "Restart Now". *This will restart just the Eclipse software, not your whole computer!*

You have completed the installation of the Eclipse Android Development Tools (ADT). After restarting Eclipse you can continue to the next step: Configuring the Android SDK.

Configuring the Android SDK after Restart

When restarting your Eclipse software after installing the Android ADT, you should be presented with a Welcome dialog that allows you to install or configure the Android SDK. If you do not see this welcome dialog, please skip to the next section titled "Configuring the Android SDK Location Manually".

Since we have already downloaded and unzipped the android SDK, we simply need to point Eclipse to that directory. Click on "Use existing SDKs" and type in "C:\android-sdk" to the Location field. Then click "Next".
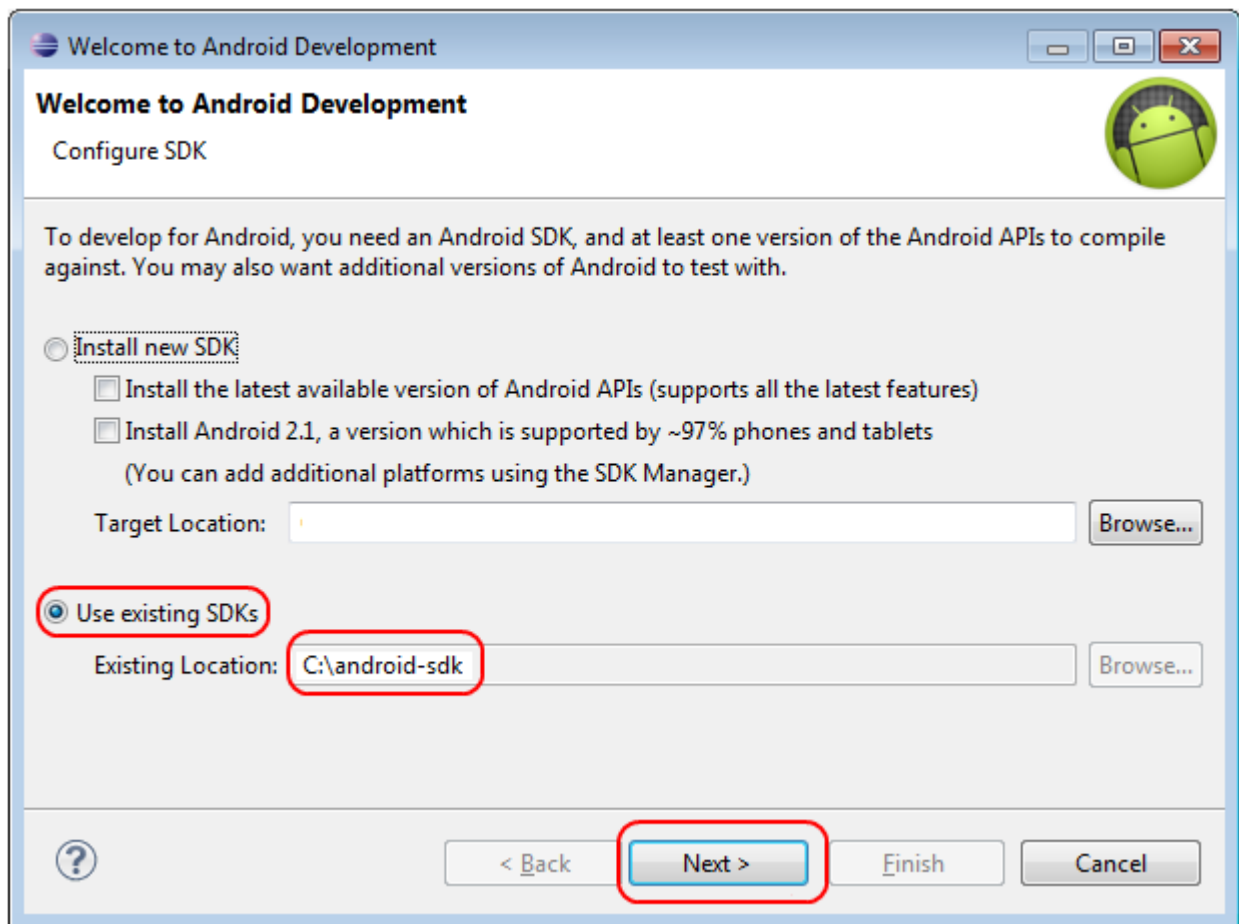
The final screen may ask if you wish to contribute usage statistics to Google. You can select "No" and then click on "Finish".
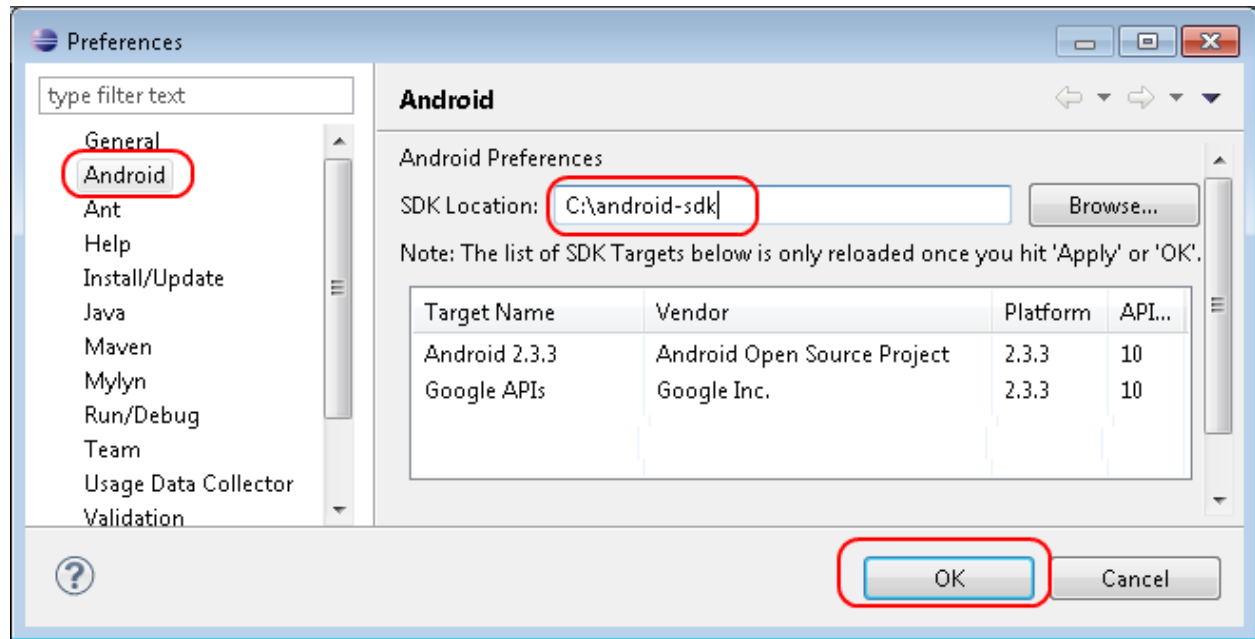

Congratulations! You have completed the installation for the Android ADT, Android SDK, and supporting components. You are now ready to begin your Android development.

You do not need to continue to the next section.

Configuring the Android SDK Location Manually

If you do not see the "Welcome" dialog when restarting Eclipse, or you are notified that you need to configure a valid Android SDK path, you can configure the Android SDK location manually. To do this, from Eclipse, select the "Window → Preferences" option from the menu, and then click on the "Android" entry in the left pane. Enter your target SDK path "C:\android.sdk" in the top field and click "OK".

Congratulations! You have completed the installation for the Android ADT, Android SDK, and supporting components. You are now ready to begin your Android development.

**You do not need to continue to the next section.**

Installing the Latest Android Versions (Alternative Procedure)

If you have successfully downloaded and installed the Android bundle containing the original course versions of the Android SDK, ADT Tools, and Google APIs, then you do not need to complete these steps. You are already finished! If you skipped the bundle download and would prefer instead to install the latest versions of the Android components, follow the procedure below.

Downloading and Installing the Android Development Tools

In order to prepare your development environment for Android programming, you will need to install both the Android Development Tools for Eclipse (also called the ADT Plugin) and the Android Software Development Kit (also called the Android SDK). Both of these additional packages can be installed directly from your Eclipse IDE software.

To begin the installation process, open your Eclipse software and click on the "Help" menu item at the top of the screen. In the Help menu, find and click on the item called "Install New Software".
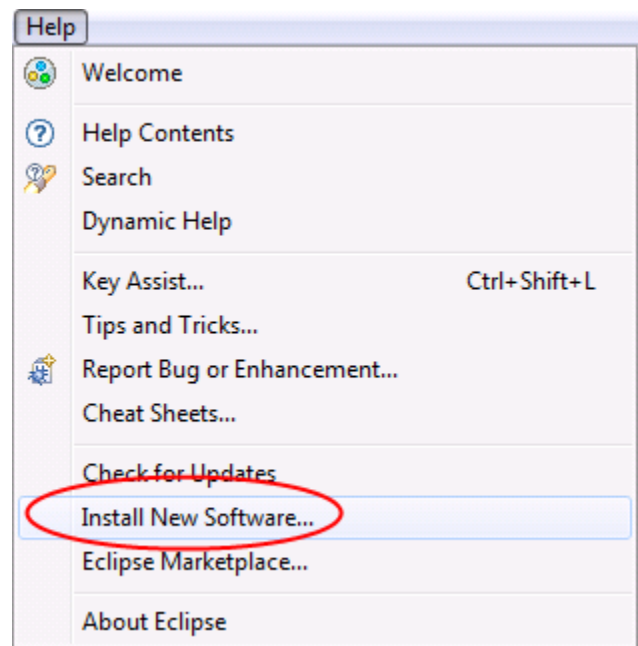
Once you click on the "Install New Software" item, you will see the Installation screen for available software.
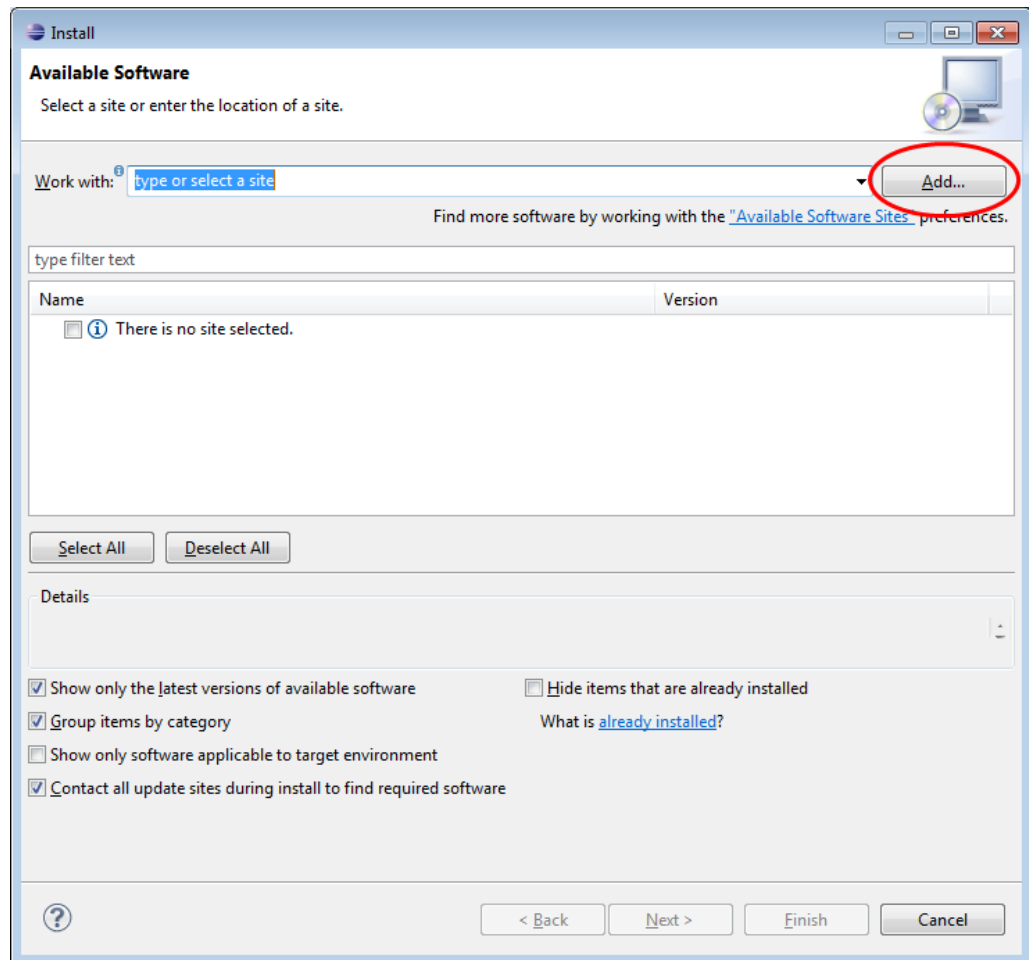
On this screen, you will need to click on the "Add" button that is circled in the upper-right corner of the screen. This will bring up the "Add Repository" screen seen below. Here, you will enter the name "Android ADT" and a location "https://dl-ssl.google.com/android/eclipse/". Then you can click "OK".
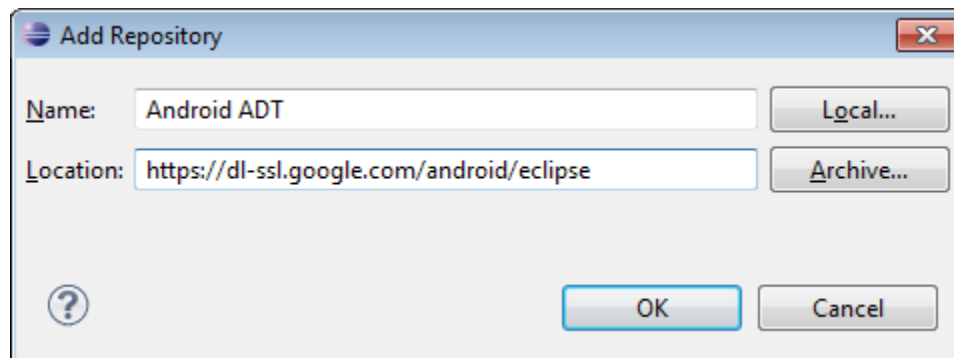
The next screen will show you the "Available Software" items for the ADT plugin. Make sure there is a check mark in the "Developer Tools" box and then click on "Next".
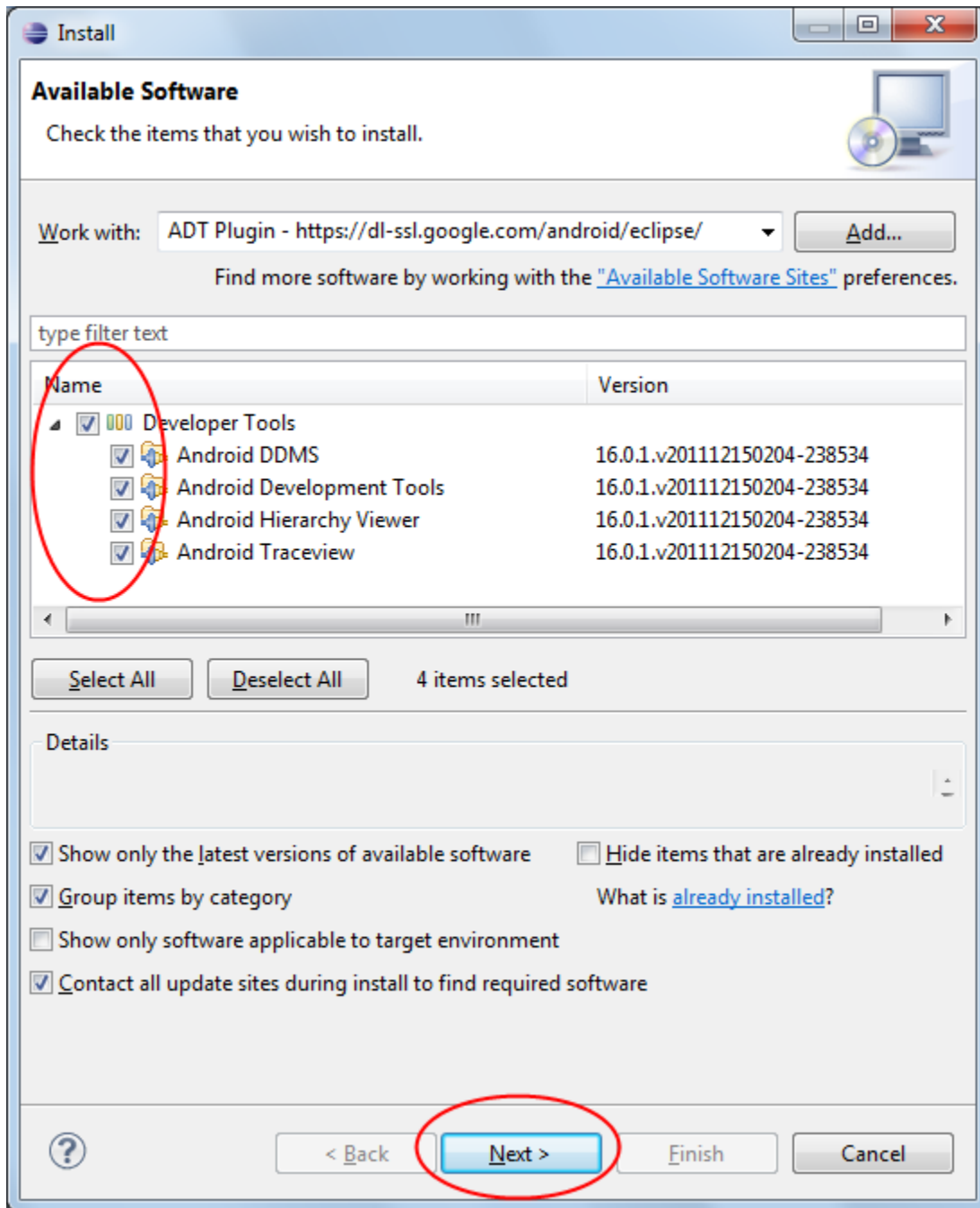

NOTE: By the time you are installing on your computer, there will be higher "Version" numbers available. By following this procedure you are choosing to install the latest versions instead of the original levels used to create this course.

The next screen will display a list of items that the Eclipse system is about to install. You should see items similar to the list seen below. To continue the installation, just click on the "Next" button at the bottom of the screen.
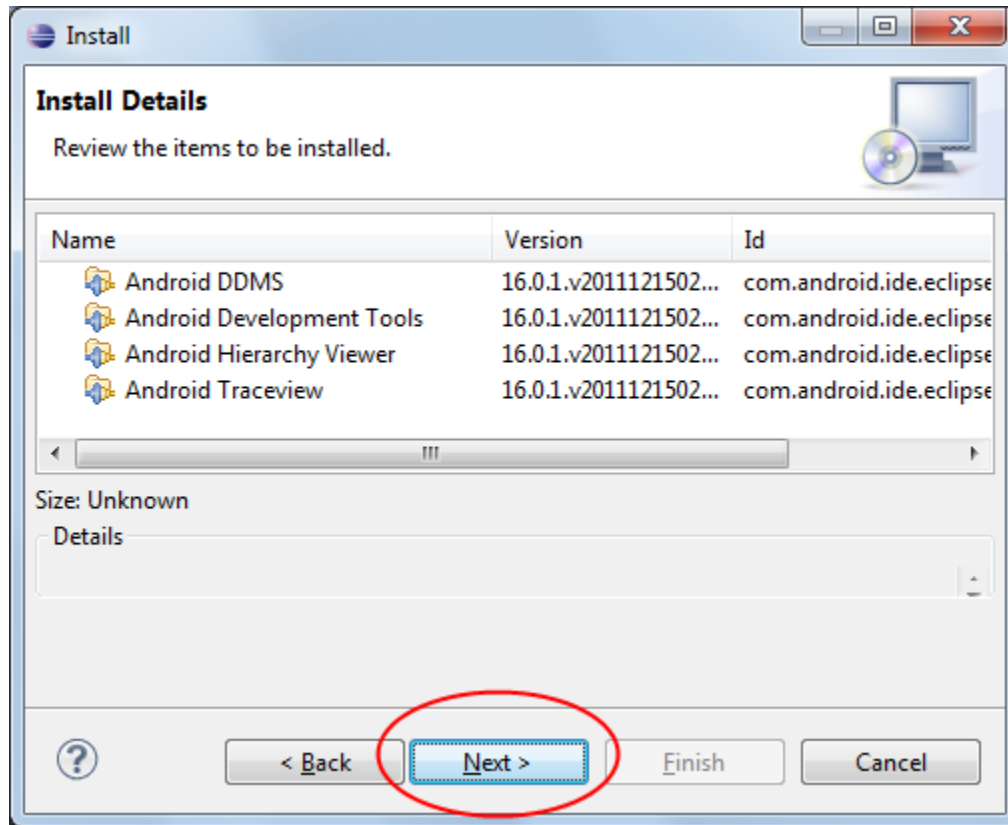
At this point, you are given an opportunity to review the license agreement for using the ADT software. You can review this agreement if you wish, and then choose the radio button that says "I accept the terms of the license agreements" and click on the "Finish" button at the bottom.
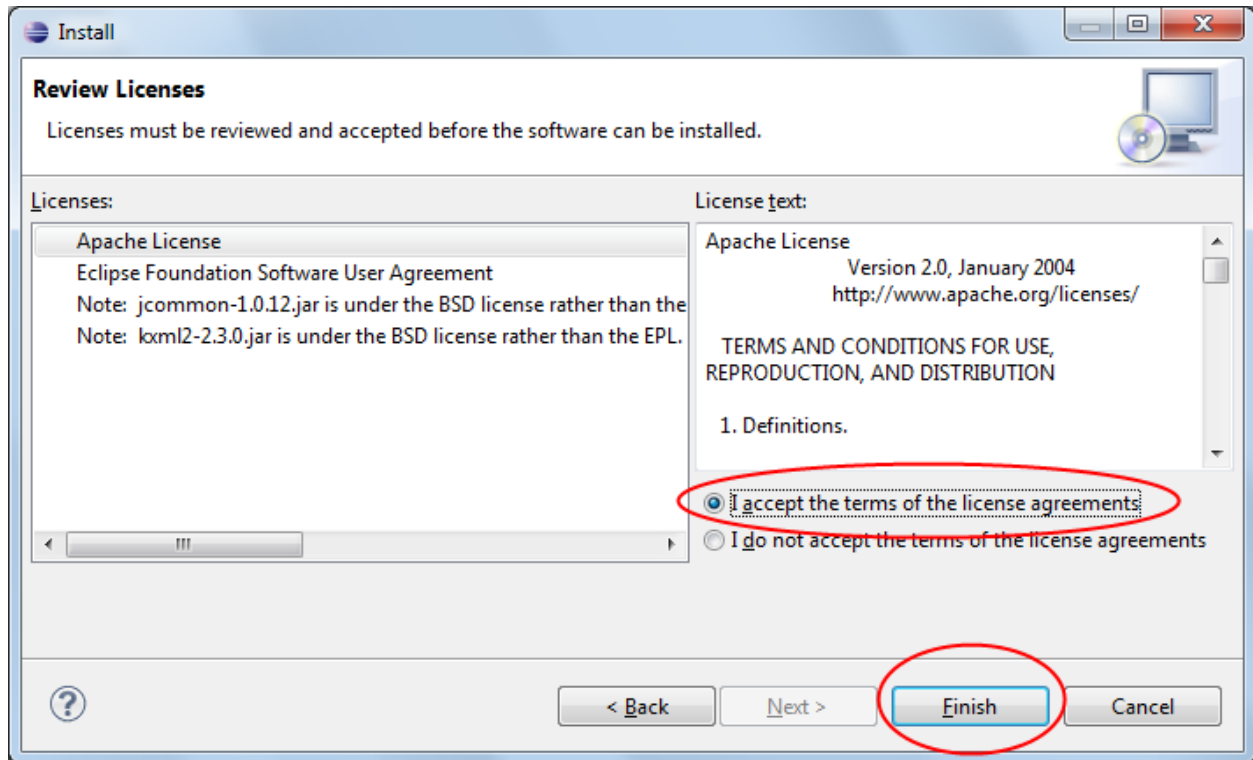
Now the ADT software will begin to download from the Internet. Depending on the speed of your Internet connection, this process can take a few minutes.
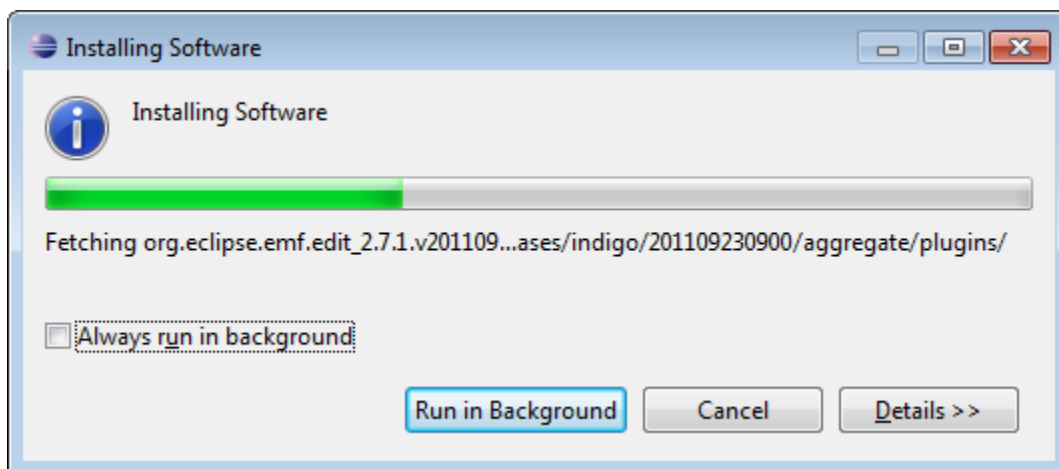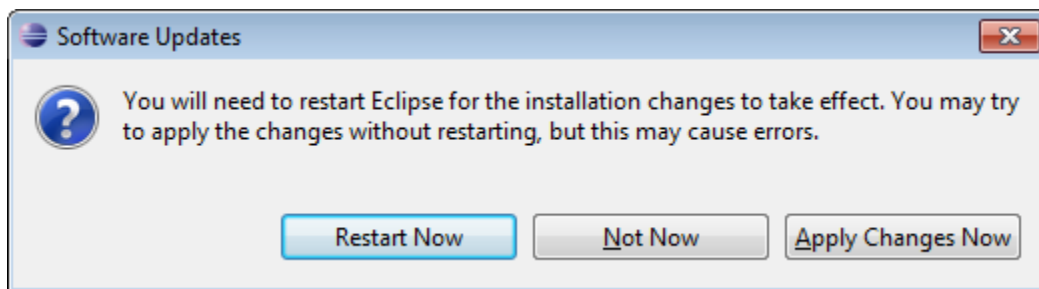
At some point in the download and installation, you may see a warning window like this one:
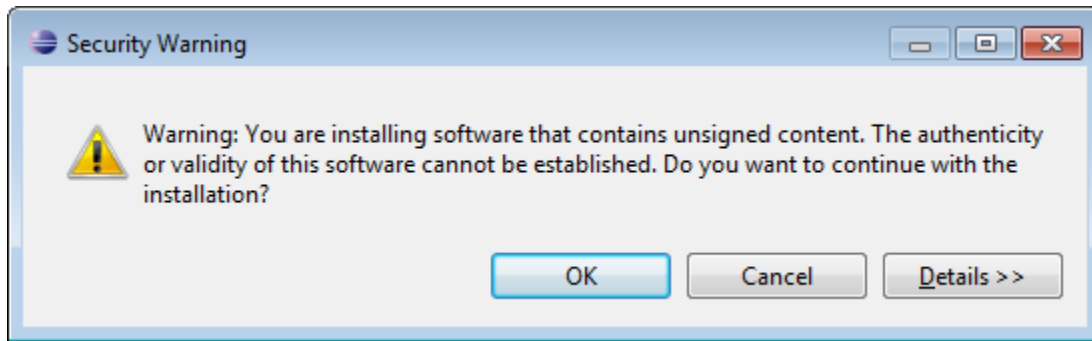
If you do see this message, you can just click on "OK" and continue the download and installation.

Once the download and installation is complete, you will see the following message:

Click "Restart Now". *This will restart just the Eclipse software, not your whole computer!*

Congratulations! You have completed the installation of the Eclipse Android Development Tools (ADT). After restarting Eclipse you can continue to the next step: Installing the Android SDK.
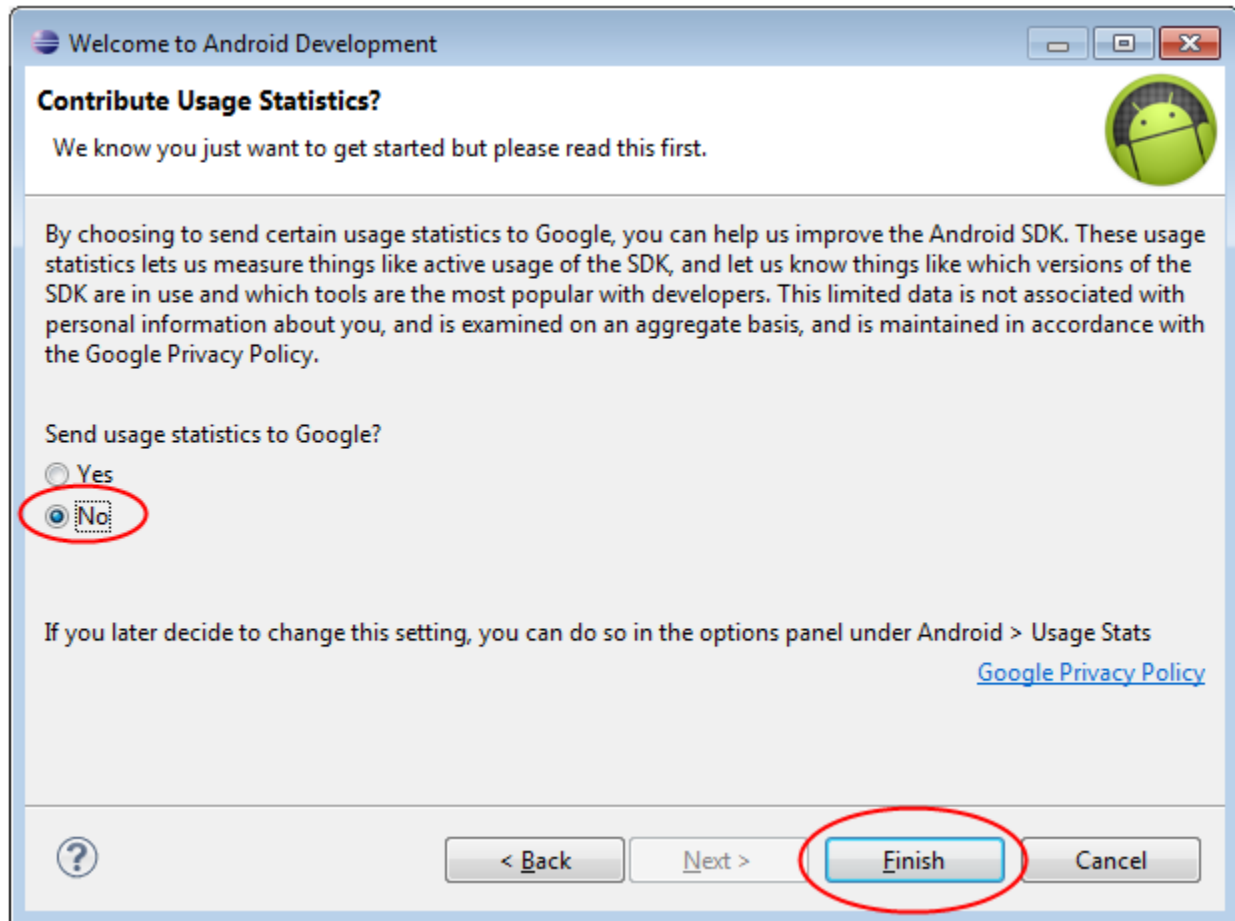
Downloading and Installing the Android SDK

Now that we ADT Plug-in for Eclipse is installed, you are half-way there! The next step we need to take is to install the Android Software Development Kit, or Android SDK. We can also complete this process from within the Eclipse software. In fact, when Eclipse re-starts after the ADT install, the Android SDK installation process should start automatically with the following screen:
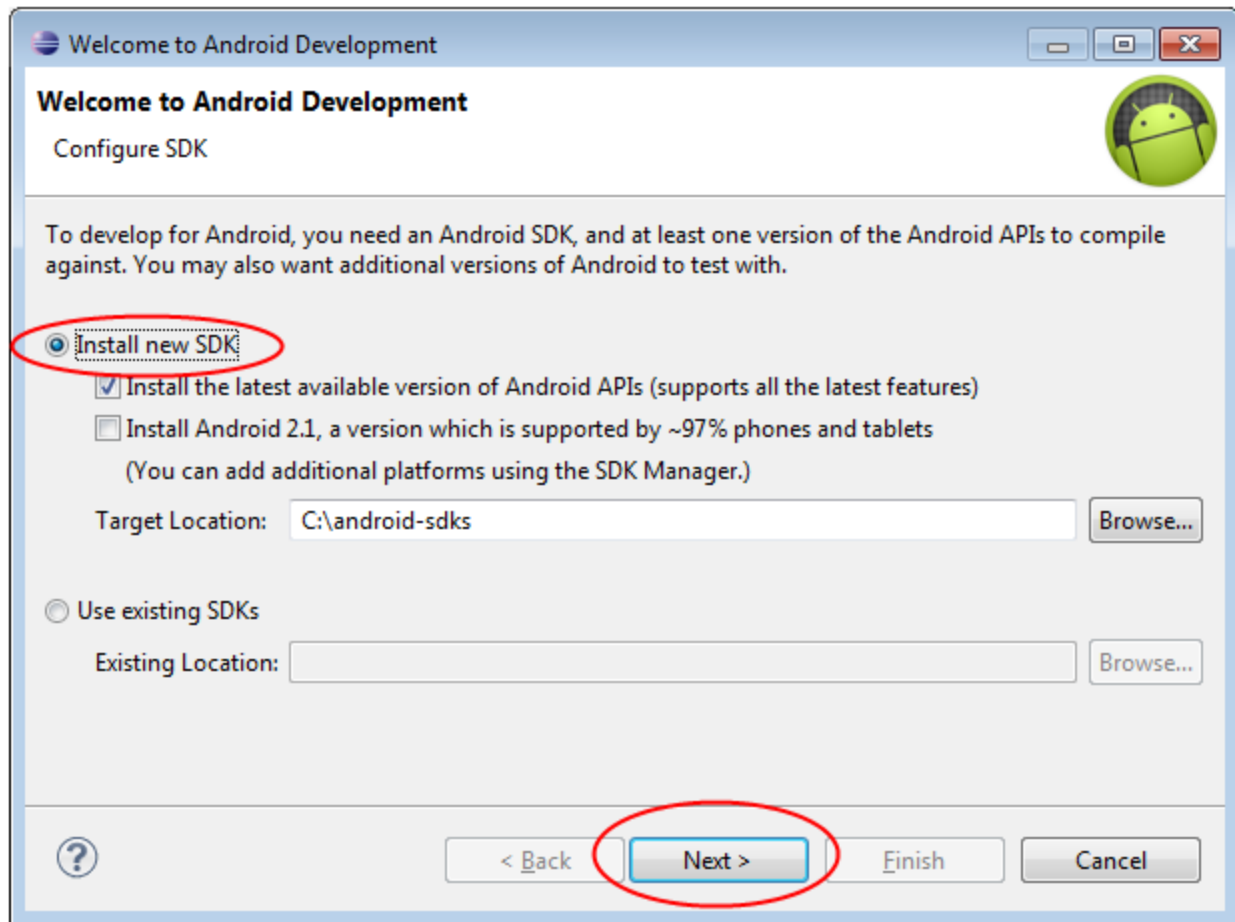
At this point, you can have the Eclipse software automatically download and install the Android SDK. Make sure that the radio button controls marked "Install new SDK" is selected and check the box for "Install the latest available version of Android APIs…". You can leave the default "Target Location" as "C:\android-sdks" unless you wish to change it. When you are ready, click on the "Next" button to continue.

Note: If you do not see this screen, or if you accidentally "Cancel" this screen instead of hitting the "Next" button, you will need to manually install the Android SDK. For instructions on this process, please skip to the section later in this document titled "Manually Installing the Android SDK".

The next screen will ask you if you want to participate in the collection of Usage Statistics for the Android SDK. You can decided if you want to participate in this program, but we recommend selecting the "No" radio button. When you are ready, click on the "Finish" button to continue.


At this point, the Android SDK Manager will retrieve a list of possible packages that will be downloaded during the installation process.
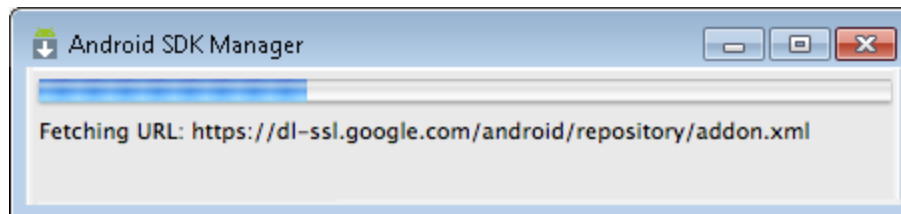
The installation process will determine which SDK items will be downloaded and installed and then will ask you to "Accept" the license agreements for these components. Choose the "Accept All" radio button and then click on the "Install" button.
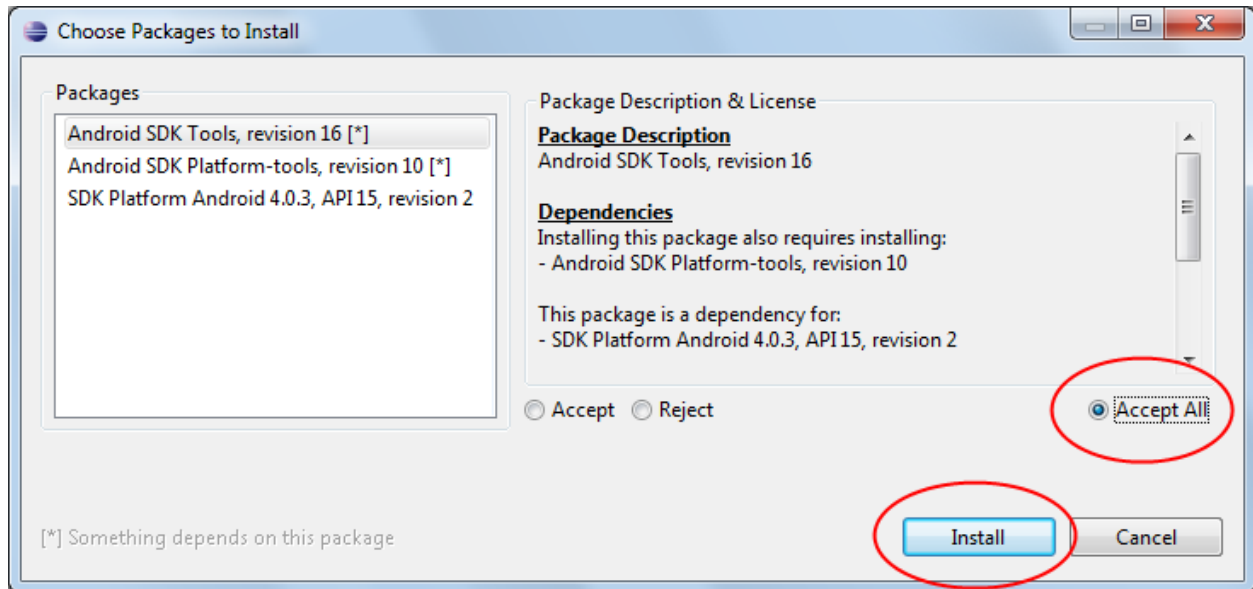
At this point, the SDK will be downloaded from the Internet and installed on your computer. This process can take anywhere from a few minutes to 10 minutes or more, depending on the speed of your Internet connection.
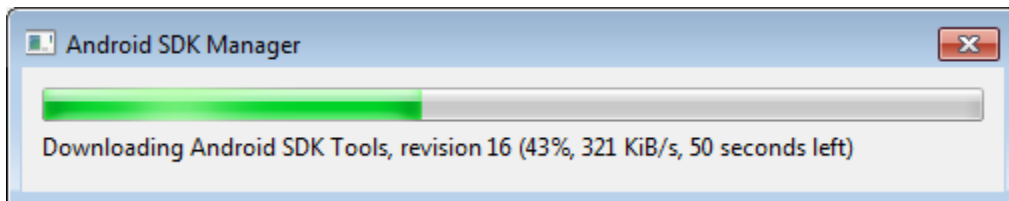
Once the progress bar dialog disappears, you will see the following messages in the "Console" window in Eclipse:
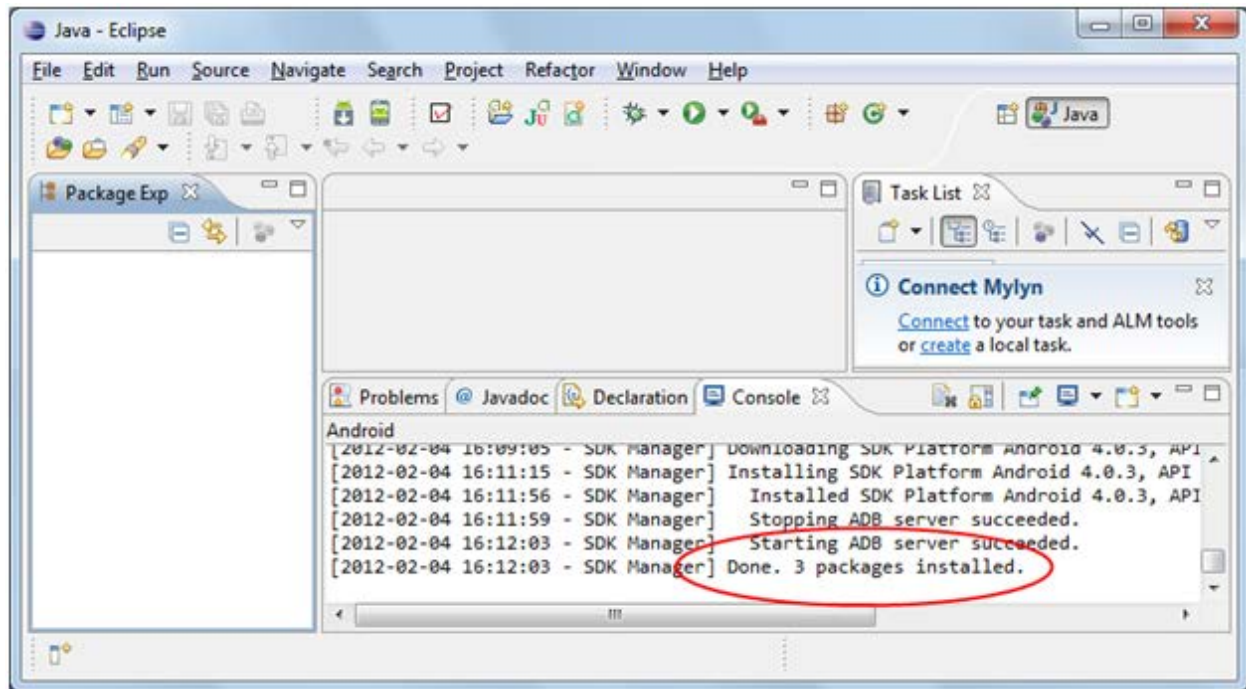
Notice the message that we have circled in red at the bottom of the screen. You may see more or less than 3 packages installed based on your choices in the download screen.

## Selecting the Android SDK Version

There are many different versions of the Android SDK. Each version will support a certain version of the Android operating system. The version that you choose depends on which Android devices you are targeting with your application.

In our course, we will use Android 2.3.3 (also called "Gingerbread"), which is currently in use on many of the Android devices on the market. Applications developed against 2.3.3 will also run on later versions of the operating system! However if you develop against the very latest operating system (e.g. 4.0) then your applications may not run on existing phones with an earlier OS!

To download and install this version of the Android SDK, we will need to use the Android SDK Manager from within your Eclipse software. To begin, click on the SDK Manager icon on the Eclipse toolbar:

The Android SDK Manager screen will list all of the available Android SDK versions. You will need to select the version we are using for this course to download and install!
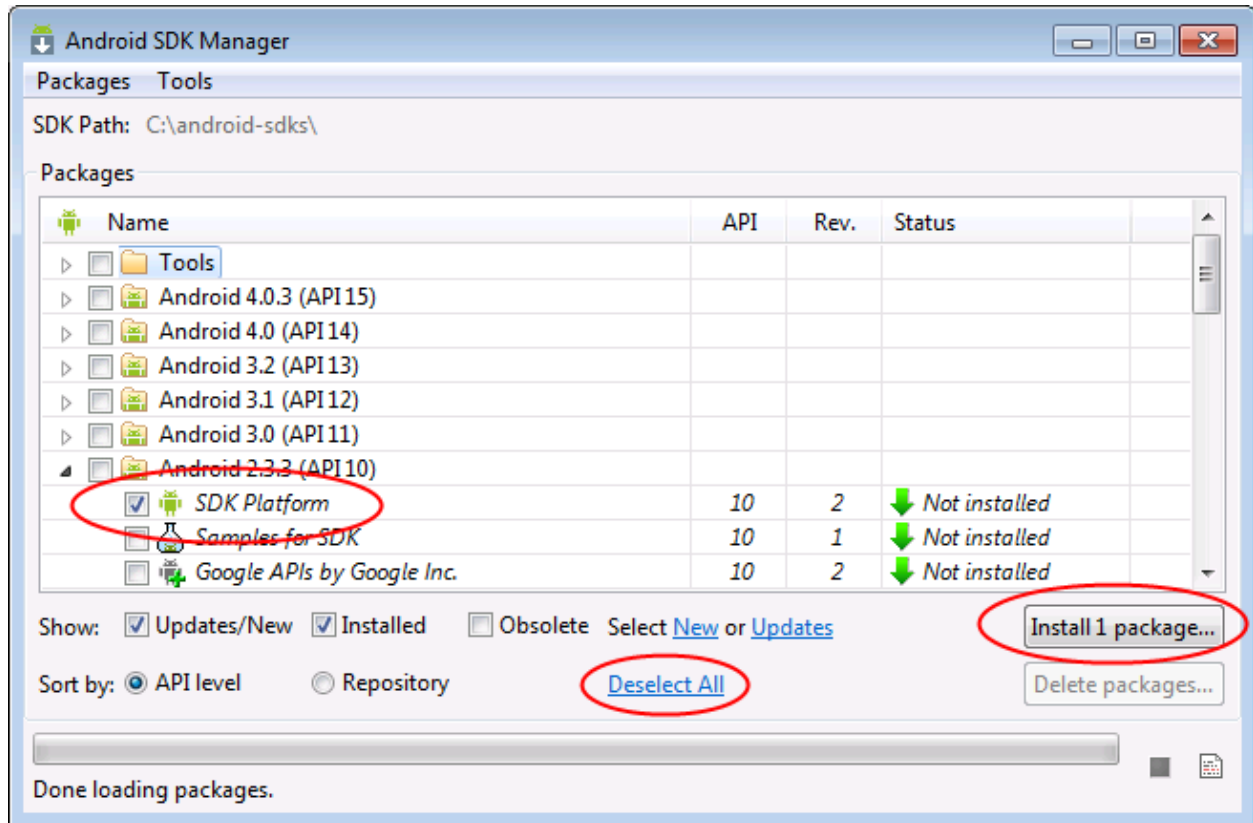

First, click on the "Deselect All" option at the bottom of the screen to remove any packages that were pre-selected. Then find the entry named "Android 2.3.3 (API 10)". When you expand that folder, find the box marked "SDK Platform" and then put a check in this box. Then click on "Install 1 Package".

Once you click on "Install 1 Package", you will see the following summary and licensing screen:
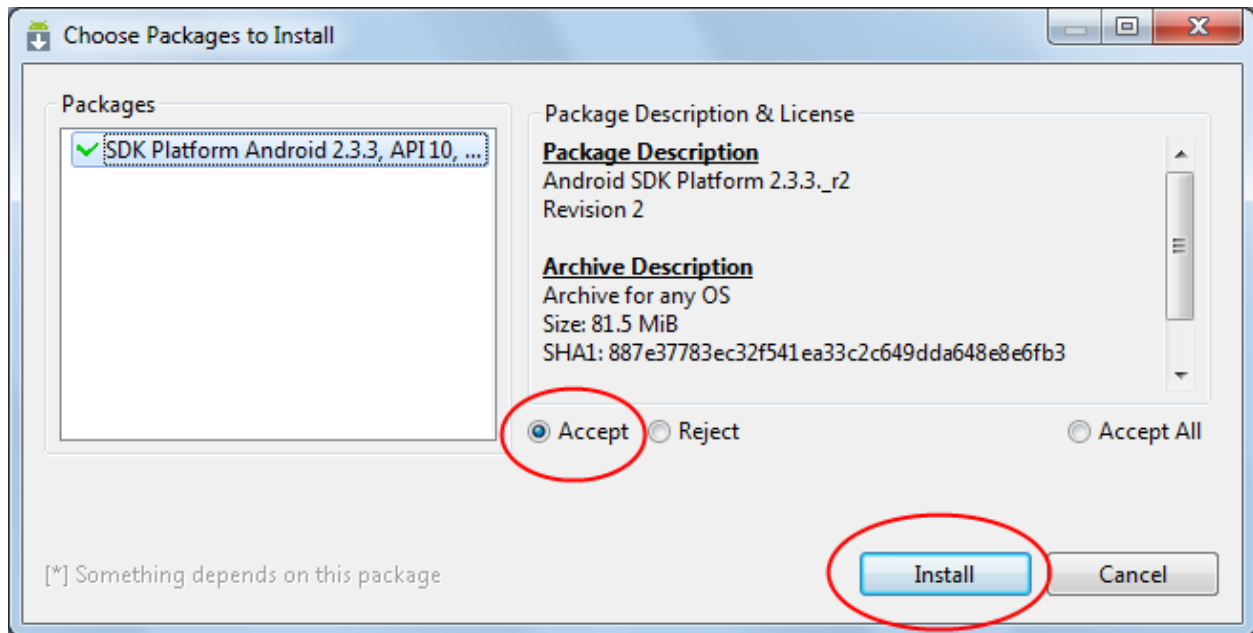
Click on "Accept" or "Accept All" to agree to the license terms for the SDK and then click on the "Install" button. The status of the download and installation will then appear at the bottom of the Android SDK Manager window:
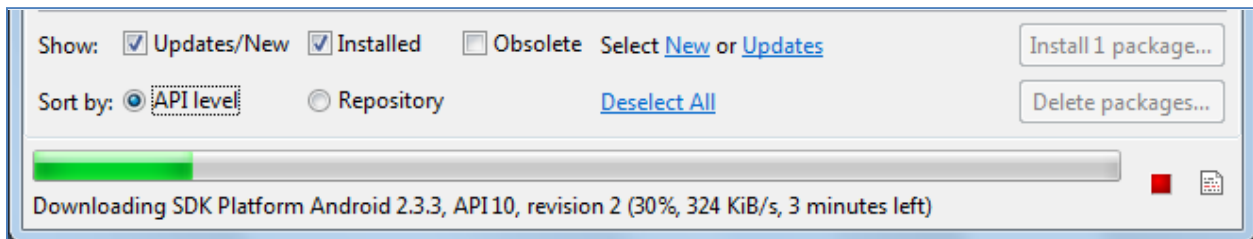
When the installation is complete, you will see the message "Done loading packages" at the bottom of the screen and the SDK Platform for Android 2.3.3 will show as "Installed" in the main list:
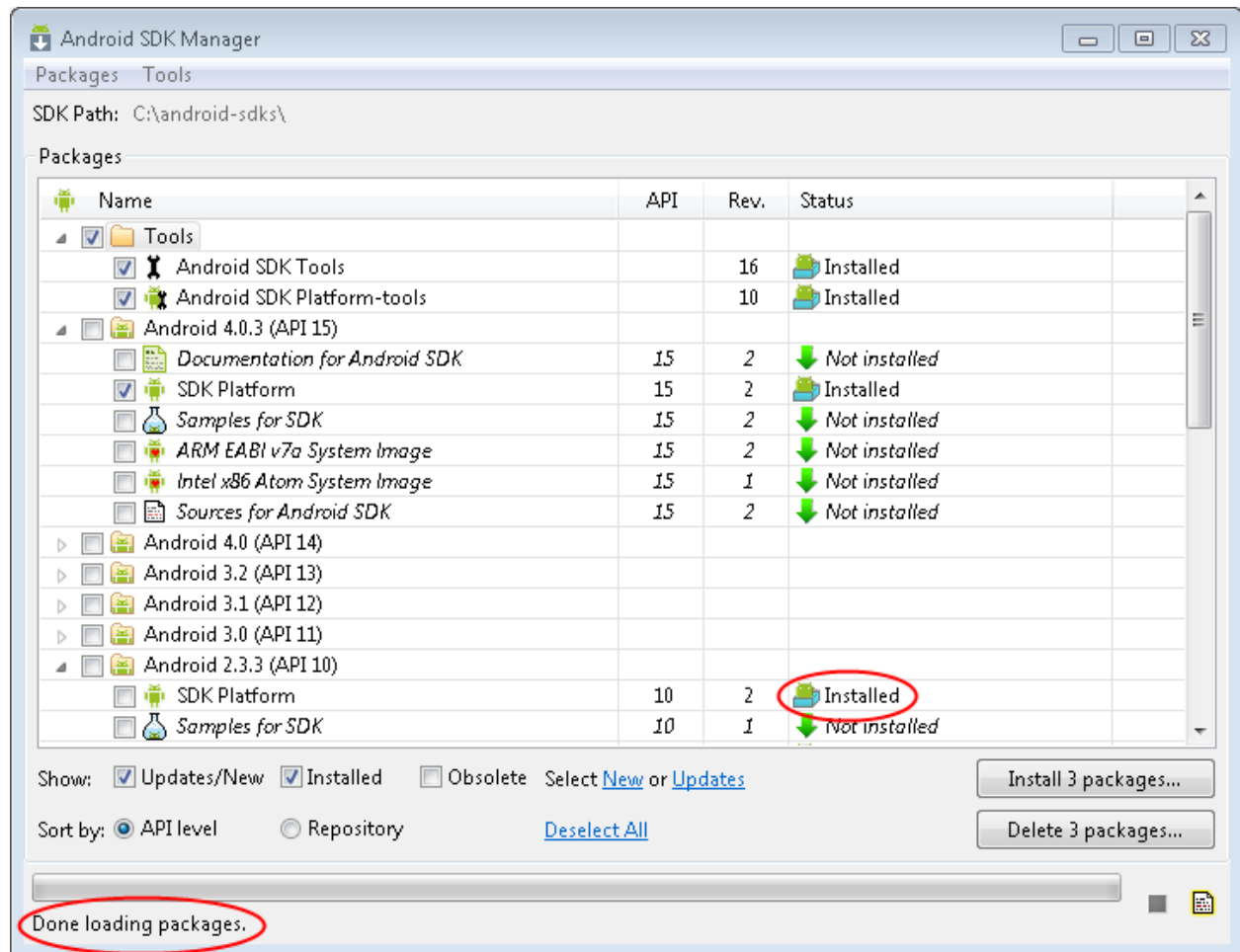
You can click the red "X" in the top-right corner to close this window.

Congratulations, you are now finished installing and configuring the Android SDK! You do not need to complete any of the further sections in this document under "Manually Installing the Android Software Development Kit".

Manually Installing the Android Software Development Kit

If for any reason, you were not able to complete the automatic download and installation of the Android SDK in the Eclipse software, you will need to complete this process manually.

Note that these instructions are ONLY needed for those who were not able to install the Android SDK using the steps in the last section. If you have already installed the Android SDK, please skip this section!

Since you must enter an existing directory location, and the Android SDK directory does not exist yet, first run the Windows Explorer program and create the following directories:
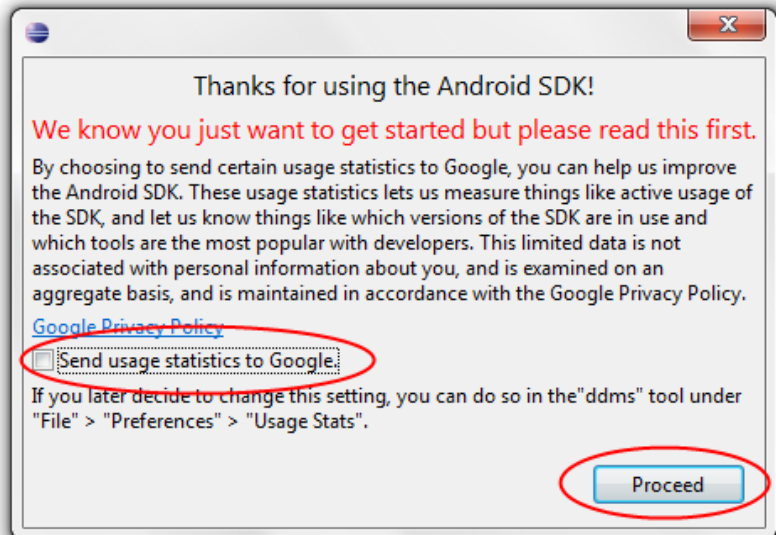
- C:\android-sdk
- C:\android-sdk\tools
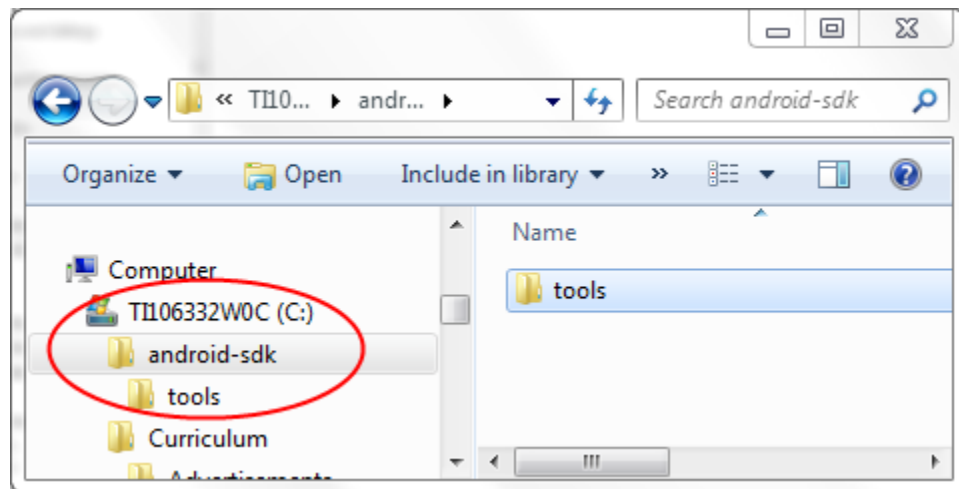
To create a new directory in Windows Explorer, right-click on the parent directory such as "C:" and select "New Folder", and then type in the new folder name. Repeat the process by selecting the "android-sdk" folder and adding a "tools" sub-folder name. When you are done your empty directory structure should match the above image.

Next, you will need to set the install location of the Android ADK. To do this, from the Eclipse menu select Window → Preferences → Android.

When you first click on the Android area, you may get a pop-up from Google about usage statistics. You can un-check the box and click Proceed.

You can now enter the location for your Android SDK files in the "SDK Location" area on the right side of the screen. Type in "c:\android-sdk" and click "Apply".
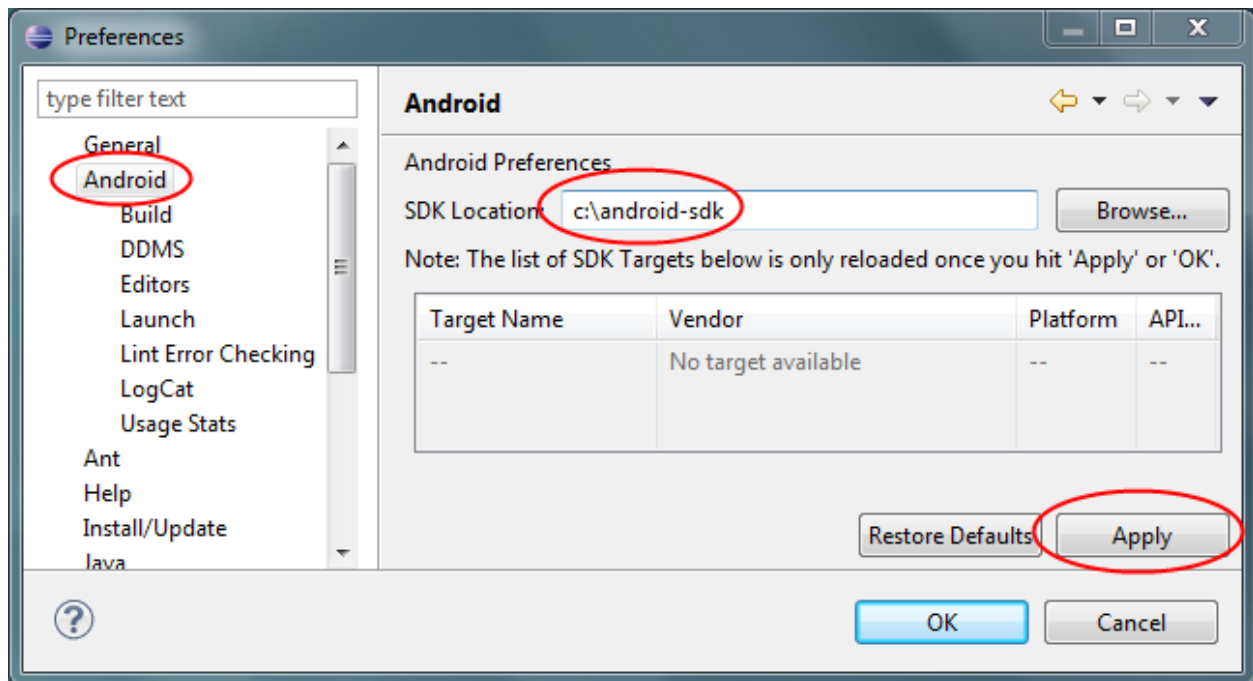
When you click "Apply", you may get one or more pop-up messages indicating you are missing some Android SDK components (and you are, this is what we're installing manually!). Click the "Open SDK Manager" button to continue.
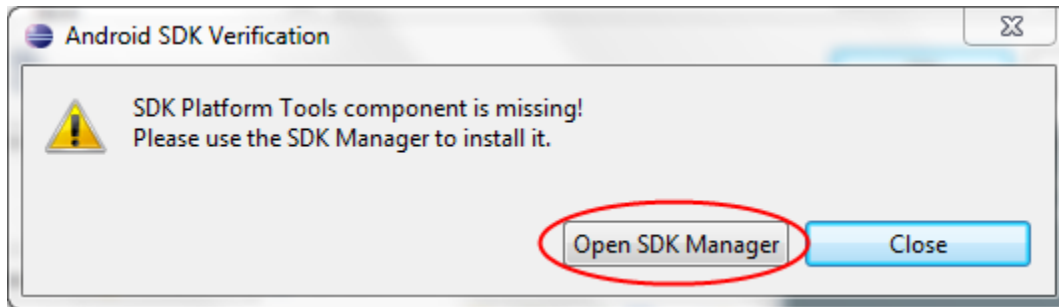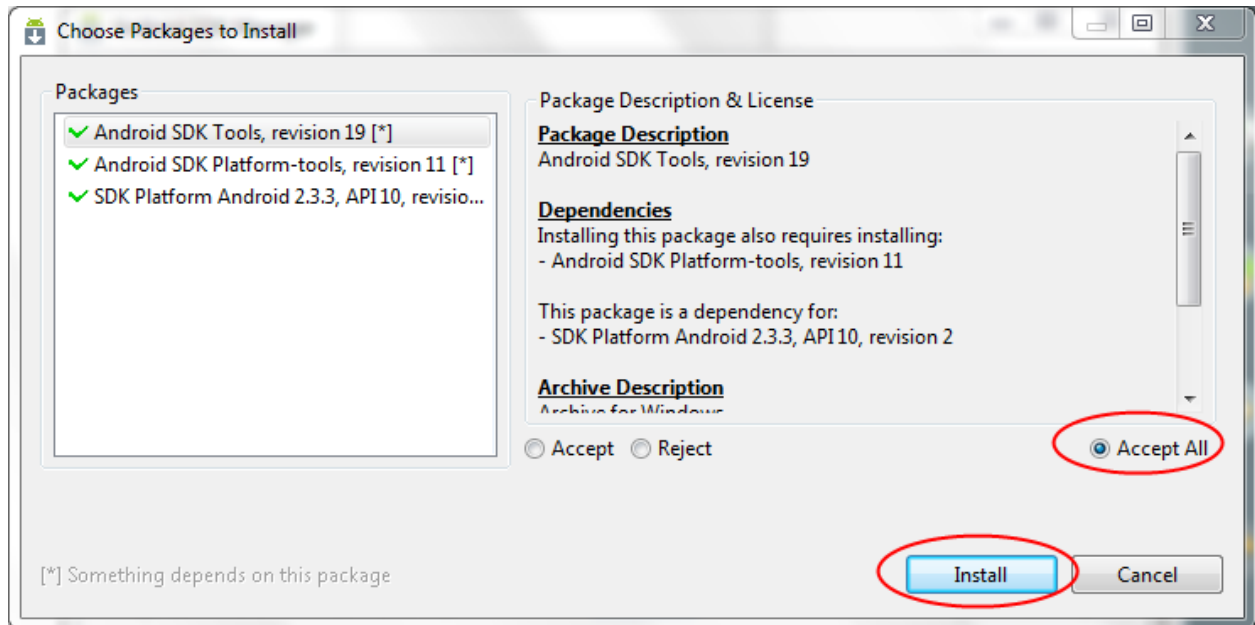

You can also select "Window → Android SDK Manager" from the Eclipse menu if you close these pop-ups accidentally.

Now, click "Deselect All" to clear any prior selections, and then drill down until you can check the "SDK Platform" for the "Android 2.3.3 (API 10)" element. Then click "Install 1 package…".
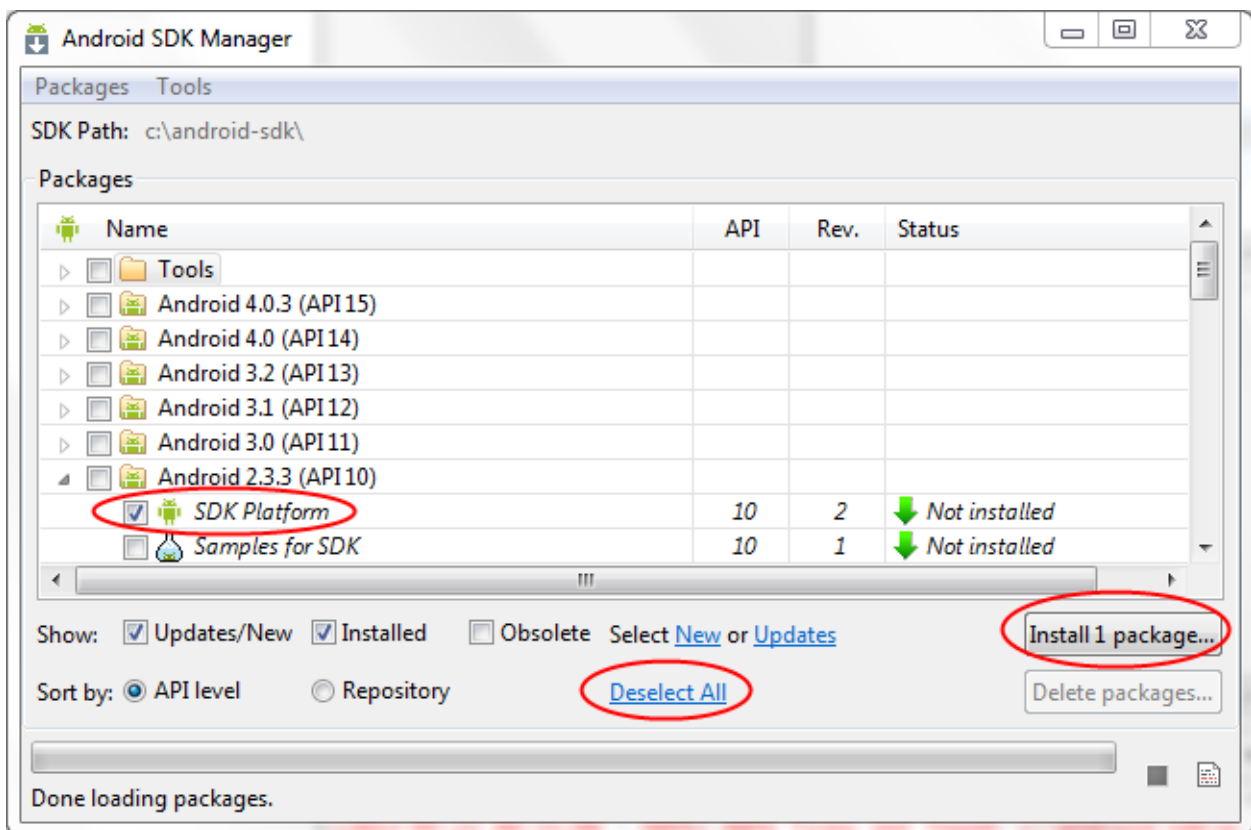
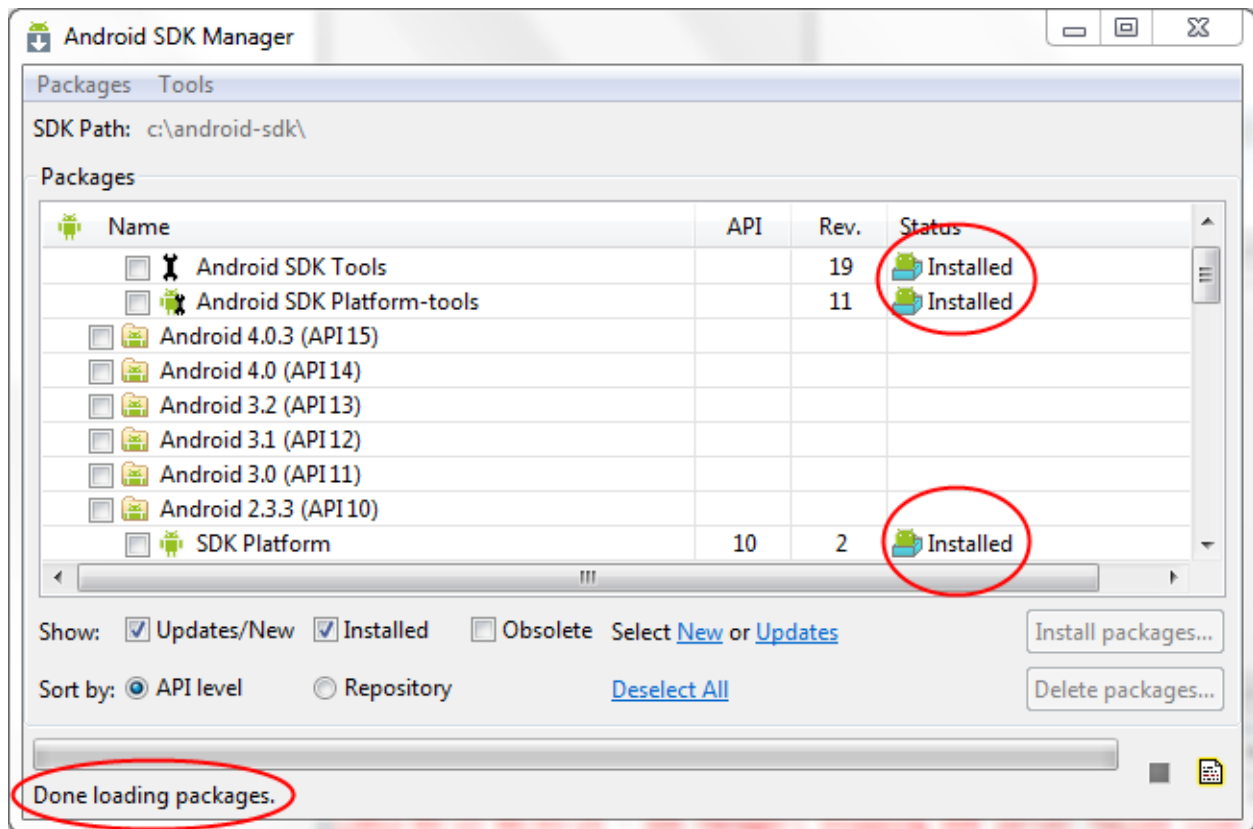On the license screen, select "Accept all" and then click "Install".

At this point, the SDK will be downloaded from the Internet and installed on your computer. This process can take anywhere from a few minutes to 10 minutes or more, depending on the speed of your Internet connection.
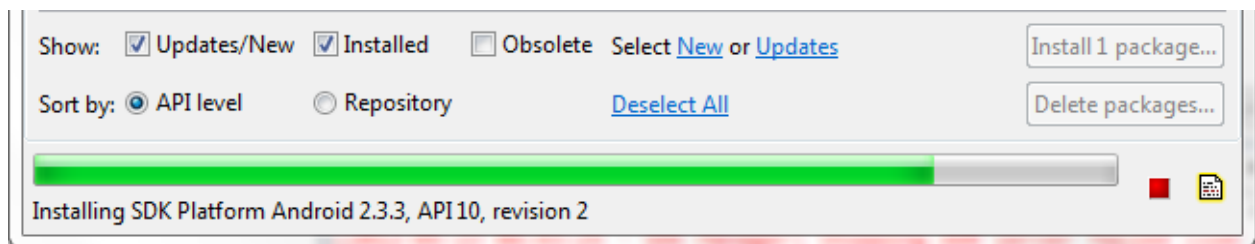
NOTE: If you wish to develop for Android 4.0.3 or other operating system versions, you can repeat this process and also install those SDKs.

Once the progress bar dialog disappears, you will see "Done loading packages" at the bottom of the Android SDK Manager, and the word "Installed" next to the three major packages that were downloaded. You can now close the Android SDK Manager window.

Congratulations, you are now finished installing and configuring the Android SDK!